

# **Mantrix™ 2S**

## **OPERATION & MAINTENANCE MANUAL**

**Part Number  
2-450017-020**

## **STRAND LIGHTING**

**1 DECEMBER 1983**

This manual is an abbreviated format and is intended for experienced operators or maintenance personnel.

For detailed operation and maintenance procedures refer to the manual supplied with the Mantrix 2S console.

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## INTRODUCTION

The Strand Century MANTRIX™ 2S is a dual operation preset console with a Master, Split Crossfaders, and Overlapping Submasters. Channel Modules may be used with the Control Module to expand the channel capacity from 12 to a maximum of 48 channels in 12 channel increments.

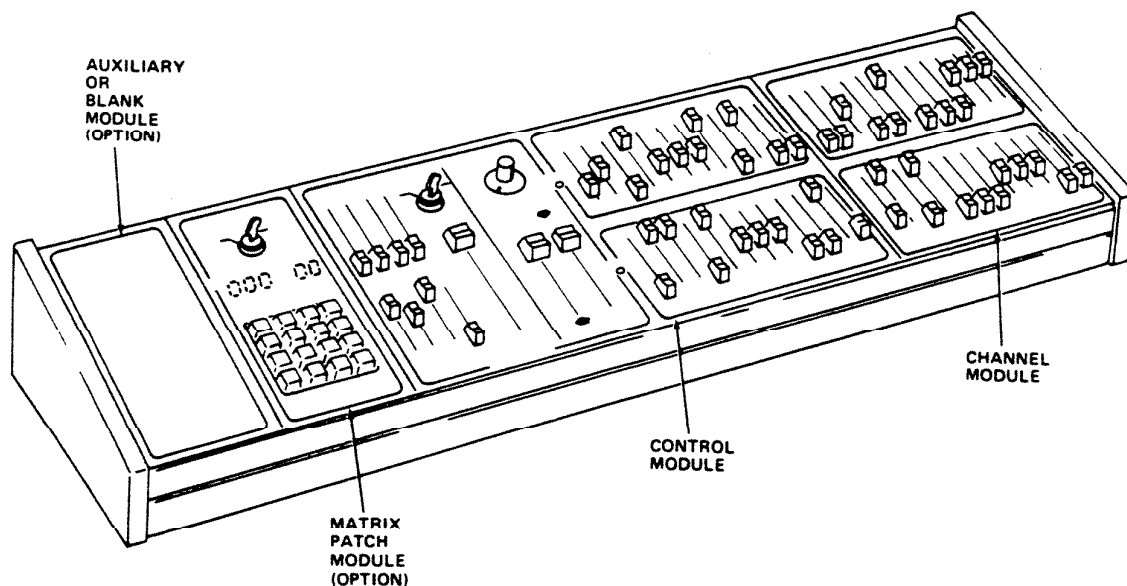
An operational Matrix Patch Module provides for patching up to 288 dimmers to any one or any combination of channels available. The Matrix Patch Module also provides for setting proportional light levels to any one or combination of dimmers.

When operating in the Scene Mode, the MANTRIX 2S is a four-scene preset console with eight overlapping submasters and up to 48 channels. The Submasters Mode provides a two-scene preset console with up to 56 overlapping submasters and a maximum of 48 channels.

The typical MANTRIX 2S (Model 8113) shown below, includes the basic Control Module, One Channel Module, a Patch Module, and a Blank Module.

A number of configurations of the MANTRIX 2S are available that provide channel capacities of 24, 36, and 48. The console is available in a single-tier or two-tier model.

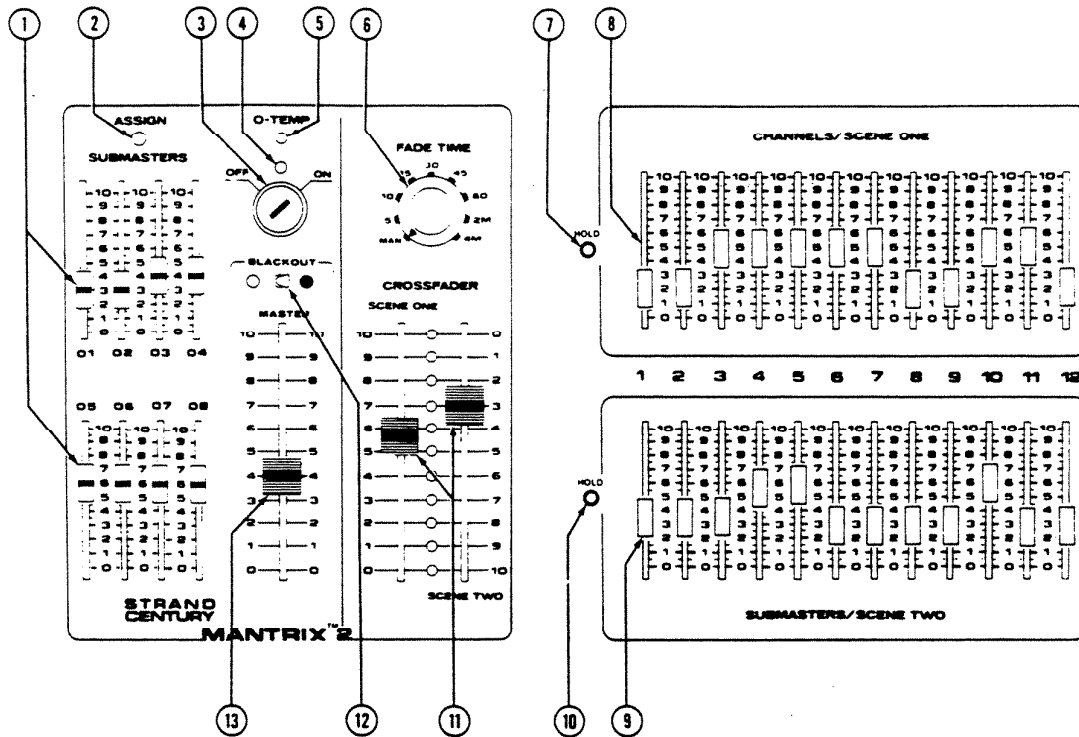
The MANTRIX 2S operates from 120 volt, 60 Hz power, and is protected by a 2-ampere fuse. The unit can be factory modified to operate on 240 volts, 50 Hz power.



## CONTROLS AND DISPLAYS

### CONTROL MODULE

The MANTRIX 2S Control Module is shown below. This section provides a brief description of each control and display.

