Instruction Manual

Tektronix

TDS Family
Option 05 Video Trigger Interface

070-8748-02

Warning
The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

WARRANTY

Tektronix warrants that the products that it manufactures and sells will be free from defects in materials and workmanship for a period of three (3) years from the date of shipment. If a product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

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.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non-Tektronix supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

To Avoid Fire or Personal Injury

Ground the Product. This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

The common terminal is at ground potential. Do not connect the common terminal to elevated voltages.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Use Proper Fuse. Use only the fuse type and rating specified for this product.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Provide Proper Ventilation. Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

Symbols and Terms   **Terms in this Manual.** These terms may appear in this manual:

⚠ *WARNING. Warning statements identify conditions or practices that could result in injury or loss of life.*

⚠ *CAUTION. Caution statements identify conditions or practices that could result in damage to this product or other property.*

Terms on the Product. These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. The following symbols may appear on the product:

WARNING High Voltage	Protective Ground (Earth) Terminal	CAUTION Refer to Manual	Double Insulated

Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the *General Safety Summary* before performing any service procedures.

Do Not Service Alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power. To avoid electric shock, disconnect the mains power by means of the power cord or, if provided, the power switch.

Use Caution When Servicing the CRT. To avoid electric shock or injury, use extreme caution when handling the CRT. Only qualified personnel familiar with CRT servicing procedures and precautions should remove or install the CRT.

CRTs retain hazardous voltages for long periods of time after power is turned off. Before attempting any servicing, discharge the CRT by shorting the anode to chassis ground. When discharging the CRT, connect the discharge path to ground and then the anode. Rough handling may cause the CRT to implode. Do not nick or scratch the glass or subject it to undue pressure when removing or installing it. When handling the CRT, wear safety goggles and heavy gloves for protection.

Use Care When Servicing With Power On. Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

X-Radiation. To avoid x-radiation exposure, do not modify or otherwise alter the high-voltage circuitry or the CRT enclosure. X-ray emissions generated within this product have been sufficiently shielded.

Preface

This instruction manual provides operating and service information for the TDS Family Option 05, Video Trigger. The following sections are included in this manual:

■ *Related Manuals* (follows this introduction).

■ *Operating Information* provides a product description and operating procedures for using the Video Trigger capabilities.

■ *Service* contains module-level service information including a troubleshooting tree, removal and replacement instructions, and a replaceable parts list.

Related Manuals

Other documentation for the TDS Family of digitizing oscilloscopes includes the following:

■ The user manual guides the user in operation of the oscilloscope and describes its features. It also contains tutorials and other useful information.

■ The programmer manual describes how to use a computer to control the oscilloscope through the GPIB interface. This includes command descriptions for programming the Video Trigger capabilities.

■ The reference gives you a quick overview of how to operate these oscilloscopes.

■ The performance verification tells how to verify the performance of the oscilloscopes.

■ The service manual provides information for maintaining and servicing the oscilloscope.

Operating Information

Operating Information

The Option 05 Video Trigger gives you a variety of tools for investigating events that occur when a video signal generates a horizontal or vertical sync pulse.

It allows you to investigate a range of NTSC, PAL, SECAM and high definition TV signals.

To make this option work, you must have both the Video Trigger hardware and firmware installed on the oscilloscope.

Before You Begin

To ensure the video trigger feature is working properly, execute the internal diagnostic routine by doing the following steps:

1. Power on the digitizing oscilloscope.

    The oscilloscope automatically executes a short internal diagnostic routine that checks oscilloscope functions. When finished, the oscilloscope displays an on-screen report of any failed modules or features.

2. If the video trigger feature fails, refer to the *Troubleshooting* procedures starting on page 2–3.

3. If no failures are reported, go to *Operation*.

Operation

The Video Trigger menu lets you select the source, polarity, class, and mode. It also gives you the option to delay by lines or time and lets you choose the field to trigger on.

To bring up the Video Trigger menu:

1. Press the **TRIGGER MENU** button to bring up the Main Trigger menu.

2. Press **Type** in the main menu until you select **Video** from the pop-up menu (see Figure 1–1).
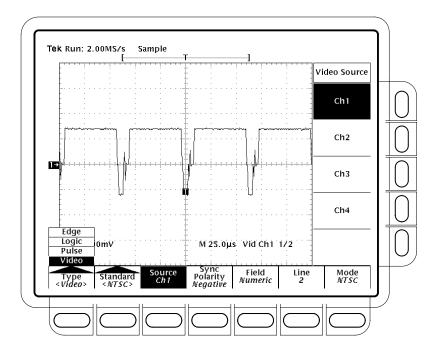
Figure 1–1: Main Trigger Menu — Video Type

Video Standard   Using the **Standard** pop-up, you can select to use predefined setups (NTSC, PAL, or HDTV) or select to customize the setup (FlexFormat).

