



AVL GENESIS

PROCALL-X

USER'S GUIDE

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PROCALL-X
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Audio Visual Laboratories, Inc.



CONTENTS

CHAPTER 1	INTRODUCTION1-1
1.1	General1-1
1.2	PROCALL-X Features . . . . .	.1-1
1.3	Independent Accessing . . . . .	.1-3
1.4	Flexible Formatting . . . . .	.1-4
1.5	SMPTE Time Code . . . . .	.1-4
1.6	AVL Clock-Trak . . . . .	.1-5
1.7	AVL Posi-Trak . . . . .	.1-6
1.8	Addresses and Assignments . . . . .	.1-6
1.9	Looping . . . . .	.1-7
1.10	Alternates . . . . .	.1-7
1.11	Getting Help During Programming . . . . .	.1-8
CHAPTER 2	INDEPENDENT ACCESSING . . . . .	.2-1
2.1	General . . . . .	.2-1
2.2	Programming Panel . . . . .	.2-1
2.2.1	The Command Area . . . . .	.2-3
2.2.2	Bank A and Bank B Status Display Area . . . . .	.2-6
2.2.3	The Cue Area . . . . .	.2-7
2.3	Accessing Examples . . . . .	.2-8
CHAPTER 3	FORMATTING PROGRAMS . . . . .	.3-1
3.1	General . . . . .	.3-1
3.2	Formatting Limitations . . . . .	.3-1
3.3	Using The Standard Format . . . . .	.3-2

3.4	Creating A New Format . . . . .	.3-4
3.4.1	Flexible Formatting.	.3-8
3.4.2	New Format Examples.	.3-8
3.5	Accessing A Previously Created Format	3-10
CHAPTER 4	EXCHANGING DOVES AND INDEPENDENTS . . . . .	.4-1
4.1	General. . . . .	.4-1
4.2	ESN Command. . . . .	.4-1
4.3	Exchanging Doves And Independents. . . . .	.4-3
4.3.1	Format 1 . . . . .	.4-4
4.3.2	Format 2 . . . . .	.4-5
4.4	Changing Projectors.	.4-7
CHAPTER 5	PROCALL-X COMMANDS . . . . .	.5-1
5.1	General. . . . .	.5-1
5.2	Programming Commands	.5-1
5.2.1	Commands Entered Under the Code Heading . . . . .	.5-1
5.2.2	Commands Entered Under the Screen Heading	5-15
5.2.3	Commands For Editing Programs.	5-18
5.3	Control Command Field Entries	5-26
5.3.1	Editing Control Commands	5-26

5.3.2	Memory/Disk Data Transfer Commands	5-30
5.3.3	Magnetic Tape Control Commands	5-34
5.4	Print Commands	5-39
5.5	Commands For Optional Peripheral Equipment	5-40
CHAPTER 6	PROGRAMMING EXAMPLES	6-1
6.1	General	6-1
6.2	Sample Programs	6-1
6.3	Using the Blink Alternate	6-2
6.4	Dissolving Using Blink Alt	6-2
6.5	Using Looping Commands	6-6
6.6	Programs Using the Pyramid Format (Bank B)	6-12
CHAPTER 7	PROGRAMMING PERIPHERAL EQUIPMENT	7-1
7.1	General	7-1
7.2	X-15 Programming Commands	7-1
7.3	Using X-15 Programming Commands	7-2
7.3.1	Incorrect X-15 Programming	7-3
7.3.2	Correct Programming	7-3

CHAPTER 8	SELECTING THE TIMING AND CONTROL CODE . . . . .	.8-1
8.1	General. . . . .	.8-1
8.2	Selecting SMPTE. . . . .	.8-1
8.3	Selecting AVL Clock-Trak. . . . .	.8-2
APPENDIX A	PROCALL-X COMMANDS . . . . .	.A-1
A.1	Programming Commands	.A-1
A.1.1	Commands Entered Under Code Heading. . . . .	.A-1
A.1.2	Commands Entered Under Screen Heading. . . . .	.A-2
A.1.3	Commands For Editing Programs . . . . .	.A-3
A.2	Control Command Field Entries . . . . .	.A-4
A.2.1	Editing Control Commands . . . . .	.A-4
A.2.2	Memory/Disk Data Transfer Commands . . . . .	.A-5
A.2.3	Mag Tape Control Commands. . . . .	.A-5
A.3	Print Commands . . . . .	.A-6
A.4	X-15 Programming Commands. . . . .	.A-6
APPENDIX B	SMPTE TIME CODE STANDARDS . . . . .	.B-1
B.1	General. . . . .	.B-1
B.2	Modulation Method. . . . .	.B-1
B.3	Code Format . . . . .	.B-1
B.3.1	Boundaries of Address. . . . .	.B-3
B.3.2	Start of Address . . . . .	.B-3
B.3.3	Use of Binary Groups . . . . .	.B-3
B.3.4	Assigned/Unassigned Address Bits . . . . .	.B-4
B.4	Time Discrepancies . . . . .	.B-5

CHAPTER 1

INTRODUCTION

1.1 GENERAL

AVL's PROCALL-X is a further step toward total creative freedom for those of you who have been using PROCALL (Programmable Computerized Audio-Visual Language Library) or PROCALL X1.

PROCALL-X still offers Independent Accessing (see Chapter 2) as did PROCALL X1. The main change in PROCALL-X is the Flexible Formatting configuring table as described in Chapter 3. Once this feature is understood, you will be able to quickly design new formats; it is easy to understand and easy to do.

Chapter 5 lists and describes all PROCALL-X programming commands, control command field entries, editing and printing commands.

1.2 PROCALL-X FEATURES

This paragraph describes PROCALL-X features which apply when using the AVL's GENESIS computer system.

PROCALL-X:

- a. Has two areas, called Bank A and Bank B, for configuring projectors.
- b. Has Total Independent Accessing, with each projector being designated by a letter: A through O in each bank.
- c. Has Flexible Formatting utilizing up to five DOVE X's in each bank.
- d. Has Total Independent Accessing of AUXILLARY (A to J).
- e. Has Expanded Independent Looping with a new LPxx command. Each DOVE X can contain up to 3 loops, one for each projector or can participate in 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 and on up to 30 projector looping. All dissolve Alternates, Waits, and Freezes are valid.

Has a Blink Alternate command for a more powerful Looping capability. You can create a blinking effect in from 1 to

30 projectors in any order as fast as 20 cycles per second or as slowly as you choose. The power is in your choosing.

- f. Has Soft Alternate and Soft Cut.
- g. Has a HELP key.
- h. Lets you restart and begin over when creating a new format.
- i. Gives you the ability to exit from the creation of a new format and, instead, program using the standard format.
- j. Has SMPTE and AVL's Clock-track and Posi-track.

1.3 INDEPENDENT ACCESSING

This feature allows each of your 30 possible projectors to be addressed in an independent manner in a single cue. Each projector is given an alphabet letter designation: A thru O in Bank A, and A thru O in Bank B. Projectors can be given commands with either the Independent or screen number, but not both. This simplifies the addressing of projectors, making PROCALL-X user friendly.

1.4 FLEXIBLE FORMATTING

Flexible Formatting is used when you are creating a new format. The idea behind this powerful feature is to allow you to set up your projectors in any way and then to lay them out on the video screen in the same physical manner so that your video screen reflects the actual projector setup when looked at from the back. (Refer to Chapter 3.)

1.5 SMPTE TIME CODE

AVL's GENESIS now offers the option of being compatible with SMPTE.

The SMPTE (Society of Motion Pictures and Television Entertainment) time code is the standard timing and control code used by the motion picture and television industries today. SMPTE is used to mark and drive video tape decks, audio tape decks, and other electronic devices that interface with video, and was primarily designed to control film and video editing. It provides for:

- * Running Shows at speeds up to 30 frames per second.
- * Running shows using video decks as well as the multi-image computer system.

- * Running shows with all the components synchronized to one timing and control code.

SMPTE is like AVL's Clock Trak in that it is a digital timing code which can be used to time cues. All rules concerning AVL Clock Trak programming apply to SMPTE.

AVL's GENESIS will accept SMPTE input and generate SMPTE output, but it will not convert SMPTE to AVL Clock Trak or vice versa.

To change the Clock Output Mode to SMPTE, enter the Control Command field and type SMPTE and press RETURN. On the Status line, AVL C will change to SMPTE.

Chapter 8 describes how SMPTE is selected. (Also refer to Appendix B.)

1.6 AVL CLOCK-TRAK

AVL's Clock-trak is a digital time cue which allows time-syncing of cues to the audio track. The AVL Genesis can generate the clock information for recording on your show tape. Genesis can also read the clock information and use it to synchronize show cues.

Chapter 8 describes how AVL Clock-trak is selected as the digital timing code.

1.7 AVL POSI-TRAK

Posi-trak locks your program to the audio track, and will automatically resync your show if a tape error occurs.

1.8 ADDRESSES AND ASSIGNMENTS

In previous PROCALL's, DOVES are addressed by a number (1-5) and an Independent such as 1a, 1b, 1c, or 1T, 1C, 1B, or 1L, 1C, 1R. In PROCALL-X it is essentially the same thing, except that the numbers 1 thru 9 are called screen numbers, but can only be addressed as A, B, or C through 0 projectors or by screen numbers.

A, B, and C are also used for projector assignments. For example, an assignment of "2A" means DOVE #2, top projector. Again, this is referred to as an assignment. The table of 54 unique positions is called the configuring table. It is in this table that you will place the projector assignments. In this way, you can place any projector under any screen number as long as no screen number contains more than six projectors. You can now see that DOVE

number and screen number are not necessarily the same anymore.

When programming, each assignment is given an alphabet (Independent) letter. Therefore, you program with Independents and screen numbers. It is no longer necessary to see the screen assignments. Each bank works the same way and two different configurations or formats can be displayed and cued at the same time.

1.9 LOOPING

Loops are defined in terms of Independents. In this way a loop can be formed using from 1 TO 30 projectors. Since each projector can be defined in a loop, a DOVE X can hold three separate loops: one for each projector. Each loop has a 100 cue capability and all Alternates, Freezes, and Wait states are valid.

1.10 ALTERNATES

Blink Alternate, Soft Alternate, Soft Cut - These functions are explained in detail in Chapter 6.

1.11 GETTING HELP DURING PROGRAMMING

A special HELP key (F1), located in the upper left corner on the keyboard, can be used at any time during programming by simply pressing the key. POCKET PROCALL will be displayed one page at a time. To move on to the next page, press Return. At the end of the help file, Return will bring you back to your program.

If you are not interested in seeing each page, ESC can be pressed at any time to return you back to the programming field.

CHAPTER 2

INDEPENDENT ACCESSING

2.1 GENERAL

The paragraphs that follow in this chapter describe the programming panel and presents examples of Independent Accessing.

2.2 PROGRAMMING PANEL

The Programming Panel consists of three areas: the Control Command Area, the Bank A and Bank B Status Display Area, and the Cue Area. For an illustration of the panel see Figure 2-1.

To get the programming panel up on the screen, displaying the standard format, follow the procedure outlined below.

- a. Place the PROCALL-X disk into Drive A.
- b. Place a storage disk in Drive B.
- c. Turn AVL Genesis on.
- d. When the following prompt appears on the screen:

HELLO, I AM GENESIS FROM
AVL. WHAT IS YOUR NAME?

Type your name and press the
RETURN key. Or, if you do not
wish to enter your name,
merely press RETURN.

e. When the prompt:

HI THERE NAME. NICE TO
MEET YOU.

WOULD YOU LIKE TO:

(1) CONTINUE WITH THE
STANDARD FORMAT

(2) CREATE YOUR OWN
FORMAT

(3) USE A FORMAT
PREVIOUSLY CREATED

appears on the screen, hit the
1 key.

f. When the prompt:

PLEASE NAME YOUR PROGRAM
AND WE CAN BEGIN

is displayed on the screen,
type the name of the program
and press RETURN.

NOTE: If you do not want to name the program, press RETURN and the program will be named DEMO 1. However, if you save the program it will write over any DEMO 1 program already existing on the disk.

A line-by-line description of the programming panel follows.

2.2.1 THE COMMAND AREA

TOP LINE

This line contains the program name and the name of the operator. The space provided for the program title is 8 characters long and the operator name space is 25 characters long. If you skip over the "HELLO" sequence using the RETURN key, the program title will default to DEMO 1, and the operator name will be blank.

SECOND LINE

This line contains the Programming MODE selection. The possible choices are MTB (Magnetic Tape Bypass), the default mode, CEM (Clock Edit Mode), CIM (Clock Input Mode), COM (Clock Output Mode), MSV (Mag-Tape Save), MLD (Mag-Tape Load), and VER (Verify-MSV only).

The space to the right of MODE selection is reserved for incoming data display. When the system receives cue information from either magnetic tape or another AVL programmer, this line will display the word AMP if the data is of sufficient amplitude. MT POOR is displayed if the incoming data has some distortion in it, but the system will still be able to decode the cue. If the data is so distorted as to be unreadable by the system, MT BAD and the cue number of the distorted cue will be displayed. When no data is received by the system the display will remain blank. If only POSI-TRAK information is being received by the system the display will show the word POSI-TRAK.

CLOCK DISPLAY

The Clock Display is located on the right hand side of the screen on the second line. This clock acts as a free running timer as well as a display for Clock-trak from magnetic tape in either CLOCK EDIT or CLOCK INPUT mode. The clock will begin to run anytime the CUE (F10) key is depressed and a TIME or TIME X cue is executed. It will continue to run until a STOP is encountered or you push the ESC key. Additionally, if the end of cue space (no clock-track data is being received)

is encountered while the clock is free running, the clock will stop.

