Instructions

Tektronix

DAS MTIF
For the 92A96 Acquisition Module

070-9798-00

There are no current European directives that apply to this product. This product provides cable and test lead connections to a test object of electronic measuring and test equipment.

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.

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

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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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Table of Contents

List of Figures

List of Tables

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.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Connect and Disconnect Properly. Do not connect or disconnect probes or test leads while they are connected to a voltage source.

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.

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

Use Proper AC Adapter. Use only the AC adapter specified for this product.

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.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

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 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.

Preface

These instructions cover the following topics:

- Operating basics
- Designing an interface between a DAS MTIF and a SUT
- Service information
- Replaceable parts list

Information in these instructions assumes that your system under test (SUT) is based on a microprocessor. If your SUT is not based on a microprocessor, you should substitute the type of device on which your system is based for the term “microprocessor” throughout these instructions.

For information on how to connect a DAS MTIF for the 92A96 Acquisition Module to a Tektronix microprocessor support (TMS) probe adapter, refer to the instruction manual for the TMS product.

References to 92A96 include all variations of the 92A96 and 92C96 modules.

Contacting Tektronix

Product Support	For application-oriented questions about a Tektronix measurement product, call toll free in North America: 1-800-TEK-WIDE (1-800-835-9433 ext. 2400) 6:00 a.m. – 5:00 p.m. Pacific time Or, contact us by e-mail: tm_app_supp@tek.com For product support outside of North America, contact your local Tektronix distributor or sales office.
Service Support	Contact your local Tektronix distributor or sales office. Or, visit our web site for a listing of worldwide service locations. http://www.tek.com
For other information	In North America: 1-800-TEK-WIDE (1-800-835-9433) An operator will direct your call.
To write us	Tektronix, Inc. P.O. Box 1000 Wilsonville, OR 97070-1000

Operating Basics

The DAS Mass Termination Interface (MTIF) allows you to connect 100 logic analyzer channels to a Tektronix Microprocessor Support (TMS) probe adapter or directly to your system under test (SUT) in one fourth the physical area needed to connect standard probes. The vertical clearance dimension is less than a half inch when used with the Low-Profile Extender.

To connect directly to your SUT, you must include compatible Mictor connectors in your circuit board design. To do this, be sure you understand the requirements and conform to the guidelines in these instructions for designing an interface.

This section contains a product description and information on how to connect the DAS MTIF to and disconnect it from a SUT.

Product Description

The DAS MTIF has four parts: one DAS MTIF adapter and three DAS MTIF probes. Connectors on one side of the adapter accommodate four 92AC96 cables. The connectors on the other side of the adapter accommodate the probes.

One end of each probe is called the probe tip and connects to your SUT. The other end is called the interface end. Figure 1 shows the DAS MTIF.

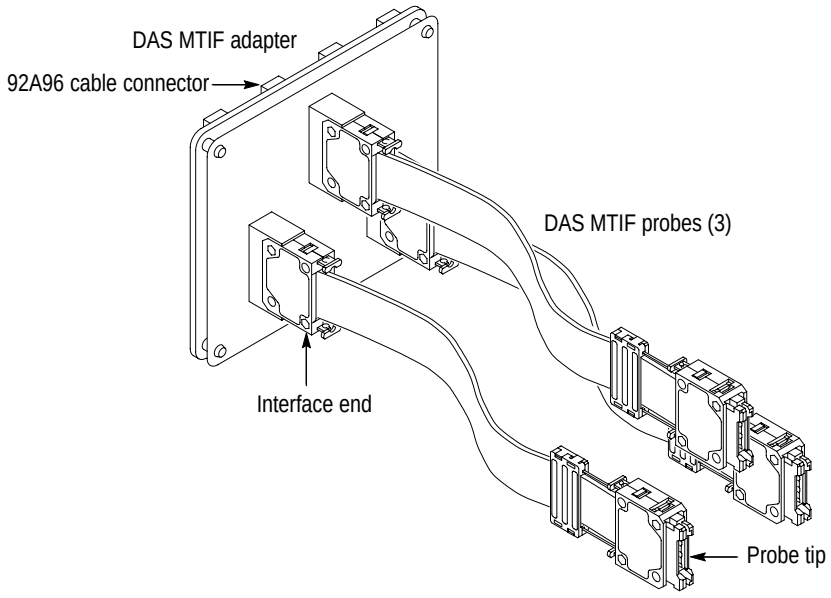

Figure 1: DAS MTIF for the 92A96 Acquisition Module

Connecting the DAS MTIF to the SUT

Each DAS MTIF probe can connect to surface-mounted or straddle-mounted Mictor connectors. You can use the Low-Profile Extender (available as an optional accessory) to connect the probe to systems with as little as a half inch of clearance between circuit boards. You can also install an optional latch housing around the connector to provide positive retention of the probe.

In the following procedures, a surface-mounted Mictor connector is shown in the figures. These procedures are the same for the straddle-mounted connector.

Direct Connection

To connect the DAS MTIF to a Mictor connector in your SUT (or on a TMS probe adapter), follow these steps:

1. Line up the pin 1 indicator on the probe tip with pin 1 on the connector in your SUT. The Mictor connector is keyed to prevent incorrect connections.

CAUTION. *Incorrect handling of the probe while connecting it to the SUT can result in damage to the DAS MTIF probe or to the mating connector in the SUT. To avoid damaging the probe and SUT, always position the probe perpendicular to the mating connector and gently connect the probe.*

2. Position the probe tip perpendicular to the mating connector and gently connect the probe as shown in Figure 2.
3. When connected, push down the latch releases on the probe to set the latch.

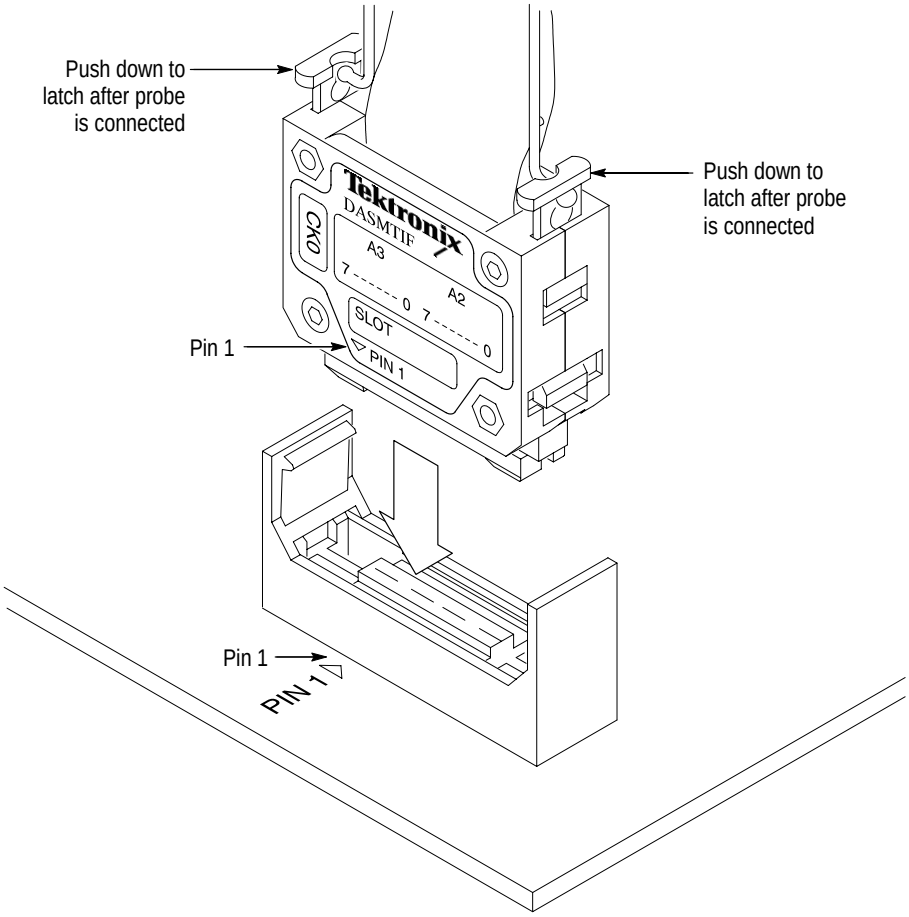

Figure 2: Connecting to a surface-mounted or straddle-mounted connector

4. Line up the pin 1 indicator on the interface end with the pin 1 indicator on the corresponding A, D or C probe connectors on the adapter.
5. Position the interface end perpendicular to the mating connector and gently connect the end.
6. When connected, push down the latch releases on the probe to set the latch.
7. Connect the 92A96 cables. Match the label colors on the 92A96 cables to the colors printed on the adapter. The cable connectors are keyed.

Low-Profile Extender Connection

You can use the Low-Profile Extender to connect the DAS MTIF to systems with as little as a half inch of clearance between circuit boards. The extender connects to Mictor connectors with or without a latch housing.

To connect the DAS MTIF probe using the extender, follow these steps:

1. Line up the pin 1 indicator on the low-profile end of the extender with pin 1 on the connector in your SUT. The Mictor connector is keyed to prevent incorrect connections.
2. Position the low-profile end perpendicular to the connector and gently connect the extender as shown in Figure 3.
3. To connect the DAS MTIF probe to the other end of the extender, follow steps 1 through 3 in the *Direct Connection* procedure on page 2.

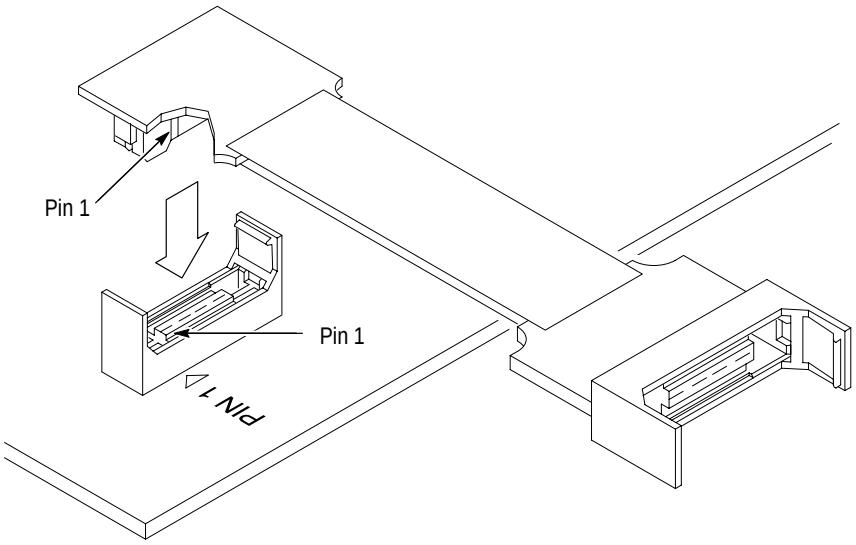

Figure 3: Connecting the Low-Profile Extender

Disconnecting the DAS MTIF Probe from the SUT

To disconnect the DAS MTIF probe, follow these steps:

1. Gently pull the latch release grip to release the probe tip from the latch housing as shown in Figure 4.

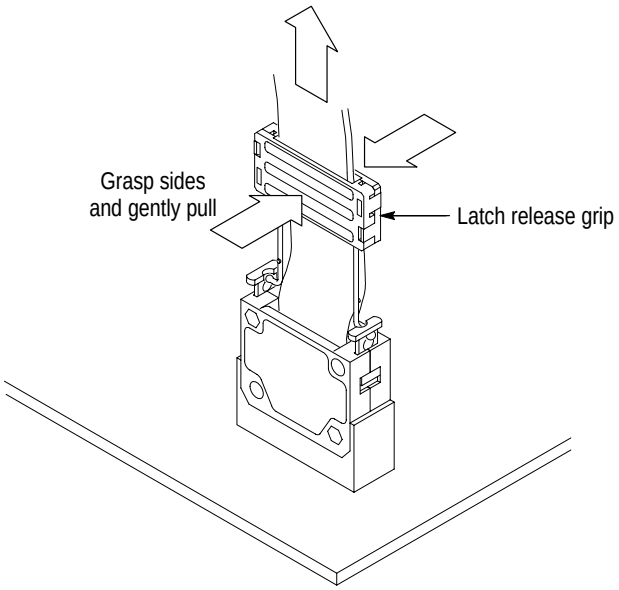

Figure 4: Releasing the probe tip from the latch housing

CAUTION. *Do not tilt the probe in any direction when disconnecting it. Tilting the probe can damage the probe and mating connector. To avoid damage to the probe and mating connector, hold on to the latch release grip and gently pull the probe straight out of the connector.*

2. Continue to gently pull the probe tip straight out of the mating connector using the latch release grip.

   If you are using an extender, grip the corners of the circuit board end attached to the SUT and gently pull it straight out of the connector.

Designing an Interface Between a DAS MTIF and a SUT

This section provides you with some guidelines for designing your own DAS MTIF interface on the SUT. The guidelines contain information on the following topics:

- Mictor connectors and latch housings
- Dimensions and placement of connectors
- Mechanical layout and pinout of connectors
- Loading and equivalent circuits
- Probe channel assignments

Mictor Connectors and Latch Housings

The DAS MTIF probe contains a 38-pin Mictor connector. Table 1 lists Mictor connectors you can purchase from AMP, Inc. that are compatible with the probe.

Table 1: Compatible Mictor connectors

AMP part number	Description
767054-1*	Palladium-nickel plated, 0.054 inch long ground pins, surface mount connector
2-767004-2	30 microinches gold plating, 0.054 inch long ground pins, surface mount connector
767044-1*	Palladium-nickel plated, straddle mount connector (0.062 inch circuit board thickness)

*** Recommended**

You can contact AMP for more detailed information on the Mictor connectors. For the address, refer to the *Replaceable Parts* section.

You can purchase latch housing mechanisms to use with Mictor connectors. The latch housing surrounds the Mictor connector in your SUT and provides positive retention of the DAS MTIF probe.

NOTE. *Refer to the* Optional Accessories *list in the* Replaceable Parts *section for information on ordering surface-mounted or straddle-mounted latch housings.*

Dimensions and Placement of Compatible Mictor Connectors

You can use compatible surface-mounted or straddle-mounted Mictor connectors in your circuit board design. The connectors should be placed as close as possible to the device under test.

The placement of Mictor connectors depends on whether you plan to connect the DAS MTIF directly to the SUT or use the Low-Profile Extender with the probe.

Direct Connection

Figure 5 shows the dimensions and minimum placement of surface-mounted connectors on a SUT. The side-to-side dimension between connectors also applies to the straddle-mounted connector.

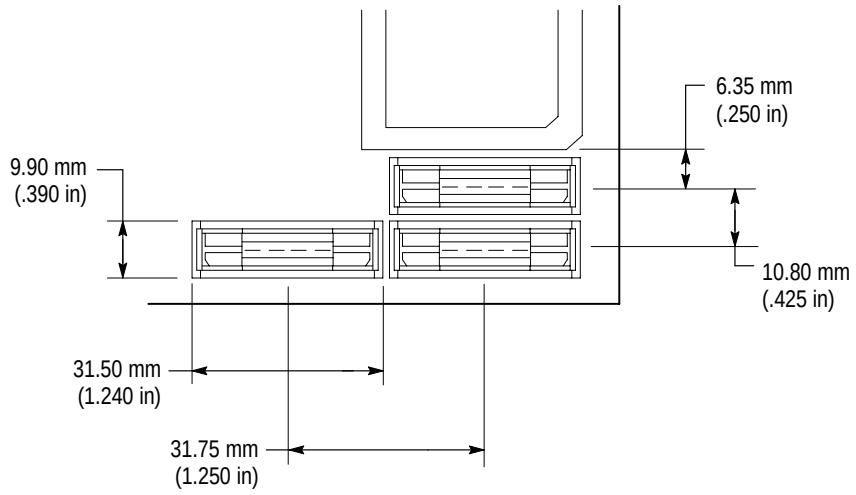

Figure 5: Dimensions and placement of a surface-mounted Mictor connector with latch housing

The vertical clearance dimension for the probe is 1.25 inches. Figure 11 shows this dimension.

Low-Profile Extender Connection

When placing Mictor connectors in your SUT for use with an extender, you need to keep one inch of clear space on the pin 1 side from the center of the Mictor connector in your SUT.

NOTE. *Be sure to orient pin 1 on the Mictor connector in your SUT to direct the extender off the board as shown in Figure 3.*

Mechanical Layout and Pinout of Compatible Mictor Connectors

Each compatible Mictor connector has 43 pins; pins 39 through 43 are grounded. Pins 1, 2, 37, and 38 are open. Figure 6 shows the positions and spacing between the pins, the keyhole, and the latch housing mounting holes of a surface-mounted connector. Figure 8 shows the pin assignments.

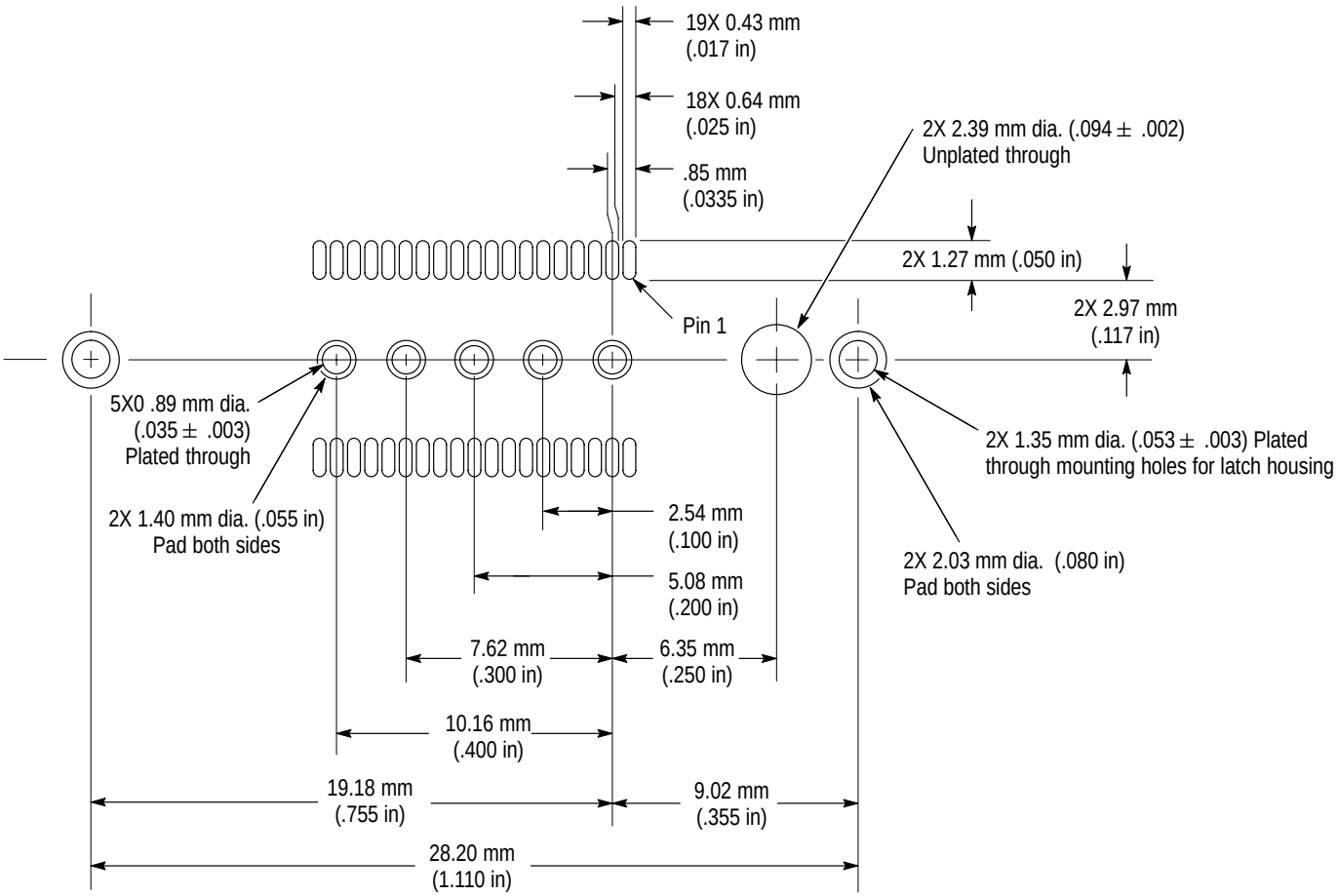

Figure 6: Surface-mounted connector layout (component side)

Figure 7 shows the positions and spacing between the pins and latch housing mounting holes of a straddle-mounted connector.

NOTE. *The straddle-mounted connector does not have a keyhole. Be sure to position pin 1 correctly when building the SUT to maintain the correct mapping of signals from your SUT to the logic analyzer probe sections and channels.*

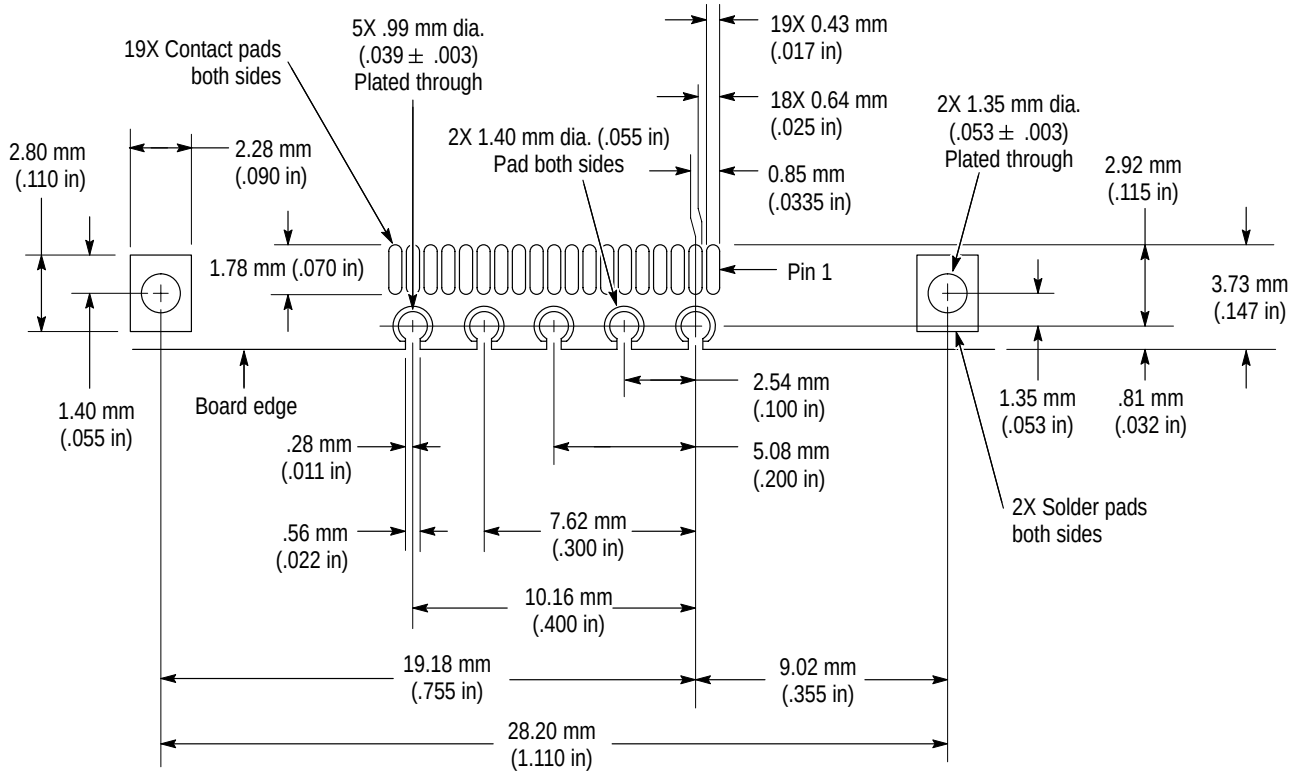

Figure 7: Straddle-mounted connector layout (component side)

Figure 8 shows the pin assignments for the surface-mounted connector. Pin assignments are the same for the straddle-mounted connector.

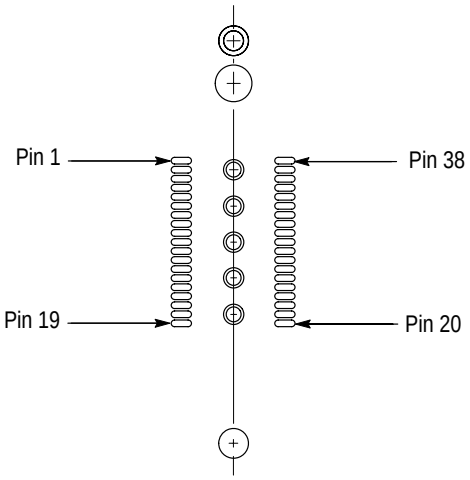

Figure 8: Pin assignments for a Mictor connector (component side)

Pin 1 Indicator

Be sure to place a pin 1 indicator on your circuit board during design. If you include the latch housing in your design, it will obscure the pin 1 indicator on the Mictor connector. Although the Mictor connector is keyed, you still need to know the location of pin 1 when connecting the DAS MTIF probe.

Loading and Equivalent Circuits

The load presented to the SUT by the DAS MTIF is low. The load is equivalent to a 10 pF capacitance with 100 kΩ resistance returned to a +3.1 V supply. The following approximation of the probe loading is sufficient for most circuit simulation calculations.

Figure 9 shows the equivalent circuit of the DAS MTIF. Tables 2 and 3 show the values you can use to calculate characteristics of the Lossy1 and Lossy2 delay lines shown in the next two figures.

Table 2: Lossy1 delay line values

Characteristic	Value
C (capacitance)	1.58 pF per inch
L (inductance)	8.9 nH per inch
R (resistance)	.067 Ω per inch
Z_0 (impedance)	75 Ω

Table 3: Lossy2 delay line values

Characteristic	Value
C (capacitance)	0.73 pF per inch
L (inductance)	20.9 nH per inch
R (resistance)	3.25 Ω per inch
Z_0 (impedance)	169 Ω

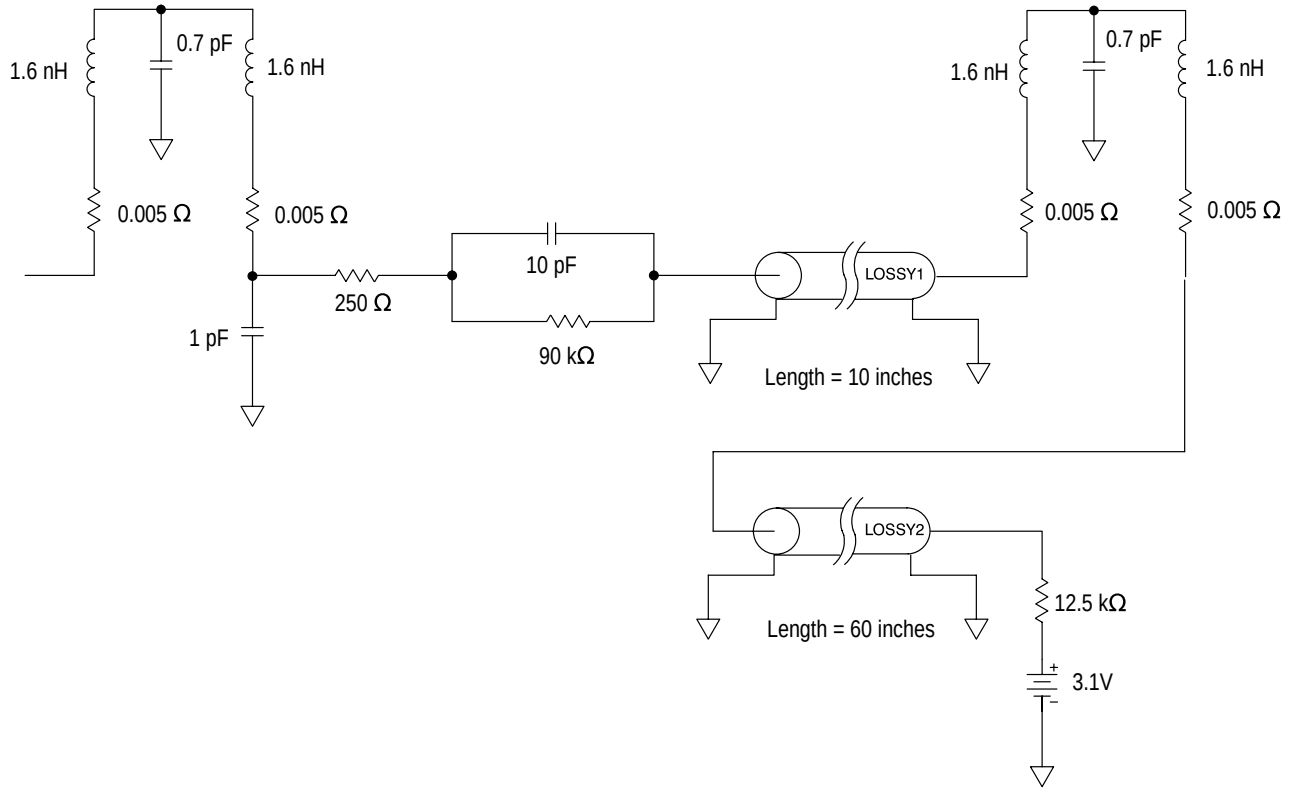

Figure 9: Equivalent circuit for the DAS MTIF

The Low-Profile Extender used with the DAS MTIF increases the load. The additional load is equivalent to a 100 Ω resistor connected in series with approximately three inches of 75 Ω coaxial cable to the probe tip.

Although the extender can increase the loading significantly, using the extender might be necessary in situations where there is as little as half an inch of clearance.

The extender is useful in a SUT where signal risetimes are greater than one or two nanoseconds. Faster risetimes cause transmission line reflections on signals.

Figure 10 shows the equivalent circuit for the DAS MTIF with a Low-Profile Extender.

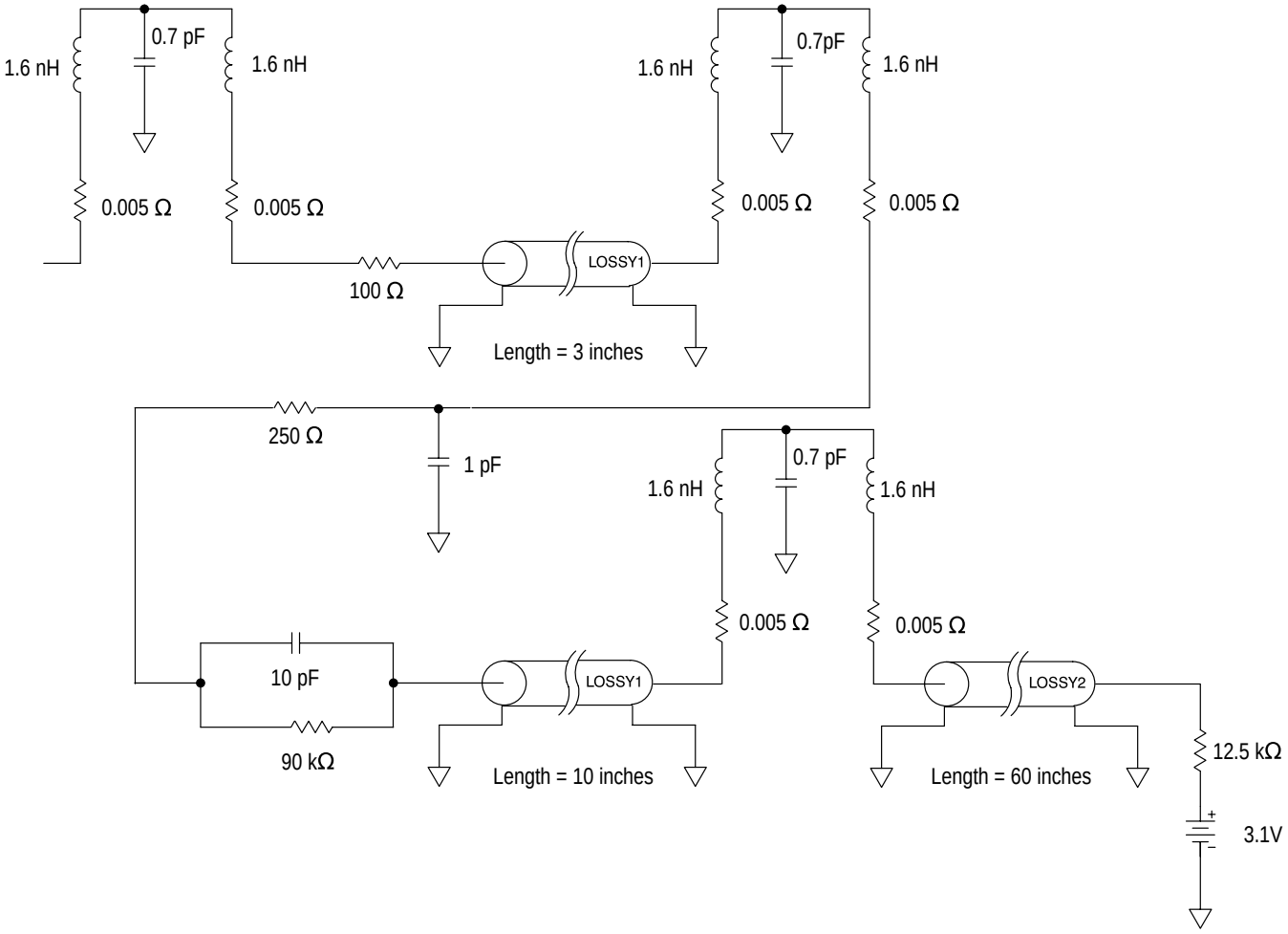

Figure 10: Equivalent circuit for the DAS MTIF with a Low-Profile Extender

DAS MTIF Channel Assignments

The 100 channels to which the 92A96 cables connect on the logic analyzer cannot be changed. When mapping signals from your SUT to channels on the logic analyzer, you must keep the probe section and clock channels together for the A, C and D DAS MTIF probes.

Each probe tip connector has 43 pins; pins 39 through 43 are the five ground pins. Pins 1, 2, 37 and 38 are unused and should be connected to ground.

Tables 4 and 5 show the probe sections and channels and the probe tip pins to which they connect.

Table 4: Pin 1 side DAS MTIF probe channel assignments

Probe pin number	Section and channel		
	A probe	C probe	D probe
3	CLK:0	CLK:3	Not connected
4	A3:7	C3:7	D3:7
5	A3:6	C3:6	D3:6
6	A3:5	C3:5	D3:5
7	A3:4	C3:4	D3:4
8	A3:3	C3:3	D3:3
9	A3:2	C3:2	D3:2
10	A3:1	C3:1	D3:1
11	A3:0	C3:0	D3:0
12	A2:7	C2:7	D2:7
13	A2:6	C2:6	D2:6
14	A2:5	C2:5	D2:5
15	A2:4	C2:4	D2:4
16	A2:3	C2:3	D2:3
17	A2:2	C2:2	D2:2
18	A2:1	C2:1	D2:1
19	A2:0	C2:0	D2:0

Table 5: Pin 38 side DAS MTIF probe channel assignments

Probe pin number	Section and channel		
	A probe	C probe	D probe
36	CLK:1	Not connected	CLK:2
35	A1:7	C1:7	D1:7
34	A1:6	C1:6	D1:6
33	A1:5	C1:5	D1:5
32	A1:4	C1:4	D1:4
31	A1:3	C1:3	D1:3
30	A1:2	C1:2	D1:2
29	A1:1	C1:1	D1:1
28	A1:0	C1:0	D1:0
27	A0:7	C0:7	D0:7
26	A0:6	C0:6	D0:6
25	A0:5	C0:5	D0:5
24	A0:4	C0:4	D0:4
23	A0:3	C0:3	D0:3
22	A0:2	C0:2	D0:2
21	A0:1	C0:1	D0:1
20	A0:0	C0:0	D0:0

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

This section contains information on the following topics and tasks:

- Maintenance
- Circuit description
- Specifications
- Disassembly and reassembly procedures
- Applying labels
- Functional verification procedure

Maintenance

The DAS MTIF does not require scheduled or periodic maintenance. To maintain good electrical contact, keep the product free of dirt, dust, and contaminants. Also, ensure that any electrically conductive contaminants are removed.

Dirt and dust can usually be removed with a soft brush. For more extensive cleaning, use only a damp cloth. Abrasive cleaners and organic solvents should never be used.

CAUTION. *The component devices contained on the DAS MTIF are susceptible to static-discharge damage. To prevent damage, service the probe only in a static-free environment.*

If the probe is connected to the SUT, grasp the ground connector on the back of the logic analyzer to discharge your stored static electricity. If the probe is not connected, touch the antistatic bag to discharge stored static electricity from the probe.

Always wear a grounding wrist strap, or similar device, while servicing the instrument.

If you connect and disconnect the DAS MTIF probes frequently, you should occasionally use a magnifying glass to examine the contact points on the probe tip, the interface end and on the mating connectors. If contacts have been dislocated from their proper position, you can use a pair of small tweezers (such as a #3 to #5), to carefully move the contacts back into place.

Circuit Description

The DAS MTIF contains 100 signal connections (96 used as data channels and four used as clock channels).The probe tip connection is a 38-pin Mictor connector by AMP, Inc. Each signal line has an input resistance of 100 kΩ connected to approximately +3.1 V.

The DAS MTIF maps the 100 channels of the 92A96 acquisition module to the three DAS MTIF probes. The A probe contains 32 channels for the A3, A2, A1 and A0 probe sections plus the CK:1 and CK:0 clock channels. The C probe contains 32 channels for the C3, C2, C1 and C0 probe sections plus the CK:3 clock channel. The D probe contains 32 channels for the D3, D2, D1 and D0 probe sections plus the CK:2 clock channel.

Specifications

These specifications are for a DAS MTIF connected between a compatible Tektronix logic analyzer and a SUT. Table 6 shows the electrical requirements of the DAS MTIF.

Table 6: Electrical specifications

Characteristics	Requirements	
Number of input channels with all probes	100 (96 data and 4 clock channels)	
Input impedance	100 KΩ ± 1% in parallel with 10 pF ± 1 pF	
Threshold accuracy	± 75 mV	
Channel-to-channel skew	< 150 ps	
Max. operating signal swing	10 V peak-to-peak	
Probe overdrive	600 mV peak-to-peak minimum ECL signal input using coaxial probe cables (centered on threshold) 1.2 V peak-to-peak minimum TTL signal input using ribbon probe cables (centered on threshold)	
Max. nondestructive input signal to probe	± 15 V	
Max. sync clock rate	100 MHz in full speed mode (10 ns between active clock edges)	
Min. sampling period	4 ns	
Measured typical signal loading*	**AC load**	**DC load**
	≈10 pF	≈100 kΩ*

* **The 100 kΩ resistor is returned to approximately +3.1 V.**

Table 7 shows the environmental specifications.

Table 7: Environmental specifications[1]

Characteristic	Description
Temperature	
Maximum operating	+50° C (+122° F)[2]
Minimum operating	0° C (+32° F)
Non-operating	–55° C to +75° C (–67° F to +167° F)
Humidity	10 to 95% relative humidity
Altitude	
Operating	4.5 km (15,000 ft) maximum
Non-operating	15 km (50,000 ft) maximum
Electrostatic immunity	The probe is not static sensitive

1 **Designed to meet Tektronix standard 062-2847-00 class 5.**

2 **Not to exceed SUT thermal considerations. Forced air cooling might be required across the CPU.**

Table 8 shows the certifications and compliances that apply to the DAS MTIF.

Table 8: Certifications and compliances

EC Compliance	There are no current European Directives that apply to this product.

Figure 11 shows the vertical dimension of the DAS MTIF probe.

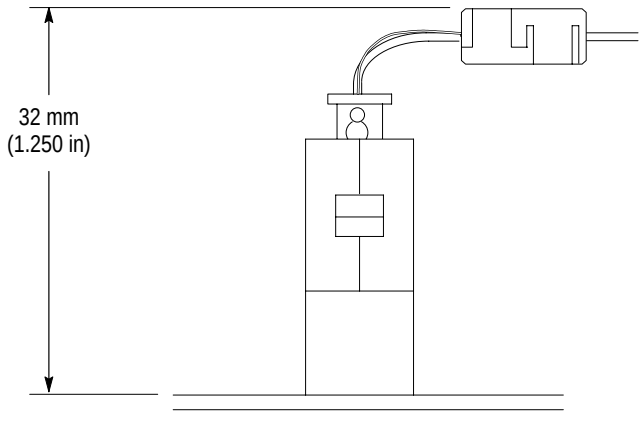

Figure 11: Vertical dimension of the DAS MTIF probe

Disassembling the DAS MTIF

To replace damaged mechanical parts, you will need to disassemble the DAS MTIF probe or the DAS MTIF adapter. If the DAS MTIF probe cable has been damaged or if there is an electrical fault, the cable must be replaced.

Probe Tip or Interface End

To disassemble the probe tip or interface end of the DAS MTIF probe, follow these steps:

1. Remove the four screws from the outside of the probe case using a .050 inch Hex screwdriver, and open the case halves.

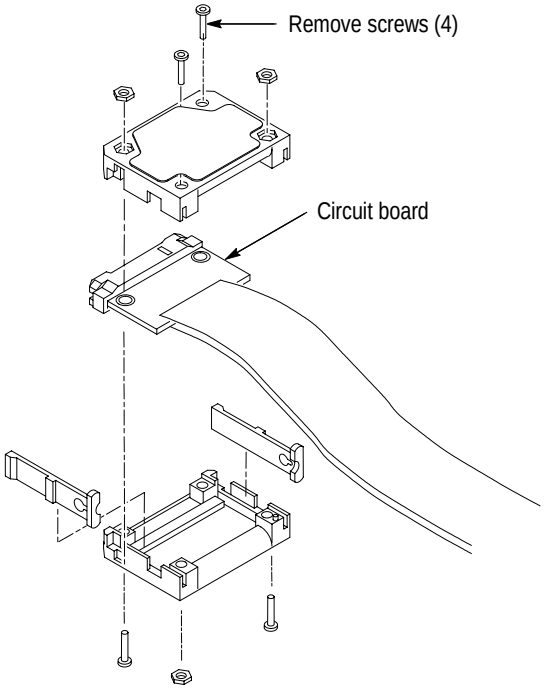

Figure 12: Disassembling the DAS MTIF probe

2. Replace damaged parts and follow the procedure to reassemble the probe tip and interface ends.

Latch Release Grip

To disassemble the latch release grip on the probe tip, follow these steps:

1. Use two small flat-bladed screwdrivers in the slots opposite the tabs on each side of the grip as shown in Figure 13.

2. With thumbs placed lightly on the tabs to be released, pry the grip open by carefully levering the screwdrivers down. Do not overstress the tabs beyond deflection required to release the tabs.

   When you open the latch release grip, the latch release cord comes out of the grip, thereby detaching the grip from the latch release on the probe.

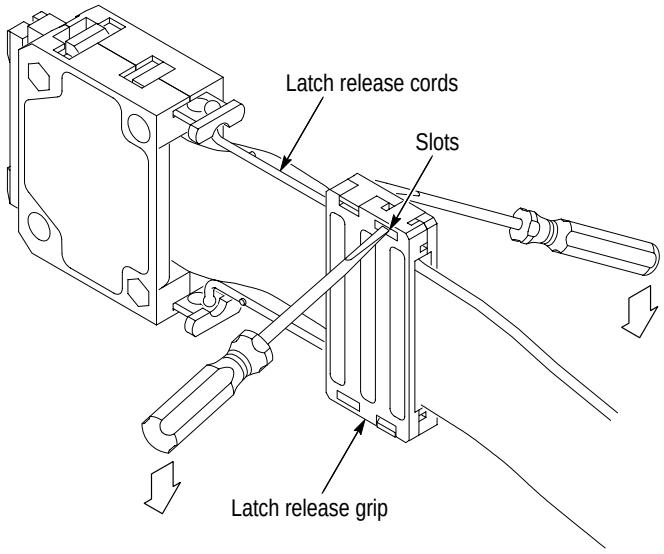

Figure 13: Disassembling the latch release grip

DAS MTIF Adapter

You can only disassemble the insulator and plastic standoffs from the DAS MTIF Adapter board.

You can replace a latch housing on the board by desoldering the damaged housing and replacing it with a new housing.

Reassembling the DAS MTIF

After damaged parts are replaced, you will need to resassemble the DAS MTIF probe or the DAS MTIF adapter.

Probe Tip or Interface End

To reassemble the probe tip or interface ends, follow these steps:

1. Position a latch release on each side of the case half. See Figure 14.

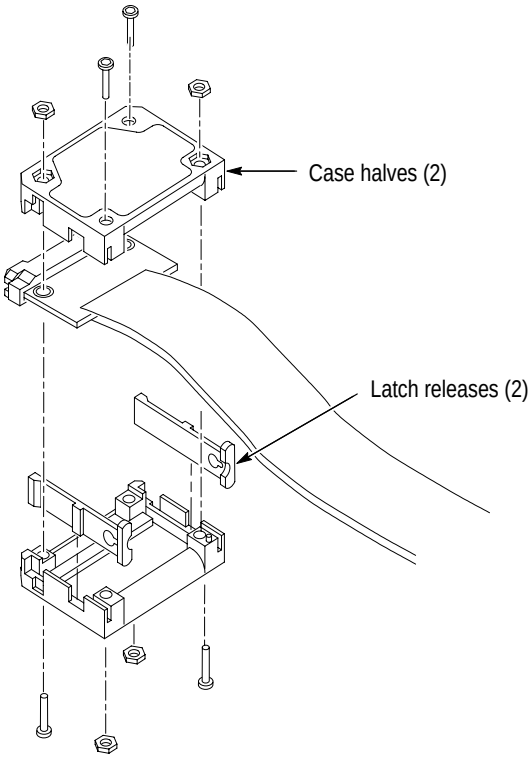

Figure 14: Reattaching the latch releases and case halves

2. Align the pin 1 case half with the pin 1 side of the connector, attach the case halves and reconnect the screws. Figure 17 shows how to identify the pin 1 side of the connector.

Latch Release Grip

To reassemble the latch release grip on the probe tip, follow these steps:

1. Place the latch release cords into the latch releases as shown in Figure 15.
2. Push the latch release downward to force the latch release cord to snap through the slot and into the small hole.

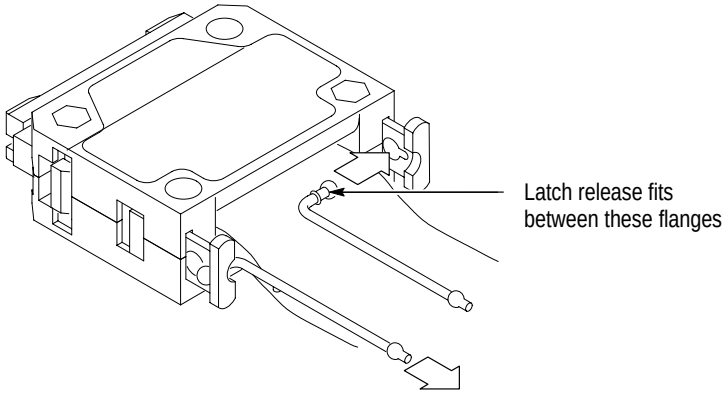

Figure 15: Reattaching the latch release cords to the latch releases

3. Place the other end of the latch release cords into the latch release grip and reconnect the latch release grip as shown in Figure 16.

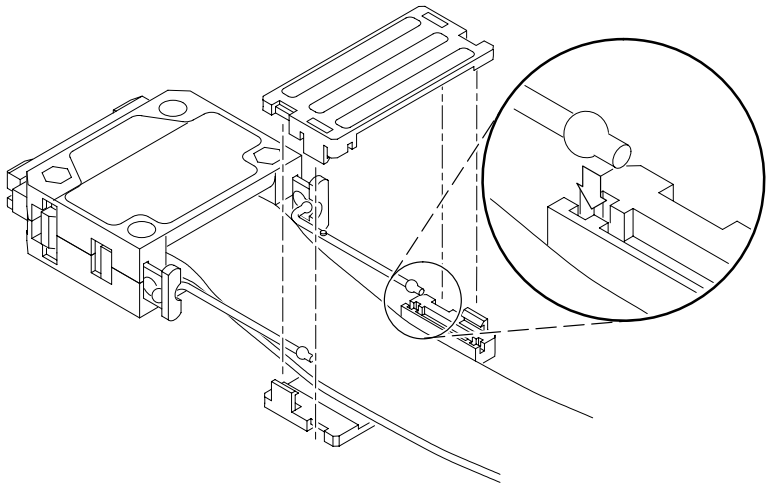

Figure 16: Reattaching the latch release cords and reconnecting the latch release grip

4. You might need to apply new labels. Refer to the description of *Labels* for information on how to apply labels.

DAS MTIF Adapter

To reassemble the DAS MTIF adapter, follow these steps:

1. Insert the permanent lock end of the plastic standoffs into the adapter board.

2. Install the insulator onto the releasable end of the plastic standoffs.

Figure 20 shows the permanent lock and releaseable ends of the standoffs.

Labels

You might need to apply new labels after repairing a DAS MTIF probe. Table 9 shows the channel combinations and label colors for the probe tips.

Table 9: Probe tip channel sections and label colors

Probe	Pin 1 side	Color	Pin 38 side	Color
A	CK:0, A3:7-0, A2:7-0	Tan	CK:1, A1:7-0, A0:7-0	Orange
D	D3:7-0, D2:7-0	Blue	CK:2, D1:7-0, D0:7-0	Yellow
C	CK:3, C3:7-0, C2:7-0	White	C1:7-0, C0:7-0	Gray

To apply labels to the probe tip, follow these steps:

1. Locate the small pin 1 recess on the probe tip and apply the appropriate pin 1 label on that side. See Figure 17.
2. Apply the associated label to the other side as listed in Table 9.
3. Match the color of the interface end labels to the probe tip labels and apply.

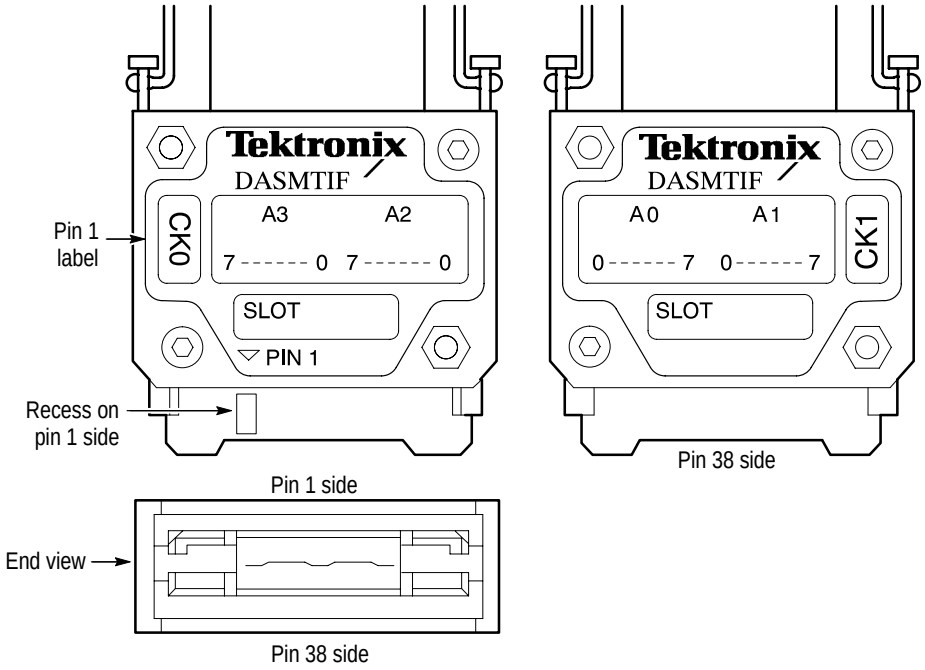

Figure 17: Applying new labels

Functional Verification

This procedure checks the basic functionality of the DAS MTIF by verifying that the DAS MTIF probes recognize signal activity at the probe tips. No calibration is necessary.

Refer to the *DAS and TLA 500 Series Performance Verification and Adjustment Technical Reference Manual* for calibration of the logic analyzer module used with the DAS MTIF.

The functional verification procedure requires the following test equipment:

- Adjustment and verification test fixture, part number 671-3599-00
- Power supply for the test fixture (refer to the *Optional Accessories* list in the *Replaceable Parts* section for part number information)
- DAS or TLA 500 Series mainframe
- 92A96 module

Refer to the user manual for the module for installation information.

To perform the functional verification procedure, follow these steps:

1. Connect the 92A96 cables to the logic analyzer and to the DAS MTIF.
2. Connect the interface ends of the DAS MTIF probes to the DAS MTIF adapter.
3. Place J15 in the INT position to select the internal 50 MHz clock. Figure 18 shows the location of the jumper.

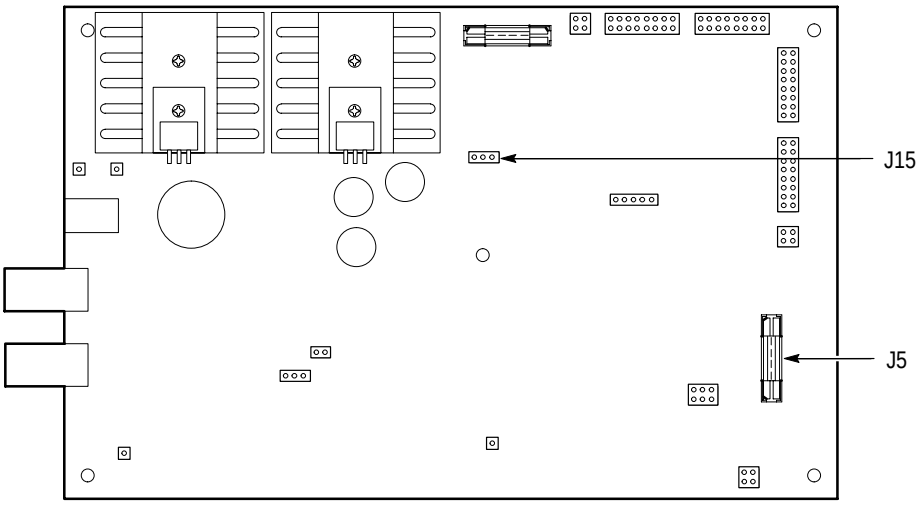

Figure 18: Jumper and connector locations on the test fixture

4. Connect the power adapter to the test fixture and power on the test fixture.

5. Power on the logic analyzer and wait for the DAS or TLA 500 to start.

6. Verify that the logic analyzer passes the power-on diagnostics.

7. From the Main menu, select to the Channel menu for the 92A96 module to which the probes are connected.

8. Click F5: Define Threshold to display the threshold settings, set the threshold for all channels to be 0.7 volts and click F8: Exit and Save.

9. From the Main menu, select the State display.

10. Align pin 1 and connect the probe tip for the A probe to J5 on the test fixture. Figure 18 shows the location of the connector.

11. Start acquiring data. The Address group will repeatedly display two lines of all 0s then two lines of all Fs to show activity on the channels such as follows:

```
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
F F F F F F F F
F F F F F F F F
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
F F F F F F F F
F F F F F F F F
```

    Verify that none of the connected channels are stuck high or stuck low.

    Other channels without probes connected should display all Fs.

12. Align pin 1 and connect the probe tip for the D probe to J5 on the test fixture.

13. Start acquiring data. The Data group will repeatedly display two lines of all 0s and two lines of all Fs to show activity on all the channels.

14. Align pin 1 and connect the probe tip for the C probe to J5 on the test fixture.

15. Start acquiring data. The Control group will repeatedly display two lines of all 0s and two lines of all Fs to show activity on all the channels.

16. Repeat this procedure for additional DAS MTIFs if needed.

This completes the functional verification.

Replaceable Parts

This chapter contains a list of the replaceable components for the DAS MTIF. 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.

Using the Replaceable Parts List

The tabular information in the Replaceable Parts List is arranged for quick retrieval. Understanding the structure and features of the list will help you find all of the information you need for ordering replacement parts. The following table describes the content of 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 entries 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.

Chassis Parts

Chassis-mounted parts and cable assemblies are located at the end of the Replaceable Electrical Parts List.

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
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON, OR 97077–0001
00779	AMP INC.	CUSTOMER SERVICE DEPT PO BOX 3608	HARRISBURG, PA 17105–3608
0GV90	GLOBTEK INC	186 VETERANS DRIVE	NORTHVALE, NJ 07647–2303
60381	PRECISION INTERCONNECT CORP.	16640 SW 72ND AVE	PORTLAND, OR 97224

Replaceable parts list

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
	010–0601–00			1	DAS MTIF; 100 CHANNEL (DAS MTIF PROBES,3, & DAS MTIF ADAPTER; SEE FIGURES 19 & 20)	80009	010–0601–00
19–0	118–9488–00			1	DAS MTIF PROBE; 34 CHANNEL; CABLE REPLACEMENT KIT INCLUDES:	80009	118–9488–00
–1				1	LABEL SHEET; DAS MTIF PROBE, PROBE TIP & INTERFACE ENDS		
	118–9479–00			1	SERVICE KIT; MECHANICAL PARTS INCLUDES:	80009	118–9479–00
–1				1	LABEL SHEET; DAS MTIF PROBE, PROBE TIP & INTERFACE ENDS		
–2				2	PROBE TIP CASE HALVES		
–3				2	LATCH RELEASES		
–4				4	SCREWS, #1–72 x 0.375 BUTTON HEAD		
–5				4	NUTS, #1–72 HEX		
–6				2	PULL GRIP HALVES		
–7				2	PULL CORDS		
					STANDARD ACCESSORIES		
	070–9798–00			1	MANUAL,TECH:INSTRUCTIONS, DAS MTIF	80009	070–9798–00
					OPTIONAL ACCESSORIES		
–8	010–0612–00			1	LOW–PROFILE EXTENDER, 4.25 INCH OVERALL	80009	010–0612–00
	105–1088–00*			1	LATCH HOUSING; STRADDLE MOUNT (NOT SHOWN)	80009	105–1088–00
	105–1089–00*			1	LATCH HOUSING; SURFACE MOUNT (NOT SHOWN)	80009	105–1089–00
	671–3599–00			1	TEST FIXTURE (NOT SHOWN)	80009	671–3599–00
	119–4855–00			1	POWER SUPPLY (US):18W,WALL MOUNT,120VAC 60HZ INPUT,12VDC 1.5A OUTPUT,UNREGULATED,183CM CABLE,STR C (NOT SHOWN)	0GV90	WD1E1500C12CP

Replaceable parts list (cont.)

