

# Channel Track Memory Center Operation Manual

# Berkey Colortran®

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## SECTION I

### Preface

"Channel Track" memory center is one of several fine components of the Berkey Colortran line of custom equipment for the control of incandescent lamps. Accompanied by a power center and distribution center, and perhaps by an auxiliary control center; this generation of memory centers forms the basis of one of the most advanced lighting control systems available today. The unit has been custom tailored to meet the requirements of the installation and tested as a system along with the other components. Even though many of its features are self-explanatory, it is worthwhile to learn how to use "Channel Track" to its fullest capability.

This manual has been prepared to enable the novice to operate "Channel Track" in a minimum amount of time with a maximum amount of effect. For installation, maintenance or repair refer to the companion "Maintenance" manual. Information on the other components of the system can be found in their own respective manuals and/or the shop drawings for the installation. Should you need additional information, please contact one of our principal offices worldwide.

## SECTION II

### Introduction

"Channel Track" is the component in the lighting control system that translates the operator's actions into the low voltage control signals required by the dimmers in the power center. It employs digital techniques through the use of microprocessors to execute these translations. In addition, these translations in the form of "memories" are memorized on "floppy disk" for continued and future use.

Normally "Channel Track" is supplied as a completely self-contained unit either in the form of a floor-supported desk console or a table-top mounted panel for transportability. The front of the unit lifts out to become a portable remote. Associated with the unit is one or more data display units which may also be removed. Very large systems may include a wing for the many manual controllers. The unit is designed to operate in an environment of 50°F (10°C) to 104°F (40°C) with a relative humidity of 20% to 80% without condensation.

The following sections cover "Channel Track" operation in order of importance. Since the heart of the system is the "floppy disk," its operation is covered next. Sections IV and V cover control panel operation which is the basis of system operation. It is divided into two sections so that the beginner can learn simple operations with some semblance of continuity, and later on piece together the details of more complex operation. The final chapter covers the operation of the standard peripheral devices. It is extremely helpful to consult the photographs of the operating controls found in Section V while studying these sections.

## SECTION III

### The Floppy Disk

#### A. The Disk Drive

The disk drive is located in the front of the unit. In some systems there are two drives, the second as a backup for the first. In this situation the first operational drive with an acceptable disk at the time the memory system key switch is turned on is the one in control.

The disk is accessed through a door in the front of the drive. To insert a disk slip it in the opening in the drive with the slot towards the back and the label up. Push the disk in until it catches and remains in, and then close the door. To remove a disk push the button under the door which will cause the door to open, and the disk to be ejected. Never insert or remove a disk while the red light in the button under the door is lit.

#### B. The Disk

The disk contains both the instructions for the micro-processor and the recorded memories. It may be removed and stored for future productions, but must be replaced with one pre-programmed by Berkey Colortran in order for the system to operate. All disks must bear a Berkey Colortran model number matching the one shown on the shop drawings.

If a disk is removed it should be treated like any high quality audio cassette and protected from magnetic fields of 50 Oersteds or greater such as might be found on the top of a power transformer or power center. It should be stored in an environment of 50°F (10°C) to 125°F (52°C) with a relative humidity of 8% to 80% without condensation in its own envelope free from fingerprints and dust.

## SECTION IV

### Typical Operation

#### A. Initialization

Turn both manual and memory system key switches on. Note that the manual pilot illuminates, the memory display displays "0", and the data display unit (DDU) eventually displays the stage intensity map. Make sure that the two master blackout push buttons are not illuminated, and if so depress them. Also make sure the two master controllers are full on. (Note: If DDU displays "Disk Insertion Error" in lieu of the intensity map, turn memory system key switch off and on a couple of times and/or try the disk in the other disk drive. If DDU displays "Bad Disk" in lieu of the intensity map, try another disk, BUT ONLY ONE. If these actions do not cause the intensity map to appear consult "Maintenance" manual.)

#### B. Manual Record

Before attempting to record, turn record key switch on. If it is desired to erase all memories before beginning to record, depress the clear-system button and record button simultaneously. Both buttons will illuminate and remain so until the erase process is completed.

Set the manual controllers to the desired lighting pattern observing the lighting on stage. Depress the all-on-manual display button and verify this pattern on the DDU. Using the memory keyboard select the memory number to be assigned to this set of intensities verifying this number in the display above. If it is desired to play back the show in sequence and the sequence is not in numerical order, depress the link-to button.

After this button illuminates and the display above clears, enter the memory number of the next memory to be in the sequence verifying this number in the display. Depress the record button to record all of this information . The system is now ready to repeat the process of setting lighting patterns and recording them until all memories are recorded.

After all recording is completed the record key switch should be turned off to prevent accidental changes, the stage display button depressed to return the system to memory control, and all manual pots set to zero to prevent their piling on top of the memory control.

#### C. Manual Playback

Call up the first memory to be used with the memory keyboard verifying its number in the display above. Make sure that both E and F faders are in the down position. Move the selected memory to the E fader if it is desired to fade it in, or to the F fader if it is desired to immediately bump it in, by depressing the corresponding load button. The memory number should now appear in the display over the corresponding fader freeing the memory keyboard to select another memory. If the E fader was loaded move both E and F faders together to fade in the memory. It is now possible to select another memory with the memory keyboard, load it in the "dead" fader and fade it in by moving both handles in the opposite direction. If it is desired to run in sequence depress the sequence button so that it illuminates. Now each time a load button is depressed the memory display will automatically advance to the next memory

in sequence, be it the next numerically or the one previously linked, making it available for the next load function.

Anytime during playback any or all channels can be captured and controlled independent of the fade without matching. This is accomplished by addressing the channel to be captured on the channel keyboard verifying its number on the display above, and moving the channel control wheel up or down noting its intensity on the display above. If more than one channel is to be controlled call the first channel as before, depress the "and" button until it lights and enter another channel number, or depress the "thru" button until it lights and enter the number of the last channel of the group to be controlled. The channel keyboard display will show only the last channel entered but the DDU will show all channels addressed by flashing. Also the display will only track the last channel entered but moving the channel controller up or down will move all channels addressed an equal distance up or down as seen on the DDU.

#### D. Automatic Record

Before attempting to record turn record key switch on. If it is desired to erase all memories before beginning to record, depress the clear-system button and record button simultaneously. Both buttons will illuminate and remain so until the erase process is completed.