THIRD LINE

This is the CONTROL COMMAND field and its features are discussed in Chapter 5.

THE TPO CONTROL COMMAND

TPO (tray position offset) permits you to set the starting tray position. Once you have saved a program with a particular starting tray position the new position is retained. Anytime you load that file the starting position will be reset to that value. Note that this does not send cues to the equipment attached to the system. It assumes that you actually started with your trays in the offset position.

CTRL/V

This command removes the tray designation and replaces that information with a DOVE X number and A,B,C projector assignments, this allows a rapid examination of the independent and it's corresponding projector assignment.

SMPTE

This changes Clock-trak to SMPTE compatibility: the industry standard.

FOURTH LINE

This line is the Status line. When certain normal features have been disconnected by the user, it will be indicated in this line e.g. RCF (Remote Cue Off) or POF (Posi-trak Output Off). This line also functions as a display for AVL Genesis system comments such as "STANDBY FOR GOTO".

2.2.2 BANK A/BANK B STATUS DISPLAY AREA

This area is used to give you a constant display of the projector tray positions and lamp status. The status area contains two sectors referred to as BANK A and BANK B. Each bank can have up to 15 projectors, a maximum of 9 screens, and a possibility of 6 projectors per screen depending on how the projectors were formatted. If you have formatted for all 15 projectors, the letters A thru O are used to individually designate each projector. To the right of each letter is the tray position inverse video if the lamp is on, and normal if the lamp is off.

2.2.3 THE CUE AREA

This area contains the cue number, cue, statement, and the BANK A and BANK B projector commands.

CUE #

With the AVL Genesis programmer, the cue is previewed before it is executed. The display shows you the five preceding cues as well as the five following cues.

CODE

This area is for the various programming codes, as described in Chapter 5, that designate what the screen action will be.

STATEMENT

After the code is entered, the system will use this area to feed back to you a more complete statement of what the action will be. This serves as a check on the code entry process.

BANK A and BANK B PROJECTOR COMMANDS

This area is used to specify which DOVE

or projector will respond to the code entries. Screens and independent projectors cannot be used in the same bank.

RUN

This is used to indicate that the program in the system is executing. Runs are initiated by entering an R while in the screen area and are terminated when they encounter a STOP in the screen area of a subsequent cue. While a run is in progress the RUN heading will appear as reverse video (black characters against a green background).

When a run is in progress at a selected speed of 20 cues per second the area on the heading line between the SCREENS title and the RUN title will display 20CPS. When the system is executing the program at 10 cues per second, this area will remain blank.

2.3 ACCESSING EXAMPLES

Take time to study the programming panel illustrated in Figure 2-1.

Notice that we have separate places for Bank A and Bank B. In this case, your screen numbers match the DOVE numbers

for a fifteen projector show. Therefore, each bank can be viewed as a separate channel; each channel connecting to five DOVE X's.

- a. Notice that projectors are now labeled as letters A thru O, each projector receiving its own letter.
- b. Press Ctrl/V, notice that the status display now shows the corresponding DOVE X designation with each alphabet letter. If Ctrl/V is pressed again, the status display is returned to normal. This is shown in the example below.

```
PROGRAM NAME:          OPERATOR:
MODE:  MT BYPASS              0.00
CONTROL COMMAND:          GX1.00
STATUS:
```

BANK A STATUS

BANK B STATUS

1	2	3	4	5	1	2	3	4	5
A1A	D2A	G3A	J4A	M5A	A1A	D2A	G3A	J4A	M5A
B1B	E2B	H3B	K4B	N5B	B1B	E2B	H3B	K4B	N5B
C1C	F2C	I3C	L4C	O5C	C1C	F2C	I3C	L4C	O5C

- c. When programming with DOVE numbers, projectors sequence according to

the projectors under the screen column. If you want to use independents, program using the alphabet letters. There is no need for presets any more.

NOTE: You cannot use both screen numbers and letters within the same cue. But you can have numbers on Bank 1 and letters on Bank 2 or vice versa.

- d. Program the following to see how this operates.

Cue#	Code	Statement	Bank A	Bank B
1	AT	ALTERNATE	12345	12345
2	AT	ALTERNATE	12345	12345
3	AT	ALTERNATE	12345	12345
4	AT	ALTERNATE	12345	12345
5	AT	ALTERNATE	ADGJM	ADGJM
6	AT	ALTERNATE	ABC...MNO	ABC...MNO
7	AT	ALTERNATE	12345	ABCDEF
8	AT	ALTERNATE	CFILO	AFEHI
9	AT	ALTERNATE		245
10	AT	ALTERNATE		AFGLO

Results:

1. The Top projector lamps on each screen come ON.
(First in the sequence).

2. The Center projector lamps come ON and Top go OFF.
(2nd in the sequence.)
3. The Bottom projector lamps come ON and Center OFF.
(3rd in the sequence.)
4. The Top projector lamps come ON and the Bottom go OFF.
(Sequence starts again).
5. This is an independent command and the ALTERNATE action only affects those letters that were designated (ADGJM).
6. All projector lamps come ON.
7. All projector lamps go OFF except the Bottom row, as defined in PROCALL-X.
(The last of a Sequence.)
However, the command to Bank B is different and all projector lamps in DOVES 1 and 2 are now down.
8. All Bank A projector lamps are now OFF and Bank B projector lamps A,E,F,G,J,K,L,M,N,O are ON.
9. Here, RETURN is pressed without any commands to Bank A.

10. This last command uses Independents to turn Bank B projector lamps OFF.

This simple program illustrated above is a case in commanding projectors. Notice that Bank A and Bank B are affected in each cue. Knowing as much as you now know, you can probably reprogram 90% of your old shows using PROCALL-X commands.

BANK A STATUS					BANK B STATUS														
1	2	3	4	5	1	2	3	4	5										
A	D	D	G	G	J	O	M	O	A	D	D	G	G	J	O	M	O		
B	D	E	F	H	O	K	O	N	O	B	D	E	F	H	O	K	O	N	O
C	F	F	I	I	L	O	O	O		C	F	F	I	I	L	O	O	O	

CUE #	CODE	STATEMENT	BANK A	BANK B	RUN

1					
2					
3					
4					
5					
6					

FIGURE 2-1 PROGRAMMING PANEL

NOTES:

CHAPTER 3

FORMATTING PROGRAMS

3.1 GENERAL

This chapter describes the procedures to be followed when using the standard format, creating a new format, and accessing a previously created format.

3.2 FORMATTING LIMITATIONS

The following programming limitations apply when you are using PROCALL-X:

- a. It allows you two separate banks for DOVEs:
Bank A and Bank B.
- b. You can have up to 15 projectors per bank:
30 projectors total.
- c. It provides for up to five DOVEs per bank:
10 DOVEs total.
- d. You can have up to six projectors per screen.
- e. It is compatible with AVL's DOVE X.

- f. The system prefixes all format names with C#, which then becomes part of the format's name.
- g. If the program is named SHOWTIME and the format is named C#SHOW, its programming panel is displayed on the screen immediately after the system boots up.

3.3 USING THE STANDARD FORMAT

To use the standard format, follow the procedure outlined below. (Refer to Chapter 6 for a description of how you program a show.)

- a. Place the PROCALL-X disk into Drive A.
- b. Place a storage disk in Drive B.
- c. Boot PROCALL-X by turning AVL Genesis on.
- d. When the following prompt appears on the screen:

HELLO, I AM GENESIS FROM
AVL. WHAT IS YOUR NAME?

Type your name and press the RETURN key. Or, if you do not wish to enter your name, merely press RETURN.

e. When the prompt:

HI THERE NAME. NICE TO MEET YOU.

WOULD YOU LIKE TO:

- (1) CONTINUE WITH THE STANDARD FORMAT
- (2) CREATE YOUR OWN FORMAT
- (3) USE A FORMAT PREVIOUSLY CREATED

appears on the screen, hit the 1 key.

f. When the prompt:

PLEASE NAME YOUR PROGRAM AND WE CAN BEGIN

is displayed on the screen, type the name of the program and press RETURN.

NOTE: If you do not want to name the program, press RETURN and the program will be named DEMO 1. However, if you save the program it will write over any DEMO 1 program already existing on the disk.

- g. You can begin entering cues when the programming panel display showing the standard format for Bank A and Bank B appears on the screen. Refer to Figure 3-1 for a description of the standard format.

BANK A STATUS					BANK B STATUS				
1	2	3	4	5	1	2	3	4	5
AO	DO	GO	JO	MO	AO	DO	GO	JO	MO
BO	EO	HO	KO	NO	BO	EO	HO	KO	NO
CO	FO	IO	LO	OO	CO	FO	IO	LO	OO

FIGURE 3-1 STANDARD FORMAT

3.4 CREATING A NEW FORMAT

To create a new format, follow the procedure outlined below. (Refer to Chapter 6 for the descriptions of how you program a show.)

- a. Place the PROCALL-X disk into Drive A.
- b. Place a storage disk in Drive B.
- c. Boot PROCALL-X by turning AVL Genesis on.
- d. When the following prompt appears on the screen:

HELLO, I AM GENESIS FROM
AVL. WHAT IS YOUR NAME?

Type your name and press the RETURN key. Or, if you do not wish to enter your name, merely press RETURN.

- e. When the prompt:

HI THERE NAME. NICE TO
MEET YOU.

WOULD YOU LIKE TO:

- (1) CONTINUE WITH THE
STANDARD FORMAT
- (2) CREATE YOUR OWN
FORMAT
- (3) USE A FORMAT
PREVIOUSLY CREATED

appears on the screen, press the 2 key.

- f. When the configuration table (see Figure 3-1) appears on the screen, configure the format as described in Paragraphs 3.4.1 and 3.4.2. below.
- g. After the new format is configured, press the ESC key.
- h. When the following prompt comes on the screen:

DO YOU WANT TO SAVE THIS
FORMAT?

enter Y for yes, or N for no,
and press RETURN.

- i. If you indicated that you did not want to save the format, skip to Step k. below.

When the prompt:

WHAT NAME DO YOU WANT TO
USE?

C#

comes on the screen, type the name of the program and press the RETURN key. (The system name for the format will be C#NAME, where NAME is the name you enter here.)

- j. When the GENESIS asks:

WHAT DISK DO YOU WANT TO
USE:

type B and press RETURN.

- k. When the prompt:

PLEASE NAME YOUR PROGRAM
AND WE CAN BEGIN

is displayed on the screen, type the name of the program and press RETURN. (Special characters and the use of the space bar are not permitted in file names).

NOTE: If you do not want to name the program, press RETURN and the program will be named DEMO 1. However, if you save the program, it will write over any DEMO 1 program already stored on the disk.

3.4.1 FLEXIBLE FORMATTING

Flexible Formatting is used when you are creating a new format. This powerful feature allows you to set up your projectors in any way and then to lay them out on the video screen in the same physical manner so that your video screen reflects the actual projector setup when looked at from the back. You are given a 54 position grid in which to place your 15 projectors. This means you are allowed nine screens per Bank and six projectors per screen. It does not mean that you are allowed a total of 54 projectors, just 54 places in which to choose the placement of 15 projectors.

When formatting, you must name the DOVE X and the projector, e.g.: 1A, 2B, 3B, 4C, 5C, etc.

You may format vertically, horizontally, or randomly; remember, however, that what you are looking at on the screen is the same as if you were looking at a rear view of the projectors. Refer to Paragraph 3.4.2 for sample formats.

3.4.2 NEW FORMAT EXAMPLES

The sample formats shown below demonstrate how easy it is to create a

new format using the GENESIS configuring table. Refer to Figure 3-2 for an illustration of the table.

- a. Bank A shows a sample of vertical and horizontal formatting; while Bank B is an example of block coding. The block coding is equal to the GENESIS' standard format.

BANK A STATUS									BANK B STATUS								
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
1A	2A	2B	3A	3B	4C	2B	2C		1A	2A	3A	4A	5A				
1B									1B	2B	3B	4B	5B				
1C									1C	2C	3C	4C	5C				

The above sample formatting would result in the following program format.

BANK A STATUS								BANK B STATUS				
1	2	3	4	5	6	7	8	1	2	3	4	5
AO	DO	EO	GO	HO	LO	EO	FO	AO	DO	GO	JO	MO
BO								BO	EO	HO	KO	NO
CO								CO	FO	IO	LO	OO

b. Bank A is an example of vertical, horizontal, and random formatting; while Bank B is mostly an example of random coding.

BANK A STATUS

BANK B STATUS

```

1 2 3 4 5 6 7 8 9
1A2A2B3A3B4C2B2C
1B 3C 5B 4A
1C      5A 4B

```

```

1 2 3 4 5 6 7 8 9
1A 3A
2B3B 5B
1C      4C5C

```

The above sample formatting would result in the following program format.

BANK A STATUS

BANK B STATUS

```

1 2 3 4 5 6 7 8
AO DO EO GO HO LO EO FO
BO      IO      NO      JO
CO          MO      KO

```

```

1 2 3 4 5
AO      GO
EO HO      NO
CO          LO OO

```

3.5 ACCESSING A PREVIOUSLY CREATED FORMAT

To use a previously created format, follow the procedure outlined below.

- a. Place the PROCALL-X disk into Drive A.
- b. Place a storage disk in Drive B.
- c. Boot PROCALL-X by turning AVL Genesis on.
- d. When the following prompt appears on the screen:

HELLO, I AM GENESIS FROM
AVL. WHAT IS YOUR NAME?

appears on the screen, type your name and press the RETURN key. Or, if you do not wish to enter your name, just hit RETURN.

- e. When the prompt:

HI THERE NAME. NICE TO
MEET YOU.

