

PrintCapture & Tektronix 370* Curve Tracer

(*Only tested on model 370 and not 370A/B)

Technique #1 – Use Parallel-to-Serial Converter

This technique was provided by Gary F., one of our customers. It outlines the things he learned as he configured his Tek 370 to work with PrintCapture. Thank you Gary F.!

Hardware Used.

1. 232SPS2 Parallel-to-Serial Converter and 232PS Power Supply for Converter. Manufacturer: B & B Electronics <http://www.bb-elec.com>.
2. Centronics 36 pin to DB25 straight-through printer cable.
3. DB25 to DB9 straight-through serial cable.
4. Diode

Tek 370 Plotter Port

You must use a modified centronics printer cable that will be attached to the Tek 370 plotter port.

Background: The Tek 370 Curve Tracer has one plotter port on the back panel for printing. To print the user must select the PLOT button on the 370 front panel. Any failure will be show as PLOTTER FAIL on the 370 screen. The plotter port is a female 36-pin centronics connector and functions similar to a PC printer port with the following exceptions.

- After a power cycle and only on the very first plot the 370 will attempt to initialize the device attached to the plotter port by setting a low pulse of about 25uS on the signal **-INIT** (Centronics Pin31).
- The 370 then waits for an acknowledge from the device on the signal **-ACK** (Centronics Pin10). The problem with this is that it appears that manufactures may have stopped supporting this initialization startup protocol long ago.

The solution was to add a diode from the **-INIT** signal to the **-ACK**. This seems to fool the 370 well enough. After a power cycle only the very first plot will fail after timing out but all other plots appear to capture normally.

How to Modify

1. Attach the ANODE side of any standard DIODE to Centronics Pin10 and the CATHODE to Centronics Pin31.

Parallel to Serial Converter Dip-Switch Setup

232SPS2 Parallel-to-Serial Converter and 232PS Power Supply for Converter are used. Manufacturer: B & B Electronics <http://www.bb-elec.com>

1. Don't try to use the parallel-to-serial converter in port-powered mode. Port-powered mode uses the serial port's DTR and RTS signals for power and we need those signals for hardware flow control. Always use the 232PS external power supply instead.
2. Set the parallel-to-serial dip switches like this
 - SW1 = ON. This sets baud rate to 152000.
 - SW2 = ON. This sets baud rate to 152000.
 - SW3 = ON. This sets baud rate to 152000.
 - SW4 = ON. This sets hardware flow control to DTR/DSR.

- SW5 = OFF. This sets the data word length to 8 bits.
SW6 = OFF. Parity NONE
SW7 = Don't care. Parity NONE.
SW8 = ON. This sets the conversion to parallel to serial.
3. You must use a straight-through serial cable (DTE-to-DCE) between the parallel-to-serial converter's serial port and the serial port used by PrintCapture.

PrintCapture's Serial Port Parameters (www.printcapture.com)

Startup PrintCapture and go to Setup> Configuration> Serial Port:

1. Port: Pick the COM port that is connected to the parallel-to-serial converter.
2. Baud Rate: Select 152000
3. Word Size: Select 8
4. Parity: NONE
5. Stopbits: 1
6. Flow Control Handshake: DTR/DSR
7. Flow Control: Automatic
8. End-of-Data Processing Timeout: Set to about 5 seconds.

Setup any of the parameters you desire such as where you want the files saved, auto increment, file format such as GIF...

How To Print

To capture, simply hit the PLOT button on the Tek 370. PrintCapture will begin to capture it to both screen and file. Don't forget, the very first plot only AFTER a power cycle will fail. All other plots will capture fine. So simply wait for the first plot to fail (the 370 will display Plotter Fail on its screen) then hit the PLOT button a second time to capture the plot. All plots following will work normally.

Technique #2 – Use Prologix GPIB-to-USB Converter.

This technique was provided by Glenn B., one of our customers. Glenn had trouble using Technique #1 presented above. Thank you Glenn B.!

I had been trying to use the parallel port solution suggested by one of your customers, Gary F., for using PrintCapture with our Tektronix 370 Curve Tracer to no avail. I came across a printed copy of the Tek 370 Instrument Interfacing Guide (070-6070-00), dated January 16, 1987, which is not available in PDF format from Tektronix. I found a “Manual Change Information” sheet in the back of this manual which states the following: “Waveform and readout data can be sent for plotting via the GPIB interface. This function operates when the instrument address is 31.”

I set the instrument address to 31 and connected my Prologix USB/GPIB converter setup as Device Address 5 to the curve tracer. This setup allows me to use PrintCapture with our Tek 370 without a special parallel interface cable with a diode between INIT and ACK signals. The plot button on the curve tracer is used to invoke the plot just as it is with the serial/parallel converter. The Prologix interface is \$149 while the B&B parallel to serial converter is \$109, the \$40 difference is worth it to have a reliable interface that does not fail on the first print since power up.