



Converting a Linear Controller to a Rotary Controller

P/N 88020/88030 and 87105

Linear to Rotary or Rotary to Linear Control Change

NOTE: These instructions are for DIY customers. If you choose to make the changes shown in these instructions, your controller will no longer be covered by our Sherline Products warranty.

Removing the Chips on the Control Board

If you have a Linear or a Rotary Controller and you want to change it to the other control, do the following.

1. Disconnect the power cord from the controller (NO POWER).
2. Remove the (4) screws on the back that hold the control housing together.
3. Open the controller.
4. Remove the digital display card by pulling it up and out of the multi-pin outlet (see Figures 1 and 2).

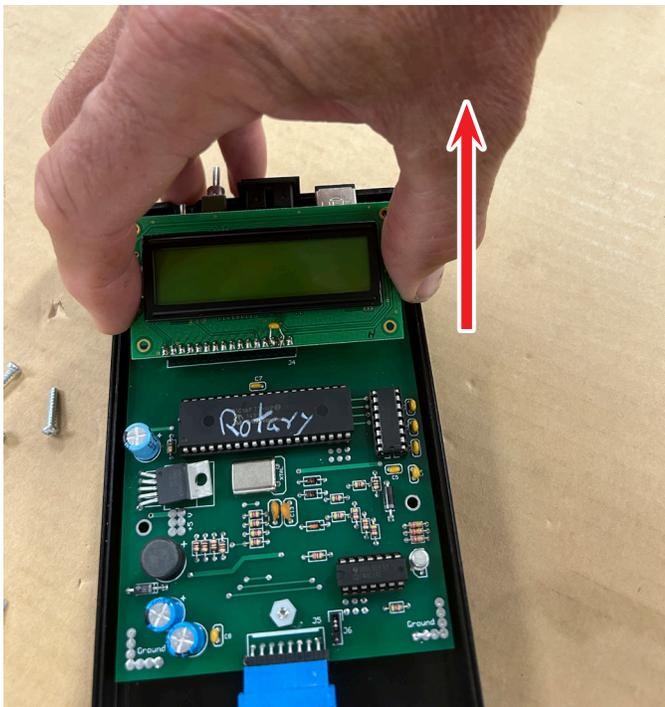


FIGURE 1



FIGURE 2

5. Now you need to pry the Firmware Chip (see A and B below) and the EE Prom Memory Chip up and off the board by following the instructions for the DRO Chip Replacement ([81705_dro_upgrade_inst.pdf](#)) (see Figure 3).

- A. Programmed Linear Chip (P/N 87015)
- B. Programmed Rotary Chip (P/N 87031)
- C. EE Prom Memory Chip (P/N 87030)

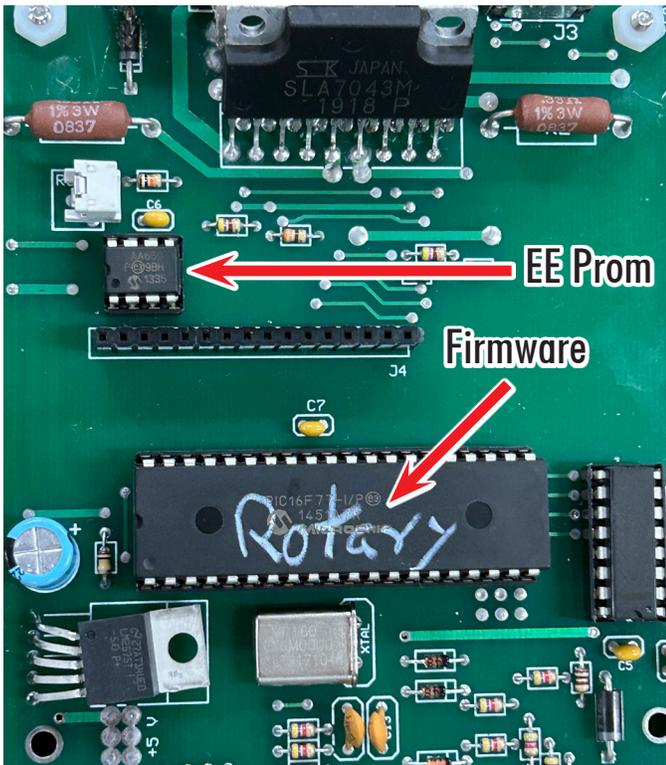


FIGURE 3—The red arrows show the locations of the EE Prom and Firmware chips.

NOTE: The following steps are from our DRO Chip Upgrade instructions but apply to replacing any chip.

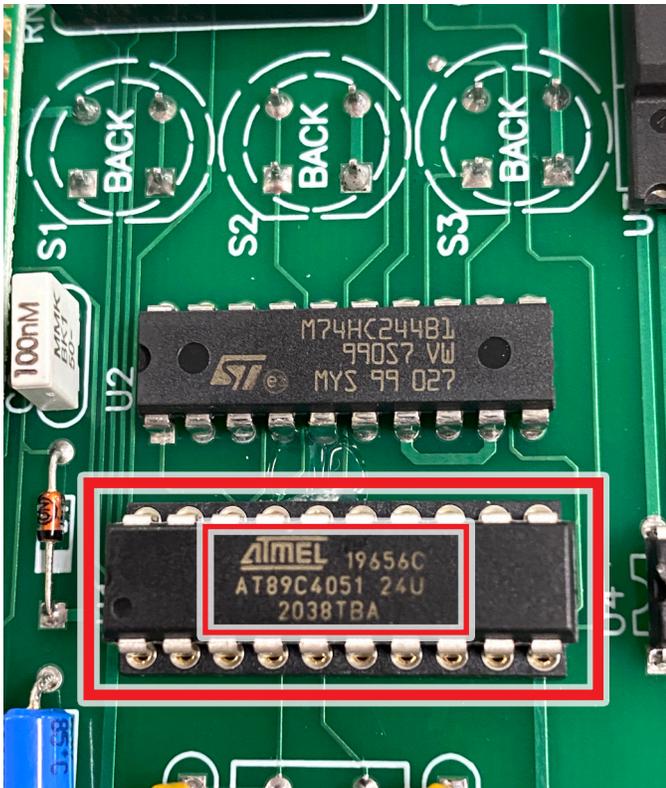


FIGURE 4—The original chip is circled in red. Note the orientation of the printed text on the chip.

- Remove the original chip by sliding a straight blade jeweler’s screwdriver between the bottom of the chip

and the top of the chip mount on the board and “gently” pry it upwards. Insert the screw driver alternately on both ends of the chip and pry it upwards a little bit at a time until the chip is free from the board (see Figure 5).

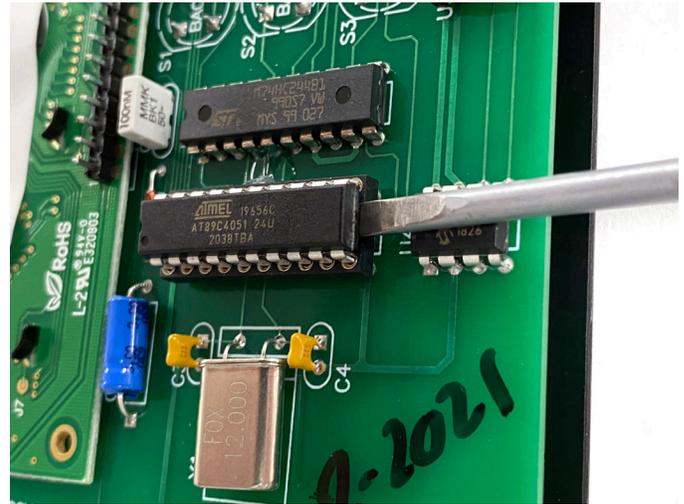


FIGURE 5

- Place the original chip away from the control board so it doesn’t inadvertently get mistaken for the new chip. The chip number and logo on the new chip may be the same as the original chip.
- Place the new chip on top of the connector on the board and make sure that the chip pins on both sides of the chip align with the holes on the board (see Figure 6).

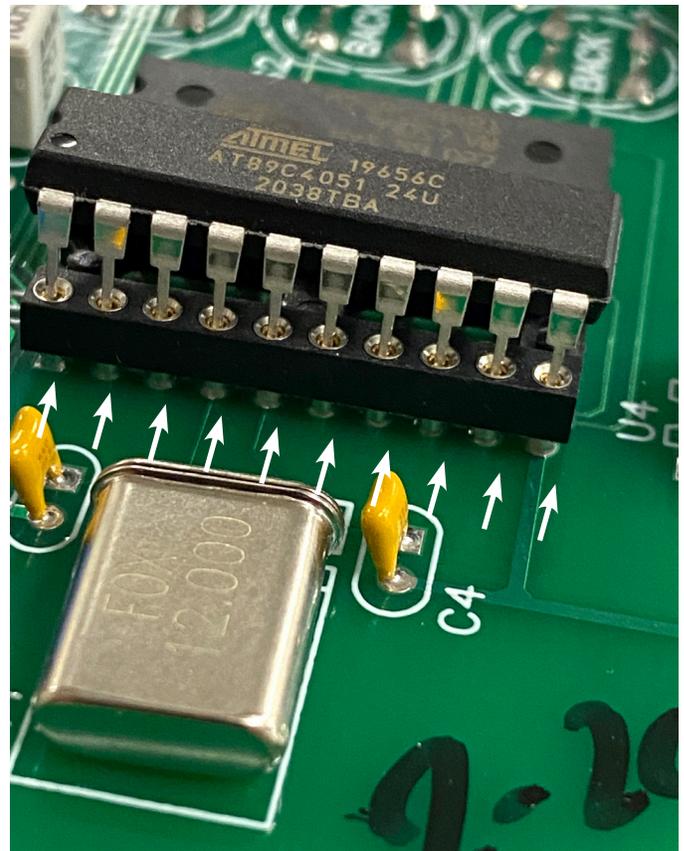


FIGURE 6—The white arrows show the pin-to-hole alignment.

- If the pins need to be bent in a little to align better with the holes, place the chip on its side on the table and gently push down on the chip to bend the pins inward (see Figure 7).

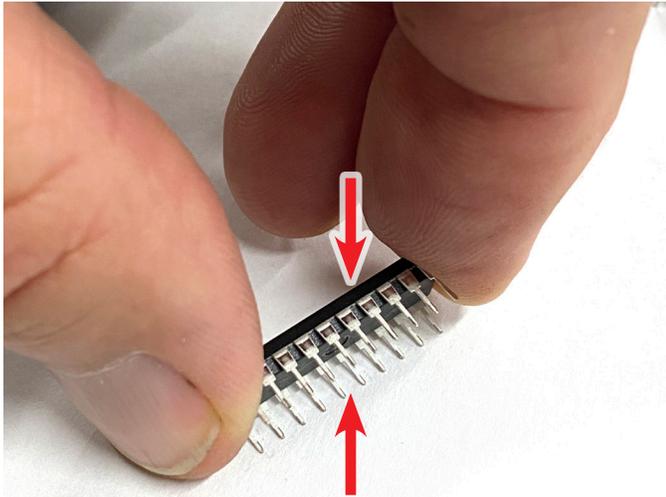


FIGURE 7—The red arrows indicate the direction and force necessary to bend the pins.

Installing the Chips on the Control Board

- The Firmware chip must be inserted onto the board with the indent dot in the bottom left corner aligned with the bottom left corner of the U3 board outlet (see Figures 8 and 9).

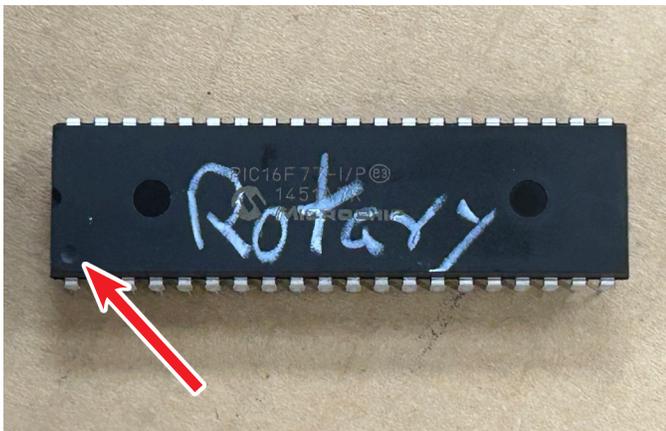


FIGURE 8—The red arrow shows the location of the indent dot.

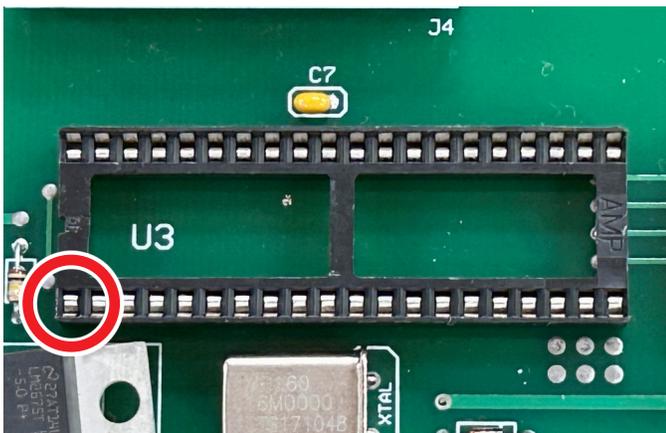


FIGURE 9—Align the indent dot with the pin receptor as indicated by the red circle.

- With the chip pins aligned to the mating holes, gently push down on the chip. First push in the middle of the chip. Then push on each end of the chip until the chip is fully seated on the board connector (see Figure 10).

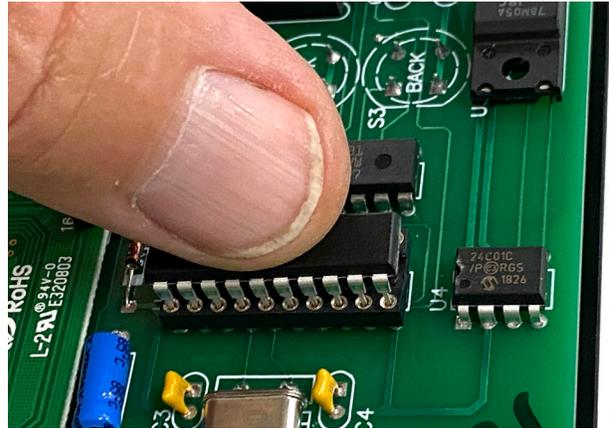


FIGURE 10

- When the chip is fully seated on the board, it will look like the picture in Figure 11. Check both sides and make sure that the chip orientation is correct with the letters and numbers facing in the direction as shown below.



FIGURE 11—The red circle shows the indent dot on the Firmware chip.

- The EE Prom memory chip is installed the same way. Be sure that the indent dot in the bottom left corner of the chip is aligned with the bottom left corner of the outlet (see Figure 12).

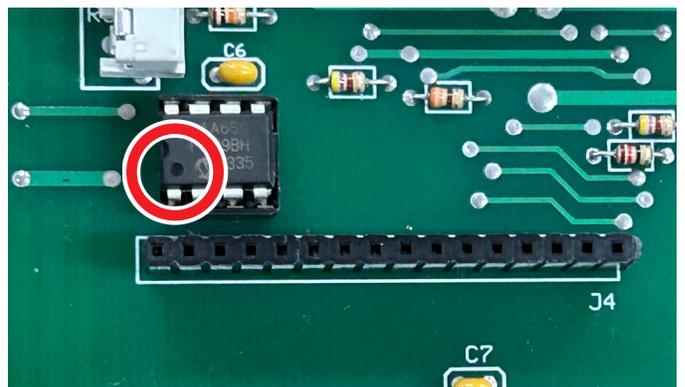


FIGURE 12—The red circle shows the indent dot on the EE prom chip.

Thank you,
Sherline Products Inc.