1. Press the main menu **Standard** button until you select the desired setup (see Figure 1–2).

■ **NTSC** has 525 lines per frame and a field rate of 59.94 Hz. for color and 60 Hz. for monochrome.

■ **PAL** has 625 lines per frame and a field rate of 50 Hz.

■ **HDTV** (high definition TV) covers 787.5/60, 1050/60, 1125/60 and 1250/60 formats.

■ **FlexFormat** lets you customize the TDS video trigger for an array of TV formats. You can use various menus items to specify the number of lines and fields, line rate, sync pulse width, and vertical interval timing.
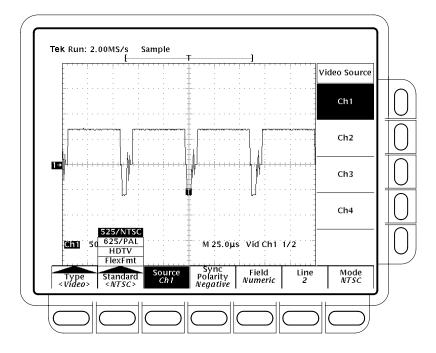
Figure 1–2: Video Trigger Menu — Standard

Source

You need to select which source you want the trigger to come from.

1. Choose the video source by selecting the main menu **Source** item.

2. Select one the four available channels in the side menu (**Ch1**, **Ch2**, **Ch3**, or **Ch4**).

Sync Polarity

Negative polarity is needed for all standards as the sync pulse leading edge is negative for HDTV, PAL, and NTSC. However, you may want to trigger on a positive polarity pulse when probing circuitry that inverts the video signal. You can easily change the polarity by using the **Sync Polarity** option.

1. Select the main menu **Sync Polarity** item.

2. Choose between **Neg Sync** and **Pos Sync**.

Field

Specify the field to trigger on with the **Field** option (see Figure 1–3).

1. Press the main menu **Field**.

2. From the side menu, select **FIELD**, **ODD**, **EVEN** or **ALL**. Choose **FIELD** to enter a number with the keypad or the general purpose knob. Numeric fields are only useful with color signals. **FIELD** is not available if you have selected Mono or SECAM mode. Use **ODD** to trigger on an odd numbered

field such as 1 or 3. Choose **EVEN** to trigger on an even numbered field such as 2 or 4. Choose **ALL** to trigger on the next field regardless of whether it is odd or even (see Figure 1–3).

*NOTE. The **FIELD** selection is the most sensitive of these selections to the signal quality and the signal's proper rise in divisions. The **All** selection is the least sensitive. This means you may find **All** helpful when working with noisier signals.*
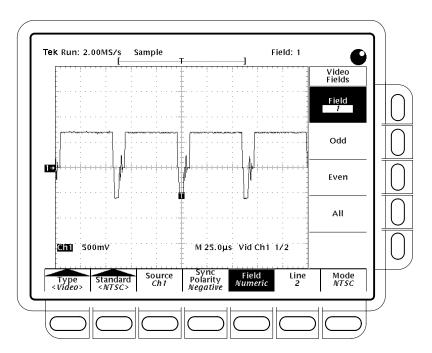
Figure 1–3: Main Trigger Menu — Field

Line   The **Line** item lets you select a particular line in the desired color field to trigger on. For example, you can select line 125 in field 1.

1. Press the main menu **Line**.

2. Turn the general purpose knob to the desired line number.

If you want to enter a large number using the general purpose knob, press the **SHIFT** button before turning the knob. When the light above the **SHIFT** button is on and the display says **Coarse Knobs** in the upper right corner, the general purpose knob speeds up significantly.

Mode   If you selected **NTSC**, or **PAL** in the Standard menu, you can select further
variations in these trigger modes using the **Mode** menu item.

1. Select the **Mode** item in the main menu (see Figure 1–4).
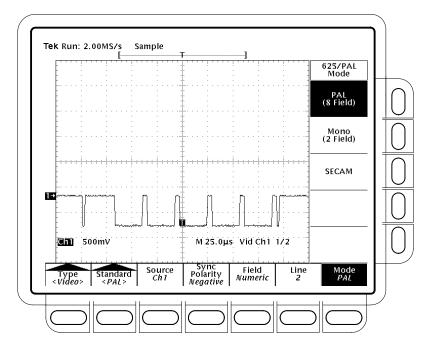
Figure 1–4: Video Trigger Menu — PAL Mode

2. If you are using the NTSC standard, press either **NTSC** or **Mono**. If you are
using the PAL standard, press either **PAL**, **Mono**, or **SECAM**.