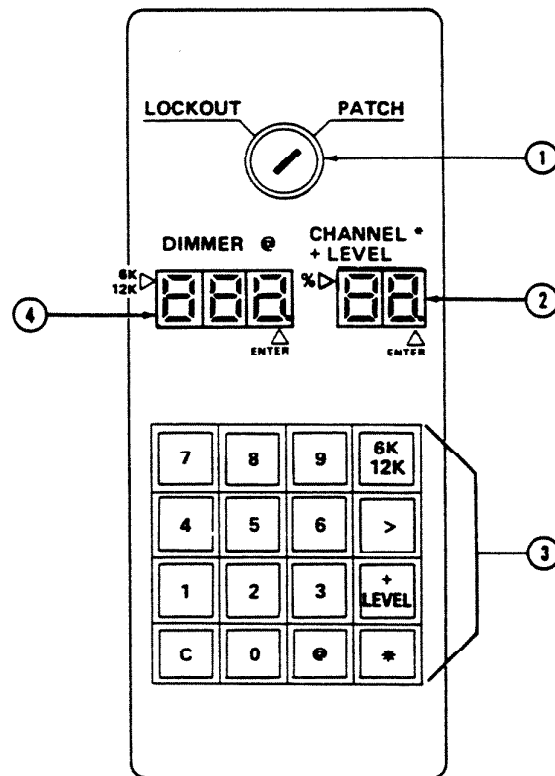


- ① SUBMASTERS - Eight overlapping submasters used to add sub-scenes on a highest-takes precedence basis.
- ② ASSIGN Switch-Indicator - Used to assign preset light levels to submasters.
- ③ ON/OFF Keyswitch - Applies or removes operating power from console.
- ④ ON/OFF Indicator - Lights green when operating power is applied to the console.
- ⑤ O-TEMP Indicator - Lights red when an overtemperature condition exists in the CD80 dimmer bank.
- ⑥ FADE TIME Control - Permits manual (MAN) control of a fade or timed fades for 1 second to 4 minutes.
- ⑦ CHANNELS/SCENE ONE HOLD Switch-Indicator - Provides a means of holding the preset scene one levels so that new levels may be set on the channel controls for Four-scene operation in the Scene Mode and Two-scene operation in the Submaster Mode.

- ⑧ CHANNELS/SCENE ONE Channel Controls - Provides a means of setting light levels for scenes in the Scene and Submaster Modes.
- ⑨ SUBMASTERS/SCENE TWO Channel Controls - Provides a means of setting light levels for Scene Operation in the Scene Mode. Function as Overlapping Submasters in the Submasters Mode.
- ⑩ SUBMASTERS/SCENE TWO HOLD Switch-Indicator - Provides a means of holding the preset scene two levels so that new levels may be set for Four-scene operation in the Scene Mode and Two-scene operation in the Submasters Mode.
- ⑪ SCENE ONE/SCENE TWO Fader - When moved in unison, functions as a dipless crossfader. When moved separately provides a means of performing scene blackout, scene pile-on, and scene lead-lag fades for scene levels.
- ⑫ BLACKOUT Switch - Permits the operator to instantly blackout the stage.
- ⑬ MASTER Control - Functions as a Grand Master over all light level settings.

#### MATRIX PATCH MODULE

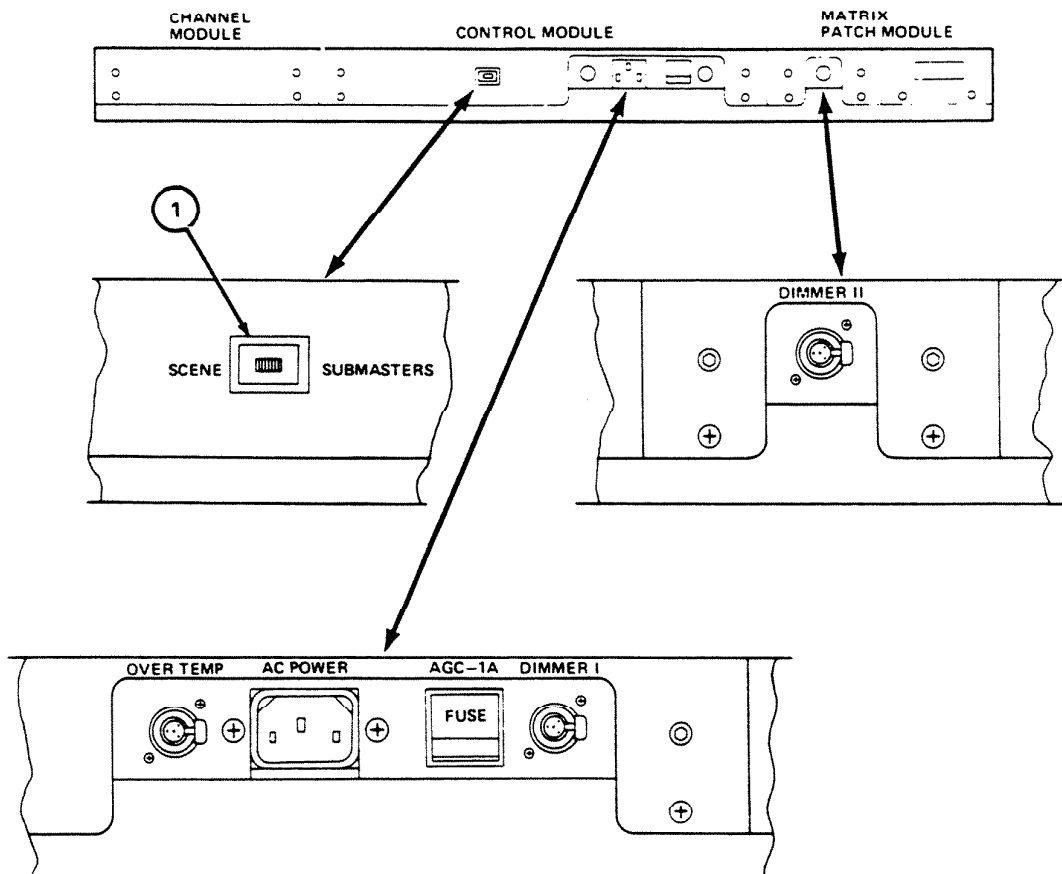
The Patch Module controls and displays are shown below. This section provides a description of each control and display.



- ① LOCKOUT/PATCH Keyswitch - When set to PATCH, allows dimmer-to-channel and proportional levels assignments. When set to LOCKOUT, protects assignments from changes.
- ② CHANNEL + LEVEL \* display - During dimmer-to-channel assignments, shows the channel number to which the dimmer is assigned. During proportional level assignments, shows the level (in percent) assigned to the dimmer shown in the DIMMER @ display.
- ③ Keyboard - Used to enter the data and functions associated with the patch assignments.
- ④ DIMMER @ display - During dimmer-to-channel assignments, shows the dimmer number assigned to a channel or a proportional level.

#### CONTROL MODULE REAR PANEL

The MANTRIX 2S Control Module contains a single switch on the rear panel. In addition to the switch, the following diagram shows the location of the power fuse as well as the power and signal cables connection points.



- ① SCENE/SUBMASTERS Switch - Provides a means of selecting the Scene or Submaster mode of operation.

## SCENE MODE OPERATION

In the Scene Mode, the MANTRIX 2S functions as a four-scene preset, 48 channel control console with 8 pile-on overlapping submasters. With the optional Patch Module, the console can control up to 288 dimmers on 12 to 48 channels.

The Scene Mode Operating Procedures included in this section are as follows:

1. Scene Mode Selection
2. Blackout Switch Operation
3. Master Control Operation
4. Two-Scene Preset Operation (includes timed crossfades, manual takeover of crossfades, split crossfades, and pile-on crossfades).
5. Four-scene Preset Operation
6. Submasters Operation

In addition to the above, the Patch Module Operation, as described in this manual is also available to the operator in the Scene Mode. (See Section 5.)

### SCENE MODE SELECTION

1. On rear of Control Module, set SCENE/SUBMASTERS switch to SCENE position.
2. Set Control Module Keyswitch to ON. If keyswitch is ON, set to OFF then back to ON.
3. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and both CROSSFADERS are set to 10.
4. Move SCENE ONE channel 1 control to 10.
5. Verify that channel 1 lights are on.
6. Move SCENE ONE channel 1 control to 0.
7. Verify that no lights are on.
8. Move SCENE TWO channel 1 control to 10.
9. Verify that channel 1 lights are on.
10. Move SCENE TWO channel 1 control to 0.
11. Verify that no lights are on.



