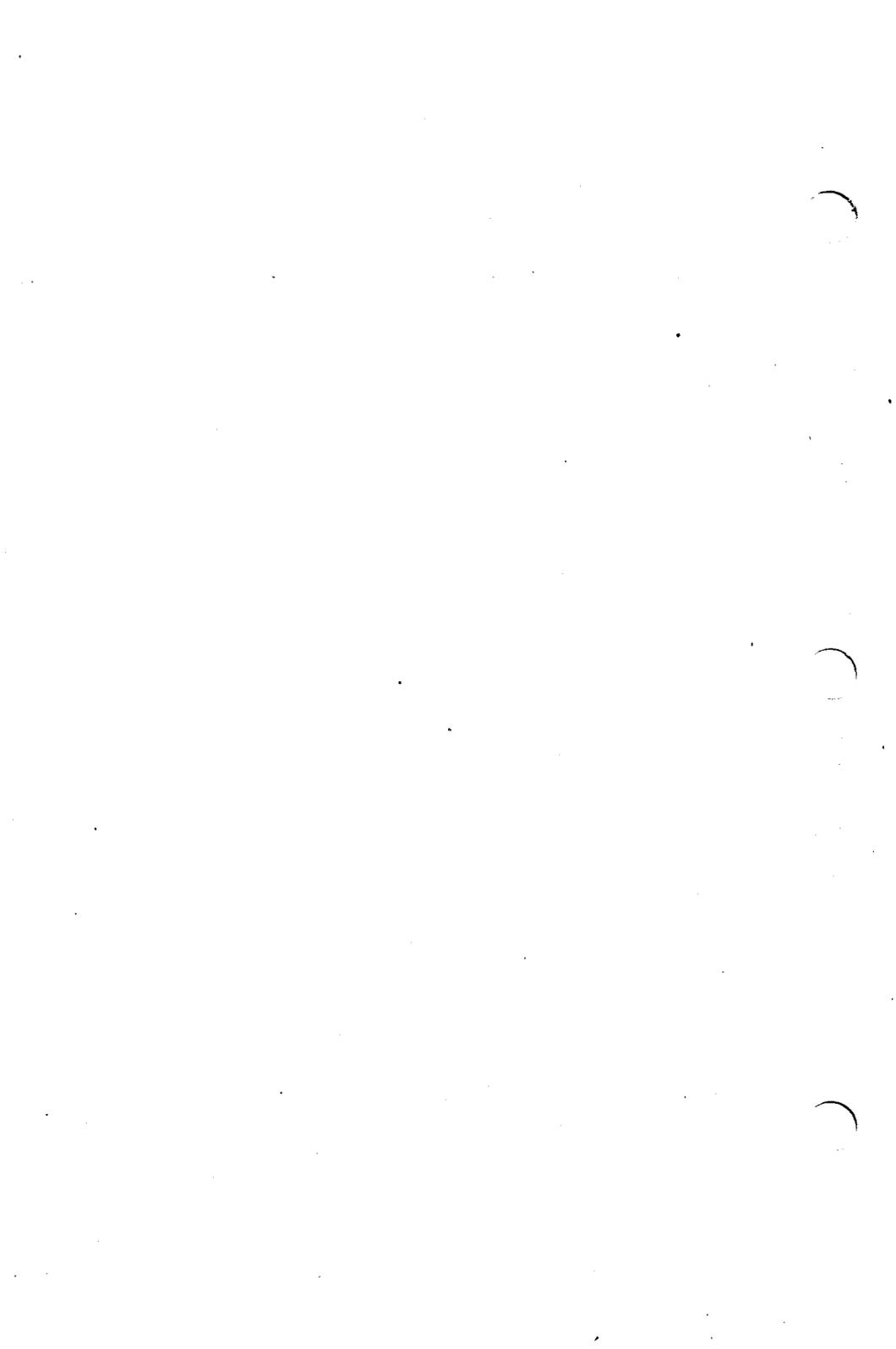# AVL GENESIS SYSTEM

PROGRAMMING MULTI-IMAGE SHOWS

Audio Visual Laboratories, Inc.