If you selected a numeric field in the **Field** menu and now choose **Mono** or
SECAM, the digitizing oscilloscope will reset the field to **Odd**. The numeric
field is only available when you select color modes (NTSC (4 fields) or PAL (8
fields)).

Format   If you selected **HDTV** in the Standard menu, you can select the video format
with this menu item. You can choose from **787.5/60**, **1050/60**, **1125/60**, or
1250/60 (see Figure 1–5).
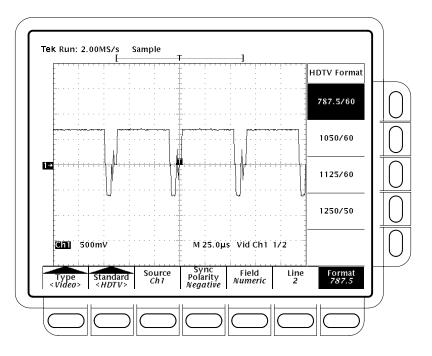
Figure 1–5: Video Trigger Menu — HDTV Format

Setup   If you selected **FlexFormat** in the Standard menu, you can design the video
setup using the **Setup** menu item. You need to enter the **Field Rate**, **Lines**,
Fields, **Sync Width**, **V1 Start Time**, **V1 Stop Time**, **V2 Start Time**, or **V2
Stop Time**.

Field Rate refers to the number of fields per second (in Hz.) for your custom
video signal.

Lines refers to the maximum number of lines in a frame.

Fields refers to the number of fields in a frame.

Sync Width refers to the width of the sync pulse.

V1 Start Time is the time from the positive edge of the tri-sync pulse for the last
line in the selected field (t_0) to the leading edge (negative) of the first negative
vertical sync pulse (see Figure 1–6).

V1 Stop Time is the time from t_0 to the trailing edge (positive) of the first
negative vertical sync pulse (see Figure 1–6).

V2 Start Time is the time from the positive edge of the tri-sync pulse for the last line in the selected field (t_0) to the leading edge (positive) of the second vertical sync pulse. Note: the second pulse may be a negative pulse or the negative portion of a tri-sync pulse that is within the last line (usually located at the $\frac{1}{2}$ line point) (see Figure 1–6).

V2 Stop Time is the time from t_0 to the trailing edge (positive) of the second negative vertical sync pulse. If **Fields** is set to 1, the V2 entries are ignored (see Figure 1–6).
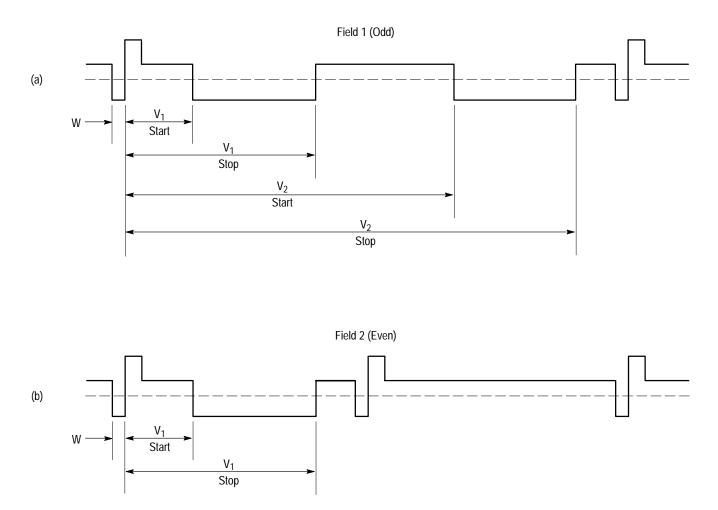
Figure 1–6: FlexFormat V1 Start, V1 Stop, V2 Start and V2 Stop Times

Video Cursor   You can also choose video cursors that let you measure in IRE (NTSC) amplitude units and video line number time units.

1. Press the **CURSOR** button to bring up the Cursor menu.

2. Select the **Time Units** item in the main menu and **Video Line Number** in the side menu. Enter the value with the general purpose knob (see Figure 1–7).
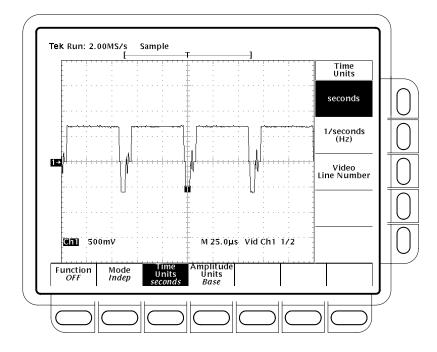
Figure 1–7: Cursor Menu — Video Line Number

3. Select the **Amplitude Units** item in the main menu and **IRE (NTSC)** in the side menu. Enter the value with the general purpose knob.

