DC ™

TV

Digital Composite Television

The revolutionary display and digitizing system for the Amiga®

DIGITAL

C R E A T I O N S

THE DCTV
USER'S GUIDE

VERSION 1.1

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DCTV USER'S GUIDE

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DCTV USER'S GUIDE

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INTRODUCTION

Congratulations and THANK YOU for your purchase of DCTV!

In case you're wondering, DCTV stands for Digital Composite Television. DCTV opens up a new world of creativity for you and your Amiga by expanding the Amiga's graphics resolution to digitize, paint and display images in 24-bit resolution using a palette of over 16 million colors!

We hope that you enjoy DCTV and have as much fun using it as we did creating it! Now the creative process is in your hands. Let us know how you're using DCTV or any questions you may have in its installation or use. We look forward to hearing from you and, again, thank you for purchasing DCTV!

DCTV USER'S GUIDE

WHAT IS DCTV?

DCTV is a combination of hardware and software that uses the Amiga's normal high resolution display modes and interprets them in a radically new way. DCTV takes the digital video signal from the Amiga RGB port and converts it into full color composite video with all the vibrant color and quality of broadcast TV. Since DCTV uses the Amiga display as its frame memory, full color animations can be performed using popular 2-D and 3-D Amiga animation software.

DCTV's "slow scan" digitizer uses any color video source, such as a video camera, still video camera, VCR or laser disc, to capture a full color composite video frame in about 10 seconds.

DCTV's Paint software allows you to create and modify images using a full-featured true color video paint system.

DCTV's Convert software transfers images created by DCTV's digitizer or paint program into standard Amiga file formats compatible with all Amiga paint, video, or desktop publishing programs.

DCTV accomplishes these amazing feats through the use of a new method of video display. DCTV creates and displays full color, full resolution video through a sophisticated process of video compression. DCTV connects to the RGB video port and creates a video signal from the screen data being output by the Amiga. DCTV uses the Amiga's display system to deliver a compressed video data stream that is then decompressed on the fly and converted into the video display. True color painting and animation are possible since the Amiga is simply displaying what it interprets as a normal high resolution display.

WHAT IS DCTV?

INPUT

COLOR VIDEO CAMERA

STILL VIDEO CAMERA

VCR WITH GOOD
FREEZE FRAME

LASER DISC PLAYER
WITH FREEZE FRAME

DIGITIZE

DIRECT MOUSE INPUT

PAINT

IFF, ILBM, HAM, TRUE
COLOR UP TO 24-BIT,
REGISTER UP TO 256
COLORS, DCTV DISPLAY,
RGB8, RAW - PICTURES

24-BITFILES FROM
COLOR SCANNERS

VIDEO

COMPOSITE MONITOR
VCR
VIDEO TITLING
ANIMATIONS
35MM SLIDES FROM SCREEN

CONVERT

2, 4, 8, 16, 32 COLOR ILBMs
HALFBRITE
HAM

24 BIT

24 BIT FILES FOR USE IN
DESKTOP PUBLISHING AND
PRINTING

OUTPUT

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ABOUT THIS MANUAL

If the previous description of DCTV sounds complicated, then relax! Using DCTV couldn't be easier. You don't need to be a technical genius to set-up, operate and get spectacular results from DCTV.

In order to best understand how to use DCTV, however, you should have a basic understanding of how to use your Amiga. You should know how to use the mouse, start applications from WorkBench, copy your software disk, and perform simple Work-Bench operations. If you need help in these areas, please review the user manual that came with your Amiga.

This manual will provide you with the information you'll need to quickly install and begin using DCTV.

Section 1   Section 1 provides the details on how to connect your DCTV hardware to the Amiga and how to install and run the DCTV software.

Section 2   Section 2 offers a quick tutorial on using the Digitize, Paint, and Convert programs included with DCTV.

Section 3   Section 3 provides a complete reference to each of the program's options.

Section 4   Section 4 contains the Appendices that cover areas that increase your understanding of DCTV's use and potential.

                   Appendix A includes information on trouble shooting any problems you might encounter with DCTV as well as how to obtain service from Digital Creations.

                   Appendix B offers information on working with video including how to select colors for later transfer to video.

Appendix **C** gives you an overview on using DCTV images with other Amiga software. The appendix also provides details on how to print the images created by DCTV while retaining the full 24-bit detail you'd expect.