Set the desired lighting pattern effect with the controls in the channel control section observing the lighting on stage. To set an individual channel address it with the keyboard verifying its number in the display above, and move the channel control wheel up noting its intensity in the display



above. In lieu of the channel control wheel the intensity can be entered directly by depressing the "at" button until it illuminates, entering the intensity value with the keyboard, and depressing the clear button. To set groups of channels to the same level address them as above depressing the "and" button between random entries, and the "thru" button between inclusive entries. Verify the group of channels selected as those flashing on the DDU and set their intensity as above. To set groups of channels to a proportional percentage of a pre-recorded group depress the by-memory button and enter the memory number of this pre-recorded group with the channel keyboard. Set their intensities as above, noting that a flashing control wheel level display denotes that the boundaries of proportionality have been exceeded. The DDU should be consulted on all group entries as the displays either indicate the last channel of the group only, or are used for other purposes.

After setting the desired lighting pattern on stage with the channel control, use the memory control keyboard to select the memory number to be assigned to this set of intensities verifying this number in the display above. Unless it is desired to run the associated cue with a manually set lead/lag fade time, depress the set-time button. After this button illuminates and the display above clears, enter the desired time for fading into the memory being set up for recording verifying this time in the display. If it is desired to play back the show in sequence and the sequence is not in numerical order, depress the link-to button. After this button illuminates and the display

above clears, enter the memory number of the next memory to be in the sequence verifying this number in the display. Depress the record button to record all of this information. The system is now ready to repeat the process of setting lighting patterns and recording them until all memories are recorded.

If it is desired to record "in the blind" while the show lighting remains on stage undisturbed depress the memory display button. Proceed in the same manner as live recording but be sure to select the memory number to be assigned to the set of intensities before setting the desired lighting pattern. If old undesired intensities are left over in the memory depress the set-to-0 button to remove them.

After all recording is completed the record key switch should be turned off to prevent accidental changes and the stage display button depressed if not illuminated to allow fade overside in playback.

#### E. Automatic Playback

Call up the first memory to be used with the memory keyboard verifying its number in the display above. Unless it is desired to address each memory and set its fade time manually, depress the sequence button so that it illuminates. Verify that a fade time has previously been recorded by noting the time information on the DDU after the memory number labeled "next." If the notation on the DDU is "as set", no time has been recorded and the time must be set manually. To set the time manually, select "seconds" or "minutes" with the toggle switches and touch the

pads next to the desired times on the A/B fader pair time controllers, the A fader for intensities going up and the B fader for those going down. When ready to fade in the first memory depress the cross-fade button which will illuminate and remain so until the fade is completed. Continue the show by merely depressing the cross-fade button at the appropriate time making sure to verify that fade times have been recorded. If at any time it becomes necessary to modify the timing of the cross-fade, merely touch different pads on the A/B fader pair time controllers.

Anytime during playback any or all channels can be captured and controlled independent of the fade without matching. This is accomplished by addressing the channel to be captured on the channel keyboard verifying its number on the display above, and moving the channel control wheel up or down noting its intensity on the display above. If more than one channel is to be controlled call the first channel as before, depress the "and" button until it lights and enter another channel number, or depress the "thru" button until it lights and enter the number of the last channel of the group to be controlled. The channel keyboard display will show only the last channel entered but the DDU will show all channels addressed by flashing. Also the control wheel level display will only track the last channel entered but moving the channel controller up or down will move all channels addressed an equal distance up or down, as seen on the DDU.

Also anytime during playback any memory can be previewed and modified "in the blind" in advance of playback. This is accomplished by depressing the memory display button and calling up the desired memory with the memory keyboard. The contents of this memory are displayed on the DDU and can be altered beforehand in a manner similar to capturing channels from a fader. When the fade is initiated these modified intensities will be placed in control. Remember to depress the stage display button after working "in the blind."

#### F. Finalization

Turn both manual and memory system key switches off.

## SECTION V

### Functional Description of Operating Controls

#### A. "Masters" Section

1. Alternate-action "manual blackout" button, illuminated when depressed, to blackout the manual system. A second depression restores the manual system as it was.
2. Alternate-action "memory blackout" button, illuminated when depressed, to blackout the memory system. A second depression restores the memory system as it was.
3. "Manual" master controller to master the output of the manual system piling it onto the output of the memory system.
4. "Memory" master controller to master the output of the memory system piling it onto the output of the manual system.

#### B. "Memory Control" Section

1. "Record" key switch to enable or disable the recording or erasing of intensity, time, and/or link information.
2. "Clear system" button, illuminated when depressed simultaneously with "Record" button (3), to erase all intensity, time and link information. Buttons extinguish when erase process is completed.
3. "Record" button, illuminated when depressed and extinguished after the recording process is completed if it actually occurred, to record on the disk all intensity, time and/or link information displayed below the fader or mode information on the data display unit (H) in the memory whose number is displayed after "next" (5) on the data display unit. Note that the information displayed on the data display unit is dependent upon the controls in the "display"

- section (F). If the "channel track" button (2) in the "display" section is illuminated, intensity information only for the channel indicated will be recorded in all of the memories indicated. "What you see is what you get."
4. "System" key switch to energize or de-energize the memory system.
  5. Alternate-action "sequence" button, illuminated when depressed to cause the keyboard display (6) to automatically advance to the next memory number in sequence whenever a "crossfade" (C4), "plus fade" (C6), "minus fade" (C7), or "load" (D2) button is depressed. The next memory in sequence is the next memory numerically unless linked to a different memory-- see "link to" button (10). If the "sequence" button is not illuminated the "timed fader" section (C) will ignore any recorded time information.
  6. Four-digit keyboard display to display entries either made by keyboard or automatically by the microprocessor. Normally the display indicates the number of the memory in the memory buffer. If the "link to" button (10) is illuminated the display indicates the memory number of the memory linked to the memory in the memory buffer. If the "set time" button (8) is illuminated, the display indicates the fade-in time associated with the memory in the memory buffer.
  7. Ten-button keyboard normally used to enter the memory number of the memory buffer into the keyboard display (6). This action automatically causes the contents of the disk to be read immediately into the buffer for the memory number

selected. If the "link to" button (10) is illuminated the keyboard enters the memory number of the memory linked to the memory in the memory buffer. If the "set time" button (8) is illuminated the keyboard enters the fade-in time associated with the memory in the memory buffer.

8. Alternate-action "set-time" button, illuminated when depressed, to enable the keyboard (7) to enter a fade-in time associated with the memory in the memory buffer and to display this time on the keyboard display (6). Depressing the "link to" button (10) or the "record" button (3), or depressing the "set time" button a second time will reassign keyboard and keyboard display to link function or return it to normal memory function. Even though the fade time indication has disappeared it is still available for recording and visible after "time" (6) on the data display unit (H).
9. "Set to 0" button to set all intensities in the memory buffer to zero and to clear time and link if any. If the "memory" button (3) in the "display" section (F) is illuminated and the "record" button (3) is depressed the memory whose number is displayed in the keyboard display (6) is erased from the disk.
10. Alternate-action "link to" button, illuminated when depressed, to enable the keyboard (7) to enter the memory number of a memory other than the next numerically to follow the memory in the memory buffer in sequence, and to display this number on the keyboard display (6). Depressing the "set time" button (8) or "record" button (3), or depressing the "link to" button a second time will reassign keyboard and keyboard

display to time function or return it to normal memory function. Even though the linked memory number has disappeared it is still available for recording and visible after "link" (7) on the data display unit (H).

11. "Decrement" button to decrease any number in the keyboard display (6) by 1.
12. "Increment" button to increase any number in the keyboard display (6) by 1.
13. "Clear" button to clear the number in the keyboard display (6).

#### C. "Timed Faders" Section

1. Three-digit display to display the number of the last memory being processed by the fader pair. One display is for the A/B pair and one for the C/D pair.
2. Time scale selector switch and associated indicators to select fade time scales of 0 to 90 seconds or 0 to 90 minutes. If the "sequence" button (5) in "memory control" section (B) is illuminated and a fade time has been recorded for the memory whose number appears in the keyboard display (6) of the "memory control" section, the time scale will be set automatically by the microprocessor whenever the associated "crossfade" (4), "plus fade" (6), or "minus fade" (7) button is depressed. This automatic feature can be overridden any time after it occurs, or disabled by depressing the illuminated "sequence" button in the "memory control" section. A separate selector assembly is provided for faders A, B, C, and D.



3. Thirty-two segment time selector touch switch and associated indicator to select fade times of 0 to 90 seconds or minutes depending on the position of the time scale selector switch (2), and infinity. If the "sequence" button (5) in "memory control" section (B) is illuminated and a fade time has been recorded for the memory whose number appears in the keyboard display (6) of the "memory control" section, the time will be set automatically by microprocessor whenever the associated "crossfade" (4), "plus fade" (6), or "minus fade" (7) button is depressed. The indicator will indicate time closest to the one recorded and will indicate infinity if 99 seconds or 99 minutes is recorded. Upon switching scales with the time scale selector switch the time will automatically be switched by microprocessor to 1 minute if "minutes" is selected and 90 seconds if "seconds" is selected. These automatic features can be over-ridden any time after they occur and the time entry feature can be disabled by depressing the illuminated "sequence" button in the "memory control" section. A separate selector assembly is provided for fader A, B, C, and D.
4. "Crossfade" button, illuminated when depressed and extinguished after the fade process is completed, to cause all channels to fade from their existing intensities in the timed fader buffer to the intensities in the memory buffer whose number appears in the keyboard display (6) of the "memory control" section (B) at the time the button was depressed. All raising intensities will fade up at the speed set by the "A fader"

time selector touch switch and all lowering intensities will fade down at the speed set by the "B fader" time selector touch switch. The progress of the fade in both real time and percent of completion can be followed on the data display unit (H). A cross fade terminates all other timed fades.

5. "Fade out" button, illuminated when depressed and extinguished after the fade process is completed, to cause all channels to fade from their existing intensities in the timed fader buffer to zero at the speed set by the "B fader" time selector touch switch. Since no new memory is involved the time must be set manually. The progress of the fade is both real time and percent of completion can be followed on the data display unit (H). A fade-out terminates all other timed fades.
6. "Plus fade" button, illuminated when depressed and extinguished after the associated fade process is completed, to cause only those channels that are not at zero in the memory buffer whose number appears in the keyboard display (6) of the "memory control" section (B) to fade from their existing intensities in the timed fader buffer to the intensities in the memory buffer at the time the button is depressed. All raising intensities will fade up at the speed set by the "A fader" time selector touch switch and all lowering intensities will fade down at the speed set by the "B fader" time selector touch switch if the button associated with the A/B fader pair was depressed. If the button associated with the C/D fader pair was depressed the fade will progress at the speed set in a similar manner on the "C fader" and "D fader" time

selector touch switches. The progress of the fade in both real time and percent of completion can be followed on the data display unit (H). A plus fade terminates all other timed fades only for those channels under its control.

7. "Minus fade" button, illuminated when depressed and extinguished after the associated fade process is completed, to cause only those channels that are not at zero in the memory buffer whose number appears in the keyboard display (6) of the "memory control" section (B) to fade from their existing intensities in the timed fader buffer to zero at a speed set by the "B fader" time selector touch switch if the button associated with the A/B fader pair was depressed. If the button associated with the C/D fader pair was depressed the fade will progress at the speed set by the "D fader" time selector touch switch. The progress of the fade in both real time and percent can be followed on the data display unit (H). A minus fade terminates all other timed fades only for those channels under its control.
8. "Hold" button, flashed when depressed alternately with the button of the fade it is affecting, to cause the fade process of the associated fader pair to stop. Depressing the flashing fade button (4, 5, 6, 7) allows the fade process to continue and the flashing to stop. Depressing the flashing "hold" button terminates the fade process and the flashing.
9. "Clear" button, illuminated when depressed, to terminate all timed fades and cause the intensities of all channels to be set immediately to zero in the timed fader buffer.

Depression of any fade button causes the clear button to extinguish.

#### D. "Faders" Section

1. Three-digit display to display the number of the memory loaded into the fader. Two are provided, one for the "E Fader" (4) and one for the "F Fader" (4).
2. "Load" button, illuminated when depressed and extinguished whenever associated "clear" button (3) is depressed, to cause the contents of the memory buffer whose number appears in the keyboard display (6) of the "memory control" section (B) to be copied into the associated fader buffer. Two are provided, one for the "E Fader" (4) and one for the "F Fader" (4).
3. "Clear" button, illuminated when depressed and extinguished whenever associated "load" button (2) is depressed, to cause all intensities in the associated fader buffer to be immediately set to zero. Two are provided, one for the "E Fader" (4) and one for the "F Fader" (4).
4. E/F fader controller pair to master their associated fader buffers in such a manner so as to provide a standard dipless split-handle cross fade function. The output of this section is piled onto the output of the "timed faders" section (C).

#### E. "Channel Control" Section

1. Three-digit level display to display the intensity level of the channel under the control of the channel controller (4). If more than one channel is under the control of the channel controller the last channel selected is displayed. If a memory

is under the control of the channel controller the display is blank until one of the dimmers reaches 100 in which case the display flashes 100, or until one of the dimmers reaches 0 in which case the display flashes 0.

2. "By channel" button, illuminated when depressed and extinguished whenever the "by memory" button (3) is depressed, to cause the channel controller (4) to modify the channel or channels selected by the channel keyboard (6) in equal increments including those at zero. If "channel track" button (2) in "display" section (F) is illuminated the channel controller will modify the channel being tracked in equal increments including those at zero in the memory or memories selected by the channel keyboard.
3. "By memory" button, illuminated when depressed and extinguished whenever the "by channel" button (2) is depressed, to cause the channel controller (4) to modify the channel or channels that are not at zero in the memory selected by the channel keyboard (6) proportional to the intensity in the memory selected. If the range of proportionality is exceeded, proportionality is recovered when range is restored. If "channel track" button (2) in "display" section (F) is illuminated the channel controller will modify the channel being tracked proportionally in only those memories in which the channel is not at zero. This feature effectively allows the assignment of any or all memories as a submaster group.
4. Channel controller to cause the intensity of the channel or channels assigned to it by the channel keyboard (6) to be

raised or lowered directly as the controller is moved up or down. If the "by channel" button (2) is illuminated multiple channels are moved incrementally including those at zero. If the "by memory" button (3) is illuminated multiple channels are moved proportionally excluding those at zero. If the "stage" button (4) in "display" section (F) is illuminated the intensities of the channel or channels flashing on the data display unit (H) are modified in the output buffer just before the "memory" master controller (4) and "memory blackout" button (2) in "masters" section (A), and before the "block" feature--see "block" button (8). If the "memory" button (3) in the "display" section is illuminated the intensities of the channel or channels flashing on the data display unit are modified in the memory buffer. If the "channel track" button (2) in the "display" section is illuminated the channel being tracked is modified in those memories flashing on the data display unit. What you see is what you have control over.

5. Three-digit channel display usually used to display the number of the last channel selected by the channel keyboard (6). If "by memory" button (3) is illuminated the number displayed is the memory number selected by the channel keyboard.
6. Ten-button keyboard normally used to enter the number of the channel or channels to be controlled by the channel controller (4). If the "by memory" button (3) is illuminated the keyboard is used to enter the memory number of the channel or channels to be controlled by the channel controller. If "at" button (10) is illuminated the keyboard is used to

enter an intensity in the level display (1). The keyboard is also used to enter the number of channel or channels to be blocked--see "block" button (8).

7. "Thru" button, illuminated when depressed and extinguished whenever "and" button (9) or "at" button (10) is depressed, to enable the keyboard to enter a final channel number so that the channel controller (4) will control all channels between and including this number and the previously entered number.
8. Alternate-action "block" button, illuminated when depressed, to block the memory output of all channels assigned to the channel controller (4) at the time the button is depressed. A second depression clears the block, sets the blocked intensities to zero in the output buffer and places the blocked intensities back under the control of the channel controller so they may be sneaked in if desired.
9. "And" button, illuminated when depressed and extinguished whenever "thru" button (7) or "at" button (10) is depressed, to enable the keyboard to enter additional channel numbers so that the channel controller (4) will control more than one channel.
10. Alternate-action "at" button, illuminated when depressed, to enable the keyboard to enter an intensity for the channels assigned to the channel controller (4). The intensity entered is not effected until the "at" button is depressed a second time or the "clear" button (13) is depressed.
11. "Decrement" button to decrease any number in the channel display (5) by 1. If the "at" button (10) is illuminated

- any number in the level display will decrease by 1.
12. "Increment" button to increase any number in the channel display (5) by 1. If the "at" button (10) is illuminated any number in the level display (1) will increase by 1.
  13. "Clear" button to clear the number in both the channel display (5) and level display (1). Depressing this button effects any intensity entered via the "at" button (10), cancels any multiple channel selection, and extinguishes the "thru" button (7), "and" button (9) or "at" button (10).

#### F. "Display" Section

1. "All on manual" button, illuminated when depressed and extinguished whenever "channel track" button (2), "memory" button (3) or "stage" button (4) is depressed, to cause the control signals sensed on the memory system output from external sources usually emanating from the manual system output, to be displayed on the data display unit (H) as intensity values. If this button is depressed the memory system output is blocked.
2. "Channel track" button, illuminated when depressed and extinguished whenever "all on manual" button (1), "memory" button (3), or "stage" button (4) is depressed, to cause the intensities of the last channel assigned to the channel controller (4) in "channel control" section (E) to be displayed on the data display unit (H) for all memories in the block of 100 containing the memory number appearing in the keyboard display (6) of "memory control" section (B) at the time



the button is pushed. Successive depressions of the button will cause subsequent blocks of 100 memories to be displayed. If this button is depressed the memory system output is frozen but not blocked.

3. "Memory" button, illuminated when depressed and extinguished whenever "all on manual" button (1) "channel track" button (2), or "stage" button (4) is depressed, to cause the intensities of the memory whose number appears in the keyboard display (6) of the "memory control" section (B) to be displayed on the data display unit (H).
4. "Stage" button, illuminated when depressed and extinguished whenever "all on manual" button (1), "channel track" button (2) or "memory" button (3) is depressed, to cause the intensities of the memory system output to be displayed on the visual display unit (H).

