

AVOLITES DIAMOND II OPERATION MANUAL SOFTWARE VERSION 3.x

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DIAMOND II OPERATORS MANUAL

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1. OVERVIEW

The Avolites DIAMOND II uses the latest technology to create a lighting and moving light control desk with features unequalled elsewhere. Combining the qualities of a traditional 'preset' lighting control desk, with all the advantages of programming directly from the preset faders, together with powerful theatre editing, using a keypad to select channels and set levels.

Eight rotary wheels allow easy control of moving light parameters, either directly, or using look up tables, which, for instance allow selection of colour by name. The desk resolves what is required to actually make an instrument select that colour.

When patching instruments you need only select the DMX line and number, then press a button to place the instrument. Again the desk resolves how channels are actually allocated with its personality system.

The ANIMATE moving light function allows creation of complicated effects at the touch of a few buttons, where previously hours of programming would be required. These effects can then be edited to make them uniquely yours.

The moving light TRACKING function allows easy positioning of instruments, with automatic orientation of instruments - no need to reverse PAN or TILT - and allows the wheels to operate in *true* up-down and left-right of stage.

The optional GRAPHIC TABLET enhances these features allowing 'follow spot' type operation of a number of moving lights, colour mix and selection of groups, focuses, gobos etc.

2. BEFORE TURNING ON

Before you turn the desk on make sure the power-supply is selected to the correct mains voltage. Failure to do this may cause permanent damage! The voltage selector is near the mains inlet plug. Prior to turning the desk on you should also connect the video screen. This may be either a solid state 'EL' screen, or a VGA CRT screen. The EL screen will be found in the middle desk drawer together with its support rod and cable.

3. CONVENTIONS USED IN THIS MANUAL

- A dot like this indicates that you what follows is an instruction on what to do. Indented text like this describes the result of what you are doing or gives additional information on the previous instructions.
- ◆ A diamond like this is used to show that there are a number of options and you have to select one of them or give an explanation to a number of items.

[A] Square brackets like these indicate the name of a button, in this case button A on the program panel.

4. THE KEYSWITCH

The KEYSWITCH which is mounted to the right of the program panel or above the master faders depending on the serial number of your desk.

RUN MODE

When the Key is in RUN mode no programming is allowed, this may be considered the *SAFE mode*.

PROGRAM MODE

When the Key is turned to PROGRAM, memories, chases and sequences may be recorded, the patch may be changed and disk operations are allowed.

SYSTEM MODE

The third position of the Key is SYSTEM, when the key is in this position you may enter the diagnostic and service options.

5. PATCHING

Before any dimmers or instruments can be controlled you must first patch the DMX output. Until a channel is patched it is not shown on the screen, LED mimic or output.

DETAIL ON HOW THE PATCH WORKS

- ◆ The Diamond II patch works in two ways, firstly the HANDLE (a preset fader and the swop/add button associated with it) is patched internally, then the DMX channel is patched.
- ◆ This is all done automatically but an understanding of this will help should you have to alter the patch later on.
- ◆ The internal patch number is used by the desk as a reference, by doing this it is possible to change handles or change DMX numbers without having to change the contents of memories recorded which would be difficult because memories can reference items such as focuses and tables.

6. EASY START DIMMER 1:1 PATCH

A quick dimmer 1:1 patch can be created with the following key sequence.

- Turn the key to SYSTEM.
- Press [A] then [F] then button [C].

After this all memories chases etc. will be erased and the desk will be ready for programming.

The first 180 dimmers will be patched onto faders 1 to 180 in that DMX order, using DMX line 1.

7. WIPE ALL AND SELECTING THE NUMBER OF HTP CHANNELS REQUIRED

A WIPEALL restores the desks memory to the factory settings, removing any programming you may have done. Do a backup onto disk if you wish to keep previous programming.

When doing a WIPE ALL you will be prompted to enter how many HTP channels you will require.

You require 1 HTP channel for each dimmer, remembering that each moving light requires one dimmer channel. It is always best to allow a few more HTP channels than you actually require since this number cannot easily be changed. The maximum number of HTP channels is 450 and the minimum is 1.

You can view the number of HTP channels, LTP channels, and how many are in use by selecting CHANNEL STATISTICS from the VIEW menu.

You set the number of HTP channels after doing a WIPE ALL. To do a wipe all do the following.

- Turn the key to SYSTEM
- Press button [A], SERVICE
- Press button [F], WIPE ALL
- Press button [A], EXECUTE WIPEALL

Once you press this you are past the point of no return! A wipe all has been done, however you must now configure the desk regarding the number of HTP (dimmer) channels you require. This may be in the range of 1 to 450. All the remaining channels are allocated as LTP channels. (If you require more than 450 dimmer channels see the section on LTP FADE channels.)

- Enter the number of dimmer channels you require, or if you require 180 press [ENTER]
- Turn the key back to RUN or PROGRAM as required.

8. PATCHING FROM SCRATCH

Before patching you may wish to do a DISK Backup and WIPE ALL.

The WIPE ALL will erase everything so make a disk if you wish to keep previously programmed information.

To make a DISK backup.

- Place a blank formatted disk in the disk drive.
- Press the [DISK] button.
- Now press button [A], SAVE TO DISK.
- Now press button [F], CONFIRM.
See section 59 for more information on the disk system.

Now do a WIPE ALL by turning the KEY to SYSTEM.

- Press button [A] marked SERVICE.
- Then press button [F] marked WIPE ALL.
- Finally press button [A] marked CONFIRM WIPEALL.
You are now prompted on the main screen to enter the number of HTP channels required. This can be any number between 1 and 450. By default the desk will assign 180 HTP channels.
- Enter the number of HTP channels or press ENTER to use the default of 180.
- Turn the key back to PROGRAM.

To start patching instruments or dimmers

- Press [PATCH]
- Then press the [Bank 1] button.
- The menu on the built in screen now prompts
Select a DMX line 1..8
- Select a DMX line by pressing 1..8 on keypad.
For 1024 channel desks only two DMX lines are available, so only 1 and 2 are valid button presses.

The menu now prompts

- [A] Dimmer
- [B] Choose an Instrument
- [C] Intensity LTP
- [D] Reduction
- [E] Delete Pending Dimmer
- [F] Invert a channel

You are now ready to patch dimmers or instruments and the following sections describe how to do this.

9. PATCHING DIMMERS

Use this function for patching a generic dimmer. - Meaning a simple dimmer channel. When using Colour Changers and instruments requiring a separate dimmer use the CHOOSE AN INSTRUMENT patch option. This allows the use of focuses, tables and other moving light features.

PATCHING A DIMMER

- From the patch menu press button [A] marked DIMMER.
You are now presented with the first free DMX number working upwards from DMX 1, on the line you selected.
You may use this number or select a different DMX number from the [KEYPAD].
- Press a preset fader [SWOP] button to patch the dimmer. You may immediately use the fader to bring up that dimmer.
The ADD and SWOP buttons are now ready to be used to patch another dimmer. Take care not to press one of these by accident whilst you are patching.

Whilst patching you may also set the dimmer curve and the dimmer patch level.

- Press button [A] marked LEVEL, before pressing the SWOP button as above.
A menu requesting a the level is presented.
- Press [ENTER] the set the level required from the [KEYPAD].
The patch level is now shown next to button A on the screen.
This level is kept for patching future dimmers until you alter it.
- Setting the dimmer curves.
- Press button [B] from the dimmer patch menu, marked CURVE.
- The curve numbers and descriptions are listed on the LCD screen.
- Select the curve number you wish to use.
- Press [EXIT] to leave the patch system.

10. TO PATCH INSTRUMENTS (ANYTHING WHICH IS NOT A GENERIC DIMMER)

- From the patch menu press button [B].
A list of instruments is now provided on buttons [A]..[F] button [G] allows more instruments to be presented.
If you have a system disk in the disk drive instruments will be read from this.
If there is no disk in drive a list of instrument types already patched will be presented. (This is faster than reading the disk.)
- Select the required instrument by pressing its associated button.
Various information is then presented on the LCD screen about the instrument.

The desk now calculates the first free DMX slot working down from DMX512.
You may use this or select a new number from the [KEYPAD].
- Select the correct preset bank. Normally this will be bank 1.
The instrument can be patched on any of the 12 banks giving the ability to control 2,160 instruments. generally it is simpler to only use bank 1 unless you require control of large numbers of instruments..

- Finally press a preset fader [SWOP] button to patch the instrument.

11. PATCHING INSTRUMENTS WHICH USE A SEPARATE DIMMER.

When an instrument requires a separate dimmer channel, such as the Vari*light VL5, a special dimmer channel is allocated as the instrument is patched. This is called a PENDING DIMMER.

A pending dimmer is allocated to ensure all channels associated with an instrument are connected together, so tables and preset focuses are recalled correctly.

When a dimmer is subsequently patched, with the PATCH DIMMER option the pending dimmer is converted into a real dimmer channel.

Typical examples of instruments which patch PENDING DIMMERS are colour scrollers, moving yokes, the VL5's etc.

See section 14 for details of how to delete a PENDING DIMMER.

12. TO PATCH AN INTENSITY LTP CHANNEL

The Intensity LTP channel allows control of dimmers but on a LATEST takes Precedence basis, rather than HIGHEST takes precedence.