#### BLACKOUT SWITCH OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and both CROSSFADERS are set to SCENE ONE.
2. Set light levels on SCENE ONE channel controls. (Channels 4 through 8 at  $7\frac{1}{2}$  = 75%.)
3. Verify that light levels are scene one preset.
4. Set BLACKOUT switch to 0.
5. Verify that no lights are on.
6. Set BLACKOUT switch to 0.
7. Verify that light levels are scene one preset.

#### MASTER CONTROL OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and both CROSSFADERS are set to SCENE ONE.
2. Set light levels on SCENE ONE channel controls. (Channels 6 through 10 at 8 = 80%.)
3. Verify that light levels are scene one preset.
4. Set SCENE ONE CROSSFADER to  $7\frac{1}{2}$  = 75% of preset, = 60% of full.
5. Verify that light levels are at 60%.
6. Set MASTER to 5 = 50% of the on stage light levels or 30% of full.
7. Verify that light levels are at 30%.
8. Set MASTER to 0 = BLACKOUT.
9. Verify that no lights are on.
10. Set SCENE ONE CROSSFADER to 10, then set MASTER to 10.
11. Verify that light levels are scene one preset.

#### TWO-SCENE PRESET OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and CROSSFADERS are set to SCENE ONE.

2. Verify that all channel controls are set to 0 and no lights are on.
3. Set light levels on SCENE TWO channel controls. (Channels 1 through 5 at 5 = 50%.)
4. Fade from scene one to scene two by moving CROSSFADER to SCENE TWO. Fade progress indicators follows CROSSFADER movement.
5. Verify that light levels are scene two preset.
6. Set light levels on SCENE ONE channel controls. (Channels 6 through 10 at 10 = 100%.)
7. Fade from scene two to scene one by moving CROSSFADER to SCENE ONE.
8. Verify that light levels are scene one preset.

#### Timed Crossfades

9. Set FADE TIME control to 10 = 10 seconds.
10. Move CROSSFADER to SCENE TWO to initiate timed crossfade.
11. Timed crossfade starts with initial movement of CROSSFADER. Fade progress indicators sequence to show the fade progress.
12. After ten seconds, fade will be complete when fade progress indicator reaches the CROSSFADER position at SCENE TWO.

#### Takeover Manual Control of Timed Crossfade

13. Set FADE TIME control to 30 = 30 seconds.
14. Move CROSSFADER to SCENE ONE to initiate timed fade.
15. After approximately 12 seconds, move CROSSFADER to the same position as the fade progress indicator. Note that the fade progress stops.
16. Set FADE TIME control to MAN and move CROSSFADER to SCENE ONE. Note that fade follows CROSSFADER movement.

#### Interrupt Timed Crossfades

17. Set FADE TIME control to 30 = 30 seconds.
18. Move CROSSFADER to SCENE TWO to initiate timed fade.
19. After approximately 15 seconds, set CROSSFADER to SCENE TWO position 6. When fade progress indicator reaches CROSSFADER, fade stops.
20. Move CROSSFADER to SCENE TWO to re-initiate the timed fade. After approximately 12 seconds, the fade will be completed.

21. Set FADE TIME to MAN.

Perform Split (Blackout or Pile-on) Fades

22. Pile scene one light levels on scene two by leaving SCENE TWO fader at 10 and moving SCENE ONE fader to 10.
23. Verify that light levels are the sum of scene one and scene two presets.
24. Blackout stage by moving SCENE ONE and SCENE TWO faders to 0.
25. Verify that no lights are on.

NOTE

Split crossfades can be timed as described earlier in this section.

NOTE

When split, the CROSSFADERS may be used to bring up the up-coming preset sooner (lead-fade) or bring down the down-coming preset sooner (lag-fade).

FOUR-SCENE PRESET OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to ●, and CROSSFADERS are set to SCENE ONE.
2. Verify that all channel controls are set to 0 and no lights are on.
3. Set light levels on SCENE ONE channel controls (channels 6 through 10 at 10 = 100%.)
4. Verify that light levels are scene one preset.
5. Set light levels on SCENE TWO channel controls. (Channels 1 through 5 at 5 = 50%.)
6. Press SCENE ONE HOLD switch indicator. Indicator lights indicating that scene one preset levels are held.
7. Set scene three light levels on SCENE ONE channel controls. (Channels 1 through 5 at  $7\frac{1}{2}$  = 75% and 11 and 12 at 10 = 100%.)
8. Press SCENE TWO HOLD switch indicator. Indicator lights indicating that scene two preset levels are held.
9. Set scene four light levels on SCENE TWO channel controls. (Channels 1 through 5 at  $2\frac{1}{2}$  = 25% and 11 and 12 at 5 = 50%.)

10. Move CROSSFADER to SCENE TWO. SCENE ONE HOLD indicator goes off indicating that scene one preset has been played. Verify that light levels are scene two preset.
11. Move CROSSFADER to SCENE ONE. SCENE TWO HOLD indicator goes off indicating that scene two preset has been played. Verify that light levels are scene three preset.
12. Move CROSSFADER to SCENE TWO. Verify that light levels are scene four preset.

#### NOTE

After the four-scene preset has been played, the MANTRIX automatically returns to two-scene operation. A new four-scene preset can be entered by repeating the four-scene preset procedure.

#### SUBMASTER OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, CROSSFADERS are set to SCENE ONE, and all SUBMASTERS are set to 0.
2. Verify that all channel controls are set to 0 and no lights are on.

#### Assign Submaster 01

3. Press and hold ASSIGN switch-indicator. Move SUBMASTER 01 to 10 then back to 0. Release ASSIGN switch-indicator. ASSIGN indicator stays on to indicate that SUBMASTER 01 is ready for assignment.
4. Set SUBMASTER 01 levels on SCENE ONE channel controls. (Channels 4 through 8 at  $7\frac{1}{2}$  = 75%.)
5. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating levels are assigned to SUBMASTER 01.
6. Set SCENE ONE channel controls 4 through 8 to 0. Verify that no lights are on.
7. Move SUBMASTER 01 to 10. Verify that light levels are channels 4 through 8 at 75%.
8. Move SUBMASTER 01 to 0. Verify that no lights are on.

#### Assign Submaster 02

9. Press and hold ASSIGN switch-indicator. Move SUBMASTER 02 to 10 then back to 0. Release ASSIGN switch-indicator. ASSIGN indicator stays on to indicate that SUBMASTER 02 is ready for assignment.

10. Set SUBMASTER 02 levels on SCENE ONE channel controls. (Channels 7 through 11 at 10 = 100%.) Note that channels 7 and 8 are assigned to SUBMASTERS 01 but at different levels.
11. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating levels are assigned to SUBMASTER 02.
12. Set SCENE ONE channel controls 7 through 11 to 0. Verify that no lights are on.
13. Move SUBMASTER 02 to 10. Verify that light levels are channels 7 through 11 at 100%.
14. Move SUBMASTER 02 to 0. Verify that no lights are on.

#### Pile On and Overlapping of Submasters

15. Set SUBMASTER 01 to 10. Verify that light levels are channels 4 through 8 at 75%.
16. Set SUBMASTER 02 to 10 to pile levels on SUBMASTER 01. Verify that light levels are channels 4 through 6 at 75% and channels 7 through 11 at 100%.

