

# THE CONCEPT

## Operation Manual

### I. INTRODUCTION

Incredibly well written and witty prose - about 2 pages.

- allows flexibility of cue composition
- allows flexibility of cue execution

### II. DESCRIPTION OF CONSOLE FEATURES

#### A. The Power Switch

The 'CONCEPT' power switch is an illuminated rocker switch located on the right hand side of the back panel. When the upper half of the switch is depressed, the 'CONCEPT' is ON. During the eight seconds of initialization, the following message will appear on the CRT display screens:

```
*****  
*   CONCEPT   *  
*****
```

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After the system is initialized and ready, 'CONCEPT' will exhibit the STAGE display on the right hand CRT screen (see section II.B.1 for display facsimile) and the CHAN mode will be selected. Both the STAGE and CHAN button LED's will be illuminated. The left hand CRT screen will display the Operator's CUE SHEET (see section II.B.8). Manual Cross Fader and Auto Fader CLEAR button LED's will be illuminated, as will the Auto fader Touch Bar LED's.

#### B. Display Functions

The Display Functions include STAGE, BLIND, FADER, MANUAL, CHANNELSCAN, SOFTPATCH, and SETUP Display modes. The Display Functions switches are located along the top of the right side of the console. These functions dedicate the right CRT monitor to the display of information in various formats useful to the operator. The left CRT monitor is dedicated to a fixed format Operator' Cue Sheet (see section 8, below).





b. "Captured Channels"

As an intensity is selected for a control channel, the numeric representation of that intensity ( 01-99 or FF) will appear beneath the selected channel number.

01	02	03	04	05	....
FF	50	20	85	FF	....

Channels which are selected at the keypad are removed from the control of recorded cues in the faders and/or the submasters and are referred to as CAPTURED CHANNELS.

When channels are "captured," the CAPTURED CHANNELS message will appear in the upper left hand corner of the Stage Display. Those channels which have been selected and are currently under the control of the keypad will have levels displayed in reverse video.

01	02	03	04	05	....
FF	50	20	85	FF	....

CAPTURED CHANNELS may be released from the control of the keypad by pressing the REL (i.e., RELEASE) button, located to the right of the keypad. Changes which are meant to be permanent (e.g., intensity adjustments in cues) must be recorded before CAPTURED CHANNELS are released. Released channels will return to the levels prescribed by any active cues or submasters.

Those channels which are no longer currently selected at the keypad, but have not yet been released from the control of the keypad, will have intensities displayed in half reverse video.

01	02	03	04	05	....
FF	50	20	85	FF	....

Pressing ENTER twice will release all CAPTURED CHANNELS.

If another Display mode is selected while channels are still "captured," those channels will remain at the set levels until STAGE is re-selected and the channels are released from the control of the keypad.

c. Operator Prompts

Operator prompts such as

\*\*\* SELECT CHANNELS TO WRITE BY \*\*\*

will appear beneath the channel-intensity display area to assist the operator in usual operating procedures. (see II.B.9.)

d. Fade Time - Fade Type Display

Upfade time, downfade time, and fade type for the currently selected cue will appear in the lower right hand corner of the Stage Display. If no time or type are selected, the cue will default to a five (00:05.0) second Auto-Crossfade. If the fade time(s) or fade type are adjusted, a <NOT RECORDED> message will flash above the fade time information. The message will disappear when the changes are recorded.

e. "Next Cue" Display

If the SEQ (i.e., SEQUENCE) button is activated, cue information for the next cue in sequence will appear in the lower left hand corner of the Stage Display.

NEXT CUE # :	2	
UPTIME:	00:05.0	
DNTIME:	00:10.0	
WTTIME:	00:01.0	
FDTYPE:	AUTO-X	

f. Remaining Cue Number

The bottom, center section of the Stage Display contains a counter which will keep the operator informed of the number of unrecorded cues remaining at any given time. Up to two hundred cues are available for each "show."



## 2. BLIND

BLIND mode displays the channel levels in the cue number which is currently selected at the keypad. This Display mode is used for creating and modifying cues without affecting the channel levels on stage. Cues which have been written or modified in BLIND may be stored in the console memory by pressing RECORD (see RECORD, II.E.9).

When BLIND mode is selected, the BLIND button LED will be illuminated and the following display will appear on the right hand CRT screen:

---

CUE 1	BLIND																GRAND MASTER AT 10	
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96			

\*\*\* SELECT CUE NUMBER \*\*\*

---

NEXT CUE # :				
UPTIME:		CUES		UPTIME: 00:05.0
DNTIME:		LEFT		DNTIME: 00:05.0
WTTIME:				WTTIME: 00:00.0
FDTYPE:		200		FDTYPE: AUTO-X

---

The format of the BLIND Display screen is similar to the STAGE Display (see STAGE, II.B.1). The Grand Master, Fade Time, Fade Type, Next Cue, and Remaining Cue Displays occupy the same locations as they do in STAGE. BLIND exhibits the selected cue number in the top left corner of the screen.



a. Channel Level Display

When channels are selected at the keypad (see CHANNEL SELECTOR, II.D.1., and GROUP SELECTOR, II.D.2.) in BLIND Display mode, they are flagged by reverse-video blocks.

```
01 02 03 04 05  ....
                   ....
```

As intensities are selected (see AT, II.D.5.) for those channels, the levels (01 - 99, or FF) will appear beneath the channel numbers in reverse video.

```
01 02 03 04 05  ....
85 85      85      ....
```

Selecting a new channel or group of channels will clear the currently selected channels, which will return to normal video.

```
01 02 03 04 05  ....
85 85      85      ....
```

When a new cue or a cue modification has been made, but not recorded, in BLIND, a flashing operator prompt will appear in the cue information box in the lower right corner of the screen.

< NOT RECORDED >

This message will also appear if changes are made in the Fade Time, Wait Time, or Fade Type.

b. Subroutine Display

Subroutines may be constructed and modified in BLIND Display mode only. When the SUBROUTINE button is selected, the CRT will shift to the Subroutine Display, a blank screen headed by the subroutine number. Up to twenty-four subroutine steps can be entered in each subroutine. The steps are displayed in a "text" format (see Subroutine Functions, II.J.).

```
01. CROSSFADE CUE 1 TO 100%  UPTIME 00:05.0  DNTIME 00:10.0
02. DELAY      00:10.0
03. PLUSFADE  CUE 12 TO 75%  UPTIME 00:40.0  DNTIME 00:45.0
04. DELAY      00:15.0
    e.t.c.....
```



### 3. FADER

The FADER Display exhibits the current channel levels produced by any fader pair (A-B or C-D Auto Faders, X-Y Manual Fader) and the channel and level assignments for any Submaster. The contents of any fader pair may be recorded at any time.

When the FADER mode is selected, the FADER button LED will be illuminated and the following display will appear on the right hand screen:

---

SUBMASTER 01										FADER										GRAND MASTER AT 10																																																																															
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59		61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96				

\*\*\* SELECT FADER NUMBER \*\*\*

(1-24 FOR SUBMASTERS, 25 FOR CROSS FADER, 26 FOR AB FADER, OR 27 FOR CD FADE

---

NEXT CUE # :				< NOT RECORDED >
UPTIME:		CUES		UPTIME: 00:00.0
DNTIME:		LEFT		DNTIME: 00:00.0
WTTIME:				WTTIME: 00:00.0
FDTYPE:		200		

---

The format of the FADER Display is similar to the STAGE Display (see STAGE, II.B.1.). The Grand Master, Fade Time, Next Cue, and Remaining Cue Displays occupy the same respective locations that they do in STAGE and BLIND modes. Fade Type is not displayed, as it is inapplicable to Submasters. FADER exhibits the selected submaster number or



fader pair in the upper left hand corner of the screen.

a. Channel Level Display - Submasters

If a submaster number is selected at the keypad, the channel levels displayed for that submaster will be the full recorded levels, and not the current "stage" levels. Channel intensities may be assigned, modified, and recorded while the submaster is selected (see Submasters, II.M.1).

As in BLIND Display, selected channels will be flagged by reverse-video blocks. Assigned intensities will appear in reverse-video until a new channel(s) is selected.

The submasters may be used as twenty-four independent timed faders by employing the BUMP SWITCH feature. Fade and Wait times may be assigned to each submaster's BUMP SWITCH while that submaster is selected (see BUMP SWITCHES, II.M.2).

When a submaster assignment or modification has been made, but not recorded, a flashing operator prompt will appear in the information box in the lower right hand corner of the screen:

< NOT RECORDED >

This message will also appear if Fade or Wait Times are entered or modified.

b. Channel Level Display - A-B C-D X-Y Faders

The channel levels being currently produced by the Manual Cross Fader and the two Auto Faders may be viewed by selecting 25 (X-Y), 26 (A-B), or 27 (C-D) at the keypad. The contents of the selected fader will be displayed, removed from the effects of the other fader pairs and the submasters. The contents of a fader pair may be recorded at any point, including during fade execution.



#### 4. MANUAL

The MANUAL Display mode exhibits the levels of the ninety-six control channels on an associated manual or auxillary control console. Levels from the manual controller may be recorded in the 'CONCEPT' console memory. Since the 'CONCEPT' has a softpatch, the system will take the first dimmer in its patch for a channel and assume the given level is that channel level.

When the MANUAL mode is selected, the MANUAL button LED will be illuminated and the following display will appear on the right hand screen:

---

MANUAL										GRAND MASTER AT 10								
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96			

\*\*\* TO READBACK MANUAL BOARD, PRESS "ENTER" \*\*\*  
(READBACK MODE WILL ZERO DIMMER OUTPUTS FROM THIS CONSOLE)

---

NEXT CUE # :				< NOT RECORDED >
UPTIME:		CUES		UPTIME: 00:05.0
DNTIME:		LEFT		DNTIME: 00:05.0
WTTIME:				WTTIME: 00:00.0
FDTYPE:		200		FDTYPE: AUTO-X

---

The format of the MANUAL Display is similar to that of the STAGE, BLIND, and FADER Displays (see STAGE, II.B.1.). The Grand Master, Fade Time, Fade Type, Next Cue, and Remaining Cue Displays occupy the same locations in these formats.

a. Channel Readback Display

When in MANUAL mode, the operator presses ENTER to read the manual control console. Dimmer control is then temporarily passed to the Manual console. Levels, taken from the Manual board, will be displayed beneath the appropriate channel numbers. The operator prompt will read:

\*\*\* DISPLAY OF MANUAL CONTROL BOARD \*\*\*

When channel level adjustments are complete on the Manual console, the levels may be recorded as the selected cue at the 'CONCEPT' console. Fade type, fade times and a wait time also may be programmed for the selected cue (see Cue Functions, section II.E.). Fade type and fade time information will be displayed in the cue information box in the lower right hand corner of the screen.