Appendix **D** lists a reference for the keyboard shortcuts used to operate the DCTV software.

Appendix **E** gives you a quick visual reference and description of each of the tools found in DCTV Paint.

Appendix **F** contains information on adjusting the Tint of DCTV.

Appendix **G** provides information on the parameters that can be placed in the "tool types" section of the DCTV program icon.

Appendix **H** shows you how to use DCTV's CLI based utilities to convert Sculpt 4D and IFF images to DCTV formats.

In addition to creating hardware and software we also use it! We realize that you, like most folks, are anxious to get up and running and don't want to take the time to read through a long manual! Guess what? We don't expect you to.

Take a deep breath and relax a second before plugging in your brand new DCTV. Please read through the next section on how to install and calibrate your DCTV hardware, as well as setting up the DCTV software. By taking these few minutes you'll save time and aggravation later and, even better, you'll have your DCTV operating that much faster.

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WHAT'S IN THE BOX?

In addition to this manual your DCTV package should include the DCTV hardware, four disks containing the DCTV software, examples of images, and an animation created by DCTV.

DCTV disk 1 may include a ReadMe and Addendum file. These files contain information on upcoming products and/or changes to DCTV that have occured since this manual was published.

Also included is a registration card. PLEASE fill out the registration and send it back as soon as possible so that we can validate your warranty and let you know about any future enhancements or additions to DCTV. We have some exciting plans for future DCTV products and we want you to be the first to know about them!

SECTION 1

INSTALLATION

INSTALLATION

HARDWARE REQUIRED

In order to use DCTV you must have:

1. An Amiga 500, 600, 1000, 2000, 2000HD, 2500, 3000, or 4000

2. A minimum of one megabyte of ram

3. Workbench 1.3 or higher.

4. An RGB monitor for the Amiga

5. A composite video monitor. (It may be the same monitor as the RGB monitor.)

In order to use DCTV's digitizer you will need:

1. A color video source which is capable of displaying a still image for 6 to 10 seconds.

Optional Hardware

1. A minimum of three megabytes of ram are necessary to use all of the features available in the DCTV software. Five or more megabytes are recommended to use all features simultaneously.

2. A hard disk to increase storage and speed of storage.

3. An accelerator card to increase the speed of data processing.

DCTV USER'S GUIDE

INSTALLING THE DCTV HARDWARE

Before beginning installation of the DCTV hardware turn-off your Amiga, your monitor and any other devices attached to the Amiga.

THIS IS IMPORTANT!

ATTACHING OR DETACHING HARDWARE DEVICES WHILE THE AMIGA IS ON COULD RESULT IN DAMAGE TO BOTH YOUR AMIGA AND DCTV! BEFORE BEGINNING INSTALLATION PLEASE IDENTIFY THE PROPER PARAL-LEL AND RGB PORTS ON THE BACK OF YOUR AMIGA TO WHICH YOU WILL INSTALL THE DCTV CONNECTORS.

INSTALLING DCTV TO THE WRONG PORT MAY DAMAGE DCTV AND YOUR AMIGA.

Unpack the DCTV hardware. Hold your DCTV with the DCTV logo facing you and the two cables facing down. Across the bottom of the label are the names of the six input/output/controls needed to install and setup DCTV. From left to right these are:

Video In	A standard RCA female connector used to provide the signal from your video source to DCTV.
Parallel Port	The cable and connector which must be installed to the Amiga's parallel port in order to digitize images. The connector is a DB25 male.
RGB Port	The cable and connector which must be installed to the Amiga's RGB Port in order to display DCTV images. The cable includes a male 23 pin connector for attaching your Amiga monitor.
Tint Adjust	Factory set adjustment for tint. This adjustment on NTSC versions only.
Pixel Adjust	Control for calibrating DCTV's composite display.
Video Out	A standard RCA female connector used to send the DCTV image to your composite display.

Installing your DCTV involves the following seven steps:

1. With the Amiga turned off, unplug your Amiga's monitor or any other device, such as a SuperGen genlock, connected to the Amiga's RGB video port.

2. If you will be using the DCTV's digitizing functions, unplug any printers or other devices connected to the Amiga's parallel port.