#### Assign Combined Levels of One or More Submasters to Another Submaster

17. Verify that SUBMASTERS 01 and 02 are set to 10.
18. Press and hold ASSIGN switch-indicator. Move SUBMASTER 04 to 10 then back to 0. Release ASSIGN switch-indicator. ASSIGN indicator stays on indicating that SUBMASTER 04 is ready for assignment.
19. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating levels are assigned to SUBMASTER 04.
20. Move submasters 01 and 02 to 0. Verify that no lights are on.
21. Move SUBMASTER 04 to 10. Verify that light levels are channels 4 through 6 at 75% and channels 7 through 11 at 100%.
22. Move SUBMASTER 04 to 0. Verify that no lights are on.

#### Clear a Single Submaster Assignment

##### NOTE

Stage must be dark when clearing a single submaster.

23. Set BLACKOUT switch to 0.

24. Press and hold ASSIGN switch-indicator. Move SUBMASTER 02 to 10 then back to 0. Release ASSIGN switch-indicator; indicator stays on. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating SUBMASTER 02 assignment has been cleared.
25. Set BLACKOUT switch to ● and move SUBMASTER 02 to 10. Verify that all lights are off indicating that submaster assignment was cleared.

Clear All Submaster Assignments

26. Press and hold ASSIGN switch-indicator. Set keyswitch to OFF then back to ON. Verify that ASSIGN indicator is off.
27. Move SUBMASTER 01 and 02 to 10. Verify that all lights are off indicating that submaster assignments are cleared.

## SUBMASTER MODE OPERATION

In the Submaster Mode, the MANTRIX 2S functions as a 48-channel, two scene preset with up to 56 overlapping submasters. With the optional Patch Module, the console can control up to 288 dimmers on 12 to 48 channels.

The Submaster Mode Operating procedures included in this section are as follows:

1. Submaster Mode Selection
2. Blackout Switch Operation
3. Master Control Operation
4. Two-Scene Preset Operation (includes timed crossfades and pile-on crossfades).
5. Submasters Operation

In addition to the above, the Patch Module Operation as described in this manual is also available to the operator in the Submaster Mode. (See Section 5.)

### SUBMASTER MODE SELECTION

1. On rear of Control Module, set SCENE/SUBMASTERS switch to SUBMASTERS position.
2. Set Control Module keyswitch to ON. If keyswitch is ON, set to OFF then back to ON.
3. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and both CROSSFADERS are set to 10.
4. Move CHANNELS 1 channel control to 10.
5. Verify that channel 1 lights are on.
6. Move CHANNELS 1 channel control to 0. Verify that no lights are on.
7. Move SUBMASTERS 1 control to 10. Verify that no lights come on.
8. Move SUBMASTERS 1 control to 0.

### BLACKOUT SWITCH OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and both CROSSFADERS are set to SCENE ONE.
2. Set light levels on CHANNELS channel controls. (Channels 4 through 8 at  $7\frac{1}{2}$  = 75%.)

3. Verify that light levels are channels 4 through 8 at 75%.
4. Set BLACKOUT switch to 0.
5. Verify that no lights are on.
6. Set BLACKOUT switch to 0. Verify that light levels are channels 4 through 8 at 75%.

#### MASTER CONTROL OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and both CROSSFADERS are set to SCENE ONE.
2. Set light levels on CHANNELS channel controls. (Channels 6 through 10 at 8 = 80%.)
3. Verify that light levels are channels 6 through 10 at 80%.
4. Set SCENE ONE CROSSFADER to  $7\frac{1}{2}$  = 75% of preset, = 60% of full.
5. Verify that light levels are channels 6 through 10 at 60%.
6. Set MASTER to 5 = 50% of on stage light levels or 30% of full.
7. Verify that light levels are channels 6 through 10 at 30%.
8. Set MASTER to 0 = BLACKOUT. Verify that no light are on.
9. Set SCENE ONE CROSSFADER to 10, then set MASTER to 10.
10. Verify that light levels are channels 6 through 10 at 75%.

#### TWO-SCENE PRESET OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, and CROSSFADERS are set to SCENE ONE.
2. Verify that all channel controls are set to 0 and no lights are on.
3. Set first scene light levels on CHANNELS channel controls. (Channels 1 through 5 at 5 = 50%.)
4. Verify that light levels are channels 1 through 5 at 50%.
5. Press CHANNELS HOLD switch-indicator. Indicator lights indicating that first scene light levels are held.
6. Set second scene light levels on CHANNELS channel controls. (Channels 6 through 10 at 10 = 100%.)



7. Fade from first scene to second scene by moving CROSSFADER to SCENE TWO. Fade progress indicators follow CROSSFADER movement.
8. CHANNELS HOLD indicator goes off indicating that first scene preset has been played.
9. Verify that light levels are second scene preset, channels 6 through 10 at 100%.
10. Press SUBMASTERS HOLD switch-indicator. Indicator lights indicating that the second scene light levels are held.
11. Set third scene light levels on CHANNELS channel controls. (Channels 1 through 5 at  $7\frac{1}{2}$  = 75% and 11 and 12 at 10 = 100%.)
12. Fade from second scene to third scene by moving CROSSFADER to SCENE ONE.
13. SUBMASTERS HOLD indicator goes off indicating that second scene preset has been played.
14. Verify that light levels are third scene preset; channels 1 through 5 at 75% and 11 and 12 at 100%.

#### Timed Crossfades

15. Set FADE TIME control to 10 = 10 seconds.
16. Set first scene light levels on CHANNELS channel controls. (Channels 6 through 10 at 10 = 100%.)
17. Press CHANNELS HOLD switch-indicator. Indicator lights indicating that first scene light levels are held.
18. Set second scene light levels on CHANNELS channel controls. (Channels 1 through 5 at 5 = 50%.)
19. Move CROSSFADER to SCENE TWO to initiate timed crossfade.
20. Time crossfade starts with initial movement of CROSSFADER. Fade progress indicators sequence to show the fade progress.
21. After ten seconds, fade will be complete when fade progress indicator reaches the CROSSFADER position at SCENE TWO. CHANNELS HOLD indicator goes off.

#### NOTE

Do not attempt to set next scene until timed fade is complete.

#### Takeover Manual Control of Timed Crossfade

22. Press SUBMASTERS HOLD switch-indicator then set next scene light levels on CHANNELS channel controls. (Channels 6 through 10 at 10 = 100%.)
23. Set FADE TIME control to 30 = 30 seconds.
24. Move CROSSFADER to SCENE ONE to initiate timed fade.
25. After approximately 12 seconds, move CROSSFADER to the same position as the fade progress indicator. Note that the fade progress stops.
26. Set FADE TIME control to MAN and move CROSSFADER to SCENE ONE. Note that fade follows CROSSFADER movement.

#### Interrupt Timed Crossfades

27. Set FADE TIME control to 30 = 30 seconds.
28. Press CHANNELS HOLD switch-indicator then set next scene light levels on CHANNELS channel controls. (Channels 1 through 5 at 5 = 50%.)
29. Move CROSSFADER to SCENE TWO to initiate timed fade.
30. After approximately 15 seconds, set CROSSFADER to SCENE TWO position 6. When fade progress indicator reaches CROSSFADER position, fade stops.
31. Move CROSSFADER to SCENE TWO to re-initiate the time fade. After approximately 12 seconds the fade will be complete. Set FADE TIME control to MAN.

#### SUBMASTER OPERATION

1. Verify that MASTER control is set to 10, BLACKOUT switch is set to 0, CROSSFADER is set to SCENE ONE, and all SUBMASTERS are set to 0.
2. Verify that all CHANNELS and SUBMASTERS controls are set to 0.