To leave MANUAL mode, and return dimmer control to the 'CONCEPT' console, press any other Display mode button.







a. Selected Cue Display

When the CHANNELSCAN mode is entered, the operator receives the following prompt:

```
*** SELECT CHANNEL TO BE SCANNED ***
```

The operator may then select the appropriate number at the keypad and press ENTER. The CHANNELSCAN Display will shift to exhibit all cue numbers in which the selected channel is recorded. The level of the channel in each cue will be displayed beneath the cue number. For instance, the following might be displayed for Channel 15 in CUES 1 - 80:

```
   1   2   3   4  12  13  14  35  36  80
  FF  FF  FF      70  70  70  40  50  FF
```

When the results of the scan are displayed, the operator receives a new prompt:

```
*** SELECT CUES TO BE MODIFIED ***
```

The operator may then select any cue or group of cues at the keypad, using the AND and THRU features, (see Channel Functions, II.D.). The selected cues will be flagged by levels in reverse-video. For example, selecting CUE 12 THRU 14 AND 80 at the keypad will produce the following display:

```
   1   2   3   4  12  13  14  35  36  80
  FF  FF  FF      70  70  70  40  50  FF
```

When the cue selection is complete, pressing ENTER or AT will produce the following message:

```
*** ENTER INTENSITY ***
```

The selected levels can be adjusted by using the AT, FULL, or LEVEL BAR features (see Channel Functions, II.D.). Levels will return to normal video when a new cue or group of cues is selected at the keypad.

Only levels in recorded cues will be modified. That is, selecting to modify a channel in CUES 1-100 will not create new cues within that block.

Modifications made to levels in CHANNELSCAN must be recorded. The system will then ask for a new channel to be selected.



## 6. SOFTPATCH

The SOFTPATCH mode is used to assign, and display the assignments of, the two hundred twenty-four dimmers to the ninety-six control channels. A dimmer may be patched into one channel at a time.

When the SOFTPATCH mode is selected, the SOFTPATCH button LED will be illuminated and the following display will appear on the right hand screen:

---

CHANNEL	DIMMER	SOFTPATCH
01	01, 97, 193	
02	02, 98, 194	
03	03, 99, 195	
04	04, 100, 196	
05	05, 101, 197	
06	06, 102, 198	
07	07, 103, 199	
08	08, 104, 200	
09	09, 105, 201	
10	10, 106, 202	
11	11, 107, 203	
12	12, 108, 204	
13	13, 109, 205	
14	14, 110, 206	
15	15, 111, 207	
16	16, 112, 208	
17	17, 113, 209	

---

\*\*\* ENTER DIMMER NUMBERS \*\*\*

---

The channel numbers appear, followed by the dimmers assigned to each channel. On system initialization, or when the SYSTEM CLEAR function is utilized, the 'CONCEPT' will enter the default softpatch. This patch assigns dimmers 1-96 to channels 1-96, dimmers 97-192 to channels 1-96, and dimmers 193-224 to channels 1-32 (see above sample).

Channel numbers which are not presented on the first screen may be viewed by pressing the SOFTPATCH button. Each button hit will scroll the display down one screen.



a. Modifying the Softpatch

When SOFTPATCH is entered, the operator is given the following prompt:

\*\*\* ENTER DIMMER NUMBERS \*\*\*

The desired dimmer number or numbers, utilizing AND and THRU (see Channel Functions, II.D.), may be selected at the keypad. The selected dimmers will appear in the SOFTPATCH Display in reverse-video blocks. When ENTER is pressed, the operator prompt will change to:

\*\*\* TO ASSIGN DIMMERS, SELECT CHANNEL # (1-96) THEN PRESS "ENTER" \*\*\*  
\*\*\* TO DELETE DIMMERS, SELECT "0" THEN PRESS "ENTER" \*\*\*

Selecting the channel number and then pressing ENTER will store the new patch and return to the point of selecting dimmer numbers. The dimmers numbers will be shift to be displayed in numerical order next to their new assigned channel. Re-assigning a dimmer which is already patched will remove it from its previous channel.

If a dimmer is not being used in the patch, it may be removed from the display by assignment to "channel 0."

SOFTPATCH modifications do not need to be recorded to be stored.

To exit from the SOFTPATCH Display mode, select any other Display mode button.



## 7. SET UP

The SET UP mode is used primarily to select the desired PRINT format. Information presented in each of the other six Display Functions, plus an Operator's Cue Sheet, may be printed to preserve a hard-copy record.

SET UP will also permit the operator to return to the default softpatch without clearing or shutting down the system.

When the SET UP mode is selected, the SET UP button LED will be illuminated and the following display will appear on the right hand screen:

---

SELECT	FUNCTION	SET UP
1	PRINT STAGE DISPLAY	
2	PRINT CUES	
3	PRINT SUBMASTERS	
4	PRINT READBACK DISPLAY	
5	PRINT CHANNELSCAN DISPLAY	
6	PRINT SOFTPATCH DISPLAY	
7	PRINT CUE SHEET	
8	DEFAULT SOFTPATCH	

---

\*\*\* SELECT FUNCTION NUMBER \*\*\*

---

When SET UP mode is entered, the operator is given the following operator prompt:

\*\*\* SELECT FUNCTION NUMBER \*\*\*

The operator may then choose from any of the eight listed options by selecting the appropriate number at the keypad. A cursor will appear beside the selected option.



a. PRINT STAGE DISPLAY

When option #1 is selected, the system will respond with the following prompt:

\*\*\* PRINTING STAGE DISPLAY \*\*\*

The STAGE Display will be printed as it appears on the right CRT screen, excepting operator prompts. When printing is complete, the system will request a new function selection.

b. PRINT CUES

Requesting option #2, PRINT CUES, will cause the system to respond with:

\*\*\* PRINTING CUES \*\*\*

Cues will be printed sequentially; the cue number, fade and wait times, and fade type will appear above the cue levels.

c. PRINT SUBMASTERS

Selecting PRINT SUBMASTERS, option #3, will produce the following system response:

\*\*\* PRINTING SUBMASTERS \*\*\*

Submaster information will be presented as in FADER mode (see FADER, II.B.3.). Channel levels will be the full recorded intensities for each submaster. Submasters will be printed sequentially; the submaster number and recorded fade and wait times will appear above the submaster's channel levels.

d. PRINT READBACK DISPLAY

To print the readback from the manual or auxillary board, select #4 at the keypad. The following operator prompt will appear:

\*\*\* PRINTING MANUAL DISPLAY \*\*\*

Only the title, "MANUAL," and the appropriate channel levels will be printed in this display.



e. PRINT CHANNELSCAN DISPLAY

Requesting #5, PRINT CHANNELSCAN DISPLAY, will cause the system to ????????????????????

f. PRINT SOFTPATCH DISPLAY

When option #6 is selected, the 'CONCEPT' will respond by stating:

\*\*\* PRINTING SOFTPATCH DISPLAY \*\*\*

The current softpatch will be printed as it appears in the SOFTPATCH Display; channel number, followed by assigned dimmer numbers (see SOFTPATCH, II.D.6.). No operator prompts will appear on the print-out. Dimmers assigned to "Channel 0," which are not currently patched, will be listed at the end of the SOFTPATCH print-out. Softpatch data will be printed continuously, allowing for appropriate page breaks.

g. PRINT CUE SHEET

Selecting #7, PRINT CUE SHEET, will cause the following statement to appear:

\*\*\* PRINTING CUE SHEET \*\*\*

Cues will be printed in the format established by the Operator's Cue Sheet on the left CRT screen.

CUE	1	UP 00:05.0	DN 00:05.0	WT 00:00.0	AUTO-X
	2	UP 00:10.0	DN 00:20.0	WT 00:10.0	AUTO-P
	3	UP 00:03.0	DN 00:03.0	WT 00:00.0	AUTO-X

The cue sheet will be printed continuously, allowing for appropriate page breaks.

h. DEFAULT SOFTPATCH

Selecting DEFAULT SOFTPATCH, option #8, will immediately reset the softpatch to the default form (see SOFTPATCH, II.B.6). It is not necessary to RECORD this change.







When cue selection is determined by the SEQUENCE button, the "current" cue will be displayed, followed by the next eight cues in numerical sequence (see SEQUENCE, II.E.4).

b. Manual Fader Display

The status of the Manual X-Y Fader pair is exhibited in the Manual Cross Fader information box, located midway down the Operator's Cue Sheet on the left side. The information box displays the current level of each fader (01% - FF), and the currently loaded cue number (see X-Y Manual Cross Faders, II.G.). If no cue is currently loaded, the information box will register "CLEAR" for that fader.

MANUAL CROSS FADERS	
X FADER	Y FADER
72%	28%
CUE	
1	CLEAR

c. Automatic Fader Display

The status of the A-B and C-D Auto Fader pairs is exhibited in the Automatic Faders information box, located midway down the CRT screen on the right side. The information box displays the fade progress (in percentage completion), independant upfade and downfade progress (in time remaining), and the cue number currently loaded in the fader pair. If no cue is currently loaded, the information box will register a "CLEAR" for the fader pair.

If a Subroutine is loaded in the Auto Fader, the fade progress will be replaced by the proportional level and rate displays (see Auto Faders, SUBROUTINE EXECUTION, II.H.6.). A display of the current Subroutine step being executed will replace the usual upfade-downfade progress display. The Subroutine number will appear in place of the loaded cue number.

AUTOMATIC FADERS			
A FADER	B FADER	C FADER	D FADER
52%	26%	LEVEL FF	RATE NORM
00:03	00:08	CUE 3	TO 80%
CUE 1		SUBROUTINE	5

#### d. Submaster Level Display

The bottom third of the Operator's Cue Sheet is devoted to the Submaster Level Display. The display, like the Submasters' slide potentiometers, are arranged in two rows of twelve. The percentage level of each submaster will be displayed beneath the appropriate submaster number (see Submasters, II.M.).

SUBMAST	01	02	03	04	05
LEVEL	FF			50	85

When the Submasters are used as timed faders, employing the BUMP SWITCHES, the Submaster Level Display will provide a continuous fade progress display.

## 9. OPERATOR PROMPTS

The 'CONCEPT' system provides the operator with "prompts," or instructions, to facilitate the operation of the console. The prompts are designed to lead the operator through often used programming processes. A prompt appears when each Display mode is entered. This prompt suggests the first step of the most usual procedure in the selected mode. For example, entering STAGE produces the following prompt:

\*\*\* SELECT CHANNELS TO WRITE BY \*\*\*

suggesting that the operator will be creating or modifying a cue. The operator may, at any time, select a function other than that suggested by the prompt.

If no prompt appears when the operator has finished



the previous entry, it may be that pressing ENTER is required to complete that particular statement. Refer to the Operation Manual for a discussion of valid entries for each console function.

Prompts will appear on the right CRT screen, regardless of Display mode. STAGE, BLIND, FADER, MANUAL, and CHANNELSCAN prompts appear above the static information display at the bottom of the screen. SOFTPATCH and SET UP prompts will be located at the bottom of the CRT Display.



## C. The Keypad

### 1. THE KEYPAD DISPLAY WINDOW

The Keypad Display Window, located directly above the numerical keypad, is a four digit, seven segment LED display which fills from the right. The Keypad Display exhibits the last number (cue, channel, intensity, submaster, & etc.) to have been entered at the keypad. When the keypad is cleared by pressing CLEAR, the Keypad Display Window is void. When no number is currently selected at the keypad, the Display registers a "0."

