

LV 5770SER03A

TRI SYNC / COMPOSITE

LV 5770SER03

COMPOSITE VIDEO

FUNCTION MENU EXPLANATIONS

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1. INTRODUCTION

1.1 About This Manual

This manual explains the function menus for each display mode when an LV 5770SER03A (TRI SYNC/COMPOSITE) is installed in the LV 5770A/7770. For details on how to operate the LV 5770A/7770, see the LV 5770A (MULTI MONITOR) or LV 7770 (MULTI RASTERIZER) Instruction Manual.

1.2 Differences between the LV 5770SER03A and LV 5770SER03

The LV 5770SER03A has the following additional feature that is not available on the LV 5770SER03.

- HD Tri-Level Sync Signal Input

This manual explains the LV 5770SER03A. Note that if you are using the LV 5770SER03, some of the information in this manual will not apply.

Only the LV 5770SER03A can be installed in the LV 7770.

1.3 About Terminology Used in this Manual

- **1-Screen Display**

This refers to the mode in which the MULTI key is off. Only the area that you select by pressing keys 1 to 4 is displayed.

- **Multi-Screen Display (2-screen multi display and 4-screen multi display)**

This refers to the mode in which the MULTI key is on. You can set the number of screens that are displayed (two or four) in the system settings.

On the 2-screen multi display, you can display areas 1 and 2 or areas 3 and 4.

On the 4-screen multi display, you can display areas 1 to 4.

- **Underline (_)**

Underlined options indicate the default values.

- **VECT**

To show the vector waveform display, you press VECT on the LV 5770A and VEC on the LV 7770. In this manual, both keys will be referred to as "VECT." If you are using the LV 7770, press VEC instead of VECT.

1.4 Overview of This Unit

This unit measures composite signals and HD tri-level sync signals that it receives through the TRI SYNC/COMPOSITE INPUT A connector or TRI SYNC/COMPOSITE INPUT B connector.

- Press CMPST to select the input signal.
- Press A or B to switch between the input channels.
- The unit automatically determines the input format (NTSC, PAL, or HD tri-level).
- Pressing the SIM key has no effect. You cannot measure channels A and B simultaneously.
- Press WFM, VECT, PIC, and STATUS to switch to the corresponding display mode. (When an HD tri-level sync signal is applied, only WFM and STATUS are available.)
- The OUTPUT A/B connector generates the signal that you have selected by pressing the A or B key.

2. VIDEO SIGNAL WAVEFORM DISPLAY

To display the video signal waveform, press WFM.

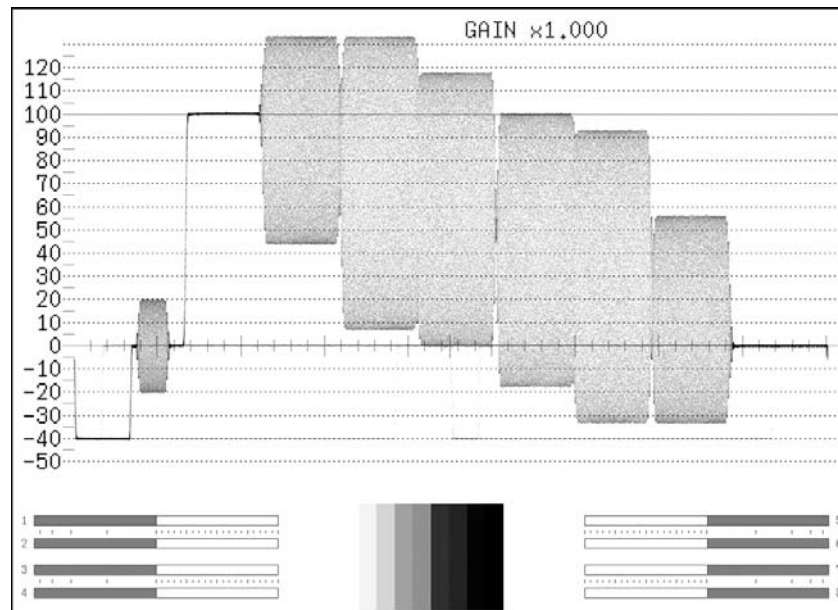


Figure 2-1 Video signal waveform display

- **Audio Thumbnail**

On the LV 5770A, the audio thumbnail appears when the LV 5770SER41 or LV 5770SER43 is installed. The audio thumbnail always appears on the LV 7770. The channels that are displayed are the channels that have been selected on the Lissajous waveform channel mapping display.

You can hide the thumbnails or switch to histogram thumbnails.

See section 2.7.1, “Turning Thumbnails On and Off.”

- **Picture Thumbnail**

This displays the picture. You can hide the thumbnails or switch to histogram thumbnails.

See section 2.7.1, “Turning Thumbnails On and Off.”

- **Menu**

Use the video signal waveform menu—which is displayed when you press the WFM key—to configure the video signal waveform display settings.

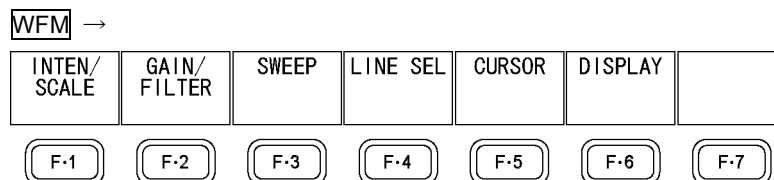


Figure 2-2 Video signal waveform menu

2.1 Setting the Waveform Display Position

Use the V POS and H POS knobs to adjust the display position of video signal waveforms.

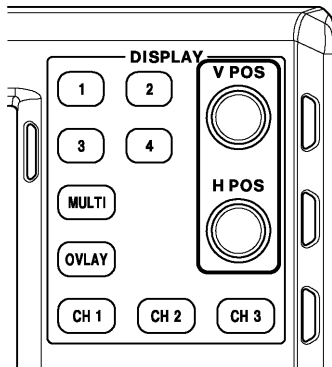


Figure 2-3 V POS and H POS knobs

- **V POS Knob**

This knob adjusts the vertical position of the video signal waveform.

Pressing the knob returns the waveform to its default position.

- **H POS Knob**

This knob adjusts the horizontal position of the video signal waveform.

Pressing the knob returns the waveform to its default position.

2.2 Configuring the Intensity and Scale Settings

To configure the intensity and scale settings, press **[F•1]** INTEN/SCALE on the video signal waveform menu.

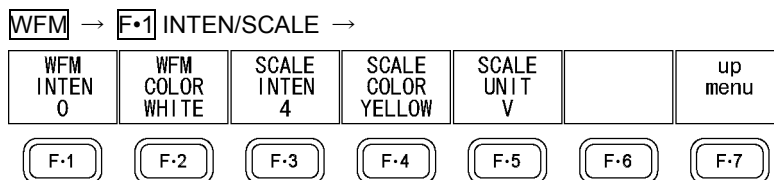


Figure 2-4 INTEN/SCALE menu

2.2.1 Adjusting the Waveform Intensity

To adjust the video signal waveform intensity, follow the procedure below. On the multi-screen display, this setting is also applied to the intensity of vectors.

Press the function dial (F•D) to return the setting to its default value (0).

Procedure (1-screen display)

[WFM] → **[F•1]** INTEN/SCALE → **[F•1]** WFM INTEN : -128 to 0 to 127

Procedure (Multi-screen display)

[WFM] → **[F•1]** INTEN/SCALE → **[F•1]** WFM/VECT INTEN : -128 to 0 to 127

2.2.2 Selecting the Waveform Color

To select the waveform color, follow the procedure below.

Procedure

WFM → F.1 INTEN/SCALE → F.2 WFM COLOR : WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

2.2.3 Adjusting the Scale Intensity

To adjust the scale intensity, follow the procedure below.

Press the function dial (F•D) to return the setting to its default value (4).

Procedure

WFM → F.1 INTEN/SCALE → F.3 SCALE INTEN : -8 to 4 to 7

2.2.4 Selecting the Scale Color

To select the scale color, follow the procedure below.

Procedure

WFM → F.1 INTEN/SCALE → F.4 SCALE COLOR : WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

2.2.5 Selecting the Scale Unit

When the input signal is an HD tri-level sync signal, to select the scale unit, follow the procedure below. 700 mV is equivalent to 100 %.

Procedure

WFM → F.1 INTEN/SCALE → F.5 SCALE UNIT : V / %

2.3 Configuring the Gain and Filter Settings

To configure gain and sweep settings, press F.2 GAIN/FILTER on the video signal waveform menu.

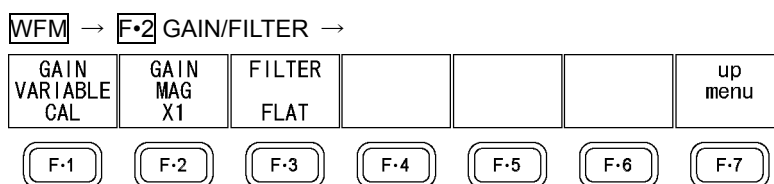


Figure 2-5 GAIN/FILTER menu

2.3.1 Selecting the Fixed Gain

To select the fixed video signal waveform gain, follow the procedure below.

Procedure

WFM → F.2 GAIN/FILTER → F.2 GAIN MAG : X1 / X5

2.3.2 Setting the Variable Gain

To set the variable video signal waveform gain, follow the procedure below.

Procedure

WFM → **F•2** GAIN/FILTER → **F•1** GAIN VARIABLE : CAL / VARIABLE

Settings

CAL: The waveform gain is fixed.

VARIABLE: You can adjust the waveform gain by turning the function dial (F•D). Press the function dial (F•D) to return the setting to its default value (1.000 or 5.000).

The adjusted gain value (the combination of **F•1** GAIN VARIABLE and **F•2** GAIN MAG) appears in the upper right of the screen.

0.200 to 2.000 (when GAIN MAG = X1)

1.000 to 10.000 (when GAIN MAG = X5)

2.3.3 Selecting the Filter

To select the filter to apply to video signal waveforms, follow the procedure below.

Procedure

WFM → **F•2** GAIN/FILTER → **F•3** FILTER : FLAT / LOWPASS

Settings

FLAT: A filter with a flat frequency response over the entire bandwidth of the input signal is applied.

LOWPASS: A filter used to display the luminance component is applied (when a composite signal is applied).

A filter that has an attenuation of 20 dB or more at a frequency of 20 MHz will be applied (when an HD tri-level sync signal is applied).

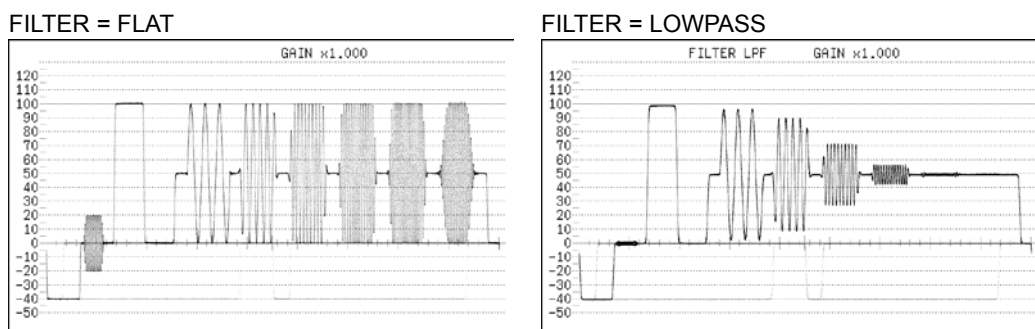


Figure 2-6 Selecting the filter

2.4 Configuring Sweep Settings

To configure the sweep settings, press **F•3** SWEEP on the video signal waveform menu.