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
	119–4856–00			1	POWER SUPPLY (EC):18W,WALL MOUNT,220VAC 50HZ INPUT,12VDC 1.5A OUTPUT,UNREGULATED,183CM CABLE,STR C (NOT SHOWN)	0GV90	WD13E1500C12CP
	119–4859–00			1	POWER SUPPLY (JP):18W,WALL MOUNT,100VAC 60HZ INPUT,12VDC 1.5A INPUT,UNREGULATED,183CM CABLE,STR CO (NOT SHOWN)	0GV90	WD49E1500C12CP

***Contact your Tektronix representative for pricing of larger quantities of latch housings or Precision Interconnect as listed in the manufacturers cross index.**

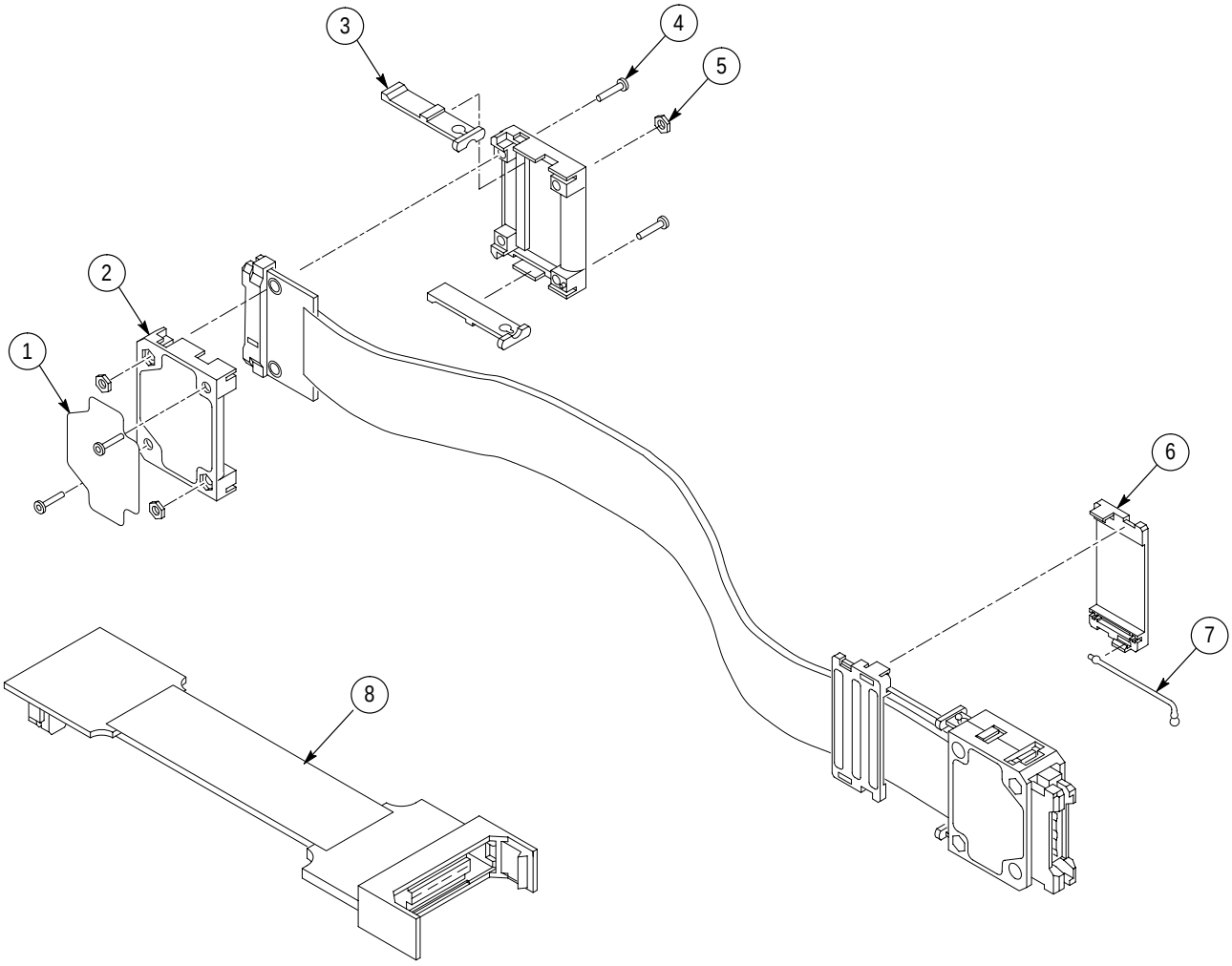

Figure 19: DAS MTIF probe exploded view

Replaceable parts list

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
	010–0601–00			1	DAS MTIF; 100 CHANNEL (DAS MTIF PROBES,3, & DAS MTIF ADAPTER; SEE FIGURES 19 & 20)	80009	010–0601–00
20–0	118–9490–00			1	SERVICE KIT; ADAPTER PARTS INCLUDES:	80009	118–9490–00
–1				1	INTERFACE ADAPTER BOARD		
–2				5	PLASTIC STANDOFFS		
–3				1	LEXAN INSULATOR PANEL		
	118–9489–00			1	SERVICE KIT; INSULATOR PARTS INCLUDES:	80009	118–9489–00
–2				5	PLASTIC STANDOFFS		
–3				1	LEXAN INSULATOR PANEL		

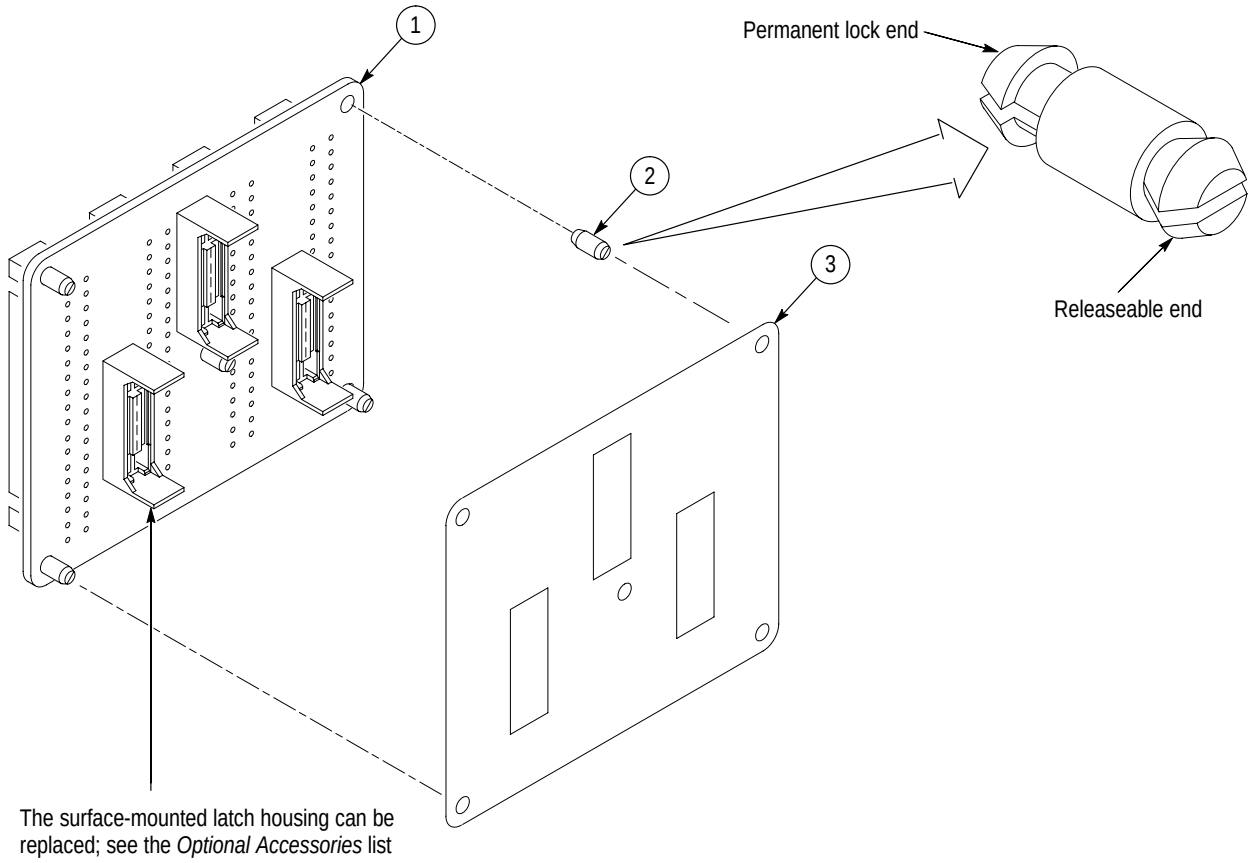

Figure 20: DAS MTIF interface adapter exploded view