### 2. 0-9

The numeric keypad is utilized to present information to the 'CONCEPT' system. The keypad is used to select dimmer numbers, control channels, channel groups, cue numbers, submasters, intensities, fade times, fade types, and various other operator options. Numbers selected at the keypad will be indicated in the display window above the keypad. Pressing the CLEAR button will erase the current entry at the keypad and clear the Keypad Display Window.

### 3. -

The - (i.e., MINUS) button is located in the lower left hand corner of the numeric keypad. The MINUS button may be used to decrement the selected numeric value by one unit. If CUE 5 were selected, for example, striking the - button would decrement the selection to CUE 4. If a 10 second upfade time for CUE 4 were selected, striking the - button would reduce the upfade to 9 seconds. The - button is equipped with automatic repeat and will continue to decrement the selected information by one unit per second until the button is released.

### 4. +

The + (i.e., PLUS) button is located in the lower right hand corner of the numeric keypad. The PLUS button may be used to increment the selected numeric value by one unit. If CHANNEL 5 were selected and an intensity entered, striking the + button would increment the selection to CHANNEL 6. In addition, the + button may be used to "page" through the recorded cues in BLIND mode, the submasters and cross faders in FADER mode, and the channels in CHANNELSCAN. The + button is equipped with automatic repeat and will continue to increment the



value of the selected function by one unit per second until the button is released.

5. .

The . (i.e., DECIMAL) button is located at the bottom center of the numeric keypad. The DECIMAL button may be used to insert sequential cues from .1 through .9 between existing cues. Such cues may be recorded and inserted at any point, and will appear in numeric sequence on the OPERATOR'S CUE SHEET when the SEQ (i.e., SEQUENCE) mode is activated.

The . button may be used to select tenths of seconds for upfade, downfade, and wait times. When a time is specified to include a decimal digit, the PLUS and MINUS buttons will increment or decrement that time by tenths of seconds rather than whole seconds.

6. CLEAR

The CLEAR button is located at the bottom left hand corner of the numeric keypad. Striking the CLEAR button once will clear the current entry at the keypad and any information in the Keypad Display Window. Striking the CLEAR button twice will clear any and all remaining selections.

The CLEAR button is additionally employed to abort some 'CONCEPT' operations. For example, when the RECORD button is depressed in any mode the following operator prompt will appear on the right hand CRT screen:

\*\*\* TO RECORD, PRESS "ENTER" \*\*\*  
\*\*\* TO ABORT, PRESS "CLEAR ENTRY" \*\*\*

Pressing the CLEAR button in this case aborts the RECORD and returns the operator to the previously selected mode. CLEAR provides the same "abort" function when SYSTEM CLEAR, TO TAPE, or FROM TAPE is selected.

7. ENTER

The ENTER button is located at the bottom right hand corner of the numeric keypad. In general, pressing ENTER indicates that the operator has concluded entering numeric information and wishes to proceed to another function. For example, in selecting a cue number in STAGE mode, the operator will press



the CUE button and the following operator prompt will appear:

\*\*\* SELECT CUE NUMBER \*\*\*

The operator must select the appropriate number (1-200) and press ENTER to signal that the selection is complete. The operator prompt will then change to:

\*\*\* SELECT CHANNELS TO WRITE BY \*\*\*

and the operator may proceed.

It is unnecessary to press ENTER after selecting numeric information which is inherently complete. Intensities which are expressed as two digits (01% - 99%) will be automatically entered. An intensity expressed in one digit (5, meaning half-intensity or 50%), however, must be followed by ENTER (see AT, II.D.5). Similarly, fade times and wait times which are either 4 digits (10:00 - 99:59) or which include a decimal number (.1 - 59.9) will be automatically entered. A fade or wait time which is inconclusive (1 - 9:59) must be followed by ENTER (see TIME, II.E.7.).

Since the ENTER button is depressed to indicate that the information selection is complete, pressing ENTER when no selection has been made will cause the 'CONCEPT' system to employ default information for that mode. For example, when TIME is selected in order to enter fade times the following operator prompt will appear:

\*\*\* ENTER UPFADE TIME \*\*\*

Pressing ENTER without selecting an upfade time will cause the default upfade time, 00:05:0 (5 seconds), to be entered. The operator prompt will then read:

\*\*\* ENTER DNFADE TIME \*\*\*

and the operator may proceed.

The ENTER button is employed to confirm several 'CONCEPT' operations. RECORD, SYSTEM CLEAR, TO TAPE, and FROM TAPE all require that the operator verify his or her intent by pressing ENTER (see RECORD, II.E.9).



## D. Channel Functions

### 1. THE CHANNEL DISPLAY WINDOW

The Channel Display Window is a four digit, seven segment LED display used to exhibit the number of the currently selected channel or group. The display fills from the right hand side and contains the last selected channel, if multiple channels are selected. When no channel or group is selected, the Channel Display Window will register "0."

### 2. CHANNEL SELECTOR

The CHAN (i.e., CHANNEL) button, located at the top of the Channel Functions keypad, is depressed to signal that the succeeding number entered is a channel number. The CHANNEL SELECTOR may be used in STAGE, BLIND, FADER, and CHANNELSCAN modes. When the CHAN button is depressed, the button LED will be illuminated, a "0" will appear in both the Keypad and Channel Display Windows, and the following operator prompt will appear on the right hand CRT screen:

\*\*\* SELECT CHANNELS TO WRITE BY \*\*\*

The selected channel number will appear in both the Channel and Keypad Display Windows. If more than one channel is selected, by means of the AND and/or THRU feature, only the last selected channel will appear in the Display Windows. As channel numbers are entered at the Keypad, the selected channels will be indicated in the CRT display as reverse video blocks. For example, the selection of channels 1 AND 3 would produce the following display:

```
01 02 03 04 05 ....  
.....
```

Errors in entering channel numbers may be cleared by means of the CLEAR button. Pressing CLEAR once clears the last selected channel and voids the Keypad Display Window. By this means, the operator is enabled to clear only the second part of an AND or THRU statement. For example, the erroneous selection of channels 1 THRU 10 may be corrected by pressing CLEAR and entering 15 at the keypad. The resulting selection will be channels 1 THRU 15. Pressing CLEAR twice will clear all selected channels and produce a "0" in both the Keypad and Channel Display Windows.



### 3. GROUP SELECTOR

The GROUP SELECTOR is located next to the CHANNEL SELECTOR in the Channel Functions Keypad. The GROUP button is depressed to select any group of channels which has been previously recorded as a cue. This feature allows the operator to design via proportionally balanced groups or "looks," rather than by single channel selection. The GROUP SELECTOR may be used in STAGE, BLIND, and FADER modes. When the GROUP button is depressed, the button LED will be illuminated, a "0" will appear in both the Channel and Keypad Display Windows, and the following operator prompt will appear on the right hand CRT screen:

\*\*\* SELECT CUE TO WRITE BY \*\*\*

The operator may then enter the chosen cue number (.1 - 999.9). The selected cue number will appear in the Keypad and Channel Display Windows. The channels comprising the selected cue will appear in the CRT display as reverse video blocks. If, for example, cue 1 is composed of:

01	02	03	04	05	06	07	08	09	10	....
FF		FF	50	80	20		50		FF	....

when cue 1 is selected as a GROUP, the following reverse video indication of selected channels will appear:

01	02	03	04	05	06	07	08	09	10	....
										....

Proportional group intensity then may be entered in the same manner as channel intensity (see AT, II.D.5). If an intensity of 50% is entered for cue 1, for example, the results would be:

01	02	03	04	05	06	07	08	09	10	....
50		50	25	40	10		25		50	....

Errors in entering GROUP numbers may be cleared by means of the CLEAR button. Pressing CLEAR once clears the selected cue number and voids the Keypad Display Window. A new cue number then may be entered and the reverse video selected channel indicators will shift to the channels appropriate to the new cue. Pressing CLEAR twice produces a "0" in both the Keypad and Channel Display Windows and



returns control to the CHANNEL SELECTOR.

4. AND

The AND button is depressed to select more than one dimmer, channel or cue for a single assignment statement. When the AND button is depressed, the button LED will be illuminated. The AND button may be used unlimited times in any selection sequence. For example,

CHAN 1 AND 10 AND 15 AND 25

would be an acceptable channel selection sequence. The number entered last in a selection employing AND (e.g., 25 in the above example) will be present in the Keypad Display Window. Pressing the CLEAR button will clear the number entered last and void the Keypad Display Window. A new number then may be entered to correct the assignment statement. Pressing CLEAR twice will clear the entire statement and produce a "0" in the Keypad Display Window.

5. THRU

The THRU button is depressed to select a continuous group of dimmers, channels or cues. When the THRU button is depressed, the button LED will be illuminated. The THRU button may be used unlimited times in a single selection sequence. That is,

CHAN 1 THRU 10 AND 15 THRU 25,

for example, would be an acceptable channel selection sequence. The AND button, in this instance, acts as a link between the groupings determined by the use of the THRU button. The number entered last in a selection employing THRU (e.g., 25 in the above example) will be present in the Keypad Display Window. Pressing the CLEAR button will clear the number entered last and void the Keypad Display Window. A new number then may be entered to correct the assignment statement. Pressing CLEAR twice will clear the entire statement and produce a "0" in the Keypad Display Window.

6. AT

The AT button is depressed to signal that the next number entered will be the intensity for the previously selected channel(s) or group. When the AT button is depressed, the button LED will be



illuminated and the following operator prompt will appear on the right hand CRT screen:

\*\*\* ENTER INTENSITY \*\*\*

Intensity information may be entered in any of the following ways:

- a. FULL  
Pressing the FULL button will enter a level of 100% for the selected channel or group of channels. "FF" will be displayed in the Level Display Window above the LEVEL BAR.
- b. TWO DIGIT NUMBER  
Selecting a two digit intensity at the keypad (01 - 99) will enter that intensity for the selected channel or group of channels. The intensity will be displayed in the Level Display Window.
- c. ONE DIGIT NUMBER  
Setting levels using the traditional 10% steps (e.g., CHAN 1 at 5, meaning 50%) is possible by selecting a one digit intensity at the keypad (1 - 9) and then pressing ENTER. The intensity will be displayed in the Level Display Window.
- d. LEVEL BAR  
When a channel(s) is selected, the LEVEL BAR, located to the right of the Channel Function buttons, will be activated. The operator may select an intensity by touching the LEVEL BAR at any point along its length. The selected intensity will appear in the two digit Level Display above the LEVEL BAR. The intensity will be automatically entered for the selected channel or group of channels.

As intensities are selected, they will be displayed in the Keypad Display window until they are entered, either automatically (FULL, TWO DIGIT NUMBER, LEVEL BAR) or by pressing ENTER (ONE DIGIT NUMBER). After entering, the intensity will be displayed in the Level Display window.

If an erroneous intensity is entered, adjustment may be made by:

- a. Pressing the AT button and then entering the correct intensity.