This will make all fades DIPLESS even between memory masters, however only one memory master can control a channel.

13. TO CREATE A REDUCTION FADER

- From the patch menu press button [D].
- Now on the [KEYPAD] select the DMX number you wish to have reduction applied to.
- Select the correct preset bank. We recommend bank 12.
- Finally press a preset [SWOP] button.

14. TO DELETE A DIMMER WHICH HAS BEEN PATCHED WITH AN INSTRUMENT

DELETE A PENDING DIMMER

When an instrument such as a scroller is patched, an HTP channel is also patched. This is called the PENDING DIMMER. At some later time the PENDING DIMMER can be exchanged for an actual dimmer channel.

Since these PENDING DIMMER channels reduce the number of available HTP channels you may wish to delete them if you do not need to associate a dimmer channel with the instrument.

To delete a PENDING DIMMER.

- Press button [E], delete a pending dimmer.
- Press the confirm button.
- Finally press the preset fader SWOP button.

WARNING Use this function with care since once the dimmer is deleted from the instrument the only way to put it back is to delete the whole instrument, then repatch it.

If you should have to do this then only delete one instrument at a time and immediately repatch it, failure to follow this sequence may result in previously programmed memories not working with that instrument since the internal channel will number will be lost

15. TO INVERT A CHANNEL

This function is not available until version 4.

16. CHANGING PAGE

The Yellow page select buttons are arranged in two columns. The left hand column is the page bank and the right hand column the index into the page.

To select page 35

- Press the left column [3]
This will light up and the right column LEDs will go out
- Then press the right hand column button [5]
This will light up

To change from page 35 to page 38

- Press the right hand button [8]

To go forward or back one page

Press the grey [NEXT PAGE] and [LAST PAGE] buttons.

17. SETTING THE PAGE SIZE (BLOCK SIZE)

It is often useful to have the same memories or sequences on every page. In previous Avolites consoles this was achieved by setting the block size, or recording the memory into every page with the page cue lock on.

The DIAMOND II has a more powerful way of locking memories which allows any memory or sequence to be locked on all pages.

- First turn the key to SYSTEM.
- Then press button [F] marked LOCK MASTERS.
Any locked memories are shown by flashing LOCK on display above the memory fader.
- Pressing [GRAB] locks or unlocks a memory or sequence.
If necessary select the page which contains the memory you wish to lock, then press the [MEMORY FADER SWOP] button.

18. INSERT AND DELETE WITH LOCKED MASTERS

Locked masters are jumped over when INSERTING and DELETING.

Locked memories may be DUPLICATED as normal, the duplication will NOT be locked.

Edits made on a locked master will appear on all pages.

19. THE PROGRAMMER

The PROGRAMMER is the name given to the internal part of the console which contains edits, it may be thought of as a special memory playback. It is special because it has total priority on any channels which it contains in such a way that a channel contained in the programmer cannot be controlled from a normal playback.

A channel is placed in the programmer in one of the following ways:-

- ◆ By moving a fader in PROGRAM or TAKE-OVER RUN mode
- ◆ By selecting a channel on the keypad AND moving its associated wheel.
- ◆ By selecting an instrument and recalling a FOCUS.

Channels controlled by the programmer are indicated on the output screen with an 'm' between the channel number and its level.

A channel can be removed from the programmer by:-

- ◆ Pressing its wheel control ON button until both the RED and GREEN LEDs are off. This may require one, two or three button presses.
- ◆ Double pressing the channels [ADD] button. This clears all the channels for that instrument.
- ◆ Double press the [CLEAR] button. THIS CLEARS EVERY CHANNEL IN THE PROGRAMMER.

Turning the key to RUN, with the run mode set to NORMAL, again this clears all channels in the programmer.

20. TO PROGRAM OR EDIT A MEMORY

- Set up the memory on the presets, with the Grand Master, Preset Master and Memory Master at full.
- Press the [MEMORY] button.
- Press [MEMORY FADER SWOP] button

To see the memory

- Put the Memory fader to full.
- Double press [CLEAR].
This clears the programmer.
- Lower the preset faders.

The next section explains the CLEAR function in more detail.

21. EXPLANATION OF CLEAR

Clear releases channels from the wheels, or empties the programmer.

Since the programmer has maximum priority, before you can see any of your programmed memories the programmer must be cleared.

To clear the programmer double press [CLEAR].

To release channels from the wheels press [CLEAR] once.

22. WHICH CHANNELS ARE RECORDED

- ◆ Dimmer only channels (i.e. those patched with the patch dimmer option) are recorded on a 'what you see is what you get' - if the lamp is on stage it will be recorded.
- ◆ LTP channels are only recorded if they are in the PROGRAMMER.

For further information on LTP channels see section 63 item 5 on, record by channel, instrument or all channels.

23. TO SET THE FADE TIME FOR A MEMORY

- Press [TIMES]
- Press [MEMORY FADER GRAB] above the memory to set the time on
The Set time menu now appears.

Use the keypad to enter the various times which are
[A] Wait up

- [B] Wait down
- [C] Fade up
- [D] Fade down
- [E] LTP fade
- [F] LTP wait

For times longer than 60 seconds use the decimal point.

For example, to set the Fade up time to 1.5 minutes, press the following buttons.

- [1]
- [.] [.] (The first '.' is for parts of a second, and the second is for minutes)
- [3] [0]
- [C]
- To save the new setting press [ENTER]

When a fade is running under a fader the top four characters of the display alternate between the legend and FADE.

- ◆ If you wish to use fade down times select memory mode 2. The following section describes memory modes.

24. SETTING THE MEMORY REPLAY MODE

Memories may be created so they replay in a number of different ways. This is called the MEMORY REPLAY MODE or just MEMORY MODE.

You can check which memory mode has been recorded onto a memory by pressing, and holding, the MEM MODE button on the page and chase select panel. The memory mode is then displayed above the playback faders.

The MEMORY MODES are

- ◆ **MODE 0** This is the basic memory. It may have a fade up time but not a fade down time.
HTP channels are controlled by the fader level.
LTP channels are triggered as the fader moves above zero.
This mode has the fastest SWOP and ADD button responses.
- ◆ **MODE 1** This allows fade up and fade down times.
HTP channels fade up when the fader is moved in the up direction and down when the fader is moved in the down direction.
LTP channels are triggered when the fader moves above the trigger point.
The trigger point can be set from the user settings..
Use this mode when you wish HTP channels to fade up and down to time as you move the fader.
- ◆ **MODE 2** This memory mode allows the fader to control the LTP channels, HTP channels are controlled in the same way as MODE 1.
LTP channels follow the fader movement, as the fader is moved up they will

move from whatever position they are towards the new position. If the fader is moved down they will move back to the original position.

Use this mode to control LTP channels with the fader. Useful if you wish to change between two colours, or move to a particular pan and tilt position and then back again.

When using this mode you should make sure that any fade is complete before changing direction of the fader, otherwise the instruments may not return to the correct position.

- ◆ **MODE 3** This is a CROSS FADE mode for HTP channels. This mode allows a memory master to become a cross fade master. as the memory master moves above the trigger point. The output from the desk is taken as the source state and all other memory masters are then made inactive. These stay so until they are moved to zero. The fade on the MODE 3 master now follows the fader position, or its times, like MODE 1 crosfading from the source state to the new memory. If the fader is moved down the fade will move down to the original source. Once the fader reaches full, it is made into a normal memory master, as opposed to a cross fade master, and fading it down fades out the memory, leaving the stage in blackout. Use this mode to fade everything to a new state with a dipless cross fade. This includes any running chases etc. which will stop and must be restarted by moving the relevant fader to zero.

The memory mode is selected after the [MEMORY] is pressed but before the memory is recorded by pressing the [MEMORY SWOP] button. The following section describes how to change or view the memory mode.

New memories default to mode 0 unless the mode is specified.

Using the ADD with memory modes.

The ADD and SWOP buttons mimic fader movement in that pressing the ADD button causes is equivalent to moving the fader up.

The SWOP button is similar in that it controls the faders, and so lowers them, using the times provided, except in mode 3.

In mode 3 the SWOP and ADD buttons do the same thing, on releasing them the stage will fade to black.

In all memory modes using a time the fader level controls what percentage of the time will run.

For example if a fader with a 10 second fade time is stopped at 50%, the timer will perform a 5 second fade. When the fader is moved to full, the fade will continue over 5 seconds.

25. TO VIEW, SELECT OR CHANGE THE MEMORY MODE

You may view the memory mode selected by pressing the MEMORY MODE button. (This is to the left of the to the tens page select button select button 1.)

- Put the memory master to full and take out all other memory masters and the preset master.
(This ensures that no other channels will be recorded into the memory.)
- Press [MEMORY] button.
The screen shows a list of modes available.
- Select the mode number on the [KEYPAD].
Finally press the [MEMORY FADER SWOP] button.

26. TO PROGRAM A CHASE

- Press [CHASE]
- Press a [MEMORY FADER SWOP]
The chase is automatically connected to SEQUENCE CONTROL 1 and the SWOP led flashes.
- Set up each step using the presets, wheels and include function. Section 20, programming a memory, explains the detail of programming each step, which is identical to programming a memory.
- Press the [MEMORY FADER SWOP] button to record the step.
- Continue creating steps and recording them until the chase is built.
Steps may be edited and added later as required.
- Press [CHASE] to finish programming the chase.

You may wish to press the [CLEAR] button to release any channels held in the PROGRAMMER.

Before recording a chase on top of an existing chase the old chase MUST be first deleted. (See section 36 on Delete.)

During programming a chase you may change page freely to include any other memory or chase step.

27. TO SET A CHASE SPEED, USING THE KEYPAD

- Press [TIMES]
- Press [MEMORY FADER SWOP]
The times menu is then presented.

Type the times required using buttons A..F to assign the times, then press [ENTER].

The above will change all step times unless they have been assigned an individual time making that step a COMPLEX STEP.

- ◆ Steps which have individual times are called COMPLEX STEPS.

- ◆ Steps which have not been assigned individual times are called SIMPLE STEPS.

28. TO SET A CHASE SPEED USING A WHEEL

First connect a chase to one of the chase playback controls as follows:-

- Press [SEQUENCE CONTROL CONNECT] (above the playback controls)
Memory faders controlling a chases are indicated by the SWOP LEDs flashing.

- Press [MEMORY FADER GRAB] to connect the chase.

The chase is now connected. (The GRAB button is used to connect the chase, because accidental SWOPS whilst connecting a chase can have disastrous results during a show!)

To change the speed

- Turn the wheel associated with the playback.
The display shows the amount of time added or subtracted from each step time.

Each unit shown on the display is 1/40 second. For example if you move the speed wheel so it displays +20 each step will have 1/2 second added to it.

To set any individual cross fade parameter

- Press [SPEED] on the sequence control.
The first press allows alteration of the cross fade percent for all three sets of timers. (Fade Up, Fade Out and LTP).
- Press [SPEED] again to change each individual parameter in turn.

NOTE A 100% cross fade means no wait time, a 0% cross fade means there will be no fade - the scene will snap.

The display on the playback indicates which time is being adjusted.

To save the modified times

- Press [SAVE SPEED]
- Then press [SEQUENCE CONTROL GRAB].

29. TO SET AN INDIVIDUAL STEP TIME, MAKING IT A COMPLEX STEP

- Press [TIMES].
- Press a [CHASE CONNECT] button.
The Times menu is then presented.
- Set the times as required.

Note that new times will be stored into the step that is LIVE at the moment [ENTER] is pressed.

Once a step time is altered in this way the step is then called a COMPLEX STEP. This means that its times will no longer be altered by the speed wheel or by adjusting the chase speed using the keypad.

30. TO CHANGE A STEP BACK TO USING SIMPLE TIMES ONCE IT HAS BEEN MADE A COMPLEX STEP.

- Press [TIMES].
- Press a [CHASE CONNECT] button.
The Times menu is then presented.
- Press the [ML MENU] button , button [H].
- Press [ENTER].

31. TO EDIT A CHASE STEP

Chase steps may be edited either by UNFOLDING the chase (see section 47) or the live step on a connected chase may be edited as follows.

- Stop the chase on the step you wish to edit. Edit the state as if editing a memory.
- Press [MEMORY] button.
- Now press the [CONNECT] button.
The state is now recorded.

32. TO EDIT THE TIMES OF THE LIVE STEP ON A CONNECTED CHASE OR SEQUENCE.

- Stop the chase or sequence.
- Press the [TIMES] button , then press the [CONNECT] button.
The times menu is now displayed.
- Set the times as described in section 23.
- Press [ENTER] to record the new times.

33. TO GO TO ANY CHASE STEP

- On the [KEYPAD] select the step number.
- Press the [CONNECT] button.
This step is now made the NEXT STEP.
- Press the [GO] button to fade into the step.
Alternatively press the forward arrow button to SNAP into the step.

It may be useful to view the sequence steps on the screen, to do this:-

- Press [VIEW],
- Followed by the [CONNECT] button.

The screen tracks the NEXT step.

The LIVE and NEXT step are identified on the screen.

34. SETTING THE CHASE PARAMETERS

Pressing button [A], CHASE PARAMETERS, from the program menu allows setting and storing a number of chase parameters for the chase connected to CHASE CONTROLLER 1.

Note You must have a chase connected to access the Chase Parameter functions.

When button A is pressed the following menu is presented:-

- [A] STACK SCRIPT
- [B] SAVE DIRECTION
- [C] NORMAL (random)
- [D] STOP ON FINAL STEP YES (no)
- [E] ALL LINKS ON (off)
- [F] MORE

Press [EXIT] to leave the chase parameter menu.

NOTE There is no need to press enter to store changes, these are stored as each button is pressed.

STACK SCRIPT

See section 74 for details on script files.

SAVE DIRECTION

The SAVE DIRECTION option allows the chase to replay in the given direction whenever it is loaded.

NORMAL or RANDOM

The NORMAL/RANDOM option allows steps to be replayed in random order.

STOP ON FINAL STEP

The STOP ON FINAL STEP option allows a chase to stop on the last step. You may then press GO or move the fader down then up again to re run the chase.

ALL LINKS ON or OFF

ALL LINKS ON (off) allows a fast method of turning all the links to ON or OFF. This may be considered as making a chase into a theatre sequence.

MORE

When MORE is pressed the following options are presented:-

- [A] FADER WILL RELOAD CHASE
 - or
 - FADER STOPS GO TO START CHASE
 - or
 - FADER STARTS and STOPS CHASE

- [B] WAIT AND FADE FOR ALL STEPS
 - or
 - SKIP FIRST WAIT TIME
 - or
 - SKIP FIRST WAIT AND FADE TIME

Press button [A] or [B] to scroll round each of these options. Press [EXIT] to leave the menu.

35. INCLUDE

Include allows the contents of any memory or chase step to be added into the PROGRAMMER.

To include a memory, into the programmer ready to be recorded into a new memory or chase step.

- Press the [MEMORY FADER GRAB] button from the top program menu.
- Record the memory in the normal way.

To Include a chase step

- Stop the chase on the correct step.
- Press the [MEMORY FADER GRAB] button.

When including a memory or chase step, LTP channels will be turned 'ON', as if set by the wheels, and HTP channels will be set as if moved by the preset faders.

36. DELETING

To DELETE a MEMORY, CHASE, FOCUS or GROUP

- Press [DELETE]
- Press a [MEMORY FADER GRAB] twice to remove an existing Memory or CHASE.
After the first press a prompt will appear requesting the same grab to be pressed to confirm the delete.

To Delete a FOCUS or GROUP

Press the appropriate GROUP or FOCUS button. A second button press will be required to confirm the delete.

To DELETE a CHASE step

- Unfold the sequence by pressing [UNFOLD]
- Followed by the [MEMORY FADER GRAB].
The chase steps are now displayed across the page. If there are more than 30 steps these may be accessed by pressing [NEXT PAGE].
- Now press [DELETE].
- Press a [MEMORY FADER SWOP] at the position you wish to delete.

To Close a GAP between two memories on a page

- Press [DELETE]
- Press [MEMORY FADER SWOP] on the memory fader containing the gap to be removed.

All memories/chases to the right will be shifted one memory fader. Memory fader 30 will either be blank, or if you have previously sent a memory off the end of a page it will contain this.

If some memories are locked (see section) these will stay fixed. Other memories will jump over these faders.

37. INSERT

You can use INSERT to insert a new chase step, or a new memory on a page.

To INSERT a MEMORY on a page.

- First press [INSERT]
 - Then press a [MEMORY FADER SWOP]
- Care should be taken to ensure fader 30 is free or this memory will be lost off the page.

If a memory is lost off the end of a page, this may be recalled by deleting a gap on that page or another page. Up to 30 memories may be pushed off the end of a page, after this they will be deleted in 'first in first deleted' order.

You can think of the pages as 30 wide with an additional 30 slots to catch any memories that fall off!

To INSERT a CHASE STEP

- First UNFOLD the chase or sequence, by pressing [UNFOLD]
- Then press the [MEMORY FADER SWOP] on the chase you wish to unfold.
- Press [INSERT]
- Press the [MEMORY FADER SWOP] at the point you wish the new memory to be inserted.
- Record the new memory as required and set the times if necessary.
- Press [UNFOLD] to refold the sequence.

38. LINKING AND DUPLICATING MEMORIES AND CHASES

Explanation of LINK and DUPLICATE

A linked memory or chase allows the same memory or chase to appear on any number of pages. Editing any one of these, causes ALL the others to change. In other words only ONE store actually exists and this is loaded whenever it is required on a page.

A duplicated memory is a copy of the original and there no further association between them.

To DUPLICATE a memory

Think of this like a photocopier. The master memory is duplicated and after that there is no connection between the two. So either the original or the duplication can be changed without effecting the other. It is very useful to DUPLICATE a memory or a chase or sequence before editing it so there is always a 'backup' to go back to should you wish.

- Press [DUPLICATE]
- Press and HOLD the memory [MEMORY FADER ADD] you wish to copy from.
- Select the page you wish to copy to, if necessary.
- Press the memory [MEMORY FADER SWOP] you wish to copy to.

The legend on the destination memory display is updated with a new legend. (The formula for this is page * 100 + position in page. For Example if you duplicate to page 4 memory fader 12 the default number will be 412.)

