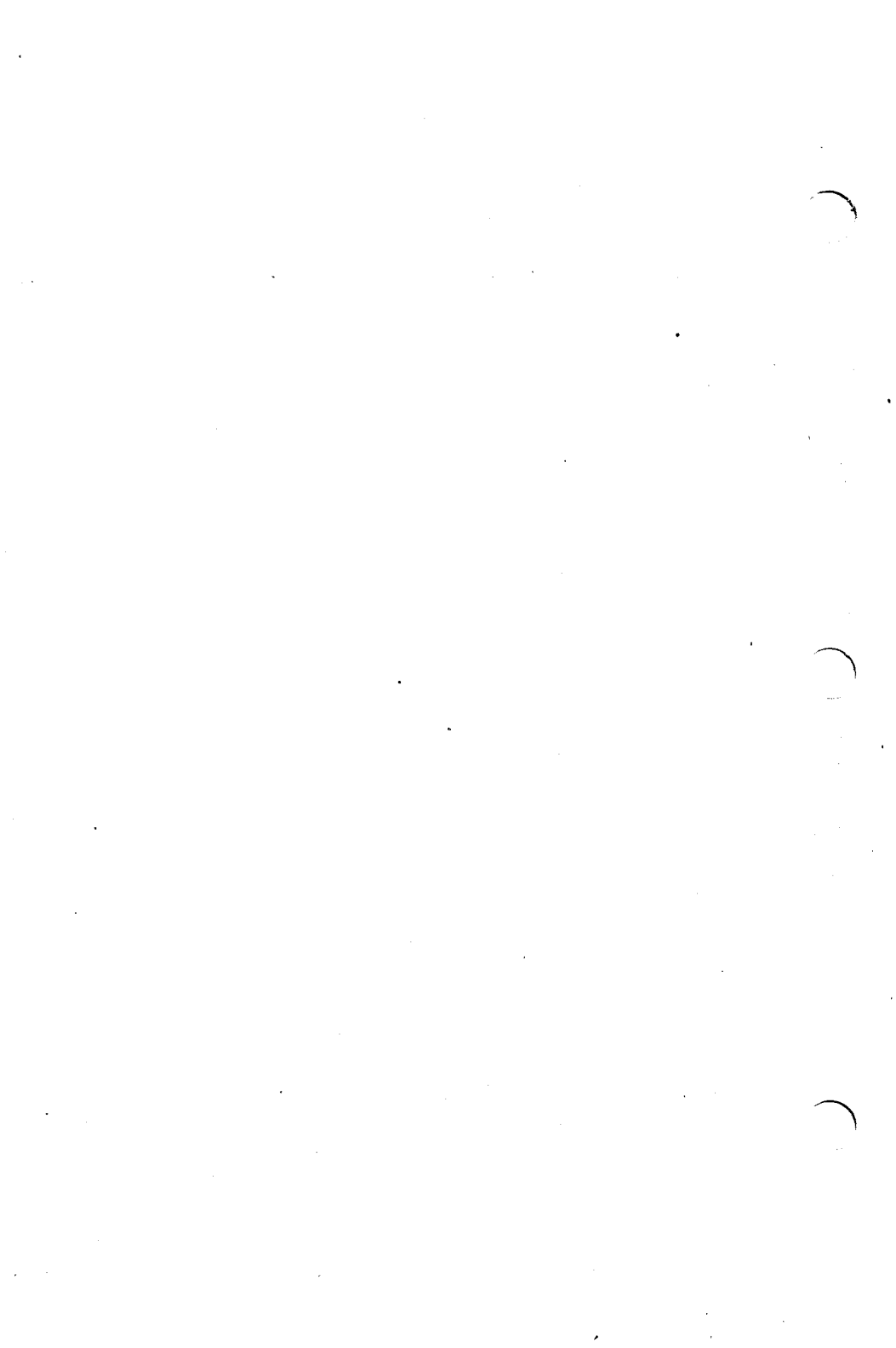


AVL GENESIS SYSTEM
PROGRAMMING MULTI-IMAGE SHOWS

Audio Visual Laboratories, Inc.



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NOTES:

CHAPTER 1

INTRODUCTION TO MULTI-IMAGE PRESENTATIONS

1.1 GENERAL

After the slides have been created for your show, there are a number of steps to be completed to convert them into an attractive, effective Multi-Image Presentation or Show.

The process, in general, is as follows:

- * Load the Slide Trays
- * Register the Projected Images
- * Program the Show
- * Edit if necessary
- * Synchronize the Show
- * Save the Show in Memory to Tape and Disk.
- * Load the Show into the Computer for later Presentation.

We'll cover each step in turn in this manual.

1.2 THE PRESENTATION

The actual running of your slide shows or modules should be well planned for the audience to be able to comprehend what they are experiencing. The key to effective presentation is not in what they see, but in what they retain! Please don't overload your audience with information. Give it to them in digestible servings where they will have a chance to absorb it, then move on to the next subject or module.

Mixing of canned (automated) show segments with live segments gives your audience a welcome change of pace. Always leave them wanting more, not saying - when does it all end?

1.3 FACTS ABOUT TRAY LOADING

Loading your slides into Slide Trays sounds easy, and it is. It's just that it must be done in the correct sequence and very accurately.

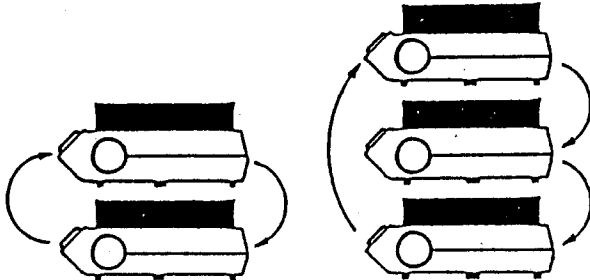
Virtually every Programming System utilizes the same sequential pattern for showing slides.

1.3.1 TWO PROJECTOR CYCLE

If you are using just 2 projectors, the first projector turned ON will be the TOP or LEFT projector depending on whether your projectors are stacked one over the other, or side by side. Thereafter, the system simply alternates between the two projectors.

1.3.2 THREE PROJECTOR CYCLE

In a 3 projector stack, again the TOP projector is turned ON first, then the CENTER, then the BOTTOM, but the next cycle is BACK TO THE TOP, NOT THE CENTER! The cycle is Top to Center to Bottom, and back to the Top.



1.3.3 LOADING THE SLIDES IN TRAYS

With your slides laid out in the order you wish them to appear on the screen, mark your Trays:

- a. TOP/LEFT or BOTTOM/RIGHT when using two projectors, and load the first slide in the TOP or LEFT tray alternating each succeeding slide between the trays.

- b. TOP, CENTER, and BOTTOM, when using three projectors, loading then becomes First Slide in the TOP Tray, Second Slide in the CENTER Tray, Third Slide in the BOTTOM Tray, Fourth Slide in the TOP Tray and so on.

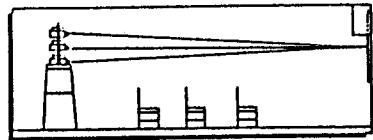
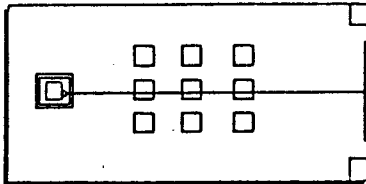
Use care! One slide in the wrong tray and you start all over again!

1.4 THE PRESENTATION ENVIRONMENT - SCREENING YOUR SHOW

Now that your slides are all in the correct Trays, you must get your image to the screen. This section will give you some helpful information on the Projected Image and how to set up your Presentation Room for maximum effect.

1.4.1 PROJECTION ANGLE

It is important for the quality of your images and the comfort of your audience that you project your images with as little distortion as possible. Essentially this means the projectors should be situated as nearly as possible at right angles to the screen, both up and down, and right and left. This may necessitate elevating your projectors. The diagrams illustrate the ideal setup.



1.4.2 IMAGE REGISTRATION

Make the effort to adjust lenses for image size and focus as accurately as possible. Project one image, then match the others to the first, one at a time. This is called Registration, and though they won't know why, your audience will love you for it. Unregistered images are very uncomfortable to watch.