- b. Selecting another intensity on the activated LEVEL BAR.
- c. Pressing the FULL button, if 100% intensity is the desired correction.
- d. Pressing the CLEAR button, only if a single erroneous digit has been selected and not yet entered. The operator may then enter the correct intensity.

#### 7. FULL

The FULL button is depressed to enter an intensity of 100% for the previously selected channel(s) or group. It is not necessary to press the AT button before pressing FULL. When the FULL button is depressed, the button LED will be illuminated. In all modes, FULL (100%) intensity is displayed on the CRT screen and in the Level Display Window as "FF".

#### 8. RELEASE

The REL (i.e., RELEASE) button is located at the bottom of the Channel Functions keypad. RELEASE operates exclusively in STAGE mode, and is used to release CAPTURED CHANNELS from the control of the Keypad (see STAGE, II.B.1). Pressing the RELEASE button releases the last channel or group of channels captured, and returns it to the control of the active cue or submaster. Pressing RELEASE twice returns all CAPTURED CHANNELS to the control of the active cue or submaster.



## E. Cue Functions

### 1. CUE DISPLAY WINDOW

The Cue Display Window is a four digit, seven segment LED display employed to exhibit the number of the currently selected cue. The display fills from the right hand side and contains the last selected cue, if multiple cues are selected (see CHANNELSCAN, II.B.5.). When no cue is selected, the Cue Display Window will register "0." When cue selection is determined by the SEQUENCE button (see SEQUENCE, II.E.4.0), the cue numbers in the Cue Display Window will not increment accordingly, but will indicate the last cue number selected at the keypad.

### 2. CUE SELECTOR

The CUE button is located in the upper right hand corner of the Cue Functions Keypad. CUE is depressed to signal that the succeeding number entered is a cue number (.1 - 999.9). The operator will select cue numbers to write new cues, and to modify and execute existing cues. The CUE button may be used in STAGE, BLIND, FADER, MANUAL, and CHANNELSCAN Display modes. When the CUE SELECTOR button is pressed, the button LED will be illuminated.

In STAGE, BLIND, and FADER Display modes, the following operator prompt will appear on the right hand CRT screen:

\*\*\* SELECT CUE NUMBER \*\*\*

- a. In STAGE, the operator selects the desired cue number and presses ENTER. The operator prompt then changes to:

\*\*\* SELECT CHANNELS TO WRITE BY \*\*\*

and the operator may proceed to select channels as described in II.D.1., CHANNEL SELECTOR.

- b. In BLIND, the CUE button will be selected, and the button LED illuminated when the operator enters the mode. When the operator selects the desired cue number, the BLIND display will shift to show all recorded information for that cue. The number of the



selected cue will appear in the upper left hand corner of the BLIND CRT Display. If the selected cue is a subroutine, the CRT will display the "text," or list of steps within the subroutine (see SUBROUTINE, II.E.5.).

- c. In FADER, the operator may select a cue number to execute in order to watch the fade progress of that cue in the selected fader (see II.G.4 and II.H.7). The operator may also choose to select a cue number into which he or she may record the contents of any fader pair.

In CHANNELSCAN, striking the CUE button will produce the following operator prompt:

\*\*\* SELECT CUES TO BE MODIFIED \*\*\*

The operator may choose one cue, or several cues by employing the AND and THRU buttons (see II.D.3 and II.D.4). The selected cues will be flagged on the CRT screen by reverse video blocks. The operator may then adjust the level of the pre-selected channel simultaneously in the selected cues by means of the AT and FULL buttons, or the LEVEL BAR (see AT, II.D.5.).

In MANUAL, a cue number may be selected at the 'CONCEPT' console and channel and intensity information recorded from a manual, back-up controller linked to the system.

In all modes, as a cue is selected the number will appear in both the Keypad and Cue Display Windows. If more than one cue is selected (FADER mode), the number selected last will appear in the Display Windows. The PLUS (+) and MINUS (-) buttons may be used to increment or decrement the cue selection by one cue. That is, if cue 1 is selected, pressing the + button will change the selected cue to the next recorded cue number.

In case of error in selecting a cue number, pressing CLEAR will clear the last selected cue number and void the Keypad Display Window. Pressing CLEAR twice will clear all selected cue numbers and produce a "0" in the Keypad and Cue Display Windows.

### 3. CLEAR CUE

The CL CUE (i.e., CLEAR CUE) button is located in the upper left hand corner of the Cue Functions

Keypad. CLEAR CUE is pressed to void the contents of a pre-selected cue in BLIND and FADER modes. When CLEAR CUE is depressed, the button LED is illuminated and the following operator prompt appears on the CRT screen:

\*\*\* TO DELETE CUE, PRESS "RECORD" \*\*\*  
\*\*\* TO ABORT, PRESS "CLEAR ENTRY" \*\*\*

If the operator chooses RECORD, the contents of the selected cue will be completely cleared from the memory. The CLEAR CUE function should be used only when the cue will no longer be used in a show. If the operator chooses CLEAR, no change will occur in the recorded cue. However, the selection of CLEAR CUE will void the contents of an unrecorded cue whether the operator chooses RECORD or CLEAR.

#### 4. DUPLICATE

The DUP (i.e., DUPLICATE) button is located in the left hand column of the Cue Functions Keypad. The DUPLICATE function allows the operator to record the contents of one cue into another quickly and easily. DUP may be employed in STAGE, BLIND, FADER, and MANUAL display modes. When the DUP button is pressed, the button LED will be illuminated and the following operator prompt will appear:

\*\*\* ENTER NUMBER OF CUE TO DUPLICATE FROM \*\*\*

The operator may then choose a cue number at the keypad and press ENTER. The operator prompt will change to:

\*\*\* ENTER NUMBER OF CUE TO DUPLICATE TO \*\*\*

When the operator selects a second number at the keypad and presses ENTER, the duplication is complete. The selected cue will have been duplicated (including fade times and fade type) into the selected new cue number.

#### 5. SEQUENCE

The SEQ (i.e., SEQUENCE) button is located in the left hand column of the Cue Functions Keypad. The SEQUENCE function may be employed in any display mode. When the SEQUENCE button is depressed, recorded cues may be executed in numerical order without being individually selected at the keypad.



For example, the operator may select CUE 1 at the keypad and then enter the SEQUENCE mode. Cue 1 may then be executed on any of the 'CONCEPT' faders. The SEQUENCE feature will automatically advance the cue selection to the next recorded cue, for example, cue 2. Cue 2 may now be executed, and so on.

When the SEQUENCE button is depressed, the button LED will be illuminated and the current cue, followed by the subsequent eight cues will appear on the left CRT screen (see THE OPERATOR'S CUE SHEET, II.B.8.). SEQUENCE may be deactivated at any time by pressing the SEQ button a second time.

## 6. SUBROUTINE

Subroutines are programmed cue sequences of up to twenty-four steps which may be operated through either pair of 'CONCEPT' Autofaders. The SUB (i.e., SUBROUTINE) button enables the operator to examine, write, edit, and record subroutine cues (see Subroutine Functions, II.J.). SUBROUTINE may be employed in BLIND mode only. When the SUB button is pressed, the button LED will be illuminated, the BLIND display will shift to the SUBROUTINE Display, and the following operator prompt will appear:

\*\*\* SELECT CUE NUMBER \*\*\*

The operator may then proceed to write, edit, and/or record the subroutine, as necessary. Subroutine information appears in the CRT display as numbered lines of "text." Each line represents one step of the subroutine.

To abort the SUBROUTINE mode, press any of the Display Functions buttons.

## 7. FADE TYPE

The TYPE button is located in the right hand column of the Cue Functions keypad. This button, when pressed, allows the operator to choose and record the type of fade required for a pre-selected cue. The TYPE button may be employed in the STAGE, BLIND, and MANUAL modes. When the TYPE button is pressed, the button LED will be illuminated and the following operator prompt will appear:

\*\*\* ENTER FADE TYPE \*\*\*

(1=AUTO CROSSFADE, 2=AUTO PLUSFADE, 3=AUTO MINUSFADE, 4=MANUAL CROSSFADE)

The operator may then enter fade type 1, 2, 3, or 4 at the keypad. The fade types may be described as follows:

1. AUTO CROSSFADE

A Crossfade which is to be executed in one of the Auto Fader pairs. The channel levels required for this cue (including channels recorded as 0%) will completely replace the channel levels of the preceding cue in the Auto Fader. For example, Cues 1 and 2 contain the following channel levels:

CUE 1

01	02	03	04	05	06	07	08	09	10
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

CUE 2

01	02	03	04	05
50	50	50	50	50

If CUE 2 is a Crossfade, the resulting levels will be:

01	02	03	04	05	06	07	08	09	10
50	50	50	50	50					

Channels which have no levels recorded will be taken out (0%) in a crossfade.

2. AUTO PLUSFADE

A Plusfade which is to be executed in one of the Auto Fader pairs. In this type of fade, only channels that have "new" levels will be affected. Any channel with a level (01% - FF) will go to that level in the Plusfade cue. Channels that have no level (0%) will not be changed by the Plusfade. For example:

CUE 1

01	02	03	04	05	06	07	08	09	10
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

CUE 2

01	02	03	04	05
50	50	50	50	50



If CUE 2 is a PLUSFADE, the resulting levels will be:

01	02	03	04	05	06	07	08	09	10
50	50	50	50	50	FF	FF	FF	FF	FF

Channels 6-10 were not affected by the Plusfade cue. Special note should be given to the fact that channel levels may be lowered in a Plusfade.

3. AUTO MINUSFADE

A Minusfade which is to be executed in one of the Auto Fader pairs. In this type of fade, any specified channel (at a level other than 0%), regardless of level, will be faded out when the Minusfade is initiated. Non-specified channels will remain at their given levels. For example:

CUE 1

01	02	03	04	05	06	07	08	09	10
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

CUE 2

01	02	03	04	05
50	50	50	50	50

If CUE 2 is a MINUSFADE, the resulting levels will be:

01	02	03	04	05	06	07	08	09	10
					FF	FF	FF	FF	FF

4. MANUAL CROSSFADE

The Manual Crossfade is a Crossfade which the operator intends to execute in the X-Y Manual Faders. This fade type, with attendant fade and wait times, may be specified in order to include the information in the Operator's Cue Sheet.

When a fade type is selected, the type will be indicated in the cue information box, located in the lower, right hand corner of the CRT display (AUTO-X, AUTO-P, AUTO-M, or MANUAL). If no fade type is selected, the cue will default to an AUTO CROSSFADE.

Fade type, like channel assignments and intensities, must be recorded.