WFM → **F•3** SWEEP →

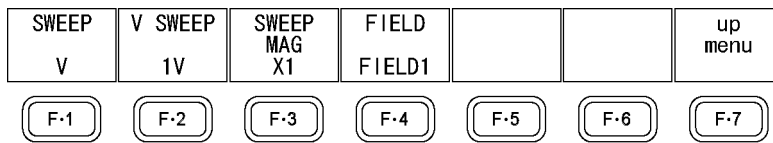


Figure 2-7 SWEEP menu

2.4.1 Selecting the Sweep Method

To select the video signal waveform sweep method, follow the procedure below.

Procedure

WFM → **F•3** SWEEP → **F•1** SWEEP : H / V

Settings

H: Lines are displayed.

V: Fields or frames are displayed.

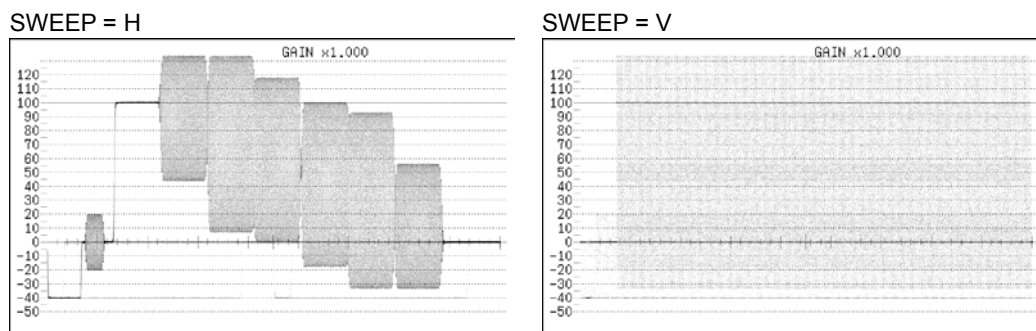


Figure 2-8 Selecting the sweep method

2.4.2 Selecting the Line Display Format

When **[F•1]** SWEEP is set to H, to select the sweep time, follow the procedure below.

Procedure

[WFM] → **[F•3]** SWEEP → **[F•2]** H SWEEP : 1H / 2H

Settings

1H: One line is displayed.

2H: Two lines are displayed.

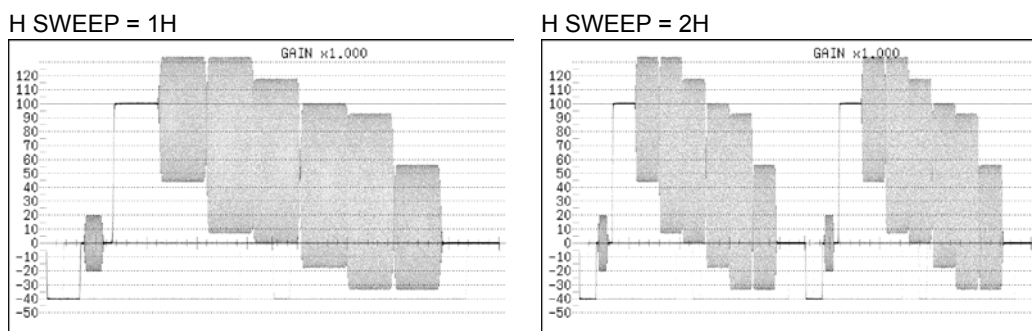


Figure 2-9 Selecting the line display format

2.4.3 Selecting the Field Display Format

When **[F•1]** SWEEP is set to V, to select the sweep time, follow the procedure below.

Procedure

[WFM] → **[F•3]** SWEEP → **[F•2]** V SWEEP : 1V / 2V

Settings

1V: One field is displayed (if the input signal is not 1080p).

One frame is displayed (if the input signal is 1080p).

2V: One frame is displayed. This option cannot be selected when the input signal is 1080p.

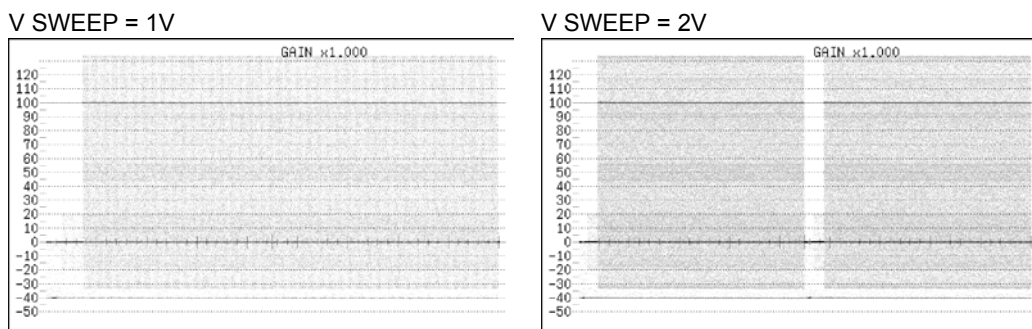


Figure 2-10 Selecting the field display format

In addition, when **[F•2]** V SWEEP is set to 1V and the input signal is not 1080p, to select which field is displayed, follow the procedure below.

Procedure

[WFM] → **[F•3]** SWEEP → **[F•4]** FIELD : FIELD1 / FIELD2

2.4.4 Selecting the Horizontal Magnification

To select the horizontal magnification, follow the procedure below.

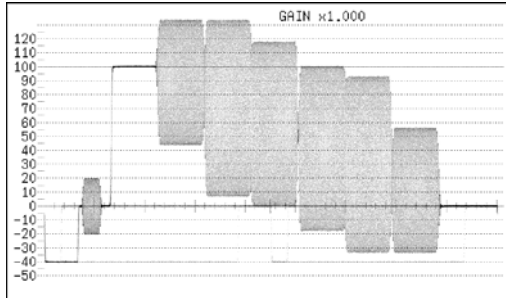
Procedure

WFM → F•3 SWEEP → F•3 SWEEP MAG : X1 / X10 / X20 / X40

Settings

- X1: The video signal waveforms are displayed so that they fit on the screen.
- X10: The video signal waveforms are magnified from the center of the display to 10 times the size of X1.
This option cannot be selected when F•1 SWEEP is set to V.
- X20: The video signal waveforms are magnified from the center of the display to 20 times the size of X1.
- X40: The video signal waveforms are magnified from the center of the display to 40 times the size of X1.
This option cannot be selected when F•1 SWEEP is set to H.

SWEEP MAG = X1



SWEEP MAG = X10



Figure 2-11 Horizontal magnifications

2.5 Configuring Line Select Settings

To configure the line select settings, press **[F•4]** LINE SEL on the video signal waveform menu.

[WFM] → **[F•4]** LINE SEL →

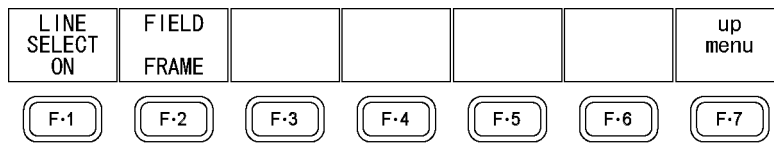


Figure 2-12 LINE SEL menu

2.5.1 Turning Line Select On and Off

To display the waveform of the selected line, follow the procedure below. You can use the function dial (F•D) to select a line. The number of the selected line appears in the lower left of the display. Press the function dial (F•D) to move to the first video line. Changing this setting will also change the vector-display and picture-display line select settings.

This menu item does not appear when SWEEP is set to V.

For information on the SWEEP setting, see section 2.4.1, “Selecting the Sweep Method.”

Procedure

[WFM] → **[F•4]** LINE SEL → **[F•1]** LINE SELECT : ON / OFF

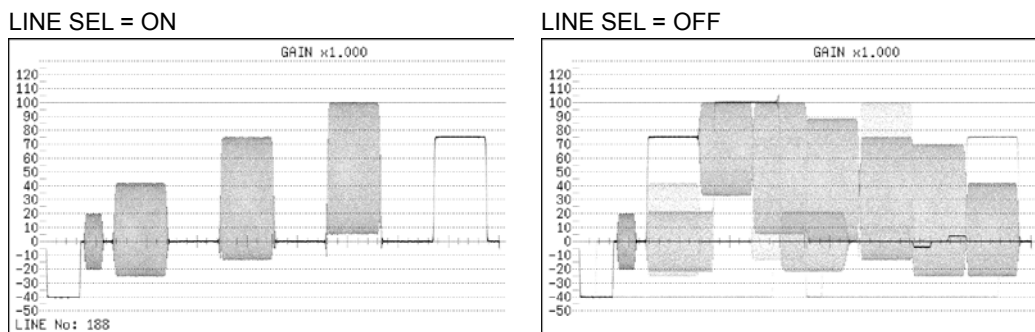


Figure 2-13 Turning line select on and off

2.5.2 Setting the Line Select Range

When **[F•1]** LINE SELECT is set to ON and the input signal is not 1080p, to set the line selection range, follow the procedure below.

Procedure

[WFM] → **[F•4]** LINE SEL → **[F•2]** FIELD : FIELD1 / FIELD2 / FRAME

Settings

- FIELD1: A line from field 1 can be selected (example: 1 to 263).
- FIELD2: A line from field 2 can be selected (example: 264 to 525).
- FRAME: All lines can be selected (example: 1 to 525).

2.6 Configuring Cursor Settings

To configure cursor settings, press **F•5** CURSOR on the video signal waveform menu.

WFM → **F•5** CURSOR →

CURSOR	XY SEL	Y UNIT	FD VAR	REFSET		up menu
ON	Y	R%	REF			

F•1	F•2	F•3	F•4	F•5	F•6	F•7
------------	------------	------------	------------	------------	------------	------------

Figure 2-14 CURSOR menu

2.6.1 Turning Cursors On and Off

To turn cursors on and off, follow the procedure below.

The REF cursor is displayed in blue, and the DELTA cursor is displayed in green. The value of DELTA - REF appears as a measured value in the lower right of the screen.

Procedure

WFM → **F•5** CURSOR → **F•1** CURSOR : ON / OFF

2.6.2 Selecting the Cursors

To select X (time measurement) or Y (amplitude measurement) cursors, follow the procedure below.

Procedure

WFM → **F•5** CURSOR → **F•2** XY SEL : X / Y

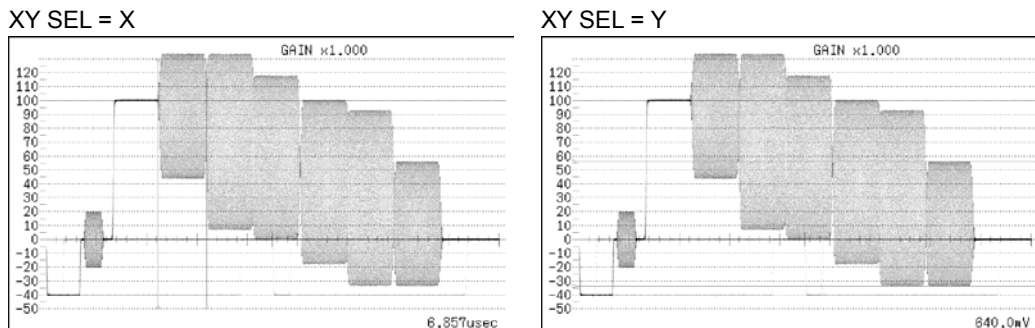


Figure 2-15 Selecting X or Y cursors

2.6.3 Moving Cursors

To move a cursor, follow the procedure shown below to select a cursor. Then, move the cursor by turning the function dial (F•D). Triangles appear on both ends of the selected cursor.

You can also select a cursor by pressing the function dial (F•D). Each time you press the function dial (F•D), the selected cursor switches from REF, to DELTA, to TRACK, and then back to REF.

Procedure

WFM → F•5 CURSOR → F•4 FD VAR : REF / DELTA / TRACK

2.6.4 Selecting the Y-Axis Measurement Unit

When F•2 XY SEL is set to Y, to select the Y-axis cursor measurement unit, follow the procedure below.