TO LINK a memory

- Press and HOLD down the grey [MEMORY FADER ADD] button you wish to link from.
- Select the correct page as necessary (whilst still holding the ADD button).
- Press a blue [MEMORY FADER SWOP] button.
 - The legend appears in the memory fader display indicating a link has been made.
 - You may delete the original memory if required, this will leave the new memory.

Using the above method it is very easy to move memories from one page to another or put them in the correct order on a page.

NOTE Chase steps cannot be linked, you must use DUPLICATE.

39. TO CONNECT TO THE SEQUENCE CONTROL

- Press the blue [CONNECT] button above the sequence control.
Its led will flash, so will any programmed sequences or chases.
- Press a [MEMORY FADER GRAB] button.
The displays above the sequence control will light and indicate which sequence and step is connected.

40. TO RECORD A GROUP

- Select the instruments you wish to place in the group by pressing channel [SWOP] buttons.
These will light up if the preference is set to show INSTRUMENTS on mimics, see section 63 section 9.
- Press [RECORD GROUP]
- Press a GREY channel [ADD] button.
If the a GROUP is already recorded you must press the button a second time to confirm the overwrite.

NOTE Setting the 'mimic on instruments' through the preference menu to display selected instruments may be helpful in seeing which instruments will be stored in the group.

41. TO USE A GROUP

- Press a grey channel [ADD] button previously recorded as a GROUP.
The instruments in the group will be selected to the wheels.

42. TO STORE A FOCUS

- Set up the FOCUS using the wheels.
Check that attributes required in the focus are turned ON, this is shown by either the RED or GREEN led being ON.
Also check any attributes NOT required in the focus are turned OFF.

- Press the [STORE FOCUS] button.
- Press a channel [ADD] button.
If the focus was previously recorded you must confirm the overwrite by pressing the ADD button again.

The focus is now recorded.

43. TO APPLY A FOCUS

- Select instruments by pressing channel [SWOP] buttons or using a GROUP.
- Press a previously recorded [FOCUS] button.

44. FOCUS TIPS

What follows is a number of tips and additional information given to us or observed by us from Diamond II users. The common thread is that preplanning will make programming much faster and so more enjoyable.

Focuses give a quick way of applying a value to an instrument channel. But they also allow an easy way to modify memories at a later time without having to adjust the actual memory. This is especially useful for pan and tilt.

The reason for this is that when a memory is replayed which contains a focus, the information is recalled from the focus itself.

A focus can hold any information except HTP dimmer levels. However in most cases it is easiest to only record one type of information into each focus. That is a colour focus only contains colour information, not pan and tilt or gobo etc.

Each instrument can have different values for each channel in a focus. This is useful for analogue colour changers which may require different values for each changer to make it go to the same colour. You can program a focus for each colour and use these for colour selection. Further if you have to swop a changer, which then requires different values simply reprogram the focuses and all memories will be correct.

It is also OK to mix instrument types within a focus, so a RED focus can be made for scrollers, and moving lights. Pan and Tilt positions can be made for a mixture of different instrument types as well.

When making position focuses consider using the 3D tracking, discussed later. This makes it very easy to position all instruments on one place on the stage.

Examples for focuses are:-

Position - Holding only PAN and TILT information for each instrument

Colour - Holding only colour information, can be a mix of colour wheels, and colour mix if the instrument supports this.

Gobo - Holding gobo information, whilst these don't normally change, putting gobos on focus buttons makes selection very easy.

Focus - This may be useful to put on focuses if you expect the instruments to change height during a tour. Again having some this on buttons makes selection easy.

Consider how focuses are placed on the desk, some preplanning here will make future programming easier. (Putting all the colours near each other)

Mark the desk up AS YOU PROGRAM, don't leave it to later, or like me you will have forgotten which focus is on which button.

With PAN and TILT focuses its a good idea to keep a list of where they are focused in DETAIL. This makes it much easier later to reprogram, which may be a number of days away.

Some designers like to use focuses during a show. RUN MODE - TAKEOVER is designed exactly for this. If you wish to work in this way, consider where you place the focuses from a real time operational point of view.

A Tip on GROUPS. - If you intend to use focuses during a show using Takeover mode, consider making GROUPS up. Some operators have made three or more buttons recall the same group to make it easier to hit one of them.

45. EXPLANATION OF THE MIMIC LED'S

In PROGRAM mode the mimics can be used to either show

- ◆ Dimmer level
- or
- ◆ Instruments in the programmer (and so will be recorded).

When 'instruments are selected on the mimics' the following applies:-

- ◆ **LED OFF** indicates the instrument will not be recorded.
- ◆ **LED DIM** means the instrument has had an attribute adjusted and so will be recorded.
- ◆ **LED BRIGHT** means the instrument will be recorded and is under the control of the wheels.

User Preference 9 allows changing between dimmer level and instruments on the mimics.

In NORMAL RUN mode the LEDs work in 'dimmer level mode'.

46. TO SET INSTRUMENTS ON MIMICS

- Press [B] from the top program menu.
- Use the UP arrow to select preference 9.
- Use the RIGHT arrow to select INSTRUMENTS ON MIMICS.
(Pressing the right arrow button again will select DIMMERS ON MIMICS.)
- Press [F] to leave the preference menu.

47. UNFOLD

Unfold is unique to the Diamond II. It allows testing of a sequence with parallel access to 30 steps at a time. Any step can be altered and instantly viewed.

To UNFOLD a CHASE

- Press the blue [UNFOLD] button.
- Press a [MEMORY FADER SWOP] button.

The chase is now unfolded across the page.

You may edit steps, insert steps, and alter step times.

To set a TIME on a MEMORY or UNFOLDED sequence step

- Press the [TIMES]
- Press a [MEMORY FADER SWOP] button
The times menu is now presented.

48. TO ALTER LEGENDS

In program mode type on the QWERTY keyboard.

Use the ENTER, CURSOR, TAB and HOME buttons to move quickly to another display.

There is no need to press enter, since legends are saved as they are typed.

49. MOVING LIGHT FUNCTIONS

A number of special functions are available from the [M.L. MENU] button.

When M.L. MENU is pressed the following options are available:-

- [A] LOCATE FIXTURE
- [B] FLIP

- [C] ANIMATE
- [D] OFF
- [E] UNTOUCH
- [F] DEFINE THE STAGE

These are described in the next sections.

LOCATE FIXTURE

This allows instruments to be positioned on the stage in white, no gobo, and positioned at 50% pan and tilt. NO CHANNELS ARE TURNED ON WITH LOCATE OR PLACED IN THE PROGRAMMER. It simply moves the instrument to a known position.

IMPORTANT NOTE, Locate fixture:-

- ◆ DOES NOT turn the dimmer on, this must be done manually by moving the fader up.
- ◆ DOES NOT turn any of the LTP channels on these must be turned on by moving a wheel or pressing the ON/OFF buttons.

It simply gives a starting position for building a scene. It may be thought of as a neutral position.

FLIP

This is for use with moving yoke instruments. Since with these it is possible to have two pan and tilt positions which point at the same position on the stage. Pressing [FLIP] moves the selected instruments to the alternative pan and tilt position.

ANIMATE

This function automates programming of moving lights to produce circles, waves etc.

When ANIMATE is pressed a second menu is presented. Select the pattern you require from this and follow the prompts.

A sequence created with animate may be edited with unfold as required. The section on Animate describes the functions in detail.

OFF

Pressing this turns all attributes selected to the wheels to the OFF state. The dimmer level is also set to 0%.

UNTOUCH

This clears the programmer of any changes on the instruments selected, as if they had not been selected.

DEFINE THE STAGE

This selects a menu that allows the stage to be defined to enable the moving light tracking system.

50. USING ANIMATE

Animate is a simple function allowing the most complicated sequences to be automatically built allowing you to try out ideas.

Enter Animate by pressing [ML MENU] from the program menu, then pressing the [ANIMATE] soft button.

You are then presented with the following options:-

- [A] CIRCLE
- [B] MEXICAN WAVE
- [C] BUILD
- [D] ALTERNATE
- [E] BALLY-HOO

USING CIRCLE

To create a circle on the stage you place the beams on two points on the circumference of the circle.

The further apart these are the bigger the circle will be.

Tips:-

Make the PAN movement and the TILT movement equal to draw a perfect circle, otherwise an ellipse will be drawn.

BUILD

Build moves the instruments from one position to the next in turn 'building' on the last step.

For example, if the first position had all instruments pointing down stage and the second position has all the instruments pointing up stage then step 1 moves the first instrument up stage step 2 moves the second instrument up stage, leaving the first instrument pointing up stage and so on.

The order you select the instruments in determines the order in which instruments will move in.

The final step moves ALL instruments back to the first position.

Tips:-

Delete the final step and use bounce to move reverse the sequence.

ALTERNATE

Alternate is the same as BUILD except each step 1 moves an instrument and step 2 moves it back.

Again the order you selected the instruments in is used as the running order.

Tips:-

Delete the even number steps to make a wave effect. This is very fast and easy if you UNFOLD the sequence.

51. CHANGING CHANNELS ON AN INSTRUMENT FROM FADE TO INSTANT

LTP channels can be selected to fade or be instantly output. This is because some parameters you may not wish to fade, for example GOBO whilst others such as colour mix channels should fade. Different lighting designers prefer different combinations of options and some instruments can also control internally the fade using a speed channel. It does not make sense for internally controlled channels to be faded by the desk.

