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Getting Started

Introduction

Before the G Series Studio Computer can be used, the current software must be loaded in order to start up the system. The software is on an 8" SS SD floppy disc called the Program disc which should be a working copy, previously made by the studio technical department or an SSL engineer, from the original SSL master. Instructions for copying floppy discs are contained in Section 4.

A dual floppy disc drive and dual Data Cartridge drive will normally be found in the main computer rack but where this is not convenient, they may be remotely situated in a more accessible position.

Each of the floppy disc drives has a specific use; one is for the Program disc, the other for the Reel disc. The Reel disc is for comparatively small amounts of data storage, possibly created with previous E Series software and must be an 8" SS/SD disc, pre-formatted to standard IBM format. The Data Cartridge drives hold two independent 20 Megabyte Data Cartridges for data storage only.

Starting Up

Until the program is loaded the computer monitor (screen) will be filled with gibberish and the computer keyboard will not respond, giving all the signs of a dead machine.

To start up the system:

Place the Program disc with the label uppermost in the floppy disc drive marked P and operate the locking device. Firmly press the Solid State Logic bar switch once, at the bottom right hand side of the floppy disc drives.

Within a few seconds the disc drive will come to life and load the program into the computer. While this is happening, the screen will display the current program revision number (and confirm: Loading. ).

Once the program is loaded, the screen will display a sign-on message followed by a prompt that the Data Cartridge or Reel disc is not ready.

At this stage ignore the prompt and press CANCEL on the keyboard. This will clear the computer's pre-occupation with looking for stored data, and allow it to be meddling with. The keyboard will now be operational, allowing instructions or commands to be given to the computer.
The Computer Keyboard

The G Series console keyboard layout is shown in Figure 1. An optional remote keyboard may be installed which has a similar layout. If an E Series system has been upgraded to G Series, the E Series keyboard can still be used but it does not have all the facilities of the G Series keyboard.

The keyboard is the means of communication with the computer and therefore deserves some attention. It consists of several sections:

The Command Keys These single word keys are used to make up command lines given to the computer and have been specifically allocated to those words which are often used. They cannot be duplicated by using the QWERTY keys nor can they be used as names when storing information. Some keys are interpreted differently according to the context in which they are used. The CANCEL key provides a one stroke (in most cases) command to cancel current computer activity. The EXECUTE key is the equivalent of an enter key on a Personal Computer and basically tells the computer to "Do it". The REPEAT key instructs the computer to repeat the previous command line. The cursor keys are used to access and edit certain displayed information. Other keys in this section will be discussed later.

The QWERTY Keys are used to enter names and timecode values and to type command words which are not included in the command key section. Some of these keys are used to select certain functions with one keystroke. The + and - keys are used in command lines only.

The Numeric Keypad. (G Series keyboards only) is used to enter timecodes and select or de-select the optional Mix fader statuses discussed in Section 5.

The Computer Status Keys allow certain functions to be turned on or off without the need to enter command lines.

A set of remote tape transport keys are located at the bottom of the keyboard.

The function keys located at the top of the keyboard (G Series keyboards only) can be used to store command lines of up to ten individual keystrokes for your favourite commands. The programming of these keys will be discussed later.

(Note for E Series users, the REEL key replaces the SEQUENCE key).
Figure 1
The Computer Monitor

Once the program is loaded and the keyboard is functioning, the screen will be showing a similar display to that in Figure 2. The display consists of three major areas. The box in the top left of the display is called the Command box. It is the area where command lines will be shown as they are entered and where the computer's responses and queries are usually printed.

The Status box in the top right of the display is where various lines of information about what the computer is currently doing e.g. LOCATING, are displayed. This is also where the current timecode position of the Master tape machine is shown. The large area in the lower half of the screen is used to display various lists of information or to display fader levels when using the automated mix system.

![Figure 2](image)

Entering Command Lines

A command line is a sequence of keys which make up a valid instruction, followed by the EXECUTE key. The computer is ready to accept commands when the command line prompt is displayed in the Command box on the screen (see Figure 2).

Command lines can be made up using command keys, QWERTY keys, or a combination of command and QWERTY keys. In the command line examples given in this manual:

**BOLD TYPE** indicates command keys e.g. LIST, GOTO

**NORMAL TYPE** indicates QWERTY keys.

The EXECUTE key is denoted by EX.
It is not usually necessary to enter spaces in command lines. When a command key is used the computer automatically generates a space with the command word. Where mandatory spaces are needed they are indicated in this manual by the symbol _.

