Enhanced PROCALL

User's Manual

Audio Visual Laboratories

123 White Oak Lane

Old Bridge, NJ 08857

Enhanced Procall User's Manual

1. REVISIONS

02-20-91 Enhanced Procall Version 2.2

2. INTRODUCTION

2.1 GENERAL

AVL's Enhanced PROCALL provides total creative freedom for those of you creating multi-media productions. Enhanced PROCALL's rich vocabulary of commands allows you to integrate a variety of audio visual devices including:

- o Slide Projectors
- o VCR's
- o Laser Disc and CD players
- o Tape players
- o Lighting
- o Lasers
- o Motorized curtains and screens
- o *and many more....*

Precise synchronization of events to SMPTE/EBU/AVL time codes can be programmed simply and efficiently. Reliable performance is assured by Positrak, a feature pioneered by AVL which allows AVL systems to automatically recover from interruptions or communications errors. Like PROCALL 5 and X, the user interface provides mnemonic command abbreviations for easy programming.

2.2 HISTORICAL NOTE

The original implementations of Procall, Procalls 5 and X, are today the standards for Multi-image programming throughout the world. Enhanced Procall maintains the same user interface and cues as its predecessors, while providing some new cues and show editing features. The new cues provide more powerful control of slide projectors and equally important provide control for other devices which are used in conjunction with slide projectors to create Multi-Media extravaganzas.

Enhanced Procall is compatible with Procalls 5 and X. Procall 5 or X programs are automatically converted to Enhanced Procall when editing an old program for the first time. Some differences between Procalls 5, X, and Enhanced make it impossible to perform a 100% conversion of the older programs. However, once read in by Enhanced Procall, a Procall 5 or X program should require little or no further editing.

Since the introduction of Procall 5 for programming Multi-image shows controlled by Doves, AVL has expanded its line to include the controlling of:

- o lighting
- o motors
- o audio switching/volume
- o video switching/fading
- o RS-232 controllable devices

For this reason the descriptions of cues are intentionally generic and not directed solely at slide projector control.

2.3 ENHANCED PROCALL CUE (COMMAND) OVERVIEW

This section describes Enhanced PROCALL cues which apply when using the AVL's Genesis Computer system or DOS computers with AVL's Genesis hardware (Genesis Board or Super Genesis I/O) to create multi-media productions.

2.3.1 CONTROL CUES

Enhanced PROCALL control cues are built around six basic control parameters:

- o Rates -- 230 different speeds; 0.0 - 19.9 in 0.1 second increments and 20 - 60 in 1 second increments.
- o On/Off -- Both absolute and relative on/off operation
- o Ramps -- 5 different curves a rate change can follow; they are Normal, Sunrise, Pop, Rapid, Uniform.
- o Min/Max -- settings from 0 - 100%
- o Open/Close -- Both pulsed and latched Open/Close relay operation
- o Position -- 81 positions, 0 - 80

Cues using these parameters take on special meanings based upon the AVL controller receiving the cue. Table 1.1 lists AVL controllers along with their relation to the control parameters.

2.3.2 TIMING CUES

This set of cues allows for synchronization of control cues to each other and/or to external audio or time code.

- o Time -- specify time for next cue to execute
- o Wait -- specify delay before executing next cue

2.3.3 OTHER CUE TYPES

In addition to cues constructed using the five basic control parameters and the timing cues previously described, Enhanced Procall has two other cue types:

- o Repeat -- cues can be grouped and executed the number of times specified by the repeat
- o Loops -- cues can be grouped and loaded into AVL controllers for synchronized execution. By loading different cues into the different controllers, multitasking can be achieved.

	Rate	On/Off	Ramp	Min/Max	Open/Closed	Position
Dove* - Slide projector controller (also known as "dissolver")	duration for projector lamp on or off transition	toggle or set projector lamp	curve for projector lamp transitions to follow	levels to transition on or off to with the projector's lamp	relay to be pulsed	slide tray position
Room-Mate - Lighting controller	duration for lamp on or off transition	toggle or set lamp	curve for transitions to follow	levels to transition on or off to with the lamp	relay to be pulsed	not used
Super Switcher - Audio/Video switcher with volume control and video fading	duration for audio or video transition up or down	select mix or fade through black for video switching	curve for transitions to follow	not used	audio source and destination selections	audio volume level and Video source selections
Super X-15 - Controller for peripheral or auxiliary devices which operate from switch closures (GPI's).	not used	not used	not used	not used	relay to be pulsed or latched	not used
Super Fader - Video fader	duration for video transition up or down	toggle or set video output	curve for transitions to follow	levels to transition up or down to with the video	relay to be pulsed	not used
A-4 - Analog (0-10V) output unit (for light dimmers and other analog voltage controllable devices)	duration for voltage transition up or down	not used	curve for transitions to follow	not used	not used	voltage level
Stepper - Stepper motor controller (for zoom lens and other stepper motor driven devices	duration for movement	not used	curve for movement to follow	not used	not used	point for motor to step to

Table 1.1 Usage of six basic control parameters with AVL controllers

* Doves are available in 4 different versions:
1) Dove X^2
2) Super Dove
3) M-Dove
4) Pro Travler X^2

2.4 ADDED FEATURES WHEN USING SUPER GENESIS I/O

The Super Genesis I/O provides several extremely useful features for multi-media programming and playback. Enhanced PROCALL supports these features in conjunction with the Super Genesis I/O only.

