This part of the manual describes the programming of the controller.

*First, we need to know if we will work in **Cue Replace all** mode or **Cue Overwrite** mode.*

- *We'll use Cue Replace all mode if we have a show where everything has to be according to the script and we don't have to improvise. This mode is used on touring shows.*

- *We'll use Cue Overwrite mode on all shows where we can improvise during running. This mode is used in disco's and at party's.*
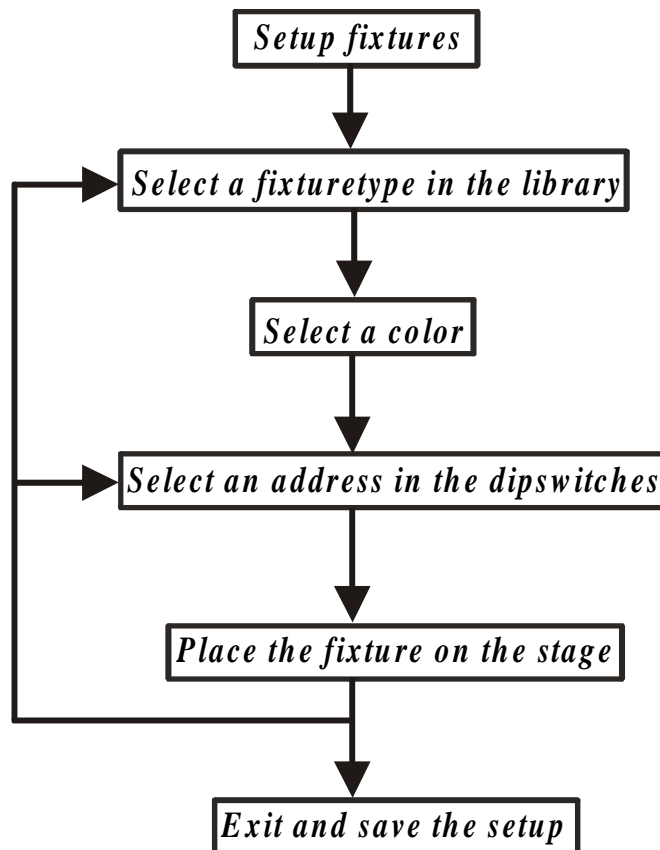
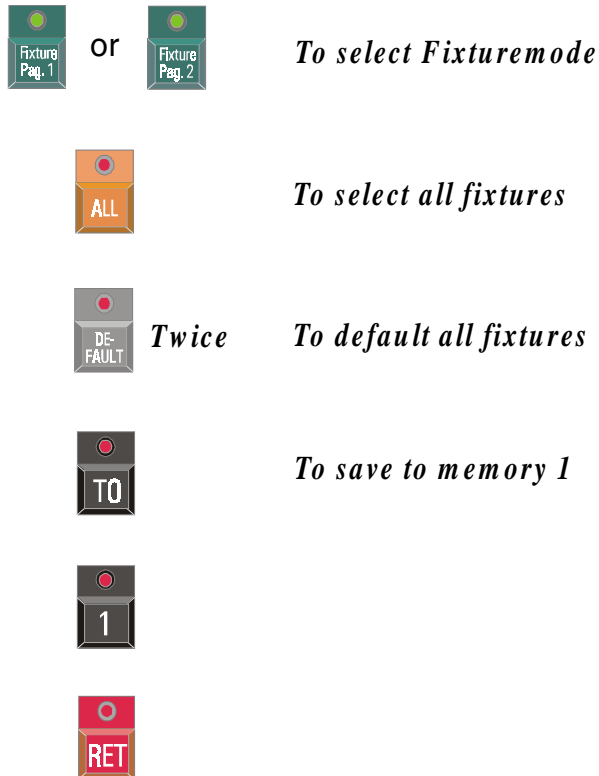### *7.1   Setting up.*

PRESS (*for 2 seconds*)

*To start a new stage layout, we select **CLEAR**.*

*Start setting up your fixtures, according to following scheme (**don't forget to take a new color for every new type of fixture you want to place**).*
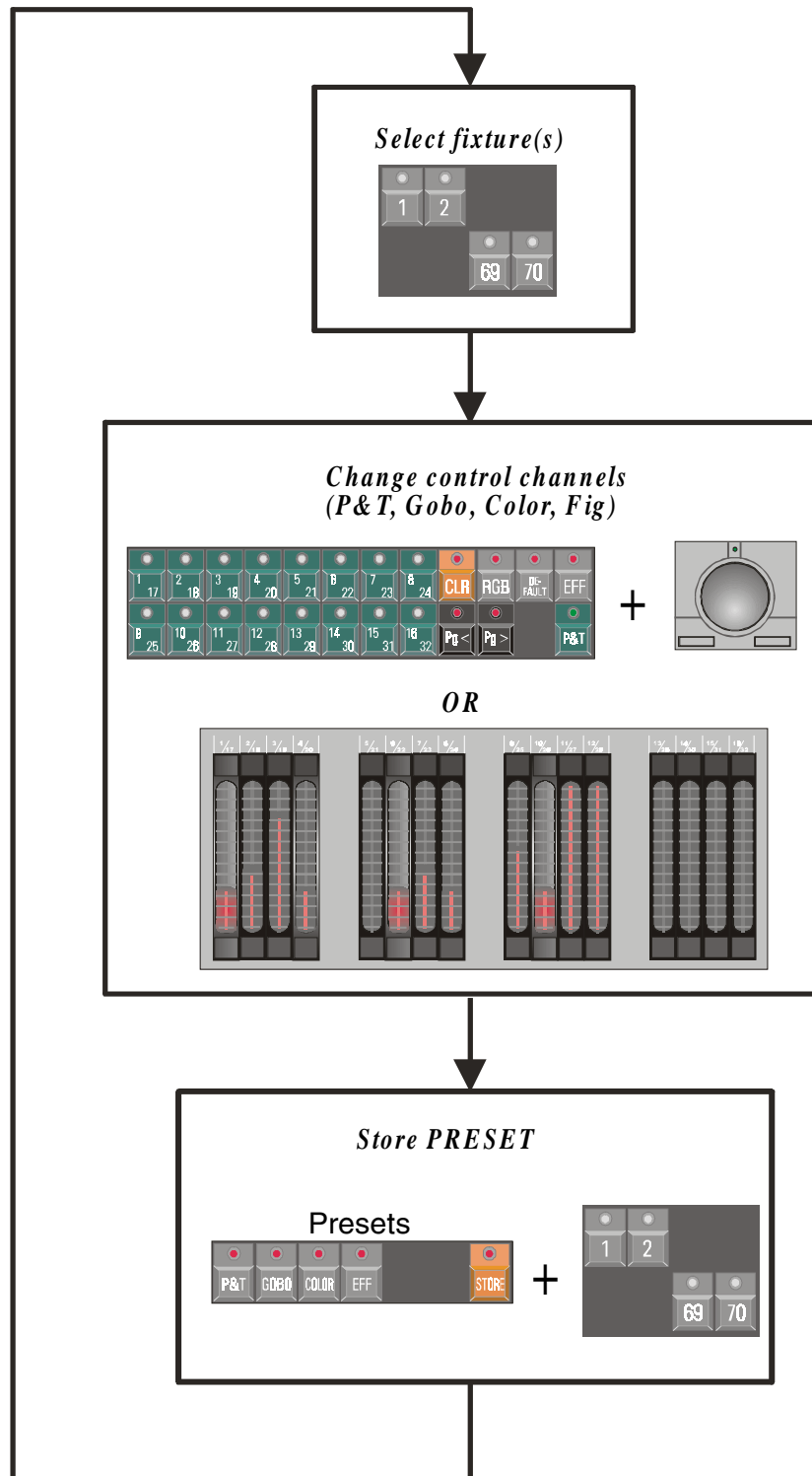
7.2   The start memory

At first, we'll make a DEFAULT memory and store it in MEMORY 1. This is the memory the controller takes, when we start it up again.

or   ***To select Fixturemode***

To select all fixtures

Twice   ***To default all fixtures***

To save to memory 1

Note: a second confirming RET may be asked if memory 1 is already in use.

7.3 Making Presets

To make programming easier, we will make first some PRESETS.

For Pan/Tilt presets, we select a fixture (in fixture mode), then press the **P&T** key. Adjust Pan/Tilt for that fixture. Select the second fixture and do the same. We do this for all robot fixtures. Select now **STORE** + **P&T (in the presets window)**. Hold down **STORE** and press a number (1-70). If we now select the stored Pan/Tilt preset (press P&T together with the number), we will see in the VALUES screen appearing Pxx for all fixtures. We do the same for a second, third, ... Pan/Tilt preset, then we do the same for COLOR and GOBO presets.

7.4   Making memories

Out of the presets we've made, we have to make memories.

Memory program diagram
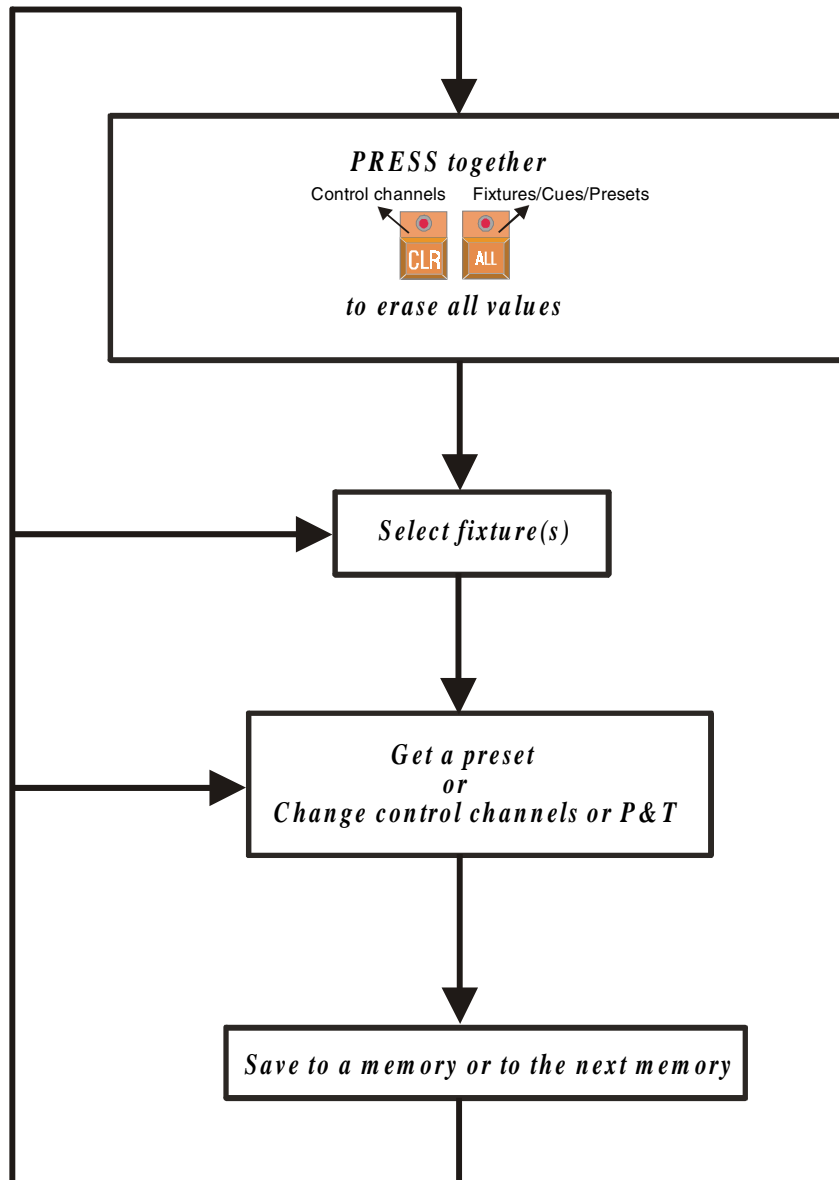
7.4.1 Making memories for Cue Overwrite mode

What we have to keep in mind is, that we have to make memories to put in sequences and/or playbacks, and sequences and playbacks work with priorities as long as no dimmerchannels are involved.

The best way to work is :

> **Sequence D**   **:**   ***Use this sequence for Pan/Tilt and make memories with <u>all channels filled in.</u>*** *This way you avoid the problem of calling a cue and suddenly there is no light.*

> **Sequence C**   **:**   ***Use it for colors. The memories should contain only color information the rest of the fields should be left blank (not zero).*** *This sequence is higher in priority as sequence D, so color channels will take precedence.*

> **Sequence B**   **:**   ***Use it for Gobo's. The memories should contain only gobo information.***

> **Sequence A**   **:**   ***Use it for other channels. The memories should contain no Pan-/Tilts, no gobo's and no color. You can select sequence A also for conventional light, like dimmers.***

7.4.2 Making memories for Cue Replace All mode

*In this mode, you can work the same way as you did for Cue Overwrite mode. An other way used in this mode is: grouping fixtures per sequence. If you have for example 4 types of fixtures, you can use each sequence for 1 type of fixtures. Make sure you **fill in all values in the memories, or make at least such a memory that you can use as start memory in the sequence, when you make sequences of fixturetypes.***

*Don't care about the priority rules of sequences if you work with sequences of fixture types, because **each sequence should contain memories with values for different fixtures.***

7.4.3 The logic of making memories

Let's take back the example of some chapters ago. You've hired a man to control fixtures. Each time he has to change something on a fixture, you give him a note with the information written on it. Each note is 1 memory.