3. Connect the female DCTV RGB Port cable to the Amiga's male RGB/video Port.

4. If you will be digitizing, connect the DCTV Parallel Port cable to the Amiga's parallel port. If you wish you may use a standard parallel switch box to connect both DCTV and your printer to the Amiga *but read the section on A/B Data Boxes in Appendix A first.* All 25 lines on the switch box should be present. This allows you to switch between the printer and DCTV's digitizer without powering off the Amiga to change cables.

NOTE TO AMIGA 3000 USERS: There is a tight fit between the DCTV RGB port and parallel port connectors. To make them fit you must remove the lock screw from the DCTV parallel connector on the side of the connector closest to the RGB port.

NOTE TO AMIGA 1000 USERS: You will need a standard 25-pin female to female gender changer to connect the male connector for DCTV's parallel port to your Amiga 1000's male parallel port.

5. Connect the Amiga's female monitor cable to the male pass-through on the DCTV RGB Port connector. Users with the 2002 Commodore monitor should read the 2002 information in Appendix A first.

6. Using a standard video cable with RCA male connectors, plug the video cable into the DCTV Video Out female connector and connect the other end of the cable to the female Video In of your composite monitor.

If you are using a standard Commodore-Amiga monitor you could connect the cable to the RCA video port on the back of the monitor. This is the port colored YELLOW. With this connection you can switch between the standard Amiga display and the DCTV video display using the video switch on the monitor.

7. Using a standard video cable with RCA male connectors, connect the Video Out of the color video device you'll be digitizing from to the Video In connector on DCTV.

NOTE: If you had previously used a genlock connected to the Amiga RGB video port, you still will be able to connect the genlock while DCTV is connected provided you do the following. With the power turned off, connected the units in this order; Amiga > DCTV > external genlock > RGB monitor. You will need to redo the Pixel Adjustment now. When using the DCTV, make sure that no video is going into the genlock. The DCTV images will be unusable by the genlock in this configuration.

You may, however, use the DCTV images in an overlay situation with your genlock by purchasing the DCTV RGB Converter. The RGB Converter puts the DCTV video output into analog RGB video stream. The video is then re-mixed with other Amiga graphics going to the Amiga's monitor or genlock. The DCTV RGB Converter will allow the DCTV video to be genlocked to and overlaid on other video sources when used in conjunction with our external SuperGen genlock product or an external genlock built to proper Commodore specifications.

For more information on the DCTV RGB Converter, please contact your dealer or Digital Creations.

CALIBRATING DCTV

Pixel Adjust

Due to the differences between Amiga models, you will probably have to calibrate DCTV's pixel adjust to your Amiga's specifications before using it. To perform the calibration, begin by turning on your Amiga and booting it as you normally would.

After your Amiga is booted-up:

1.   Make a copy of the DCTV disks! This is an important step in safeguarding your DCTV investment. DCTV disk are NOT copy protected. After you've copied them, put the original disks in a safe place away from devices (such as telephones or monitors) which generate magnetic fields.

2.   Reboot your Amiga using the back-up copy of the DCTV program disk and open the disk window.

3.   Locate the icon for the Pixel Adjust picture and show the picture by double-clicking (moving the mouse pointer over the icon and depressing the left mouse button rapidly two times) the icon.

4.   The picture should display a 'mottled' greenish-gray image on your Amiga RGB monitor.

5.   Turn on your composite video display. If you've connected the DCTV video out to the video connector of a standard Amiga monitor, switch the video mode switch on the monitor to composite video.

6.   You should see the test picture displayed in full resolution on the composite display unless your DCTV requires calibration.

7.   If the composite display image is fuzzy, displays noise, or does not display at all, locate the pixel adjust knob on DCTV and turn it until you see a display. Turn it the opposite direction until the display goes away, then turn it back to a center point between the two extreme settings. The goal is to have a crisp composite display which is easily readable.

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SOFTWARE INSTALLATION

DCTV Disks

DCTV comes with four disks containing software, images, and animation.

Disk 1

Disk 1 contains the standard DCTV software for Amiga users with more than one megabyte of memory. Disk 1 may also contain a ReadMe file and an Addendum file containing information about DCTV that has changed since this manual was written.

Also included on disk 1 are the software needed to adjust the tint of the DCTV hardware (TintAdjust, See Appendix F) and the DCTV installation program (DCTVInstall) which copies the DCTV fonts and libraries to your Amiga system disk.

