

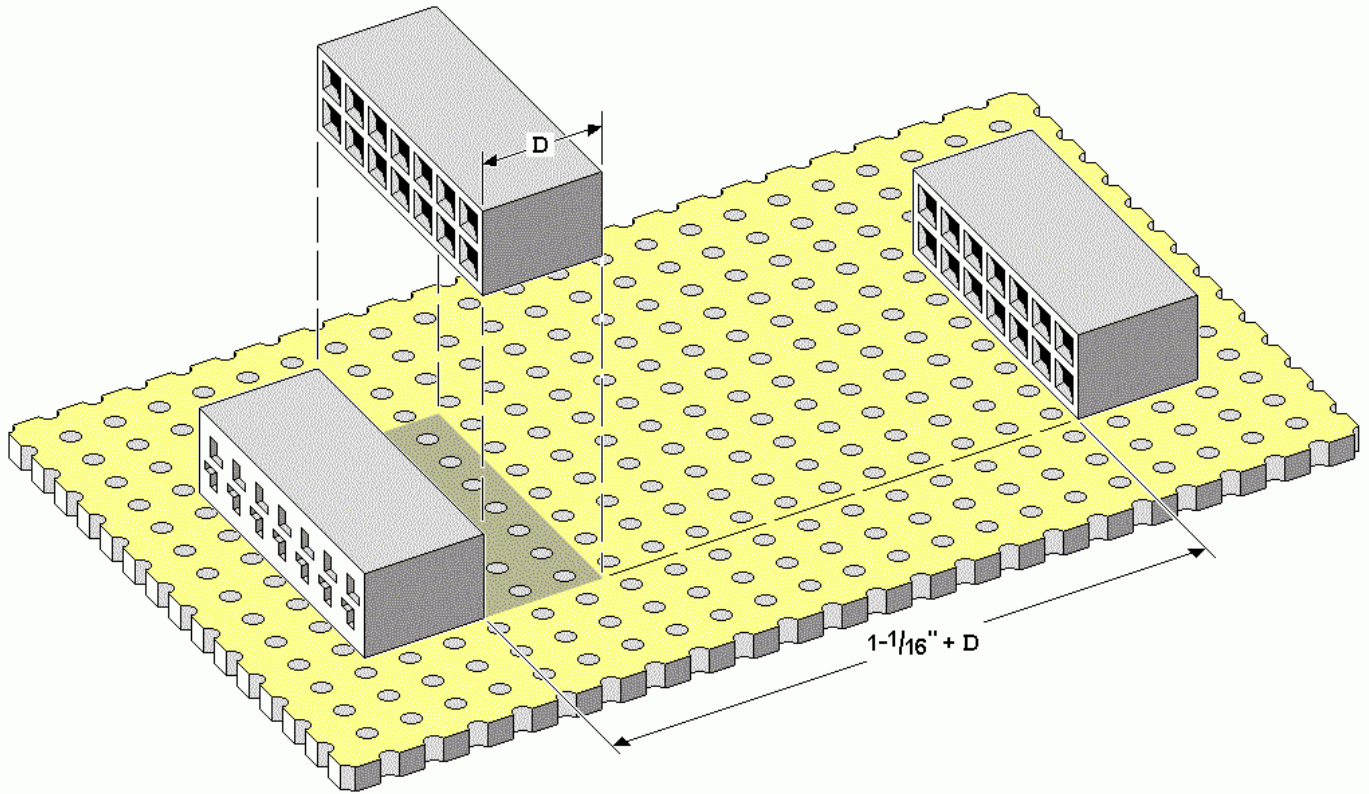
## AN IMPROVED POGO PIN ADAPTER

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These instructions provide a better way to build a Pogo Pin Adapter than previous instructions, resulting in more accurate alignment, easier soldering, and a neater appearance.

The first step is to make a simple assembly fixture as shown in Figure 1. The base can be a piece of plastic, a small wooden board, or a piece of perf board about 1-1/2" x 2-1/2" or larger, anything flat that you can glue to. You'll need



