How to build and use a video probe

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Topic: How to build and use a video probe
Posted: 29 Nov 2010 at 10:30pm

This first part explains how to build the video probe. The basic schematic is shown below:

Location: USSR
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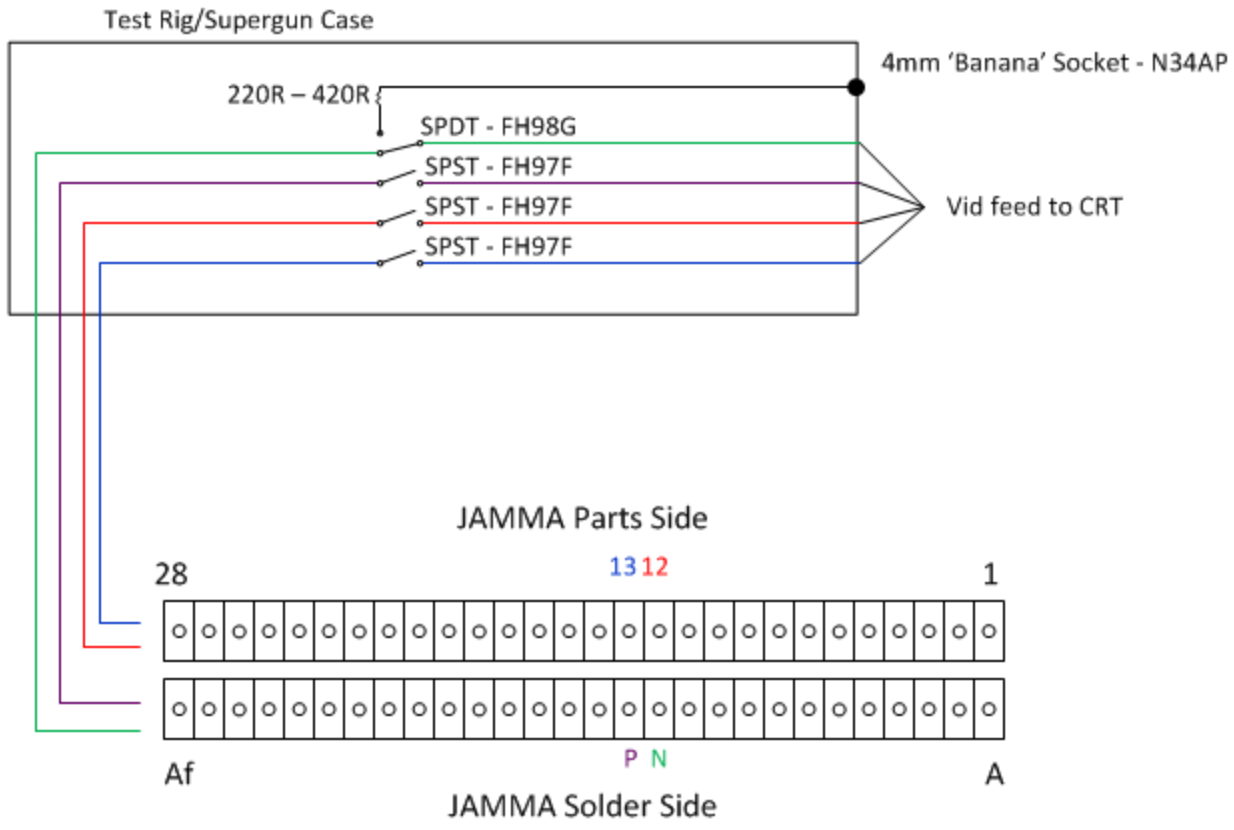

As you can see, you intercept the Red, Green, Blue & Sync lines from the JAMMA connector and wire them to switches. For Red, Blue & Sync the switches are Single Pole-Single Throw. This allows either the signal to transfer from the JAMMA connector out to

the video output (passthru mode), or to disable each individual line from the video output (cut-off mode). This is used for selectively dropping out colour channels when using the probe or otherwise needing to remove a colour channel. You can also drop the Sync which isn't initially very useful (the monitor will lose display) but is used later on.

The Green line is different. It uses a Single Pole-Double Throw switch. One side is wired to the green feed from the JAMMA connector, the other side is wired to the banana plug which is mounted on the supergun case. When the switch is in one position (passthru), the JAMMA green input will be routed to the video output as per normal. In the other position (probe input) the signal coming from the banana plug/test probe is routed to the video output via a resistor of 220R to 420R (experiment to see what works best on your display).

In this probe-input mode, the test probe connected to the banana plug is now driving the green gun on the video display. As long as the Sync switch is in the "passthru" position, any signal provided via the test probe will be synchronised to the raster allowing you to see the signal overlaid onto the normal video output.

The switches are also mounted on the supergun case but the schematic doesn't show this (it made it messy).

Picture of the side of the supergun showing the switches and alternate green input.

Picture showing the internal wiring (needs tidying, but this document was requested urgently).

Essentially, this modification allows you to replace the green drive to the monitor with a signal of your choice - that from the JAMMA connector, or wherever you're placing your probe.

The next post in this article explains how to use the probe, but for now just probe away. Useful points to look at are any type of multiplexer/de-mux, especially near graphics roms or major graphic generating sections of the PCB. As long as you don't start probing 12V lines then you can't really damage anything although all responsibility is that of the individual using the equipment.

This is also a poor-mans oscilloscope in that you can look at busses to see a much larger window of activity than you would on 'scope due to the time duration of a video screen refresh.

As this is much requested, the accompanying text isn't 100% polished so I'll be back to edit this later. All part numbers are from the UK Maplin website. A suitable probe to fit the 4mm banana socket is http://www.maplin.co.uk/moulded-4mm-test-probe-leads-5665 (part num HF33L)

A discussion thread for this post is at:
http://www.ukvac.com/forum/forum_posts.asp?TID=328757&title=video-probe-tutorial-discussion-thread

Edited 25-01-2011 to include probe part number.

Edited by trmatthe - 25 Jan 2011 at 9:01pm

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