Disk 2

Disk 2 contains the DCTV software for Amiga users with one megabyte of memory. The program DCTVProc includes the software for digitizing and converting DCTV images. DCTVPaint is the paint software described in this manual. Splitting the software into two parts increases the number of DCTV features available to users of one megabyte Amigas.

Disk 2 also includes the PixelAdjust picture used to calibrate DCTV to your Amiga.

Disk 3

Disk 3 contains examples of DCTV images, including the images described in the DCTV tutorial, as well as additional palettes for use with DCTV Paint.

Disk 4

Disk 4 includes additional DCTV images which provide examples of some of the incredible things you can create. Also included on Disk 4 is an example DCTV animation and player.

DCTV System Files

DCTV's software requires that the following system files are present on the system disk used to start your Amiga.

FONTS:

DCTV.font
DCTV/6
DCTV/7e
DCTV/8e

Note: Fonts: is the standard Amiga font directory and DCTV.font should be in the main fonts: directory. A subdirectory named DCTV should have the files 6, 7e, and 8e. For information on the Amiga's directory structure consult the User Manual supplied with your Amiga.

LIBS:

iffparse.library

The required font and library files are supplied on both DCTV disk 1 and disk 2.

DCTV USER'S GUIDE

FLOPPY AND HARD DISK INSTALLATION

Hard Disk Users

To install DCTV to a hard disk see the enclosed document called Installing DCTV.

Floppy Disk Users

If you don't have an Amiga hard disk you can start your Amiga with a copy of either DCTV disk 1 or disk 2. These disks have AmigaDos, the DCTV software, plus the necessary fonts and libraries and requires no further installation.

While these disks can be used as DCTV boot disks they do not contain all files necessary for complete Amiga use. They are provided in a bootable format so users can explore DCTV. All the pertinent files should be moved into your normal floppy environment.

NOTE: If your Amiga has only one megabyte of memory use a copy of DCTV disk 2 as your startup disk.

SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

PAINT

CONVERT

BEGINNING WORK WITH DCTV

After you've installed and calibrated your DCTV there's only one thing left to do. Start using it! In this section we'll take you through your first DCTV session and look at the features available. Since some of DCTV's features require memory in excess of the one megabyte minimum, we'll cover only those features that everyone can use. In the reference section you'll find complete documentation for all available features in DCTV.

Before beginning, please make a backup of your DCTV Images disk. If you are not using a hard disk, you'll need two formatted disks for saving your work during the tutorial.

Before we begin, let's look at the key shortcuts available when using DCTV. While each DCTV program has some unique key shortcuts, the following keys can be used anywhere in DCTV.

NOTE:	Where a shortcut lists two keys, such as shift-F10 or Amiga-c, you must hold down BOTH keys to use the shortcut. Shortcuts referring to the Amiga key, such as Amiga-c, require that you hold down the right Amiga key (the *A* key to the right of the space bar), then press down the second key.
Mouse	Clicking the right mouse button will hide the pointer and menu.
F10	Cycle control panel through three positions: park, hide, show
Shift-F10 or Help	Make control panel completely visible
Space Bar or Escape	Abort operation

DCTV USER'S GUIDE

One Option Requesters

Return or
Escape   End requester

Two Option Requesters

Y   Responds YES in a yes/no requester

N   Responds NO in a yes/no requester

Return   Responds to the left (positive) requester option

Escape or
Space Bar   Responds to the right (negative) requester option

FIRST STEPS

Start DCTV by double-clicking the DCTV program icon from
Workbench. In a couple of moments you'll see the initial DCTV
welcome screen. This screen displays the DCTV logo and a list of
choices on the left side. The welcome screen is displayed on the
standard Amiga RGB monitor.

If you are using DCTVProc or DCTVPaint you will be taken
directly to the digitize menu (DCTVProc) or the paint menu
(DCTVPaint). Both of these menus will be displayed on the DCTV
composite screen.

Fig 1. DCTV's Welcome Screen

The welcome screen choices are:

Options	Go to the Global Options menu	Key shortcut: Amiga-O
Digitize	Go to the Digitize and Process menu	Key shortcut: Amiga-D
Paint	Go to the Paint menu	Key shortcut: Amiga-P
Quit	Exit the DCTV software	Key shortcut: Amiga-Q

OPTIONS

Options allow you to set up some important parameters for your DCTV work. Let's prepare for our first session by setting up the options screen.
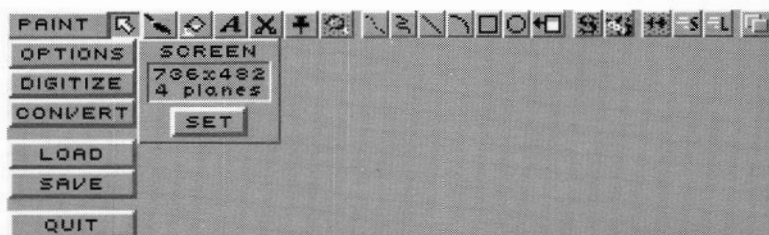

Fig. 2 Options

1. Click on the Options gadget to open the Global Options panel.

2. The GENERAL box contains three options, Workbench, Spare Page, and Icons. DCTV buttons are selected (on) when they appear to be indented. Make sure the button next to Workbench is selected so the Workbench will be closed if it is necessary to conserve system memory.

DCTV USER'S GUIDE

The Spare Page and Undo Buffer options cannot be used with a one megabyte Amiga. If you accidentally turn on Spare Page or Undo and don't have enough memory you will be warned as you exit the Options page. If this happens, turn off Spare Page or Undo by clicking Cancel on the Problem requestor and then clicking the Spare Page or Undo button so that it is in the raised (off) position.

Selecting Icons instructs DCTV to save an icon file when an image is saved from DCTV. The icon that DCTV saves contains information about the type of image (24-bit, display, raw etc.) and can be handy for keeping track of the types of images you have.

3. Look over the information in the Options menu. Click the Use gadget to go back to the DCTV welcome screen or the Save gadget to make these changes your permanent default settings.

SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

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DIGITIZE

Let's leave the Welcome Screen and go to DCTV's Digitize page. Click Digitize and you will notice that the RGB screen has turned a greenish gray. The panel is a green and grey representation of the Digitize and Process page. This is a cue that DCTV is now displaying information for a composite display. Switch to the composite display when you see this type of image on your normal RGB Amiga monitor.
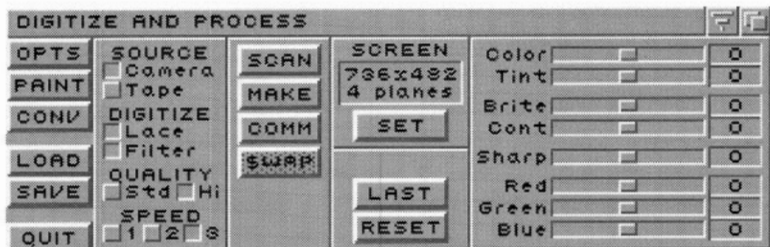

Fig. 3 Digitize and Process Page

The composite display should contain the normal high resolution Digitize and Process panel. As in the Welcome Screen, the Digitize and Process panel has a list of choices on its left side. In addition, this panel controls the type of equipment you digitize with and the processing of the data after it's been scanned.

You don't have to have a color camera to use and display DCTV images, but you will need one in order to digitize. Even without a camera you can use the Digitize and Process portion of DCTV to modify images created by DCTV Paint.

If you don't currently have a color camera, skip ahead to the next section on image processing while we cover the basics of camera set-up and digitizing.

DIGITIZING AN IMAGE

In order to digitize with DCTV you must have the DCTV hardware attached to both the parallel and RGB ports of the Amiga per the installation instructions in Section 1.

The key to getting quality images is lighting. If the lighting is poor or uneven the resulting image will reflect this. When digitizing with DCTV, be sure to have plenty of light. If you are using a standard video camera you may want to invest in an inexpensive video light to aid in your work. An even better solution is to purchase a copy stand with lights. Nearly all photography stores have this equipment.

Let's digitize your first image with DCTV. Make sure your color video source (camera, tape, laser disc, etc.) is plugged into DCTV's video in and is turned on. If you are using a color video camera, be sure to set the white balance per the instructions that came with your camera.

FROM THE DIGITIZE AND PROCESS PAGE

1. Select the source of the signal by clicking on the Camera or Tape gadget. Camera is used for color video cameras and tape is used for all other sources including still video cameras.

2. Click on SCAN to begin the digitizing process. The composite display will change to a real-time display of your camera's image. Use this display to focus or make any other adjustments needed to get the image you want.

```
+-----------------------------------------+
|            Ready to Digitize?           |
|                                         |
|   Click Left            Click Right     |
|  mouse button          mouse button     |
|   to Digitize,          to Cancel,      |
+-----------------------------------------+
```
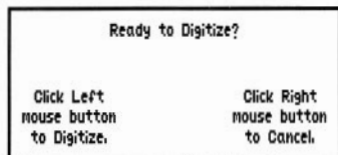
Fig. 4 RGB Digitize Requester

At this time DCTV is sending two displays. What the camera sees is displaying in composite and a menu is displaying on the Amiga's RGB monitor. The menu indicates that you should click the left mouse button to digitize or the right mouse button to cancel.

3. When you are pleased with the camera's image click the left mouse button to begin the capture. The image must be steady for approximately ten seconds. You'll notice during the digitization that a series of black lines move down the composite display . This is DCTV in the act of grabbing your image. After the image is digitized requesters will provide information on how DCTV is building your image. In a few moments your picture appears on the DCTV composite monitor.

NOTE to PAL DCTV users: During step 3 the image will be in black and white until finished processing at which time it will be in full color.

Congratulations! You've just created your first DCTV image. Pretty simple wasn't it? If you aren't completely happy with the results, determine how you could adjust your environment to improve it. Simple things like moving the light or shading a hot spot that resulted from sunlight coming through a window will dramatically affect the final image. As in most things, a little practice will go a long way toward improving the images you produce with DCTV.

IMAGE PROCESSING

The Image Processing section of DCTV's Digitize and Process panel offers powerful tools to overcome some of the problems you might encounter when digitizing or creating DCTV images. The slider gadgets, grouped on the right side of the Digitize and Process panel, allow you to manipulate the images' color saturation, tint, brightness, contrast, sharpness or RGB levels.

For this section we'll work with the picture of the Porsche found in the Tutorial directory of DCTV disk 3.

DCTV USER'S GUIDE

LOADING IMAGES

1. From the Digitize and Process panel click LOAD to bring up the DCTV file requester. The upper section is divided into two areas. The left side contains a list of devices/volumes, while the right contains a list of the files contained on the device/volume you have chosen.

2. Click on the device in the left side of the requester that contains the DCTV Images disk. On the right side of the requester a list of files and directories on the Images disk will appear.

3. Click on the Tutorial directory (appears on screen as (dir) Tutorial) and then click on the Porsche.DCTV filename. You'll notice that the drawer and file area at the bottom of the requester now contains information on where the file is located and its name.
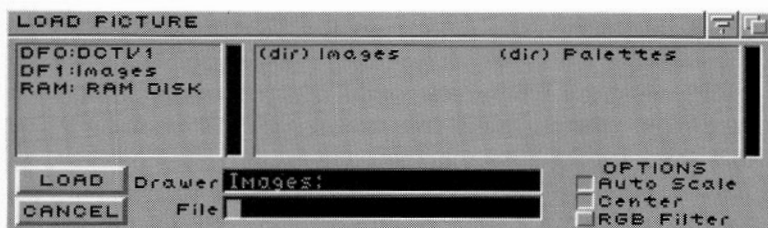

Fig. 5 Load Requester

4. In the lower right of the load requester are three options which control how a file is loaded by DCTV. The default settings (Auto Scale and Center on, RGB Filter off) are fine for loading the Porsche.DCTV picture. When loading images that weren't created by DCTV you'll need the following information to determine how to best load the image.

Auto Scale - If on, auto scale attempts to scale the picture into the DCTV screen mode that best fits.

If it is off, the user is asked to supply information about the file (Interlaced or not, HiRes or LoRes). Autoscale sometimes asks for information about a file even if it is on. Most of the time it will have guessed correctly but, because there was some doubt as to the correct mode, you will need to verify the result. Pictures saved by DCTV Paint are assumed to be correct and load without query if the screen mode currently set is the same as the file (interlaced or not, overscan or not).

Center - If on, a picture is loaded into the center of the DCTV buffer if the picture is a different size than the buffer. