

Instructions



050-3624-00

**SDI Interface Board Replacement
WFM90D, WFM91D Handheld Waveform,
Vector, Picture, and Audio Monitor**

075-0886-00

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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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.

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.

Replace Batteries Properly. Replace batteries only with the proper type and rating specified.

Recharge Batteries Properly. Recharge batteries for the recommended charge cycle only.

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.

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:



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, switch off the instrument power, then disconnect the power cord from the mains power.

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.

Kit Description

This kit contains parts and instructions for replacing the SDI Interface board, installing a shield on the SDI Interface board, and installing a clip-on gasket beneath the Input Board assembly, in the WFM90D and WFM91D Handheld Waveform, Vector, Picture and Audio Monitor.

This document supports Tektronix modification: ECR30055

Products

WFM90D B010942 and below
WFM91D B010477 and below

Minimum Tool and Equipment List

| Required tools and equipment | Part number |
|--------------------------------|-------------|
| Screwdriver with T-10 Torx Tip | NA |

Kit Parts List

| Circuit/figure number | Quantity | Part number | Description |
|-----------------------|----------|-------------|---|
| | 1 EA | 671-5566-02 | CIRCUIT BD ASSY; SDI INTERFACE |
| | 1 EA | 337-4319-00 | SHIELD; ELECTRICAL |
| | 1 EA | 348-1803-00 | GASKET,ELEC; CLIP ON (.0625) |
| | 1 EA | 075-0886-00 | KIT INSTRUCTION;SDI INTERFACE BD REPLACEMENT WFM90D, WFM91D 050-3624-00 |

Installation Instructions

These instructions are for personnel who are familiar with servicing the product. If you need further details for disassembling or reassembling the product, refer to the *WFM90D and WFM91D Handheld Waveform, Vector, Picture, and Audio Monitor Service Manual*, (Tektronix part number 071-1143-01). Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation assistance.



CAUTION. *To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static-resistant apparel while installing this kit.*

Remove



CAUTION. *To prevent damage to the instrument, disconnect the power adapter and remove installed batteries from the monitor before starting disassembly.*

Disconnect Power

1. Disconnect the power adapter.
2. Remove the battery cover as follows:
 - a. Turn the turnlock stud 1/4-turn counterclockwise using a screwdriver or coin.
 - b. Pull out on the upper portion of the battery cover.
3. If the NiMH battery pack is installed in your product, remove it as follows:
 - a. Tap the bottom of the battery pack so that the back of the battery pack falls into your hand.
 - b. Grasp the batteries close to the wire leads. Use your thumb to press in on the top portion of the battery connector tab.
 - c. Pull up gently to remove the batteries (see Figure 1).

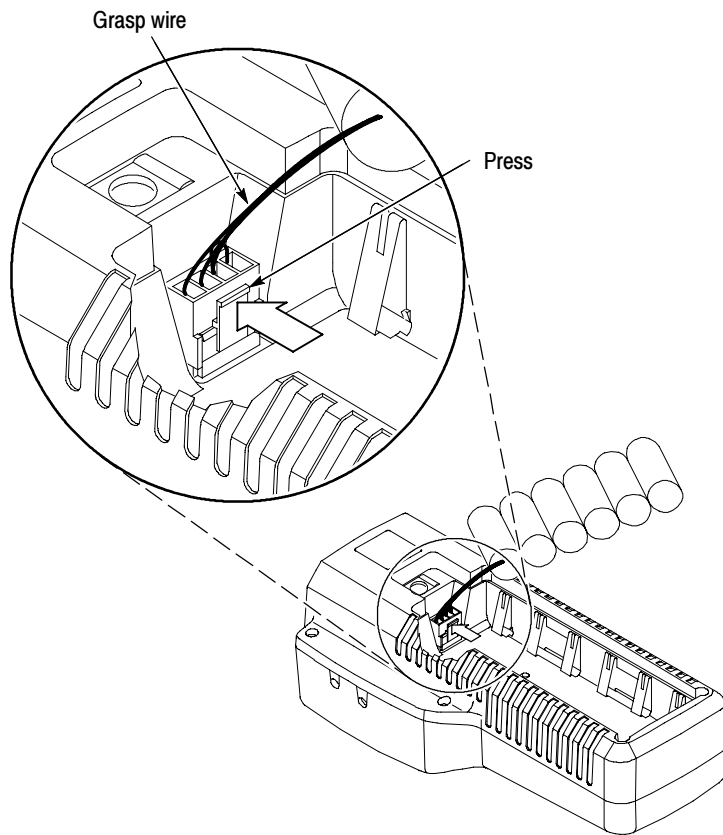
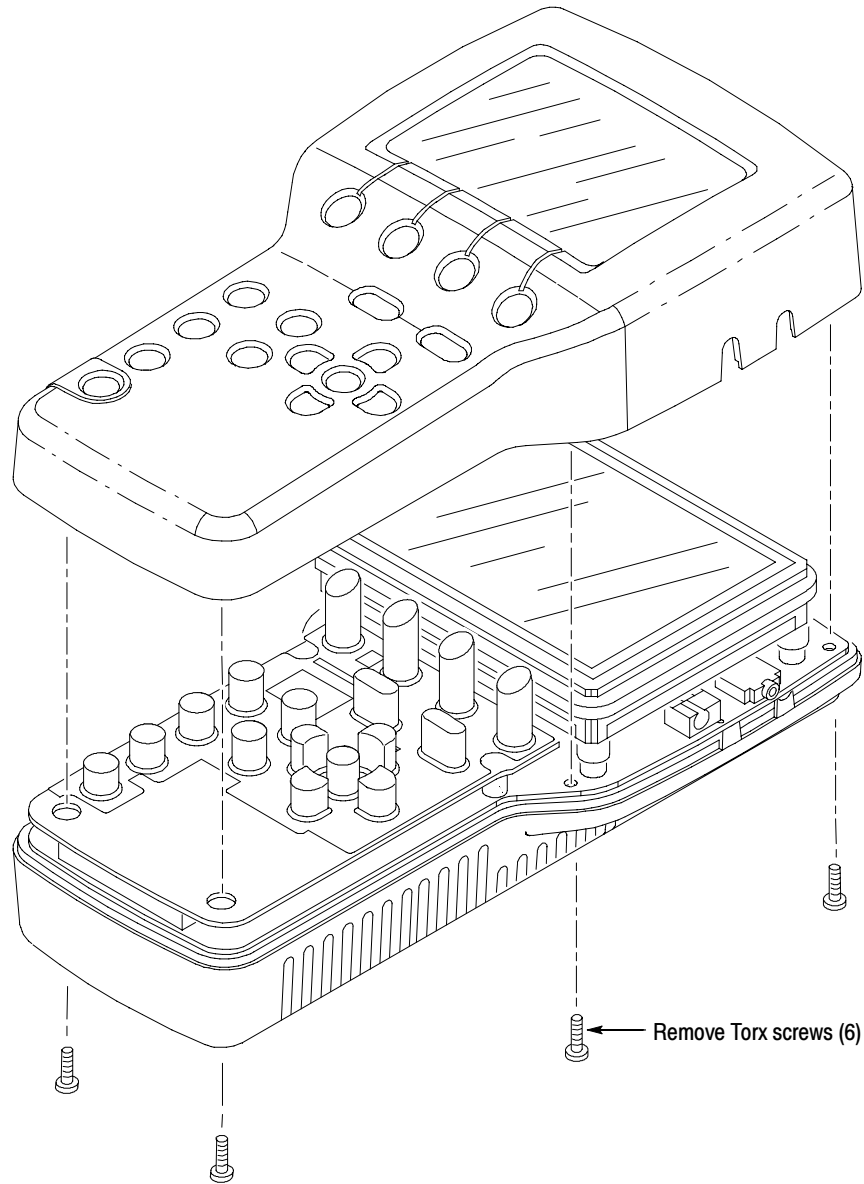


Figure 1: Removing the NiMH Battery Pack

4. If C-size alkaline batteries are installed in your product, remove them by carefully pulling them out of the battery compartment.