2.4.1 SEND MESSAGE CUE

In addition to the cues described previously, the Super Genesis I/O also supports the send message cue. The **send message cue** provides the ability to send ascii or hexadecimal strings; the strings are sent via the Super Genesis I/O's keyboard port.

2.4.2 RAM CARTRIDGE

Ram Cartridge is a credit card sized memory which can be programmed and played back through the Super Genesis I/O. This feature provides the benefits of running from a computer without requiring the computer. Among these benefits are:

1) playback in sync with time code which means:
   - -last minute changes can be made without the time consuming and costly process of re-recording the audio.
   - -only one audio track required
   - -AVL controllers can be mixed with other controllers capable of running from SMPTE, EBU, or AVL time codes.
2) advanced speaker support capabilities.

PLEASE CONTACT AVL IF YOU REQUIRE THIS FEATURE. IT IS NOT PROVIDED IN THE STANDARD RELEASE.

2.4.3 TAPETRAK

Improves the efficiency and accuracy of editing and fine tuning shows. Like Positrak, which ensures that projectors and other devices connected to AVL controllers are always correctly synchronized to your show, Tapetrak automatically positions the tape deck in relation to your current position in the cue list (program).

2.4.4 TAPE REMOTE CONTROL

Function keys can be used to control the tape remotely from the computer's keyboard.

2.5 TIME CODES

2.5.1 AVL TIME CODE

AVL's time code is a digital time code which allows time-syncing of cues to the audio track. Enhanced Procall can generate AVL Clock information for recording on your show tape. Enhanced Procall can also read this Clock information and use it to synchronize cues.

2.5.2 SMPTE and EBU

Enhanced Procall also offers the options of being compatible with SMPTE or EBU timing codes.

Enhanced Procall will accept SMPTE input and generate SMPTE output. The SMPTE (Society of Motion Picture and Television Engineers) 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 based on 30 frames per second time codes.
* 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 Clocktrak in that it is a digital timing code which can be used to time cues. All rules concerning AVL Clocktrak programming apply to SMPTE.

EBU (European Broadcast Union) is similar to SMPTE. The main difference is the frame rate. The EBU frame rate is 25 frames per second.

2.6 AVL POSITRAK

Positrak locks your program to the audio track, and will automatically resync your show if a tape error occurs. In addition, during editting and fine tuning, Positrak will cause the devices connected to AVL controllers to "catch up" following a tape fast forward or rewind.

3. ADDRESSES AND ASSIGNMENTS

Enhanced Procall supports the addressing of two basic device types. The first is capable of executing only Open/Close cues. The second is capable of executing any type of cue. The reasons for these types is historical and has been maintained for compatibility. The first AVL unit to execute Open/Close cues was the X-15, for this reason addresses for this device type are reffered to as X-15 addresses. The first unit to execute all other cues was the Dove, for this reason addresses for this device type are referred to as Dove addresses.

In all, Enhanced Procall supports upto 120 unique Dove addresses and 120 unique X-15 addresses. The 120 unique Dove addresses are A-O on 4 separate logical channels (channels A,B,C, and D) and 2 separate physical Banks (Outputs) (Out 1 and Out 2). Devices on different banks can be programmed on a single cue line.

> PLEASE CONTACT AVL IF YOUR PRODUCTION REQUIRES LOGICAL CHANNEL ADDRESSING (i.e., more than 30 Dove addresses or more than 30 X-15 addresses) IT IS NOT PROVIDED IN THE STANDARD RELEASE.

Table 2.1 summarizes the address structure of the different AVL controllers.

	Dove Addresses required	X-15 Addresses Required	Devices Controlled
Dove X^2/Pro Travler X^2 - Slide projector controller (also know as "dissolver")	3	0	3 Slide Projectors
Super Dove - Slide projector controller (also known as "dissolver")	3	0	3 Slide Projectors
M-Dove - Slide projector controller (also known as "dissolver")	4	0	4 Slide Projectors
Room-Mate - Lighting controller	3	0	3 Incandescent lighting circuits
Super Switcher - Audio/Video switcher with volume control and video fading	3	15	8 stereo pairs of preamp audio, 4 stereo pairs of amplified audio and 4 NTSC/PAL Composite video inputs
Super X-15 - Controller for peripheral or auxiliary devices which operate from switch closures (GPI's).	0	15	15 low voltage relay controllable devices
Super Fader - Video fader	2	0	NTSC/PAL Composite or RGB video
A-4 - Analog (0-10V) output unit (for light dimmers and other analog voltage controllable devices)	4	0	4 devices controllable by 0-10 volt outputs.
Stepper - Stepper motor controller (for zoom lens and other stepper motor driven devices	4	0	4 stepper motors

Table 2.1 AVL Controller Address Usage

For specific applications, where devices are accessed in groups, a screen number address can be used in Enhanced Procall as with older versions of Procall. This screen number allows for multiple (up to six) Dove addresses to be assigned to any of 9 different screen numbers. This ability to configure Enhanced Procall's interface, while useful, is not essential and is described in further detail in the Appendix C.

4. GETTING STARTED

4.1 GENERAL

This chapter describes the Enhanced Procall programming panel (screen). This chapter should be reviewed while at your AVL Genesis computer (or DOS computer with AVL Genesis hardware).

4.2 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.

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

a. Place the Enhanced PROCALL diskette into DRIVE A.
(The contents of the diskette can be copied onto the hard drive for direct execution from there; if this is not done, it is recommended that a backup copy of the diskette is made.)

b. Turn AVL Genesis on. When the DOS prompt appears type in:
ep<cr>

c. 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.

d. 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
(Custom formats described in Appendix)

(3) USE A FORMAT PREVIOUSLY CREATED

appears on the screen, hit the 1 key.

e. 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 DEMO1. However, if you save the program it will write over any DEMO1 program already existing on the disk.

