

MVP-24X CALIBRATION (Rev B)**WARNING!**

**DANGER OF ELECTRIC SHOCK IF THE UNIT IS OPERATED
WITH THE TOP COVER REMOVED.**

**THE SWITCHING POWER SUPPLY HAS HIGH VOLTAGE ON EXPOSED COMPONENTS.
USE EXTREME CAUTION.**

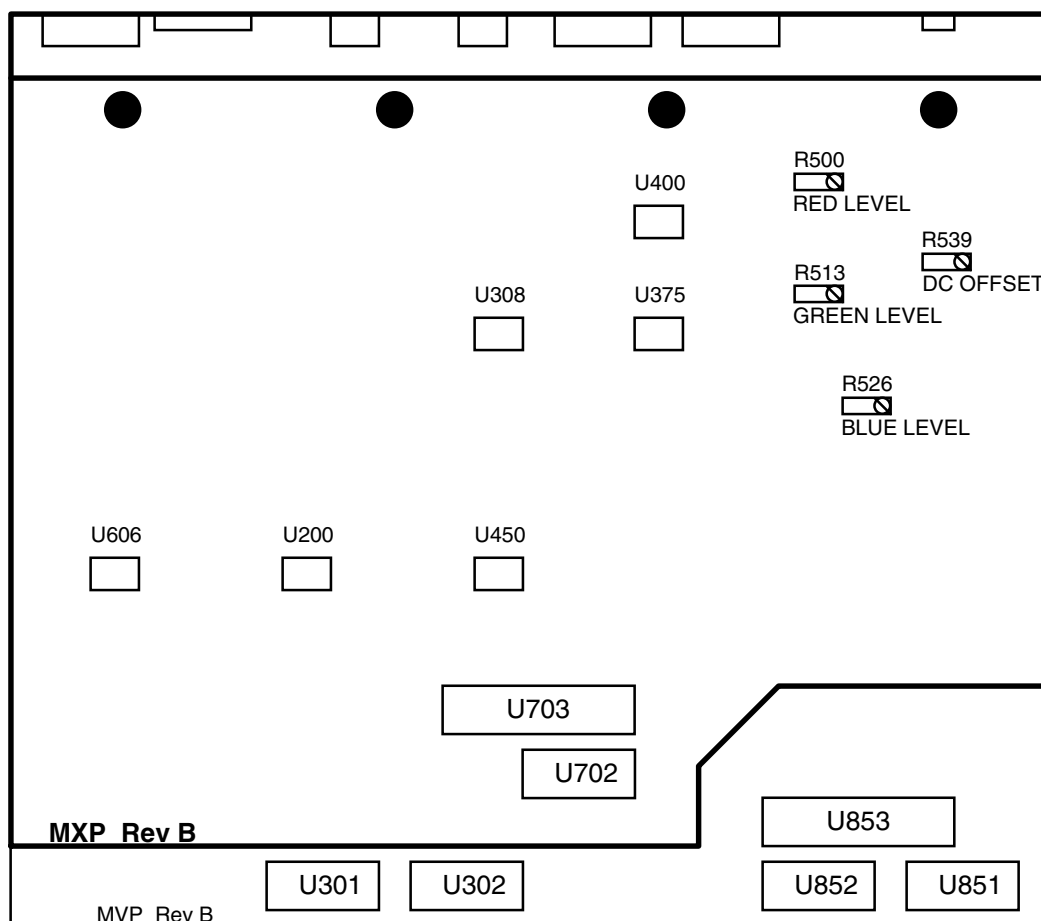


FIGURE 1 - MVP-24X COMPONENT LOCATIONS.

EQUIPMENT REQUIRED:

Test Signal Generator

Oscilloscope

Waveform Monitor

Vector Scope

VGA breakout cable - 15-HD connector to 5 BNC connectors

CALIBRATION SETUP:

Before calibration, perform the following steps:

- 1 - Recall DEFAULT settings
(MENU ENABLE + PRESETS;
Select "Recall Settings from #0 [DEFAULT]"
Press +/- to enter selection.)
- 2 - Enable FAN at speed = +4.
(FAN)
(MENU ENABLE + FAN ;
Select "FAN Speed: +4 ")
- 3 - Set MVP-24X to DUAL MODE
(MENU ENABLE + MODE;
Select "Mode: Dual Vid&VGA"
Push knob to enter selection.)
- 4 - Enable Color Bars of MVP-24X Test Signal Generator
(TEST SIGNAL GENERATOR)
(MENU ENABLE + TEST SIGNAL GENERATOR ;
Select "Test Signal: [COLOR BARS]"
Select "Test Signal Levels: Fixed at Unity")
- 5 - Set MVP-24X OUTPUT at 29.970
(MENU ENABLE + OUTPUTS/FRM RATE;
Select "OUTPUT RATE: 29.970"
Push knob to enter selection.)
- 6 - Set VIDEO OUT FORMAT to R/G/B
(MENU ENABLE + OUTPUTS/FRM RATE;
Select "VIDEO OUT FORMAT: [R/G/B]")
- 7 - Set internal WRITE PROTECT/ENABLE switch to "WRITE ENABLE".
(located inside unit on front panel board, near adjustment knob.)

VIDEO INPUT/OUTPUT LEVELS CALIBRATION:

(Be sure the unit has been powered at least 20 minutes with the top cover in place.)

To Access calibration menus:

- 1 - turn off power switch.
 - 2 - Press both the + and - buttons while turning on the power switch.
Continue to press the + and - buttons until the default screen appears on the display.
 - 3 - The calibration menus are located at MENU ENABLE + MODE
- When finished calibrating, turn off power. Menu values are automatically stored.

OUTPUTS: for output calibration, enable MVP-24X Colorbars Test Signal Generator.
Use Vid2 output to externally sync monitors and scopes.

Y/G DAC Output:

Video Out Format = R/G/B

Waveform Monitor = Y/Y/G Output

Oscilloscope = Y/Y/G Output

Menu = Y/G-DAC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Menu = Y/G-DAC offset

Adjust Menu to position back porch at exactly 0 volts DC on oscilloscope.

R/B DAC Output:

Video Out Format = R/G/B

Waveform Monitor = Vid1/R-Y/R Output

Oscilloscope = Vid1/R-Y/R Output

Menu = RB-DAC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Menu = RB-DAC offset

Adjust Menu to position back porch at exactly 0 volts DC on oscilloscope.

Beta DAC Output:

Video Out Format = YRB-Beta

Oscilloscope = Vid1/R-Y/R Output

Menu = Beta-DAC Level

Adjust Menu for exactly 700 mV p-p amplitude on oscilloscope.

Menu = Beta-DAC offset

Adjust Menu to position blanking at exactly 0 volts DC on oscilloscope.

EBU DAC Output:

Video Out Format = YRB-EBU

Oscilloscope = Vid1/R-Y/R Output

Menu = EBU-DAC Level

Adjust Menu for exactly 525 mV p-p amplitude on oscilloscope.

Menu = EBU-DAC offset

Adjust Menu to position blanking at exactly 0 volts DC on oscilloscope.

Chroma DAC Output:

MVP-24X Color Bars Enabled
Video Out Format = YRB-Beta
Vectorscope = Vid2

Menu = Chroma-X DAC Level

Use Menu to adjust amplitude of X axis on Vectorscope.

Menu = Chroma-Y DAC Level

Use Menu to adjust amplitude of Y axis on Vectorscope.

Menu = Burst DAC Level

Use Menu to adjust amplitude of colorburst on Vectorscope.

INPUTS: for input calibration, disable MVP-24X Test Signal Generator.

Apply Colorbar Test Signal to inputs: 100/0/75/0 (100% white, 75% color, 0% setup)

Y ADC Input:

Inputs = YRB-Beta Colorbars 100/0/75/0
Input Select = YRB
YRB Format = Beta
Video Out Format = YRB-Beta
Waveform Monitor = Y/Y/G Output

Menu = Y-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Menu = Y-ADC Clamp

Adjust Menu to position black level at 0IRE.

GRN ADC Input:

Inputs = RGB Colorbars 100/0/75/0
Input Select = RGB
Video Out Format = R/G/B
Waveform Monitor = Y/Y/G Output

Menu = GRN-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Menu = GRN-ADC Clamp

Adjust Menu to position black level at 0IRE.

RED ADC Input:

Inputs = RGB Colorbars 100/0/75/0
Input Select = RGB
Video Out Format = R/G/B
Waveform Monitor = Vid1/R-Y/R Output

Menu = RED-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Menu = RED-ADC Clamp

Adjust Menu to position black level at 0IRE.

BLU ADC Input:

Inputs = RGB Colorbars 100/0/75/0Input Select = RGBVideo Out Format = R/G/BWaveform Monitor = C/B-Y/B OutputMenu = BLU-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Menu = BLU-ADC Clamp

Adjust Menu to position black level at 0IRE.