Top Cover Assembly

1. Remove the six retaining screws using the T-10 Torx-tip screwdriver (see Figure 2).

**Figure 2: Removing the top cover**

2. Turn the instrument over and gently lift the top cover off of the bottom cover.
3. Set the top cover face up on your work surface or cover it with a lint-free cloth to prevent dust from accumulating on the inside surface of the cover.

LCD Display, Top/Bottom Board Assembly



To remove the LCD Display and Top/Bottom board assemblies as one piece:

CAUTION. To avoid damaging the LCD Display, do not touch the face of the display because it is hard to clean and is easily scratched.

1. With the thumb and forefinger of one hand, grasp the plastic extended lip of the Input board assembly. With the thumb and forefinger of the other hand, grasp the top board at the opposite end of the board assembly and gently tip that end up and off the bottom cover (see Figure 3).

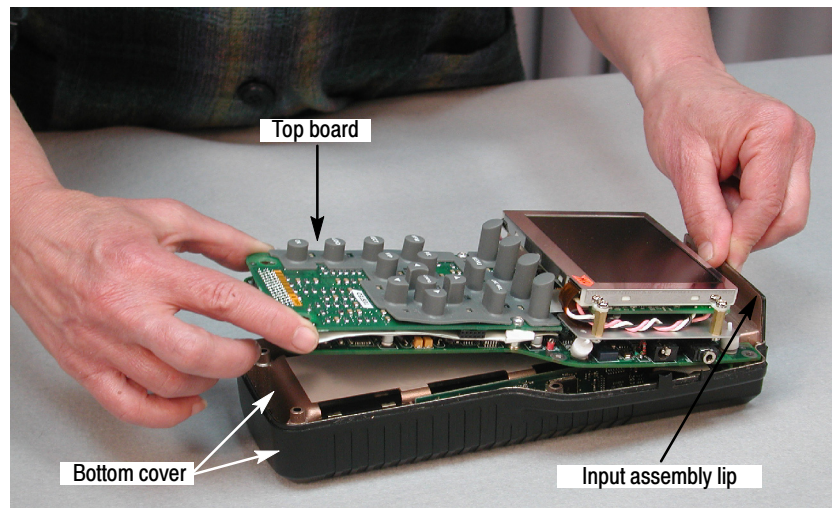


Figure 3: Lift assembly off bottom cover

2. Slide the thumb and forefinger of the same hand along the edges of the bottom board and toward the center of the assembly (see Figure 4). With the other hand, grasp the top board behind the LCD Display unit and gently lift upward until the assembly is level.

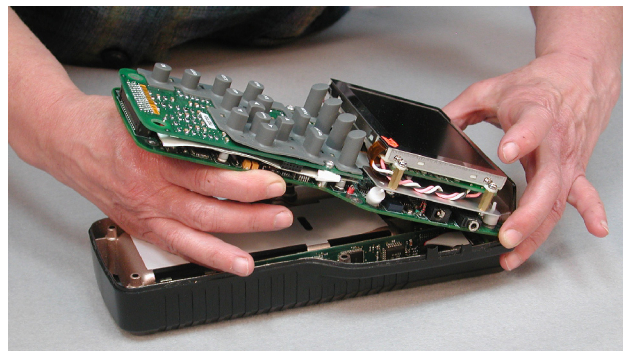


Figure 4: Remove assembly as one piece

NOTE. To avoid dislodging the four locating feet of the LCD Display unit from their holes in the top board, keep the Top/Bottom board assembly as level as possible.

3. Set the assembly aside and face up on your work surface. Cover it with a lint-free cloth to prevent dust from accumulating on the surface of the assembly.

SDI Interface Board and 20-pin Cable

Disconnect the 20-pin assembly cable and remove the SDI Interface board as follows:

1. Grasp the edge of the SDI board with one hand and lift it part way out of its two slots in the bottom cover.
2. Gently pull the 20-pin cable away from the J1 connector on the SDI Interface board (see Figure 5).

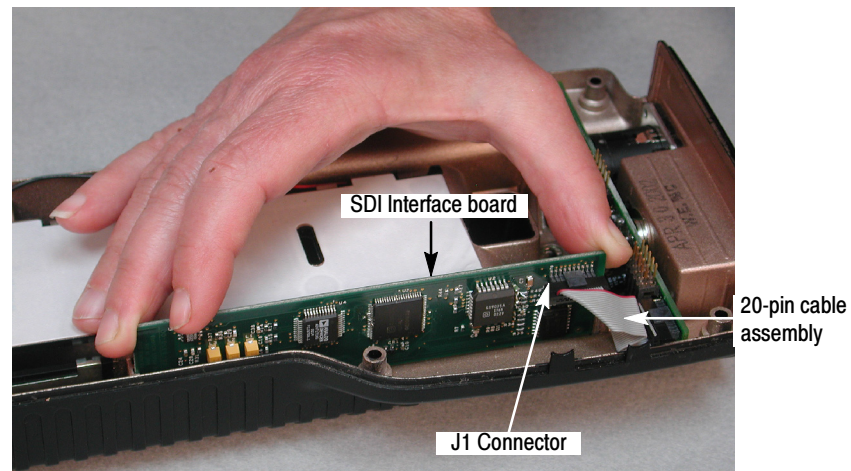


Figure 5: Disconnect 20-pin cable assembly

3. Remove the SDI Interface board from the two slots in the bottom cover.
4. Discard the SDI Interface board.

Input Assembly

Remove the Input assembly from the bottom cover as follows:

1. Hold the bottom cover below the Input assembly in the fingers of one hand.
2. Grasp the plastic extended lip of the Input assembly with the other hand and pull the Input assembly upward and out of the two slots in the bottom cover (see Figure 6).

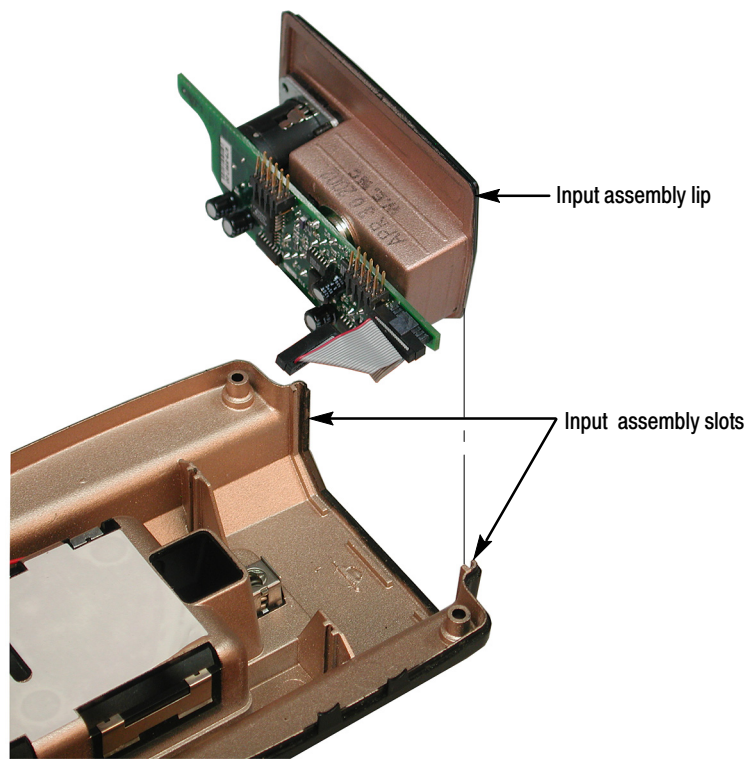


Figure 6: Pull Input assembly off bottom cover

Install

Electrical Gasket

Install the electrical gasket (Tektronix part number 348-1803-00) on the bottom cover where the Input assembly contacts the bottom cover as follows:

1. Unwrap the gasket and remove the protective covering from the adhesive side of the gasket.
2. Position the gasket (see Figure 7), noting the position on the bottom cover, and the direction of the free side of the gasket.
3. Use your finger tips to press the adhesive side of the gasket to the bottom cover.

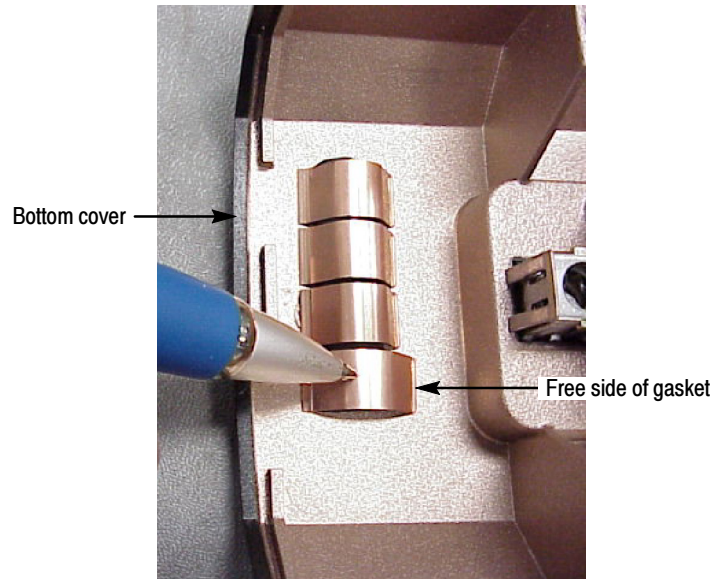


Figure 7: Apply Gasket to bottom cover

SDI Interface Board and Electrical Shield

Wrap the new SDI Interface board (Tektronix part number 671-5566-02) in the Electrical Shield (Tektronix part number 337-4319-00) as follows:

1. Unwrap the new SDI Interface board and the electrical shield.
2. Remove the protective tape from the adhesive strip on the shield.
3. Fold the foam edge of the shield up to the lower edge of the adhesive strip (see Figure 8).

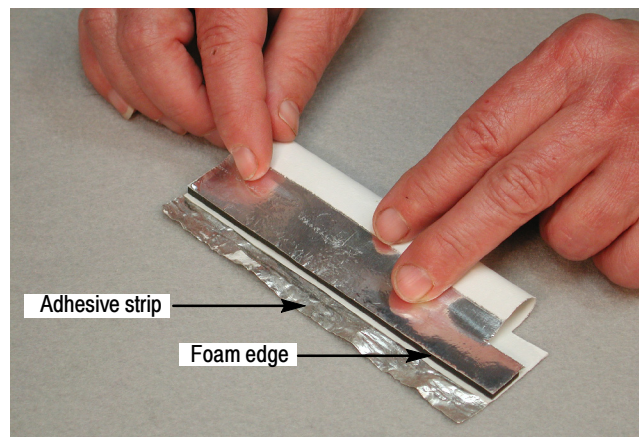


Figure 8: Fold shield

4. Seal the shield by folding the adhesive strip forward and over the foam edge of the shield.
5. Slide the SDI Interface board into the shield so the J1 connector on the SDI board is exposed through the cut-out area of the shield (see Figure 9).

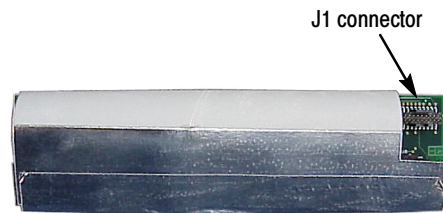


Figure 9: SDI Interface board and shield

Reassemble

Replace Input Assembly

Align the edges of the Input assembly with the two slots in the bottom cover (see Figure 6) and slide the Input assembly down until it is fully installed in its two slots. The electrical gasket on the bottom cover will cause the assembly to spring back from the bottom cover.

