

## Z-Active Probe Deskew Fixture

The Z-Active Probe Deskew fixture (067-1586-00) provides an edge source to time align (deskew) signals at the probe tips. It also provides a method to adjust the offset and gain calibration function for the probes. The fixture supports the Z-Active series oscilloscope probes.

The fixture is powered by one of the USB ports of the oscilloscope. For best results, allow the oscilloscope to warm up for 20 minutes before continuing with these instructions.

Assemble the fixture before using. Mount the circuit board to the fixture base and then install the solder box. Use the screws provided.

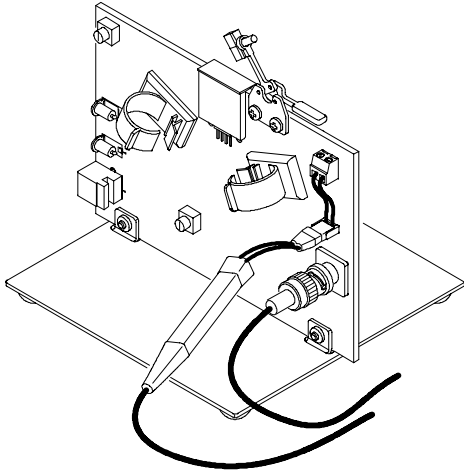
## DC Probe Calibration Procedure

Note the following:

- Perform the DC Cal procedure before the deskew procedure.
- The USB cable does not need to be connected for the DC probe calibration procedure.

### Optimize Gain and Offset Accuracy

1. Connect the probe to the oscilloscope.
2. Connect the DC PROBE CAL output from the oscilloscope to the BNC connector on the deskew fixture.
3. Connect the probe to the fixture as shown.



**NOTE.** Replace the Tip-Clip™ assemblies if damaged or worn.

4. Select **Probe Cal . . .** from the **Vertical** menu.
5. Select the oscilloscope channel to which the probe is attached.
6. Select **Clear Probecal** to erase any previous calibration data.
7. Select the **Calibrate Probe** button.
8. When finished, remove the connections from the fixture.

### Check the Calibration Status

1. Select **Probe Cal . . .** from the **Vertical** menu.
2. Select the channel to which the probe is attached and then check the Probe Status readout:
  - **Initialized.** The probe has not been calibrated on the selected channel; perform the DC probe calibration procedure.
  - **Pass.** The probe has been calibrated on the selected channel.
  - **Fail.** The probe has not been calibrated; repeat the procedure. If the test continues to fail, troubleshoot the problem; do not continue with the deskew procedure.

## Preparing the Tip-Clip Assemblies with the Deskew Fixture

The deskew fixture provides a means to hold the probes and any size Tip-Clip assembly for performing the deskew procedures. Choose one of the following methods for preparing the assemblies for use with the deskew fixture:

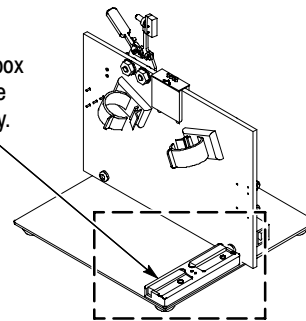
- Use the Tip-Clip assemblies with solder pins to create an assembly for easy handling while performing the deskew procedure.
- Use the Tip-Clip assemblies with either large or small resistors and connect them directly to the fixture.

### Preparing the Tip-Clip Assembly for the Solder Pins

Refer to the following illustrations to prepare the Tip-Clip connectors for use with solder pins on the fixture.

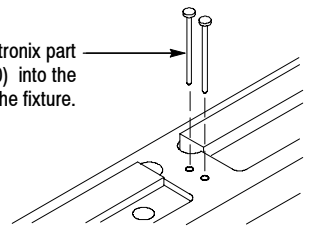
#### Step 1

Locate the solder box for building probe Tip-Clip assembly.



#### Step 2

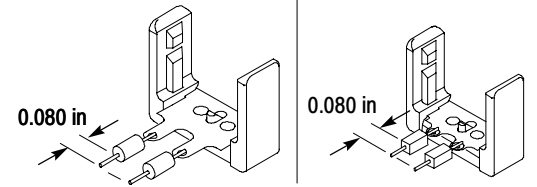
Insert two pins (Tektronix part number 131-7931-00) into the middle of the fixture.



#### Step 3

Medium flex assembly

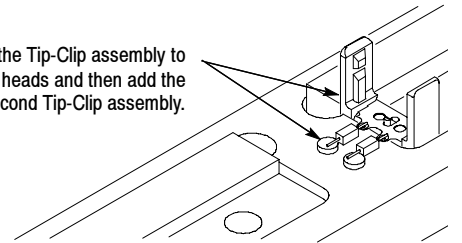
Small flex assembly



Trim resistor leads to 0.080 in.

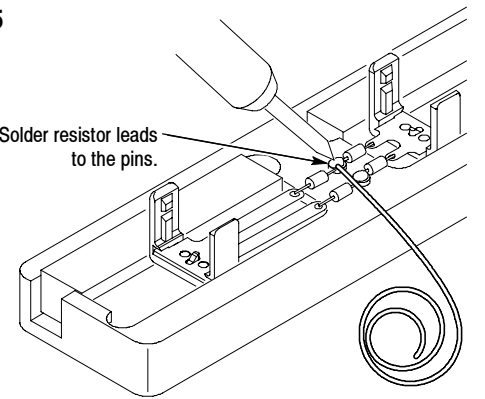
#### Step 4

Slide the Tip-Clip assembly to the pin heads and then add the second Tip-Clip assembly.

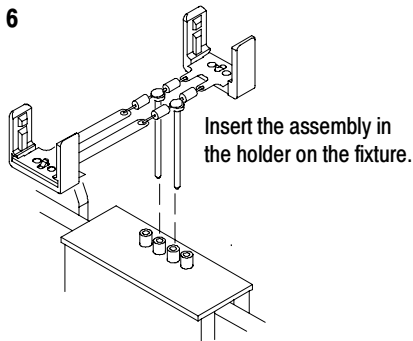


#### Step 5

Solder resistor leads to the pins.



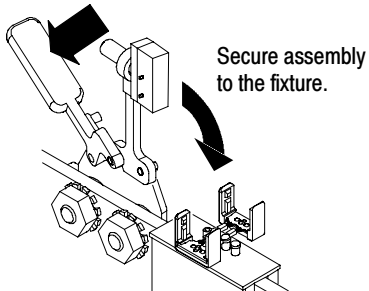
#### Step 6



Insert the assembly in the holder on the fixture.

**NOTE.** To avoid unnecessary wear on the clamp elastomer, leave the top clamp in the open position when not using the fixture.

#### Step 7

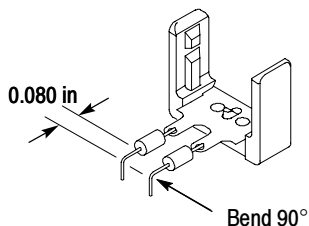


Secure assembly to the fixture.

## Using the Tip-Clip Assemblies with Large or Small resistors

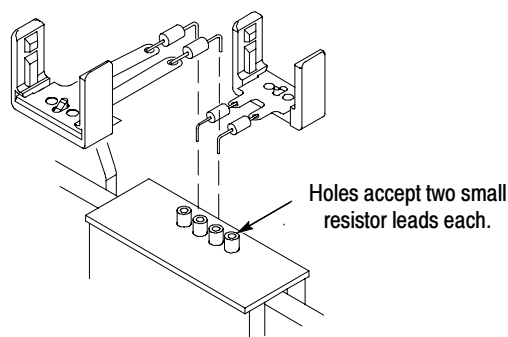
Refer to the following illustrations to use the Tip-Clip assemblies directly with the fixture. Bend the resistors as shown and install the assemblies on the fixture. After performing the deskew procedure, trim the resistors at the bend.

#### Step 1



#### Step 2a

Small resistors

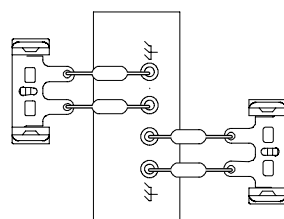


Holes accept two small resistor leads each.

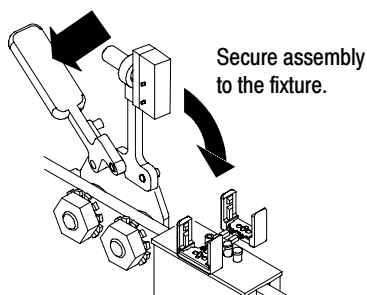
**NOTE.** When using the large resistor assemblies, you must offset the resistors as shown in Step 2b. The resistor leads are too large to insert two of them in the same holes on the fixture.

#### Step 2b

Large resistors



#### Step 3



Secure assembly to the fixture.

## Z-Active™ Probe Deskew Fixture Instructions

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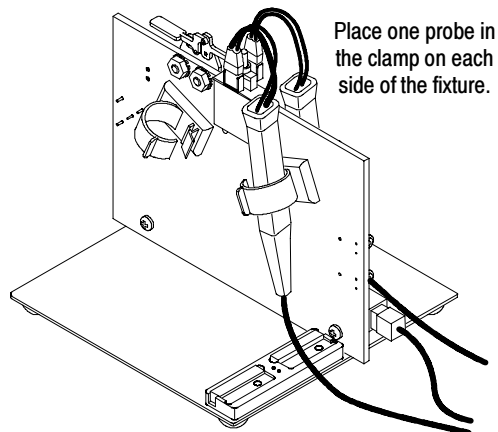
071-1768-00