Video Graticule   You can also choose special, video graticules.

1. Press the **DISPLAY** button to bring up the Display menu.

2. Select the **Graticule** item in the main menu.

NOTE. Selecting either NTSC or PAL graticules changes vertical scale, position, offset, and input coupling settings of displayed channels to those appropriate for measuring NTSC and PAL waveforms. You might wish to save the current setup before switching to a NTSC or PAL graticule. You can then recall the saved setting when you again select a graticule other than these two.

In order to use the NTSC or PAL graticule directly, don't change the vertical scale, position, offset, and input coupling settings of displayed channels. Also, terminate your signal with 75 Ω.

3. If you are using the NTSC standard, press **NTSC** (see Figure 1–8). If you are using the PAL standard, press **PAL** (see Figure 1–9).
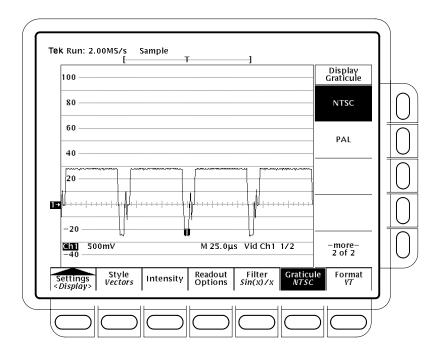
Figure 1–8: Display Menu — NTSC Graticule
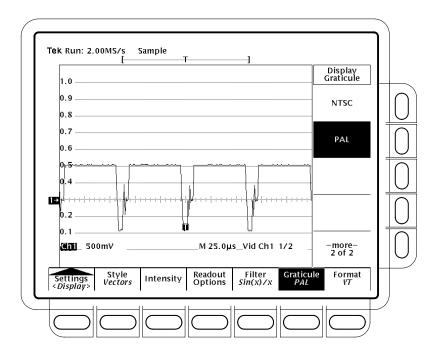
Figure 1–9: Display Menu — PAL Graticule

WARNING

*The following servicing instructions are for use only by qualified personnel. To avoid injury, do not perform any servicing other than that stated in the operating instructions unless you are qualified to do so. Refer to all safety summaries before performing any service.*

Service Information

Service Information

This section contains information you need to troubleshoot and service the Video Trigger. It includes the following subsections:

- *Troubleshooting* contains information for determining whether the Video Trigger has failed. A troubleshooting tree and procedures for executing the oscilloscope short and extended internal diagnostic routines are included.

- *Removal and Replacement Procedures* gives step-by-step procedures for removal and replacement of the Video Trigger circuit board.

- *Replaceable Parts List* includes replacement part numbers with a corresponding exploded view and ordering information.

Before Servicing

To prevent injury to yourself or damage to the oscilloscope, do the following before you attempt service:

- Be sure you are a qualified service person.

- Read the *Operators Safety Summary* found at the beginning of this manual and the *Service Safety Summary* found at the beginning of this section.

- Read the following *Strategy for Servicing* and *Preventing Electrostatic Discharge (ESD) Precautions* on page 2–2.

Strategy for Servicing

The *Troubleshooting* subsection starting on page 2–3, contains procedures to determine whether the Video Trigger feature has failed. If the video trigger feature fails, replace the circuit board with a replacement part obtained from the factory. See the *Replaceable Parts List* starting on page 2–13, for replacement part numbers and ordering information.

Preventing Electrostatic Discharge (ESD)

⚠️ *CAUTION. Electrostatic discharge can damage any semiconductor component on this oscilloscope option circuit board.*

Precautions   When performing any service that requires internal access to the oscilloscope, follow the following precautions to avoid damaging internal modules and their components due to ESD.

1. Minimize handling of static-sensitive modules.

2. Transport and store static-sensitive modules in their static protected containers or on a metal rail. Label any package that contains static-sensitive modules.

3. Discharge the static voltage from your body by wearing a grounded antistatic wrist strap while handling these modules. Perform service on static-sensitive modules only at a static-free work station.

4. Remove anything capable of generating or holding a static charge on the work station surface.

5. When possible handle circuit boards by the edges.

6. Do not slide the modules over any surface.

7. Avoid handling modules in areas that have a floor or work-surface covering capable of generating a static charge.

Troubleshooting

This subsection contains information and diagnostic procedures to determine if the Video Trigger is faulty.