4.2.1 THE COMMAND AREA

A LINE-BY-LINE description of the programming panel follows.

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 DEMO1, and the operator name will be blank.

The far right side of the top line indicates the Enhanced Procall version number.

SECOND LINE

This line contains the Programming MODE selection. The possibilities are MT BYPASS (magnetic Tape Bypass), CLOCK EDIT (Clock Edit Mode), CLOCK INPUT (Clock Input Mode), CLOCK OUTPUT (Clock Output Mode), MT SAVE (Mag-Tape Save), and VERIFY (Verify MT SAVE).

The space to the right of the MODE selection is reserved for cue output mode. Where the displays are:
- o PD (projector disconnect)
- o AD (Auxiliary disconnect)
- o SBY (Standby mode)

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 is 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.

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 Clocktrak from magnetic tape in either CLOCK EDIT or CLOCK INPUT mode.

CUE SPEED DISPLAY

When running at 20 cues per second the area to the right of the CLOCK DISPLAY will indicate 20 CPS.

THIRD LINE

This is the CONTROL COMMAND field and the command types entered in this field are described in Chapter 5.

This also indicates the Genesis hardware configuration (i.e, a Genesis Board or a Super Genesis I/O). If a Genesis board is being used this area will display BOARD. If a Super Genesis I/O is being used this area will display COM1 or COM2 and TTOFF or TTON, for indications of which com port is connected to the Super Genesis I/O and whether Tapetrak is on or off, respectively.

FOURTH LINE

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

4.2.2 BANK A/BANK B STATUS DISPLAY AREA

This area is used to give you a constant display of status. Its shows the current position of each Dove address. If the position is displayed in reverse video, then the corresponding Dove address is in the up or on state. The status area contains two sections referred to as BANK A (OUT 1) and BANK B (OUT 2). Each bank can have up to 15 Dove addresses, a maximum of 9 groups, and a possibility of 6 Dove addresses per group depending on how the Dove addresses were configured (see the Appendix for information on custom configurations). The default configuration has 5 groups with 3 Dove addresses per group on each bank.

4.2.3 THE CUE AREA

This area contains the cue number, cue code, cue description, ramp type, and the BANK A (OUT 1) and BANK B (OUT 2) addresses.

CUE NUMBER

Each cue has a number which can be used an address for Goto commands.

CUE CODE

This area is for the various programming codes, as described in Chapter 5.

CUE DESCRIPTION

After the code is entered, the system will use this area to feed back to you a more complete statement describing the cue. This serves as a check on the code entry process and makes the program more legible.

CUE RAMP PARAMETER

This area is used for one of the five transition ramps described in Chapter five.

BANK A (OUT 1) and BANK B (OUT 2) ADDRESSES

This area is used to specify more of the 15 addresses A-O for the cue.

RUN

This is used to indicate that the program in the system is executing. While a program is executing the RUN heading will appear as reverse video (black characters against a green background).

4.3 DOS BATCH FILES

Enhanced PROCALL programs can be automatically loaded and run from DOS batch files. Doing this requires that a few simple steps be followed.

1) Configuration file named "c#show.asg" must exist. The contents of this file describe the configuration to be used. A "c#show.asg" with the standard configuration is provided with Enhanced PROCALL. Custom configurations can also be used (see Appendix C).

2) Program must be named "showtime".

3) batch file must change working directory to directory containing the Enhanced PROCALL executable "ep.exe", the "c#show.asg", and the "showtime.eue" files

5. ENHANCED PROCALL COMMANDS

5.1 GENERAL

This chapter details all the commands that are valid under Enhanced PROCALL. A summary of these same commands is contained in Appendix A.

5.2 GETTING HELP DURING PROGRAMMING

A special HELP key (F1) 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.

5.3 PROGRAMMING COMMANDS

5.4 COMMANDS ENTERED UNDER THE CODE HEADING --"CUES"

5.4.1 DISSOLVE CUES (TRANSITION CUES)

These cues specify a transition from one state to another. For example, in a multi-image show a transition cue may specify fading down one slide projector and at the same time fading up another projector. In performing this type of action the following parameters are specified:

- o rate
- o ramp
- o position step

ALTERNATE DISSOLVES

These cues are used to toggle from one state to another at a defined rate and according to one of five ramps.

xx.xA XX.X sec toggle transition, where XX.X can be any value in the following ranges:

- -- 00.0 - 19.9 in 0.1 second increments
- -- 20 - 60 in 1 second increments

Example usage: Control of slide projectors in Multi-Image shows

Initial state--slide projector A on and B off

4.2A 4.2 SEC ALTERNATE NORMAL AB

Next state--slide projector A transitions off and B transitions on in 4.2 seconds.

DISSOLVES

These cues are used to toggle from one state to another at a defined rate and according to one of five ramps. Unlike ALTERNATE DISSOLVES which do not affect the position parameter, DISSOLVE cues also increment the position parameter down/off going device.

xx.xD XX.X sec toggle transition with an increment of position, where XX.X can be any value in the following ranges:

-- 00.0 - 19.9 in 0.1 second increments
-- 20 - 60 in 1 second increments

Example usage: Control of slide projectors in Multi-Image shows

Initial state--slide projector A on and at tray position 20 and B off and at tray position 19.

19.9A 19.9 SEC DISSOLVE NORMAL AB

Next state--slide projector A transitions off and B transitions on in 19.9 seconds. Once projector A's lamp reaches its minimum level, its tray position is incremented.

For compatibility with older version of PROCALL six predefined ALTERNATES and DISSOLVES are included in Enhanced PROCALL. They are:

CUE	Description	Equivalent
FA	FAST ALTERNATE	.0A
AT	ALTERNATE	.5A
SA	SOFT ALTERNATE	.7A
HC	HARD CUT	.0D
CT	CUT	.5D
SC	SOFT CUT	.7D

ON/OFF

These cues define transitions to the on(up) or off(down) state.

xx.xN Transition to the up level in XX.X seconds.

Example Usage: Control of room lighting with AVL's Room-Mate

Initial state -- room lighting state not known and it is desired to turn the lights on.

4.3N 4.3 SEC LAMP ON A

Next state -- room lighting transitions on in 4.3 seconds. NOTE: if lights were on nothing happens.

xx.xF Transition to the down level in XX.X seconds.

5.4.1.1 DISSOLVE OPTIONS

Three transition options are provided in Enhanced Procall.

RAMPS

The first, is part of every transition cue and it defines the transition ramp curve. The Mnemonic for the ramp curve is entered after the transition cue. The ramp curves allowed are:

Ramps	Mnemonic
NORMAL	N
SUNRISE	S
POP	P
RAPID	R
UNIFORM	U

MIN/MAX

The second and third transition options are the minimum and maximum levels for a transition to reach. These variables are set using the MIN and MAX cues. Once set, they remain in effect until they are reset. The default values are 0% for MIN and 100 % for MAX.

Example usage: Control of slide projectors in Multi-Image shows

Initial state--slide projector A on and B off

```
MI20 MINIMUM 20%              A
MA80 MAXIMUM 80%               B
4.2A 4.2 SEC ALTERNATE  UNIFORM  AB
```

Next state--slide projector A transitions to the 20% level and B transitions to the 80% level in 4.2 seconds. The ramp curve selected is UNIFORM.

5.4.2 POSITION CUES

These cues update the position parameter. In multi-image shows these cues are used to position the slide tray.

PF (PROJECTOR FORWARD)

This cue increments the position parameter by one.

Example usage: Slide projector control in multi-image shows

Initial State -- Projector A on position 23 and Projector b on position 24

```
PF  PROJ FORWARD       AB
```

Next state -- Projector A on position 24 and projector b on position 25.

PR (PROJECTOR REVERSE)

This cue decrements the position parameter by one.

TPXX (TRAY POSITION)

This cue sets a new tray position.

Example usage: Slide projector control in multi-image shows

Initial State -- Projector A on position 23 and Projector b on position 24

```
TP40  TRAY POSITION      A
TP42  TRAY POSITION       B
```

Next state -- Projector A on position 40 and projector b on position 42.

5.4.3 RELAY CUES (OPEN/CLOSE)

These cues update the OPEN/CLOSE parameter of X-15 device types and Dove device types.

XN

This cue sets the OPEN/CLOSE parameter to CLOSE.

Example Usage: Close relays ABC on the Super X-15

XN LATCH ON ABC

XF

This cue set the OPEN/CLOSE parameter to OPEN.

Example usage: Open relays ABC on the Super X-15

XF LATCH OFF ABC

XS

This cue toggles the OPEN/CLOSE parameter for 0.25 seconds.

Example usage: Pulse relays ABC on the Super X-15

Initial state -- relays ABC are closed

XS SHORT PULSE ABC

Next State -- relays ABC will open for 0.5 seconds and then close. Had the relays been in the open state initially, the relays would have closed for 0.5 seconds in response to the XS cue.

XL

This cue toggles the OPEN/CLOSE parameter for 0.5 seconds.

AX

This cue sets the OPEN/CLOSE to closed parameter on Dove type devices for 0.25 seconds.

Example usage: pulse the A,B, and C relays on a Super Dove

AX AUX ABC

5.4.4 TIMING CUES

This set of cues allows for synchronization of the control cues to each other and/or to external audio or time code.

W##.##

This cue causes a wait of ##.## seconds, where ##.## can be any value in the range from 0.05 to 10.00 seconds in 0.05 increments.

TMhh:mm:ss:ff

This cue causes the a pause in the cue execution until the Clock (can be internal or External--AVL/SMPTE/EBU) matches the time specified by HH:MM:SS.FF. The range for HH:MM:SS.FF when using internal clock or external AVL clock is 00:00:00.01 - 23:59:59.99 in .01 second increments. The range for HH:MM:SS.FF when using SMPTE clock is 00:00:00.00 - 23:59:59.29 in increments of 1 frame (the ".ff" is the frame number from 00 to 29). The range for HH:MM:SS.FF when using EBU clock is 00:00:00.00 - 23:59:59.24 in increments of 1 frame (the ".ff" is the frame number from 00 to 24).

WX

This cue causes a pause in the cue execution until the F10 key is entered or until the time reaches 10 seconds (which ever comes first). The time in between starting the wait and hitting the F10 key is recorded. A wait with this value is used to replace the original WX. NOTE: WX's can be resolved in this manner only when the program is in thr RUN mode.

TX

This cue causes a pause in the cue execution until the F10 key is hit. The time when the F10 key is hit recorded. A TM with this value is used to replace the original TX. This feature allows for synchronization of the program to an external time code.

Example usage: Control of slide projectors in Multi-Image shows

```
2.0D  2.0 SEC DISSOLVE   NORMAL  AB    ;toggle A and B lamps and increments the down
                                        projectors tray position
W2.50 WAIT 2.50 SEC                     ;wait 2.5 seconds
2.0D  2.0 SEC DISSOLVE   NORMAL  AB    ;toggle A and B lamps and increments the down
                                        projectors tray position
WX    WAIT X SEC                        ;pause until F10 is hit, then replace WX with
                                        W##.# corresponding to time between WX cue
                                        and hitting the F10 key.
2.0D  2.0 SEC DISSOLVE   NORMAL  AB    ;toggle A and B lamps and increments the down
                                        projectors tray position
TIME  1:35.05                           ;pause until income time code equals 1:35.05
2.0D  2.0 SEC DISSOLVE   NORMAL  AB    ;toggle A and B lamps and increments the down
                                        projectors tray position
TX                                      ;pause until F10 key is hit, then replace TX with
                                        TM corresponding to time
2.0D  2.0 SEC DISSOLVE   NORMAL  AB    ;toggle A and B lamps and increments the down
                                        projectors tray position when F10 was hit
```

After resolving the WX and TX using the F10 key, the cue list will appear as follows:

```
2.0D  2.0 SEC DISSOLVE   NORMAL  AB
W2.50 WAIT 2.50 SEC
2.0D  2.0 SEC DISSOLVE   NORMAL  AB
W3.50 WAIT 3.50                  ; assuming F10 hit 3.5 seconds after entering wait
2.0D  2.0 SEC DISSOLVE   NORMAL  AB
TIME  1:35.05
2.0D  2.0 SEC DISSOLVE   NORMAL  AB
TIME  2:30.00                    ; assuming F10 hit at time equal to 2:30.00
2.0D  2.0 SEC DISSOLVE   NORMAL  AB
```

5.4.5 CUE FLOW CONTROL

ST

The ST cue marks the beginning of a run sequence. When a run sequence is entered, the program will continue to run until a STOP, WX, or TX is encountered. The ST cue is also used to mark the beginning of a REPEAT loop.

SP

The SP cue marks the end of a run sequence and forces a halt of the program execution.

N (NO OPERATION)

This has no effect on the screen action. Equals a .1 second wait at 10 cues per second and a .05 second wait at 20 cues per second.

S10 (SPEED = 10 CUES PER SECOND)

S10 is used to shift speed from 20 cues per second to 10 cues per second. Enhanced Procall defaults to 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. At 10 cues per second each cue requires .1 seconds before proceeding to the next cue.

S20 (SPEED = 20 CUES PER SECOND)

S20 is used to increase the running speed to 20 cues per second. At 20 cues per second each cue requires .05 seconds before proceeding to the next cue.

RPxx (REPEAT xx)

This command is used to repeat a series of cues that begin with a START cue. 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.

RP0 (REPEAT UNTIL TERMINATED)

This cue is used if an undetermined number of REPEATS is desired. The RP0 can be terminated by pressing the CUE (F10) key. This command is of use when you are doing the "live" portions of your programs and the length of a sequence has not been predetermined.

RPX (REPEAT X)

RPX allows Enhanced PROCALL to 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, press the F10 (CUE) key to move on to the next part of your program. Enhanced PROCALL will resolve the "X" to the number of times the sequence has been repeated.

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

HOME (PROGRAMMABLE RETURN TO BEGINNING OF PROGRAM)

Home is used as a program function to return the program to cue #1. In addition, HOME also resets all devices to their initial states. For example projectors are sent to tray position 0 or 1 and their lamps are turned off.

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 encounters a STOP command.

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. TAB's can be referenced by GOTO's to make jumping to different program segments easier. GOTO's are described later in this chapter.

LOOPS

Loops allow cue segments to be loaded into the memory of the AVL controllers listed below:

- Doves
- Pro Travler X^2
- Room-Mate
- Super Fader

NOTE: For Dove X^2 and Pro Travler X^2 it may be necessary to download loops support. This is performed by invoking Enhanced PROCALL with the -l option, i.e, typing "ep -l".

The following list contains the cue types which may be included in a loop load:

- ALTERNATE DISSOLVE
- BLINK ALTERNATE
- MIN/MAX
- WAIT
- S10/S20
- NOP

This is a powerful tool that gives the ability to have several different tasks (cue lists) running in parallel. Enhanced PROCALL outputs a continuous clock tick which keeps these independent tasks in sync.

LL (LOAD LOOP)

LL is used to instruct units to store a series of cues in their memory as a routine that will be repeated.

LG (LOOP GO)

LG will cause all specified LOOPS to be repeated until told to STOP.

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 units can be executing different loops. In addition, they execute the loops independent of the current cues Enhanced PROCALL is sending.

LS (LOOP STOP)

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

NOTE: Loop commands LL, LG, LS must designate Device Address, not Group Addresses, to participate within a particular loop. Group Addresses (Screen numbers) are invalid.

5.4.6 SPECIAL PURPOSE CUES

CHx

This cue is used to switch the cue output logical address channel, where x can be A,B,C, or D. This features multiplexes the cue output and in doing so provides four times the addressing capability.

PLEASE CONTACT AVL IF YOU REQUIRE THIS FEATURE. IT IS NOT PROVIDED IN THE STANDARD RELEASE.

