Instruction Manual

Tektronix

VITS 201
PAL Insertion Generator

070-7385-02

Please check for change information at the rear of this manual.

Printed in the U.S.A.

Tektronix, Inc., P.O. Box 1000, Wilsonville, OR 97070–1000

WARRANTY

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In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, with shipping charges prepaid. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

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EC Declaration of Conformity

We

Tektronix Holland N.V.
Marktweg 73A
8444 AB Heerenveen
The Netherlands

declare under sole responsibility that the

VITS 201

meets the intent of Directive 89/336/EEC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:

EN 50081-1 Emissions:

EN 55022	Class B Radiated and Conducted Emissions

EN 50082-1 Immunity:

IEC 801-2	Electrostatic Discharge Immunity
IEC 801-3	RF Electromagnetic Field Immunity
IEC 801-4	Electrical Fast Transient/Burst Immunity

High-quality shielded cables must be used to ensure compliance to the above listed standards.

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SAFETY SUMMARY

The general safety information in this summary is for both operating and servicing personnel. Specific warnings and cautions will be found throughout the manual where they apply, but may not appear in this summary.

TERMS

In this manual

CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

As marked on equipment

CAUTION indicates a personal injury hazard not immediately accessible as one reads the marking, or a hazard to the equipment or other property.

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

SYMBOLS

In this manual


This symbol indicates where applicable cautionary or other information is to be found.

As marked on equipment


DANGER – High voltage.


Protective ground (earth) terminal.


ATTENTION – refer to manual.

Power source

This product is intended to operate from a power module connected to a power source that will not apply more than 250 volts rms between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Ground the product

This product is grounded through the grounding conductor of the power module power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective ground connection by way of the grounding conductor in the power module cord is essential for safe operation.

Danger arising from loss of ground

Upon loss of the protective ground connection, all accessible conductive parts (including knobs and controls that may appear to be insulated) can render an electric shock.

Use the proper fuse

To avoid fire hazard, use only the fuse of correct type, voltage rating, and current rating, as specified in the parts list for the product. Refer fuse replacement to qualified personnel.

Do not operate in explosive atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

Do not operate without covers

To avoid personal injury, do not remove the product's covers or panels. Do not operate the product without its covers and panels properly installed.

Do not service alone

Do not perform internal service or adjustment of this product unless another person capable of rendering first aid and cardio-pulmonary resuscitation is present.

Power supply shield

The plastic shield on the Power Supply board is required for protection from dangerous potentials that are present on the board. This shield must be in place at all times when operating the instrument.

Section 1
Introduction

The VITS 201 PAL Insertion Generator

The VITS 201 is a PAL vertical interval test signal generator and inserter that offers advanced features in a high-quality, low-cost package.

The VITS 201 can be programmed to insert test signals onto any video line from line 17 through 30 and 319 through 343. The test signals can be any of 13 digitally generated internal signals, or inputs from any of 4 AC coupled and clamped or DC coupled external sources. Prior to S/N B040000 there were 5 external inputs, but one of the connectors is now used to provide the COMP SYNC output.

In addition, the VITS 201 provides a total of 16,384 unique source identification signals which are set using 16 DIP switches on the back panel of the instrument. These signals can be placed on any of the available lines in vertical blanking. These signals are also used by the VM 700A Video Measurement Set to identify sources on results from measurement routines.

If the incoming program video should fail, the VITS 201 can automatically generate a selected standby signal until the program input is restored. The standby signal can be one of 12 available full-field test signals, or video from an external input. The VITS 201 can also add user-selected text to the full-field standby test signal (internally generated).

The VITS 201 also features a delay-matched relay bypass that automatically switches incoming video signals to video output if power or the instrument itself should fail.

The VITS 201 can work with program video having sound-in-sync. It can also replace program sync and burst with new, internally generated sync and burst signals, if desired.

A software menu makes it easy to program the VITS 201 using momentary switches, DIP switches, and LED displays located inside the front panel. Programmed configurations are stored in non-volatile RAM to protect against power loss.

A remote control connector allows the bypass, standby enable, character enable, vertical interval character enable, and page select functions to be controlled through ground-closure switches. The remote control can include power, genlock, and bypass indicators.

Test signals

The VITS 201 uses digital signal generation and a 12-bit precision digital-to-analogue converter (DAC) to ensure that test signals are accurate and stable. By generating the composite PAL signal digitally, without analogue modulators, the VITS 201 is able to use a single DAC to inherently match chrominance and luminance timing. This ensures accurate SCH phasing.

The VITS 201 provides the following test signals:

- CCIR 17
- CCIR 18
- CCIR 330
- CCIR 331.G1
- CCIR 331.G2
- One Line ITS
- One Line ITS with Data
- 0% Luminance
- 100% Luminance
- UK ITS 1
- UK ITS 2
- 75% Colour Bars
- (Sin X)/X
- Source ID

The one line ITS signal combines a white bar, a 2T pulse, a luminance pedestal, and a 5-step signal. The One Line ITS with Data signal also combines several signals and, prior to S/N B030000, switches to the EXTERNAL 1 input for audio data. After S/N B030000 it switches to black during this time.

Colour bars are set at 75% amplitude, and use narrow blanking to help verify proper blanking throughout the system. Full-field test signals include a white pulse on line 7 of field 1 for colour frame identification.

In addition, the VITS 201 includes a 5.8 MHz, 100% amplitude line-sweep signal, which can be selected using the operational selection switch inside the front panel. This signal is used in manufacturing to adjust filters. No other test signals are available when the line sweep is selected.

Digital genlock

All test signals generated by the VITS 201 are correctly SCH phased, even if the instrument is locked to an improperly SCH phased program input. The VITS 201's digital genlock calculates sync timing and subcarrier phase to properly identify colour framing of the reference signal. The VITS 201 automatically senses composite video reference input, and, in the absence of a reference input signal, uses an internal crystal oscillator (contained in a constant temperature oven) to ensure that the output frequency remains stable.

Flexible timing control

The operational controls allow test signals to be phased relative to the program video. Timing is set during manufacturing, and normally never needs adjusting. Timing controls are activated through the operational selection switch inside the front panel.

Packaging

The VITS 201 has a rugged 1–3/4 inch package that makes it ideal for use where space is limited. It fits in any standard 19-inch rack, and can be mounted on rack slides.

Option 05 PAL-D

Option 05 modifies some of the characteristics of the VITS 201 test signals for use with 6 MHz PAL-D systems, while the standard instrument is for use with 5 MHz and 5.5 MHz systems. Option 05 uses different parts in the test signal memory to accomplish this, so make sure to check the parts list for the correct part numbers when ordering replacement PROMs. Option 05 is fully documented in this manual.

Option 10 Power up in Bypass mode

Option 10 modifies the power up sequence of the VITS 201, as follows: The VITS 201 will power up in Bypass mode. After the power up diagnostics are finished the VITS 201 will switch to Operate mode if there is a signal available at the PROGRAM IN connector. If there is no signal at PROGRAM IN, the VITS 201 will remain in Bypass mode waiting to acquire lock until the delay time set by R256 elapses. The VITS 201 then switches to Standby mode Option 10 uses a different PROM in the H Timing Decoder, so make sure to check the parts list for the correct part number when ordering a replacement PROM. Option 10 fully documented in this manual.

Section 2
Installation

This section describes how to install the VITS 201 in rack mounts, gives power supply frequency and voltage range specifications, and lists all jumpers and their functions.

Packaging

Figure 2–1 shows the packaging material the VITS 201 is shipped in. Save these materials in case the instrument needs to be shipped again.

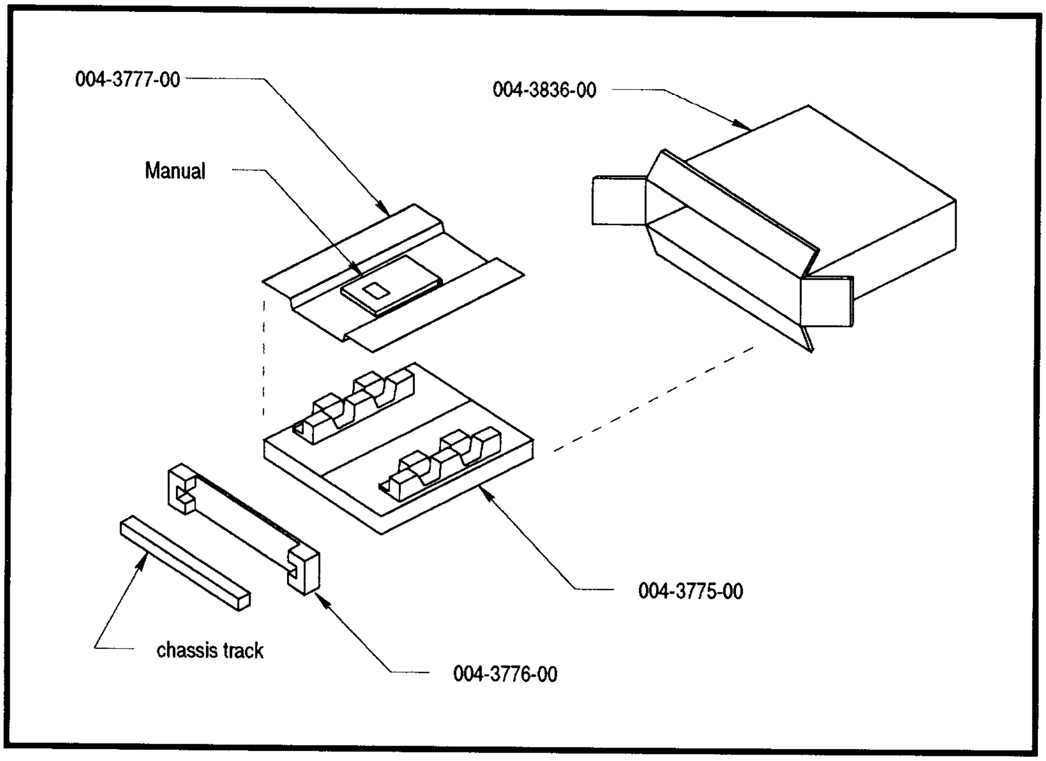


Figure 2–1. Packaging material.

Installing and removing the VITS 201

The VITS 201 will fit in any standard 19-inch rack, and can be mounted in rack slides for easy access (all hardware required for rack mounting is included). Rack slides require 19 inches clearance between the front rails of the rack, and a front-to-rear rail spacing between 18 and 28 inches. Also, 2 inches of clearance is required between the instrument's rear panel and any rear cabinet panel to provide connector space and adequate air circulation.

The tracks of the VITS 201 are coated with a dark grey permanently lubricated finish. The tracks do not require lubrication or other maintenance.

Mounting the slide tracks

Install the slide tracks in the holes spaced 0.625 inches apart, as shown in Figure 2–2. (Notice that the hole pattern may vary between racks.)

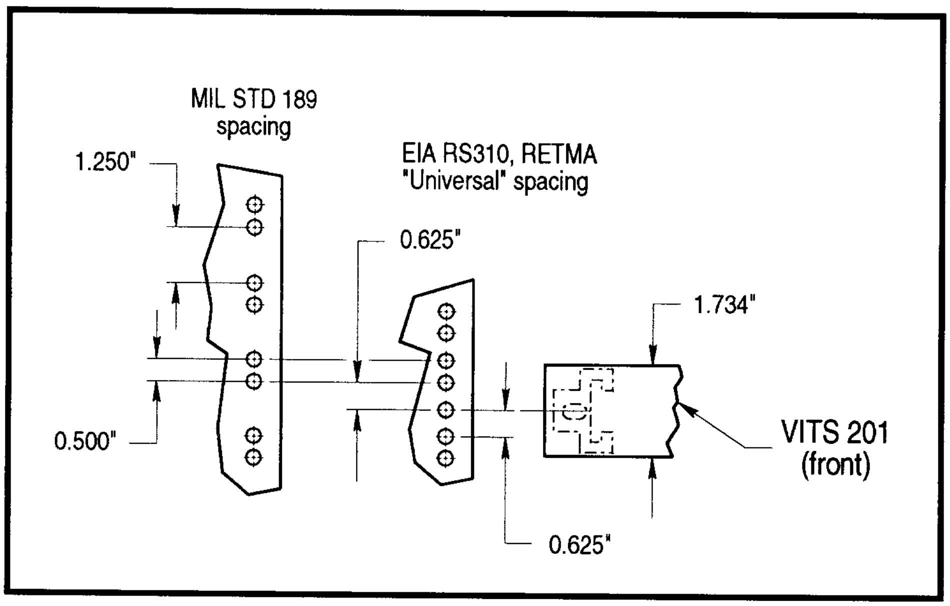
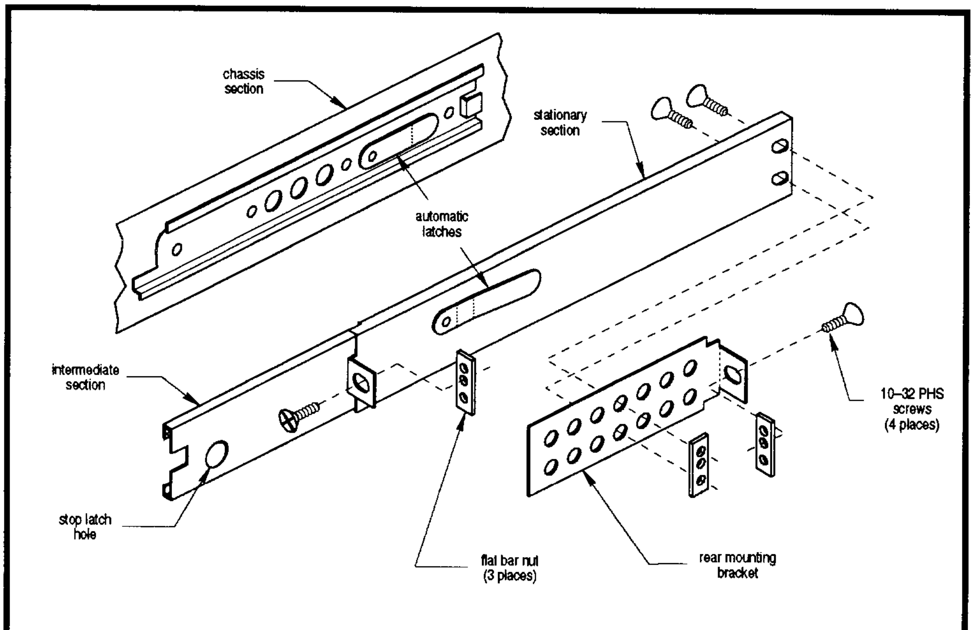


Figure 2–2. Rail detail.

Mount the rails as shown in Figures 2–3 and 2–4. The stationary sections must be horizontally aligned, level, and parallel.



NOTE
Right and left hand stationary sections are designated respectively by the RH and LH marked on the rails. Stop latch holes should be toward the bottom when slides are in place. (The right hand rail is shown.)

Figure 2–3. Rack mounting assembly.

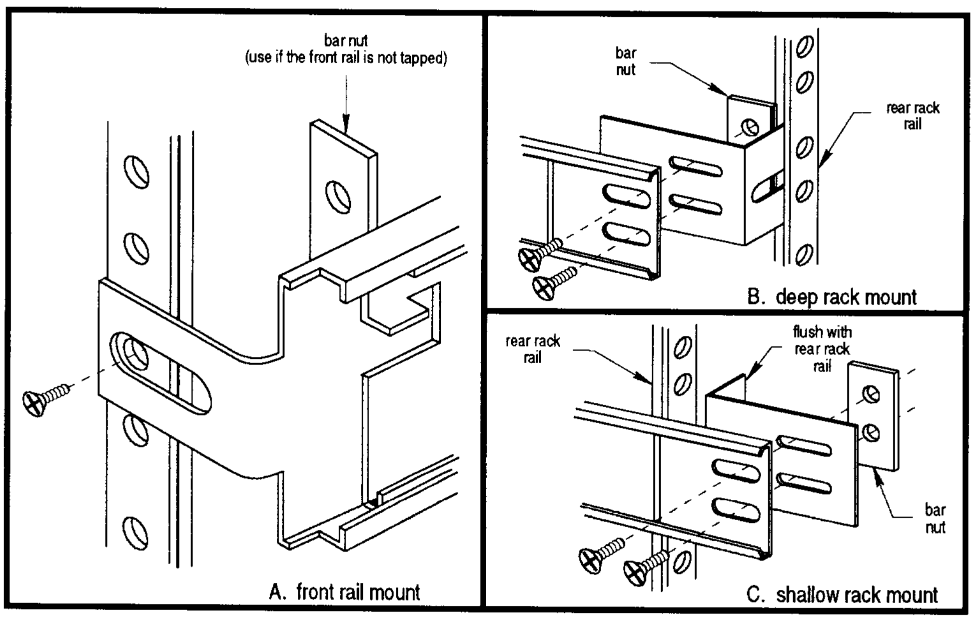


Figure 2–4. Mounting details.

Installing the instrument

Install the VITS 201 in the rack as follows.

1. **Pull the slide-out track section to its fully extended position, as shown in Figure 2-5, below.**

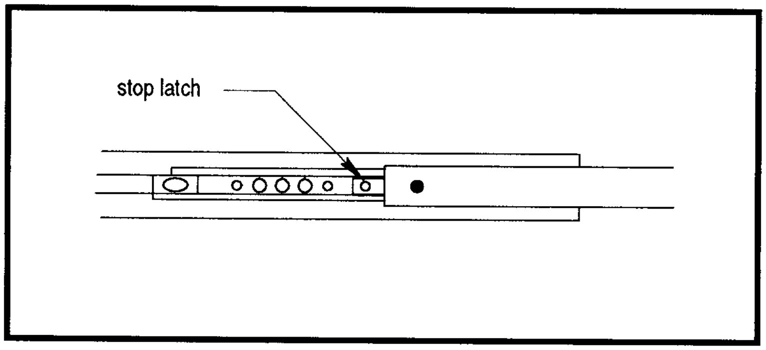


Figure 2–5. Extended track.

NOTE

The front panel release handles are for removing the front panel only. They are not to be used for moving or carrying the instrument.

2. **Remove the front panel by pressing the front panel release handles toward each other and pulling the front panel away from the instrument.**
3. **Insert the instrument chassis sections into the slide-out sections of the track.**
4. **Press and hold the stop latches, and push the instrument into the rack until the stop latches snap into their holes, as shown in Figure 2-6, following.**

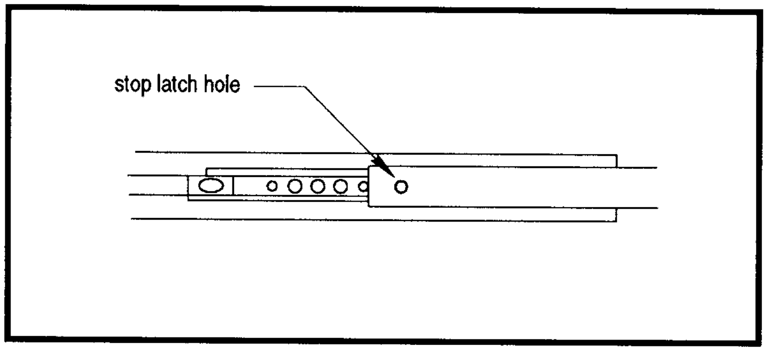


Figure 2–6. Stop latch engaged.

5. **Press and hold the stop latches again, and push the instrument fully into the rack.**
6. **Install the retaining screw.**
7. **Replace the front panel.**

Adjusting the slide tracks

The slide tracks may bind if not adjusted properly. Adjust the tracks as follows:

1. **Slide the VITS 201 forward about 10 inches.**
2. **Slightly loosen the screws holding the slide tracks to the front rails of the rack, and allow the tracks to seek an unbound position.**
3. **Tighten the screws, and check the tracks for smooth operation by sliding the instrument back and forth several times.**
4. **Install the retaining screw.**

Removing the VITS 201

Be sure that all cables are disconnected before removing the VITS 201 from the rack. Remove as follows:

1. **Remove the front panel.**
2. **Loosen the retaining screw.**
3. **Pull the instrument out until all three slide sections latch. The instrument is firmly held in this position.**
4. **Press both release-latch buttons (visible in the stop-latch holes) and carefully slide the instrument free from the tracks.**

Power supply frequency and voltage ranges

The VITS 201 power supply operates over a line frequency range of 48 to 62 Hz, and a line voltage of either 90 to 132 V or 180 to 250 V, depending on the setting of jumper J580 on the power board. As it leaves the factory, the VITS 201 is set to operate on 180 to 250 V, and the installed fuse is 0.8 A, medium blow. A 1.6 A fuse for operation on 90 to 132 V is included in the accessory package. Table 2-1 shows recommended fuse values and voltage ranges associated with the various power cord options.

Table 2–1.

Jumper settings for power cord options.

Power cord options	Fuse rating	J580, power supply (115/230V Select)
Standard North American	1.5 amp medium blow.	Pin 1 aligned with 115V.
Option A1 (Universal Euro), Option A2 (UK), Option 3 (Australia)	0.8 amp medium blow.	Pin 1 aligned with 230V.

Jumper tables

The following tables list all jumpers contained in the VITS 201. In all cases, an arrow ▼ on the circuit board identifies pin 1. Numbers in < > brackets refer to schematics.

The first table lists jumpers used to select operating modes. These jumpers are green. The second table lists jumpers used in manufacturing and testing the instrument. These jumpers are red, and should only be used by qualified maintenance personnel.

Table 2–2.

Operating mode jumpers (green).

Function	No.	Description	Factory setting
Text Mode	J39 < 9 >	Pins 1–2: Disables page A select switch (puts instrument in two-page mode: see Section 3). Pins 2–3: Enables the page A select switch (puts instrument in four-page mode).	Pins 1–2.
Sound-in-Sync	J40 < 3 >	Pins 1–2: Allows the VITS 201 to work without sound-in-sync (the VITS 201 won't genlock with sound-in-sync). Pins 2–3: Allows the VITS 201 to work with sound-in-sync.	Pins 1–2.
External Clamp	J41 < 12 >	Pins 1–2: Enables external input clamps (when genlocked). Pins 2–3: Disables external input clamps (J47 should be set to pins 2–3).	Pins 1–2.

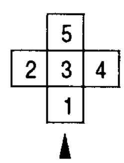
Table 2–2 (continued).
Operating mode jumpers (green).

Function	No.	Description	Factory setting
External Coupling	J47 < 12 >	Pins 1–2: Allows internal control of DC or AC coupling, determined by genlock status (AC coupled & clamped when genlocked). Pins 2–3: Forces DC coupling.	Pins 1–2.
Test Signal Offset	J48 & J49 < 4 >	Test signal counter offset: provides various loads to counters; performs genlock offset; extends range of genlock timing (enabled by Operational Selection switch segment 8) according to the following pin settings: J48 — J49 — Clock Cycles offset 1–2 — 1–2 — 0 1–2 — 2–3 — 1 2–3 — 1–2 — 2 2–3 — 2–3 — 3	J48: pins 2–3. J49: pins 1–2.
PAL/SECAM Select	J51 < 3 >	Pins 1–2: Genlocks to PAL Signal. Pins 2–3: Genlocks to SECAM Signal (Sync Lock only).	Pins 1–2.
Standby Mode	J52 < 4 >	Pins 1–2: Delay Standby. Delay time is controlled by R256. Pins 2–3: Immediate Standby.	Pins 1–2.
Comp Sync Amplitude	J53 < 12 >	Pins 1–2: 4 V Comp Sync Output. Pins 2–3: 2 V Comp Sync Output.	Pins 1–2.
Power Up Mode	J54 < 4 >	Pins 1–2: Powers up in Bypass Mode and remains there until genlocked. Pins 2–3: Powers up in Standby Mode.	Pins 1–2.
Sync/Sync & Burst Select	J55 < 10 >	Pins 1–2: Inserts Sync & Burst. Pins 2–3: Inserts Sync Only.	Pins 1–2.

Table 2–3.
Test jumpers (red).

Function	No.	Description	Factory setting
Hardware Watchdog	J2 < 2 >	Pins 1–2: Normal operating position. Pins 2–3: Resets the microprocessor (J3 must be on pins 1–2).	Pins 1–2.
Reset	J3 < 2 >	Pins 1–2: Provides reset to microprocessor (monitors VCC, watches for power surges, etc.). Pins 2–3: Forces hard reset. Pins 3–4: Disables microprocessor reset.	Pins 1–2.
Field Reference	J32 < 3 >	Pins 1–2: Enables decoded field reference pulse. Pins 2–3: Disables pulse.	Pins 1–2.
25 Hz Offset	J8 < 5 >	Pins 1–2: Enables 25 Hz offset. Pins 2–3: Disables offset.	Pins 1–2.
Chrominance	J9 < 5 >	Pins 1–2: Normal operating position. Pins 2–3: Test only.	Pins 1–2.
DAC Filter Connect	J19 < 6 >	Pins 1–2: Connects test signal filter to DACs. Pins 2–3: Disconnects filter and grounds filter input.	Pins 1–2.

Table 2–3 (continued).
Test jumpers (red).

Function	No.	Description	Factory setting
Filter Group Delay Connect	J20 < 6 >	Pins 1–2: Connects filter to sinx/x and group delay correction stages of filter. Pins 2–3: Disconnects and grounds input.	Pins 1–2.
VCO Test	J21 < 8 >	Pins 1–3: Sets VCO control voltage to mid-range (ground) so VCO can be tuned to 4Fsc with C387. Pins 2–3: Microprocessor controls genlock loop response. Pins 4–3: Fixed test voltage (–5 V) decreases VCO frequency. Pins 5–3: Fixed test voltage (+5 V) increases VCO frequency. Pin positions: 	Pins 2–3.
Oven Heater	J34 < 8 >	Pins 1–2: Enables oven heater. Pins 2–3: Disables oven heater.	Pins 1–2.

Section 3
Operating Instructions

This section describes the VITS 201 and explains how to program and operate it using the controls located behind the front panel and on the rear panel, or by remote control.

The front panel

The VITS 201 front panel is shown in Figure 3–1.

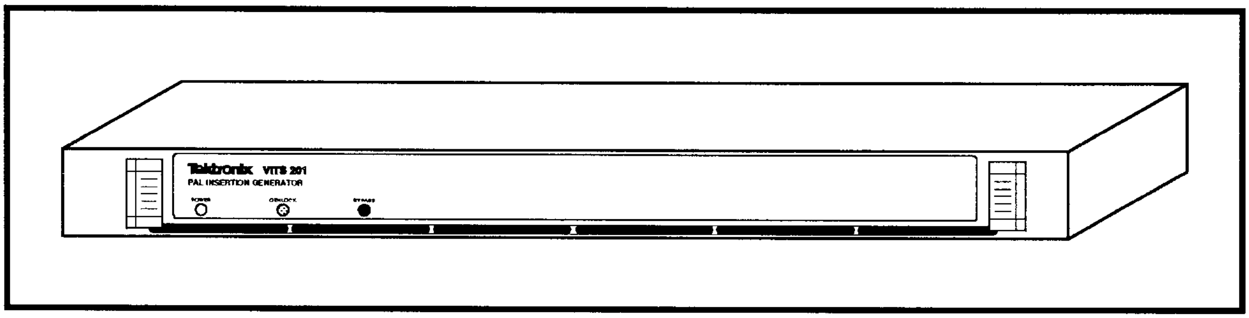


Figure 3–1. The VITS 201.

The operational controls are located immediately behind the front panel. To gain access to the controls, remove the front panel by pressing the front panel release handles toward each other, and pull the front panel straight away from the VITS 201.

NOTE

The front panel release handles are for removing the front panel only. They are not to be used for moving or carrying the instrument.

Operational controls

The operational controls consist of the bypass toggle switch, the Operational Selection switch, six momentary switches, three LED indicator lights, and four LED displays, as shown in Figure 3–2.

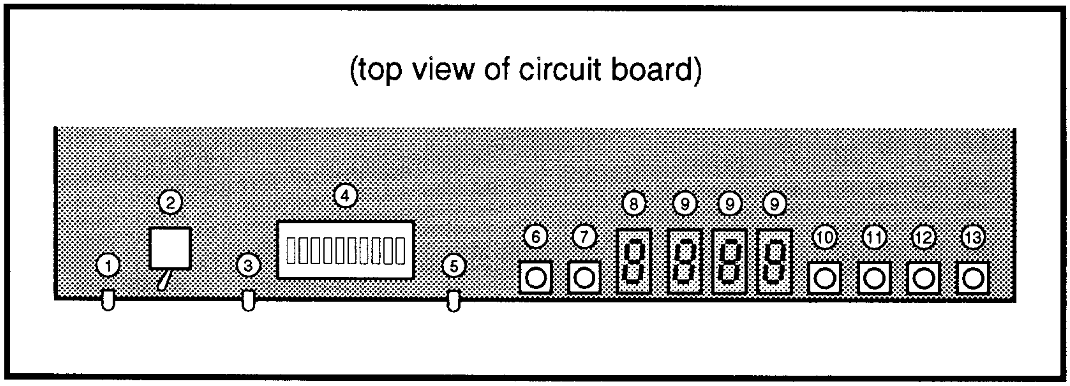


Figure 3–2. Operational controls.

The functions of the controls are as follows:

(1) POWER indicator LED. When lit, this green LED shows that the VITS 201 is receiving AC power and that the 5V power supply is working.

(2) Bypass mode toggle switch. This switch puts the VITS 201 in bypass mode (described in *Bypass mode*, later in this section).

(3) UNLOCKED indicator LED. This yellow LED lights when the VITS 201 is not genlocked to the incoming video.

(4) Operational Selection switch. The segments of this switch have a number of functions, as described in Table 3–1.

(5) BYPASS indicator LED. This red LED indicates that the VITS 201 is in bypass mode (see *Bypass mode*, later in this section).

(6) <Enter> momentary switch. This switch is used to save the selected configuration to memory (for more information on the momentary switches, see *Programming the VITS 201*, later in this section).

7 <Function> momentary switch. This switch is used to select programming functions from the programming menu.

8 Function display. This LED readout shows the currently selected programming function (for more information on the LED displays, see *Programming the VITS 201*, later in this section).

9 Selection displays. These show the current programming selection (line number, signal number, etc.). In addition, the left-most display shows the sub-menu selection when programming the standby signal.

10 <Increment> momentary switch. This is used in programming to ascend through lists of available selections.

11 <Decrement> momentary switch. This switch is used to descend through the available selections.

12 <Right> momentary switch. In programming characters, this switch moves the character-select cursor to the right across the monitor screen.

13 <Down> momentary switch. In programming characters, this switch moves the character-select cursor down the monitor screen.

The Operational Selection switch

The Operational Selection switch serves a number of functions, both in programming and in normal operation. The functions of its segments are given in Table 3–1. Functions are activated by opening their associated segment(s). (A segment is in its open position when its forward end is down.)

Table 3–1.
Operational Selection switch (S11).

Segment	Function
1	Enables sync and burst regeneration (new sync and burst is inserted into program video). After SN B040000 jumper J55 is used in conjunction with this, to select whether sync and burst or sync only is inserted into program video. This function can be used to delete a sound-in-sync signal.
2	Enables the standby signal at program signal failure (standby mode). If closed, bypass results at program failure. See *Standby mode*, later in this section.
3	Enables full–page characters in standby mode. See *Enabling the full-page text signal*, later in this section.
4	Enables the vertical interval characters when locked to program video. See *Enabling the vertical signal*, later in this section.
5	Page select A, used in conjunction with switch 6 to select one of the four full-page text displays to be programmed or included in the standby signal. See *Text signals* and *Enabling the full-page text signal*, later in this section. **Note**: Moving jumper 39 to pins 1–2 disables this switch. See *Two- and four-page modes*, later in this section.
6	Page select B.
7	Enables a test signal used for adjusting filters in manufacturing the box. The test signal consists of a full amplitude sweep to 5.8 MHz, and is stored in a separate section of the ROM.
8	Enables genlock phase adjustment in conjunction with segment 10 (see Genlock phasing, later in this section). This allows the user to vary the phase of the test signal relative to the phase of the incoming program signal.
9	Enables the diagnostics routines (see Section 5, *Diagnostics*).
10	Enables programming. This switch must be open in order to program the VITS 201. When the switch is closed, the configuration of the instrument can be read but not altered.

The rear panel

The rear panel, shown in Figure 3–3, contains the following:

- connections for program input and output, a monitor output, a comp sync output, the remote control connector, and 4 external inputs. Prior to SN B040000, the comp sync connector was used as an additional external input (EXTERNAL 5).
- the source ID signal selector DIP switch.
- the power switch, the AC power connector, and a fuse.

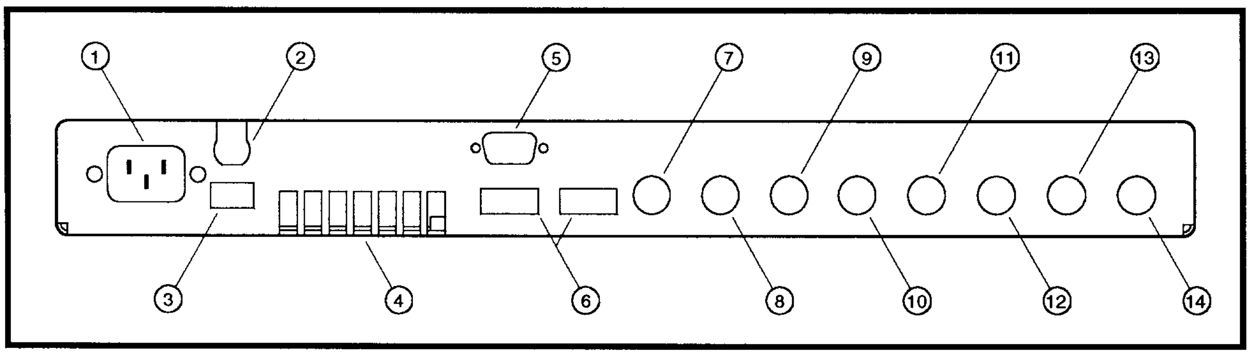


Figure 3–3. Rear panel.

The rear panel controls and connectors function as follows:

(1) AC power connector.

(2) FUSE (see Table 2–1).

(3) POWER switch.

4. Ventilation slots.

5. REMOTE CONTROL connector. This 15-pin connector allows remote control of the VITS 201's functions (except programming). See *Remote operation*, later in this section.

6. SOURCE IDENTIFICATION signal selector switches (see *Source ID signals*, later in this section).

7. COMP SYNC. Outputs composite sync. This is to lock another device to the VITS 201, such as a teletext generator, so that it will remain locked if the program video fails. When used for teletext, the teletext generator output should be connected to EXTERNAL 3 or EXTERNAL 4 for continued operation during program video failure. Prior to SN B040000 this connector was used as an additional external input (EXTERNAL 5).

8. EXTERNAL 4. The four external input connectors accept signals from external video sources. These signals are internally multiplexed and can be inserted into the program material. These inputs are AC coupled and clamped or DC coupled, depending on genlock condition or jumper selection.

9. EXTERNAL 3.

10. EXTERNAL 2.

11. EXTERNAL 1.

(12) MONITOR. This puts out signals identical to those of PROGRAM OUT, except on power loss or failure of the VITS 201, when no signal is sent.

(13) PROGRAM OUT. Outputs clamped video signals from the PROGRAM IN, with any user-selected test signal or video from one of the five external inputs inserted. If the program video fails, it outputs a full-field test signal (with or without characters) or external input, as programmed. If power is lost or the VITS 201 fails, the incoming program signal is put out intact.

(14) PROGRAM IN. Program video input. The video is internally AC coupled and clamped to ground.

Programming the VITS 201

The VITS 201 is configured at the factory to have a basic set of ITS test signals. These signals (and the line each is installed on) are as follows:

- 100% luminance (F1L7)
- CCIR 17 (line 17)
- CCIR 18 (line 18)
- UK ITS 1 (line 19)
- UK ITS 2 (line 20)
- CCIR 330 (line 330)
- CCIR 331.G1 (line 331)
- UK ITS 1 (line 332)
- UK ITS 2 (line 333)

The VITS 201 is easily programmed by using the operational momentary switches and LED displays to select desired functions from a menu. This menu is charted in Figure 3–4. Refer to this chart for help in remembering what "path" to take to perform a particular programming following.

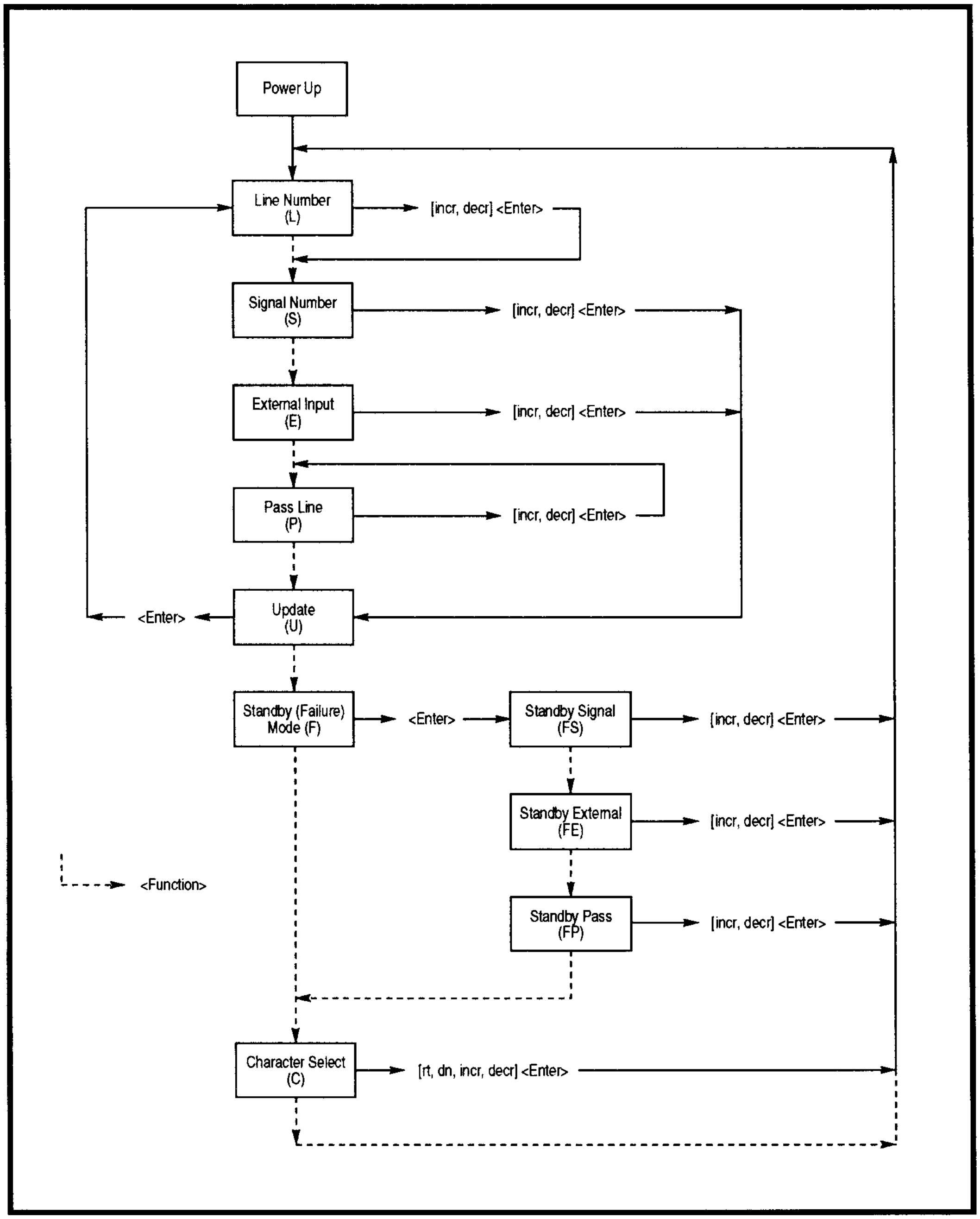


Figure 3–4. Programming menu.

The dashed paths in the menu chart are used by pressing the <Function> momentary switch. The solid paths are taken by pressing the keys indicated in brackets. The letters in parentheses indicate what the first LED display (number ⑧ in Figure 3–2) shows when that function is selected.

Programming essentially consists of 2 basic tasks:

- adding test signals to the video output.
- selecting the signal to be used when the incoming program video is lost.

Both these tasks are discussed in detail in the following pages.

NOTE

Before the VITS 201 can be programmed, segment 10 of the Operational Selection switch must be opened. If left closed, the system's current configuration can be read, but cannot be changed. Once programming is finished, segment 10 should be closed again.

Programming line signals

The VITS 201 can insert test signals on lines 7 through 30 and 319 through 343 of the outgoing signal. Each line can be programmed to carry one of 14 internal test signals, or signals from any of the 5 external inputs.

Each line can only carry a single signal. If more than one signal is added to a line, only the last signal added is retained.

The general procedure for programming line signals is as follows:

1. The line to be programmed is selected.
2. A signal (internal or external) is selected and attached to the line, or the line is cleared of any signals already attached to it.

These steps are described in detail in the following pages.

Selecting a line

The first step in programming a line is to select the desired line. This is done as follows:

1. Enable programming by opening segment 10 of the Operational Selection switch.
2. Press <Function> until **L.** appears (if it does not already). The function LED display (number ⑧ in Figure 3–2) shows **L.** followed by the number of the last line programmed.
3. Press <Increment> and <Decrement> to move through the line numbers. The numbers (7 through 31 and 319 through 343) are displayed in the LEDs (⑨ in Figure 3–2).
4. When the desired line number appears in the display, press <Enter> to select that line. **S.** appears, along with the number of the signal already programmed on that line (if any).

Selecting a signal

Table 3–2 lists the internal test signals provided with the VITS 201.

Table 3–2.
VITS 201 line test signals.

1. 0% luminance (black)	8. UK ITS 2
2. 100% luminance (white)	9. One Line ITS
3. CCIR 17	10. CCIR 331.G2
4. CCIR 18	11. 75% Colour Bars
5. CCIR 330	12. (Sin X)/X
6. CCIR 331.G1	13. One-line ITS with data
7. UK ITS 1	14. Source ID signals

Insert a test signal on a selected line as follows:

1. Select a line as described in steps 1–4, above. **S.** appears in the LED display.
2. Use <Increment> and <Decrement> to select the desired signal number from the above table. The signal numbers appear in the LED displays.
3. Press <Enter>. **U.P.** appears in the LEDs.

   U.P. (for **up**date) means that the changes indicated are ready to be entered into the VITS 201's non-volatile memory.
4. Press <Enter> to save the new configuration in non-volatile system memory. The display flashes **done** briefly, then displays **L.** and the selected line number.

Selecting an external input

Selected lines can also be programmed to carry signals from any of the 5 external inputs. Do this as follows:

1. Select a line as described above.
2. When **S**. appears, press <Function> once. **E**. appears in the LED display.
3. Use <Increment> and <Decrement> to select the desired external input (1 through 5), and press <Enter>. **U.P**. appears in the display.
4. Press <Enter> to save the changes to memory. The display flashes **done**, and **L**. and the line number reappear.

Passing a line

Passing a line removes any test signals or external inputs programmed into it, and allows program video to pass through. Pass lines as follows:

1. Press <Function> until **P.** appears in the display.
2. Use <Increment> and <Decrement> to select the line to be passed.
3. Press <Enter>. The display flashes **done**, and **P.** reappears.

Programming example

This example illustrates the above techniques by doing the following:

- adding a UK 1 test signal to line 8.
- adding a signal from the EXTERNAL 3 input to line 327.
- passing lines 10 and 21.

Proceed as follows:

1. Open segment 10 of the Operational Selection switch. **L.** and a line number appear in the LED display.
2. Press <Increment> or <Decrement> until **8** appears in the display.
3. Press <Enter>. **S.** appears.
4. From Table 3–2, UK 1 is signal number 7. Press <Increment> or <Decrement> until **7** appears in the display.
5. Press <Enter>. **U.P.** appears.
6. Press <Enter> again to save signal 7 on line 8. The display briefly flashes **done**, and **L. 08** appears.
7. Press <Increment> until **327** appears in the display, and press <Enter>. **S.** appears.
8. Press <Function> once. **E.** appears.
9. Press <Increment> until **3** appears in the display, and press <Enter>. **U.P.** appears.
10. Press <Enter> again to save external input signal 3 on line 327. The display flashes **done**, and **L.327** appears.
11. Press <Function> three times, until **P.** appears.
12. Press <Increment> or <Decrement> until **10** appears, and press <Enter>. The display briefly flashes **done**, and **P.** reappears.
13. Press <Increment> until **21** appears, and press <Enter>. The display again flashes **done**, and **P.** reappears.
14. Close segment 10.

Source ID signals

The Source Identification switches on the rear panel provide 16,384 different source identification signals that can be recognized and used by the VM 700A Video Measurement Set. The signal is set by opening and closing the segments in the desired combination (the first and last segments are used as start and stop bits recognized by the VM 700A). Once set, the ID signal is signal number 14 for programming.

Programming the standby signal

The VITS 201 features a standby mode that enables it to output a selected signal whenever the incoming program video signal fails. When standby mode is enabled, the VITS 201 on program failure can:

- generate and output full-field signals, with or without user-specified text.
- output signals from external inputs.
- pass the program channel, even when no video is present.

If standby mode is not enabled, bypass results at program failure.

Selecting a full-field standby signal

The VITS 201 provides 12 full-field signals for use in standby mode. These signals are listed in Table 3–3.

**Table 3–3.
Full-field signals.**

1. 0% luminance	7. UK ITS 1
2. 100% luminance	8. UK ITS 2
3. CCIR 17	9. One Line ITS
4. CCIR 18	10. CCIR 331.G2
5. CCIR 330	11. 75% Colour Bars
6. CCIR 331.G1	12. (Sin X)/X

Select a full-field signal as follows:

1. Open segment 10 of the Operational Selection switch. **L.** and a line number appear in the LED display.
2. Press <Function> 5 times, until **F.** appears in the display.
3. Press <Enter>. **F.S.** appears, along with the number of the currently selected standby full-field signal (if any).
4. Press <Increment> or <Decrement> to select the desired test signal.
5. Press <Enter>. The selection is stored in memory, and **L.** appears in the display.
6. Close segment 10.

Selecting an external input for standby

To select a signal from an external source as the standby signal, do the following:

1. Open segment 10. **L.** and a line number appear in the LED display.
2. Press <Function> 5 times, until **F.** appears in the display.
3. Press <Enter>. **F.S.** appears, along with the number of the currently selected full-field signal (if any).
4. Press <Function> once. **F.E.** appears in the display, along with the number of the currently selected external input (if any).
5. Press <Increment> or <Decrement> to select the desired input.
6. Press <Enter>. The selection is stored in memory, and **L.** appears in the display.

Selecting the program channel for standby

If program video fails, the VITS 201 can use the empty channel as the standby signal. The channel is passed through the instrument's amplifiers and on to program out. Select the program channel as the standby signal as follows:

1. Open segment 10 of the Operational Selection switch. **L.** and a line number will appear in the LED display.
2. Press <Function> 5 times, until **F.** appears in the display.
3. Press <Enter>. **F.S.** appears, along with the number of the currently selected full-field signal (if any).
4. Press <Function> twice. **F.P.** appears in the display.
5. Press <Enter>. The selection is stored in memory, and **L.** appears in the display. Pressing either <Function>, <Incr>, or <Decr> will exit to **C.** (character select) without saving the pass mode selection.

Text signals

The VITS 201 can superimpose a full page of user-generated text on any of the 12 full-field standby signals, or insert a line of text in the vertical interval on lines 9 through 15 when the VITS 201 is genlocked to program video. (If a test signal or an external input is programmed on a line being used by the text generator, the text will be replaced by the test signal.)

Text pages consist of up to 15 lines of text with up to 27 characters per line. Vertical interval signals are limited to a single text line of up to 27 characters. The available character set is shown in Figure 3–4, and assemble text page is shown in Table 3-5.

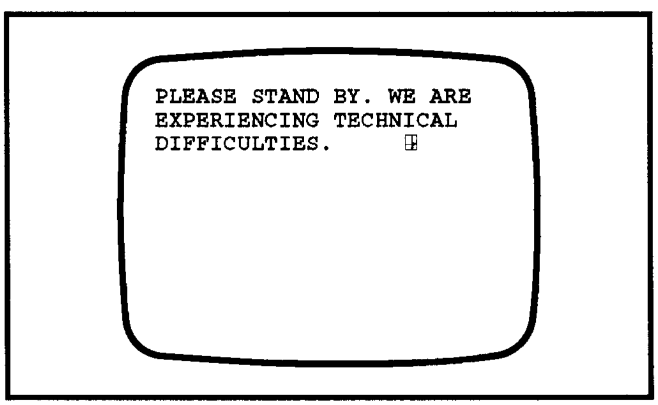


Figure 3–5. Text page.

Table 3–4. Character List for the VITS 201.

Char	Read out #	Char	Read out #	Char	Read out #	Char	Read out #	Char	Read out #	Char	Read out #	Char	Read out #
0	0	C	12	O	24	Space	36	\	48	Ė	60	¬	72
1	1	D	13	P	25	!	37	?	49	Ê	61	┘	73
2	2	E	14	Q	26	¡	38	¿	50	É	62	+	74
3	3	F	15	R	27	#	39	(	51	Ñ	63	|	75
4	4	G	16	S	28	*	40	)	52	Ø	64	—	76
5	5	H	17	T	29	+	41	Á	53	Ô	65	ß	77
6	6	I	18	U	30	,	42	Â	54	Õ	66	˜	78
7	7	J	19	V	31	-	43	À	55	Œ	67	▚	79
8	8	K	20	W	32	.	44	Ā	56	§	68	☺	80
9	9	L	21	X	33	/	45	Ã	57	Ũ	69	+	81
A	10	M	22	Y	34	:	46	Æ	58	┌	70		
B	11	N	23	Z	35	;	47	Ç	59	┘	71		

NOTE: Character number 81 is the cursor, and can not be used as a programmed character. If you use it as a character in a text page, it will disappear when you press **ENTER**.