Troubleshooting

Use the troubleshooting tree in Figure 2–1 to determine if the Video Trigger is working properly.

```
                    ┌──────────┐
                    │  START   │
                    └────┬─────┘
                         │
               ┌─────────▼─────────┐
               │ Execute extended  │
               │ diagnostic routine│
               │ (see Page 2–4).   │
               └─────────┬─────────┘
                         │
                      ╱──▼──╲        Yes
                     ╱  Pass ╲──────────────►  ┌──────────────────────────┐
                     ╲       ╱                 │ Video Trigger feature     │
                      ╲─────╱                  │ passes.                   │
                         │ No                  └──────────────────────────┘
```

With the power off, check that connections are tight.

1. Check connections on both ends of the video cable (and be sure the Peltola connector wire is not bent).
2. Check connections on the two digital bus boards (A14 D1 Bus and A27 Connector).
3. Check connections of the two power cable connectors between the A29 Video Trigger and the A11 DRAM Processor/Display boards.

Execute extended diagnostic routine (see Page 2–4).

Pass — Yes / No

Order a replacement circuit board for the Video Trigger (see the Replaceable Parts List starting on page 2–13).

Replace the Video Trigger circuit board (follow the Removal and Replacement Procedures starting on page 2–5).

Figure 2–1: Troubleshooting Tree

Diagnostics

The oscilloscope has two levels of internal diagnostics: short confidence and extended. The oscilloscope automatically executes the short set at power on. If the video feature fails the short diagnostic routine, use the following procedure to execute the extended diagnostics:

Prerequisites: Power on the oscilloscope and allow a 20 minute warm-up before doing this procedure.

Executing Extended Diagnostics Routine

1. Press **SHIFT UTILITY** → **System** (main) → **Diag/Err** (pop-up) → **Execute** (main) → **OK Confirm Run Test** (side).

   The internal diagnostics routine checks oscilloscope functions. When finished, the oscilloscope displays an on-screen report of any failed modules, features, or interfaces.

2. If the video trigger feature fails, continue with the troubleshooting diagram shown in figure 2–1 on page 2–3. If needed, order a replacement Video Trigger circuit board (see the *Replaceable Parts List* starting on page 2–13) then follow the *Removal and Replacement Procedures* starting on page 2–5.

Removal and Replacement Procedures

Use the procedures in this subsection to remove and replace a faulty Video Trigger circuit board.

Before You Begin

⚠ *WARNING. To prevent possible injury to service personnel or damage to the product components, read the Operators Safety Summary found at the beginning of this manual and the Service Safety Summary, Before Servicing, Strategy for Servicing, and Preventing ESD found at the beginning of this section.*

⚠ *WARNING. Disconnect the power cord from the line voltage source before doing any procedure in this subsection. Failure to do so could cause serious injury or death.*

Rear Cover and Cabinet Removal

Equipment Required: One screwdriver with a size T-20 Torx® tip.

1. Install the front cover. Set the oscilloscope face down with the front cover on the work surface and the bottom facing up (see Figure 2–2).

2. Unplug the power cord from its receptacle at the rear panel.

3. Using the screwdriver with size T-20 Torx® tip, remove the four screws (number 2 in Figure 2–2) securing the rear cover (number 1) to the oscilloscope. Lift off the rear cover.

4. Grasp the left and right edges of the cabinet (number 3) at the rear. Pull upward to slide the cabinet off the oscilloscope. Do not bind or snag the cabinet on the oscilloscope internal cabling as you remove it.
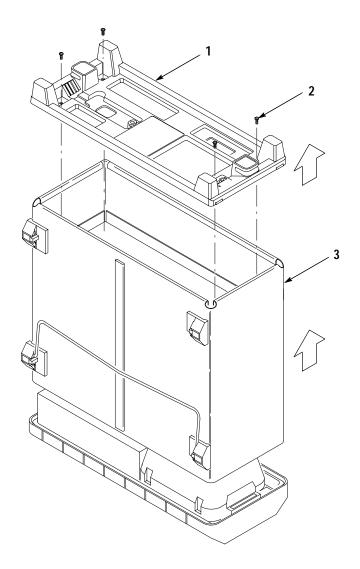
Figure 2–2: Rear Cover and Cabinet Removal

Circuit Board Removal

Equipment Required: One screwdriver with a size T-20 Torx® tip.

Figure 2–3 shows the A29 Video Trigger board (option 05) installed.
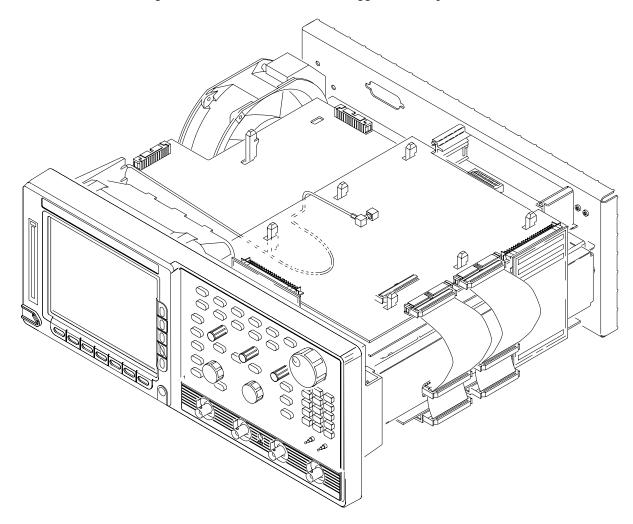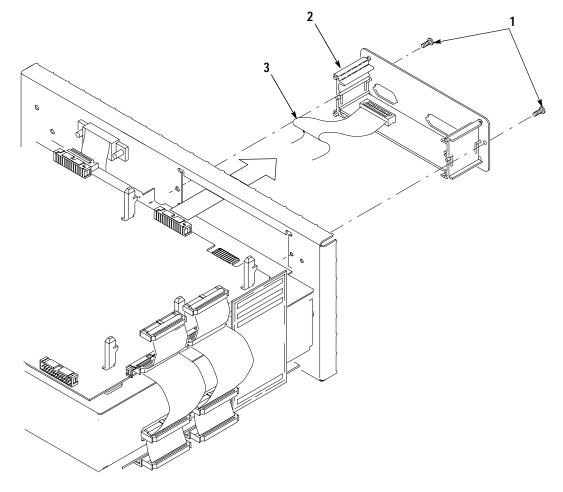
**Figure 2–3: Circuit Board Installed**

5. Pull out the A23 SerPar Board assembly.

    a. Using a screwdriver with size T-20 Torx® tip, remove the two screws (see number 1 in Figure 2–4) securing the rear plate of the A23 SerPar board assembly.

    b. Pull out the A23 SerPar board assembly (number 2 in Figure 2–4). It is **not** necessary to pull the board assembly out entirely nor is it necessary

to remove the cable connector from the A23 SerPar board to the A11 Processor/Display board (see number 3 in Figure 2–4).

Figure 2–4: Pull Out A23 SerPar Circuit Board Assembly

6. Disconnect the two power cable connectors (the analog-power and digital-power interconnect cables) from the video board connector and from the processor-display circuit board connector (see number 2 on Figure 2–6).

7. Remove (or pull loose) the A14 D1 Bus board and the A27 Connector board (see numbers 1 and 3 on Figure 2–6).

8. Unplug the coax video cable that connects the video board to the acquisition boards (see Figure 2–5).
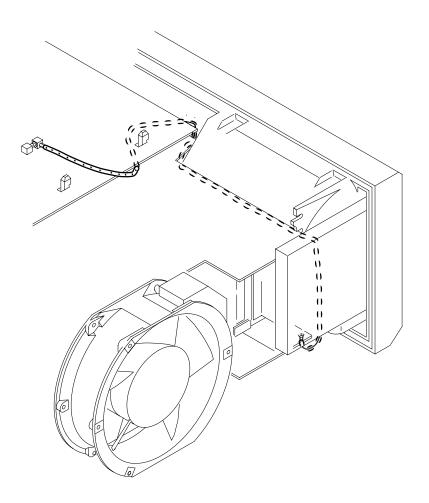
Figure 2–5: Proper Routing of the Video Cable

**9.** Slide back and lift up the Video Trigger circuit board (see Figure 2–6).
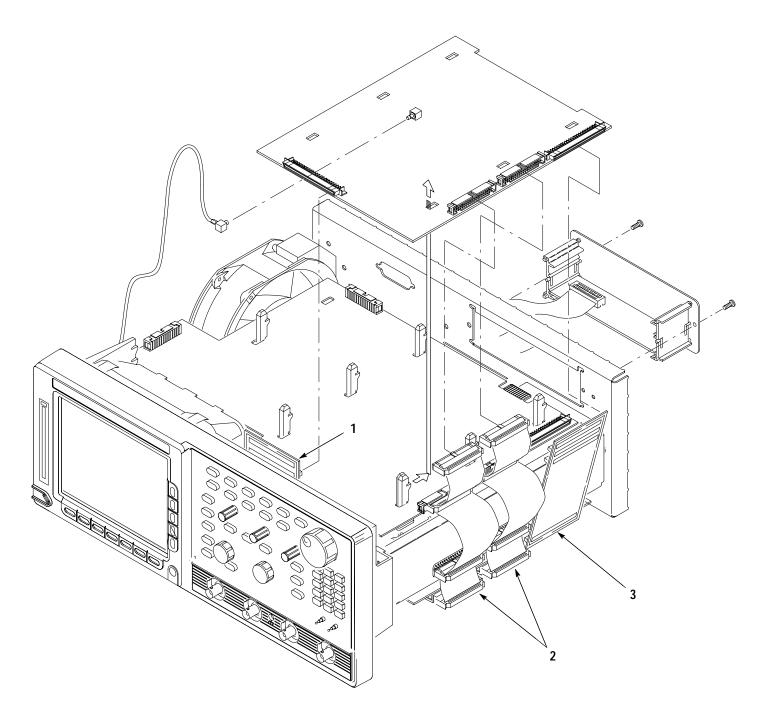
Figure 2–6: Circuit Board Removal

