PROCALL MANUAL

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AUDIO VISUAL LABORATORIES

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EAGLE II REAR PANEL A-V CONNECTORS

OUT 1 - The OUT 1 RCA jack is used for outgoing CUE DATA information. Dissolve units on screens 1 through 5 (first fifteen projectors) are connected here along with such peripheral equipment as the X-15 AUXILIARY controller. Connection for tape recording of CLOCK TRAK information as well as program information for the first five screens is made to OUT 1.

The format of the CUE DATA used by AVL includes multiple cue passes and a CYCLIC REDUNDANCY CHECK to virtually guarantee failure free operation of the playback equipment and allow use of moderately priced cassette equipment for recording and playback.

The data from the "OUT 1" jack is compatible with the full line of AVL computer products.

NOTE: We recommend the use of high quality audio cables for ALL hook ups, e.g. TEAC TC401xx (the xx indicates length).

OUT 2 - This RCA connector supplies CUE DATA for dissolve units on screens 6 through 0 and for recording on magnetic tape. Out 2 is also the connection point for RAVEN film controllers.

PLAY IN - The PLAY IN RCA jack is used for ALL incoming DATA communications information, e.g. loading program information stored on MAG TAPE, playing in CLOCK TRAK, VERIFYING your SAVE tapes and playing cue information through the EAGLE II without storing it into memory. (MAG TAPE BYPASS)

REM CUE - The REMOTE CUE jack is a female KODAK type connector. It is used to CUE and REVERSE CUE the EAGLE II A-V from a remote location, e.g for speaker support. The REM CUE jack can be made inoperable by entering a RCF command in the CONTROL COMMAND mode. This will highlight a RCF (remote cue off) message on the display status line. Each time a remote cue signal is received at the REM CUE jack the prompt REM will be highlighted on the video monitor.

INTRODUCTION TO THE SYSTEM

User friendliness and software updatability were the goals that AVL had in mind with the development of PROCALL (PROgrammable Computerized Audio-visual Language Library). The object was to maximize the capabilities and flexibility of the system while at the same time minimizing the work expended to use the system.

Software updatability eliminates returning the system to the factory for time consuming updates to the hardware (the mechanical, magnetic, electrical and electronic devices or components of a computer) every time a new feature is developed. Instead the system is designed to be "software updatable". The EAGLE II A-V was designed with the latest hardware features and standard communication interfaces available so that once

designed, the system could be completely adaptable without requiring hardware changes.

AVL's purpose is to give the user all the power in a system that they will ever need. Then when new uses arise new peripheral devices are developed for use with the system. The AVL RAVEN film controller is an example of this successful strategy. An update to the PROCALL software allows the EAGLE I system to control yet another device. EAGLE I owners who have owned their systems since 1977 have seen a tremendous increase in the power of their programmer, without ever having to do without their system for an update.

When the EAGLE I was introduced its programming features were basically limited to those of the SHOW PRO V. But as time has gone by there have been many new features added as PROCALL has progressed all the way from VERSION 1A through the latest level --VERSION 5. The EAGLE I can now control film projectors, up to 120 slide projectors or hundreds of auxiliary relays. At the same time the on-screen performance and programming convenience have improved dramatically through the introduction of features such as CLOCK TRAK, POSITRAK, LOOPING, BLINKING, SMOOTH FADES, PROGRAMMABLE LOAD FROM DISK etc. The list goes on and on but the point is that EAGLE I owners have been able to benefit from all these new developments without giving up the use of their EAGLE I for long periods of time. Just a quick phone call to the nearest dealer is all that is necessary to obtain all the latest features on a 5 1/4 inch diskette for a very nominal price.

This same convenience and power is now available to all EAGLE II SYSTEM owners. Each EAGLE II A-V SYSTEM comes with two V5 diskettes which not only contain PROCALL for operating the system, but also provide storage for thousands of cues.

EAGLE II A-V SYSTEM FUNCTIONAL DESCRIPTION

VIDEO MONITOR

The VIDEO MONITOR serves as a valuable tool to aid you in your programming. Prior to the use of VIDEO MONITORS it was necessary to write out complex sequences of cues in order to be able to visualize what the A-V program was going to do next. With the VIDEO MONITOR on your EAGLE II A-V you can view 11 cues at a time or quickly scroll through the program in either direction. Note: Scroll is used here in the context of looking smoothly through the program as if the contents of memory were contained on a rolled up scroll which could then be slowly unwound before us for observation.

Most people find the sped and flexibility of a VIDEO MONITOR impossible to do without once they are accustomed to using them. Note the wide use of VIDEO MONITORS throughout industry in applications such as data entry and point-of-sale.

By means of a special computer language, PROCALL, the VIDEO MONITOR allows the computer to "talk" to you by displaying various messages. Instead of trying to figure out some complicated code to ascertain what the system is doing or pondering whether the fact that the system erased a cue meant that it was entered incorrectly, the monitor will tell you what is going on in plain ENGLISH e.g. "end of cue space encountered,""standby for GOTO" or "keyboard editing is disabled."

Another function of the VIDEO MONITOR is to display the cues and the lamp status of the program you are working on or showing. Use of a VIDEO MONITOR greatly facilitates the task of creating and programming any show. The more complicated the show is the more aid the the VIDEO MONITOR can provide. Just by glancing at the screen while a show is running you can tell which lamps are up on the projectors, what the various tray positions are, how many frames per second the film projectors are supposed to be running at and what frame end point they will run to.

The VIDEO MONITOR can display an incredible amount of information at one time. If LED'S were used, just to show lamp status would require 30. Then any future expansion/format changes would require a hardware update. EAGLE I users can verify the fact that there have been 5 levels of programming sophistication since its introduction and a tremendous increase in the amount of information available to the user without any hardware changes to the system.

DISK DRIVES

As described in your USERS GUIDE the EAGLE II A-V has two built in high density disk drives. Disk drives are the preferred

choice over other means of mass storage such as magnetic tape because of their far greater data transfer speed, density of storage and random access ability.

To give you an illustration of the difference in speed between magnetic tape storage and disk storage, it takes about 8 seconds to load a block of 3000 cues from the diskette into the memory of the EAGLE II. That figure includes starting the drive up, allowing it to get up to speed, finding the information on the diskette and transferring it. Now compare those figures to data storage using magnetic tape. Assume that the cues are recorded on the tape consecutively at a speed of 20 cues per second. If the tape is running at 15 inches per second it would take in excess of 220 feet of tape to transfer the same information. This represents about 2 1/2 minutes of time. If there were more than one block of data stored on the tape there would be even more time involved finding the right block.

SYSTEM HOOK UP

A wise piece of advice often heard, but seldom heeded it seems, is the recommendation to CHECK THE AC POWER SOURCE YOU WILL BE USING TO SEE IF IT IS WIRED CORRECTLY. There are two very good reasons for spending the time to do this.

First, it can prevent you or someone else from being hurt. Second, it can prevent the equipment from being damaged or not functioning correctly.

Checking out the receptacles you will be using is a simple task and can save you hours of sweat and aggravation later. There is a small device called an AC receptacle tester on the market which is manufactured by several companies and sells for about $7.00. It plugs into the standard 3 wire grounded receptacles. There are 3 indicators on the unit, and a table printed on it that shows the combination of indicators lit for various fault conditions, as well as correct wiring. These testers can be found at electrical supply stores and at some deparment stores in the electrical section.

The recommended hook up procedure for the EAGLE II A-V SYSTEM is as follows:

The EAGLE II A-V SYSTEM is connected to the dissolve units (DOVES) via the "OUT 1 and OUT 2" RCA phono jacks on the rear panel of the EAGLE II A-V. AVL dissolve units label the projectors L,C,R (LEFT - CENTER - RIGHT), this notation will correspond to the L,C,R of the projector status display on the VIDEO MONITOR.

Dissolve unit hook up is accomplished using SHIELDED audio cable with RCA phono plugs on each end. Dissolve units for use on screens 1-5 are connected to "OUT 1" and screens 6-0 are connected to "OUT 2". The other end of the cable is attached to one of the two jacks on the front of the dissolve unit. These two jacks enable you to "daisy chain" or loop the signal from dissolve to dissolve. The screen select switches on the dissolves are set appropriately and then only cues which pertain to that particular unit are executed by the dissolve.

To illustrate correct dissolve hook up we will describe hook up of a nine projector set-up using 3 DOVE dissolve units.

The normal configuration of a 9 projector show would be in 3 "stacks" of 3 projectors each. Each stack is referred to as a screen and may be labeled any number from 1-10. Normal labeling would be screens 1,2,3. Each DOVE dissolve unit has a 5 position screen select switch on its front panel marked 1-5. In the EAGLE II A-V system, cues for the first 5 screens (first fifteen projectors) are issued from the "OUT 1" jack. Cues pertaining to the second group of 15 projectors, or screens 6-0, are issued from the jack labeled "OUT 2".

In the case of our 3 screen show, the "OUT 1" jack on the EAGLE II is connected to the first dissolve unit in the chain. When the DOVES' screen select switch is set to position 1 it will only decode cue information intended for screen 1. Notice that there are 2 RCA phono jacks on the front of each dissolve unit. Any signal appearing at one jack is automatically routed to the other. The second jack is connected to the next dissolve unit, screen 2. The screen select switch on the second dissolve unit is now set to 2 and that unit will decode only the cue information which pertains to screen 2. Now using the other jack on dissolve unit number 2 connect it to the third dissolve unit on screen 3. The screen select switch on the third dissolve unit is now set to 3 and that unit will decode only cue information pertaining to that screen.

Chains or loops of dissolve units must never mix dissolve units from screens 1-5 with units for screens 6-0. This is required because the dissolve units only have 5 screen selections. Dissolve units hooked up to OUT 2 are set at screen select position 1 for screen 6, position 2 for screen 7, etc.

NOTE: We recommend the use of high quality audio cables for ALL hook ups. e.g. TEAC TC 401xx (the xx indicates length).

LOADING PROCALL INTO THE EAGLE II A-V

The EAGLE II A-V loads PROCALL into itself automatically upon being turned on. The monitor will display "PLEASE STANDBY FOR PROCALL LOAD. THANK YOU." while the program is loading. After the load is complete the display will change to:

HELLO, I AM THE EAGLE II A-V. WHAT IS YOUR NAME?

At this point you can type your name and press the ENTER key. There is a maximum of 25 characters allowed in the name space. As soon as you press the ENTER key the display will instantly change to:

HI THERE (your name), NICE TO MEET YOU

THANK YOU FOR USING PROCALL VERSION V5

I CAN SEQUENCE EITHER 2 OR 3 PROJECTORS PER SCREEN. HOW MANY WOULD YOU LIKE?

Now you can enter either 2 or 3 and the system will move on to the next question. Anything other than 2 or 3 is unacceptable and the monitor will display a question mark and the system will BEEP. Now the monitor will add:

PLEASE NAME YOUR PROJECTORS. ENTER 1 FOR LCR, 2 FOR TCB, OR 3 FOR ABC.

As with projector sequencing, the system will accept only a 1, 2, or 3 and immediately move on when it receives one of the three. The monitor will now add:

VERY GOOD. PLEASE NAME YOUR PROGRAM AND WE CAN BEGIN.

Now the system expects you to enter the title of the program you will be creating and it will allow you a space 8 characters long to title it. Up to this point, if you decide to change any of the parameters just set you may back up one question at a time by depressing the key with the upward pointing arrow. Upon entry of the program name the monitor will now change to "THE NORMAL PROGRAMMING MODE DISPLAY"(see FIG. 1).

At any point in the opening sequence, you may skip the rest of the questions by pushing the LINE FEED (down arrow) key. If you use the LINE FEED key at the first question the system will default to LCR for projector assignment, sequence 3 and proceed directly to "THE NORMAL PROGRAMMING MODE DISPLAY" (FIG.1).

NOTE: After PROCALL load the EAGLE II A-V will automatically be
in MAG TAPE BYPASS MODE. The options available at this point are
as follows:

1. Run a show that has the DATA TRACK on tape through the EAGLE
II and bypass loading the program into the memory.

2. LOAD a program directly into the memory after loading PROCALL
and then run a show with DATA TRACK through the EAGLE II A-V in
MAG TAPE BYPASS MODE. In this way both "live" and "canned" shows
can be mixed effectively.

3. LOAD a program into the memory after the PROCALL load and
then run from a tape that has a DATA TRACK and a CLOCK TRACK.

4. Enter the programming field and create or edit a show.

PROGRAM STORAGE

STORING YOUR PROGRAM ON DISK

When you have reached a point in your program where you are ready to quit for a while you should save the portion you have just completed. The disk is your normal permanent storage. A program is saved on to the disk by doing the following:

1. Depress the CONTROL and C keys, then push the ENTER key. The cursor will move to the COMMAND field.

2. Type in "SV" or "SAVE", ENTER. A file name may be entered after "SV" if desired. If a file name is entered, the program will be saved on to the disk under the file name just selected. If no file name is entered, the program will be saved on to the disk with the PROGRAM NAME as the file name. The red activity LED on the disk drive will come on. When the program has been written on to the disk, the comment "OPERATION COMPLETE" will appear.

LIBRARY DISPLAY

In order to verify that the program is stored on the disk or to determine which programs are stored on a particular disk, you may call up the LIBRARY DISPLAY. This display shows all the FILE NAMES of the programs stored on the disk.