Two- and four-page modes

The VITS 201 can generate text in **two-page** or **four-page** mode, as determined by the setting of jumper J39 (see the *Jumper tables* in Section 2). The VITS 201 is shipped in two-page mode.

Four-page mode

Four-page mode is selected by placing jumper J39 on pins 2 and 3. In this mode, the VITS 201 provides four separate pages of text for output when program video is not present. When program video is present, the first line of text from any of the four pages can be used as the vertical interval signal. This is illustrated in Figure 3–6.

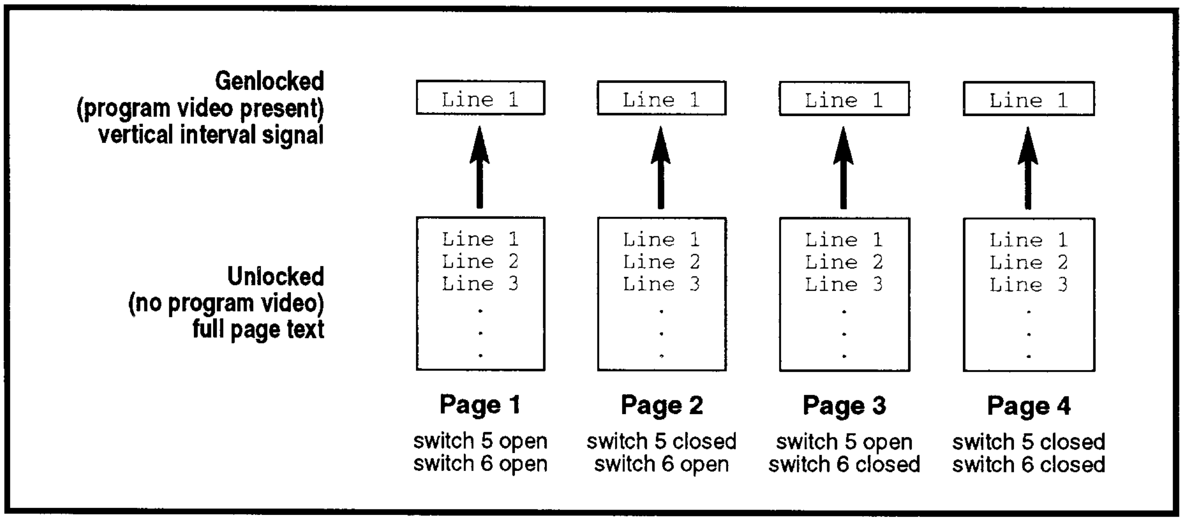


Figure 3–6. Four-page mode.

Text pages and lines are selected using segments 5 and 6 of the Operational Selection switch, as shown in Table 3–5.

Table 3–5.

Four-page mode selection.

Page	Segment 5	Segment 6
1	Open	Open
2	Closed	Open
3	Open	Closed
4	Closed	Closed

Two-page mode

Two-page mode is selected by placing jumper J39 on pins 1 and 2. In two-page mode, the first line from page 1 or page 3 is available as a vertical interval signal when program video is present. When program video is absent, the text generator automatically switches to page 2 or 4 (depending on S11–6) for the standby signal. This is illustrated in Figure 3–7.

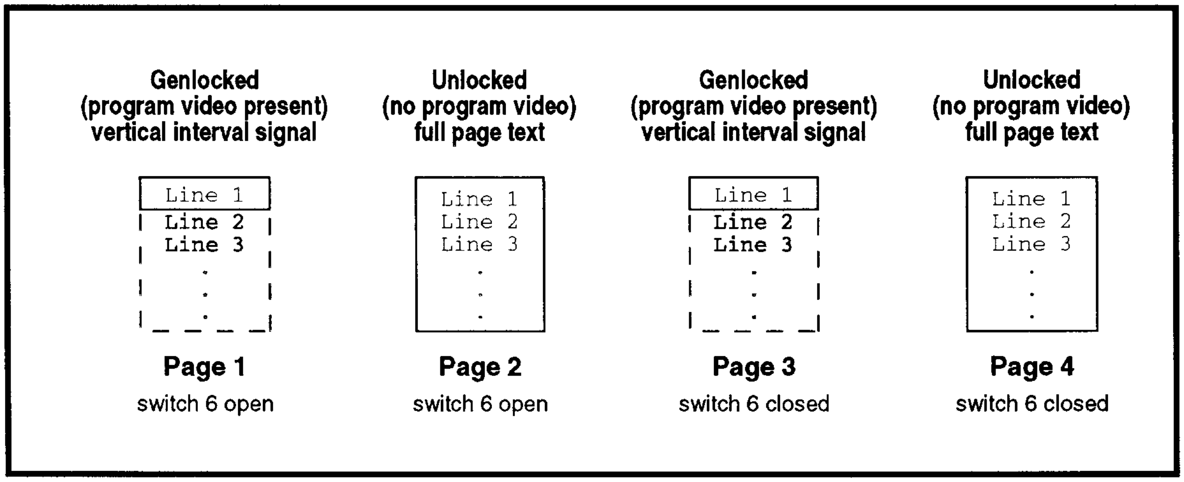


Figure 3–7. Two-page mode.

When two-page mode is selected, only the first line of page 1 and page 3 can be programmed (all of pages 2 and 4 can also be programmed). Lines and pages in this mode are selected using segment 6 of the Operational Selection switch, as shown in Table 3–6.

Table 3–6.

Two-page mode selection.

Vertical/standby signals	Segment 6
Line 1 of page 1 (vertical signal), page 2 (standby signal)	Open
Line 1 of page 3 (vertical signal), page 4 (standby signal)	Closed

Creating text

Text pages must be stored in memory before they can be added to a full-field or program signal. Use a monitor attached to the monitor out connector to view the text. Create and store text pages as follows:

1. Disconnect the program input signal. The VITS 201 enters standby mode and generates a full-field signal if so programmed.

2. Open segments 2, 3, 4, and 10 of the Operational Selection switch.
3. Select the page or line to be programmed by positioning segments 5 and/or 6 as described earlier.
4. Press <Function> until **C.** appears in the LED display. A cursor consisting of two crossed arrows pointing right and down (as shown in Figure 3–5) appears on the monitor.
5. Use <Right> and <Down> to move the cursor around the screen. Notice that pressing <Down> always moves the cursor to the start of the next line below. To move quickly to a particular location, move down to the desired row, then across.
6. When the cursor is in position, use <Increment> and <Decrement> to select characters (the characters will scroll on the screen cursor). Notice that the characters are normally white on a black background, but are black on a white background when covered by the cursor.
7. When finished with the page, press <Enter> to remove the cursor.
8. Repeat steps 3 through 6 for each additional page of text.
9. When finished, close segment 10, and configure segments 2, 3, and 4 as desired.

Creating vertical interval text

When the VITS 201 is genlocked, it can insert a line of text containing up to 27 characters into the vertical interval of the outgoing program signal. This text line can be specifically created (in two-page mode), or it can be the first line of an existing character page (in four-page mode).

Vertical interval text is created in the same way as character pages, except that the VITS 201 must be genlocked.

Operating the VITS 201

Once programmed, the VITS 201 is easy to operate. All that remains is to enable standby mode (if desired), or to set the VITS 201 to bypass or normal mode. All programmed test signals are inserted automatically.

The VITS 201 can also be operated by remote control, as described in *Remote operation*, later in this section. Note that the functions that can be controlled by the remote control and are also controlled by the Operational Selection switch are wired to perform an OR function. Thus, both the VITS 201 and the remote switch must be open to enable the desired function.

Bypass mode

The Bypass toggle switch (S1) forces the VITS 201 into relay bypass mode. In this mode, program video is simply relayed through a delay line to program out. To enter bypass mode, put the switch to the right. The red LED will light to indicate the VITS 201 is in bypass mode.

Standby mode

Standby mode is enabled by opening segment 2 of the Operational Selection switch. When enabled, the selected test signal or external input signal is generated when the incoming program signal fails.

If segment 2 is left closed, the VITS 201 goes into relay bypass when the incoming signal is interrupted.

NOTE

If a remote control is used, it must also be set to enable standby mode.

Enabling the full-page text signal

Enable the full-page character text as follows (the text must already have been created and stored in memory, as described earlier). Note that program video must be removed.

1. Open segments 2 and 3 of the Operational Selection switch.
2. Select the desired page by positioning segments 5 and 6 as described earlier.

NOTE

Characters will not appear until the program video fails. If a remote control is used, make sure that segments 2, 3, 5, and 6 of the Operational Selection switch are open.

Enabling the vertical interval signal

The VITS 201 can insert a text line of up to 27 characters into the vertical interval of the outgoing signal. The line must already have been created and stored in memory, as described above.

Enable the vertical interval signal as follows:

1. Connect program video.
2. Open segment 4 of the Operational Selection switch.
3. Select the desired line by positioning segments 5 and 6.

NOTE

If a remote control is used, segments 4, 5, and 6 of the Operational Selection switch must be open.

Genlock adjustment

Normally, the phase of the outgoing test signal is precisely matched to that of the incoming program signal. However, the VITS 201 (in conjunction with a vectorscope) enables the user to easily adjust the phase should the need arise.

Adjusting the phase

Adjust the phase of the output signal as follows:

1. Open segments 8 and 10 of the Operational Selection switch (S11). A row of dashes appears in the LED display to indicate that the VITS 201 is in genlock test mode. This changes the function of the <Increment>, <Decrement>, <Right>, and <Down> momentary switches to phase adjustment, as shown in Figure 3–8.

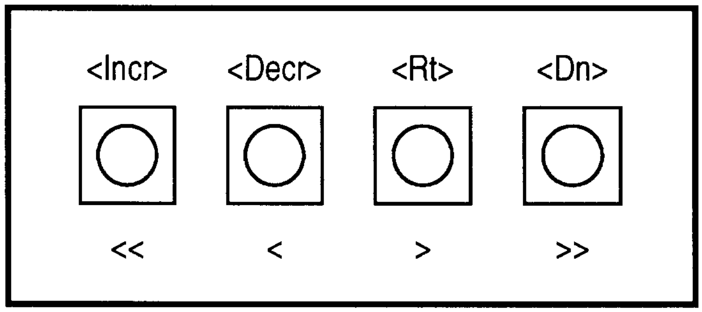


Figure 3–8. Phase adjustment switches.

2. Use the appropriate switches to advance or retard the phase of the outgoing signal:
   - The **>** and **<** switches are used for fine adjustment: pressing the **>** or **<** switch causes the phase to advance or retard, respectively, in increments of 0.2°, to a maximum of 55°. Holding the **>** or **<** switch advances or retards the phase continuously.
   - The **>>** and **<<** switches move the phase forward or back in increments of 45°, and are used to make large adjustments.
3. Close segments 8 and 10 when finished.

Remote operation

The VITS 201 can be controlled from a remote location through the 15-pin remote control connector located on the rear panel.

The remote control

A ground closure remote control can be constructed using three LEDs (green, red, and yellow) and ground closure switches as shown in the schematic in Figure 3–9.

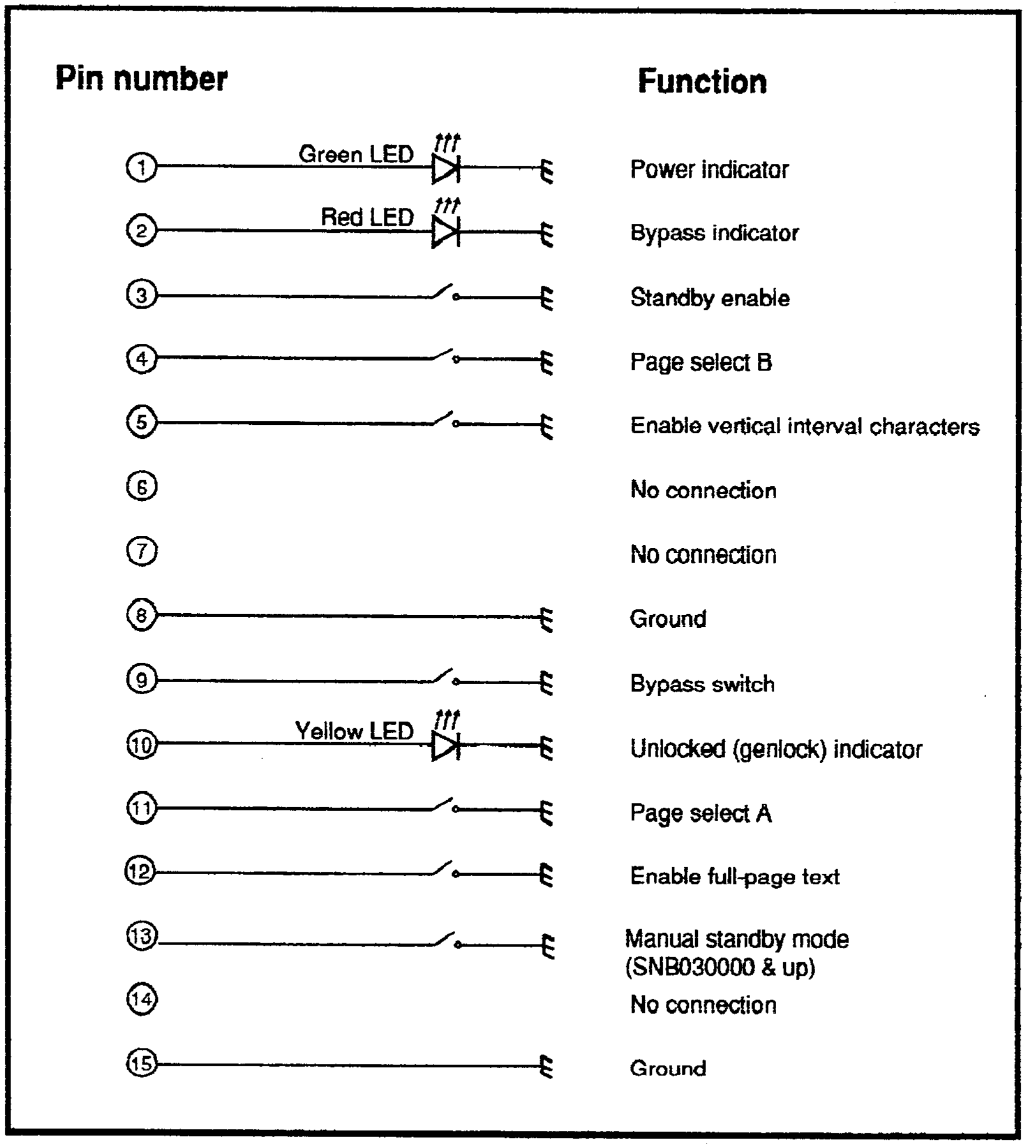


Figure 3–9. Remote control schematic.

Most of the functions controlled by the remote are also controlled by the Operational Selection switch (S11). In order for the remote switches to operate, the corresponding segments of the Operational Selection switch must also be in the open position.

The VITS 201 cannot be programmed through the remote control.

The remote connector

The pins on the rear panel remote control connector are shown in Figure 3–10. The function of the pins are given in Table 3–7.

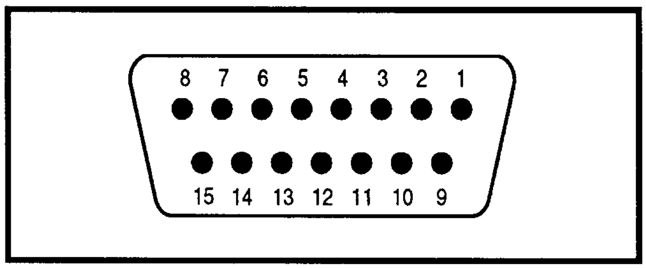


Figure 3–10. Remote control connector.

Table 3–7.

Remote connector pins.

Pin	Function
1	Power indicator LED.
2	Bypass indicator LED.
3	Enables standby mode.
4	Page select B.
5	Enables the vertical interval characters when the VITS 201 is genlocked.
6, 7	Open.
8	Ground.
9	Puts the VITS 201 in bypass mode.
10	Unlocked indicator LED – when on, the VITS 201 is not genlocked to the incoming video.
11	Page select A.
12	Enables characters in standby mode.
13	Forces standby mode (SN B030000 & up). Open (SN B029999 & below)
14	Open
15	Ground.

WARNING

THE FOLLOWING SERVICING INSTRUCTIONS 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 OPERATORS SAFETY SUMMARY AND SERVICE SAFETY SUMMARY PRIOR TO PERFORMING ANY SERVICE.

Section 4
Specification Tables

Electrical characteristics: The Performance Requirements listed in the Electrical Specification apply over an ambient temperature range of 0°C to 50°C. The rated accuracies are valid when the instrument is calibrated at an ambient temperature in the range 20°C to 30°C, after a warm-up time of 20 minutes. Test equipment used to verify Performance Requirements must be calibrated and working within the limits specified in the Equipment Required list.

Table 4–1.
Program channel characteristics.

Characteristics	Performance requirements	Supplemental information
Return Loss	36 dB to 5 MHz.	For program in and out, and monitor out.
Frequency Response	± 1% to 5.8 MHz.	± 2% to 10 MHz.
Gain	± 1%.	
Chrominance-to-Luminance Gain	± 0.5%.	
Crosstalk	≥ 60 dB down.	
Switching Transients	≤ 5 mV.	
Phase Matching of Relay Bypass Path to Signal Processing Path	± 1° at subcarrier.	
Diff Phase	< 0.3°.	
Diff Gain	< 0.3%.	
Tilt	< 0.5%.	

Table 4–2.
External inputs characteristics.

Characteristics	Performance requirements	Supplemental information
Return Loss	36 dB to 5 MHz.	Measured with external input selected.
Frequency Response	± 1% to 5.8 MHz.	± 2% to 10 MHz.
Gain	± 1%.	
Chrominance-to-Luminance Gain	± 0.5%.	
DC Offset	0 V DC ± 10 mV.	AC coupled and clamped. Measured at blanking.
Crosstalk	≥ 60 dB down.	Measured on adjacent channel.
Diff Phase	< 0.3°.	
Diff Gain	< 0.3%.	
Tilt	< 0.5%.	
DC Matching Between Program Video and External Signal	± 3 mV.	Jumpers J41 and J47 set to AC couple and clamp (both jumpers set to pins 1–2).

Table 4–3.
Test signal general characteristics.

Characteristics	Performance requirements	Supplemental information
Frequency Response	± 1% to 5.8 MHz.	
Luminance Amplitude Accuracy	± 1%.	
Chrominance-to-Luminance Gain	± 0.5%.	
Chrominance-to-Luminance Delay	≤ 5 ns.	
Group Delay	5 ns to 5 MHz.	10 mV p-p = 9 ns delay on a 10T pulse.
Crosstalk	≥ 60 dB down.	
SCH Phase Accuracy		± 2.5 ns typical.
Luminance Rise Time	250 ns ± 25 ns.	Except colour bar and 2T bar.
Chrominance Rise Time	350 ns ± 35 ns.	
Burst Amplitude	300 mV ± 6 mV p-p.	
Burst Rise Time	350 ns ± 35 ns.	Slower than BBC spec to avoid ringing.
Sync Amplitude	300 mV ± 3 mV.	
Sync Rise Time	250 ns ± 25 ns.	

Table 4–3 (continued).
Test signal general characteristics.

Characteristics	Performance requirements	Supplemental information
Breezeway Duration	900 ns ± 50 ns.	
Front Porch Duration	1.55 µs minimum.	
Horizontal Sync Duration	4.7 µs ± 50 ns.	50% amplitude point.
Vertical Serration Duration	4.7 µs ± 50 ns.	50% amplitude point.
Equalizing Pulse Duration	2.35 µs ± 50 ns.	50% amplitude point.
Burst		
Delay from Sync	5.6 µs ± 50 ns.	From 50% point of sync.
Duration	2.225 µs ± 0.1 ms.	10 cycles of subcarrier.
DC Matching Between Program Video and Test Signal	± 3 mV.	
Phase Matching of Test Signal to Program Video	± 1° at subcarrier for program video S/N ratio > 45 dB.	Factory setting.

Table 4–4.
Test signal characteristics.

Characteristics	Performance requirements	Supplemental information
0% Luminance Signal (Black)	0 mV luminance.	Tolerance specifications are given in Table 4–3. See Figure 4–1.
100% Luminance Signal (White)	700 mV luminance.	Tolerance specifications are given in Table 4–3. See Figure 4–2.
ITS		
CCIR 17	2T bar (width=10 µs), 2T pulse, 20T modulated pulse (60.7°), 5-step.	Tolerance specifications are given in Table 4–3. See Figure 4–3.
2T bar Risetime		
Standard	192.9 ns ± 20 ns.	
Option 05	160.7 ns ± 20 ns.	
2T Pulse HAD		
Standard	200 ns ± 20 ns.	
Option 05	166.7 ns ± 20 ns.	
CCIR 18		See Figure 4–4.
White Reference Bar Amplitude	560.0 mV.	
Packet Amplitudes	420.0 mV.	
Pedestal	350.0 mV.	
Burst Frequencies	500 kHz, 1.0 MHz, 2.0 MHz, 4.0 MHz, 4.8 MHz, 5.8 MHz.	
Packet Rise Time	350 ns typical.	
CCIR 330	2T bar (width=10 µs) 2T pulse, 5-step with 280 mV p-p modulation (60.7°).	See Figure 4–5.

Table 4–4 (continued).
Test signal characteristics.

Characteristics	Performance requirements	Supplemental information
ITS (continued)		
2T bar Risetime		
Standard	192.9 ns ± 20 ns.	
Option 05	160.7 ns ± 20 ns.	
2T Pulse HAD		
Standard	200 ns ± 20 ns.	
Option 05	166.7 ns ± 20 ns.	
CCIR 331.G1	350 mV luminance pedestal with three level (140 mV p-p, 420 mV p-p, 700 mV p-p) chroma bar (60.7°) followed by a 420 mV p-p chroma bar (60.7°).	See Figure 4–6.
Luminance Pedestal Rise Time		
Standard	192.9 ns ± 20 ns.	
Option 05	160.7 ns ± 20 ns.	
CCIR 331.G2	350 mV luminance pedestal with one level (700 mV p-p) chroma bar (60.7°) followed by a 420 mV p-p chroma bar (60.7°).	See Figure 4–10.
Luminance Pedestal Rise Time		
Standard	192.9 ns ± 20 ns.	
Option 05	160.7 ns ± 20 ns.	
UK ITS 1 (Lines 19 & 332)	2T bar (width = 10 μs), 2T pulse, 10T modulated pulse (60.7°), 5-step with 140 mV p-p modulation (60.7°).	Tolerance specifications are given in Table 4–3. See Figure 4–7.

Table 4–4 (continued).
Test signal characteristics.

Characteristics	Performance requirements	Supplemental information
UK ITS 1 (Lines 19 & 332) (continued)		
2T bar Risetime		
Standard	192.9 ns ± 20 ns.	
Option 05	160.7 ns ± 20 ns.	
2T Pulse HAD		
Standard	200 ns ± 20 ns.	
Option 05	166.7 ns ± 20 ns.	
UK ITS 2 (Lines 20 & 333)	700 mV p-p 60.7° chroma bar on a 350 mV luminance pedestal. 280 mV p-p 60.7° chroma bar (no pedestal).	See Figure 4–8.
Luminance Pedestal Rise Time		
Standard	192.9 ns ± 20 ns.	
Option 05	160.7 ns ± 20 ns.	
One Line ITS	White bar, 2T pulse, 10T modulated pulse, (60.7 °), 350 mV luminance pedestal with 700 mV p-p chroma, 5-step with 280 mV p-p modulation.	Tolerance specifications are given in Table 4–3. See Figure 4–9.
2T Pulse HAD		
Standard	200 ns ± 20 ns.	
Option 05	166.7 ns ± 20 ns.	
Luminance Pedestal Rise Time		
Standard	192.9 ns ± 20 ns.	
Option 05	160.7 ns ± 20 ns.	

Table 4–4 (continued).
Test signal characteristics.

Characteristics	Performance requirements	Supplemental information
75% Colour Bars		Tolerance specifications are given in Table 4–3. See Figure 4–11.
Luminance Rise Times	150 ns ± 25 ns.	
	lum. ampl. (mV) / subc. ampl. (mV p-p) / subc. phase (deg)	
White	700.0 / 0.0 / 0.0	
Yellow	465.1 / 470.5 / 167.1	
Cyan	368.0 / 663.8 / 283.5	
Green	308.2 / 620.1 / 240.7	
Magenta	216.8 / 620.1 / 60.7	
Red	157.0 / 663.8 / 103.5	
Blue	59.9 / 470.5 / 347.1	
SinX/X		Tolerance specifications are given in Table 4–3.
Bandwidth	6 MHz.	
Pedestal	124.9 mV.	
Peak	575.1 mV.	Peak amplitude from pedestal. See Figure 4–12.
One Line ITS with Data	White bar, 2T pulse, 10T modulated pulse, 700 mV p-p chroma, Prior to S/N B030000, the test signal also includes EXTERNAL1 input for audio data.	Only the EXTERNAL 1 input may be used for data with this test signal. After S/N B030000 the test signal switches to black during this time. See Figure 4–13.
2T Pulse HAD		
Standard	200 ns ± 20 ns.	
Option 05	166.7 ns ± 20 ns.	
Identification Signal	1 µs width pulse at 2 µs intervals.	16 externally selected bits form up to 16,384 unique ID codes with start and stop bits on line of choice. Tolerance specifications are given in Table 4–3.See Figure 4–14.

Table 4–5.

Comp Sync Characteristics.

Characteristics	Performance requirements	Supplemental information
Amplitude	–4.0V ± 0.4V.	Jumper selectable to -2.0V.
Impedence	75 Ohms.	
Return Loss	≥30 dB to 5 MHz.	
Rise Time	250 ns ± 50 ns .	
Horizontal Sync Duration		Approx 4.7 s
Vertical Serrations		Approx 4.7 s
Equalizing Pulses Duration		Approx 2.35 s

Table 4–6.

Genlock characteristics.

Characteristics	Performance requirements	Supplemental information
Burst Lock Genlock Phase Change with Input Amplitude	≤ 1° burst phase change for input sync or burst amplitude range of 300 mV +3 to –3 dB. ≤ 2° burst phase change for amplitude range of 300 mV +6 to –6 dB.	For either composite video or burst amplitude errors.

Table 4–6 (continued).
Genlock characteristics.

Characteristics	Performance requirements	Supplemental information
Burst Lock (continued)		
Genlock Phase Change with Input Signal APL	≤ 1° burst phase change over 10% to 90% APL.	
Frequency Dependence on Input Burst	≤ 1° burst phase change for ± 20 Hz change in incoming subcarrier.	
Lock Range	4.43361875 MHz ± 20 Hz.	
Genlock Phase Jitter with Input Amplitude Change		Typically ≤ 0.2° peak for input sync or burst amplitude range of 300 mV +3 to –3 dB; no noise on input signal. Typically ≤ 0.4° peak for input amplitude range of 300 mV +6 to –6 dB; no noise on input signal.
SCH Phase Detection Accuracy		0° ± 5°.
Colour Framing Decisions		Correct for input SCH of 0° ± 40°.
Sync Lock Jitter	< 10 ns for input sync amplitude range of 300 mV +3 to –3 dB.	No noise on input signal.
Noise Performance		Remains locked at 30 dB S/N ratio.

Table 4–7.

Power supply characteristics.

Characteristics	Performance requirements	Supplemental information
Output Voltages		
+ 5 V	± 200 mV.	From 1 A to 5 A (voltage adjustable).
− 5.2 V	± 300 mV.	From 0.5 A to 1 A.
± 12 V	± 240 mV.	From 0.05 A to 0.2 A (post regulated from ± 14.5 V by linear regulators).
Output Ripple		
+ 5 V		≤ 20 mV switching ripple, ≤ 5 mV line frequency ripple.
− 5.2 V		≤ 20 mV switching ripple, ≤ 10 mV line frequency ripple.
± 12 V		≤ 10 mV switching ripple, ≤ 5 mV line frequency ripple.
Line Input Range	Over line variations from 90 to 132 VAC or from 180 to 250 VAC.	Selected by jumper J580.
Minimum Load		10 watt minimum load required to operate. However, output voltages other than + 5 V may not meet specifications outside of the listed currents. At zero load the power supply cycles on and off.
Power Consumption		40 – 50 W.

Table 4–7 (continued).
Power supply characteristics.

Characteristics	Performance requirements	Supplemental information
Overvoltage Protection		The 5 V output is protected by a crowbar circuit that engages at approximately 5.7 V. Overvoltage protection causes the power supply to cycle by shorting the 5 V output and engaging the primary side current limit time-out circuit (described below).
Power		70 W maximum controlled by primary side current limit circuits. Power supply cycles on and off when power limit is reached.
Short-Circuit Protection		All outputs are protected by the primary side current limit and time-out circuits. In addition, the ± 12 V outputs are limited to 1 A by linear regulators.
Efficiency		70% nominal.
Undervoltage Lock-Out		Power supply shuts down at a line input voltage of < 90 VAC or < 180 VAC, as selected by jumper 580.
Fan Drive		12.5 V to 14.5 V, as determined by supply load.

Table 4–8.
Physical characteristics.

Characteristics	Specifications
Dimensions	
Height	1.734 inches (4.404 cm).
Width	19.0 inches (48.3 cm).
Length	18.4 inches (46.7 cm).
Net Weight	10.5 lbs. (4.8 kg).
Shipping Weight	22.5 lbs. (10.2 kg).

Table 4–9.
Environmental characteristics.

Characteristics	Specifications
Temperature	
Non-Operating	– 40° to 65° C (– 40° to 149° F).
Operating	0° to 50° C (32° to 122° F).
Altitude	
Non-Operating	To 50,000 ft (15,240 m).
Operating	To 15,000 ft (4572 m).
Vibration (Operating)	Fifteen minutes each axis at 0.025 inch, frequency varied from 10–55–10 Hz in 4–minute cycles with the instrument secured to the vibration platform; ten minutes each axis at any resonant point, or at 55 Hz.
Shock	50 Gs, 1/2 sine, 11 ms duration, three guillotine shocks per side.
Transportation	Qualified under NTSC Test Procedure 1A, Category II (24-inch drop).

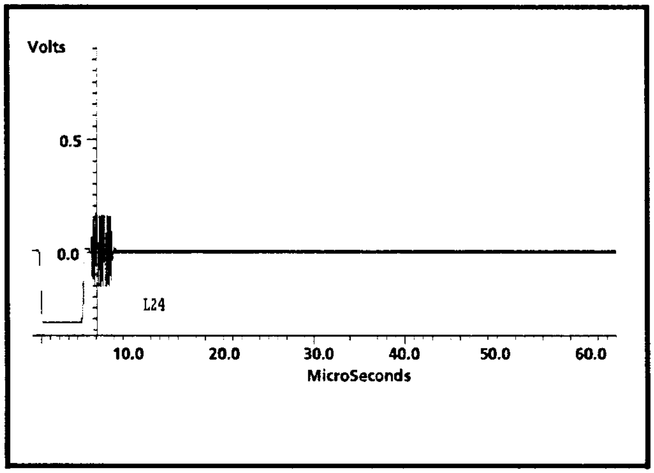


Fig. 4–1. 0% Luminance (Black).

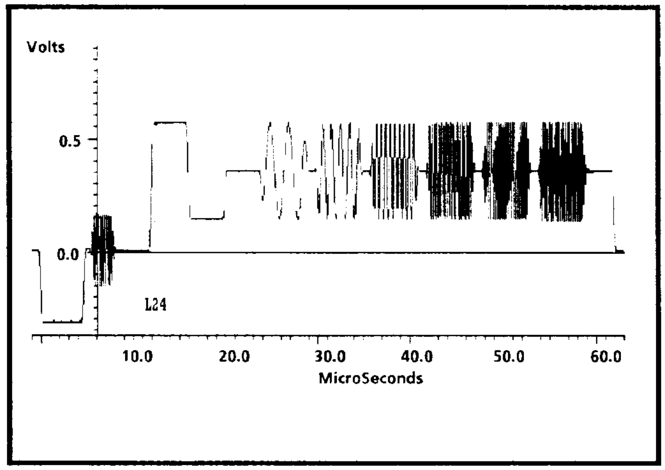


Fig. 4–4a. CCIR 18.

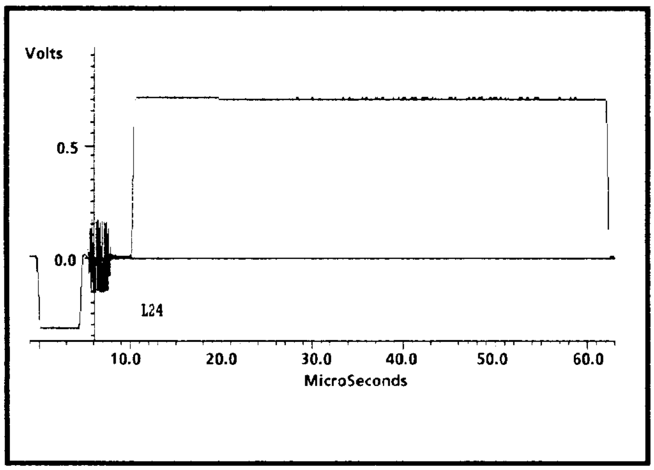


Fig. 4–2. 100% Luminance (White).

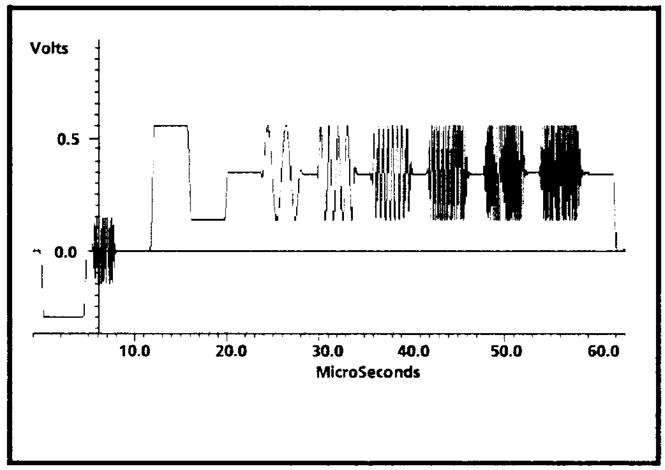


Fig. 4–4b. CCIR18, S/N BO30000 and above.

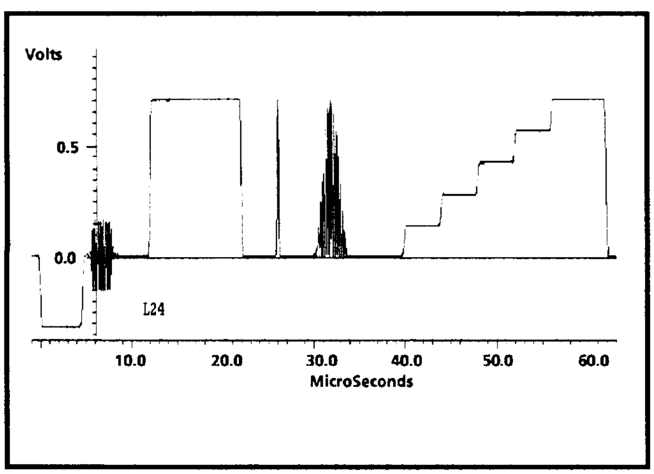


Fig. 4–3. CCIR 17.

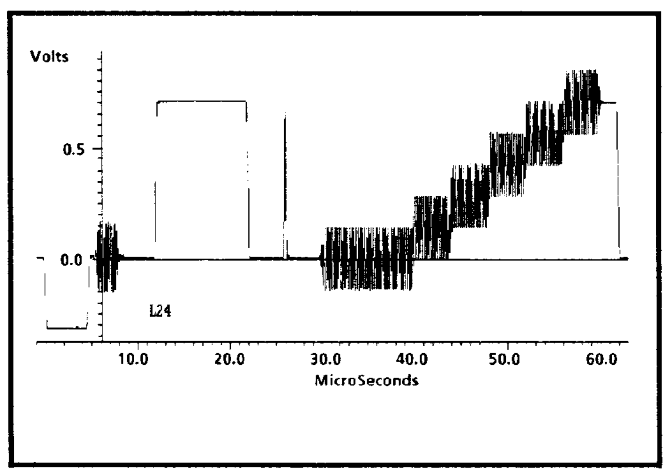


Fig. 4–5. CCIR 330.

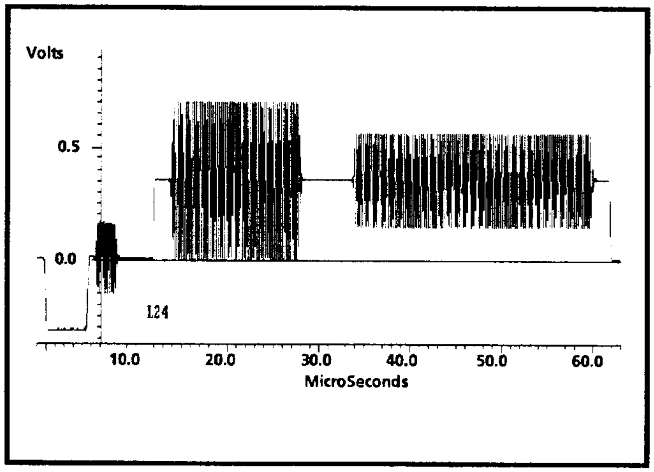


Fig. 4–6. CCIR 331.G1.

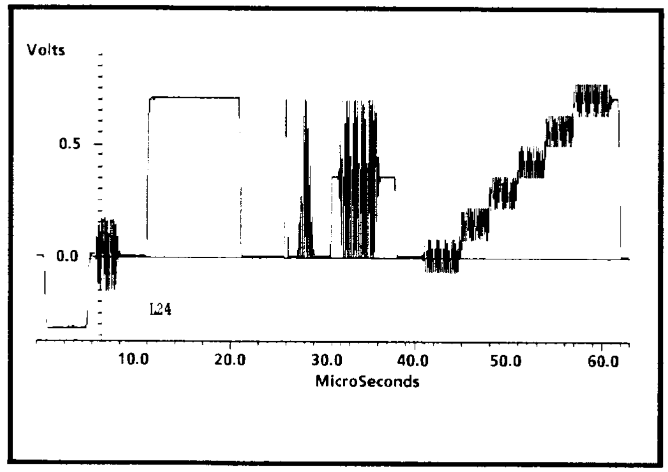


Fig. 4–9. One Line ITS.

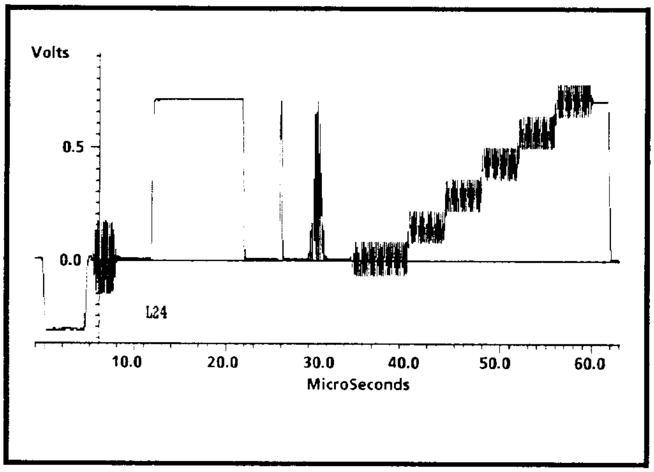


Fig. 4–7. UK ITS 1.

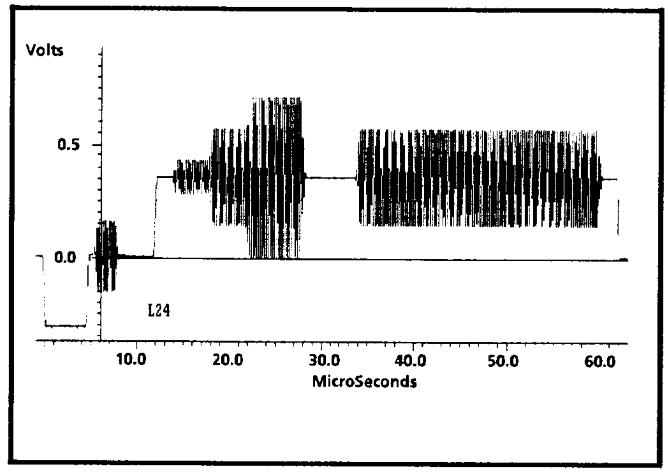


Fig. 4–10. CCIR 331.G2.

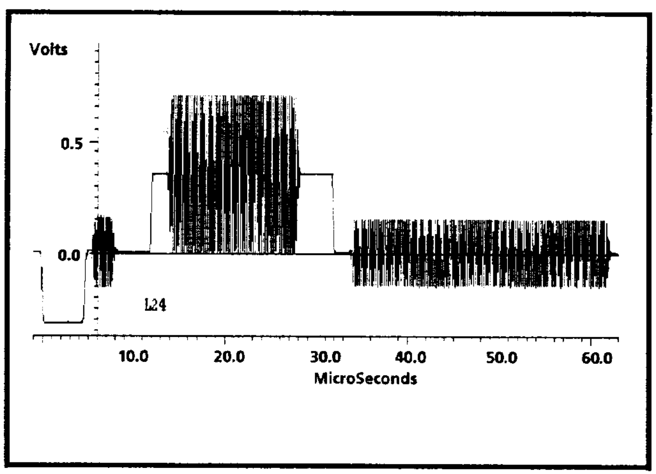


Fig. 4–8. UK ITS 2.

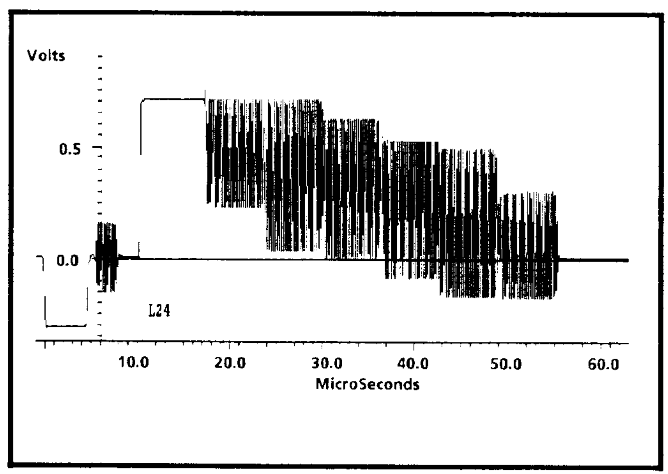


Fig. 4–11. 75% Colour Bars.

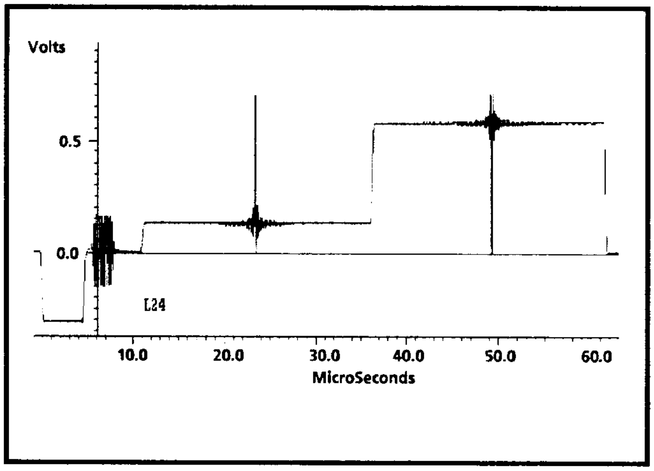


Fig. 4–12a. (SIN X) / X.

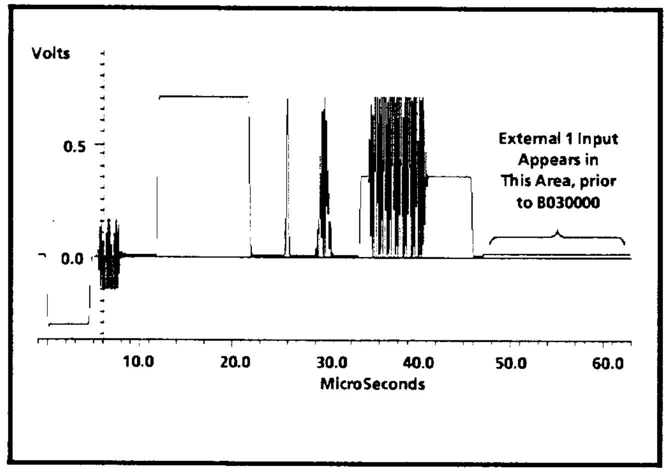


Fig. 4–13. One Line ITS with Data.

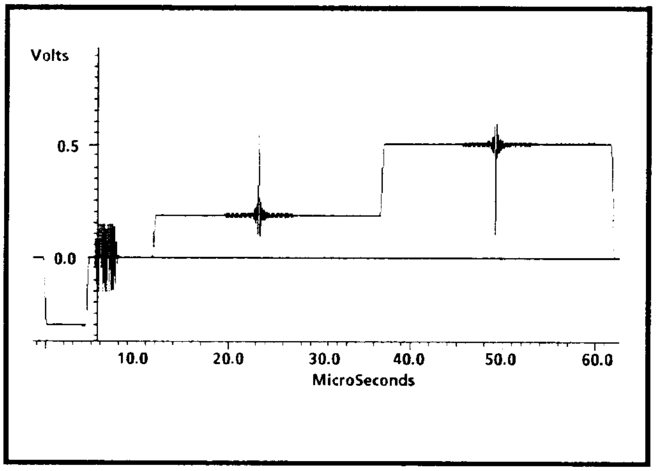


Fig. 4–12b. (SIN X) / X., S/N BO30000 and above.

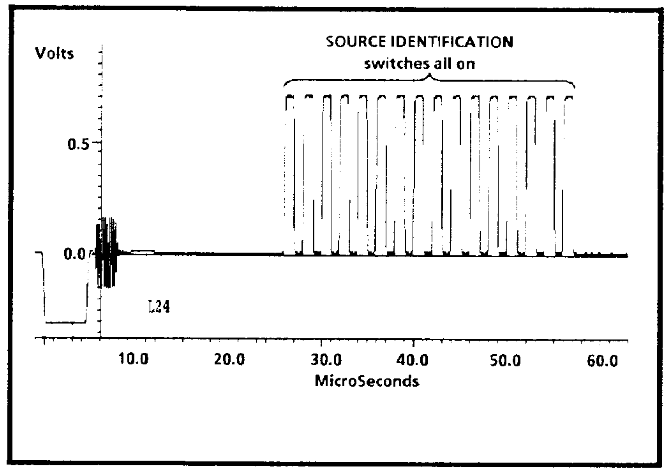


Fig. 4–14. Source Identification Signal.

Section 5
Maintenance

This section contains preventive and corrective maintenance procedures, explains this manual's troubleshooting aids, and describes the VITS 201's internal diagnostic tests.

Preventive maintenance

Under normal operating conditions, the following procedures should be performed approximately every 2000 hours. This includes cleaning, visual inspection, a performance check, and calibration if needed.

Cleaning

Clean the VITS 201 often enough to prevent dirt or dust from accumulating. Dirt prevents heat from dissipating efficiently, and provides high-resistance electrical leakage paths in humid environments.

Static-sensitive components

CAUTION

Static discharge can damage semiconductor components.

The VITS 201 contains electrical components that are susceptible to damage from static discharge. Static voltages of 1 to 30 kV are common in unprotected environments.

To avoid damage, observe the following precautions while servicing static-sensitive components or assemblies:

- Handle components no more than absolutely necessary.
- Transport and store components in their original containers, on a metal rail, or on conductive foam. Label all packages that contain static-sensitive components.
- Avoid fabrics (such as wool and certain artificial fibres) that easily accumulate static charges.
- Avoid handling components in areas that have a floor or work surface covering that can generate a static charge.
- Spray carpeted work areas with a solution of equal parts water and fabric softener. This will reduce static accumulation and provide a discharge path to ground.
- Wear a grounding wrist strap at all times while handling components. These components should only be serviced by qualified personnel at a static-free work station.
- Allow nothing capable of generating or holding a static charge on the work station surface.
- Keep component leads shorted together whenever possible.
- Pick up components by the body, and never by the leads.
- Do not slide components over any surface.
- Connect all soldering irons to earth ground. Use only special anti-static, suction-type or wick-type desoldering tools.

Troubleshooting

The following information describes the schematics, circuit board illustrations contained in this manual, and explains the component and assembly numbering system they use.

NOTE

No repairs should be attempted during the warranty period.

Schematics and diagrams

The block and schematic diagrams and the circuit board illustrations for the VITS 201 are contained in foldout pages in the back of this manual. See Figure 5–1.