WOULD YOU LIKE TO:

- (1) CONTINUE WITH THE
STANDARD FORMAT
- (2) CREATE YOUR OWN
FORMAT
- (3) USE A FORMAT
PREVIOUSLY CREATED

appears on the screen, type 3.

- f. When the prompt:

**WHAT NAME DO YOU WANT TO
USE?**

appears on the screen, type
the C#NAME (where NAME is the
name of the program) and hit
RETURN.

- g. When the prompt:

**WHAT DISK DO YOU WANT TO
USE**

comes on the screen, type B
and hit RETURN.

- h. When the prompt:

**PLEASE NAME YOUR PROGRAM
AND WE CAN BEGIN**

is displayed on screen, type
the name of the program and
press RETURN.

- i. When the programming panel
appears on the screen, it will
display the requested formats
in the A and B status fields.

- i. You can begin entering cues when the programming panel displaying the desired formats for Bank A and Bank B appears on the screen.

Chapter 6 describes the procedures used for entering cues in the cue list when programming a show.

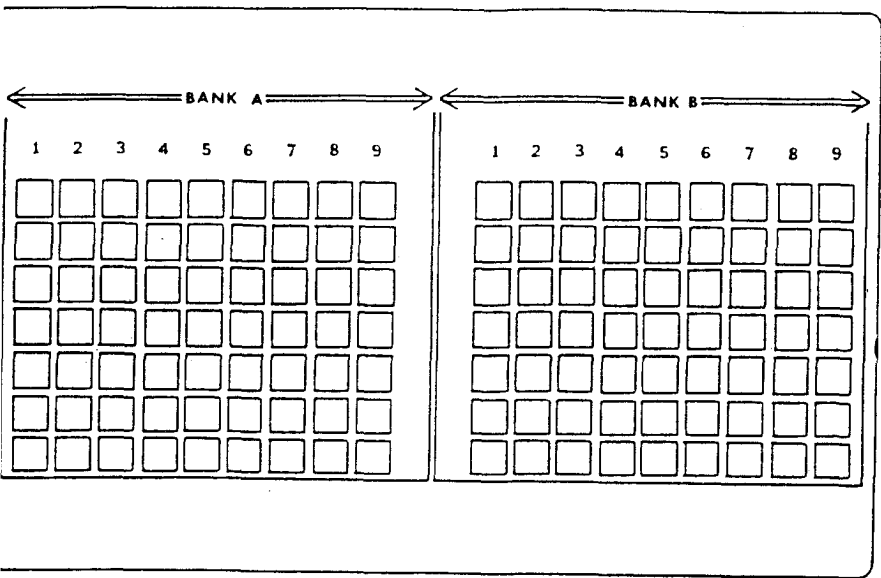


FIGURE 3-1 CONFIGURING TABLE

CHAPTER 4

EXCHANGING DOVES AND INDEPENDENTS

4.1 GENERAL

Exchanging (the ESNx,y command) DOVE Xs and Independents is a very important feature under PROCALL-X, especially with Flexible Formatting. ESN is very useful when merging two shows with different formats. It is a powerful command, because it eliminates the need for time consuming editing and reprogramming of a show with a different format.

It also is used for changing programs to accomodate more projectors as will be shown in the accompanying examples.

4.2 ESN COMMAND

The ESN command allows you to change not only within a single bank, but between Banks A and B also.

The rules of ESN in order of importance are as follows:

- a. You can only exchange DOVE Xs if they have an equal number of projectors in them.

- b. You cannot exchange a DOVE X or Independent designation that currently has programming.
- c. It is necessary to exchange both DOVE X numbers and Independents, except when merging two programs of different formats.
- d. ESN is a CONTROL COMMAND (Ctrl/C).
- e. You may exchange independent projectors.
- f. You may exchange between banks.

The ESN command is typed as follows:

- a. For DOVE X exchange:
 - 1. ESN1A,2A (Exchange DOVE 1 to DOVE 2 in Bank A)
 - 2. ESN1A,2B (Exchange DOVE 1 in Bank A to DOVE 2 in Bank B)

b. For Independent exchange:

1. ESNAAB,BA (Exchange
Projector A to Projector
B in Bank A)
2. ESNAAB,BB (Exchange
Projector A in Bank A to
Projector B in Bank B)

ESN is a versatile feature, as shown in the remaining paragraphs of this chapter.

4.3 EXCHANGING DOVES AND INDEPENDENTS

Suppose we want to merge the program in FORMAT 1 below into a show with the following format, namely FORMAT 2. This can easily be done since the DOVES have the same number of projectors as in FORMAT 1 of this example (Rule a. in paragraph 4.2 above). We can merge the program using two different methods.

4.3.2 FORMAT 2

PROGRAM NAME: LEARN OPERATOR
MODE: MT BYPASS 0.00
CONTROL COMMAND: GX1.00
STATUS:

BANK A STATUS					BANK B STATUS
1	2	3	4	5	
A O	D O	G O	J O	M O	
B O	E O	H O	K O	N O	
C O	F O	I O	L O	O O	

- a. The first method changes DOVE X numbers leaving screens 4 and 5 blank. The commands are as follows:

ESN3A,2A
ESN5A,3A

Notice that your program is corrected to fit the format you are merging into. There is no need to exchange Independents. They match in both formats since we have exchanged DOVE X numbers.

- b. The second method changes Independents, removing DOVES 2 and 4 from the show. The commands are as follows:

ESNDA,GA
ESNEA,AA
ESNFA,IA
ESNGA,MA
ESNHA,NA
ESNIA,OA

In this second method the program is also corrected to fit the format you are merging into. Here, there is no need to exchange DOVE X numbers now that the Independents have been exchanged. Therefore, ESN makes merging of programs of similar format simple.

CAUTION: It is not possible to exchange DOVE 1 with DOVE 3 in this example. Your programming contains commands for both DOVES and exchanging 1 for 3 would also wipe out the commands for screen 3. Therefore, always exchange into a screen number or independent that is not being accessed by your current program (Rule b. in Paragraph 4.2 above).

4.4 CHANGING PROJECTORS

Suppose you have a program that is long enough for projectors to require slide tray changes and you want to revise this program to switch to a second set of projectors rather than changing trays. Suppose the following is your format and program:

```
PROGRAM NAME: LEARN      OPERATOR:
MODE:   MT BYPASS                      0.00
CONTROL COMMAND:                GX1.00
STATUS:
```

BANK A STATUS			BANK B STATUS
1	2	3	
A O	D O	G O	
B O	E O	H O	
C O	F O	I O	

CUE#	CODE	STATEMENT	BANK A	BANK B	RUN
1	AT	ALT	ABCDEF	GHI	
2		.			
3		.			
4		.			
5		.			
.		.			
2000	AT	ALT	123		
2001	2A	2 SEC ALT	B	E	H
2002	8A	8 SEC ALT	ABCDEF	GHI	
2002	2A	2 SEC ALT	123		
2003	16A	16 SEC ALT	A	D	G

Suppose that at cue #2000 you want to switch to other projectors to save a tray change, do the following steps.

- a. Boot up AVL Genesis and place the format above in both Bank A and Bank B.
- b. Load your program and clear all cues before cue #2000.
- c. Exchange DOVES and Independents between Bank A and Bank B which automatically places the program portion into Bank B (Rule f. in Paragraph 4.2).
- d. Go to the CONTROL COMMAND FIELD and perform the following exchanges (Rule d. in Paragraph 4.2).

ESN1A, 1B
ESN2A, 2B
ESN3A, 3B
ESNAA, AB
ESNBA, BB
ESNCA, CB
ESNDA, DB
ESNEA, EB
ESNFA, FB
ESNGA, GB
ESNHA, HB
ESNIA, IB

Using this approach, when the program reaches cue #2000 the projectors in Bank B will be commanded and the projectors in Bank A will be finished.

NOTE: Since the above Program Commands control projectors by both screen number and independents, all screen numbers and independents must be exchanged (Rule c).

NOTE: It is also acceptable to exchange screen numbers and independents from Bank B to Bank A. For example ESN 1B, 1A exchanges screen 1 from Bank B to A.

After doing those examples, the use of ESN should become clear. It is important to understand all of the rules that have been presented in order to use this command correctly.

CHAPTER 5

PROCALL-X COMMANDS

5.1 GENERAL

This chapter details all the commands that are valid under PROCALL-X. A shorter version of these same commands is contained in Appendix A.

5.2 PROGRAMMING COMMANDS

The subparagraphs that follow describe the commands that are entered in the columns labeled code and screen.

5.2.1 COMMANDS ENTERED UNDER THE CODE HEADING

CT (CUT)

This cue turns the lamp ON or OFF quickly. If the lamp is already ON, this will turn the lamp OFF and initiate a tray advance. If the lamp is off it will then be turned ON. If you wish to cross from one visual to another quickly, a CUT will turn the ON lamp OFF and the OFF lamp ON, and the projector with the down going lamp will perform a tray advance. A CUT employs the after burner effect as described in the note below.

NOTE: A projector lamp does not turn on or off instantly with the application or removal of power. The lamp actually requires a fraction of a second to heat up or cool down. This is called the "thermal lag" of the lamp, and the lag is different for turning the lamp on than it is for turning the lamp off. All AVL computerized dissolve controls automatically compensate for this effect.

Cuts and Alternates employ an "After-burner Effect" which allows the lamp to reach its full intensity. Because of the time involved due to the lamp lag, the after burner does not allow the lamp to flash on and off at 20 cues per second. Therefore, the Fast Alternate was created to defeat the after burner and to allow solo flashing and movement of visuals at 20 cues/second.

SC (SOFT CUT)

A soft cut is a compromise between a cut and a one second dissolve. The projector with a down lamp will do a tray advance.

HC (HARD CUT)

A hard cut was designed with two things in mind, first was the desire to move images faster, and second was the ability to create a sharper, harder image change on the screen. A hard cut closes the gate of the slide projector which shuts off the light before the lamp is turned OFF. The tray advances to the next image. That projector is now ready to be turned ON again with the next slide. When HARD CUTS are used to make a transition between 2 visuals the change is much crisper than a CUT. This can be used to simulate the flicker of an old time movie when moving through many visuals rapidly.

DISSOLVES

These cues turn the lamp ON or OFF in the designated amount of time in seconds, creating a dissolve or a fade effect, e.g. 2D is a 2 second dissolve. You can create a cross-fade or dissolve from one visual to another using a dissolve in conjunction with 2 or more projectors. Again, the projector with the down-going lamp will have a tray advance.

1 D	3 D	6 D	16 D
2 D	4 D	8 D	32 D

FA (FAST ALTERNATE)

This cue turns the lamp ON or OFF as fast as the lamp allows. It is used to do alternates at 20 cues per second and roughly equates to a HARD CUT with no tray advance.

BA (BLINK ALTERNATE)

This new feature can best be defined as a Fast ALT for a loop. If the projector status states that the lamp is ON, a BLINK ALT command will act as a FAST ALT and turn the lamp ON and OFF instantaneously. If the status says the lamp is OFF, the BA will not turn the lamp on whereas FAST ALT will. This eliminates the popping on of the lamps at the end of a programmed blinking dissolve sequence.

Secondly, if Blink Alt, Wait Cues, or Freezes only are employed in a loop, it is possible to program a dissolve after a loop has been started. For example, suppose we program a three projector Blinking Loop using the BA command. This Blinking loop can be dissolved up and down, similar to methods used with the older Version 5 BLINK GO command.

AT (ALTERNATE or ALT)

This cue turns the lamp ON or OFF with no tray advance. An ALT looks like a CUT on the screen with no tray advance.

DISSOLVE ALTERNATES

These commands are equivalent to the dissolves but with no tray advance for the down-going projector at the end of the dissolve.

1 A	3 A	6 A	16 A
2 A	4 A	8 A	32 A

SA (SOFT ALT)

Visually the same as a SOFT CUT but without a tray advance.

AUXILIARY FOR DOVES

This command (A thru J) is now programmed with Independents only. The letters A thru J are used instead of, for example, 1L and 1R. The following table shows the PROCALL-X commands as compared to the PROCALL commands.

NOTE: We are using the dove number rather than screen number as our auxiliary reference.

DOVE #	PROCALL-X	PROCALL
1	AX A	AX 1 L
	AX B	AX 1 R
2	AX C	AX 2 L
	AX D	AX 2 R
3	AX E	AX 3 L
	AX F	AX 3 R
4	AX G	AX 4 L
	AX H	AX 4 R
5	AX I	AX 5 L
	AX J	AX 5 R

FZ (FREEZE)

The AVL Genesis has the ability to stop any dissolve alternate while it is in progress and hold the light level at any light intensity. This cue also allows you to continue the dissolve in the same direction at the same rate or change the rate. You are also permitted to change directions using the same rate or a different rate. Only dissolve alternates should be used with a FREEZE.

HOME (PROGRAMMABLE RETURN TO BEGINNING OF PROGRAM)

Home is used as a program function to return the program, slide trays, and lamp statuses to the home (cue #1) position. Home brings the lamps down and sends the trays to their original starting position by the shortest route.

NOTE: When Home is part of a Run Sequence in the program, the program will assume it is to continue to run. The program will execute cue #1 and all subsequent cues in memory until it encounters a STOP command.

LDxx (PROGRAMMABLE LOAD OF FILE xx)

This cue automatically executes load from the disk into memory. When the LOAD FILE cue is executed in a run mode, the system will load the file xx. The program file system will then reset itself to cue number one and continue to run from that point. The tray and lamp status of the projectors will stay exactly the way they were before the load. Keep in mind that while the system is loading the file it is totally occupied. Pick a convenient slow period when no projector action is needed such as a wait or long dissolve.

LG (LOOP GO)

LG with DOVE X dissolves will cause all specified LOOPS to be repeated until told to STOP.