The LIBRARY DISPLAY is accessed by entering the COMMAND MODE as described above and then typing in "LIB" or "LIBRARY". The LIBRARY DISPLAY will now appear in the PROGRAM area of the display.

NOTE: The LIBRARY DISPLAY has no effect on the program in memory. It may be called up anytime the system is not executing a program or receiving data input.

STORING YOUR PROGRAM ON MAG TAPE

After you have created a program in memory, you may want to dump that program on to mag tape. There are two methods for storing the program.

(1) EXPANDED ROAD RUNNER, EAGLE I and EAGLE II A-V configuration.

(2) SHOW PRO V and pre-EAGLE compatible.

Below are outlined the basic set ups for both procedures and an explanation of the differences.

SET UP FOR STORING PROGRAMS ON MAG TAPE

1. Connect the "OUT 1" or "OUT 2" jack, or both on the EAGLE II A-V to a line input(s) of your tape recorder.

2. Connect the "PLAY IN" jack on the EAGLE II A-V to the corresponding "line output" jack on the tape recorder. This connection is used to VERIFY (described below).

3. In the CONTROL COMMAND mode, type in STL (SET LEVELS) and adjust the input levels of the tape recorder to between +1 and +3 db.

4. Press ESC (ESCAPE) to clear STL. This will put you into the normal programming mode.

5. Return to the CONTROL COMMAND mode and type in ONE of the following commands depending on the type of store you want to create.

CONTROL COMMAND STORE ENTRIES

1. MSV,ENTER - [ROAD RUNNER/EAGLE II A-V/EAGLE CONFIGURATION]

When the RETURN key is pressed, the CRT DISPLAY will scroll through the cues as they are saved on to the tape. This method will MSV (MAG TAPE SAVE) the program just as it appears in the EAGLE II A-V memory. This method also codes the tape so that later when you reload the program, the EAGLE II A-V will automatically load the program and then return to the MAG TAPE BYPASS status.

2. VER,ENTER - VERIFY

Once you have saved your memory with the SAVE method, you can VERIFY that the data recorded on the audio tape precisely matches the data in the program memory before you clear the memory. If for some unforseen reason an error shows up you can redump the contents of memory. Return the tape to the starting position of the SAVE on that tape. In the CONTROL COMMAND mode, type VER, than RETURN. Start the tape recorder and watch the cues count down.

2. MTD,ENTER - MAG TAPE DUMP

This method will store the program in a data format compatible with the SHOW PRO V and other pre-EAGLE AVL equipment. This mode is usually used with shows of 5 screens or less. VERIFY will NOT

work with this type MAG TAPE storage.

LOADING YOUR PROGRAMS FROM MAG TAPE

Loading an existing program into the memory will normally occur immediately after you have loaded PROCALL into the EAGLE II A-V. Any ROAD RUNNER, EAGLE I or EAGLE II A-V program that was stored on MAG TAPE with the MSV method has been coded so it can be loaded directly into the PLAY IN jack on the EAGLE II A-V rear panel. For programs that were stored with the MTD, you will have to tell the EAGLE II A-V to load the program by turning off the MAG TAPE BYPASS. This is done by entering the CONTROL COMMAND mode and typing in MLD (MAG TAPE LOAD) and then entering it. Because the MTD storage tapes are not coded, you will have to return the EAGLE II A-V to the MAG TAPE BYPASS condition manually by pressing any key. We recommend you use the SPACE BAR.

FIG. 1 **PROCALL MONITOR DISPLAY**

```
----------------------------------------------------------------
[ PROGRAM:  DEMO 1   OPERATOR:                                 ]
[                                                              ]
[ MODE: MAG TAPE BYPASS                            0.00        ]
[                                                              ]
[ CONTROL COMMAND:                        V5                   ]
[                                                              ]
[ STATUS:                                                      ]
[                                                              ]
[ CUE#  CODE   STATEMENT   SCREENS    RUN  SCREEN STATUS       ]
[                                                              ]
[ 0001                                1   2   3   4   5        ]
[                                    --  --  --  --  --        ]
[ 0002                                0   0   0   0   0 L      ]
[                                                              ]
[ 0003                                0   0   0   0   0 C      ]
[                                                              ]
[ 0004                                0   0   0   0   0 R      ]
[                                                              ]
[ 0005                                                         ]
[                                                              ]
[ 0006                                6   7   8   9   0        ]
[                                    --  --  --  --  --        ]
[ 0007                                0   0   0   0   0 L      ]
[                                                              ]
[ 0008                                0   0   0   0   0 C      ]
[                                                              ]
[ 0009                                0   0   0   0   0 R      ]
[                                                              ]
[ 0010                                                         ]
[                                                              ]
[ 0011                                                         ]
[                                                              ]
----------------------------------------------------------------
```

VIDEO MONITOR DISPLAY

TOP LINE

This line contains the name of the operator and the program title. 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 LINE FEED key the program title will default to DEMO 1, and the operator name will be blank.

The space at the far right hand side of this line is reserved for incoming data display. When the system receives cue information from either mag tape or another AVL programmer, this line will display the word AMP if the data is correct and not distorted. MT POOR is displayed if the incoming data has some distortion in it but the system is still 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 POSITRAK information is being received by the system the display will show the word POSITRAK.

SECOND LINE

This line contains the PROGRAMMING MODE selection. The possible choices are MAG TAPE BYPASS (the default mode), CEM (CLOCK EDIT MODE), CIM (CLOCK INPUT MODE), COM (CLOCK OUTPUT MODE), MAG TAPE DUMP, MAG TAPE LOAD and VERIFY.

THIRD LINE

This is the CONTROL COMMAND field and its features are discussed in the PROCALL GUIDE.

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 (POSITRAK OUTPUT OFF). This line also functions as a display for "EAGLE COMMENTS" such as "STANDBY FOR GOTO".

FIFTH LINE

This line contains the headings for the various columns of the programming area:

CUE # - As with other AVL programmers the cue is previewed before it is executed. Unique to the EXPANDED ROAD RUNNER, EAGLE II A-V and the EAGLE is the fact that the display shows you the 5 preceding cues as well as the five following cues.

CODE - This area is for the various programming CODES as described in the PROCALL GUIDE that designate what the screen action will be.

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

SCREENS - This area is used to specify which screen (stack of 3 projectors) will respond to the CODE entries.

RUN - This is used to indicate that the program in the system is executing. Runs are initiated by entering a "GO" 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 white 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.

STATUS AREA

This area is used to give you a constant display of the projector tray position and projector lamp status. The projector status area breaks up the 30 projectors into two groups of 15 each referred to as "BANK 1" and "BANK 2". Each group of 15 projectors is further divided into vertical stacks of 3 projectors called screens and five screens are displayed left to right in each "BANK". The screens are labeled 1-5 in bank 1 and 6-0 in bank 2. The projectors in each screen are labeled LEFT, CENTER, RIGHT from top to bottom (default value). They may alternately be designated A,B,C or TOP, CENTER, BOTTOM by use of the projector assignment command.

The projector designations appear to the right of the projector tray position display. You can tell what projector sequence you are using by just looking at the center projector designator. If it is blank you are in sequence 2 (left, right); if it is not blank, you are in sequence three (left, center, right).

The TPO Control Command (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 any cues to the equipment attached to the system. It assumes that you actually started with your trays in the offset position.

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 time coming in from mag tape. The system can receive CLOCK TRAK from mag tape in either CLOCK EDIT or CLOCK INPUT mode. The clock will begin to run anytime the LINE FEED 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 is encountered while the clock is free running (no CLOCK TRAK data is being received) the clock will stop.

PROCALL GUIDE VERSION V5

This section is broken into four major headings:

1. PROGRAMMING COMMANDS

2. EDITING COMMANDS

3. CONTROL COMMAND MODE ENTRIES

4. COMMANDS FOR OPTIONAL PERIPHERALS

1. PROGRAMMING COMMANDS

ENTER UNDER CODE HEADING

DISSOLVE SPEEDS

CT

CUT - This cue turns the lamp ON or OFF instantly. 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 instantly^, 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.

HC

HARD CUT - A hard cut was designed with 2 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.

<u>1D</u>

<u>2D</u>

<u>3D</u>

<u>4D</u>

<u>6D</u>

<u>8D</u>

<u>16D</u>

<u>32D</u>

DISSOLVE ALTERNATES - These cues are used to turn the lamp ON or Off in the designated amount of seconds with NO tray advance.

<u>FA</u>

FAST ALTERNATE - This cue turns the lamp ON or OFF faster than an alternate. It is used to do alternates at 20 cues per second and roughly equates to a HARD CUT with no tray advance. The purpose behind the fast alternate has to do with the lamp response in a slide projector. The 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 to cool down. This is called the "thermal lag" of the lamp, and the lag is different for turning ON the lamp than it is for turning OFF the lamp.

All AVL computerized dissolve controls automatically compensate for this effect. For CUTS and ALTERNATES they use what we call an "afterburner" which never allows the lamp to go all the way off. Looking in the lens of a projector which has its' lamp OFF you would see that the lamp is glowing very, very dimly. This prevents any possibility of a "blink" occurring on the screen and allows the visuals to attain full intensity when moving at the rate of 10 cues per second. At 20 cues per second this afterburner would not allow the lamp to respond quickly enough. The afterburner is turned off when FAST ALT is programmed to allow solo flashing and/or moving visuals at 20 cues per second.

<u>AT</u>

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

<u>1A</u>

<u>2A</u>

<u>3A</u>

<u>4A</u>

<u>6A</u>

<u>8A</u>

<u>16A</u>

<u>32A</u>

<u>AX</u>

AUXILIARY FOR DOVES - AXs are used with a screen and projector designation to obtain a momentary contact closure for control of auxiliary devices.

<u>BG</u>

BLINK GO - BG is used to initiate BLINKING in DOVE D'S.

<u>BS</u>

BLINK STOP - BS is used to terminate a BLINKING sequence.

<u>FZ</u>

FREEZE - The EAGLE II 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 direcion 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.

<u>HOME</u>

PROGRAMMABLE RETURN TO BEGINNING OF PROGRAM - HOME is used as a program function to return the program, slide trays and lamp status 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 the memory until it encounters a STOP command.

LDxx

PROGRAMMABLE LOAD OF FILExx - This cue automatically executes a 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 name may be any two digit alphanumeric character combination. The 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 a long dissolve.

LG

LOOP GO - LG with DOVE D dissolves will cause ALL specified LOOPS to be repeated until told to STOP.

LL

LOAD LOOP - LL is used to instruct DOVE D'S to store a series of cues (ACTION CUES) in their memory as a routine that will be repeated.

LS

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

N

NO OPERATION - This has no affect 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 GO or STOP separate from any screen action.

PF

PROJECTOR FORWARD - This cue, used with a screen and a projector designation, will move the assigned projector tray FORWARD one position without affecting the lamp status. If you use only the screen designation without specifying a projector the system will assume that you want ALL projectors in the screen to move FORWARD one position.

PR

PROJECTOR REVERSE - This command functions the same as the PROJECTOR FORWARD command except that it will REVERSE the trays

one position.

PS

PRESET - This cue presets specific projectors to respond to the next action cue issued to the corresponding dissolve unit. This allows you to access projectors that do not have like projector assignments at the same time without the normal .1 or .05 seconds between cues. Preset allows simultaneous action on the assigned preset projectors when cued. Preset can also be used to deselect. In this case, you would select the projectors you do not want to respond. When a lamp command is executed on that screen the preset projectors will not respond.

RP0

REPEAT UNTIL TERMINATED - This cue is used if an undetermined number of REPEATS is desired. The RP0 can be terminated by pressing the LINE FEED key or using a REMOTE CUE. This command is of use when you are doing "live" portions of your program and the length of a sequence is not predetermined.

RPX

REPEAT X - RPX allows you to let the EAGLE II 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 LINE FEED key to move on to the next part of your program. The EAGLE II A-V will resolve the X to the number of times the sequence repeated.
NOTE: When you press the LINE FEED key to resolve the RPX, the system will finish the sequence in progress before moving on.

RPxx

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

NOTE: 1) 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.
        2) With the use of nesting, it is possible to create a sequence that has billions of cues. Use nesting with extreme care.

RUN SEQUENCES

The EAGLE II A-V SYSTEM can execute a program 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 EAGLE II 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 GO 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.
NOTE: The CURSOR will NOT flash when the system is in the RUN mode and running from memory.

S10

SPEED-10 CUES PER SECOND - S10 is used to shift speed from 20 cues per second to 10 cues per second. The EAGLE II 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.

SG

SMOOTH GO - SG is a DOVE D command which changes the dissolve ramp in the designated projector. It also allows a change in dissolve direction from any desired lamp intensity level.

SS

SMOOTH STOP - SS is used to return all DOVES to normal from the SMOOTH state. A HOME will accomplish the same thing.

TBxx

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

TM hh:mm:ss:ff

TIME IN .01 SECOND STEPS - TIME cues 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 DUMP (MTD) is performed the time cues are not recorded.
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 encounters a time cue while in the run mode, it will
cause the program to stop. PROCALL will then wait until the
clock equals the value of the time cue and then put the program
into the RUN mode again.

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 LINE FEED key.

W.05 THROUGH 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
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 1.5-2.0 seconds.

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 LINE FEED key during the running of the particular
section.

ENTER UNDER SCREEN HEADING

G

GO - GO 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 - This is a 1/40TH second link between two cues referencing different banks.

12345

SCREEN NUMBERS on OUT 1

67890

SCREEN NUMBERS on OUT 2

PROJECTOR ASSIGNMENTS - The EAGLE II A-V SYSTEM will default to LCR. However, you may choose to use A, B, C or LEFT, CENTER, RIGHT or TOP, CENTER, BOTTOM by using the AP (assign projectors) control command.

EDITING COMMANDS

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 CONTROL key. For purposes of notation, to indicate that two keys are to be pressed simultaneously, a slash "/" will be used to separate the two keys. For example, ADD-A-CUE will be represented as "CNTRL/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.

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

CTRL/F

FILM DISCONNECT/NORMAL - This command disconnects or disables any film related cues from going out of the system.

CTRL/G RETURN

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 depressing the GOTO key and then the RETURN key.

CTRL/G.xx

GOTO CUE xx – This will issue a command to the EAGLE II A-V to GOTO a specific cue in memory. xx = 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.

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.

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 EAGLE II A-V system.

CTRL/Q

STEP REVERSE CUE – This steps you through the program in the REVERSE direction one cue each time the "Q" is depressed while holding down the CONTROL key. Reverse SCROLLING at 10 cues per second is initiated by depressing the CNTRL/Q and repeat keys simultaneously.

CTRL/R

REPEAT PREVIOUS CUE – This repeats the previous cue each time the CNTRL/R is depressed. Cues may be repeated rapidly by depressing the CNTRL/R keys and holding them down. The EAGLE II 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 still respond to advances and reverses and keep track of the lamp and tray status. To return to the normal lamp

status, depress CNTRL/S again.

CTRL/T

GOTO NEXT TAB - This allows you to access the next TAB cue quickly.

CTRL/T,xx

GOTO TABxx - This allows you to GOTO any desired TAB. xx = desired TAB.

CTRL/X

AUX DISCONNECT/NORMAL - This disconnects or disables auxiliary cues from going out of the EAGLE II A-V system.

LINE FEED

LINE FEED - This key commands the EAGLE II A-V system to execute a cue or run a sequence from memory. When you are using the CLOCK TRAK, the EAGLE II A-V 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, LINE FEED will step the program one cue at a time or start a run sequence if that cue has a GO included in it.

DELETE

DELETE CUE - Same as CNTRL/D.

RETURN or ENTER

Depressing this key will enter the cue into the memory of the EAGLE II A-V.

ESC

ESCAPE - This allows you to ESCAPE (stop) any action that is being carried out by the EAGLE II A-V. 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 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.

RETURN

SAME AS ENTER

SPACE BAR

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

TAB

FORWARD TO NEXT TAB - Same as CNTRL/T.

UP ARROW

UP ARROW (REVERSE CUE) - When depressed, this key will move the
program (memory) in the REVERSE direction:

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 when using CLOCK TRAK provided
that there is not an intervening GO command.

<-- (4 ON NUMERIC KEYPAD)

CURSOR LEFT - This is used as a tab to move from the SCREEN area
of the DISPLAY LINE to the CODE area. In the CONTROL COMMAND
mode, the cursor will move one character to the left each time
the key is pressed.

--> (6 ON NUMERIC KEYPAD)

CURSOR RIGHT - This is used as a tab to move from the CODE area
of the DISPLAY LINE to the SCREEN area. If the key is pressed
again, it will cause the program to advance to the next cue with
the cursor in the CODE area of the DISPLAY LINE. In the CONTROL
COMMAND mode, the cursor will move one character to the right
each time the key is depressed.

3. CONTROL COMMAND MODE ENTRIES

<u>EDITING</u> <u>CONTROL</u> <u>COMMANDS</u>

<u>BPF</u> <u>ENTER</u>

BEEPER OFF - This allows you to turn the BEEPER OFF.

<u>BPN</u> <u>ENTER</u>

BEEPER ON - Turns the BEEPER back to normally ON.

<u>CAC</u> <u>ENTER</u>

CLEAR ALL CUES - This command clears ALL cues from the memory. A
home is also issued to the dissolve units.
NOTE: Use this command with caution. Be sure you have stored
the information that you are clearing or that you really do not
want the information.

<u>CLN</u>

CLEAR NOTES - This permits you to clear a NOTE currently stored
in the NOTE BUFFER.

<u>CUES</u>

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.

<u>ESN</u>

EXCHANGE SCREEN NUMBERS - ESN exchanges the screen numbers of
your program. EXAMPLE: ESN xx,yy will take all cues on screens
xx and change them so they are now on screens yy.

<u>IAMxx</u>

CHANGE OPERATORS NAME TO xx - This changes the operator name on
the program in memory. xx may be up to 25 characters in length.

<u>KBF</u>

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 EAGLE II A-V 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 use 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.

PAxxx

PROJECTOR ASSIGNMENT - This allows you to determine how the projectors will be assigned (ABC, LCR, or TCB). Default status is LCR.

PGMxx

CHANGE PROGRAM NAME TO xx - This permits you to change the name of the program in memory. xx may be up to 8 characters in length.

RCF

REMOTE CUE OFF - This will turn the REMOTE CUE jack off. The EAGLE II A-V system will ignore any remote cue impulses.

RCN

REMOTE CUE ON - This will return the remote cue jack to "normally on".

RTCx,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.

SEQ2

PROJECTOR SEQUENCE 2 - This allows you to sequence between two of
the three available projectors (A and C). NOTE: You can still
independently access the "B" projector

SEQ3

PROJECTOR SEQUENCE 3 - This allows you to return to sequencing
three projectors.

TOC xx,yy

TIME OFFSET CUES xx,yy + 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 will use the first cue
number (xx) to begin a search for time cues to be modified and
continue until the last cue specified (yy) has been examined and
changed.

TPO x

TRAY POSITION OFFSET - This will set a starting tray position for
the position status. You can use any number x from 0 to 80.

XSN

EXPAND SCREEN NUMBERS - This feature is similar to the EXCHANGE
SCREENS feature, but instead of exchanging the screen numbers
this command expands the screen numbers of the cues on a
particular screen from that screen to any or all of the other
screens. ESN 1,1234567890 will expand all cues on screen 1 to be
on all screens.

MEMORY/DISK DATA TRANSFER COMMANDS

APxx

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

CNP xx

CLEAR NAME PROTECT xx - This command allows a file named xx to be renamed.

CWP xx

CLEAR WRITE PROTECT xx - This command allows a program named xx to be deleted from the disk or written over.

DEL xx

DELETE FILE xx 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.

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.

INS xx

INSERT FILE NAMED xx - This command allows you to insert a program named xx between cues already in the memory of the EAGLE II. The insertion takes place at the location of the cursor. The long form "INSERT xx" is the same.

LD

LOAD - This command loads a program which has the same name as the monitor program name from the disk into the memory of the EAGLE II. The long form "LOAD" is the same.

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 you may push any key except the ESC or up arrow (reverse cue) keys to see the next line of entries. If you would like to start over again at the top of the list, push the REVERSE CUE 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 EAGLE II.

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 as xx. (xx may be any two characters)

PACK

PACK DISK - This command will close the gaps between the files stored on the disk caused by deletion of other files. The EAGLE II will do this automatically as the disk fills up.

RNMxx.yy

RENAME FILE xx AS yy - This will rename a file titled xx on the disk as yy. Renaming will occur only if the file is not name protected.

SV

SAVE - This will save the program in memory on to the disk with the program name on the monitor as the file name. The long form "SAVE" is the same.

SVxx

SAVE WITH xx AS FILE NAME - This 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 on to the disk under an assigned file name.

WPRxx

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

xx on the disk from accidental erasure.
MAG TAPE CONTROL COMMANDS

CEM

CLOCK EDIT MODE - Allows the EXPANDED ROAD RUNNER to read CLOCK TRAK off magnetic tape and synchronize the program in memory. If the tape data stops, the program will stop .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 EAGLE II 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 EAGLE II 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 EAGLE II will display a message warning you that the input from tape has stopped.

Once a TIME or TIME X cue has been executed, the EAGLE II 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 EAGLE II 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.

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

MAG TAPE INPUT OFF - This will turn OFF any mag tape input and the EAGLE II will ignore any data input the PLAY IN jack.

MIN

MAG TAPE INPUT ON - This turns the mag tape input (PLAY) back ON.

MLD

MAG TAPE LOAD - This allows you to load a program into the memory of the EAGLE II from mag tape or directly from an EAGLE or another of AVL'S other programmers.

MOF

MAG TAPE OUTPUT OFF - This will prevent the generation of DATA information from the "OUT 1 & OUT 2" jacks. 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 the program without advancing the projectors.

MON

MAG TAPE OUTPUT ON - This turns back on DATA to the "OUT 1 & OUT 2" jacks.

MSV

MAG TAPE SAVE - This feature allows you to dump the contents of the memory of the EAGLE II on to mag tape in the same fashion as saving the memory contents on to the disk. This is similar to a MAG TAPE DUMP with two major differences. First, it will be in a format which is compatible with only other EAGLE IIs, ROAD RUNNERS or EAGLES using V5. For example WAIT 10 SEC. is dumped as a 10 second wait and not broken up into 3 wait 3s and a wait 1. In similar fashion a 1 SEC ALTERNATE followed by a REPEAT 5 is sent out as an alternate followed by the repeat command which is a total of two cues instead of the MTD format which would sent the above sequence out as 6 alternates in a row.

When a program is saved on tape in this format it will load back into memory having the exact same number of cues whereas the MTD program on tape would have an increased number of cues due to certain cues being broken down into simpler components. Additionally, in dumping a program using both banks of projectors (screens 1-5, 6-0) the entire show (10 screens) will be dumped out of "OUT 1 & OUT 2" in parallel.

By contrast when a MAG TAPE DUMP is performed screens 1-5 are dumped from "OUT 1" and screens 6-0 are dumped from "OUT 2." Because data may be reloaded from magnetic tape through only one jack (play in) it is impossible to reload a 30 projector show into memory once it is saved on tape using the MAG TAPE DUMP command.

Second, the tape will have a special code recorded at the beginning of the program which will tell the EAGLE II that it was recorded using the SAVE format and enable the tape to load automatically.

MTD

MAG TAPE DUMP (SP V) - This allows you to store the program in a configuration that is compatible with the SHOW PRO V and pre-EAGLE equipment.

PIF

POSITRAK INPUT OFF - This tells the system to ignore any incoming POSITRAK while in the PIF mode.

PIN

POSITRAK INPUT ON - This tells the EAGLE II to process any POSITRAK being received.

POF

POSITRAK OUTPUT OFF - This command instructs the EAGLE II to stop generating POSITRAK.

PON

POSITRAK OUTPUT ON - This command is used to instruct the EAGLE II to restore POSITRAK generation.

STL

SET LEVELS - This command tells the EAGLE II 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 to mag tape before you clear the program from memory.

COMMANDS FOR OPTIONAL PERIPHERAL EQUIPMENT

RAVEN PROGRAMMING COMMANDS

This version of PROCALL (V5) allows up to 5 independent film projector controllers (RAVENS) to be used with slide projectors. All RAVENS must be connected to OUT 2 and will accept screen codes 6-0 ONLY. The screen codes selected must be assigned using the AF (Assign Film) Command as described in the EDITING COMMANDS portion of this section. GO or STOP codes can be combined with any film type cue.

FFxx

FILM FWD @ xx FRAMES PER SECOND - With the use of the data analyst type projector, film speeds of 1,2,3,4,6,8,12,18 or 24 FPS (Frames Per Second) may be selected. For use with Arc type projectors only 24 FPS is allowed.
NOTE: The default speed is 24 FPS.

FRxx

FILM REV @ xx FRAMES PER SECOND - All of the above description on FILM FORWARD applies equally to FILM REVERSE.

FFS

FWD STEP THE FILM ONE FRAME - The selected projector(s) will move in the FORWARD direction ONE frame with each cue.

FRS

REV STEP THE FILM ONE FRAME - The selected projector(s) will move in the REVERSE direction ONE frame with each cue.

FS

FILM STOP - This cue will immediately stop the film projector upon execution. This command should be reserved for program editing ONLY and not in the actual program for the show. For more information about this command, see the RAVEN OPERATOR/USER MANUAL.

FB

FILM BEGIN POINT = xxxxx - This cue is a film positioning cue and a double cue. The first cue is to assign the code and the

selected projector and the second cue is to assign the frame
number at which you want to begin or end. Upon execution the
projector will run at 24 frames per second to the assigned frame
with its lamp out.   xxxxx = (1-65535)

FE

FILM END POINT = xxxxx - This cue is a double cue similar to the
FRAME BEGIN CUE. For normal operation this cue is used to give
the RAVEN a target frame to run to. The projector will go to the
specific film frame at whatever speed designated and with its
lamp ON or OFF as required.

FTN

FILM TRACKING ON - This command returns the speed tracking in the
RAVEN to normally ON.

FTF

FILM TRACKING OFF - This command disables the speed tracking in
the RAVEN.

F +/- x

FILM SPD CHANGE +x% (1-6) - The selected projector(s) can be
tweaked from 1-6% in the Plus (+) or Minus (-) direction to
compensate for tape deck speed or speed of the camera used to
film your motion picture sequences.

F +/- .x

FILM SPD CHANGE +x% (.1-.9) - The selected projector(s) can be
tweaked from .1-.9% in the Plus (+) or Minus (-) direction to
compensate for tape deck speed or speed of the camera used to
film your motion picture sequences.

FO

FILM SPEED NORMAL - This command is used to cancel the tweak
value and return you to the normal running speed you have
assigned. (Crystal controlled by the RAVEN)

MN

MOTOR ON - Permits the motor of the film projector to be turned
ON remotely. With the use of an Arc type projector, this command
will turn on the Arc lamp.

MF

MOTOR OFF - Permits the motor of the film projector to be turned
OFF remotely. With the use of an Arc type projector, this
command will turn OFF the Arc lamp.

LN

LAMP ON - This command is used to turn ON the lamp of projectors
with incandescent lamps. On an Arc lamp projector, this command
will lift the DOUSER up out of the path of the light.

LF

LAMP OFF - This command is used to turn OFF the lamp of
projectors with incandescent lamps. On an Arc lamp projector,
this command will drop the DOUSER down and cut off the light.

RAVEN EDITING CONTROL COMMANDS

AF

ASSIGN FILM SCREEN NUMBERS - ALL film projector screen
assignments must be entered by this control command before ANY
film type cues can be executed. The designated screens will now
accept FILM TYPE cues ONLY.

FS +/-

FILM STEP ONE FRAME (+) - This command allows the selected film
projector to move one frame in the forward or reverse direction
each time the + or - key is depressed.

FOCx,y +/-

FRAME OFFSET CUES (+) - This command allows you to add or
subtract a frame value from either a range of cues or from all
cues your program.

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.

NOTES: 1. The EAGLE II allows you to use two X 15s in line with your dissolve units (one each on OUT 1 & OUT 2) and allows you to use both the X-15 and dissolve auxiliaries with their respective commands.

2. All auxiliary cues must specify screen and projector independents.

3. You can NOT have an auxiliary command for the X15 and an auxiliary in your dissolve unit in the same cue.

PROGRAMMING YOUR EAGLE II

We will assume that you have read through the manual up to this point and have a fair knowledge of the functions of the EAGLE II. If this is not true, you may want to do so before reading this section.

For the rest of this section, you will need a tape recorder with a selection of music on at least one channel and one open channel to record the various kinds of DATA, an assortment of slides that will work with the music you have chosen, a dissolve unit (preferably a D DOVE), three projectors and trays, the EAGLE II and all connectors needed to interface the above equipment. (You may also want to story board your slides.)

********** GENERAL INFORMATION **********

INTRODUCTION

The data format chosen by AVL includes multiple cue passes and a CYCLIC REDUNDANCY CHECK to virtually guarantee failure free operation of the playback equipment and allow use of moderately priced cassette equipment for recording and playback.

Multiple cue pass refers to the fact that the system sends out each cue more than once. At 10 cues per second, each cue is generated 3 times. At 20 cues per second, each cue is generated twice. This increases the reliability of the data transfer because if the data is distorted the other passes of the same cue are available.

CYCLIC REDUNDANCY CHECK refers to the form of error checking used to verify accuracy of the transmitted data. The numeric value of each transmitted character is divided by a specific number to obtain a quotient and a remainder. The value of the remainder is sent along with the transmitted character. At the receiving end the character is again divided by the same specific number and a quotient and a remainder is again obtained. This latest remainder is compared to the remainder which was transmitted with the character. If the remainders are the same, then the character was received clearly. If the remainders are different, the character is discarded and the next pass of the multiple cue passes is used to obtain the correct character.

The CLOCK TRAK is essentially a much more powerful SYNC track. It uses a string of digital time cues, each with its own CRC (Cyclic Redundancy Check), rather than the simple 1000 HZ pulses of the Synchronizer. The CLOCK TRAK has an AVL exclusive format compatible with the EAGLE II's Mag Tape input/output hardware which is NOT compatible with SMPTE or any other clock track. Three of the most significant advantages of the CLOCK TRAK are:

1.   The mag tape track only has to be recorded once. The internal memory "cue"/timing points can be moved to either later or EARLIER times without re-recording the pulses on the tape.

2. Because the CLOCK TRAK mag tape times are only used to insure the precise timing between the tape recorder and the EAGLE II, a significant amount of the track can be non-readable (you could even disconnect it for periods of time) without any particularly noticeable affect on the show.

3. Since the time points are uniquely identifiable you can actually do a tape rewind or fast forward and the EAGLE II will bring your projectors to the new status once you put the tape back into play mode.

The CLOCK TRAK can be used to create shows which run entirely out of memory, shows which are a combination of live and canned (note in this case both the live and canned could actually be run from memory), and to edit and synchronize shows which will eventually be transferred on to the tape as digital tracks for playback without an EAGLE II.

RECORDING THE CLOCK TRAK

To lay down a CLOCK TRAK in parallel with the music tracks:

1. Connect the OUT 1 jack on the rear of the EAGLE II to the appropriate input jack on your tape.

2. Set your tape record level up so that it will play back at about 0 on the VU meter by using the STL (set levels) command.

3. Turn the POSITRAK OUTPUT OFF and use the COM control command to begin clock output

4. Ensure that you begin recording on the tape at least 5 seconds before the music begins

5. Allow the EAGLE II to continue recording the time points past the end of the music track

6. To turn off the clock output use the ESC key.

The constraint in step 4 is to insure that the clock times on the tape begin at least five seconds before the actual music begins. This is necessary because the forced Time GOTO from mag tape must go to an internal program Time cue which is at least 2.5 seconds greater than the current mag tape time to allow the EAGLE II and the projectors time to attempt to reach the new status. Thus, to allow the tape to force a GOTO to cue #1 after a rewind you must be able to rewind the tape to a time point at least 2.5 seconds before the first time cue.

The COM command used in step 5 can start the clock output at any time you wish so that if you are programming separate sections you can have them start at different times. Thus if none of your sections are more than about 9 minutes long you could start the first section at 10 minutes, the second at 20, etc. Then you could later combine the sections into one contiguous tape.

SYNCING THE CUES TO MUSIC

Typically all further operations will be done in either CEM (Clock Edit Mode) or CIM (Clock Input Mode). You can switch to either of these modes and simply leave it there while doing all your editing, timing, etc. The only difference between CEM and CIM modes is that in CEM mode the EAGLE II stops running, unless in a live section, .5 seconds after the mag tape clock track input stops while in CIM mode the EXPANDED ROAD RUNNER continues running even if the tape input stops.

Thus CIM mode protects the show from possible mag tape failures, cords getting kicked out of jacks, etc. Note that if you always want the EAGLE II to stop when the tape stops then you can use CEM mode for both editing and showing.

There are two possible approaches to syncing the time points to the music. One approach is to work on one section at a time by beginning each set of cues which will reference a single time point with a TX cue. You can then play that section of the tape back through the EAGLE II in CEM mode and strike the CUE key at the point you wish to sync to. If necessary you can then "tweak" this point to the nearest 1/100th second by simply changing the cue appropriately. This section can then be saved and later combined with other sections to form the complete show.

Another approach is to create a table of all the timing points on the tape by first creating a file of TX cues (using the keyboard repeat feature in conjunction with the CTRL/R keys). Then play the taped clock track back through the EAGLE II's PLAY jack with the EAGLE II in CEM mode while depressing the RETURN key at each point in the sound track where a timing point is desired. This will create a file of timing points which you can either print out or save on a diskette for later reference. Note that in actual use two contiguous Time cues (eg., no other types of cues between them) is an invalid operation since the Time cue is not actually a "cue" but rather it is defined as a link between an actual cue and a real time point on the tape recorder. Thus you cannot actually "play back" this file of Time cues you created without first combining it with actual cues because when the EAGLE II receives a time from the mag tape it will simply jump around all contiguous Time cues unless they are TX's.

CONVERTING A SHOW FROM SYNC TRACK TO CLOCK TRAK

If you have a program which was previously cued from a sync track you can easily convert it over to time track cueing by:

1. Insert into the program a TX cue at each point which was previously triggered by sync pulses.

2. Lay down a time track in parallel with your sync track (see RECORDING THE CLOCK TRAK).

3. Connect the time track from the tape to the PLAY IN jack on the EAGLE II.

4. Connect up the sync track from the tape to the sync in on an AVL SYNCHRONIZER and from the SYNCHRONIZER to the remote cue jack on the EAGLE II.

5. Switch back to clock edit mode by doing a CEM control command.

6. Issue a CTRL/G, ENTER to bring everything HOME.

7. Now start your tape, the TX cues will automatically be replaced by the appropriate times at which the sync pulses occurred.

8. After the entire tape has been converted you must disconnect
the sync track to use the time track to avoid "extra" conflicting
cueing.

SPECIAL NOTE ON THE USE OF "GO's" WITH CLOCK TRAK

A high speed section does not need a "GO" to initiate it when
using a time cue. The time cue will cause the action to begin
when either the clock input from tape matches the time cue or
when the RETURN button is pushed when the cursor is either on the
time cue or within a sequence begun with a time cue. However,
you must still use GO's for a reference point for repeats.

MIXING LIVE AND CANNED SECTIONS

The CLOCK TRAK software was written to allow live sections cued
from the keyboard or a remote cue switch to be mixed with
sections cued from a mag tape clock track. This feature is
implemented by having the EAGLE II ignore clock track inputs
while in a section that is not begun with a time cue. Live
sections can be placed first or at any other position following a
cue with a STOP imbedded in it. A mixed live/canned show might
look something like this:

CUE #	CODE		SCREENS	
1	TBJB	TAB JB		
2	4A		123	
3	2D		123	
4	2D		2	GO
5	W1			
6	1D		1 3	
7	W2.5			
8	6D		123	R STOP
9	TBC1	TAB C1		
10	TM 1:02.36			
11	1A		1	
12	W.5			
13	1A		2	
14	W.5			
15	1A		3	
16	TM 1:04.21			
17	FA		123	GO
18	RP9			
19	NOP			STOP
20	TBTS	TAB TS		
21	2D		123	
22	4D		123	
.	.		.	
.	.		.	
.	.		.	

Cues 1-8 are John Brown's live speaker support section (note use of tabulator JB for reference point), 9-19 are canned, 20-XX are live, etc. The key to mixing live/canned presentations with CLOCK TRAK is to remember that the clock itself will be stopped and time GOTO's will not be forced by the mag tape clock input as long as the EAGLE II is not in a RUN mode caused by a time cue.

EAGLE II/MAG TAPE "TRACKING" DURING EDITING

The PROCALL software was designed to allow the EAGLE II to uniquely identify any point on the tape. So, after doing a fast forward or a rewind the EAGLE II automatically does a GOTO to the nearest point in the program which corresponds to the new time point on the tape.

The one exception to the automatic "tracking" operation (other than in a live section) is if the EAGLE II's cursor is actually resting on a time cue. If the cursor is pointing at a time cue and you start your tape at a time point preceding the time cue, the EAGLE II assumes that you wish to wait for the tape to play forward to the present cue time. This allows you additional flexibility at show time but can be overridden by simply stopping the tape again and restarting it in play mode a second time.

When PROCALL encounters a time cue during a run mode, it will cause the program to stop. PROCALL will then wait until the clock equals the value of the time cue and then put the program into RUN mode again. Consider the following example:

```
 1  TIME      5.00
 2  1A        1 SEC ALT        1
 3  1A        1 SEC ALT          2
 4  1A        1 SEC ALT           3
 5  1A        1 SEC ALT            4
 6  1A        1 SEC ALT             5
 7  TIME     10.00
 8  1A        1 SEC ALT                 6
 9  1A        1 SEC ALT                   7
10  1A        1 SEC ALT                    8
11  1A        1 SEC ALT                     9
12  1A        1 SEC ALT                      0
13  TIME     15.00
```

If you go to cue #1 the clock will be set to 5 Sec and the EAGLE II will wait for either the RETURN key to be pressed or for mag tape clock track input if in CIM or CEM mode. If you push the RETURN key the clock will start running and cues 2-7 will begin executing. After executing cue 7 the EAGLE II will stop executing cues, but the clock will continue running. When the clock reads 10 seconds cues 8 through 13 will be executed, and so on.

If you try to "push" the timing of cues, the EAGLE II will issue
a warning message. Using the above example, suppose the time cue
at cue number seven read "TIME 5.10". It takes the EAGLE II 0.6
seconds to reach that point (six cues at 0.10 seconds per cue).
Therefore, when you run this section, the EAGLE II will issue the
warning and continue on. If the gap is great enough, the EAGLE
II will be forced to jump around the offending section to catch
up with the clock. To illustrate this, consider the following
incorrectly timed sequence:

```
     TIME      10.00
     FA        FAST ALT 1         GO
     RP99      REPEAT 99
     TIME      10.01
```

At 10 cues per second the 100 fast alternates execute for 10
seconds, thus the second time cue must be greater than 20
seconds. When the EAGLE II sees the incorrect time cue (10.01
seconds) it will do a GOTO around any succeeding cues until it
finds a time cue which is greater than 22.5 seconds (current time
of 20 seconds + 2.5 seconds to allow the EAGLE II and the
projectors time to attempt to catch up). Note that by using TX's
to time your show you should never have a problem with time cues
occurring too soon unless you add additional cues between
resolved time cues.

The TIME X cue allows Procall to fill in the correct timing
points for you. When Procall encounters the TIME X cue, it will
go into a stop mode just as if it had encountered a time cue. It
will stay in this mode until the RETURN key is pushed (or an
external SYNC or remote CUE is received). PROCALL then replaces
the TIME X with the clock time at that moment and then continues
on with the program.