Where an identity needs to be given, this is indicated by 'Name'. Where a timecode value is required in a command line, this is shown in two ways:

- TIME indicates any representation of a timecode value which is the object within a command.
- time indicates an adjustment of time within a command.

Where command line examples include optional word entries, those words are bracketed. Potentially irreversible commands must be typed in full on the QWERTY keys.

To correct typing errors when entering command lines:

- press the RUB key to erase each previous key stroke or,
- press the DELETE key to remove the line so far or,
- press CANCEL.

Be careful with the CANCEL key. As well as erasing any non-completed command line entry, it will also cancel any current computer activity.

The REPEAT key can be used to great advantage to repeat the last command entered. (EXECUTE is not necessary after REPEAT).

At the end of this section, once you have got used to the idea of command lines, the use of the Function Keys (G Series keyboards only) will be discussed. These can be extremely useful for the entry of common command lines with one keystroke.

Now on to Data Storage.
The Family Tree of Data Storage

The stored information on a 20Mb Data Cartridge is divided into blocks called REELS. The capacity of each REEL is determined by the labelling process (Page 3-10) and each REEL on any one Data Cartridge will have the same capacity for data as any other.

The floppy Reel disc can be considered as a single 1/4 Mb REEL and is subdivided in exactly the same way. However, accessing data from a Reel disc will be slower than from a Data Cartridge REEL owing to the inherent limitations of the drive.

The information within each REEL is stored under types of files called TITLES. A REEL of any size can hold 218 files. The information stored under each TITLE file is logically named and itemised in directories of:

- CUES
- TRACKS
- NOTES PAGES
- Total Recall SETUPS
- MIXES
- EVENTS
- SYNC PRESETS

1 file per TITLE
2 files each
1 file each

See the end of Section 4 for more details on directory space.
The 20 Mb Data Cartridge

Data Cartridges are inserted in the appropriate drive with the ribbed side and write protect switch uppermost. When the locking lever to the right of the drive slot is turned down, the green led will flash until the drive is up to speed, as indicated by a solid green led. The red led indicates read/write activity when the cartridge is in use.

When not in use, the cartridge should be removed from the drive. To do this, press the grey button next to the green led and wait until the led stops flashing. A 'clunk' indicates that the internal locking mechanism has been released. The locking lever may now be turned up and the cartridge withdrawn. Never attempt to force the locking lever.

The cartridges are intended for use on a project basis and not as a permanent 'hard disc'. For this reason they should be kept with the reels of tape or changed regularly. It is advisable to backup vital mixes onto floppy discs or another cartridge, see Copying Information - Section 4.

Care of the Data Cartridge

When the cartridge is not in use, it should be stored in its protective sleeve in a temperature between 10°C (50°F) and 52°C (126°F) and a relative humidity range of 10% - 90%. Condensation may occur if a cold cartridge is put into a hot drive which may cause permanent damage. To avoid this, stabilise the cartridge in its working environment for at least two hours before inserting it into the drive. Do not leave a cartridge running in the drives for more than 24 hours.

The write protect switch may be used to prevent data being overwritten; see the back of the cartridge label sheet for further instructions. Keep the cartridge away from moisture, prolonged sunlight, magnetic fields and hedgehogs.

The cartridge drives should be cleaned once a week to prolong head and cartridge life, using the correct Cleaning Kit (available from SSL).

Use the recesses provided on the cartridge for labels. Do not place a label in any other position.

A natural curiosity may prompt a desire to investigate the insides of a cartridge. This however will almost certainly destroy it.
Loading a Data Cartridge or Reel Disc

There are a number of possible permutations which can occur:

1. The instance of starting from scratch with a brand new Data Cartridge.
2. Starting with a brand new floppy disc.
3. Starting with a part-used Data Cartridge.
4. Starting with an existing floppy Reel disc.

Brand New Data Cartridge

Before a Data Cartridge may be used, it must be formatted. This may already have been carried out but any attempts to continue with a non-formatted cartridge will be blocked by the computer. To format a Data Cartridge, type:

```
FORMAT EX
```

The computer display will warn that this will destroy any existing information on the Data Cartridge if it has already been used.

Press 'Y' for Yes to confirm your intentions. At this stage, any other key is equivalent to a No command and will stop the process, should you wish to verify the virginity of the cartridge.

On confirming the process the screen requests which drive, A or B, houses the cartridge that needs to be formatted. Press 'A' or 'B'. Wow!

Place the cartridge in the drive (if this has not already been done) and turn the locking lever down. When the green led stops flashing and gives a solid indication that the disc is up to speed, press the EXECUTE key.

The formatting process will then start and take around 4-5 minutes.

**Format complete** will be displayed when the format is complete.

Before any data can be stored, the Data Cartridge must be labelled.
Labelling a Data Cartridge

This is a process of subdividing the Data Cartridge into blocks called REELS (Note for E Series users, the REEL key replaces the SEQUENCE key).

The REEL size is chosen to suit the project requirements. Seven sizes are available, ranging from 1/4 Mb (80 REELS each equivalent to the conventional floppy Reel disc) through to a single 16 Mb REEL. The decision on size will depend on a number of factors and will be helped by previous experience with floppy discs. If completely new to this form of data storage, we advise you to start with a Reel size of 1 or 2 Mb.

To LABEL a Data Cartridge type: LABEL EX

The computer asks whether you want to label the Data Cartridge or floppy disc (C or F). Press 'C'. Confirmation is again requested, press 'Y' to confirm. Press 'A' or 'B' to tell the computer which drive houses the Data Cartridge. The screen will display the information shown in Figure 3.

```
# LABEL

Labelling drive A

Choose the reel size on this cartridge using the cursor keys, then press EXECUTE.

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Capacity</th>
<th>Reels</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>1/4 Mb</td>
<td>80</td>
</tr>
<tr>
<td>1024</td>
<td>1/2 Mb</td>
<td>40</td>
</tr>
<tr>
<td>2048</td>
<td>1 Mb</td>
<td>20</td>
</tr>
<tr>
<td>4096</td>
<td>2 Mb</td>
<td>10</td>
</tr>
<tr>
<td>8192</td>
<td>4 Mb</td>
<td>5</td>
</tr>
<tr>
<td>16384</td>
<td>8 Mb</td>
<td>2</td>
</tr>
<tr>
<td>32768</td>
<td>16 Mb</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 3
```

Use the ↑↓ cursor keys to select the number and size of REELS, then press EXECUTE.
Note: This sets the size for all REELS on the Data Cartridge. The size cannot be changed at a later date except by re-labelling which will effectively destroy any data on the cartridge. However, should you run out of space, the stored information can be copied to another Data Cartridge which has been allocated larger REELS. There is more information on Data Cartridge sector usage at the end of Section 4.

Now turn to Naming Reels, Page 3-13

Brand New Floppy Discs

Floppy discs should be already formatted to IBM standard as supplied. They must however be labelled and this is achieved by placing the disc into the floppy disc drive marked R, closing the locking mechanism and typing:

LABEL EX

**Label Data Cartridge (C) or Floppy (F) is displayed. In this instance press 'F'.**

Once again confirmation will now be requested to avoid inadvertently destroying any important information already stored on a used disc, so again press 'Y' for Yes.

**Shall I check the disc first?,** is displayed to ask whether you would like the drive head to scan the disc checking for errors, drop-outs, lumps of egg etc. It is recommended that 'Y' is always pressed at this point. Errors discovered later will waste a lot of time and effort. Should any errors be detected, the computer will tell you and advise the best course of action.

After the disc has been successfully checked it will be automatically labelled and become a Reel disc. Reel discs are not sectioned like Data Cartridges as their maximum storage is the same size as the smallest REEL anyway.

The screen will now display a ready made LIST page of information. For further instructions turn to Page 3-14.

Starting with a Part-Used Data Cartridge

In the simplest case, when the program is loaded into the system, a Data Cartridge is ready in drive A and the system has been set to look for Data Cartridge information on start up. A list of REELS already stored on the Data Cartridge will be presented on the screen.
However, if the Data Cartridge has not been prepared, and the system is expecting one on start up, load the Data Cartridge and then press EXECUTE. The REEL list will then be presented as above.

In the third case, it may be that the system is set to look for a Reel disc on start up. If necessary press CANCEL to use the keyboard and type:

(LIST) REEL EX

The REEL list will then be presented. At this point, the time has come to NAME a REEL.

