Berkey Colortran

Mickey Track
Parade Controller

Operation Manual

Disneyland
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SECTION I

Introduction

"Mickey Track" is the component in the parade control system that translates the operator's intentions into the low voltage control signals required by the parade lighting and sound equipment. It employs digital techniques through the use of microprocessors to execute these translations. In addition, these translations in the form of cues are memorized in solid-state memory for continuous use, and more permanently on "floppy disk" for future use. Once these cues are memorized, the unit, through the use of radio transmitters on the floats and radio receivers (sensors) imbedded in the street, will automatically track the parade and execute the appropriate cues at the appropriate times.

"Mickey Track" is supplied as a completely self-contained unit in the form of a floor-supported desk console. The memory control panel is movable and detachable for more convenient positioning. Associated with the unit are three data display units which may be remoted. 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 "Mickey Track" operation in order of importance. Since the heart of the system is the "floppy disk", its operation is covered next. Sections III and IV 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.

It is extremely helpful to consult the photographs of the operating controls found following Section IV while studying these sections.

SECTION II

The Floppy Disk

A. The Disk Drive

The disk drives are located in the right front of the unit. 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 to the left. Push the disk in until it catches and remains in, and then close the door. To remove a disk push the button to the right of 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 is lit.

B. The Disk

The disk contains both the instructions for the microprocessor and the recorded cues. It may be removed and stored for future productions, but must be replaced with one preprogrammed with the operating program in order for the system to operate.

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 switchboard. 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 III

Typical Operation

A. Record

Insert disk containing no cues or cues no longer required, and turn memory system key switch on. Verify that the displays display zero, and the status display unit (SDU) eventually displays the letter of the disk drive that the system has boot-strapped into. (Note: If SDU displays "disk error" in lieu of drive information, turn memory system key switch off and on a couple of time and/or try the disk in the other disk drive. If these actions do not cause the drive information to appear, consult Technical Manual.)

If it is desired to erase all cues before beginning to record, depress the "clear system" button.

Select the cue display mode in the data display unit (DDU), by depressing the cue display button in the display section. Select the zone portion of the cue number to be recorded by depressing the zone button in the selector section, and then enter the zone number with the keyboard. Next, depress the sensor button and enter the sensor portion of the cue number in the same manner, verifying that the desired cue number appears in the cue section displays. The system is now ready to write the cue.

Writing a cue is accomplished by selecting the first process to be executed immediately upon execution of the cue, by depressing one of the buttons in the function section. This function will appear on the DDU, and the numerical quantity

that it asks for can then be entered with the keyboard. If the function requires more than one numerical entry, the first number is entered with the keyboard, and then the enter button is depressed, allowing the entry of the next number in line. If more than one light channel, sound zone, or tape start channel is required, they can be entered by depressing the "and" button or the "thru" button before entering the second number with the keyboard. After the first process has been fully described the next process to be executed is entered in a similar manner. A typical cue as shown on the cue display in Figure 4, is written in the following manner:

0. Depress "lights on" button in the function section and enter 45 with the keyboard.
1. Depress "and" button in the selector section and enter 47 with the keyboard.
2. Depress "and" button in the selector section and enter 53 with the keyboard.
3. Depress "thru" button in the selector section and enter 56 with the keyboard.
4. Depress "lights off" button in the function section, and enter 23 with the keyboard.
5. Depress "sound up" button in the function section and enter 12 with the keyboard. Depress "enter" button in the selector section and enter 17 with the keyboard. Depress "enter" button in the selector section and enter 100 with the keyboard. Depress "enter" button in the selector section and enter 145 with the keyboard.

6. Depress "and" button in the selector section and enter 16 with the keyboard.
7. Depress "sound down" button in the function section, and enter 13 with the keyboard. Depress "enter" button in the selector section and enter 23 with the keyboard. Depress "enter" button in the selector section and enter 50 with the keyboard. Depress "enter" button in the selector section and enter 15 with the keyboard.
8. Depress "thru" button in the selector section and enter 15 with the keyboard.
9. Depress "trigger cue" button in the function section and enter 1620 with the keyboard. Depress "enter" button in the selector section and enter 22 with the keyboard.
10. Depress "tape start" button in the function section and enter 18 with the keyboard.
11. Depress "wait" button in the function section and enter 250 with the keyboard.
12. Depress the "ETA" button in the function section and enter 423 with the keyboard.