## 8. FADE TIME

The TIME button is located in the right hand column of the Cue Functions keypad. TIME allows the operator to select discrete upfade and downfade times (00:00.0 - 99:59) for each cue. Fade times of up to two minutes duration may be entered for each Submaster (1 - 24) as well. The TIME button may be employed in STAGE, BLIND, FADER, and MANUAL modes. When TIME is pressed, the button LED will be illuminated, and the following operator prompt will appear:

\*\*\* ENTER UPFADE TIME \*\*\*

The operator may then choose any of the following options:

- a. ENTER  
Each new cue has a programmed default upfade time of five seconds (00:05.0). The submaster default upfade time is "instantaneous" (00:00.0). If the operator wishes to utilize the default time on a new cue or submaster, he or she need only press ENTER. The system will then move to the selection of a downfade time. Similarly, if the operator wishes to edit only the downfade time of a recorded cue or submaster, pressing ENTER will cause the system to move to the downfade time, leaving the upfade time intact.
- b. CLEAR  
Pressing CLEAR will eliminate the five second default or any recorded upfade and register an "instantaneous" upfade time (00:00.0). The system will then move to the selection of a downfade time.
- c. ONE TO THREE DIGIT NUMBER  
One to three digit upfade times (00:01.0 - 09:59.0) may be selected at the keypad, and will be displayed with the cue information in the lower right hand corner of the CRT display. The fade times fill from the right, exclusive of the decimal digit. That is, selecting the number 1 at the keypad will produce a fade time of 1 second (00:01.0). Selecting a second 1, will change the fade time to eleven seconds (00:11.0). A third 1



will produce a fade time of one minute, eleven seconds (01:11.0). Any one to three digit fade time must be followed by pressing ENTER to signal that the entry is complete. The system will then move to the selection of downfade times. Entries which are incompatible with the minutes:seconds format (e.g., 90 seconds), will be automatically adjusted (01:30.0).

Submasters have a two minute (02:00.0) maximum upfade time. Like cue upfades, any whole number entry from one to three digits (00:01.0 - 02:00.0) must be followed by ENTER. The system will then shift to the selection of the submaster downfade time.

d. FOUR DIGIT NUMBER

Any four digit cue upfade time (10:00 - 99:59) will be automatically entered. The system will immediately shift to the downfade time selection. Four digit times are not allowed for submasters.

e. DECIMAL NUMBER

Any upfade time ending in a decimal number (00:00.1 - 00:59.9) will be automatically entered for a cue or a submaster. The system will immediately shift to the selection of the downfade time.

When the upfade time is entered, the downfade time will automatically change to match the upfade time. Thus, the default downfade time of the cue or submaster becomes the same as the selected upfade time. Once the upfade selection has been made, the upfade time will be displayed in the current cue/submaster information box, located in the lower right hand corner of the CRT display. The following operator prompt will appear:

\*\*\* ENTER DNFADE TIME \*\*\*

The operator may then choose any of the options listed above (ENTER, CLEAR, ONE TO THREE DIGIT NUMBER, FOUR DIGIT NUMBER, DECIMAL NUMBER) to enter a downfade time for the selected submaster or cue. The selected downfade time will appear beneath the upfade time in the cue/submaster information box. Fade times, like channel assignments and intensities, must be recorded before the cue/submaster selection is changed or the selected mode (e.g., BLIND) is left.

Once different upfade and downfade times have been



selected for a particular cue, the upfade may be modified without the downfade changing to mirror the upfade time. If the upfade and downfade times are the same, the downfade time will change to mirror the modification in the upfade time.

#### 9. WAIT

The WAIT button is located in the lower left hand corner of the Cue Functions keypad. The WAIT feature allows the operator to program a delay (00:00.1 - 99:59.0) between the beginning of the selected upfade and the beginning of the downfade. If no wait time is selected, the system will enter a default time of 00:00.0 (i.e., no wait between upfade and downfade).

For example, if Cue 1, an Auto Crossfade, has fade times as follows:

```
UPTIME:    00:05.0
DNTIME:    00:10.0
WTTIME:    00:05.0
```

when Cue 1 is executed, the upfade will be completed in five seconds. The downfade will be delayed 5 seconds from the commencement of the upfade. In this example, the upfade will be completed and the ten second downfade will commence at the same time. The WAIT feature operates in exactly the same manner for submaster timed fades (see Submasters, II.0.2.).

When the WAIT button is pressed, the button LED is illuminated, and the following operator prompt appears:

```
*** ENTER WAIT TIME ***
```

Wait times are entered like fade times (see FADE TIME, II.E.7.). The operator may select a one to three digit number, a four digit number, a decimal number, CLEAR or ENTER. When a wait time has been selected, it will appear beneath the downfade time in the submaster/cue information box.

#### 10. RECORD

The REC (i.e., RECORD) button is located in the lower right hand corner of the Cue Functions keypad. The RECORD feature allows the operator to save all cue and submaster information including channel assignments, intensities, fade type, and fade time. Cue and submaster information which is not recorded



will be lost when another cue or submaster is selected, or when the display mode is changed. RECORD may be employed in STAGE, BLIND, FADER, MANUAL, and CHANNELSCAN modes.

In STAGE mode, pressing the RECORD button will record whatever combination of channels and levels are present onstage (and reflected in the STAGE Display) as a pre-selected cue number. These channels and levels may be the cumulative result of cues, submasters, and the Grand Master. Thus, when editing a recorded cue, the operator must beware of re-recording unwanted channel levels from other sources. The recorded information will include fade type, fade times, and wait time.

In BLIND mode, only channels and intensities selected at the keypad and registered in the BLIND Display will be recorded. The recorded information will include fade type, and fade and wait times. In this way, cues may be recorded in BLIND while other cues are running on stage.

In FADER, it is possible to record the assignment of channels, channel levels, fade times, and wait times to any submaster. When channels have been assigned to a submaster, the button LED on the bump switch associated with that submaster number will be illuminated. It is also possible to record the contents of a single submaster or any of the three Crossfader pairs as a pre-selected cue number.

While in MANUAL mode, the operator may elect to record channel and level information from a manual, back-up controller as a cue (see MANUAL, II.B.4.). Fade type and fade and wait times may be specified by the operator before recording.

In CHANNELSCAN, it is possible to modify the intensity of a single channel in one or a group of cues, and RECORD that modification (see CHANNELSCAN, II.B.5). In this way, the operator may track intensity changes through any number of cues without making the individual modification in each cue.

When the RECORD button is pressed, the button LED will flash, and the following operator prompt will appear:

\*\*\* TO RECORD, PRESS "ENTER" \*\*\*  
\*\*\* TO ABORT, PRESS "CLEAR ENTRY" \*\*\*

A verification (pressing ENTER) is required for every RECORD. Pressing CLEAR will return control to the pre-selected Display mode.



## F. The Level Bar

The LEVEL BAR, located to the right of the Channel Functions keypad, is a membrane switch which is employed to assign an intensity to a channel(s) or group. The LEVEL BAR may be used in place of the AT and/or FULL buttons in every instance. The operator may select an intensity (0% - 100% in steps of 2%) by touching the LEVEL BAR at the position associated with the desired intensity. For example:

When an unrecorded channel number or group is entered, the LEVEL BAR will be activated. A "0" will appear in the Intensity Display Window above the LEVEL BAR. When the operator selects an intensity, 50%, for example, the Intensity Display Window will register "50," and 50 will appear in reverse video beneath the selected channel or channels on the CRT display. The intensity will be automatically entered, and the operator may proceed to the next channel or group selection. To change a selected intensity, simply touch the LEVEL BAR at another level position.

If a channel in a recorded cue is selected, the recorded level of that channel will appear in the Intensity Display Window. The level may be raised or lowered utilizing the LEVEL BAR.

### 1. INTENSITY DISPLAY WINDOW

The Intensity Display Window, located above the LEVEL BAR, is a two digit, seven segment LED display. This display exhibits the current intensity (0% - FF) of the selected channel or group. If no intensity has been specified, the Intensity Display Window will register "0." A recorded intensity will not be cleared from the Intensity Display by pressing the CLEAR button.

## G. X-Y Manual Cross Faders

The X-Y pair of manual cross faders are located to the left of the Auto Faders. The manual faders are "pile-on" faders, which allow for split, dipless crossfades between recorded cues. The product of the X-Y fader pair (channel levels onstage) will be "piled-on," or added to the products of the Auto Faders and the 24 submasters. Overlapping channels (e.g., a channel active in both a cue in the X-Y Fader and a submaster) will take the highest level.



## 1. POTENTIOMETERS

The X-Y manual cross fader comprises two graduated (0 - 10) linear slide potentiometers. The faders have reversed action so that the X fader is at full (100%) at the top end of the potentiometer, while the Y fader is at 0%.

X	Y
10-	0-
9-	1-
8-	2-
7-	3-
6-	4-
5-	5-
4-	6-
3-	7-
2-	8-
1-	9-
0-	10-

This arrangement allows the operator to cross fade between a cue assigned to the X fader and another assigned to the Y fader with a single motion.

## 2. LOAD

The two LOAD buttons, one associated with the X fader and one with the Y fader, are located directly above their respective faders. When LOAD is pressed, the button LED will be illuminated and the selected cue will be assigned to that fader.

For example, assume that the X and Y faders are clear and X is at 0%. If the operator selects CUE 1 at the keypad and presses the X LOAD button, Cue 1 will be loaded into the X fader. If the potentiometers are moved so that X is at 100%, CUE 1 will be onstage at full. Selecting CUE 2 at the keypad and pressing the Y LOAD button will assign the second cue to the Y fader. Moving the potentiometers so that the Y fader is at 100% will effect a crossfade between Cue 1 and Cue 2.

If the cue selection is in SEQUENCE mode, the "NEXT CUE" (displayed in the Operator's Cue Sheet) will be assigned to the associated fader when the LOAD button is pressed. Using the above example, the operator using SEQUENCE would load the X fader in the same fashion. Thereafter, the Y fader will be loaded with cue 2 by simply pressing the Y LOAD button. Cues may be selected sequentially without using the SEQUENCE function by pressing + (PLUS) at the keypad. The LOAD button LED will remain

illuminated until the fader is cleared. Subroutines may not be loaded into the manual cross faders. When a cue is successfully loaded into a cross fader, the cue number will appear in the Manual Cross Fader information box on the Operator's Cue Sheet (see Manual Display, II.G.5).

### 3. CLEAR

The CLEAR buttons are located above the LOAD buttons for both the X and Y faders. The CLEAR function is employed to clear a loaded fader of its assigned cue. It is not necessary to CLEAR the X or Y faders between cue assignments. When no cue is loaded in a fader, its CLEAR button LED will be illuminated and "CLEAR" will appear in the Manual Cross Fader information box (see Manual Display, II.G.5.).

If a "live" cue is cleared, the channel levels comprising the cue will be instantaneously cancelled.

### 4. CONTENT DISPLAY

The contents of the X-Y Fader may be displayed by selecting the FADER mode and entering 25 at the keypad (see FADER, II.B.3.). The progress of the fade in the Manual Cross fader will be viewed isolated from the effects of channel levels produced by the Auto Faders or submasters. In addition, the contents of the X-Y Fader may be recorded in this mode without recording levels from any other source (e.g., submasters and/or Auto Faders).

### 5. CUE SHEET DISPLAY

The Operator's Cue Sheet contains a Manual Cross Fader information box, located midway down the screen on the left side (see Operator's Cue Sheet, II.B.8.). When the X-Y faders are not in use, or are temporarily cleared, the information is presented as follows:

MANUAL CROSS FADERS	
X FADER	Y FADER
CLEAR	CLEAR

When the X-Y faders are in use, the information box



will indicate the current position of the faders in percentage (01% - FF), and the number of the cue loaded in each fader.

MANUAL CROSS FADERS	
X FADER	Y FADER
72%	28%
CUE	
1	CLEAR

#### H. A-B C-D Auto Faders

The Auto Faders, located to the left of the Cue Functions Keypad, are arranged in two pairs labeled A-B and C-D. The Auto Faders control fade execution for standard cues and subroutines (see Subroutine Execution, II.H.6.). The Auto Faders are internally "last action" faders, that is, for example, a channel in the A-B fader will always go to the last level that is given for it. The final output of each fader pair is, however, "pile on." Channel levels determined by the A-B fader pair will be compared to channel levels produced by the C-D fader pair, the X-Y Manual Fader, and the 24 submasters. Channels with overlapping fader assignments will take the highest level.

##### 1. GO

There is a GO button located beneath each of the Auto Fader pairs. Pressing the GO button illuminates the button LED and causes the selected cue or subroutine to be initiated in that fader pair. The cue/subroutine will be executed accordance with the pre-recorded upfade, downfade, and wait times (see CUE EXECUTION, II.H.5. and SUBROUTINE EXECUTION, II.H.6). Fade progress will be mimicked by the LED bargraphs associated with each half of the fader pair. When the fade is complete, the button LED will be extinguished.

##### 2. HOLD

The HOLD button, located to the right of the GO button in each fader pair, can be used to hold and/or terminate a fade at any point in the fade progress. When the HOLD button is pressed, the HOLD and GO button LEDs will flash in alternation. The upfading and downfading channel levels will be frozen.

To release a HOLD, press GO. The interrupted fades will continue at the recorded rates.

To terminate the fades at the point of interruption, press HOLD a second time. The channels will remain at the interrupted levels and the cue will be considered "completed." The HOLD mode will be deactivated and the button LEDs will extinguish.

When a cue is in HOLD, it is possible to complete the upfade and downfade manually by moving a finger along the fader membrane to the desired level at the desired rate. If the upfade and downfade are completed manually, the cue will be considered "completed," and the HOLD will be deactivated.

### 3. CLEAR

A CLEAR button is located above each of the Auto Fader pairs and is similar in operation to the Manual Fader CLEAR function. Pressing CLEAR will clear the A-B or C-D Auto Fader of any cue or cues which have been loaded into that pair. If a "live" cue is cleared from a fader pair, that cue's channel levels will be cancelled. When there is no cue currently loaded in an Auto Fader, the CLEAR button LED will be illuminated and "CLEAR" will appear in the AUTOMATIC FADERS information box beneath the appropriate fader label (see Operator's Cue Sheet, II.B.8).

### 4. FADE OUT

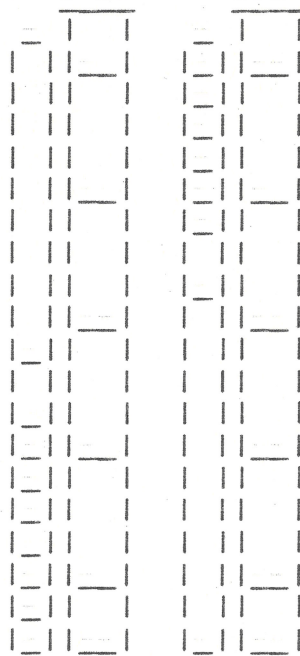
Each Auto Fader pair has a FADE OUT button, located to the right of the CLEAR button. Pressing FADE OUT will initiate a five second fade to zero for all channels in that Auto Fader. The fade will be mimicked by the downfade LED bargraph associated with that Auto Fader. When the fade out is complete, the Auto Fader pair will be cleared and the CLEAR button LED will be illuminated. The Automatic Fader information box will register "CLEAR" for each half of the fader pair.

### 5. CUE EXECUTION

When a cue (containing only channel level, fade type, and fade and wait time information) is initiated on an Auto Fader with the GO switch, the left, 50 segment LED bargraph in the pair will indicate the progress of the upfade. The left TOUCH BAR (the membrane switch which constitutes the Auto Fader control), acts as a manual over-ride for this



portion of the fade. Pressing the TOUCH BAR below the point of fade progress indicated on the bargraph will hold the fade at the point of interruption. The upfade can be completed manually by moving a finger along the TOUCH BAR to the desired level at the desired rate.



The right hand bargraph and TOUCH BAR of each Auto Fader pair functions in the same way for the downfade portion of the cue. The bargraph mimicks the progress from top to bottom. In this way, the upfade and downfade progress may be modified independantly.

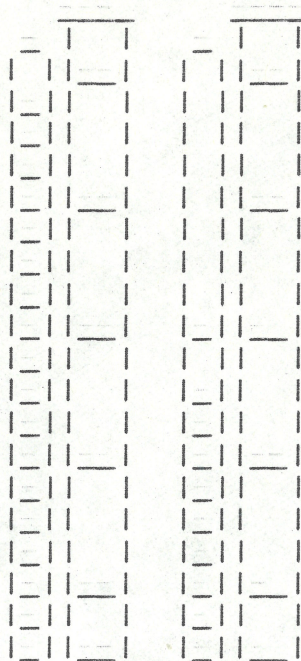
The "WAIT" portion of any fade may be manually released by pressing the top of the downfade TOUCH BAR. The downfade will then commence in the recorded time.

When an Auto Fade (AUTO CROSSFADE, AUTO PLUSFADE, AUTO MINUSFADE; see FADE TYPE, II.E.6) is complete, the LED bargraphs will return to the "rest" position (every other LED illuminated).

## 6. SUBROUTINE EXECUTION

A subroutine is initiated in an Auto Fader by pressing the GO button. The subroutine execution mode will be entered and the bargraphs associated with the Auto Fader pair will assume the following configuration:





The left TOUCH BAR may be used to proportionally adjust (0% - FF) the subroutine channel intensities. Touching the membrane switch at any point will adjust the channel intensities to that relative level. The selected percentage level will be displayed in the AUTOMATIC FADERS information box and mimicked by the bargraph LEDs.

The overall rate of the subroutine execution may be adjusted by employing the right of the two TOUCH BARS. Subroutine execution at the recorded rates is indicated by the bargraph LED illumination to the half-way point (see diagram). The information box will register "RATE NORM," and the subroutine will run in accordance with the recorded times. To slow the subroutine's rate, press the TOUCH BAR at approximately the one-quarter mark. The recorded rates will be half as fast (e.g., a 5 second upfade will be executed in 10 seconds) and the information box will register "RATE HALF." Pressing the TOUCH BAR at the bottom will stop the subroutine and produce a "RATE HALT" message. The subroutine rate may be doubled ("RATE DBL") by pressing the switch at the three-quarter mark. If the TOUCH BAR is pressed at the top, recorded rates will be abandoned ("RATE INST"), and the individual subroutine cues will "bump" to their recorded levels sequentially. When the rate is adjusted, the bargraph LEDs will mimic the relative change. Normal subroutine rates may be restored by pressing the TOUCH BAR in the center.



When subroutine execution is complete, the Auto Fader bargraphs will return to the "rest" position.

#### 7. CONTENT DISPLAY

The contents of the A-B and C-D Faders can be displayed by entering FADER mode and selecting 26 (A-B) or 27 (C-D) at the keypad. The progress of the fade assigned to that fader can be viewed isolated from the channel levels produced by the second Auto Fader, the Manual Fader, and the submasters. The contents of the Auto Fader may be recorded without recording channel levels from other sources.

If the displayed Auto Fader contains a subroutine, the CRT will display the "text" of the subroutine (see Subroutine Functions, II.J.). The cursor will move through the listing to indicate the step currently being executed.

#### 8. CUE SHEET DISPLAY

The Operator's Cue Sheet contains an AUTOMATIC FADERS information box, located midway down the screen on the right hand side (see Operator's Cue Sheet, II.B.8.). When the Auto Faders are in use, the information box will indicate the cue number assigned to the fader, the percent of fade completion, and the time remaining (minutes - seconds) in both the upfade and downfade. Cue information is presented in the following format:

AUTOMATIC FADERS			
A FADER	B FADER	C FADER	D FADER
52%	26%		
00:03	00:08		
CUE 1		CLEAR	

If a subroutine is in operation in the Auto Fader, the cue information is adjusted to reflect the proportional level an relative rate of the subroutine (see Subroutine Execution, II.H.6), the subroutine step in progress, and the subroutine number. Subroutine information is presented in the following format:

AUTOMATIC FADERS			
A FADER	B FADER	C FADER	D FADER
LEVEL FF	RATE NORM		
CUE 3	TO 80%		
SUBROUTINE 5		CLEAR	



## J. Subroutine Functions

The Subroutine Functions keypad is located to the right of the LEVEL BAR. This keypad contains all buttons necessary to construct and modify subroutines. When the SUBROUTINE button is selected in the BLIND Display mode, the CRT will shift to the subroutine screen and the following operator prompt will appear:

\*\*\* SELECT CUE NUMBER \*\*\*

### 1. CUE SELECT

The CUE SELECT button allows pre-recorded cues to be selected as subroutine steps. When the CUE SELECT button is pressed, the button LED will be illuminated and a line of subroutine text will appear on the CRT screen:

```
* 01. CROSSFADE CUE TO 100% UPTIME 00:00.0 DNTIME 00:00.0
```

And the following prompt will appear:

\*\*\* ENTER FADE TYPE \*\*\*

(1 FOR CROSSFADE, 2 FOR PLUSFADE OR 3 FOR MINUSFADE)

If the operator selects 2 or 3 at the keypad, the text line will change appropriately to PLUSFADE or MINUSFADE. If no fade type is selected and ENTER is pressed, the fade type will default to CROSSFADE. When fade type has been selected, the reverse-video cursor will move to the CUE portion of the line. The following operator prompt will appear:

\*\*\* ENTER CUE NUMBER TO FADE \*\*\*

If, for example, the first step of the planned subroutine is to crossfade into Cue 1, the operator will select 1 at the keypad and then press ENTER. The text line will now read:

```
* 01. CROSSFADE CUE 1 TO 100% UPTIME 00:00.0 DNTIME 00:00.0
```

The cursor will have moved to the intensity portion of the statement. The following operator prompt will appear:

\*\*\* ENTER INTENSITY \*\*\*

The operator must now enter the proportional level to which the selected cue is to fade (01% - FF). The operator may select a two digit intensity at the keypad, employ the FULL button, or the LEVEL BAR. If the intensity is selected with the LEVEL BAR, the



operator must then press ENTER. If ENTER is pressed when no intensity has been selected, the intensity will default to 100%. In this example, the operator has chosen a level of 80% for Cue 1. The text line will now read:

```
* 01. CROSSFADE CUE 1 TO 80% UPTIME 00:00.0 DNTIME 00:00.0
```

The cursor will have moved to the upfade portion of the statement. The operator prompt will now read:

```
*** ENTER UPFADE TIME ***
```

The operator must now enter the desired upfade time (00:00.0 - 99:59) for the selected cue. Fade times are entered in the same manner for cues and subroutines (see FADE TIME, II.E.6). The operator may select a one to three digit time, which must be followed by ENTER, or a four digit or decimal time, which does not require an ENTER. When an upfade time is selected, the text line will change appropriately for both the upfade and downfade. If ENTER is pressed when no upfade time has been selected, the upfade will default to 00:00.0 (instantaneous). In this example, the operator has selected a five second upfade. The text line will now read:

```
* 01. CROSSFADE CUE 1 TO 80% UPTIME 00:05.0 DNTIME 00:05.0
```

The cursor will have moved to the downfade portion of the statement. The operator prompt will have changed to:

```
*** ENTER DNFADE TIME ***
```

The operator may now select a separate downfade time, if desired. The downfade selection procedure is exactly the same as the upfade procedure. If no downfade time is selected and ENTER is pressed, the downfade will default to match the upfade time. An instantaneous (00:00.0) downfade may be entered by pressing first CLEAR, then ENTER. In this example, the operator has selected a ten second downfade. The final text will read:

```
* 01. CROSSFADE CUE 1 TO 80% UPTIME 00:05.0 DNTIME 00:10.0
```

The position cursor will move to the next line in preparation for the next subroutine step.