One use for the TIME X cue is to provide an overall timing chart
for your show. In order to do this, put a large number of TIME X
cues into the EAGLE II memory by using the CTRL/R key or by doing
a series of saves and appends. You probably will want to save
this file of TIME X cues both for retrying the timing on this
show as well as having it for future shows. Connect the output
of a previously recorded Clock Trak tape to the EAGLE II's PLAY
IN jack. Put the EAGLE II in clock input mode by doing CTRL/C,
CIM and RETURN. GOTO cue #1 and start the music. Push the LINE
FEED key at each key point. The time of that event will be
placed into the cue space. Now, you can save this timing chart
as a disk file or print it out for a permanent record, for use in
programming, storyboarding, etc.

POSITRAK

POSITRAK from the EAGLE II is useful when using DOVEs, D DOVEs, TRAVELERs, or a SHOW PRO VC. POSITRAK is status information that is interleaved with the data sent to the DOVEs (or any of the above mentioned compatible dissolves). An explanation of how the POSITRAK works, goes like this:

Every time you enter a command into the EAGLE II, it sends out a coded DATA pulse that corresponds to the entered command. It is received by the DOVE and executed. This all takes a fraction of a second. The same thing holds true when you run a show from memory. The coded DATA pulses are sent out with the timing assigned to them in your program.

Just for example, let's say the code going out looked like this: (left to right is relative time and a "D" is a DATA pulse)

DD   DDD   D   D D D D   D   D

We will now add POSITRAK to the data going out maintaining the same relative time positioning and the result will look like this: (the "P" represents the POSITRAK information).

DDPPPDDDPPPPPPPPPDPPPPPPPDPPPDPDPPPDPPPPDPPPPPPD

Now to define what POSITRAK is. POSITRAK is DATA that is constantly being sent out to all the connected DOVEs to let each projector know what tray position and lamp status it is supposed to have at that particular moment. Therefore, when the EAGLE II has no cues going out, its' output will be all POSITRAK. When you are running at 20 CPS there is not as much time between cues, so no POSITRAK will go out until there is a break between the cues (e.g. during WAITS or between sequences while you are waiting for the next TIME cue).

The POSITRAK is very useful when you record your DATA on your show tape amd play back your show with your DOVEs. Playing a show this way does not require you to use your EAGLE II. The DATA is recorded along with the POSITRAK on your audio tape and is sent to the DOVEs exactly as if the EAGLE II were attached. The CLOCK TRAK allowed you to move back and forth through the program and keep track of program status according to the time given to the EAGLE II by the CLOCK TRAK.

The POSITRAK on the audio tape can now do the same thing by letting all the projectors know at what tray position and lamp status they are supposed to be at any time.

To record the DATA and POSITRAK information onto the audio tape do the following:

1. Place a "Y" connector (one male to two female) into the OUT 1 jack on the rear panel of the EAGLE II. Connect one end to your

DOVEs and the other to a "line input" on your tape recorder for recording your DATA TRAK.

2. Enter the CONTROL COMMAND field and use STL to set the record level. Set the level on the tape recorder to about +3db (this will play back around 0db).

3. Put your tape recorder in the "sync" mode to monitor from the record head so the DATA you put on the tape will be in sync with your sound.

4. With the EAGLE II IN the programming mode move the cursor to the starting cue for the section you are recording. Put your tape recorder in the record mode to record your DATA and start the tape recorder.

The CLOCK TRAK will run the show, the cues will go to the DOVEs and the same information will be recorded on the audio tape as your DATA TRAK. After you have finished your recording, home your trays to the starting position, rewind your tape, reconnect so the "line out" from the DATA TRAK channel of the tape recorder is connected to the DOVEs and restart your tape recorder. Your show will now run with just the tape recorder and the DOVEs. To see how POSITRAK works, stop the tape about half way into the show, rewind a little, restart the tape recorder and watch the program back up to the proper position, resync and continue on through the show.

NOTE: The DOVEs are designed to keep the lamps off until all trays of that DOVE have reached the proper position before restoring the lamp status.

CLOCK TRAK EXERCISE

The following exercise is designed to familiarize you with the operation of the CLOCK TRAK which is essentially a more powerful sync track. By recording CLOCK TRAK on one channel of your sound tape, you have in effect marked the tape with a uniquely identifiable sync pulse every hundredth of a second. In other words, instead of waiting for a 1000hz pulse and then executing the next cue in memory, the EAGLE II can tie each cue or group of cues to a specific time cue, and will always execute that cue at that exact instant. In addition, the internal clock of the EAGLE II is synchronized to the tape so that if the tape is running slightly slow or fast, your cues will be adjusted accordingly.

This gives you the ability to do a tape rewind or fast forward, and the EAGLE II will automatically bring your projectors to the new status when the tape is put back into the play mode.

The following program is a demonstration of the CLOCK TRAK'S features:

PROGRAM NAME: DEMO   OPERATOR: AVL

CUE#	CODE	STATEMENT	SCREENS	RUN
1	TIME	5.00		
2	PF	PROJ FWD	12345	
3	TIME	6.00		
4	3D	3 SEC DIS	1 3 5	
5	TIME	10.00		
6	3D	3 SEC DIS	1 3 5	
7	TIME	14.00		
8	3D	3 SEC DIS	1 3 5	
9	TIME	18.00		
10	3D	3 SEC DIS	2 4	
11	TIME	22.00		
12	CT	CUT	1	C
13	CT	CUT	2	A
14	CT	CUT	3	B
15	CT	CUT	4	A
16	CT	CUT	5	B
17	TIME	23.50		
18	CT	CUT	5	
19	CT	CUT	4	C
20	CT	CUT	3	
21	CT	CUT	2	C
22	CT	CUT	1	
23	TIME	25.00		
24	CT	CUT	3	A
25	3D	3 SEC DIS	3	C
26	W.05	WAIT 0.05 SEC		
27	CT	CUT	2 4	C
28	W.1	WAIT 0.1 SEC		

29	CT	CUT	1	5	A
30	TIME	28.50			
31	CT	CUT	3		
32	TIME	31.00			
33	3D	3 SEC DIS	234		B
34	TIME	34.00			
35	3D	3 SEC DIS	234		
36	TIME	38.00			
37	2D	2 SEC DIS	234		
38	TIME	40.50			
39	4D	4 SEC DIS	234		
40	TIME	46.00			
41	4D	4 SEC DIS	1 3 5		
42	1D	1 SEC DIS	2 4		B
43	TIME	52.00			
44	3D	3 SEC DIS	1 3 5		
45	TIME	57.00			
46	3D	3 SEC DIS	1 3 5		
47	TIME	1:02.00			
48	8D	8 SEC DIS	1 3 5		B

When you GO TO cue #1 and then push the LINE FEED key, the clock
starts and the program begins to run. The EAGLE II sees the 5.00
second cue and waits for that time to be reached by the clock.
At 5.00 seconds, it executes the PROJECTOR FORWARD on screens
12345, and sets the speed at 20 cues per second. It then sees
the 6.00 second cue and waits until the clock reaches that point,
at which time it executes the 3 second dissolve on screens 1 3 5.
The EAGLE II will continue to read time cues, wait for that time
to appear, and then execute the proper cue.

Notice that pushing the ESCAPE key stops the program. The
REVERSE CUE (Up Arrow) key will reverse to the last time cue.

To record the CLOCK TRAK on to tape in parallel with a music
track do the following:

1. Connect the "OUT 1" jack on the rear of the EAGLE II RUNNER
to the appropriate input of your tape recorder.

2. Enter the CTRL/C field, type STL and push the RETURN key.
Adjust the level of tape recorder input to +1Db.

3. Push the ESC key and type in COM (Clock Output Mode). Start
your tape recorder. Depressing the RETURN key will start the
CLOCK TRAK output to the tape. You should ALWAYS record at least
5 seconds of extra CLOCK TRAK on your tape before the first cue
and make sure that no cue ever occurs before TIME 2.50. The
EAGLE II will skip your first cues if you do not follow these
rules.

4. At the end of your sound track, always allow the CLOCK TRAK
to run on for a few extra seconds. For this exercise, continue
recording the CLOCK TRAK until the clock on the CRT screen reads

02:00.0 (Two Minutes). At that instant, push the ESC key and the clock output will stop.

Now you are ready to play the program from the CLOCK TRAK on the tape. Run the output from the tape channel that the CLOCK TRAK is recorded on into the "PLAY" jack on the back of the EAGLE II. The tape output level should be set at approx. "ODb." At this time the EAGLE II should still be in the CONTROL COMMAND MODE. Type in CIM (Clock Input Mode) and press the RETURN key. Now you can press the ESCAPE key to return to the program, and do a GOTO if the program is not at cue #1. Rewind the tape and start at the beginning. At 5.00 seconds, the first cue will be executed and the program will continue running.

Let's explore some of the features of the CLOCK TRAK as the program runs. Unplug the tape output from the "PLAY" jack and notice that the internal clock takes over and the EXPANDED ROAD RUNNER tells you that the CLOCK TRAK input has been interrupted. This guarantees that if CLOCK TRAK drops out or is very poorly recorded, the EAGLE II will stay in sync. Slow the tape by grasping the reel, and notice that the clock slows down. This assures you that if the tape is not running at exactly the same speed, the EAGLE II will still stay in sync. Stop the tape, rewind it or do a fast forward, and start it again. The EAGLE II will automatically do a GOTO the nearest time cue past the current time, update the projectors, and continue the show.

NOTE - If the tape is rewound and restarted while the cursor is actually resting on a time cue, the EAGLE II will assume that you want it to wait for that specific cue. If you want the EAGLE II to back up the show to match the tape, simply stop the tape momentarily and restart it. The EAGLE II will then GOTO that point in the program.

Enter the CTRL/C field, and type in CEM (Clock Edit Mode) and press RETURN. Go back to the program and play the tape again. Stop it and rewind or fast forward and start it again. Clock Edit Mode is essentially the same as Clock Input Mode except that if the tape is stopped or the signal is cut off, the program stops .5 seconds after it receives its last CLOCK TRAK data. This is useful during editing when you want to stop the whole show to make changes, or when you want your show to stop if the tape should stop.

Now go to the CTRL/C field and type in TOC 1,50,+3 (Time Offset Cues 1, 50, +3 sec) and press LINE FEED key. You will notice that all of the time cues starting with #1 and ending with #50 have three seconds added to their times. Type in TOC 1, 50, -3 and press the RETURN key. Three seconds is subtracted from each time cue. You may use this to offset any number of cues in the show. If any one or two numbers are typed by the + or - sign, the EAGLE II will assume that they are seconds. Typing ".3" would be read as .3 seconds, "3:" as three minutes, "3::" as three hours. If there is no + or - typed, the EAGLE II will assume that the amount is to be added. You can fine tune any cue

or group of cues in increments of .01 (one/hundredth) of a second.

While still in the CTRL/C field, type in RTC 1, 50 (Replace Time Cues 1, 50) and press the RETURN key. This will replace all time cues with TIME X cues. These act much like WAIT X cues. The EAGLE II should still be in the Clock Edit or Clock Input Mode. Rewind the tape, and return to cue #1. Start the tape. After the clock is past 5 seconds, press the LINE FEED key. The EAGLE II will substitute the exact time that the button was pressed for the first TIME X. See how easy this makes synchronizing cues to points in the sound track? If you were off on certain cues, you can either use the RTC command to replace a whole group with TIME X cues or step through the program and change only the cues that need to be changed. Simply typing over the times changes their value also. GO TO one of the cues and put the cursor over any digit and type another digit, when you push the RETURN key the new value is entered into memory. The EAGLE II will not allow you to enter a time that is out of sequence. For example, a cue of 20 seconds between cues at 30 seconds and 40 seconds is not allowed.

You may use a TIME cue with every cue in your program, or to start sequences of cues tied together with WAITS much as you formerly used a 1000HZ pulse. Time cues, like REPEAT and TAB cues, take less than 1/100th of a second to execute and they do not affect program timing.

ADVANCED PROGRAMMING WITH YOUR EAGLE II

The intention of this section is to teach you a few of the more advanced techniques of programming. In this section we will cover most of the basic kinds of entries.

The main concepts of the exercises can be understood by using just one D DOVE and three projectors on screen #3 (If you use a dissolve unit other than a D DOVE, you will not be able to do D DOVE routines). The other screens are used mainly as a reference to other programming moves.

PROGRAMMING EXERCISES

Wherever TXs are entered into the program, you will go back to the beginning of that section and resolve them with the internal clock. The first time you press the LINE FEED key it will start the clock. To resolve the first TX you will press the LINE FEED key again.

When you are using the internal clock to resolve your time cues, make sure that you GO TO the preceding TIME cue in order to get the clock started on the right time. This will keep you from attempting to resolve a TX to a TIME that is smaller than the previous TIME cue or not allowing enough time for the last sequence to finish before trying to start another one. If your program seems to skip ahead, that is most likely what has happened.