If it is necessary to edit the cue, the cursor can be moved up or down by the use of the cursor controls in the edit section. The line immediately under the cursor can be changed by entering new information, or deleted entirely by pushing the delete button in the edit section. If no editing is required, the cue writing process is complete and can be repeated until a cue has been written for every float in every zone.

After all cues have been written they must be transferred to the disk for permanent storage. This is accomplished by turning the record key switch on, and depressing the "to disk" button. After the transfer process has been completed and the illumination in the "to disk" button extinguishes, the record key switch can be turned off to prevent accidental changes. The memory system key switch can then be turned off.

B. Automatic Playback

Verify that all sensor inhibit switches in the manual section are off, and that all manual back-up controls are either off, at zero, or not pinned. Also, verify that all output inhibit switches are off, except that in the daytime the light switch can be left on to keep the lights from turning on. Insert disk containing proper cues for the direction the parade will be going and turn both manual and memory system key switches on. Verify that the manual power supply pilots illuminate, the memory displays display zero, and the SDU eventually displays the letter of the disk drive that the system has boot-strapped into. Depress the "from disk" button to transfer the cues from the disk to the operating memory. After the transfer process has been completed and the illumination in the "from disk" button extinguishes, depress the "float position" button in the display section in order to monitor the progress of the parade and the automatic operation of the system. The system is now ready for the parade to begin.

As the parade proceeds, each time a float crosses a sensor the system will automatically call the associated cue and proceed to execute the table of processes assigned to it. Often several cues will be occurring simultaneously. The system will automatically execute a cue only once during the course of a parade, so if a float crosses a sensor a second time the cue will be ignored. If this is a requirement of the parade the cue will have to be taken manually the second time (See Paragraph C).

If the parade must be started over for any reasons, it is necessary to push the "clear system" button and then the "from disk" button to reset the system and transfer all the cues back into the operating memory. If modification to the cues were made and it is desired to maintain them, they must be transferred to the disk before the "clear system" button is depressed (See Paragraph A).

C. Manual Playback

Since the system is designed to operate normally in its automatic mode, executing cues manually will usually take the form of a one-time special cue, an emergency cue to cover for an inoperational float, or an override cue because a sensor failed to trip. In a case of the first two situations, cues will have to be written in the normal manner (See Paragraph A). All the cues associated with the non-existant "flœat zero" are available for this purpose with cue "float zero/zone zero" being provided with a special button for immediate access.

Assuming the system has been operating automatically, first depress the float button in the selector section and enter the float number of the cue to executed with the keyboard. Perform a similar process with the sensor button to enter the sensor part of the cue number. Verify that the desired cue number appears in the cue section displays, and depress the "execute cue" button in the cue section to begin the execution of the cue. Execution of the cue manually occurs any time the "execute cue" button is depressed including the overriding of the automatic cue execution process.

Upon the completion of the parade, the system can then be turned off by turning off the manual and memory key switches. If the system status display indicates that the cues in memory are different from the cues on the disk and it is desired to store this difference, they must be transferred to the disk before the system is turned off (See Paragraph A).

SECTION IV

Function Description of Operating Controls

A. "Memory" Section

1. "Clear system" button, momentarily illuminated when depressed acknowledging action, to erase all cues and all buffers, including parade timing and float status, from the memory. Operation of this button does not erase the cues from the disk.
2. "Clear cue" button, momentarily illuminated when depressed acknowledging action, to erase all cue information associated with the cue number indicated in the cue displays (G1, G4) from the memory. Operation of this button does not erase the cue from the disk.
3. "To disk" button, illuminated when depressed, to cause all the cue information contained in the memory to be copied on to the disk. Button extinguishes when copying process is completed. Writing the disk does not erase the memory.
4. "From disk" button, illuminated when depressed, to cause all the cue information contained on the disk to be copied into the memory, thus replacing the existing cues. Button extinguishes when the copying process is completed.

B. "Edit" Section

1. "Delete line" button, momentarily illuminated when depressed acknowledging action, to cause the line immediately below the cursor (3) in the "cue mode" data display (J) to be deleted. This button and the other buttons in this section function only when the data display is in the cue mode.

2. Cursor buttons, momentarily illuminated when depressed acknowledging action, to cause the cursor (3) in the "cue mode" data display (J) to move up or down.

C. "Functions" Section

1. "Lights on" button, illuminated when its description matches the description (4) on the line below the cursor (3) in the "cue mode" data display (J) to cause its description to be written as a cue function or process on the line below the cursor in the "cue mode" data display, and to allow the entry of a channel number via the keyboard (4) of "selector" section (D). Additional channel numbers can be entered by using the "and" button (8) and the "thru" button (10) of the "selector" section. This button and all the buttons in this section operate only when the data display is in the cue mode. Illumination extinguishes whenever the description no longer matches, the data display is no longer in the cue mode, or a non-keyboard group button (1,2,8,9,10) of the "selector" section is depressed.

2. "Lights off" button, similar to "lights on" button (1) but for entering the "lights off" function, to allow the entry of a channel number via the keyboard.
3. "Sound fade up" button, similar to "lights on" button (1) but for entering "sound fade up" function, to allow the entry of a sound source or input number via the keyboard (4) of "selector" section (D). After the source has been entered a zone number, a level, and a time can be entered by first depressing the "enter" button (9) of the "selector" section. Additional zone numbers can be added by using the "and" button (8) and the "thru" button (10) of the "selector" section.
4. "Sound fade down" button, similar to "lights on" button (1) but for entering "sound fade down" function, to allow the entry of a sound source or input number via the keyboard (4) of "selector" section (D). After the source has been entered a zone number, a level, and a time can be entered by first depressing the "enter" button (9) of the "selector" section. Additional zone numbers can be added by using the "and" button (8) and the "thru" button (10) of the "selector" section.
5. "Trigger cue" button, similar to "lights on" button (1) but for entering "trigger cue" function, to allow the entry of a cue number (float number/sensor number) via

the keyboard (4) of "selector" section (D). After the cue number has been entered a light readback channel number for triggering the cue can be entered by first depressing the "enter" button (9) of the "selector" section.

6. "Tape start" button, similar to "lights on" button (1), but for entering "tape start" function, to allow the entry of a channel number via the keyboard (4) of "selector" section (D). Additional channel numbers can be entered by using the "and" button (8) and the "thru" button (10) of the "selector" section.
7. "Wait" button, similar to "lights on" button (1), but for entering "wait" function, to allow the entry of a wait time.
8. "Estimated Time of Arrival" button, similar to "lights on" button (1), but for entering the "estimated time of arrival" function, to allow the entry of an arrival time via the keyboard (4) of "selector"

D. "Selector" Section

1. "Float" button, illuminated when depressed, to enable the entry of the float number portion of the cue number in the float display (1) of "cue" section (G), via the keyboard (4). Illumination extinguishes whenever a button in "function" section (C) or another non-keyboard group button (2,8,9,10) is depressed.

2. "Sensor" button, illuminated when depressed, to enable entry of the sensor number portion of the cue number in the sensor display (4) of "cue" section (G) via the keyboard (4). Illumination extinguishes whenever a button in "function" section (C) or another non-keyboard group button (1,8,9,10) is depressed.
3. Four-digit keyboard display to display entries made by the keyboard (4).
4. Ten-button keyboard used to enter all numerical data.
5. "Minus" button to decrease any number in the keyboard display (3) by one. This button is part of the keyboard group.
6. "Plus" button to increase any number in the keyboard display (3) by one. This button is part of the keyboard group.
7. "Clear" button to clear the number in the keyboard display (3). This button is part of the keyboard group.
8. "And" button, illuminated when depressed, to enable the keyboard (4) to enter additional numbers allowing the system to process more than one number. Illumination extinguishes whenever a button in "function" section (C) or another non-keyboard group button (1,2,9,10) is depressed.
9. "Enter" button, illuminated when depressed, to enable the keyboard (4) to enter the additional numbers required in writing multi-entry cues. Illumination extinguishes whenever a button in "function" section (C) or another non-keyboard group button (1,2,8,10) is depressed.

10. "Thru" button, illuminated when depressed, to enable the keyboard (4) to enter a final number allowing the system to process all numbers between and including this number and the previously entered number. Illumination extinguishes whenever a button in "function" section (C) or another non-keyboard group button (1,2,8,9) is depressed.

E. "Display" Section

1. "Cue display" button, illuminated when depressed and extinguished whenever any other button in the "display" section is depressed, to cause the data display unit (J) to display the cue whose number appears in the cue displays (1,4) of "cue" section (G), and to enable the buttons in the "edit" section (B) and the "function" section (C).
2. "Sound status" button, illuminated when depressed and extinguished whenever any other button in the "display" section is depressed, to cause the data display unit (K) to display the status of the sound channels.
3. "Light status" button, illuminated when depressed and extinguished whenever any other button in the "display" section is depressed, to cause the data display unit (L) to display the status of the light channels and the readback channels.

4. "Float status" button, illuminated when depressed and extinguished whenever any other button in the "display" section is depressed, to cause the data display unit (M) to display the status of the floats.

5. "Float position" button, illuminated when depressed and extinguished whenver any other button in the "display" section is depressed, to cause the data display unit (N) to display the location of all the floats and the status of execution of all the cues.

F. System Control Section

1. "System" key switch to energize to de-energize the memory system. Immediately upon being turned on the system will automatically attempt to boot-strap a valid operating program from the disk to memory.

2. "Record" key switch to enable or disable the recording or erasing of information on the disk.

G. "Cue" Section

1. Three-digit float number display to display the float number portion of the cue number under the control of the control panel.

2. "Float ignore" button, momentarily illuminated when depressed to acknowledge action to cause the system to ignore the automatic execution of all cues containing the float number displayed in the float number display (1). A second depression will reverse the command to ignore the float.

3. "Float zero, sensor zero" button, momentarily illuminated when depressed to acknowledge action, to automatically enter the cue number "float zero, sensor zero". The 26 cues associated with the non-existant float zero are available for manual operation and for special operation.
4. Three-digit sensor number display to display the sensor number portion of the cue number under the control of the control panel.
5. "Execute cue" button, momentarily illuminated when depressed to acknowledge action, to cause the cue whose number appears in the cue number displays (1,4) to be immediately executed manually.

H. Manual Section

1. "Tape start" buttons, one per channel, to manually generate start pulses for the tape recorders. This function, as do all non-inhibit functions in this section, piles-on to the output of the memory section. This means that the equipment being driven will respond to the higher of the two signals emanating from the memory section and the manual section.
2. "Light control" master switches, one per row of "light control" selector pins (3), to turn on and off all of the light control channels pinned in the column below it.
3. "Light control" selector pin panel to turn on and off light control channels by inserting or removing associated pin.

4. "Sound control" selector buttons, one per sound input, to manual select a sound input or source and to route it to any one of or all of the sound outputs pinned in the row to the right of it.

5. "Sound control" selector pin panel to select or de-select outputs to be connected to the associated input by inserting or removing the associated pin. Pinned outputs will be selected and unpinned outputs de-selected at the moment associated input selector button (4) is depressed.

6. "Sound control" faders, one per output, to control the volume of the inputs selected by the "sound control" selector pin panel (5). The faders are also paired, one pair per sound zone, to cross-fade between the associated two inputs.

7. "Sensor inhibit" switches, one per sensor, to inhibit or block the signal coming from the associated sensor. These switches are normally left in the "off" position to allow the signals to enter the system.

8. "Memory system output" inhibit switches, one per function, to inhibit the output of the associated function of the memory system. These switches are normally left in the "off" position to allow the memory output to leave the system. The "light" switch may also be used to inhibit all light functions for a daytime parade.

9. Manual system "power supply" circuit breakers and associated L.E.D.'s, one per supply, to protect and indicate the status of the power supplies for the manual system.

10. "Manual system" key switch to energize or de-energize the manual system.

I. Status Display Unit

1. Display of the parade running time starting with when the first cue is taken. This time will run continuously until reset by turning the memory "system" key switch (F1) off and back on again, or by depressing the "clear system" button (A1).
2. Display of the number of the cue under the control of the control panel.
3. Display of the modification warning indicating that the cue information in the memory no longer matches that which is on the disk.
4. Display of the status of the disk drives indicating which drive is operating the system. Drive A is the drive to the right, and drive B is the drive to the left. If the system finds neither disk drive operational, including the lack of a functional disk, "disk error" will be displayed.
5. Location of the display of the status of the "record" key switch (F2). If the "record" key switch is in the "off" position the fact that the "to disk" process is disabled will be indicated in this space.
6. Display of an exceeded estimated time of arrival of a float. If an estimated time of arrival has been recorded as part of a cue and the associated float has exceeded this time in reaching another sensor the number of the float will be displayed in this area until such a time as the float does pass the next sensor.

J. Data Display Unit--Cue Mode

1. Display of the mode being displayed.
2. Display of the number of the cue being displayed.
3. Cursor used to indicate the line or step above the line or step currently under the control of the control panel.
4. Display of the function or process description.
5. Display of the channel number.
6. Display of the sound input or source number.
7. Display of the sound zone number.
8. Display of the sound level.
9. Display of the length of time the function or process is to take.
10. Display of the cue number of the cue to be triggered. The first number is the float portion of the cue number and the second number is the sensor portion of the cue number.
11. Display of the readback number being used as a trigger. See readback (3) of the data display unit--light mode (L) for more information.

K. Data Display Unit--Sound Mode

1. Display of the mode being displayed.
2. Display of the source or input number and the level of the output being controlled by the "sound control" fader through the voltage controlled amplifier indicated. There are two faders per sound zone, A & B.

When the memory system receives a command to execute a "sound fade up" cue, it automatically selects the fader that is at zero and available to make the fade up.

3. Display of the fade time remaining in the fade process currently in operation.
4. Display of the cue number that caused the fade process to occur. The first number is the float number and the second number is the sensor number portion of the cue number.

L. Data Display Unit--Light Mode

1. Display of the mode being displayed.
2. Status map indicating the status of light output channels. A square within a space in the matrix indicates the channel is on and the lack of a square indicates the channel is off.
3. Status map indicating the status of readback channels. A square within a space in the matrix indicates the the readback signal is being received. These channels may be used to verify that a function has been executed or they may be used with the "trigger cue" system to cause cues to trigger on an action.

M. Data Display Unit--Float Mode

1. Display of the mode and the number of the float being displayed. The float being displayed is the one under the control of the control panel.

2. Display of the time the associated cue was taken. This time is from when the first cue was taken and the parade started. See parade running time information (1) in status display unit (I) for further details.
3. Display of the method which caused the associated cue to be executed. The automatic sensor system will execute a cue only once, but a manual cue may be taken over and over.

N. Data Display Unit--Position Mode

1. Display of the mode being displayed.
2. Display of a cue automatically executed by the sensor system.
3. Display of a cue executed manually.
4. Display of a series of cues associated with a float that is being ignored by the system. See "float ignore" button (2) in "cue" section (G) for further information.
5. Display of a cue that has been triggered by another cue.
6. Display of a cue which is in progress, be it executed automatically or manually.
7. Display of a cue waiting to be triggered.
8. Display of a cue that has been recorded but not yet executed.


FLOAT
7
8
9
4
5
6
1
2
3
—
0
+

ORIGIN
WIDTH
FOCUS
HEIGHT
VALUE

FOCUS
WIDTH

HEIGHT
VIEW
POWER
FOCUS