Circuit Board Replacement

Equipment Required: One screwdriver with a size T-20 Torx® tip and one 3/16-inch nutdriver.

1. Reinstall the Video Trigger circuit board assembly in to the oscilloscope. Do in reverse order steps 5 to 9 of the *Circuit Board Removal* procedure on pages 2–7 through 2–9.

NOTE. Be sure to arrange the coax cable around the post as shown in figures 2–3 and 2–5. Failure to do this may impair performance.

Also, when plugging in the digital bus boards, 1 and 3 in figure 2–6, make sure that they remain plugged in on both ends.

Replace Cabinet and Rear Cover

Equipment Required: One screwdriver with a size T-20 Torx® tip and one torque driver.

1. Do step 1 of the *Rear Cover and Cabinet Removal* procedure on page 2–5.

2. Do in reverse order steps 2 through 4 of the *Rear Cover and Cabinet Removal* procedure on page 2–5.

NOTE. When reinstalling the four screws at the rear panel, use the torque driver to tighten the screws to 16 inch-lbs (18.4 cm-kg) torque.

Execute Diagnostics

To ensure the Video Trigger is working correctly, perform the *Diagnostics* procedure on page 2–4.

Replaceable Parts

This section contains a list of the replaceable modules for the <instrument>. Use this list to identify and order replacement parts.

Parts Ordering Information

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

Changes to Tektronix products are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest improvements. Therefore, when ordering parts, it is important to include the following information in your order:

- Part number

- Instrument type or model number

- Instrument serial number

- Instrument modification number, if applicable

If you order a part that has been replaced with a different or improved part, your local Tektronix 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.

Module Servicing   Modules can be serviced by selecting one of the following three options. Contact your local Tektronix service center or representative for repair assistance.

Module Exchange. In some cases you may exchange your module for a remanufactured module. These modules cost significantly less than new modules and meet the same factory specifications. For more information about the module exchange program, call 1-800-TEK-WIDE, extension 6630.

Module Repair and Return. You may ship your module to us for repair, after which we will return it to you.

New Modules. You may purchase replacement modules in the same way as other replacement parts.

Using the Replaceable Parts List

This section contains a list of the mechanical and/or electrical components that are replaceable for the <instrument>. Use this list to identify and order replacement parts. The following table describes each column in the parts list.

Parts list column descriptions

Column	Column name	Description
1	Figure & index number	Items in this section are referenced by figure and index numbers to the exploded view illustrations that follow.
2	Tektronix part number	Use this part number when ordering replacement parts from Tektronix.
3 and 4	Serial number	Column three indicates the serial number at which the part was first effective. Column four indicates the serial number at which the part was discontinued. No entry indicates the part is good for all serial numbers.
5	Qty	This indicates the quantity of parts used.
6	Name & description	An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.
7	Mfr. code	This indicates the code of the actual manufacturer of the part.
8	Mfr. part number	This indicates the actual manufacturer's or vendor's part number.

Abbreviations   Abbreviations conform to American National Standard ANSI Y1.1–1972.

Mfr. Code to Manufacturer Cross Index   The table titled Manufacturers Cross Index shows codes, names, and addresses of manufacturers or vendors of components listed in the parts list.

Manufacturers cross index

Mfr. code	Manufacturer	Address	City, state, zip code
TK2469	UNITREK CORPORATION	3000 LEWIS & CLARK WAYSUITE #2	VANCOUVER WA 98601
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077–0001
0KB01	STAUFFER SUPPLY CO	810 SE SHERMAN	PORTLAND, OR 97214–4657
53387	3M COMPANY	ELECTRONICS PRODUCTS DIV 3M AUSTIN CENTER	AUSTIN, TX 78769–2963
5Y400	TRIAX METAL PRODUCTS INC	1880 SW MERLO DRIVE	BEAVERTON, OR 97006
64537	KDI/TRIANGLE ELECTRONICS INC	60 S JEFFERSON RD	WHIPPANY, NJ 07981
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD PO BOX 76500	COLD SPRINGS, KY 41076