#### G. "Manual" Section

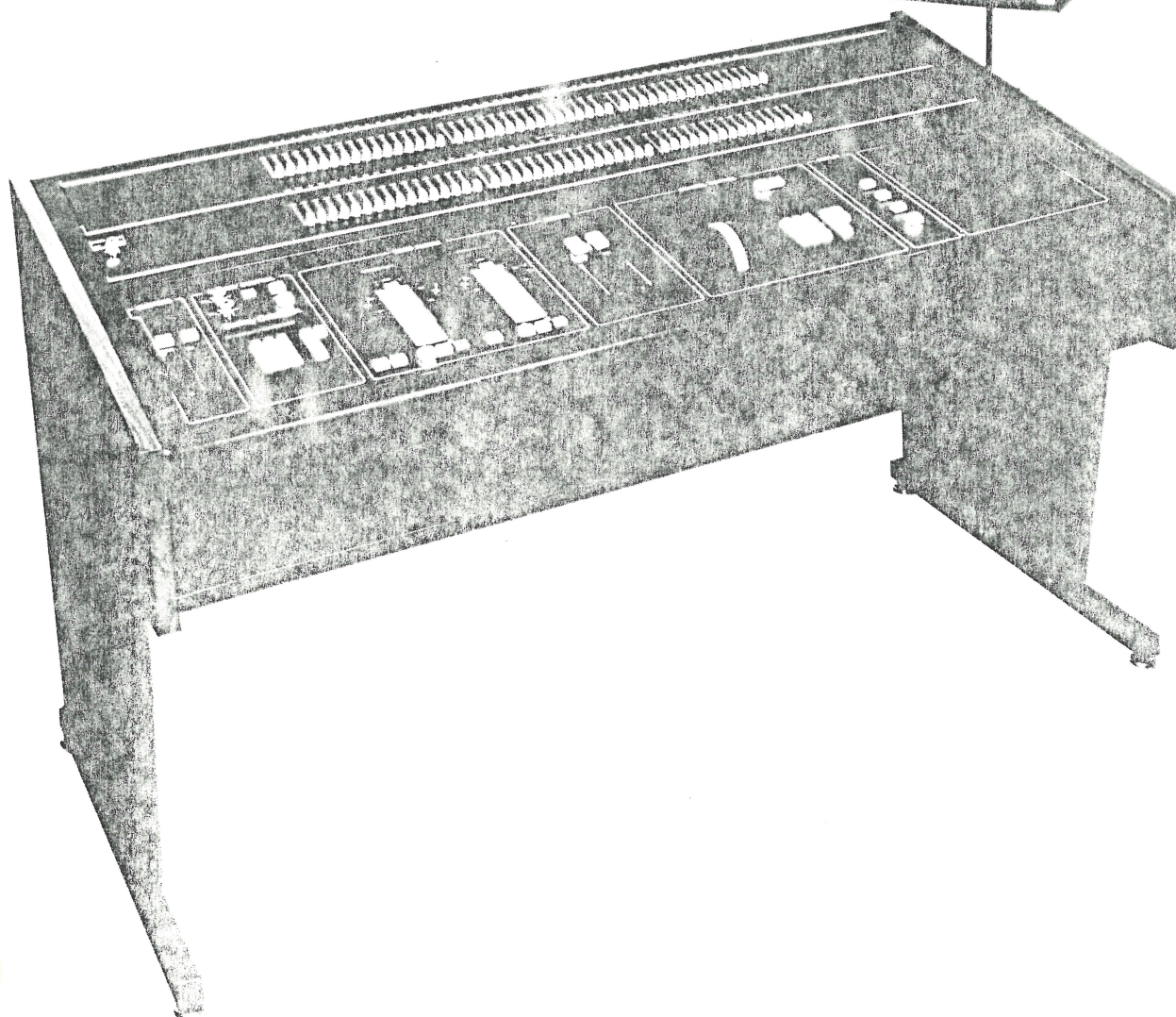
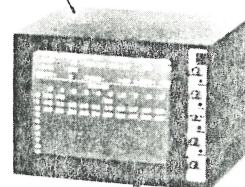
1. "System" key switch and associated indicator to energize or de-energize the manual system. This switch also energizes de-energizes the memory system output conversion circuitry between the analog dimmer signal and digital microprocessor signals.
2. Manual controllers, one per control channel, to control the output of the manual system.

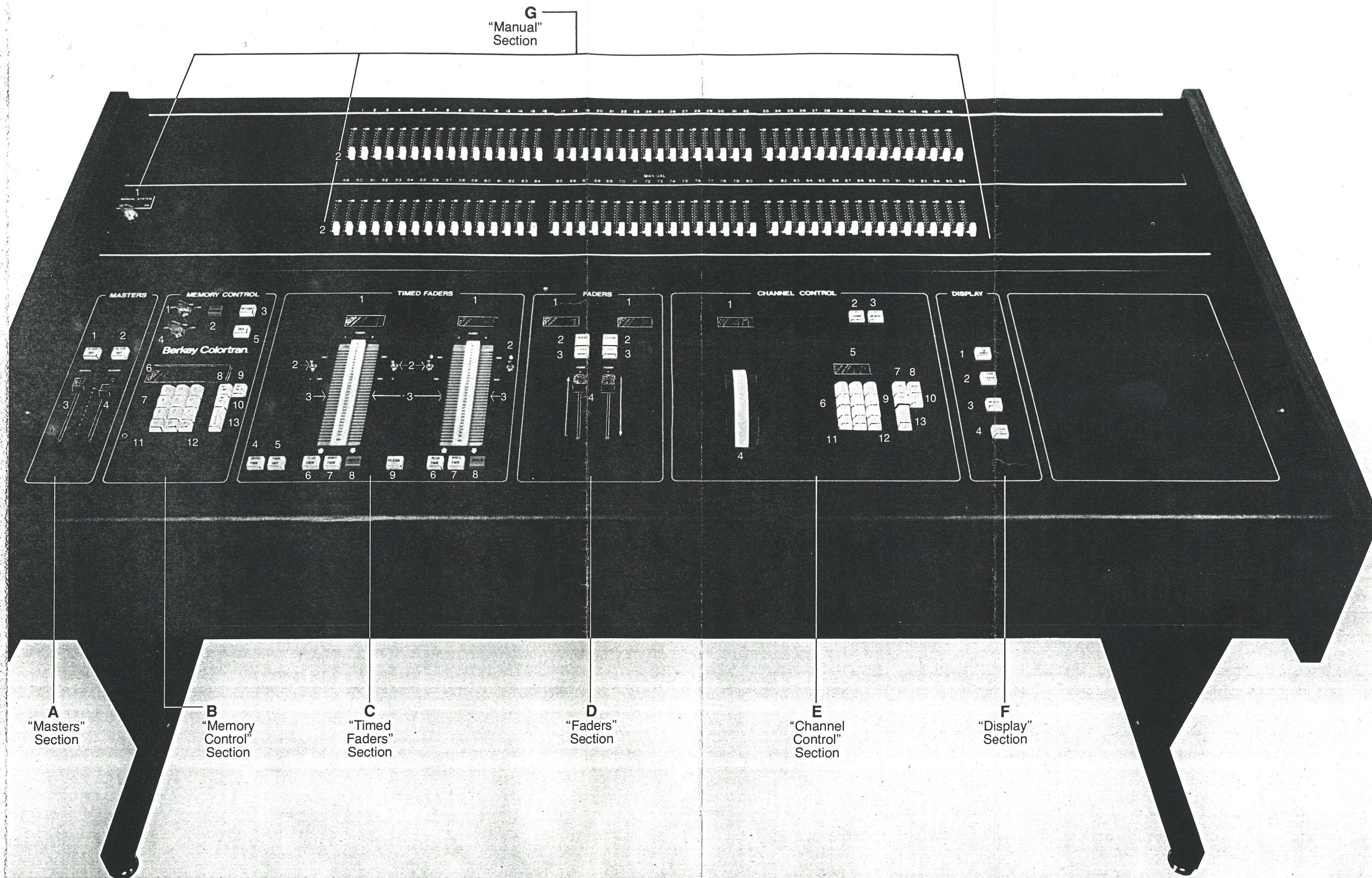
# channel track

Berkey  
Colortran.

lighting control system

H (See pages 5-15 thru 5-17C)  
"Data  
Display  
Unit"





**A**  
"Masters"  
Section

**B**  
"Memory  
Control"  
Section

**C**  
"Timed  
Faders"  
Section

**D**  
"Faders"  
Section

**E**  
"Channel  
Control"  
Section

**F**  
"Display"  
Section

**G**  
"Manual"  
Section

Figure 1. CONTROL PANEL LAYOUT

#### H. Data Display Unit

1. Display of the number of the last memory processed by the associated fader pair.
2. Display of the fade time remaining in minutes and seconds in the associated directions of the associated fader pair.
3. Display of the fade time remaining in percent of completion in the associated directions of the associated fader pair. An "x" in lieu of a "%" indicates a fader pair on "hold."
4. Flag denoting that the information in the memory buffer no longer matches that which is recorded on the disk.
5. Display of the number of the next memory available for use, i.e. the memory in the memory buffer.
6. Display of the fade-in time associated with the memory in the memory buffer. If no fade time is recorded "as set" is displayed as a reminder to set the time by hand.
7. Display of the memory number to follow the memory in the memory buffer in sequence. If the following memory is in numerical sequence this display disappears to avoid confusion.
8. Display of title and modification warnings to intensity map (9). If the "stage" button (4) in the "display" section (F) is illuminated "stage" is displayed. If the "memory blackout button (2) in the "masters" section (A) is illuminated the warning "blacked out" is added to "stage". If the "memory" master controller (4) in the "masters" section is not at 100% the percentage the master controller is down is added to "stage" as a warning. If the "memory" button (3) in the

- "display" section is illuminated "memory" and the number of the memory in the memory buffer is displayed. If the information in the memory buffer does not match that which is recorded on the disk an asterisk is added to "memory" as a warning.
9. Intensity map displaying the intensities of the control channels either as they appear at the memory system output or in the memory noted depending on the title (8) displayed. Rows represent the channel number tens digit and columns the ones digit. Flashing intensities indicate those channels under the control of the "channel control" section (E). If the intensity is zero dashes are flashed. "BL" in place of an intensity indicates a blocked channel.
  10. Display of the fact that the system is in "channel track" mode as a reminder that the intensity map has different parameters and all normal operating functions are frozen.
  11. Name of control program in use.
  12. Reference information from stage mode (4 through 7).
  13. Display of title of intensity map (14) denoting channel being tracked and the block of memories in which the channel is being tracked.
  14. Intensity map displaying the intensities of the control channel being tracked. Rows represent the memory number tens digit and the columns the ones digit. Flashing intensities indicate those under the control of the channel control section(E). If the intensity is zero dashes are flashed.

15. Display of the fact that the system is in "all of manual" mode.
16. Warning that memory system must operate in another mode in order to have output.
17. Display of title of intensity map (18). If the circuitry that allows the memory system to read the manual system output is either off or disconnected the warning "readback disconnected" is displayed in lieu of the title.
18. Intensity map displaying the intensities of the control channels as set external to the memory system. Rows represent the channel number tens digit and columns the ones digit.

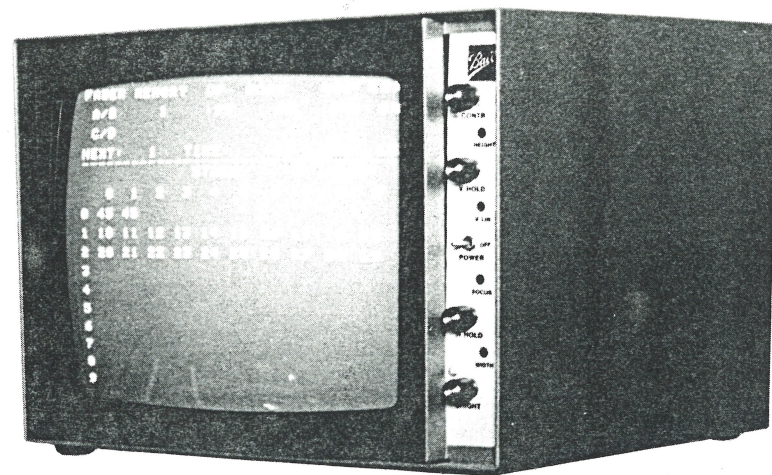


Figure 2. DATA DISPLAY UNIT LAYOUT

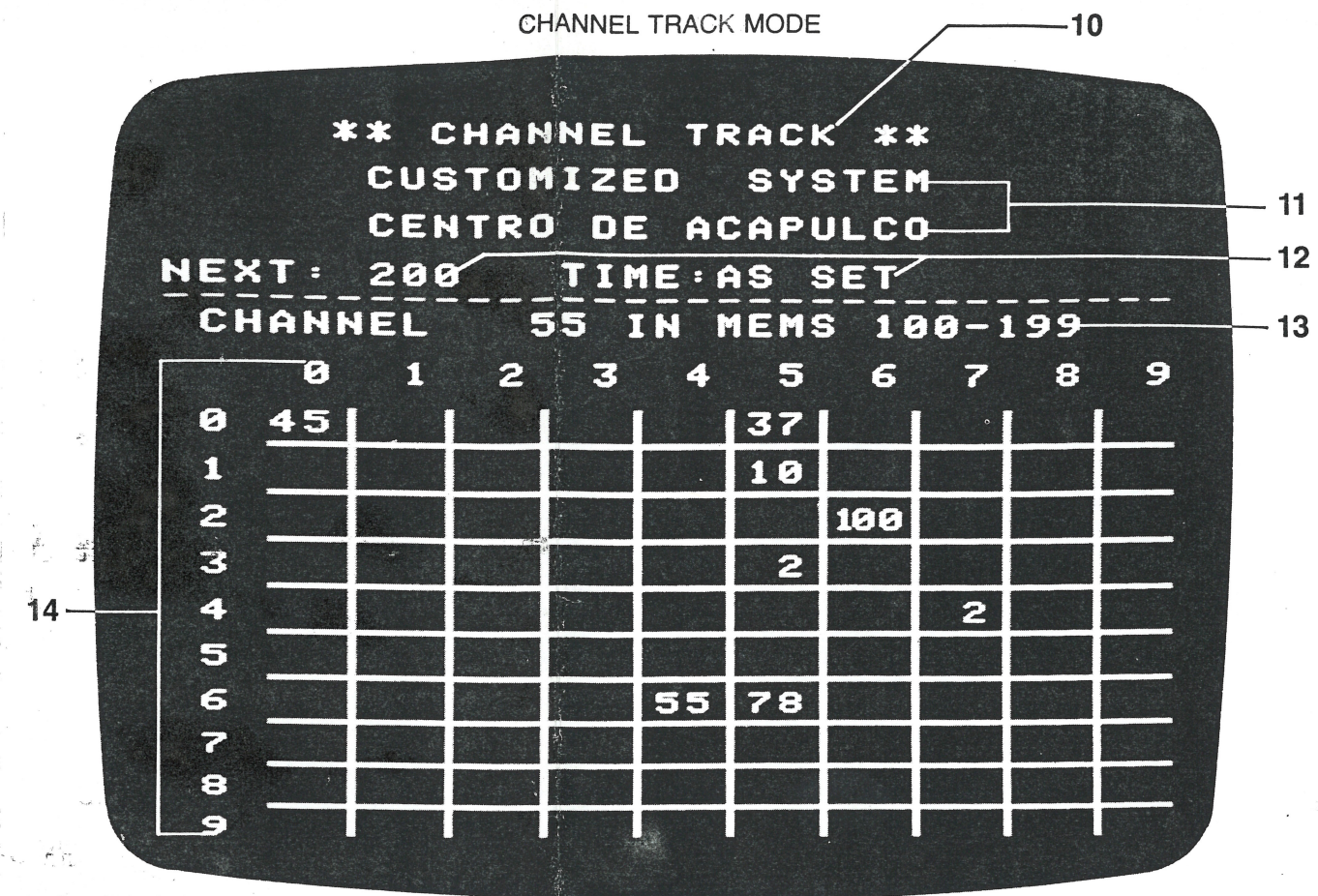
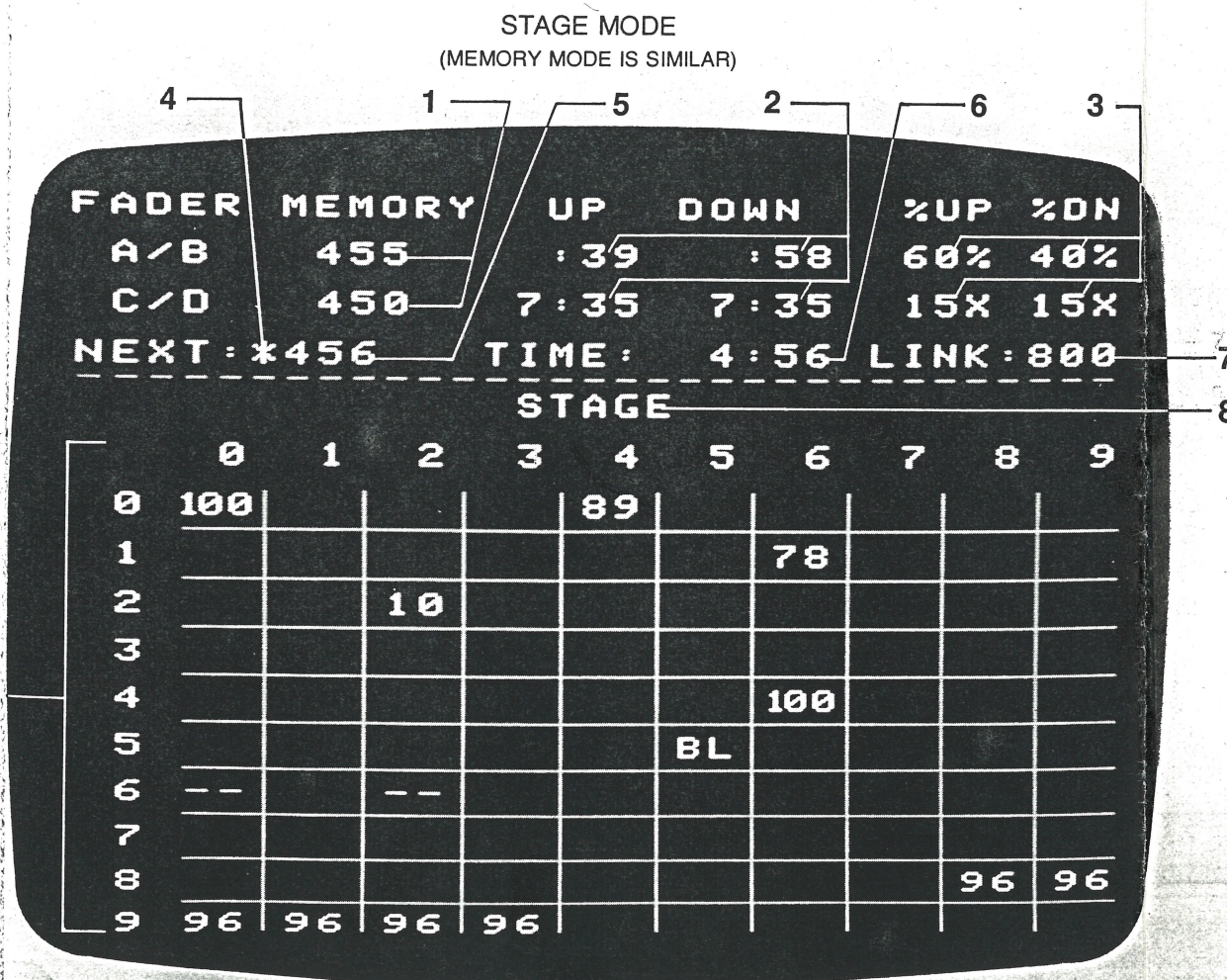
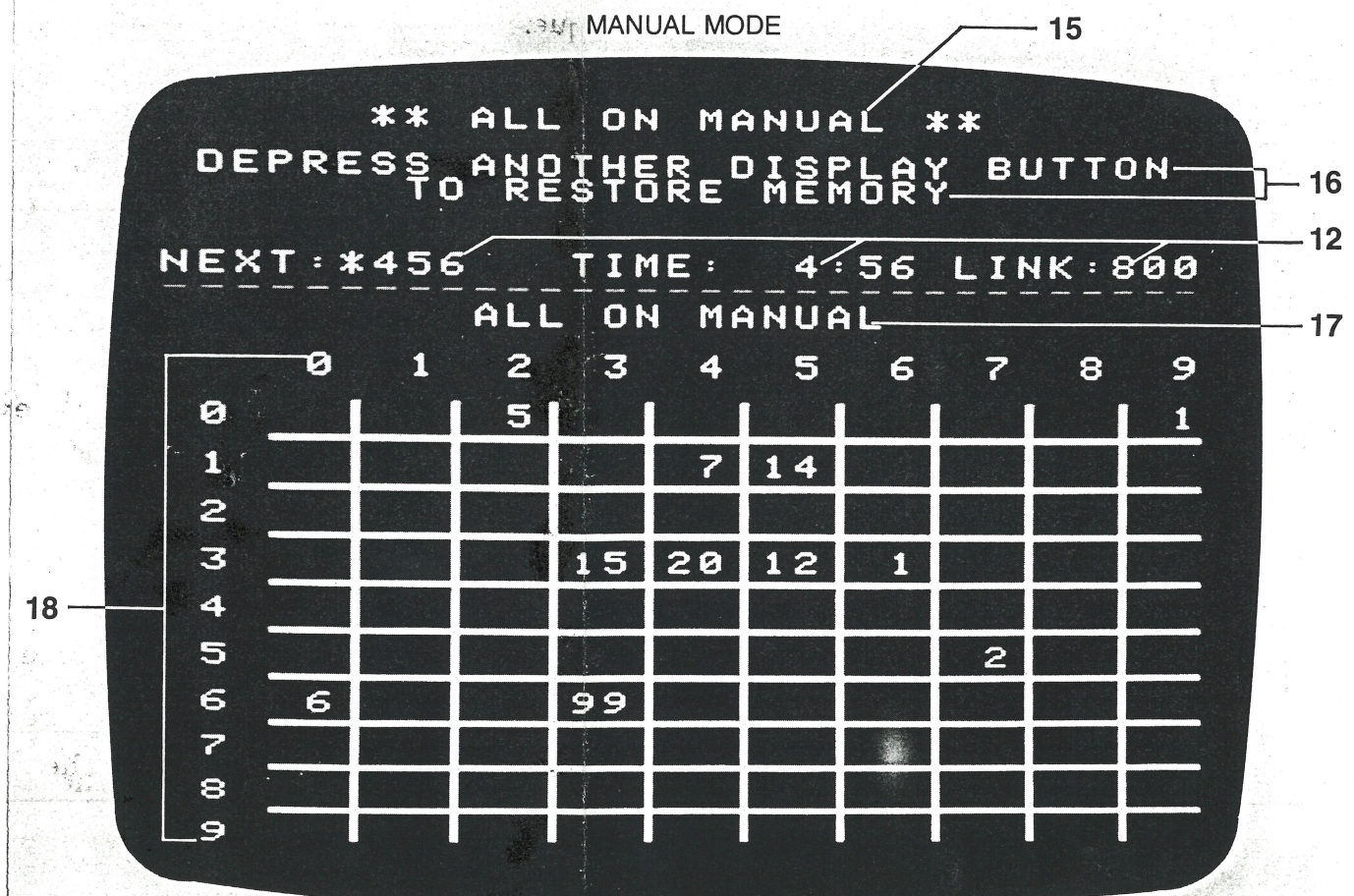


Figure 3  
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SECTION VI  
Peripheral Devices

A. Remoting the Control Panel

1. Using the handles provided lift up and out on the front section of the console separating it just enough to gain access to the cabling behind.
2. Disconnect all cables from the front section and lift the control panel the rest of the way out.
3. Locate the control panel just removed anywhere within 1000 ft. (305m) of the rest of the console.
4. Secure a standard 19 AWG (1 mm<sup>2</sup>) three wire power cable with a parallel blade "U" ground female connector body (Nema 5-15S) on one end and plug it into the male inlet on the control panel. Plug the other end into any convenience outlet with a voltage, current, and frequency rating matching that of the console.
5. Secure a standard 50Ω coaxial transmission line (RG58A/U) not to exceed 1000 ft. (305m) with "BNC" connectors in each end. Connect one end to the control panel connector marked "Output" and the other to the connector on the console marked "Output."
6. Turn on both manual system key switch and memory system key switch, and operate in the normal manner noting that the manual system will no longer function.

B. Remoting the Data Display Unit

1. After remoting the control panel locate the AC power cable and control cable to the data display unit now disconnected and work them out of the cable tray from the back of the console.



2. Locate the data display unit near the now remoted control panel.
3. Plug the AC power cable into the convenience outlet of the control panel and connect the control cable to the connector marked "DDU" on the control panel.

#### C. Remote Data Display Unit

1. Locate the remote data display unit anywhere within 1000 ft. (305m) of the local data display unit.
2. Plug the remote data display units AC power cable into any convenience outlet with a voltage, current and frequency rating matching that of the console.
3. Secure a standard  $50\Omega$  coaxial transmission line (RG58A/U) not to exceed 1000 ft. (305m) with "UHF" connectors on each end. Connect one end to either connector marked "Video" on the local data display unit and the other end to either connector marked "Video" on the remote data display unit.
4. Set the impedance selector switch on the back of the local data display unit to "Hi Z" leaving the same switch on the remote data display unit set to "75 $\Omega$ ".
5. Turn on the AC power switch on the remote data display unit to cause it to mimic everything on the local data display unit.
6. Turn off the AC power switch on the remote data display unit when done as it is not under power control of the memory system key switch as is the local unit.