EDL Displays, Inc.

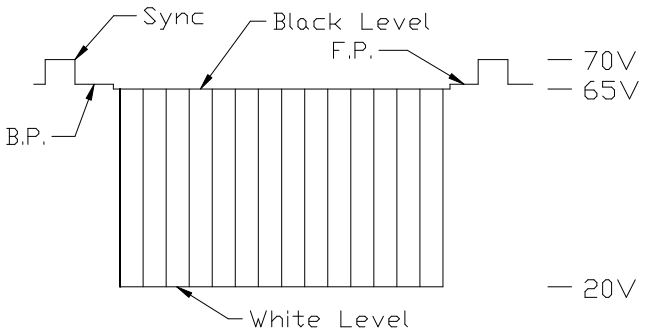
VIDEO BOARD

THEORY

The video board receives the input video signal from the BNC connector, amplifies it and applies it to the cathodes of the tube. The video boards receive stabilization signals (SMPL and CLMP) from the micro board to calibrate black level and gain at the end of each horizontal sync pulse. If the input signal contains sync on green (composite sync on video), the video board will also strip out the sync signal from the video and send it to the micro board.

TESTING

1) Visually inspect PCB assembly
2) Initial setup
   - Null pot - full CW
   - Range pot - full CCW
   - Black Level pot - 2 o'clock position
   - Gain pot - 2 o'clock position
3) With scope attached to 'J1-1', apply power, signal should appear as shown (If signal stays at gnd. **Remove AC power immediately**.)
4) Adjust gain pot to insure that gain control is working
5) Adjust black level pot to insure black level is controllable
6) Adjust range pot slowly CW, video signal should move in a positive direction until only the 75V rail remains. Set range pot back full CCW.
7) Set null pot full CCW. Slowly adjust range pot CW. Video signal will start to move down towards gnd. ensure that there is movement, then move range pot back to full CCW.



VIDEO AMPLIFIER BOARD REPLACEMENT

(Red, Green and Blue) P/N 6100-0305-03

Tools Required: 1.Screwdriver, common, straight slot.
2.Adjustment tool, insulated 1/8" straight slot.

REPLACEMENT PROCEDURE

1. Turn a/c. power OFF at the front panel.

2. Disconnect the monitor a/c. power cord.

3. Disconnect the coaxial cable on the Video Amplifier Board being replaced.

4. Unscrew the two captive screws on the Video Amplifier Board.

5. Remove the Video Amplifier Board; inspect, as a precaution, the connector for bent pins, and inspect the mating connector on the Mother Board for damage.

6. Note the position of the adjustment pots in the defective Video Amplifier Board.

7. If the defective amplifier had been operating properly prior to the failure, then using a small screwdriver, position The Black and Gain adjustments in the replacement amplifier to match its counterpart in the defective amplifier. CAUTION: The Range and Null adjustments should not be changed except during the Video Amplifier Calibration Procedure.

8. Carefully insert the replacement Video Amplifier Board in its slot making sure the connector is properly aligned with the mating connector on the Mother Board.

9. Tighten the two captive screws to seat the module and complete the connection to the Mother Board.

10. Connect the coaxial input cable and a/c. power cord.

11. Apply a/c. power and input signals and check the display for proper operation.

12. Optimum picture quality may be attained by performing the Video Amplifier Alignment Procedure of this manual.

VIDEO AMPLIFIER ALIGNMENT PROCEDURE

EQUIPMENT REQUIRED:

1. Klien VPG-250 test pattern generator or equivalent.
2. Minolta TV2150 Colorimeter or equivalent.

3. BNC cables as required.

The Model 6100 Video Amplifiers provide state-of-the-art in design and performance. They provide for control of:

1. Contrast (Gain)
2. Brightness (Black level)
3. Color tracking
4. Automatic Gain Control

MINIMAL ALIGNMENT PROCEDURE

There may be the need to "touch-up" the Video Amplifiers to the video system. Only the Black level and Gain controls should be adjusted in this manner.

1. The Black level control should be adjusted first for color balance on the black or known dark gray portion of an image.

2. Then the Gain adjusted for color balance on a high brightness white portion of the image.

3. Always adjust Black level before Gain.

Video Amplifier alignment should not be necessary unless replacement of the following occurs.

1. Cathode Ray Tube (CRT)
2. High Voltage Power Supply
3. Video Amplifier Module

Should the CRT be replaced, a complete procedure is necessary and will be presented here first. Replacement of either the High Voltage Power Supply or one or more Video Amplifier Module requires only a partial procedure which follows later.

PARTIAL PROCEDURE

Replacement of a Video Amplifier Module may only require the adjustment of the replaced modules Black level and Gain pots.

1. The Black level may be adjusted on the replaced module by:

2. Set the Video generator for 20% amplitude flat white field.

3. Set Brightness and Contrast controls fully clockwise (CW).

4. Adjust Black level for 5% brightness on corresponding color.

5. Set Video generator for 100% flat field.

6. Adjust Gain pot for 150% brightness on the corresponding color.

7. Repeat above procedure until both values are correct.

FULL PROCEDURE

1. PRE-ALIGNMENT

    a. Adjust the range, Gain and Black level post full CCW.

    b. Adjust null pot for mid-range.

    c. Warm-up unit for at least 30 minutes.

    d. Adjust Brightness and Contrast pot full CW.

    e. Set generator for 20% flat white field.

    f. Adjust sub-brightness pot so that the Minolta registers the hottest gun at 4%.

    g. Adjust the two remaining Black Level pots so that the Minolta registers 4%.

2. COLOR COORDINATE AND LUMINOUS ALIGNMENT

    a. Set color-bar level on generator to 100%.

    b. Adjust all gain pots until a reading of 150% is observed on the TV-2130.

    c. Set color-bar level on generator to 20%.

    d. Adjust the G1 pot on Mother Board until a reading of 5% is obtained on the hot gun.

    e. Adjust Black level pots on the two remaining amps until 5% is obseved on the Minolta TV-2130.

    f. Repeat the above steps until all three video amps match at 150% and at 5%.

    g. Reset generator to color-bar level of 100%.

3. COLOR TRACKING ALIGNMENT

    a. Ensure that brightness and contrast controls are completely CW.

    b. Note luminous level for one gun (approximate 150%).

    c. Adjust range pot completely CW.

    d. Adjust null pot until luminous level reads exactly the same as in Step B.

    e. Adjust range pot completely CCW and then CW to ensure that the luminous level remains the same.

    f. Adjust range pot full CCW.

    g. Repeat steps A thru F for other two guns.

h. Adjust brightness control completely CCW.

i. Note the highest luminous level and adjust the other two range pots until the three RGB levels are the same.

j. Check for color coordinates at maximum brightness and at minimum brightness to ensure proper alignment:

   Maximum X Deviation = 0.006 CIE (Min to Max)

   Maximum Y Deviation = 0.006 CIE (Min to Max)