**Naming Reels**

In order to identify a REEL it must be given a Name. This is dead easy, just type:

NAME REEL Name EX  (where Name is a name)

and hey presto, you got your own REEL to play with.

In the case of a brand new Data Cartridge, a REEL list will be started. With a previously used Data Cartridge, the new REEL will be added to the existing REEL list (provided the labelled number of REELS is not exceeded).

**Starting with an existing Floppy Reel Disc**

This is very similar to starting with an existing Data Cartridge. In the simplest case, a Reel disc has been prepared in the drive before loading the program and the system is set to expect a Reel disc. When loading is finished the screen will display the Reel disc LIST page.

However, if the system prompts that it is expecting a Reel disc after loading, place the Reel disc in the floppy drive marked R, close the locking mechanism, and press EXECUTE.

The Reel disc LIST page will be displayed.

In the third case, it may be the system is set to look for a Data Cartridge on start up. If necessary, press CANCEL to use the keyboard and type:

LOAD EX

The Reel disc LIST page will be presented as before.
If the Reel disc was previously created with E Series software, the additional message **This Is an E Series Reel disc** will be displayed. If this is the case, then ideally the Reel disc data should be copied to a Data Cartridge REEL - see Copying Information - Section 4).

Use the LOAD EX command whenever it is necessary to access the Reel disc. When changing from one Reel disc to another, this command must be used.

The List (Information) Page

As each REEL on the Data Cartridge is named or each floppy is labelled to become a Reel Disc, a 'front page' of information is copied onto the reel from the Program disc. This page of information is called the LIST Page and is the computer equivalent to the label which is stuck on a tape box.

To display the LIST page, the command line is LIST EX. The screen will be similar to Figure 4.

![Figure 4](image-url)
The information stored on this page is solely for operator reference, except the tape speed and sample rate. The tape speed must be set correctly to the actual master tape play speed, to allow the computer to calculate tach pulses correctly when the tape is spooling. The sample rate has a bearing if you are using a multi-standard digital tape machine. Consult the G Series Computer Service Manual or your Technical Engineer for more details. The rest of the entries on this page need not be completed initially, as each heading description can be entered at almost any time.

Information relevant to a specific Reel can be added to and edited very simply. To enter information for any particular heading, type the first two letters of the heading, a mandatory space followed by a description of the subject (up to 30 characters) then press EXECUTE.

For instance, the name of the Studio (displayed top centre of the LIST page) is entered or edited by typing:

```
ST _ Name EX
```

In the same way the other information is entered as:

```
AR_ Name EX
CL _ Name EX
PR _ Name EX
EN _ Name EX
AS _ Name EX

EQ _ Type EX
NR _ Type or NO EX
SP _ Whole number EX
SA _ Frequency EX
```

The system may be customised (see Appendix I) such that the Artist and Client headings become Programme and Director for Broadcasting applications. In this case type:

```
PG_ Name EX
and  DR_ Name EX
```

To write a default page of basic information back to the Program disc, enter the details common to most sessions and then type:

```
ALTER EX
```
To save time, this basic information will then be copied from the Program disc when further Reels are labelled. Remember that the information can always be modified subsequently.

**Time and Date Display**

Below the Studio name on the LIST page, the current time and date will normally be displayed. If the clock needs resetting type:

```
SET_CL   EX
```

A box will be displayed on the screen. Enter the correct settings as instructed. Be sure to enter the : between each number and EXECUTE after each line.

Certain data, as detailed later, is 'stamped' with the time and date as it is stored, providing a useful reference for the future.

Two options concerning the Time and Date display may be selected. Time may be displayed in either 12 or 24 hour format and the Time/Date display on the LIST page may be removed. See Appendix I.

To call up a large display of the Time and Date at any time, type:

```
TI   EX
```

**The Sign-on Message**

By now, it is likely that the learned theory given by a new program, when the computer was started up, has disappeared. A new Sign-on message can be written to the Program disc by typing:

```
SIGN_Message up to 64 characters   EX
```

The new message will be displayed every time the computer is re-started.

*e.g.*

```
SIGN_WE HOPE YOU ENJOY YOUR STAY   EX
```

The Sign-on message will become:

```
SSL COMPUTER SAYS WE HOPE YOU ENJOY YOUR STAY
```
The Current Item Philosophy

Whenever an item in a directory is stored (named) or stipulated as the subject of a command line (except COPY commands) it automatically becomes the current item. 'Current' is defined as that item which has been chosen and until any other item in the same directory is chosen, the computer will assume the relevant current item in subsequent command lines, thus obviating the need to identify it.

The particular current item of each directory is indicated in its own directory List page by a ■ indicator, immediately to the left of the item name. (This is an indicator, not a cursor. To change the current item it must be stipulated in a command line).

The computer always assumes the current REEL when TITLE names are specified. When items stored with a timecode value within a REEL or TITLE are specified, it may not be necessary to identify the type of item. The system will first look for a CUE with that name, then a MIX within the current TITLE and finally look for another TITLE within the current REEL. If no such name is found, the computer will tell you fairly firmly.

If this little section has been incomprehensible so far, some examples may help.

PLAY CUE Name EX

can be abbreviated to

PLAY Name EX

or  PLAY CUE EX if the CUE Name is indicated as current

If the CUE does not exist, PLAY Name EX will play a MIX with that Name in the current TITLE. If no CUE or MIX of that name exists then another TITLE of that name within the current REEL will be played and become the current TITLE.

The Other Data Cartridge

When the program is loaded and set to look for a Data Cartridge on start up, the system will default to drive A. This is the only case where either drive A or B is given priority; the two Data Cartridges may be used in whatever relationship is convenient. They can operate completely independently of each other or be used in a variety of ways for cross-reference and backing-up some or all stored information. Information is transferred using COPY commands described in Section 4.
When working between REELS on the same Data Cartridge there is no need to specify the Data Cartridge drive in command lines.

When reference is made to REELS on a Data Cartridge in the other drive, this must be specified in the command line.

The drive is specified by (A) or (B). Yes, the brackets are mandatory. The specification is given immediately after REEL, no space is required. For example, to make another REEL on the other Data Cartridge current, type:

\text{REEL (A) or (B) Name EX}

The command line to copy the current TITLE to a safety REEL on the other Data Cartridge would be:

\text{COPY TITLE TO REEL (A) or (B) Name EX}

\section*{Additional Notes on Command Lines}

Basic Computer Operation, Section 4, has many examples of command lines. Current Item Philosophy above has described some simplification of formal command lines, other convenient methods are described below.

The computer needs a minimum amount of information in a command line to understand it. An item specified in a command line needs only to be identified with the minimum number of characters that prevent ambiguity. For instance, in a list of items such as TITLES or CUES where each item starts with a different letter or number, it is only necessary to use the first letter or number when specifying the item (unless it is current, of course). If item names start with the same character, the item name may be shortened to the minimum amount of characters that allow the computer to distinguish it from others.

Where item names are subdivided with spaces, e.g. FIRST VERSE, the item may be specified as an abbreviation i.e. F_V, provided that this is still not ambiguous e.g. FARTING VICARS.

If insufficient information is given, the computer will give a prompt for more information to distinguish the item. In this case, just type in the necessary characters and press EXECUTE to complete the command.

Special commands, LABEL, FORMAT, BACKUP, LOAD, ALTER, SIGN, DI, SET_CL, TI and OFF, issued from the QWERTY keyboard must be typed in full, abbreviations will not be accepted.
The Function Keys  (not available on E Series Keyboards)

These keys can be programmed so that a command line, using a combination of command and alphanumeric keys, may be executed by pressing a single function key.

To set up a function key with a command:

press F KEY WRITE  (the led will light)
press the keys which make up the command

Up to ten keystrokes can be entered. The EXECUTE key will need to be included for the command to be executed when the function key is used. The RUB key can be used to erase the previous keystroke as the command is entered. As usual, the command will appear on the screen and will be carried out if EXECUTE is included.

To store the command, press the required function key (F1 to F10 or  SHIFT and F1 to F10, for F11 to F20). If the F KEY WRITE led goes out, then the command has been stored. If it flashes, it indicates that the function key has already been programmed. To re-program the key, press the chosen function key a second time.

To retain the stored command, press  F KEY WRITE  again and the new command will be cleared.

The defined functions are safely retained in the keyboard EEPROM, should the power be turned off.

To safely view function key programming, without actually doing whatever is assigned to the key, gets a bit technical. You need to use a special program, normally used for test purposes. With the main program running, type:

!TES EX

Now press K for the Keyboard test, then press F for the Function Key test. The commands assigned to the function keys will only be displayed on the screen when they are pressed.
And now ....... another logo