Procedure

WFM → F•5 CURSOR → F•3 Y UNIT : mV / % / R%

Settings

mV:	The measurement unit is volts.
%:	The measurement unit is percentage. When the input signal is NTSC, 714 mV is 100 %. When the input signal is PAL, 700 mV is 100 %.
R%:	The amplitude will be measured as a percentage of the amplitude at the time when you pressed F•5 REFSET.

2.6.5 Selecting the X-Axis Measurement Unit

When F•2 XY SEL is set to X, to select the X-axis cursor measurement unit, follow the procedure below.

Procedure

WFM → F•5 CURSOR → F•3 X UNIT : sec / Hz

Settings

sec:	The measurement unit is seconds.
Hz:	The measurement unit is frequency, with the length of one period set to the distance between the two cursors.

2.7 Configuring Display Settings

To configure the display settings, press **F•6** DISPLAY on the video signal waveform menu.

WFM → **F•6** DISPLAY →

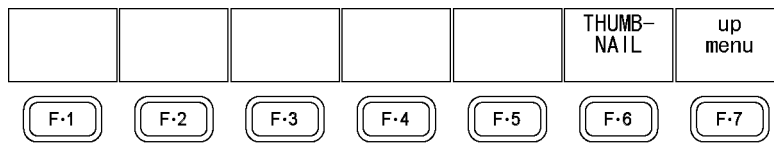


Figure 2-16 DISPLAY menu

2.7.1 Turning Thumbnails On and Off

To configure thumbnail settings, press **F•6** THUMBNAIL on the DISPLAY menu.

This menu item does not appear when the multi-screen display is in use.

WFM → **F•6** DISPLAY → **F•6** THUMBNAIL →

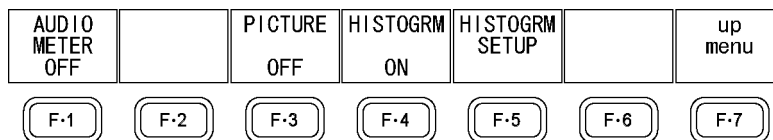


Figure 2-17 THUMBNAIL menu

To turn the thumbnail displays of the audio meter, picture, and histogram on and off separately, follow the procedure below.

When an LV 5770SER41 or LV 5770SER43 is not installed in the LV 5770A or when the audio display mode is set to loudness, **F•1** AUDIO METER is not displayed. You cannot display a histogram thumbnail at the same time as another thumbnail.

If the input signal is an HD tri-level sync signal, nothing appears even when you set **F•4** HISTOGRAM to ON.

Procedure

WFM → **F•6** DISPLAY → **F•6** THUMBNAIL → **F•1** AUDIO METER : ON / OFF
 → **F•3** PICTURE : ON / OFF
 → **F•4** HISTOGRAM : ON / OFF

2.7.2 Configuring the Histogram Settings

To configure histogram settings, press **[F.5]** HISTOGRM SETUP on the THUMBNAIL menu. **[F.5]** HISTOGRM SETUP appears when **[F.4]** HISTOGRM is set to ON.

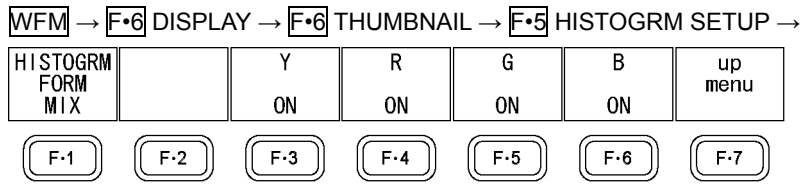


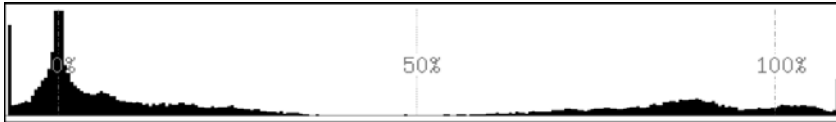
Figure 2-18 HISTOGRM SETUP menu

To select the histogram display format, follow the procedure below.

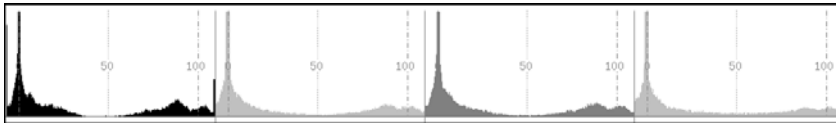
Procedure

WFM → **[F.6]** DISPLAY → **[F.6]** THUMBNAIL → **[F.5]** HISTOGRM SETUP → **[F.1]** HISTOGRM FORM : LUMA / ALIGN / MIX

HISTOGRM FORM = LUMA



HISTOGRM FORM = ALIGN



HISTOGRM FORM = MIX

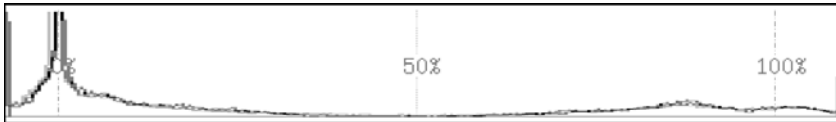


Figure 2-19 Configuring the histogram settings

In addition, when **[F.1]** HISTOGRM FORM is set to MIX, follow the procedure below to turn Y, R, G, and B on and off separately.

Procedure

WFM → **[F.6]** DISPLAY → **[F.6]** THUMBNAIL → **[F.5]** HISTOGRM SETUP
 → **[F.3]** Y : ON / OFF
 → **[F.4]** R : ON / OFF
 → **[F.5]** G : ON / OFF
 → **[F.6]** B : ON / OFF

3. VECTOR DISPLAY

To display vectors, press VECT.

When an HD tri-level sync signal is applied, the vector waveform is not displayed.

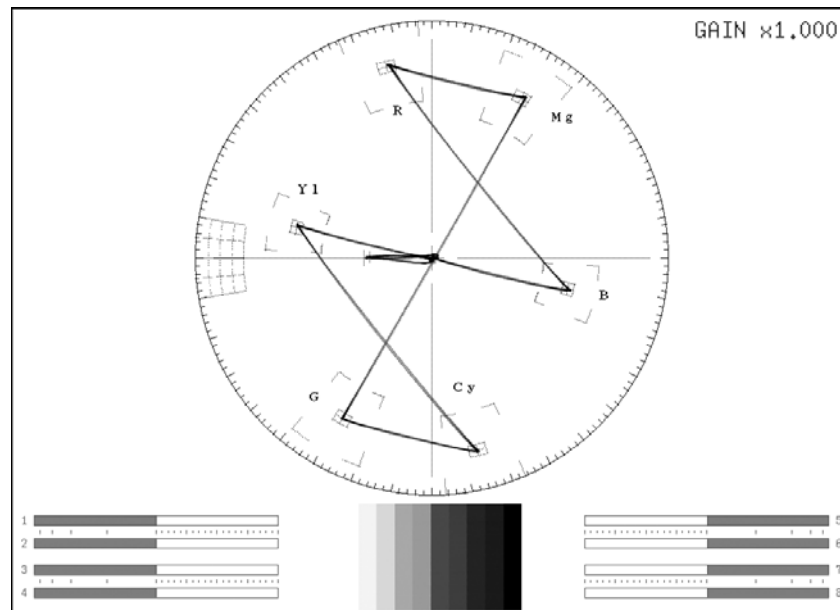


Figure 3-1 Vector display

- **Audio Thumbnail**

On the LV 5770A, the audio thumbnail appears when the LV 5770SER41 or LV 5770SER43 is installed. The audio thumbnail always appears on the LV 7770. The channels that are displayed are the channels that have been selected on the Lissajous waveform channel mapping display.

You can hide the thumbnails or switch to histogram thumbnails.

See section 3.7.2, "Turning Thumbnails On and Off."

- **Picture Thumbnail**

This displays the picture. You can hide the thumbnails or switch to histogram thumbnails.

See section 3.7.2, "Turning Thumbnails On and Off."

- **Menu**

Use the vector menu—which is displayed when you press the VECT key—to configure the vector display settings.

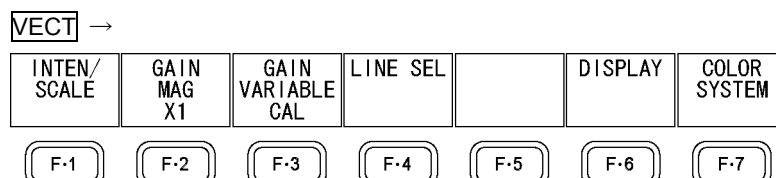


Figure 3-2 Vector menu

3. VECTOR DISPLAY

• Scale Explanation

The scale varies depending on the input signal format (NTSC/PAL).

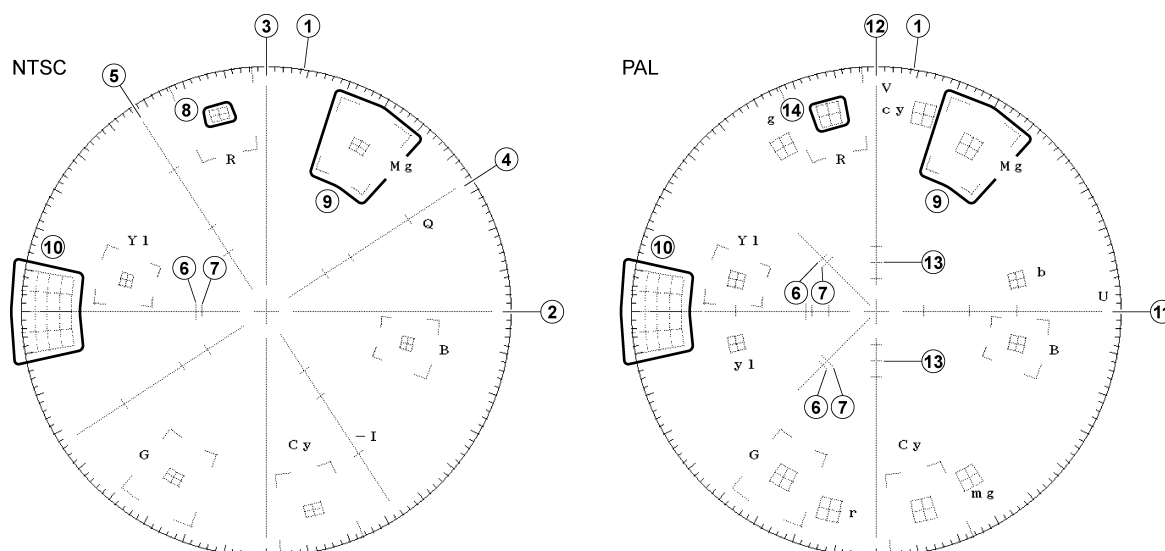


Figure 3-3 Scale explanation

Table 3-1 Scale explanation

No.	Description
1	Fixed amplitude circle. This is the amplitude when the amplitude of the input chrominance signal is 0.883 Vp-p. Each major division is 10 °, and each minor division is 2 °. This is used during phase difference measurements.
2	The B-Y axis.
3	The R-Y axis.
4	The Q axis. Displayed when IQ AXIS on the intensity adjustment menu is set to ON. The scale on the axis represents vertical lines for each color.
5	The I axis. Displayed when IQ AXIS on the intensity adjustment menu is set to ON. The scale on the axis represents vertical lines for each color.
6	The burst level of a 100/7.5/100/7.5 color bar.
7	The burst level of a 100/0/100/0 color bar.
8	Tolerances of ± 2.5 IRE units in amplitude and ± 2.5 ° in phase are displayed for each color in the color bar. The phase of each color is as follows: Mg: 60.7 °. R: 103.5 °. Yl: 167.1 °. G: 240.7 °. Cy: 283.5 °. B: 347.1 °.
9	Tolerances of ± 20 % in amplitude and ± 10 ° in phase are displayed for each color in the color bar.
10	The scale used to measure differential gain (DG) and differential phase (DP). The differential gain and differential phase are measured using staircase signals that have chrominance signals superimposed. The scale is 0 to 20 % in the amplitude direction (the perimeter is 0%) and ± 10 ° in the phase direction.
11	The U axis. The scale on the axis represents vertical lines for each color.
12	The V axis. The scale on the axis represents vertical lines for each color.
13	The vertical line for the burst level of a 100/0/100/0 color bar.