It is easy to experiment and decide how you would like each channel to respond.

TO SET A CHANNEL TO FADE OR BE INSTANT:-

- Clear any selected channels or instruments by pressing [CLEAR] twice.
- Press [PATCH]
- Select line 1 by pressing 1.
- Press button [G] marked FADE OR INSTANT.
- Select an instrument of the type you wish to alter a channel on.
The LCD screen now shows how each channel is configured.
- Press the ON/OFF button associated with the channel to change its mode.
If when you press the button fade/instant does not change there is a table under that channel. You must change the individual parameters. Change the BANK and set the individual parameters.
- Press EXIT to finish.

52. HOW TO TURN 'ON' AND TURN 'OFF' CHANNELS

ON, OFF, TOUCHED and UNTOUCHED

We have used a number of terms to describe a channel status. These are:-

- ◆ TOUCHED, this means the channel is in the PROGRAMMER and so will be recorded.
- ◆ ON, this means the channel will be recorded.
- ◆ UNTOUCHED, this reverses 'TOUCHED' by removing the channel from the programmer. However if it is an LTP channel it will not change in level until another memory is output. If it was an HTP channel it will immediately be output from any active memory masters.
- ◆ OFF, this is used when recording to turn a previously recorded channel to OFF

To turn a channel OFF

- Select the instrument to the wheels.
- Press the [ON/OFF] button on the attribute you wish to turn 'OFF'. Press this once or twice, until just the GREEN led is on.

- The ON/OFF button actually cycles through three states, 'ON', 'OFF', 'UNTOUCHED' before returning to 'ON' again.
The state of the attribute is shown by the RED and GREEN LEDs, as follows:-

RED on GREEN off = channel 'ON'
RED off GREEN on = channel 'OFF'
BOTH off = 'UNTOUCHED'

When a wheel is moved the channel turns on automatically.

You may also turn all the channels associated with the selected instruments by using the OFF function under the ML menu.

ALIGN

The [ALIGN] button is used to make all selected channels equal in value to the FIRST CHANNEL SELECTED.

For Example. If you have a number of colour changers, all set to different colours and you select ALL of them to a wheel, then move the wheel they will all move in proportion to each other. If you then press [ALIGN] they will all change to the colour of the FIRST selected instrument.

53. TO CREATE A TABLE

Tables allow you to recall a number of levels for an instrument by name. For example, a colour table allows the use of colour names (dark red for example) rather than actual values.

A Table exists for every instrument, but each instrument may have different values associated with each name. Thus dark red can be created for a scroller and moving light. You then select the moving light and apply dark red, then select the scroller and select dark red.

A table may control a number of physical DMX channels.

To create the table:-

- Press button [G] EDIT TABLE.
- Press the button [ON] associated with the wheel you wish the table to be on.
- Create the first entry by selecting the appropriate instruments and moving the wheels, for example select the colour changers and move them to colour red, do the same for any moving lights etc.
- On the QWERTY keyboard, type the table entry name.
- Press [ENTER]
- Create the second and subsequent entries in the same way.

- When you have finished press button [F] marked Finish.

Additional entries to tables can be added at any time by following the above method.

Tables are replayed in alphabetical order. Tip: If you would like your entries to be recalled in the order you created them in they should be labelled numerically i.e.: 01 Red, 02 Yellow, 03 Blue, 04 Lee181, etc...

54. TO USE A TABLE

Tables can be recalled in one of two ways, these are using a wheel to step through the table or using the QWERTY keyboard to select an entry.

USING A WHEEL TO RECALL A TABLE ENTRY

The wheel is used by simply turning it. The first entry in the table is replayed followed by the second etc. For small tables this may be fine but with larger tables it is too slow and the QWERTY method should be used. For example: when using Colorfaders or Vari*lite VL*5's, the QWERTY method is very powerful but for Scrolling colour changers the Wheel is faster.

USING THE QWERTY KEYBOARD TO RECALL A TABLE ENTRY

First you must select which function button between 1 and 8 you wish to use for any particular table.

If the instrument only has ONE table associated with it:-

Select an instrument which has a table assigned to it.

Press the function button you wish to use on the QWERTY keyboard

If the instrument has a number of tables associated with it:-

In this case you will be presented with a list of the available tables.

- Highlight the table by using the cursor buttons.
- Press [ENTER] (on either the QWERTY or keypad).
From now on whenever you press the function button you will enter the selected table.

To change the table associated with a function button:-

- Press the function button.
The table associated with that button is presented on the screen.
- Press the function button again.
A list of tables available is presented
Select the table required using the cursor buttons.
- Press [ENTER].
The new table is ready to use.

To select a table entry using the QWERTY keyboard:-

- Select the instruments. Press the Function button containing the table.
The table is listed on the screen.
- Use the cursor buttons to select an entry in the table.
You may use the QWERTY keyboard to find an entry in a table. (*Early versions will only sort on the first letter, you must then use the cursor buttons to move to the correct entry*).
You may now press [ENTER] if you know the entry is correct, or you may press the [TAB] button to try the selected entry without leaving the table allowing other entries to be tried.
- Press [ENTER] to set the programmer and leave the table , or press [EXIT] or [ESC] on the QWERTY to abandon.

55. TO SAVE A TABLE TO DISK

Tables are saved whenever a show disk is made, however you may also wish to record a table for future productions.

Do this by saving the personality for an instrument from the disk menu as follows:-

- Press the [DISK] button.
- Press button [C] from the disk menu marked Personality Options.
You are now prompted to press an instrument select. This tells the desk which personality you wish to save.
- Press the Instrument ADD button.
If a number of the same type of instruments are patched you can press any ADD button.

56. THEATRE STYLE CHANNEL EDITING

From the keypad you may select channels, groups focuses and apply levels to these.

TO INPUT A CHANNEL NUMBER AND APPLY A LEVEL

From the program menu use the keypad to select the channel number.

Once the first numeric on the keypad has been touched the menu will change as follows.

- [A] THROUGH
- [B]
- [C]
- [D] PRESET FOCUS or GROUP
- [E]
- [F] AT PERCENT

To select a continuous block of channels

- Use button [A] marked THROUGH and select the second channel.

To add individual channels

- Use the [ENTER] button between each channel.

To set the level on the selected instruments

- Move the dimmer level wheel
- or
- Use the [AT PERCENT] button
 - Follow this with a single numeric.
This will set all channels to that number multiplied by 10.
To enter the units of level use the [.] on the keypad followed by a numeric.

For example, to set channels 1..10 and channel 53 to 68%

- Press [1] on the keypad
- Press button [A] marked THROUGH
- Press button [1] then button [0] on the keypad
- Press the [ENTER] button
- Press button [5] then button [3]
All the channels are now selected.
- Press button [F] marked AT PERCENT
- Finally on the keypad press the following buttons [6][.][8].

As an option to the final step above, you may move the wheel assigned to dimmers.

USING THE KEYPAD TO SELECT A GROUP OR PRESET FOCUS

- Press button [D] marked GROUP or P. FOCUS
- Select the GROUP or FOCUS on the [KEYPAD]

57. BLIND PROGRAMMING

When BLIND MODE is entered, the PROGRAMMER is electronically disconnected from the desks output in the following way.

- ◆ For HTP (dimmer) channels control is released and given back to the memory playbacks. This may cause the state on stage to change!
- ◆ For LTP channels control is given back to the memory playbacks, but not until a fader moves past a trigger point.

To enter BLIND mode:-

- Press [BLIND].
This disconnects the programmer from the outputs. Channels in the programmer are kept selected, however HTP channels will stop being output. This is important since any channels on the preset will black out when [BLIND] is pressed. (To avoid this happening record the channels on a spare memory master and put this up.)

When recording in BLIND mode only channels selected in the programmer will be recorded. If you wish to start from a previously recorded memory use the INCLUDE function to bring any memory into the programmer.

To exit BLIND mode:-

- Press [BLIND].
When you exit blind mode, by pressing [BLIND EDIT], any channels left in the controller will be output to the stage. You may use this to look at any changes before you store them, OR this may be disastrous since lights may suddenly flash up on stage. To prevent this happening double press [CLEAR] before exiting blind mode.

58. BLIND PROGRAMMING AND QUICK BLIND EDIT

Two blind options are provided, QUICK BLIND EDIT and BLIND PROGRAMMING.

Quick Blind Edit is provided when you wish to alter a single memory or sequence step on the sequence connected to Sequence controller 1. Quick Blind Edit requires less button pressing than Blind Programming, but has some restrictions.

Blind Programming is provided to allow alteration of several memories or steps within one session.

When in either BLIND MODE, the PROGRAMMER is electronically disconnected from the desks output in the following way.

- ◆ For HTP (dimmer) channels control is released and given back to the memory playbacks. This may cause the state on stage to change!
- For LTP channels control is given back to the memory playbacks, but not until a fader moves past a trigger point.
- ◆ *Before entering BLIND ensure the presets are cleared, (all the faders at zero).*

To enter QUICK BLIND EDIT

- Press [QUICK BLIND EDIT], button D on the program menu.
- Press a [GRAB] button to edit a memory, or enter a step number to edit the contents of a step being replayed on sequence controller 1.
The screen now previews that memory or step.
- Make any changes you wish, by including memories, or using the keypad and wheels to set levels or the preset faders.
- **Only use the preset faders to remove a channel level, Do not use these to add a level in since when you record the scene the preset will be reconnected to the output and those channels will flash up on stage.**
- Press [ENTER] to record the modified scene.

To enter BLIND PROGRAM mode

- Press [BLIND PROGRAM].
This disconnects the programmer from the outputs. Channels in the programmer are kept selected, however HTP channels will stop being output. This is important since any channels on the preset will black out when

[BLIND] is pressed. (To avoid this happening record the channels on a spare memory master and put this up.)

When recording in BLIND mode only channels selected in the programmer will be recorded. If you wish to start from a previously recorded memory use the INCLUDE function to bring any memory into the programmer, by pressing the memories [GRAB] button.

To exit BLIND mode

- Press [BLIND].
When you exit blind mode, by pressing [BLIND EDIT], any channels left in the controller will be output to the stage. You may use this to look at any changes before you store them, OR this may be disastrous since lights may suddenly flash up on stage. To prevent this happening double press [CLEAR] before exiting blind mode AND ensure any preset faders are set to zero.

59. DISK

Pressing [DISK] allows disk operations. These are menu driven, simply follow the prompts to SAVE, LOAD and FORMAT a disk. The disk format is IBM PC compatible.

60. VIEWING DIFFERENT SCREENS

- Press [VIEW]
A list of different views is presented on the active screen, and on the soft buttons.

[A] STAGE
[B] PATCH BY DMX
[C] CHANNEL STATISTICS
[D] PATCH BY HANDLE
[E] GROUPS/FOCUSES
[F] PAGES

- Press a soft button to select what you wish to view.

THE STAGE SCREEN - DETAIL

The STAGE screen allows viewing of either dimmer levels or detail about a particular instrument with all the channels shown.

The dimmer may form part of a moving light or be a conventional dimmer such as an Avolites Rack.

At the bottom of the screen is a list starting with DIMMER and then showing each instrument that you have in the patch.

The left and right CURSOR buttons move through this list.

When viewing DIMMERS the screen shows 180 channels. If you have more than 180 dimmers in use pressing the preset select buttons will show subsequent dimmer numbers.

If you CURSOR to an instrument you are presented with the levels being output to the first 10 instruments for each parameter. The dimmer is shown in percentage, the rest are shown as part of the range available to that channel. This is normally 0..255, but for pan and tilt it may 0..2000 if more than 8 bit resolution. (Note that the actual resolution can be up to 16 bit and defined within the personality for that instrument). To see the next 10 press the up CURSOR button, to see the values for different instruments press the left or right cursor buttons.

CHANNEL STATISTICS

This option gives information on how many HTP and LTP channels the desk is configured for and how many of these channels have actually been patched. (One HTP and one LTP channel is always used).

GROUPS/FOCUSES

This screen is similar to the STAGE screen except it shows the contents of a FOCUS or the instruments included in a GROUP.

PATCH BY HANDLE

This screen allows viewing of what instrument is patched to which handle. (Or preset fader).

Use the cursor buttons to scroll through the handles and the bank select buttons to view each bank.

PATCH BY DMX

This screen allows you to view what instruments are patched to each DMX channel. Use the cursor buttons to scroll to the correct line and DMX number.

The screen also shows what level the DMX channel is being output at and if any reduction is applied

61. TO CHANGE ACTIVE SCREEN

Since the Diamond II can control a number of physical screens with each one showing different information there has to be an easy way of selecting which screen you are in control of.

The active screen is the screen that will be adjusted when a different view option is selected.

All screens are updated and show live information.

- Press and HOLD [VIEW]
- Press button [1] for VDU screen 1 or [2] for VDU screen 2.
- Release the [VIEW] button.

62. THE STAGE REMOTE

The stage remote is connected the desk via a cable with a 25pin D type connector. This may be plugged into either end of the riggers remote, whichever is most convenient. It may be plugged and unplugged at any time.

From the remote you may control a DMX channel or group of DMX channels an instrument, with access to any of the parameters of that instrument and from version 5 software a memory.

- Turn the key to program
- Enter the user preferences menu and set setting number 8 to Riggers Remote
- Connect the Stage Remote
 - When connected the LEDs on the remote will flash
- On the remote press [EXIT] followed by 1,1,1
 - The LEDs on the remote will now flash twice to show the remote is enabled

From the remote you may now call up DMX channels.

To call a single DMX channel

First select the DMX line number

- Press [1] on the keypad
- Press [BANK]
 - Press 2 for line 2 etc.
 - Once a line is selected it remains selected until you change it.
- Press [DIM]
 - Its LED lights up
- Select the DMX number on the remote
- Press the [AT%] button
- Press a numeric to set the level or press the [AT%] button again for 100%

EXAMPLE, To turn on DMX channel 24 to 100%

- Press [1] on the keypad, followed by
- [BANK]
- Press [DIM] followed by [2] and [4]
- Press [AT%]
- Press [AT%]

THROUGH, INSTEAD, NEXT and LAST

You may create lists of channels to turn on by using the [ENTER] button between each channel number.

Pressing [INSTEAD] will clear all channels. (Setting them to 0%)

[NEXT] and [LAST] work from the last entered channel number, turning off all other channels.

- ◆ NOTE When using the VIEW DMX screen and the [DIM] function the channel levels on the screen will flash indicating that DMX channel is under control of the remote. The level on stage will however be constant.

USING THE REMOTE TO CONTROL A CHANNEL or INSTRUMENT

- Press the [CHAN] button
- Select the instrument number
- Press AT% as for setting a dimmer

The dimmer on the instrument is now turned on

You can now adjust any other parameter for the instrument if you know the wheel number. These are numbered from the top left wheel, with PAN and TILT being wheels 5 and 6 and dimmer being wheel 8. If the instrument stretches across more than one bank then you can change bank by selecting the bank number, then pressing [BANK]. (You must have the CHAN led on to change bank.)

- Select the wheel number
- Press the [+] and [-] button to adjust the level of the wheel.
- You may use NEXT and LAST to step through instruments.

For EXAMPLE controlling attributes of an instrument on the stage remote

- Patch instruments to (say) faders 51 to 60.
- Select riggers remote on the preference screen (number 8)
- View the instruments on the video screen
- Turn the key to Program.

- On the REMOTE, press [EXIT], [1] [1] [1]
The led's on the remote will flash.
- Press [CHAN]
- Press [5], [1]
- Press [AT%], [AT%]
The dimmer for that instrument will now be at full
- Press [5], and press [+] several times
Each time [+] is pressed the PAN will move
- Press [6] and press [+] several times
Each time [+] is pressed the TILT will move press [-] to move TILT in the other direction.
- Finally press [NEXT] to step through instruments.

- ◆ You can use [THROUGH] to select a consecutive block of instruments. You cannot use [AND] with [CHAN]

DISABLING THE REMOTE

- Press [EXIT]
- Then [0], [0], [0]
This turns off the remote, preventing accidental operation.

CHECK STATUS

Pressing the bottom left button will give the status of the remote, Enabled or Disabled.

- ◆ If the LED's flash once it is disabled
- ◆ If the LED's flash twice it is enabled

63. USER SETTINGS AND PREFERENCES

To enter the USER SETTINGS menu

- Press [USER SETTINGS]
- Use the up and down arrow to select which setting you wish to alter and the left and right arrow to change the setting.
All changes are saved on the show disk.

1 No longer used.

This option is now under the chase parameter menu and can be set for each shase

2 MEMORY FADER OFF AT <nn

The value nn sets at what level the memory master will stop a sequence running.

3 MEMORY FADER ON AT >nn

This level sets at what master level the LTP channels will be output, and at what level a chase or sequence will start to run at.

4 NORMAL RUN/TAKEOVER RUN/2 PRESET

- ◆ NORMAL RUN makes the preset ADD and SWOP buttons work in a traditional 'rock and roll' way, - the preset ADD buttons bump the channel in and the SWOP buttons solo the channel.
- ◆ TAKEOVER RUN makes the presets, the preset ADD and SWOP buttons and the wheels work as they do when the desk is in program - the ADD buttons become GROUPS or FOCUSES and the SWOP buttons become instrument selects and the preset faders have maximum priority on the output.
- ◆ 2 PRESET MODE allows preset fader bank A and preset fader bank B to be controlled from two memory faders. (This function will not be implemented until software version 4.)

5 RECORD BY CHANNEL/INSTRUMENT/ALL CHANNELS

This setting sets how Latest Take Precedence Channels (LTP) are recorded.

- ◆ RECORD BY CHANNEL means only channels which have changed in level since clear was last pressed will be recorded.
- ◆ RECORD BY INSTRUMENT means that if any channel on an instrument has changed, then all the channels associated with that instrument will be recorded.

- ◆ **RECORD ALL CHANNELS** means that every channel will be recorded. This will use considerable quantities system of memory.
The amount of memory available is displayed on the LCD screen as a percentage of the total available.

NOTE HTP channels are always recorded as seen on stage. The above only alters LTP channels.

6 NOT USED

This option is not used at present

7 KEEP/REMOVE FIRST WAIT TIME

This option allows the first wait time on a chase to be removed, thus allowing lights to turn on as soon as the fader is moved.