SM "XXXX" and SM $HHHH$ (SEND MESSAGE CUE)

This cue is used to communicate with devices having serial (RS-232) control ports, such as VCR's, laser disk players, computers, lighting boards etc.. The serial data strings are transmitted through the Super Genesis I/O's "keyboard port". The strings can be entered as four bytes of ascii data (XXXX) or four nibbles of HEX data (HHHH). No address is entered for this cue. The default transmission parameters are as follows:

- 4800 baud
- data bits
- start bits
- stop bits
- parity

BA (BLINK ALTERNATE)

If the projector status states that the lamp is ON or executing a transition, a BLINK ALT command turn the lamp OFF instantaneously. Another BA will return the lamp to where it would have reached if the first BA did not occur.

FZ (FREEZE)

Allows you to stop a transition while it is in progress and hold the level. This cue also allows you to continue the transition in the same direction at the same rate.

To maintain compatibility with older versions of Procall the FREEZE cue is part of Enhanced Procall. However, there are more effective ways of achieving the effects realized using the FREEZE cue. With Enhanced Procall, MIN/MAX cues can be used instead of the FREEZE cue.

SG (SMOOTH G0)

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

SS (SMOOTH STOP)

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

LDxx (PROGRAMMABLE LOAD OF FILE xx)

This cue 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.

5.5 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. The program editing functions are described in table 5.5.1.

Editing Function (listed alphabetically)	Description	Keystrokes
Control Command mode, switch to for one command	Enter a single control command	CTRL/C
Cursor right	move cursor to the right one field in programming mode	<space>
Cursor left	move cursor to left one field in programming mode	<backspace>
Delete a cue		CTRL/D
Disable all but relay cues		CTRL/P
Disable relay cues		CTRL/X
Display Dove assignments	display dove addresses which have been grouped	CTRL/V
Enable relay type cues	Re-enables relay cues;	CTRL/X
Enable all but relay type cues	Re-enables all but relay cues; if relay cues are already enabled they will remain enabled.	CTRL/P
Forward to next cue	step forward to next cue	q
Forward to next tab	Move to the next tab in the cues list	CTRL/T<cr> or <tab>
Goto to cue #1		CTRL/G<enter>
Goto to cue xx		CTRL/Gxx<enter>
Goto time cue HH:MM:SS.FF		CTRL/GHH:MM:SS.FF<enter>
Insert a cue		CTRL/A or "ins" key
Mode, change	allows you to change assignments to different locations while creating a screen format.	CTRL/U
Notes, display		CTRL/N
Programming mode	enter programming mode from control command mode	<esc>
Repeat previous cue		CTRL/R
Reverse Run ("Cue")	Step back one cue, or to previous START or time cue (which ever comes first), or to previous LL if in LOOP mode.	F9 or <up arrow>
Reverse step one cue		CTRL/Q
Reverse to previous tab		CTRL/B
Run ("Cue")	step one cue or if in RUN mode, execute until STOP, WX, or TX cue encountered	F10 or <down arrow>
Search for tabxx	repositions cursor to tabxx	CTRL/T,xx
Standby mode, enter	bring all lamps down but continue executing tray position cues	CTRL/S
Standby mode, exit	resume normal operation after being in standby mode	CTRL/S

Table 5.5.1 COMMANDS FOR EDITING PROGRAMS

5.6 CONTROL COMMAND ENTRIES

This section describes the following Control Command field entries.

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

5.6.1 EDITING CONTROL COMMANDS

Editing Function (listed alphabetically)	Description	Keystrokes
Beeper off	turn computer's beeper off	BPF
Beeper on	turn computer's beeper on	BPN
Clear all cues	clear all cues currently displayed	CAC
Clear notes	clears a note currently stored in the note buffer	CLN
Delete cues	delete cues from xx to yy inclusively	DLCxx,yy
Disable cue edits	Disable cue edits from keyboard	KBF
Enable cue edits	Enable cue edits from keyboard disabled	KBN
Exit/return to DOS	Exits Procall; SAVE YOUR PROGRAM FIRST or it will be lost forever	QUIT<cr>
Home, new	Establish new home point	NEW
Notes, display and edit	display or edit notes; notes can be 11 lines of 45 characters	NOTES
Operator name	change operators name to xx (up to 25 characters)	IAMxx
Program name	change program name to xx (up to 8 characters)	PGMxx
Remote cue off	disables remote cue (hand control) inputs	RCF
Remote cue on	enables remote cue (hand control) inputs	RCN
Replace time cues	replace time cues with TX, beginning with cue x and ending with cue y	RTC x.y
Space	Displays total cue memory space and amount of space already used	CUES
Screen numbers, exchange	Exchange Group addresses and device addresses; where v = current dove address, x = current bank (A or B), y = new dove address, and z = new bank	ESN vx,yz
Time offset	Offset all time cues beginning at cue xx and ending at cue yy by hh:mm:ss.ff	TOCxx,yy+/-hh:mm:ss.ff
Tray position offset	Set a new starting tray position for status display (x can be from 0 - 80)	TPOx

5.6.2 TIMING CONTROL COMMANDS

Timing Function	Description	Keystrokes
AVL timing codes, enable	enable AVL time codes	AVL
SMPTE timing codes, enable	enable SMPTE time codes	SMPTE
EBU timing codes, enable	enable EBU time codes	EBU