3. VECTOR DISPLAY

No.	Description
14	Tolerances of $\pm 5\%$ in amplitude and $\pm 3^\circ$ in phase are displayed for each color in the color bar. The phase of each color is as follows: Mg: 60.7° , R: 103.5° , Yl: 167.1° , G: 240.7° , Cy: 283.5° , and B: 347.1° . mg: 299.3° , r: 256.5° , yl: 192.9° , g: 119.3° , cy: 76.5° , and b: 12.9° .

3.1 Setting the Vector Display Position

Use the V POS and H POS knobs to adjust the display position of vectors.

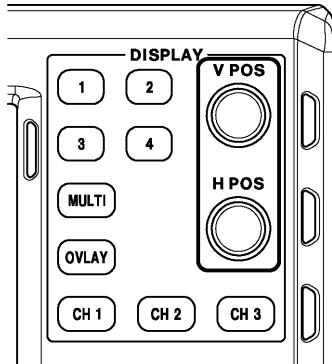


Figure 3-4 V POS and H POS knobs

- **V POS Knob**

This knob adjusts the vertical position of the vector.
Pressing the knob returns the vector to its default position.

- **H POS Knob**

This knob adjusts the horizontal position of the vector.
Pressing the knob returns the vector to its default position.

3.2 Setting the Phase

You can use the function dial (F•D) to adjust the phase of the vector.

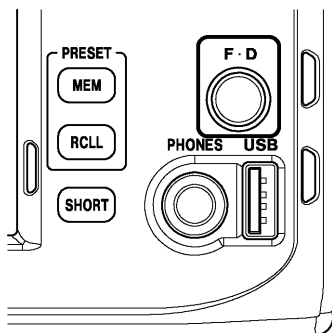


Figure 3-5 Function dial (F•D)

3.3 Configuring the Intensity and Scale Settings

To configure the intensity and scale settings, press **F•1** INTEN/SCALE on the vector menu.

VECT → **F•1** INTEN/SCALE →

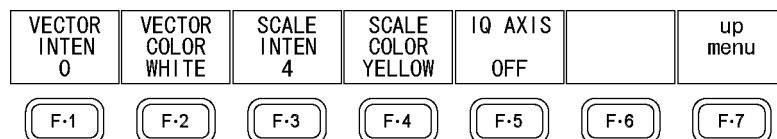


Figure 3-6 INTEN/SCALE menu

3.3.1 Adjusting the Vector Intensity

To adjust the vector intensity, follow the procedure below. On the multi-screen display, this setting is also applied to the intensity of video signal waveforms.

Press the function dial (F•D) to return the setting to its default value (0).

Procedure (1-screen display)

VECT → **F•1** INTEN/SCALE → **F•1** VECTOR INTEN : -128 to 0 to 127

Procedure (Multi-screen display)

VECT → **F•1** INTEN/SCALE → **F•1** VECT/WFM INTEN : -128 to 0 to 127

3.3.2 Selecting the Vector Color

To select the vector color, follow the procedure below.

Procedure

VECT → **F•1** INTEN/SCALE → **F•2** VECTOR COLOR : WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

3.3.3 Adjusting the Scale Intensity

To adjust the scale intensity, follow the procedure below.

Press the function dial (F•D) to return the setting to its default value (4).

Procedure

VECT → **F•1** INTEN/SCALE → **F•3** SCALE INTEN : -8 to 4 to 7

3.3.4 Selecting the Scale Color

To select the scale color, follow the procedure below.

Procedure

VECT → **F•1** INTEN/SCALE → **F•4** SCALE COLOR : WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE

3. VECTOR DISPLAY

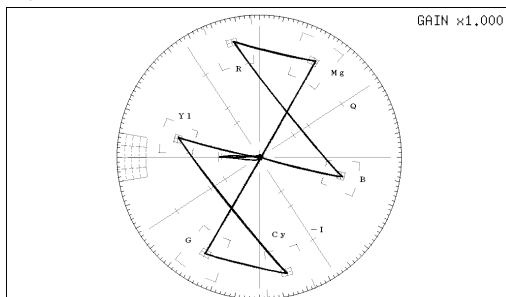
3.3.5 Turning the Display of the I and Q Axes On and Off

To turn the display of the I and Q axes on and off, follow the procedure below.

Procedure

VECT → **F•1** INTEN/SCALE → **F•5** IQ AXIS : ON / OFF

IQ AXIS = ON



IQ AXIS = OFF

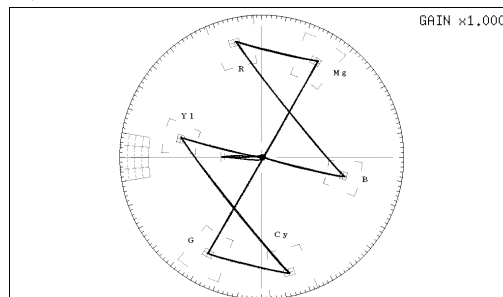


Figure 3-7 Turning the display of the I and Q axes on and off

3.4 Selecting the Fixed Gain

To select the fixed vector gain, follow the procedure below.

Procedure

VECT → **F•2** GAIN MAG : X1 / X5 / IQ-MAG

Settings

- X1: Vectors are displayed at x1 magnification.
- X5: Vectors are displayed at x5 magnification.
- IQ-MAG: Vectors are displayed at x2.630 magnification.
(This magnification ensures that the -I and Q signals of the SMPTE color bar fit within the perimeter of the vector display.)

3.5 Setting the Variable Gain

To set the variable vector gain, follow the procedure below.

Procedure

VECT → **F•3** GAIN VARIABLE: CAL / VARIABLE

Settings

- CAL: The vector gain is fixed.
- VARIABLE: You can adjust the vector gain by turning the function dial (F•D). Press the function dial (F•D) to return the setting to its default value.
The adjusted gain value (the combination of **F•2** GAIN MAG and **F•3** GAIN VARIABLE) appears in the upper right of the screen.
0.200 to 1.000 to 2.000 (when **F•2** GAIN MAG is set to X1)
1.000 to 5.000 to 10.000 (when **F•2** GAIN MAG is set to X5)
0.520 to 2.630 to 5.260 (when **F•2** GAIN MAG is set to IQ-MAG)

3.6 Configuring Line Select Settings

To configure the line select settings, press **[F•4]** LINE SEL on the vector menu.

[VECT] → **[F•4]** LINE SEL →

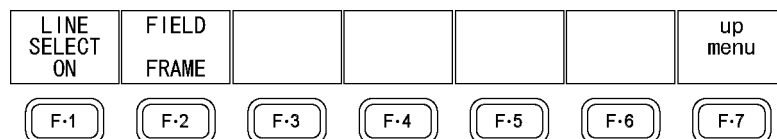


Figure 3-8 LINE SEL menu

3.6.1 Turning Line Select On and Off

To display the vector of the selected line, follow the procedure below. You can use the function dial (F•D) to select a line. The number of the selected line appears in the lower left of the display. Press the function dial (F•D) to move to the first video line. Changing this setting will also change the video-signal-waveform-display and picture-display line select settings.

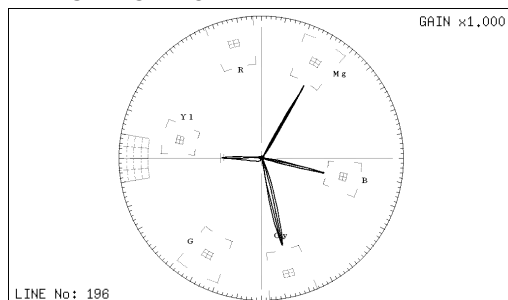
This menu item does not appear when SWEEP is set to V on the video signal waveform menu.

For information on the SWEEP setting, see section 2.4.1, “Selecting the Sweep Method.”

Procedure

[VECT] → **[F•4]** LINE SEL → **[F•1]** LINE SELECT : ON / OFF

LINE SELECT = ON



LINE SELECT = OFF

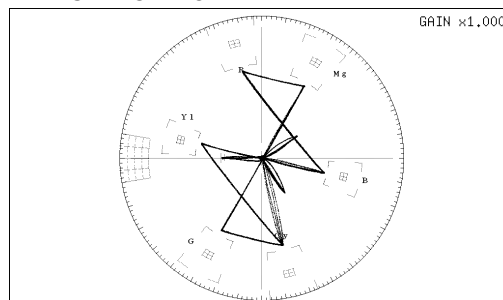


Figure 3-9 Turning line select on and off

3.6.2 Setting the Line Select Range

To set the line select range, follow the procedure below.

Procedure

[VECT] → **[F•4]** LINE SEL → **[F•2]** FIELD : FIELD1 / FIELD2 / FRAME

Settings

FIELD1: A line from field 1 can be selected (example: 1 to 263).
 FIELD2: A line from field 2 can be selected (example: 264 to 525).
 FRAME: All lines can be selected (example: 1 to 525).

3.7 Configuring Display Settings

To configure the display settings, press **F•6** DISPLAY on the vector menu.

VECT → **F•6** DISPLAY →

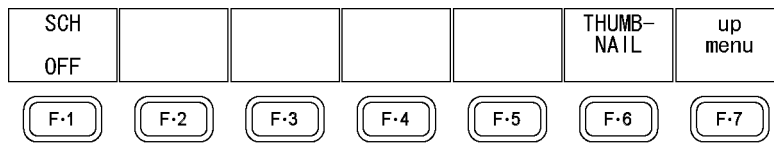


Figure 3-10 DISPLAY menu

3.7.1 Turning SCH Measurements On and Off

To turn SCH measurements on and off, follow the procedure below.

The phase difference between the horizontal sync signal and the color burst signal is displayed in the lower left of the screen.

Procedure

VECT → **F•6** DISPLAY → **F•1** SCH : ON / OFF

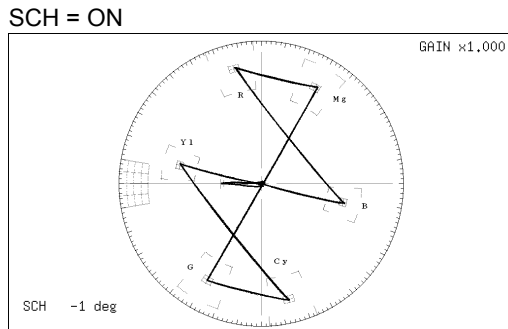


Figure 3-11 Turning SCH measurements on and off

3.7.2 Turning Thumbnails On and Off

To configure thumbnail settings, press **F•6** THUMBNAIL on the DISPLAY menu.

This menu item does not appear when the multi-screen display is in use.

VECT → **F•6** DISPLAY → **F•6** THUMBNAIL →

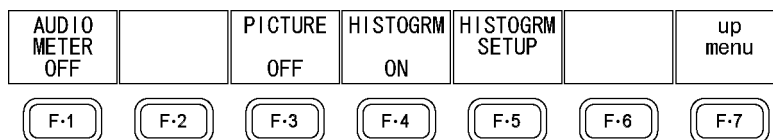


Figure 3-12 THUMBNAIL menu

To turn the thumbnail displays of the audio meter, picture, and histogram on and off separately, follow the procedure below.

When an LV 5770SER41 or LV 5770SER43 is not installed in the LV 5770A or when the audio display mode is set to loudness, **F•1** AUDIO METER is not displayed. You cannot display a histogram thumbnail at the same time as another thumbnail.

Procedure

VECT → F.6 DISPLAY → F.6 THUMBNAIL → F.1 AUDIO METER : ON / OFF
 → F.3 PICTURE : ON / OFF
 → F.4 HISTOGRM : ON / OFF

3.7.3

Configuring the Histogram Settings

To configure histogram settings, press F.5 HISTOGRM SETUP on the THUMBNAIL menu. F.5 HISTOGRM SETUP appears when F.4 HISTOGRM is set to ON.

