

INSTRUCTION MANUAL

CVI MODEL 606C

VIDEO QUANTIZER

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## SECTION 1

### GENERAL DESCRIPTION

#### 1.1 INTRODUCTION

This instruction manual is to be used as a guide to the installation, adjustment, operation, and maintenance of the CVI Model 606C Video Quantizer.

#### 1.2 PURPOSE OF EQUIPMENT

The Model 606C is an instrument designed to process the greyscale characteristics of a monochrome video input signal in order to achieve radical alterations in output linearity or, alternately, to synthesize color signals from different shades of grey.

The unit operates on the input video signal by selecting from 1 to 21 separate narrow "slices" which are adjustable to any amplitude level between black and white. Selection of the thresholds may be on a linear, logarithmic, antilog, or other arbitrary basis. An integral patch panel provides a means of combining the outputs of the 21 quantizers to achieve a wide range of visual effects. The unit also contains a linear video amplifier, the output of which may be mixed with the quantized signals for additional versatility.

#### 1.3 DESCRIPTION OF EQUIPMENT

The Model 606C Video Quantizer mounts in a standard 19" rack, occupies 14" of vertical space, and utilizes completely solid state circuitry. All major circuit elements are mounted on plug-in cards.

Normal operating and setup controls are front panel mounted, and all signal interconnections are located on the rear of the chassis. BNC connectors are used for video and drive inputs.

1.4

SPECIFICATIONS

Size: 14" x 19" x 12"  
Mounting: Standard 19" rack  
Construction: Plug-in cards, solid state, silicon  
Power: 117 VAC, 60 Hertz  
Inputs: Video 1V, 75 ohms  
Ext. Signal 0 to +1V, 75 ohms  
DC to 15 MHz  
Horiz. DR 4V, 1K ohms  
Blanking 4V, 1K ohms  
Outputs: Video Red 1V, 75 ohms  
Video Green 1V, 75 ohms  
Video Blue 1V, 75 ohms  
Sync 3.5V, 75 ohms  
Controls: AC Power  
Input Level  
Bias  
Analog Level  
Quant.: Int/Ext/Test  
Quant. Thresholds: 1 through 21  
Quant: Output Level: 1 through 21  
Red Level  
Green Level  
Blue Level  
Connectors: BNC

## SECTION 2 OPERATING INSTRUCTIONS

### 2.1 INTRODUCTION

This section contains the general operating instructions and procedures for the Model 606C Video Quantizer.

### 2.2 INITIAL INSTALLATION

Connect an appropriate source of video to the BNC video output connector located on the rear panel of the 606C. If the video signal is non-composite, then a separate H. DR (or sync) signal must also be connected to the rear panel H. DR input, and the associated toggle switch placed in the EXT position. Connect proper R, G, B, and sync lines from the 606C to an R, G, B Monitor. R, G, B lines MUST be terminated into 75 ohms.

Adjust front panel controls as follows:

- QUANT switch in the EXT position.
- R, G, B potentiometers fully clockwise.
- ANALOG level control fully clockwise.

Apply AC power to the 606C. A monochrome image should appear on the screen of the monitor, and the ANALOG level control may be turned counter-clockwise if video overload is evident. Following this, adjust the R, G, or B level controls to produce a black and white, untinted picture on the monitor screen.

To test the color synthesizing portion of the 606C, perform the following operations:

- Turn ANALOG, BIAS, and INPUT LEVEL controls fully counter-clockwise.
- Turn the QUANT switch to the "test" position.
- Place a pin in the left-hand patch panel, Row #1, Column E.
- Rotate QUANT OUTPUT LEVEL control #1 fully clockwise.

Now rotate the QUANTIZER THRESHOLD control #1 slowly while observing the TV monitor screen. A black and red pattern should appear, with the left-hand portion of the screen black, and the right-hand portion red. Set the QUANTIZER THRESHOLD control so that the dividing line is roughly at the mid-point of the monitor screen. Next turn the INPUT LEVEL control fully clockwise and place the QUANT switch in the "Int" position. By rotating the BIAS control slowly clockwise, a red and black presentation of the video input signal should appear on the monitor screen.