We would suggest you obtain several Industry Standard Alignment Slides from your AV Dealer. They will make the task of registration much easier and more consistent.

1.4.3 SOUND SYSTEM

Speakers for any sound accompanying your show should be placed on either side of the screen and preferably elevated. A test for adequate, not dominating, sound levels should be done before your audience arrives.

1.4.4 ROOM ENVIRONMENT

It is critical for effective presentation, that the room be comfortable. Don't make it cold in the mistaken belief that it will keep the audience awake. All that would do is force their attention to the temperature, not the presentation. Comfortable seating, and tables, if note taking is required will add immeasurably to the receptiveness of your audience.

Variable light controls are ideal if they are available. Try to keep some slight ambient light in the room so it is not completely dark. A floor lamp with low wattage lamps will help. The

audience will not tire as easily under these conditions.

Remember, if a person gets turned off once to your style of presentation, it will take a long time to get them back.

1.5 PROJECTOR CONTROL

It can be very helpful if you understand how we control projector lamps and the slide changing process. The few simple facts presented here will go a long way toward dispelling the mystery that seems to surround Audio Visual Programming.

1.5.1 LAMP ON/OFF - ADVANCE/REVERSE

As far as a Slide Projector is concerned, we can only do two things with it. We can turn THE LAMP ON or OFF, or we can ADVANCE it or REVERSE it. That's all. Nothing more, nothing less. Surprised? It's true.

The magnificent effects you may have seen on a screen are made possible by HOW we turn the lamp On and Off, and HOW and WHEN we Advance it and Reverse it. The specifics of how we do this will be demonstrated when we get into actual Programming.

1.5.2 PROJECTOR DESIGNATIONS

Programming, in many cases, requires individual projectors to be designated in cues. If we designate a single projector or any combination of projectors in a single cue, they will be the only ones to react. All others will remain as they are. This is the secret of Special Effects Programming.

The AVL GENESIS System provides full 30 projector capability. For programming purposes, these projectors are divided into two Banks of 15 projectors each, Bank A and Bank B.

	BANK A					BANK B				
DOVE NO.	1	2	3	4	5	1	2	3	4	5
PROJECTOR LETTER	A	D	G	J	M	A	D	G	J	M
	B	E	H	K	N	B	E	H	K	N
	C	F	I	L	O	C	F	I	L	O

Within each Bank, the 15 projectors can be designated by a DOVE (Screen) Number 1 thru 5, to control 5 separate Systems of 3 projectors each, or, individual projectors may be designated and accessed by Letter, A thru O.

We cannot include Dove numbers in the same Cue line with projector letters. Genesis will not accept the Cue. This

- 1 - DOVE Number Switch -
This thumbwheel assigns the DOVE a screen number. It will read only data assigned to that number and ignore all else.
- 2 - Setup Switch -
Turns on all three projector lamps for registering images and checking that all is operating as it should. Pressed a second time it returns the lamps to their normal position.
- 3 - Reset Button -
Returns all projectors and lamps to the starting position.
- 4 - Ready L.E.D. -
Indicates power in the initial stage and that the projector has advanced during programming.
- 5 - Amp L.E.D. -
Indicates the DOVE is receiving data.
- 6 - MT Error L.E.D. -
Indicates bad data is being received from the Mag Tape.

- 7 - Play Link -
These connectors are the inputs to the DOVE. Either connector will receive data, or act as a daisy chain connection to another DOVE.
- 8 - On/Off Power Switch.
- 9 - AC Convenience Outlets -
Allow plugging of the projectors into a consistent power source with the same circuit and phase.
- 10 - Projector Cables -
These cables plug into the back of the projectors and provide the instructions from the DOVE.
- 11 - Remote Cue -
A standard Kodak Hand Control may be plugged here to cycle between projectors. Forward starts a 2 Second Dissolve. Reverse starts a Cut. Focus starts a sequential reverse.
- 12 - Sequence 2/3 -
This switch tells the DOVE to cycle thru all 3 projectors (3) or only the Top and Bottom projectors (2).

13 - Lamp 115/24 -
This switch customizes the electronic dissolve curve to fit the type of projector you are using. The 115 position should be used with Ektagraphic B2, E2, AF2, and B2AR projectors. The 24 position should be used with Kodak SAV or E3 projectors.

14 - Posi-Trak On/Off -
Posi-Trak locks the program to the Audio Track and automatically re-syncs the projectors should any problem occur during the running of the show. This switch turns Posi-Trak on or off.

AL - Auxiliary Left -
where we can control additional equipment.

AR - Auxiliary Right control.

AC - AC Power Cord.

BT - Battery Plug.

Finally, the DOVE has a Cycle-Trak feature which senses an advance of the projector. Should a projector fail to advance, the DOVE recognizes it, and when the problem is resolved, auto-

matically advances it to its proper position.

1.6 CONVENTIONS USED IN MANUAL

The following conventions are used in this manual.

CONTROL/C A slash between the names of the keys indicate that the keys, in this case Control and C, must be pressed simultaneously.

<Ret> This syntax means that the Return key must be pressed to initiate the command or complete the statement.

<Ret> (2) If Return is followed by a number enclosed in parenthesis, Return must be pressed that many times to complete the CUE.

NOTES:

CHAPTER 2

AUDIO VISUAL SHOW PROGRAMMING

2.1 GENERAL

You now have some knowledge regarding AV Presentations, Projector Control, and setting up the Presentation environment. It's time to put this knowledge to use and add a lot more to it using the Effects we have to work with and by seeing how Programming really works.

2.2 THE EFFECTS

In Audio Visual Programming we will be working with the four most popular effects.

Cuts -The instantaneous change from one image to the next with an Advance on the downgoing projector.

Dissolves -The gradual change of images at different rates of speed with an Advance on the downgoing projector.

Alternates -Instant change with no projector advance.

Alternate Dissolves -Gradual change of images with no projector advance.

2.2.1 THE CUT EFFECT

There are three different types of CUTS available to us:

The Cut -An instantaneous change from one projector to the next with an automatic slide advance on the downgoing projector.

Soft Cut -This is not really a CUT. It is more like Fast dissolve. Where a CUT is instantaneous, a SOFT CUT takes approximately 1/2 second, and gives a smooth yet rapid transition from one image to the next. A very useful tool.

Hard Cut -Almost the same as the Cut but the downgoing projector starts its advance before the effect

is visible on the screen. It is most often used as a Programming tool in sophisticated Programming. It shortens the advance time of the downgoing projector.

2.2.2 THE DISSOLVE EFFECT

The DISSOLVE, a gradual transition of images, allows us to control the pace of a show, time sequences within the show, and provide our audience with a beautiful, ever-changing visual display.

There is an entire range of dissolve speeds available to us. If we include CUTS in the range it looks like this:

Hard Cut	1 Sec.	3 Sec.	6 Sec.	16 Sec.
Cut	2 Sec.	4 Sec.	8 Sec.	32 Sec.
Soft Cut				

2.2.3 THE ALTERNATE AND ALTERNATE DISSOLVE EFFECTS

These two effects correspond to the CUT and the DISSOLVE except that here there is NO SLIDE ADVANCE AT THE END OF THE CYCLE. The used slide is still in the gate ready to be used again. The entire

range of speeds noted under Dissolve is available to us for these two effects.

2.3 THE KEYBOARD FUNCTIONS

The Keyboard of your computer is completely functional for the GENESIS system. We simply use letters and numbers to designate what we want to happen. The functions we will be using are listed with their Keyboard designations.

Code Heading Entries:

FA	Fast Alternate	CT	Cut
AT	Alternate	HC	Hard Cut
SA	Soft Alternate	SC	Soft Cut
1A	1 Sec. Alt.	1D	1 Sec. Dis.
2A	2 Sec. Alt.	2D	2 Sec. Dis.
3A	3 Sec. Alt.	3D	3 Sec. Dis.
4A	4 Sec. Alt.	4D	4 Sec. Dis.
6A	6 Sec. Alt.	6D	6 Sec. Dis.
8A	8 Sec. Alt.	8D	8 Sec. Dis.
16A	16 Sec. Alt.	16D	16 Sec. Dis.
32A	32 Sec. Alt.	32D	32 Sec. Dis.
N	No Operation	PF	Proj. Forward
HOME	Prog. Home	PR	Proj. Reverse
S10	10 Cues/Sec.	W.05	Wait .05 increments
S20	20 Cues/Sec.	W10	Wait 10 Sec.