8 TRACKBALL/REMOTE CONNECTED/G-TABLET

This selects how the serial port should be used - either for a trackball, for the riggers remote or the Graphic Tablet.

9 INSTRUMENTS/LEVEL ON MIMICS

This allows either the selected instruments to show on the mimic LEDs or the dimmer level to be shown on the MIMIC LEDs.

10 PROGRAMMER HAS PRECEDENCE/CHASE OVERRIDES PROGRAMMER

This defines what happens when you run a chase to channels in the programmer, and when in CHASE OVERRIDES PROGRAMMER the programmer priority is reduced to below that of a chase. - *Use this with caution when programming a show since you can lose information from the programmer which may have taken a long time to create!*

64. USING THE GRAPHIC TABLET

The Graphic Tablet allows:-

- ◆ Positioning of instruments in either FOLLOW SPOT mode or by setting the PAN and TILT mode.
- ◆ Recalling GROUPS
- ◆ Recalling FOCUSES
- ◆ Setting the Colour using the COLOUR MIX on the tablet.

To configure the desk to use the graphic tablet:-

First you must enable the serial port to receive data from the tablet, and align the tablet to the overlay as follows:-

- Turn the KEY to SYSTEM.
- Press button [B] USER SETTINGS

- Use the down arrow to select option 8
- Use the right cursor button select G. TABLET CONNECTED.
- Turn the key back to PROGRAM.

To use the Graphic Tablet to control colours:-

Ensure the configuration procedure has been done as shown above.

- Select an instrument that uses colour mix.
- Click the pen in the middle of the LUMINANCE bar on the tablet.
- Click the pen within the colour box on the Tablet.
Experiment with the Luminance and colour box!

To use the Graphic Tablet to control position by setting the PAN and TILT for the instrument:-

Ensure the configuration procedure has been done as shown above.

- Select an instrument.
- Click and move the pen within the stage box on the tablet.
The light will move!

Training Moving Lights for tracking:-

Before moving lights can be used in Tracking mode the desk must be trained as to where each fixture is within space. This requires marking on the stage a square and pointing each fixture onto each corner, then recording that position.

The square should ideally be centre stage and about 1/2 of the stage size leaving a border around the square equal to about 1/4 of the stage.

- Press button [H], this should be marked ML MENU on the switch.
- Press button [E], marked DEFINE THE STAGE.
- Buttons [A] to [D] are used to record each of the points of the square. Move all the fixtures to the top left corner of the square (looking from the audience to the stage), then press button [A], do the same for each corner, pressing buttons [B], [C], and [D] in turn.

Important notes regarding training:-

The PAN value must be different for each of the corners, as must be the TILT value. The difference need only be 1 count.

If you are using moving head fixtures you should make sure they are trained the same way up. Do this by only ensuring the tilt value is kept below 50%.

- You can check the positions by pressing button [F], marked recall and then pressing buttons [A], [B], [C] or [D].
- Press [EXIT] to leave the recall function.
- Press [ENTER] to start the desk computing the fixture positions.

It takes about 10 seconds for each fixture and a count down is given on the screen prompt line.

Using tracking with the graphic tablet

- Train the desk.
- Select the fixture or a number of fixtures by clicking on a select button with the button on the stylus held in, or select instruments by using a previously recorded GROUP.
- Click on the [TRACK ON] button on the tablet.
- Drag the stylus on the stage area of the tablet.

By default ABSOLUTE mode is selected. In this mode the tablet stage area represents the stage with the centre of the rectangle being centre of the tablet stage.

When more than one instrument is selected, the to be selected is considered the leader to which other instruments follow.

Using NUDGE to position fixtures

Assuming you have the fixture in *about* the correct position it is easier to select NUDGE, then drag the stylus within the stage area. Selected instruments will move relative to the initial position of the stylus.

Nudge must also be used if you wish to move a number of instruments keeping the relative position of each fixture to each other. For instance, if a number of fixtures are pointed at the stage to create a circle and you wish to move the whole circle about the stage then use NUDGE. Do not try and use absolute since all the instruments will align themselves so pointing at the same position!
If you are in NUDGE and wish all the instruments to point to the same position on the stage then click on [ALIGN].

GROUPS

A GROUP is a collection of fixtures which can be selected with a single button press.

Programming a GROUP

- Select the required instruments.

When using tracking with GROUPS the first instrument selected prior to recording the group becomes the leader.

- Click on RECORD GROUP.
- Click on an empty button (in the range 1 to 180) to store the group.

To use a GROUP

- Click on the appropriate [GROUP] button.

Once recorded it is a good idea to note which instruments are within a group either on a separate sheet of paper or on the tablet template.

Groups are exclusive, that is only one group can be selected at a time, however a GROUP and additional fixtures can be selected.

NEXT INSTRUMENT

This function steps through the instruments selected when a GROUP has been loaded. Instruments are selected in the same order as the instrument selection when the group was first created.

- Click on [NEXT INSTRUMENT]

If you wish to re-select all the instruments again then click on [SELECT ALL].

Programming FOCUSES

From the Tablet Focuses can be stored. Care should be taken to ensure that you store the correct information into the correct focus.

To store a focus:-

- Click onto [STORE FOCUS].
- Click on an empty button in the range 1 to 180.

Using RECALL FOCUS

The RECALL FOCUS function gives a safe way of editing position focuses because you can only store the PAN/TILT positions back into the Focus you first recalLED, removing the risk of overwriting the wrong focus.

RECALL FOCUS has a number of associated functions, these are:-

NEXT FIXTURE
LAST FIXTURE
STORE PAN/TILT
NEXT FOCUS

- Having selected [RECALL FOCUS] you must select particular focus by clicking onto that button.
- All the fixtures in that focus are then selected to the tablet.
 - If you have selected INSTRUMENTS on MIMICS then the preset LED's will light to show which fixtures are used in the focus.
- If the dimmer is not turned on in the focus you can do this by clicking on [DIMMER] then [F] (full) on the fader.
- You can now move all the fixtures or step through each fixture allowing easy adjustment of each one using the NEXT FIXTURE and LAST FIXTURE. Instruments can also be selected by using the GROUP and FIXTURE SELECT buttons.
- When you have finished editing the focus click on the STORE PAN/TILT button.
 - This will store the focus back into the focus number you first recalLED.
- You can now use the NEXT FOCUS button to select the next focus, or use RECALL FOCUS followed by clicking onto a FOCUS SELECT to select another focus.

65. KILLING DMX CHANNELS IN AN EMERGENCY AND THEN REVIVING THEM AGAIN

You may have to quickly kill a fader channel or a DMX channel whilst running a show.

Button [C] from the run menu allows you to instantly kill any channel. When pressed you are prompted to press a channel grab an [ADD] or [SWOP] button or enter a DMX number.

Button [D] allows you to reverse this action and button [E] allows you to clear all the channels that have been killed. *If you have only killed one channel this is also useful since you do not have to know which one it was!*

66. SERVICE OPTIONS

- Turn the key to SYSTEM
- Press [A]

The service menu is presented

- [A] Load and run software from disk
- [B] Diagnostic
- [C] Execute Eprom Code or Ram Code
- [D] Tests
- [E]
- [F] Wipe All

The tests option presents the following menu

- [A] Version
- [B] Read FIX.SYS
- [C] Modify Memory
- [D]
- [E]
- [F]

Load and Run Software from Disk

This option allows loading of new software from disk.

To load new software, place the disk supplied by Avolites in the disk drive and press this button. The software will be loaded and start running immediately.

To load software you must be running code from EPROM. This option will not be available if you are running RAM code. The next sections explain how to change between EPROM and RAM code.

Execute Eprom Code/Ram Code

Switching from RAMCODE to EPROM code and back.

This option allows you to switch between RAM code and EPROM code. Pressing this when the desk is running EPROM code will probably result in an error message unless RAMCODE has been previously loaded.

Diagnostic

This changes the screen to display fader levels, key presses and processor status. To see the wheel diagnostic screen move any wheel.

Wipe All

Press this and its CONFIRM option to wipe ALL information and set the desk to the factory configurations. If the desk was running RAM code it will still run RAM code after a wipe all.

If you have loaded a FIX.SYS disk you must reload this after a wipe all.

Version

Use this to display the software revision you are running.

Read FIX.SYS

This allows loading of a special disk supplied by Avolites allowing minor modifications to the configuration. It will be supplied with instructions on how to load it.

Modify Memory

This allows the contents of a memory location to be modified. Useful for testing displays etc. Only use this after contacting Avolites, since you may corrupt system variables, causing insidious problems with the desk, which may not immediately show on the desk.

67. UPGRADES

Fitting a second VDU

If you require two video screens you must fit the second video card into the backplane.

Card 1 should be fitted with GAL type SUE1005 and card 2 with GAL type SUE2005. Please contact Avolites for further information.

68. CHANGING FROM EL SCREEN TO VGA CRT

- Remove the video board from the backplane and switch switch 2 to OFF, switch 1 should always be ON.
- To change back to EL switch this back to the ON position.

69. POWER UP MESSAGES

As the desk is initialised various messages are printed on the PAGE NUMBER display. Normally only 'BOOTING' and 'BOOTED' and information on the LCD screen will be seen since the previous information is changed at high speed, however if there is any problem on initialising the desk a message will be left on the display and this will help to identify where the problem is.