Return the QUANT switch to the TEST position. Move the patch panel pin down one row to the Row 2, Column E point. Rotation of the QUANTIZER THRESHOLD 2 control should now vary the position of the black-red dividing line. Continue moving the pin down the RED column to assure proper operation of all 21 QUANTIZER THRESHOLD controls.

Put the patch panel pin in the Row 1, Column K point and check for a black-green display. Move the pin to Row 1, Column Q and check for a black-blue display.

In order to check the operation of the keying circuits, set up the patch panel with pins in the locations shown in Fig. 2-1. Turn the first eight QUANTIZER THRESHOLD controls

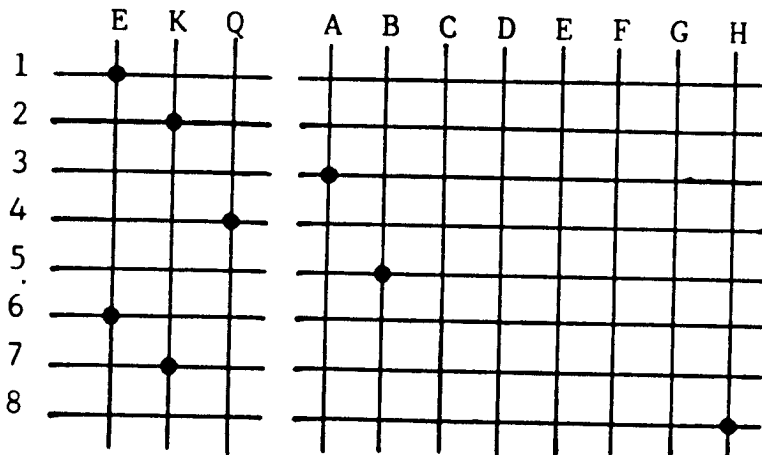


Fig. 2-1 PATCH PANEL SETUP FOR KEYING TEST

fully clockwise. Turn the QUANT control to the TEST position. The ANALOG LEVEL control should be set fully counter-clockwise.

Rotate the QUANTIZER THRESHOLD 1 control counter-clockwise until the black-red transition is in the left-hand half of the monitor screen (See Fig. 2-2). Next, rotate QUANTIZER THRESHOLD 2 counter-clockwise until its transition (which should be red-yellow) is slightly to the right of the black-red transition. Continue in this fashion with QUANTIZER THRESHOLDS 3 through 7, at which time a display similar to that of Fig. 2-2 should result.

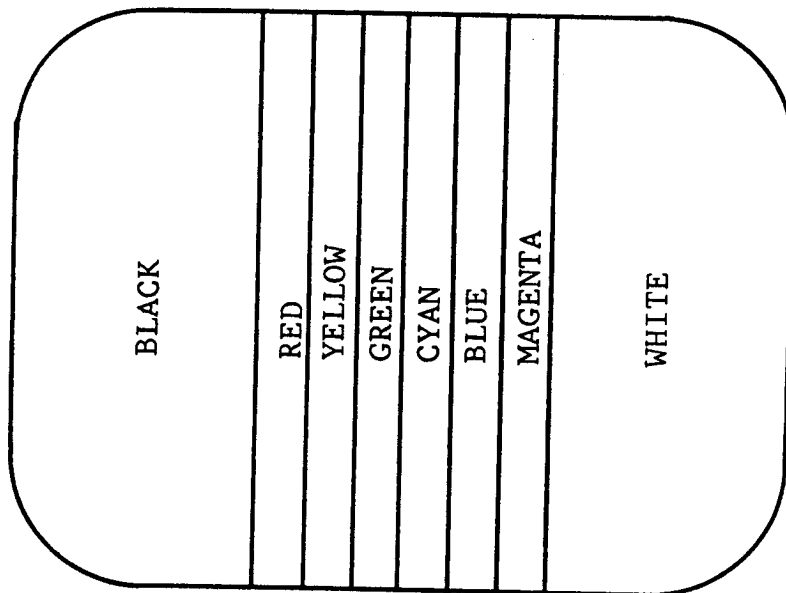


Fig. 2-2 MONITOR DISPLAY FOR KEYING TEST

### 2.3 OPERATING CONTROLS

The operating controls and their functions are listed below:

<u>Front Panel Controls</u>	<u>Function</u>
POWER	Turns unit on. (Push on/off)
BIAS	Varies the DC level of the video signal before quantizing, so clockwise rotation moves the video signal toward the white quantizing levels, while counter-clockwise rotation produces quantizing toward black.