LL (LOAD LOOP)

LL is used to instruct DOVE X's to store a series of cues (ACTION CUES) in their memory as a routine that will be repeated.

LPxx (LOOP REPEAT xx TIMES)

This command specifies the number (xx) of times a loop is to be repeated. It acts much like a RPxx but the DOVE X's independently carry out this action.

LS (LOOP STOP)

LS will cause all LOOPS in progress on the designated DOVES to stop.

NOTE: Loop commands LL, LG, LS must designate Independents (A thru O) to participate within a particular loop. Screen numbers are invalid.

N (NO OPERATION)

This has no effect on the screen action. It equals a .1 second wait at 10 cues per second and a .05 second wait at 20 cues per second. N is also used as a convenient location for a RUN or STOP separate from any screen action.

PF (PROJECTOR FORWARD)

This cue, used with an Independent projector designation, will move the assigned projector tray forward one position without effecting the lamp status. If you use PF with a screen number designation, the system will assume that you want all projectors in the screen to move FORWARD one position. You cannot use both a screen number and an Independent in one cue.

PR (PROJECTOR REVERSE)

This command functions the same as the PROJECTOR FORWARD command except that it will REVERSE the trays one position.

RPO (REPEAT UNTIL TERMINATED)

This cue is used if an undetermined number of REPEATS is desired. The RPO can be terminated by pressing the CUE (F10) key or using a REMOTE CUE. This command is of use when you are doing the "live" portions of your program and the length of a sequence has not been predetermined.

RPX (REPEAT X)

RPX allows you to let the AVL Genesis determine the number of times the sequence has to repeat. It is used while you are in the RUN mode and actually viewing the sequence. Enter the RPX into the program and start the sequence running, when the desired number of repeats have taken place on the screen press the F10 (CUE) key to move on to the next part of your program. The AVL Genesis will resolve the "X" to the number of times the sequence is repeated.

NOTE: When you press the CUE (F10) key to resolve the RPX, the system will finish the sequence in progress before moving on.

RPxx (REPEAT xx)

This command is used to repeat a series of cues that have a RUN embedded in the first cue to that sequence. The number (xx) of times to be repeated can be from 1-255. Up to 10 consecutive (nested) RP commands are allowed.

NOTE: When you repeat a sequence 23 times the sequence will actually take place 24 times. The sequence will take place once and then be repeated 23 times.

With the use of nesting, it is possible to create a sequence that has billions of cues. Use nesting with extreme care

S10 (SPEED = 10 CUES PER SECOND)

S10 is used to shift speed from 20 cues per second to 10 cues per second. The AVL Genesis will automatically select 10 cues per second when the system is first LOADED, when you CLEAR ALL CUES from the control command mode or when you perform a HOME.

S20 (SPEED = 20 CUES PER SECOND)

S20 is used to increase the running speed to 20 cues per second.

NOTE: The AVL Genesis can execute a program (run sequence) at 10 cues per second or at 20 cues per second. Either speed may be selected by embedding speed change cues in the program. At 10 cues

per second the AVL Genesis will wait .1 seconds between the time a cue is issued and the time a subsequent cue is issued. At 20 cues per second the system will wait .05 seconds between cues.

A RUN sequence is initiated by using a RUN command (stopped by a STOP command) or with the use of time cues from the Clock-trak. A RUN sequence will execute until it encounters a stop or the next time cue. Run sequences are used to fire a series of cues rapidly with precise timing.

SG (SMOOTH GO)

SG is a DOVE X command which allows direction change at any point in a dissolve curve. This feature enables the programmer to produce a rippling effect by cueing other dissolves before the completion of the previous dissolve. If this procedure were done without SMOOTH GO, the previous dissolve would move to its ending state when another dissolve is cued in, giving a popping effect.

SS (SMOOTH STOP)

SS is used to return all Doves to normal from SMOOTH state.

TBxx (TAB xx)

This is a label which may be nested in the program to mark different sections of the show, where xx may be any two characters.

TX (TIME X)

TX is used to mark the beginning of a timed (RUN) sequence using the Clock-trak. The X value is resolved when you press the F10 (CUE) key.

NOTE: TIME (hh:mm:ss:ff) cues in .01 second steps may be located in the program at any desired point. In this format "hh" is hours, "mm" is minutes, "ss" is seconds and "ff" is hundredths of seconds. You do not have to enter unused fields. For example:

10	Becomes 10 Seconds
10:	Becomes 10 Minutes
10: :	Becomes 10 Hours

The maximum value for a time cue is approximately 11 hours and 39 minutes. A time cue of 0.00 is not valid. If you should attempt to enter a time cue less than or equal to the current time, the system will reject the cue and issue a message on the status line. A time cue

is essentially a null cue, that is, nothing goes out the mag tape channel when it is executed. WHEN A MAG TAPE SAVE (MSV) operation is performed the time cues are recorded on the tape. A time cue takes less than .01 seconds to execute.

When PROCALL-X encounters a time cue while in the run mode, it will cause the program to stop. PROCALL-X will then wait until the clock equals the value of the time cue and then put the program into the RUN mode again.

W.05 thru W10 (WAIT TIMES)

Waits are computer-generated timing links that allow you to time out action sequences precisely. These times are entered into the program in the form of wait cues ranging from .05 seconds up to 10 seconds. If a wait time longer than 10 seconds is desired, you may use consecutive wait cues to achieve the desired wait time.

NOTE: Because of the convenience of using Clock-trak, we strongly suggest that you use it instead of WAIT commands for times in excess of 1.5.

WX (WAIT X)

This cue is used when the proper timing of a sequence has not been determined before programming. The WX cue is resolved to the nearest .05 second when you are operating at 20 cues per second and to the nearest .1 second when you are operating at 10 cues per second. The WAIT X is resolved by pressing the F10 (CUE) key during the running of the particular section.

5.2.2 COMMANDS ENTERED UNDER THE SCREEN HEADING

R (RUN)

RUN is used in the screen area of the DISPLAY LINE to designate one of the following:

1. To mark the beginning of a REPEAT sequence.
2. To initiate a RUN sequence.
3. As a reference point.

S (STOP)

A stop is used in the screen area of the display line to designate one of the following:

1. To mark the end of a RUN sequence.
2. To stop the screen action when using Clock-trak.

P (PROCEED)

When running 20 cues per second, this is a 1/40th second link between two cues referencing different Banks. Its purpose is to approximate being able to make two separate cues happen at the same time. For example:

CUE#	CODE	STATEMENT	BANK A	BANK B	RUN
1	AT	ALT	ABCD		P
2	2D	2 SEC DIS		A C EF	

These two cues are staggered 1/40th second apart between Out 1 and Out 2, so that both cues are effectively given in 1/20th of a second. When running 10 cues per second, the two cues are staggered 1/20th of a second apart on Out 1 and Out 2. Please note that in order to maintain PROCEED outputting, a P must be given on every other cue otherwise Genesis returns to its normal output procedure.

SCREEN NUMBERS

Possible screen numbers on OUT 1 (BANK A) and OUT 2 (BANK B) are 123456789.

INDEPENDENT DESIGNATIONS

Possible Independent designations on OUT 1 (BANK A) and OUT 2 (BANK B) are ABCDEFGHIJKLMNO.

AUXILIARY DESIGNATIONS

Possible auxiliary designations are ABCDEFGHIJ. Screen numbers are not valid with this command.

NOTE: The use of a screen number with an Independent is invalid.

5.2.3 COMMANDS FOR EDITING PROGRAMS

Editing is a very important part of programming. The commands described below will assist you in editing your program quickly and easily.

Certain keys have dual functions and some keys are used in conjunction with the Ctrl key. For purposes of notation, to indicate that two keys are to be pressed simultaneously, a slash (/) is inserted between the names of the keys, e.g: CTRL/A.

CTRL/A (ADD A CUE)

This allows you to open up the memory and insert a cue into your program. This will move all subsequent cues down one cue number in the memory. Same as Ins (Insert) key.

CTRL/B (REVERSE TO PREVIOUS TAB)

Same as CTRL/TAB.

CTRL/C (CONTROL COMMAND)

This is the way to enter the Control Command mode.

CTRL/D (DELETE CUE)

This will delete (remove) the cue that is being previewed and will close up the memory.

CTRL/G, ENTER (HOME PROJECTORS)

This will issue a HOME cue to the attached dissolve units and return the program to CUE #1. The lamps will come down and the trays will move to their original starting position via the shortest route. This command functions the same as typing GOTO in the Control Command field.

CTRL/Gxx (GOTO CUE xx)

This will issue a command to the AVL Genesis to GOTO a specified cue in memory, where xx is the desired cue number. The lamp status and tray position will be updated to the dissolve units. This cue is used to move from any cue in memory to any other cue in memory. Use 9999 as the cue number to quickly move to the end of your program, since the GOTO will stop at the last cue in memory. Same as typing GOTOxx in Control Command field

CTRL/G,T,M, (GOTO TIME HH:MM:SS:FF:)

This will issue a command to GOTO the desired time cue. If there is no time cue equal to the entered value, the system will go to the next time cue greater than the desired cue. Same as typing GOTO TIME in the Control Control field.

CTRL/N (DISPLAY NOTES/NORMAL)

This is used to display a NOTE stored in the note buffer (the program will continue to run without interruption).

CTRL/P (SLIDES DISCONNECT/NORMAL)

This command disconnects or disables any slide projector cues from going out of the AVL Genesis system. Same as typing PD or PN in the Control Command field.

CTRL/Q (STEP REVERSE CUE)

This steps you through the program in the REVERSE direction in the cue each time the Q is depressed while holding down the Ctrl key. Reverse scrolling at 10 cues per second is initiated by depressing the CTRL/Q and repeat keys simultaneously.

CTRL/R (REPEAT PREVIOUS CUE)

This repeats the previous cue each time the CTRL/R is depressed. Cues may be repeated rapidly by depressing the CTRL/R keys and holding them down. The AVL Genesis will sense any key held down for longer than a second and repeat it.

CTRL/S (STANDBY)

This will bring down the lamps of all projectors. The projectors will respond to advances and reverses and keep track of the lamp and tray statuses. To return to the normal lamp status, depress CTRL/S again.

CTRL/T, ENTER (GOTO NEXT TAB)

This allows you to access the TAB cue quickly.

CTRL/T,xx (GOTO TAB xx)

This allows you to GOTO any desired TAB, where xx is the desired TAB. Same as typing GOTO TB in the Control Command field.

CTRL/U (Change Mode)

This command will allow the user to change assignments to different locations while creating a screen format.

CTRL/X (AUX DISCONNECT/NORMAL)

This disconnects or disables auxiliary cues from going out of the AVL Genesis system. Same as typing AD or AN in the Control Command field.

CTRL/V

This allows the display of the DOVE X number and projector designations in the status area. This allows easy reference to show which Independents correspond to which projector. Pressing CTRL/V again returns status to normal.

CUE (F10)

The CUE key commands the AVL GENESIS system to execute a cue or run a sequence from memory. When you are using Clock-trak, the AVL Genesis will execute a chain of cues from memory until the next time cue is encountered. If you are hand cueing or remote cueing the system, CUE will step the program one cue at a time or start a run sequence if that cue has a RUN included in it. If projectors have been formatted for both BANK A and BANK B, but you first want to program BANK A only, use CUE to enter cues because it eliminates having the cursor moving into BANK B. When booting up the system, CUE will move directly to the standard format.

REVERSE CUE (F9)

When depressed, this key will move the program (memory) in the REVERSE direction as explained below.

1. One cue if you are not in a RUN condition.
2. To the previous GO in a RUN mode.
3. To the previous TIME cue using Clock-trak provided there is not an intervening GO command.
4. To the previous LL if it is in a loop mode.

RETURN or ENTER

Depressing this key will enter the cue into the memory of the AVL Genesis. This key is generally used to enter information into the system. It is essential to use this key to move through the flexible formatting questions and entries.

NOTE: When formatted for BANK A only, the cursor never enters the BANK B column.

ESC (ESCAPE)

This allows you to ESCAPE (stop) any action that is being carried out by the AVL Genesis. ESCAPE will turn off the MAG TAPE INPUT and cause the system to ignore Clock-trak or data information. Pressing any key will turn the MAG TAPE INPUT back on; AVL recommends that you use the space bar. The ESC key also returns you to the programming mode from the Control Command mode.

Q (STEP CUE)

This will step you through the program in the FORWARD direction each time you push the key. Scrolling in the forward direction at 10 cues per second may be initiated by depressing the Q key and holding it down.

TAB (FORWARD TO NEXT TAB)

SAME as CTRL/T, ENTER.

SPACE BAR (CURSOR RIGHT)

This key is used to move the cursor to the right without changing the character the cursor is moving across.

BACKSPACE (CURSOR LEFT)

This key is used to move the cursor backward or to permit a change if a mistake is made during formatting.

5.3 CONTROL COMMAND ENTRIES

The subparagraphs that follow list and describe the following listed Control Command field entries.

- * Editing Control Commands
- * Memory/Disk Data Transfer Commands
- * Magnetic Tape Control Commands
- * Serial and Parallel Print Commands

5.3.1 EDITING CONTROL COMMANDS

BPF ENTER (BEEPER OFF)

This allows you to turn the BEEPER OFF.

BPN ENTER (BEEPER ON)

Turns the BEEPER back to normally ON.

CAC ENTER (CLEAR ALL CUES)

This command clears all cues from the memory. A home is also issued to the dissolve units.

NOTE: Use CAC with caution. Be sure you have stored the information you are clearing or that you really do not want the information.

CLN (CLEAR NOTES)

This permits you to clear a NOTE currently stored in the NOTE buffer.