To modify any portion of the completed text, move the position cursor to the appropriate line by pressing the /\ (i.e., UP) and \/ (i.e., DOWN)



buttons. The reverse-video cursor may be moved to the appropriate location in the line by pressing ENTER repeatedly. The text that is bypassed will not be affected. When the desired position is reached, the new information entered will replace the old entry. Subroutines and subroutine modifications must be recorded.

## 2. DELAY

The DELAY button is located immediately above the CUE SELECT button. The DELAY function sets the duration of the wait before the activation of the next cue in the subroutine. The delay time begins at the commencement of the step before the DELAY step. When the DELAY button is pressed, the button LED will be illuminated, and the following line of text will appear:

```
* 02. DELAY    00:00.0
```

The operator will be given the following prompt:

```
*** ENTER DELAY TIME ***
```

Delay times (00:00.0 - 99:59) are entered by any of the methods employed to enter cue upfade and downfade times. If no delay time is selected and ENTER is pressed, the delay will default to 00:00.0 (no delay). For example, the operator in this case has entered a 20 second delay as the second step of the subroutine.

```
01. CROSSFADE CUE 1 TO 80% UPFADE 00:05.0 DNFADE 00:10.0
02. DELAY      00:20.0
```

\*

When the subroutine is executed, the Step 01 Crossfade will begin. At the same time, the Step 02 Delay will begin. The Crossfade will be complete in ten seconds. When the Delay is complete, ten seconds later, Step 03 will be activated, and so on.

Following the final step of a subroutine, a delay must be recorded to allow completion of the subroutine. The delay should be as long as the longest fade time to be executed.

## 3. LOOP

The LOOP button is located immediately above the DELAY button in the Subroutine Functions keypad. The LOOP feature allows the operator to program a repeating sequence of cues. When the LOOP statement

is encountered in the sequence, the cursor will instantly return to Step 01, and the subroutine will start again at the beginning. The operator may specify the number of times (01 - 250, infinite) that the loop will take place. When the specified number of loops have occurred, the subroutine will pass by the LOOP command and execute the remaining steps.

For example, if the programmed sequence is:

```
01.  CROSSFADE  CUE   1  TO  80%  ....
02.  DELAY      00:20.0
03.  CROSSFADE  CUE   2  TO 100%  ....
04.  DELAY      00:20.0
05.  CROSSFADE  CUE   3  TO 100%  ....
06.  DELAY      00:20.0
07.  LOOP TO BEGINNING  02 TIMES
```

when the subroutine is executed, the net effect will be the following order of cues onstage:

1, 2, 3; 1, 2, 3; 1, 2, 3.

The subroutine will then move to Step 08, if any.

When the LOOP button is pressed, the button LED will be illuminated, and the following line of text will appear:

```
* 03. LOOP TO BEGINNING  00 TIMES
```

The operator will be given the following prompt:

```
*** ENTER NUMBER OF LOOPS TO BEGINNING ***
      (ENTER 0 FOR INFINITE LOOPS)
```

The operator may enter the desired number of loops at the keypad by one of the following means:

- a. ONE OR TWO DIGIT NUMBER  
The operator may select a one or two digit number (0 - 99) at the keypad, and then press ENTER to signal that the selection is complete.
- b. THREE DIGIT NUMBER  
The operator may select a three digit number up to two hundred fifty (100 - 250). Three digit entries do not require an ENTER.
- c. ENTER  
If no number is selected and the operator presses ENTER, the number of loops will



default to 00 (infinite). If an infinite loop is selected, any remaining steps in the subroutine will not be executed. The loop may only be halted by halting the subroutine.

For example, if the operator chooses to loop to the beginning of the subroutine ten times, the resulting text will appear as follows:

```
03. LOOP TO BEGINNING 10 TIMES
*
```

When the number of loops is entered, the position cursor will move to the beginning of the next line and the LOOP button LED will extinguish.

#### 4. REVERSE

The REVERSE button is located directly above the LOOP button in the Subroutine Functions keypad. The REVERSE feature enables the operator to program reverse execution of cues in the subroutine. When the REVERSE statement is encountered, the subroutine cues will be executed in reverse order from that point to Step 01. The subroutine will then start again at the beginning. The operator may specify the number of times (01 - 250, infinite) that the REVERSE will take place. When the specified number of reversals has occurred, the subroutine will pass by the REVERSE statement and execute the remaining steps.

For example, if the programmed sequence is:

```
01. CROSSFADE CUE 1 TO 80% ....
02. DELAY 00:20.0
03. CROSSFADE CUE 2 TO 100% ....
04. DELAY 00:20.0
05. CROSSFADE CUE 3 TO 100% ....
06. DELAY 00:20.0
07. REVERSE 02 TIMES
```

when the subroutine is executed, the net effect will be the following order of cues onstage:

1, 2, 3; 2, 1; 2, 3; 2, 1; 2, 3.

The subroutine will then move to Step 08, if any.

When the REVERSE button is pressed, the button LED will be illuminated, and the following line of text will appear:

```
* 04. REVERSE 00 TIMES
```

The operator will be given the following prompt:

\*\*\* ENTER NUMBER OF REVERSES \*\*\*  
(ENTER 0 FOR INFINITE REVERSES)

The operator may enter the desired number of reverses at the keypad by the same means used to enter the number of loops (see LOOP, II.J.3). One or two digit entries must be followed by ENTER; three digit entries will be automatically entered. If no number is selected and the operator presses ENTER, the number of reverses will default to 00 (infinite). If infinite is selected, remaining steps in the subroutine will not be executed. Infinite reversals may be halted by halting the subroutine.

For example, if the operator selects to reverse ten times, the resulting text will appear as follows:

04. REVERSE 10 TIMES  
\*

When the number of reverses is entered, the position cursor will move to the beginning of the next line and the REVERSE button LED will extinguish.

#### 5. DELETE LINE

The DELETE LINE button is located at the top of the Subroutine Functions keypad. DELETE LINE is utilized to erase the line of subroutine text indicated by the position cursor. When the DELETE LINE button is pressed, the button LED will be briefly illuminated. No operator prompt will appear, and no operator verification is necessary. Text lines following the deleted line will be renumbered to provide an uninterrupted numerical sequence. The position cursor will indicate the text line following the deleted line.

#### 6. \

The \, or DOWN, button is located in the bottom left hand corner of the Subroutine Functions keypad. Like the DELETE LINE and UP buttons, the DOWN button is utilized to edit existing subroutine text. Pressing the DOWN button will move the position cursor down to the beginning of the following line.



7. /\

The /\, or UP, button is located in the bottom right hand corner of the Subroutine Functions keypad. Pressing the UP button will move the position cursor up to the beginning of the preceding line.

8. MENU

The MENU button is not currently implemented. When the MENU button is pressed, the following message is displayed:

\*\*\* RESERVED FOR FUTURE EXPANSION \*\*\*

Pressing the MENU button will in no way affect the construction or operation of a subroutine.

K. Memory Functions

The Memory Functions buttons (SYSTEM CLEAR, TO TAPE, and FROM TAPE) are located in the upper, right hand corner of the 'CONCEPT' console. The Memory Functions control the storage and playback of recorded information (cues, submaster assignments, and softpatch). The Memory Functions may be employed while in any Display Mode.

1. SYSTEM CLEAR

The SYSTEM CLEAR function erases all cue and submaster assignment information in the system's memory, and returns the softpatch to its default setting (see SOFTPATCH, II.B.6.). SYSTEM CLEAR will not affect any information recorded on tape (see TO TAPE, II.K.2). When the SYSTEM CLEAR button is pressed, the button LED will be illuminated, the current Display mode will be cleared, and the following operator prompt will appear:

```
-----  
| *** TO CLEAR SYSTEM, PRESS "ENTER" *** |  
| *** TO ABORT, PRESS "CLEAR ENTRY" *** |  
|-----|
```

If ENTER is pressed, the system will be cleared instantaneously, and control will be returned to the STAGE Display mode.



If CLEAR is pressed, recorded information within the system will be retained. Control will be returned to the previously selected display mode.

## 2. TO TAPE

The TO TAPE function is employed to record cue, submaster, and softpatch information on cassette tape, where it can be permanently stored. Information which is recorded in the system and not stored on tape will be lost when the system is turned OFF. When the TO TAPE button is pressed, the button LED will be illuminated, the current Display will be cleared, and the following message will appear:

```
*** TO RECORD ONTO TAPE,SELECT SHOW # (1-5) THEN PRESS "ENTER" ***  
*** TO ABORT, PRESS "CLEAR ENTRY" ***
```

```
SHOW 1 : RECORDED  
SHOW 2 : RECORDED  
SHOW 3 : RECORDED  
SHOW 4 : NOT RECORDED  
SHOW 5 : NOT RECORDED
```

If the operator selects CLEAR, the TO TAPE will be aborted, and control will return to the previously selected Display mode.

A show number (1-5) may be selected as the destination of the information that is contained in the console memory. Each "show" consists of up to 200 cues, 24 submaster assignments, and a softpatch. The cue, submaster and softpatch information will not be erased from the console memory during the TO TAPE. The information is merely duplicated from the console onto the tape. Pressing ENTER initiates the transfer of information to the tape. While the transfer is taking place, a cursor will indicate the selected show number (e.g., # 3), and the CRT will register the following display:



"TO TAPE"  
IN PROGRESS

SHOW 1 :	RECORDED
SHOW 2 :	RECORDED
* SHOW 3 :	RECORDED
SHOW 4 :	NOT RECORDED
SHOW 5 :	NOT RECORDED

A show which is listed as "RECORDED" may be selected. The recorded information will be "written over" with the information transferred from the console memory.