CONTENTS

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.
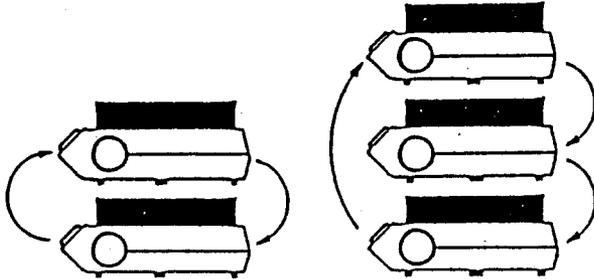
1.3.3 LOADING THE SLIDES IN TRAYS

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.

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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.
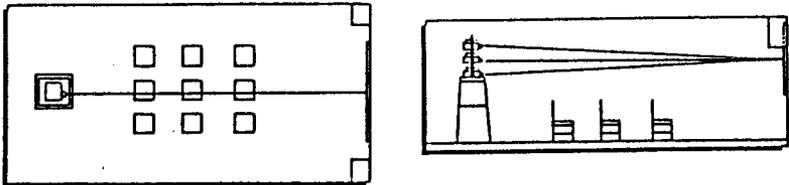
1.4.2 IMAGE REGISTRATION

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 B E H K N C F I L O	A D G J M B E H K N 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

allows us to designate any one or more
projectors individually by Letter, or, a
System of 3 projectors by Dove Number.

System and Individual Projector control
will become very important as we get
deeper into programming.

1.5.3   THE DOVE-X PROJECTOR CONTROL UNIT

The DOVE-X is the projector control unit
for your GENESIS System. It reads the
data from the System or from Magnetic
Tape and converts it into actions on the
projectors.

The significant controls and their
functions are shown with the
illustrations.

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 projec-
tors 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 Ekta-
    graphic 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 Automati-
    cally 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 posiiton.

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

① ② ⑥

③ ④ ⑤

⑦ ⑧ ⑩ ⑨

⑬ ⑫ ⑭ ⑮ ⑪

PROGRAM NAME: DIM 1   OPERATOR: XX   0:00
MODE: MI BYPASS
CONTROL COMMAND: GXI :00
STATUS:

══════BANK A STATUS══════   ══════BANK B STATUS══════

1 2 3 4 5   1 2 3 4 5
ABDEGBJBMF   ABDBGBJBMB
BBIBNBKBNB   BBIBNBKBNB
CBIBIBLBOB   CBIBIBLBOB

══CUE #══CODE══STATEMENT══BANK A══BANK B══RUN══

- - - -
- - - -
- - - -
- - - -
- - - -
- - - -

1
2
3
4
5
6
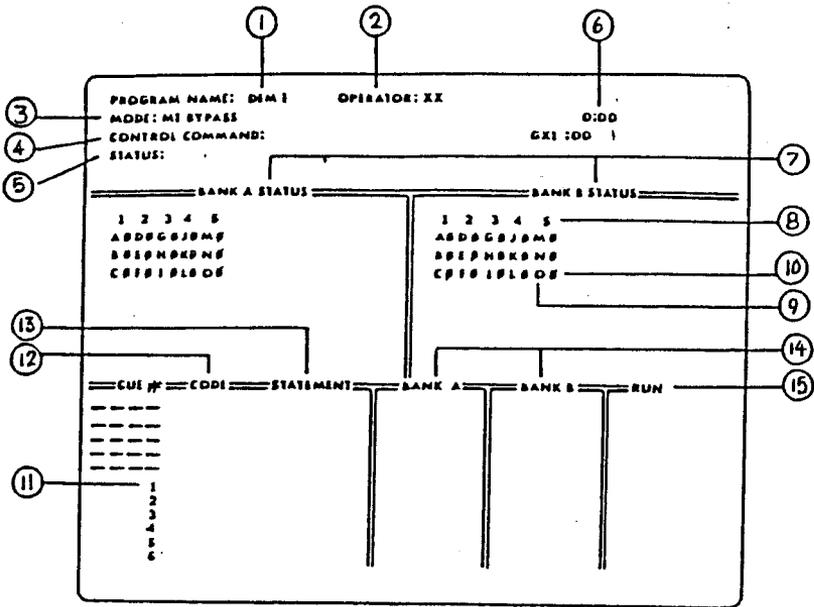
The first series of Cues we program will
make the Monitor very understandable.

2-6

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

2-7

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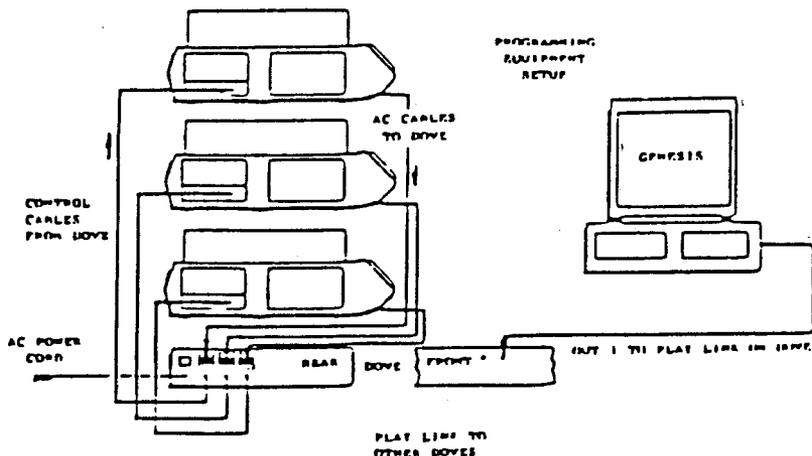
The Keys F9 and F10 will allow you to
move Forward and Backward thru the Cue
List to check it for accuracy. F9 moves
Backward one step at a time if
programmed in single steps, or to the
beginning of the current Sequence or RUN
Cue. F10 moves Forward in the same
manner.

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
CTRL/G 0<RET>   always sends the Program
                  and the projectors HOME,

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 with-
                  out 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 dis-
                      play 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 prog-
                      gram, 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.

4-1

If an error in entry is made, the Cue
line must be Cleared before the correct
designation can be entered.

Other than this aspect, Programming
Multiple Screens is as simple as a
Single Screen. Here is an example
controlling all 5 Doves on Bank A, in
effect, 5 Screens:

    2D 12345   2 SEC DIS 12345   A 2 Second
                                   Dissolve
                                   will start
                                   on all 5
                                   Screens on
                                   Bank A.

To access individual projectors, the
projector letter – A thru O, must be
included in the Cue Line under each
Bank.

    2D ACFKM   2 SEC DIS ACFKM   The desig-
                                   nated Pro-
                                   jectors
                                   start a 2
                                   Second Dis.

4.3 20 CUES PER SECOND

The GENESIS System normally operates at
10 Cues Per Second. That is, it reads
Cues at the rate of 1 Cue Line every
1/10 of a second. For most purposes this
speed is more than sufficient. However,

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

20 Cues Per Second, Single Projector:

1. S20<RET>   SPEED=20 CPS

2. N R<RET>(2)   NO OPERATION   RUN

3. AT A<RET>(2)   ALT   A   A Proj.ON

4. RP99<RET>   REPEAT 99 TIMES   A ON
                                        and OFF

5. N S<RET>(2)   NO OPERATION   STOP

20 Cues Per Second, System:

1. N R<Ret>(2)   NO OPERATION   RUN

2. AT 1<Ret>(2)   ALT   1   A Proj.ON

3. RP99<Ret>   REPEAT 98 TIMES
                                   System cycles
                                      thru all 3
                                      projectors

4. N S<Ret>(2)   NO OPERATION   STOP

Run through these sequences several
times. You'll see the difference. It is
also important to note that normal
Programming can be continued whether you
are in 10 CPS or 20 CPS.

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

or use the Third method, Synchronizing
your Program to a sound track.

> IMPORTANT! We must use Recording
> Equipment that has independent
> Recording and Playback controls
> for each Track.

Specific instructions and a setup
diagram for your Recording Equipment are
included in the sections on
synchronizing.

5.2 MAG TAPE COMMANDS

Here are the Mag Tape Commands we will
use to store a program on Mag Tape.

MSV   This Command allows us
(Mag Tape Save)   to transfer all Data in
                     memory directly on to
                     Magnetic Tape using any
                     standard Recorder. The
                     data can be loaded back
                     into Genesis, Eagle or
                     Road Runner, as needed.

MLD   This Command allows us
(Mag Tape Load)   to retrieve the Program
                     from Magnetic Tape and
                     load it into GENESIS'
                     Memory.