**Figure 1. Assembly Fixture**

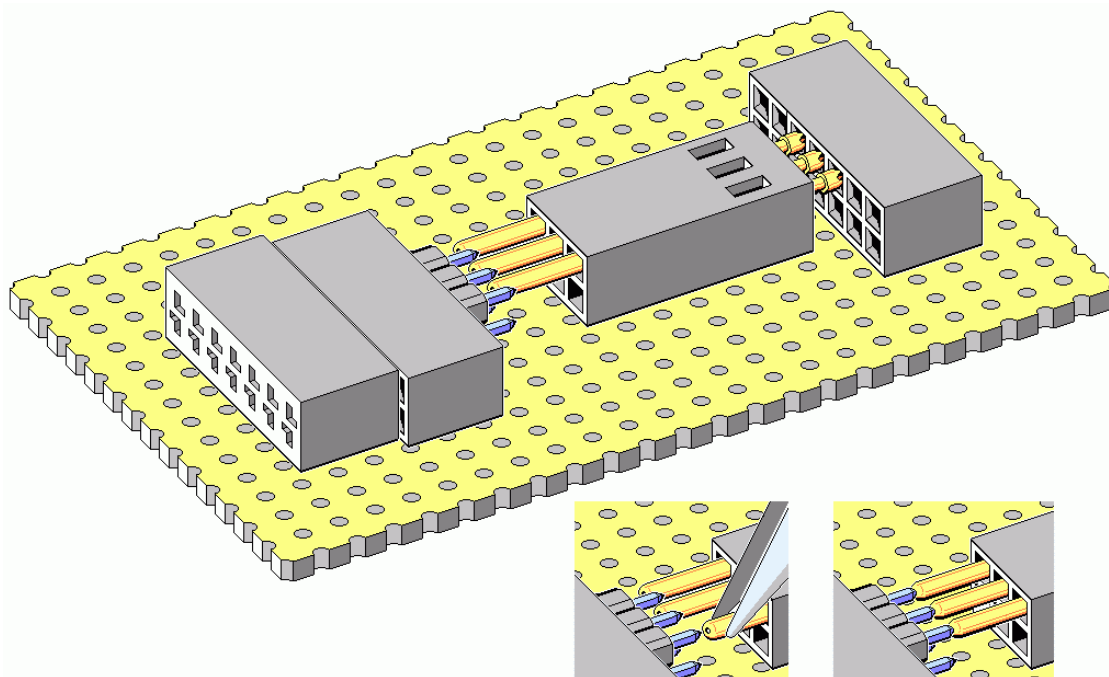
one 6-pin, double-row header just like the JP1 connector, such as Mouser Stock No. 649-69192-406 or equivalent. You'll also need three IDC connector housings and a few drops of super glue. The length of the connectors is unimportant, and they don't even have to all be the same length. Throughout these instructions, the side of the connector housing that has small square funnels to guide header pins into the contacts is referred to as the "front" of the connector, and the side that has the insulation piercing barbs sticking out is referred to as the "back" of the connector.

These instructions are based on using six IDI type SX-2-X-4-G pogo pins, which are 0.970" overall length with a barrel diameter of 0.054". Information is given later on how to modify the design to use other pogo pins.

Remove the contacts from all three connectors by pulling on the barbs with pliers. Mark two parallel lines on the base separated by a distance of 1-1/16" plus the depth "D" of the loose connector (usually 1/4" or 5/16"). Cement two housings to the base with their fronts lined up on the marks and facing each other. The connectors don't have to be aligned as far as contact positions are concerned. They just have to be reasonably parallel and the right distance apart. Use a very small amount of super glue so you can pop the connectors loose to re-position them if necessary.

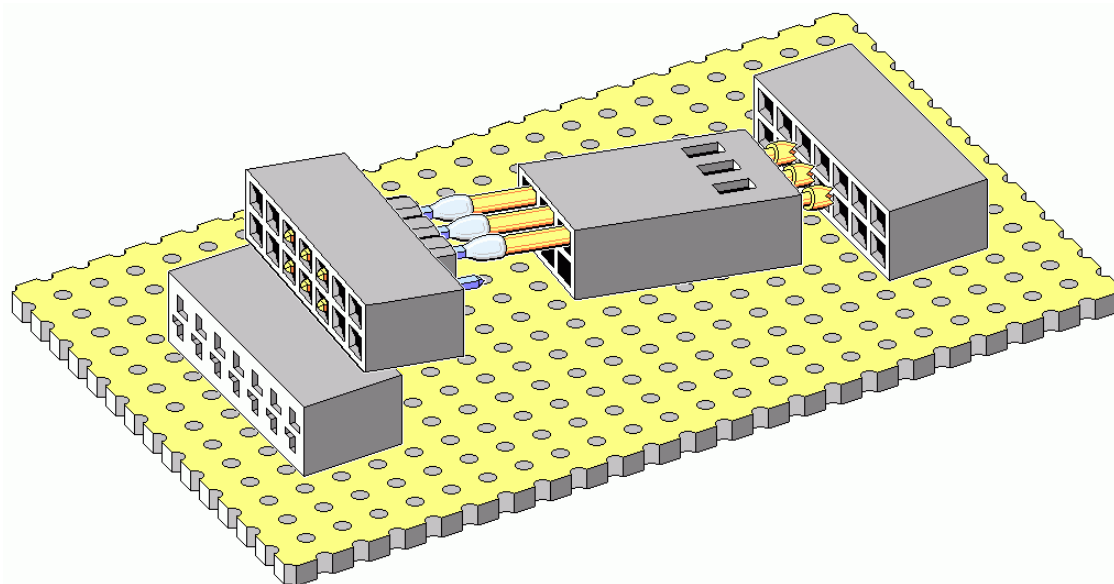
The body of the Pogo Pin Adapter is made from an empty 6-position, double row, female connector housing with 0.100" x 0.100" centers, such as the AMP AMPMODU series connectors, Mouser Stock No. 571-874562 or equivalent. This connector housing is about 5/8 inch long, and normally accepts snap-in contacts after they are