The messages are as follows:-

- ⇒ Chip Selects Set
 - 1-
- ⇒ Clear DOM, Place in Reset and set clock to 16Mhz
 - 2-
- ⇒ Initialise serial port and send out ASCII 'F'
 - 3-
- ⇒ Ram used for first time
 - 4-
- ⇒ Set up system stacks
 - 'MAIN STARTED'
- ⇒ First initialise of system
 - 'STARTUP'
- ⇒ If wipe all link fitted
 - 'WIPEALL'
- ⇒ Check for RAM string
 - 'SYSTEM CHECK'
- ⇒ Examination of MEMPOOL
 - 'BOOTING'
- ⇒ if OK
 - 'BOOTED'
- ⇒ Display is blanked, LCD screen now says INITIALISING SYSTEM and gives the software revision
 - Page display is blanked
- ⇒ LCD screen changes to RUN/PROGRAM/or SYSTEM depending on the position of the keyswitch
 - Page display shows page name or number. Desk is ready to use.

70. TO LOAD SOFTWARE FROM DISK INTO FLASH MEMORY

!!!!TAKE CARE!!!!

ALL THE OPERATIONS FROM THIS MENU WILL ALTER THE CONTENTS OF MEMORY AND SO CHANGE YOUR SHOW OR YOUR SOFTWARE. ONLY USE THESE FUNCTIONS IF YOU HAVE NEW SOFTWARE SUPPLIED FROM AVOLITES EITHER BY POST OR BY MODEM. DO NOT PRESS ERASE ALL SEGMENTS UNTIL YOU HAVE SAVED YOUR PROGRAM.

IF YOU HAVE THE LINK FITTED ON THE MAP BOARD DO NOT PRESS BUTTON [A] UNLESS YOU WISH TO DO A WIPE ALL.

BEFORE STARTING THIS YOU REQUIRE:-

- 2 blank formatted disks.
- A pen to label these.
- A disk containing the new software.

- Ensure the new software disk is marked '*new software*'.
- **MAKE A DISK OF YOUR SHOW mark this '*show disk*'.**
- Power down the desk and fit the link on the MAP pcb.
- Power up the desk.

You will be presented with the following menu:-

```
[A]  START THE SYSTEM
[B]  LOAD NEW PROGRAM
[C]  ERASE ALL SEGMENTS
[D]  VERIFY
[E]  SAVE PROGRAM
```

- Insert a blank formatted disk and press button[E], SAVE PROGRAM.
This makes a backup file of your existing program. It also tests the disk drive to ensure this is working BEFORE you erase your old program!
- Assuming your old program saved OK remove this disk and MARK IT '**OLD SOFTWARE**' and WRITE PROTECT it.
- Now press button [C].
This erases the old software and configures the memory ready to be reprogrammed. The memory is split into a number of segments and messages appear on the LCD screen as each segment is erased. as each segment is erased.
- When all the memory is erased you will be asked to HIT A KEY. Press any button at this point.
- Now insert your NEW PROGRAM disk, supplied from AVOLITES either by post or by modem.
- Press button [B], to start loading your new program.
Once this is loaded you will be prompted to press any button.
- Now press button [A] to start the system.
This does a WIPE ALL since the link on the MAP board is still fitted.
- Remove the link on the MAP board.
- Finally reload your show in the usual way.

71. ADDITIONAL EL OR CRT SCREENS AND DRIVER BOARDS

You may use either a VGA colour computer screen or an EL flat screen monitor (yellow text).

DIL switch 2 on the video board selects the monitor type. When using a colour monitor DO NOT connect an EL screen.

The DIL switch on the video board is used as follows:-

- ◆ Bit 1, Always ON

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- ◆ Bit 2 ON = EL screen, OFF = VGA screen
- ◆ Bits 3 = OFF- only one video board fitted, = ON - two video boards fitted.
- ◆ Bits 4 to 8, Always ON, these will be used for different screen types in the future.

72. PATCHING LTP CHANNELS FOR DIMMERS

The Diamond II can control up to 300 Highest Takes Precedence channels and any number of Latest Takes Precedence up to the number of DMX channels (two in the standard configuration).

Latest Takes Precedence channels may in many cases be used to control dimmers. When used they have the advantage of all fades being dipless. As a guide the following will be helpful when using LTP channels for dimmers.

- ◆ **When recording memories with LTP dimmer channels you ALWAYS record them as MODE 2 memories, otherwise they will not replay with the fader, they will switch on as the fader moves above the trigger level set from the preference screen.**
- ◆ **To patch a LTP DIMMER use the GENERIC LTP option from the CHOOSE INSTRUMENT listing. DO NOT USE THE INTENSITY LTP option, this is for use with moving lights.**

Principle differences between HTP and LTP dimmer channels

- ◆ If two memory masters are replaying the same channel, whichever master is creating the greatest level will be in control of that channel.
- ◆ For example suppose two identical memories are created with a channel recorded at 100%.
 - The first master is put up at 50%. The second master is now moved up. No lights change in level until it reaches 50%, as it moves above 50% the second master has control of the channel, should the second master now be moved back down, when it goes below 50% the first master regains control.
- ◆ If the same two channels were patches as LTP dimmer channels the following would happen.
 - As the first fader is moved above zero to 50% the channel will fade to 50%. Now the second fader is moved to 50%, the channel will fade to 75% since it started at 50% and its final destination state is 100%. finally when the fader is moved to full the channel moves to full. As the second master is moved down to zero, the channel will fade to 50%, its starting value. *To fade the channel to zero, you must program a memory with the channel ON AT 0%, and fade this memory up.*

73. HELP

Help loads the file HELP.D2 from the system disk, this is an ASCII text file and you may customise it as you wish.

TO LOAD HELP

- Place the system disk in the disk drive and press [HELP].

TO UNLOAD HELP

- Turn the key to SYSTEM
- Press the [UTILITIES] soft button
- Press button [B]

TO LOAD A NEW VERSION OF HELP

Press [DISK]

Press soft button [C], Disk Options

Press button [B] (not button [A] as marked).

74. AUTO FUNCTIONS IN A CHASE

This function is not fully implemented yet.

Enter the STACK SCRIPT function from the CHASE PARAMETERS option in the program menu, button [A].

The following menu is presented:-

- [A] LOOPS
- [B] AUTOLOAD
- [C] SET MASTER
- [D]
- [E] CLEAR SCRIPT
- [F] QUIT

LOOPS

This function allows you to request that on a particular sequence step the stack will go to another step and continue doing this for a set number of times.

AUTOLOAD

This allows you to load a particular page when a step of a stack is run.

SET MASTER

This allows you to turn on or turn off a master from a step of a stack.

CLEAR SCRIPT

This clears a particular instruction previously programmed into a step.

75. KNOWN PROBLEMS IN VERSION 3 SOFTWARE

In any software driven product there will inevitably be some bugs. This list gives the a list of these with solutions where available.

UPDATED FOR VERSION 3.30

⇒ **MODE 3 MEMORIES**

PROBLEM When replaying a MODE 3 memory the fader must be faded up rather than snapped up.

SOLUTION Failure to do this may stop the fade completing.

⇒ **MODE 2 MEMORIES**

PROBLEM If the fader is moved down before the fade is complete, than moved up again the wrong state may be replayed.

SOLUTION Ensure fade is complete before lowering fader.

⇒ **LCD SCREEN, odd characters appear**

PROBLEM Characters appear on the LCD screen in the wrong place, sometimes behind one of the graphic lines or boxes. These can only be removed by resetting the desk.

SOLUTION You probably have the GRAPHIC TABLET selected in user preference 8 but no graphic tablet selected. Select this option to be TRACKBALL or REMOTE.

⇒ **HELP does not load**

PROBLEM HELP system will not load or run.

SOLUTION HELP is being revised and within version 3 it is not yet functioning. Do not use the on line help.

⇒ **PATCH 1:1**

PROBLEM This function does not work and should not be used.

SOLUTION Manually patch 1:1, if you require this on a regular basis, create a special disk of a 1:1 patch and load this after a wipe all.

⇒ **2 PRESET MODE**

PROBLEM This function has not been completed for version 3.

⇒ **REDUCTION FADERS**

PROBLEM Will not patch.

SOLUTION Reduction has not been fully implemented on version 3. Do not use reduction faders

⇒ **MEMORY ADD**

PROBLEM The memory ADD button still works even with the master faders at zero.

SOLUTION This bug will be fixed in a later version. Be careful about using memory ADD buttons.

⇒ **DIMMER CURVES**

PROBLEM The curve name does not appear on the screen.

SOLUTION Curves are not yet available in the Diamond II. If you have a particular curve requirement please contact Avolites R&D in London.

⇒ **INVERT A CHANNEL**

PROBLEM Does not work.

SOLUTION Use the INVERT on the moving light DIP switches if available.

⇒ **WILL NOT SAVE CHASE SPEED OR CONNECT**

PROBLEM Will not save speed or connect.

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SOLUTION Run the chase, then reconnect.

⇒ **CHASE LTP CHANNELS CONTINUE TO RUN WITH FADER DOWN**

PROBLEM LTP channels still face on a chase after the chase fader is taken to zero. This happens only when you have changed page with the chase running and the fader up, then on the new page taken the fader down.

SOLUTION Go back to the original page then go forward again.