(R-Y) Beta ADC Input:

Inputs = YRB-Beta Colorbars 100/0/75/0Input Select = YRBYRB Format = BetaVideo Out Format = YRB-BetaOscilloscope = Vid1/R-Y/R OutputMenu = (R-Y)Beta-ADC Lev

Adjust Menu for exactly 700 mV p-p amplitude on oscilloscope.

(B-Y) Beta ADC Input:

Inputs = YRB-Beta Colorbars 100/0/75/0Input Select = YRBYRB Format = BetaVideo Out Format = YRB-BetaOscilloscope = C/B-Y/B OutputMenu = (B-Y)Beta-ADC Lev

Adjust Menu for exactly 700 mV p-p amplitude on oscilloscope.

(R-Y) EBU ADC Input:

Inputs = YRB-EBU Colorbars 100/0/75/0Input Select = YRBYRB Format = EBUVideo Out Format = YRB-EBUOscilloscope = Vid1/R-Y/R OutputMenu = (R-Y)EBU-ADC Lev

Adjust Menu for exactly 525 mV p-p amplitude on oscilloscope.

(B-Y) EBU ADC Input:

Inputs = YRB-EBU Colorbars 100/0/75/0Input Select = YRBYRB Format = EBUVideo Out Format = YRB-EBUOscilloscope = C/B-Y/B OutputMenu = (B-Y)Beta-ADC Lev

Adjust Menu for exactly 525 mV p-p amplitude on oscilloscope.

Vid1 ADC Input:

Vid1 Input = Composite Colorbars 100/0/75/0Input Select = Vid1Vid1 AGC = OffVideo Out Format = YRB-BetaWaveform Monitor = Y/Y/G OutputMenu = Vid1-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Vid2 ADC Input:

Vid2 Input = Composite Colorbars 100/0/75/0Input Select = Vid2Vid2 AGC = OffVideo Out Format = YRB-BetaWaveform Monitor = Y/Y/G OutputMenu = Vid2-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

Y/C ADC Input:

Y/C Inputs = Y/C Colorbars 100/0/75/0Input Select = Y/CVideo Out Format = YRB-BetaWaveform Monitor = Y/Y/G OutputMenu = Y/C-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

SVHS ADC Input:

SVHS Inputs = Y/C Colorbars 100/0/75/0Input Select = SVHSVideo Out Format = YRB-BetaWaveform Monitor = Y/Y/G OutputMenu = SVHS-ADC Level

Adjust Menu for exactly 100 IRE maximum amplitude on Waveform Monitor.

INTERNAL BOARD CALIBRATION:

Remove top cover and perform the following:

- VGA OUTPUT LEVELS CALIBRATION:

Set MVP-24X to Vid -> VGA MODE

(MENU ENABLE + MODE;

Select "Mode: Vid -> VGA"

Push knob to enter selection.)

Enable MVP-24X Colorbars Test Signal Generator.

Use VGA breakout cable to connect VGA Out1 to oscilloscope.
Connect the H sync BNC to scope's external sync input.

Use a BNC T-connector to connect the Green(/Red/or Blue) output
to scope with a 75 ohm terminator.

GREEN DAC Output Adjust:

Oscilloscope = G Output

Adjust R513 (see fig 1) for exactly 700mVpp amplitude
at white portion of color bars.

RED DAC Output Adjust:

Oscilloscope = R Output

Adjust R500 (see fig 1) for exactly 700mVpp amplitude
at white portion of color bars.

BLUE DAC Output Adjust:

Oscilloscope = B Output

Adjust R526 (see fig 1) for exactly 700mVpp amplitude
at white portion of color bars.

DACs DC Offset Adjust:

Oscilloscope = G Output

Adjust R539 (see fig 1) for exactly 0 volts DC offset during non-video
portions of the signal.

- VIDEO BOARD

The video board is not easily accessible, and requires removing the MXP (VGA) board.

It is recommended that these adjustments be made at the factory only:

SYNC LEVEL:

Waveform Monitor = Y/Y/G Output

Adjust R527 (see fig 1) for exactly 40 IRE of sync amplitude.

CLOCK ADJUST:

Frequency Counter = Connect Probe to right side of R137 (see fig 1)

Adjust C108 (see fig 1) to get as close as possible to 25.576000 MHz.

EQUALIZERS:

This calibration is extremely complicated and should only be
performed at the factory. **Do NOT** adjust R18, R21, R24, R27, R47,
R50, R53, R56, R76, R79, R82, R85, C17, C36, and C55.

Replace the top cover.