Screen Heading Entries:

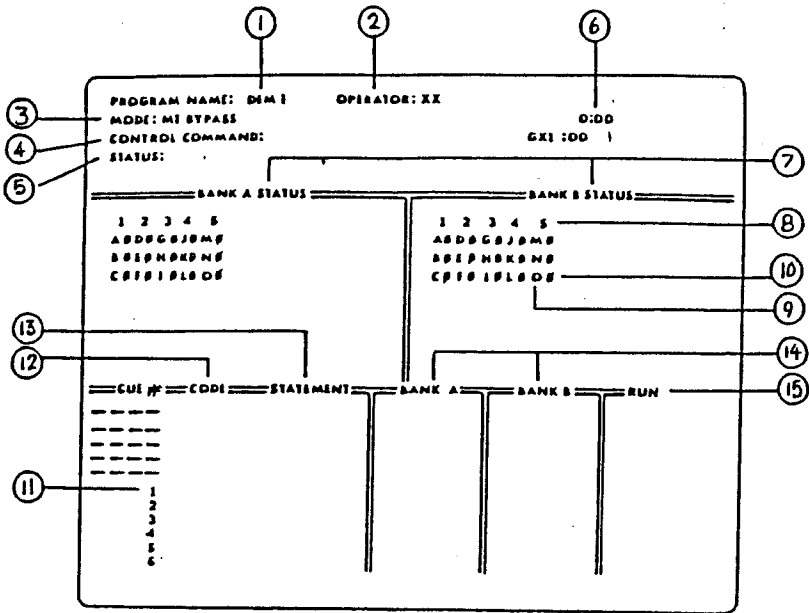
A thru O Projector Designation on
 Bank A and Bank B
12345 Dove (Screen) Numbers on
 Bank A and Bank B

R Run - S Stop

2.4 THE MONITOR

This is the diagram of the Monitor with its area definitions. Since we will utilize much of the basic programming capability of GENESIS, it will be a simple matter to expand your experience beyond the Basic level.

- 1 - Program Name
- 2 - Operator Name
- 3 - Operating Mode
- 4 - Where you talk to GENESIS
- 5 - GENESIS talks to you
- 6 - Clock
- 7 - Projector Status
- 8 - Screen or DOVE Numbers
- 9 - Projector Designations
- 10 - Tray Positions
- 11 - Cue Numbers
- 12 - Short Definition of Function
- 13 - Expanded Definition
- 14 - Projector Designation Fields
- 15 - Cue Sequence Designation



The first series of Cues we program will make the Monitor very understandable.

2.5 PROGRAMMING - GETTING STARTED

To get started on Programming, we will use the following Cue Demonstration form until you become familiar with the process, then we will simplify it somewhat.

Throughout these demonstration sequences, the designation <Ret> is short for the RETURN Key and we will use Dove 1 and projectors A, B, and C on Bank A.

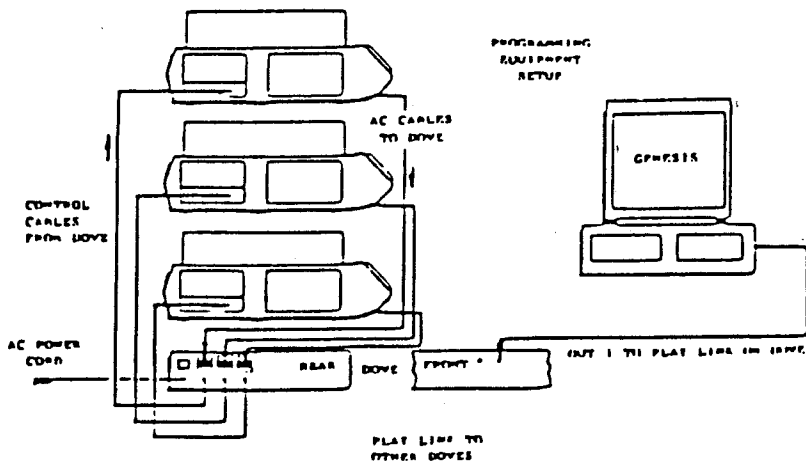
To perform a 2 Second Dissolve on the Top Projector (A), Dove 1, Bank A:

(Keys)	(Code)	(Stmt).	(Scrn)	(Actn)
2D 1<Ret>(2)	2D	2 Sec Dis	1	Top Proj (A) Comes On.

It's as simple as that! Decide WHAT you want to do, WHERE you want to do it, and push the appropriate keys. Certain aspects of programming will be covered in detail as the need arises - Editing, Cue-to-Cue Time, Sequence Programming, etc.

It would be helpful if you can work with a Projector setup as shown in the accompanying assembly diagram and enter

the Cues as we go along. Occasionally we will use functions that have not been explained. Enter them as indicated, they are used to control the Cue Lists and will be explained under Editing.



The Keys F9 and F10 will allow you to move Forward and Backward thru the Cue List to check it for accuracy. F9 moves Backward one step at a time if programmed in single steps, or to the beginning of the current Sequence or RUN Cue. F10 moves Forward in the same manner.

Q and CTRL/Q perform the same function except that they will move us Forward or Back ONLY ONE STEP AT A TIME whether in a Run or Single Step. Also, by pressing

Q or CTRL and Q, and holding them down, we can move thru the Program in Fast Forward or Fast Reverse Mode until you reach the desired point in the Program.

2.6 TWO TYPES OF PROJECTOR CONTROL!

It is important that you know there are two types of projector control. They are:

- Independent Projector Control
- System Projector Control

2.6.1 INDEPENDENT PROJECTOR CONTROL

By designating PROJECTORS A thru O, on each Bank, we can restrict action to any number of specific projectors. When we do this, only those projectors designated will react, all others remain as they are.

2.6.2 SYSTEM PROJECTOR CONTROL

By designating DOVE NUMBERS 1,2,3,4,5 for each Bank, we can allow the Genesis to cycle automatically thru all three projectors controlled by a single DOVE, Top to Center to Bottom, and back to the Top again, etc.

2.7 EASY THREE PROJECTOR PROGRAMMING USING CUTS ONLY

(Keys)	(Statement)	(Screen)	(Action)
CT 1<Ret>(2)	CUT	1	TOP Proj. (A) Comes ON.
CT 1<Ret>(2)	CUT	1	A OFF and advances B comes ON
CT 1<Ret>(2)	CUT	1	B OFF and Advances C comes ON
CT 1<Ret>(2)	CUT	1	C OFF and Advances A comes ON

In the example above, we have designated a 1 under the Screen Heading, therefore Genesis will automatically cycle thru all 3 projectors connected to Dove 1.

2.8 EASY THREE PROJECTOR PROGRAMMING USING DISSOLVES

By simply changing the Function we wish to do from CT to D (Dissolve) and adding a Dissolve Speed, we can change the entire character of the presentation. (At this point the Top projector (A)

should be ON.)

4D 1<Ret>(2) 4 Sec Dis 1 A goes OFF
- Advances
B comes ON
in 4 Sec.

3D 1<Ret>(2) 3 Sec Dis 1 B goes OFF
- Advances
C comes ON
in 3 Sec.

6D 1<Ret>(2) 6 Sec Dis 1 C goes OFF
- Advances
A comes ON
in 6 Sec.

2D 1<Ret>(2) 2 Sec Dis 1 A goes OFF
- Advances
B comes ON
in 2 Sec.

CUTS and DISSOLVES at different speeds can be intermixed to create a presentation paced to the speaker or the sound track music or voice.

2.9 ALTERNATES

Up to now we have programmed those functions that normally end up in an Advance of the downgoing projector. Alternates and Alternate Dissolves allow us to program sequences using LAMP

CONTROL only - no advance cycles. When we program Alternates we are simply turning the Lamp On or Off. When the sequence has been completed, we add a standard Cut or Dissolve Cue to Advance the downgoing projectors.