EXERCISE 1. A three step animation that dissolves in and out again.


```
          CODE      SCREEN

0001      TX
0002      BG        3
0003      3D        3ABC
0004      TX
0005      3D        3A
0006      TX
0007      3D        3 B
0008      TX
0009      3D        3  C
0010      TX      <-------  Wait for the lamp to go OFF
0011      BS        3       before resolving this one.
```


This exercise shows you how to start an animation sequence with the lamps OFF and dissolve the lamps ON while animating the three projectors. Time the animation to dissolve OFF with the next

series of TX cues that are used to dissolve those projectors OFF
individually. Finally, stop the animation (BLINKING) with the
last TX cue.

NOTE: With this method, you are limited to a three step
animation. In order to do an intensity controlled dissolve
animation using more than 3 projectors, you will have to use the
FA (FAST ALTERNATE) method described later.

The BLINK GO can be used either before or after the dissolve cue
for the designated projectors. The usage depends on the desired
final lamp status when the BLINK STOP is cued. The rule is that
the BLINKING projectors will assume the status in effect when the
BLINK GO was assigned. Now go back and reverse the order of cues
#2 and #3. You will see that 3A, B and C will come on after you
assign the BLINK STOP. You can also see how the effect will look
at a faster rate by inserting a 20 CPS cue in between #1 and #2.
To do this you:

A. GOTO 2. You should now be looking at cue #2. Press either
CNTRL/A or the INSERT key to open up a space to insert a cue.
All following cues are pushed down one number in the memory and
only the cursor should remain at #0002.

B. Type in "S20" and press the RETURN key. The EAGLE II will
advance to cue #0003. You will notice the cursor is now flashing
at a faster rate to let you know you are in 20 CPS.

EXERCISE 2. Dissolving an animation sequence that uses more than
three projectors using the FA and RP method.

CODE   SCREEN

0001   TX
0002   S20
0003   3D   23A C
0004   FA   23A C
0005   FA   2 A
0006   FA   2 A CG
0007   FA   23   C
0008   FA   3A C
0009   FA   23A
0010   RPX
0011   HC   2 A C
0012   HC   23   C
0013   HC   3A C
0014   TX
0015   3D   3A

In this case, the four projectors are told to dissolve ON and FA
between the four of them X times. When the light intensity gets
to full brilliance or you want the flashing to stop, terminate
the REPEAT by pressing the LINE FEED key. This will resolve the
REPEAT to a number. When the repeat is complete the animation

sequence will HARD CUT. This allows the last move of the animation to remain on the screen. The next TIME cue will dissolve that slide OFF and begin a new sequence.

NOTE: The lamps must be told to come ON all at the same time or go OFF at the same time in order for the effect to work properly.

EXERCISE 3. Moving through a number of visuals rapidly to demonstrate another use of the REPEAT function.

CODE	SCREEN	
0001	TB2	
0002	TX	
0003	HC	3 G
0004	W.5	
0005	RPX	
0006	HC	3

In this example, the TB2 (TAB) is used to mark the beginning of a new section. (It makes it easier to find). The HARD CUT in cue 0003 will bring the A projector ON (since there is NO assignment and there are NO projectors ON on that screen, it will assume the A projector is to come ON) and then proceed to change from A to B to C to A to B and so on until you resolve the RPX. When you resolve the X the program will move to the next cue, in this case, #0006 HARD CUT on screen #3. The desired effect is for #0006 to HARD CUT the last visual OFF. Now when you have resolved the RPX the program will proceed to the next projector in the sequence. When the program stops, STEP REVERSE CUE (CNTRL/Q) to the last cue (#0006). Now you can change it to take OFF whatever projector is still ON after your REPEAT is concluded. If you had RP12, your program would have ended with 3A being ON. So you will make #0006 look like this:

0006	HC	3A

Another REPEAT technique is to use them with ALTs or FAs to create a flashing routine. This is more easily done with the BLINKING routines. See the INDEX for more information on D DOVE routines).

EXERCISE 4. The use of PRESETs to maximize control and minimize time.

CODE	SCREEN	
0001	TB3	
0002	TX	
0003	1D	2 A
0004	PS	2 AB
0005	PS	3A

```
0006    TX
0007    HC          23
```

In this sequence, you want to bring ON 2A. Next, you want to
bring on 2B and 3A and take OFF 2A at the same time. This is
what happens:

1. You assign 2A to dissolve ON at the desired rate.
2. You PRESET (assign) the projectors you want to react to the
next action command you give for those screens.
3. You assign the command you wish for the intended projectors.

In this case, we only wanted two projectors to come ON and one to
go OFF. We can also use PRESETs to access all BUT the projectors
that are PRESET. Now that we have 2B and 3A ON, suppose we want
to leave them ON and bring ON 2A, 2C, 3B, and 3C.

```
        CODE    SCREEN

0008    PS        3A
0009    PS        2  B
0010    TX
0011    HC        23ABC
```

We have now used INDEPENDENTS to hold back projectors.

We want to stress the fact that PRESETs are NOT necessary in MOST
programming instances. In the two examples above, the PRESET
allowed us to instruct the appropriate projectors to do a HARD
CUT at exactly the same time. Because of the nature of a HARD
CUT, if all projectors did not respond at exactly the same time,
you would see the different projectors cut at different times.
In a sequence like either of the above two you could dissolve,
CUT, ALT, or FA the projectors instead of using a HARD CUT. If
you assign each screen (and projector) to come ON (or go OFF)
individually, the 1/10th (or 1/20th) of a second between the
dissolves would NOT be noticeable.

Exercise 5. A similar effect could have been done like this:

```
CODE    SCREEN

0008    TX
0009    2D   2 A C
0010    2D     3 BC
0011    TX
0012    3D     3 BC
0013    3D   2 ABC
```

With this method we save a cue and therefore save ourselves time.
PRESETs were designed to help you out of tight timing jams. They
are NOT designed for general use. In fact they will take up more
programming time and use more cue space if they are not used

properly. Use them with discretion.

INDEPENDENTS

An INDEPENDENT refers to the use of specifically assigned screens
AND projectors on which a particular action will take place. The
projectors will always sequence in the following manner if you DO
NOT assign them independently. This means that you use the
screen assignment and NO projector assignment with a lamp control
cue.

NO projectors ON   - "A" projector will come ON.
"A" projector ON   - "A" goes OFF, "B" comes ON.
"B" projector ON   - "B" goes OFF, "C" comes ON.
"C" projector ON   - "C" goes OFF, "A" comes ON.

"A&B" projectors ON   - "A" goes OFF, "B" stays ON.
"B&C" projectors ON   - "B" goes OFF, "C" stays ON.
"A&C" projectors ON   - "A" goes OFF, "C" stays ON.
"AB&C" projectors ON   - "A&B" go OFF, "C" stays ON.

When you use INDEPENDENTS, the projectors you assign will either
come ON or go OFF according to their status at that time.

"A" is ON - You assign "AB" - "A" goes OFF, "B" comes ON.

"A&C" are ON   - You assign "ABC" - "A&C" go OFF, "B" comes ON.

No projectors are ON   - You assign "AB" - "A&B" come ON.

These are some examples of the way the independents work. They
allow you to independently tell each projector what to do.

The advantage of using independents is knowing exactly what will
happen in any instance and knowing that the show will still run
correctly if one of your dissolve units is not set to the proper
sequencing (in sequence 2 the center projector is still
accessible using independents). It is also easier to keep track
of your sequencing if you go back and change a cue in the program
that will change the status of a projector entering a sequence.

Working with both methods will enable you to determine the way
that allows you to be the most creative (you may want to use a
mix of the two).

EXERCISE 6.   FREEZING a dissolve to control the brightness of the
lamp (and therefore the brightness of the slide) for looks,
supers (superimpositions) or creating other special effects.

CODE   SCREEN

0001   2A   3A
0002   WX
0003   FZ   3A
0004   8A
0005   FZ   3A
0006   4A   3A

The FREEZE cue is used to halt a dissolve in progress.   To use
this feature you assign a dissolve to the projector you wish to
FREEZE and then begin the lamp dissolve.   You now wait until the
lamp had reached the desired intensity and then cue the FREEZE.
If you use a WX (WAIT X) you will be able to see the lamp fade to
the level you want and then press LINE FEED to resolve it.   Next
you assign the FREEZE.

Once the lamp dissolve has been frozen at the desired level you
may release the freeze in one of four ways.   First, to have the
lamp continue in the same direction it was going when told to
FREEZE and at the same rate you would use a FREEZE cue again with
a screen and projector assignment.   This will release the FREEZE.
Second, if you want the lamp to continue in the same direction it
was going when told to FREEZE but at a different dissolve rate
you would use a dissolve cue with NO screen or projector
assignment.

Third, if you wish to reverse the dissolve direction with the
same rate you would assign the same dissolve speed with the
screen and projector assignment.   Fourth, if you wish to reverse
the dissolve direction with a new dissolve rate you simply assign
the new dissolve rate with the screen and projector assignment.

"D" DOVE FEATURES

With the "D" DOVE it is possible to do four (4) new screen effects that were not possible with the standard DOVE. These four new effects are covered in detail later.

The "D" software in the DOVE now allows for the SETTING UP of routines inside the DOVE that are carried out solely by the DOVE and need no further commands from the EAGLE II once the routine commands have been sent to the DOVE.

IMPORTANT: It is suggested that you use ALTERNATES with the BLINKING routines at least until you have a grasp of what the routine is capable of doing for you.

Brief descriptions of the New Effects follow:

LOOPING

The LOOP LOAD command allows you to set up a looping routine in a DOVE for the purpose of looping either 1, 2 or all 3 projectors controlled by that DOVE. A LOOP may include more than one DOVE with the capability of having up to 30 projectors in one large continuous LOOP. Once you have assigned the individual projectors that will be contained in the loop you initiate the LOOP with a LOOP GO cue. To stop the looping you assign a LOOP STOP to the selected DOVEs.

BLINKING

BLINKING allows you to blink a projector or a series of projectors at one of 4 different rates. To start the BLINKING you enter a BLINK GO command for the selected DOVEs and a cut or dissolve command for the desired projectors that you want to BLINK. To stop the BLINKING you have to enter a BLINK STOP for the selected DOVEs.

SMOOTH

SMOOTH allows you to do two different things, both at the same time if you so desire. First the SMOOTH allows a change in the way the lamp in the projector is RAMPED ON and OFF. Without SMOOTH the lamp will ramp on faster at first to allow light to reach the screen faster making a smooth transition between the oncoming and the outgoing slides. With SMOOTH the lamp no longer has this fast start up and therefore has a SMOOTH start up and increase in light intensity throughout the entire dissolve.

Second, in SMOOTH the lamp will no longer come to full brilliance for an oncoming dissolve when you tell it to go OFF before it has reached its full intensity (referred to as "stepping on the

dissolve") or all the way OFF when you are doing a dissolve OFF and tell it to come ON again. This now allows you to do a ripple dissolve effect or what is termed a continuous dissolve effect.

EXAMPLE: If you do a 4 SEC ALT on screen 1L and a WAIT 2 SEC then another 4 SEC ALT and another 2 SEC WAIT etc. the effect that will occur on the screen will be one where the lamp starts on with a 4 second dissolve and after 2 seconds will change directions and begin to dissolve OFF. Then after 2 seconds it will begin to dissolve ON again and so on. To return to normal dissolves, program a SMOOTH STOP.

THE "D" DOVE EAGLE II COMMAND ENTRIES

LL LOOP LOAD

LL (LOOP LOAD) cues alert version "D" DOVEs to store a series of cues (ACTION CUES) in its memory as a routine that will be repeated until told to stop. These ACTION CUES are WAIT, ALT, 1 SEC ALT, and FREEZE. Although any type of cue may be within a LOOP LOAD routine, ONLY ACTION CUES will be accepted by the EAGLE II as such and sent to the designated LOOP LOAD screen.

ACTION CUES with GO, STOP or PROCEED CODES are INVALID within a LOOP. A LOOP LOAD is INVALID if another LOOP LOAD is in progress.

The MAXIMUM number of ACTION CUES per DOVE is 4 plus 5 WAIT cues. The MAXIMUM WAIT time between cues is 6 SECONDS in increments of screens 1,3 and 5 you will be allowed 4 ACTION CUES per DOVE or a total of 12 ACTION CUES plus WAITS and any other projector assignments.

LG LOOP GO

LG (LOOP GO) cues will cause ALL specified LOOPS to be repeated until told to STOP. A LOOP GO without a LOOP LOAD in progress is INVALID.

LS LOOP STOP

LS (LOOP STOP) cues will STOP all LOOPs in progress on the designated DOVEs.

BG BLINK GO
BS BLINK STOP

BLINK is similar to FAST ALT except that with FAST ALT it is necessary to repeat that cue the amount of times you wanted it to flash ON and OFF. Likewise with FAST ALT, if you wanted to do an

intensity controlled dissolve you also have to repeat the FAST ALT. Now with BLINK simply enter a BG with screen numbers and a dissolve for the projector and an intensity controlled dissolve will occur with no further commands from the EAGLE II except to stop the BLINKING. The EAGLE II is now free to perform other functions. (see section under BLINK for BLINKING rates and ratios).

SG SMOOTH GO
SS SMOOTH STOP

A SG (SMOOTH GO) will allow you to "step on" a dissolve and change its direction WITHOUT having it flash ON or OFF. You also have the capability to produce a ripple dissolve effect.

If you are using a video monitor SMOOTH will be HI-LITED in the SCREEN STATUS area replacing the word STATUS whenever in the SMOOTH mode. When a SG(Smooth Go) is issued all Doves are in this mode and will remain in this state until a SS(Smooth Stop) or Home is issued.

SPECIAL NOTES REGARDING "D" DOVE CUES

It is NOT possible to use BLINKING and LOOPING routines in the same DOVE(s) at the same time. You have to end (stop) one before entering (starting) the other.

It is recommended that you use independents when assigning projectors that are contained inside a LOOP LOAD sequence when all three projectors controlled by that DOVE are not involved in the LOOPING sequence. Failure to comply may cause the projector not involved in the LOOPING routine to participate in the LOOPING that is taking place in that DOVE.

When you execute an ESCAPE all action will stop and the projectors will assume the status in effect at the time the LOOP GO or BLINK GO was assigned.

When you execute a GOTO or an ESCAPE the action will stop and you can tell which projectors are in what modes from the screen status area of the video monitor. The projectors with Bs in front of them are in a BLINKING mode and the projectors with Ls in front of them are in a LOOPING mode.

After GOTO's and ESCAPES, in order to resume (or begin) BLINKING/LOOPING routines you must go to a point preceding the appropriate BLINK GO/LOOP LOAD.

If you are between a LOOP LOAD and a LOOP GO and you do a STEP or RUN REVERSE, a LOOP GO and a BLINK STOP will be sent to the DOVE automatically and a GOTO to the LOOP LOAD cue will be executed. Likewise, if you are reverse cueing through your program (in

either step or run reverse) and you come across a LOOP LOAD
sequence, the EAGLE II will force you from the LOOP GO to the
LOOP LOAD only allowing you to reach a cue in that sequence in
the forward direction. The same holds true when you try to do a
GOTO to a cue inside a LOOP LOAD sequence. The EAGLE II will
take you to the LOOP LOAD command of that sequence and allow you
to access any cue in that sequence only from the forward
direction.

In order to stop smoothly from a LOOPING routine use a Loop Stop
(LS). This command will allow the loop to continue to the end of
the routine and then stop the screen action and start accepting
cues. Always allow enough WAIT time to stop the loop before
issuing cues to a Dove that was in a loop. When you have sent a
BLINKING or LOOPING routine to a DOVE the incoming POSITRAK will
be automatically shut off. Now, when you tell the DOVE to stop
it assumes that it is to stop with the same status with which it
began.

In a situation where you wish to let a sequence finish before
going on to something else, you MUST make sure you have allowed
enough time to let the routine finish. Then you may turn ON or
OFF any projectors necessary to continue your effect. This
avoids a "hick-up", but more importantly it avoids losing status
when you go right into another LOOPING routine. What you are
doing is allowing the DOVE to recover and let POSITRAK resume for
a moment to verify that the status in the DOVE matches that in
the EAGLE II.

IMPORTANT: In regards to the last two points, it is even more
important when you are running from MAG TAPE to make sure all the
BLINKING and LOOPING routines are satisfied and ended properly.

LOOPING and BLINKING routines may look different when you step
through them than when you run through them. For this reason we
suggest you always go back to the beginning or to a point where
there is no Blinking or Looping taking place to start the effect
and verify that it looks the way it was intended. This is most
important when you are moving from one routine to another.

BLINKING

There are four rates of BLINK. They are obtained by entering
BLINK commands in different ways. BLINK is set up by the EAGLE
II and carried out by the DOVE. When BLINK is assigned to a DOVE
the DOVE will assume it is to blink all projectors it controls.
The DOVE sets up the BLINKING routine internally and waits for a
command to turn the lamps ON or OFF. The BLINKING routine will
continue to be stored in the DOVE until you tell it to stop with
a BLINK STOP command. If you do a BLINK GO on Screen #1,
dissolve the LCR projectors ON and then dissolve the LCR
projectors OFF later WITHOUT stopping the BLINK; the next time
you dissolve any of the projectors on Screen #1 ON, they will
BLINK because the DOVE was not told to stop the BLINK.

Assigning BLINK GO to a selected screen does nothing more than
set up a BLINKING routine inside the DOVE controlling that
screen. A lamp control command (Cut, Alt, Dis, etc.) must be
used for that screen in order to bring the lamp ON. BLINK STOP
simply stops the BLINKING routine leaving the projector lamps ON
or OFF depending upon their status at the time of the BLINK GO.

There is another way to end routines other than calculating or
keeping track of status to ensure that you end with the proper
status. A BLINK GO immediately before the BLINK STOP can be used
instead. The BLINK GO will update the routine to the status and
the BLINK STOP will in turn stop the routine with the new status.
This can be used to stop BLINKING or LOOPING routines.

REMINDERS: The BLINK GO can be put at any location prior to the
BLINK STOP as long as there is NO subsequent change in status for
that DOVE(s).

The following is an explanation of how the different BLINK rates
are obtained:

1.   Running at 10 cps, when you enter a dissolve on a particular
screen followed by a BLINK command the DOVE will set up a 1:2
ratio and create a looping effect on the three projectors of that
screen. This means that the left projector will be OFF for 1
part of the time and ON for 2 parts of the time. Likewise the
center and right projectors will be OFF for 1 part and ON for 2
parts, respectively. The DOVE assumes the LEFT projector goes
OFF first and the looping effect is created by this ratio.

EXAMPLE #1

	CODE	STATEMENT	SCREENS	
1.	TIME	5.35		
2.	8A	8 SEC ALT	1	LCR
3.	BG	BLINK GO	1	
4.	TIME	8.23		
	ETC.			

Here all three projectors will come ON. 1/10th of a second later
the BLINKING effect will start with the LEFT projector going OFF,
1/10 of a second later the CENTER projector will go OFF and the
LEFT projector will come ON, 1/10 of a second later the RIGHT
projector will go OFF and the CENTER will come ON, 1/10 of a
second later the LEFT goes OFF and the RIGHT comes ON and so on.
This BLINKING loop will continue until you stop it with a BLINK
STOP command from the EAGLE II or from MAG TAPE.

The following describes what actually happens:

TIME   ACTION

5.35   1 LCR start to dissolve ON with an 8 second
alternate.
5.45   1st 10th   1 LEFT goes OFF.
5.55   2nd 10th   1 LEFT comes ON and 1 CENTER goes OFF.
5.65   3rd 10th   1 CENTER comes ON and 1 RIGHT goes OFF.
5.75   4th 10th   1 RIGHT comes ON and 1 LEFT goes OFF.
5.85   5th 10th   1 LEFT comes ON and 1 CENTER goes OFF.

EXAMPLE #2

If you blink only two of the projectors on that screen they will
still blink at a ratio of 1:2 causing each to be flashing ON for
2/10 of a second and OFF for 1/10 of a second with the two
projectors overlapping the first 1/10 of a second after the first
comes ON.

	CODE	STATEMENT	SCREENS	
1.	TIME	15.04		
2.	8A	8 SEC ALT	1	LC
3.	BG	BLINK GO	1	
4.	TIME	23.09		
	ETC.			

In this example only the LEFT and CENTER projectors will be
BLINKING. The LEFT projector will come ON for 1/10th of a
second, 1/10th later the CENTER projector will come ON, 1/10th
later the LEFT will go OFF, 1/10th later the CENTER will go OFF
and the LEFT will come ON, then back through the cycle again
until the cycle is terminated by a BLINK STOP command from the
EAGLE II or from MAG TAPE. (This is exactly the same as if you
were using all three projectors except that the third projector
is not in the loop.)

EXAMPLE #3

Using one projector we can set up a flashing effect.

```
      CODE      STATEMENT                    SCREENS
1. TIME      45.97
2. 6A        6 SEC ALT                  1        L
3. BG        BLINK GO                   1
4. TIME      1:05.99
   ETC.
```

Here again the DOVE will set up a 1:2 ratio, this time using only one projector (1L). In this case the left projector will be ON for 2/10th of a second and OFF for 1/10th of a second.

2.   Running at 20cps will give you the same effects only faster.

3.   A different effect can be created by using a PRESET with the BLINK command.

This PRESET will allow you to do two different things. First it will allow you to BLINK projectors in a dissolve loop and also dissolve projectors that are NOT BLINKING in that same loop as long as the projector you want to dissolve is not blinking.

Second it will allow you to BLINK projectors at a rate of 1:1. This means one, two or all three projectors on that screen will BLINK ON for 1/10th and OFF for 1/10th repeating until told to stop.

EXAMPLE #4

```
      CODE      STATEMENT                    SCREEN
1. TIME      2:45.98
2. 4A        4 SEC ALT                  1        L
3. PS        PRESET                     1        L
4. BG        BLINK GO                   1
5. W5        WAIT 5 SEC
6. 3D        3 SEC DIS                  1              C
7. W3.25     WAIT 3.25 SEC
8. FA        FAST ALT                   1              R
9. TIME      3:23.88
```

In this example the PRESET is used to preset the BLINK GO. With the use of the PRESET the DOVE will set up a BLINK routine for that projector (1L) ONLY, this time with a 1:1 ratio. After waiting 5 seconds 1C will dissolve ON followed by a FAST ALT on 1R 3.25 seconds later.

In this example you could have PRESET 1 LEFT AND CENTER or 1 LEFT and RIGHT or any combination of one, two or all three projectors. Remember when you use more than one projector, both or all three projectors will BLINK at a 1:1 ratio ALL ON for 1/10th and ALL OFF for 1/10th when you use this PRESET.

4. Using 20 cps will give the same effects only faster.

NOTES:
1. Other effects can be obtained with the use of different timing, waits, and presets. Experimentation is the best way to familiarize yourself with the routines.
2. You cannot use a LOOP STOP (LS) to stop a BLINK.
3. After issuing a BLINK STOP (BS) always wait 1/10 of a second before issuing another command to that Dove.

LOOPING

LOOPING could be described as an easy way to do repeats. LOOPING was created to permit independent looping routines by each DOVE leaving the EAGLE II free to carry out other programming functions. LOOP LOAD cues will alert version "D" DOVEs to store a series of ACTION CUES in their memory as a routine to be repeated until told to stop. The difference is that LOOPING routines are limited to ACTION CUES. These ACTION CUES are 1 SEC ALTs, ALTs, FREEZEs plus WAITs. Although any type of cues may be within a LOOP LOAD routine, ONLY ACTION CUES will be accepted by the EAGLE II as such and sent to the designated LOOP LOAD "D" DOVEs. All cues assigned to other projectors not in the LOOP LOAD mode will be executed as normal cues and appear as appropriate waits for those projectors in the LOOP. (Refer to the third example under ANIMATION).

It is important to note that there is a MAXIMUM of 4 ACTION CUES per DOVE plus 5 wait cues per LOOP LOAD sequence. Other limitations are noted under NEW "D" DOVE COMMANDS.

LOOP LOAD can be used to create some old and new effects with greater ease and simplicity. The following are some examples of some of the things that can be done:

ANIMATION

Three step animation.

	CODE	STATEMENT	SCREEN	
1.	AT	ALT	1	L GO
2.	LL	LOOP LOAD	1	
3.	AT	ALT	1	LC
4.	W.1	WAIT .1 SEC		
5.	AT	ALT	1	CR
6	W.1	WAIT .1 SEC		
7.	AT	ALT	1	L R
8.	W.1	WAIT .1 SEC		
9.	LG	LOOP GO	1	

In this typical example, the sequence is set up similar to that of a repeat sequence.

1. The projector that is to start the LOOP is turned ON.
2. The LOOP LOAD routine is assigned to the intended DOVEs.
3-8. The ACTION CUES are assigned for the desired effect.
9. The LOOP GO instructs the DOVE it is to LOOP (repeat) the routine until told to stop.

The ACTION CUES can be manipulated with more or less time or 1 SEC ALTs in the place of the ALTs to create other effects.

Another type of three projector animation might have the animation move back and forth or in and out as follows:

CODE	STATEMENT	SCREEN				
1. AT	ALT	1	L			GO
2. LL	LOOP LOAD	1				
3. AT	ALT	1		LC		
4. AT	ALT	1			CR	
5. W.2	WAIT .2 SEC					
6. AT	ALT	1			CR	
7. AT	ALT	1		LC		
8. W.2	WAIT .2 SEC					
9. LG	LOOP GO	1				

More than three projectors in an animation means using more than one DOVE. A 6 projector animation might look something like this:

CODE	STATEMENT	SCREENS					
1. AT	ALT	1		L			GO
2. LL	LOOP LOAD	12					
3. AT	ALT	1			LC		
4. W.1	WAIT .1 SEC						
5. AT	ALT	1				CR	
6. W.1	WAIT .1 SEC						
7. AT	ALT	12					R
8. 3D	3 SEC DIS		4	L			
9. AT	ALT	2				CR	
10. W.1	WAIT .1 SEC						
11. AT	ALT	2			LC		
12. W.1	WAIT .1 SEC						
13. AT	ALT	12		L			
14. W.1	WAIT .1 SEC						
15. LG	LOOP GO	12					

Again the sequence is set up and carried out like in the three projector animation. In this example you will notice the WAIT cue in number 8 was replaced with a 3 SEC DIS on screen 4 LEFT. This is to demonstrate the flexibility of using non-ACTION CUES inside the LOOP LOAD sequence set-up. This cue will still appear to the LOOP routine as a .1 second wait.

FLASHING

You may want to use the looping to create flashing, random or syncopated animation. By entering a non-uniform pattern of waits mixed with Alts and 1 Sec Alts you can create random effects. This may be used to create effects using logos or other graphics

that have more than one step or piece. Using flashing you can
animate the pieces differently from the normal continuous motion
animation.