Replaceable parts list

| Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
2–7–1							
–1	174–0655–00			1	CABLE ASSY,RF:50 OHM COAX,22.4 L,9–2	TK2469	ORDER BY DESC
–2	671–2476–04			1	CIRCUIT BD ASSY:TV TRIGGER	80009	671247604
–3	671–2770–00			1	CIRCUIT BD ASSY:D1–BUS (TDS 500A & TDS 600A EXCEPT TDS 684A)	80009	671277000
	671–2848–00			1	CIRCUIT BOARD ASSY: D1-BUS (TDS 500B, TDS 600B, TDS 700 AND LATER SERIES & THE TDS 684A)	80009	671284800
–4	174–2574–00			2	CA ASSY, SP: RIBBON, 28 AWG, 4.875 L (TDS 500A & TDS 600A SERIES EXCEPT TDS 684A)	53387	174257400
	174–3728–00			1	CA ASSY, SP: RIBBON, 40-PIN, 28 AWG, 5.15 L (TDS 500B, TDS 600B, TDS 700A AND LATER SERIES & TDS 684A)	TK2469	174372800
	174–3729–00			1	CA ASSY, SP: RIBBON, 50-PIN, 28 AWG, 6 L (TDS 500B, TDS 600B, TDS 700A AND LATER SERIES & TDS 684A)	TK2469	174372900
	174–3340–00			1	CA ASSY, SP: RIBBON, 40-PIN, 28 AWG, 6.4 L (TDS 500A & TDS 600A SERIES EXCEPT THE TDS 684A)	80009	174334000
–5	671–4095–00			1	CIRCUIT BD ASSY:OPTION CONNECTOR	80009	671409500
–6	013–0278–00			1	CLAMP,VIDEO:DISPLAY,BACK PORCH CLAMP	80009	013027800
	070–8762–xx			1	MANUAL TECH: USER, VIDEO CLAMP	80009	0708762xx
NOT SHOWN	214-2270-00			2	CONTACT, ELEC: CLIP, ATTENUATORS TO CABINET	5Y400	214227000
	210-0409-00			2	NUT, PLAIN, HEX: 8-32 X 0.312 BRASS, CD PLATE	73743	3046–402
	211-0720-00			2	SCREW, ASSEMBLY, WASHER: 6-32 X 0.500, PNH, T-15	0KB01	ORDER BY DESCRIPTION
					STANDARD ACCESSORIES		
	070–8748–xx			1	MANUAL,TECH:INSTR,TDS OPT 05 VIDEO TRIG	80009	0708748xx
	011–0055–01			1	TERM, COAXIAL:75 OHM,1W,BNC	64537	T174ES
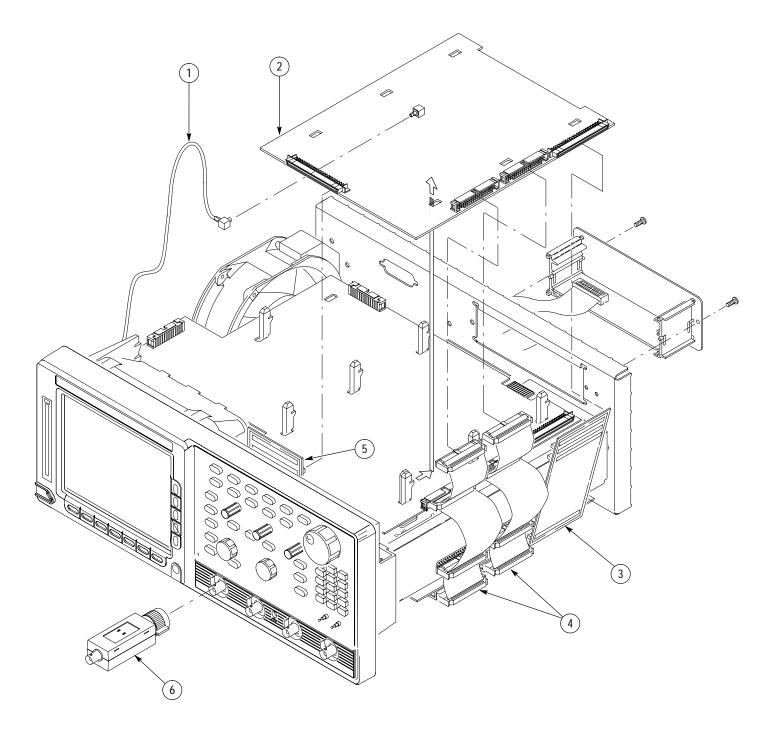
Figure 2–7: Video Trigger Replaceable Parts