CUES (DISPLAY TOTAL CUES)

This displays the total cue storage capability of the memory and the amount of cues remaining. Subtracting the two will give you the total cues used in the program.

ESN (EXCHANGE SCREEN NUMBERS)

ESN exchanges both screen numbers and independents. ESN is entered as: ESN vx, yz, where v and y are screen numbers or independents and, where x and z are either Bank A or Bank B.

IAMxx (CHANGE OPERATORS NAME TO xx)

This command changes the operator name on the program in memory to xx (xx may be up to 25 characters in length).

KBF (KEYBOARD EDIT OFF)

This command disables the keyboard so that no direct changes can be made to the cues of the program. Any of the features of the AVL Genesis system that are available to you in the CONTROL COMMAND mode are still usable.

KBN (KEYBOARD EDIT ON)

This returns the keyboard to normal operation.

NEW (ESTABLISH NEW HOME POINT)

This tells the system that you want to use the current projector status as the home reference point. This is done automatically with the cue of programmable loads.

NOTES (EXAMINE AND EDIT NOTES)

This blanks the display and allows the entry of up to 11 lines of 45 characters each. A NOTE can store information such as special set up instructions for a show.

PGMxx (CHANGE PROGRAM NAME TO xx)

This permits you to change the name of the program in memory to xx (xx may be up to 8 characters in length).

RCF (REMOTE CUE OFF)

This will turn the REMOTE CUE jack off. The AVL Genesis system will ignore any remote cue impulses.

RCN (REMOTE CUE ON)

This will return the remote cue jack back to its normally on ON state.

RTC x.y (REPLACE TIME CUES WITH TX)

This command will replace all TIME cues with TIME X cues beginning with the first cue specified (x) and continuing until the last cue specified (y) has been examined.

TOC x,y (TIME OFFSET CUES HH:MM:SS:FF)

This command allows you to add or subtract a time value from either a range of time cues or from all time cues in memory. PROCALL-X will use the first cue number (x) to begin a search for time cues to be modified and continue until the last cue specified (y) has been examined and changed.

TPOx (TRAY POSITION OFFSET)

This will set a starting tray position for the position status. You can use any (x) number from 0 to 80.

5.3.2 MEMORY/DISK DATA TRANSFER COMMANDS

AVL (CLOCK-TRAK)

This command turns AVL's Clock-trak ON and causes the SMPTE indicator to disappear from the display line. Clock-trak is the default timing and control code.

APxx (APPEND FILE)

This allows you to add a file named xx from the disk to the end of the program in the memory of the AVL GENESIS. The long form "APPEND xx" is the same.

CNPxx (CLEAR NAME PROTECT)

This command allows a file named xx to be renamed.

CWPxx (CLEAR WRITE PROTECT)

This command clears the WRITE PROTECT feature on file named xx and allows you to then delete the file from the disk.

DELxx (DELETE FILE FROM THE DISK)

This command permits you to delete a file named xx from the disk. Deletion occurs only if the program is not WRITE PROTECTED. Same as long form DELETE xx.

DLC xx,yy (DELETE CUES FROM xx to yy)

This command allows you to delete portions of your program from cues xx to yy inclusive.

**DSK (DISK DRIVE INDICATION
(For AVL Genesis Only))**

Typing DSKA instructs AVL Genesis to use the A (left) drive. Likewise DSKB instructs for the use of the B (right) drive.

INSxx (INSERT FILE NAMED xx)

This command allows you to insert a program named xx between cues already in the memory of the AVL Genesis. The insertion takes place at the location of the cursor. The long form is INSERT xx.

LDxx (LOAD FILE NAMED xx)

This permits you to load a program named xx from the disk into memory. The long form LOAD xx is the same.

LIB (LIBRARY)

This will display on the video monitor the file names of all programs stored on the disk. When a full screen of library entries has been displayed push any key, except the ESC or F10 (CUE) keys, to see

the next line of entries. To start over again at the top of the list, push the REVERSE CUE (F9) key. If you do not wish to see any more entries, push the ESC key.

NLDxx (NOTES LOAD xx)

This will load a NOTE file titled xx into the NOTE buffer in the memory of the AVL Genesis.

NPRxx (NAME PROTECT xx)

This will protect a file named xx from being accidentally renamed.

NSVxx (NOTES SAVE xx)

This will save a NOTE currently in the NOTE buffer in memory on to the disk at xx (xx may be any two characters).

RNMx,y (RENAME FILE x AS y)

This will rename a file titled x on the disk as y. Renaming will occur only if the file is not name protected. Same as long form RENAME.

SV (SAVE)

This saves the program in memory on the disk with the Program Name shown on the monitor as the file name. ("SAVE")

SVxx (SAVE CUES xx)

This command will save the program in memory on to the disk with xx assigned as the file name; xx may be up to 8 characters in length. The long form, SAVE xx is the same.

**SCxx.yy.FILENAME (SAVE CUES xx TO yy
UNDER FILENAME)**

This command allows you to save sections of cues out of your program onto the disk under an assigned file name.

SMPTE

This command tells Genesis to use SMPTE as the timing and control code. When SMPTE is selected, SMPTE is shown on the display line.

WPRxx (WRITE PROTECT xx)

This enables you to protect a file named xx on the disk from accidental erasure.

5.3.3 MAGNETIC TAPE CONTROL COMMANDS

CEM (CLOCK EDIT MODE)

Allows the EXPANDED ROADRUNNER to read Clock-trak of magnetic tape and synchronize the program in memory. If the tape data stops, the program will stop 0.5 seconds after the data stops. As soon as the Clock-trak input begins again, the system will execute a GOTO to be ready for the next section.

CIM (CLOCK INPUT MODE)

This command will put the system into CLOCK INPUT MODE. The CLOCK TRAK data on a tape does not resemble normal cues on a data tape so the AVL Genesis will ignore Clock-trak data unless you are in either CLOCK INPUT or CLOCK EDIT mode. When the system is in either of the two modes (CIM, CEM), it will accept only Clock-trak data as a valid input. The Clock-trak coming into the system starts and stops a program stored in the memory of the AVL Genesis at precise times that you can designate and normal cue data will be sent out of the system.

The main difference between CLOCK INPUT and CLOCK EDIT modes is that in CLOCK INPUT mode the system will continue to run on its own internal clock timer if the input from the Clock-trak on tape

stops. The AVL Genesis will display a message warning you that the input from tape has stopped.

Once a TIME or TIME X cue has been executed, the AVL Genesis will stay in perfect sync with the time recorded on the tape. The system will automatically execute a GOTO, if necessary, to continue tracking with the Clock-trak from tape. If you stop the tape and fast forward or reverse the tape, the system will GOTO the correct place in the program automatically and update projector lamp and tray status.

COM (CLOCK OUTPUT MODE)

This generates Clock-trak from the OUT 1 jack on the AVL Genesis for recording on to magnetic tape. Normally the time will begin at time zero. However, if you want to start at a fixed point in time, you can enter the starting time (see next command).

COM hh:mm:ss (CLOCK OUTPUT MODE)

This also generates Clock-trak from the OUT 1 jack. However, if you want to start at a fixed point in time, you can enter the starting time (hours, minutes, seconds, and hundredths).

MIF (MAGNETIC TAPE INPUT OFF)

This will turn OFF any magnetic tape input and the AVL Genesis will ignore any data input into the PLAY IN jack.

MIN (MAGNETIC TAPE INPUT ON)

This turns the magnetic tape input (PLAY IN) back ON.

MLD (MAGNETIC TAPE LOAD)

This allows you to load a program into the memory of the AVL Genesis from any tape, directly from an AVL Genesis, or one of AVL's other programmers.

MOF (MAGNETIC TAPE OUTPUT OFF)

This will prevent the generation of data information from the OUT 2 jack. When this occurs only nulls are generated. (A null is a signal that indicates the absence of data). Turning the output off enables you to move through programs without advancing the projectors.

MON (MAGNETIC TAPE OUTPUT ON)

This turns on data to the Out 1 and OUT 2 jacks.

MSV (MAGNETIC TAPE SAVE)

This feature allows you to dump the contents of the memory of the AVL Genesis on to magnetic tape in the same fashion as saving the memory contents onto the disk. In dumping a program using both banks of projectors, simply connect the tape recorder to Out 1. Both banks are recorded simultaneously through Out 1. Therefore, it is possible to load a 30 projector show.

PIF (POSI-TRAK INPUT OFF)

This tells the AVL Genesis to disregard any POSI-TRAK being received.

PIN (POSI-TRAK INPUT ON)

This tells the AVL Genesis to process any POSI-TRAK being received.

POF (POSI-TRAK OUTPUT OFF)

This command is used to instruct the AVL Genesis to halt POSI-TRAK generation out. It can still be read into AVL Genesis.

PON (POSI-TRAK OUTPUT ON)

This command is used to instruct AVL Genesis to restore POSI-TRAK generation.

STL (SET LEVELS)

This command tells the AVL Genesis to generate a continuous test tone from the RECORD OUT RCA jack on the rear panel to enable you to adjust the record level of your tape recorder. (Adjust for 0 VU).

VER (VERIFY (MSV ONLY))

This command allows you to verify the accuracy of the information that has been saved on magnetic tape before you clear the program from memory.

5.4 PRINT COMMANDS

The following print commands and print parameters are Control Command Field entries.

NOTE: SPD, PLP, or SLP must be specified BEFORE the commands PLB or PRINT are used. If not, AVL Genesis will automatically select: SPD 300, NPB, and SLP.

PRINT

This command prints Program Name, Operator Name, and Cue information on an external printer.

PLB (PRINT LIBRARY)

This command will print all directory information on an external printer.

SPD (PRINTER SPEED SELECT)

This command selects the Baud rate of the external printer. (See your printer manual for suggested Baud rate). The values that AVL Genesis will accept are as follows; 75, 110, 150, 300, 600, 1200, 1800, 3600, 4800, 7200 9600. If not specified, AVL Genesis will default to BAUD RATE 300.

NPB (NO PRINTER BUSY)

This command tells AVL Genesis not to bother to look for a busy signal. This also is the default condition if no other busy commands are given to the AVL Genesis.

PLP (PARALLEL LINE PRINTER)

This command depends upon the type of External Printer used. Check the printer specifications to determine the type of input your printer accepts. (Parallel or Serial)

SLP (SERIAL LINE PRINTER)

This is the default condition if Parallel Line Printer is not specified.

5.5 COMMANDS FOR OPTIONAL PERIPHERAL EQUIPMENT

Chapter 7 describes the X-15 programming commands used with any optional peripheral equipment.

CHAPTER 6

PROGRAMMING EXAMPLES

6.1 GENERAL

This chapter provides sample programs and an explanation of how they work. It is suggested that these examples, with their new formats, be entered into your GENESIS and studied in detail for a full understanding of the commands and their implementation.

6.2 SAMPLE PROGRAMS

The paragraphs that follow describe the use of Blink Alternate and Looping commands using a square format and using a pyramid format. For these sample programs, we will place the square format on Bank A and the pyramid format on Bank B. This will also serve as an example for formatting with both Banks.

All of the examples described in this chapter use the standard format. Refer to Chapter 3 for setting the standard format.

6.3 USING THE BLINK ALTERNATE

The use of a BLINK ALT (BA) command is much the same as using a FAST ALTERNATE command; the only difference is that the projector lamps will not pop on after a dissolve down.

6.4 DISSOLVING USING BLINK ALT

The Blink Alt has a unique feature that allows easy programming for Blinking dissolves. If your loop contains only Blink Alt and Wait commands, any dissolve can be introduced after the loop has been executed

To see an example, program as follows:

PROGRAM: BLINK OPERATOR:

CUE#	CODE	STATEMENT	SCREENS	RUN
1	TB1	TAB 1		
2	AT	ALT	ABCDEFGH I	
3	8A	8 SEC ALT	ABCDEFGH I	RUN
4	BA	BLINK ALT	BC EF HI	
5	S20	SPEED=20 CPS		
6	N	NO OPERATION		RUN
7	BA	BLINK ALT	AB DE GH	
8	W.05	WAIT 0.05 SEC		
9	BA	BLINK ALT	BC EF HI	
10	W.05	WAIT 0.05		

11	BA	BLINK ALT	A CD FG I	
12	RP66	REPEAT 66 TIMES		
13	BA	BLINK ALT	BC EF HI	
14	N	NO OPERATION		STOP
15	TB2	TAB 2		
16	AT	ALT	ABCDEFGHI	
17	8A	8 SEC ALT	ABCDEFGHI	RUN
18	BA	BLINK ALT	A D G	
19	N	NO OPERATION		RUN
20	BA	BLINK ALT	AB DE GH	
21	W.05	WAIT 0.05 SEC		
22	BA	BLINK ALT	BC EF HI	
23	W.05	WAIT 0.05 SEC		
24	BA	BLINK ALT	A CD FG I	
25	RP66	REPEAT 66 TIMES		
26	BA	BLINK ALT	A D G	
27	N	NO OPERATION		STOP
28	TB3	TAB 3		
29	S10	SPEED=10 CPS		
30	8A	8 SEC ALT	ABCDEFGHI	RUN
31	FA	FAST ALT	BC EF HI	
32	FA	FAST ALT	AB DE GH	RUN
33	FA	FAST ALT	BC EF HI	
34	FA	FAST ALT	A CD FG I	
35	RP66	REPEAT 66 TIMES		
36	FA	FAST ALT	BC EF HI	RUN
37	8A	8 SEC ALT	ABCDEFGHI	
38	FA	FAST ALT	A D G	
39	FA	FAST ALT	AB DE GH	RUN
40	FA	FAST ALT	BC EF HI	
41	FA	FAST ALT	A CD FG I	
42	RP66	REPEAT 66 TIMES		
43	N	NO OPERATION		STOP
44	TB4	TAB 4		
45	8A	8 SEC ALT	A D G	

46	BA	BLINK ALT	A D G	RUN
47	LL	LOOP LOAD	ABCDEFGHI	
48	BA	BLINK ALT	AB DE GH	
49	BA	BLINK ALT	BC EF HI	
50	BA	BLINK ALT	A CD FG I	
51	LP255	LOOP 255 TIMES		
52	N	NO OPERATION		STOP
53	8A	8 SEC ALT	ABCDEFGHI	
54	16A	16 SEC ALT	ABCDEFGHI	
55	6A	6 SEC ALT	ABC	
56	8A	8 SEC ALT	DEFG	
57	1A	1 SEC ALT	HI	
58	32A	32 SEC ALT	A I	
59	16A	16 SEC ALT	B H	
60	8A	8 SEC ALT	C G	
61	6A	6 SEC ALT	D F	
62	4A	4 SEC ALT	E	

NOTE: Since there is a format in Bank B, a Return at the end of a Bank A Cue shifts the cursor into Bank B. To eliminate this, use CUE (F10) to skip the Bank B section.