## Deskew Procedure

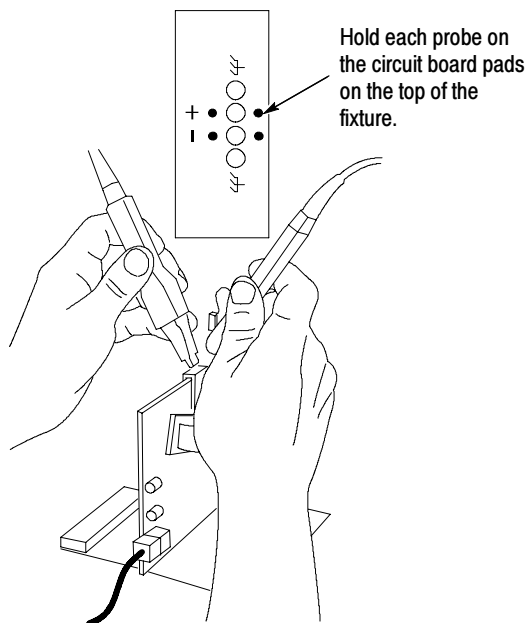
Deskew aligns signals to compensate for differing signal delays from cables of different lengths. The oscilloscope deskew feature applies deskew values after it completes each acquisition. The deskew values do not affect logic triggering. Deskew has no effect on XY and XYZ display formats.

1. Connect the deskew fixture to a USB power source.
2. Connect the probes to the oscilloscope and to the fixture using one of the following steps:

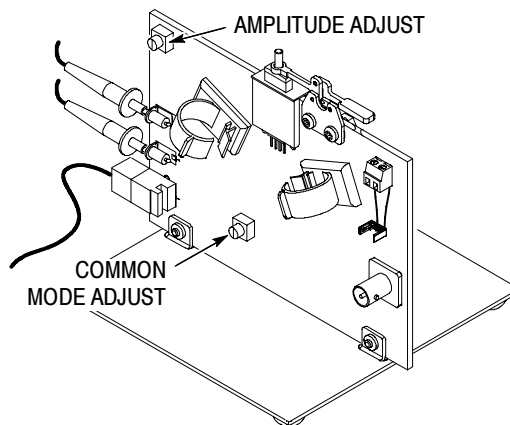
- a. Connect the probes to the fixture using the clamps on the fixture and the Tip-Clip assemblies.



- b. Connect the probes using the hand held adapter.



3. Select a reference channel with which all other channels will be deskewed. This is typically Channel 1, but can vary depending on your setup.
4. Select **Deskew** from the **Vertical** menu.
5. Select **Channel 1** and set the Deskew to **0.0 s**.
6. Display all channels to deskew, including the reference channel.
7. Push the **AUTOSET** button on the oscilloscope.
8. Select **Horizontal/Acquisition Setup** from the **Horiz/Acq** menu and then select the **Acquisition** tab. Select **Average** and **# of Wfms 16**.
9. Adjust the trigger level to get a stable trigger.
10. (Optional) Use a voltmeter to measure the deskew signal common mode voltage for your application at the Common Mode Out terminals. Adjust the voltage using the **COMMON MODE ADJUST** control on the fixture.
11. (Optional) Adjust the deskew amplitude for your application on the oscilloscope display using the **AMPLITUDE ADJUST** control on the fixture (probes not shown).



12. Adjust the vertical **SCALE** and **POSITION** (with active probes, adjust the offset as needed) for each channel so that the signals overlap and are centered on screen. Make sure all channels being deskewed are at the same volts/div setting. Deskew the channels at the same level as your planned signal measurement.
13. Adjust the horizontal **POSITION** so that a triggered rising edge of the reference channel is at center screen.
14. Adjust the horizontal **SCALE** so the differences in the channel delays are clearly visible.
15. Adjust the horizontal **POSITION** again so that the first rising edge of the reference channel is at center screen.
16. Select **Deskew** from the **Vertical** menu.
17. Select one of the channels to match to the reference channel.

**NOTE.** Do the next step at a signal amplitude within the same attenuator range (vertical scale) as your planned signal measurements. Any change to the vertical scale after the deskew is complete can change the attenuator setting and give a slightly different signal path. This signal path difference can cause as high as 100 ps variation in timing skew between channels.

18. Adjust the deskew time for that channel so that its signal aligns with that of the reference channel.
19. Repeat steps 17 and 18 for each additional channel that you want to deskew.

## Equipment Recycling

This product complies with the European Union's requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). For information about recycling options, check the Support/Service section of the Tektronix Web site ([www.tektronix.com](http://www.tektronix.com))

## Warranty Information

For warranty information, go to [www.tektronix.com](http://www.tektronix.com), click Support, and then select Look Up Tektronix Warranty.

## Contacting Tektronix

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For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit [www.tektronix.com](http://www.tektronix.com) to find contacts in your area.