crimped onto wires. We don't use any contacts. Drill out all six positions of the housing from the front side using a #54 drill bit (0.055" diameter). There's so little material to be removed you can just twist the drill between your fingers or use a pin vise.



**Figure 2. Positioning the Upper Row of Pins for Soldering**

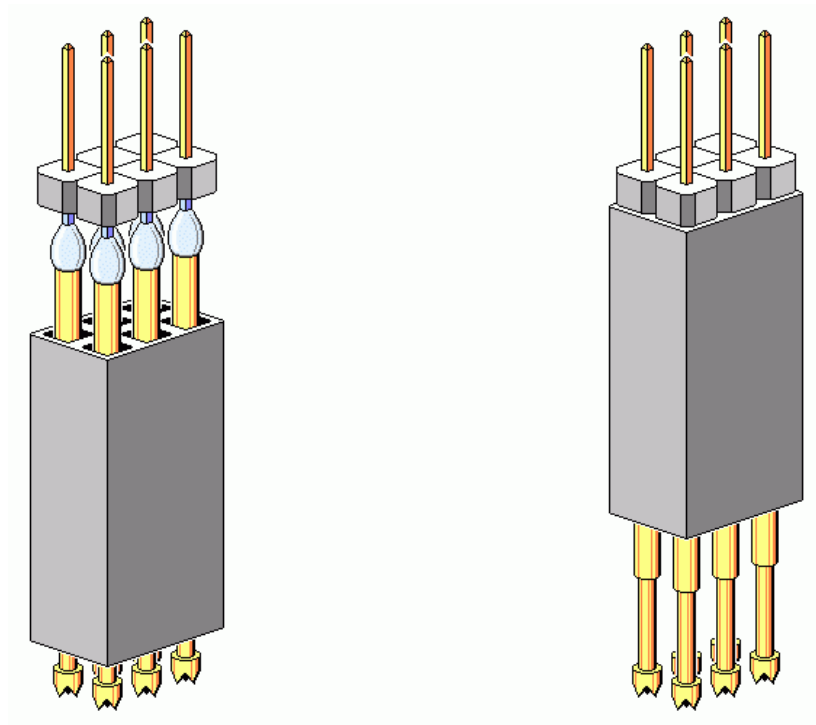
(Refer to Figure 2.) Insert the header into the **rear** of the loose housing and butt that against one of the fixed housings on the fixture so that the solder pins of the header point toward the fixed housing at the other end. Insert three pogo pins into the front of the adapter body and place it on the fixture so that the probe tips are centered in three positions of the stationary housing, and the tails are lying loose beside the header pins. Grasp the tail end of each pogo pin with a pair of tweezers or long nose pliers, compress the pin, and place the hole over the pointed tip of a header pin. Slide the header until the pins are lined up straight and perpendicular, then solder all three pins.



**Figure 3. Removing Adapter from Assembly Fixture**

Compress all three pins so the loose housing will lift free of the fixture, as shown in Figure 3. Turn the adapter assembly over, insert three more pogo pins, and repeat the above procedure.

When you remove the completely soldered adapter from the fixture the housing will be hanging loosely on the probe tips because the necks of the plungers are smaller than the drilled holes. Use the following procedure to start the barrels back onto the holes. Hold the unit with the header pins on a table and press down gently on the housing while wiggling the probe tips one at a time to center them in their cavities. You may feel a slight "click" when one pops into its hole. When they are all lined up the housing will slide down over the barrels of the pogo pins.



**Figure 4. Completed Pogo Pin Adapter**

Slide the housing all the way against the header to be sure none of the solder joints is too large for its cavity. Then withdraw it about  $\frac{3}{16}$ ", place a small amount of epoxy cement (or your favorite glue) into a few of the cavities, and slide it back against the header, as shown in Figure 4.

If you are building the adapter using another length pogo pin you will have to adjust the dimensions of the assembly fixture accordingly. For example, another possible pin is the IDI type S-25-H-4-G, which is Allied Electronics Stock No. 228-2508. This pin has an overall length of 1.310" rather than 0.970", so the distance between the fixed housings on the base should be  $1\text{-}\frac{7}{16}\text{' + D}$  instead of  $1\text{-}\frac{1}{16}\text{' + D}$ . Other than that, the assembly procedure is the same.