> *You write down : 'Fixture 1 dimmer open.' (memory 1). He will open the dimmer 1.*
> *Next : 'Fixture 2 dimmer open.' (memory 2). He will open dimmer 2.*
> *Next : 'Fixture 3 dimmer open.' (memory 3). He will open dimmer 3.*

We have now 3 dimmers open. But what you want is a dimmer loop (only 1 dimmer open at a time). When we walk through the 3 memories, the dimmers will open, but not close, because you didn't tell him to do so. What we had to give the man is:

> *Note 1 (memory 1) :*   *'Fixture 1 dimmer open'*
>   *'Fixture 2 dimmer close'*
>   *'Fixture 3 dimmer close'*
> *Note 2 (memory 2) :*   *'Fixture 1 dimmer close'*
>   *'Fixture 2 dimmer open'*
>   *'Fixture 3 dimmer close'*
> *Note 3 (memory 3) :*   *'Fixture 1 dimmer close'*
>   *'Fixture 2 dimmer close'*
>   *'Fixture 3 dimmer open'*

When we walk now through the 3 memories, we'll have a dimmer loop.

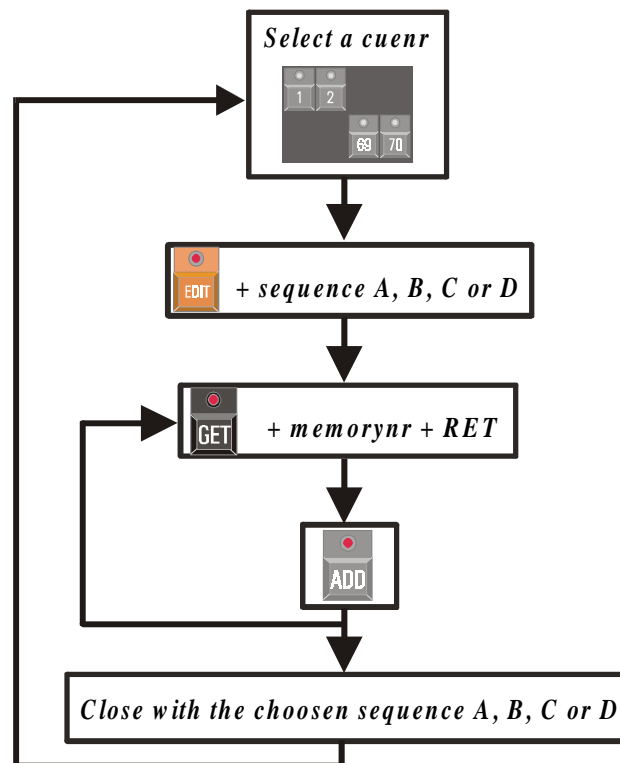### 7.5   Making cues

Each cue in the controller has 4 sequences and 10 playbacks.How the cues should be programmed, depends on the mode you're in:

Enter cue mode   **PRESS**

The diagram to follow :

7.5.1 Making cues for Cue Overwrite mode

How to program cues

Cue overwrite mode

ALL CUES MAKE 1 EFFECT IN 1 SEQUENCE

Sequence	*A*	*B*	*C*	*D*
Cue 1...20				*Pan/Tilt effects of all fixtures Memories contain all control channel values*

Sequence	*A*	*B*	*C*	*D*
Cue 21...40			*Color effects of all fixtures (except conventional lights Dimmers)*	

Sequence	*A*	*B*	*C*	*D*
Cue 41...60		*Gobo effects of all fixtures (except conventional lights Dimmers)*		

Sequence	*A*	*B*	*C*	*D*
Cue 61...70	*Chasers of Conventional lights (Dimmers)*			

Playbacks : *Effects that can be called when needed.*

If you work according to this scheme, Pan/Tilt effects of cues 1 to 20 can be combined with color effects of cues 21 to 40 and gobo effects of cue 41 to 60. You can combine those effects with conventional lights of cues 61 to 70.

7.5.2 Making cues for Cue Replace All mode

How to program cues

| Cue replace all mode |

ALL CUES MAKE A TOTAL EFFECT

Sequence	A	B	C	D
Cue 1...	All effects of fixturegroup4	All effects of fixturegroup3	All effects of fixturegroup2	All effects of fixturegroup1

OR

Sequence	A	B	C	D
Cue 1...	Chasers of Conventional lights (Dimmers)	Gobo or other effects (dimmer, iris, strobo) of all fixtures (except conventional lights Dimmers)	Color effects of all fixtures (except conventional lights Dimmers)	Pan/Tilt effects of all fixtures

Playbacks :   All effects that belong to the cue (they will all be overwritten when calling an other cue)

Or we make sequences of fixturegroups, or we make total effects. Anyway, we can't combine the cues, because all sequences will be overwritten even if some of them are left empty.

7.5.3 The logic of cues

Lets take back our man that controls fixtures and put him in the army. In the army you have generals, colonels, majors, lieutenants, sergeants...soldier and they all have their priorities. What the general says must happen.

The soldier (sequence D) gives a note on our man :
      'Put fixture 1 in blue'
But the sergeant (sequence C) gives the note:
      'Put fixture 1 in red'

He has to listen to the sergeant, because his priority is higher.

But if we have :
    Soldier(sequence D) :   *'Put fixture 1 on gobo 1'*
    Sergeant(sequence C) :   *'Put fixture 1 in red'*

He will do both, he will set gobo 1 and color red because not the same channels are involved (the sergeant didn't say him anything about gobo's).

*!!! **Remember, this is only for not dimmer channels. Dimmer channels follow the HTP.***

7.6 Programming with the effect generator

The effect generator is made to make programming easy and fast. In stead of using sequences C and B for color and gobo changes, make a total effect and put it in sequence D. If you program the speed parameter on zero in the sequence, and you put only the maximum speed in a playback memory, you can call the cue with the effect sequence and control the speed by sliding open the playbackfader.

Try this one :

- *Select some fixtures*
- *Go into macro mode*
- *Select Pan Tilt fall with dimmer*
- *Select a wave per (number of fixtures you've selected)*
- *Select now the P&T channel*
- *Play with the rotate channel*

This creates an amazing effect.

7.7 Manual mode

Manual mode has the highest priority (even when fixtures are frozen, you can still move them in manual mode).

In manual mode, there is one thing you have to remember :
- *A fixture channel that is taken manual and that is not programmed in any of the active sequences or playbacks, will stay on the value you gave in manually even when you deselect manual mode.*

    Why ?

    Because if you leave manual mode, the program will look for that channel beginning on playback 1 and ending with sequence D. If the program doesn't find that channel, he will stay on the manual value. Or in our example, the general (manual mode) told our man to change a channel. If the general leaves, nobody tells him to put that channel back on an other value.

*Note : **You can always clear the manual mode for a fixture taken manual by selecting CLR (control channels) together with the fixturenr. or a control channel.***

7.8 Using thresholds

*Thresholds can be used **to postpone the beginning of the fading of 1 or more channels in the same memory.***

Suppost we've selected different types of fixtures, and we have put the dimmers in a memory. Not all types of fixtures will dim in the same way. Some fixtures will be closed while others are still open.

If we now use thresholds on the dimmers that close to soon, then we can postpone the dimming starting point.

If you open the thresholdscreen by selecting:

      and select a number (1...70)

You will see a screen with all values on zero. Using this threshold in a fading means that every channel will start fading immediate.
The rows represent the fixtures.
The columns represent the fixtures control channels.

When we give 1 channel a value of 10 and we use that channel also in a fadememory and we use this threshold on that memory (put it on the memory while editing the sequence or playback), then this channel will begin fading if the fading in the sequence reaches 10% or if the playback is opened 10%.

7.9 Programming the submasters

We have setup robotfixtures (fixt 1, 2, 3, 4, 5 and 6) and a dimmer (fixture 7). We can group those two types of fixtures to submasters, so we can dim the robotfixtures apart from the dimmer.

- *Press the **EDIT** key together with the left submasterkey.*
- *Select fixtures 1, 2, 3, 4, 5 and 6*
- *Press the submasterkey again.*
- *Do the same with the right submaster and fixture 7.*

When we close the left submaster, the robotfixtures will dim.
When we close the right submaster, the dimmer will dim.