WFM → F.6 DISPLAY → F.6 THUMBNAIL → F.5 HISTOGRM SETUP →

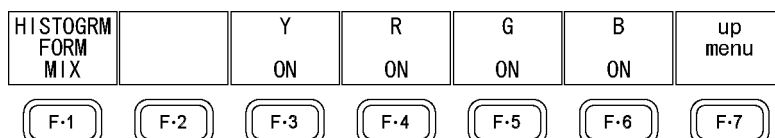


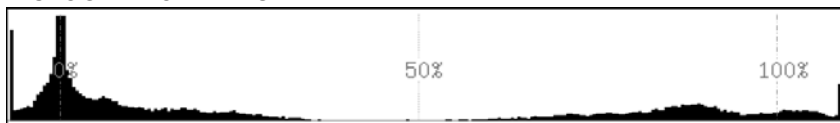
Figure 3-13 HISTOGRM SETUP menu

To select the histogram display format, follow the procedure below.

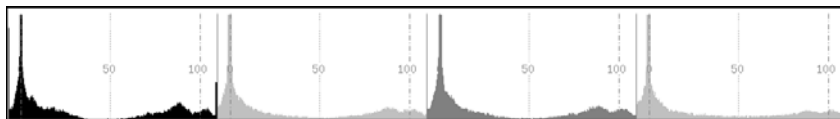
Procedure

VECT → F.6 DISPLAY → F.6 THUMBNAIL → F.5 HISTOGRM SETUP → F.1 HISTOGRM
 FORM : LUMA / ALIGN / MIX

HISTOGRM FORM = LUMA



HISTOGRM FORM = ALIGN



HISTOGRM FORM = MIX



Figure 3-14 Configuring the histogram settings

In addition, when F.1 HISTOGRM FORM is set to MIX, follow the procedure below to turn Y, R, G, and B on and off separately.

Procedure

VECT → F.6 DISPLAY → F.6 THUMBNAIL → F.5 HISTOGRM SETUP
 → F.3 Y : ON / OFF
 → F.4 R : ON / OFF
 → F.5 G : ON / OFF
 → F.6 B : ON / OFF

3.8 Configuring the Color System Settings

To configure the color system settings, press **F.7** COLOR SYSTEM on the vector menu.

VECT → **F.7** COLOR SYSTEM →

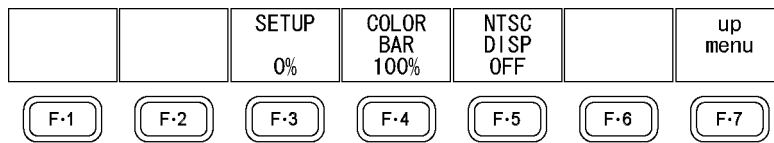


Figure 3-15 COLOR SYSTEM menu

3.8.1 Selecting the Setup Level

When the input signal is NTSC, to select the setup level, follow the procedure below.

Procedure

VECT → **F.7** COLOR SYSTEM → **F.3** SETUP : 0% / 7.5%

3.8.2 Displaying a Scale for 75 % Intensity Color Bars

To display a scale for 75 % intensity color bars, follow the procedure below.

Procedure

VECT → **F.7** COLOR SYSTEM → **F.4** COLOR BAR : 100% / 75%

Settings

100%: A scale that matches the peak levels of 100 % intensity color bars is displayed.

75%: A scale that matches the peak levels of 75 % intensity color bars is displayed.

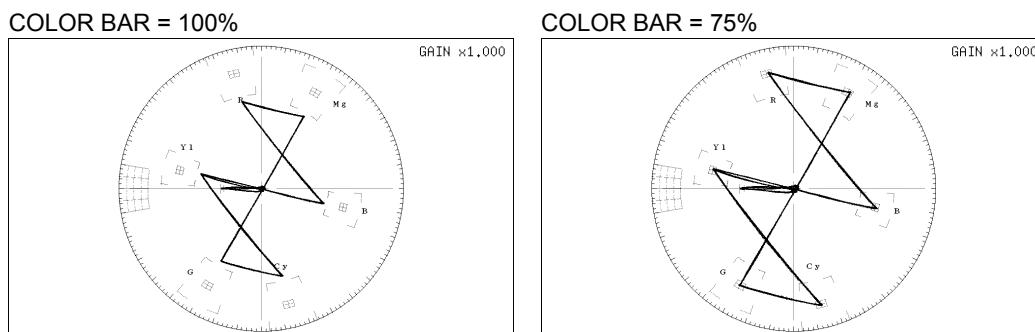


Figure 3-16 Displaying a scale for 75 % intensity color bars (when receiving a 75 % intensity color bar signal)

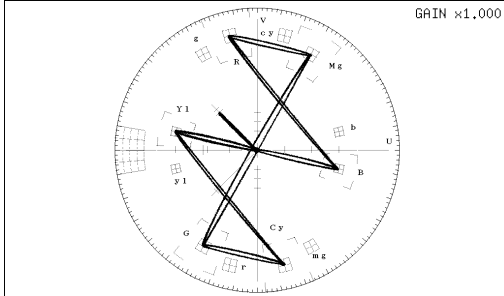
3.8.3 Turning the NTSC Display On and Off

When the input signal is PAL, to invert the polarity of the V axis for each line and to display the signal converted to NTSC with no line alternation, follow the procedure below.

Procedure

VECT → **F•7** COLOR SYSTEM → **F•5** NTSC DISP : ON / OFF

NTSC DISP = ON



NTSC DISP = OFF

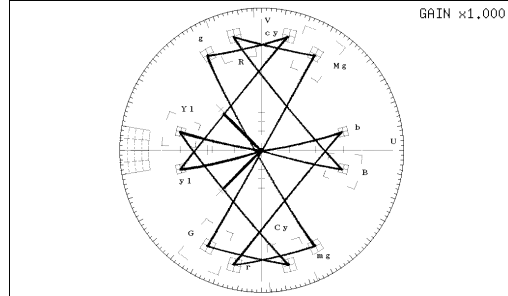


Figure 3-17 Turning the NTSC display on and off

4. PICTURE DISPLAY

To display the picture, press PIC.

When an HD tri-level sync signal is applied, the picture is not displayed.

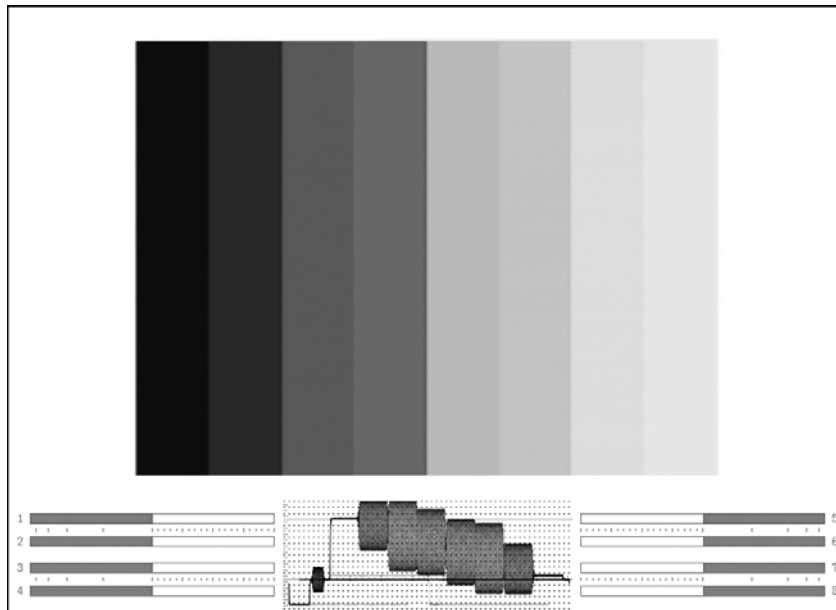


Figure 4-1 Picture display

● Audio Thumbnail

On the LV 5770A, the audio thumbnail appears when the LV 5770SER41 or LV 5770SER43 is installed. The audio thumbnail always appears on the LV 7770. The channels that are displayed are the channels that have been selected on the Lissajous waveform channel mapping display.

You can hide the thumbnails or switch to histogram thumbnails.

See section 4.4.2, “Turning Thumbnails On and Off.”

● Video Signal Waveform Thumbnail

This displays the video signal waveform. You can hide the thumbnails or switch to histogram thumbnails.

See section 4.4.2, “Turning Thumbnails On and Off.”

● Menu

Use the picture menu—which is displayed when you press the PIC key—to configure the picture display settings.

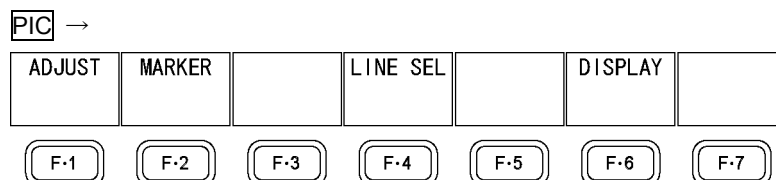


Figure 4-2 Picture menu

4.1 Adjusting the Picture

To adjust the picture, press **F•1** ADJUST on the picture menu.

PIC → **F•1** ADJUST →

MONO/ COLOR COLOR	CHROMA UP NORMAL	BRIGHT- NESS 0. 0%	CONTRAST 100. 0%	GAIN	BIAS	up menu
F•1	F•2	F•3	F•4	F•5	F•6	F•7

Figure 4-3 ADJUST menu

4.1.1 Switching between the Color and Monochrome Displays

To switch between the color and monochrome displays, follow the procedure below.

Procedure

PIC → **F•1** ADJUST → **F•1** MONO/COLOR : COLOR / MONO

4.1.2 Setting the Chroma Gain

To switch the chroma gain, follow the procedure below.

Procedure

PIC → **F•1** ADJUST → **F•2** CHROMA UP : NORMAL / UP

Settings

NORMAL: The chroma gain is set to the value that you have set using **F•5** GAIN.

UP: The chroma gain is set to 2 (200.0 %).

4.1.3 Adjusting the Brightness

To adjust the brightness, follow the procedure below.

Press the function dial (F•D) to return the setting to its default value (0.0 %).

Procedure

PIC → **F•1** ADJUST → **F•3** BRIGHTNESS : -50.0% to 0.0% to 50.0%

4.1.4 Adjusting the Contrast

To adjust the contrast, follow the procedure below.

Press the function dial (F•D) to return the setting to its default value (100.0 %).

Procedure

PIC → **F•1** ADJUST → **F•4** CONTRAST : 0.0% to 100.0% to 200.0%

4.1.5 Adjusting the Gain

To adjust the gain, press **F•5** GAIN on the ADJUST menu.

PIC → **F•1** ADJUST → **F•5** GAIN →

R GAIN 100.0%	G GAIN 100.0%	B GAIN 100.0%	CHROMA GAIN 100.0%			up menu
F•1	F•2	F•3	F•4	F•5	F•6	F•7

Figure 4-4 GAIN menu

To adjust the gain separately for the R, G, B, and chroma signals, follow the procedure below.

Press the function dial (F•D) to return the setting to its default value (100.0 %).

When **F•2** CHROMA UP is set to UP, **F•4** CHROMA GAIN does not appear, and the chroma gain is fixed at 200.0 %.

Procedure

PIC → **F•1** ADJUST → **F•5** GAIN → **F•1** R GAIN : 0.0% to 100.0% to 200.0%
 → **F•2** G GAIN : 0.0% to 100.0% to 200.0%
 → **F•3** B GAIN : 0.0% to 100.0% to 200.0%
 → **F•4** CHROMA GAIN : 0.0% to 100.0% to 200.0%

4.1.6 Adjusting the Bias

To adjust the bias, press **F•6** BIAS on the ADJUST menu.

PIC → **F•1** ADJUST → **F•6** BIAS →

R BIAS 0.0%	G BIAS 0.0%	B BIAS 0.0%				up menu
F•1	F•2	F•3	F•4	F•5	F•6	F•7

Figure 4-5 BIAS menu

To set the RGB signal bias separately for each color, follow the procedure below.

Press the function dial (F•D) to return the setting to its default value (0.0 %).

Procedure

PIC → **F•1** ADJUST → **F•6** BIAS → **F•1** R BIAS : -50.0% to 0.0% to 50.0%
 → **F•2** G BIAS : -50.0% to 0.0% to 50.0%
 → **F•3** B BIAS : -50.0% to 0.0% to 50.0%

4.2 Configuring Marker Settings

To configure marker settings, press **[F•2] MARKER** on the picture menu.

This menu item does not appear when SIZE is set to a value other than FIT.

For information on the SIZE setting, see section 4.4.1, “Selecting the Display Size.”

[PIC] → **[F•2] MARKER** →

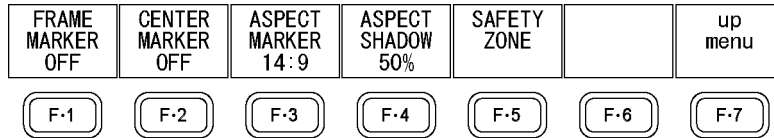


Figure 4-6 MARKER menu

4.2.1 Turning the Display of the Frame Marker On and Off

To turn the display of the frame marker on and off, follow the procedure below.

Procedure

[PIC] → **[F•2] MARKER** → **[F•1] FRAME MARKER : ON / OFF**

4.2.2 Turning the Display of the Center Marker On and Off

To turn the display of the center marker on and off, follow the procedure below.

Procedure

[PIC] → **[F•2] MARKER** → **[F•2] CENTER MARKER : ON / OFF**

4.2.3 Setting the Aspect Marker

To display the aspect marker, follow the procedure below.

Procedure

[PIC] → **[F•2] MARKER** → **[F•3] ASPECT MARKER : OFF / 16:9 / 14:9 / 13:9**

4.2.4 Setting the Aspect Shadow

When **F•3** ASPECT MARKER is set to a value other than OFF, to adjust the darkness of the aspect marker shadow, follow the procedure below. The larger the number, the darker the shadow. If you specify 0 %, the aspect marker will be indicated with a line. Press the function dial (F•D) to return the setting to its default value (50 %).

Procedure

PIC → **F•2** MARKER → **F•4** ASPECT SHADOW : 0% to 50% to 100%

ASPECT SHADOW = 50%

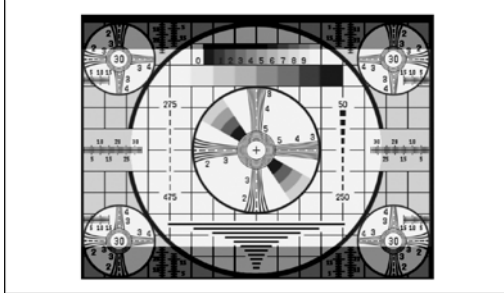


Figure 4-7 Setting the aspect shadow

4.2.5 Setting the Safe Action Marker

To configure safety marker settings, press **F•5** SAFETY ZONE on the MARKER menu.

PIC → **F•2** MARKER → **F•5** SAFETY ZONE →

SAFE ACTION USER1	SAFE TITLE USER2	USER1 WIDTH 90%	USER1 HEIGHT 90%	USER2 WIDTH 80%	USER2 HEIGHT 80%	up menu
F•1	F•2	F•3	F•4	F•5	F•6	F•7

Figure 4-8 SAFETY ZONE menu

To display the safe action marker, follow the procedure below.

When an aspect marker is displayed, the safe action marker is displayed relative to the aspect marker.

Procedure

PIC → **F•2** MARKER → **F•5** SAFETY ZONE → **F•1** SAFE ACTION : SMPTE / USER1 / OFF

Settings

SMPTE:	An SMPTE RP-218 safe action marker is displayed.
USER1:	A marker that has been set with F•3 USER 1 WIDTH and F•4 USER1 HEIGHT is displayed.
OFF:	A safe action marker is not displayed.

4.2.6 Setting the Safe Title Marker

To display the safe title marker, follow the procedure below.

When an aspect marker is displayed, the safe title marker is displayed relative to the aspect marker.

Procedure

PIC → **F•2** MARKER → **F•5** SAFETY ZONE → **F•2** SAFE TITLE : SMPTE / USER2 / OFF

Settings

SMPTE: An SMPTE RP-218 safe title marker is displayed.

USER2: A marker that has been set with **F•5** USER 2 WIDTH and **F•6** USER2 HEIGHT is displayed.

OFF: A safe title marker is not displayed.

4.2.7 Setting User Markers

By setting **F•1** SAFE ACTION to USER1 and **F•2** SAFE TITLE to USER2, you can display up to two user-defined markers.

To set the width and height of a user marker, follow one of the procedures below.

Procedure

PIC → **F•2** MARKER → **F•5** SAFETY ZONE
 → **F•3** USER1 WIDTH : 0% to 90% to 100%
 → **F•4** USER1 HEIGHT : 0% to 90% to 100%
 → **F•5** USER2 WIDTH : 0% to 80% to 100%
 → **F•6** USER2 HEIGHT : 0% to 80% to 100%

4.3 Configuring Line Select Settings

To configure line select settings, press **F•4** LINE SEL on the picture menu.

PIC → **F•4** LINE SEL →

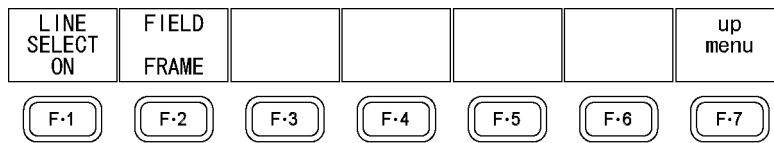


Figure 4-9 LINE SEL menu

4.3.1 Turning Line Select On and Off

To display a marker on the selected line, follow the procedure below. You can use the function dial (F•D) to select a line. The number of the selected line appears in the upper left of the display. Press the function dial (F•D) to move to the first video line. Changing this setting will also change the video-signal-waveform-display and vector-display line select settings.

When SIZE is set to a value other than FIT, you cannot select lines.

For information on the SIZE setting, see section 4.4.1, "Selecting the Display Size."

Procedure

PIC → **F•4** LINE SEL → **F•1** LINE SELECT : ON / OFF

LINE SELECT = ON

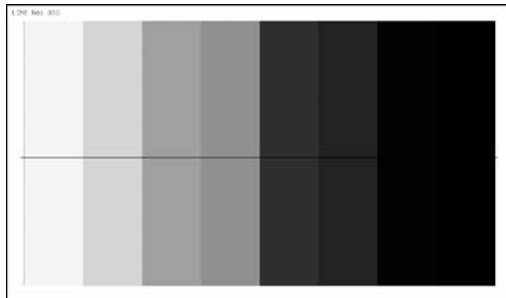


Figure 4-10 Turning line select on and off

4.3.2 Setting the Line Select Range

To set the line select range, follow the procedure below.

Procedure

PIC → **F•4** LINE SEL → **F•2** FIELD : FIELD1 / FIELD2 / FRAME

Settings

FIELD1: A line from field 1 can be selected (example: 1 to 263).
 FIELD2: A line from field 2 can be selected (example: 264 to 525).
 FRAME: All lines can be selected (example: 1 to 525).

4.4 Configuring Display Settings

To configure the display settings, press **F•6** DISPLAY on the picture menu.

PIC → **F•6** DISPLAY →

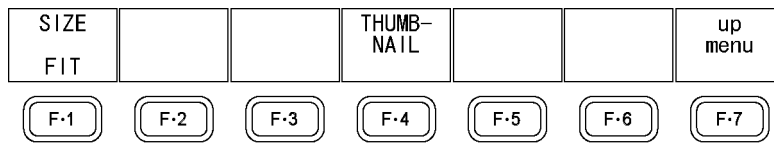


Figure 4-11 DISPLAY menu

4.4.1 Selecting the Display Size

To select the picture display size, follow the procedure below.

Regardless of this setting, the picture displayed in the thumbnail is displayed with the FIT setting.

The LV 5770SER03A uses simple filtering to enlarge and reduce the picture.

Procedure

PIC → **F•6** DISPLAY → **F•1** SIZE : FIT / REAL / X2 / FULL FRM

Settings

FIT: The picture is displayed at the optimal size for the screen.

REAL: A single sample of the video signal is displayed with a single pixel on the screen.

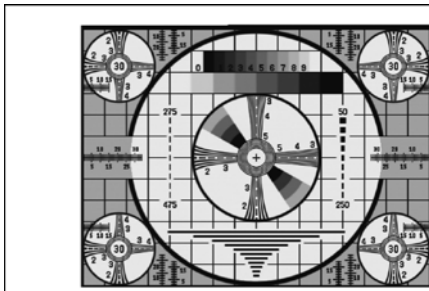
When the input signal is PAL, you can use the V POS knob to adjust the display position of the picture. Press a knob to return the picture to the corresponding default location.

X2: A single sample of the video signal is displayed with 4 pixels (2 horizontal and 2 vertical pixels) on the screen.

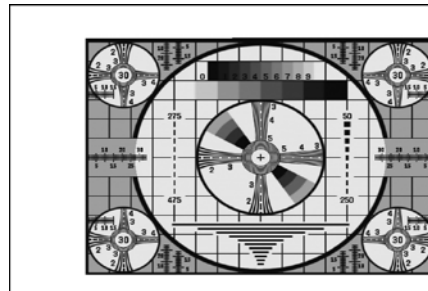
Use the V POS and H POS knobs to adjust the display position of the picture. Press a knob to return the picture to the corresponding default location.

FULL FRM: A single frame, including the blanking interval, is displayed.

SIZE = FIT



SIZE = REAL



4. PICTURE DISPLAY

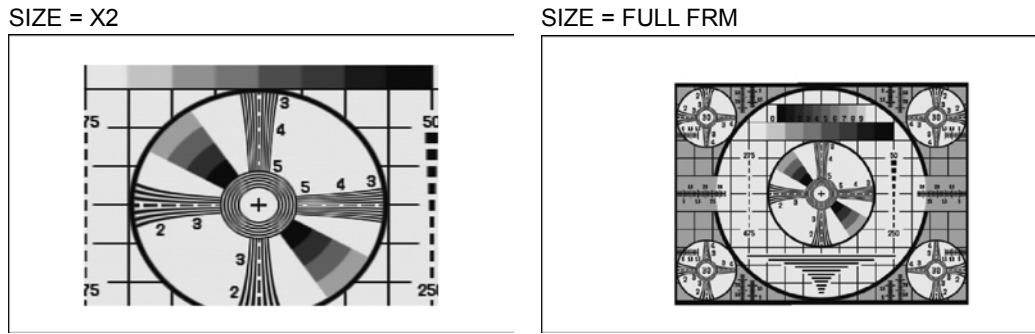


Figure 4-12 Selecting the display size

4.4.2 Turning Thumbnails On and Off

To configure thumbnail settings, press **F•4** THUMBNAIL on the DISPLAY menu. This menu item does not appear when the multi-screen display is in use.

PIC → **F•6** DISPLAY → **F•4** THUMBNAIL →

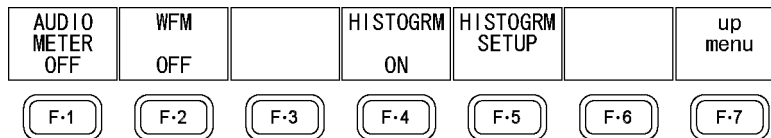


Figure 4-13 THUMBNAIL menu

To turn the thumbnail displays of the audio meter, video signal waveform, and histogram on and off separately, follow the procedure below.

When an LV 5770SER41 or LV 5770SER43 is not installed in the LV 5770A or when the audio display mode is set to loudness, **F•1** AUDIO METER is not displayed. You cannot display a histogram thumbnail at the same time as another thumbnail.

Procedure

PIC → **F•6** DISPLAY → **F•4** THUMBNAIL → **F•1** AUDIO METER : ON / OFF
 → **F•2** WFM : ON / OFF
 → **F•4** HISTOGRM : ON / OFF

4.4.3 Configuring the Histogram Settings

To configure histogram settings, press **[F.5]** HISTOGRM SETUP on the THUMBNAIL menu. **[F.5]** HISTOGRM SETUP appears when **[F.4]** HISTOGRM is set to ON.

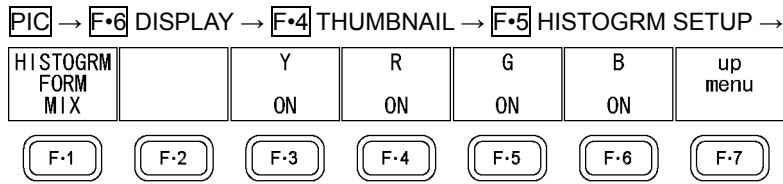


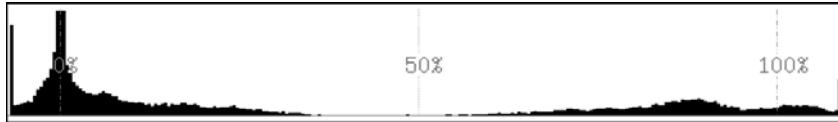
Figure 4-14 HISTOGRM SETUP menu

To select the histogram display format, follow the procedure below.

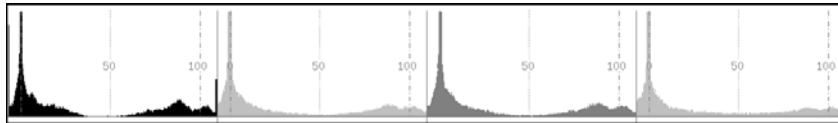
Procedure

[PIC] → **[F.6]** DISPLAY → **[F.4]** THUMBNAIL → **[F.5]** HISTOGRM SETUP → **[F.1]** HISTOGRM FORM : LUMA / ALIGN / MIX

HISTOGRM FORM = LUMA



HISTOGRM FORM = ALIGN



HISTOGRM FORM = MIX



Figure 4-15 Configuring the histogram settings

In addition, when **[F.1]** HISTOGRM FORM is set to MIX, follow the procedure below to turn Y, R, G, and B on and off separately.

Procedure

[PIC] → **[F.6]** DISPLAY → **[F.4]** THUMBNAIL → **[F.5]** HISTOGRM SETUP
 → **[F.3]** Y : ON / OFF
 → **[F.4]** R : ON / OFF
 → **[F.5]** G : ON / OFF
 → **[F.6]** B : ON / OFF

5. STATUS DISPLAY

To display the status of the LV 5770SER03A, press STATUS.

You can use this menu to measure the phase difference between the composite signal or the HD tri-level sync signal and an external sync signal.

Press EXT, and apply an external sync signal to the EXT REF connector on the rear panel. For a composite input signal, apply an NTSC/PAL black burst signal. For an HD tri-level sync input signal, apply an HD tri-level sync signal.

In either situation, apply a signal that is synchronized with and is the same format as the input signal.

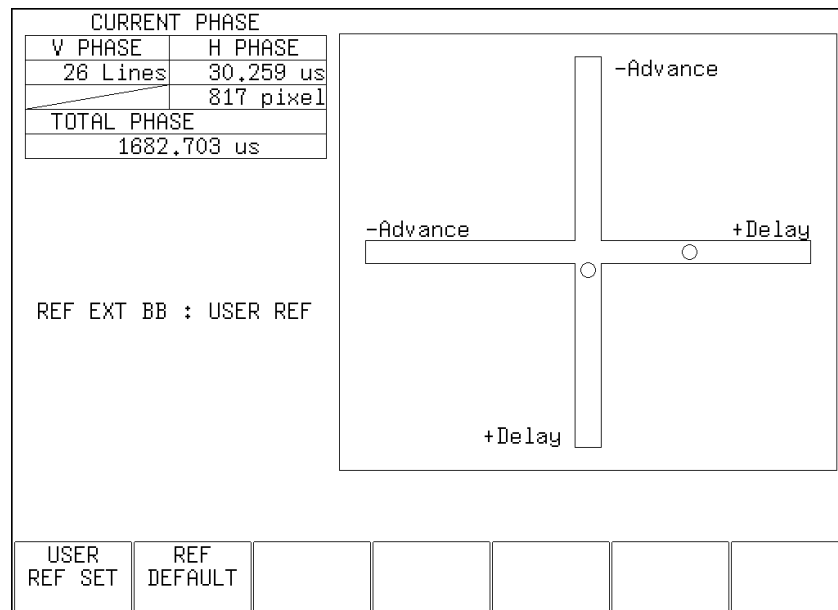


Figure 5-1 Status display

● CURRENT PHASE

V PHASE: The phase difference is displayed in units of lines.

H PHASE: The phase difference is displayed in units of time and units of number of samples.

TOTAL PHASE: The total of the V PHASE and H PHASE differences is displayed here in units of time.

- **REF**

This displays the reference signal as shown below.

Table 5-1 REF indications

Display Indication	Description
INT	Indicates that the internal sync mode is in use.
EXT BB : DEFAULT	Indicates that the external sync signal is BB and the phase difference is the default value.
EXT BB : USER REF	Indicates that the external sync signal is BB and a user-defined reference is being used.
REF EXT HD : DEFAULT	Indicates that the external sync signal is an HD tri-level sync signal and the phase difference is the default value.
REF EXT HD : USER REF	Indicates that the external sync signal is an HD tri-level sync signal and a user-defined reference is being used.
NO SIGNAL	Indicates that no external sync signal is being applied.

User-Defined References for the Phase Difference

By pressing **[F•1]** USER REF SET, you can set the current phase difference to zero. You can change the reference to match the system that you are using.

To reset the phase difference to its default value, press **[F•2]** REF DEFAULT. The default value is the setting that makes a phase difference of 0 between the NTSC or PAL black burst signals that are distributed to the TRI SYNC/COMPOSITE INPUT and EXT REF connectors through cables of equal length.

- **Graphical Display**

The vertical axis indicates the V phase difference in lines. The horizontal axis represents the H phase difference in time. When the circles that represent V and H overlap with each other in the center, there is no phase difference.

The circles are normally displayed in white, but they will be displayed in green under the following circumstances.

Horizontal: When the circle is within ± 3 clocks of the center.

Vertical: When the circle is within ± 0 clocks of the center.

Circles do not appear when the LV 5770SER03A uses internal synchronization.

When the signal is behind the reference signal, the circle is displayed on the Delay (+) side. When the signal is ahead of the reference signal, the circle is displayed on the Advance (-) side. For both the V and H axes, differences of up to approximately $+1/2$ frames from the center are displayed on the Delay axis and differences of up to approximately $-1/2$ frames from the center are displayed on the Advance axis.

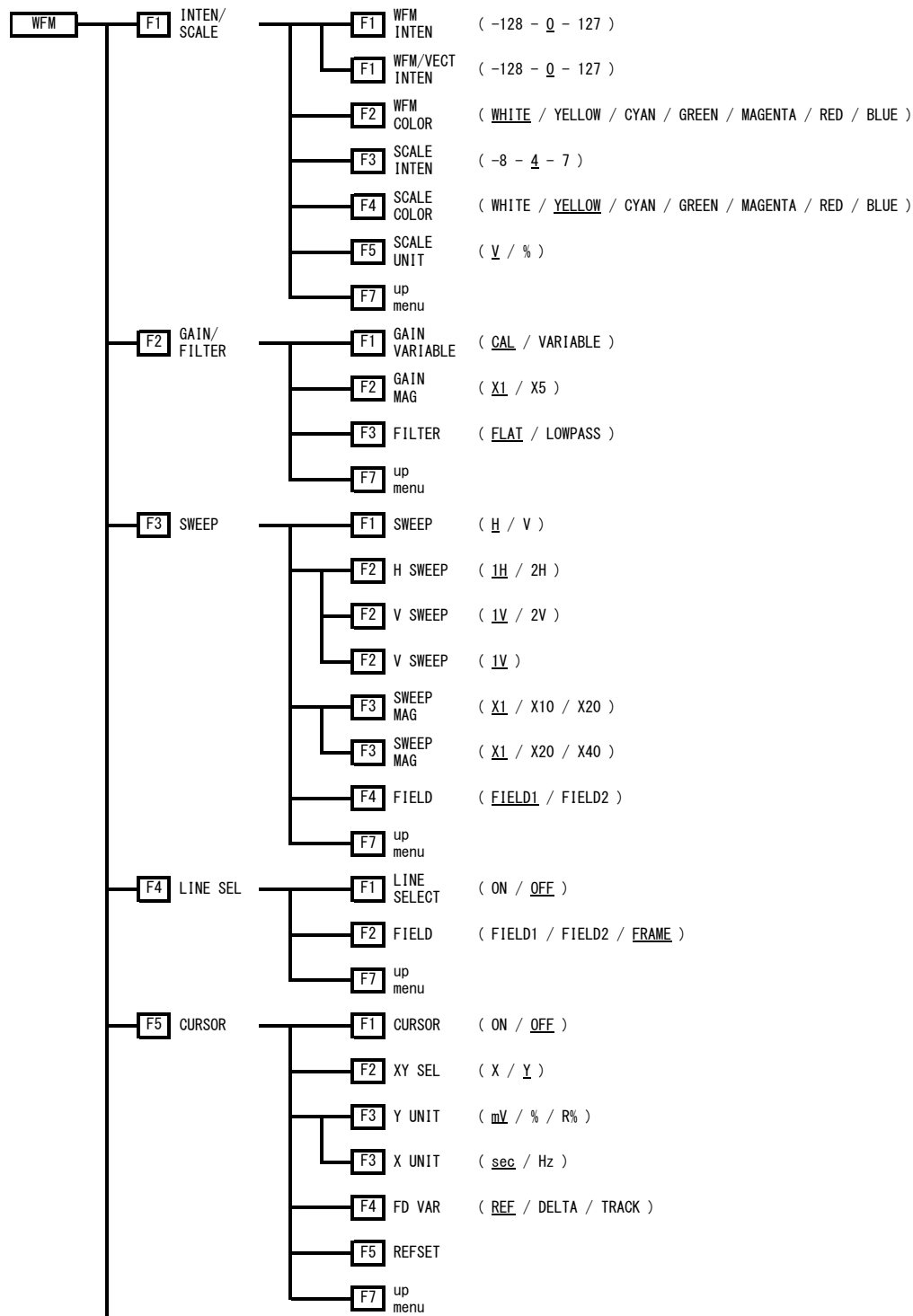
6. MENU TREES

This chapter shows the menu trees that correspond to each display mode key.