5.6.3 MEMORY/DISK DATA TRANSFER COMMANDS

Function	Description	Keystrokes
Append file	add file xx to end of program currently in cue memory	APxx
Delete file	delete file xx from disk	DELxx
Disk drive selection	select working disk drive x (A,B,C,D..)	DSKx
Clear notes	clears a note currently stored in the note buffer	CLN
Insert cues	insert cues from file xx before cursor	INSxx
Load cues	load cues from file xx in place of cues already in memory	LDxx
Load notes	load notes from file xx into the note buffer memory	NLDxx
Library	display cue files in current directory	LIB
Name Protect, clear	allows file xx to be renamed	CNPxx
Name Protect	protects file xx from being renamed	NPRxx
Operator name	change operators name to xx (up to 25 characters)	IAMxx
Program name	change program name to xx (up to 8 characters)	PGMxx
Rename file	rename file x as file y	RNMx,y
Save Notes	save notes to file xx	NSVxx
Save	save the program with the name shown in the program name field	SV
Save under new name	save program in file xx	SVxx
Save block of cues	save block of cues from xx to yy, inclusively, in file zz; when used in conjunction with INS or AP, SV provides an efficient way to copy or move blocks of cues between or within programs.	SVxx.yy.zz
Write protect, clear	allows file xx to be overwritten or deleted used	CWPxx
Write protect	write protect file xx	WPRxx

5.6.4 MAGNETIC TAPE CONTROL COMMANDS

Function	Description	Keystrokes
Clock edit mode	run from tape time codes; if tape stops program stops	CEM
Clock input mode	run from tape time codes; if tape stops program continues from internal clock	CIM
Clock output mode	sends time codes, starting at time = 0, on OUT1 for recording onto tape	COM
Clock output mode at time x	sends time codes, starting at time = HH:MM:SS.ff for recording onto tape	COM HH:MM:SS.FF
Mag tape input off	disables mag tape input	MIF
Mag tape input on	enables mag tape input	MIN
Mag tape load	load program from mag tape into memory through mag tape input jack; no command entry is required. The mag tape load will take place automatically when information resulting from an MSV is received on Data in.	
Mag tape output off	disable cue transmission on OUT1 and OUT2	MOF
Mag tape output on	enable cue transmission on OUT1 and OUT2	MON
Mag tape save	save cues in memory to mag tape through OUT1	MSV
Positrak output off	disables positrak output when not in the RUN mode; Positrak output when in the RUN mode cannot be disabled.	POF
Positrak output on	enables positrak output when not in the RUN mode	PON
Set levels	output continuous tone to set levels on recorder	STL
Verify	compares program residing in memory with tape MSV	VER

5.6.5 TAPE TRANSPORT CONTROL WITH SUPER GENESIS I/O

Function	Description	Keystrokes
Fast forward	Fast forward tape	CTL/F4 (F4 is F4 function key)
Play	Play tape	CTL/F3 (F3 is F# function key)
Rewind	Rewind tape	F4
Stop	Stop tape	F3
Tapetrak	enable tapetraking if currently disabled and disable if currently enabled.	CTL/E

5.6.6 PRINTING CONTROL COMMANDS

Function	Description	Keystrokes
Parallel printer select	select parallel printer port	PLP
Print	print program name, operator name, and cue list	PRINT
Serial Printer select	select serial printer port. This is default. (COM1 is used)	SLP
Speed select	set baud rate to xx for external printer. 300 baud is default. Rates from 300 to 9600 are allowed.	SPDss

A. APPENDIX PROGRAMMING EXAMPLES

This chapter provides an explanation of some sample programs. The example programs are provided on your diskette. It is suggested that these examples be loaded and studied in detail for a full understanding of the commands and their usage.

e.g. # 1 "realtime"

(once in ENHANCED PROCALL load "realtime" by typing CTR/C to enter the control command mode. Then type LDREALTIME<cr>, to begin the program load)

This program does not contain any timing or flow control cues. Programs of this type can be used for simple speaker support applications.

To follow the speaker simply press the "F10" when you want to execute the current cue.

If the speaker desires sequencing the program, this can be done with a remote control (if using Kodak hand control press Forward button) connected to the Remote cue input of the Genesis board or Super Genesis I/O.

e.g. # 2 "runstop"

This program is slightly more sophisticated example of speaker support. Here cue segments, in addition to single cues, can be executed in response to the "F10" key or a Remote cue input (if using Kodak hand control, press Forward button)

Note that cue segments are marked by using the ST and SP cues.

e.g. # 3 "sequence"

Here time codes are introduced as a way of automatically synchronizing to a time code. The example shows how to specify when a cue or cue segment should started in relation to incoming time code.

e.g. # 4 "timex"

This is a more sophisticated example of time code synchronization. It shows a commonly used technique to create a show with precise synchronization to the soundtrack. Upon loading "timex" you'll see only time cues and tabs. This program is run while receiving time codes. Each time the audio dictates moving to a new segment the F10 key is pressed and the current TIME X will mark the beginning of this segment. If you go to the end of this program cue (F10) the last cue (LD 06) you can see what the program might like after resolving the TIME X's and then inserting the cues which should follow the TIME X's.

A.1 RECORDING CUES AND TIME CODE ON TAPE

e.g. # 1 Recording Time code

Step 1 -- Enter the control command mode by typing:

CTL/C

Then disable Positrak output by typing:

CTL/CPOF<cr>

Step 2 -- select clock type by entering:

AVL<cr> for AVL clock (default)
or
SMPTE<cr> for SMPTE clock
or
EBU<cr> for EBU clock

Step 3 -- Place deck in record and pause at position where you desire to begin recording time codes (we suggest leaving a minimum of 5 seconds of leader).

Step 4 -- adjust tape signal level to 0 to -3db in response to test output. Test output signal is generated on OUT 1 in response to:

STL<cr>

Normally, track 3 is used for time codes.

Step 5 -- send time code and record by typing:

COM

or, if it is desired that the time code begins a time not equal to 0:00:00.00, type:

COM HH:MM:SS.FF

then releasing pause and pressing return key. Time codes are now being recorded in real-time. It is recommended that the time code track creates a window around the show in case the show needs to start sooner or end later than anticipated.

Step 6 -- End recording and resume normal Positrak output by stopping the deck and typing <esc> followed by:

PON<cr>

e.g. # 2 -- Recording Cues in Real-time

With cue list loaded and cursor on cue #1 perform following steps.

Step 1 -- Place deck in record, play, and pause mode at position for recording

Step 2 -- adjust tape signal level to 0 to -3db in response to test output. Test output signal is generated on OUT 1 and OUT2 in response to:

STL<cr>

Step 3 -- Type <esc><esc> then start deck

Step 4 -- Press F10 each time you want to record next cue(s)

e.g. # 3 -- Recording Cues in sync with time codes already on tape

With cue list loaded and cursor on cue #1 (must be a time cue)perform following steps.

Step 1 -- Place deck in record, play, and pause mode at position for recording

Step 2 -- adjust tape signal level to 0 to -3db in response to test output. Test output signal is generated on OUT 1 in response to:

STL<cr>

Step 3 -- type <esc><esc>, then start deck (cues will be sent in sync with time codes)

B. AUXILIARY CUES FOR DOVES

Enhanced PROCALL supports 15 Dove auxiliaries. The letters A thru O are used instead of, for example, 1l and 1R. The following table shows the Enhanced PROCALL commands as compared to the PROCALL 5 and X commands.

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

DOVE #	Enhanced PROCALL	PROCALL X	PROCALL 5
1	AX A	AX A	AX 1 L
	AX C	AX B	AX 1 R
	AX B		
2	AX D	AX C	AX 2 L
	AX F	AX D	AX 2 R
	AX E		
3	AX G	AX E	AX 3 L
	AX I	AX F	AX 3 R
	AX H		
4	AX J	AX F	AX 4 L
	AX L	AX H	AX 4 R
	AX K		
5	AX M	AX I	AX 5 L
	AX O	AX J	AX 5 R
	AX N		

C. CREATING CUSTOM CONFIGURATIONS

C.1 GENERAL

The following guidelines must be followed when defining custom configurations.

a. 15 Dove addresses per bank per bank.

b. 9 groups (screens) per bank

c. Max of 6 Dove addresses per group, e.g. group 1 can be Dove addresses ABCDEF

C.2 CREATING A NEW CONFIGURATION

To create a new configuration, follow the procedure outlined below.

a. Start Enhanced Procall as you normally would.

b. 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

appeared on the screen, press the 2 key.

f. When the configuration table appears you ready to create a custom configuration. The table contains a 9 x 6 matrix for each bank. The nine columns per bank correspond to the group numbers 1-9 (screen numbers 1-9). The six cells in each column can correspond to up to 6 Dove addresses.

Any 15 physical Dove addresses can be entered in any 15 of the 54 cells. These entries will be assigned logical addresses according to their position in the matrix. This is done by traversing the matrix starting at the top of the left column, proceeding to the bottom of that column, then proceeding to the top of the next column to the right and proceeding to the bottom of that column, and continuing through the remaining 4 columns in this manner. During this traversal, each time an entry is encountered in a cell it is assigned the next sequential logical address, beginning A and ending with O (15 in all).

For historical reasons the Dove addresses entered in the cells are assigned by 2 character designations. Below is the relationship between these two character designations and the 15 physical dove addresses A-O

2 Character Designation -->	1A 1B 1C 2A 2B 2C ... 5A 5B 5C
	|| || || || || || || || ||
Physical Dove address	A B C D E F M N O

e.g. 9 slide projectors and 2 video projectors distributed over 4 separate screen areas.

The show will have 2 slide projectors on the left most screen, 2 slide projectors and a video projector on the next screen to the right, 2 slide projectors and a video projector on the next screen to the right, and 3 slide projectors on the right most screen.

To create this format enter the following:

1a
<down arrow>
1b
<right arrow><up arrow>
1c
<down arrow>
2c
<right arrow><up arrow>
2b
<down arrow>
2a
<right arrow><up arrow>
3a
<down arrow>
3b
<down arrow>
3c

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, press RETURN.

i. 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 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 <drive letter>

k. When the following prompt comes on the screen:

DO YOU WANT TO SAVE THIS FORMAT?

enter N (unless you want to save this format onto another diskette), press RETURN.

l. 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.

L. To program the show using the format created above the equipment must be configured as described below.

Screen 1	Screen 1's slide projectors should be connected to a Dove set to screen 1 on ports A and B
Screen 2	Screen 2's slide projectors should be connected to a Dove set to screen 1 on port C and a Dove set to screen 2 on port C.
Screen 3	Screen 3's slide projectors should be connected to a Dove set to screen 2 on ports B and A.
Screen 4	Screen 4's slide projectors should be connected to a Dove set to screen 3 on ports A,B, and C.

M. The logical addresses which must now be used to control the equipment are shown below in parenthesis.

Screen 1	Screen 1's slide projectors should be connected to a Dove set to screen 1 on ports A(A) and B(B)

Screen 2	Screen 2's slide projectors should be connected to a Dove set to screen 1 on port C(C) and a Dove set to screen 2 on port C(D).
Screen 3	Screen 3's slide projectors should be connected to a Dove set to screen 2 on ports B(E) and A(F).
Screen 4	Screen 4's slide projectors should be connected to a Dove set to screen 3 on ports A(G),B(H), and C(I).