Circuit Board Jumper Wire Repair Instructions

This guide will help you repair a damaged circuit board if

Please read this guide completely at least once before you attempt to fix your TV. You may also want to print the document out. To do so click the "print" icon at the top of this article.

Keys to Success

1) Do not rush - Take your time
2) Before creating a jumper make sure its in the correct spot.
3) Use a flashlight to illuminate the traces.

Icons used in this document

⚠️ Tip
This icon is used to indicate tips or tricks that will make the repair go smoothly

⚠️ Important
This icon is used to point out important items such as safety precautions

⚠️ Additional notes
This icon is used to highlight additional notes.

Disclaimer
The procedures described in this document require access to
potentially dangerous voltages, proximity to the CRT and its implosion risk, and other possible dangers lurking inside a television set. We will not be responsible for personal injury resulting from attempting these repairs nor damage to the equipment that may result from lack of soldering experience or inadequate de-soldering or soldering equipment.

Step 1

**Circuit Board Basics**

First - Before you attempt to repair your board it's important to understand how individual items are connected in the first place.

Take a look at the example circuit board below. Each of the black lines on the board are called "Traces". Traces connect one item on the board to another.

To keep things simple you can think of a trace like a wire only its flat and adhered to the circuit board.

A circuit board trace will be made of copper foil that is adhered to the board. On a circuit board the traces will commonly be coated in green. Much like wire is coated with a rubber shield. Where the parts on the board are soldered to the trace the green will be removed and the copper foil will be exposed. As an example all of the traces below are covered except for the circles at the ends. This is where your solder. For more details you can read this article on [WikiPedia](https://en.wikipedia.org/wiki/Circuit_board_trace).
Now that you understand the basics of foil traces take a close look at the photo below. In this photo you will notice that two of the metal foil traces are damaged.

If you look closely you can see that the foil has torn off and has exposed the underside of the board. See the arrows! Only about half of the foil is left. In some cases there is not enough here to make a solid connection when you solder it so this would need to be repaired as shown in the next steps below.

![Image of damaged foil traces](image1.png)

**Step 2**

Now take a look at the below example. To repair the broken Trace you would need to first "trace" it from the pin to the next destination on the board. Once you know where it starts and stops you can then jumper it with a wire. See the example photo below. In this photo to repair these two pins you would simply solder a small wire from the pin to the next spot on the board. The "yellow" line below represents the wire you would solder. By soldering the wire in this manner you have in essence recreated the foil path above the board. Note that its very important to make sure you correctly followed the original path of the foil when fixing broken/bad traces.

![Image of repaired trace](image2.png)

When repairing traces use small wire such as 30AWG. This can be found at Radio Shack.

**TIP**

*For hard to follow traces you may have to refer to the schematics or shine a flashlight through the board to highlight the metal foil paths.*