#### Assign Submasters Live

3. Press and hold ASSIGN switch-indicator. Move SUBMASTER 01 to 10 then back to 0. Release ASSIGN switch-indicator. Indicator stays on to indicate that SUBMASTER 01 is ready for assignment.
4. Set SUBMASTER 01 levels on CHANNELS channel controls. (Channels 1 through 5 at 5 = 50%.) Verify that channels 1 through 5 are at 50%.
5. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating levels are assigned to SUBMASTER 01.

6. Set CHANNELS channel controls 1 through 5 to 0. Verify that no lights are on.
7. Move SUBMASTER 01 to 10. Verify that channels 1 through 5 are at 50%.
8. Move SUBMASTER 01 to 0. Verify that no lights are on.
9. Press and hold ASSIGN switch-indicator. Move SUBMASTER 1 to 10 then back to 0. Release ASSIGN switch-indicator. ASSIGN indicator stays on to indicate that SUBMASTER 1 is ready for assignment.
10. Set SUBMASTER 1 levels on CHANNELS channel controls. (Channels 6 through 10 at 10 = 100%. Verify that channels 6 through 10 are at 100%.
11. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating levels are assigned to SUBMASTER 1.
12. Set CHANNELS channel controls 6 through 10 to 0. Verify that no lights are on.
13. Move SUBMASTER 1 to 10. Verify that channels 6 through 10 are at 100%.
14. Move SUBMASTER 1 to 0. Verify that no lights are on.

#### Assign Submasters Blind with Stage Dark

15. Set BLACKOUT switch to 0.
16. Press and hold ASSIGN switch-indicator. Move SUBMASTER 02 to 10 then back to 0. Release ASSIGN switch-indicator. Indicator stays on to indicate that SUBMASTER 02 is ready for assignment.
17. Set SUBMASTER 02 levels on CHANNELS channel controls. (Channels 1 through 5 at  $7\frac{1}{2}$  = 75% and 11 and 12 at 10 = 100%.) Verify that no lights are on.
18. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating levels are assigned to SUBMASTER 02.
19. Set CHANNELS channel controls 1 through 5 and 11 and 12 to 0.
20. Set BLACKOUT switch to 0.

#### Assign Submasters Blind with Stage Live

21. Set on stage light levels with CHANNELS channel controls. (Channels 4 through 8 at  $7\frac{1}{2}$  = 75%. Verify that channels 4 through 8 are at 75%.
22. Press and hold ASSIGN switch-indicator. Move SUBMASTER 2 to 10 then back to 0. Release ASSIGN switch-indicator. Indicator stays on to indicate that SUBMASTER 2 is ready for assignment.

23. While holding CHANNELS HOLD switch-indicator pressed, set SUBMASTER 2 levels on CHANNELS channel controls. (Channels 2 through 5 at 10 = 100%.) Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating levels are assigned to SUBMASTER 2.
24. Set CHANNELS channel controls to held levels on stage. (Channels 4 through 8 at  $7\frac{1}{2}$  = 75%.)
25. Press CHANNELS HOLD switch-indicator. Indicator goes off. Verify stage is channels 4 through 8 at 75%.

#### Verify Blind Assignment

26. Move SCENE ONE fader to 0. Verify that no lights are on.
27. Set SUBMASTER 02 to 10. Verify that channels 1 through 5 are at 75% and 11 and 12 are at 100%.
28. Set SUBMASTER 02 at 0. Verify that no lights are on.
29. Set CHANNELS channel controls 4 through 8 to 0.
30. Set SUBMASTER 2 to 10. Verify that channels 2 through 5 are at 100%.
31. Set SUBMASTER 2 to 10. Verify that no lights are on.

#### Pile-On and Overlapping of Submasters

32. Set SCENE ONE fader to 10.
33. Set SUBMASTER 01 to 10. Verify that channels 1 through 5 are at 50%.
34. Set SUBMASTER 1 to 10 to pile levels on SUBMASTER 01 levels. Verify that channels 1 through 5 are at 50% and 6 through 10 are at 100%.
35. Set SUBMASTER 02 to 10 to pile levels on SUBMASTERS 01 and 1 levels. Verify that channels 1 through 5 are at 75% and channels 2 through 12 are at 100%.
36. Set SUBMASTER 2 to 10 to pile levels on SUBMASTERS 01, 1, and 02 levels. Verify that channel 1 is at 75% and channels 2 through 12 are at 100%.
37. Set SUBMASTERS 1, 2, 01, and 02 to 0. Verify that no lights are on.

#### Clear a Single Submaster Assignment

##### NOTE

Stage must be dark when clearing a single submaster.

38. Set BLACKOUT switch to 0.

39. Press and hold ASSIGN switch-indicator. Move SUBMASTER 02 to 10 then back to 0. Release ASSIGN switch-indicator; indicator stays on. Press ASSIGN switch-indicator. Indicator flashes several times then goes off indicating SUBMASTER 02 assignment has been cleared.
40. Set BLACKOUT switch to ● and move SUBMASTER 02 to 10. Verify that all lights are off.

Clear All Submaster Assignments

41. Press and hold ASSIGN switch-indicator. Set keyswitch to OFF then back to ON. Verify that ASSIGN indicator is off.
42. Move SUBMASTERS 01, 1, and 2 to 10. Verify that no lights are on indicating that all submaster assignments are cleared.

## PATCH OPERATION

The electronic patch capability is provided in the MANTRIX 2S by installing the Patch Module. With the use of the electronic patch, the MANTRIX 2S is capable of driving up to 288 dimmers. The Patch Module provides for patching all or any combination of dimmers to any or all of the channels. The Patch Module is also used for assigning 6K and 12K dimmers as well as proportional dimmer level assignments.

After the assignments are complete, the Patch Module can be used to preview the assignments for verification. After verification, the assignments can be secured by setting the keyswitch to the LOCKOUT position. With the keyswitch in the LOCKOUT position, the assignments can be previewed but cannot be changed.

### CLEAR MEMORY

1. Set LOCKOUT/PATCH keyswitch to PATCH position. DIMMER @ and CHANNEL + LEVEL \* displays may be any random series of numbers.
2. Press and hold C key while setting keyswitch to OFF then back to ON. Patch memory is cleared as shown by a number 1 in the DIMMER @ and CHANNEL + LEVEL \* displays.

### NOTE

Dimmers are now patched one-to-one to the channels. If there are more dimmers than channels, dimmers above the number of channels have no channel assignment. All dimmer proportional levels are set at 100% (full).

### SINGLE DIMMER TO CHANNEL ASSIGNMENT

1. Press C key to clear DIMMER @ and CHANNEL + LEVEL \* displays. Verify that DIMMER @ ENTER indicator is on indicating memory is ready for dimmer number entry.
2. Using keyboard, enter desired dimmer number. Entry appears in DIMMER @ display.
3. Press @ key. DIMMER @ ENTER indicator goes off and CHANNEL + LEVEL \* ENTER indicator lights indicating memory is ready for channel number entry.

### NOTE

Number in CHANNEL + LEVEL \* display is the current channel to which the dimmer is assigned.

4. Using keyboard, enter desired channel number. Entry appears in CHANNEL + LEVEL \* display.

5. Store dimmer-to-channel assignment by pressing \* key. Verify that CHANNEL + LEVEL ENTER indicator goes off and DIMMER @ ENTER indicator lights indicating memory is ready for the next dimmer entry.

#### Verify Dimmer-to-Channel Assignment

6. Press C key. DIMMER @ and CHANNEL + LEVEL \* displays will be blank.
7. Enter number of desired dimmer. DIMMER @ display will be dimmer number.
8. Press @ key. CHANNEL + LEVEL \* display will be current channel to which dimmer is assigned.