OTHER USES

Using FREEZE as part of the ACTION CUES enables now control
dissolves to make effects by locking and unlocking the FREEZE
(dissolve) in the looping routine. This can be used to prolong
dissolves and to create effects based on the different wait times
and different dissolve rates you use:

	CODE	STATEMENT		SCREEN	
1.	8A	8 SEC ALT		1	LCR GO
2.	FZ	FREEZE		1	LCR
3.	FZ	FREEZE		1	L
4.	LL	LOOP LOAD		1	
5.	FZ	FREEZE		1	LC
6.	W.8	WAIT .8 SEC			
7.	FZ	FREEZE		1	CR
8.	W.8	WAIT .8 SEC			
9.	FZ	FREEZE		1	L R
10.	W.8	WAIT .8 SEC			
11.	LG	LOOP GO		1	

This first example accesses projectors independently:

1. Dissolve projectors ON.
2. Freeze all projectors before they have a chance to start to
dissolve.
3. Unfreeze the first of the series.
4. Loop Load the selected screen.
5. Cross freeze the left to the center.
6. Wait .8 sec.
7. Cross freeze the center to the right.
8. Wait .8 sec.
9. Cross freeze the right to the left.
10. Wait .8 sec.
11. Start the Loop routine on selected screen.

This can also be accomplished another way:

	CODE	STATEMENT	SCREEN	
				LCR GO
1.	8A	8 SEC ALT	1	
2.	LL	LOOP LOAD	1	
3.	FZ	FREEZE	1	
4.	W.8	WAIT .8 SEC		
5.	FZ	FREEZE	1	
6.	LG	LOOP GO	1	

The second example does NOT use independents:

1. Dissolve projectors ON.
2. Loop Load the selected screen.
3. This Freeze command will Freeze the projectors in the loop.
4. Wait .8 Sec.
5. This Freeze command will unfreeze the projectors involved.
6. Start the Loop routine on the selected screen.

SMOOTH

SMOOTH allows you to do either of two (or both) things. First the SMOOTH changes the way the lamp in the projector is RAMPED ON and OFF. WITHOUT SMOOTH the lamp will ramp on faster at first to allow light to reach the screen faster and to make a smooth transition between the oncoming and the outgoing slides. In the SMOOTH mode the lamp no longer has this fast start up, therefore, creating SMOOTH start ups from black, cross-dissolves and follow throughs throughout the entire dissolve.

Second, in SMOOTH the lamp will no longer come to full brilliance on an oncoming dissolve when you tell it to go OFF before it has reached its full intensity nor all the way OFF when you are doing a dissolve OFF and tell it to come ON again. This now allows you to do a ripple dissolve effect or what is termed a continuous dissolve effect.

SMOOTH used in conjunction with Freezes in a Loop can prolong dissolves to obtain very long dissolve rates.

EXAMPLE:

	CODE	STATEMENT	SCREEN	
1.	SG	SMOOTH GO		
2.	32A	32 SEC ALT	1	L GO
3.	LL	LOOP LOAD	1	
4.	FZ	FREEZE	1	L
5.	W.2	WAIT .2 SEC		
6.	LG	LOOP GO	1	

This example will produce a Dissolve approximately 60 seconds long.

You will have to adjust the wait times to ensure that there is not too much wait time which would make the dissolve effect appear jerky on the screen--unless that is what you want. Remember that SMOOTH affects ALL screen areas. If you were to start the above example, you will not be able to remove the smooth effect until all 60 seconds of the dissolve have elapsed or the dissolve would not look smooth.

You can also use SMOOTH with BLINKs and LOOPs in other ways:

EXAMPLE:

	CODE	STATEMENT		SCREEN
1.	NO	NO OPERATION		GO
2.	SG	SMOOTH GO		
3.	4A	4 SEC ALT	1	LCR GO
4.	BG	BLINK GO	1	
5.	W2	WAIT 2 SEC		
6.	RP12	REPEAT 12 TIMES		

In this example you will see the dissolve never reaches full
brilliance on the screen and has a rippling and blinking effect
at the same time.

You will find many new effects possible with the new "D" DOVE.
We recommend that you order the "D" Dove Exercise kit which
contains both slides and sample programs if you would like
additional examples.

APPENDIX 1. VERSION 5   QUICK REFERENCE GUIDE

PROGRAMMING COMMANDS

ENTER UNDER CODE HEADING

AT	ALTERNATE
FA	FAST 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
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 DOVES
BG	BLINK GO
BS	BLINK STOP
FZ	FREEZE
HOME	PROGRAMMABLE HOME
LDxx	PROGRAMMABLE LOAD FILE xx
LG	LOOP GO
LL	LOAD LOOP
LS	LOOP STOP
N	NO OPERATION
PF	PROJECTOR FORWARD
PR	PROJECTOR REVERSE
PS	PRESET
RP0	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-W10	WAIT IN .05 SECOND STEPS

```
WX               WAIT X (TO BE RESOLVED)
```

ENTER UNDER SCREEN HEADING

```
G                GO
S                STOP
P                PROCEED
12345            SCREEN NUMBERS ON OUT 1
67890            SCREEN NUMBERS ON OUT 2
ABC              A, B, C
LCR              LEFT, CENTER, RIGHT
TCB              TOP, CENTER, BOTTOM
```

EDITING COMMANDS

```
CTRL/A           ADD-A-CUE

CTRL/B           REVERSE TO LAST TAB

CTRL/C           CONTROL COMMAND FIELD

CTRL/D           DELETE CUE

CTRL/F           FILM DISCONNECT/NORMAL

CTRL/G ENTER     HOME PROJECTORS

CTRL/G--         GOTO CUE--

CTRL/G,T,M,      GO TO TIME HH:MM:SS:FF

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           GOTO NEXT TAB

CTRL/T,xx        GOTO TABxx

CTRL/X           AUX DISCONNECT/NORMAL

CUE              CUE

ENTER            ENTER

ESC              ESCAPE
```

Q	STEP CUE
REPEAT	REPEAT DEPRESSED KEYS
RETURN	SAME AS ENTER
RUB OUT	CLEAR ENTRY
	REVERSE CUE
<--	CURSOR LEFT
-->	CURSOR RIGHT

CONTROL COMMAND FIELD ENTRIES

EDITING CONTROL COMMANDS

BPF	BEEPER OFF
BPN	BEEPER ON
CAC	CLEAR ALL CUES
CLN	CLEAR NOTES
CUES	DISPLAY TOTAL CUES
ESN	EXCHANGE SCREEN NUMBERS
IAMxx	CHANGE OPERATORS NAME TO xx
KBF	KEYBOARD EDIT OFF
KBN	KEYBOARD EDIT ON
NEW	ESTABLISH NEW HOME POINT
NOTES	EXAMINE AND EDIT NOTES
PA	PROJECTOR ASSIGNMENT
PGMxx	CHANGE PROGRAM NAME TO xx
RCF	REMOTE CUE OFF
RCN	REMOTE CUE ON
RTCx,y	REPLACE TIME CUES WITH TX
SEQ2	PROJECTOR SEQUENCE 2
SEQ3	PROJECTOR SEQUENCE 3
TOCx,y	TIME OFFSET CUES HH:MM:SS.FF
TPO	TRAY POSITION OFFSET
XSN	EXPAND SCREEN NUMBERS

MEMORY/DISK DATA TRANSFER COMMANDS

APxx	APPEND FILExx
CNPxx	CLEAR NAME PROTECTxx
CWPxx	CLEAR WRITE PROTECTxx
DELxx	DELETE FILExx FROM DISK
DLCxx,yy	DELETE CUES xx TO yy
DSKx	USE DISK x
INSxx	INSERT FILE NAMEDxx
LDxx	LOAD FILE NAMEDxx

```
LIB                LIBRARY
NLDxx              NOTES LOAD xx
NPRxx              NAME PROTECT xx
NSVxx              NOTES SAVE xx
PACK               PACK DISK
RNMx,y             RENAME FILE x AS y
SV                 SAVE
SVxx               SAVE WITH xx AS FILE NAME
SV xx,yy,nn        SAVE CUES xx TO yy AS nn
WPR xx             WRITE PROTECT FILE xx
```

MAG TAPE CONTROL COMMANDS

```
CEM                CLOCK EDIT MODE
CIM                CLOCK INPUT MODE
COM                CLOCK OUTPUT MODE
COM hh:mm:ss       CLOCK OUTPUT BEGINNING AT TIME hh:mm:ss
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 (SP V)
PIF                POSITRAK INPUT OFF
PIN                POSITRAK INPUT ON
POF                POSITRAK OUTPUT OFF
PON                POSITRAK OUTPUT ON
STL                SET LEVELS
VER                VERIFY (MSV ONLY)
```

COMMANDS FOR EAGLE II PERIPHERAL EQUIPMENT

RAVEN PROGRAMMING COMMANDS

```
FFxx               FILM FWD @ xx FRAMES PER SECOND
FRxx               FILM REV @ xx FRAMES PER SECOND
                   NOTE: 1,2,3,4,6,8,12,18 OR 24 FPS
FFS                FWD STEP THE FILM ONE FRAME
FRS                REV STEP THE FILM ONE FRAME
FS                 FILM STOP
FB                 FILM BEGIN POINT
=                  xxxxx (1-65535)
FE                 FILM END POINT
=                  xxxxx (1-65535)
FTN                FILM TRACKING ON
FTF                FILM TRACKING OFF
Fx                 FILM SPEED CHANGE BY +x% 1 THROUGH 6
F-x                FILM SPEED CHANGE BY -x% 1 THROUGH 6
F.x                FILM SPEED CHANGE BY +x% .1 THROUGH .9
```

```
F-.x                    FILM SPEED CHANGE BY -x% .1 THROUGH .9
FO                      FILM SPEED NORMAL
MN                      MOTOR ON
MF                      MOTOR OFF
LN                      LAMP ON
LF                      LAMP OFF
```

RAVEN EDITING COMMANDS

```
AF                      ASSIGN FILM SCREEN NUMBERS
FS+                     FILM FWD ONE FRAME
FS-                     FILM REV ONE FRAME
FOCx,y +/-              FRAME OFFSET CUES + OR -
```

X-15 PROGRAMMING COMMANDS

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

APPENDIX 2.   DIGITAL CUE CHART

LEVEL	D	D	D	D	D	C	C	C	B	B	A
	EAGLEII	EXPRR	RR	EAGLE	DDOVE	QD	SPVC	SPVB	PD	SPVA	SPIII
HARD CUT	X	X	X	X	X	X	X	X	X	X	
CUT	X	X	X	X	X	X	X	X	X	X	X
1 SEC DIS	X	X	X	X	X	X	X	X	X	X	
2 SEC DIS	X	X	X	X	X	X	X	X	X	X	X
3 SEC DIS	X	X	X	X	X	X	X	X			
4 SEC DIS	X	X	X	X	X	X	X	X	X	X	X
6 SEC DIS	X	X	X	X	X	X	X	X			
8 SEC DIS	X	X	X	X	X	X	X	X	X	X	
16 SEC DIS	X	X	X	X	X	X	X	X	X	X	
32 SEC DIS	X	X	X	X	X	X	X	X	X	X	
FAST ALT	X	X	X	X	X	X	X				
ALTERNATE	X	X	X	X	X	X	X	X	X	X	X
1 SEC ALT	X	X	X	X	X	X	X	X	X	X	X
2 SEC ALT	X	X	X	X	X	X	X	X	X	X	
3 SEC ALT	X	X	X	X	X	X	X	X			
4 SEC ALT	X	X	X	X	X	X	X	X	X	X	
6 SEC ALT	X	X	X	X	X	X	X	X			
8 SEC ALT	X	X	X	X	X	X	X	X	X	X	
16 SEC ALT	X	X	X	X	X	X	X	X	X	X	
32 SEC ALT	X	X	X	X	X	X	X	X	X	X	
AUX	X	X	X	X	X	X	X	X	X	X	X
BLINK GO	X	X	X	X	X						
BLINK STOP	X	X	X	X	X						
FREEZE	X	X	X	X	X	X	X	X			
HOME	X	X	X	X	X	X	X	X	X	X	X
LD FILExx	X	X		X							
LOOP GO	X	X	X	X	X						
LOAD LOOP	X	X	X	X	X						
LOOP STOP	X	X	X	X	X						
NO OPER.	X	X	X	X	X	X					
PROJ. FWD	X	X	X	X	X	X	X	X	X	X	X
PROJ. REV	X	X	X	X	X	X	X	X	X	X	X
PRESET	X	X	X	X	X	X	X	X	X	X	
REPEAT	X	X	X	X	X	X					
REPEATx	X	X	X	X	X	X					
SPEED 10	X	X	X	X	X	X	X	X			
SPEED 20	X	X	X	X	X	X	X	X			
SMOOTH GO	X	X	X	X	X						
SMOOTH STOP	X	X	X	X	X						
TABxx	X	X	X	X	X	X					
TIME CUES	X	X	X	X	X	X					
TIME X	X	X	X	X	X	X					
WAIT	X	X	X	X	X	X	X	X	X	X	X
WAIT X	X	X	X	X	X	X					
GO/START	X	X	X	X	X	X	X	X	X	X	X
STOP	X	X	X	X	X	X	X	X	X	X	X
PROCEED	X	X	X	X	X	X					