NOTE: CNTRL/G, RETURN takes you to cue #1. The "Q" key allows stepping through the program. "CNTRL/Q" allows reverse stepping through the program. The CUE key allows cueing with Run Sequences.

Notice that there are four tabs in the program example shown above.

TAB 1 shows a dissolve while blinking in an inverted fashion. An inverted Blink is one where lamps are on and the off lamp is rotated. TAB 2 shows a similar dissolve with a normal Blink; A normal Blink is defined as two lamps off with an on lamp rotating. TAB 3 shows the same Blink as Tab 1, but using the Fast Alt command.

In each dissolve the programmed Blink repeats 66 times which is more than enough for an 8 sec dissolve. This is done intentionally to show you that with BA, the lamps do not pop on at the end of the dissolve.

TAB 4 shows how a Blinking Sequence programmed using Blink Alt and no other Alt commands can accept a dissolve much like the Blink Go of PROCALL-5.

NOTE: The GENESIS will not allow a dissolve when a loop is in progress if other ALT commands are utilized in that loop.

6.5 USING LOOPING COMMANDS

The following program shows some examples of using looping commands. Any of the alternates, waits and freeze commands can be used as long as the loop contains less than 100 cues. Each Dove will accept three different 100 cue loops; one for each projector. Since the loop works on a singular projector basis, they can only be activated using independents (alphabet letters).

NOTE: A Loop Load (LL) command with screen numbers is invalid. The commands within the loop must also be given with independents. The use of screen numbers is forbidden within any loop.

PROGRAM: LPLGLS OPERATOR:

CUE#	CODE	STATEMENT	SCREENS	RUN
1	TB1	TAB 1		
2	AT	ALT	ABCDEFGH I	RUN
3	BA	BLINK ALT	BC EF HI	
4	LL	LOOP LOAD	ABCDEFGH I	
5	BA	BLINK ALT	AB DE GH	
6	BA	BLINK ALT	BC EF HI	
7	BA	BLINK ALT	A CD FG I	
8	LG	LOOP GO	ABCDEFGH I	
9	N	NO OPERATION		STOP

10	LS	LOOP STOP	ABCDEFGH	
11	TB2	TAB 2		
12	SG	SMOOTH GO		
13	4A	SEC ALT	BC	RUN
14	W3	WAIT 3.0 SEC		
15	LL	LOOP LOAD	ABC	
16	4A	4 SEC ALT	AB	
17	W3	WAIT 3.0 SEC		
18	4A	4 SEC ALT	BC	
19	W3	WAIT 3.0 SEC		
20	4A	4 SEC ALT	A C	
21	W3	WAIT 3.0 SEC		
22	LP12	LOOP 12 TIMES		
23	LL	LOOP LOAD	DEF	
24	SA	SOFT ALT	DEF	
25	W.5	WAIT 0.5 SEC		
26	LG	LOOP GO	DEF	
27	FA	FAST ALT		HI
28	LL	LOOP LOAD		G
29	FA	FAST ALT		G
30	LG	LOOP GO		G
31	LL	LOOP LOAD		HI
32	2A	2 SEC ALT		H
33	W1	WAIT 1.0 SEC		
34	2A	2 SEC ALT		I
35	W1	WAIT 1.0 SEC		
36	LP12	LOOP 12 TIMES		
37	N	NO OPERATION		STOP
39	LS	LOOP STOP	EFG	
40	SS	SMOOTH STOP		
41	TB3	TAB 3		
42	AT	ALT	A	HI
43	8A	8 SEC ALT	ABCDEFGH	RUN
44	FA	FAST ALT	BC EF HI	
45	LL	LOOP LOAD	ABCDEFGH	

```

46 FA FAST ALT AB DE GH
47 FA FAST ALT BC EF HI
48 FA FAST ALT A CD FG I
49 LP66 LOOP 66 TIMES
50 W10 WAIT 10.0 SEC
51 W7 WAIT 7.0 SEC
52 FA FAST ALT BC EF HI RUN
53 8A 8 SEC ALT ABCDEFGHI
54 BA BLINK ALT A D G
55 LL LOOP LOAD ABCDEFGHI
56 BA BLINK ALT AB DE GH RUN
57 BA BLINK ALT BC EF HI
58 BA BLINK ALT A CD FG I
59 LG LOOP GO ABCDEFGHI
60 N NO OPERATION STOP
61 LS LOOP STOP ABCDEFGHI

```

In the above program, TAB 1 shows a simple repetitive Blinking Loop. Notice, the GENESIS is free after the looping commands are given. Any projector within the loop can be stopped independently of the other projectors. For example:

```
LS LOOP STOP A
```

would have projector "A" go back to original status (Lamps On) and "B" would continue the loop.

TAB 2 shows a loop with commands other than BA, FA, or AT. If desired, a 32 Sec Alt can be incorporated. This loop

also has a new feature different from other loops. The command (LPnn) is used to tell the DOVES how many times the loop is to be executed. This command works like a RPxx command only external to the GENESIS. This program also demonstrates how loops can be started with any number or combination of projectors and how they can be stopped in any order; one projector at a time or all together. TAB 3 shows a dissolve up and down using LOOPS, BA, and FA.

NOTE: A Loop will stop at the status of the projectors at the time of a loop GO command.

Finally, I have included below another sample program for this format that may be done for fun, but also should be done as an additional example of command implementation.

PROGRAM: EYEBALL OPERATOR:

CUE#	CODE	STATEMENT	SCREENS	RUN
1	SA	SOFT ALT	A	
2	W.6	WAIT 0.6 SEC		RUN
3	LL	LOOP LOAD	ABCDEFGHGI	
4	SA	SOFT ALT	A D	
5	W.6	WAIT 0.6 SEC		

6	SA	SOFT ALT		D	G
7	W.6	WAIT 0.6 SEC			
8	SA	SOFT ALT			GH
9	W.6	WAIT 0.6 SEC			
10	SA	SOFT ALT			HI
11	W.6	WAIT 0.6 SEC			
12	SA	SOFT ALT		F	I
13	W.6	WAIT 0.6 SEC			
14	SA	SOFT ALT	C	F	
15	W.6	WAIT 0.6 SEC			
16	SA	SOFT ALT	BC		
17	W.6	WAIT 0.6 SEC			
18	SA	SOFT ALT	AB		
19	W.6	WAIT 0.6 SEC			
20	LG	LOOP GO	ABCD	FGHI	
21	16A	16 SEC ALT		E	
22	W10	WAIT 10.0 SEC			
23	W.6	WAIT 0.6 SEC			
24	LL	LOOP LOAD		E	
25	BA	BLINK ALT		E	
26	LP26	LOOP 26 TIMES			
27	W2.76	WAIT 2.76 SEC			
28	BA	BLINK ALT		E	
29	8A	8 SEC ALT		E	
30	W8	WAIT 8.0 SEC			
31	LL	LOOP LOAD		E	
32	FA	FAST ALT		E	
33	FA	FAST ALT		E	
34	LP13	LOOP 13 TIMES			
35	W2.76	WAIT 2.76 SEC			
36	8A	8 SEC ALT		E	
37	W7	WAIT 7.0 SEC			
38	S20	SPEED=20 CPS			
39	LL	LOOP LOAD		E	
40	BA	BLINK ALT		E	

41	LG	LOOP GO	E
42	W1	WAIT 1.0 SEC	
43	S10	SPEED=10CPS	
44	LS	LOOP STOP	B D F H
45	FA	FAST ALT	B
46	LL	LOOP LOAD	B D F H
47	FA	FAST ALT	B F
48	FA	FAST ALT	F H
49	FA	FAST ALT	D H
50	FA	FAST ALT	B D
51	LG	LOOP GO	B D F H
52	W10	WAIT 10.0 SEC	
53	LS	LOOP STOP	E
54	W6	WAIT 6.0 SEC	
55	LS	LOOP STOP	ABCD FGHI
56	W10	WAIT 10.0 SEC	
57	2A	2 SEC ALT	AB E

6.6 PROGRAMS USING THE PYRAMID FORMAT (BANK B)

This format shows the flexibility involved in PROCALL-X. Here the projectors are in the shape of a pyramid and the video screen shows exactly the same thing. Use CNTRL/V to check the projector assignments.

The following program shows the use of this format.

PROGRAM: MARQUE OPERATOR:

CUE#	CODE	STATEMENT	SCREENS	RUN
1	1A	1 SEC ALT	ABC E G J L NO	
2	1A	1 SEC ALT	123466789	RUN
3	W.3	WAIT 0.3		
4	1A	1 SEC ALT	D F HI K M	
5	W.3	WAIT 0.3 SEC		
6	1A	1 SEC ALT	123466789	

CHAPTER 7

PROGRAMMING PERIPHERAL EQUIPMENT

7.1 GENERAL

PROCALL-X allows you to use two X15s in line with your dissolve units (one each on OUT 1 (BANK A) and OUT 2 (BANK B)). It also allows you to use both the X-15 and dissolve auxiliaries with their respective commands. There are, however, the following limitations:

- a. All auxiliary cues must specify projector Independents.
- b. You can not have an auxiliary command for the X-15 and an auxiliary in your dissolve unit in the same cue.

7.2 X-15 PROGRAMMING COMMANDS

XS (SHORT PULSE)

This will initiate a momentary (50 millisecond) closure of the contacts. This amount of contact closure time is usually sufficient for most auxiliary equipment.

XL (LONG PULSE)

This will cause a momentary (1/2 second) closure of the contacts. This is used for equipment that requires a longer contact closure such as KODAK's AV projectors.

XN (LATCH ON)

This will keep the selected channels closed until interrupted by a new command. This permits the relays to be used as either NORMALLY OPEN or NORMALLY CLOSED. The new command can be an XS or XL which will cause the contact to open momentarily and then close again.

XF (LATCH OFF)

Cancels the LATCH ON status and renders the assigned channel inactive.

Each of the above X-15 commands can be used with Independents, not with DOVE X numbers.

7.3 USING X-15 PROGRAMMING COMMANDS

When programming with X-15 commands, there must be no spaces between Independents; if there are spaces imbedded in the Independents, both the spaces and independent must be uniform.

7.3.1 INCORRECT X-15 PROGRAMMING

The following examples demonstrate incorrect programming of X-15 commands under PROCALL-X.

```
XN          AB D
XN          A  D  GH J
XN          AB DE GH JK MNO
```

You will notice that in the commands listed above the groupings of the Independents are not uniform, e.g., in the last line there are four groups of two Independents followed by a group of three Independents. This is incorrect, and will not work.

7.3.2 CORRECT PROGRAMMING

The following examples show the correct way to program X-15 commands.

```
XN          A
XN          AB
XN          ABC
XN          A  D  G  J  M
XN          AB DE
XN          ABCDEFGHIJKLMNO
```

In the commands listed above, either there are no spaces between the Independents, or if there are spaces, the Independent groupings are uniform. This is correct, and it will work.

CHAPTER 8

SELECTING THE TIMING AND CONTROL CODE

8.1 GENERAL

The Society of Motion Pictures and Television Entertainment (SMPTE) time code is like AVL's Clock-trak in that it is a digital timing code which can be used to time cues. SMPTE was primarily designed to control film and video editing.

All of the rules concerning AVL Clock-trak programming apply to SMPTE. AVL's Genesis will accept SMPTE input and generate SMPTE output, but it will not convert SMPTE to AVL's Clock-trak or vice versa.

8.2 SELECTING SMPTE

To select SMPTE as the timing and control code for a multi-image and/or video presentation, follow the procedure outlined below.

- a. Simultaneously press CTRL and C keys to get to the Control Command field.
- b. Type SMPTE and press RETURN.

- c. When the word "SMPTE" appears on the status line, SMPTE has been selected as the timing and control code.

8.3 SELECTING AVL CLOCK-TRAK

The AVL Genesis generates and reads AVL Clock-trak time codes when it is not in the SMPTE mode of operation. AVL Clock-trak allows time-synchronizing of cues to the audio track.

AVL Clock-trak is the Genesis' default mode of operation; therefore, whenever the word "SMPTE" is not displayed on the status line, AVL Clock-trak will be used as the timing and control code. If, however, you are in the SMPTE mode of operation and wish to select AVL Clock-trak, follow the procedure below.

- a. Simultaneously press CTRL and C keys (CTRL/C)
- b. With the cursor in the Control Command field, type AVL and press RETURN.
- c. When "SMPTE" disappears from the status line, AVL Clock-trak is selected as the timing and control code.

APPENDIX A
PROCALL-X COMMANDS

A.1 PROGRAMMING COMMANDS

The commands for use during programming are listed below.