First, let's Clear the Memory.

CTRL/C, then type CAC<Ret> Projectors
to Start and
Memory Clear.

Here is what an Alternate looks like Programmed for a System cycle (3 Projectors), on Dove 1:

AT 1<Ret>(2) Alternate 1 A comes ON
at CUT speed

AT 1<Ret>(2) Alternate 1 A OFF, No
Advance
B ON at CUT
Speed

AT 1<Ret>(2) Alternate 1 A OFF, No
Advance
C ON at CUT
Speed

AT 1<Ret>(2) Alternate 1 C OFF, No
Advance
A ON at CUT
Speed

By simply designating a single projector, A, B, or C, we can apply Alternates to a single projector. This is how we Flash an image.

AT A<Ret>(2) Alternate A A OFF, No
Advance

AT A<Ret>(2) Alternate A A comes ON
at CUT Speed

This single Cue can be repeated as many times as you wish to continue Flashing the image in the A projector. In a minute we will do this effect automatically and continuously, but first let's look at an Alternate Dissolve.

2.10 ALTERNATE DISSOLVES

Again, by simply adding a Rate of Speed to the A in Alternate, we create a Dissolve with NO ADVANCE, or, an Alternate Dissolve. A should be ON.

2A A<Ret>(2) 2 Sec Alt A A OFF in
2 Sec.
No Advance

6A A<Ret>(2) 6 Sec Alt A A ON in
6 Sec.

4A A<Ret>(2) 4 Sec Alt A A OFF in
4 Sec.
No Advance

Once more, by designating only a Dove number and no projector letter, we can perform Alternate Dissolves using an entire System.

3A 1<Ret>(2) 3 Sec Alt 1 A ON in
3 Sec.

2A 1<Ret>(2) 2 Sec Alt 1 A OFF in
2 Sec.
No Advance
B ON in
2 Sec.

6A 1<Ret>(2) 6 Sec Alt 1 B OFF in
6 Sec.
No Advance
C ON in
6 Sec.

16A 1<Ret>(2) 16 Sec Alt 1 C OFF in
16 Sec.
No Advance
A ON in
16 Sec.

This style of Programming is effective while learning, but will soon give way to the next Functions we will cover.

CHAPTER 3

PROGRAMMING SEQUENTIAL CUES

3.1 GENERAL

Thus far we have covered Single Step Cues where we program functions one step at a time and they are played back a Single Step at a time using the F10 key.

Now we will connect a series of Cues and cause all of them to perform with only one push of the F10 key. This is a Sequence Cue.

3.2 SEQUENTIAL PROGRAMMING FUNCTIONS

There are several aspects of Sequential Programming that must be understood before we Program it. We'll cover these functions first.

3.2.1 RUN and STOP

Sequential Programming requires something to Start the sequence and after it is completed, something to Stop it. RUN starts the sequence and STOP stops it.

These two functions are included in the Cue list under the Monitor heading -RUN. A RUN Cue at the start of a sequence performs all Programmed Functions continuously, one at a time, at 1/10th or 1/20th of a second intervals, (see the section on Advanced Programming Tools), without stopping, until the GENESIS reads a STOP at the end of the sequence.

RUN and STOP Cues can be included in the Cue List two ways. First, they can be included as part of the 1st Cue and last Cue or, as separate Cue lines by Programming N (No Operation) in the Code Field and RUN or STOP in the RUN Field. N is useful when Cues are still being changed in the early stages of Programming and take 1/10th or 1/20th of a second.

3.2.2 CUE TO CUE TIME

Whenever we Program a function on a projector or System of projectors, it takes a certain amount of time for that function to take place. A 4 Second Dissolve takes 4 seconds. However, when the projector is going OFF, it also takes slightly more than 1 second for it to Advance.

While these two things are happening,

the projector cannot do anything else. You must wait to give it another Cue until it has finished its function. This is called CUE TO CUE TIME and is critical in the smooth presentation of your show.

To find the Cue to Cue Time, add the LENGTH OF THE EFFECT to 1.2 seconds. That is the Cue to Cue Time you MUST WAIT before going BACK to THAT projector. Of course, you can address any other projector in the System that is not in the middle of a function.

3.2.3 WAITS

Cue to Cue Time means we must have periods of time between functions so that the projectors can finish their function and Advance cycle. If we were to Program a RUN, then 6 consecutive 2 Second Dissolves, and finally a STOP, the GENESIS would read and execute all 6 of those cue lines in less than 1 second, actually, .6 seconds. It would appear on the screen as a jumble of images.

WAIT Times were created to provide the correct amounts of time to be inserted between functions to allow for Cue to Cue Time requirements.

Any WAIT Time needed can be Programmed in 1/20 of a second increments, up to 10 full seconds. If longer WAIT Times are necessary, multiple WAIT Cues can be entered in the Cue List.

3.2.4 CUE AND REVERSE CUE

During programming, we must have the ability to move back and forth thru the Cue List at will. To do this, we use two different controls depending on what we wish to do.

3.2.4.1 F9 and F10

After a number of cues have been programmed, we must check them for accuracy. F9 allows us to move backward thru the cue list either one step if programmed in single step or an entire sequence if programmed with a RUN and STOP. F10 allows us to move forward in the same fashion.

F9 and F10 are the keys we use to run the Program.

3.2.4.2 Q and CONTROL/Q

Q allows us to move forward one step at a time whether in single step or in

sequence.

CONTROL/Q allows us to move backward in the same fashion.

Q and CONTROL/Q can move us thru the Program continuously, when pressed and held down.

That covers the functions necessary to Program Sequence Cues, so let's do it!

3.3 PROGRAMMING SEQUENCES

All of the Cue List examples we have Programmed thus far could be turned into Sequence Cues by adding a RUN at the beginning which signifies that all cues after it will happen automatically and continuously until a STOP is read by the Programmer. This requires WAITS between functions, and a STOP at the end of the sequence.

Here is what a Sequence looks like.

1	N R<RET>(2)	NO OPERATION	RUN
2	2D 1<RET>(2)	2 SEC DIS 1	A On -2 Sec.
3	W3.3<RET>	WAIT 3.3 SEC	
4	CT ABC<RET>(2)	CUT ABC	A OFF -Adv. B-C ON-1/2 Sec
5	W2<RET>	WAIT 2.0 SEC	
6	4D ABC<RET>(2)	4 SEC DIS ABC	BC OFF -Adv. A ON-4 Sec
7	W5.5<RET>	WAIT 5.5 SEC	
8	CT 1<RET>(2)	CUT 1	A OFF -Adv. B ON-Cut
9	W1.5<RET>	WAIT 1.5 SEC	
10	2D C<RET>(2)	2 SEC DIS C	C Supers -2 Sec
11	W3<RET>	WAIT 3.0 SEC	
12	2D C<RET>(2)	2 SEC DIS C	C OFF -Adv -2 Sec
13	W1<RET>	WAIT 1.0 Sec	

14	4D B<RET>(2)	4 SEC DIS B	B OFF -Adv -4 Sec
15	N S<RET>(2)	NO OPERATION	STOP

Significant points about this Sequence:

- Cue 1 - The RUN could have been included as part of Cue 2.
- Cue 4,6 - We controlled all three projectors in one Cue. One OFF, two ON.
- Cue 10 - B is ON and we created a Superimposition with C.
- Cue 12 - We removed only the Super.
- Cue 13 - We waited only 1 second before going to Cue 14.
- Cue 14 - We took B to Black. Cue to Cue Time was not a factor since B was not in a function.

Experiment with the F9 and F10 and Q and CTRL/Q controls to see how easily they enable you to move thru the Program.

3.3.1 ALTERNATES AND REPEATS

In the last example we used Cuts and Dissolves. In the next example, we'll get into Alternates and a fantastic Programming tool called a REPEAT. There are three ways to use REPEAT. At this point we will explain only one. The other two will be explained in the full GENESIS Manual.

By simply pushing R and P and a Number, we can cause a single Cue or a Sequence of Cues to automatically repeat itself the number of times we have chosen.