#### MULTIPLE DIMMERS TO CHANNEL ASSIGNMENT

1. Press C key. Verify that DIMMER @ ENTER indicator is on.
2. Using keyboard, enter desired dimmer numbers. Use +/LEVEL key for and and > key for through. Number in DIMMER @ display starts flashing after a +/LEVEL or > entry. Last number entered will continue flashing.
3. Press @ key. DIMMER @ ENTER indicator goes off and CHANNEL + LEVEL \* ENTER indicator lights. DIMMER @ display continues flashing.
4. Using keyboard, enter desired channel number. Entry appears in CHANNEL + LEVEL \* display.
5. Store dimmer-to-channel assignment by pressing \* key. Verify that CHANNEL + LEVEL ENTER indicator goes off and DIMMER @ ENTER indicator lights.

#### Verify Dimmer-to-Channel Assignment

6. Press C key. DIMMER @ and CHANNEL + LEVEL \* displays will be blank.
7. Enter number of first dimmer in list. DIMMER @ display will be dimmer number.
8. Press \* key CHANNEL + LEVEL \* display shows the current channel assignment for the dimmer.
9. Each subsequent pressing of the \* key will sequence the DIMMER @ display by 1 and the CHANNEL + LEVEL \* display will show the current channel assignment for the dimmer.

#### DIMMER PROPORTIONAL LEVEL ASSIGNMENT

1. Press C key. Verify that DIMMER @ ENTER indicator is on.

2. Using keyboard, enter desired dimmer number. Entry appears in DIMMER @ display.
3. Press @ key. DIMMER @ ENTER indicator goes off and CHANNEL + LEVEL \* ENTER indicator lights.
4. Using keyboard, enter desired channel number. Entry appears in CHANNEL + LEVEL \* display.
5. Press + / LEVEL key. CHANNEL + LEVEL \* % indicator lights indicating memory is ready for proportional level assignment to dimmer. Display will be current proportional level 00 indicates 100% (full).
6. Using keyboard, enter desired proportional level (01 to 99%). Entry appears in CHANNEL + LEVEL \* display.
7. Store dimmer-to-channel and proportional level by pressing \* key.

#### Verify Dimmer-to-Channel and Proportional Assignment

8. Press C key. DIMMER @ and CHANNEL + LEVEL \* displays will be blank.
9. Enter number of desired dimmer. DIMMER @ display will be dimmer number.
10. Press @ key. CHANNEL + LEVEL \* display will be current channel to which dimmer is assigned. Display flashes indicating that dimmer is assigned a proportional level.
11. Press + / LEVEL key. CHANNEL + LEVEL \* display will be proportional level.

#### 6K AND 12K DIMMER ASSIGNMENT

1. Press C key twice. Verify that DIMMER @ ENTER indicator is on.
2. Using keyboard, enter desired dimmer number. Entry appears in DIMMER @ display.
3. Press 6K/12K key to identify dimmer as a 6K or 12K. DIMMER @ ENTER indicator goes off and CHANNEL + LEVEL \* display shows current channel assignment.
4. Press \* key to store 6K/12K assignment of dimmer. DIMMER @ 6K/12K indicator lights.

#### NOTE

Dimmer can now be assigned to channels with proportional levels as previously described in this section.



#### Verify 6K/12K Assignment

5. Press C key. DIMMER @ and CHANNEL + LEVEL \* displays will be blank.
6. Enter number of desired dimmer. DIMMER @ display will be dimmer number.
7. Press @ key. DIMMER @ 6K/12K indicator lights indicating dimmer is assigned as a 6K or 12K.

#### CLEARING 6K/12K DIMMER ASSIGNMENT

1. Press C key. Verify that DIMMER @ ENTER indicator is on.
2. Using keyboard, enter desired dimmer number. Entry appears in DIMMER @ display.
3. Press 6K/12K key. DIMMER @ 6K/12K indicator lights indicating that dimmer is currently assigned as a 6K or 12K.
4. Press \* key. DIMMER @ 6K/12K indicator goes off indicating that 6K or 12K assignment is cleared.

#### DELETE AND NOT REASSIGN A DIMMER

1. Press C key. Verify that DIMMER @ ENTER indicator is on.
2. Using keyboard, enter desired dimmer number. Entry appears in DIMMER @ display.
3. Press @ key. CHANNEL + LEVEL \* display is current channel assignment.
4. Using keyboard, enter the number 0. Entry appears in CHANNEL + LEVEL \* display.
5. Press \* key. CHANNEL + LEVEL \* display is number 0 indicating that the selected dimmer is not assigned to a channel.

## INSTALLATION AND MAINTENANCE

### INSPECTION AFTER RECEIPT

As soon as possible after the receipt, the MANTRIX 2S console should be unpacked and checked for shipping damage. Save the shipping carton for storage or transportation of the console.

### CABLE CONNECTIONS

Cable connections for the MANTRIX 2S is shown in Figure 6-1 for CD80 Dimmer Pack System and Figure 6-2 for a CD80 Dimmer Bank System.

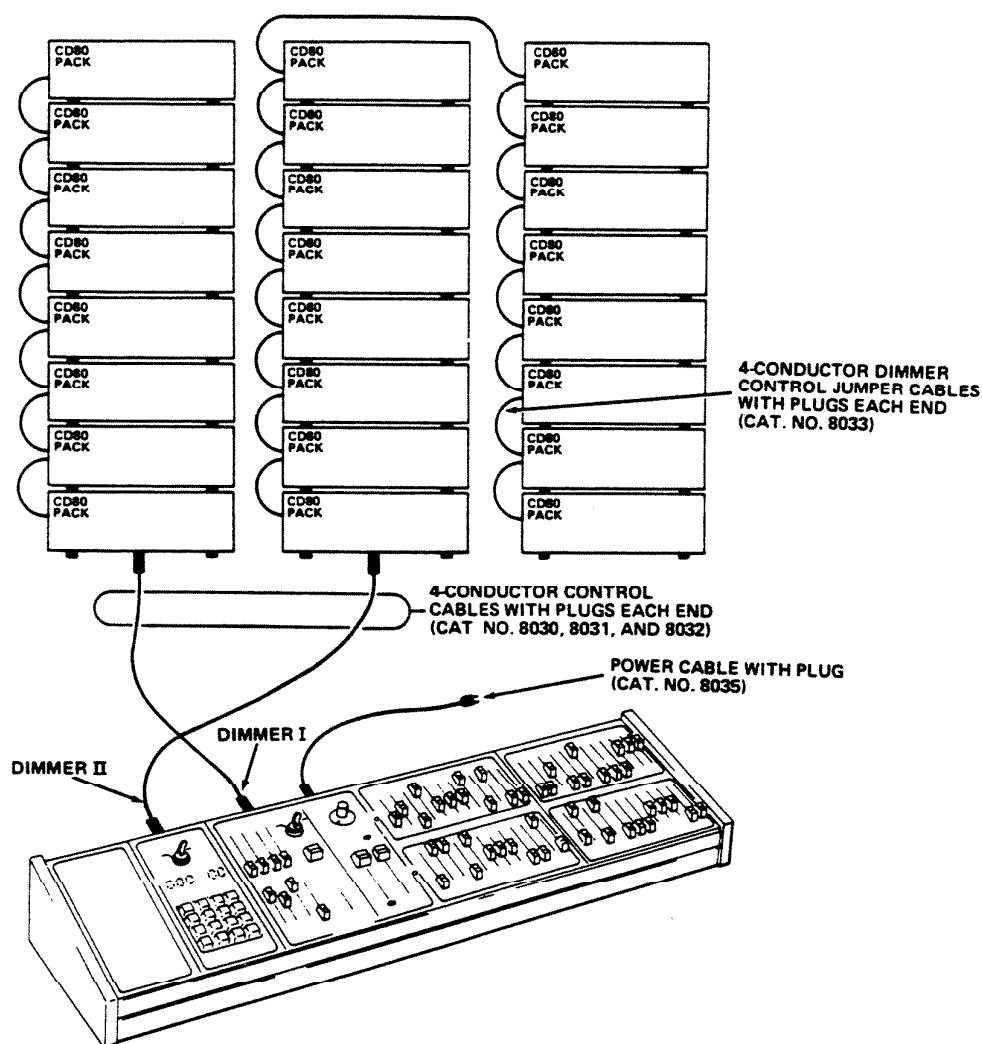


Figure 6-1. CD80 Dimmer Pack System

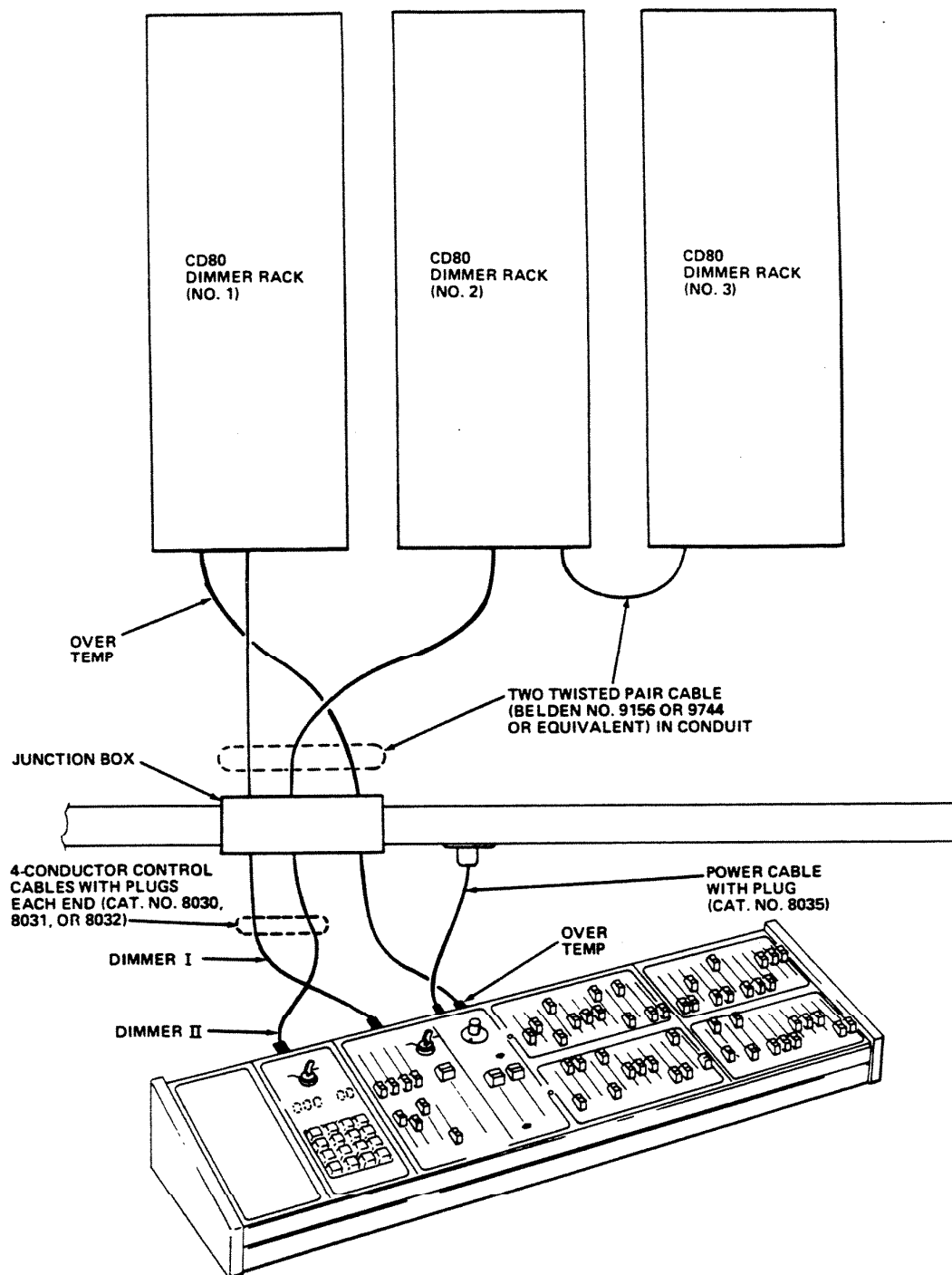


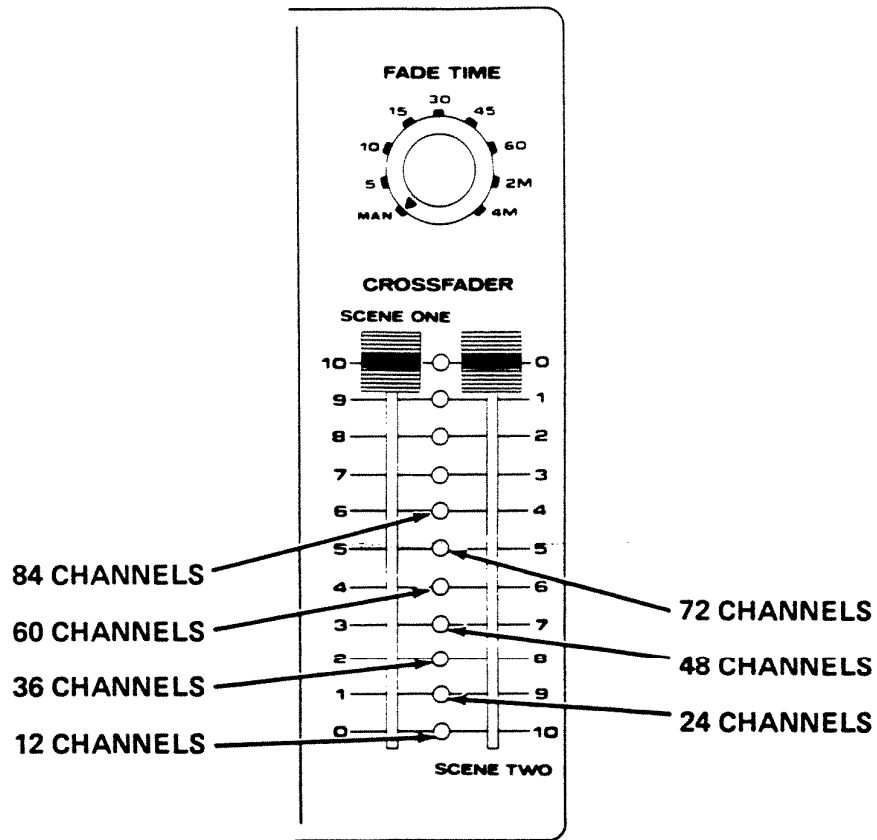
Figure 6-2. CD80 Dimmer Bank System

From the above illustrations, it can be seen that the first 96 2.4KW or 48 6.0KW/12.0KW dimmers are connected to the DIMMER I output. The DIMMER II output is used to connect the next 97 to 192 2.4KW or 49 to 96 6.0KW/12.0KW dimmers for a total of 288 2.4KW or 144 6.0KW/12.0KW dimmers.

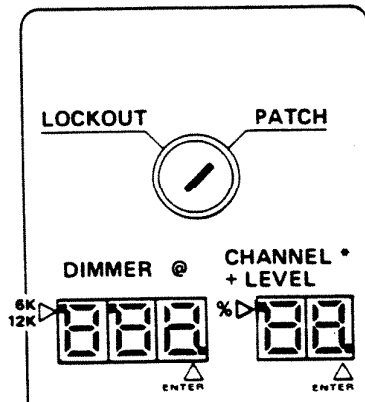
## SELF-TEST DIAGNOSTIC PROCEDURE

A self-test diagnostic is available in the Control Module memory to quickly determine if the electronics are functioning properly. The diagnostic also provides for stepping through the dimmer outputs to check for focusing or lamp failure. No patch or submaster assignments are affected by the diagnostic. Perform the diagnostic as follows:

1. While holding SCENE ONE HOLD switch-indicator depressed, set Control Console keyswitch to OFF then back to ON.
2. Verify that electronics diagnostic is running by the fade progress indicators turning on the off in sequence starting from the bottom (SCENE TWO) position:
  - a. A successful diagnostic is indicated by the fade progress indicators sequencing at about one cycle every three seconds.
  - b. A diagnostic failure is indicated by the fade progress indicators sequencing at about five cycles per second.
3. Verify that dimmer assigned to channel 1 fade up and down in sequence with the fade progress indicators. If a Patch Module is installed, the number 1 will be shown in the DIMMER @ display.
4. Check operation of all channels as follows:
  - a. Set FADE TIME control to 5.
  - b. Verify that after five seconds the dimmers assigned to channel 2 fade up and down and the Patch Module DIMMER @ display is 2. Note this sequence repeats until the number of channels installed are checked at which time the sequence starts over with channel 1. The Patch Module DIMMER @ display shows the channel being checked.
5. Check Channel Module connections as follows:
  - a. Set FADE TIME control to MAN.
  - b. Press SCENE ONE HOLD switch-indicator.
  - c. Verify that fade progress indicators stop sequencing and the display is frozen as shown in the following illustration.



d. Verify that Patch Module displays are frozen as follows:



6. Stop diagnostic by setting Control Module keyswitch to OFF then back to ON.

#### MODULE REPLACEMENT

Each module is held in the console by two screws on the rear of the module and two screws that engage a slotted bracket on the front of the console. (See Figure 6-3.)

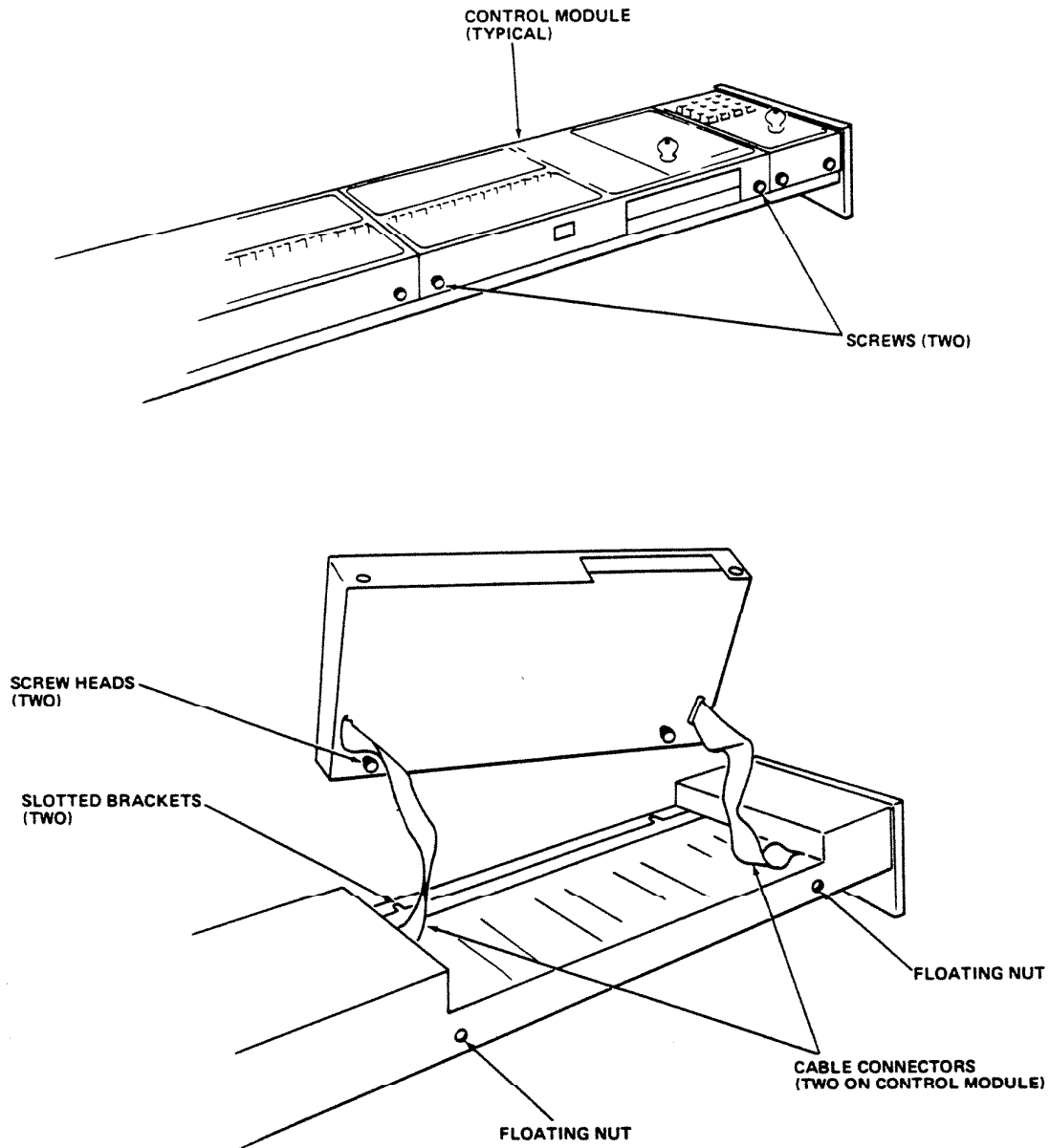


Figure 6-3. Module Replacement

Remove modules from a single-tier console as follows (See Figure 6-3):

1. Remove two screws on rear of module.
2. Carefully lift up rear of module and slide towards rear of console to disengage from slotted brackets.
3. Carefully disconnect cable connectors from the module to be removed.
4. Install replacement module by reversing steps 1 through 3.

Remove modules from a two-tier console as follows:

1. For top-tier modules, perform steps for single-tier console.
2. For bottom modules, perform the following steps.
  - a. Remove three screws securing spacer bar to console.
  - b. Remove spacer bar.
  - c. Perform steps 2 through 4 of single-tier removal procedures.
3. Install replacement module by reversing steps 1 or 2 as applicable.

#### PACKING FOR SHIPPING

When returning modules for repair or replacement, use shipping containers or boxes that will withstand the usual handling associated with the particular method of transport to be used. Place the module in a plastic bag or wrapper to keep out moisture and any contaminants, and use adequate padding to prevent physical damage. Replacement modules are available from the factory for use while modules are being repaired or replaced.