A.1.1 COMMANDS ENTERED UNDER CODE HEADING

AT	ALTERNATE
FA	FAST ALTERNATE
SA	SOFT ALTERNATE
1A	1 SECOND ALTERNATE
2A	2 SECOND ALTERNATE
3A	3 SECOND ALTERNATE
4A	4 SECOND ALTERNATE
6A	6 SECOND ALTERNATE
8A	8 SECOND ALTERNATE
16A	16 SECOND ALTERNATE
32A	32 SECOND ALTERNATE
CT	CUT
HC	HARD CUT
SC	SOFT CUT
1D	1 SECOND DISSOLVE
2D	2 SECOND DISSOLVE
3D	3 SECOND DISSOLVE
4D	4 SECOND DISSOLVE
6D	6 SECOND DISSOLVE
8D	8 SECOND DISSOLVE

16D	16 SECOND DISSOLVE
32D	32 SECOND DISSOLVE
AX	AUXILIARY FOR DISSOLVES
BA	BLINK ALTERNATE
FZ	FREEZE
HOME	PROGRAMMABLE HOME
LD	PROGRAMMABLE LOAD FILE xx
LG	LOOP GO
LL	LOAD LOOP
LS	LOOP STOP
LPxx	LOOP (XX=NO.)
N	NO OPERATION
PF	PROJECTOR FORWARD
PR	PROJECTOR REVERSE
PS	PRESET
RPO	REPEAT ZERO
RPx	REPEAT (X TO BE RESOLVED)
RPxx	REPEAT XX TIMES
S10	SPEED -10 CUES PER SECOND
S20	SPEED -20 CUES PER SECOND
SG	SMOOTH GO
SS	SMOOTH STOP
TBxx	TABxx
TMxx	TIME IN .01 SECOND STEPS
TX	TIME (X TO BE RESOLVED)
W.05	WAIT IN .05
W10	SECOND STEPS
WX	WAIT (X TO BE RESOLVED)

A.1.2 COMMANDS ENTERED UNDER SCREEN HEADING

R	RUN
S	STOP

P	PROCEED
12345	SCREEN NUMBERS ON OUT 1
67890	SCREEN NUMBERS ON OUT 2

A.1.3 COMMANDS FOR EDITING PROGRAMS

CTRL/A	ADD-A-CUE
CTRL/B	REVERSE TO LAST TAB
CTRL/C	CONTROL COMMAND FLD
CTRL/D	DELETE CUE
CTRL/G ENTER	HOME PROJECTORS
CTRL/G--	GO TO CUE--
CTRL/G, TM	GO TO TIME HH:MM:SS.FF
CTRL/K	REVERSE TO PREV. GO
CTRL/N	DISPLAY NOTES/NORMAL
CTRL/P	SLIDES DISCONNECT /NORMAL
CTRL/Q	STEP REVERSE CUE
CTRL/R	REPEAT PREVIOUS CUE
CTRL/S	STANDBY
CTRL/T	GO TO NEXT TAB
CTRL/T, xx	GO TO TAB No. xx
CTRL/X	AUX DISCONNECT /NORMAL
F10	CUE
ENTER	ENTER
ESC	ESCAPE
Q	STEP CUE
REPEAT	REPEAT DEPRESSED KEY
RETURN	SAME AS ENTER
F9	REVERSE CUE
BACKSPACE	CURSOR LEFT
SPACE BAR	CURSOR RIGHT

A.2 CONTROL COMMAND FIELD ENTRIES

The following commands are to be entered in the Control Command Field.

A.2.1 EDITING CONTROL COMMANDS

BPF	BEEPER OFF
BPN	BEEPER ON
CAC	CLEAR ALL CUTS
CLN	CLEAR NOTES
CUES	DISPLAY TOTAL CUES
ESNx,y	EXCHANGE SCREEN NUMBERS
IAMxx	CHANGE OPERATOR'S NAME TO xx
KBF	KEYBOARD EDIT OFF
KBN	KEYBOARD EDIT ON
NEW	ESTABLISH NEW HOME POINT
NOTES	EXAMINE/EDIT NOTES
PGMxx	CHANGE PROGRAM NAME TO xx
RCF	REMOTE CUE OFF
RCN	REMOTE CUE ON
RTCx,y	REPLACE TIME CUE x WITH y
SEQ2	PROJECTOR SEQUENCE 2
SEQ3	PROJECTOR SEQUENCE 3
TOCx,y,+	TIME OFFSET CUES HH:MM:SS.FF
TPO	TRAY POSITION OFFSET

A.2.2 MEMORY/DISK DATA TRANSFER COMMANDS

APxx	APPEND FILE xx
CNPxx	CLEAR NAME PROTECT ON FILExx
CWPxx	CLEAR WRITE PROTECT ON FILExx
DELxx	DELETE FILE xx FROM DISK
DLCxx,yy	DELETE CUES xx TO yy
DSKx	USE DISK x
INSxx	INSERT FILE NAMED xx
LDxx	LOAD FILE NAMED xx
LIB	LIBRARY
NLDxx	NOTES LOAD xx
NPRxx	NAME PROTECT xx
NSVxx	NOTES SAVE xx
RNMx,y	RENAME FILE x AS y
SV	SAVE
SVxx	SAVE WITH xx AS FILE NAME
SCxx,yy,nn	SAVE CUES xx TO yy AS FILENAME nn
WPRxx	WRITE PROTECT FILExx

A.2.3 MAG TAPE CONTROL COMMANDS

AVL	CLOCK-TRAK TIMING AND CONTROL MODE
CEM	CLOCK EDIT MODE
CIM	CLOCK INPUT MODE
COM	CLOCK OUTPUT MODE

COM	HH:MM: SS:FF	CLOCK OUTPUT BEGIN- ING AT TIME HH:...
MIF		MAG TAPE INPUT OFF
MIN		MAG TAPE INPUT ON
MLD		MAG TAPE LOAD
MOF		MAG TAPE OUTPUT OFF
MON		MAG TAPE OUTPUT ON
MSV		MAG TAPE SAVE
MTD		MAG TAPE DUMP
PIF		POSI-TRAK INPUT OFF
PIN		POSI-TRAK INPUT ON
POF		POSI-TRAK OUTPUT OFF
PON		POSI-TRAK OUTPUT ON
SMPTE		SMPTE TIMING AND CONTROL MODE
STL		SET LEVELS
VER		VERIFY (MSV ONLY)

A.3 PRINT COMMANDS

PRINT	PRINT CUES AND NOTES
SPDxxx	SET BAUD RATE FOR PRINTER
PLP	PARALLEL LINE PRINTER
SLP	SERIAL LINE PRINTER
PLB	PRINT LIBRARY

A.4 X-15 PROGRAMMING COMMANDS

XS	SHORT PULSE
XL	LONG PULSE
XN	LATCH ON
XF	LATCH OFF

APPENDIX B

SMPTE TIME CODE STANDARDS

B.1 GENERAL

SMPTE (Society of Motion Picture and Television Engineers) time code is the standard digital code format and modulation method relating to input video and audio magnetic tape recorders used by the motion picture and television industries today. The code is used for timing and control purposes.

SMPTE is a predetermined code whose format can not be altered by the end user.

B.2 MODULATION METHOD

During modulation, a transition occurs at the beginning of every bit period. "One" is represented by a second transition $1/2$ half a bit period from the start of the bit. "Zero" is represented when there is no transition within the bit period.

B.3 CODE FORMAT

Each frame is identified by a complete and unique address. A frame consists of two television fields or 525 horizontal

lines.

Each address has 80 bits, numbered 0 through 79. The frames are numbered 0 thru 29.

The bits are assigned as described below.

0-3	Units of frame
4-7	First binary group
8-9	Tens of frames
10	Drop frame flag
11	Color frame flag
12-15	Second binary group
16-19	Units of seconds
20-23	Third binary group
24-26	Tens of seconds
27	Unassigned address bit (0 until assigned by SMPTE)
28-31	Fourth binary group
32-35	Units of minutes
36-39	Fifth binary group
40-42	Tens of minutes
43	Unassigned address bit (0 until assigned by SMPTE)
44-47	Sixth binary group
48-51	Units of hours
52-55	Seventh binary group
56-57	Tens of hours
58-59	Unassigned address bits 0 until assigned by the SMPTE)
60-63	Eighth binary group

64-79	Synchronizing word	
	64-65	Fixed zero
	66-67	Fixed one
	78	Fixed zero
	79	Fixed one

B.3.1 BOUNDARIES OF ADDRESS

The address starts at the clock edge before the first address bit (bit zero). The bits are evenly spaced throughout the address period, and they fully occupy the address period which is one frame. Consequently, the bit rate is 80 times the frame rate in frames per second.

B.3.2 START OF ADDRESS

The start of the address occurs at the beginning of line 5 in fields one and three. The tolerance is plus or minus one line.

If color frame identification in the code is required, the even units of frame numbers identify frame A and odd units of frame numbers identify frame B.

B.3.3 USE OF BINARY GROUPS

The binary groups are intended for

storage of supplementary data by the users, and the 32 bits within the eight groups may be assigned in any fashion without restrictions. It is anticipated that the use of these bits will be standardized in the future.

B.3.4 ASSIGNED AND UNASSIGNED ADDRESS BITS

Six bits are reserved within the address groups, two for identifying operational modes, and four unassigned but reserved for future assignment and defined as zeros until further specified by the SMPTE.

Bit No. 10 DROP FRAME FLAG	If certain numbers are being dropped to resolve the difference between real time and color time, a "1" is recorded.
-------------------------------	---

Bit No. 11 COLOR FRAME FLAG	If color frame identification has been intentionally applied, a "1" is recorded.
--------------------------------	--

Bit No. 27, 43, 58, 59.	Unassigned Address Bits; "0" until assigned by the
----------------------------	--

SMPTE.

B.4 TIME DISCREPANCIES

Real time is defined as the time elapsed during the scanning of 60 fields (or any multiple thereof) in an ideal television system at a vertical field rate of exactly 60 fields per second.

Color time is defined as the time elapsed during the scanning of 60 fields (or any multiple thereof) in a color television system at a vertical field rate of approximately 59.94 fields per second.

Because the vertical field rate of a color signal is approximately 59.94 fields per second, straightforward counting at 30 frames per second (60 fields per second) will yield an error of +108 frames (+216 fields), equivalent to +3.6 seconds timing error, in one hour of running time. For correction of this time discrepancy, two methods of operation are allowed:

Nondrop Frame	During a continuous
Uncompensated Mode	recording, no
	numbers shall be
	omitted from the
	chain of addresses.

Each address shall be increased by 1 frame over the frame number immediately preceding it. When this mode is used, bit No. 10 of each address shall be a "0".

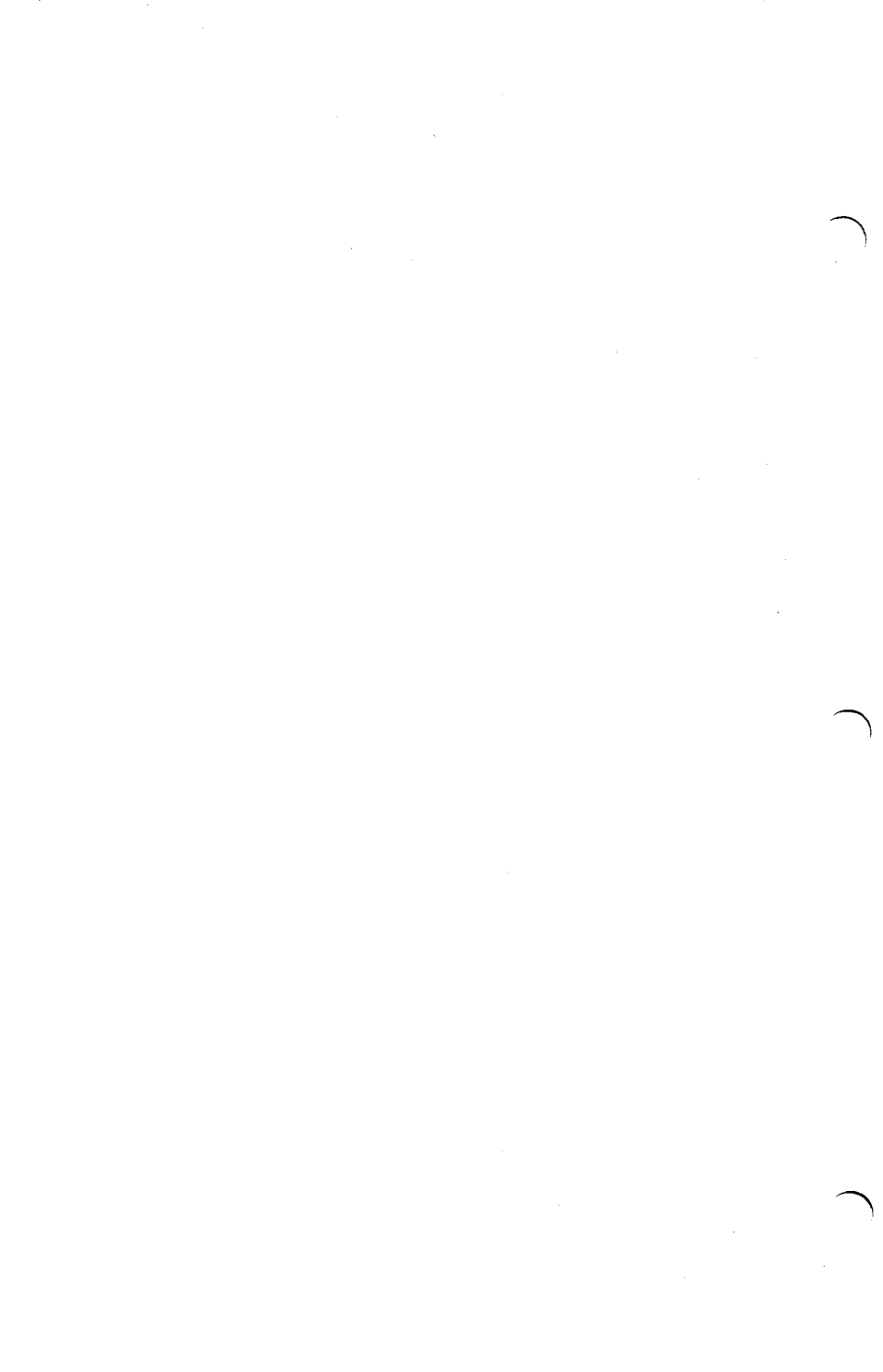
**Drop Frame
Compensated Mode**

To resolve the color time error, the first two frame numbers (0,1) at the start of each minute, except minutes 0, 10, 20, 30, 40, and 50, shall be omitted from the count. When this mode is used, bit No. 10 of each address shall be a "1".

AVL's SMPTE is programmed to use the nondrop frame mode and can not be changed by the user.

AVL GENESIS SYSTEM
QUICK REFERENCE GUIDE

Audio Visual Laboratories, Inc.



AVL GENESIS

QUICK REFERENCE GUIDE

The following functions and their descriptions are a quick reference listing of the most used Commands and Cues. Whenever <Ret> appears after an entry or Command, it means that the Return (Enter) key must be pressed to record the entry or initiate the action.

Index

- Page 3 Function List
 Projector Designations
- Page 4 Programming:
 Single Cues
 a CUT
 a DISSOLVE
 an ALTERNATE
 an ALTERNATE DISSOLVE
 Sequence Programming
 Run/Stop
- Page 6 Wait Times
 Que and Reverse Cue
 S10/S20
 Repeats

Page 9 **EDITING COMMANDS**
Add-A-Cue
Delete-A-Cue
Move To Another Program Point
Return To Start Of Program
Repeat A Single Cue
Move Thru Program -Lamps Off

Page 11 **CONTROL COMMANDS**
Clear All Cues
Change Operator Name
Change Program Name
Append a Program
Delete a Program From Disk
Load a Program From Disk
View Library
Save a Program on Disk
Time X
Home

Page 14 **EQUIPMENT SETUPS**

Page 16 **CLOCK-TRAK**

FUNCTION LIST

AT	Alternate	CT	Cut
FA	Fast 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.
HOME	Proj. Home	N	No Operation
PF	Proj. Forward	S10	10 Cues/Sec.
PR	Proj. Reverse	S20	20 Cues/Sec.
W.05	Wait 1/20 Second		
W10	Wait 10 Seconds		

SYSTEM/INDIVIDUAL STANDARD FORMAT PROJECTOR DESIGNATIONS

System Designations -

DOVE Numbers 1 thru 5 on each
Bank.

Projector Designations -

A thru O on each Bank.

To designate a System Cycle -
Enter the Screen (Dove)
Number - 1 thru 5.

To designate a Specific Projector-
Enter the Projector
Letter A thru O.

DOVE Numbers and Projector Letters
cannot be entered in the
same Cue line.

Enter R for RUN
Enter S for STOP

SINGLE CUE PROGRAMMING

A Single Cue can be used when a single
function is all that is required at one
point in the Program.

NOTE: The <Ret> to the right of
the programming line indicates that
you must press the RETURN key after
making the programming entry.

2D 1 <Ret> <Ret> We have programmed a
2 Second Dissolve on
Screen 1.

PROGRAMMING A CUT

System Cut - CT 1 (Screen) <Ret> <Ret>
Indiv. Proj. - CT A (Proj.) <Ret> <Ret>

PROGRAMMING A DISSOLVE

System - 2D 1 <Ret> <Ret>
Indiv. Proj. - 2D B <Ret> <Ret>

PROGRAMMING AN ALTERNATE

System - AT 1 <Ret> <Ret>
Indiv. Proj. - AT C <Ret> <Ret>

PROGRAMMING AN ALTERNATE DISSOLVE

System - 2A 1 <Ret> <Ret>
Indiv. Proj. - 2A A <Ret> <Ret>

SEQUENCE PROGRAMMING

We program Sequences or Multi-Step Cues when a number of functions must occur continuously and too quickly for manual operation. Sequences must always contain a RUN at the beginning to start the Sequence and a STOP at the end to terminate the Sequence.

RUN/STOP

RUN and STOP can be programmed as a separate Cue using No Operation -

N R <Ret> <Ret> or

as part of the first Cue in a sequence -

2D 1 R <Ret> <Ret>

STOP is programmed the same way. Be certain you have allowed Wait Times between functions in the sequence.

WAIT TIMES

Wait Times allow us to program the appropriate time delays between functions in a Cue sequence. They can be programmed in 1/20th of a second increments up to 10 full seconds. Should more than 10 seconds be required, simply program more than one Wait Time.

W2.5 <Ret>

CUE/REVERSE CUE

Allows us to move back and forth thru the Program for editing and verification purposes.

To control Sequences Forward - F10

To control Sequences Backward - F9

To control Each Step of Programming
Forward - Q

To control Each Step of Programming
Backward - Ctrl/Q

Holding Q and Ctrl/Q down permits Fast Forward and Reverse.

S10/S20

GENESIS normally operates at 10 Cues per Second unless you instruct it otherwise. We can switch from 10 Cues per Second to 20 by simply inserting S20 in the Program. To return to 10 cps enter S10.

S20 or S10 <Ret> <Ret>

REPEATS

The Repeat function saves many Cue Lines by allowing us to repeat a given function as often as we wish by simply adding a Repeat Cue to the Program following the Cue we wish to repeat. The Repeat Cue must include the number of times we wish the function to repeat.

A Repeat must be preceded by a RUN Cue. GENESIS will repeat all functions starting with the Cue immediately FOLLOWING a RUN command.

Important! If a Repeat Cue is entered without a RUN Cue, GENESIS will search for the next preceding RUN and will attempt to Repeat all Cues from that

point. Be certain you include a RUN Cue in the sequence!

N R <Ret> <Ret>

CT 1 <Ret> <Ret>

W1.5 <Ret>

RP20 <Ret>

In this example we have programmed 20 Cuts, 1.5 seconds apart on Screen 1.

EDITING COMMANDS

In any instance where CTRL is used, it must be held down while pressing the additional Key.

TO ADD A CUE to the Program. Locate the Cursor at the point you wish to insert a Cue then -

CTRL/A <Ret>

The Program will open up to accept your new Cue.

TO DELETE A CUE from the Program. Locate the Cursor at the Cue you wish to delete then -

CTRL/D <Ret>

The Cue will be deleted. All Cue numbers change from this point to the end of the Program.

TO GO TO ANOTHER POINT IN THE PROGRAM

CTRL/G (CUE #) <Ret> The Program and projectors will relocate to the desired point.

TO RETURN TO THE START of the Program -

CTRL/G	<Ret>	All projectors are issued a HOME Command
CTRL/G 0	<Ret>	and the Program returns to Cue 1.

**TO REPEAT A SINGLE CUE, program the Cue
then -**

CTRL/R	Each time you press these keys the previous Cue is repeated.
---------------	--

TO MOVE THROUGH THE PROGRAM - LAMPS OFF-

CTRL/S	The projectors function but the lamps are off. Allows going thru the Program without the lamps flashing. The same Command returns them to normal operation. While in the standby mode, SBY is displayed in the Control Command Field.
---------------	--

CONTROL COMMANDS

First, CTRL/C to enter Command Field, then -

CLEAR ALL CUES - This function clears all Cue information from memory but not from the Disk. Be careful! Be certain to save your program before using this feature.

CAC <RET>

I AM - Allows changing the Operator's Name.

IAM (Name) <RET>

PROGRAM NAME - Allows changing the Name of the Program.

PGM (Name) <RET>

APPEND - Allows adding blocks of Cues or entire programs from Disk onto the end of the Program displayed on

the Monitor.

AP (Name) <Ret>

DELETE

- Allows deleting Programs from the Disk. Be Careful!

DEL (Name) <Ret>

LOAD

- Is used to recall Programs from Disk and load them into Memory.

LD (Name) <Ret>

LIBRARY

- Used to view all Programs stored on the disk.

LIB <Ret>

SAVE

- SAVE is used to store Programs on Disk for later retrieval.

SV (Name) <Ret>

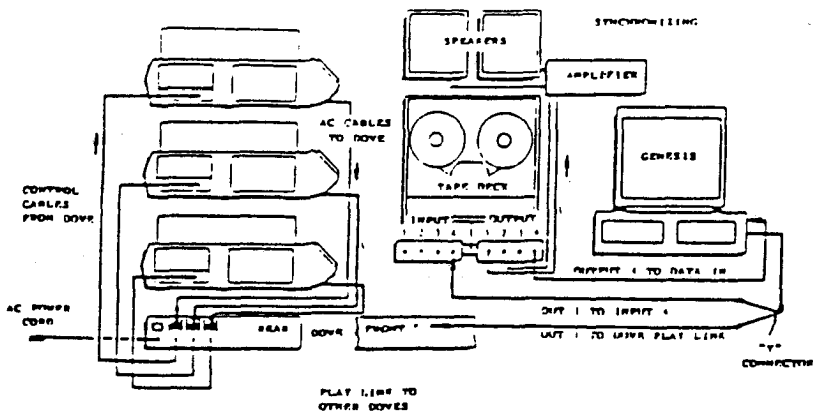
TIME X - This is the Cue used in conjunction with Clock-Trak when a show is synchronized. See Steps 1 thru 10 of CLOCK-TRAK in the User's Guide.

HOME - HOME is a programmed Cue at the end of the show that is used to send the Program and projectors back to their starting point automatically.

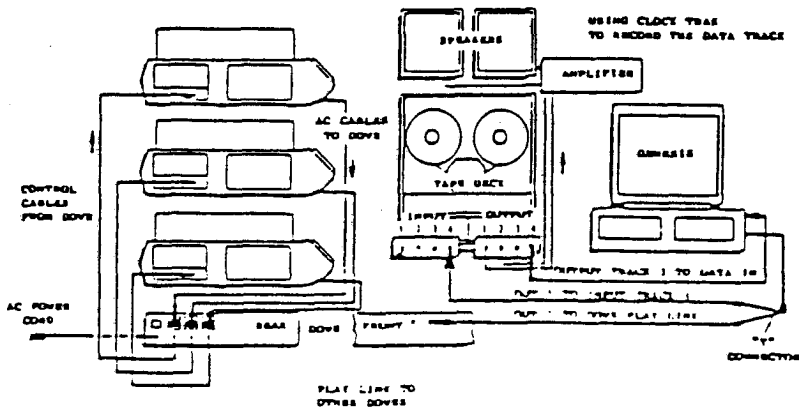
HOME <Ret>

EQUIPMENT SETUPS:

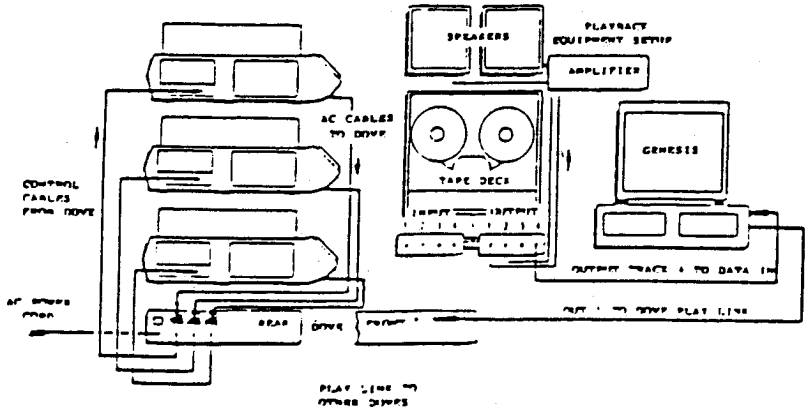
Synchronizing



Recording the Data Track



Playback



CLOCK TRAK - To Synchronize a show using Clock Trak. Optional.

1. Using **ADD-A-CUE**, insert **TX** into your Program at each Synchronizing point in the script.

CTRL/A TX <Ret>

2. Connect cable from **OUT 1** on **GENESIS** to Input of Track 3 on Recorder.
3. Put **GENESIS** in Clock Output Mode (**COM**).

CTRL/C COM <RET>

GENESIS puts out Clock-Trak signal.

4. At least 5 seconds before sound starts, record Clock-Trak on Track 3 by starting recorder in Record Mode and pressing Return. Record the Clock-Trak beyond the end of the sound.
5. Rewind the tape to the beginning of Clock-Trak.
6. Press **ESC** on **GENESIS**.
7. Enter **CEM <Ret>** Clock Edit Mode.

8. Reconnect cable from Output of Track 3 on Recorder to Play In jack of GENESIS.
9. With script in front of you, start the Recorder in Playback Mode and press F10 at each synchronizing point in the script.
10. Stop the tape and rewind it to the beginning. The Program should be at Cue 1 and all TX Cues are now Time Cues.
11. Start the Recorder in Play Mode. The show will run by Clock-Trak.
12. If some Time Cues are incorrect, place the Cursor at that Time Cue and adjust the time by typing in a new time. Add time to make the Cue happen later, subtract time to make it happen earlier.
13. When all Cues are correctly synchronized, connect a second cable from Out 1 on GENESIS to the Input on Track 4 of the Recorder.
14. Start the Recorder in Play Mode on Track 3 and Record Mode on Track 4. The Synchronized Program will be recorded on Track 4.

NOTES:



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