During TO TAPE operation, all fades in progress at the time will be halted for the duration of the transfer. All console controls will be inactive. The output from the console to the dimmers will be "frozen" at the interrupted levels. All interrupted fades will be resumed, and control returned to the previously selected mode at the completion of the TO TAPE transfer.

If a power failure is detected, the Battery Back-Up System will automatically activate. One minute after the failure detection, the system will initiate a TO TAPE transfer. The information in the console memory will be recorded in the last location from which a show was loaded. When the TO TAPE is complete, the system will remain fully operational for five minutes, then shut down.

The CRT screen will display a "TAPE ERROR" message when TO TAPE is pressed if:

- a. The tape cassette is not properly seated in the drive unit.
- b. The tape cassette is "write protected." Each tape cassette has a tab which can be positioned to protect the contents of the tape from accidentally being written over.
- c. The tape drive unit is not functioning properly.

### 3. FROM TAPE

The FROM TAPE function is employed to retrieve recorded cue, submaster, and softpatch information from cassette tape storage (see TO TAPE, II.K.2.). When the FROM TAPE button is pressed, the button LED will be illuminated, the current Display will be cleared, and the directory of the cassette in the tape drive will be presented.

The operator will be given the following prompt:

```
*** TO READ FROM TAPE, SELECT SHOW # (1-5) THEN PRESS "ENTER" ***  
*** TO ABORT, PRESS "CLEAR ENTRY" ***
```

```
SHOW 1 : RECORDED  
SHOW 2 : RECORDED  
SHOW 3 : RECORDED  
SHOW 4 : NOT RECORDED  
SHOW 5 : NOT RECORDED
```

If the operator selects CLEAR, the FROM TAPE will be aborted, and control will return to the previously selected Display mode.

A show number (1-5) may be selected as the source of the information to be transferred to the console memory. The cues, submaster assignments, and softpatch which constitute the "show" will remain intact on the cassette tape after the FROM TAPE is complete. The information is merely duplicated in the console memory. FROM TAPE will replace all cue, submaster, and softpatch information currently held in the console memory.

Pressing ENTER initiates the transfer of the information from the tape. While the transfer is taking place, a cursor will indicate the selected source show (e.g, #3), and the CRT will present the following display:



"FROM TAPE"  
IN PROGRESS

SHOW 1 : RECORDED  
SHOW 2 : RECORDED  
\* SHOW 3 : RECORDED  
SHOW 4 : NOT RECORDED  
SHOW 5 : NOT RECORDED

Like TO TAPE, FROM TAPE will halt all fades in progress when the transfer is initiated (see TO TAPE, II.K.2.). The fades will continue from the point of interruption and control will return to the previously selected Display mode when the transfer is complete.

L. The Grand Master

The GRAND MASTER, located in the lower right hand corner of the console, is a graduated, linear slide potentiometer. The GRAND MASTER allows the output of the system (i.e., channel levels) to be proportionally reduced or eliminated, without affecting fade progress. Channel levels produced by the twenty-four submasters, cues in the Auto Faders and Manual Cross Fader, and keypad "CAPTURED CHANNELS" are affected equally by the GRAND MASTER.

For example, assume that the following channels and levels are assigned to Submaster 01.

01	02	03	04	05	06	07	08	09	10	....
FF	80		40		60	FF	FF	20	FF	....

When Submaster 01 is at 50%, the resulting channel levels are:

01	02	03	04	05	06	07	08	09	10	....
50	40		20		30	50	50	10	50	....

If the GRAND MASTER is also at 50%, the resulting channel levels are:

01	02	03	04	05	06	07	08	09	10	....
25	20		10		15	25	25	05	25	....

The GRAND MASTER level is exhibited in the STAGE, BLIND, FADER, MANUAL, and CHANNELSCAN Displays in the upper right hand corner. If the GRAND MASTER is at a level other than 100%, that level will be displayed in reverse video:

GRAND MASTER AT 85 %

#### 1. BLACK OUT

The BLACK OUT button is an alternate action switch (ON - OFF) located immediately above the GRAND MASTER potentiometer. When the BLACK OUT button is pressed, the output (channel levels) from the system is reduced to zero. The net effect will be a full stage black out.

When the BLACK OUT button is pressed, the button LED will be illuminated, and

#### BLACKOUT

will flash in reverse video at the top of the STAGE, BLIND, FADER, MANUAL, or CHANNELSCAN Display.

In STAGE mode, the CRT will retain the display of channel levels present before the BLACK OUT button was pressed. A STAGE RECORD during a BLACK OUT, however, will produce channel levels of 0%.

When the BLACK OUT button is pressed a second time, the button LED will extinguish, the BLACKOUT message will disappear, and the previous channel levels will be restored instantaneously. In the course of a BLACK OUT, new cues may be loaded into cleared faders.

#### M. Submasters

The twenty-four SUBMASTERS are arranged in two rows of twelve on the left hand side of the 'CONCEPT' console. The SUBMASTERS are "pile-on" faders; the output of each SUBMASTER is combined with the output of the Manual Fader and the Auto Faders. Where channel fader assignments overlap, the channel will go to the highest intensity given. Any, or all, of the ninety-six control channels may be recorded at any level in any SUBMASTER (see POTENTIOMETERS, II.M.1). Any channel may be assigned to more than one SUBMASTER. Each SUBMASTER may be used as an "independant" timed fader by recording upfade, downfade and wait times (see BUMP SWITCHES, II.M.2.). The contents of any SUBMASTER, including fade and wait times, may be viewed by selecting the



appropriate SUBMASTER number in FADER Display mode (see FADER, II.B.3.).

## 1. POTENTIOMETERS

Each of the twenty-four SUBMASTERS has a numbered (1 - 24), graduated, linear slide potentiometer. The potentiometer is used to proportionally adjust the intensity of the channel or channels assigned to that SUBMASTER.

Channels may be assigned by entering FADER Display mode (see FADER, II.B.3) and selecting the appropriate SUBMASTER number (1-24) at the keypad. When ENTER is pressed after a SUBMASTER number is selected, the following operator prompt will appear:

\*\*\* SELECT CHANNELS TO WRITE BY \*\*\*

The CHAN button will be automatically selected, and the operator may choose the desired channel (or group of channels using the AND and THRU feature) at the keypad. Channel or group intensity may be assigned by employing the AT or FULL button, or the LEVEL BAR (see AT, II.D.5.; FULL, II.D.6.; LEVEL BAR, II.F.). SUBMASTER channel and intensity assignments must be recorded when complete. The SUBMASTER BUMP SWITCH LED will be illuminated when information is recorded in a SUBMASTER.

The contents (channel levels) of any SUBMASTER may be viewed in FADER Display mode. The SUBMASTER level (01% - FF) is displayed at the bottom of the Operator's Cue Sheet (see Operator's Cue Sheet, II.B.8.) in the following format:

SUBMAST	01	02	03
LEVEL	FF		50

## 2. BUMP SWITCHES

Each SUBMASTER has an associated BUMP SWITCH, which allows the SUBMASTER to be used as a timed fader. The BUMP SWITCH is a momentary switch which will drive the assigned channels to their full recorded intensities. Fade and wait times may be programmed for each SUBMASTER in FADER mode.

When the operator has selected the appropriate SUBMASTER number, pressing TIME will produce the following operator prompt:



\*\*\* ENTER UPFADE TIME \*\*\*  
(2 MINUTE MAXIMUM)

The operator may then choose from the following options:

- a. ONE TO THREE DIGIT NUMBER  
A one, two, or three digit time (00:01.0 - 02:00.0) may be selected at the keypad. ENTER must be pressed to signal that the selection is complete.
- b. DECIMAL NUMBER  
A decimal time (00:00.1 - 00:59.9) may be selected at the keypad. No ENTER is required for a decimal time.
- c. ENTER  
If no upfade time is selected and the operator presses ENTER, the default time of 00:00.0 (instantaneous) will be entered.

When an upfade time is entered, the downfade time will change to mirror the selected upfade time. The selected times will appear in the time display box, located in the lower, right hand corner of the FADER Display screen. For example, if an upfade of three seconds is entered, the display appears as:

---

	UPTIME:	00:03.0
	DNTIME:	00:03.0
	WTTIME:	00:00.0

---

The operator prompt will change to:

\*\*\* ENTER DNFADE TIME \*\*\*  
(2 MINUTE MAXIMUM)

The operator may now exercise the same options in choosing a downfade time; ONE TO THREE DIGIT NUMBER, DECIMAL NUMBER, or ENTER. If ENTER is pressed, the default downfade (same as upfade) will be entered. Pressing CLEAR and then ENTER will produce a downfade time of 00:00.0 (instantaneous). BUMP SWITCH fade times must be recorded.

When the SUBMASTER BUMP SWITCH is pressed, the upfade will commence, and will continue until the



BUMP SWITCH is released. The SUBMASTER may be held at 100% indefinitely. If the BUMP SWITCH is released before the SUBMASTER reaches 100% intensity, the downfade will begin from the point of release. Each time the BUMP SWITCH is pressed during a fade, the fade will reverse direction. For example, if the BUMP SWITCH is pressed during the downfade, the SUBMASTER will begin a second upfade from the point of interruption.

BUMP SWITCHES may be programmed to WAIT at the end of the upfade. To record a WAIT for any SUBMASTER, enter FADER Display mode, select the SUBMASTER number, and press the WAIT button. The following operator prompt will appear:

\*\*\* ENTER WAIT TIME \*\*\*

The operator may then choose from the following options:

- a. ONE TO THREE DIGIT NUMBER  
A one to three digit time (00:01.0 - 09:59.0) may be selected at the keypad. ENTER must be pressed to signal the completion of the entry.
- b. FOUR DIGIT NUMBER  
A four digit time (10:00.0 - 99:59.0) may be selected at the keypad. It is not necessary to press ENTER following this selection.
- c. DECIMAL NUMBER  
A decimal number (00:00.1 - 00:59.9) may be selected. Decimal numbers are automatically entered.
- d. ENTER  
If no wait time is selected and ENTER is pressed, the default wait time of 00:00.0 (instantaneous) will be entered. There will be no delay between the completion of the upfade and the commencement of the downfade.

The selected wait time will be displayed beneath the downfade time in the FADER Display. It is necessary to record the wait time.

If a wait has been programmed for a SUBMASTER, the upfade may be initiated by pressing the appropriate BUMP SWITCH once. It is not necessary to keep the switch depressed. The BUMP SWITCH LED will begin to flash, and the fade will proceed to the pre-recorded



levels in the specified time. When the upfade is complete, the wait will commence. At the conclusion of the specified wait period, the downfade will commence. The button LED will cease flashing when the downfade is complete.

Pressing the BUMP SWITCH a second time during the fade progress will interrupt the fade at that point. If the BUMP SWITCH is pressed in the course of the upfade, the downfade will commence from the point of interruption in the specified downfade time. Pressing the switch during the wait period will start the downfade. If the BUMP SWITCH is pressed during the downfade, the SUBMASTER will begin to upfade from the point of interruption. There is no limit to the number of times the fade direction can be changed.