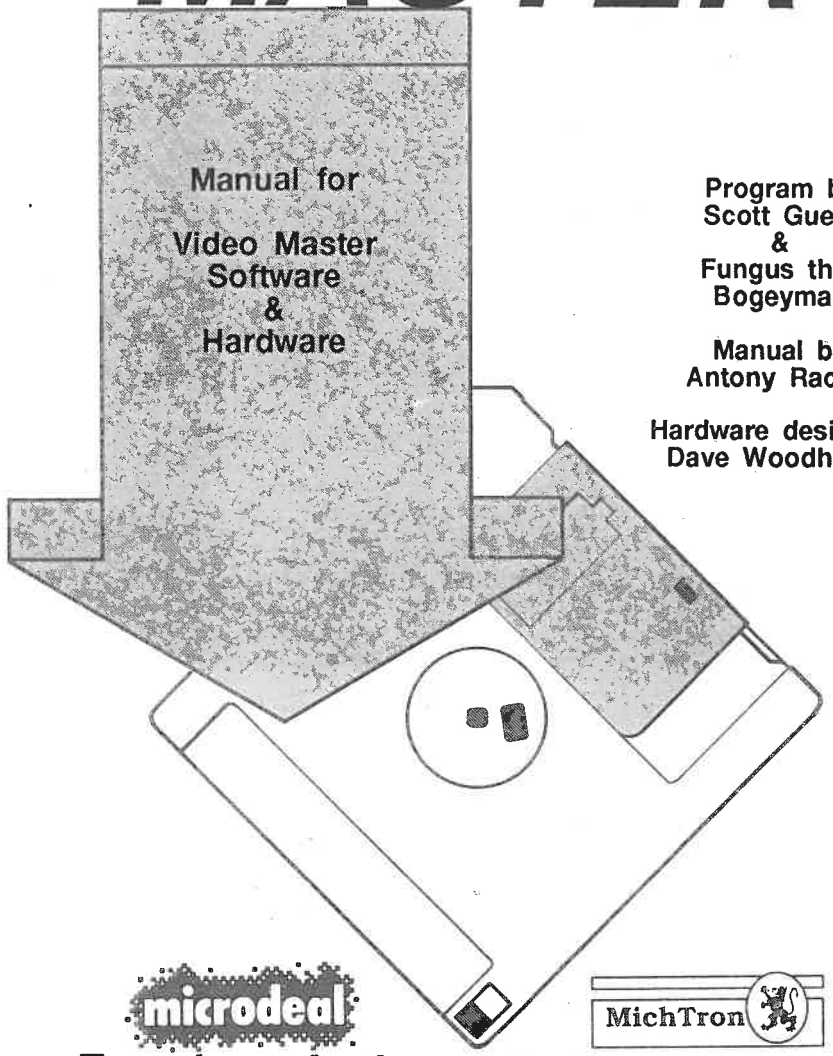
VIDEO MASTER

Manual for

Video Master
Software
&
Hardware



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For the Amiga 500 & 500 Plus

VIDEO MASTER AMIGA

SYSTEM USERS GUIDE

FIRST EDITION - NOVEMBER 1992

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WARNING

BACKUP THAT DISC !

Please make a backup copy of the system software. Details of initialising and backing up discs are provided in your computer's reference manual. Make at least one backup of the disc and store the original away for future reference. Use only a backup for day to day use. NEVER use the original disc for anything other than as an archive copy.

BEFORE YOU START !

Throughout this manual, it is assumed that the user already has a working familiarity with their computer and that they have read the relevant sections of the machines user guide, especially that they understand such terms as WORKBENCH, OPENING A DIRECTORY or DRAWER, DRAGGING AN OBJECT, CLICKING THE MOUSE etc. The authors of the software which go to make up VIDEO MASTER have spent a great deal of time and effort trying to make the system simple to use while trying to make it as powerful and flexible as possible. Knowing a few technical terms should make the manual easier to read and understand.

The 'README' File

Since the development of software is always an on-going concern, there may be small discrepancies between the manual and the software. As it evolves, the software enhancements will be posted on the relevant README.DOC files on the floppy disc.

If all else fails... READ THE MANUAL !

Experienced computer users may be tempted to abandon the manual in favour of 'Good old trial and error'. This is NOT recommended since, despite the fact that the software has been designed for ease of use, the very nature of the package will mean that without the manual, many key operating features may be completely missed. All users are urged to read the installation details in Chapter 1 fully.

And finally ...

... I would like to take this opportunity to say thank you to Fungus and Scott for their hard work, dedication and patience while writing the software and for putting up with the countless 'IMPROVEMENTS' which have been added since development started. Hi also to Pete Sinfield, Pat Dowty, Grant and Sarah, Colin, Mark and all of the Vauxhall 'Friday Night' club. As always, the final words go to my wife Vicky for type checking and reading this manual, for her patience and for looking after our little boy, Matthew, when I should have been !

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INTRODUCTION

With the power of today's home computer's, which we now take for granted, many things are possible now which a few years ago were beyond the imagination of many people. The power of computer's like the AMIGA gave rise to a boom in digital sound recording using devices known as SOUND SAMPLERS and we at TWO BIT SYSTEMS and MICRODEAL have led the field in this exciting technology. Sound Sampling has come of age and we now look forward to the future.

With computer's becoming faster and their screen resolutions, colour palettes and sound facilities becoming bigger and better than ever, the next 5 years or so are likely to see a boom in computerised home video, sometimes also called MUTI-MEDIA. This BUZZ PHRASE is basically used to describe a system which somehow or other presents graphical images and recorded sounds together at the same time.

This is why we believe VIDEO MASTER is a breakthrough in home computing. VIDEO MASTER is not just a low cost video digitiser, it can be altogether something much more FUN. For the first time on your computer you can record simultaneous sound AND video because the VIDEO MASTER digitiser also has a sound sampler built into the same unit. This UNIQUE facility enables you to record sound AND pictures from your video recorder or camcorder, to link them together and then to produce your own computerised home movies. Now you can become your own film producer and director, all on your own desktop !

Of course this is not all, once you have created your movie, we provide a sound and video player program which you can place on a separate disc with your film. The DEMO producer program features a host of amazing special effects including the fabulous PICTURE-IN-PICTURE and SPLIT SCREEN picture modes which you can customise to amaze your friends. Go ahead and BLOW THEIR MINDS !

Finally, users of Video Cameras and Camcorders are provided with a set of Tri-Colour filters to enable you to take full advantage of VIDEO MASTERS full colour facilities, providing the capability to produce pictures of stunning quality in up to 4096 colours on the Amiga using the HAM screen mode. VIDEO MASTER gives you all this in one fantastic package. All you need now is your inspiration.

CHAPTER 1
UP AND RUNNING

This chapter deals chiefly with the installation of the VIDEO MASTER hardware into your computer and how to connect it to your Video equipment. Please read ALL of this section very carefully before moving onto the description of how to use the VIDEO MASTER software.

1.1 WHAT YOU GET

Upon opening your VIDEO MASTER kit, you will find the following :-

1) VIDEO MASTER, video and audio digitiser cartridge

2) Software supplied on one double sided disc

3) Tri-Colour filter set (Red, Green and Blue)

4) This product user guide.

5) Purchase registration card. PLEASE RETURN THIS CARD !!

1.2 WHAT YOU WILL NEED

The VIDEO MASTER package contains practically everything that you will need to get started. All you need to supply is an appropriate video/audio lead, a video player or camcorder from which you can record the pictures and sound, your computer and your imagination.

1.3 THE SIGNALS

VIDEO MASTER can record both Sound and Picture information. However, it is NOT possible to plug a television aerial directly into the input of the digitiser and expect it to work.

The digitiser must have the sound and picture information decoded from the TV signal into two separate signals. These signals are available directly from the back of most Video Recorders, for example. If in doubt, please refer to the user manual for the equipment from which you wish to record. VIDEO MASTER requires the standard Audio and COMPOSITE Video signals. Once you have identified where these outputs are on your equipment, notice what sockets they have, it will be necessary to purchase leads to connect VIDEO MASTER to these sockets.

1.4 CHOICE OF LEADS

The choice of leads for use with VIDEO MASTER will depend entirely on the equipment from which it is to record the sound and pictures. Any good local Video, HI-FI or Electronics shop will be able to advise you on the type of connectors which you will require to connect VIDEO MASTER to your Video recorder, Camcorder or Video Camera. Many of these shops sell a Video Lead adaptor kit which will allow practically any video system to connect to anything else. Though these can be quite a bit more expensive than a simple lead, you are at least 95% guaranteed to be able to connect VIDEO MASTER to practically any video equipment around ! Finally, what ever lead you end up buying, try to keep it as short as possible.

VIDEO MASTER is fitted with PHONO connectors for both the Sound and Video inputs, so whatever leads you use, they MUST terminate in PHONO PLUGS on at least one end. The choice of connector at the other end however is rather more tricky and will depend entirely on the equipment being used:

Most portable Video recorders and Camcorders provide both the Sound and Video through two Phono sockets. In this case a very cheap TWIN PHONO to TWIN PHONO lead is required, this is often supplied with the Video equipment when purchased, so check the original packaging first before buying a new one !

VIDEO MASTER is most likely to be used in conjunction with a Video Recorder in most systems.

In Europe, the most common connector used is called a 'SCART' connector. If this is fitted to your machine then it will be necessary to buy a 'SCART to TWIN PHONO' lead.

Most pure Video Cameras (unlike camcorders) are supplied with a 'BAYONET' connector which may be a little tricky to buy from most Video shops. This will normally be supplied as part of a Video Lead adaptor kit or on its own from a specialist video or security company or from a local 'TANDY' or 'RADIO SHACK' shop. Please note that most Video Cameras do not feature a microphone so it will not normally be possible to record sound directly from this type of equipment. Just for the record, most cheap Video cameras will only work in Black and White and will NOT produce a colour picture. This is fine for normal operation of VIDEO MASTER, but please note that use of the colour filter set provided with this package (as explained later in this user guide) will NOT produce colour pictures!

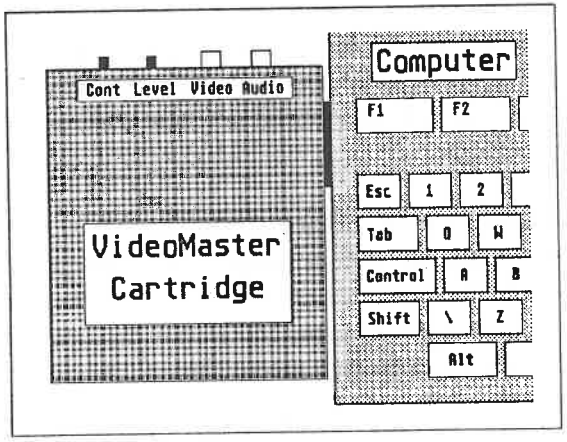
1.5 THE A500 EXPANSION CONNECTOR

The A500 computer is fitted with an expansion connector on the left hand side of the machine, this is where VIDEO MASTER is to be fitted. To gain access to the connector, it is first necessary to remove the cover from the computer's casing which protects the printed circuit board. This is usually achieved by sliding the cover off using your fingers on the rough grip panel, or by twisting the edge of a coin in the slot provided. Please refer to you computers guide for further details.

The expansion slot is also used for a host of other peripheral devices, such as the A590 hard disc drive. Where such devices are to be simultaneously installed with VIDEO MASTER, it will be necessary to purchase an expansion port adaptor. These are usually relatively inexpensive, but it will probably be necessary to mount VIDEO MASTER vertically. The VIDEO MASTER unit is quite rigid, however this rather inelegant solution should be avoided if possible. It would perhaps be advisable to disconnect the digitiser cartridge from the system when it is not being used, if an expansion connector of this type is employed. ALWAYS switch the computer off when the digitiser is being installed or removed!

1.6 INSTALLING VIDEO MASTER

Before installing the VIDEO MASTER cartridge, please make sure that your computer is SWITCHED OFF and that the expansion cover is removed. Place the digitiser cartridge, label side up, on the left hand side of the computer. The socket should be facing in towards the computer. Now locate the EXPANSION EDGE CONNECTOR on the left hand side of the AMIGA. Gently slide the VIDEO MASTER socket onto the edge connector and feel the two engage. When you are sure that the cartridge is correctly positioned, apply gentle but forceful sideways pressure onto the cartridge to slide it into the machine by about 8-10 mm.



The above operation may require some force if the cartridge is new, but should become easier with use. VIDEO MASTER should always produce a firm fit, NEVER switch your computer on if the cartridge is not fully inserted or if it feels loose. A catastrophic electrical failure may occur in either the digitiser or the computer (or both) if the cartridge is not inserted properly.

Next, switch on the computer, it should auto boot in the usual manner. If the disc light fails to appear, or the screen displays an unusual pattern and refuses to clear, switch the computer off IMMEDIATELY; check the computer connections and most important, check the boot disc and ensure that it is correctly installed (I.E. LABEL SIDE UP AND FULLY PRESSED IN). If the fault persists, consult your dealer or contact MICRODEAL for advice.

Once successfully installed, it will not be necessary to remove VIDEO MASTER from the computer unless another unit is required for use in the EXPANSION CONNECTOR. The digitising cartridge will sit quite happily in the machine and should give no problems while running other software.

1.7 Setting Contrast and Level

The Contrast and Black Level controls are installed to allow adjustment of the displayed picture and improve clarity. As such, it will not be possible to set these correctly until later, but for now it will be useful to move each to their approximate centre point. Once correctly set to a particular piece of video equipment, the Black Level will not usually require further adjustment. Most pictures should be fully adjustable with the Contrast control.

1.8 Connecting a Video input

For VIDEO MASTER to be able to digitise any still pictures or full motion video, it will be necessary to connect either a Video Recorder, a Camcorder or Video Camera to the 'VIDEO' input located on the side of the digitiser cartridge. The choice of lead has already been discussed so assuming that the correct lead has been purchased, it should be possible to connect the Video unit and VIDEO MASTER together.

1.9 Connecting an Audio input

A sound source can be connected to the AUDIO input socket. VIDEO MASTER requires a standard AUXILIARY level sound input. This is the sort of level which practically any Video Recorder, Camcorder, Tape deck, CD player or portable 'WALKMAN' style unit will provide, so it is NOT strictly necessary to connect a Video Recorder to the VIDEO MASTER sound input since a soundtrack can be recorded from almost anywhere.