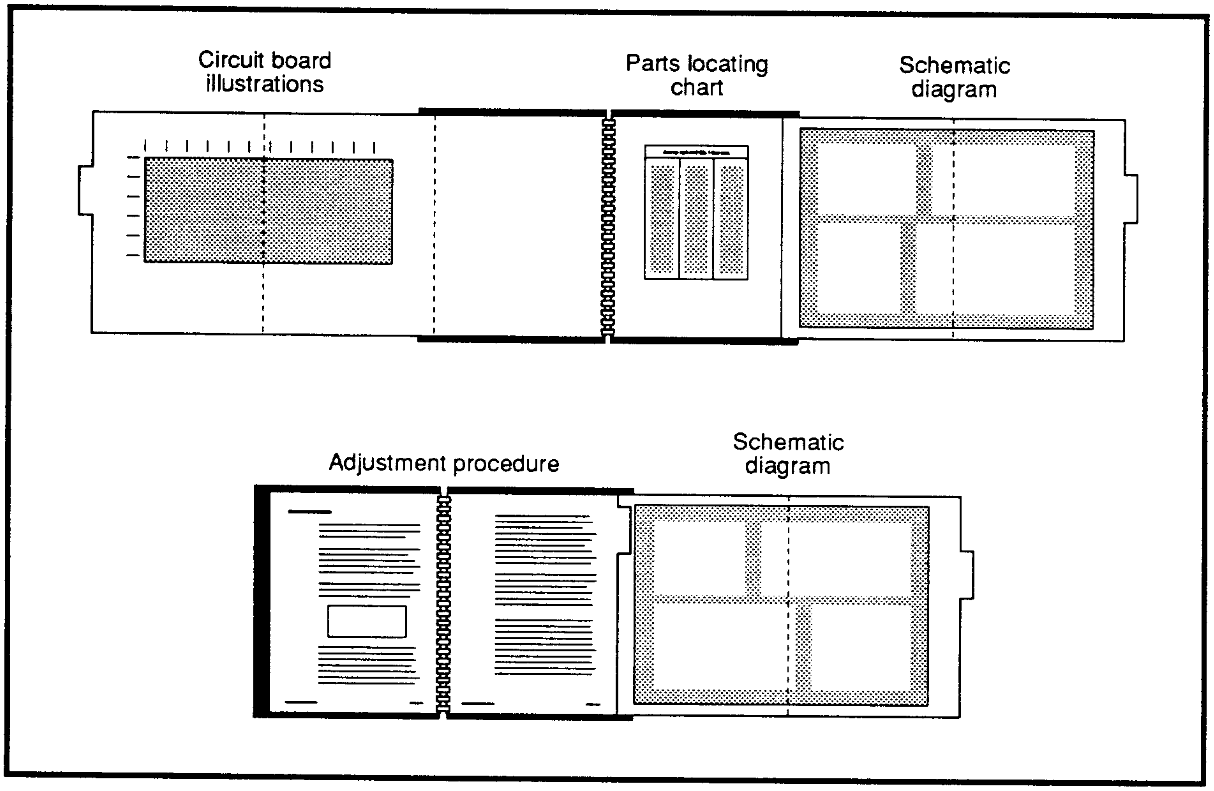


Figure 5–1. Using the foldout pages.

The schematic diagrams give the circuit number and electrical value of each component. Those portions of the circuit that are mounted on circuit boards or assemblies are enclosed in a grey border, with the name and assembly number shown on the border.

This manual also contains a Replaceable Electrical Parts List that gives a complete description of each component, along with the Tektronix part number, serial and assembly numbers (effective and discontinued), and manufacturer's code and part number for all replaceable electrical components.

Note

Check the Change Information at the rear of this manual for inserts describing recent corrections and modifications to the instrument and manual.

Circuit board illustrations

Electrical components, connectors, and test points are identified on circuit board illustrations located on the inside fold of the corresponding circuit diagram, or on the back of the preceding diagram.

Assembly and circuit numbering

The circuit board assemblies of the VITS 201 may be ordered from Tektronix, Inc., and are numbered as follows:

A1 A1	VITS Inserter board
A1 A2	VCO assembly
A2	Power Supply board

The part numbers for ordering these boards are given on the first page of the Replaceable Electrical Parts List. The list is arranged by assemblies as designated by ANSI Standard Y32.16-1975. The component numbers given in the list are combinations of the assembly and circuit numbers.

For example, resistor number R1234 on assembly number A23 would be listed as A23R1234. Assemblies are listed first, followed by parts that are mounted on the circuit board. A manufacturer's code number/manufacturer cross-index is also included.

NOTE

Use the parts list number when ordering replacement parts.

Diagnostics

The VITS 201 contains a number of diagnostic tests in EPROM memory. These tests fall into two categories: **power-up** and **user**, as described below.

Should the VITS 201 fail any of its diagnostic tests, contact a Tektronix Service Representative.

Power-up diagnostics

The power-up diagnostic tests (described in Table 5–1) are a set of routines used to verify that the microprocessor kernel is functioning properly. These tests check the microprocessor RAM and EPROM (within limits), the Genlock Sample RAM, the CTCs, and the Arctangent ROM.

The power-up diagnostic tests are executed each time the instrument is turned on. If the instrument fails a power-up test, that test continues to run until the detected fault is corrected.

Table 5–1.

Power-up diagnostic tests.

No.	Test	Test function
1	System PROM Checksum Test	Computes the checksum of the System PROM and compares that value with one written in the PROM. This test is run continuously until stopped.
2	Microprocessor RAM Read/Write Test	Writes to and reads from all microprocessor RAM locations and compares the results. This test is run once during power-up diagnostics.
3	Sample RAM Read/Write Test	Writes to and reads from all Sample RAM locations and compares the results. This test is run once during power-up diagnostics.
4	Arctan EPROM Checksum Test	Computes the checksum of the Arctangent PROM and compares with the checksum stored in the microprocessor EPROM. This test is run once during power-up diagnostics.
5	CTC Test	Sets up CTCs U240 and U245 as timers and ensures that they can generate interrupts. Each of the CTC's four sections is set up to interrupt after 4096 processor clock cycles. If any of the CTC sections do not interrupt within the allocated time, an error is logged and the test continues.

User diagnostics

The user diagnostic tests (described in Table 5–2) fall into two categories: **pass/fail** and **interactive**. The **pass/fail** tests require the user simply to run the test and watch the front panel LEDs for a pass or fail indication. The pass/fail tests are the PROM checksum test, the microprocessor RAM test, the sample RAM test, the CTC test, and the Arctan EPROM test.

The **interactive** tests allow the user to verify and troubleshoot specific features of the instrument. The interactive tests include Sampler Tests 1 and 2, the Software and Hardware Reset Tests, and the VCO DAC Test.

Running the user diagnostic tests

Run the user diagnostics tests as follows:

1. Open segment 9 of the Operational Selection switch and perform a reset by cycling the power switch off and on, or by momentarily moving the HW RESET jumper (J2) to its pins 2-3 position. **D.1** appears in the display.
2. Use <Increment> and <Decrement> to scroll through and select the desired test number.
3. Press <Enter> to execute the test.
4. Tests can be stopped by resetting the microprocessor with jumper J3 (see the *Jumper tables* in Section 2), by closing segment 9, or by turning the VITS 201 off and on again.

Table 5–2.

User diagnostic tests.

No.	Test	Test function
1	**System PROM Checksum Test**	Computes the checksum of the System PROM and compares that value with one written in the PROM. This test is run continuously until stopped.
2	**Microprocessor RAM Read/Write Test**	Writes to and reads from all microprocessor RAM locations and compares the results. This test is run continuously.
3	**Sample RAM Read/Write Test**	Writes to and reads from all Sample RAM locations and compares the results. This test is run continuously.
4	**Arctan EPROM Checksum Test**	Computes the checksum of the Arctangent PROM and compares with the checksum stored in the microprocessor EPROM. This test is run continuously.
5	**CTC Test**	Sets up CTCs U18 and U19 as timers and ensures that they can generate interrupts. Each of the CTC's four sections is set up to interrupt after 4096 processor clock cycles. If any of the CTC sections do not interrupt within the allocated time, an error is logged and the test continues.
6	**Port Test**	Checks the data and load paths connected to the I/O ports. Counts from 0–255 on the I/O ports of the microprocessor system. This is the ED0–ED7 bus.

Table 5–2 (continued).
User diagnostic tests.

No.	Test	Test function
7	**Front Panel LED Test**	Turns the front panel LEDs on and off.
8	**Software Reset Test**	Tests the software reset by setting up the CTCs, allowing them to pull the NMI line on the microprocessor low. Remove the program input, select user diagnostic test 8, and replace the program input. U17–17 should receive a low pulse (non-maskable interrupt). The system then resets and genlocks to the program input.
9	**Hardware Reset Test**	Checks the hardware reset circuitry. Select the hardware reset test and check J3 pin 1 with a scope to verify that a low true pulse is put out by U12–6.
10	**Cycle Test**	Cycles continuously through the EPROM, microprocessor RAM, sample RAM, arctangent RAM, CTC, and front panel LED tests.
11	**Sampler Test 1**	Acquires a sample of sync and burst through the genlock input, and reconstructs the sample at equivalent time through the VCO DAC (U114).
12	**Sampler Test 2**	Sets up the Genlock Acquisition system to sample incoming video continuously for checking acquisition timing.
13	**VCO DAC Test**	Generates a field rate ramp at the genlock DAC for checking the genlock DAC and integrator.
14	**Factory Settings**	Programs ITS signals into NVRAM and verifies NVRAM.
15	**Character NVRAM**	Clears and verifies the character non-volatile memory. This erases all characters that have been programmed in.
16	**External Input Test**	When this test is running, the selected External input (EXTERNAL 1 through EXTERNAL 5) is output as the full field signal. The **INCR** and **DECR** buttons are used to call the desired input, then push the **ENTER** button to select it. In order for this diagnostic to operate, segments 2 and 10 must be open, as well as segment 9, and there can be no signal applied to PROGRAM IN.

Corrective maintenance

The following pages give procedures for obtaining replacement parts and replacing components.

Obtaining replacement parts

Replacement parts are available through Tektronix, Inc. field offices or representatives. When ordering parts, be sure to include the following information:

- the instrument type (and option numbers, if any).
- the instrument serial number.
- a description of the part as it appears in the Replaceable Electrical or Mechanical Parts list.
- the Tektronix part number.

The Tektronix field office or representative will provide information on any parts ordered that have been replaced with a substitute part. (After a substituted part has been installed, the instrument's circuits may need to be adjusted.)

Torque specifications

The VITS 201 uses only #4, #6, and #8 screws. Table 5–3 shows the torque ranges for these. (Correct torque is particularly critical on the screws holding the devices to the power supply heat sink.)

Table 5–3.

Torque ranges.

Screw #	Torque range
4	3.5 – 5
6	7 – 9
8	14 – 18

Replacing circuit assemblies

WARNING

Disconnect the power cord from the instrument before replacing components.

Use the following procedures to remove circuit board assemblies. Reinstall the assemblies by following the procedures in reverse order.

Power supply board removal

1. Loosen the three screws attaching the clear plastic shield to the power supply board, and remove the shield.
2. Disconnect the main power ribbon cable, the fan connector, and the fuse cable.
3. Remove all nuts and screws attaching the line filter to the rear panel.
4. Remove the four screws that attach the shield and circuit board to the bottom pan.
5. Remove the screw attaching the heat sink to the bottom pan.
6. Remove the remaining mounting screws.
7. Lift the board from the bottom pan.

VITS Inserter board removal

1. Disconnect the power and remote control ribbon cables.
2. Remove the seven mounting screws and the two stand-off posts holding the board to the bottom pan.
3. Remove the nuts and lockwashers holding the BNCs to the rear panel.
4. Lift the board from the bottom pan.

Oven assembly removal

1. Unscrew the plastic insulating case and remove the top of the case.
2. Remove the screw and nut that attach the power transistor to the outside of the metal oven.
3. Remove the oven from the digital board by carefully pulling the oven off the seven square pins that attach it to the digital board.
4. Remove the screw attaching the metal cover to the oven.
5. Remove the screw attaching the circuit board to the oven and pull the oscillator out of the oven.

The VITS 201 NVRAM

The VITS 201 contains a DS1220 RAM. The DS1220 is a 16,384-bit, fully static, nonvolatile RAM, organized as 2048 words by 8 bits. This nonvolatile static RAM has a self-contained lithium energy source and control circuitry that constantly monitors VCC for an out-of-tolerance condition. When such a condition occurs, the lithium energy source is automatically switched on, and write protection is unconditionally enabled to prevent data destruction. The nonvolatile RAM also features unlimited write cycles, a useful feature in a system environment where changing conditions demand flexibility. The CMOS construction of the DS1220 guarantees low power consumption, with data retention over 10 years.

Section 6
Performance Check and Calibration

This section includes the Performance Check and the Calibration procedures for the VITS 201. The Performance Check is a guide to check the key Performance Requirements for the VITS 201, as listed in the specification tables in Section 3; the Calibration procedure explains the steps necessary to return the VITS 201 to operation within those specifications, if necessary.

Each of the procedures is presented in both a short and a long form. The short form is provided as a quick reference for experienced technician, while the long form provides detailed instructions for each step.

Limits and tolerances appearing in these procedures are guides, not instrument specifications, unless they are listed as Performance Requirements in Section 3 Specifications.

VITS 201 operational control names are fully capitalized; for example, BYPASS SWITCH. The operational controls are located just behind the VITS 201 front panel. Control and connector names on test equipment, and names of VITS 201 internal adjustments, have only the first letter capitalized; for example, test oscilloscope Vertical Position.

In the instructions for programming various operational functions, bold lettering is used for controls (i.e. **ENTER** button), and bold italics are used to show the LED Display readout (i.e. ***F.S.12***).

The VITS 201 must be calibrated at 25°C, ±5°C, and a minimum warm-up time of 20 minutes must be allowed, to attain the stated accuracies

Table 6–1 lists the equipment that you will need to perform these procedures. If you use alternate equipment, make sure that it meets the minimum specifications given in this table.

These procedures are designed to be done in sequence. If you do not need to perform a complete procedure, start at the nearest convenient step that includes a setup drawing.

NOTE

Unless directed otherwise, after completing each step make sure to return any jumpers to their original positions .

Table 6-1.
Recommended Test Equipment (Including Accessories).

Test Equipment	Minimum Specifications	Equipment Examples
Test Oscilloscope Mainframe	At least 50 MHz bandwidth with dual-trace plug-in and 10X probe.	TEKTRONIX 7603.
Test Oscilloscope Differential Comparator Plug-In	Minimum deflection factor 10 mV/div with 10X probe.	TEKTRONIX 7A13; plugs into 7603 mainframe.
Test Oscilloscope Dual-Trace Amplifier Plug-In	Minimum deflection factor 50 mV/div with 10X probe.	TEKTRONIX 7A26; plugs into 7603 mainframe.
Test Oscilloscope Dual Time Base Plug-In	Sweep rate 5 ns/div to 5 μs/div.	TEKTRONIX 7B53A; plugs into 7603 mainframe.
PAL Waveform Monitor PAL Vectorscope	For displaying and measuring field-rate and line-rate waveforms. For measuring differential phase and gain.	TEKTRONIX 1781.
Spectrum Analyzer with 012-0113-00 cable	Capable of measuring to at least 5 MHz.	TEKTRONIX 2710.
DC Block	None.	Tektronix Part No. 015-0221-00. Used with Spectrum Analyzer.
PAL Test Signal Generator	Provides the following test signals: black burst, flat field, staircase, pulse & bar, manual and continuous sweep, V drive, and subcarrier output. Provides variable subcarrier and sync amplitudes.	TEKTRONIX 1411/SPG12A (Opt AA)/TSP11/TSG11/ TSG13/ TSG15/TSG16.
Step Attenuator	1 dB steps; DC coupled with 75Ω impedance; flat response to a least 5 MHz.	Wavetek 7580.
Adaptor Connector, BNC Female-to-Female	None	Tektronix Part No. 103-0028-00

Table 6-1 (cont.)
Recommended Test Equipment (Including Accessories)

Test Equipment	Minimum Specifications	Equipment Examples
Frequency Counter	For measuring subcarrier frequency. Accurate to within 2-1/2 Hz out of 5 MHz.	TEKTRONIX DC 501, Opt. 01; plugs into TM 503 Power Mainframe.
Peak-to-Peak Detector Amplifier	Facilitates differential frequency response measurements. Provides a high impedance load and bias for the 015-0413-00 Detector Head.	Tektronix Part No. 015-0408-00. Plugs into the TM 503 mainframe.
With 2 Detector Heads	One Detector Head is included with the Detector Amplifier, the second must be purchased separately	Tektronix Part No. 015-0413-00.
Return Loss Bridge	At least 54 dB, dc to 10 MHz; 75Ω inputs.	Tektronix Part No. 015-0149-00.
Low Loss Coaxial Cable (Qty 4)	Belden 8281 video cable. Impedance, 75Ω; length, 6 feet[a]. Equipped with bnc connectors.	Tektronix Part No. 012-0159-01.
RG59/U Coaxial Cables (Qty 2)	Impedance, 75Ω; length, 42 inches. Equipped with bnc connectors.	Tektronix Part No. 012-0074-00.
End-Line Termination (Qty 6)	Impedance, 75Ω. Equipped with bnc connectors.	Tektronix Part No. 011-0102-00.
Feed-Through Termination (Qty 2)	Impedance, 75Ω. Equipped with bnc connectors.	Tektronix Part No. 011-0103-02.
Jumper-Type Termination	Impedance 75Ω. (Two pin connector with a 75Ω, 1%, 1/8 W resistor installed.)	Tektronix Part No. 119-1158-00.
50Ω to 75Ω Minimum Loss Attenuator	Equipped with bnc connectors.	Tektronix Part No. 011-0057-00.
50Ω Coaxial Cable	Length, 36 inches. Equipped with bnc connectors. For use with the SG 503.	Tektronix Part No. 012-0482-00.

[a]Six foot length was used to interconnect the test equipment. If 42-inch length is preferred, the Tektronix Part No. is 012-0159-00.

SHORT FORM PERFORMANCE CHECK PROCEDURE

1. **Preliminary**
   Remove the Front Panel and note the settings of the OPERATIONAL SELECTION switch (S11), and the two SOURCE IDENTIFICATION switches (S9 and S10), so they can be returned to the same settings.

2. **Power Supply**
   +12 V ±240 mV, +5 V ±200 mV, -5.2 V ±200 mV, -12 V ±240 mV.

3. **Oscillator Frequency**
   17.734375 MHz ±1 Hz.

RETURN LOSS

4. **Setup**
   Null the Return loss bridge and obtain a reference trace on the Spectrum Analyzer.

5. **PROGRAM IN**
   ≥36 dB to 5 MHz.

6. **PROGRAM OUT**
   ≥36 dB to 5 MHz.

7. **MONITOR**
   ≥36 dB to 5 MHz.

8. **EXTERNAL Inputs**
   ≥36 dB to 5 MHz on each, when selected.

ISOLATION

9. **Setup**
   Select signal 1 for Standby Mode, terminate PROGRAM IN and MONITOR, and move J19 and J20 to 2–3. Connect the sweep to the Spectrum Analyzer and obtain a reference trace.

10. **PROGRAM IN to Test Signal**
    Select signal 1 for Standby Mode, move J19 and J20 to 2–3, open S11–7, and apply sweep to PROGRAM IN. Check for ≥60 dB to 5 MHz at PROGRAM OUT. Close S11–7.

11. **EXTERNAL Inputs to Test Signal**
    ≥60 dB to 5 MHz at PROGRAM OUT while applying sweep to each EXTERNAL Input in turn.

12. **EXTERNAL Inputs to PROGRAM OUT**
    Set Standby Mode to PASS and check for ≥60 dB to 5 MHz at PROGRAM OUT while applying sweep to each EXTERNAL Input in turn.

13. **Test Signal to PROGRAM OUT**
    Return J19 and J20 to 1–2, and open S11–7. Check for ≥60 dB to 5 MHz at PROGRAM OUT. Close S11–7.

14. **PROGRAM IN to EXTERNAL Inputs**
    Check for ≥60 dB to 5 MHz at each External Input, while selected.

GAIN

15. **Test Signal Gain**
    Select signal 3 for Standby Mode. Check White Bar for 700 mV ±7 mV.

16. **Program Channel Gain**
    Apply 100% Colour bars to PROGRAM IN. Measure White Bar in Bypass, check that it is ±1% in Normal.

D.C. LEVELS

17. **External, Test Signal, and Program D.C. Levels**
    Select EXTERNAL 1 on line 16. Check that the dc level of the External input is 0 V ±10 mV. Check that Program and Test Signal dc levels are the same as the External input ±3 mV. Check that the switching transitions are ≥5 mV.

FREQUENCY RESPONSE

18. **Program In Frequency Response**
    Check for ±7 mV to 5.8 MHz, Bypass and Normal.

19. **External Input Frequency Response**
    Check for ±7 mV to 5.8 MHz through each External Input in turn, when selected.

20. **Test Signal Frequency Response**
    Select $\sin x / x$ as Standby signal, open S11-7. Check that test sweep is 700 mV ±7 mV. Close S11–7, Check for matched $\sin x / x$ peaks.

GENLOCK – BURST LOCK

21. **Acquisition**
    Select signal 3 as the Standby signal. Check that VITS 201 is not genlocked. Apply signal to PROGRAM IN and check that VITS 201 locks.

22. **Genlock Range**
    Check, with S11-1 open, that the VITS 201 genlocks with a burst phase change of $\leq 0.5°$ as incoming burst frequency is varied ± 10 Hz from subcarrier frequency.

23. **Phase Change with Incoming Signal APL Change**
    Check for $\leq 1°$ burst phase shift with ac bounce input.

24. **Jitter and Phase Change with Incoming Signal Amplitude Change**
    Check that burst phase changes of $\leq 1°$ as the input signal amplitude is varied ± 3 dB, and $\leq 2°$ as the input signal amplitude is varied ± 6 dB.

GENLOCK – SYNC LOCK

25. **Sync Lock Jitter**
    Check for $\leq 16°$ of jitter as the input signal is varied ± 3 dB.

DIFF PHASE AND GAIN

26. **Program Channel Differential Phase and Gain**
    Check that Diff Phase is $< 0.3°$ and Diff Gain is $< 0.3\%$, relative to the input signal.

27. **External Input Differential Phase and Gain**
    Check that each EXTERNAL input Diff Phase is $< 0.3°$ and Diff Gain is $< 0.3\%$, relative to the input signal, as it is selected.

PHASE MATCH

28. **Bypass to Operate Phase Match**
    Check for burst phase shift of $\geq \pm 1°$ as the BYPASS switch is alternated between Bypass and Operate.

TILT

29. **Program Channel Tilt**
    Check for $< 0.5\%$ (3.5 mV) line rate and field rate tilt.

30. External Input Tilt

Check for $<0.5\%$ (3.5 mV) line rate and field rate tilt, through each of the External inputs in turn.

GENERAL TEST SIGNAL

31. Sync and Burst

Check that burst amplitude is 300 mV $\pm$6mV p-p, sync amplitude is 300 mV $\pm$3mV, sync width (HAD) is 4.7 μs $\pm$50 ns, sync rise time is 250 ns $\pm$ 25 ns, breezeway duration is 900 ns $\pm$50 ns, front porch duration is at least 1.55 μs, burst rise time is 350 ns $\pm$35 ns, burst start is 5.6 μs $\pm$50 ns from the 50% point of the leading edge of sync, burst duration is 2.225 μs $\pm$0.1 μs, vertical serration width (HAD) is 4.7 μs $\pm$50 ns, and the equalizing pulse width (HAD) is 2.35 μs $\pm$50 ns.

32. Luminance and Chrominance Rise Times

Check that the rise time of the signal 2 (100% Luminance) is 250 ns $\pm$25 ns. Check that the chroma bar rise time of signal 8 (UK ITS 2) is 350 ns $\pm$35 ns.

33. Chrominance to Luminance Gain and Delay

Check that signal 2 (One Line ITS) 700 mV chrominance amplitude matches white bar amplitude $\pm$7 mV. Check that sine-envelope at base of 1-T pulse $\leq$5.5 mV p-p.

LONG FORM PERFORMANCE CHECK PROCEDURE

1. Preliminary Steps

a. Remove the VITS 201 Front Panel, by pushing the two Front Panel Release Handles towards the center, and pulling them away from the instrument.

b. Before starting this procedure, note the settings of the OPERATIONAL SELECTION switch (S11) located behind the front-panel, and the two SOURCE IDENTIFICATION switches (S9 and S10) at the rear-panel.

2. Power Supply

a. Connect power to the VITS 201 through a Variac, and set the Variac for 115 V output.

b. Turn the VITS 201 on and allow a 20 minute warm-up period.

c. CHECK – that each supply falls within the range shown in Table 6-2, using a DM503.

Table 6–2.
Power Supply Voltage Range.

Supply	Voltage Range	Location
+12 V	+11.76 V to +12.24 V	TP21
+5 V	+4.8 V to +5.2 V	TP22
-5.2 V	-5.5 V to -4.9 V	TP25
-12 V	-12.24 V to -11.76 V	TP24

d. Set the Variac for 90 VAC output.

e. Cycle the VITS 201 power off and on, or move J2 (HW Reset) to its pins 2-3 position momentarily, to reset the μP.

f. CHECK – for normal power-up sequence.

- Check – that the operational displays count through the five power up tests:

  1. EPROM test
  2. μP RAM test

3. SAMPLE RAM test
4. ARCTAN test
5. CTC test.

▸ After successful completion of the five tests the display will flash ***PASS***, then read ***L. 07***, and the yellow UNLOCKED light will be on.

g. Set the Variac for 115 VAC output.

3. Oscillator Frequency

a. Connect a X1 probe to the Channel A input of the DC503A, and connect a reference, such as WWV, to the Channel B input, as shown in Figure 6–1.

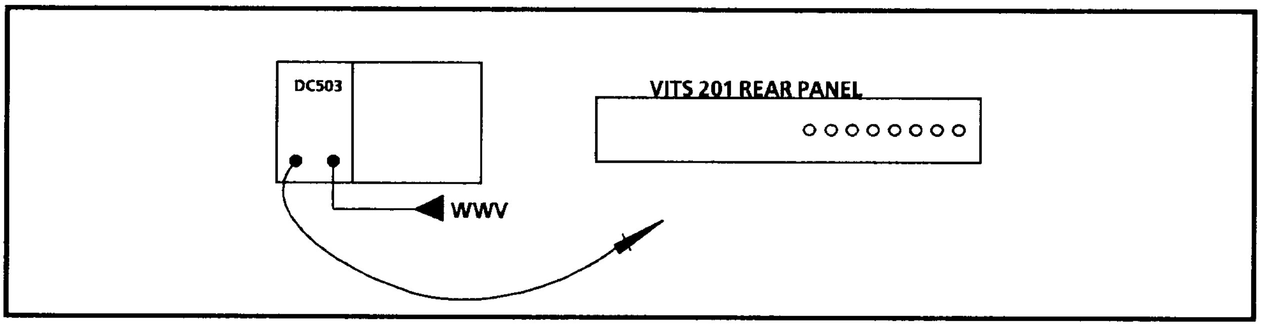


Figure 6–1. Setup to check subcarrier frequency.

b. Connect the probe from the DC503A Ch. A to TP20.

c. Set the Digital Counter Function control for Ratio A/B, and the AVG to 10^6.

d. **CHECK** – that the oscillator output frequency is 17.734375 MHz ± 1 Hz.

e. Return J21 to pins 2-3.

4. SETUP

a. Connect the equipment as shown in Figure 6-2. Make sure to tighten all connections.

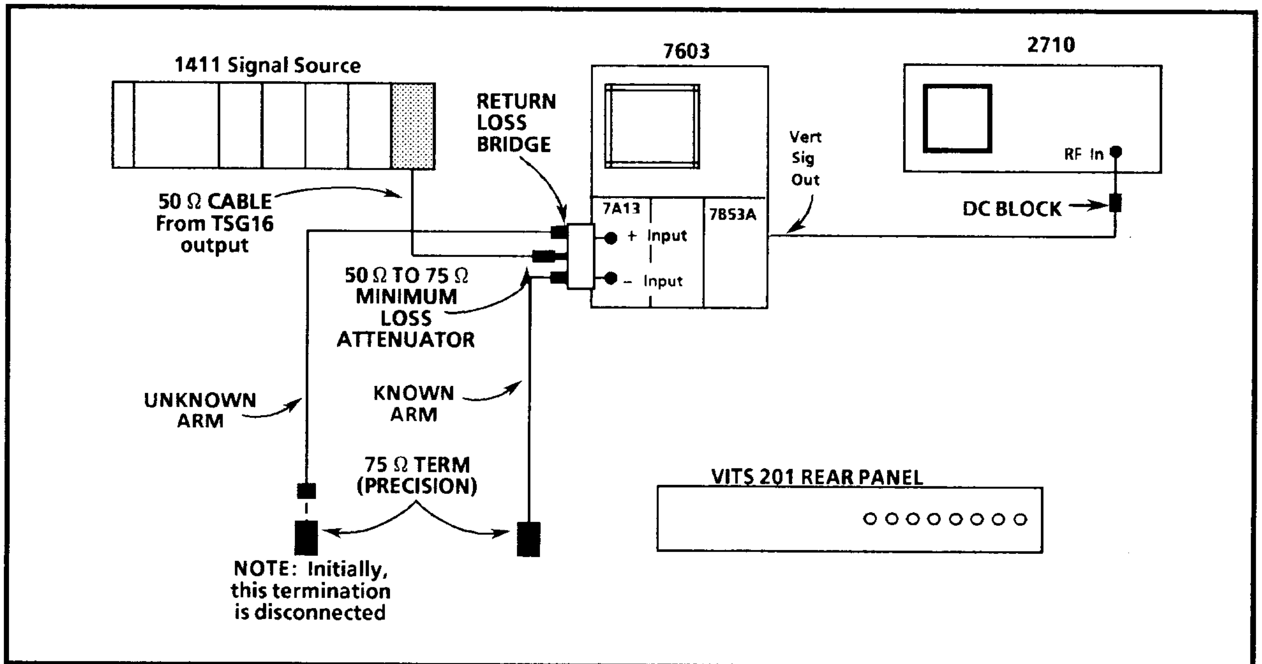


Figure 6-2. Setup to check Return Loss.

b. Set the following controls:

1411 Signal Source — TSG16

Function	Sweep
Range	Low
Markers	On

Oscilloscope

7A13		Main Frame	
+ Input	DC	Vertical Mode	Left
– Input	DC	Trigger Source	Left
BW	Full		
Volts/Div	20 mV		

Spectrum Analyzer

Center Freq	0 kHz	Atten	20 dB
Ref Level	0.0DBM	Video Filter	30 kHz
Freq/Div	1.0 MHz/	Vertical/Div	10 DB/
Resolution B/W	300 kHz		

c. With both of the precision terminators connected, adjust the Return Loss Bridge balance control to null the response displayed on the Spectrum Analyzer.

d. Remove the terminator from the unknown arm of the bridge.

e. Activate the A Display on the Spectrum Analyzer. The red light next to the A button should come on.

f. Press Max Hold (red light comes on) on the 2710, and wait approximately 15 seconds for the trace to smooth out.

g. Press the 2710 Save and A buttons. The green light next to the A button should come on.

h. Press the 2710 B Display button. The red light next to the B button should come on.

i. Press the 2710 Input Menu button

j. Referring to the numbers now lighted on the 2710 front panel, enter 0, 36, A. This places the top line of the graticule at –36 dB, or 36 dB below the level of the saved display on A.

5. Check PROGRAM IN

a. Connect the Unknown arm of the Return Loss bridge to the PROGRAM IN connector.

b. Connect the precision terminator to the PROGRAM OUT connector.

c. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

d. **CHECK** – that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

e. Set the VITS 201 BYPASS switch (S1) to the Bypass position.

f. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

g. **CHECK** – that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

h. Return the VITS 201 bypass Switch (S1) to the Operate position.

6. Check PROGRAM OUT

a. Move the Return Loss Bridge Unknown arm to the PROGRAM OUT connector. Do not terminate.

b. Move J19 (DAC – FILTER CONNECT) to pins 2-3.

c. Cycle the **Max Hold** button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

d. CHECK – that the **B Display** response curve is at or below the saved **A Display** response curve, from 0 to 5 MHz.

7. Check MONITOR

a. Move the Return Loss Bridge Unknown arm to the MONITOR connector. Do not terminate.

b. Cycle the **Max Hold** button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

c. CHECK – that the **B Display** response curve is at or below the saved **A Display** response curve, from 0 to 5 MHz.

d. Replace J19 on pins 1-2.

8. Check EXTERNAL INPUTS

a. Remove any connection to the PROGRAM IN and EXTERNAL 1 connectors, and set S11-9 and -10 open. Perform a reset, and the display will read ***d. 1*** (**D**iagnostic **1**). Use the **INCR** push button to select diagnostic 16, then press the **ENTER** button; the display will read ***d.E. 1*** (**D**iagnostic, **E**xternal **1**), indicating that you are in the External Mode diagnostic, ready to select the indicated external input. Push the **ENTER** button again to select External 1.

b. Connect the Return Loss Bridge Unknown arm to the EXTERNAL 1 connector.

c. Cycle the **Max Hold** button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

d. CHECK – that the **B Display** response curve is at or below the saved **A Display** response curve, from 0 to 5 MHz.

e. REPEAT this step for each of the remaining EXTERNAL inputs (EXTERNAL 2 through EXTERNAL 4 [EXTERNAL 5, prior to S/N B040000]), using the **INCR** and **ENTER** push buttons to select each external input in turn.

f. When finished, set S11-9 and -10 closed, and perform a reset.

9. COMP SYNC Output (S/N B040000 and above only)

a. Move the Return Loss Bridge Unknown arm to the COMP SYNC connector. Do not terminate.

b. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

c. Check that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

ISOLATION

10. Setup

a. Select signal 1 (0% Luminance) as the Standby Mode signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (**F**ailure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (**F**ailure **S**ignal) appears in the LED Display along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 1.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

b. Connect 75Ω terminators to the VITS 201 PROGRAM IN and MONITOR OUT connectors.

c. Move J19 (DAC-Filter connect) and J20 (Filter-Group Delay connect) to their pin 2-3 positions, and set S11-2 (Standby Enable) open.

d. Connect the 1411 Sweep output to the 2710 R.F. Input.

e. Set the following controls:

1411 Signal Source TSG16		Spectrum Analyzer			
Function	Sweep	Center Freq	0 kHz	Atten	20 dB
Range	High	Ref Level	0.0DBM	Video Filter	30 kHz
Markers	On	Freq/Div	1.0 MHz/	Vertical/Div	10 DB/
		Resolution B/W	300 kHz		

f. Activate the A Display on the Spectrum Analyzer. The red light next to the A button should come on.

g. Press Max Hold (red light comes on) on the 2710, and wait approximately 15 seconds for the trace to smooth out.

h. Press the 2710 Save and A buttons. The green light next to the A button should come on.

i. Press the 2710 B Display button. The red light next to the B button should come on.

j. Press the 2710 Input Menu button.

k. Referring to the numbers now lighted on the 2710 front panel, enter 0, 60, A. This places the top line of the graticule at –60 dB, or 60 dB below the level of the saved display on A.

11. PROGRAM IN to TEST SIGNAL

a. Continuing from the preceding step, connect the 1411 Sweep output to the VITS 201 PROGRAM IN connector, and connect PROGRAM OUT to the 2710 RF Input. Set S11-7 open.

b. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

c. **CHECK** – that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

d. Close S11-7.

12. EXTERNAL Inputs to Test Signal

a. Connect the VITS 201 PROGRAM OUTPUT to the 2710 R.F. Input, and connect the 1411 Sweep output to the VITS 201 EXTERNAL 1 input.

b. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

c. **CHECK** – that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

d. Repeat parts b and c of this step for the remaining EXTERNAL inputs in turn.

13. EXTERNAL INPUTS to PROGRAM OUT

a. Set the Standby Mode to PASS:
- Open S11-10 to enable programming.

- Press the **FUNCTION** button until ***F.*** (Failure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (Failure **S**ignal) appears in the LED Display along with the number of the current signal, if any.
- Press the **FUNCTION** button until ***F.P.*** (Failure **P**ass) appears in the LED Display.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

b. Connect the 1411 Sweep output to the VITS 201 EXTERNAL 1 INPUT.

c. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

d. CHECK – that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

e. Repeat parts c and d, as the 1411 Sweep Output is connected to each of the remaining EXTERNAL INPUTS in turn.

14. TEST SIGNAL to PROGRAM OUT

a. Move J19 (DAC-Filter connect) and J20 (Filter-Group Delay connect) to their pin 1-2 positions, and set S11-7 (Manufacturing Test Signal) open.

b. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

c. CHECK – that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

d. Set S11-7 (Manufacturing Test Signal) closed.

15. PROGRAM IN to EXTERNAL INPUTS

a. Terminate all of the VITS 201 EXTERNAL inputs in 75Ω.

b. Set S11-9 and -10 open, and perform a reset; the display will read ***d.*** (**D**iagnostic). Use the **INCR** push button to select diagnostic 16, then press the **ENTER** push button; the display will read ***d.E. 1*** (**D**iagnostic, **E**xternal ***1***).

c. Cycle the Max Hold button off for one sweep, then back on and wait approximately 15 seconds for the trace to smooth out.

d. **CHECK** – that the B Display response curve is at or below the saved A Display response curve, from 0 to 5 MHz.

e. Repeat parts b through e of this step for each of the remaining EXTERNAL inputs, using the **INCR** and **ENTER** push buttons to select each external input in turn.

f. Move J19 (DAC-Filter connect) and J20 (Filter-Group Delay connect) to their pin 1-2 positions, disconnect the 1411 Sweep from the PROGRAM IN connector, and remove the terminators from the EXTERNAL inputs.

g. Set S11-9 and -10 closed, and perform a reset.

GAIN

16. Check Test Signal Gain

a. Connect the VITS 201 PROGRAM OUTPUT to the 1781 Ch A input, and terminate the loop-thru in 75Ω. Disconnect any signal connected to the VITS 201 PROGRAM IN.

b. Select signal 3 (CCIR 17) as the standby signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (Failure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (Failure Signal) appears in the LED Display along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 3.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

c. **CHECK** – that the CCIR 17 White Bar amplitude is 700 mV ± 7 mV, using the 1781 WFM + Cal function.

17. Program Channel Gain

a. Connect the equipment as described in the previous step, and apply the 1411 100% Colour Bars to PROGRAM IN.

b. Move the MANUAL BYPASS switch (S1) to the Bypass position.

c. Measure the white bar amplitude of the Colour Bar signal, using the 1781 WFM + Cal function. Note the measurement.

d. Move the MANUAL BYPASS switch to the Normal position.

e. CHECK – that the Colour Bar white bar amplitude is the same as noted in part c, ±1%.

D.C. LEVELS

18. External, Test Signal, and Program D.C. Levels

a. Connect the equipment as shown in Figure 6-3. Set S11-1 closed and –2 open.

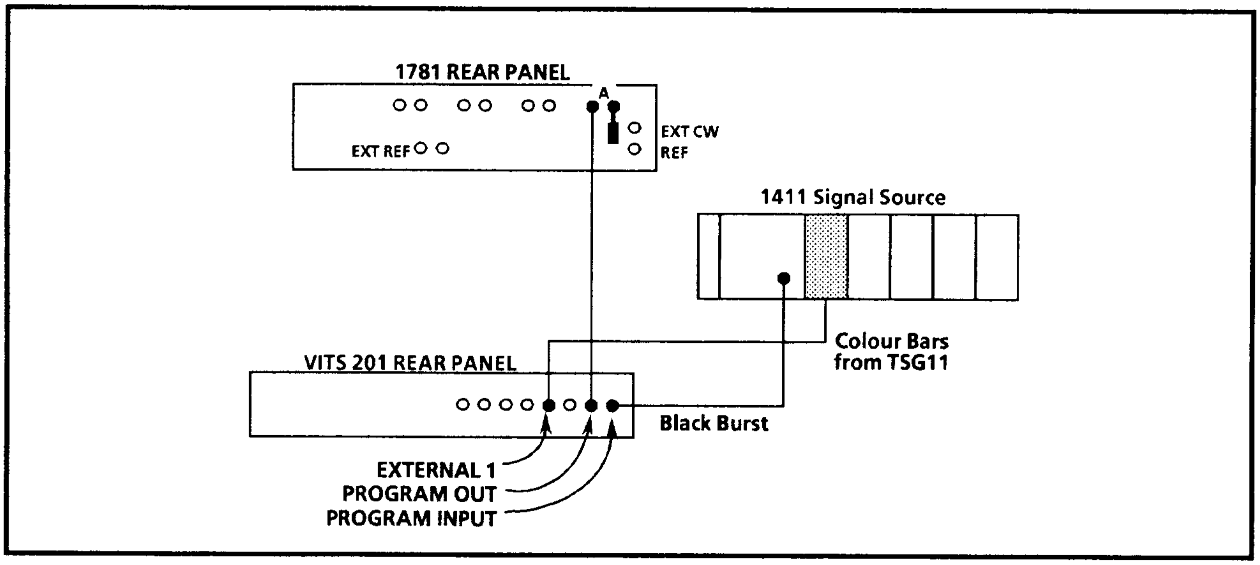


Figure 6-3. Equipment setup to check D.C. levels

b. Select EXTERNAL 1 as the ITS signal for line 16:

- Open S11-10, to enable programming.
- Push the **FUNCTION** button until the LED Display shows ***L.*** and a line number.
- Use the **INCR** and **DECR** buttons to select line 16.
- Push the **ENTER** button. The LED Display should show ***S.***
- Push the **FUNCTION** button until ***E.*** (External) appears in the LED Display

- Use the **INCR** and **DECR** buttons to select EXTERNAL 1. The Display will read ***E. 1***.
- Push the **ENTER** button. The LED Display should show ***U.P.--***.
- Push the **ENTER** button again. The LED Display should flash ***donE***, then display ***L. 16***.
- Close S11-10.

c. Set the 1781 to 2 Line display, and use Line Select function to show lines 16 and 17. Turn on the Voltage Cursors and set them for 3 mV.

d. CHECK – using the 1781 voltage cursors, that the EXTERNAL 1 dc level (active video portion of line 16) is 0 V ±10 mV.

e. CHECK – that the Program dc level (sync and burst area) and the Test Signal dc level (active video portion of line 17) is the same as the External dc level ±3 mV.

f. CHECK – that the switching transitions between the External, Program, and Test Signal areas are ≤5 mV.

FREQUENCY RESPONSE

19. Program Channel Frequency Response

a. Connect the equipment as shown in Figure 6–4.

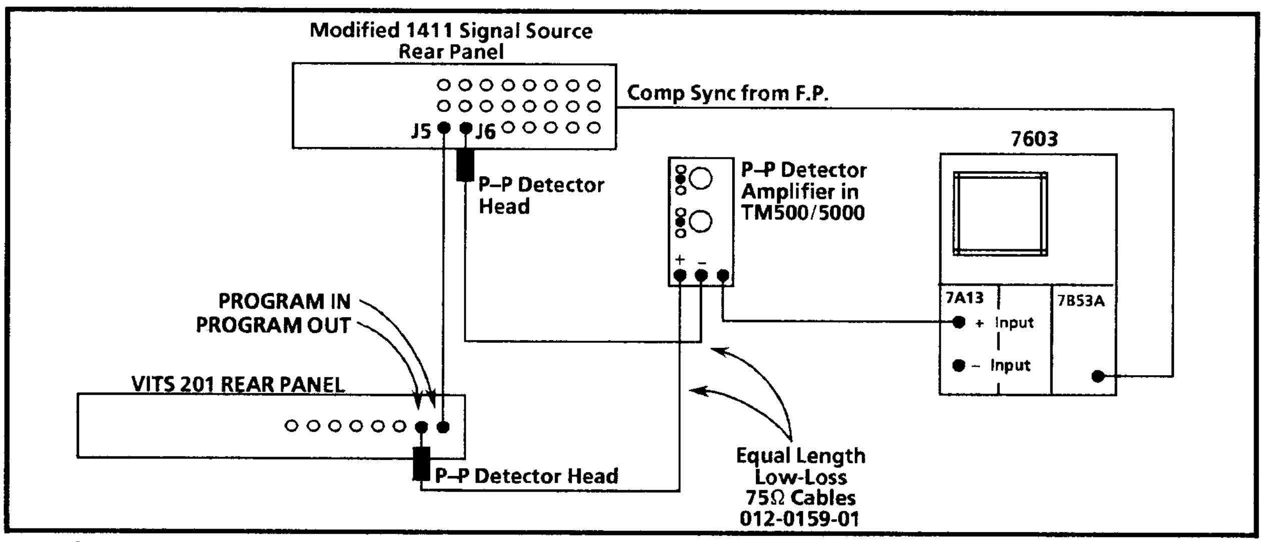


Figure 6-4. Equipment setup to check Program Channel Frequency Response.

b. Modify the 1411 as follows: Locate P515 on the A61-1 Multiburst Output board of the TSG16. P515 normally has two connectors attached to it; remove the one connected to pins 3 & 4. Attach the green-on-white coax from module location 5 to pins 3 (ground) and 4 (signal) of P515. This provides a temporary second output for the TSG16, available at J5 on the 1411 rear-panel.

c. Set the Standby Mode to PASS:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (**F**ailure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (**F**ailure **S**ignal) appears in the LED Display along with the number of the current signal, if any.
- Press the **FUNCTION** button until ***F.P.*** (**F**ailure **P**ass) appears in the LED Display.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

d. Set the TSG16 for continuous, full amplitude, low frequency sweep with markers. Enable both inputs of the Peak to Peak Detector Amplifier and adjust the Level controls so that both green lights are on. Set the oscilloscope for 5 mV/Div and 2 ms/Div, full BW.

e. Set the VITS 201 MANUAL BYPASS switch (S1) to Bypass.

f. **CHECK** – for flat response ±7 mV, as shown on the oscilloscope, through 5.8 MHz.

g. Switch the MANUAL BYPASS switch to Normal.

h. Adjust the Peak-to-Peak Detector Level controls, if necessary, so that both green lights are on, and repeat part f of this step.

20. External Input Frequency Response

a. Connect the equipment as shown in Figure 6-4, except move the 1411 sweep from the VITS 201 PROGRAM IN to the EXTERNAL 1 input.

b. Open S11-9 and -10. Perform a reset, and the display will read ***d.*** (**D**iagnostic) Use the **INCR** push button to select Diagnostic 16, then press the **ENTER** button; the display will read ***d.E. 1*** (**D**iagnostic, **E**xternal **1**).

c. Re-adjust the Peak-to-Peak Detector Level controls, if necessary.

d. CHECK – for flat response ± 7 mV, as shown on the oscilloscope, to 5.8 MHz.

e. Replace the 1411 TSG16 and Module Location 5 connectors as they were before step 19.

21. Test Signal Frequency Response

a. Connect the equipment as shown in Figure 6-5.

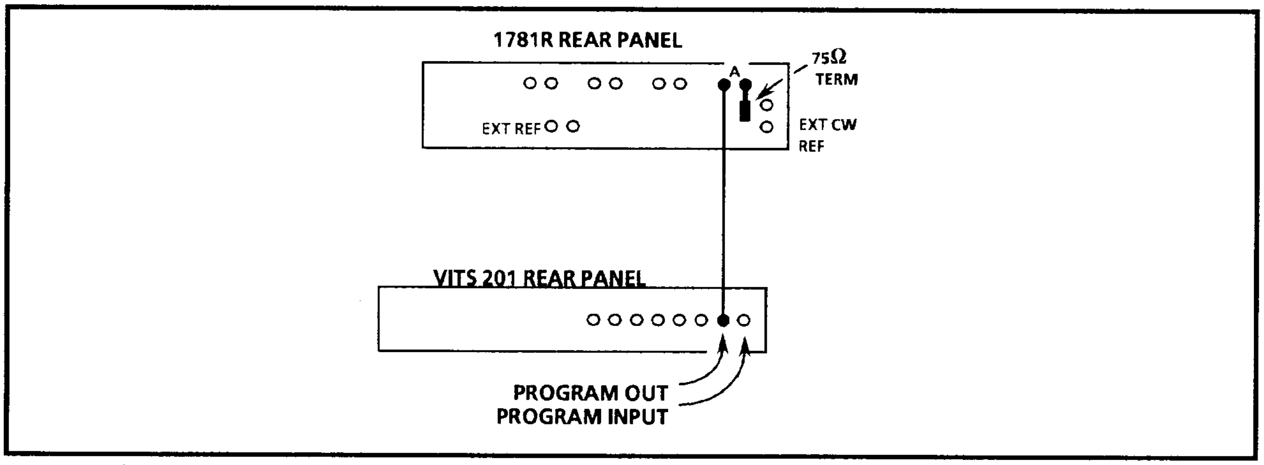


Figure 6–5. Equipment setup to check Test Signal Frequency Response.

b. Program Signal 12, (SIN X / X), as the Standby signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (Failure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (Failure Signal) appears in the LED Display, along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 12.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

c. Set S11–7 (MANUFACTURING T.S. BANK) open.

d. CHECK – with the 1781 WFM + Cal function, that the Test Sweep is 700 mV ± 7 mV.

e. Set S11–7 closed.

f. CHECK – that the (SIN X) / X peaks are of equal amplitude.

GENLOCK – BURST LOCK

22. Acquisition

a. Connect the equipment as shown in Figure 6-6.

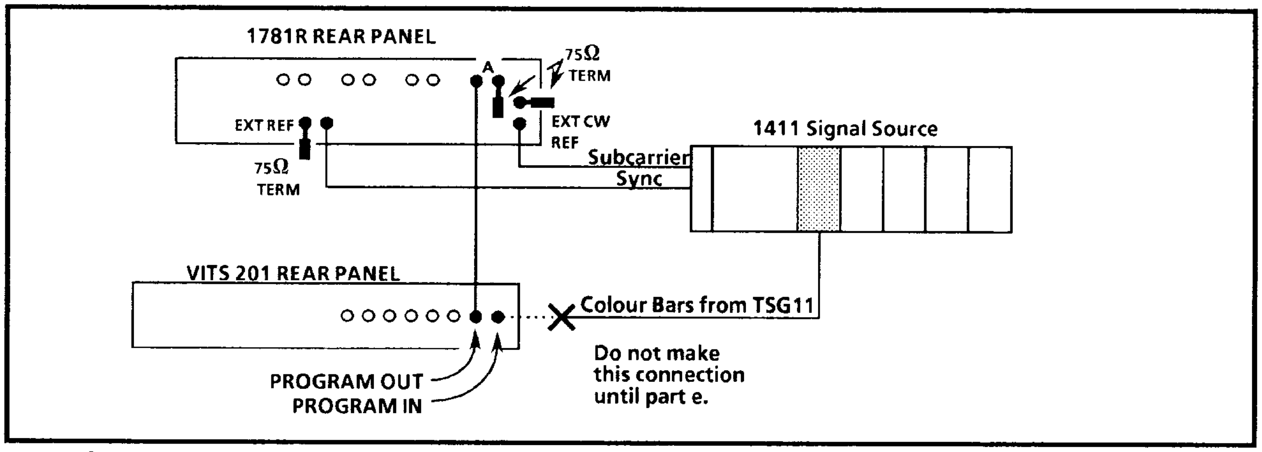


Figure 6–6. Equipment connections to check Genlock Acquisition and Jitter.

b. Set the 1781 to show both Vectorscope and Waveform Monitor displays, Ch A input. Set the Reference selection to Int/CW.

c. Select signal 3 (CCIR Line 17) as the VITS 201 Standby Mode signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (Failure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (Failure **S**ignal) appears in the LED Display, along with the number of the currently selected signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 3.
- Press **ENTER** to store the selection. The LED Display flashes ***d.*** and then ***L. 07*** appears.
- Close S11-10.

d. CHECK – that the VITS 201 is not Genlocked; the UNLOCKED LED should be on, and the 1781 Vectorscope display should be rotating.

e. Connect the Colour Bar signal from the 1411 to the VITS 201 PROGRAM IN connector.

f. **CHECK** – that the 1781 Vector display locks (becomes steady), then switches to a colour bar vector display.

g. **CHECK** – that the VITS 201 UNLOCKED LED is now off.

23. Genlock Range

NOTE
Genlock Range and Burst Phase Change with Change in Incoming Burst Frequency are factory tested to ±20 Hz.

a. Connect Black Burst from the 1411 front panel to the VITS 201 PROGRAM IN. Leave all other connections as shown in Figure 6–6.

b. Use the 1781 Vector Gain and Phase controls to set the tip of one of the burst vectors to the compass rose at the Diff Φ 0° mark (180°).

c. Set S11–1 (Reinsert Sync and Burst) open, and set the 1781 to measure Diff Phase.

d. Set the 1411 SPG12A Opt AA Subcarrier Frequency for +10 Hz offset.

e. **CHECK** – that the VITS 201 re-acquires genlock and that there has been a burst phase change of ≤0.5°.

f. Set the 1411 SPG12A Opt AA Subcarrier Frequency for –10 Hz offset.

g. **CHECK** – that the VITS 201 re-acquires genlock and that there has been a burst phase change of ≤0.5°.

h. Release the 1411 Subcarrier Frequency push button (no offset).

24. Phase Change with Incoming Signal APL Change

a. Connect the equipment as shown in Figure 6–7.

b. Set the TSG13 % Peak White switch to AC Bounce. Set the 1781 to measure Diff Phase.

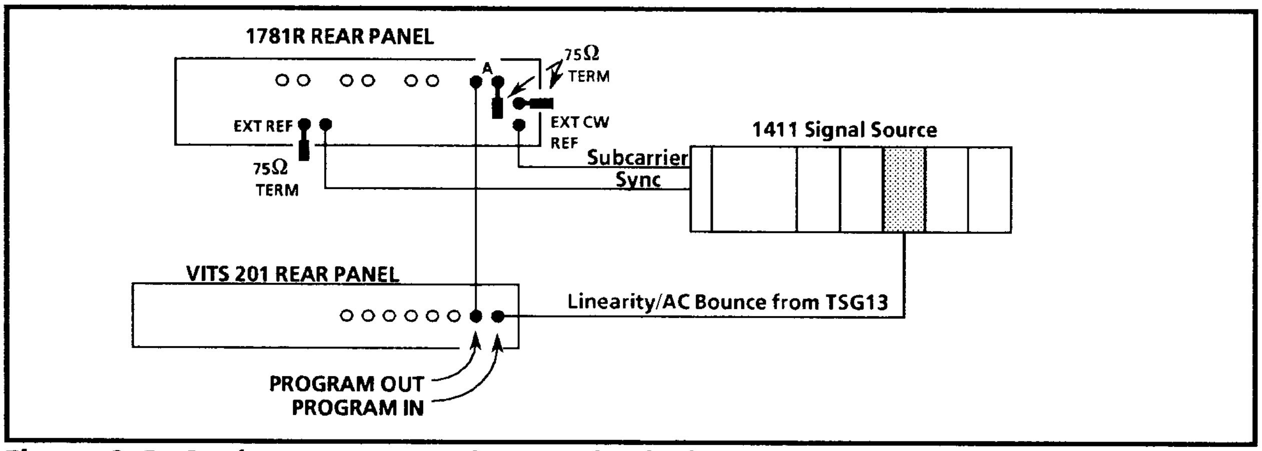


Figure 6–7. Equipment connections to check Phase Change with Incoming Signal APL Change.

c. CHECK – for ≤ 1° of Burst Phase Shift as APL changes.

d. Set the TSG13 % Peak White switch to Linearity.

25. Jitter and Phase Change with Incoming Signal Amplitude Change

a. Connect the equipment as shown in Figure 6–8.

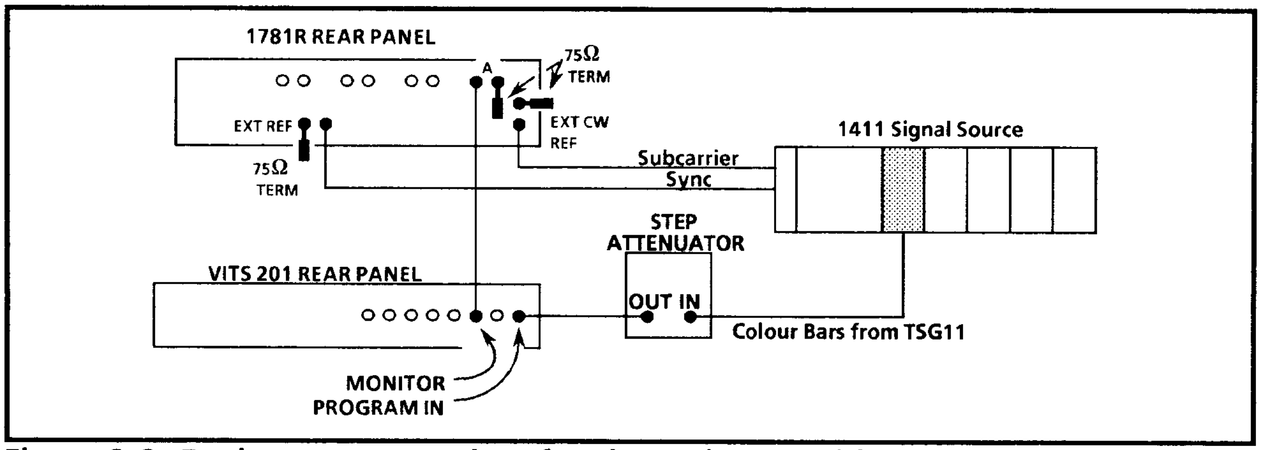


Figure 6–8. Equipment connections for Phase Change with Incoming Signal Amplitude Change.

b. In Bypass mode, the VITS 201 PROGRAM input is not internally terminated, although the instrument will still genlock to the signal. This lack of termination results in a +6 dB change in signal amplitude at the input.

c. The Step Attenuator is used to reduce the signal level in 1 dB steps. When the Step Attenuator reads 0 the input signal is at +6 dB, when the Step Attenuator reads 6 the signal level is at 0 dB, and when the Step Attenuator reads 12 the signal level is at -6 dB.

d. Set the 1781 to measure Diff Phase.

e. **CHECK** – after each 1 dB change in signal level, for phase change within the following limits:

Signal Level	Φ Change	Typical Jitter
+6 to +3 dB	≤2°	≤0.4°
+3 to -3 dB	≤1°	≤0.2°
-3 to -6 dB	≤2°	≤0.4°

GENLOCK – SYNC LOCK

26. Sync Lock Jitter

a. Connect the equipment as shown in Figure 6-8, but replace the colour bar signal from the 1411 with Pulse and Bar (TSG15).

b. Set the VITS 201 BYPASS switch (S1) to Bypass mode. Set the TSG15 for a Modulated Bar. Set the Step Attenuator to 6, which results in a 0 dB signal level.

c. Adjust the 1781 Vector Gain and Phase controls to set the Modulated Bar vector tip to the compass rose (outer graticule circle) at 180°. Turn the burst off at the TSG15.

d. Set the Step Attenuator to 3 (signal level of +3 dB).

e. **CHECK** – that the 1781 shows ≤16° of jitter (≤10 ns).

f. **CHECK** – that as the step Attenuator is varied from 3 to 9 in 1 dB steps (signal level of +3 to -3 dB) that the 1781 shows ≤16° of jitter (10 ns).

27. SECAM LOCK (S/N B040000 and above only)

a. Continuing from the preceding step, set the Step Attenuator to 6, turn the burst back on at the TSG15, and return the BYPASS switch (S1) to Normal mode. Check that P51 is in it's pins 1–2 position.

b. Readjust the 1781 controls, if necessary, to return the Modulated Bar vector tip to the compass rose at 180°.

c. **CHECK** – that the 1781 shows ≤0.2° of jitter.

d. Move P51 to it's pins 2–3 position

e. **CHECK** – that the burst vectors remain locked, but the Modulated Bar vector will shift. Jitter may increase to ≥ 0.2°, but will remain ≤16°.

DIFF PHASE AND GAIN

28. Program Channel Differential Phase and Gain

a. Connect the equipment as shown in Figure 6–9. Initially the TSG13 output is applied directly to the 1781, using a BNC female–to–female adapter. Set the TSG13 to provide a 5-step staircase with 280 mV of U subcarrier.

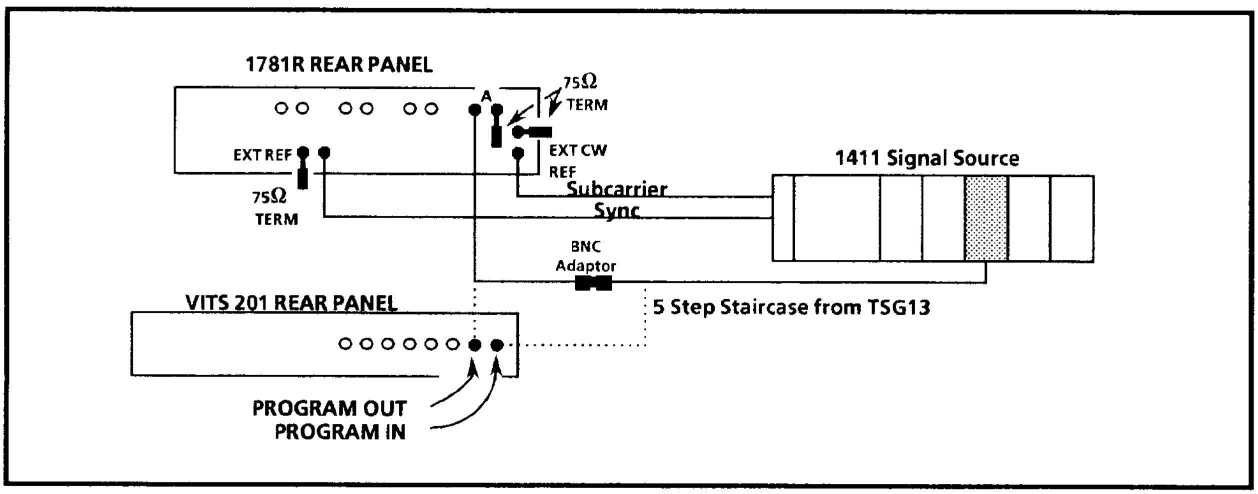


Figure 6–9. Equipment Connections to Check Program Channel Diff Phase and Gain.

b. Measure the Diff Phase of the waveform with the 1781, and note it.

c. Measure the Diff Gain of the waveform and note it as well.

d. Remove the BNC adapter. Connect the TSG13 output to PROGRAM IN, and connect PROGRAM OUT to the 1781 Ch. A input, as shown by the dotted lines in Figure 6–9.

e. **CHECK** – that the Diff Phase is $<0.3°$ after subtracting the Diff Phase noted in part b.

f. **CHECK** –That the Diff Gain is $<0.3\%$ after subtracting the Diff Gain noted in part c.

29. EXTERNAL Input Differential Phase and Gain

a. Continuing from the preceding step, move the cable connected to the TSG13 to the EXTERNAL 1 input.

b. Open S11-9 and -10. Perform a reset, and the display will read ***d.*** (**D**iagnostic) Use the **INCR** push button to select Diagnostic 16, then press the **ENTER** button; the display will read ***d.E. 1*** (**D**iagnostic, **E**xternal **1**).

c. **CHECK** – that the Differential Phase is $<0.3°$ after subtracting the Differential Phase noted in part b of step 26.

d. **CHECK** –That the Differential Gain is $<0.3\%$ after subtracting the Differential Gain noted in part c of step 26.

e. Repeat parts c and d of this step for each of the remaining External Inputs, using the **INCR** and **ENTER** buttons to select each External Input in turn.

f. Close S11-9 and -10.

PHASE MATCH

30. Bypass to Operate Phase Match

a. Connect the equipment as shown in Figure 6–10.

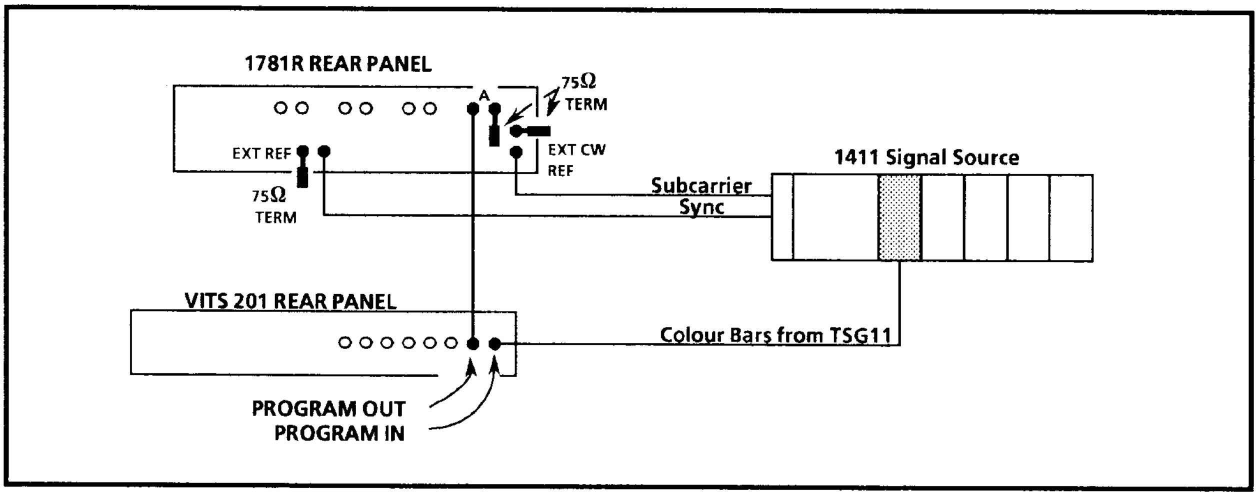


Figure 6–10. Equipment Connections to Check Bypass to Operate Phase Match.

b. Set the BYPASS switch (S1) to the Bypass position, and use the Vector Phase and Gain controls to set one of the burst vectors to the compass rose.

c. CHECK – for burst phase shift of ≤ ±1° as the BYPASS switch is alternated between Bypass and Operate.

TILT

31. Program Channel Tilt

a. Leave the equipment as shown in Figure 6–10, except replace the colour bar signal from the 1411 with a Field Square Wave. Set the 1781 for one line display.

b. Use the 1781 Position controls to align the top of the bar with a graticule line, on the waveform display.

c. CHECK – that the line-rate bar tilt is within 0.5% (3.5 mV).

d. Set the 1781 for one field display.

e. CHECK –that the field tilt is within 0.5% (3.5 mV), then set the 1781 back to one line display.

32. External Input Tilt

a. Continuing from the preceding step, move the Field Square Wave signal from the PROGRAM IN connector to EXTERNAL 1.

b. Open S11-9 and -10. Perform a reset, and the display will read ***d.*** (**D**iagnostic) Use the **INCR** push button to select Diagnostic 16, then press the **ENTER** button; the display will read ***d.E. 1*** (**D**iagnostic, **E**xternal **1**).

c. Repeat parts c, d, and e of the preceding step for each of the External inputs, using the **INCR** and **ENTER** buttons to select each External input in turn.

GENERAL TEST SIGNAL

33. Sync and Burst

a. Connect the VITS 201 PROGRAM OUT to the 1781 Ch. A input. No connection to PROGRAM IN.

b. Select signal 9 (One Line ITS) as the Standby mode signal.

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (**F**ailure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (**F**ailure **S**ignal) appears in the LED Display along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 9.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

c. Set the 1781 controls to view the sync and burst area of the signal.

d. CHECK - that the burst amplitude is 300 mV ±6 mV p–p.

e. CHECK – that the sync amplitude is 300 mV ±3 mV.

f. CHECK – that the sync width (HAD) is 4.7 μs ±50 ns.

g. CHECK – that the sync rise time is 250 ns ± 25 ns.

h. CHECK – that the breezeway duration is 900 ns ±50 ns.

i. CHECK – that the front porch duration is at least 1.55 μs.

j. CHECK – that the burst rise time is 350 ns ±35 ns.

k. CHECK – that burst start is 5.6 μs ±50 ns from the 50% point of the leading edge of sync.

l. CHECK – that the burst duration is 2.225 μs ±0.1 μs.

m. Adjust the 1781 controls to view the vertical interval.

n. CHECK – that the vertical serration width (HAD) is 4.7 μs ±50 ns.

o. CHECK – that the equalizing pulse width (HAD) is 2.35 μs ±50 ns.

34. Luminance Rise Time

a. Select signal 2 (100% Luminance) as the Standby signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (**F**ailure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (**F**ailure **S**ignal) appears in the LED Display along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 2.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.

- Close S11-10.

b. Use the 1781 Variable Gain to adjust the bar to be 10 divisions in height.

c. CHECK – that the rise time of the signals leading edge is 250 ns ±25 ns, from 10 to 90%.

35. Chrominance Rise Time

a. Select signal 8 (UK ITS 2) as the Standby signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (**F**ailure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (**F**ailure **S**ignal) appears in the LED Display along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 8.

- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

b. Use the 1781 Variable Gain to adjust the chroma bar to be 10 divisions in height, from pedestal to top of bar.

c. CHECK – that the rise time is 350 ns ±35 ns, from 10 to 90%.

36. Chrominance-to-Luminance Gain and Delay

a. Select signal 9 (One Line ITS) as the Standby signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (**F**ailure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (**F**ailure **S**ignal) appears in the LED Display along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 9.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

b. Set the 1781 to view the tops of the white bar and the 700 mV p-p chrominance packet, at X5 gain.

c. CHECK – that the top of the chrominance packet is the same amplitude as the white bar, ±3.5 mV.

d. Set the 1781 to view the bottom of the modulated 10T pulse.

e. CHECK – that the sine-wave shaped envelope at the base of the 10T pulse is ≤5.5 mV p-p (5 ns).

37. Standby Delay (S/N B040000 and above only)

a. Continuing from the preceding step, set J52 to it's pins 2–3 position, and check that the UNLOCKED and BYPASS LEDs are both lit.

b. Connect the Pulse and Bar signal from the TSG15 to the PROGRAM INPUT.

c. CHECK – that the VITS 201 locks to the program signal (both the UNLOCKED and BYPASS LEDs go out).

d. Disconnect the cable at the PROGRAM INPUT.

e. **CHECK** – that the VITS 201 goes into Standby mode immediately, as seen on the 1781.

f. Re-connect the PROGRAM INPUT cable and allow the VITS 201 to reacquire lock.

g. Move J52 to its pins 1–2 position and rotate R256 completely counterclockwise.

h. Disconnect the cable at the PROGRAM INPUT.

i. **CHECK** – that the VITS 201 goes into Standby mode immediately.

j. Re-connect the PROGRAM INPUT cable and allow the VITS 201 to reacquire lock.

k. Rotate R256 completely clockwise, then disconnect the cable at the PROGRAM INPUT.

l. **CHECK** – for a delay of at least 15 seconds before the VITS 201 goes into Standby mode, as shown on the 1781.

38. Check Power-up Mode Selection (S/N B040000 and above only)

a. Move J52 to its pins 2–3 position, and check that J54 is in its pins 1–2 position and that the BYPASS/NORMAL switch (S1) is in its NORMAL position. No connection to the PROGRAM INPUT.

b. Cycle the VITS 201 power off and back on.

c. **CHECK** – that both the yellow UNLOCKED LED and the red BYPASS LED are both on during the power up sequence and after the LED display shows ***L.07.***

d. Connect the TSG15 Pulse and Bar signal to the PROGRAM INPUT.

e. **CHECK** – that the UNLOCKED and BYPASS LEDs both go out.

f. Remove the Pulse and Bar signal from the PROGRAM INPUT.

g. **CHECK** – that the yellow UNLOCKED LED comes on, but the red BYPASS LED stays off.

h. Move J54 to its pins 2–3 position and cycle the VITS 201 power off and on.

i. **CHECK** – that only the yellow UNLOCKED LED comes on during the power up sequence.

39. Check COMP SYNC Output (S/N B040000 and above only)

a. Change the 1781 input from the PROGRAM OUT connector to the COMP SYNC connector.

b. Set the 1781 controls to view the sync pulse at a line rate.

c. CHECK – that the sync pulse amplitude is 4 V $\pm$0.2 V with P53 on pins 1-2, and 2 V $\pm$0.2 V with P53 on pins 3-4.

d. CHECK – that the sync pulse width (HAD) is $\approx$4.7 μs.

e. CHECK – that the sync rise time is 250 ns $\pm$25 ns.

f. Adjust the 1781 controls to view the vertical interval.

g. CHECK – that the vertical serration width (HAD) is $\approx$4.7 μs.

h. CHECK – that the equalizing pulse width (HAD) is $\approx$2.35 μs.

40. Check Failure Mode Switching

a. Connect Colour Bars from the 1411 to the PROGRAM IN connector, and connect Subcarrier from the 1411 to the EXTERNAL 4 input.

b. Program:
- Test Signal 2 (100% Luminance) onto line 7,
- EXTERNAL 1 onto line 23,
- EXTERNAL 4 onto line 336,
- PASS onto lines 30 and 331, and
- Test Signal 6 (CCIR 331.G1) as the standby signal:

- Open S11–10 to enable programming
- Press the **FUNCTION** button until ***L.*** (Line) appears in the LED display, along with the number of the last line programmed.
- Use the **INCR** and **DECR** buttons to select line 7.
- Push the **ENTER** button. The LED display should show **S.** (Signal).
- Use the **INCR** and **DECR** buttons to select signal 2.
- Push the **ENTER** button. The LED display should show ***U.P.--***
- Push the **ENTER** button again, to save this selection. The display should flash ***donE***, then display ***L.07***.
- Use the **INCR** and **DECR** buttons to select line 23.
- Push the **ENTER** button. The LED display should show **S.** (Signal).
- Press **Function** until ***E.*** (External) appears in the LED display.

- Use the **INCR and DECR** buttons to select EXTERNAL 2. The LED display will read ***E. 1.***
- Push the **ENTER** button. The LED display should show ***U.P.--***
- Push the **ENTER** button again, to save this selection. The display should flash ***donE***, then display ***L.23***.

- Use the **INCR and DECR** buttons to select line 336.
- Push the **ENTER** button. The LED display should show **S. (Signal)**.
- Press **Function until *E.* (External)** appears in the LED display.
- Use the **INCR and DECR** buttons to select EXTERNAL 4. The LED display will read ***E. 4.***
- Push the **ENTER** button. The LED display should show ***U.P.--***
- Push the **ENTER** button again, to save this selection. The display should flash ***donE***, then display ***L.336***.

- Press **Function until** the LED display shows ***P.*** **(Pass)**.
- Use the **INCR and DECR** buttons to select line 30.
- Push the **ENTER** button. The display should flash ***donE***, then show ***P.*** again.
- Use the **INCR and DECR** buttons to select line 331.
- Push the **ENTER** button. The display should flash ***donE***, then show ***P.*** again.

- Press the **FUNCTION** button until ***F.*** **(Failure)** appears in the LED display.
- Press the **ENTER** button. ***F.S.*** **(Failure Signal)** appears in the LED display.
- Use the **INCR and DECR** buttons to select signal 6 (CCIR 331.G1).
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED display.
- Close S11–10.

c. Disconnect the colour bar signal from the PROGRAM IN connector.

d. CHECK – for the correct signal on each of the following lines:

Line	Signal
7	100% Luminance
23	Black on first half of line, CCIR 331.G1 on last half
30	CCIR 331.G1
331	Black
336	External 4 (1411 Subcarrier)

e. Program EXTERNAL 2 as the standby signal:

- Open S11–10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (Failure) appears in the LED display.
- Press the **ENTER** button. ***F.S.*** (Failure Signal) appears in the LED display.
- Press the **FUNCTION** button. ***F.E.*** (Failure External) appears in the LED display.
- Use the **INCR** and **DECR** buttons to select External 2 as the failure signal.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED display.
- Close S11–10.

f. Connect the 1411 colour bar signal to EXTERNAL 2 connector.

g. CHECK – for colour bars on all lines.

h. Program EXTERNAL 3 as the standby signal:

- Open S11–10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (Failure) appears in the LED display.
- Press the **ENTER** button. ***F.S.*** (Failure Signal) appears in the LED display.
- Press the **FUNCTION** button. ***F.E.*** (Failure External) appears in the LED display.
- Use the **INCR** and **DECR** buttons to select External 3.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED display.
- Close S11–10.

i. Connect the 1411 colour bar signal to EXTERNAL 3 connector.

j. CHECK – for colour bars on all lines.

k. Program PASS as the standby signal.

- Open S11–10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (Failure) appears in the LED display.
- Press the **ENTER** button. ***F.S.*** (Failure Signal) appears in the LED display.
- Press the **FUNCTION** button until ***F.P.*** (Failure Pass) appears in the LED display.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED display.
- Close S11–10.

l. CHECK –for no video present except subcarrier and white lines.

SHORT FORM ADJUSTMENT PROCEDURE

GAIN

1. Test Signal Gain
ADJUST R212 for a signal 3 (CCIR 17) white bar amplitude of 700 mV ±7 mV.

2. Program Channel Gain
Measure 100% Colour Bar white bar amplitude in Bypass mode, then ADJUST R211 to match that amplitude in Operate mode.

DC LEVELS

3. Test Signal, Program Channel, and External Input DC Levels

Select EXTERNAL 1 for Line 16, and set S11–1 closed, –2 open. Check that EXTERNAL 1 dc level is 0V ±10 mV. ADJUST R249 to align test signal dc level to External level ±3 mV, ADJUST R248 to align Program channel signal to External level ±3 mV.

OPTIONAL ADJUSTMENTS

4. Test Signal Frequency Response
Select signal 12 (SIN X) / X as standby mode signal, open S11-7 (MANUFACTURING T.S. BANK) and ADJUST L8, L9, L10,L29; R238 (Loss Compensation), and C46 (SIN X / X Compensation) for flat (±7 mV) frequency response to 5.8 MHz. Close S11–7 and ADJUST T1, L6, T2 and L7 to balance the (SIN X) / X waveform peaks. Repeat as necessary.

5. Oscillator Frequency
ADJUST C19 for oscillator output frequency of 17.734375 MHz ±1 Hz. Check for approximately 17.734550 MHz with J21 on pins 3–4, and approximately 17.734100 MHz with J21 on pins 3–5.

6. Power Supply
ADJUST R513 for +5V ± 200 mV, at TP22 on the VITS INSERTER board. ADJUST R712 for no current limiting at 90 V line input level.

GAIN

1. Test Signal Gain

a. Connect the equipment as ashown in Figure 6–11.

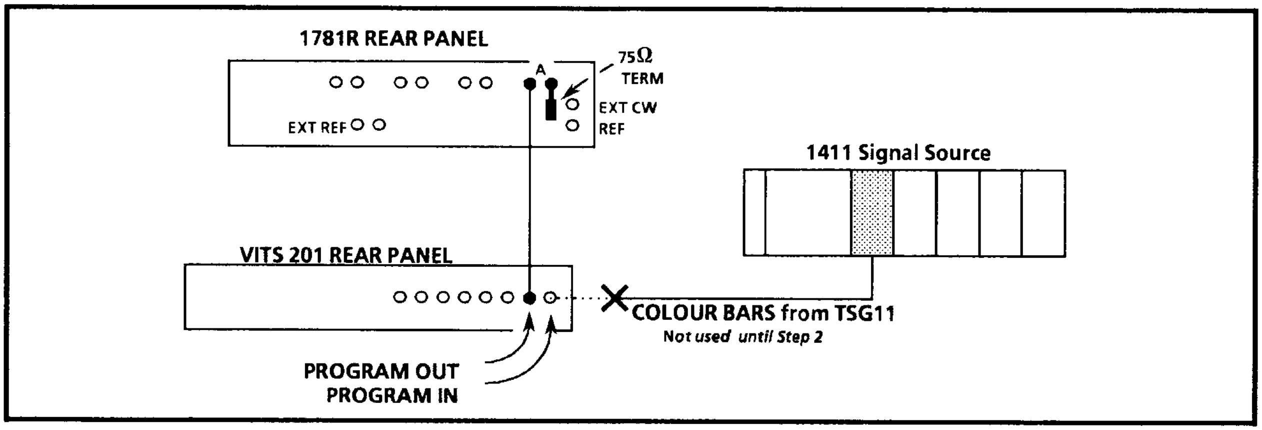


Figure 6-11. Setup to adjust PROGRAM channel gain.

b. Select signal 3 (CCIR 17) as the Standby Mode signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** (**F**ailure) appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** (**F**ailure **S**ignal) appears in the LED Display, along with the number of the current signal, if any.
- Use the **INCR** and **DECR** buttons to select signal 3.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

c. Set the 1781 to use the WFM + Cal function.

d. **ADJUST** – R212 for a white bar amplitude of 700.0 mV ±7 mV.

2. Program Channel Gain

a. Leave the equipment as shown in Figure 6–11, except connect the 100% Colour Bars from the 1411 to the VITS 201 PROGRAM IN.

b. Set the VITS 201 MANUAL BYPASS switch (S1) to the Bypass position (Right).

c. Set the 1781 to use the WFM + Cal function.

d. Measure the white bar amplitude of the Color Bar signal. Note this measurement.

e. Set the VITS 201 MANUAL BYPASS switch (S1) to the Normal position (Left). Leave all settings of the 1781 in the positions used in part d.

f. **ADJUST** – R211 to match the white bar amplitude to that noted in part d.

3. Sync Stripper (S/N B040000 and above only)

a. Disconnect the PROGRAM INPUT.

b. Check the voltage at U95–4 with the oscilloscope, and note the dc level.

c. Check the voltage at U95–5.

d. **ADJUST** – R274 as follows:
   - If U95–4 was above ground, adjust for ground at U95–5.
   - If U95–4 was below ground, adjust for ≈100 mV less at U95-5.

e. Reconnect the cable to the PROGRAM INPUT, and move the oscilloscope probe to U95–12.

f. **CHECK** – that comp sync appears at U95–12.

g. Disconnect the cable at PROGRAM INPUT.

h. **CHECK** – that there is no comp sync or any other TTL-level signal at U95–12.

4. Comp Sync Amplitude (SN B040000 and above only)

a. Connect the VITS 201 COMP SYNC output to the oscilloscope, using a 75 Ω coax and 75 Ω feed-thru terminator.

b. Set J53 to its pins 1–2 position.

c. **ADJUST** –R265 for a 4 V ±0.2 V sync pulse amplitude.

d. **CHECK** – that the sync pulse risetime (10% to 90%) is 250 ns ± 25 ns.

e. Move J53 to its pins 2–3 position.

f. **CHECK** – for a sync pulse amplitude of 2 V ± 0.2 V.

DC LEVELS

5. Test Signal, Program, and ITS DC Levels

a. Connect the equipment as shown in Figure 6-12. Set S11–1 closed and –2 open.

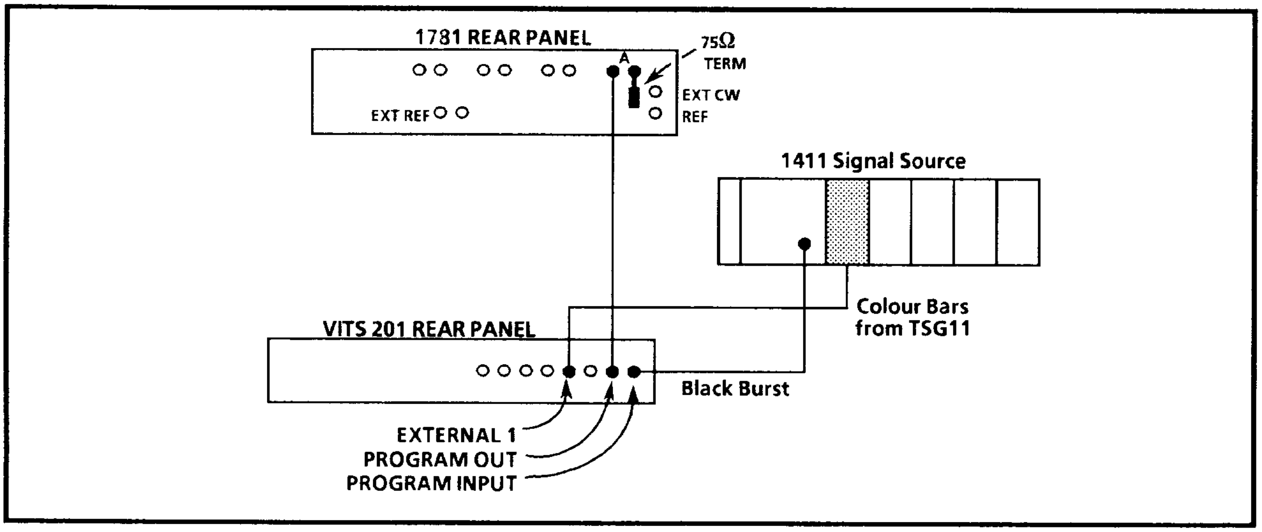


Figure 6–12. Equipment setup to adjust DC Levels.

b. Select EXTERNAL 1 as the ITS signal for line 16:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until the LED Display shows ***L.*** and a line number.
- Use the **INCR** and **DECR** buttons to select line 16.
- Push the **ENTER** button. The LED Display should show ***S.***
- Push the **FUNCTION** button until ***E.*** (External) appears in the LED Display
- Use the **INCR** and **DECR** buttons to select EXTERNAL 1. The Display will read ***E. 1***.
- Push the **ENTER** button. The LED Display should show ***U.P.***--.

- Push the **ENTER** button again. The LED Display should flash ***donE***, then display ***L. 16***.
- Close S11-10.

c. Set the 1781 to 2 Line display, and use Line Select function to show lines 16 and 17. Turn on the Voltage Cursors.

d. CHECK – using the 1781 voltage cursors, that the EXTERNAL 1 dc level (active video portion of line 16) is 0 V ±10 mV.

e. ADJUST – R248 so that the Program dc level (sync and burst area) is the same as the External dc level ±3 mV.

f. ADJUST – R249 so that the Test Signal dc level (active video portion of line 17) is the same as the External dc level ±3 mV.

OPTIONAL ADJUSTMENTS

Note

Optional Adjustments are not considered part of the normal procedure, and are not recommended unless an item is out of tolerance

6. Test Signal Frequency Response

a. Connect the equipment as shown in Figure 6-13. Remove the silicon sealer from the coils.

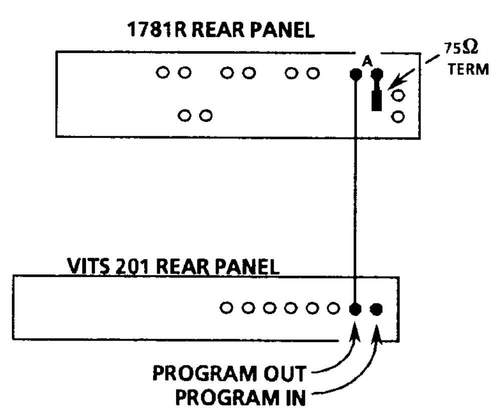


Figure 6–13. Equipment setup to adjust the Lowpass Filter.

b. Program Signal 12, (SIN X / X), as the Failure Signal:

- Open S11-10 to enable programming.
- Press the **FUNCTION** button until ***F.*** **(Failure)** appears in the LED Display.
- Press the **ENTER** button. ***F.S.*** **(Failure Signal)** appears in the LED Display, along with the number of the current signal, if any.
- Use the **INCREMENT** and **DECREMENT** buttons to select signal 12.
- Press **ENTER** to store the selection. ***L. 07*** appears in the LED Display.
- Close S11-10.

Note

The following parts of this step are interactive, and will need to be repeated until the best overall response is obtained.

c. Set S11–7 (MANUFACTURING T.S. BANK) open.

d. **ADJUST** – the Filter coils, L8, L9, L10; R212 (Test Signal Gain), and C46 (SIN X / X Compensation) for flatest frequency response to 5.8 MHz.

e. Set segment 7 of the OPERATIONAL SELECTION switch closed.

f. **ADJUST** – T1, L6, T2 and L7 to balance the SIN X / X waveform peaks.

g. Return to part c and repeat these steps until the frequency response is within 1% (±7 mV) and the SIN X / X peaks are balanced.

7. Oscillator Frequency

a. Connect a X1 probe to the Channel A input of the DC503A, and connect a reference, such as WWV, to the Channel B input, as shown in Figure 6–14.

b. Connect the probe from the DC503A Ch. A to TP20.

c. Set the Digital Counter Function control for Ratio A/B, and the AVG to 10^6.

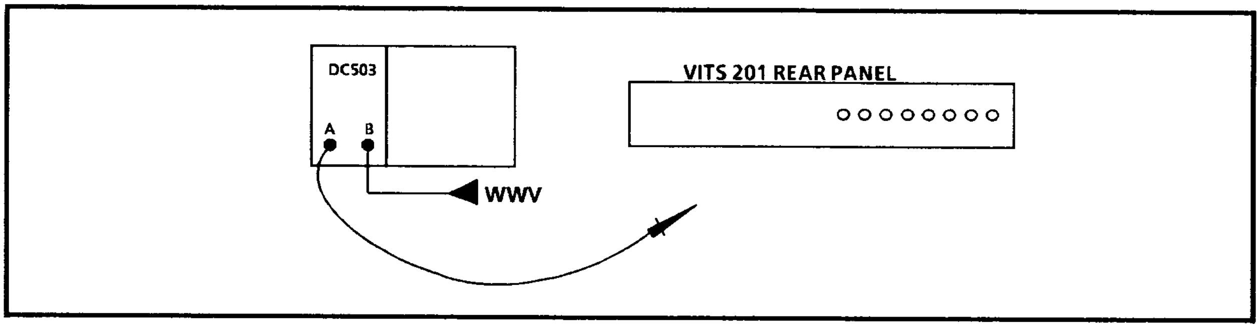


Figure 6–14. Setup to check subcarrier frequency.

d. Remove the plastic plug in the top of the oven housing.

e. **ADJUST** – C19, accessible through the hole in the oven housing, so that the oscillator output frequency is 17.734375 MHz ±1 Hz.

f. Move J21 (Oscillator Test) to pins 3-4.

g. **CHECK** – that the oscillator output frequency is approximately 17.734550 MHz.

h. Move J21 to pins 3-5.

i. **CHECK** – that the oscillator output frequency is approximately 17.734100 MHz.

j. Return J21 to pins 2-3, and replace the plastic plug in the top of the oven housing.

8. Power Supply

a. Apply power to the VITS 201 through the Variac, and set it to apply 90 V as the input voltage. Set R712 (Current Limit) 1/4 turn from its counter-clockwise limit.

b. **ADJUST** – for +5 V ±200 mV at TP22 on the VITS Inserter board. Use R513 (+5 V Adj) to adjust this, if necessary. Set R712 to its clockwise limit.

c. **CHECK** – to see if the LED (DS950) is flashing or not. If the LED is flashing, then the supply is current limiting. If the LED is not flashing, go to part e.

d. **ADJUST** – R712 slowly counter-clockwise until the LED stops flashing.

e. **ADJUST** – R712 counter-clockwise 1/4 turn from the point that the LED stopped flashing (or from its clockwise limit).

f. **CHECK** – that the voltage at TP22 is still at $+5$ V ± 200 mV.

This concludes the adjustment portion of the procedure. For a complete calibration return to the beginning of this section and go through the performance check, to verify all specifications

REPLACEABLE ELECTRICAL PARTS LIST

PARTS ORDERING INFORMATION

Replacement parts are available from or through your local Tektronix, Inc., field office or representative.

It is important, when ordering parts, to include the following information in your order. Part number, instrument type and 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 1 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. A23R1234 **component**

A23 **R1234**

Assembly Number → A23; R1234 ← **Circuit Number**

Read: Resistor 1234 of Assembly 23.

Example B. A23A2R1234 **component**

Assembly Number → **A23** **A2** **R1234**

Subassembly Number → A2; R1234 ← **Circuit Number**

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).

Mechanical subparts to the circuit boards are listed in the Electrical Parts List. These mechanical subparts are listed with their associated electrical parts. For example, fuse holder follows fuse.

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

TEKTRONIX PART NO.
(Column 2 of the Electrical Parts List)

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

SERIAL/ASSEMBLY NO.
(Columns 3 and 4 of the Electrical Parts List)

Column 3 indicates the serial or assembly number at which the part was first used Column 4 indicates the serial or assembly number at which the part was removed. No serial or assembly number entered indicates part is good for all serial numbers.

NAME AND DESCRIPTION
(Column 5 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. The Mechanical subparts are shown as *ATTACHED PARTS* / *END ATTACHED PARTS* or *MOUNTING PARTS* / *END MOUNTING PARTS* in column 5.

MFR. CODE
(Column 6 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 7 of the Electrical Parts List)

Indicates actual manufacturer's part number.

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
00779	AMP INC	2800 FULLING MILL PO BOX 3608	HARRISBURG PA 17105
00853	SANGAMO WESTON INC COMPONENTS DIV	SANGAMO RD PO BOX 128	PICKENS SC 29671-9716
01121	ALLEN-BRADLEY CO	1201 S 2ND ST	MILWAUKEE WI 53204-2410
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPY PO BOX 655012	DALLAS TX 75265
01536	TEXTRON INC CAMCAR DIV SEMS PRODUCTS UNIT	1818 CHRISTINA ST	ROCKFORD IL 61108
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 PRODUCTS SECTOR	5005 E MCDOWELL RD	PHOENIX AZ 85008-4229
05397	UNION CARBIDE CORP MATERIALS SYSTEMS DIV	11901 MADISON AVE	CLEVELAND OH 44101
05828	GENERAL INSTRUMENT CORP GOVERNMENT SYSTEMS DIV	600 W JOHN ST	HICKSVILLE NY 11802
07263	FAIRCHILD SEMICONDUCTOR CORP		
07716	TRW INC TRW IRC FIXED RESISTORS/BURLINGTON	2850 MT PLEASANT AVE	BURLINGTON IA 52601
09353	C AND K COMPONENTS INC	15 RIVERDALE AVE	NEWTON MA 02158-1057
09922	BURNDY CORP	RICHARDS AVE	NORWALK CT 06852
11236	CTS CORP BERNE DIV THICK FILM PRODUCTS GROUP	406 PARR ROAD	BERNE IN 46711-9506
12969	MICROSEMI CORPORATION WATERTOWN DIVISION	530 PLEASANT STREET	WATERTOWN MA 02172
14301	ANDERSON ELECTRONICS INC	310 PENN ST PO BOX 89	HOLLIDAYSBURG PA 16648-2009
14433	ITT SEMICONDUCTORS DIV		WEST PALM BEACH FL
15513	DATA DISPLAY PRODUCTS	301 CORAL CIR	EL SEGUNDO CA 90245-4620
17856	SILICONIX INC	2201 LAURELWOOD RD	SANTA CLARA CA 95054-1516
18565	CHOMERICS INC	77 DRAGON COURT	WOBURN MA 01801-1039
19701	PHILIPS COMPONENTS DISCRETE PRODUCTS DIV RESISTIVE PRODUCTS FACILITY AIRPORT ROAD	PO BOX 760	MINERAL WELLS TX 76067-0760
22526	DU PONT E I DE NEMOURS AND CO INC DU PONT ELECTRONICS DEPT	515 FISHING CREEK RD	NEW CUMBERLAND PA 17070-3007
24165	SPRAGUE ELECTRIC CO	267 LOWELL ROAD	HUDSON NH 03051
24546	CORNING GLASS WORKS	550 HIGH ST	BRADFORD PA 16701-3737
26364	COMPONENTS CORP	6 KINSEY PLACE	DENVILLE NJ 07834-2611
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051-0606
31223	MICRO PLASTICS INC	20821 DEARBORN ST	CHATSWORTH CA 91311-5916
31918	ITT SCHADOW INC	8081 WALLACE RD	EDEN PRAIRIE MN 55344-2224
32997	BOURNS INC TRIMPOT DIV	1200 COLUMBIA AVE	RIVERSIDE CA 92507-2114
33095	SPECTRUM CONTROL INC	2185 W WEIGHT ST	ERIE PA 16505
33096	COLORADO CRYSTAL CORP	2303 W 8TH ST	LOVELAND CO 80537-5268
34335	ADVANCED MICRO DEVICES	901 THOMPSON PL	SUNNYVALE CA 94086-4518
54473	MATSUSHITA ELECTRIC CORP OF AMERICA	ONE PANASONIC WAY PO BOX 1501	SECAUCUS NJ 07094-2917
54937	DEYOUNG MANUFACTURING INC	12920 NE 125TH WAY	KIRKLAND WA 98034-7716
55285	BERGQUIST CO INC THE	5300 EDINA INDUSTRIAL BLVD	MINNEAPOLIS MN 55435-3707
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195-4526
57668	ROHM CORP	8 WHATNEY PO BOX 19515	IRVINE CA 92713
58361	QUALITY TECHNOLOGIES CORP		
61529	AROMAT CORP	250 SHEFFIELD ST	MOUNTAINSIDE NJ 07092-2303
71400	BUSSMANN DIV OF COOPER INDUSTRIES INC	114 OLD STATE RD PO BOX 14460	ST LOUIS MO 63178
71744	CHICAGO MINIATURE LAMP INC	CHEVY CHASE BUSINESS PARK 1080 JOHNSON DRIVE	BUFFALO GROVE IL 60089

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
75042	IRC ELECTRONIC COMPONENTS PHILADELPHIA DIV TRW FIXED RESISTORS	401 N BROAD ST	PHILADELPHIA PA 19108-1001
75915	LITTELFUSE INC SUB TRACOR INC	800 E NORTHWEST HWY	DES PLAINES IL 60016-3049
76493	BELL INDUSTRIES INC JW MILLER DIV	19070 REYES AVE PO BOX 5825	COMPTON CA 90224-5825
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
81073	GRAYHILL INC	561 HILLGROVE AVE PO BOX 10373	LA GRANGE IL 60525-5914
91506	AUGAT INC	33 PERRY AVE P O BOX 779	ATTLEBORO MA 02703-2417
91637	DALE ELECTRONICS INC	2064 12TH AVE PO BOX 609	COLUMBUS NE 68601-3632
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61108-5181
D5243	ROEDERSTEIN E SPEZIALFABRIK FUER KONDENSATOREN GMBN	LUDMILLASTRASSE 23-25	8300 LANDSHUT GERMANY
S4307	SCHAFFNER ELECTRONIK AG		LUTERBACH SWITZERLAND
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK0510	PANASONIC COMPANY DIV OF MATSUSHITA ELECTRIC CORP	ONE PANASONIC WAY	SECAUCUS NJ 07094
TK1134	TUSONIX INC	2155 N FORBES BLVD	TUCSON AZ 85705
TK1345	ZMAN & ASSOCIATES		
TK1395	ROEDERSTEIN ELECTRONICS INC		
TK1573	WILHELM WESTERMAN	PO BOX 2345 AUGUSTA-ANLAGE 56	6800 MANNHEIM 1 WEST GERMANY
TK1960	U S TOYO FAN CORP	4915 WALNUT GROVE AVE DRAWER G	SAN GABRIEL CA 91776
TK2165	TRIQUEST CORP		

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1	671-0856-00	B010100	B010122	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-00
A1A1	671-0856-01	B010123	B020153	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-01
A1A1	671-0856-02	B020154	B020168	CIRCUIT BD ASSY:VITS INSERTER	80009	671-0856-02
A1A1	671-0856-03	B020169	B020195	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-03
A1A1	671-0856-04	B020196	B029999	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-04
A1A1	671-0856-05	B030000	B030219	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-05
A1A1	671-0856-06	B030220	B030308	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-06
A1A1	671-0856-07	B030309	B040336	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-07
A1A1	671-0856-08	B040337	B040681	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-08
A1A1	671-0856-11	B040682	B040756	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-11
A1A1	671-0856-14	B040757	B040789	CIRCUIT BD ASSY:PALVITS INSERTER	80009	671-0856-14
A1A1	671-0856-17	B040790		CIRCUIT BD ASSY:PAL VITS INSERTER (STANDARD ONLY)	80009	671-0856-17
A1A1	671-0856-09	B040337	B040681	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-09
A1A1	671-0856-12	B040682	B040756	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-12
A1A1	671-0856-15	B040757	B040789	CIRCUIT BD ASSY:PALVITS INSERTER	80009	671-0856-15
A1A1	671-0856-18	B040790		CIRCUIT BD ASSY:PAL VITS INSERTER (OPTION 05 ONLY)	80009	671-0856-18
A1A1	671-0856-10	B040337	B040681	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-10
A1A1	671-0856-13	B040682	B040756	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-13
A1A1	671-0856-16	B040757	B040789	CIRCUIT BD ASSY:PALVITS INSERTER	80009	671-0856-16
A1A1	671-0856-19	B040790		CIRCUIT BD ASSY:PAL VITS INSERTER (OPTION 10 ONLY)	80009	671-0856-19
A1A1	671-0856-20	B041059		CIRCUIT BD ASSY:PALVITS INSERTER (OPTION 05/10 COMBINATION)	80009	671-0856-20
A1A2	119-2501-03	B010100	B010255	OVEN ASSEMBLY:	80009	119-2501-03
A1A2	119-2501-04	B010256		OVEN ASSEMBLY:TPG625	80009	119-2501-04
A1A3	671-2100-00	B030309		CIRCUIT BD ASSY:CCIR	80009	671-2100-00
A2	671-0663-00	B010100	B030284	CIRCUIT BD ASSY:POWER SUPPLY	80009	671-0663-00
A2	671-0663-01	B030285	B030308	CIRCUIT BD ASSY:POWER SUPPLY	80009	671-0663-01
A2	671-0663-02	B030309	B041128	CIRCUIT BD ASSY:PWR SPLY	80009	671-0663-02
A2	671-0663-03	B041129		CIRCUIT BD ASSY:POWER SUPPLY	80009	671-0663-03

A1A1	671-0856-00	B010100	B010122	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-00
A1A1	671-0856-01	B010123	B020153	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-01
A1A1	671-0856-02	B020154	B020168	CIRCUIT BD ASSY:VITS INSERTER	80009	671-0856-02
A1A1	671-0856-03	B020169	B020195	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-03
A1A1	671-0856-04	B020196	B029999	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-04
A1A1	671-0856-05	B030000	B030219	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-05
A1A1	671-0856-06	B030220	B030308	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-06
A1A1	671-0856-07	B030309	B040336	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-07
A1A1	671-0856-08	B040337	B040681	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-08
A1A1	671-0856-11	B040682	B040756	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-11
A1A1	671-0856-14	B040757	B040789	CIRCUIT BD ASSY:PALVITS INSERTER	80009	671-0856-14
A1A1	671-0856-17	B040790		CIRCUIT BD ASSY:PAL VITS INSERTER (STANDARD ONLY)	80009	671-0856-17
A1A1	671-0856-09	B040337	B040681	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-09
A1A1	671-0856-12	B040682	B040756	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-12
A1A1	671-0856-15	B040757	B040789	CIRCUIT BD ASSY:PALVITS INSERTER	80009	671-0856-15
A1A1	671-0856-18	B040790		CIRCUIT BD ASSY:PAL VITS INSERTER (OPTION 05 ONLY)	80009	671-0856-18
A1A1	671-0856-10	B040337	B040681	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-10
A1A1	671-0856-13	B040682	B040756	CIRCUIT BD ASSY:PAL VITS INSERTER	80009	671-0856-13
A1A1	671-0856-16	B040757	B040789	CIRCUIT BD ASSY:PALVITS INSERTER	80009	671-0856-16
A1A1	671-0856-19	B040790		CIRCUIT BD ASSY:PAL VITS INSERTER (OPTION 10 ONLY)	80009	671-0856-19
A1A1	671-0856-20	B041059		CIRCUIT BD ASSY:PALVITS INSERTER (OPTION 05/10 COMBINATION)	80009	671-0856-20

				ATTACHED PARTS		
	131-2962-00			TERMINAL,STUD:0.262 L (QUANTITY 7)	80009	131-2962-00
				END ATTACHED PARTS		
A1A1C1	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C2	283-0772-00			CAP,FXD,MICA DI:497 PF,1%,500V	80009	283-0772-00
A1A1C3	283-0625-00			CAP,FXD,MICA DI:220PF,1%,500V	80009	283-0625-00

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1C4	283-0647-00	671-0856-00		CAP,FXD,MICA DI:70PF,1%,100V	80009	283-0647-00
A1A1C5	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C6	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C7	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C8	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C9	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C10	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C11	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C14	283-0065-00	671-0856-00	671-0856-04	CAP,FXD,CER DI:0.001UF,5%,50V	80009	283-0065-00
A1A1C14	281-0862-00	671-0856-05		CAP,FXD,CER DI:0.001UF,+80-20%,100V	04222	SA101C102MAA
A1A1C17	281-0928-00			CAP,FXD,CER DI:150PF,5%	04222	SA101A151JAA
A1A1C18	283-0594-00	671-0856-00		CAP,FXD,MICA DI:0.001UF,1%,100V	80009	283-0594-00
A1A1C19	283-0594-00	671-0856-00		CAP,FXD,MICA DI:0.001UF,1%,100V	80009	283-0594-00
A1A1C21	283-0223-00	671-0856-00	671-0856-07	CAP,FXD,CER DI:3PF,+/-5PF,50V	TK1134	835XXXC0J0309D
A1A1C21	281-0659-00	671-0856-08	671-0856-16	CAP,FXD,CER DI:4.3PF,+/-0.25PF,500V	80009	281-0659-00
A1A1C21	281-0718-00	671-0856-17		CAP,FXD,CER DI:15.8PF,1%,500V	TK1134	374-018C0G01589F
A1A1C24	283-0051-00			CAP,FXD,CER DI:0.0033UF,5%,100V	80009	283-0051-00
A1A1C25	290-0990-00			CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C26	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C27	290-0990-00	671-0856-00		CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C28	290-0990-00	671-0856-00		CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C29	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C30	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C31	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C32	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C33	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C35	283-0665-00	671-0856-00		CAP,FXD,MICA DI:190PF,1%,100V	80009	283-0665-00
A1A1C36	283-0770-00	671-0856-00		CAP,FXD,MICA DI:300 PF,1%,500V	80009	283-0770-00
A1A1C37	283-0790-00			CAP,FXD,MICA DI:850PF,1%,500V	00853	D195F851F0
A1A1C38	283-0594-00	671-0856-00		CAP,FXD,MICA DI:0.001UF,1%,100V	80009	283-0594-00
A1A1C39	283-0706-00			CAP,FXD,MICA DI:91PF,1%,500V	80009	283-0706-00
A1A1C40	283-0639-00	671-0856-00		CAP,FXD,MICA DI:56PF,1%,500V	80009	283-0639-00
A1A1C41	283-0598-00	671-0856-00		CAP,FXD,MICA DI:253PF,5%,500V	80009	283-0598-00
A1A1C42	283-0782-00			CAP,FXD,MICA DI:39 PF,5%,500V	80009	283-0782-00
A1A1C43	283-0672-00	671-0856-00		CAP,FXD,MICA DI:200PF,1%,500V	80009	283-0672-00
A1A1C44	283-0644-00	671-0856-00		CAP,FXD,MICA DI:150PF,1%,500V	80009	283-0644-00
A1A1C45	283-0728-00	671-0856-00		CAP,FXD,MICA DI:120PF,1%,500V	80009	283-0728-00
A1A1C46	281-0208-00	671-0856-00	671-0856-04	CAP,VAR,PLASTIC:5.5-50PF,100V	80009	281-0208-00
A1A1C46	281-0167-00	671-0856-05		CAP,VAR,CER DI:9-45PF,200V	33095	53-717-001 D9-45
A1A1C47	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C48	281-0775-01	671-0856-00	671-0856-04	CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C48	283-0190-00	671-0856-05		CAP,FXD,CER DI:0.47UF,5%,50V	04222	SR305C474JAA
A1A1C49	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C50	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C51	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C52	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C53	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C54	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C55	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C58	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C59	283-0666-00			CAP,FXD,MICA DI:890PF,2%,100V	80009	283-0666-00
A1A1C60	283-0666-00			CAP,FXD,MICA DI:890PF,2%,100V	80009	283-0666-00
A1A1C68	283-0644-00	671-0856-00		CAP,FXD,MICA DI:150PF,1%,500V	80009	283-0644-00
A1A1C69	290-0990-00			CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C71	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C72	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C73	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C74	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C76	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA

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A1A1C77	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C78	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C79	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C80	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C81	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C82	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C83	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C84	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C85	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C88	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C90	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C91	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C92	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C94	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C95	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C96	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C97	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C98	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C99	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C100	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C101	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C102	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C103	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C104	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C105	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C107	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C112	283-0177-00	671-0856-08		CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAA
A1A1C120	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C123	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C124	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C125	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C126	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C127	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C130	281-0928-00			CAP,FXD,CER DI:150PF,5%	04222	SA101A151JAA
A1A1C131	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C132	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C133	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C134	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C135	281-0756-00			CAP,FXD,CER DI:2.2PF,+/-0.5PF,200V	04222	SA102A2R2DAA
A1A1C136	281-0756-00			CAP,FXD,CER DI:2.2PF,+/-0.5PF,200V	04222	SA102A2R2DAA
A1A1C137	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C138	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C141	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C142	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C143	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C144	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C145	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C146	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C147	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C148	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C150	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C151	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C152	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C153	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C154	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C155	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C156	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C157	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C158	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA

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A1A1C159	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C160	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C161	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C162	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C163	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C164	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C165	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C166	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C169	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C170	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C171	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C172	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C173	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C174	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C175	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C176	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C178	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C179	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C183	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C184	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C185	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C186	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C189	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C190	283-0194-00			CAP,FXD,CER DI:4.7UF,20%,50V	05397	C350C475M5UICA
A1A1C191	283-0194-00			CAP,FXD,CER DI:4.7UF,20%,50V	05397	C350C475M5UICA
A1A1C192	283-0194-00			CAP,FXD,CER DI:4.7UF,20%,50V	05397	C350C475M5UICA
A1A1C193	283-0194-00			CAP,FXD,CER DI:4.7UF,20%,50V	05397	C350C475M5UICA
A1A1C194	283-0194-00	671-0856-00	671-0856-07	CAP,FXD,CER DI:4.7UF,20%,50V	05397	C350C475M5UICA
A1A1C196	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C198	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C199	290-0942-00			CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C200	283-0711-00			CAP,FXD,MICA DI:2700PF,2%,500V	80009	283-0711-00
A1A1C201	283-0648-00	671-0856-00		CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	80009	283-0648-00
A1A1C202	283-0636-00	671-0856-00		CAP,FXD,MICA DI:36PF,1.4%,500V	80009	283-0636-00
A1A1C203	283-0640-00	671-0856-00		CAP,FXD,MICA DI:160PF,1%,500V	80009	283-0640-00
A1A1C204	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C205	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C206	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C207	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C208	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C209	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C210	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C211	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C212	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C213	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C214	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C215	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C216	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C217	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C218	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C219	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C220	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C221	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C222	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C223	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C224	283-0695-00			CAP,FXD,MICA DI:4440PF,1%,500V	80009	283-0695-00
A1A1C226	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C227	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C228	290-0990-00	671-0856-00		CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437

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A1A1C229	290-0990-00	671-0856-00		CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C230	290-0990-00	671-0856-00		CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C231	290-0990-00	671-0856-00		CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C232	281-0775-01	671-0856-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C233	290-0990-00	671-0856-00		CAP,FXD,ELCTLT:10UF,20%,50V	24165	502D437
A1A1C234	283-0051-00	671-0856-00		CAP,FXD,CER DI:0.0033UF,5%,100V	80009	283-0051-00
A1A1C235	283-0648-00	671-0856-00		CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	80009	283-0648-00
A1A1C236	283-0631-00	671-0856-00		CAP,FXD,MICA DI:95PF,1%,500V	80009	283-0631-00
A1A1C237	283-0065-00	671-0856-00		CAP,FXD,CER DI:0.001UF,5%,50V	80009	283-0065-00
A1A1C237	281-0862-00	671-0856-05		CAP,FXD,CER DI:0.001UF,+80-20%,100V	04222	SA101C102MAA
A1A1C238	281-0775-01	671-0856-08		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A1C239	283-0660-00	671-0856-08		CAP,FXD,MICA DI:510PF,2%,500V	80009	283-0660-00
A1A1C240	290-0943-00	671-0856-08		CAP,FXD,ELCTLT:47UF,+50-20%,25V	55680	UVX1V470MPA
A1A1C241	283-0625-00	671-0856-08	671-0856-13	CAP,FXD,MICA DI:220PF,1%,500V	80009	283-0625-00
A1A1C241	283-0769-00	671-0856-14		CAP,FXD,MICA DI:278 PF,1%,500V	80009	283-0769-00
A1A1C242	283-0177-00	671-0856-08		CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAA
A1A1C243	290-0942-00	671-0856-08		CAP,FXD,ELCTLT:100UF,+100-10%,25V	24165	672D107H025CG2C
A1A1C244	283-0177-00	671-0856-08		CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAA
A1A1CR3	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR4	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR7	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR8	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR11	152-0322-00	671-0856-00		DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF;5	80009	152-0322-00
				082-2811,T&R		
A1A1CR12	152-0322-00	671-0856-00		DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF;5	80009	152-0322-00
				082-2811,T&R		
A1A1CR14	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR16	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR17	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR18	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR19	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR20	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR21	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR22	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR23	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR24	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR25	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR26	152-0964-00			DIODE,SIG:	80009	152-0964-00
A1A1CR27	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR28	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		
A1A1CR29	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4	80009	152-0141-02
				152,DO-35,T&R		

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1CR30	152-0141-02			DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4 152,DO-35,T&R	80009	152-0141-02
A1A1CR31	152-0141-02	671-0856-08		DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4 152,DO-35,T&R	80009	152-0141-02
A1A1CR32	152-0141-02	671-0856-08		DIODE,SIG:,ULTRA FAST;40V,150MA,4NS,2PF;1N4 152,DO-35,T&R	80009	152-0141-02
A1A1CR33	152-0322-00	671-0856-08		DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF;5 082-2811,T&R	80009	152-0322-00
A1A1CR34	152-0322-00	671-0856-08		DIODE,SIG:SCHTKY,;15V,410MVF AT 1MA,1.2PF;5 082-2811,T&R	80009	152-0322-00
A1A1DS1	150-1117-00			DIODE,OPTO:,LED;RED,655NM,7 SEG W/DEC,COM-A NODE;FND-360 L10,11,DIP	58361	FND-360 L10,11
A1A1DS2	150-1117-00			DIODE,OPTO:,LED;RED,655NM,7 SEG W/DEC,COM-A NODE;FND-360 L10,11,DIP	58361	FND-360 L10,11
A1A1DS3	150-1117-00			DIODE,OPTO:,LED;RED,655NM,7 SEG W/DEC,COM-A NODE;FND-360 L10,11,DIP	58361	FND-360 L10,11
A1A1DS4	150-1117-00			DIODE,OPTO:,LED;RED,655NM,7 SEG W/DEC,COM-A NODE;FND-360 L10,11,DIP	58361	FND-360 L10,11
A1A1DS5	150-1090-00			LT EMITTING DIO:RED,660NM,30MA	15513	SP850211
A1A1DS6	150-1111-00			LT EMITTING DIO:GREEN,D565NM,35MA	15513	PCL200-MG
A1A1DS7	150-1120-00			DIODE,OPTO:,LED;AMBER,583NM,8MCD AT 20MA,T1 3/4 IN RIGHT ANGLE HOUSING;PCL200-BA	15513	PCL200-BA
A1A1J2	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J3	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 4)	80009	131-0608-00
A1A1J8	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J9	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J10	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J11	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J13	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J14	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J15	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J16	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J17	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J18	131-3378-00			CONN,RF JACK:	00779	227677-1
A1A1J19	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J20	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J21	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 5)	80009	131-0608-00
A1A1J31	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 34)	80009	131-0608-00
A1A1J32	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J33	131-0787-00			TERMINAL,PIN: (QUANTITY 5)	22526	47359-001
A1A1J34	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J35	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 16)	80009	131-0608-00
A1A1J38	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 34)	80009	131-0608-00
A1A1J39	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J40	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J41	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	80009	131-0608-00

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
				(QUANTITY 3)		
A1A1J47	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J48	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J49	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J51	131-0608-00	671-0856-08		TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J52	131-0608-00	671-0856-08		TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J53	131-0608-00	671-0856-08		TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J54	131-0608-00	671-0856-08		TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1J55	131-0608-00	671-0856-08		TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A1A1K2	148-0079-00			RELAY,REED:2 FORM A,COIL 5 VDC 200 OHM, CON TACTS 28 VDC 110 MA	80009	148-0079-00
A1A1K3	148-0232-00			RELAY,ARM:	61529	RG2E-12V
A1A1L1	108-0103-01			COIL,RF:FIXED,2.5UH,2%	80009	108-0103-01
A1A1L2	108-0550-00	671-0856-00	671-0856-04	COIL,RF:FIXED,89NH	80009	108-0550-00
A1A1L2	108-0733-00	671-0856-05	671-0856-07	COIL,RF:FIXED,117NH	80009	108-0733-00
A1A1L2	108-0733-00	671-0856-08	671-0856-16	COIL,RF:FIXED,117NH	80009	108-0733-00
A1A1L2	108-0311-00	671-0856-17		COIL,RF:FIXED,150NH	TK1345	108-0311-00
A1A1L4	108-0550-00	671-0856-00	671-0856-07	COIL,RF:FIXED,89NH	80009	108-0550-00
A1A1L4	108-0733-00	671-0856-08	671-0856-16	COIL,RF:FIXED,117NH	80009	108-0733-00
A1A1L4	108-0311-00	671-0856-17		COIL,RF:FIXED,150NH	TK1345	108-0311-00
A1A1L5	108-1212-00			COIL,RF:FIXED,9UH,2%	TK1345	108-1212-00
A1A1L6	114-0466-00			COIL,RF:VAR 430 - 510 NH, PRESET/SECURED TO 480 NH, +/- 1%	54937	500-4755
A1A1L7	114-0467-00			COIL,RF:VAR 360 - 430 NH, PRESET/SECURED TO 400 NH, +/- 1%	54937	500-4756
A1A1L8	114-0462-00			COIL,RF:VAR 1.6 - 1.85 UH, PRESET/SECURED T O 1.70 UH, +/- 1%	54937	500-4751
A1A1L9	114-0463-00			COIL,RF:VAR 0.90UH - 1.07UH, PRESET/SECURED TO 0.98 UH, +/- 1%Q=160, POT CORE	54937	500-4752
A1A1L10	114-0464-00			COIL,RF:VAR 1.00 - 1.15 UH, PRESET/SECURED TO 1.12UH +/- 1%	54937	500-4753
A1A1L11	108-0912-00	671-0856-00	671-0856-04	COIL,RF:FIXED,83NH	80009	108-0912-00
A1A1L11	108-0311-00	671-0856-05	671-0856-07	COIL,RF:FIXED,150NH	TK1345	108-0311-00
A1A1L11	108-0733-00	671-0856-08		COIL,RF:FIXED,117NH	80009	108-0733-00
A1A1L17	108-1212-00			COIL,RF:FIXED,9UH,2%	TK1345	108-1212-00
A1A1L18	108-0226-00			COIL,RF:FIXED,100UH	76493	B4257
A1A1L19	108-0226-00			COIL,RF:FIXED,100UH	76493	B4257
A1A1L20	108-0226-00			COIL,RF:FIXED,100UH	76493	B4257
A1A1L21	108-0226-00			COIL,RF:FIXED,100UH	76493	B4257
A1A1L22	108-0226-00	671-0856-00	671-0856-07	COIL,RF:FIXED,100UH	76493	B4257
A1A1L23	108-1206-00	671-0856-00		COIL,RF:FIXED,413NH,1%	TK1345	108-1206-00
A1A1L24	108-1206-00	671-0856-00		COIL,RF:FIXED,413NH,1%	TK1345	108-1206-00
A1A1L25	108-1206-00	671-0856-00		COIL,RF:FIXED,413NH,1%	TK1345	108-1206-00
A1A1L26	108-1206-00	671-0856-00		COIL,RF:FIXED,413NH,1%	TK1345	108-1206-00
A1A1L27	108-1206-00	671-0856-00	671-0856-07	COIL,RF:FIXED,413NH,1%	TK1345	108-1206-00
A1A1L27	108-0241-00	671-0856-08		COIL,RF:FIXED,63NH,10%,5 TURN OF #33 WIRE,F ORM 276-0153-00	80009	108-0241-00
A1A1L29	114-0465-00			COIL,RF:VAR,150 - 160NH,PRESET/SECURED TO 1 55NH +/- 1%,POT	54937	500-4754
A1A1L30	108-0103-01	671-0856-08		COIL,RF:FIXED,2.5UH,2%	80009	108-0103-01
A1A1P2	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P3	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P8	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1P9	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P19	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P20	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P21	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P32	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P34	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A1A1P39	131-0993-05			BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P40	131-0993-05			BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P41	131-0993-05			BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P47	131-0993-05			BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P48	131-0993-05			BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P49	131-0993-05			BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P51	131-0993-05	671-0856-08		BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P52	131-0993-05	671-0856-08		BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P53	131-0993-05	671-0856-08		BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P54	131-0993-05	671-0856-08		BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1P55	131-0993-05	671-0856-08		BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
A1A1Q1	151-0190-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q2	151-0220-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,400MHZ ,AMPLIFIER;2N3906(SEL),TO-92 EBC	80009	151-0220-00
A1A1Q3	151-0190-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q5	151-0190-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q11	151-0220-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,400MHZ ,AMPLIFIER;2N3906(SEL),TO-92 EBC	80009	151-0220-00
A1A1Q12	151-0656-00			TRANSISTOR,PWR:BIPOLAR,NPN;80V,8.0A,4.0MHZ, DARLINGTON,AMPLIFIER;2N6044,TO-220	80009	151-0656-00
				MOUNTING PARTS		
	210-0586-00			NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
	211-0021-00			SCREW,MACHINE:4-40 X 1.25,PNH,STL	TK0435	ORDER BY DESCR
				END MOUNTING PARTS		
A1A1Q13	151-0220-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,400MHZ ,AMPLIFIER;2N3906(SEL),TO-92 EBC	80009	151-0220-00
A1A1Q14	151-0220-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,400MHZ ,AMPLIFIER;2N3906(SEL),TO-92 EBC	80009	151-0220-00
A1A1Q15	151-0220-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,400MHZ ,AMPLIFIER;2N3906(SEL),TO-92 EBC	80009	151-0220-00
A1A1Q16	151-0220-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,400MHZ ,AMPLIFIER;2N3906(SEL),TO-92 EBC	80009	151-0220-00
A1A1Q17	151-1022-00			TRANSISTOR,SIG:JFET,N-CH;4V,75MA,80 OHM,SEL ECTED FOR VGS(OFF);2N4392 FAMILY,TO-18	80009	151-1022-00
A1A1Q18	151-0223-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;15V,500MA,SWITCH ING;MPS2369A,TO-92 EBC	80009	151-0223-00
A1A1Q19	151-1022-00			TRANSISTOR,SIG:JFET,N-CH;4V,75MA,80 OHM,SEL ECTED FOR VGS(OFF);2N4392 FAMILY,TO-18	80009	151-1022-00
A1A1Q20	151-1022-00			TRANSISTOR,SIG:JFET,N-CH;4V,75MA,80 OHM,SEL ECTED FOR VGS(OFF);2N4392 FAMILY,TO-18	80009	151-1022-00
A1A1Q21	151-1022-00			TRANSISTOR,SIG:JFET,N-CH;4V,75MA,80 OHM,SEL ECTED FOR VGS(OFF);2N4392 FAMILY,TO-18	80009	151-1022-00
A1A1Q22	151-1022-00	671-0856-00	671-0856-07	TRANSISTOR,SIG:JFET,N-CH;4V,75MA,80 OHM,SEL ECTED FOR VGS(OFF);2N4392 FAMILY,TO-18	80009	151-1022-00
A1A1Q23	151-1059-00	671-0856-00		TRANSISTOR,SIG:JFET,N-CH;10V,30MA(MIN),30 O HM,300MW;MPF4391,TO-92	04713	ORDER BY DESCR
A1A1Q24	151-1059-00	671-0856-00		TRANSISTOR,SIG:JFET,N-CH;10V,30MA(MIN),30 O HM,300MW;MPF4391,TO-92	04713	ORDER BY DESCR
A1A1Q25	151-1059-00	671-0856-00		TRANSISTOR,SIG:JFET,N-CH;10V,30MA(MIN),30 O HM,300MW;MPF4391,TO-92	04713	ORDER BY DESCR

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1Q26	151-1059-00	671-0856-00	671-0856-07	TRANSISTOR,SIG:JFET,N-CH;10V,30MA(MIN),30 OHM,300MW;MPF4391,TO-92	04713	ORDER BY DESCR
A1A1Q27	151-1059-00	671-0856-00		TRANSISTOR,SIG:JFET,N-CH;10V,30MA(MIN),30 OHM,300MW;MPF4391,TO-92	04713	ORDER BY DESCR
A1A1Q28	151-0223-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;15V,500MA,SWITCHING;MPS2369A,TO-92 EBC	80009	151-0223-00
A1A1Q29	151-0223-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;15V,500MA,SWITCHING;MPS2369A,TO-92 EBC	80009	151-0223-00
A1A1Q30	151-0223-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;15V,500MA,SWITCHING;MPS2369A,TO-92 EBC	80009	151-0223-00
A1A1Q31	151-0190-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q32	151-0223-00	671-0856-00	671-0856-07	TRANSISTOR,SIG:BIPOLAR,NPN;15V,500MA,SWITCHING;MPS2369A,TO-92 EBC	80009	151-0223-00
A1A1Q33	151-0223-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;15V,500MA,SWITCHING;MPS2369A,TO-92 EBC	80009	151-0223-00
A1A1Q34	151-0220-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,400MHZ,AMPLIFIER;2N3906(SEL),TO-92 EBC	80009	151-0220-00
A1A1Q35	151-0254-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;30V,500MA,125MHZ,AMPLIFIER,DARLINGTON;MPSA14,TO-92 EBC	80009	151-0254-00
A1A1Q36	151-0190-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q37	151-0164-00	671-0856-00		TRANSISTOR,SIG:BIPOLAR,PNP;60V,600MA,200MHZ,AMPLIFIER;MPS2907A,TO-92 EBC	04713	MPS2907A
A1A1Q38	151-0190-00	671-0856-08		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q39	151-0190-00	671-0856-08		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q40	151-0190-00	671-0856-08		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A1A1Q41	151-0223-00	671-0856-08		TRANSISTOR,SIG:BIPOLAR,NPN;15V,500MA,SWITCHING;MPS2369A,TO-92 EBC	80009	151-0223-00
A1A1R1	307-0851-00			RES NTWK,FXD,FI:(8),220 OHM,2%,0.25W	01121	316B221
A1A1R2	307-0851-00	671-0856-00		RES NTWK,FXD,FI:(8),220 OHM,2%,0.25W	01121	316B221
A1A1R3	307-0851-00	671-0856-00		RES NTWK,FXD,FI:(8),220 OHM,2%,0.25W	01121	316B221
A1A1R4	307-0851-00	671-0856-00		RES NTWK,FXD,FI:(8),220 OHM,2%,0.25W	01121	316B221
A1A1R5	307-0851-00	671-0856-00		RES NTWK,FXD,FI:(8),220 OHM,2%,0.25W	01121	316B221
A1A1R6	322-3138-00			RES,FXD,FILM:267 OHM,1%,0.2W,TC=T0	80009	322-3138-00
A1A1R9	307-0650-00			RES NTWK,FXD,FI:9,2.7K OHM,5%,0.150W	11236	750-101-R2.7K
A1A1R10	322-3044-00			RES,FXD:METAL FILM;28 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20FXE9K35
A1A1R11	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R12	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E
A1A1R13	322-3179-00			RES,FXD,FILM:715 OHM,1%,0.2W,TC=T0	80009	322-3179-00
A1A1R14	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0	80009	322-3231-00
A1A1R15	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R16	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R17	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=T0	91637	CCF50-2F37R40F
A1A1R18	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R19	307-0650-00			RES NTWK,FXD,FI:9,2.7K OHM,5%,0.150W	11236	750-101-R2.7K
A1A1R21	307-0539-00			RES NTWK,FXD,FI:(7)510 OHM,10%,1W	80009	307-0539-00
A1A1R22	307-0539-00			RES NTWK,FXD,FI:(7)510 OHM,10%,1W	80009	307-0539-00
A1A1R24	307-0650-00			RES NTWK,FXD,FI:9,2.7K OHM,5%,0.150W	11236	750-101-R2.7K
A1A1R27	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E

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A1A1R35	322-3085-00	671-0856-00	671-0856-07	RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R35	322-3143-00	671-0856-08		RES,FXD,FILM:301 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 301E
A1A1R36	322-3085-00	671-0856-00	671-0856-07	RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R36	322-3143-00	671-0856-08		RES,FXD,FILM:301 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 301E
A1A1R42	322-3165-00	671-0856-00	671-0856-04	RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R42	322-3193-00	671-0856-05		RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R43	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=T0	80009	322-3481-00
A1A1R45	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E
A1A1R46	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=T0	80009	322-3481-00
A1A1R47	315-0107-00			RES,FXD,FILM:100M OHM,5%,0.25W	80009	315-0107-00
A1A1R48	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R49	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 20K0
A1A1R50	322-3239-00			RES,FXD,FILM:3.01K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 3K01
A1A1R51	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R52	322-3281-00	671-0856-00	671-0856-00	RES,FXD:METAL FILM;8.25K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3281-00
A1A1R52	322-3273-00	671-0856-01		RES,FXD:METAL FILM;6.81K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3273-00
A1A1R54	322-3289-00	671-0856-00	671-0856-00	RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R54	322-3299-00	671-0856-01		RES,FXD,FILM:12.7K OHM,1%,0.2W,TC=T0	80009	322-3299-00
A1A1R55	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R56	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R57	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R58	322-3306-00			RES,FXD:METAL FILM;15K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 15K0
A1A1R60	322-3222-00	671-0856-00		RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R61	322-3086-00	671-0856-00		RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=T0	91637	CCF50-2G76R80F
A1A1R62	321-0830-03	671-0856-00		RES,FXD,FILM:2.41K OHM,0.25%,0.125W,TC=T2	07716	CEAC24100C
A1A1R63	322-3392-00	671-0856-00		RES,FXD,FILM:118K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 118K
A1A1R64	322-3086-00	671-0856-00		RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=T0	91637	CCF50-2G76R80F
A1A1R65	321-0793-07	671-0856-00		RES,FXD,FILM:37.5 OHM 0.1%,0.125W TC=T9	24546	NE55E37R5B
A1A1R66	321-0830-03	671-0856-00		RES,FXD,FILM:2.41K OHM,0.25%,0.125W,TC=T2	07716	CEAC24100C
A1A1R67	321-0793-07	671-0856-00		RES,FXD,FILM:37.5 OHM 0.1%,0.125W TC=T9	24546	NE55E37R5B
A1A1R68	315-0820-00	671-0856-00		RES,FXD,FILM:82 OHM,5%,0.25W	80009	315-0820-00
A1A1R69	322-3044-00			RES,FXD:METAL FILM;28 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20FXE9K35
A1A1R70	322-3357-00			RES,FXD,FILM:51.1K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 51K1
A1A1R74	322-3459-00	671-0856-00	671-0856-04	RES,FXD,FILM:590K OHM,1%,0.2W,TC=T0	91637	CCF50-2G59002F
A1A1R74	322-3409-00	671-0856-05		RES,FXD,FILM:178K OHM,1%,0.2W,TC=T0	80009	322-3409-00
A1A1R76	322-3093-00	671-0856-00		RES,FXD,FILM:90.9 OHM,1%,0.2W,TC=T0	91637	CCF50-2F90R90F
A1A1R77	322-3135-00	671-0856-00		RES,FXD,FILM:249 OHM,1%,0.2W,TC=T0	80009	322-3135-00
A1A1R78	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R79	322-3196-00			RES,FXD,FILM:1.07K OHM,1%,0.2W,TC=T0	91637	CCF50-2F10700F
A1A1R80	322-3222-00	671-0856-00		RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R81	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0

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A1A1R82	322-3001-00	671-0856-00		RES,FXD:METAL FILM;10 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3001-00
A1A1R83	322-3085-00	671-0856-00		RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R84	322-3222-00	671-0856-00		RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R85	322-3165-00	671-0856-00		RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R86	322-3165-00	671-0856-00		RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R87	322-3222-00	671-0856-00		RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R88	322-3044-00			RES,FXD:METAL FILM;28 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20FXE9K35
A1A1R89	322-3246-00			RES,FXD,FILM:3.57K OHM,1%,0.2W,TC=T0	80009	322-3246-00
A1A1R90	322-3044-00			RES,FXD:METAL FILM;28 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20FXE9K35
A1A1R91	322-3264-00			RES,FXD,FILM:5.49K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 5K49
A1A1R92	322-3230-00			RES,FXD,FILM:2.43K OHM,1%,0.2W,TC=T0	80009	322-3230-00
A1A1R93	322-3264-00			RES,FXD,FILM:5.49K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 5K49
A1A1R94	322-3264-00			RES,FXD,FILM:5.49K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 5K49
A1A1R95	322-3226-00			RES,FXD:METAL FILM;2.21K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K21
A1A1R96	322-3143-00			RES,FXD,FILM:301 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 301E
A1A1R97	322-3293-00			RES,FXD:METAL FILM;11K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3293-00
A1A1R98	322-3165-00			RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R99	322-3165-00			RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R100	322-3165-00	671-0856-00		RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R101	322-3165-00	671-0856-00		RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R102	322-3226-00			RES,FXD:METAL FILM;2.21K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K21
A1A1R103	322-3318-00	671-0856-00	671-0856-04	RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 20K0
A1A1R103	322-3346-00	671-0856-05		RES,FXD:METAL FILM;39.2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3346-00
A1A1R104	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R107	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R108	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R109	322-3230-00			RES,FXD,FILM:2.43K OHM,1%,0.2W,TC=T0	80009	322-3230-00
A1A1R110	322-3385-00			RES,FXD:METAL FILM;100K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 100K
A1A1R111	322-3273-00			RES,FXD:METAL FILM;6.81K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3273-00
A1A1R112	322-3239-00			RES,FXD,FILM:3.01K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 3K01
A1A1R113	322-3250-00			RES,FXD:METAL FILM;3.92K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	91637	CCF50-2F39200F
A1A1R114	322-3165-00	671-0856-00		RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R115	322-3165-00	671-0856-00		RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R120	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 20K0
A1A1R121	322-3385-00			RES,FXD:METAL FILM;100K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 100K
A1A1R123	321-0441-00			RES,FXD,FILM:383K OHM,1%,0.125W,TC=T0	80009	321-0441-00
A1A1R124	307-0650-00			RES NTWK,FXD,FI:9,2.7K OHM,5%,0.150W	11236	750-101-R2.7K
A1A1R125	307-0650-00			RES NTWK,FXD,FI:9,2.7K OHM,5%,0.150W	11236	750-101-R2.7K
A1A1R126	307-0650-00			RES NTWK,FXD,FI:9,2.7K OHM,5%,0.150W	11236	750-101-R2.7K

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A1A1R129	322-3044-00			RES,FXD:METAL FILM;28 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20FXE9K35
A1A1R130	322-3254-00	671-0856-00		RES,FXD,FILM:4.32K OHM,1%,0.2W,TC=T0	80009	322-3254-00
A1A1R131	322-3246-00			RES,FXD,FILM:3.57K OHM,1%,0.2W,TC=T0	80009	322-3246-00
A1A1R132	322-3165-00			RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R135	322-3162-00			RES,FXD:METAL FILM;475 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3162-00
A1A1R136	322-3135-00			RES,FXD,FILM:249 OHM,1%,0.2W,TC=T0	80009	322-3135-00
A1A1R141	322-3165-00			RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R145	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R146	315-0107-00			RES,FXD,FILM:100M OHM,5%,0.25W	80009	315-0107-00
A1A1R147	322-3239-00			RES,FXD,FILM:3.01K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 3K01
A1A1R148	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R149	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 20K0
A1A1R150	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=T0	91637	CCF50-2F37R40F
A1A1R151	321-0773-07			RES,FXD,FILM:400 OHM,0.1%,0.125W,TC=T9	80009	321-0773-07
A1A1R152	321-0912-03			RES,FXD,FILM:408 OHM,0.25%,0.125W,TC=T2	01121	ADVISE
A1A1R153	315-0122-00			RES,FXD,FILM:1.2K OHM,5%,0.25W	80009	315-0122-00
A1A1R154	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R155	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R156	321-0912-03			RES,FXD,FILM:408 OHM,0.25%,0.125W,TC=T2	01121	ADVISE
A1A1R157	321-0773-07			RES,FXD,FILM:400 OHM,0.1%,0.125W,TC=T9	80009	321-0773-07
A1A1R158	315-0122-00			RES,FXD,FILM:1.2K OHM,5%,0.25W	80009	315-0122-00
A1A1R160	307-0650-00			RES NTWK,FXD,FI:9,2.7K OHM,5%,0.150W	11236	750-101-R2.7K
A1A1R165	322-3414-00			RES,FXD:METAL FILM;200K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	91637	CCF501G20002F
A1A1R166	322-3354-00			RES,FXD:METAL FILM;47.5K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3354-00
A1A1R167	322-3354-00			RES,FXD:METAL FILM;47.5K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3354-00
A1A1R168	322-3414-00			RES,FXD:METAL FILM;200K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	91637	CCF501G20002F
A1A1R169	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 20K0
A1A1R170	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R171	308-0677-00			RES,FXD,WW:1 OHM,5%,2W	75042	ORDER BY DESC
A1A1R172	322-3165-00			RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R173	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=T0	91637	CCF50-2F37R40F
A1A1R174	322-3201-00			RES,FXD:METAL FILM;1.21K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3201-00
A1A1R176	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R177	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R178	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R179	322-3193-00	671-0856-00	671-0856-07	RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R180	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R181	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00

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A1A1R183	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R184	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R185	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R186	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R187	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R188	322-3258-00	671-0856-00	671-0856-07	RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R189	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E
A1A1R190	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R191	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R192	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R193	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R194	322-3085-00	671-0856-00		RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R195	322-3469-00			RES,FXD,FILM:750K OHM,1%,0.2W,TC=T0	80009	322-3469-00
A1A1R196	322-3469-00			RES,FXD,FILM:750K OHM,1%,0.2W,TC=T0	80009	322-3469-00
A1A1R197	322-3469-00			RES,FXD,FILM:750K OHM,1%,0.2W,TC=T0	80009	322-3469-00
A1A1R198	322-3469-00			RES,FXD,FILM:750K OHM,1%,0.2W,TC=T0	80009	322-3469-00
A1A1R199	322-3469-00	671-0856-00	671-0856-07	RES,FXD,FILM:750K OHM,1%,0.2W,TC=T0	80009	322-3469-00
A1A1R200	322-3281-00			RES,FXD:METAL FILM;8.25K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3281-00
A1A1R201	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R202	322-3193-00			RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R203	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R205	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R206	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R208	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R209	322-3289-00	671-0856-00	671-0856-07	RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R210	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R211	311-1568-00	671-0856-00		RES,VAR,NONWW:TRMR,50 OHM,0.5W	80009	311-1568-00
A1A1R212	311-1568-00	671-0856-00		RES,VAR,NONWW:TRMR,50 OHM,0.5W	80009	311-1568-00
A1A1R213	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 100E
A1A1R214	322-3121-00			RES,FXD:METAL FILM;178 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3121-00
A1A1R215	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R216	322-3356-00			RES,FXD,FILM:49.9K OHM,1%,0.2W,TC=T0	80009	322-3356-00
A1A1R217	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R218	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74

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A1A1R219	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R220	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R221	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R222	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R223	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R224	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R225	322-3258-00	671-0856-00	671-0856-07	RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R226	322-3258-00			RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R227	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R228	322-3085-00	671-0856-00		RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R229	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R230	322-3085-00			RES,FXD:METAL FILM;75 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 75E0
A1A1R232	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R233	322-3137-00			RES,FXD,FILM:261 OHM,1%,0.2W,TC=T0	80009	322-3137-00
A1A1R234	322-3218-00			RES,FXD:METAL FILM;1.82K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3218-00
A1A1R235	322-3218-00			RES,FXD:METAL FILM;1.82K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3218-00
A1A1R236	322-3137-00			RES,FXD,FILM:261 OHM,1%,0.2W,TC=T0	80009	322-3137-00
A1A1R237	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R238	311-1594-00	671-0856-00		RES,VAR,NONWW:TRMR,10 OHM,0.5W	80009	311-1594-00
A1A1R239	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3289-00
A1A1R240	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0	80009	322-3126-00
A1A1R241	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R242	322-3121-00			RES,FXD:METAL FILM;178 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3121-00
A1A1R243	322-3235-00	671-0856-05		RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R244	322-3235-00			RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R245	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E
A1A1R246	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 100E
A1A1R247	322-3251-00			RES,FXD,FILM:4.02K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 4K02
A1A1R248	311-1559-00	671-0856-00		RES,VAR,NONWW:TRMR,10K OHM,0.5W	80009	311-1559-00
A1A1R249	311-1559-00	671-0856-00		RES,VAR,NONWW:TRMR,10K OHM,0.5W	80009	311-1559-00
A1A1R250	322-3280-00			RES,FXD,FILM:8.06K OHM,1%,0.2W,TC=T0	80009	322-3280-00
A1A1R251	322-3097-00			RES,FXD:METAL FILM;100 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 100E
A1A1R252	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R253	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00

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A1A1R254	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K00
A1A1R255	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 20K0
A1A1R256	311-1247-00	671-0856-08		RES,VAR,NONWW:TRMR,1MEG OHM,0.5W	80009	311-1247-00
A1A1R257	322-3193-00	671-0856-08		RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R258	322-3235-00	671-0856-08		RES,FXD:METAL FILM;2.74K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 2K74
A1A1R260	322-3143-00	671-0856-08		RES,FXD,FILM:301 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 301E
A1A1R261	322-3288-00	671-0856-08		RES,FXD,FILM:9.76K OHM,1%,0.2W,TC=T0	80009	322-3288-00
A1A1R262	322-3165-00	671-0856-08		RES,FXD,FILM:511 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 511E
A1A1R264	322-3114-00	671-0856-08		RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	91637	CCF50-2-G1500F
A1A1R265	311-1558-00	671-0856-08		RES,VAR,NONWW:TRMR,20K OHM,0.5W	32997	3352T-1-203
A1A1R266	322-3262-00	671-0856-08		RES,FXD,FILM:5.23K OHM,1%,0.2W,TC=T0	80009	322-3262-00
A1A1R267	322-3285-00	671-0856-08		RES,FXD,FILM:9.09K OHM,1%,0.2W,TC=T0	80009	322-3285-00
A1A1R268	322-3193-00	671-0856-08		RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R269	322-3193-00	671-0856-08		RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20 FXE 1K00
A1A1R270	322-3044-00	671-0856-08	671-0856-13	RES,FXD:METAL FILM;28 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	57668	CRB20FXE9K35
A1A1R270	322-3030-00	671-0856-14		RES,FXD:METAL FILM;20 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3030-00
A1A1R271	322-3039-00	671-0856-08	671-0856-13	RES,FXD,FILM:24.9 OHM,1%,0.2W,TC=T0	80009	322-3039-00
A1A1R271	322-3030-00	671-0856-14		RES,FXD:METAL FILM;20 OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3030-00
A1A1R272	322-3258-00	671-0856-08		RES,FXD:METAL FILM;4.75K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	80009	322-3258-00
A1A1R274	311-1550-00	671-0856-08		RES,VAR,NONWW:TRMR,2M OHM,0.5W	80009	311-1550-00
A1A1S1	260-2370-00			SWITCH,TOGGLE:SPDT,3A,250VAC	09353	E101-S-D1-A-Q-E
A1A1S2	260-2526-00	671-0856-00		SWITCH,PUSH:SPST,MOMENTARY,LOW PROFILE,PCMT *ATTACHED PARTS*	80009	260-2526-00
	366-0715-00	671-0856-00		PUSH BUTTON:BLACK,FOR ITT SHADOW KSF SERIES SWITCH *END ATTACHED PARTS*	31918	KF0101
A1A1S3	260-2526-00	671-0856-00		SWITCH,PUSH:SPST,MOMENTARY,LOW PROFILE,PCMT *ATTACHED PARTS*	80009	260-2526-00
	366-0715-00	671-0856-00		PUSH BUTTON:BLACK,FOR ITT SHADOW KSF SERIES SWITCH *END ATTACHED PARTS*	31918	KF0101
A1A1S4	260-2526-00	671-0856-00		SWITCH,PUSH:SPST,MOMENTARY,LOW PROFILE,PCMT *ATTACHED PARTS*	80009	260-2526-00
	366-0715-00	671-0856-00		PUSH BUTTON:BLACK,FOR ITT SHADOW KSF SERIES SWITCH *END ATTACHED PARTS*	31918	KF0101
A1A1S5	260-2526-00	671-0856-00		SWITCH,PUSH:SPST,MOMENTARY,LOW PROFILE,PCMT *ATTACHED PARTS*	80009	260-2526-00
	366-0715-00	671-0856-00		PUSH BUTTON:BLACK,FOR ITT SHADOW KSF SERIES SWITCH *END ATTACHED PARTS*	31918	KF0101
A1A1S6	260-2526-00	671-0856-00		SWITCH,PUSH:SPST,MOMENTARY,LOW PROFILE,PCMT *ATTACHED PARTS*	80009	260-2526-00
	366-0715-00	671-0856-00		PUSH BUTTON:BLACK,FOR ITT SHADOW KSF SERIES SWITCH *END ATTACHED PARTS*	31918	KF0101
A1A1S7	260-2526-00	671-0856-00		SWITCH,PUSH:SPST,MOMENTARY,LOW PROFILE,PCMT *ATTACHED PARTS*	80009	260-2526-00
	366-0715-00			PUSH BUTTON:BLACK,FOR ITT SHADOW KSF SERIES SWITCH	31918	KF0101

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				END ATTACHED PARTS		
A1A1S9	260-2447-00	671-0856-00		SWITCH,ROCKER:SINGLE,RTANG	80009	260-2447-00
A1A1S10	260-2447-00	671-0856-00		SWITCH,ROCKER:SINGLE,RTANG	80009	260-2447-00
A1A1S11	260-2272-00	671-0856-00		SWITCH,ROCKER:SPST,2.5A,28V	81073	76SB10S
A1A1T1	120-1861-00			TRANSFORMER,RF:VAR 1.40 - 1.65UH, PRESET/SE CURED TO 1.55 UH, +/- 1%	54937	500-4757
A1A1T2	120-1862-00			TRANSFORMER,RF:VAR 1.40- 1.70UH, PRESET/SEC URED TO 1.65 UH, +/- 1%	54937	500-4758
A1A1TP13	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP14	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP15	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP16	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP17	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP18	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP19	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP20	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP21	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP22	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP23	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1TP24	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A1A1U2	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U3	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U4	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U5	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U6	156-2626-00			IC,DIGITAL:ALSTTL,GATE;QUAD 2-INPUT NAND, O C;74ALS03,DIP14.3,TUBE	01295	74ALS03
A1A1U7	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U8	160-6548-00			MICROCKT,DGTL:CMOS,65536 X 8 EPROM,PRGM	80009	160-6548-00
				MOUNTING PARTS		
	136-0755-00			SOCKET,DIP:	09922	DILB28P-108
				END MOUNTING PARTS		
A1A1U9	156-1722-00			IC,DIGITAL:FTTL,GATE;HEX INV;74F04,DIP14.3, TUBE	04713	MC74F04ND
A1A1U10	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U12	156-3050-00			IC,MISC:	80009	156-3050-00
A1A1U13	160-6542-00			IC,DIGITAL:CMOS,PLD;OTP,20G10,25NS,55MA,PRG M 156-3229-00;20G10-25,DIP24.3	80009	160-6542-00
				MOUNTING PARTS		
	136-0925-00			SOCKET,DIP::	91506	224-AG30D
				END MOUNTING PARTS		
A1A1U14	156-1026-02			IC,DIGITAL:LSTTL,DEMUX;DUPLICATE OF 156-102 6-00;74LS154,DIP24.6,TUBE	01295	SN74LS154N P3

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1U15	156-3253-00			IC,MEMORY:CMOS,SRAM;2K X 8,55NS;,DIP24.3	80009	156-3253-00
A1A1U16	156-1756-00			IC,DIGITAL:ALSTTL,FLIP FLOP;DUAL D-TYPE W/C LEAR;74ALS74,DIP14.3	01295	SN74ALS74NP3/JP4
A1A1U17	156-3466-00			IC,PROCESSOR:CMOS,MICROPROCESSOR;8-BIT;Z84C 00,DIP40.6	80009	156-3466-00
A1A1U18	156-3465-00			IC,PROCESSOR:CMOS,PERIPHERAL;COUNTER/TIMER CIRCUIT, 6.17MHZ;Z84C30,DIP28.6,TUBE	80009	156-3465-00
A1A1U19	156-3465-00			IC,PROCESSOR:CMOS,PERIPHERAL;COUNTER/TIMER CIRCUIT, 6.17MHZ;Z84C30,DIP28.6,TUBE	80009	156-3465-00
A1A1U20	160-6539-00	671-0856-00	671-0856-02	MICROCKT,DGTL:CMOS,32768 X 8 EPROM,PRGM	80009	160-6539-00
A1A1U20	160-6539-01	671-0856-03	671-0856-04	MICROCKT,DGTL:CMOS,32768 X 8 EPROM,PRGM,W/3 STATE OUT,27C256-250,DIP28.6,TUBE	80009	160-6539-01
A1A1U20	160-6539-02	671-0856-05	671-0856-07	IC,MEMORY:CMOS,32768 X 8 EPROM,PRGM,W/3 STA TE OUT,27C256-250,DIP28.6,TUBE	80009	160-6539-02
A1A1U20	160-6539-03	671-0856-08		IC,MEMORY:CMOS,32768 X 8 EPROM,PRGM W/3 STA TE OUT,27C256-250,DIP.6,TUBE	80009	160-6539-03
				MOUNTING PARTS		
	136-0755-00			SOCKET,DIP:	09922	DILB28P-108
				END MOUNTING PARTS		
A1A1U21	156-1748-02			IC,DIGITAL:ALSTTL,TRANSCEIVER;OCTAL NONINV, 3-STATE;74ALS245,DIP20.3,TUBE	01295	SN74ALS245AN3
A1A1U22	156-1748-02			IC,DIGITAL:ALSTTL,TRANSCEIVER;OCTAL NONINV, 3-STATE;74ALS245,DIP20.3,TUBE	01295	SN74ALS245AN3
A1A1U23	156-0158-07			IC,LINEAR:BIPOLAR,OP-AMP;DUPLICATE OF 156-0 158-00,DO NOT USE;MC1458P1,DIP08.3	80009	156-0158-07
A1A1U24	156-2382-00			IC,DIGITAL:ASTTL,FLIP FLOP;OCTAL D-TYPE, 3-STATE;74AS374,DIP20.3,TUBE	01295	SN74AS374 N/J
A1A1U25	156-2331-00			IC,DIGITAL:LSTTL,COUNTER;8-BIT, WITH STORAG E REGISTER, 3-STATE;74LS590,DIP16.3,TUBE	01295	SN74LS590N3
A1A1U26	160-6540-00			IC,DIGITAL:CMOS,PLD;OTP,20G10,25NS,55MA,PRG M 156-3229-00;20G10-25,DIP24.3	80009	160-6540-00
				MOUNTING PARTS		
	136-0925-00			SOCKET,DIP::	91506	224-AG30D
				END MOUNTING PARTS		
A1A1U27	156-1754-01			IC,DIGITAL:ALSTTL,BUFFER/DRIVER;OCTAL NONIN V, 3-STATE;74ALS244,DIP20.3,TUBE	01295	SN74ALS244AN3
A1A1U28	156-2382-00			IC,DIGITAL:ASTTL,FLIP FLOP;OCTAL D-TYPE, 3-STATE;74AS374,DIP20.3,TUBE	01295	SN74AS374 N/J
A1A1U29	156-2800-00			IC,CONVERTER:BIPOLAR,A/D;8-BIT,25MSPS,FLASH ,1W;MC10319,DIP24.6	80009	156-2800-00
A1A1U30	156-1173-00			IC,LINEAR:BIPOLAR,VOLTAGE REFERENCE;POSITIV E,2.5V,1.0%,40PPM,SERIES;MC1403U,DIP08.3	80009	156-1173-00
A1A1U31	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U32	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U33	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U34	160-4422-00			IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00;16V8-25,DIP20.3	80009	160-4422-00
				MOUNTING PARTS		
	136-0752-00			SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
				END MOUNTING PARTS		
A1A1U35	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U36	156-2992-00			IC,MEMORY:CMOS,SRAM;2K X 8,35NS,OE;,DIP24.3	80009	156-2992-00
A1A1U37	156-1754-01			IC,DIGITAL:ALSTTL,BUFFER/DRIVER;OCTAL NONIN V, 3-STATE;74ALS244,DIP20.3,TUBE	01295	SN74ALS244AN3
A1A1U38	160-6545-00	671-0856-00	671-0856-07	MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM	80009	160-6545-00
A1A1U38	160-6545-01	671-0856-08		IC,MEMORY:CMOS,2048 X 8 REG PROM;PRGM,7C245 035,DIP24	80009	160-6545-01

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
				MOUNTING PARTS		
	136-0925-00			SOCKET,DIP::	91506	224-AG30D
				END MOUNTING PARTS		
A1A1U39	156-1707-00			IC,DIGITAL:FTTL,GATE;QUAD 2-INPUT NAND;74F0 0,DIP14.3,TUBE	80009	156-1707-00
A1A1U40	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U41	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U42	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U43	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U44	160-6774-00	671-0856-00	671-0856-04	IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00;16V8-25,DIP20.3	80009	160-6774-00
A1A1U44	160-6774-01	671-0856-05	671-0856-07	IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00,16V8-25,DIP20.3	80009	160-6774-01
A1A1U44	160-6774-02	671-0856-08		IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00,16V8-25,DIP20.3 (STANDARD,OPT 05 ONLY)	80009	160-6774-02
A1A1U44	160-8412-00	671-0856-10		IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00;16V8-25,DIP20.3 (OPTION 10 ONLY)	80009	160-8412-00
A1A1U44	160-8412-00	671-0856-20		IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00;16V8-25,DIP20.3 (OPTION 05/10 ONLY)	80009	160-8412-00
				MOUNTING PARTS		
A1	136-0752-00			SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
				END MOUNTING PARTS		
A1A1U45	160-6530-00	671-0856-00	671-0856-07	MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM	80009	160-6530-00
A1A1U45	160-6530-01	671-0856-08		MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM,27C128	80009	160-6530-01
				MOUNTING PARTS		
A1A1U45	136-0755-00			SOCKET,DIP:	09922	DILB28P-108
				END MOUNTING PARTS		
A1A1U46	156-2179-00	671-0856-00	671-0856-06	IC,DIGITAL:ALSTTL,FLIP FLOP;HEX D-TYPE, W/C LEAR;74ALS174,DIP16.3,TUBE	01295	SN74ALS174N3
A1A1U47	156-1910-00			IC,DIGITAL:ALSTTL,GATE;8-INPUT NAND;74ALS30 ,DIP14.3	01295	SN74ALS30AN3
A1A1U48	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U49	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U50	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U51	160-6531-00	671-0856-00	671-0856-06	MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM	80009	160-6531-00
A1A1U51	160-6531-01	671-0856-07	671-0856-07	IC,MEMORY:CMOS,16 X 8 EPROM;27C128	80009	160-6531-01
A1A1U51	160-6531-02	671-0856-08		MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM,27C128	80009	160-6531-02
				MOUNTING PARTS		
	136-0755-00			SOCKET,DIP:	09922	DILB28P-108
				END MOUNTING PARTS		
A1A1U52	156-1705-00			IC,DIGITAL:FTTL,ARITH FUNC;4-BIT BINARY FUL L ADDER, W/FAST CARRY;74F283,DIP16.3,TUBE	80009	156-1705-00
A1A1U53	156-1705-00			IC,DIGITAL:FTTL,ARITH FUNC;4-BIT BINARY FUL L ADDER, W/FAST CARRY;74F283,DIP16.3,TUBE	80009	156-1705-00
A1A1U54	156-1705-00			IC,DIGITAL:FTTL,ARITH FUNC;4-BIT BINARY FUL L ADDER, W/FAST CARRY;74F283,DIP16.3,TUBE	80009	156-1705-00
A1A1U55	156-1723-00			IC,DIGITAL:FTTL,GATE;QUAD 2-INPUT AND;74F08 ,DIP14.3,TUBE	04713	MC74F08N
A1A1U56	156-2520-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 4-BIT BINARY ;74AS163,DIP16.3,TUBE	01295	SN74AS163N3ORJ4
A1A1U57	160-4429-00			MICROCKT,DGTL:32 X 8 PROM,TRI STATE OUTPUT, BIPOLAR,PRGM	80009	160-4429-00

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
				MOUNTING PARTS		
	136-0729-00			SOCKET,DIP:PCB,;FEMALE,STR,2 X 8,16 POS,0.1 X 0.3 CTR,0.175 H X 0.130 TAIL,BECU,TIN	09922	DILB16P-108T
				END MOUNTING PARTS		
A1A1U58	156-2389-00			IC,DIGITAL:ASTTL,COUNTER;SYNCH 8-BIT UP/DOWN, ASYNCH CLEAR;74AS867,DIP24.3	01295	SN74AS867NT3/JT4
A1A1U59	156-2338-00			IC,DIGITAL:ASTTL,FLIP FLOP;DUAL D-TYPE;74AS74,DIP14.3,TUBE	80009	156-2338-00
A1A1U60	156-1973-00			IC,DIGITAL:FTTL,FLIP FLOP;QUAD D-TYPE, WITH /MR, Q&/Q;74F175,DIP16.3,TUBE	80009	156-1973-00
A1A1U61	156-2232-00			IC,DIGITAL:ASTTL,FLIP FLOP;DUAL 4-BIT D POS EDGE TRIG;74AS874,DIP24.3,TUBE	80009	156-2232-00
A1A1U62	160-4407-00			MICROCKT,DGTL:CMOS,2048 X 8 REGISTERED PROM ,PRGM	80009	160-4407-00
A1A1U63	156-2979-00			IC,DIGITAL:ACMOS,ARITH FUNC;8X8 MULTIPLIER; LMU8,DIP40.6	80009	156-2979-00
A1A1U64	160-4425-00			IC,DIGITAL:STTL,PLD;PAL,16R8,25MHZ,180MA,PRGM 156-1658-01;16R8A,DIP20.3	80009	160-4425-00
				MOUNTING PARTS		
	136-0752-00			SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
				END MOUNTING PARTS		
A1A1U65	160-4423-00			IC,DIGITAL:STTL,PLD;PAL,16R8,25MHZ,180MA,PRGM 156-1658-01;16R8A,DIP20.3	80009	160-4423-00
				MOUNTING PARTS		
A1A1U65	136-0752-00			SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
				END MOUNTING PARTS		
A1A1U66	156-1705-00			IC,DIGITAL:FTTL,ARITH FUNC;4-BIT BINARY FULL ADDER, W/FAST CARRY;74F283,DIP16.3,TUBE	80009	156-1705-00
A1A1U67	156-1705-00			IC,DIGITAL:FTTL,ARITH FUNC;4-BIT BINARY FULL ADDER, W/FAST CARRY;74F283,DIP16.3,TUBE	80009	156-1705-00
A1A1U68	156-0368-03			IC,DIGITAL:ECL,TRANSLATOR;QUAD TTL-TO-ECL;10124,DIP16.3,TUBE	80009	156-0368-03
A1A1U69	156-0368-03			IC,DIGITAL:ECL,TRANSLATOR;QUAD TTL-TO-ECL;10124,DIP16.3,TUBE	80009	156-0368-03
A1A1U70	156-0368-03			IC,DIGITAL:ECL,TRANSLATOR;QUAD TTL-TO-ECL;10124,DIP16.3,TUBE	80009	156-0368-03
A1A1U71	156-1705-00			IC,DIGITAL:FTTL,ARITH FUNC;4-BIT BINARY FULL ADDER, W/FAST CARRY;74F283,DIP16.3,TUBE	80009	156-1705-00
A1A1U72	156-1973-00			IC,DIGITAL:FTTL,FLIP FLOP;QUAD D-TYPE, WITH /MR, Q&/Q;74F175,DIP16.3,TUBE	80009	156-1973-00
A1A1U73	156-2382-00			IC,DIGITAL:ASTTL,FLIP FLOP;OCTAL D-TYPE, 3-STATE;74AS374,DIP20.3,TUBE	01295	SN74AS374 N/J
A1A1U74	156-3590-00			IC,DIGITAL:ASTTL,MUX;QUAD 2-TO-1 DATA SELECTOR, 3-STATE;74AS298,DIP16.3,TUBE	80009	156-3590-00
A1A1U75	156-3590-00			IC,DIGITAL:ASTTL,MUX;QUAD 2-TO-1 DATA SELECTOR, 3-STATE;74AS298,DIP16.3,TUBE	80009	156-3590-00
A1A1U76	156-3590-00			IC,DIGITAL:ASTTL,MUX;QUAD 2-TO-1 DATA SELECTOR, 3-STATE;74AS298,DIP16.3,TUBE	80009	156-3590-00
A1A1U77	156-2284-00			IC,DIGITAL:ALSTTL,DRIVER;HEX NONINV;74ALS1034,DIP14.3,TUBE	80009	156-2284-00
A1A1U78	156-2284-00			IC,DIGITAL:ALSTTL,DRIVER;HEX NONINV;74ALS1034,DIP14.3,TUBE	80009	156-2284-00
A1A1U79	156-3590-00			IC,DIGITAL:ASTTL,MUX;QUAD 2-TO-1 DATA SELECTOR, 3-STATE;74AS298,DIP16.3,TUBE	80009	156-3590-00
A1A1U80	160-6533-00	671-0856-00		MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM	80009	160-6533-00
				MOUNTING PARTS		
	136-0755-00			SOCKET,DIP:	09922	DILB28P-108
				END MOUNTING PARTS		
A1A1U81	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W/CLEAR;74ALS273,DIP20.3	01295	SN74ALS273

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1U86	160-6544-00			IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00;16V8-25,DIP20.3	80009	160-6544-00
				MOUNTING PARTS		
	136-0752-00			SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
				END MOUNTING PARTS		
A1A1U87	156-2671-00			IC,MEMORY:CMOS,NVRAM;2K X 8,200NS,SRAM,INTE GRAL BATTERY;,DIP24.6SAFETY CONTROLLED	80009	156-2671-00
				MOUNTING PARTS		
	136-0751-00			SOCKET DIP::	09922	DILB24P108
				END MOUNTING PARTS		
A1A1U88	156-1748-02			IC,DIGITAL:ALSTTL,TRANSCEIVER;OCTAL NONINV, 3-STATE;74ALS245,DIP20.3,TUBE	01295	SN74ALS245AN3
A1A1U89	156-1754-01			IC,DIGITAL:ALSTTL,BUFFER/DRIVER;OCTAL NONIN V, 3-STATE;74ALS244,DIP20.3,TUBE	01295	SN74ALS244AN3
A1A1U90	156-1754-01			IC,DIGITAL:ALSTTL,BUFFER/DRIVER;OCTAL NONIN V, 3-STATE;74ALS244,DIP20.3,TUBE	01295	SN74ALS244AN3
A1A1U91	156-1215-01			IC,DIGITAL:CMOS,MUX/ENCODER;20-KEY ENCODER; 74C923,DIP18.3,TUBE,SCRN	27014	MM74C923JA+
A1A1U92	156-3598-00			IC,MISC:D/CMOS,ANALOG MUX;8 CHANNEL OR DUAL 4 CHANNEL,VIDEO;DG538,DIP28.6	80009	156-3598-00
A1A1U93	156-1191-01			IC,LINEAR:BIFET,OP-AMP;6MV VOS;TL072ACP,DIP 08.3	80009	156-1191-01
A1A1U94	156-0912-01			IC,LINEAR:	80009	156-0912-01
A1A1U95	156-1226-01			IC,LINEAR:BIPOLAR,COMPARATOR;DUPLICATE OF 1 56-1226-00,DO NOT USE;LM319N,DIP14.3	80009	156-1226-01
A1A1U96	156-1335-00			IC,DIGITAL:LSTTL,MULTIVIBRATOR;DUAL RETRIG MONOSTABLE;96LS02,DIP16.3	80009	156-1335-00
A1A1U97	156-1335-00			IC,DIGITAL:LSTTL,MULTIVIBRATOR;DUAL RETRIG MONOSTABLE;96LS02,DIP16.3	80009	156-1335-00
A1A1U98	155-0282-00	671-0856-00		MICROCKT,DGTL:DIGITAL TO ANALOG CONVERTER M 219B	80009	155-0282-00
A1A1U99	155-0282-00	671-0856-00		MICROCKT,DGTL:DIGITAL TO ANALOG CONVERTER M 219B	80009	155-0282-00
A1A1U100	156-1173-00			IC,LINEAR:BIPOLAR,VOLTAGE REFERENCE;POSITIV E,2.5V,1.0%,40PPM,SERIES;MC1403U,DIP08.3	80009	156-1173-00
A1A1U101	156-0067-13			IC,LINEAR:	80009	156-0067-13
A1A1U102	156-3432-00	671-0856-00		IC,LINEAR:BIPOLAR,OP-AMP;CURRENT FEEDBACK,2 00MHZ;CLC400AJP,DIP08.3	80009	156-3432-00
A1A1U104	160-6529-00	671-0856-00	671-0856-04	IC,DIGITAL:CMOS,PLD;OTP,20G10,25NS,55MA,PRG M 156-3229-00;20G10-25,DIP24.3	80009	160-6529-00
A1A1U104	160-6529-01	671-0856-05	671-0856-07	IC,DIGITAL:CMOS,PLD;OTP,20G10,25NS,55MA,PRG M 156-3229-00;20G10-25,DIP24.3	80009	160-6529-01
A1A1U104	160-6529-02	671-0856-08		IC,DIGITAL:CMOS,PLD;OTP,20G10,25NS,55MA,PRG M 156-3229-00;20G10-25,DIP24.3	80009	160-6529-02
				MOUNTING PARTS		
	136-0925-00			SOCKET,DIP::	91506	224-AG30D
				END MOUNTING PARTS		
A1A1U105	156-0860-02			IC,DIGITAL:ECL,RECEIVER;TRIPLE LINE;10116,D IP16.3,TUBE,SCRN	80009	156-0860-02
A1A1U106	156-0316-04			IC,DIGITAL:ECL,TRANSLATOR;QUAD ECL TO TTL;1 0125,DIP16.3,TUBE	04713	MC10125P/L
A1A1U107	156-1437-00			IC,LINEAR:BIPOLAR,VOLTAGE REFERENCE;POSITIV E,5V,1.0%,25PPM,SERIES;MC1404AU5,DIP08.3	80009	156-1437-00
A1A1U109	156-1850-00			IC,MISC:CMOS,ANALOG SWITCH;QUAD;DG211,DIP16 .3	17856	SDG21107
A1A1U110	156-0158-07			IC,LINEAR:BIPOLAR,OP-AMP;DUPLICATE OF 156-0 158-00,DO NOT USE;MC1458P1,DIP08.3	80009	156-0158-07
A1A1U111	156-0316-04			IC,DIGITAL:ECL,TRANSLATOR;QUAD ECL TO TTL;1 0125,DIP16.3,TUBE	04713	MC10125P/L

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1U112	156-0316-04			IC,DIGITAL:ECL,TRANSLATOR;QUAD ECL TO TTL;10125,DIP16.3,TUBE	04713	MC10125P/L
A1A1U114	156-1367-00			IC,CONVERTER:CMOS,D/A;8 BIT,400NS,CURRENT OUT,MPU COMPATIBLE,MULTIPLYING;AD7524JN,DIP16.3	80009	156-1367-00
A1A1U115	156-0158-07			IC,LINEAR:BIPOLAR,OP-AMP;DUPLICATE OF 156-0158-00,DO NOT USE;MC1458P1,DIP08.3	80009	156-0158-07
A1A1U116	156-0860-02			IC,DIGITAL:ECL,RECEIVER;TRIPLE LINE;10116,DIP16.3,TUBE,SCRN	80009	156-0860-02
A1A1U117	156-1748-02			IC,DIGITAL:ALSTTL,TRANSCEIVER;OCTAL NONINV, 3-STATE;74ALS245,DIP20.3,TUBE	01295	SN74ALS245AN3
A1A1U118	156-1855-00			IC,DIGITAL:TTL,LATCH;10-BIT BUFFERED, NONINV, 3-STATE;29841,DIP24.3,TUBE	80009	156-1855-00
A1A1U118	156-2342-00			IC,DIGITAL:ALSTTL,LATCH;10-BIT BUS INTERFACE D-TYPE, NONINV, 3-STATE;74ALS841,DIP24.3,TUBE	01295	SN74ALS841NT
A1A1U119	156-2671-00			IC,MEMORY:CMOS,NVRAM;2K X 8,200NS,SRAM,INTEGRAL BATTERY;,DIP24.6SAFETY CONTROLLED	80009	156-2671-00
				MOUNTING PARTS		
	136-0751-00			SOCKET DIP::	09922	DILB24P108
				END MOUNTING PARTS		
A1A1U120	156-2259-00			IC,DIGITAL:FTTL,REGISTER;8-BIT UNIVERSAL SHIFT;74F299,DIP20.3,TUBE	07263	74F299PC
A1A1U121	160-6543-00			IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PRGM 156-2983-00;16V8-25,DIP20.3	80009	160-6543-00
				MOUNTING PARTS		
U1	136-0752-00			SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
				END MOUNTING PARTS		
A1A1U122	156-2141-00			IC,DIGITAL:LSTTL,SHIFT REGISTER;8-BIT, WITH INPUT LATCH;74LS597,DIP16.3,TUBE	01295	SN74LS597NP3
A1A1U123	156-2141-00			IC,DIGITAL:LSTTL,SHIFT REGISTER;8-BIT, WITH INPUT LATCH;74LS597,DIP16.3,TUBE	01295	SN74LS597NP3
A1A1U124	160-6547-00			MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM	80009	160-6547-00
				MOUNTING PARTS		
1U12	136-0755-00			SOCKET,DIP:	09922	DILB28P-108
				END MOUNTING PARTS		
A1A1U125	160-6534-00			MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM	80009	160-6534-00
				MOUNTING PARTS		
	136-0755-00			SOCKET,DIP:	09922	DILB28P-108
				END MOUNTING PARTS		
A1A1U126	156-1702-00			IC,DIGITAL:TTL,REGISTER;10-BIT BUFFERED, NONINV, 3-STATE;29821,DIP24.3,TUBE	34335	AM29821DCB
A1A1U127	160-6541-00			IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PRGM 156-2983-00;16V8-25,DIP20.3	80009	160-6541-00
				MOUNTING PARTS		
	136-0752-00			SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
				END MOUNTING PARTS		
A1A1U128	156-3432-00			IC,LINEAR:BIPOLAR,OP-AMP;CURRENT FEEDBACK,200MHZ;CLC400AJP,DIP08.3	80009	156-3432-00
A1A1U129	156-2091-00			IC,DIGITAL:ALSTTL,GATE;QUAD 2-INPUT NAND;74ALS00,DIP14.3,TUBE	01295	SN74ALS00AN3
A1A1U130	156-0912-01			IC,LINEAR:	80009	156-0912-01
A1A1U131	234-0428-20			QUICK CHIP:VIDEO CHANNEL SWITCH,PKG	80009	234-0428-20
A1A1U133	160-6532-00	671-0856-00	671-0856-00	MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM	80009	160-6532-00
A1A1U133	160-6532-01	671-0856-01	671-0856-04	MICROCKT,DGTL:CMOS,16 X 8 EPROM,PRGM,27C128	80009	160-6532-01
A1A1U133	160-6532-02	671-0856-05		IC,MEMORY:CMOS,16 X 8 EPROM,PRGM,27C128 (STANDARD & OPT 10 ONLY)	80009	160-6532-02
A1A1U133	160-8348-00	671-0856-09		IC,MEMORY:CMOS,PROM,8K X 8,40NS,REGISTERED DIAGNOSTIC,7C265,CYC7C265-40,DIP28.3 (OPTOIN 05 ONLY)	80009	160-8348-00
				MOUNTING PARTS		
	136-0755-00			SOCKET,DIP:	09922	DILB28P-108

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
				END MOUNTING PARTS		
A1A1U134	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE, W /CLEAR;74ALS273,DIP20.3	01295	SN74ALS273
A1A1U136	156-0158-07			IC,LINEAR:BIPOLAR,OP-AMP;DUPLICATE OF 156-0 158-00,DO NOT USE;MC1458P1,DIP08.3	80009	156-0158-07
A1A1U137	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP;DUPLICATE OF 156 -0982-00;74LS374,DIP20.3,TUBE	80009	156-0982-03
A1A1U138	160-6535-00	671-0856-00	671-0856-00	MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM	80009	160-6535-00
A1A1U138	160-6535-01	671-0856-01	671-0856-04	MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM,C YC265-40,DIP24	80009	160-6535-01
A1A1U138	160-6535-02	671-0856-05		IC,MEMORY:CMOS,2048 X 9 REG,PROM,PRGM,CXC26 5.40,DIP24 (STANDARD & OPT 10 ONLY)	80009	160-6535-02
A1A1U138	160-8349-00	671-0856-09		IC,MEMORY:CMOS,PROM,8K X 8,40NS,REGISTERED DIAGNOSTIC,7C265,CYC7C265-40,DIP28.3 (OPTION 05 ONLY)	80009	160-8349-00
				MOUNTING PARTS		
	136-1038-00			SOCKET,DIP:	00779	2-641873-1
				END MOUNTING PARTS		
A1A1U139	160-6536-00	671-0856-00	671-0856-00	MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM	80009	160-6536-00
A1A1U139	160-6536-01	671-0856-01	671-0856-04	MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM,C YC265-40,DIP24	80009	160-6536-01
A1A1U139	160-6536-02	671-0856-05		IC,MEMORY:CMOS,2048 X 9 REG,PROM,PRGM,CXC26 5.40,DIP24 (STANDARD & OPT 10 ONLY)	80009	160-6536-02
A1A1U139	160-8350-00	671-0856-09		IC,MEMORY:CMOS,PROM,8K X 8,40NS,REGISTERED DIAGNOSTIC,7C265,CYC7C265-40,DIP28.3 (OPTION 05 ONLY)	80009	160-8350-00
				MOUNTING PARTS		
	136-1038-00			SOCKET,DIP:	00779	2-641873-1
				END MOUNTING PARTS		
A1A1U140	160-6537-00			MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM	80009	160-6537-00
				MOUNTING PARTS		
U14	136-1038-00			SOCKET,DIP:	00779	2-641873-1
				END MOUNTING PARTS		
A1A1U141	160-6538-00			MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM	80009	160-6538-00
				MOUNTING PARTS		
	136-1038-00			SOCKET,DIP:	00779	2-641873-1
				END MOUNTING PARTS		
A1A1U142	160-6546-00			MICROCKT,DGTL:CMOS,2048 X 8 REG PROM,PRGM	80009	160-6546-00
				MOUNTING PARTS		
	136-1038-00			SOCKET,DIP:	00779	2-641873-1
				END MOUNTING PARTS		
A1A1U144	156-0277-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;POSITIV E,5.0V,1.0A,4%;MC7805CT,TO-220	80009	156-0277-00
A1A1U145	156-0846-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;NEGATIV E,-5.0V,1.0A,4.0%;MC7905CT,TO-220	01295	UA7905CKC
A1A1U146	156-1161-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;POSITIV E,ADJUSTABLE,1.5A,4%;LM317T,TO-220	04713	LM317T
A1A1U147	156-1451-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;NEGATIV E,ADJUSTABLE,1.5A,4%;LM337T,TO-220	80009	156-1451-00
A1A1U148	156-1707-00			IC,DIGITAL:FTTL,GATE;QUAD 2-INPUT NAND;74F0 0,DIP14.3,TUBE	80009	156-1707-00
A1A1U149	156-1191-01	671-0856-00	671-0856-10	IC,LINEAR:BIFET,OP-AMP;6MV VOS;TL072ACP,DIP 08.3	80009	156-1191-01
A1A1U149	156-2873-00	671-0856-11		IC,LINEAR:BIFET,OP-AMP;DUAL;MC34082P,DIP08. 3	80009	156-2873-00
A1A1U151	156-3750-00			IC,LINEAR:	80009	156-3750-00
A1A1U152	156-1335-00	671-0856-08		IC,DIGITAL:LSTTL,MULTIVIBRATOR;DUAL RETRIG MONOSTABLE;96LS02,DIP16.3	80009	156-1335-00
A1A1U153	160-8347-00	671-0856-08		IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PR GM 156-2983-00;16V8-25,DIP20.3	80009	160-8347-00

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1A1VR1	152-0688-00			DIODE,ZENER:,;2.4V,5%,0.4W;1N4370A,DO-7 OR 35	04713	1N4370A
A1A1VR2	152-0195-00			DIODE,ZENER:,;5.1V,5%,0.4W;1N751A FMLY,DO-35 OR 7	80009	152-0195-00
A1A1VR3	152-0055-00	671-0856-08	671-0856-10	DIODE,ZENER:,;11V,5%,0.4W;1N962B,DO-7 OR 35,T&R	14433	Z5407
A1A1VR3	152-0149-00	671-0856-11	671-0856-13	DIODE,ZENER:,;10V,5%,0.4W;1N961B,DO-7 OR 35,T&R	04713	1N961B
A1A1VR3	152-0055-00	671-0856-14		DIODE,ZENER:,;11V,5%,0.4W;1N962B,DO-7 OR 35,T&R	14433	Z5407
A1A1W1	131-0566-00	671-0856-00	671-0856-04	BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225 L	80009	131-0566-00
A1A1W134	131-0566-00	671-0856-00	671-0856-04	BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225 L	80009	131-0566-00
A1A1W204	131-0566-00	671-0856-00	671-0856-04	BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225 L	80009	131-0566-00
A1A1Y2	119-3425-00			OSCILLATOR,RF:CRYSTAL CONTROLLED, 6.0 MHZ,+/-0.01%,CMOS,4 PIN,14 PINDIP COMPATIBLE	14301	012-401-01657
A1A2	119-2501-03	B010100	B010255	OVEN ASSEMBLY:	80009	119-2501-03
A1A2	119-2501-04	B010256		OVEN ASSEMBLY:TPG625	80009	119-2501-04
				ATTACHED PARTS		
	134-0209-00			BUTTON,PLUG:0.187 DIA HOLE,PLASTIC	31223	62PP018BM14
	200-3264-00			COVER,TOP:ALUMINUM	80009	200-3264-00
	200-3266-01			CAP,HEAT SINK:PLASTIC	80009	200-3266-01
	211-0513-00			SCREW,MACHINE:6-32 X 0.625,PNH,STL (QUANTITY 2)	93907	B80-00032-003
	211-0661-00			SCR,ASSEM WSHR:4-40 X 0.25,PNH,STL,CD PL,POZ,MACHINE (QUANTITY 2)	01536	821-01655-024
	214-3863-01			HEAT SINK,ELEC:ALUMINUM	80009	214-3863-01
	348-0935-00			GASKET:2.0 X 1.7,NEOPRENE	80009	348-0935-00
	432-0154-00			BASE,HEAT SINK:PLASTIC	80009	432-0154-00
				END ATTACHED PARTS		
A1A2C6	283-5025-00	119-2501-03		CAP,FXD,CER DI:220PF,5%,50V	80009	283-5025-00
A1A2C8	283-5025-00			CAP,FXD,CER DI:220PF,5%,50V	80009	283-5025-00
A1A2C15	283-5000-00	119-2501-03		CAP,FXD,CER DI:10PF,5%,50V	80009	283-5000-00
A1A2C16	283-5206-00			CAP,FXD,CER DI:56PF,5%,100V	80009	283-5206-00
A1A2C17	283-5004-00			CAP,FXD,CER DI:0.1UF,10%,25V	80009	283-5004-00
A1A2C19	281-0165-00			CAP,VAR,AIR DI:0.8-10PF,250V	80009	281-0165-00
A1A2CR14	152-0269-01			DIODE,SIG:,VVC;C4=33PF,5%,C4/C20=2;SMV1263-1,DO-7,T&R	04713	SMV1263-1
A1A2Q10	151-5001-00	119-2501-03	119-2501-03	TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER;MMBT3904L,TO-236/SOT-23,8MM T&R	80009	151-5001-00
A1A2Q10	151-5035-00	119-2501-04		TRANSISTOR,SIG:BIPOLAR,NPN;25V,30MA,650MHZ,AMPLIFIER;MMBTH10L,TO-236/SOT-23,8MM T&R	04713	MMBTH10T1
A1A2R1	321-5043-00			RES,FXD:THICK FILM;47.5 OHM,1%,0.125W,TC=100 PPM;1206,T&R	80009	321-5043-00
A1A2R3	307-1161-00			RES,FXD,FILM:1M OHM,5%,0.062W,0805,8MM	TK0510	ERJ-6GCSJ105V
A1A2R4	321-5078-00			RES,FXD,FILM:20K OHM,1%,125MW,0805 PKG	80009	321-5078-00
A1A2R5	321-5078-00			RES,FXD,FILM:20K OHM,1%,125MW,0805 PKG	80009	321-5078-00
A1A2R9	321-5012-00			RES,FXD:THICK FILM;332 OHM,1%,0.125W,TC=100 PPM;1206,T&R	80009	321-5012-00
A1A2RT11	307-0181-01			RES,THERMAL:20K OHM,5%,AT 60 DEG C	80009	307-0181-01
A1A2Y11	----- -----			XTAL UNIT,QTZ:17.734380 MHZ,32 PF,HC43/U (REPLACEABLE AT A1A2 ONLY)		
A1A3	671-2100-00	B030309		CIRCUIT BD ASSY:CCIR	80009	671-2100-00
A1A3C1	281-0775-01			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1A3P46	131-5297-00			CONN,HDR:	80009	131-5297-00
A1A3U1	160-8312-00			IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA,PRGM 156-2983-00;16V8-25,DIP20.3	80009	160-8312-00
A2	671-0663-00	B010100	B030284	CIRCUIT BD ASSY:POWER SUPPLY	80009	671-0663-00
A2	671-0663-01	B030285	B030308	CIRCUIT BD ASSY:POWER SUPPLY	80009	671-0663-01
A2	671-0663-02	B030309	B041128	CIRCUIT BD ASSY:PWR SPLY	80009	671-0663-02
A2	671-0663-03	B041129		CIRCUIT BD ASSY:POWER SUPPLY	80009	671-0663-03

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A2C158	290-1069-00			CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290-1069-00
A2C164	290-1069-00			CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290-1069-00
A2C239	281-0775-01			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A2C260	281-0775-01			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A2C265	281-0775-01			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A2C309	283-0164-00			CAP,FXD,CER DI:2.2UF,20%,25V	05397	C340C225M5UICA
A2C320	281-0775-01			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A2C329	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-20%,25V	80009	290-0804-00
A2C330	283-0164-00			CAP,FXD,CER DI:2.2UF,20%,25V	05397	C340C225M5UICA
A2C351	290-1069-00			CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290-1069-00
A2C364	290-1069-00			CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290-1069-00
A2C370	290-1069-00			CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290-1069-00
A2C373	281-0775-01			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A2C418	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-20%,25V	80009	290-0804-00
A2C429	290-0845-00			CAP,FXD,ELCTLT:330UF,+50-10%,25V	54473	ECE-A25V330L
A2C450	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	80009	281-0773-00
A2C470	290-1069-00			CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290-1069-00
A2C522	290-0845-00			CAP,FXD,ELCTLT:330UF,+50-10%,25V	54473	ECE-A25V330L
A2C550	283-0481-00			CAP,FXD,CER DI:220PF,10%,250VAC	TK1395	RK0611
A2C613	281-0775-01	671-0663-00	671-0663-01	CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A2C613	281-0925-01	671-0663-02		CAP,FXD,:CERAMIC,MLC;0.22UF,20%,50V,Z5U.0.170 X 0.120;AXIAL,	04222	SA115E224MAA
A2C620	283-0268-00	671-0663-00	671-0663-00	CAP,FXD,CER DI:0.015UF,20%,50V	80009	283-0268-00
A2C620	283-0341-00	671-0663-01	671-0663-01	CAP,FXD,CER DI:0.047UF,10%,100V	80009	283-0341-00
A2C620	283-0058-00	671-0663-02		CAP,FXD,CER DI:0.027UF,10%,100V	80009	283-0058-00
A2C649	285-1331-00			CAP,FXD,MTLZD:0.47UF,5%,400V	TK1573	MKS4 .47/400/5
A2C670	285-1196-00			CAP,FXD,PPR DI:0.01UF,20%,250V	80009	285-1196-00
A2C671	285-1196-00			CAP,FXD,PPR DI:0.01UF,20%,250V	80009	285-1196-00
A2C687	285-1252-00			CAP,FXD,PLASTIC:0.15UF,10%,250VAC	D5243	F1772-415-2000
A2C722	290-0974-00			CAP,FXD,ELCTLT:10UF,20%,50VDC	55680	UVX1H100MAA
A2C730	283-0672-00			CAP,FXD,MICA DI:200PF,1%,500V	80009	283-0672-00
A2C746	285-1329-00			CAP,FXD,PLASTIC:METALIZED FILM;680PF,10%,1600V,POLYPROPYLENE,.70X.43; RADIAL,T/A	80009	285-1329-00
A2C772	283-0211-00			CAP,FXD,CER DI:0.1UF,10%,200V	80009	283-0211-00
A2C856	290-0963-00			CAP,FXD,ELCTLT:220UF,+50-20%,25WVDC	80009	290-0963-00
A2C875	290-1070-00			CAP,FXD,ELCTLT:220UF,20%,200V	80009	290-1070-00
A2C885	290-1070-00			CAP,FXD,ELCTLT:220UF,20%,200V	80009	290-1070-00
A2C918	283-0051-00			CAP,FXD,CER DI:0.0033UF,5%,100V	80009	283-0051-00
A2C921	283-0059-00			CAP,FXD,CER DI:1UF,+80-20%,50V	04222	SR305C105MAA
A2C922	281-0775-01			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A2C926	283-0032-00	671-0663-00	671-0663-01	CAP,FXD,CER DI:470PF,5%,500V	80009	283-0032-00
A2C926	283-0812-00	671-0663-02		CAP,FXD,MTLZD:0.47UF,10%,50V	80009	283-0812-00
A2CR140	152-0066-00			DIODE,RECT:,;400V,1A,IFSM = 30A;GP10G,DO-41,T&R,SAFETY CONTROLLED	05828	GP10G-020
A2CR225	152-0198-00			SEMICOND DVC,DI:RECT,SI,200V,3A,A249	03508	1N5624
A2CR249	152-0884-00			SEMICOND DVC,DI:16 AMP,35V,TO-220,AC PKG	04713	MBR1635
A2CR320	152-0066-00			DIODE,RECT:,;400V,1A,IFSM = 30A;GP10G,DO-41,T&R,SAFETY CONTROLLED	05828	GP10G-020
A2CR322	152-0198-00			SEMICOND DVC,DI:RECT,SI,200V,3A,A249	03508	1N5624
A2CR460	152-0884-00			SEMICOND DVC,DI:16 AMP,35V,TO-220,AC PKG	04713	MBR1635
				ATTACHED PARTS		
	210-1178-00			WASHER,SHLDR:	80009	210-1178-00
	211-0012-00			SCREW,MACHINE:4-40 X 0.375,PNH,STL	93907	ORDER BY DESCR
	211-0097-00			SCREW,MACHINE:4-40 X 0.312,PNH,STL	93907	ORDER BY DESCR
	342-0563-00			INSULATOR,PLATE:TRANSISTOR,FIBERGLASS REINFORCED SILICON RUBBER	18565	69-11-8805-1674
	214-4293-00	671-0663-00	671-0663-03	HEAT SINK:COPPER	80009	214-4293-00
	214-4293-01	671-0663-02		HEAT SINK:COPPER	80009	214-4293-01
				END ATTACHED PARTS		

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A2CR528	152-0400-00			DIODE,RECT:,FAST RCVRY;400V,1A,200NS;1N4936 ,DO-41,T&R	80009	152-0400-00
A2CR529	152-0400-00			DIODE,RECT:,FAST RCVRY;400V,1A,200NS;1N4936 ,DO-41,T&R	80009	152-0400-00
A2CR672	152-0674-00			SEMICOND DVC,DI:RECT,SI,800V,1.0A,DO-41	80009	152-0674-00
A2CR675	152-0674-00			SEMICOND DVC,DI:RECT,SI,800V,1.0A,DO-41	80009	152-0674-00
A2CR678	152-0674-00			SEMICOND DVC,DI:RECT,SI,800V,1.0A,DO-41	80009	152-0674-00
A2CR679	152-0674-00			SEMICOND DVC,DI:RECT,SI,800V,1.0A,DO-41	80009	152-0674-00
A2CR729	152-0601-01			SEMICOND DVC,DI:RECTIFIER,SI,150V,1A,35NS	04713	MUR115RL
A2CR730	152-0601-01			SEMICOND DVC,DI:RECTIFIER,SI,150V,1A,35NS	04713	MUR115RL
A2CR735	152-0841-00			DIODE,RECT:,ULTRA FAST;1KV,100NS;BYT-12P-10 00,TO-220	80009	152-0841-00
A2CR746	152-0897-00			DIODE,RECT:,FAST RCVRY;1000V,1.5A,300NS,SOF T RCVRY;BYV96E,T&R	80009	152-0897-00
A2CR755	152-0601-01			SEMICOND DVC,DI:RECTIFIER,SI,150V,1A,35NS	04713	MUR115RL
A2CR830	152-0601-01			SEMICOND DVC,DI:RECTIFIER,SI,150V,1A,35NS	04713	MUR115RL
A2DS767	150-0035-00			LAMP,GLOW:90V MAX,0.3MA,AID-T,WIRE LD	71744	A1B-120
A2DS950	150-1017-00			LT EMITTING DIO:GREEN,550NM,55MA MAX	80009	150-1017-00
A2J120	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 34)	80009	131-0608-00
A2J133	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 2)	80009	131-0608-00
A2J580	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 3)	80009	131-0608-00
A2J641	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 2)	80009	131-0608-00
A2J754	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 2)	80009	131-0608-00
A2J789	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 2)	80009	131-0608-00
A2J825	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY 2)	80009	131-0608-00
A2L255	108-1263-00			COIL,RF:FXD,10UH, 10%,Q=70,SRF 27 MHZ,DCR 0 .043 OHM,I MAX 2.1ARADIAL LEAD	80009	108-1263-00
A2L270	108-0554-00			COIL,RF:FIXED,5UH,+/-20%	TK1345	108-0554-00
A2L329	108-1262-00			COIL,RF:FXD,100UH,10%,Q=30,SRF 8.2MHZ,DCR 0 .23 OHM,I MAX 0.75ARADIAL LEAD	80009	108-1262-00
A2L421	108-1262-00			COIL,RF:FXD,100UH,10%,Q=30,SRF 8.2MHZ,DCR 0 .23 OHM,I MAX 0.75ARADIAL LEAD	80009	108-1262-00
A2L860	108-0205-00			COIL,RF:FIXED,1MH	76493	8209
A2LF895	119-1946-00			FILTER,RFI:1A,250V,400HZ W/PC TERMINAL	S4307	FN326-1/02-K-D-T
A2P580	198-5709-00			WIRE SET,ELEC:VITS201	80009	198-5709-00
A2P641	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A2P754	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A2P825	131-0993-02			BUS,CONDUCTOR:SHUNT ASSEMBLY,RED	00779	1-850100-0
A2Q275	151-0528-00			THYRISTOR,PWR:BIPOLAR,SCR;50V,16A RMS,PHASE CONTROL;2N6400,TO-220	80009	151-0528-00
A2Q630	151-0908-00			TRANSISTOR,PWR:BIPOLAR,NPN;500V VCEO,1000V VCEV,5A,SWITCHING;MJH16002A,TO-218	80009	151-0908-00
				ATTACHED PARTS		
	210-1178-00			WASHER,SHLDR:	80009	210-1178-00
	211-0097-00			SCREW,MACHINE:4-40 X 0.312,PNH,STL	93907	ORDER BY DESCR
	214-4290-00			HEAT SINK,XSTR:TO-220/TO-218;W/4-40 TAPPED CENTER HOLE,ALUMINUM;6390B/5810B	80009	214-4290-00
	342-0354-00			INSULATOR,PLATE:TRANSISTOR	55285	7403-09FR-52
				END ATTACHED PARTS		
A2Q722	151-0188-00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ ,AMPLIFIER;2N3906,TO-92 EBC	80009	151-0188-00
A2Q740	151-1171-00			TRANSISTOR,PWR:MOS,N-CH;50V,12A,0.12 OHM;BU Z71A/IRFZ22/MTP15N05E,TO-220	80009	151-1171-00

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A2Q931	151-0190-00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A2Q932	151-0188-00			TRANSISTOR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ ,AMPLIFIER;2N3906,TO-92 EBC	80009	151-0188-00
A2Q946	151-0750-00			TRANSISTOR,SIG:BIPOLAR,NPN;400V,300MA,20MHZ ,AMPLIFIER;MPSA44,TO-92 EBC	80009	151-0750-00
A2Q947	151-0190-00			TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ ,AMPLIFIER;2N3904,TO-92 EBC	80009	151-0190-00
A2R153	301-0680-00			RES,FXD,FILM:68 OHM,5%,0.5W	80009	301-0680-00
A2R250	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	80009	315-0270-00
A2R375	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	80009	315-0102-00
A2R513	311-1225-00			RES,VAR,NONWW:TRMR,1K OHM,0.5W	80009	311-1225-00
A2R515	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	80009	315-0152-00
A2R516	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	80009	315-0102-00
A2R517	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	80009	315-0202-00
A2R620	315-0163-00	671-0663-00	671-0663-00	RES,FXD,FILM:16K OHM,5%,0.25W	80009	315-0163-00
A2R620	315-0101-00	671-0663-01	671-0663-01	RES,FXD,FILM:100 OHM,5%,0.25W	80009	315-0101-00
A2R620	322-3243-00	671-0663-02		RES,FXD:METAL FILM;3.32K OHM,1%,0.2W,TC=100 PPM;AXIAL,T&R,SMALL BODY	91637	CCF50-1-G33200F
A2R646	301-0274-00			RES,FXD,FILM:270K OHM,5%,0.5W	80009	301-0274-00
A2R685	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	80009	315-0105-00
A2R695	315-0226-00			RES,FXD,FILM:22M OHM,5%,0.25W	80009	315-0226-00
A2R712	311-0978-00			RES,VAR,NONWW:TRMR,250 OHM,0.5W	80009	311-0978-00
A2R713	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	80009	315-0103-00
A2R715	315-0432-00			RES,FXD,FILM:4.3K OHM,5%,0.25W	80009	315-0432-00
A2R718	315-0183-00			RES,FXD,FILM:18K OHM,5%,0.25W	80009	315-0183-00
A2R719	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	80009	315-0182-00
A2R730	303-0560-00			RES,FXD,CMPSN:56 OHM,5%,1W	01121	
A2R735	315-0100-00			RES,FXD,FILM:10 OHM,5%,0.25W	19701	5043CX10RR00J
A2R745	308-0677-00			RES,FXD,WW:1 OHM,5%,2W	75042	ORDER BY DESC
A2R772	315-0106-00			RES,FXD,FILM:10M OHM,5%,0.25W	01121	CB1065
A2R814	315-0821-00			RES,FXD,FILM:820 OHM,5%,0.25W	80009	315-0821-00
A2R815	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	80009	315-0472-00
A2R820	321-1613-02			RES,FXD,FILM:1.75K OHM,0.5%,0.125W,TC=T2	80009	321-1613-02
A2R835	322-3181-00			RES,FXD,FILM:750 OHM,1%,0.2W,TC=TO	80009	322-3181-00
A2R865	301-0474-00			RES,FXD,FILM:470K OHM,5%,0.5W	01121	EB4745
A2R914	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	80009	315-0103-00
A2R919	315-0752-00	671-0663-00	671-0663-02	RES,FXD,FILM:7.5K OHM,5%,0.25W	80009	315-0752-00
A2R919	322-3248-00	671-0663-03		RES,FXD,FILM:3.74K OHM,1%,0.2W,TC=TO	80009	322-3248-00
A2R928	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	80009	315-0103-00
A2R930	315-0473-00			RES,FXD,FILM:47K OHM,5%,0.25W	80009	315-0473-00
A2R934	322-3374-00			RES,FXD,FILM:76.8K OHM,1%,0.2W,TC=TO	57668	CRB20 FXE76K8
A2R938	322-3439-00			RES,FXD,FILM:365K OHM,1%,0.2W,TC=TO	80009	322-3439-00
A2R939	322-3439-00			RES,FXD,FILM:365K OHM,1%,0.2W,TC=TO	80009	322-3439-00
A2R940	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	80009	315-0105-00
A2R942	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	80009	315-0105-00
A2R944	315-0473-00			RES,FXD,FILM:47K OHM,5%,0.25W	80009	315-0473-00
A2R949	315-0332-00			RES,FXD,FILM:3.3K OHM,5%,0.25W	80009	315-0332-00
A2R950	303-0154-00			RES,FXD,CMPSN:150K OHM,5%,1W	80009	303-0154-00
A2RT779	307-0863-00			RES,THERMAL:10 OHM,10%,NTC	80009	307-0863-00
A2RV681	307-0449-00			RES,V SENSITIVE:1900PF,100A,130V,METAL OXD SAFETY CONTROLLED	03508	V130LA20A
A2RV682	307-0449-00			RES,V SENSITIVE:1900PF,100A,130V,METAL OXD SAFETY CONTROLLED	03508	V130LA20A
A2S695	260-2443-00			SWITCH,PUSH:POWER,DPST,6A,250VAC *ATTACHED PARTS*	80009	260-2443-00
	366-1160-00			PUSH BUTTON:CHARCOAL,0.523 X 0.253 X 0.43 *END ATTACHED PARTS*	80009	366-1160-00

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A2T440	120-1831-00			TRANSFORMER,RF:FLYBACK,OUTPUTS +/-15 & +/-5	80009	120-1831-00
A2TP207	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A2TP220	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A2TP260	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A2TP264	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A2TP410	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A2TP856	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRASS,W/ RED NYLON COLLAR	26364	104-01-02
A2U218	156-2559-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;NEGATIV E,-12V,1.5A,2%;MC7912ACT,TO-220	80009	156-2559-00
				ATTACHED PARTS		
	214-4290-00			HEAT SINK,XSTR:TO-220/TO-218;W/4-40 TAPPED CENTER HOLE,ALUMINUM;6390B/5810B	80009	214-4290-00
	342-0563-00			INSULATOR,PLATE:TRANSISTOR,FIBERGLASS REINF ORCED SILICON RUBBER	18565	69-11-8805-1674
				END ATTACHED PARTS		
A2U235	156-2558-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;POSITIV E,12V,1.5A,2%;MC7812ACT,TO-220	80009	156-2558-00
				ATTACHED PART		
	214-4290-00			HEAT SINK,XSTR:TO-220/TO-218;W/4-40 TAPPED CENTER HOLE,ALUMINUM;6390B/5810B	80009	214-4290-00
	342-0563-00			INSULATOR,PLATE:TRANSISTOR,FIBERGLASS REINF ORCED SILICON RUBBER	18565	69-11-8805-1674
				END ATTACHED PARTS		
A2U520	156-1631-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;SHUNT,A DJUSTABLE,100MA;TL431CLP,TO-92	01295	TL431C-LP
A2U613	156-0885-00			CPLR,OPTOELECTR:LED,5KV ISOLATION	04713	SOC 123A
A2U820	156-1225-01			IC,LINEAR:BIPOLAR,COMPARATOR;DUPLICATE OF 1 56-1225-00,DO NOT USE;LM393N,DIP08.3	80009	156-1225-01
A2U922	156-2524-00	671-0663-00	671-0663-02	IC,LINEAR:	12969	UC3842N
A2U922	156-4236-00	671-0663-03		IC,LINEAR:	80009	156-4236-00
A2VR272	152-0662-00			DIODE,ZENER:,;5V,1%,0.4W;1N751 FMLY,DO-7 OR 35,TR	04713	SZG195RL
A2VR933	152-0304-00			DIODE,ZENER:,;20V,5%,0.4W;1N968B,DO-35 OR 7 ,TR	80009	152-0304-00
B100	119-2068-00	B010100	B010183	FAN,TUBEAXIAL:24VDC,20CFM,60 X 60 MM 4800RP M, SAFETY CONTROLLED	TK1960	TFDD6024RXA
B100	119-2068-01	B010184		FAN,TUBEAXIAL:	80009	119-2068-01
F789	159-0160-00			FUSE,CARTRIDGE:3AG,1.5 A,250 V,18 SEC,UL (FOR 90-132VAC OPERATION)	75915	31301.5
F789	159-0018-00			FUSE,CARTRIDGE:3AG,0.8A,250V,30SEC (FOR 180-250VAC OPERATION)	71400	MDL 8/10

DIAGRAMS/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

Both overline and parenthesis indicate a low asserting state.

Example: $\overline{\text{ID,CONTROL}}$ or (ID CONTROL)

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:

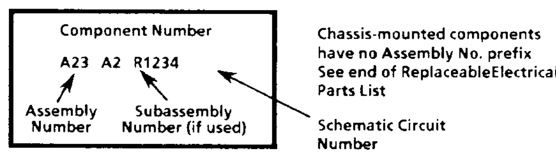
Capacitors:
Values one or greater are in picofarads (pF).
Values less than one are in microfarads (μF).
Resistors = Ohms (Ω).

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

Assembly Numbers

Each assembly in the instrument is assigned an assembly number (e.g., A20). The assembly number appears on the diagram (in circuit board outline), circuit board illustration title, and lookup table for the schematic diagram.

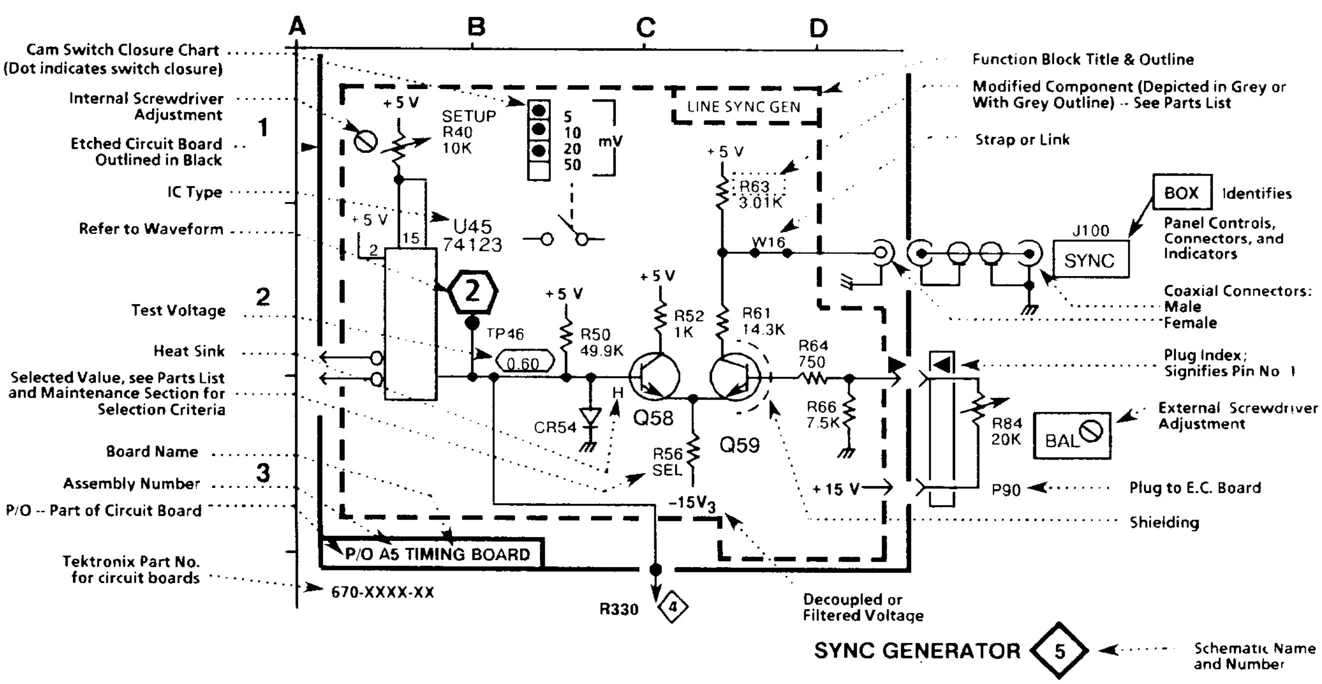
The Replaceable Electrical Parts List is arranged by assembly number in numerical sequence; the components are listed by component number. Example:



Grid Coordinates

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; the lookup table will list the diagram number of other diagrams that the other circuitry appears on.



 PUNCH: 3–HOLE

PLEASE INSERT FOLDED 11 X 17 Z-FOLD(S) HERE

PART NUMBER: 070-7385-00 DATE: 10-19-95

1	1	BLOCK DIAGRAM, *LKUP 1 & A1A1 BD(08)
1	2	◇ 1, *LKUP 2 & A1A1 BD
1	3	◇ 2, *LKUP 3
1	4	◇ 3, *LKUP 4 (08)
1	5	◇ 4 (08–19), *LKUP 4 (07)
1	6	◇ 4 (07), *LKUP 3–4 (00–06)
1	7	◇ 4 (00–06), *LKUP 5
1	8	◇ 5, *LKUP 6
1	9	◇ 6, *LKUP 7
1	10	◇ 7, *LKUP 8
1	11	◇ 8, *LKUP 9
1	12	◇ 9, *LKUP 10
1	13	◇ 10, *LKUP 11
1	14	◇ 11, *LKUP 12 (08)
1	15	◇ 12, *LKUP 12 (00–07)
1	16	◇ 12 (00–07), *LKUP 13
1	17	◇ 13, *BLANK
2	18	VITS 201 FIG., *BLANK
3	19	◇ 1, *BLANK
3	20	◇ 6, *BLANK
3	21	◇ 8, *BLANK
3	22	◇ 11, *BLANK
3	23	A1A1 BD (21–24), *BLANK
4	24	PG 4 OF 4, *BLANK

REPLACEABLE MECHANICAL PARTS LIST

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
Mounting parts for Assembly and/or Component
MOUNTING PARTS/*END MOUNTING PARTS*
  Detail Part of Assembly and/or Component
  Mounting parts for Detail Part
  MOUNTING PARTS/*END MOUNTING PARTS*
    Parts of Detail Part
    Mounting parts for Parts of Detail Part
    MOUNTING PARTS/*END MOUNTING PARTS*

Mounting 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.

Mounting parts must be purchased separately, unless otherwise specified.

CHASSIS PARTS

Chassis-mounted parts and cable assemblies may be found at the end of the Electrical Parts List.

ABBREVIATIONS

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

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
04729	UNICORP	291 CLEVELAND ST	ORANGE NJ 07050-2817
06666	GENERAL DEVICES CO INC	1410 S POST RD PO BOX 39100	INDIANAPOLIS IN 46239-9632
06915	RICHCO PLASTIC CO	5825 N TRIPP AVE	CHICAGO IL 60646-6013
24931	SPECIALTY CONNECTOR CO INC	2100 EARLYWOOD DR PO BOX 547	FRANKLIN IN 46131
71468	ITT CANNON DIV OF ITT CORP	666 E DYER RD	SANTA ANA CA 92702
77900	ILLINOIS TOOL WORKS SHAKEPROOF DIV	ST CHARLES RD	ELGIN IL 60120
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
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61108-5181
95987	BRADY/WECKESSER MFG CO	4444 WEST IRVING PARK RD	CHICAGO IL 60641
96904	HIGH VOLTAGE ENGINEERING CORP NARVAR CO DIV	ROUTE 70 EAST PO BOX 658	CLAYTON NC 27520
S3629	SCHURTER AG H C/O PANEL COMPONENTS CORP	2015 SECOND STREET	BERKELEY CA 94170
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK0858	STAUFFER SUPPLY CO (DIST)		
TK0861	H SCHURTER AG DIST PANEL COMPONENTS	2015 SECOND STREET	BERKELEY CA 94170
TK1373	PATELEC-CEM (ITALY)	10156 TORINO	VAICENTALLO 62/45S ITALY
TK1547	MOORE ELECTRONICS INC (DIST)	19500 SW 90TH COURT PO BOX 1030	TUALATIN OR 97062
TK1960	U S TOYO FAN CORP	4915 WALNUT GROVE AVE DRAWER G	SAN GABRIEL CA 91776

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-1	200-3710-00			1	COVER,TOP:	80009	200-3710-00
					MOUNTING PARTS		
-2	211-0541-00			10	SCREW,MACHINE:6-32 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCR
					END MOUNTING PARTS		
-3	426-2089-00			1	FRAME,FRONT:	80009	426-2089-00
-4	367-0402-00			2	HANDLE,LATCH:	80009	367-0402-00
					MOUNTING PARTS		
-5	210-0586-00			4	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
					END MOUNTING PARTS		
-6	351-0848-00			2	SLIDE,LATCH:	80009	351-0848-00
					MOUNTING PARTS		
-7	210-0586-00			4	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
					END MOUNTING PARTS		
-8	351-0849-00			2	SLIDE,LATCH:	80009	351-0849-00
-9	351-0863-00			2	SLIDE,GUIDE:PLASTIC,1.95 L	80009	351-0863-00
					MOUNTING PARTS		
-10	211-0025-00			8	SCREW,MACHINE:4-40 X 0.375,FLH,100 DEG,STL	TK0435	ORDER BY DESCR
					END MOUNTING PARTS		
-11	----- -----			1	CIRCUIT BD ASSY:PAL VITS INSERTER (SEE A1A1 REPL)		
					MOUNTING PARTS		
-12	211-0244-00			7	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
-13	129-1115-00			2	SPACER,POST:1.218 L,4-40 EXT,6-32 INT,AL	04729	1458M09F09632144
-14	210-0004-00			2	WASHER,LOCK:#4 INTL,0.015 THK,STL	77900	1204-00-00-0541C
-15	220-0497-00			8	NUT,PLAIN,HEX:0.5-28 X 0.562 HEX,BRS CD PL	80009	220-0497-00
-16	210-1039-00			8	WASHER,LOCK:0.521 ID,INT,0.025 THK,SST	24931	ORDER BY DESCR
					END MOUNTING PARTS		
-17	174-0034-00			1	CA ASSY,SP,ELEC:28 AWG,3.0 L,RIBBONSAFETY C ONTROLLED	80009	174-0034-00
-18	337-3576-00			1	SHIELD,PWR SPLY:	80009	337-3576-00
-19	204-0832-00			1	BODY,FUSEHOLDER:3AG & 5 X 20MM FUSES	TK0861	031 1673
	210-1039-00			1	WASHER,LOCK:0.521 ID,INT,0.025 THK,SST	24931	ORDER BY DESCR
	174-2258-00			1	CA ASSY,SP,ELEC:2,18 AWG,3.5 L	80009	174-2258-00
-20	200-3824-00			1	COVER,FUSE HLDR:TERMINAL INSULATOR BOOT FOR 0.25 X 1.25	TK1547	859.0042
-21	200-2264-00			1	CAP,FUSEHOLDER:3AG FUSES	S3629	FEK 031 1666
-22	----- -----			1	CIRCUIT BD ASSY:POWER SUPPLY (SEE A2 REPL)		
					MOUNTING PARTS		
-23	211-0244-00			7	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
-24	210-0586-00			2	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
-25	211-0025-00			2	SCREW,MACHINE:4-40 X 0.375,FLH,100 DEG,STL	TK0435	ORDER BY DESCR
					END MOUNTING PARTS		
-26	----- -----			1	FAN,TUBEAXIAL:24VDC,20CFM,60 X 60 MM 4800RP M, SAFETY CONTROLLED (SEE B100 REPL)		
					MOUNTING PARTS		
-27	212-0012-00			2	SCREW,MACHINE:8-32 X 1.25,FLH,100 DEG,STL	83385	ORDER BY DESCR
-28	210-0458-00			2	NUT,PL,ASSEM WA:8-32 X 0.344,STL CD PL	78189	511-081800-00
					END MOUNTING PARTS		
-29	131-0707-00	B010100	B010183	2	CONTACT,ELEC:22-26 AWG,BRS,CU BE GLD PL	80009	131-0707-00
-30	352-0169-00	B010100	B010183	1	HLDR,TERM CONN:2 WIRE,BLACK	80009	352-0169-00
-31	162-0013-00	B010100	B010183	1	INSUL SLVG,ELEC:0.148 ID,VINYL,BLK,105 DEG C,0.168 OD	96904	TYPE400SIZE7BLK
-32	407-3379-01			1	BRKT,FAN MTG:ALUMINUM	80009	407-3379-01
					MOUNTING PARTS		
-33	211-0541-00			1	SCREW,MACHINE:6-32 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCR
					END MOUNTING PARTS		
-34	174-1739-00			1	CA ASSY,SP,ELEC:16,28 AWG,11.0 L,RIBBON	80009	174-1739-00
					MOUNTING PARTS		
-35	131-0890-00			2	SCREW LOCK:4-40 X 0.312 L HEX HD,STLCD PL	71468	D 20418-2
					END MOUNTING PARTS		
-36	211-0177-00			1	SCREW,MACHINE:4-40 X 0.312,PNH,STL	TK0435	ORDER BY DESCR
-37	441-1914-00			1	CHASSIS:	80009	441-1914-00
-38	351-0104-03			1	SL SECT,DWR EXT:12.625 L,W/O HARDWARE	06666	C-720-3
					MOUNTING PARTS		
-39	212-0158-00			8	SCREW,MACHINE:8-32 X 0.375,PNH,STL	83486	ORDER BY DESCR
					END MOUNTING PARTS		

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-							
					STANDARD ACCESSORIES		
-40	351-0751-01			1	TRK,SL OUT SECT:STATIONARY &INTERMEDIATE	80009	351-0751-01
	070-7385-00			1	MANUAL,TECH:	80009	070-7385-00
	343-0003-00			1	CLAMP,LOOP:0.25 ID,PLASTIC	06915	E4 CLEAR ROUND
	210-0863-00			1	WSHR,LOOP CLAMP:0.091 ID U/W 0.5 W CLP,STL CD PL	95987	C191
	212-0004-00			1	SCREW,MACHINE:8-32 X 0.312,PNH,STL	TK0435	ORDER BY DESCR
-41	161-0066-00			1	CABLE ASSY,PWR,:3,18AWG,98 L,SVT,GREY/BLK,6 0 DEG C,IEC BME X STR,IEC RCPT,10A/125V;,, (STANDARD ONLY)	80009	161-0066-00
					OPTIONAL ACCESSORIES		
-42	161-0066-09			1	CABLE ASSY,PWR,:3,0.75MM SQ,220V,99.0 L (EUROPEAN OPTION A1 ONLY)	80009	161-0066-09
-43	161-0066-10			1	CABLE ASSY,PWR,: (UNITED KINGDOM OPTION A2 ONLY)	TK1373	24230
-44	161-0066-11			1	CABLE ASSY,PWR,:3,0.75MM,240V,96.0 L (AUSTRALIAN OPTION A3 ONLY)	80009	161-0066-11

 PUNCH: 3–HOLE

PLEASE INSERT FOLDED 11 X 17 Z-FOLD(S) HERE

PART NUMBER: 070-7385-00 DATE: 10-19-95

1	1	BLOCK DIAGRAM, *LKUP 1 & A1A1 BD(08)
1	2	◇ 1, *LKUP 2 & A1A1 BD
1	3	◇ 2, *LKUP 3
1	4	◇ 3, *LKUP 4 (08)
1	5	◇ 4 (08–19), *LKUP 4 (07)
1	6	◇ 4 (07), *LKUP 3–4 (00–06)
1	7	◇ 4 (00–06), *LKUP 5
1	8	◇ 5, *LKUP 6
1	9	◇ 6, *LKUP 7
1	10	◇ 7, *LKUP 8
1	11	◇ 8, *LKUP 9
1	12	◇ 9, *LKUP 10
1	13	◇ 10, *LKUP 11
1	14	◇ 11, *LKUP 12 (08)
1	15	◇ 12, *LKUP 12 (00–07)
1	16	◇ 12 (00–07), *LKUP 13
1	17	◇ 13, *BLANK
2	18	VITS 201 FIG., *BLANK
3	19	◇ 1, *BLANK
3	20	◇ 6, *BLANK
3	21	◇ 8, *BLANK
3	22	◇ 11, *BLANK
3	23	A1A1 BD (21–24), *BLANK
4	24	PG 4 OF 4, *BLANK

Manual Change Information

Tektronix products are constantly under development for increased performance or lower cost to the customer. Often, changes are incorporated into a product as soon as they are shown to meet the highest quality standards.

This aggressive policy of product improvement can result in changes that are not reflected in the appropriate sections of the manual. Information regarding such changes will appear on the following pages. If no change notices are inserted after this page, the manual is correct as printed.

Please review any included change information and note the changes that will affect your use of the product. A single change may apply to several sections of the manual. Because change information sheets are inserted until all the changes are incorporated into every applicable section of the manual, some duplication may result.

Tektronix MANUAL CHANGE INFORMATION

Date: 6/6/94 Change Reference: M81265

Product:	Manual P/N:	Product	Manual P/N:
067–1011–00	070–3679–00	TSG 1125	061–3629–00
118AS/118RC	070–5114–00	TSG 1250	061–3719–00
1450–1	070–5568–00	TSG–170A	070–5680–00
1450–2	070–2998–00	TSG–170D	070–6943–00
1450–3A	070–3660–01	TSG200	070–8351–00
1910	070–4523–00	TSG–271	070–6304–00
728D	070–7629–00	TSG–273	070–7956–00
728E	070–7630–02	TSG–300	070–5722–00
728M	070–8045–00	TSG–370	070–7446–00
751	070–7631–00	TSG–371	070–7707–00
ASG100	070–8546–00	TSG–422	070–7022–00
ASG140	070–8867–01	VITS100	061–3939–00
DAC422	070–8595–00	VITS200	061–3923–00
ECO–170A	070–6113–00	VITS200 AA	061–3984–00
PE1000	070–8474–00	VITS201	070–7385–00
SPG1000	070–8074–00	VM700 Vol 1	070–8197–00
SPG–170A	070–5965–00	VM700 Vol 2	070–8275–00
SPG–271	070–6814–00	VM700A	070–8165–00
TPG–625	070–7248–00	VS210	070–8754–00
TSG 1001	070–8625–00	VS211	070–8164–00
TSG 1050	061–3718–00	VS211A	070–8827–00

Mechanical Parts List Changes

In the 1910

CHANGE all occurances of 131–0890–00 **TO READ:**

214–3903–01	1	SCREW,JACK:4–40 X 0.312 EXT THD,4–40 INT THD,0.188 HEX, STEEL,CAD PLATE
		ATTACHED PARTS
210–0004–00	2	WASHER,LOCK:#4 INTL,0.015 THK,STL CD PL
210–0406–00	2	NUT,PLAIN,HEX: 4–40 X 0.188,BRS CD PL
		END ATTACHED PARTS

In all other instruments

CHANGE all occurances of 131–0890–00 **TO READ:**

214–3903–01	1	SCREW,JACK:4–40 X 0.312 EXT THD,4–40 INT THD,0.188 HEX, STEEL,CAD PLATE

Tektronix **MANUAL CHANGE INFORMATION**

Date: 1/10/94 **Change Reference:** M79236

Product: All Television Products **Manual Part Number:** NA

Tektronix Television Division will no longer use electrolytic capacitors with 85° ratings. They are being replaced with 105° rated capacitors, for better long term reliability. All other ratings on the new capacitors are the same or better. If you need to order any of these caps, be sure to use the new part number.

ELECTRICAL PARTS LIST CHANGES

REPLACE		WITH	
100 UF	290–1100–00	290–1309–00	CAP,FXD,AL:100UF,20%,63V,RADIAL,105 DEG
10 UF	290–0974–03	290–1311–00	CAP,FXD,AL:10UF,20%,50V,5 X 11MM,105 DEG
10 UF	290–0990–01	290–1313–00	CAP,FXD,AL:10UF,20%,50V,8 X 11MM,105 DEG
2.2 UF	290–0758–00	290–1312–00	CAP,FXD,AL:2.2UF,20%,315V;10 X 125MM,105 DEG

Tektronix MANUAL CHANGE INFORMATION

Date: 11/30/93 **Change Reference:** M80599

Product(s): VITS 201 **Manual Part No:** 070–7385–00

DESCRIPTION

EFF S/N: B051522

ELECTRICAL PARTS LIST AND SCHEMATIC CHANGES

SECTION 7 REPLACEABLE ELECTRICAL PARTS

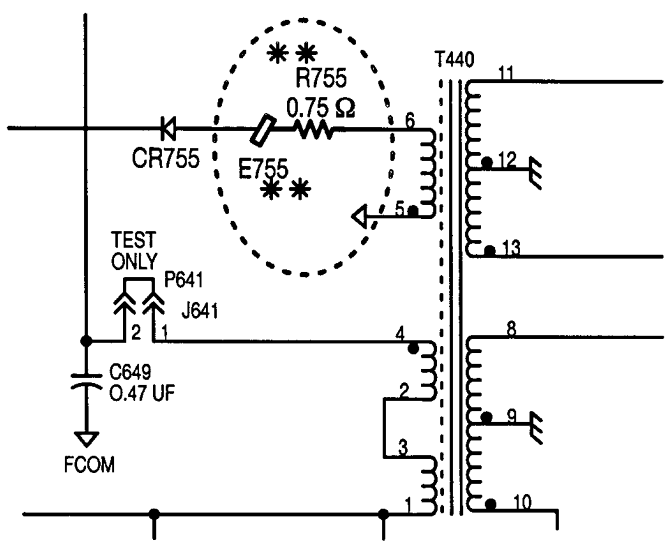
CHANGE TO READ:

A2	671–0663–05	CIRCUIT BD ASSY: POWER SUPPLY BOARD

ADD:

A2E755	276–0596–00	CORE,EM:TOROID,FERRITE 0.162 OD X0.09 ID X 0.067
A2R755	308–0755–00	RES,FXD,WW:0.75 OHM,5%,2W

Added parts are shown in the following partial schematic:



Part of Schematic 13 POWER SUPPLY, showing location of added parts

Tektronix **MANUAL CHANGE INFORMATION**

Date: 9/6/93 **Change Reference:** C4/993

Product(s): VITS 201 **Manual Part No:** 070–7385–00

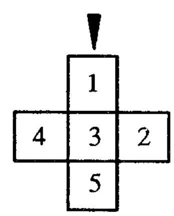
DESCRIPTION

TEXT and SCHEMATIC CORRECTIONS

SECTION 2 INSTALLATION

Pg 2–10, Table 2–3 Test Jumpers (red)

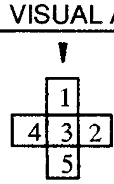
CHANGE VCO Test entry **TO READ:**

VCO Test	J21	Pins 1–3: Fixed test voltage (GND) centers VCO frequency. Pins 2–3: Normal operation. Microprocessor controls genlock loop response. Pins 4–3: Fixed test voltage (–5V) decreases VCO frequency. Pins 5–3: Fixed test voltage (+5V) increases VCO frequency. Pin Positions: 	Pins 2–3

SECTION 8 DIAGRAMS, SCHEMATIC 8

CHANGE J21 visual aid **AS SHOWN:**

J21 VISUAL AID



Tektronix

MANUAL CHANGE INFORMATION

Group Code 20

Date: 6/10/93 Change Reference: M79518

Product: See List Manual Part No: See List

DESCRIPTION

INST	MANUAL P/N	INST	MANUAL P/N
DAC 422	070-8595-00	TSG 273	070-7956-00
VITS 100	061-3939-00	PE 1000	070-8474-00
VITS 200	061-3923-00	TSG 1001	070-8625-00
VITS 200 Mod AA	061-3984-00	TSG 1050	061-3718-00
VITS 201	070-7385-00	TSG 1125	061-3629-00
VS 210	070-8754-00	TSG 1250	061-3719-00
VS 211	070-8164-00		

ELECTRICAL PARTS LIST CHANGES

In the DAC 422 **CHANGE TO READ:**

A1U28	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460
A1U36	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460
A1U43	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

In the VITS 100, VITS 200, and VITS 200 Mod AA, **CHANGE TO READ:**

A1U65	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

In the VITS 201 **CHANGE TO READ:**

A1A1U154	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

In the VS 210 **CHANGE TO READ:**

A4U42	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

In the VS 211 **CHANGE TO READ:**

A4U56	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

In the TSG 273 **CHANGE TO READ:**

A3U140	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

Date: 6/10/93	Group Code 20	Change Reference: M79518
Product: See List		Manual Part No: See List

In the PE 1000 **CHANGE TO READ:**

A1U700	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460
A1U900	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

In the TSG 1001, TSG 1050, TSG 1125 and TSG 1250, **CHANGE TO READ:**

A3U6	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460
A3U12	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460
A3U18	155-0316-02	IC,ASIC:BIPOLAR,12 BIT D/A CONVERTER;FULL CUSTOM,M460

Tektronix

MANUAL CHANGE INFORMATION

Group Code 20

Date: 5/23/93 Change Reference: M79517

Product: See List Manual Part No: See List

DESCRIPTION

INST	EFF S/N	MANUAL P/N
VITS 201	B051381	070-7385-00
DAC 422	B010251	070-8595-00

MECHANICAL PARTS LIST CHANGES

STANDARD ACCESSORIES, at the end of the MECHANICAL PARTS LIST

in the VITS 201 **CHANGE** item 40 **TO READ:**
in the DAC 422 **CHANGE** item 38 **TO READ:**

351-0859-00	1	TRK,SL-OUT SECT:STATIONARY AND INTERMEDIATE

Tektronix

MANUAL CHANGE INFORMATION

Group Code 20

Date: 3/25/93 Change Reference: M79445

Product: VITS 201 Manual Part No: 070-7385-00

DESCRIPTION

Eff S/N: B051355

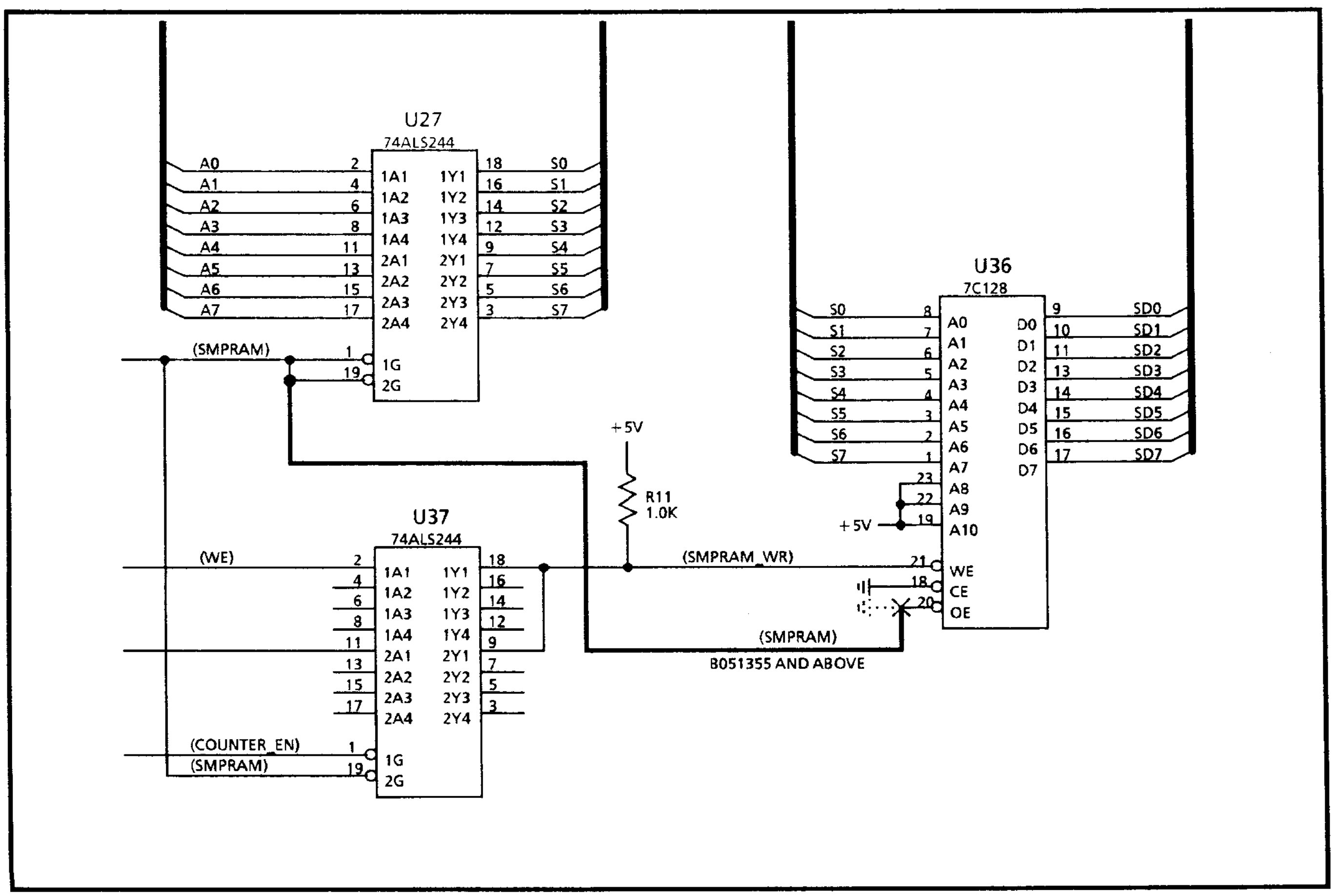
ELECTRICAL PARTS LIST and SCHEMATIC CHANGES

SECTION 7 REPLACEABLE ELECTRICAL PARTS LIST

CHANGE TO READ:

A1A1	671-0856-31	CKT BD ASSY: INSERTER BOARD (STD)
A1A1	671-0856-32	CKT BD ASSY: INSERTER BOARD (OPT 5 ONLY)
A1A1	671-0856-33	CKT BD ASSY: INSERTER BOARD (OPT 10 ONLY)
A1A1	671-0856-34	CKT BD ASSY: INSERTER BOARD (OPT 5 AND 10 COMBINATION)

Circuitry change shown below:



Part of Schematic 3 showing connection change at U36-20.

Tektronix | **MANUAL CHANGE INFORMATION** Group Code 20

Date: 2/10/93 Change Reference: M79108

Product: VITS 201 Manual Part No: 070-7385-00

DESCRIPTION

Eff S/N: B051318

ELECTRICAL PARTS LIST CHANGES

SECTION 7 REPLACEABLE ELECTRICAL PARTS LIST

CHANGE TO READ:

A1A1	671-0856-27	CIRCUIT BD ASSY:INSERTER BOARD (Standard Only)
A1A1	671-0856-28	CIRCUIT BD ASSY:INSERTER BOARD (Option 05 Only)
A1A1	671-0856-29	CIRCUIT BD ASSY:INSERTER BOARD (Option 10 Only)
A1A1	671-0856-30	CIRCUIT BD ASSY:INSERTER BOARD (Option 05 and 10 Combination)
A1A1R52	322-3273-00	RES,FXD,FILM:6.81K OHM,1%,0.2W,TC=TO
A1A1R54	322-3299-00	RES,FXD,FILM:12.7K OHM,1%,0.2W,TC=TO
A1A1U127	160-6541-01	IC,DIGITAL:CMOS,PLD:EEPLD,16V8,25NS,90MA,PRGM;16V8-25,DIP20.3

Tektronix® COMMITTED TO EXCELLENCE	MANUAL CHANGE INFORMATION	Group Code 20
	Date: 6/4/92	Change Reference: M76993
Product: VITS 201		Manual Part No: 070-7385-00

DESCRIPTION

Eff S/N: B050000

TEXT, ELECTRICAL PARTS LIST, and SCHEMATIC CHANGES

SECTION 3 OPERATING INSTRUCTIONS
Page 3-1, **CHANGE** Operational controls discussion **TO READ:**

Operational controls

The operational controls consist of the bypass delay adjustment, the bypass toggle switch, the Operational Selection switch, six momentary switches, three LED indicators, and four LED displays, as shown in Figure 3-2.

Page 3-2, **CHANGE** Figure 3-2 **AS SHOWN:**

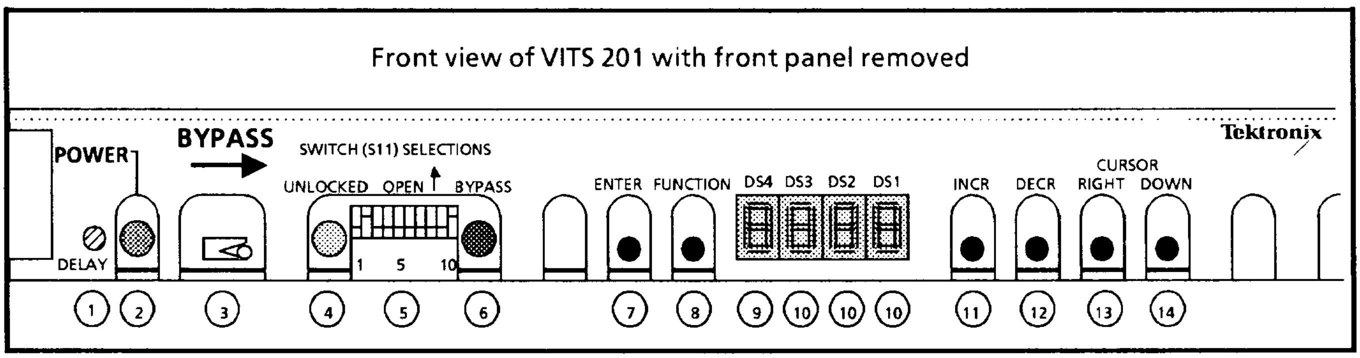


Figure 3-2. Operational controls.

INCREMENT control descriptions by one, and **ADD** new item 1 **AS FOLLOWS:**

① DELAY adjustment. Adjusts the time delay between loss of genlock and switch to standby.

Page 3-3, Operational Selection switch discussion

CHANGE last sentence **TO READ:**

.... (A segment is in its open position when its forward end is up.)

Page 3-23, Figure 3-9 Remote control schematic

CHANGE pin 14 function **TO READ:**

Video present output, for use with ASG 100 with video clapboard mod.

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Product: VITS 201		Manual Part No: 070-7385-00

Page 3-24, following the remote connector discussion **ADD AS FOLLOWS:**

Video Clapboard

Video clapboard is for timing audio and video delays, so that they may be synchronized throughout the studio. This function requires a Tektronix ASG 100 modified for Video clapboard operation. When in use, the VITS 201 will turn the vertical interval text on and off in a 0.5 second on and 4.5 second off pattern, and turn the ASG 100 audio tone on and off in the same pattern. The off-to-on transition coincides with line 1 of field 1.

Configuring the VITS 201 for Video clapboard operation

1. Genlock the VITS 201 to a PAL video source.
2. Open segments 4 and 10 of the Operational Selection switch (S11).
3. Press <Function> six times, until a **C.** appears in the display.
4. Enter some text in the vertical interval, as described earlier. A minimum of one character is required.

   NOTE

   The vertical interval text and ASG 100 (if connected at this time) Audio Tone will both be on during this sequence.

5. Close S11 segment 10.
6. Connect the VITS 201 and ASG 100 remote connectors as shown in Figure 3-11.

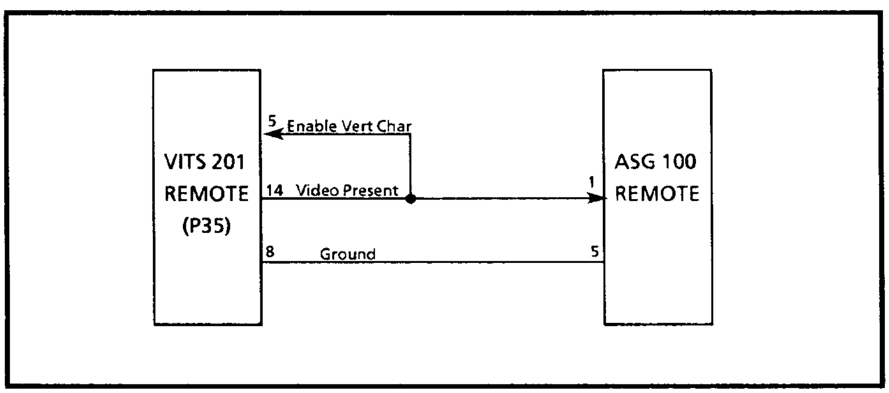

Figure 3-11. Connections to ASG 100 for Video clapboard.

Page 3-25, Table 3-7

CHANGE pin 14 entry **TO READ:**

14	Video present output. For use with ASG 100 with video clapboard mod.

SECTION 4 SPECIFICATION TABLES
Page 4-12, Table 4-7

CHANGE Output Voltages entry **TO READ:**

Output Voltages +12 V	+500 mV, -240 mV	From 0.05 A to 0.2 A (post regulated from ±14.5 V by linear regulator).
+5V	±200 mV.	From 1 A to 5 A (voltage adjustable).
-5.2 V	±300 mV	From 0.5 A to 1 A.
-12 V	+240 mV, -500 mV	From 0.05 A to 0.2 A (post regulated from ±14.5 V by linear regulator).

Page 4-17, Fig 4-14

CHANGE Source Identification note **TO READ:**

SOURCE IDENTIFICATION
switches all open (1)

SECTION 5 MAINTENANCE

Page 5-10,

Preceding Power supply board removal **ADD AS FOLLOWS:**

Top cover removal

1. Remove the front panel by pressing the front panel release handles toward each other, and pulling the front panel straight away from the VITS 201.
2. Remove the four screws across the bottom front of the VITS 201.
3. Remove the 13 screws around the top perimeter of the VITS 201.
4. Pull the top cover towards the front of the instrument until the LEDs are clear, then lift the top cover away from the instrument.

CHANGE step 3 of the Power supply board removal procedure **TO READ:**

3. Remove all nuts and screws attaching the line filter and bracket to the rear panel.

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SECTION 6 PERFORMANCE CHECK and CALIBRATION

Page 6–4, SHORT FORM PERFORMANCE CHECK PROCEDURE

CHANGE step 2 **TO READ:**

2. **Power Supply**
   +12 V +500 mV/–240 mV, +5 V ±200 mV, –5.2 V ±200 mV, –12 V +240 mV/–500 mV.

Page 6–8, LONG FORM PERFORMANCE CHECK PROCEDURE

CHANGE Table 6–2 **TO READ:**

Table 6–2.
Power Supply Voltage Range.

Supply	Voltage Range	Location
+12 V	+11.76 V to +12.50 V	TP21
+5 V	+4.8 V to +5.2 V	TP22
–5 V	–5.5 V to –4.9 V	TP25
–12 V	–12.50 V to –11.76 V	TP24

Page 6–37, ADJUSTMENT PROCEDURE

DELETE: Step 4 Comp Sync Amplitude.

Page 6–40, Step 6 Test signal Frequency Response

Increment step 6g to step 6k, and **ADD** new steps **AS FOLLOWS:**

g. Set the 1781 to measure Diff Gain, and use the line select function to select line 19 of field 1.

h. **ADJUST** – R287 (Diff Gain/Diff Phase) for Diff Gain < 0.3%.

i. Set the 1781 to measure Diff Phase.

j. **ADJUST** – R287 (Diff Gain/Diff Phase) for Diff Phase < 0.3°.

k. Return to part c and repeat these steps until the frequency response is within 1% (7 mV), the SIN X/X peaks are balanced, Diff Gain is <0.3%, and Diff Phase is <0.3°.

SECTION 7 REPLACEABLE ELECTRICAL PARTS LIST

Several of the circuit location numbers were changed, AS FOLLOWS:

CKT #	becomes CKT #
A1A1C203	A1A1C255
A1A1R76	A1A1R284
A1A1R77	A1A1R283
A1A1R130	A1A1R281
A1A1R228	A1A1R282

DELETE:

A1A1C26	A1A1CR12	A1A1R2	A1A1R66	A1A1R264
A1A1C27	A1A1CR31	A1A1R3	A1A1R67	A1A1R265
A1A1C28	A1A1CR32	A1A1R4	A1A1R68	A1A1R266
A1A1C47	A1A1CR33	A1A1R5	A1A1R80	A1A1R267
A1A1C48	A1A1CR34	A1A1R60	A1A1R82	A1A1R268
A1A1C112	A1A1L27	A1A1R61	A1A1R83	A1A1R269
A1A1C201	A1A1Q38	A1A1R62	A1A1R84	A1A1U98
A1A1C241	A1A1Q39	A1A1R63	A1A1R87	A1A1U99
A1A1C242	A1A1Q40	A1A1R64	A1A1R194	A1A1U149
A1A1CR11		A1A1R65	A1A1R262	A1A1VR3

ADD:

A1A1C2	283-0772-01	CAP,FXD,MICA DI:497PF,1%,500V
A1A1C210	283-0648-01	CAP,FXD,MICA DI:10PF,5%,500V
A1A1C245	290-0942-00	CAP,FXD,ELCTLT:100UF,+100 -10%,25V
A1A1C246	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C247	290-0942-00	CAP,FXD,ELCTLT:100UF,+100 -10%,25V
A1A1C248	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C249	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C250	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C251	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C252	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C253	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C254	283-0672-01	CAP,FXD,MICA DI:200PF,1%,500V
A1A1C256	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C257	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C258	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C259	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C260	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C262	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C263	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C264	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C265	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C266	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C267	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C268	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C269	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C270	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C271	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C272	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C273	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C274	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C275	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C276	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C277	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V

A1A1C278	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C279	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C280	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C281	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C282	290-0942-00	CAP,FXD,ELCTLT:100UF,+100-10%,25V
A1A1C283	290-0942-00	CAP,FXD,ELCTLT:100UF,+100-10%,25V
A1A1C284	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C285	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C286	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C287	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C288	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C289	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C290	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C291	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C292	290-0942-00	CAP,FXD,ELCTLT:100UF,+100-10%,25V
A1A1C294	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C295	283-0692-00	CAP,FXD,MICA DI:670PF,1%,300V
A1A1C296	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C297	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C298	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C299	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C300	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C301	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C302	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C303	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C304	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C305	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C306	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C307	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C308	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C309	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C310	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C311	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C312	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C313	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C314	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C315	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C316	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C317	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C318	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C319	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C320	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C321	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C322	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C323	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C324	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C325	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C326	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C327	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C328	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C329	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C330	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C331	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V

A1A1C332	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C333	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C334	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C335	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C336	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C337	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C338	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C339	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C340	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C341	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C342	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C343	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C344	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C345	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C346	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C347	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1C348	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1CR35	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR36	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR37	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR38	152-0269-01	DIODE,SIG:VVC;1N5450A FMLY
A1A1CR39	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR40	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR41	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR42	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR43	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR44	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR45	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR46	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1CR47	152-0141-02	DIODE,SIG:ULTRA FAST;40V,1N4152
A1A1J56	131-0608-00	TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 3)
A1A1Q42	151-0190-09	TRANSISTOR,SIG:BIPOLAR,NPN,40V,300 MHZ,2N3904
A1A1Q43	151-0220-06	TRANSISTOR,SIG:BIPOLAR,PNP,40V,400 MHZ,2N3906 (SEL)
A1A1Q44	151-0190-09	TRANSISTOR,SIG:BIPOLAR,NPN,40V,300 MHZ,2N3904
A1A1Q45	151-0220-06	TRANSISTOR,SIG:BIPOLAR,PNP,40V,400 MHZ,2N3906 (SEL)
A1A1Q46	151-0190-09	TRANSISTOR,SIG:BIPOLAR,NPN,40V,300 MHZ,2N3904
A1A1Q47	151-0192-05	TRANSISTOR,SIG:BIPOLAR,NPN,25V,200 MHZ,MPS6521
A1A1R275	322-3258-00	RES,FXD,FILM:4.75 OHM,1%,0.2W
A1A1R276	322--3119-00	RES,FXD,FILM:169 OHM,1%,0.2W
A1A1R277	322-3123-00	RES,FXD,FILM:187 OHM,1%,0.2W
A1A1R278	317-0027-00	RES,FXD,CMPSN:2.7 OHM,5%,0.125W
A1A1R279	322-3117-00	RES,FXD,FILM:162 OHM,1%,0.2W
A1A1R280	322-3097-00	RES,FXD,FILM:100 OHM,1%,0.2W
A1A1R281	322-3283-00	RES,FXD,FILM:8.66K OHM,1%,0.2W *Was R130*
A1A1R282	322-3085-00	RES,FXD,FILM:75 OHM,1%,0.2W *Was R228*
A1A1R283	322-3161-00	RES,FXD,FILM:464 OHM,1%,0.2W *Was R77*
A1A1R285	322-3039-00	RES,FXD,FILM:24.9 OHM,1%,0.2W
A1A1R286	322-3097-00	RES,FXD,FILM:100 OHM,1%,0.2W
A1A1R287	311-2234-00	RES,VAR,NON WW:5K OHM,20%,0.5W

A1A1R288	322-3171-00	RES,FXD,FILM:590 OHM,1%,0.2W
A1A1R289	322-3073-00	RES,FXD,FILM:56.2 OHM,1%,0.2W
A1A1R290	322-3222-00	RES,FXD,FILM:2K OHM,1%,0.2W
A1A1R291	322-3114-00	RES,FXD,FILM:150 OHM,1%,0.2W
A1A1R292	322-3113-00	RES,FXD,FILM:147 OHM,1%,0.2W
A1A1R293	322-3025-00	RES,FXD,FILM:17.8 OHM,1%,0.2W
A1A1R294	322-3180-00	RES,FXD,FILM:732 OHM,1%,0.2W
A1A1R295	322-3193-00	RES,FXD,FILM:1K OHM,1%,0.2W
A1A1R296	322-0073-00	RES,FXD,FILM:56.2 OHM,1%,0.2W
A1A1R297	322-0073-00	RES,FXD,FILM:56.2 OHM,1%,0.2W
A1A1R298	322-3105-00	RES,FXD,FILM:121 OHM,1%,0.2W
A1A1R299	322-3130-00	RES,FXD,FILM:221 OHM,1%,0.2W
A1A1R300	323-0085-00	RES,FXD,FILM:75.0 OHM,1%,0.5W
A1A1R301	322-3130-00	RES,FXD,FILM:221 OHM,1%,0.2W
A1A1R302	322-3165-00	RES,FXD,FILM:511 OHM,1%,0.2W
A1A1R303	322-3165-00	RES,FXD,FILM:511 OHM,1%,0.2W
A1A1R304	322-3117-00	RES,FXD,FILM:162 OHM,1%,0.2W
A1A1R305	322-3117-00	RES,FXD,FILM:162 OHM,1%,0.2W
A1A1R306	322-3117-00	RES,FXD,FILM:162 OHM,1%,0.2W
A1A1R307	322-3117-00	RES,FXD,FILM:162 OHM,1%,0.2W
A1A1R308	322-3117-00	RES,FXD,FILM:162 OHM,1%,0.2W
A1A1R309	322-3117-00	RES,FXD,FILM:162 OHM,1%,0.2W
A1A1R310	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R311	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R312	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R313	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R314	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R315	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R316	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R317	307-1621-00	RES,NTWK,FILM:(4) 220 OHM,2%,0.3W
A1A1R318	322-3054-00	RES,FXD,FILM:35.7 OHM,1%,0.5W

A1A1U154	155-0316-01	IC,ASIC:BIPOLAR,12-BIT D/A CONVERTER
		MOUNTING PARTS
	136-0871-00	SOCKET,PLCC:PCB;68 POS
		END MOUNTING PARTS
A1A1U155	156-4024-00	IC,LINEAR:BIPOLAR,OP-AMP;AD9617JN *Was U102*
A1A1U156	156-3019-00	IC,LINEAR:BIPOLAR,VOLT REF;1.235V,1%

AT A1A1DS1, A1A1DS2, A1A1DS3, and A1A1DS4, **ADD:**

		MOUNTING PARTS
	136-1212-00	SOCKET,DIP:PCB;RTANG,2 X 5,VERTICAL MOUNT
		END MOUNTING PARTS
A2L100	108–0858–00	COIL,RF:FXD,3.2 UH

CHANGE TO READ:

A1A1	671–0856–21	CKT BD ASSY:INSERTER BOARD
A1A1	671–0856–22	CKT BD ASSY:INSERTER BOARD (OPTION 5 ONLY)
A1A1	671–0856–23	CKT BD ASSY:INSERTER BOARD (OPTION 10 ONLY)
A1A1	671–0856–24	CKT BD ASSY:INSERTER BOARD (OPTION 5/10 COMBINATION)
A1A1C1	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V

A1A1C5	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C6	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C7	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C8	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C9	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C10	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C11	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C21	283-0051-02	CAP,FXD,CER DI:0.0033UF,5%,100V
A1A1C29	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C31	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C32	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C33	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C36	283-0770-01	CAP,FXD,MICA DI:300PF,1%,500V
A1A1C49	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C50	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C51	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C52	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C53	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C54	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C55	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C58	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C76	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C77	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C78	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C79	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C80	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C81	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C82	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C83	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C84	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C85	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C88	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C90	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C91	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C92	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C94	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C95	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C96	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C97	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C98	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C99	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C100	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C101	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C102	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C103	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C104	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C105	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C107	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C120	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C123	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C131	281-0272-01	CAP,FXD,CER DI:MLC;0.1UF,10%,50V
A1A1C132	281-0272-01	CAP,FXD,CER DI:MLC;0.1UF,10%,50V
A1A1C133	281-0272-01	CAP,FXD,CER DI:MLC;0.1UF,10%,50V

A1A1C134	281-0272-01	CAP,FXD,CER DI:MLC;0.1UF,10%,50V
A1A1C141	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C142	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C143	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C144	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C145	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C146	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C147	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C148	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C150	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C151	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C152	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C153	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C154	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C155	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C156	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C157	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C158	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C159	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C160	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C161	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C162	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C163	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C164	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C165	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C166	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C169	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C170	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C171	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C172	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C173	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C174	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C175	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C176	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C178	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C179	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C183	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C184	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C185	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C186	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C189	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C196	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C198	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C204	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C205	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C206	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C207	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C208	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C209	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C210	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C211	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C212	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C213	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V

A1A1C214	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C215	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C216	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C217	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C218	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C219	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C220	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C221	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C222	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C223	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C226	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C227	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C228	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C229	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C230	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C231	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C232	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C233	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C238	281-0909-00	CAP,FXD,CER DI:0.022UF,20%,50V
A1A1C244	283-0059-02	CAP,FXD,CER DI:1UF,20%,50V
A1A1L2	108-0733-00	COIL,RF:FIXED,117NH
A1A1L4	108-0733-00	COIL,RF:FIXED,117NH
A1A1L23	108-0170-01	COIL,RF:FIXED,360NH
A1A1L24	108-0170-01	COIL,RF:FIXED,360NH
A1A1L25	108-0170-01	COIL,RF:FIXED,360NH
A1A1L26	108-0170-01	COIL,RF:FIXED,360NH
A1A1Q24	151-1059-01	TRANSISTOR,SIG:JFET,N-CH,MPF4391
A1A1Q25	151-1059-01	TRANSISTOR,SIG:JFET,N-CH,MPF4391
A1A1Q27	151-1059-01	TRANSISTOR,SIG:JFET,N-CH,MPF4391
A1A1Q35	151-0254-03	TRANSISTOR,SIG:BIPOLAR,NPN;125MHZ,DARLINGTON
A1A1Q37	151-0164-01	TRANSISTOR,SIG:BIPOLAR,PNP;200MHZ,MPS2907A
A1A1R52	322-3281-00	RES,FXD,FILM:8.25K OHM,1%,0.2W
A1A1R54	322-3289-00	RES,FXD,FILM:10K OHM,1%,0.2W
A1A1R85	322-3137-00	RES,FXD,FILM:261 OHM,1%,0.2W
A1A1R86	322-3137-00	RES,FXD,FILM:261 OHM,1%,0.2W
A1A1R100	322-3137-00	RES,FXD,FILM:261 OHM,1%,0.2W
A1A1R101	322-3137-00	RES,FXD,FILM:261 OHM,1%,0.2W
A1A1R114	322-3137-00	RES,FXD,FILM:261 OHM,1%,0.2W
A1A1R115	322-3137-00	RES,FXD,FILM:261 OHM,1%,0.2W
A1A1R211	311-2226-00	RES,VAR,NONWW:TRMR,50 OHM,20%,0.5W
A1A1R212	311-2226-00	RES,VAR,NONWW:TRMR,50 OHM,20%,0.5W
A1A1R238	311-2223-00	RES,VAR,NONWW:TRMR,10 OHM,20%,0.5W
A1A1R248	311-2235-00	RES,VAR,NONWW:TRMR,10K OHM,20%,0.5W
A1A1R249	311-2235-00	RES,VAR,NONWW:TRMR,10K OHM,20%,0.5W
A1A1S2	260-2576-00	SWITCH,PUSH:SPST,MOMENTARY,RT ANGLE
A1A1S3	260-2576-00	SWITCH,PUSH:SPST,MOMENTARY,RT ANGLE
A1A1S4	260-2576-00	SWITCH,PUSH:SPST,MOMENTARY,RT ANGLE
A1A1S5	260-2576-00	SWITCH,PUSH:SPST,MOMENTARY,RT ANGLE
A1A1S6	260-2576-00	SWITCH,PUSH:SPST,MOMENTARY,RT ANGLE
A1A1S7	260-2576-00	SWITCH,PUSH:SPST,MOMENTARY,RT ANGLE

A1A1S9	260-2285-00	SWITCH,ROCKER:SPST,8 PIN PIANO DIP
A1A1S10	260-2285-00	SWITCH,ROCKER:SPST,8 PIN PIANO DIP
A1A1S11	260-2544-00	SWITCH,ROCKER:SPST,10 PIN PIANO DIP
A1A1U20	160-6539-04	IC,MEMORY:CMOS,EPROM;32768 X 8 W/3-STATE OUT
A1A1U80	160-6533-01	IC,DIGITAL:CMOS,EPROM;16 X 8,PRGM 27C128
A1A1U133	160-6532-03	MICROCKT,DGTL:64K X 8 EPROM,PRGM 27512-25
A1A1U138	160-6535-03	IC,MEMORY:CMOS, 2048 X 9 REG, PROM,PRGM CXC265
A1A1U139	160-6536-03	IC,MEMORY:CMOS, 2048 X 9 REG, PROM,PRGM CXC265
A2	671–0663–04	CKT BD ASSY:POWER SUPPLY
A2U922	156–2524–00	IC,LINEAR:BIPOLAR,PWM,CURRENT MODE,UC3842
A2R919	315–0752–00	RES,FXD,FILM:7.5K OHM,5%, 0.25W

SECTION 9 REPLACEABLE MECHANICAL PARTS LIST

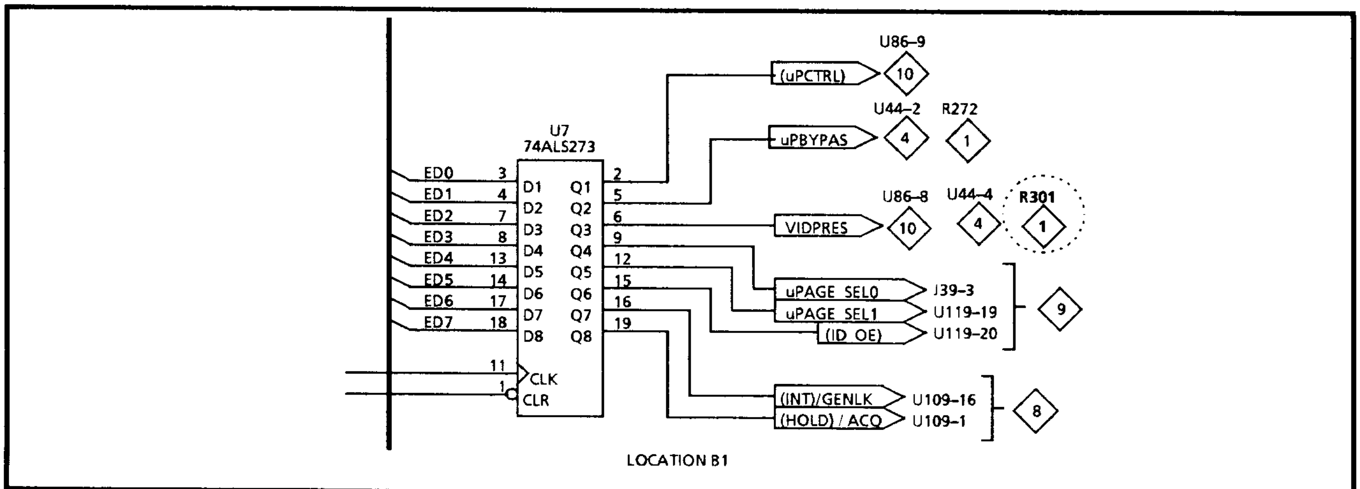
CHANGE items 1–1 and 1–37 **TO READ**:

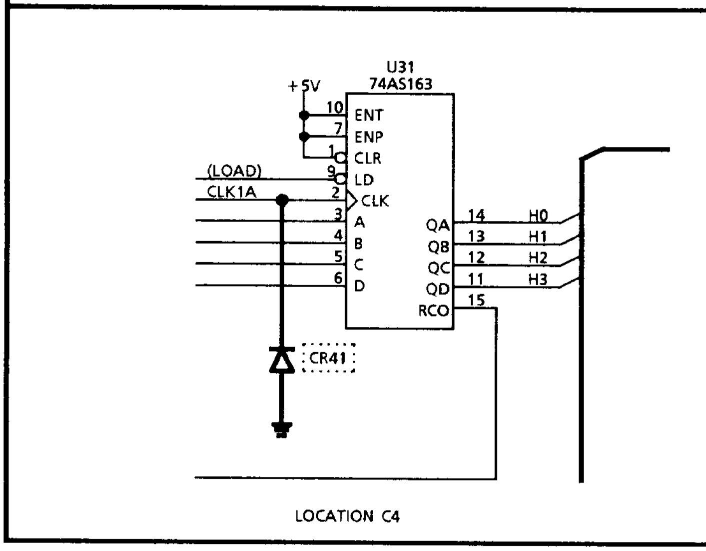
1–1	200–3710–01	1	COVER,TOP:VITS201
–37	441–1914–03	1	CHASSIS,BOTTOM:VITS201

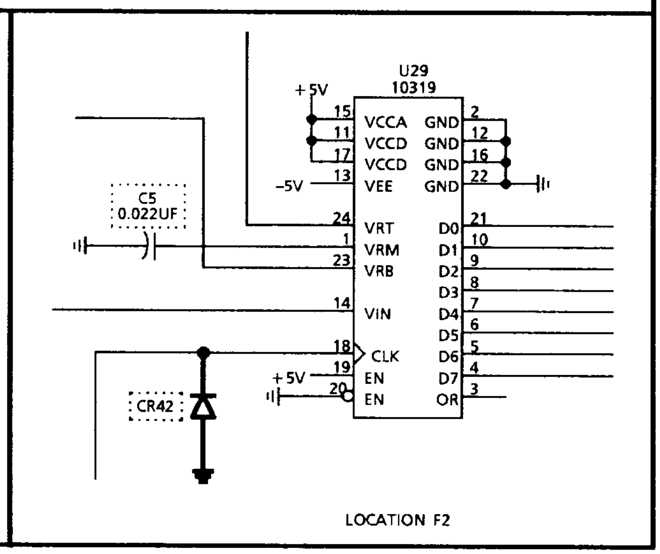
Added parts and circuitry changes are shown in the following schematics:

Date: 6/1/92 Group Code 20 Change Reference: M76993

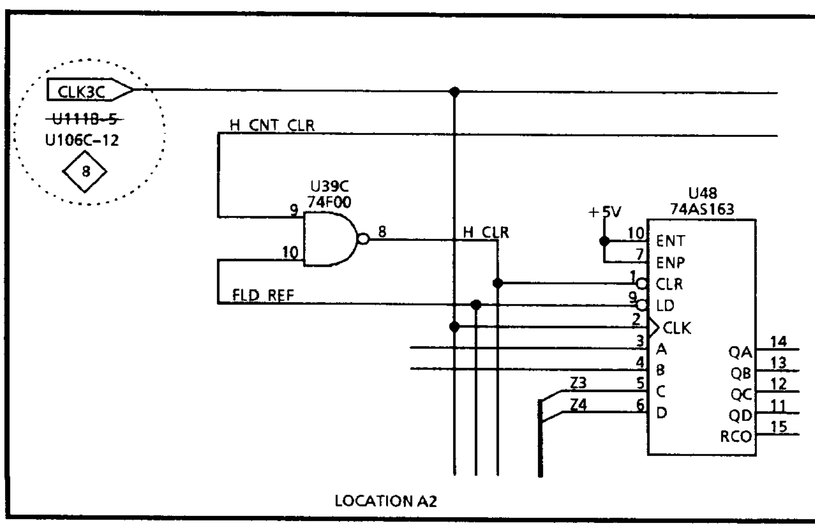
Product: VITS 201 Manual Part No: 070-7385-00

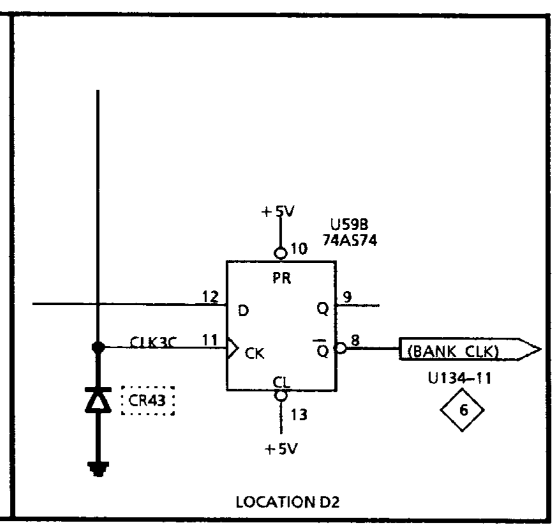






Circuit changes and added parts on Schematic 3.

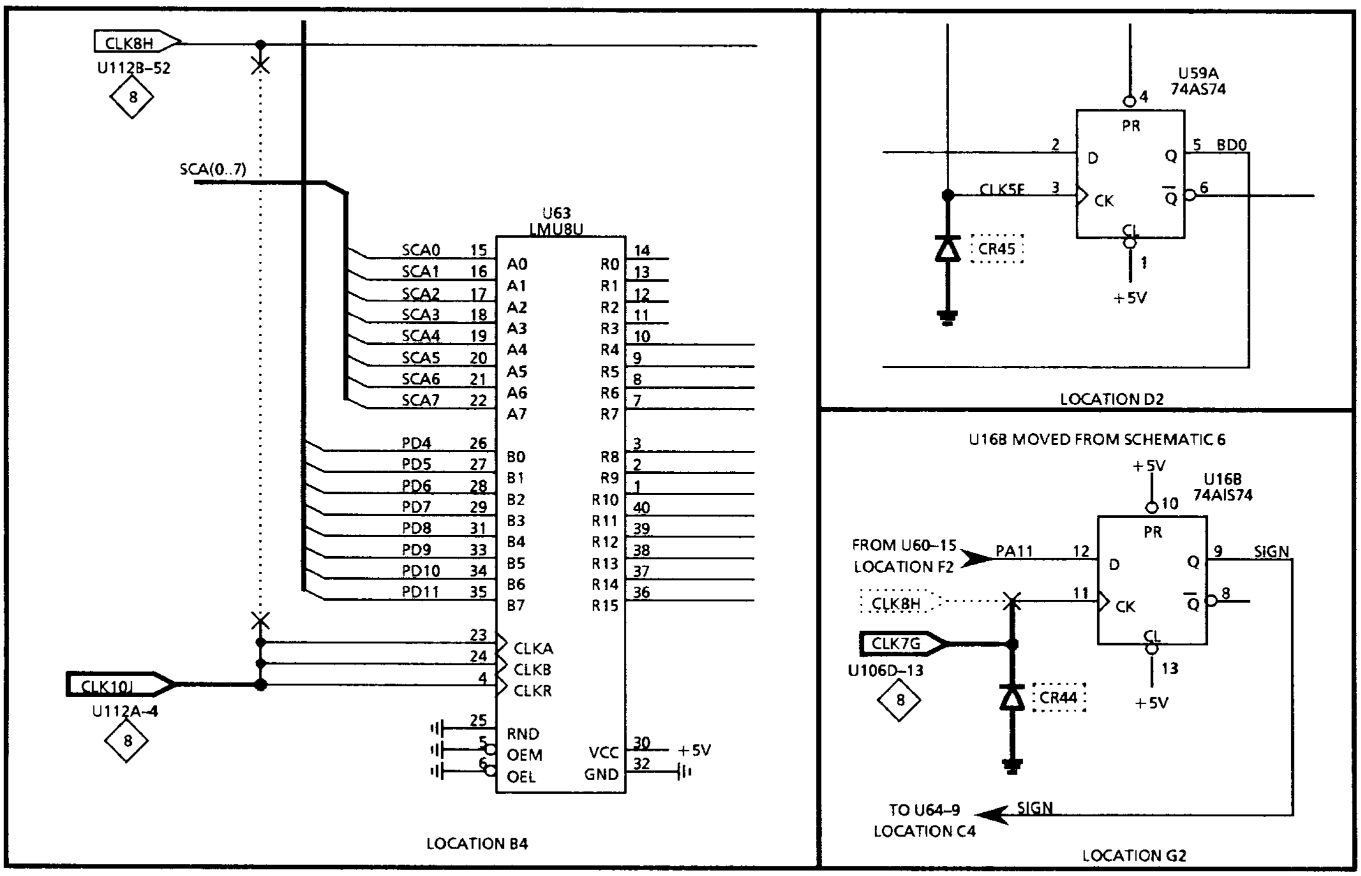




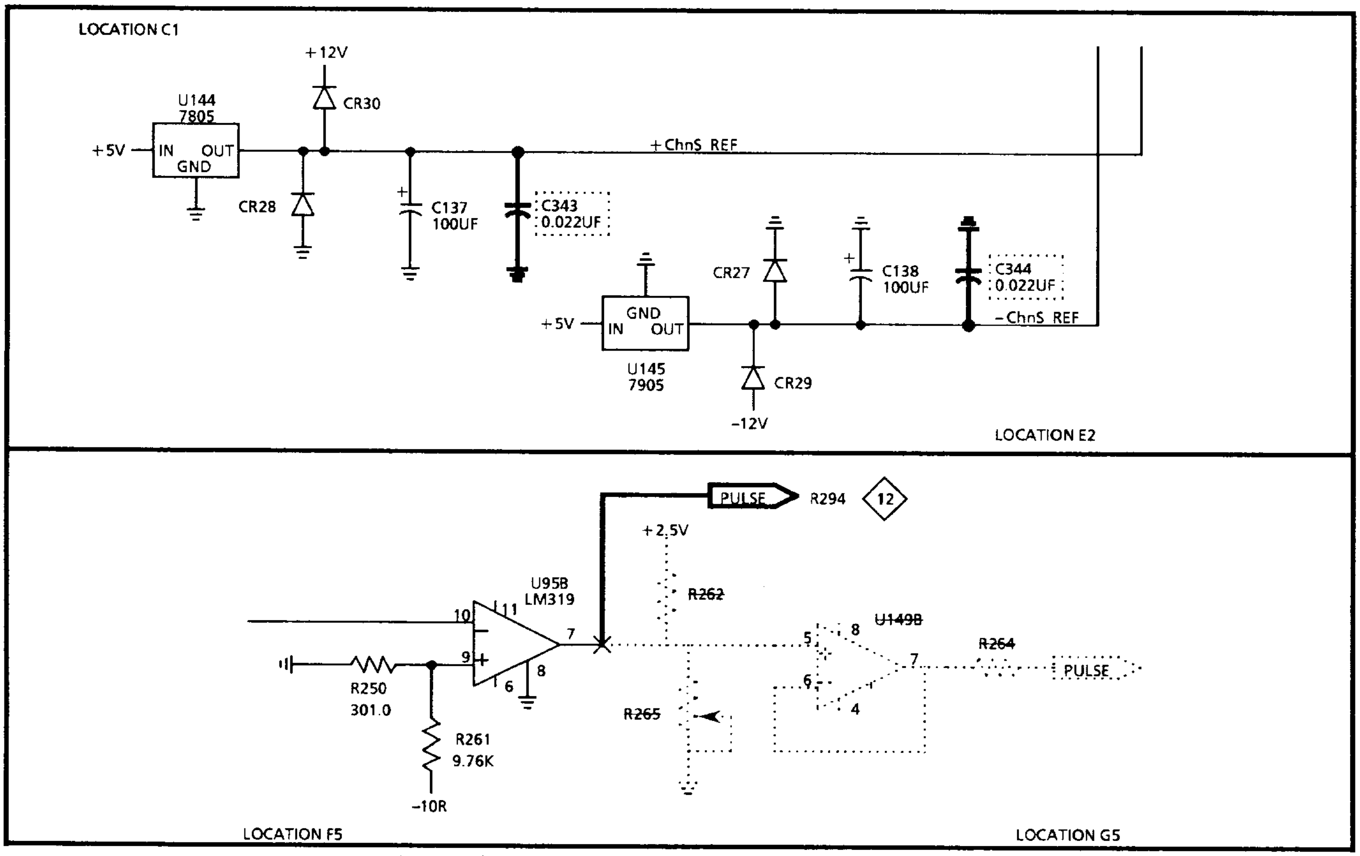
Circuit changes and added parts on Schematic 4.

Date: 6/1/92 **Group Code 20** Change Reference: M76993

Product: VITS 201 Manual Part No: 070-7385-00



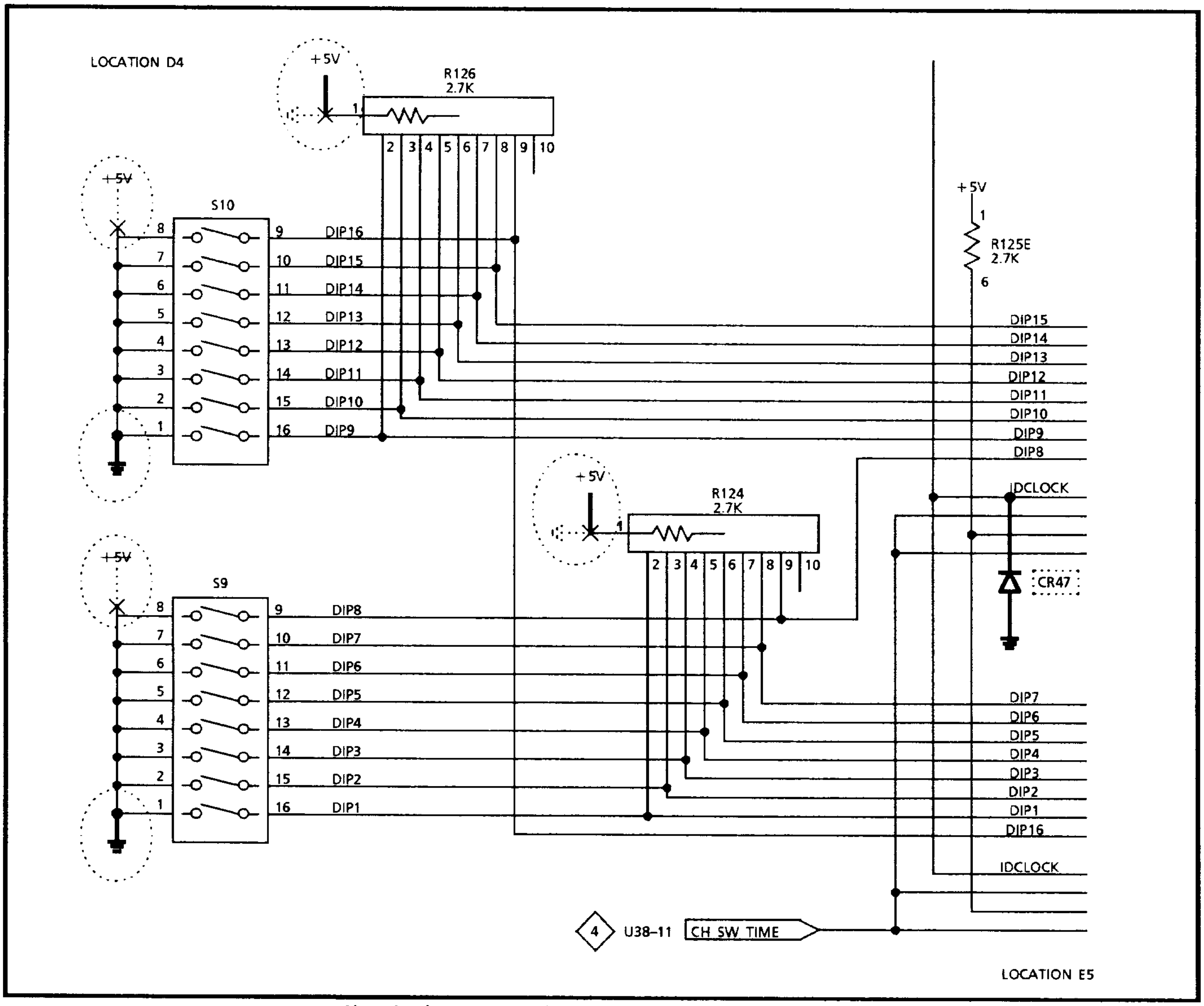
Circuit changes and added parts on Schematic 5.



Circuit changes and added parts on Schematic 7.

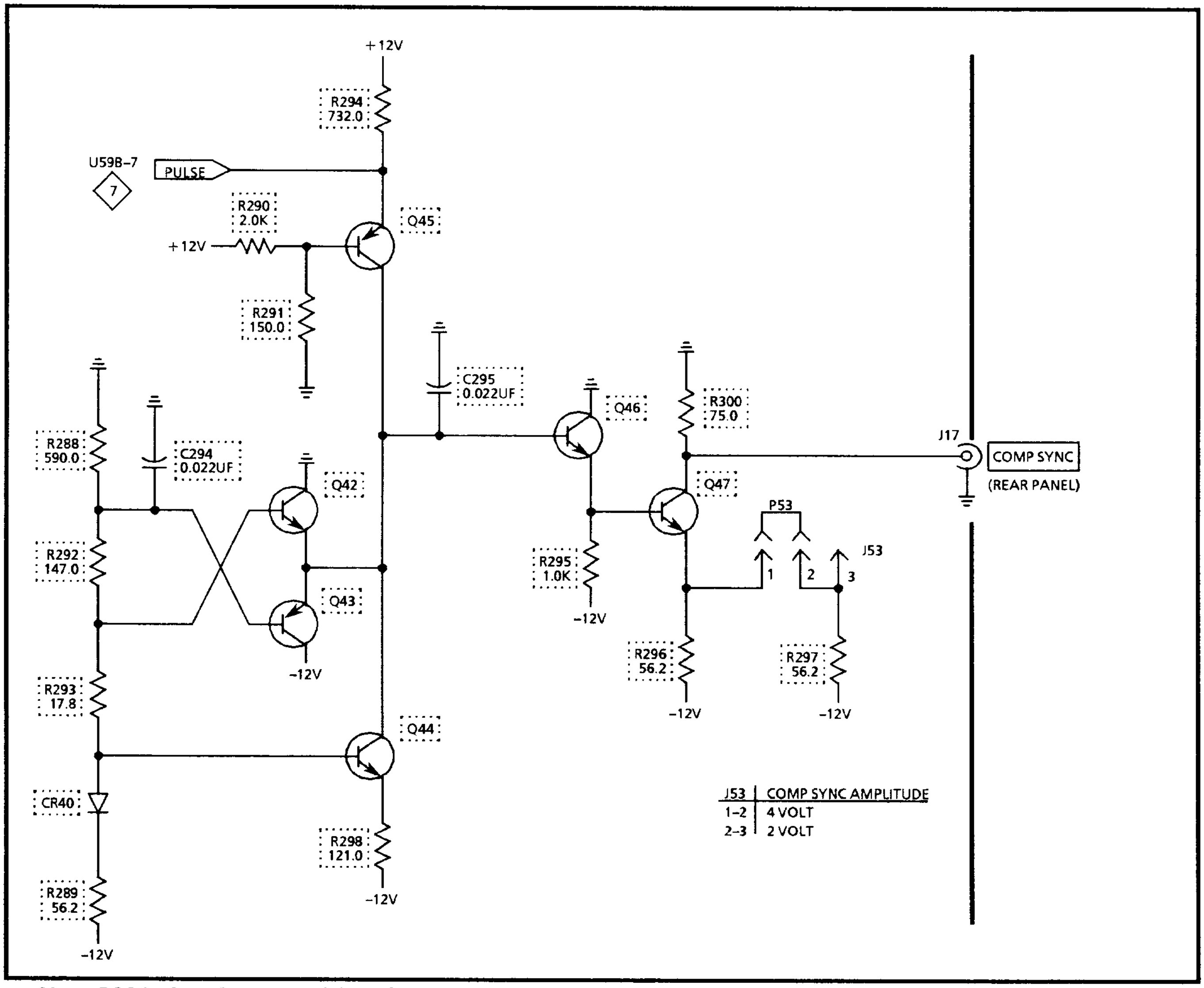
Date: 6/1/92 **Group Code 20** Change Reference: M76993

Product: VITS 201 Manual Part No: 070-7385-00



Circuit changes and added parts on Schematic 9.

Date: 6/1/92	**Group Code 20**	Change Reference: M76993
Product: VITS 201		Manual Part No: 070-7385-00



New COMP SYNC output driver for Schematic 12 replaces everything between A1A1CR33 and A1A1J17.

 PUNCH: 3–HOLE

PLEASE INSERT FOLDED 11 X 17 Z-FOLD(S) HERE

PART NUMBER: 070-7385-00 DATE: 10-19-95

1	1	BLOCK DIAGRAM, *LKUP 1 & A1A1 BD(08)
1	2	◇ 1, *LKUP 2 & A1A1 BD
1	3	◇ 2, *LKUP 3
1	4	◇ 3, *LKUP 4 (08)
1	5	◇ 4 (08–19), *LKUP 4 (07)
1	6	◇ 4 (07), *LKUP 3–4 (00–06)
1	7	◇ 4 (00–06), *LKUP 5
1	8	◇ 5, *LKUP 6
1	9	◇ 6, *LKUP 7
1	10	◇ 7, *LKUP 8
1	11	◇ 8, *LKUP 9
1	12	◇ 9, *LKUP 10
1	13	◇ 10, *LKUP 11
1	14	◇ 11, *LKUP 12 (08)
1	15	◇ 12, *LKUP 12 (00–07)
1	16	◇ 12 (00–07), *LKUP 13
1	17	◇ 13, *BLANK
2	18	VITS 201 FIG., *BLANK
3	19	◇ 1, *BLANK
3	20	◇ 6, *BLANK
3	21	◇ 8, *BLANK
3	22	◇ 11, *BLANK
3	23	A1A1 BD (21–24), *BLANK
4	24	PG 4 OF 4, *BLANK

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MANUAL CHANGE INFORMATION

Group Code 20

Date: 6/29/93 Change Reference: M76993 Addendum

Product: VITS 201 Manual Part No: 070–7385–00

DESCRIPTION

Eff S/N: B050000

TEXT CHANGES

SECTION 1 INTRODUCTION
Page 1-2, Test Signals
CHANGE the second paragraph **TO READ**:

The VITS 201 provides the following test signals:

- CCIR 17
- CCIR 18
- CCIR 330
- CCIR 331.G1
- CCIR 331.G2
- One Line ITS
- One Line ITS With Data
- 0% Luminance
- 100% Luminance
- UK ITS 1
- UK ITS 2
- 75% Colour Bars
- (Sin X)/X
- Source ID
- Luminance Ramp (B050000 and above)

SECTION 3 OPERATING INSTRUCTIONS
Page 3–10, Table 3–2 VITS 201 line test signals
CHANGE Table 3–2 **TO READ:**

**Table 3–2.
VITS 201 line test signals**

1.	0% luminance (black)	9.	One Line ITS
2.	100% luminance (white)	10.	CCIR 331.G2
3.	CCIR 17	11.	75% Colour Bars
4.	CCIR 18	12.	(Sin X)/X
5.	CCIR 330	13.	Luminance Ramp (B050000 and above)
6.	CCIR 331.G1		
7.	UK ITS 1	14.	One Line ITS with Data
8.	UK ITS 2	15.	Source ID signals

Date: 6/29/93	**Group Code 20**	Change Reference: M76993 Addendum
Product: VITS 201		Manual Part No: 070–7385–00

Page 3–10, Table 3–3 Full-field signals
CHANGE Table 3–3 **TO READ:**

Table 3–3.
Full-field signals

1.	0% luminance (black)	8.	UK ITS 2
2.	100% luminance (white)	9.	One Line ITS
3.	CCIR 17	10.	CCIR 331.G2
4.	CCIR 18	11.	75% Colour Bars
5.	CCIR 330	12.	(Sin X)/X
6.	CCIR 331.G1	13.	Luminance Ramp
7.	UK ITS 1		(B050000 and above)

SECTION 4 SPECIFICATIONS
TABLE 4–4 Test signal characteristics
ADD to the end of Table 4–4 **AS FOLLOWS**

Luminance Ramp Luminance Amplitude Linearity Error	 0 to 700 mV ≤1%	See Fig. 4–15.

Page 4–17,
ADD AS FOLLOWS

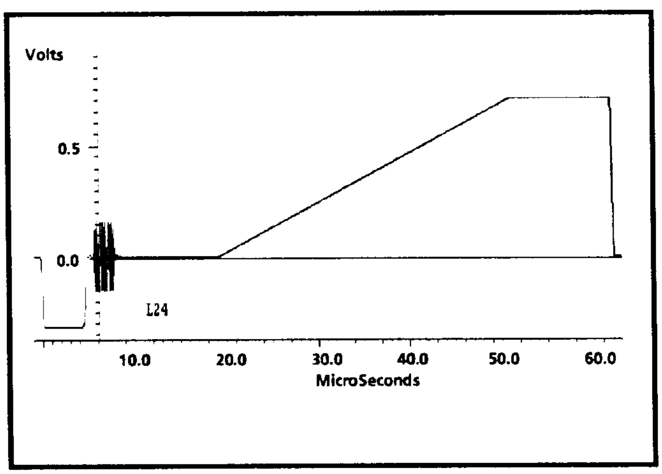

Fig. 4–15. Luminance Ramp.

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COMMITTED TO EXCELLENCE

MANUAL CHANGE INFORMATION

Group Code 20

Date: 9/15/92 Change Reference: M78337

Product: VITS 201 Manual Part No: 070–7385–00

DESCRIPTION

Eff S/N: B051218

TEXT and ELECTRICAL PARTS LIST CHANGES

SECTION 2 INSTALLATION
Page 2–8, Table 2–2 Operating mode jumpers (green).
CHANGE the Power Up Mode entry **TO READ:**

Power Up Mode (Std and Opt 5 only)	J54 <4>	Pins 1–2: Powers up in Bypass Mode and remains there until genlocked. Pins 2–3: Powers up in Standby Mode.	Pins 1–2

Page 2–10, Table 2–3 Test jumpers (red).
ADD Power Up Mode entry **AS FOLLOWS:**

Power Up Mode (Opt 10 and Opt 5/10)	J54 <4>	Pins 1–2: Powers up in Bypass Mode and remains there until genlocked. Pins 2–3: DO NOT USE WITH OPTION 10 OR OPTION 5/10.	Pins 1–2

SECTION 7 REPLACEABLE ELECTRICAL PARTS

CHANGE TO READ:

A1A1	671–0856–25	CKT BD ASSY:PAL VITS INSERTER (OPTION 10 ONLY)
A1A1	671–0856–26	CKT BD ASSY:PAL VITS INSERTER (OPTION 5/10 COMBINATION ONLY)
A1A1P54	131–0993–02	BUS,CONDUCTOR:SHUNT ASSY,RED (OPTION 10, 5/10 ONLY)
A1A1U20	160–9510–00	IC,MEMORY:CMOS,EPROM,32K X 8 W/3 STATE OUT,27C256 (OPTION 10, 5/10 ONLY)
A1A1U44	160–8412–01	IC,DIGITAL:CMOS,PLD;EEPLD,16V8,25NS,90MA (OPTION 10, 5/10 ONLY)

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MANUAL CHANGE INFORMATION

Date: 3/30/95 Change Reference: M81714

Product:	Manual P/N:	Effective S/N:
VITS 201	070–7385–00	B060000

Text, Replaceable Electrical Parts, and Schematic Changes

Section 2 Installation

Page 2–10, Following Table 2–3 **ADD AS FOLLOWS:**

Ghost Cancellation Reference

Standard and Option 05 Instruments after S/N B060000 have a Phillips Ghost Cancellation Reference signal on line 318. This line is not addressable through the VITS 201 software. If you desire to remove this signal, you must install the IC that was included with the accessories for your instrument, and reinitialize the VITS 201. Follow these steps:

- Turn off the power to the VITS 201, and remove the top cover.
- Remove U45 on the A1A1 Vits Inserter board, and replace it with the IC from the accessories pack.
- Turn the VITS 201 power on.
- Set S11–9 and –10 to the Open position.
- Move Jumper J2 (HW Reset) to the pins 2–3 position momentarily, then return it to pins 1–2. The LED display should read ***d.*** (Diagnostic). Use the **INCR** push button to select Diagnostic 14, then press the **ENTER** button. The display will flash ***donE*** and then return to ***d. 14***.
- Set S11–9 to the Closed position, but leave S11–10 Open.
- Move Jumper J2 (HW Reset) to the pins 2–3 position momentarily, then return it to pins 1–2.

The new ITS line insertion pattern will now be used.

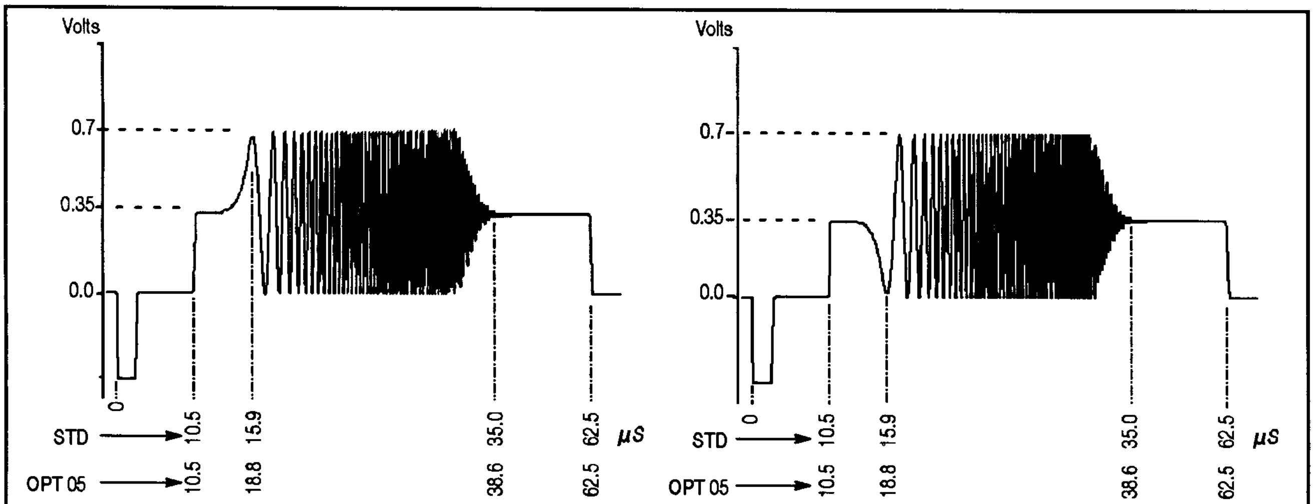
Section 4 Specification Tables

Page 4–9, Table 4–4 Test Signal Characteristics

ADD Ghost Cancellation entry to the end of Table 4–4 **AS FOLLOWS:**

GCR (Phillips) (Std, Opt 05)		See Figure 4–16 for timing information.
Pedestal Amplitude	350 mV ±3.5 mV	
Chrominance Amplitude	700 mV ±7.0 mV	
Spectrum	Flat to 4.1 MHz. –3 dB at 4.3 MHz	
VIT Sequence		GCR Positive - Fields 2 and 6 GCR Negative - Fields 4 and 8

Page 4–17, Following Figure 4–15 (added by M76993) **ADD** FIG. 4–16 **AS FOLLOWS:**



a. GCR Positive, Line 318 Fields 2 & 6 b. GCR Negative, Line 318 Fields 4 & 8

Fig. 4–16. Phillips Ghost Cancellation Reference

Section 7 Replaceable Electrical Parts

Change to Read:

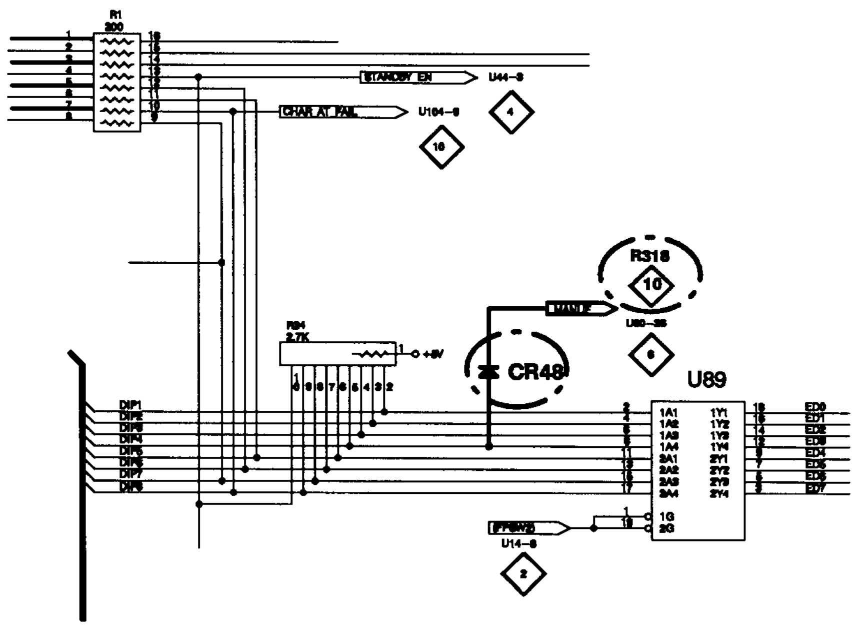
A1A1	671–0856–36	CKT BD ASSY:PAL VITS INSERTER;WIRED
A1A1	671–0856–37	CKT BD ASSY:PAL VITS INSERTER;WIRED (OPT 05 ONLY)
A1A1	671–0856–38	CKT BD ASSY:PAL VITS INSERTER;WIRED (OPT 10 ONLY)
A1A1	671–0856–35	CKT BD ASSY:PAL VITS INSERTER;WIRED (OPT 5/10 ONLY)
A1A1DS1	150–1117–01	DIODE,OPTO,LED;RED,655NM,7 SEG W/DEC,COM–ANODE
A1A1DS2	150–1117–01	DIODE,OPTO,LED;RED,655NM,7 SEG W/DEC,COM–ANODE
A1A1DS3	150–1117–01	DIODE,OPTO,LED;RED,655NM,7 SEG W/DEC,COM–ANODE
A1A1DS4	150–1117–01	DIODE,OPTO,LED;RED,655NM,7 SEG W/DEC,COM–ANODE
A1A1U20	160–6539–05	IC,MEM:CMOS,EPROM;32K X 8,W/3–ST OUT;27C256,PRGM (STD, OPT 05 ONLY)
A1A1U45	160–6530–02	IC,MEM:CMOS,EPROM;16K X 8,150NS;27C128,PRGM (STD, OPT 05 ONLY)
A1A1U80	160–6533–02	IC,MEM:CMOS,EPROM;16K X 8,150NS;27C128,PRGM
A1A1U133	160–6532–04	IC,MEM:CMOS,EPROM;16K X 8,150NS;27C128,PRGM
A1A1U133	160–8348–02	IC,MEM:CMOS,EPROM;16K X 8,150NS;27C128,PRGM (OPT 05, OPT 05/10 ONLY)
A1A1U138	160–6535–04	IC,MEMCMOS,EPROM;16K X 8,150NS;27C128,PRGM
A1A1U138	160–8349–02	IC,MEMCMOS,EPROM;16K X 8,150NS;27C128,PRGM (OPT 05, OPT 5/10 ONLY)
A1A1U139	160–6536–04	IC,MEMCMOS,EPROM;16K X 8,150NS;27C128,PRGM
A1A1U139	160–8350–02	IC,MEMCMOS,EPROM;16K X 8,150NS;27C128,PRGM (OPT 05, OPT 5/10 ONLY)
A1A1U140	160–6537–01	IC,MEMCMOS,EPROM;16K X 8,150NS;27C128,PRGM
A1A1U141	160–6538–01	IC,MEMCMOS,EPROM;16K X 8,150NS;27C128,PRGM

Date: 3/30/95	**Change Reference:** M81714

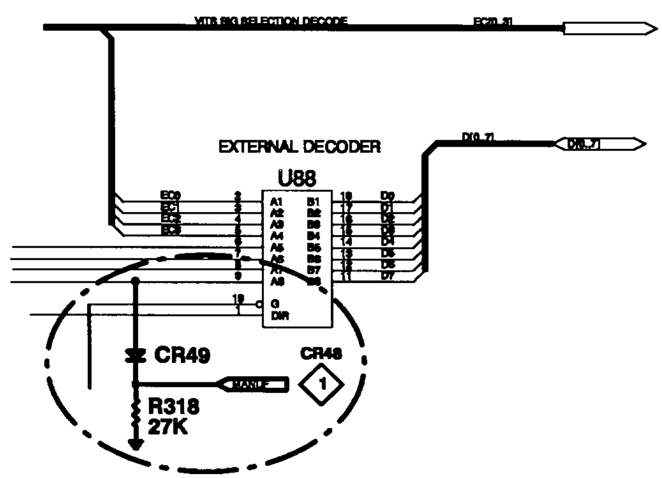
A1A1U142	160–6546–01	IC,MEMCMOS,EPROM;16K X 8,150NS;27C128,PRGM

Add:

A1A1CR48	152–0141–02	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152
A1A1CR49	152–0141–02	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152
A1A1R318	317–0273–00	RES,FXD,CMPSN:27K OHM,5%,0.125W



Part of Schematic 1 showing added part and circuit change



Part of Schematic 10 showing added parts and circuit change

 PUNCH: 3–HOLE

PLEASE INSERT FOLDED 11 X 17 Z-FOLD(S) HERE

PART NUMBER: 070-7385-00 DATE: 10-19-95

1	1	BLOCK DIAGRAM, *LKUP 1 & A1A1 BD(08)
1	2	◇ 1, *LKUP 2 & A1A1 BD
1	3	◇ 2, *LKUP 3
1	4	◇ 3, *LKUP 4 (08)
1	5	◇ 4 (08–19), *LKUP 4 (07)
1	6	◇ 4 (07), *LKUP 3–4 (00–06)
1	7	◇ 4 (00–06), *LKUP 5
1	8	◇ 5, *LKUP 6
1	9	◇ 6, *LKUP 7
1	10	◇ 7, *LKUP 8
1	11	◇ 8, *LKUP 9
1	12	◇ 9, *LKUP 10
1	13	◇ 10, *LKUP 11
1	14	◇ 11, *LKUP 12 (08)
1	15	◇ 12, *LKUP 12 (00–07)
1	16	◇ 12 (00–07), *LKUP 13
1	17	◇ 13, *BLANK
2	18	VITS 201 FIG., *BLANK
3	19	◇ 1, *BLANK
3	20	◇ 6, *BLANK
3	21	◇ 8, *BLANK
3	22	◇ 11, *BLANK
3	23	A1A1 BD (21–24), *BLANK
4	24	PG 4 OF 4, *BLANK

Product:	**Manual P/N:**	**Effective S/N:**
VITS201	070–7385–02	B072384

Replaceable Electrical Parts and Schematic Changes

Section 7 Replaceable Electrical Parts

Delete:

A1A1C21

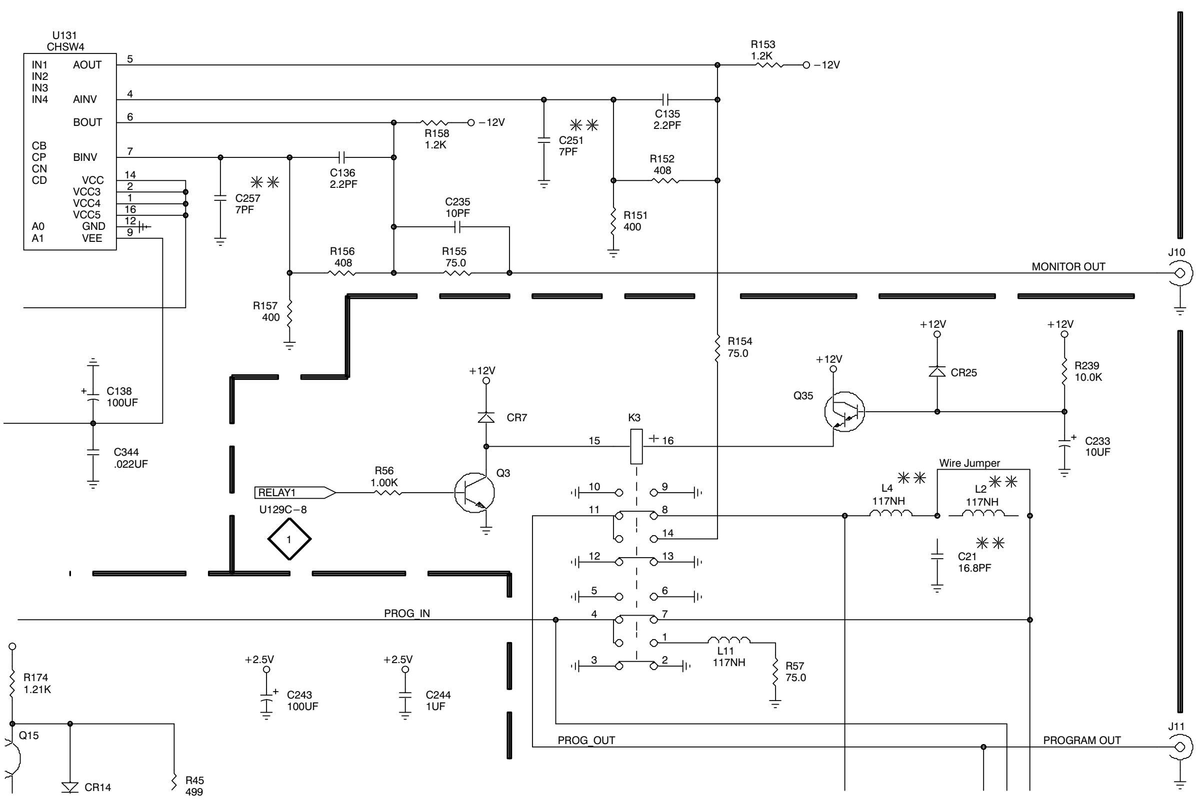
Add:

A1A1C251	283–0157–00	CAP,FXD,CER DI:7PF,5%,50V SQUARE
A1A1C257	283–0157–00	CAP,FXD,CER DI:7PF,5%,50V SQUARE

Change to Read:

A1A1	671–0856–40	CIRCUIT BD ASSY:PAL VITS INSERTER,VITS201
A1A1	671–3774–01	CIRCUIT BD ASSY:PAL VITS INSERTER,VITS201 OPT 05
A1A1	671–3775–01	CIRCUIT BD ASSY:PAL VITS INSERTER,VITS201 OPT 10
A1A1	671–3776–01	CIRCUIT BD ASSY:PAL VITS INSERTER,VITS201 OPT 15
A1A1L2	176–0121–00	WIRE,ELECTRICAL:20 AWG,BARE,12.0 L

Added components and circuitry changes are shown below:



Part of Schematic 7 showing added parts and circuit changes.