SDI Interface Board and Cable Assembly

Install the SDI Interface board and plug in the 20-pin cable assembly as follows:

1. Align the edges of the SDI Interface board with the two slots in the bottom cover and slide the board half way into the slots.
2. Plug the 20-pin cable assembly into the J1 connector on the SDI Interface board (see Figure 10).
3. Slide the SDI Interface board into the slots.

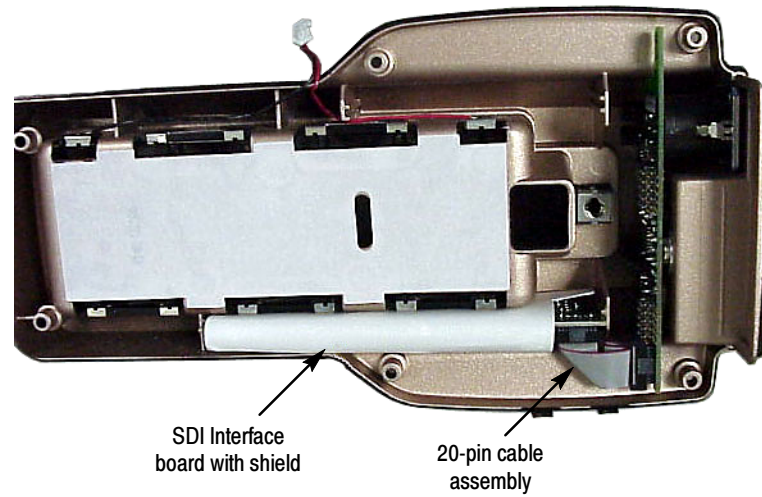


Figure 10: SDI Interface board with 20-pin cable connected

LCD Display, Top/Bottom Board Assembly

Install the LCD Display and Top/Bottom board assemblies as one piece in the bottom cover as follows:



CAUTION. To avoid damaging the LCD display, do not touch the face of the display because it is hard to clean and is easily scratched.

1. Align the six screw holes of the board assembly with the six screw holes on the bottom cover. Gently press downward on the board assembly at each of the six screw hole locations.
2. Ensure that the hole in each corner of the LCD Display unit is installed on its corresponding locating foot.
3. Ensure that each of the five nubs of the keypad is installed in its corresponding hole in the top board.
4. Carefully dress wires and cables of the assembly to avoid pinching when the top cover is installed.

Replace Top Cover and Batteries

Replace the top cover and screws, batteries, and battery cover.

Cover and Screws

1. Make sure no wires or cables will be pinched between top and bottom covers.
2. Align the top cover over the bottom cover so that the keypad buttons will slide through the top cover keypad holes.
3. Gently lower the top cover onto the bottom cover. Shake the top cover slightly if necessary to slide the keypad buttons through the top cover holes.
4. Turn the instrument over and install the six retaining screws using the Torx-tip screwdriver. When you tighten the two screws beside the Input assembly, ensure that it rests firmly on the bottom cover.

Batteries

Replace NiMH battery pack (if you have one) or Alkaline batteries, and the battery cover.

NiMH Battery Pack. Replace NiMH battery pack as follows:

1. Press the battery connector onto the jumper in the battery compartment.
2. Be sure the battery connector tab snaps onto the jumper housing to prevent a loss of battery power.

Alkaline Batteries. Press the C-size alkaline batteries into place according to the polarity label on the bottom of the battery compartment (see Figure 11).

NOTE. *The polarity of the alkaline batteries must be correct for the instrument to operate. Always replace all the alkaline batteries at the same time when replacing discharged batteries.*

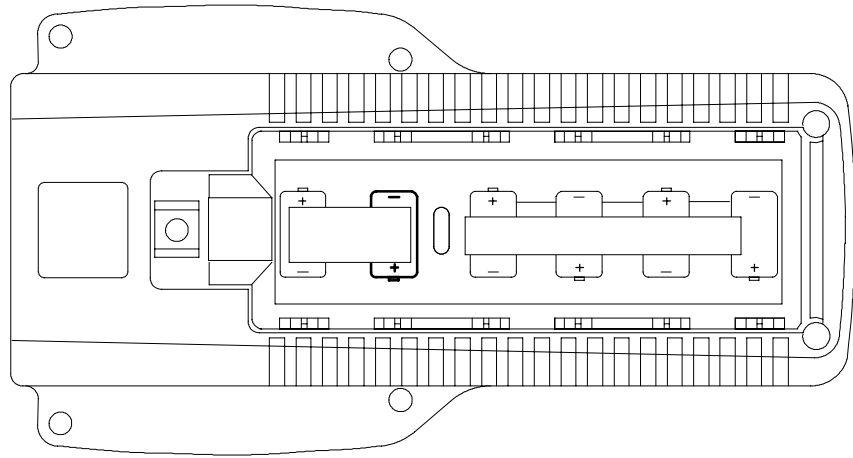


Figure 11: Installed Polarity of alkaline batteries

Battery Cover. Replace battery cover as follows:

1. Place the lower lip of the battery cover into the instrument housing and press the top portion of the cover into the instrument (see Figure 12).
2. Secure the battery cover by turning the turnlock stud 1/4-turn clockwise.

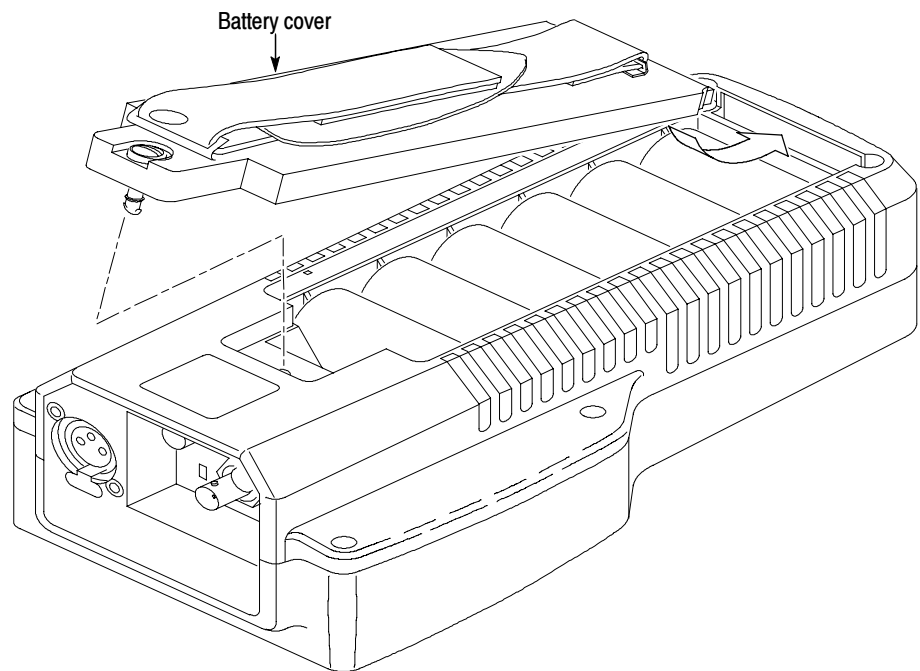


Figure 12: Installing the battery cover

Verify Operation

After installing a new SDI Interface board, perform the following actions:

Adjust the Instrument (Required)

Perform the *Adjustment Procedures* in the *WFM90D & WFM91D Handheld Waveform, Vector, Picture, & Audio Monitor Service Manual*. This is necessary to ensure that the instrument will perform correctly. Do not select the defaults as instructed near the beginning of the procedure.

Verify Instrument Performance (Required)

To verify instrument performance to specifications, complete the *Performance Verification* procedures in the *WFM90D & WFM91D Handheld Waveform, Vector, Picture, & Audio Monitor Service Manual*.

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