1.10 VIDEO MASTER AND MULTI-TASKING

Since the VIDEO MASTER program will multi-task with other programs, then you may use the LEFT AMIGA-N and LEFT AMIGA-M buttons to move out from and back into the VIDEO MASTER program.

Since video sections and sound use a great deal of memory, VIDEO MASTER will usually try to take as much memory as it possibly can. However, it is obliged to leave some memory for the workbench application, but will leave precious little for anything else. In this case, if multi-tasking is required with another application such as a graphics program, then it will be necessary to run that application BEFORE running VIDEO MASTER.

1.11 RUN THE PROGRAM

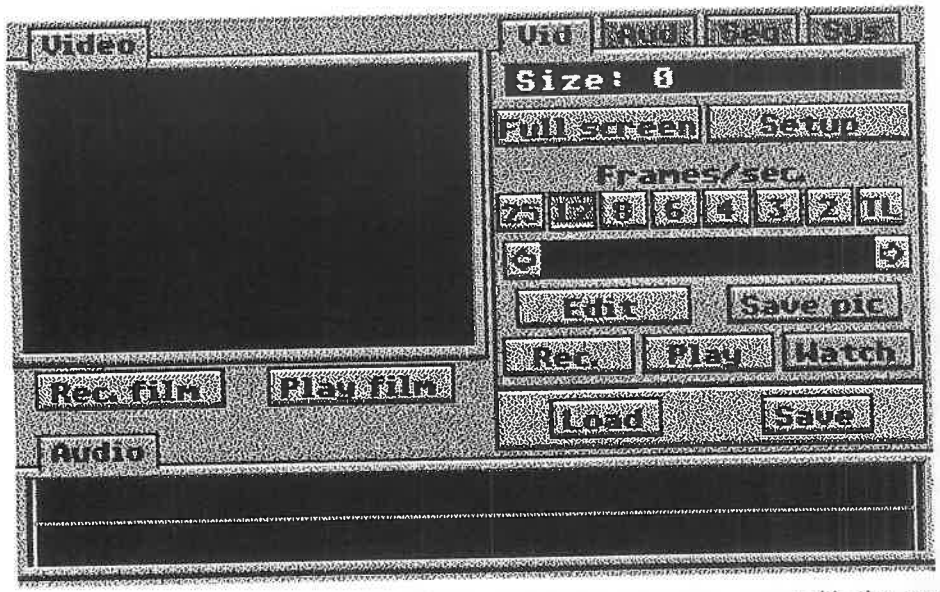
It is quite likely that you will be itching to run the VIDEO MASTER program by now (if you haven't already done so)! To do this, place the system disc into the computer's floppy disc drive and open a directory of its contents. Locate the program file on the screen called VIDEO MASTER. Move the mouse pointer onto this program and double click the mouse button while on it. The program should now run and display the TITLE SCREEN. Press the mouse button once more and the VIDEO MASTER control screen will appear.

CHAPTER 2
MEET VIDEO MASTER

The VIDEO MASTER software should be quite easy to use and understand. It provides you with the ability to record high speed, 'REALTIME', quarter screen size video clips which can be saved to disc. The same cartridge and software will also allow you to record sound into the computer. Furthermore, a sequencer built into the program will allow you to reload these clips into memory and assign them to keys on the keyboard and to synchronise a piece of soundtrack with each one. It is then possible to create a complete Video Sequence or Cartoon using these clips and sounds before saving them back to disc as a complete VIDEO SEQUENCE. Once a sequence has been created and providing that it can fit onto a single floppy disc, it is then possible to use a separate piece of software provided with the package, VIDIPLAY, to create your own video 'DEMO' discs which you can give to all your friends!

Full screen VIDEO GRABS in both black and white (16 levels of grey) and full colour can also be made. Full colour pictures are made in 3 individual passes of RED, GREEN and BLUE, providing pictures with up to 4096 colours. These pictures can then be saved to disc for use in DTP or other graphical applications.

Assuming that you have followed the installation procedures detailed in the last section of this guide and that the VIDEO MASTER program has been run, the screen on your computer should now look something like the picture at the top of the next page.



In the upper left hand quarter of the screen is a large black area with the word 'Video' above it. This is the Video display window where most of the action appears when we are working. All Video Recording and Playback will appear here.

At the bottom of the screen is a wide display with the word 'Audio' in its upper left hand corner. This is the Audio waveform display. All sound editing is performed within this 'Window'.

Between the Video and Audio displays are two buttons marked 'REC. FILM' and 'PLAY FILM'. These two buttons are very powerful features of VIDEO MASTER. They control the Recording and Playback of synchronised Video and Audio. As such, they are outside of the scope of discussion at the moment but they are explained more fully later on in this guide.

In the upper right hand side of the screen you will notice a number of card index tabs, each with a 3 letter name on it. These read VID, AUD, SEQ and SYS in order and they represent the VIDEO, AUDIO, SEQUENCER and SYSTEM control screens.

If you look carefully, you will notice that the 'VID' name tag is lighter than the rest. This means that the VIDEO screen is currently selected for use. Assuming that you have followed the installation instructions at the start of this user guide, and that you have a Video Camera or Video Tape player connected to the input of the VIDEO MASTER cartridge, then why not try something simple ?

First, ensure that the Video source is not playing I.E. neither the PLAY or PAUSE buttons are on. Next, move the mouse over to the button on the right hand side of the VID control card called 'WATCH' and click the mouse button on it once.

The video display area in the upper left hand side of the screen should now show a randomly changing display of Black and White dots. This is how VIDEO MASTER tries to tell us that there is no video input on the cartridge. Now press the PLAY button on the Video player or switch the Video Camera on. The display should almost instantly reveal pictures within the window. If the display clears to an all black or white screen, don't panic, it only means that the Contrast and Level settings on the digitiser need to be adjusted. These are located on the cartridge as shown in the diagram in the installation section of this guide. Try adjusting these controls carefully until a good picture is obtained.

Now click the left mouse button and the display will freeze and control will once again return to the mouse. To record a piece of Video, simply move the mouse over to the RECORD button and click on it once. The pictures will once again appear in the display. However, this time the pictures will be joined by a white box moving across the screen on the VIDeo card. This box will contain a changing number. To stop the recording, press the left mouse button again.

You have just recorded your very first Video and to prove it, press the mouse button on the PLAY button. Once again, it will be possible to see those magic pictures replayed in the window.

Finally, move the mouse over to the Video Frame control (that's the wide Black bar which will now have a small white box in it). The box will contain a number, probably '1' at this stage. This box is known as the SLIDER. Move the mouse onto the SLIDER and click and hold down the left mouse button. Any attempt to move the mouse from left to right and back will cause the slider to move with it. The number within this box, the FRAME COUNTER, will change accordingly, as will the picture in the display window. Using the mouse in this way it is possible to review the recording and to move very rapidly to a particular point of interest. Releasing the mouse button will 'DROP' the frame control at its current position and will leave the appropriate video frame in the display window.

This concludes our brief introduction.

CHAPTER 3
The VIDeo CARD

ALL functions related to grabbing pictures into the computer, whether full or quarter screen size, are accessed from this card. The main use however, is to record short clips of real-time Video.

Real-time video is recorded into a Video Buffer, one frame of which is ALWAYS on display to the left of the screen in the Video window. To create your own videos it is first necessary to record some frames into the computer. Afterwards, it may be necessary to edit out any unwanted frames from the Video, or simply to shorten the Video to occupy less space. The numerical display towards the top of the VIDeo card (immediately beneath the card selection buttons) shows the size of the present Video Clip. This is useful to gauge how much disc space will be required to save the Video Clip out later.

The following is a description of the VIDeo card functions:

3.1 Full Screen

To move into the full screen digitiser select this button. The use of this button is covered later on in this guide in Chapter 9.

3.2 SETUP

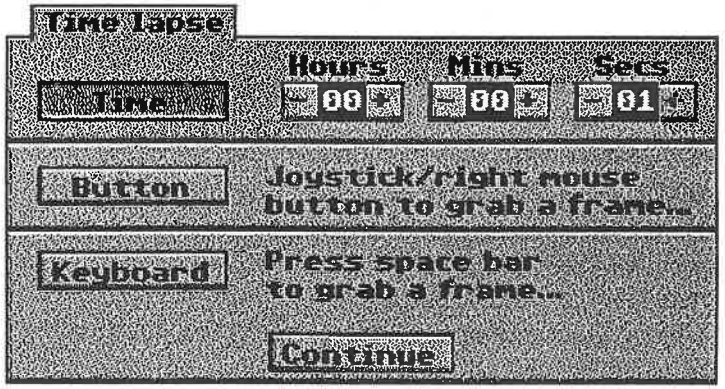
Quick access to the Digitiser Hardware and default Colour Palette control is available from this button. A more thorough explanation of this function is detailed in the SYStem card, Chapter 7.

3.3 Frame Rate

Selecting one of these boxes will determine the number of times a picture is taken from the video input every second. It also controls the speed at which the frames are played back in the VIDEO display window. To select the required speed, simply click the mouse on the appropriate button. Please note that there is a trade-off to be made when choosing the frame rate. Each Video Frame takes about 8,000 Bytes or 8 KBytes of the computer's storage space. Therefore a 1 MByte computer with about 600 KBytes of 'VIDEO' RAM will hold about 60 Frames. This will give about 7 seconds of playback time at 8 frames per second or 14 seconds at 4 frames per second. So, as you can see, smooth animation will require faster frame rates but it will also DRAMATICALLY reduce the amount of time that the computer can store !

Please note that when the VIDEO MASTER software has just been run, it automatically splits the computer's memory into two areas, one for the VIDEO storage or VIDEO BUFFER and one for the sound storage or AUDIO BUFFER. Using the 'CONFIGURE MEMORY' option under the SYStem card (Chapter 7), it is possible to change the default values. For example, if no sound is required, the Audio buffer can be reduced to zero so as to maximise the length of the Video buffer.

You may notice that the Frame Rate value on the far right hand side is labelled 'TL'. This is an abbreviation for Time Lapse. Clicking on this button will produce the following display:



This allows you to record at Frame Rates of less than one second or for each picture to be digitised manually using the right mouse button, joystick fire button or the SPACE BAR on the computer's keyboard.

Please note that on playback of recorded frames, the slowest Frame Rate of VIDEO MASTER is assumed to be 1 frame per second.

3.4 Frame Position

After a video sequence has been recorded into the computer, a white 'SLIDER' will appear on the Frame Position bar (located immediately BENEATH the Frame Rate selection buttons). If the left hand side of the bar represents Frame 1, then the right hand side of the bar represents the last frame in the sequence. As the sequence is played back, so the SLIDER will appear to move from left to right across the screen. It is possible to move the mouse over the SLIDER and 'PICK' it up and move it to any position. As the SLIDER is moved back and forth, so the number on the SLIDER will change, as will the picture in the Video Window. When the SLIDER is 'DROPPED', then the Frame Number and Video Window will be left at the new position.

3.5 EDIT

The EDIT video button is a very powerful function of the VIDeo card, for this reason it is detailed on its own in chapter 4 of this guide.

3.6 RECORD, PLAY & WATCH

If you read the previous section of this manual, then you should already be familiar with these buttons. (shame on you if you didn't) !

WATCH will allow you to monitor the current video signal input to the digitiser cartridge. This is especially useful for setting the contrast control of the unit to obtain the optimum picture quality.

RECORD will start to digitise a Video sequence into the computer's memory. It will continue to record until either it runs out of video memory or you press the left mouse button to stop it. Please note that as soon as VIDEO MASTER starts to record the video pictures, the WHOLE of any previous video will be lost forever, so never select RECORD if any previous work has not yet been saved !

PLAY, will play back the video currently held in memory.

3.7 Save Pic

Quarter screen pictures can be saved out to disc as standard picture files. To do this they will need to be expanded up to full screen size first, which will result in the pictures looking fairly 'BLOCKY'. This is due to the fact that the pictures are digitised as 160 by 100 pixel resolution pictures. To save out a full screen will require them to be doubled up in size first !

Once a picture has been saved to disc, it will be possible to load it into other graphics packages or programs. It is useful to note that pictures saved out in this fashion will also have their palette saved with them. For this reason it is possible to edit the pictures using a separate program to alter the picture or, more notably, to edit its palette. The 'IMPORT' and 'BLOCK COLOUR' facilities of the Video Editor (Chapter 4) can be used to add greater interest to your videos.

3.7 LOAD & SAVE

Selecting either of these two buttons will present you with the VIDEO MASTER file selector. For further information on how to use this feature of VIDEO MASTER, please refer to the HELP section (Chapter 10) of this user guide.

3.8 SAVE a VIDEO or FILM CLIP

It is important at this stage to realise that we have so far referred to the pieces of Video which we have recorded as 'Video Clips'. As we will see later, we can also record sound into the computer. A piece of Video which has sound requires a different method of saving to disc, it is therefore important to be able to differentiate between the two forms. For this reason, we shall refer to a piece of Video which has had a piece of sound added to it as a 'FILM CLIP'.

Selecting the SAVE button on this card will present the VIDEO MASTER file selector panel with the options of '.VID' and '.FLM' at the top. To select the appropriate file type simply click on the required button. Please note that Film Clips require more disc space since they also have a marked area of sound saved out with them, but more about the sound in the next chapter!

3.9 RECORD FILM

It is perhaps now worth mentioning the Record Film facility. As has already been mentioned, we call a Video Clip with a soundtrack of some sort, a Film Clip. As its name suggests, this button will allow you to do just that, record video pictures into the computer with its original soundtrack. It is useful to realise (as you will read later) that the soundtrack will start recording from the position of the Left Audio Marker.

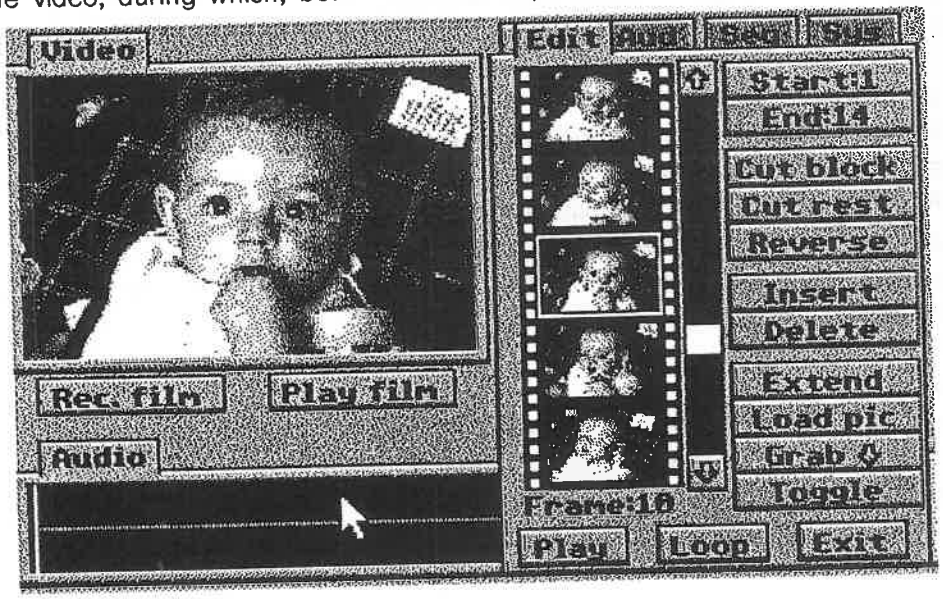
3.10 PLAY FILM

This is the complement of the record film function. It is also of use when in the AUDio card to check the synchronisation of the soundtrack with the video itself.

CHAPTER 4
The Video EDITOR

The EDIT screen provides many simple, yet very powerful features. It is used chiefly for the removal of unwanted FRAMES from a Video Clip, or for inserting extra pictures from the digitiser or from disc directly into a video clip.

On entering the Video Editor, you will notice that the Video Window to the left of the screen is still visible. But now, it has been joined by a small strip of 5 'THUMBNAIL' pictures, one of which is visible at full size in the Video Window. To the right of this picture strip is a vertical SLIDER with an arrow at the top and bottom. By clicking the mouse on either of these arrows, it is possible to move slowly through the video frame by frame. By 'PICKING UP' the slider with the mouse, it is possible to move very quickly backwards and forwards through the video, during which, both the video strip and Video Window will change.



The picture displayed within the Video Window is always that which is in the centre of the video strip. This central picture is surrounded by a white box and is known as the CURRENT FRAME.

The editor functions will always work in one of two ways. Some of the functions will work on the current frame and others will work on the VIDEO BLOCK.

4.1 The VIDEO BLOCK

To work on a BLOCK of VIDEO it is necessary to be able to tell VIDEO MASTER where the start and end of that block is. This is the use for the two buttons at the top right hand side of the screen. To define the start of a block of video, move the first frame of the block into the current frame and click the mouse button once on the 'START' button. The frame number currently shown at the foot of the strip will appear next to the word START.

To define the end of a block, repeat the procedure, but click on the 'END' button instead.

4.2 CUT BLOCK

It is possible to remove an entire marked block from the video using this button. When selected, the frames from START to END will be permanently removed from the strip. The frames either side of the block will now be joined together. PLEASE, use this function with great care. It may be advisable to keep a temporary copy of the video on a disc just in case something is deleted by mistake. It will be necessary to reload from disc in just such an event!

4.3 CUT REST

This performs a similar function to the previous control, only in this instance the marked video block is retained and ALL frames on either side are removed. Again, this function can not be undone. It may be wise to keep a copy of the video on disc just in case.

4.4 REVERSE BLOCK
The marked block can be reversed. This has the effect of making people appear to walk or run backwards.

4.5 INSERT FRAME
This will cut the video at this point and move all of the frames down by one position. The current frame will be replaced by a blank frame. It should be noted that the last frame in the video will be lost off the end forever, unless the video has been extended using the EXTEND button.

4.6 DELETE FRAME
The current frame will be removed from the video and all of the frames after it will move up by one position to fill the gap. The entire video will now be one frame smaller than before. Again, it is not possible to undo this function.

4.7 EXTEND
Selecting this button will cause VIDEO MASTER to enlarge the video so that it takes up the entire free video buffer (if it doesn't already). The new frames will be added onto the end of the video and will all be blank. Any attempt to perform an INSERT will not now lose the end frame providing there are still spare frames at the end of the video to be used.

4.8 LOAD PIC
It is possible to import pre-digitised or drawn pictures from disc into the current frame. VIDEO MASTER will only allow 16 colour IFF format pictures into the video. They can however be of any size since the program will automatically rescale the picture into the frame, leaving the colour palette intact.

It is quite possible, though a little tedious, to produce full length pseudo colour sequences using this facility. Since each frame has its own unique palette, a complete colour slide show can be created using purely imported pictures.

4.9 GRAB
It is possible to grab a single frame in from the external video source into the current frame using this button. When selected, the picture is grabbed into the video strip and the current frame is automatically advanced on to the next frame.

4.10 TOGGLE
This flashes the current frame on the screen and alternates it with a copy of the current video input. In effect, this will allow you to monitor what is coming in from the video source. It is also useful for people who wish to perform stop frame animation by comparing the current frame with the next under the video camera before grabbing it in to the sequence.

4.11 PLAY
This will play the video from start to end, unless a block is marked, where upon it will play only the defined block.

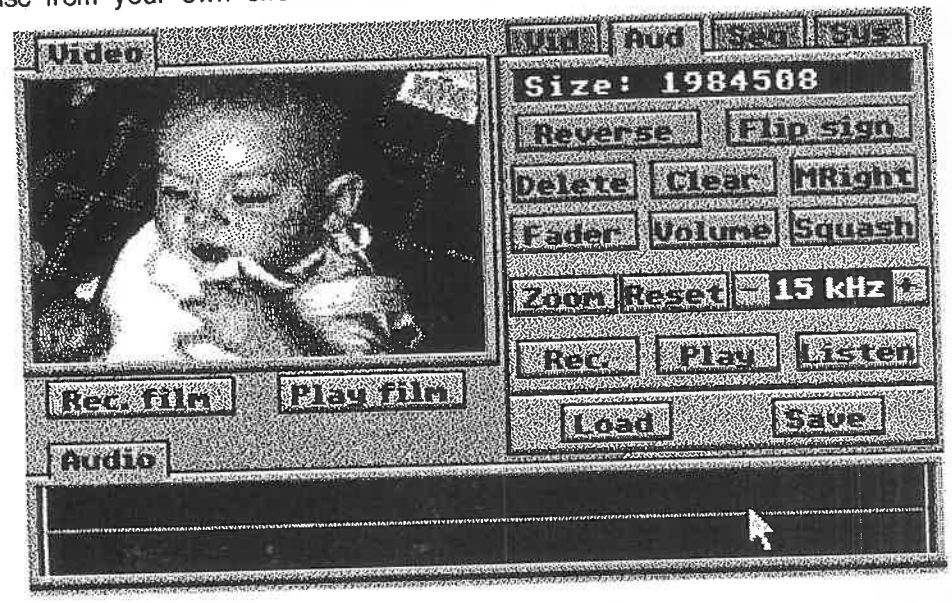
4.12 LOOP
This will continually play the current video from start to end, unless a block is marked, which it will loop in preference. To stop the loop mode, press the left mouse button or press the SPACE BAR.

4.13 EXIT
This will leave the video editor and return back to the VIDeo card.

4.14 COLOURING A BLOCK
Although it may not always be visible on the screen at the time, changing the palette using the SETUP facility, importing a picture in from disc or simply moving from one frame to the next, will change the CURRENT PALETTE. It is possible to force a defined block of frames to the current palette by pressing the 'C' key on the computer's keyboard. Please note that this will not always produce predictable results, especially when importing a series of colour stills into VIDEO MASTER to produce pseudo colour animations. This is because the program will analyse and swap the colour palette of each picture to try and prevent it from redefining colours such as black and white, thus turning all of the colours on the screen, off (and losing control of the program).

CHAPTER 5
The AUDio Card

Once a piece of video has been recorded, nothing makes a piece of action more realistic than by adding some sound to it. This is the function of the AUDio card. Not only is it possible to record sounds from here, but you can edit them too. Finally, you can save sounds out to disc as sound samples or import them from disc from your own effects or soundtrack libraries.



5.1 The waveform display

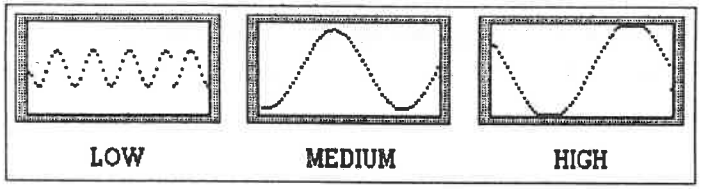
Unlike the VIDeo card where all the action takes place in the Video Window, the sound is recorded into the Audio buffer and is displayed in the Audio Window as a sound waveform. This is the wide display at the foot of the screen. When VIDEO MASTER is first run, the Audio Window will be seen to have a line running across the centre of the display, but will otherwise be empty.

This is because there is no sound in the computer. The centre line represents the 'ZERO' volume line. When a sound is stored in the Audio Buffer, then its waveform will appear on either side of this line. It can be assumed therefore, that if no waveform is present on the display, that the buffer has ZERO volume, in other words, it is totally quiet. This will be borne out if the PLAY button is pressed, no sound should be heard.

On the far left and right hand sides of the display are two vertical white lines. These are the left and right sample MARKERS. It is possible to use the mouse to 'PICK' up either of these markers and move it from left to right across the display. As you do so, the number at the top of the screen marked 'SIZE:' will change accordingly. These two markers control where an audio editing operation will be performed. All operations are performed on the piece of waveform that is in between the two cursors. The SIZE value at the top of the screen represents the number of BYTEs the sample is, that is why the value changes as the markers are moved.

5.2 The LISTEN Function

The LISTEN performs a very similar function to that of the WATCH button on the VIDeo card, only in this case of course, you can cue up and set the sound input volume. Upon selecting LISTEN, whatever is coming into the VIDEO MASTER sound input socket should become audible through the computer's MONITOR speaker. At the same time, the display in the Audio window will change. It should now be possible to see the centre line of the display bouncing up and down with the volume of the sound which you can hear. For best performance, it is recommended that the input volume is adjusted to make the moving line just touch the top and bottom of the screen as shown in the MEDIUM picture below.

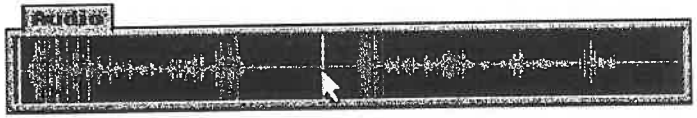


If the sound is coming in from a portable tape player, the volume is usually adjustable through the headphone VOLUME control. Most video equipment does not normally feature a volume control itself. For this reason you can alter the volume of the incoming sound by adjusting the CONTRAST control on the side of the digitiser cartridge.

5.3 The RECORD Function

When the correct piece of sound is lined up for recording using the LISTEN button, we then need to get the sound into the computer. Move the sample markers into an area of the Audio Window which is empty, start the video or tape running and press RECORD. The sound which VIDEO MASTER is now recording will become audible through the computer's sound output. To stop the recording, simply press the left mouse button or the SPACE BAR on the computer's keyboard. Recording will stop automatically when the audio buffer between the markers is full.

Once a sound has been recorded, the waveform display will be updated and it might look something like this:



5.4 Audio SCRUB

The above picture shows what a typical Audio soundtrack might look like and how it is possible to move a marker across the screen using the mouse. You should also notice a strange noise as you move the marker over an area of the sound waveform, this is because the VIDEO MASTER sound editor plays a small portion of the sound which is immediately beneath the mouse as it is moved. This unique Audio 'SCRUB' feature allows fast and effective re-location of pieces of sound in very large samples and is especially useful for the 'Cueing' of sound and video together, especially when used in conjunction with the PLAY FILM button.

5.5 The PLAY Function

Once a sound has been recorded into the computer it is possible to play it back by selecting the PLAY button on the screen. Sample play back will automatically stop at the end of the Audio buffer or when the left mouse button or SPACE BAR are pressed. You should notice a white line moving across the screen as the sounds are played. This is a visual indication of the progress of the sound which is currently being heard. As when recording the sound, play back commences from the position of the left marker and will automatically stop when the white progress line reaches the right marker. When using the progress line in conjunction with the SCRUB facility, it is easy to identify a piece of sound of particular interest and home in on it quickly.

5.6 ZOOM & RESET

While editing sounds it is often useful to be able to magnify a small piece of the sample waveform for a more detailed examination. This is useful for more detailed and accurate positioning of the markers, or simply to see the waveform itself more clearly. Once magnified, the sample can be edited or the current marker positions can be locked into one of the sequencers programmable buttons (more on this later). To do this, simply pick up and drag the markers around the area of the sample in question - the audio scrub feature should make this quite easy. Now press the ZOOM button. The Audio Window will instantly be redrawn with the two markers being moved to the far edges of the display once again and the sample in question will now be easier to see.

Once the markers have been moved into their new positions it is now possible to perform an operation upon the sample between them in isolation from the rest of the sound track. When finished, it is possible to move back out to display the whole of the Audio Window once again. This is performed using the RESET button. This button performs two slightly different functions:

The first time it is pressed, any ZOOM is undone. The Audio Window will be redrawn back at its full size, BUT the sample markers will be left in their present positions. The second press on this button will automatically return the markers to their homes at the far sides of the display.

5.7 Audio Record Speed

The numerical display to the right of the RESET button controls the speed at which VIDEO MASTER will fill the Audio buffer when recording. Likewise, it also sets the speed at which the sounds are played back using the PLAY button. The value in this display is altered using the '-' & '+' buttons on either side. A click on either will increase or decrease the rate in 1 kHz steps. The higher the number in this display, the faster it will be filled up. This also means of course that the the actual time for the soundtrack will be shorter too!

As with the Video record speed, there is always a trade off to be made. In principal, the sound quality will be higher with faster sample speeds. The slower the recording, the more time you will have, but the sound may not be as clear. It is really a matter of practise to determine what is best for each individual case. For example, different pieces of music may sound good at a speed of between 12 and 16 kHz. Pure speech on the other hand may allow a compromise at somewhere between 6 and 8 kHz. After all is said and done however, the question to be asked is 'Do I have the room for my sound track?' If the answer to this at one speed is 'NO', then the only speed that will do is the highest one which will allow you to fit the full length in !!!

It may be of interest to note that the soundtrack usually only takes up a relatively small proportion of the computer's memory when compared to the space taken up by a Video clip. When recording samples, the speed setting tells you how many thousands of bytes are used in each second. For example 8 kHz means that it fills up the buffer at about 8,000 bytes of memory in every second and 16 kHz uses about 16,000 bytes and so forth. Each individual frame of a Video Clip uses 8,000 bytes. Therefore, if we record video at 8 Frames per Second, then we use 8 Frames x 8,000 bytes = 64,000 bytes (or 64 kBytes) of memory EVERY second. As you can see, with 64 kBytes of Video memory and 8 kBytes of Audio memory every second we are using a total of 72 kBytes per second (Quite a lot)! But only one ninth of the memory is used for the sound track.

5.8 The Audio Edit buttons

We have discussed the basic principals of how to record and locate pieces of sound. These facilities are further enhanced by a range of simple to use support functions. As with the RECORD and PLAY buttons, ALL of the following functions work on the area of sample which is located BETWEEN the two markers. Please bear this in mind at ALL times when using the buttons, it is vital to the principal of the Audio sections control.

5.9 REVERSE

A sound is played back in the same direction in which it was recorded, I.E. from the left hand side of the screen to the right. However, reverse quite literally flips the sample back to front so that when it is played back, it is heard backwards. this is great for special effects or adding in those naughty 'subliminal' messages to your soundtrack !

5.10 FLIP SIGN

VIDEO MASTER supports a wide range of sample formats when loading sounds in from disc. However, it is possible to load in sounds from a sound editor which we don't know about. In this case, it may happen that you load in a sound which is NOT signed (That is technical jargon, don't worry if you don't understand it). Such samples will not look quite right in the Audio Window and will sound EXTREMELY loud and distorted when played. It is possible to convert such samples into the correct format when they are in the computer in the following manner:

Load the sample into the Audio Window using the LOAD button (See later on in this chapter). When the waveform appears on the screen, move the right marker up close to the end of the sample in question. It may be advisable to use the ZOOM button here to get in as close to the end as possible. Next, press the FLIP SIGN button, the sample will be inverted and redrawn on the screen. The sample may be PLAYed back and it should sound correct now. If there is a small 'LUMP' visible at the end of the sample (which will almost certainly produce an audible click when PLAYed back) this can now be removed using either the CLEAR or DELETE buttons.

5.11 DELETE

The DELETE button is used to remove a section of the soundtrack. Selecting this button will cause VIDEO MASTER to remove the sample contained between the cursors, by shifting EVERYTHING to the RIGHT of the right marker, across to the left marker. The original piece of sample contained between the markers will be irredeemable and the resulting gap at the far right of the window will now be empty.

5.12 CLEAR

Selecting this button will simply remove all soundtrack between the markers, in effect it will be replaced by complete silence.

5.13 M.RIGHT

Since the recording and playback operations start from the left marker, it is probably more convenient to store all recorded sounds on the far right hand side of the window to keep them out of the way. This is especially true when loading a number of consecutive samples in from disc.

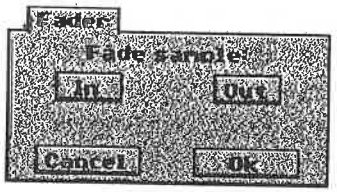
Since sample space is at a premium, it is useful to keep the samples as tightly packed as possible (I.E. To remove as much of the quiet space from between them as possible). This can be done using a combination of the ZOOM, RESET and DELETE functions to edit out unnecessary spaces from between each sample. The effect of the DELETE button however is to move the samples progressively further across the display towards the left.

To move a collection of samples, simply move the right marker to the end of a clear area on the right hand side of the window. Next, move the left marker to the start of the collection of samples to be moved. Finally, click on the 'M.Right' button. If there is sufficient space, VIDEO MASTER will copy the whole block so that the end of the block is pushed up to the right hand marker.

If the block does not move, then VIDEO MASTER thinks that there is no free space. This could be because the right marker might not be on a quiet part of the sample window.

Move it slightly to the left and try again. Remember that the line which runs across the centre of the display is the zero or quiet line. If VIDEO MASTER detects any sample above or below this line, then the move function will not recognise the area as a quiet one.

5.14 FADER

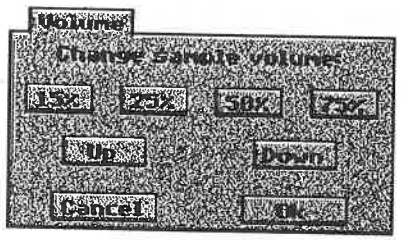


A common feature on any sound sampler is the volume fader. This will allow you to fade a sample in from total quiet to maximum volume or back the other way. It is usual to use the IN option at the start of a sample and OUT at the end.
To fade an area of sample, simply move the markers around the area in question and then click on the FADER button, whereupon the above display will appear on the screen:

Next, select the fade direction by clicking the mouse on either the IN or OUT option. Finally, to perform the operation, select OK. The Audio Display will be redrawn and the area of sample will have a smooth sample ramp from one end to the other.

As well as for effect, the fader function can be very useful for removing clicks at the joins between samples and also at the ends of samples which are to be looped. For this, it is usual to FADE the sample in and out at both ends of the join, but keep the fade very short, say about 128 bytes. This will not guarantee seamless sample joins, but it will certainly make life easier - practise makes perfect !

5.15 VOLUME



When a sample has been recorded into the computer, it is possible to adjust the sound volume. It should be noted that repeated use of this function over the same sample area may eventually lose the sound completely, due to distortion or loss of the sound data.

To adjust the volume of a sample, move the markers around the area in question and select the VOLUME control. Now, select the sensitivity from between 15% to 75%. Next, select the direction of the volume. It is possible to make loud samples very much quieter by selecting the DOWN button. Finally, select the OK button, this will cause the volume of the sample area to be adjusted and the Audio Window will be redrawn to show the new waveform. Selecting cancel will of course return to the AUDio card WITHOUT affecting the sample at all.

5.16 SQUASH

We have already discussed that the sound quality of a sample is partly determined by the sample speed setting. It is not always necessary to record samples at a low speed however. There is one small trick which we retained up our sleeve.

The SQUASH button has the effect of condensing a sample into half the space. As a result, any attempt to play a compressed sample at the speed at which it was originally recorded will sound too fast, twice the speed in fact. For this reason, when a sample has been squashed, VIDEO MASTER will automatically change the playback frequency to half of its original value. Thus compressing a 16 kHz sample will cause the program to change the play back speed to 8 kHz.

Why use SQUASH ? The answer lies in the fact that the sound quality of a 16 kHz sample (for example) will usually be superior to that of an 8kHz sample. This is not only because it contains more information, but because it was recorded at a speed higher than the filter settings of the VIDEO MASTER hardware, so it actually contains less noise. This advantage is not completely lost when the sample is squashed down. It is true that the sound quality will not be as good as the 16 kHz original, but it will usually be better than that of a sound recorded at a straight 8 kHz speed.

5.17 LOAD a sample

It is possible to load samples into the Audio buffer from disc. VIDEO MASTER supports a range of sample formats, AVR, SPL, RAW and the 8SVX form of the IFF specification.

The LOAD sample function will ALWAYS load a sample from disc into the computer's Audio Buffer, starting at the position of the left marker. If a sample is too large to fit into the space between the two markers, then it will automatically be clipped short to fit into the space, and the end of the sample will be lost.

One unusual quirk of the VIDEO MASTER load sample function, when compared with a pure sound sampling package, is that when a sample has been imported from disc, any gap between the end of the sample and the right marker will automatically be cleared. For this reason it is important to ensure that there is no overlap between the right sample marker and any other part of a required sample in the Audio Buffer. This makes stacking samples in the buffer in conjunction with the M.RIGHT button very convenient.

To load a sample into the computer's memory move both markers to an empty area of the sample buffer and select the LOAD button. Next, choose the style of sample that you wish to import, - it is usually more convenient to select the IFF or AVR format. Now find the sample required using the file selectors disc and path controls. Finally, select the file by clicking on its name in the file display and click on the OK button. VIDEO MASTER will now load the sample into memory, clear out the rest of the audio buffer if required and finally set the sample playback frequency if it can.

Once in memory, the sample will be sitting at the left marker. If you require to load more samples, it may be a good idea to shift it over to the right hand side of the audio buffer using the M.Right button. It will then be necessary to move the right marker further left to just past the start of the new sample, where upon a new load can be performed. This cycle can be repeated until the audio buffer is full.

5.18 SAVE a Sample

It is possible to save out parts of the Audio Buffer as sound samples. The software will allow you to choose between the IFF, AVR and SPL formats. It is usually best to save samples out in IFF or AVR format since the header on these samples allows VIDEO MASTER to automatically reset the sound parameters when they are loaded back into the computer.

Before saving a sample out to disc, it is worth noting down the SIZE information at the top of the AUDio card. This, when used in conjunction with the INFO function on the file selector, will tell you if there is sufficient free space on the disc to save the whole sample. Don't forget, the sample which will be saved is the whole area between the left and right hand markers.

5.19 Matching sound and video using PLAY FILM

The two buttons immediately beneath the Video Window are to record and play FILMS. When in the AUDio card, you can try out a piece of video with the soundtrack which you are constructing in the Audio Buffer. It is important to be able to do this in order to check that key events on the screen match up with their sounds on the sound track. When people are speaking, this is known as 'Lip Syncing' (Lip Synchronisation).

As you may now expect, the position of the left marker defines the start of the sample. When the PLAY FILM button is pressed, both video and audio will start to play back together. The video will start at the first frame and the audio will start at the left marker.

5.20 Saving Sound with a Video Clip

In the section regarding the save video function, we briefly mentioned that we called a video clip with a sound sample saved with it, a Film Clip. It is possible to save a FILM from the video card by selecting the FLM mode on the file selector. However, it has been left until you understood perhaps a little more about the way in which the sound worked before mentioning it further.

Once again, the ONLY difference between saving a Film or Video clip is that the position of the markers in the FILM mode define the piece of sample which will be saved along with the video. From the Audio page move the markers around the required sample. The synchronisation of any speech MUST be made at this point. Use the PLAY FILM button to ensure that the 'LIP SYNC' is correct, before selecting the VID tab at the top of the page to move into the VIDeo card. Now select the SAVE button, the file selector will reappear on the screen with the 'FLM' or 'VID' options, select 'FLM'. Finally, use the mouse and keyboard to find a suitable place to save the file and type in a new file name. Finally, press the OK button. VIDEO MASTER will now save the sound and video together on disc.

CHAPTER 6
The SEQuencer Card

It is possible to string Video clips, Film clips and even single frame pictures together, one after another, to produce longer and more sophisticated pieces of video than those which we have so far produced.

To produce a VIDEO SEQUENCE it is first necessary to define the clips which we intend to use and set them up in the sequencer. It is then necessary to tell VIDEO MASTER in which order you require them to be played to recreate your masterpiece. This is usually performed in two phases. The first is the SETUP phase and the second is the SEQUENCE phase.

Upon selecting the SEQuencer, the card might look something like this:

As you can see, it has a lot of buttons and a complicated looking display on the screen, please do not be daunted, it really isn't as complicated as it might first appear.

First of all, many of the controls which you see before you, are replicated from other screens which you have probably already used. Certainly, some of them are new, however probably about half of them are here because we need to control various aspects of the sound and video together, instead of just one or the other as we have done up until now. Since really great sequences use both sound and video together, we will also be able to move the sample markers in the Audio Window as well as move backwards and forwards through the video using the Video slider located in the centre of the screen.

6.1 What is a Video Sequence ?

In effect, a Video Sequence is nothing more than a few short videos which are all connected together, one after another, to form a much longer piece of video.

6.2 How do I produce a Sequence ?

In creating a sequence, it is first necessary to bring together the different video clips into the computer and assign each to a unique key on the computer's keyboard for convenience. It is possible to program up to 24 keys, each with its own piece of video and sound. In this way it is possible to recall a fairly complex pattern of settings with a single keystroke.

Next, all you need to do is to select RECORD SEQUENCE using the mouse and then to press the buttons on the computer's keyboard in the order of your sequence. VIDEO MASTER will take a note of the order of the keys and the times at which they were pressed. At the same time, the program will play the sound and video assigned to the keys as they are selected.

After recording, the sequence is basically a list of the keys pressed and the order in which they were selected. It is possible to search up and down this list and to insert or delete events from it. This will allow you to correct any mistakes and to fine tune the sequence so that it runs smoothly from one clip to the next.

6.3 Planning a Sequence

Unless you are a true genius (and even then you should do this anyway) or very lucky, a good sequence will require a lot of advanced planning. Probably the most important thing about good sequences is that they take as little disc space as possible. Please bear in mind that most floppy discs can only store just over 700 kBytes of information. Even without a sound track, this is only about 90 video frames.

To be able to produce long sequences in restricted memory or on limited disc storage space, it will be necessary to keep the size of the sequence to a minimum. One reason for being able to store clips onto different keys is so that each key may have completely different speed settings for both the videc and audio.

It is therefore possible to reserve more space to sections with action in by giving them a higher frame rate. A piece of film showing, for example, a pendulum clock ticking backwards and forwards, could perhaps use a very slow frame rate of say 3 or 4 frames per second. Likewise, sample playback speeds can be different for each clip. Some clips may not require any sound at all so it is possible to program a clip with the sound OFF, this can save large areas of unnecessary audio space.

Where possible, use the video and audio looping features. To take the pendulum clock example again, it may be an advantage to keep looping that section of video several times to give the illusion of a much longer piece of film. Clever editing will allow you to make the pendulum swing appear smooth and uninterrupted. Again, each programmable button can have both video and audio looping selected as required.

Ultimately, experience with the sequencer will show what you can and cannot do. You will find your own tricks for saving memory and disc space, but careful planning, frame by frame on a piece of paper if necessary, is likely to show you where space savings can be made.

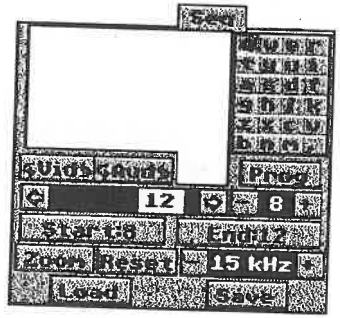
6.4 Sequencer Preparation

The setup procedure may require careful advanced planning. This will be made MUCH easier if the required sound and video tracks have already been edited together and saved out to disc as FILMS, or if the different sections have been individually saved out as VIDeo format files and the whole soundtrack has been edited together and saved out as one long sample.