For example, if we wanted to flash the Lamp of a projector On and Off 20 times, we would have to enter 40 Cues to do it. Using REPEAT, we enter only 4 Cues. It looks like this:

1. N R <Ret>(2) NO OPERATION RUN
2. AT A <Ret>(2) ALT A
3. RP39 <Ret>(2) REPEAT 39 TIMES
4. N S <RET>(2) NO OPERATION STOP

In Cue 1 a No Operation RUN is entered since Repeat always begins at the previous RUN.

In Cue 3 we specified only 39 Repeats. Why? CUE 2 IS ALSO AN ALTERNATE so we only needed 39 Repeats to complete the total of 40.

That's all there is to it!

REPEAT can also be used to repeat a sequence of Cues within a Sequence. Here's what we mean. We can Program a Sequence using many functions, and right in the middle of it, we can create a Super and flash it as many times as we wish, and not disturb the overall continuing Cue List.

3.3.2 THE FREEZE

The Freeze allows you to start a lamp ON or OFF in a Dissolve and stop it at any level of intensity. Then, for maximum control, you may unfreeze it and continue the Dissolve in the same direction at the same or different rate of speed, or reverse the direction at the same or different rate of speed.

The important part is the change in Directions and Rates Of Speed. This will help you remember.

After starting the initial Dissolve and Freezing it, to continue:

-same rate and direction -
Program Freeze, Projector

-different rate, same direction -
Program a Dissolve Rate,
NO Projector

-same rate, different direction -
Program Same Rate,
Projector

-different rate/different direction-
Program New Rate, Projector

Here is an example to see how it works.

1.	4D A	4 SEC DIS	A	RUN
2.	W6	WAIT 6.0 SEC		
3.	8A A	8 SEC ALT	A	
4.	W3	WAIT 3.0 SEC		
5.	FZ A	FREEZE	A	
6.	W5	WAIT 5.0 SEC		
7.	FZ A	FREEZE	A	
8.	W2	WAIT 2.0 SEC		
9.	FZ A	FREEZE	A	
10.	W5	WAIT 5.0 SEC		
11.	6D A	6 SEC DIS	A	
12.	W2	WAIT 2.0 SEC		
13.	FZ A	FREEZE	A	
14.	W6	WAIT 6.0 SEC		
15.	8D A	8 SEC DIS	A	
16.	N S	NO OPERATION		STOP

Following is the explanation of the above FREEZE sequence.

- CUE 1 - Projector A dissolves full UP in 4 seconds and sequence runs
- CUE 2 - Projector A stays full UP for 6 seconds.
- CUE 3 - Projector A starts dissolving DOWN.
- CUE 4 - Projector A continues to dissolve DOWN for 3 seconds.
- CUE 5 - Projector A is frozen in its intensity.
- CUE 6 - Projector A stays at the same intensity for 5 seconds.
- CUE 7 - Projector A is unfrozen and starts to dissolve DOWN again.
- CUE 8 - Projector A continues to dissolve DOWN for 2 seconds.
- CUE 9 - Projector A is frozen in its intensity.
- CUE 10 - Projector A stays at the same intensity for 5 seconds.

- CUE 11 - Projector a changes direction and starts to dissolve UP.
- CUE 12 - Projector A continues to dissolve UP for 2 seconds.
- CUE 13 - Projector A is frozen in intensity.
- CUE 14 - Projector A stays at the same intensity for 6 seconds.
- CUE 15 - Projector A starts to dissolve DOWN.
- CUE 16 - Projector A goes to full OFF, the projector advances, and the sequence stops.

You can do some marvelous things with the FREEZE. Experiment; don't be afraid to play with it and develop your own sequences. It's particularly great for lowering the intensity of one image while you do a Super over it with another.

3.4 EDITING PROGRAMMED SEQUENCES

Suppose you have just finished Programming a number of Sequences and you discover when playing them back, you have some areas that need changing. It happens all the time. That's the reason for Editing Commands. They allow you to add to, delete from, or change your Cue List or Programming features at will.

In this Programming we will be using the following Editing Commands. They are listed with their Keys indicated and a complete description of their function. We suggest you Program some Single Step Cues and some Sequences, then practice each of the Commands a few times. They are not complex to use, and will make Programming changes a joy. The Monitor will indicate the Commands you have chosen.

CTRL/C - Allows you to give instructions to the GENESIS using the Command Area of the Monitor. Control Commands will be covered in the next Section.

CTRL/A - To add a Cue to your Cue List, simply move the program so the cursor points to the spot where

you wish to add a Cue. Push Ctrl and A, and the Cue List will open up to accept your new Cue. All subsequent Cue Numbers will be changed.

CTRL/D

- To Delete a Cue or Cues, move the program so the cursor points to the offending Cue, push CTRL and D, and the Cue is deleted from the list. Be careful! This could be a dangerous function.

CTRL/G

- Cue Lists can be hundreds or thousands of Cues in length. CTRL G allows us to move to any point in the Cue list at will. Simply push Ctrl and G. The Monitor instantly displays GO TO. Enter the Number of the Cue you wish to reach, and the projectors and Program will correctly reestablish themselves at that point.

CTRL/G <RET>

- This is similar to Ctrl G except that this Command always sends the Program and the projectors HOME,

CTRL/G 0<RET>

that is, to the starting point of the show. The other two Commands are different ways to accomplish the same result.

Q

- When Editing, it is vital that we be able to step through the Cues, one at a time. Pressing Q moves forward through the Cue List one step at a time whether we are in a RUN or in Single Step.

CTRL/Q

- Q moves us forward, Ctrl/Q moves us backward one step at a time.

REMEMBER - Q or CTRL and Q pressed and held down will Fast Forward or Reverse thru the Program.

CTRL/R

- If a Cue Line needs to be repeated just a few times, it is convenient to duplicate it by pushing Ctrl and R. If you hold Ctrl down, it will duplicate the last preceding Cue each time you push R.

CTRL/S

- This Command turns all the projector lamps off but the advance and reverse still functions. It is convenient for a Break during a show, or when you wish to move thru the Cue List without pictures flashing on the screen.

F9

- This Key moves us back through the program or up the Monitor, depending on whether we are in Single Step or a RUN sequence. It moves us one step in Single Step and to the next preceding RUN if we are in a sequence.

F10

- The opposite of F9. In this case we move forward in the same fashion.

3.5 CONTROL COMMANDS

Do you recall CTRL/C from the previous section? Well, here it is again in a more definitive form. We will discuss the Control Commands necessary to make your Programming even more convenient.

There are more Control Commands than we will use here. The higher the level of sophistication you use in your Programming, the more Control Commands you will use. For now these will be more than adequate for our needs. For further information on additional Control Commands consult your Pocket PROCALL.

IMPORTANT! Enter the commands exactly as indicated, with no special characters or spaces.

CTRL/C must be pushed first to gain access to the Command Area, then the individual Command is entered by typing the appropriate keys.

CAC<Ret> - CAC stands for CLEAR ALL CUES -it means just that! Be very sure of yourself when using this Command. Any Cues that have not been Saved will be Cleared from the System,

never to be seen again.
All projectors will re-
turn to Tray Position #1.

IAM<Ret> - I AM allows us to change
the name of the Program-
mer person under the
heading - Operator.

PGM (Name)<Ret>
- PGM permits changing the
name of the Program. It
is useful for renaming a
show when a few changes
have been made and you
still wish to retain the
original version.

AP (Name)<Ret>
- AP for Append allows us
to add Cues or a show
from disk memory to the
end of the Cue List on
the Monitor.

Important - A Sequence or
Show must be Saved onto a
Disk before it can be
Appended. This is
convenient for difficult
sequences that must be
repeated several times.

DEL (Name)<Ret>

- Another one to be careful with. It will cause Shows or Cue Lists to be deleted from the disk. Careful! Once Deleted, they are gone, never to be seen again!

LD (Name)<Ret>

- This Command stands for Load. We use it to retrieve Cues or Shows from the disk for display on the Monitor. LOAD clears the memory, Homes the projectors, and loads the new show into memory.

LIB<Ret>

- Short for Library. Using LIB displays the names of all Programs and Cue Lists stored on the disks

SV (Name)<Ret>

- This is important! After hours of Programming, we use this function to store our Program on the disk.

(We recommend you save your programming often, in batches as you program, for protection.)

SV saves the Program
under the Name on the
Monitor.

SV xxxxxxxx saves the
Program under the Name
entered with a maximum
length of 8 characters.

SV xx.xx. xxxxxxxx saves
a section of Cues from
number xx to number xx,
under the Name xxxxxxxx.

You will use these Commands often.
Trying each of them once or twice will
make them second nature.

CHAPTER 4

ADVANCED PROGRAMMING TOOLS

4.1 GENERAL

By now you have been exposed to the vast majority of Cue information you will ever use. However, there are a few effects that are better placed in a separate section. Here we are going to add a few more functions to your arsenal of Show Control tools.

We will look at: Multi-Screen Control, 20 Cues Per Second, Fast Alternate, and Looping.

4.2 MULTI-SCREEN CONTROL

The most important thing to remember in Programming Multiple Screens is the DIFFERENCE between accessing Projectors and Doves (Screens).

To repeat, in the Standard X Format, when you wish to address a Single Projector or a number of Single Projectors, you must use the LETTER designation - A thru O. When you wish to address a System of 3 Projectors, you must use Dove numbers 1, 2, 3, 4, or 5. This applies to both Banks A and B.

there are times when 20 Cues Per Second can be invaluable.

We can shift from 10 CPS to 20 CPS by simply inserting S10 or S20 in the Cue List, and we can shift as often as necessary. The primary need for 20 CPS is in the Programming of special effects.

4.4 FAST ALTERNATE

The Alternate is one area that can benefit from 20 CPS. You remember Alternate? Lamp ON or OFF with no advance of the projector.

A normal Alternate sequence operates at 10 Cues Per Second and is plainly visible and a good special effects tool. However, there are times when a higher speed Alternate sequence is desired. That requires a different approach.

Due to the nature of the projector lamp and how it goes OFF and comes ON, a 20 Cues Per Second Alternate cannot be seen. The lamp doesn't have enough time to go all the way OFF before it has to come back ON. The answer is - shorten the length of time it takes to go completely OFF and completely ON.

Enter, the FAST ALTERNATE.

Fast Alternate does shorten that time and therefore the Alternate Cycle can be seen at 20 Cues Per Second.

Program the following sequence and watch the screen carefully when you play it back. It will demonstrate the difference in Alternates for you.

10 Cues Per Second, Single Projector:

1. N R<Ret>(2) NO OPERATION RUN
2. AT A<Ret>(2) ALT A A Proj.ON
3. RP99<Ret> Repeat 99 TIMES A ON
and OFF
4. N R<Ret>(2) No Operation STOP

10 Cues Per Second, System:

1. N R<Ret>(2) NO OPERATION RUN
2. AT 1<Ret>(2) ALT 1 A Proj.ON
3. RP98<RET> Repeat 98 TIMES
System cycles
thru all 3
projectors
4. N S<Ret>(2) NO OPERATION STOP

4.5 LOOPING

There are many techniques available to you that have not been explored in this Guide. We suggest you work with the information given to this point till you are comfortable with it, then refer to the Technical Manual for additional techniques That will enable you to realize the full capability of the complete GENESIS Programming System.

An example of these higher techniques is the LOOP.

A Loop is defined as a series of Cues (maximum of 100) that may be assigned to a Dove X to carry out a given function exclusive of the continuing operation of GENESIS. Each Dove can store and execute 3 Loops, one for each projector. It is important to note that all Loops must be programmed using Independent Projector designations A thru O, not Dove numbers.

Simply stated, Loops are created using 4 programming elements:

1. LL (Load Loop) - This tells GENESIS a Loop will follow.
2. Program the desired action - maximum 100 Cues.
3. LG (Loop Go) - This starts the Loop

4. LS (Loop Stop) - This stops the Loop.

An additional Cue - LPxx will cause a Dove to execute a Loop a specific number of times then return to GENESIS control.

Here are a few examples of simple Loops:

(Assume Projector A is presently UP and we are at Cue 10.)

10	LL	LOOP LOAD	A B C
11	4A	4 SEC ALT	A B
12	W3	WAIT 3.0 SEC	
13	4A	4 SEC ALT	B C
14	W3	WAIT 3.0	
15	4A	4 SEC ALT	A C
16	W3	WAIT 3.0	
17	LG	LOOP GO	A B C

When you wish this Loop to Stop, program a LS ABC. This stops the Loop, however, if you substitute an LP12 (no ABC), for the LOOP GO in Cue 17, the Loop will execute 12 times and stop automatically.

Any and all functions already described in this Guide as well as a number of effects explained in the PROCALL Manuals can be utilized with Loops.

REMEMBER: Loops may be programmed up to but not exceeding 100 Cue Lines including the Loop Go (LG) Command and must be programmed using Independent Projector Designations.

CHAPTER 5

RECORDING AND SYNCHRONIZING YOUR SHOW

5.1 GENERAL

Once you have Programmed your show and SAVED it, you are ready to prepare it for presentation. There are a number of ways to use this SAVED Program. For now, we will look at three of them. The First does not require Magnetic Tape as a storage device, the Second and Third do.

1. By simply retrieving the Program from Diskette Memory and hooking GENESIS directly up to a Dove Control Module and projectors, we can run the show from the keyboard by pushing F10 for each Cue. This is Manual Cueing and does not require Mag Tape storage.
2. The Second method allows you to store your Program on Mag Tape for later, convenient transportation and storage, and reloading of the Memory as needed wherever your Show is to be presented.

The Mag Tape Commands described in Paragraph 3.2 will be sufficient for you to simply store your Program on Mag Tape

VER
(Verify)

This function permits us to check the quality the data recorded using MSV. It will tell us if the Program has been recorded properly.

STL
(Set Level)

Every recorded signal needs to be recorded at a level high enough for accurate reproduction, yet not so high as to cause distortion in the recorded signal.

GENESIS will transmit a continuous signal that will allow accurate setting of the Recording Level on the Recorder.

Data must be recorded at whatever level is necessary to obtain a "0" db playback level on recorders with a VU meter, or the Red/Green line on those that do not.

5.3 MAG TAPE SAVE

To do a straight Mag Tape transfer of all your Show Data for storage or retrieval purposes, place a WAIT Time at the end of your Program to allow all functions to end, then enter a HOME Cue.

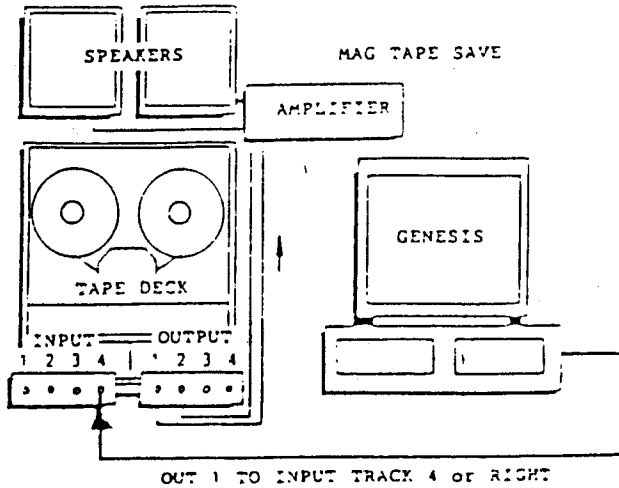
W2, <Ret>

Type in: HOME <Ret>

1. Plug one end of a cable into the OUT 1 Jack of GENESIS, and the other end to the Input Jack of the appropriate track of the Tape Recorder. Industry Standards suggest Track 4 when using a 4-Track Deck or the Right Channel of Stereo Decks.

If you wish, you can plug a second cable from the Output of Track 4 to the DATA IN jack of GENESIS. You will use it in a moment.

The illustration shows only the first cable for clarity.



2. To set an accurate Recording Level, follow these Commands:

CTRL/C STL<Ret> GENESIS is sending a continuous signal to the Tape Recorder.

Set the Level on the recorder to approximately +2 db if you have a VU Meter, or to the approximate middle of the Volume Range if you have an Automatic Level Control Recorder (see Set Levels under Mag Tape Commands). Switch the ALC OFF! After setting, push ESCAPE to terminate the signal.

3. To perform the actual Data transfer, first enter this Command without using Return.

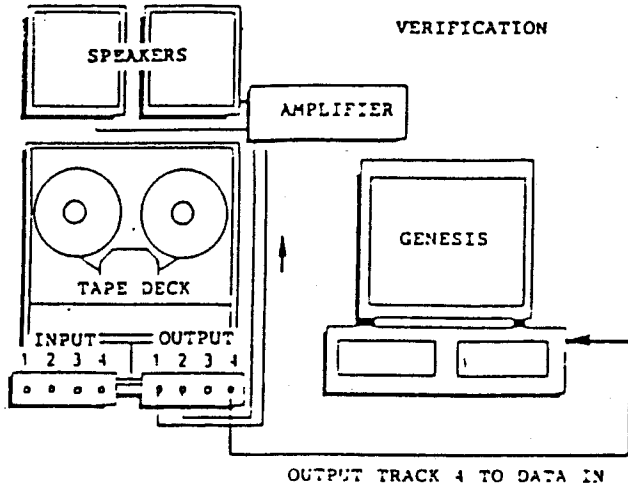
CTRL/C MSV GENESIS is ready
to send the Data.

4. Start the Recorder in Record Mode. Count 5 slowly then push RETURN or F10 on GENESIS. The data will be recorded. When completed, stop the recorder.

5.4 VERIFICATION

Now that the Data has been recorded, it should be verified. The HOME Cue has returned the Program to the beginning. Here is the procedure for verifying the accuracy of the transfer.

1. Rewind the Tape.
2. If the cable for Playback has not been connected to the Output of Track 4 and the DATA IN jack of GENESIS, you can simply replug the existing cable.



3. Go to Control Command:

CTRL/C VER<RET> GENESIS is ready
to verify.

4. Start the Recorder in Play Mode. GENESIS will compare each bit of Data from the Tape with its corresponding bit in Memory. The Monitor will tell you if all is well.

If not, simply follow the Recording procedure using different Recording Levels until you find one that is accurate. Different Recorders have different characteristics.

5. When the Tape is accurate, we suggest you record this Data several times by simply pressing RETURN or F10 when the Monitor shows the Program is back at Start.

5.5 MAG TAPE LOAD

To Load the Program back into Memory from Mag Tape, simply use the PLAYBACK Mode and the following Command:

CTRL/C MLD<Ret> Start the
Recorder in Play.

The Data will be loaded back into Memory.

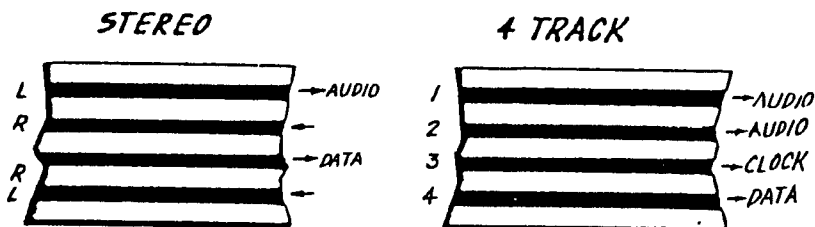
5.6 SYNCHRONIZING

The Show is Programmed and the Sound Track is done. Now we have to put the two together on one Reel or Cassette of Magnetic Tape for automatic playback. These procedures will constitute the Second and Third procedures mentioned earlier.

To repeat, a Multi-Track Recorder with INDEPENDENT RECORD CONTROL for each Track is necessary since we must have at least one Track for the sound, and one Track for the Data, and they must be

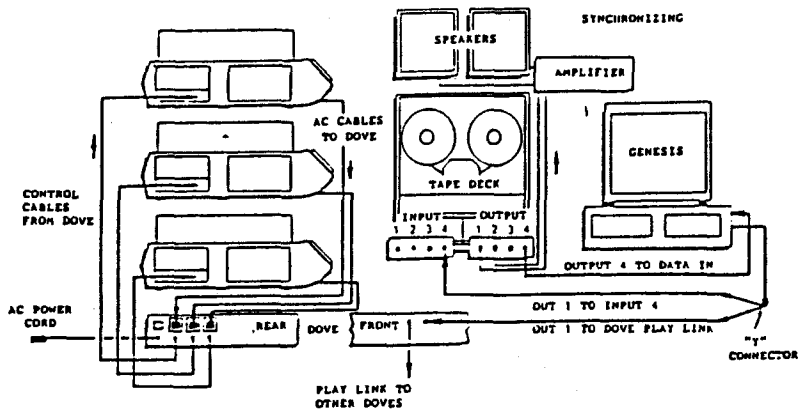
Synchronized so that projected images match the sound track. This is Synchronizing.

The illustration shows normal track configurations for Stereo (2 track), and Quad (4 track) recorders. The 2 track allows one track for sound (Mono), and one track for Data. 4 track allows two tracks for sound (Stereo), and two other tracks for Data manipulation.



Here is Synchronizing procedure No. 1. It is outlined here for convenience. We recommend the use of Clock Trak as a more accurate and practical method of synchronizing. It will be covered as a separate section when we complete this procedure.

1. Set up the GENESIS, a Dove, Projectors, and the Recorder as shown in the Diagram.



2. By now, you should know where you wish slides to appear in relation to the sound track. MARK YOUR SCRIPT WITH AN INDICATOR AT EACH POINT YOU WISH A CUE OR SEQUENCE TO START. Place your indicator at least one word in advance of the actual point. This allows for tape displacement and reaction time.

3. Set the Recording Level of the Data Track as described earlier.
4. Start the Recorder in RECORD MODE on the DATA TRACK ONLY! We don't want to cause problems on the Sound Track!
5. As you listen to the Sound, push the F10 key each time you come to an indicator in your script. This will cause the Data you have Programmed to be transferred to the tape. When all Cues have been transferred, stop the Recorder.

5.7 PLAYBACK

Playing back you synchronized show is easy.

1. Rewind the tape. If you used a HOME Cue at the end of the show, all projectors and the Monitor should be back to the start of the show. If not, push CTRL/G <Ret>, and everything will go HOME.
2. The default Operating Mode for GENESIS is Mag Tape Bypass which means the signal you have just recorded can be played back into GENESIS without disturbing the

Program in Memory.

Start the Recorder in Play Mode and watch your Show.

Synchronizing is, in many cases, a trial and error process. It may be necessary for you to go back into the Program and change some Effects or Waits if you don't have enough time in the sound track for everything to happen. Don't despair, it is all a part of the art of Programming.

5.8 CLOCK-TRAK

Now we'll move on to the second method of Synchronizing - CLOCK-TRAK.

In the preceding procedure, should an error be made in the placing of a cue on the data track, it would be necessary to go thru the process again till it is correct.

The procedure we will detail now makes it possible to literally place a cue or sequence in exactly the right place relative to the sound track, without disturbing the rest of the show.

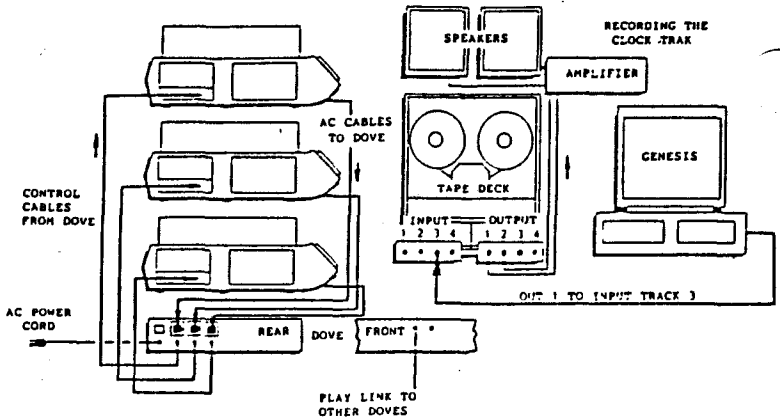
Simply stated, we will lay down a Clock Track from a point in front of the start of the sound track, to a point after the

sound track has ended, then we will add Time Cues to the Program at each point we want to synchronize a cue or sequence.