INPUT LEVEL	Varies the amplitude of the video signal before quantizing and thus affects the "coarseness" of the quantizing.
QUANT: INT/EXT/TEST	Selects the signal going into the quantizing circuitry.  In the INT position, it routes the Video In signal to the quantizing circuitry after that signal has passed through the INPUT LEVEL and BIAS controls.  In the EXT position, it routes the External In signal to the quantizing circuitry.  In the TEST position, it routes an internally generated ramp signal with a period equal to that of the horizontal line rate to the quantizing circuitry.
ANALOG LEVEL	Varies the amplitude of the video input signal fed to the linear video amplifier.
QUANTIZER THRESHOLDS	Varies the "slicing" level of each of the 21 quantizers.
QUANTIZER OUTPUT LEVELS	Allows the adjustment of individual quantizer output levels to obtain variations in color intensity or hue in the reproduced image.
PATCH PANEL	Provides a means for interconnecting the outputs of the individual quantizers to the R, G, and B channels and a means of interconnecting the keying signals between the quantizer outputs and keying inputs. See Section 2.4.
RED LEVEL GREEN LEVEL BLUE LEVEL	These controls adjust the relative amplitude balance of the R-G-B components in the final output signal.



## 2.4 PATCH PANEL

### 2.4.1 R-G-B Coding

The keyed video outputs from the first 20 quantizers are connected to rows 1 through 20 of the left-hand side of the patch panel corresponding to the QUANTIZER THRESHOLDS 1 through 20. These rows cross the E, K, and Q columns which correspond to the R, G, and B outputs. A pin in the Row 1, Column E junction will thus connect the keyed video signal on Row 1 to the R output. The 21st keyed video output is permanently connected to the G output.

The keyed video signals are applied to rows 1 through 20 such that if 1 and 2 were routed to the F, G, or B output, an equal signal would appear at that output if either 1 or 2 were "on" (white). However, if both 1 and 2 were "on", the outputs would be summed, producing a signal greater in amplitude than that obtained when only one output was "on". This gives the possibility of obtaining up to 21 shades at the R, G, or B outputs.

### 2.4.2 Keying

The right-hand portion of the patch panel permits interconnection of the quantizers so that the sliced output of a quantizer can be used to key off the output of another quantizer. The rows of this section are connected to the sliced video signal. The columns of this section are connected to the key inputs of the quantizers. Thus the rule to remember in placing the keying pins is: ROWS GATE OFF THE COLUMNS.

As an example, consider the situation where a pin is inserted in the Row 2, Column A junction. When sliced (quantized) video output 2 was "on", the keyed video output 1 would be switched "off" (black), regardless of its threshold level. If the quantizer threshold 1 was set lower than threshold 2 and the quantized video 1 routed to the R, G, and B outputs, then the outputs would have an "on" signal present whenever the input video was between quantizer threshold 1 and threshold 2.

This keying applies to the first 19 quantizers. The exception to the above will be found for Column V. There is no way to key quantizers #20 and #21 (#20 would logically be on Column V). Instead of keying a quantizer, Column V is used to gate off (key) the analog video which is fed equally to the R, G, and B outputs. Thus the analog video can be added to the quantized video by turning up the ANALOG LEVEL control, and gated off by any quantizer by pinning that quantizer's output into Column V.

SECTION 3  
MAINTENANCE

3.1 INTRODUCTION

This section contains block diagrams, schematics, and parts location drawings of the Model 606C Video Quantizer.