There are two main schemes for preparing the sequencer:

SCHEME 1

1) Record and edit together all of the video as one long piece using the VIDeo and EDIT cards and save this out as one long VIDeo file. Perform the same task for the soundtrack by recording all of the sounds and then loading them into the Audio buffer and edit out the gaps from between them. Save out as one long piece of sound.



2) Next, to be on the safe side, clear out all memory from the SYStem card. Go back to the VIDeo and AUDio cards and reload the whole video and soundtrack files.

3) The controls shown on the left will be used to program and store sections of video to the programmable buttons:

4) Using the FRAME SLIDER to locate each piece of video, use the START and END buttons to define a single block. Select the appropriate frame rate for the block. This is variable from 25 (or 30) frames per second, right down to a slow 9 seconds per frame. Select the VIDEO LOOP button to be on or off as appropriate.

5) Use the Audio markers in conjunction with the ZOOM and RESET buttons to find the piece of Audio which is to be matched to the current video block.

Next, select the appropriate sample speed for the piece of audio. Select the AUDIO LOOP button to be on or off as appropriate. Please note that if no sound is required for the current video block, select the speed to be 'OFF'.

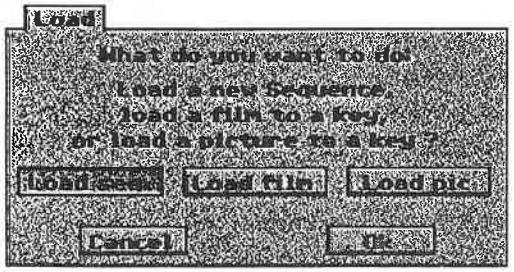
6) Program the current settings into one of the buttons using the 'PROG' function. VIDEO MASTER will now remember all of these settings for the selected button. The program may now be confirmed by pressing the desired button on the computer's keyboard. The settings will be re-established on the screen and the appropriate sound and video will be played as well.

7) Repeat the above procedures (4) to (6) until all of the blocks of video and audio have been identified from the relevant displays and have each been assigned to a different key. The sequencer should now be ready to record.

SCHEME 2

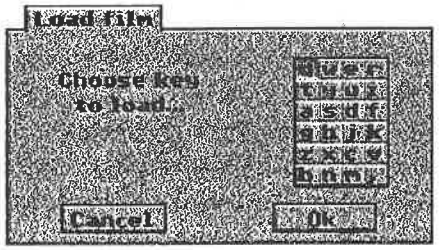
1) Record, edit and save all of the required pieces of video and sound as VID or FLM files. This is achieved by using the VIDeo and AUDio cards as appropriate.

2) Clear VIDEO MASTER's buffers out completely using the CLEAR ALL button on the SYStem card. Next, move into the SEQuencer card. Make sure that the Audio markers are set at the far left and right hand sides of the window using the RESET button.



3) We will now load a video/audio file from disc into the computer using the LOAD button at the bottom of the screen. You will at first be confronted by the display shown on the left.

Select the centre option for loading in VIDeo or FiLM format files. Press the OK button.



The first box will disappear and it will be replaced by the one shown on the left.

Select the button to which the VID or FLM file is to be assigned using the mouse and select OK. Finally you will see the now familiar file selector.

Use the mouse to select 'VID' or 'FLM' and to find the file in question, finally load the file into the computer.

When loaded, you should notice that the screen will change. The frame counter will move to the start of the new block and the frame rate will be set to the correct speed for the video. The Audio markers will also be magnified around the new sample space and the playback speed will automatically be set.

In fact, VIDEO MASTER tries to take charge of the whole re-load process. It will automatically find the next free space in the Video and Audio buffers. Therefore, at this stage, do not play about with anything on the screen other than the LOAD button until all of the files have been loaded back into the computer and assigned to a key.

4) Repeat procedure (3) until all of the Video/Audio sections have been reloaded into the computer and each is assigned to a unique key. The sequencer should now be ready to continue ....

6.5 Recording a Sequence

Compared to the sequencer preparation, recording a sequence itself is a fairly easy task. The large dark area in the top left hand corner of the SEQuencer card is the SEQUENCE LIST. To the right of this is a column of control buttons. These are used to EDIT the sequence once it has been recorded. At the foot of this column is a button marked 'Rec'. This is the RECORD sequence button.

To initiate the recording session of a sequence, select the REC button. Initially nothing will happen until you press one of the keys on the computer's keyboard.

The key pressed should be one of those to which clips have been assigned. Pressing the button gives the sequencer its first sequence instruction or EVENT

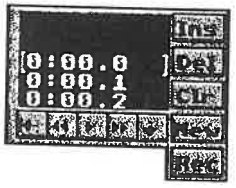
As soon as a valid key has been pressed, then the sequencer will spring into life. The sequence list will start to scroll up the screen and the video and audio of the first key will played. Get ready to press the next key in the sequence when the current section comes to its end.

Pressing keys in this way causes the computer to play the videos attached to them. It also causes VIDEO MASTER to note each key as it is pressed and at which time. A sequence is simply a collection of events.

It is possible to interrupt a section of video by pressing another key early if required, in fact pressing the same key rapidly in succession can often produce some amusing results ! At this stage it does not matter if the keys are pressed to early or too late, we can edit mistakes later.

When you have finished recording the sequence press the left mouse button, this will terminate the record mode. Beneath the sequence list, there are a series of five 'Tape control' buttons. The first button on the far left is the 'RETURN to START' button, click on this once. The centre button is the 'PLAY' sequence button. Press this and the sequence will be played back in all its glory (and with its mistakes too). It would probably make sense to save the sequence to disc at this stage.

6.6 Editing a Sequence



The sequence list increments in tenths of a second down the screen. The value in the centre of the display, between the brackets, is the sequencer position. It is possible to scan up and down the display using the five arrow buttons located beneath the sequence list.

They are, in order from left to right, GOTO START, FAST REWIND, PLAY SEQUENCE, FAST FORWARD, SKIP TO NEXT. If a sequence has been recorded into the computer's memory, then every now and again you might see another character on the right of the list display. This character represents the sequence key, or event, which was pressed at the time shown on the display. When the sequence is being replayed, these characters will appear on the screen and as they pass the current sequence display, they will cause the sequence to change to that of the new event.

The SKIP TO NEXT button will cause VIDEO MASTER to look down the sequence list and move to the next sequence event. The display will be redrawn to show the new event in the centre of the display. The GOTO START button can be pressed at any time to return the display to the very first sequence step (TIME 0:00.0). The FORWARD and REWIND buttons can be held down to take the display to any position within the sequence list.

Another useful feature of the sequencer is that the PLAY and RECORD buttons can be used from any displayed position within the sequence list. Upon selecting either of these two operations, the function will re-start from the current list position. Although the sequencer will resume from the old location and the sequence list will appear to move, please note that the video window will remain both static and silent until either the next event arrives, or a key is pressed on the keyboard.

6.7 RECORD OVERDUB

Since it is possible to start the sequencer playing at any point, so it is also possible to resume recording from any point. Therefore, if a sequence was stopped part the way through the recording session, then it may be resumed from the point at which it was left. More importantly however, it is possible to relocate the sequence at ANY position (not just the end) and select the REC button. Once again the sequencer will spring into action, playing any previously recorded sequence as it goes, but any further key selections will cause VIDEO MASTER to ADD these new events into the sequence. This provides a form of overlay or over dub facility since the program does not erase the old sequence as it goes.

6.8 STEP editing

As well as recording and editing a sequence in 'real time', it is also possible to edit the sequence on a step by step basis. We now know that the fast forward and rewind buttons can move us up and down the sequence list as we choose. We can use this to take us to any point in the sequence list. From here it is possible to alter an event or simply to add an event into the current list position by clicking the mouse anywhere in the sequence list window. To do this, select the desired event USING THE MOUSE (not the keyboard) from the keypad in the top right hand corner of the card. As you do so, its button will turn dark and the first frame of that video will appear in the video display window. Next, move the mouse across the screen anywhere into sequence list display and click the mouse again. The character of the selected event will now appear on the right hand side of the current list position. If an event was already at this position, then it will be over written by the new one. The main sequencer EDIT controls are located on the right hand side of the sequence list. All of these buttons add extra facilities to the STEP mode of sequence or event editing; These are INSert, DELete, CLear and NEW.

6.9 INSERT

Click on this button once and VIDEO MASTER will insert one blank step in front of the current position, shuffling the rest of the sequence down by one. This has the effect of moving the current position backwards in time from 0:00.0 to 0:00.1, for example.

6.10 DELETE

This will delete the step in front of the current position, that is the position immediately ABOVE the current position in the display. As a result the current position will be one less than it was before the delete.

6.11 CLEAR

This will remove the event at the current position and step the list onto the next list position. CLEAR will not cause the sequence to remove any time steps, it simply overwrites the event at the current position with a BLANK or NO EVENT thus removing it from the sequence.

6.12 NEW

USE THIS CAREFULLY. NEW will erase the current sequence entirely. It will NOT delete the key assignments, just the actual sequence list.

CHAPTER 7
The SYStem Card

The SYStem card allows some aspects of the VIDEO MASTER system to be re-configured or cleared out. To select the appropriate action simply click the mouse once on the desired button. An explanation for each follows:

7.1 Clear MEMORY

This button will ensure that the memory for the program is all cleared and that the program is reset into a state similar to that as if it had just been loaded. Please note that it does NOT alter the VIDEO/AUDIO memory configuration; this is achieved using the configure memory function.

7.2 Configure Memory

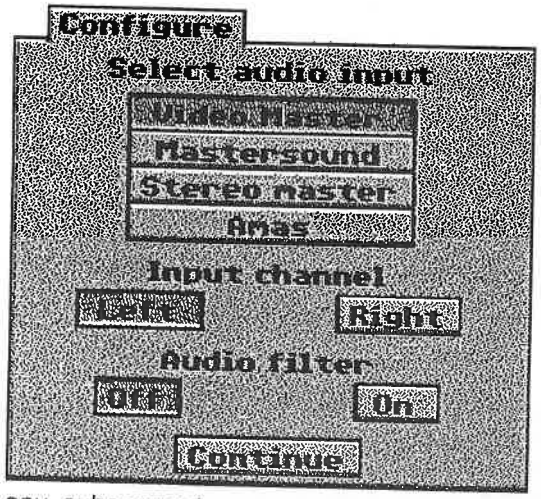
This screen can be used to determine the amount of memory space that is reserved for use by the video digitiser and for sound. The dark box displays the number of video frames which can presently be held. By adjusting this figure with the '+' and '-' buttons on either side, the video and audio memory can be set.

Please note that values displayed in the picture above are NOT typical, they will vary from one machine to the next. These values represent about two and a half Mega bytes of free memory in the computer.

On a standard 1 Mbyte machine, the program will probably only have somewhere in the region of 500 kbytes (about 60 frames) of free memory left when it is run from workbench in the usual fashion. This may be further complicated by the fact that memory may be split between FAST ram and CHIP ram, not all of which may be available to the VIDEO MASTER program.

If the program was run from the workbench then there will be less space available for your video work. If the program was run from the automatic initialisation sequence, then more space will be available.

7.3 Configure Audio Input



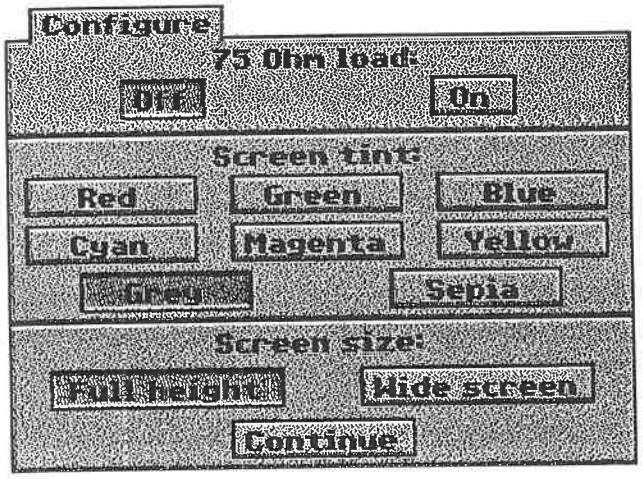
The default sample input mode is that of the VIDEO MASTER sound input. However, it is possible that you may have access to another sound sampler. Since most sound samplers plug into the printer port of the computer, it is possible to take the sound input from an alternative source, without having to remove the VIDEO MASTER hardware.

This button will change the input device for the AUDio card and the RECORD FILM button so that any subsequent sound recording will take its input from an attached sound sampler.

In the case of a stereo sampler, it is possible to decide if the left or right channel should be used as the MONO input.

Finally, the AMIGA features a sound output filter which helps to improve the quality of sounds recorded at low sample rates. It is possible to switch this hardware feature of the computer on or off as required.

7.4 Configure Video Settings



Certain aspects of the operation of the VIDEO MASTER software and hardware can be changed from this dialogue. This is the same screen as can be accessed from the 'SETUP' button on the VIDeo and FULL SCREEN digitiser cards.

75 Ohm Load

In Europe, all domestic video equipment is connected together using 75 Ohm coaxial cable. The VIDEO MASTER hardware is fitted with an impedance matching 75 Ohm load. This is switchable however and in certain circumstances an improvement in the picture quality may be obtained by trying this piece of the unit switched off. For example, switching the load off may sometimes make a picture brighter or achieve Frame or Picture lock more easily.

Screen Tint

The default palette is grey. However, it is possible to change the basic palette for another pre-defined one. The SEPIA option may be more suitable for old movies for example.

After selecting the desired mode, the colours might not change immediately. Do not panic ! This is because the picture currently on display may have different colours assigned to it. This operation will not necessarily change them. If the colours appear incorrect, they will usually change just prior to recording another video or to digitising another still picture. Changing the screen tint is not relevant when in the colour full screen mode.

Screen Size
In normal operation, the video input will usually be full screen. However, more and more pre-recorded tapes nowadays are featuring the 'LETTER BOX' screen (screens with a lot of black at the top and bottom of the picture). Selecting WIDE SCREEN will remove a proportion of the blackness (although not all) and will give a larger proportion of the digitised screen to the picture.

There is another use for the WIDE SCREEN mode. When digitising pictures onto the computer monitor, the pictures should look just about as tall and wide as that of the original video, the VIDEO MASTER software has been written to make the picture correct for the screen. The relative height of a picture when compared with its width is called the ASPECT RATIO. When using VIDEO MASTER pictures in a printed document, the pictures may look a little squashed. This is because the ASPECT of a VIDEO MASTER picture on the screen is NOT the same as that on most printers (especially laser printers). Selecting WIDE SCREEN mode when digitising pictures for use in DTP applications will make the pictures appear taller !

7.5 INFO
Selecting this button will greatly boost the egos of the individuals involved with the development of VIDEO MASTER. Please, do yourself a favour, DON'T PRESS IT!!

7.6 QUIT
Selecting this button will result in a Check message appearing on the screen. A positive response to this will return the control of the computer back to the desktop. Leaving the program at this point will lose any work which has not been saved. Select CANCEL to avoid undue embarrassment.

CHAPTER 8
Using VIDIPLAY

Once a VIDEO, FILM or VIDEO SEQUENCE has been completed, you may wish to watch it without having to run the VIDEO MASTER program each time. The VIDIPLAY program is provided for this purpose. VIDIPLAY also provides a few extra facilities which the main VIDEO MASTER program does not. For example, VIDEO MASTER will only allow you to see the pictures at quarter screen size, VIDIPLAY can blow them up to full screen size if you choose. It will also allow you to add extra effects such as diagonal quarter screen images, background stills over which the video will be overlayed or even a real time PICTURE-IN-PICTURE mode. All of this can be defined by you when placed onto a floppy disc and turned into your own special 'AUTO-BOOT' demo.

There are basically two ways in which VIDIPLAY can be run. It can be run by typing in a series of commands in from the AMIGA command SHELL or by installing VIDIPLAY as a workbench tool. In the latter, it is only necessary to click on the ICON of the video, film or sequence to execute or watch it. Amongst other things, the former mode of use will allow you to create an automatically executable or 'AUTO-BOOT' floppy disc which you can give to your friends.

8.1 RUN VIDIPLAY FROM THE C.L.I
If you are familiar with the computers SHELL or CLI program, then you can execute the VIDIPLAY program from here. To do so, simply type the name of the program and follow it with the commands which you wish it to execute with. Please note that the point at which the 'FILE=' command appears, tells VIDIPLAY that this is the end of the control list. The following is legal:

VIDIPLAY format=1 xpos=5 ypos=100 picture=df0:picture.iff file=demo.vsq

If any further commands appear at the end of the command line, then the VIDIPLAY program will assume that they are the commands for another sequence which is to be run AFTER the first sequence has finished. In this way, the program can be used to display a number of video, film or video sequence files one after the other. The thing which tells VIDIPLAY that the end of each command line has been reached is the 'FILE=' command.

8.2 INSTALL VIDIPLAY AS A TOOL

When VIDEO MASTER saves a FILM, VIDEO or SEQUENCE file to disc, it will save an appropriate ICON with it so that the file can be seen on the workbench. It is possible to INSTALL the file so that when you double click on it, the computer will automatically execute the VIDIPLAY program with a series of pre-saved VIDIPLAY commands, thus automating the whole process.

In order to install a video to the VIDIPLAY program, simply click the mouse on the files ICON on the screen, once. This should now turn dark to indicate that the file is selected. Now move the mouse up to the top of the screen and press and hold down the RIGHT mouse button, this will reveal a line of text at the top of the screen. The word at the far left of the line should read 'WorkBench', move the mouse, still holding the mouse button down, across to this word. A strip of new words will appear beneath it, move the mouse down onto the new word 'INFO', where upon it will turn dark. Now release the mouse button and almost instantly a large box will appear in the centre of the screen.

This dialogue box features two things of interest; the lines labelled DEFAULT TOOL and TOOL TYPES. Click the mouse once on the first line and a cursor will appear. Now type in the word VIDIPLAY. This assumes that the VIDIPLAY program is actually in the same window or directory as the file which is being installed. If it is not, then it will be necessary to precede the name with the full file path to tell the computer where VIDIPLAY is located, for example DF0:VIDEO MASTER/VIDIPLAY or SYS:VIDIPLAY. When this line is complete, press the return button and the cursor will disappear.

Next, press the mouse button over the TOOL TYPES line, again, a cursor will appear in it. We must now enter the commands which we intend to pass to the VIDIPLAY program one at a time. These must follow the syntax used in the command descriptions. Enter the first line, for example:

FORMAT=1

do not press the return button, but click on the 'ADD' button instead and the line will d sappear. Now enter the next line, for example:

XPOS=5

and click on 'ADD' once again. Continue this process until all of the command lines are entered. Unlike the SHELL method of running VIDIPLAY, it is not necessary to enter the 'FILE=' at the end since the computer already knows which file it has to run ! Do not forget to add the full and correct name for any background or brush file though !!

When the list is complete, you can examine the contents of the list one line at a time using the UP and DOWN arrows on the right of the words 'TOOL TYPE'. When you are satisfied with the command list select the SAVE button in the bottom left hand corner of the display. The video file will now be installed. Providing that the syntax of the commands is correct and that the files can all be found with their path names, then double clicking on the video file ICON should now cause the VIDIPLAY program to run and show the pictures in all their glory.

8.3 The VIDIPLAY Commands

The video player program can recognise a series of basic commands, these are: FILE, PICTURE, FORMAT, XPOS, YPOS, FPOS, PICXOFF, PICYOFF, PICXSIZE, PICYSIZE, FILTER and PAUSE. Each of the commands will expect to be followed by a value or parameter after an equals sign. The following is a more detailed description of the commands:

PICTURE = followed by path and picture name

VIDIPLAY can load a still picture onto the screen before it starts to load the sequence itself. This can simply be an introduction or credits screen for the forthcoming event, however, when the sequence is loaded, VIDIPLAY will NOT erase the background screen. Therefore, if the sequence format is one of the quarter screen modes which does not occupy the full screen, then the background picture will be visible behind the display. The picture can be any 16 colour IFF picture, the program will automatically scale the picture to fit the default size of the screen.

One interesting point to note is that some paint packages on the Amiga allow the use of a 16 colour BRUSH file. VIDIPLAY can load these files into the computer as a normal picture file. However, when a BRUSH is loaded in, this picture will appear over the TOP of the video sequence when it is running. The video pictures will be visible wherever a TRANSPARENT brush colour appears.

FILE = followed by path and sequence name

The video player program can load and play any of the three VID, FLM or VSQ format files. All sound will be played through the computer's monitor or in built speaker where fitted.

FORMAT = Screen display format.
(value between 1 and 10)

There are ten display modes. These offer a high degree of versatility to the demo player program. The modes are as follows:

1 Quarter screen (at xpos,ypos)
2 Two quarter screens next to each other (at ypos)
3 Two quarter screens, one above the other (at xpos,ypos)
4 Two quarter screens;
one at the top of the screen (at xpos)
one at the left of the screen (at ypos)

5 Two quarter screen;
one on the bottom of the screen (at xpos)
one at the right of the screen (at ypos)
6 Four quarter screens in a block (at ypos)
7 One enlarged, blank line interleaved picture (at ypos)
8 One enlarged, solid picture (at ypos)
9 One quarter screen and one enlarged screen image
Quarter screen (at xpos, ypos)
Enlarged, full screen blank line interleave (at fpos)
10 One quarter screen and one enlarged screen image
Quarter screen (at xpos, ypos)
Enlarged, solid picture (at fpos)

XPOS = Quarter screen offset from left edge.
(value between 0 and 10)

It is possible to position some of the quarter screen modes at a position from the left hand edge of the screen. A value of 0 is located at the far left, 5 is in the middle and 10 is the far right of the screen.

YPOS = Quarter screen offset from top of screen.
(value between 0 and 255)

It is possible to tell the program to offset some of the quarter screen pictures from the top of the screen. The value passed to the YPOS command is the number of lines down from the top edge of the screen you wish to see the top edge of the quarter screen frame. Bearing in mind that the screen is only 256 lines down and that quarter screen frames are 100 lines high, then a value of 0 will place the frame at the top of the screen, 78 will place it half way down the screen and 156 will place the frame along the bottom edge of the screen.

FPOS = Full screen offset from top of screen
(value between 0 and 255 lines)

Where a full screen version of the video is to appear on the screen, the picture will occupy the full 320 pixel width of the screen and will use 200 lines of the screen depth.

On computers where the depth of the screen is greater than 200 lines, then the FPOS can be adjusted to move the picture down from the top of the screen. This is most likely to be a value of 27 or 28 to centre the picture on the screen.

PICXOFF = Picture/Brush offset from left of screen
(value between -16000 and 320 pixels)

The background picture or foreground stencil (BRUSH) can be positioned at any location across the screen. Using the wide range of values that can be entered here, it is possible to make the picture appear off either the left or right sides of the screen if required.

PICYOFF = Picture/Brush offset from top of screen
(value between -16000 and 256 lines)

The background picture or foreground stencil (BRUSH) can be positioned at any line down the screen. Using the wide range of values that can be entered here, it is possible to make the picture hang off either the top or bottom of the screen if required.

PICXSIZE = Picture/Brush width
(value between 1 and 16000 pixels)

The background picture can be scaled into a small box or enlarged using the width command.

PICYSIZE = Picture/Brush height
(value between 1 and 16000 lines)

The height of the background picture can be scaled or expanded using this command.

FILTER = ON or OFF

It is possible to switch the computers internal audio filters on or off with this command.

PAUSE = A value in seconds.
(value between 0 and 300 seconds)

The player program will keep looping the sequence for ever until a key on the keyboard is pressed, where upon it will exit and return to the desktop. It is possible to program a delay at the end of the sequence before it starts again. The value after the '=' sign will tell VIDIPLAY how many seconds to wait before the next showing.

In instances where videos and films are being chained together, the pause will determine the delay between the end of one video and the start of the next.

8.4 CHAINING VIDEO'S TOGETHER

Once a video has been installed with its execution commands, then it is only necessary to click the mouse twice on its ICON to watch the video run on your screen. It is also possible to make VIDIPLAY chain a number of video files together one after the other. This can be done in two ways:

From workbench, locate the video files on the screen which you wish to chain together. Move the mouse to the first and click the mouse button on it once, its ICON will turn dark to indicate that it is selected. Now move the mouse to the next video file and press and hold the SHIFT key on the keyboard BEFORE you click the mouse once again. Keep the SHIFT key pressed while the rest of the files are selected in this manner. When the final file is reached, keep the shift key depressed but this time DOUBLE CLICK the mouse on the last file. This will add the new file to the end of the sequence and will also tell the computer to start the chain. To interrupt the chain when it is running, simply press the left mouse button, control will return to the computer once again.

A video chain can be started from within the computers SHELL or CLI program. Simply type in the command 'VIDIPLAY' and follow it with the list of commands for each video file in order of display. Do not forget that the end of a command list for each video is found by the program each time it encounters the 'FILE=' command in the list.

Since chaining files together this way can be a fairly arduous and error prone task, especially when experimenting with VIDIPLAY for the first time, it may be advisable to create a small CLI script file using the computers line editor. This way it will not be necessary to type in the full command line every time, instead you will only need to type in the name of the command file. Once again, refer to the user guide on creating a script file.

8.5 CREATING YOUR OWN AUTO BOOT DEMO DISC.

Once you have created your masterpiece, it is possible to copy it onto another floppy disc with the VIDIPLAY program to make your own automatically 'bootable' disc. Regrettably, some knowledge of how to access the SHELL or CLI on your computer is necessary, you may also need to know how to use the ED function of the machine too! Please read up on these thoroughly in your user guide.

For the purposes of explanation, we must make some assumptions about the way in which your computer is running. First, this tutorial section assumes that you have switched the computer on with a copy of the VIDEO MASTER disc in drive DF0:, secondly, that you are running TWO disc drives, the other being DF1: Users of single drive systems can perform this sequence with a few modifications, but an excessive amount of laborious disc swapping will be necessary. Sorry, but there is not much that can be done about this!

1) Switch the computer off. Place a copy of the VIDEO MASTER disc into the computers disc drive. Find a blank disc which is to become your demo disc and put it to one side for the moment.

2) Switch on the computer and wait for it to ask you a question on the screen. Answer NO and press the return key, the computer will continue to access the disc until eventually the WORKBENCH appears on the screen. Open the VIDEO MASTER directory by clicking on the ICON and then open the VIDEO drawer.

3) Next, place your blank disc into the computers second drive and wait for its ICON to appear on the screen.

Move the mouse pointer to this new ICON and press the button once, it will turn dark to indicate that it is selected. Press and hold down the right mouse button, a line of options will become visible at the top of the screen. Still holding the mouse button, move the mouse pointer to the option labelled 'DISK' and another list will appear beneath it. Move the mouse down to the option labelled 'INITIALISE' and finally release the mouse button. Follow any instructions which may appear on the screen to initialise the disc in drive 1 (DF1:).

4a) Locate the ICON entitled 'MAKE-DISC' found in the VIDEO directory and click on it once, it should turn dark. Now move the mouse pointer over to the ICON of the disc which is to have the demo copied onto it. Press and hold down a SHIFT key on the keyboard and double click the LEFT mouse button on the ICON of the newly initialised disc. The computer will now copy all of the necessary bits from the VIDEO MASTER disc and place them onto the demo disc (you can let go of the shift key now)!

4b) If required, you may now copy the demo and background picture files onto the new disc. Simply open a directory of the demo disc and drag the relevant files into this window.

5) Next, locate the SHELL or CLI program on the VIDEO MASTER disc and run it. When it has placed its window on the screen, type in the following command:

INSTALL DF1: <return>

If you have already copied your video sequence file onto your demo disc and it is called 'DEMO.VSQ', then you should now be finished. Simply type 'ENDCLI <return>' to exit the shell program. If not, or if you wish to customise the installation in any way by adding a background picture to the demo or if you need to change the file name or type, then it will be necessary to continue:

6) Type: ED DF1:s/Startup-Sequence <return>

This will take you into the Amiga file editor. The first line of the file should read something like this;

'VIDIPLAY file=demo.vsq'

It is now necessary to change the VIDIPLAY command line to suit your requirements. Do not forget, the 'FILE=' command must be the last in the line, anything after it will be ignored ! When done, press the 'ESC' key, followed by the 'x' key and then 'Return'. This will exit the editor.

7) If you have not already done so, then you will need to copy your video, film or sequence file onto the disc, type;

COPY <vid/flm/vsq file> DF1:
you may also wish to copy across a foreground or background picture file. This should be copied across now in a similar fashion. Please note that the names used in these files should be exactly the same as those typed in at the 'PICTURE=' and 'FILE=' commands in the startup command.

Providing that all has gone well, you should now be the proud owner of an auto-boot demo disc which can now be duplicated and passed to all your mates ! To run the disc, wait 10 seconds or so after the disc lights have gone out, place your new disc into drive DF0: and reset the computer, the rest should now be automatic.

CHAPTER 9
Full screen Pictures

O.K, So you can digitise quarter screen pictures and record sounds. But what about full screen pictures ? Do not despair ! As you may have come to expect by now, VIDEO MASTER is a very powerful system packed with all sorts of features and full screen pictures, with or without colour, is one of them!!

9.1 General Comments

For full screen 'STILLS' to be captured, it is supremely important that the Video source is of a high quality. Most video recorders/players actually send out signals which are very noisy. The viewer seldom gets to see this since televisions are quite forgiving devices. However, most people have put a video player on PAUSE and seen the huge streaks of interference (called NOISE bars) appear across the screen. Such machines are often useless for full screen digitising since what you see on your TV screen, VIDEO MASTER will see too.

VIDEO MASTER cannot grab full screen STILLS from a moving picture. If a video player is to be used, then the PAUSE button is the most likely way of holding the picture steady, although this may not always be suitable as we have just mentioned. In the case of players which VIDEO MASTER can almost lock onto, success may be limited to the fact that the tape which is being PAUSED is very old or worn. Always use high grade tapes where possible. Always ensure that the video player is well serviced and that its head and rollers are cleaned regularly. Sometimes cleaning these with a head cleaning tape will make all the difference.

To obtain good quality stills, ESPECIALLY in COLOUR, two things are necessary:

1) A stable picture
2) A clean video signal

9.2 The TAB Key

VIDEO MASTER will always try to make its screen grabs on successive ODD or EVEN frames. Its ability to do so will depend on the quality of the original video signal. A poor quality signal may cause VIDEO MASTER to lose count of the frames and it may periodically lose its ODD or EVEN synchronisation. To re-lock onto the correct frames or to try digitising on the other frame, press the TAB key. This will cause VIDEO MASTER to skip a frame, and re-lock on the next frame count, I.E Change from ODD to EVEN frame count. If the signal from the video source is particularly bad, then VIDEO MASTER may lose track of the incoming frames, this is often seen as the picture jumping up and down by one video scan line at a time.

9.3 The DEL Key

When VIDEO MASTER first locks onto the signal coming in from the video source, it reads the video pulses over a few frames to establish the frame timing. If at some stage the video signal is lost temporarily, due to removal of the video source or fast forward or rewinding the tape for example, then the program may appear to digitise noise onto the screen. In such cases, press the 'DEL' key on the keyboard, this will cause the program to re-calibrate its frame synchronisation timing and should clear the display of any unwanted rubbish from the digitised screen.

9.4 Full screen pictures in general

In either monochrome or colour modes, there are features common to both. These appear in the top and bottom sections of the displays.

9.4.1 MONO and COLOUR

Selection of this button will change both the display and the mode of operation between that of the 16 level grey scale and multi format colour screens.

9.4.2 SETUP

Pressing this button will reveal VIDEO MASTER's main digitising control screen. This is described more thoroughly in Chapter 7, the SYStem card.

9.4.3 Picture Resolution

VIDEO MASTER can digitise in up to four screen resolutions. These are a combination of low and high resolution, interlaced or non-interlaced screens. Low and high resolution modes determine if the picture is to be 320 pixels (or screen dots) across or 640 pixels across. Non-interlaced screens are 256 lines down (200 in USA) or 512 lines down (400 in USA) for the interlaced mode. Please note that the higher the resolution, the more memory that is required to store the pictures, therefore it is not possible to digitise in more than 16 colours or shades in the high resolution screen modes.

Selecting an interlaced screen mode may produce a light flickering on the computers video screen, while this is normal, it may be possible to fix this with a separate 'Flicker Fixer' card attached to your computer.

When a picture has been digitised or loaded from disc into the computer, any attempt to change the screen mode will erase the picture buffers.

9.4.4 LOAD & SAVE

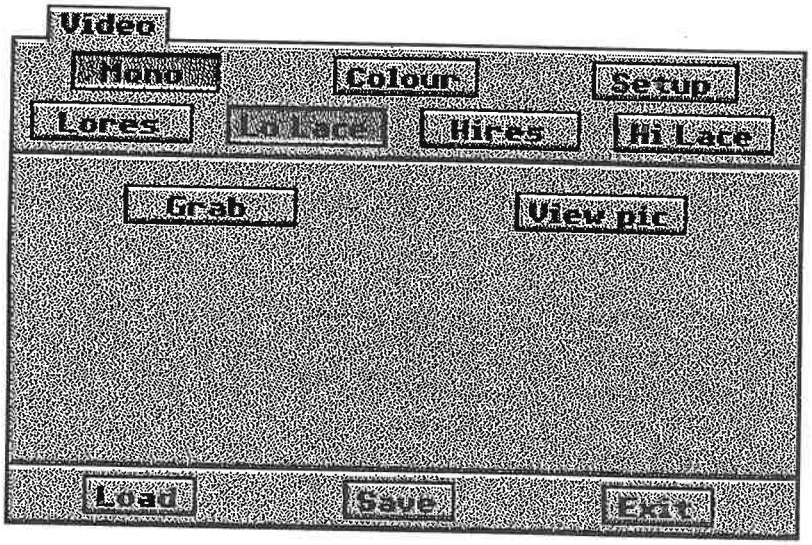
Load or save the current picture buffer from/to disc. When loading a picture, the program will automatically select the screen mode appropriate for that image. In the case of colour pictures, the program will automatically split the picture into its three constituent RED, GREEN and BLUE parts and place them into the appropriate buffers.

9.4.5 EXIT

Return to the quarter screen VIDeo card.

9.5 MONOCHROME Grabs

The first time you enter the FULL SCREEN mode from the VIDeo card, the simple MONO grab screen will be displayed as shown overleaf.



Use of the buttons should be fairly self explanatory. The MONO button should be dark, denoting your presence on the MONO digitiser screen.

9.5.1 GRAB

Selecting this button will cause the screen to immediately turn black. If a video signal is present on the VIDEO MASTER input, then the black screen will soon be replaced by that of a copy of the VIDEO input signal. Press the SPACE BAR on the computer's keyboard or the LEFT mouse button to GRAB the current picture and return to the control screen.

9.5.2 VIEW PIC

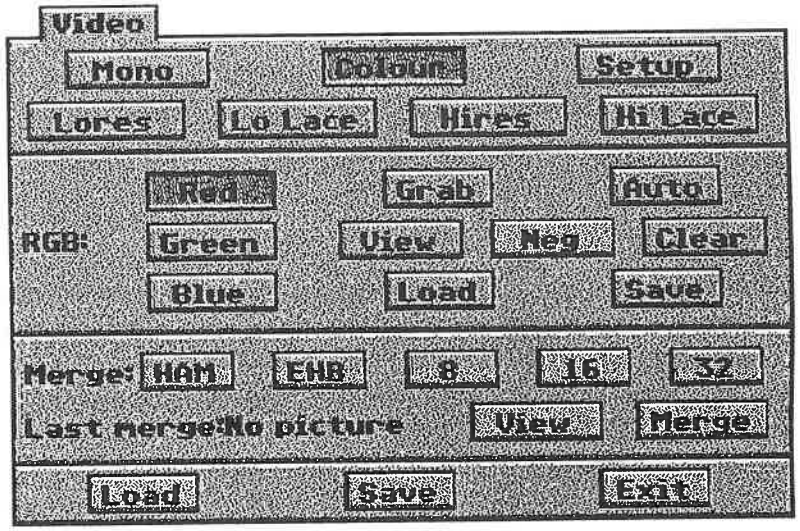
Select this button to examine the picture that has been grabbed or loaded into the computer.

9.6 COLOUR Grabs

Producing a colour picture is a slightly more complex process than that of a MONO picture. The process involves taking THREE separate pictures, one RED, one GREEN and one BLUE.

The three 'RGB' pictures are then combined or 'MERGED' into one full colour picture. For this reason, VIDEO MASTER reserves memory into 4 areas. One area for each of the RED, GREEN, BLUE pictures and the last for the MERGED colour image.

The Colour Control screen is laid out thus:



The control panel is split into four separate control areas. We have already met the two panels at the top and bottom of the screen, so we will now concentrate on the two central panels. These control the red, green and blue colour buffers and the way in which these buffers are merged to produce a colour image.

9.6.1 RED, GREEN & BLUE

Digitising full colour pictures requires that each of the three primary colours are grabbed individually. For this, each colour has its own colour BUFFER. To determine which of the three colour pictures or BUFFERS is to be grabbed or loaded, click on one of these boxes.

9.6.2 GRAB

To grab a picture into the current colour buffer, select this button. VIDEO MASTER will show the picture on the screen in the correct colour. To grab a screen, press the left mouse button or the SPACE BAR on the computer. The screen will change back to the control panel. Each colour screen grab is made in 16 shades of the appropriate colour.

9.6.3 AUTO

This button is reserved for use with an electronic colour splitter unit which plugs into the printer port of the computer. This will automatically scan through each of the buffers in turn, changing the colour filter as it goes. This is a very quick and easy way of taking colour pictures.

9.6.4 VIEW

It is possible to see the contents of the current colour buffer by selecting the VIEW button. When a red, green or blue picture is being displayed, it is possible to alter the relative brightness or contrast of the picture, this is achieved using the six numeric keys across the top of the keyboard, the keys '1,2,3,4,5 and 6'. These represent lower brightness, higher brightness, lower contrast, higher contrast, reset brightness and reset contrast respectively. After altering the intensity of a picture it will be necessary to MERGE the picture again to see the full effect of the brightness or contrast change.

9.6.5 NEG

This will turn the currently selected buffer into a negative of its original contents. This can be used for special effects on individual colour planes of a picture or simply for bizzare or spooky pictures.

9.6.6 CLEAR

Selecting this will clear the current colour buffer.

9.6.7 LOAD & SAVE RGB

Each of the three buffers can be individually saved to disc or loaded from disc using these controls. Please note that it is only possible to load 16 colour screens from here, full colour screens require different treatment and are catered for in the LOAD and SAVE commands at the foot of the screen.

9.7 The MERGE controls

Once the three buffers contain the primary colour patterns, VIDEO MASTER can now create full colour pictures. To do this it is necessary to combine the three colour buffers into a full colour image. Each of the different merge options has a slightly different use and not all are always selectable. Since the high resolution images are so large, HAM, EHB and 32 colour pictures cannot be merged together in the high resolution screen modes.

9.7.1 HAM

The Hold And Modify screen mode of the Amiga can display up to 4096 colours on the screen at any one time. While these pictures are often the most impressive to look at, they do take a lot of the computers time to display and can take a lot of disc space too.

9.7.2 EHB

The Extra Half Bright screen mode can display up to thirty two colours on the screen with another thirty two half brightness colours too, giving an odd form of sixty four colour display mode.

9.7.3 8, 16 and 32 colours

Finally, the 8, 16 and 32 COLOUR merge utility features an advanced palette analysis routine. It attempts to pick the best colours it can from the potential 4096 colours which its three colour buffers can produce. This mode will usually yield inferior results to the 'HAM' mode, but it can often produce pictures of surprising, even stunning, quality.

The advantage with these pictures of course is that they are always smaller in size and therefore occupy less disc space. It is also a fact that the high resolution screens can only properly support 8 or 16 colour screen modes, it may sometimes be better to digitise such pictures in monochrome instead, since they may look more natural and detailed.

9.7.4 VIEW FULL COLOUR PICTURE

To view a merged colour picture, simply select this button. VIDEO MASTER will automatically flick the computer into the appropriate video display mode for the last picture that it merged.

9.7.5 MERGE

This button will actually switch the screen into the desired resolution and colour setting mode and merge the red, green and blue buffers onto the screen.

9.7.6 LOAD & SAVE Full Colour Picture

It is possible to load and save full colour pictures in either the ILBM or IFF picture formats, the program will automatically choose the correct mode for the picture.

When a file has been loaded into the computer, VIDEO MASTER will usually split the picture back down into its three primary colours, depositing each one into its respective colour buffer. It will then be necessary for you to MERGE the buffers again before the full colour picture itself can be displayed.

9.8 The Colour Filters

The colour filters, as supplied, can be held in front of the camera by hand. However, cameras fitted with a suitable adaptor ring can accept a range of filter adaptors. Please refer to your local video or photographic supplier for advice on adaptor rings and accessories. Where possible, it is advisable to mount the sheets of colour 'gel' into special filter frames, the filters may be easily cut to fit with a pair of sharp scissors. Try to avoid finger contact with the colour lens and protect them at all times from deep scratches.

9.9 Using the Colour Filters

When making a screen grab using the filters it is essential to prevent any camera shake. If mounting rings or a filter carrier are to be used, it is essential that the camera is secured to a sturdy, vibration proof surface. Any movement between the frames will result in a colour misalignment and poor picture definition.

The procedure for digitising a colour picture is as follows:

1) Select the appropriate screen resolution, I.E. Lores
2) Select the 'RED' buffer button using the mouse.
3) Select the 'GRAB' button using the mouse, and wait for a RED pictures to appear on the screen.
4) Place the RED colour filter in front of the camera, wait for a moment for the screen to update and press the left mouse button or SPACE BAR. The program will return to the colour screen.
5) Repeat the procedures (3) and (4) for the GREEN and BLUE buffers.
6) Select a MERGE option and wait for the merged picture to appear on the screen.
7) Save picture to disc in an appropriate screen/file format.

9.10 Subject Illumination

The subject to be 'photographed' must be illuminated under natural lighting conditions or under artificial 'white light'. Any attempt to produce a colour picture using the supplied filters under a standard 'tungsten' lamp will produce pictures with an unnatural Yellow tint. The only ways around this are to change the type of lighting, to permanently mount a tungsten correction filter to the camera or to try the colour correction facility mentioned earlier in the VIEW RGB buffer section (section 9.6.4).

9.11 Colour Filter Correction

The VIDEO MASTER colour merge assumes that the colour filters used are light balanced and that the video camera used has a manual control for light level or 'exposure'.

However some cameras are fitted with an automatic exposure control. In this case it is quite possible that the pictures may sometimes appear too blue (For example). This is because the blue filter is darker than the others. When the blue filter is placed in front of the lens, the camera will try to over expose the blue picture. This can sometimes be corrected by using the COLOUR BALANCE controls. Please refer back to the section regarding the VIEW buffer control mentioned in the red, green, blue control section (section 9.6.4).

9.12 Using an Electronic Colour splitter

To capture full screen pictures from a video tape player, it is necessary to have a separate box of electronics called an 'RGB colour splitter'. Instead of plugging the video input into the VIDEO MASTER cartridge, it is now plugged into the colour splitters INPUT socket. The output of the colour splitter is now plugged into the VIDEO MASTER video input socket.

The procedure for taking a full colour picture is basically the same as before. It is still done in three separate colour passes into the red, green and blue buffers, but instead of changing colour filters, the splitters internal setting must be changed. This will vary from one unit to another but is often performed using a range of buttons on the top of the separator unit. When the three buffers have been completed, the picture must be merged in the usual fashion.

The colour splitter itself may have a series of extra controls, additional to the contrast and level settings on the VIDEO MASTER digitiser cartridge. The picture quality will depend enormously on the correct settings of all of these controls, but in general, if you are getting good results without the colour splitter (in mono) then the digitiser is probably already fairly well set up for the video unit in question. It is likely that the only controls that need to be adjusted are those on the splitter unit itself.

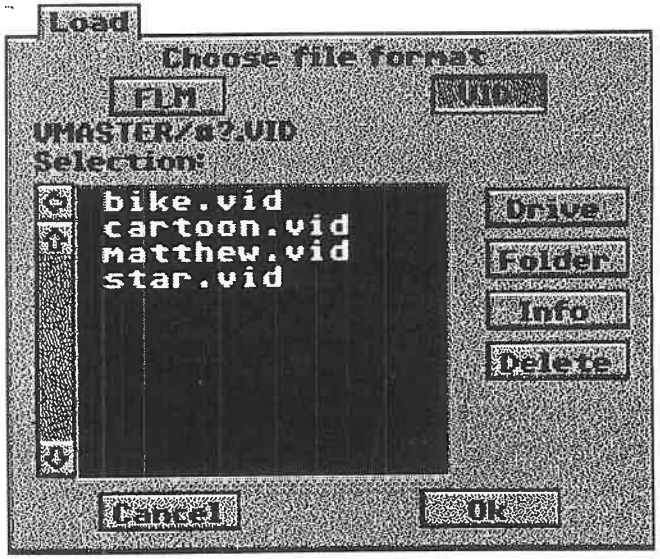
VIDEO MASTER can produce stunning results when the whole system is set up correctly. In order to get the most out of the unit try repeatedly taking grabs of the same picture over and over again, adjusting the splitters settings slightly each time, until the picture quality and colour balance is to your liking. This may take some time but it really is worth it in the end !

CHAPTER 10
FILE HANDLING

Within the VIDEO MASTER digitiser software, all disc accesses are controlled by the VIDEO MASTER file selector. Within this part of the program, not only is it possible to select a file to load or save, but you can also create new DRAWERS and find out how much free storage space there is on a disc.

The file selector might look a bit daunting at first, however, it has been designed to be as simple to use as possible, so please spend a little time exploring its facilities. If necessary, put a new floppy disc into the computer's disc drive and try to format it. Then put a new drawer onto the disc called FRED (or something). Finally, record a video clip into the machine or a sound sample and try to save them to your new disc. You should very quickly get the hang of using the file selector.

10.1 The VIDEO MASTER File Selector



The VIDEO MASTER file selector is a very important and frequently used part of the program. It is essential therefore that you really know how to use it to get the most from VIDEO MASTER. The type of operation, LOAD or SAVE, will be the name displayed on the TAB at the top left hand side of the display.

This will allow you to check that you about to perform the correct operation !

Often, the first thing you will notice at the TOP of the screen will be a selection of buttons, these are immediately below the writing 'CHOOSE FILE FORMAT'. These select the type of file which is to be shown in the file display (the large black box in the centre of the screen), and they will allow you to see only the correct types of file for the mode of the program when the load or save operation was called. This will prevent you from accidentally loading a SAMPLE into the computer when you where using the VIDEO recording facilities or from saving a full colour screen picture over a completed VIDEO SEQUENCE.

By clicking on the appropriate button, the file type shown in the file 'PATH' (For example DF0:#?.VID or VIDEO MASTER/#?.VID) will change, as will the file display in the centre of the screen. This list is always displayed in alphabetical order and if the number of files is too large for them all to be seen at once, then it will be possible to scan up and down the list using the vertical slider to the left of the display.

The FILE DISPLAY will show the names of files which VIDEO MASTER can find in the present drawer and which are available for selection using the mouse. Drawers are shown with an arrow on the left hand side of the name. To move into a drawer, double click the mouse on the drawer name and VIDEO MASTER will then re-display the names of any suitable files within this new directory. If you reach an empty drawer, then the message 'NO FILES TO DISPLAY' will appear in the file list. To move backwards through the drawers, click on the left arrow button located above the file list slider. This will cause the program to move back to the previous drawer on the disc. Successive selections of this button will cause VIDEO MASTER to move up towards the TOP level or the ROOT of the disc.

To the right hand side of the file list are four other buttons. They perform the following:

10.1.1 DRIVE
Pressing this button will cause the file display list to appear with a list of all of the disc drives which are currently attached to the computer. To move on to a drive, double click the mouse on a drive letter or select the required drive using the mouse and then select the 'OK' button at the bottom of the screen.

10.1.2 DRAWER
Press this button to create a new drawer on the present drive. Upon selection, a box will appear on the screen, simply type in the name of the new drawer and press OK.

10.1.3 INFO
To find out how much spare storage space there is on the current disc drive, select this button. The value displayed will be in KBytes (or thousands of Bytes). Therefore a display of '100 KBYTES' will mean that you have about 100,000 bytes of disc storage, just about enough space for one VIDEO file with 12 FRAMES in it. A message of '2500 KBYTES' is also known as two and a half MEGA BYTES or 2,500,000 BYTES. This is equivalent to just over 300 VIDEO FRAMES.

10.1.4 DELETE
Individual files may be removed from the selected drive to make more space available for other files. To remove a file from disc, click the mouse once on the file to be removed, its name will turn white in the file list and will appear in the file 'PATH' above this list. Next, press the button marked 'DELETE'. You will be asked to confirm your action before it is finally removed.

10.1.5 OK and CANCEL
The two buttons located at the foot of the screen are the OK and CANCEL buttons. The OK button is the 'GO AHEAD AND DO IT' button. The CANCEL button will always stop an action from occurring. If CANCEL is selected, the program will usually remove the file selector from the screen and will return you to the previous screen, whatever that was.

10.2 To LOAD a File

1) Select the file format button for the type of file to load. Look down the file list, if there is one, for your file. If the file you wish to load is not there, move onto step (2) else move onto step (3).

2) Change the drive or move through the drawers to find it. To close the current drawer, click on the arrow above the file slider. To move forwards into a drawer, double click on the name of the drawer you wish to open.

3) When found, click the mouse once on the name in the file list, it will turn white and its name will appear in text above the file list.

4) Click on the OK button if you wish to load the file in question. If you wish to exit the file selector entirely and return to the main program, select the CANCEL button.

10.3 To SAVE a File

1) Move the file selector to the disc and drawer in which you wish to save your file.

2) Select the file format button for the type of file you wish to save. Look down the file list, if there is one, at the names of files already on the disc. Think of a name for your file. Unless you wish to over-write an existing file (and lose it forever) choose a file name which is NOT already in the list on the screen.

3) Start to type in a name for the file on the keyboard. The program will automatically append the appropriate file type at the end of the name as you start to type.

4) To save the file, select the OK button at the foot of the screen. Selecting CANCEL will exit the file selector WITHOUT saving the current file.

CHAPTER 11
HELP !

Sometimes, certain aspects of the operation of VIDEO MASTER might not be quite as expected. Here are some possible problems which might arise while using the VIDEO MASTER system and some tips on how to solve them. Not all problems will be here and certainly not all of the answers will necessarily be correct for you, however, its worth having a quick check down this list before contacting your dealer for further help. Again, before taking drastic action, most problems have a simple answer, try to persevere with the software or hardware before contacting your dealer for assistance.

11.1 RECORD FILM/PLAY FILM

For technical reasons, the sound quality produced with the RECORD FILM button may not always be the best possible. For this reason it may be better to record the video and audio as two separate operations and use the PLAY FILM button to check the video/soundtrack synchronisation (Lip Sync).

A classic problem with RECORD FILM is that the sound will appear to chirp while recording, this will not always be audible with PLAY FILM. The problem lies mainly in the fact that the ear is more sensitive than the eye to small fluctuations in speed. The problem will normally be worse with old, worn or poorly recorded tapes. Another classic cause of poor 'RECORD FILM' sound is the use of video spoiling signals to prevent you from duplicating the tape.

RECORD FILM works by picking up the sound value at the end of a video line, therefore the timing is driven by the pulses recorded onto the video tape. Sound recording from the AUDio card is driven from a computer generated pulse which is totally independent of the video player. For this reason it may provide superior results. Where possible, always record onto and digitise from new tapes and always keep your video player heads clean. Finally, what are you doing recording from tapes from your video rental shop anyway ?

11.2 AUDIO IS TOO LOUD/QUIET

If you are using VIDEO MASTER to record sounds from an external portable tape machine, then the chances are that you can adjust the input volume using the VOLUME control fitted to the tape player. It is very important to use the SCOPE display which appears on the screen when the LISTEN button is selected. The sound is at its best when this SCOPE display just reaches the top and bottom of the AUDIO display window.

Most video recorders do not usually feature an input volume control. However, it is just as important to be able to adjust the volume for video's as it is with a tape player. There are two possible alternatives. First, try to take the output of your video through some form of amplification and then back into VIDEO MASTER. Alternatively, try adjusting the CONTRAST setting of the cartridge. With sound coming into the digitiser, select the Listen button on the AUDio card. The SCOPE display will appear to move. Adjustment of the CONTRAST will now make the sound louder or quieter. Adjust this for optimum performance, record your sounds and then return the knob to its previous position, failure to do so is likely to cause all further VIDEO recording to be incorrectly set.

Please note that when using the RECORD FILM facility, CONTRAST will affect both the picture quality and the audio level at the same time. In this case it is probably more important to set the CONTRAST to give the best possible picture. If then the sound is too loud or too quiet, it will have to be recorded again and added later.

11.3 PROGRAM APPEARS TO LOCK UP IN 'FULL SCREEN' MODE

Check that a video input signal is connected to the cartridge, the likelihood is that the program is sat waiting for the first video sync pulse to appear and therefore establish the screen timing. If pressing the left mouse button does not escape from this, then it will be necessary to send a video signal into the VIDEO MASTER cartridge. Once a picture lock has been established, the program will either display a picture on the screen or return to the control screen.

11.4 FULL SCREEN PICTURE LOCK

For the technically minded, each TV picture is transmitted twice, once on an ODD FRAME and once on an EVEN frame. Sometimes only one of these FRAMES is actually noisy. This is particularly true of portable video equipment where the video bandwidth of the smaller video tapes is restricted. To flip from one video frame to the other, press the 'TAB' key on the keyboard.

The DEL key will cause the program to re-calibrate its video timing. This may help to remove picture distortion or noise from a video input when placed on PAUSE or after forwarding or rewinding the tape.

Also, try switching the 75 Ohm video input load on and off. Perhaps the load is losing some of the video signal. If the video signal is too weak, then the VIDEO MASTER circuitry might not have enough information to lock onto. Click on the SETUP button and try digitising pictures with the 75 Ohm LOAD ON and OFF.

11.5 PRE-RECORDED VIDEO TAPES

Nowadays most, if not all, pre-recorded Video tapes are recorded with a video spoiling signal on them. This is an attempt to prevent you from using two recorders to make pirate copies of the tapes. Unfortunately, if VIDEO MASTER fails to lock onto the signal of such a recording, then there is little that can be done. The original signal has been tampered with to exploit a feature of the gain control of the TV set. Although much time has been spent on refining this part of the digitiser hardware, VIDEO MASTER may be as susceptible to this form of interference as most other domestic equipment.

11.5 INSTALLATION ONTO HARD DISC

VIDEO MASTER will work quite happily from hard disc. In fact, the use of a hard disc is encouraged wherever possible since, not only are they very much faster than floppy discs, but they also have much more storage space too. Since video and audio chew up memory very rapidly, hard discs greatly enhance the use of the VIDEO MASTER system.

Before you start the installation, it most important that the computer has been 'booted' up from the main system hard disc. Failure to do this may cause the final stages of installation to be incorrect.

To copy the program onto a hard disc it is only a matter of picking up the ICON of the VIDEO drawer from the open window of the floppy disc (usually DF0:) and dropping it into the open window of the hard disc. This will copy all of the required files from the VIDEO MASTER disc onto the hard disc. Next, open the new VIDEO drawer on the hard disc and amongst all of the other bits and pieces, you should see an ICON entitled 'INSTALL.HD', double click on this ICON. This routine is essential since it copies the necessary ICON definitions from the 'PREFS' drawer on the floppy disc and installs them in the correct directory on the hard disc. Without this, any attempt to save a picture or video file of any sort from VIDEO MASTER, will fail to display the appropriate ICONs on the workbench.

Finally, to make the ICON installation effective, it is necessary to use the system ED function, from the SHELL or CLI to add one line into the startup procedure of your hard disc. This will normally be performed by typing the line:

ED SYS:s/Startup-Sequence <return>

or ED SYS:s/StartupII <return>

to invoke the editor and load the appropriate script file. Now, using the editor add the following lines:

ASSIGN VMAS: SYS:VIDEO <return>

COPY SYS:Prefs/Env-Archive/Videomaster ENV:Videomaster ALL QUIET <ret>

somewhere into either the Startup-Sequence or StartupII files located within the 's' directory of your hard disc. It is usually safest to add this somewhere at the end of the file, but make sure it is placed BEFORE any instruction which reads 'RESIDENT Assign Remove'.

When this procedure is complete, it will be necessary to reset your machine to make the new installation effective. *** BE VERY CAREFUL *** not to reset the machine before any disc activity is finished. To be safe, watch any active disc lights until the extinguish, then wait ten seconds or so before resetting the machine or switching it off, failure to do this may result in the corruption of your discs structure and loss of data.

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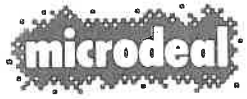

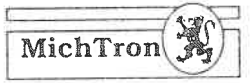

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