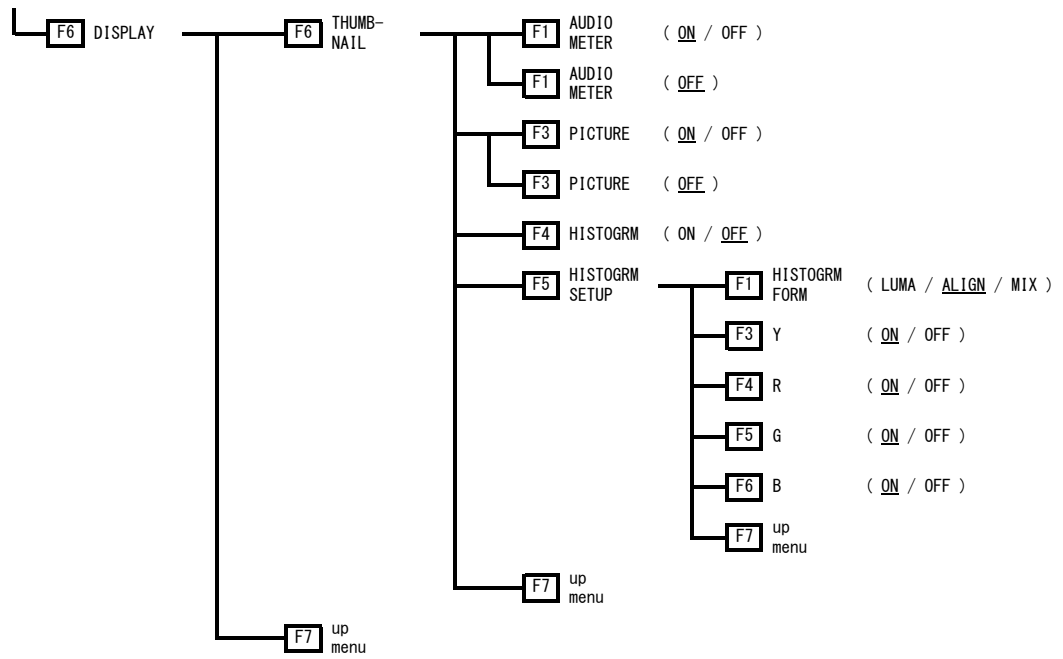
The default settings are underlined. The settings selected in the tab menu displays are also default settings.

The menus that are displayed vary depending on the LV 5770A/7770 settings and whether a USB memory device is connected to the LV 5770A/7770.

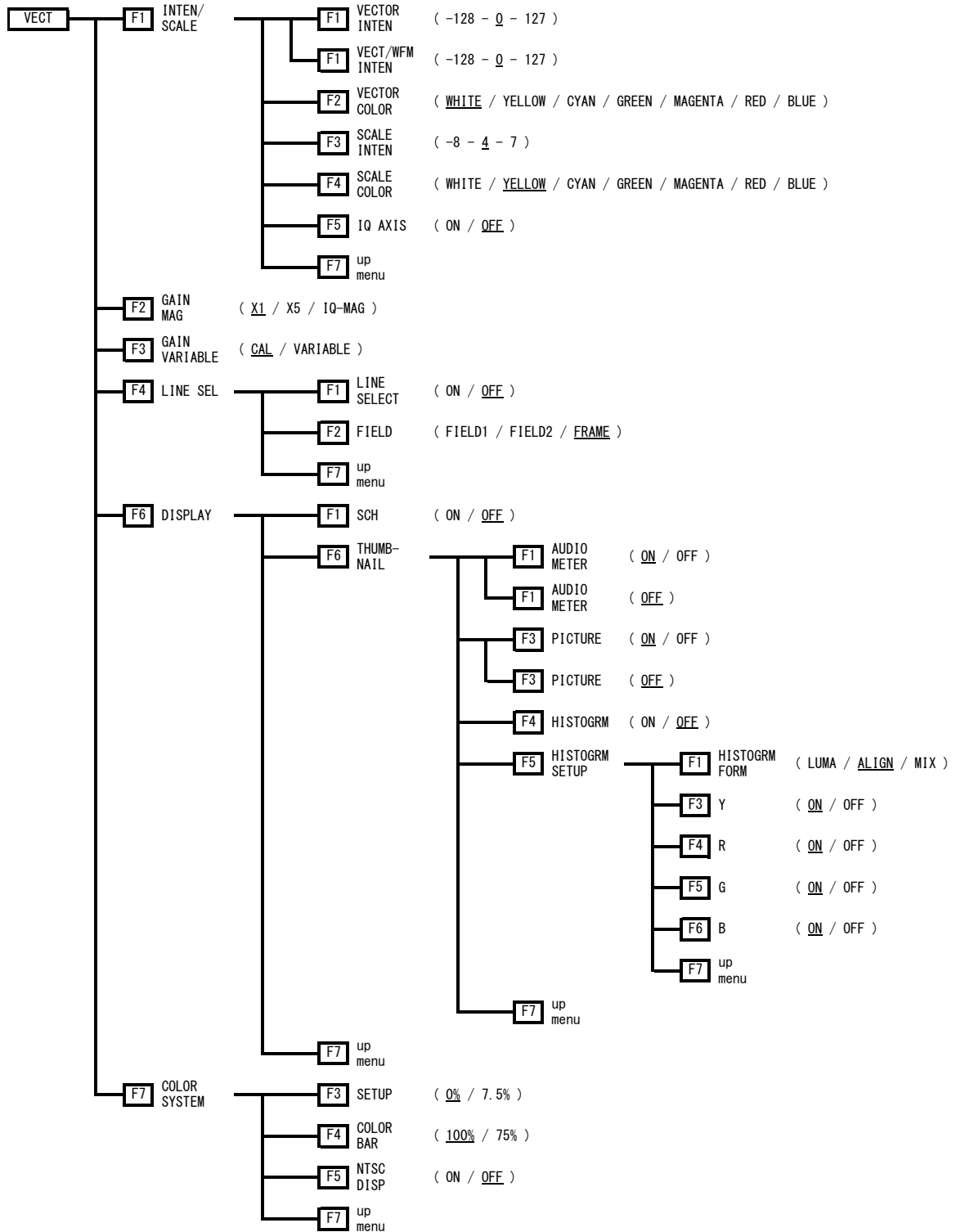
6.1 Video Signal Waveform Menu



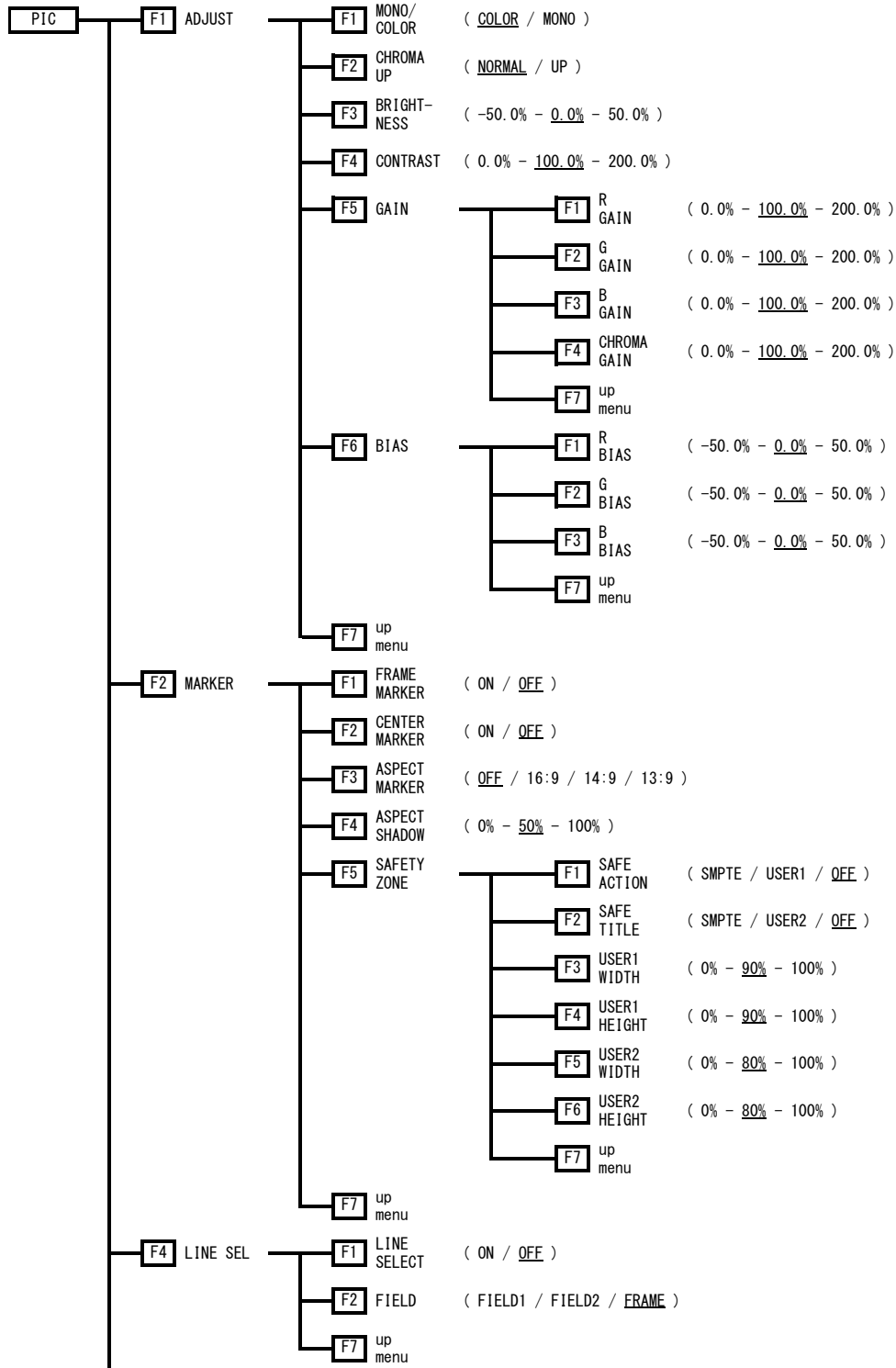
6. MENU TREES



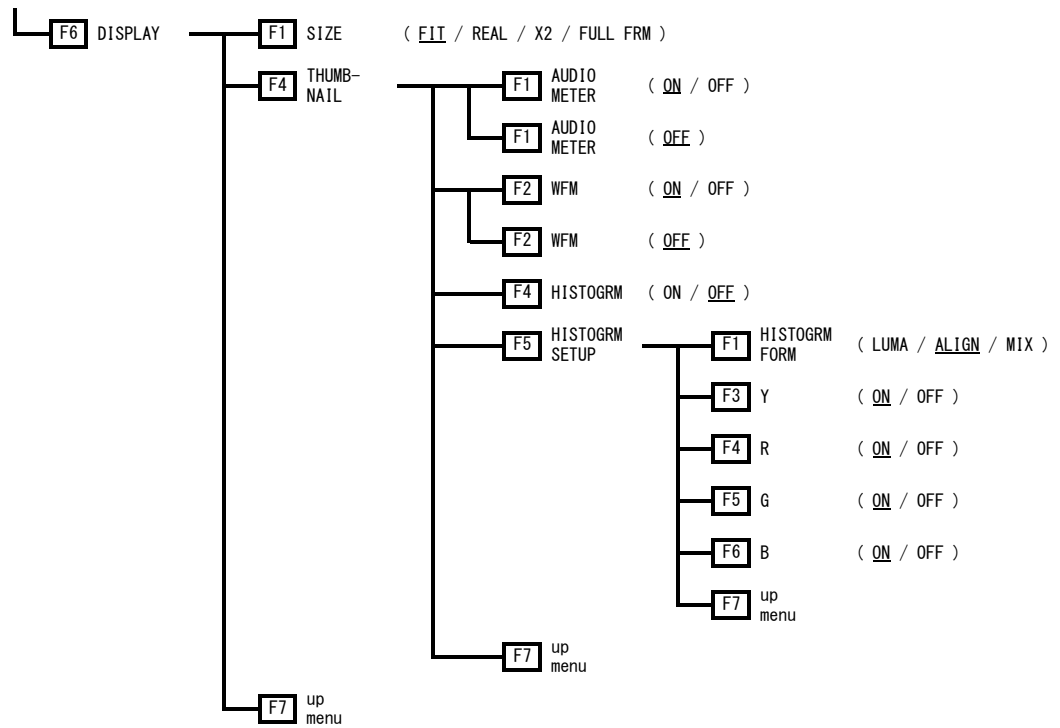
6.2 Vector Menu



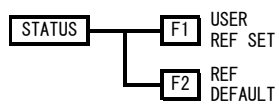
6.3 Picture Menu



6. MENU TREES



6.4 Status Menu



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