GENESIS will then read the time cues and play the show back perfectly. If it is not accurate, or we want to change the start of a cue or sequence, we simply go back to the Program and change a Time Cue. It's as simple as that.

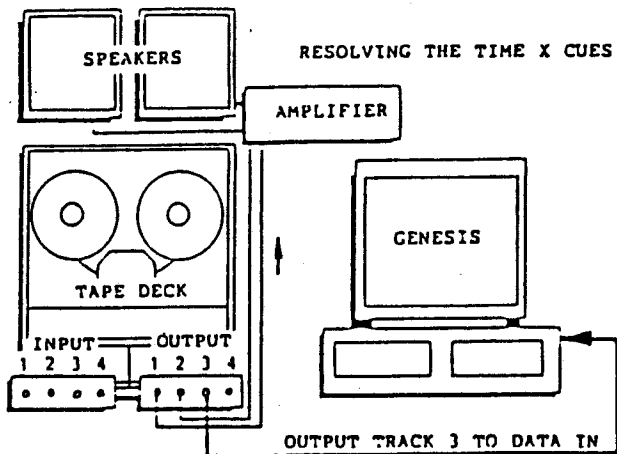
Here is the procedure. It's more difficult to explain than it is to do and you should use a 4-Track recorder.

1. Go back to your Program and, using Add-A-Cue, insert a TX at each synchronizing point you have indicated in your Script. This TX will ultimately be resolved into an actual Time Cue.
2. Connect a cable from the Out 1 of GENESIS to the Input on Track 3 of your recorder.



3. Go to Control Command - Ctrl C, then type COM (Clock Output Mode).
4. Rewind the Tape to a point AT LEAST 5 seconds before the sound starts.
5. Start the recorder in Record Mode on Track 3, and push return on GENESIS. A Clock Signal will be recorded on Track 3. Allow the recording to proceed beyond the end of the sound track.
6. Stop the recorder and rewind the tape to the beginning.
7. Press Escape on GENESIS.
8. GENESIS is still in Control Command so type CEM - (Clock Edit Mode).

9. Reconnect the cable from the Output of Track 3 to the Data In jack of GENESIS.



10. With your Script, with its synchronizing points indicated, in front of you, start the recorder in Playback Mode, and, as each sync point comes up push the F10 key. Continue thru to the end of your Program.
11. The HOME Cue sends the projectors and Program back to the beginning. You now have a Program where GENESIS has read the Clock Trak on Track 3 each time you pressed F10, and has entered that time in place of each TX in the Program.

It's possible you might have made some errors in synchronizing and the Time Cues are incorrect, there are two Editing Commands that can greatly simplify the process of correcting the errant Time Cues.

5.9 TIME OFFSET CUES

Time Offset Cue (TOC) gives us the ability to change the time cues between any two Cue lines. By entering:

CTRL/C, then type:

TOCxx (Cue number), xx (Cue number), + or - .TT (Time)

Example: TOC15,25,-.05 <Ret>

If there are many errors and it would be more practical to re-sync the entire show, it would be laborious to replace each Time Cue with a Time X. RTC saves us all that time. Here is how it works.

Replace Time Cues (RTC) is similar to TOC in that we can replace any number of Time Cues with a TX, either 1 Cue or many Cues between two Cue lines, or the entire show.

CTRL/C, then type:

RTCxx (Cue number), xx (Cue
number) <Ret>

Example: RTC15,25 <Ret>

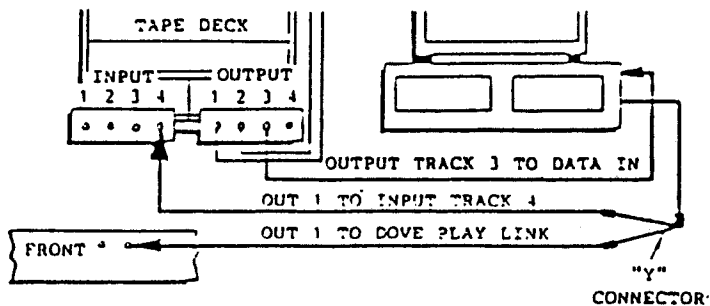
All Time Cues between Line 15 and 25
will be replaced by TX ready for re-
synchronizing.

Now the Program can be played back using
only the Track 3 Output. In Playback,
GENESIS will continuously monitor the
ClockTrak from Track 3 and the Time Cues
in the Program and will initiate actions
as each Time Cue and the Clock Trak
coincide.

1. With GENESIS still in Clock Edit
Mode (CEM), and the Program back to
the beginning, rewind the tape to
the beginning and start the
recorder in Play Mode. GENESIS
will read the Clock Trak and the
Time Cues and play back the entire
Show just as you synchronized it.
2. After viewing the timed Program,
some cues may not be correct.
THERE IS NO NEED TO DO ANY MORE
RECORDED CHANGES. Simply go to the
incorrect Time Cue and change it.
Add time to make the Cue start
later, or subtract time to make it

start earlier. You now have the ability to synchronize each Cue or Sequence down to 1/100th of a second in accuracy.

3. When all Time Cues are correct and the Show is just the way you want it, you can record a final Data Track on Track 4 of your recorder.



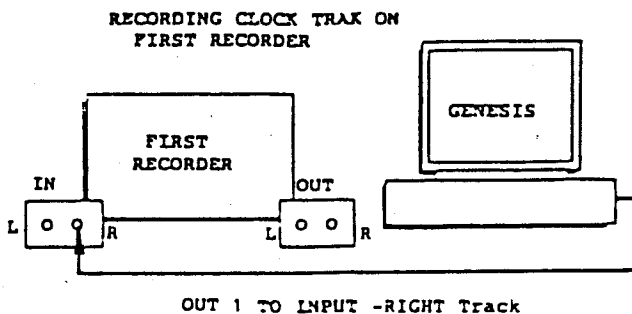
Connect your System as shown in the illustration. With the recorder in SYNC Record Mode on Track 4 and Play Mode on Track 3, the entire Program will be recorded automatically.

GENESIS will simultaneously read the Clock-Trak and the Time Cues, start the action, and output the Data for the Data track 4.

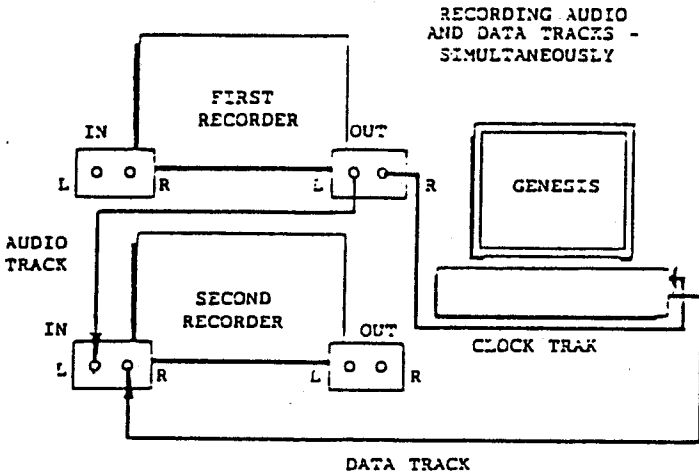
As you gain more experience, show timing and Synchronizing will become an instinct and only minor adjustments will need to be made.

For the person who has only Stereo equipment, the use of Clock Trak can present a problem. One track has Audio, the other, Clock Trak. In order to play back the show, a GENESIS must be present. To utilize Clock Trak to make a final dub of Audio and Data that may be used without a GENESIS, two tape recorders must be used.

In all recording cases, proper record levels must be used. See the procedure already outlined.



1. Record a Clock Trak on the Right Channel of the First Stereo recorder.



2. When the Clock-Trak has been recorded, plug a cable from the Output of the Clock-Trak (R) on the First recorder to the Data In jack of GENESIS.
3. Plug a second cable from the Output of the Audio Track (L) of the First recorder to the Left Track of the Input on the Second recorder.

4. Plug a third cable from the OUT 1 jack of GENESIS to the Right Track Input of the Second recorder.

Start the First recorder in Play mode and the Second in Record mode on both tracks and the Clock Trak will cause GENESIS to run the show and record a data track while the Audio Track is also being recorded.

NOTES: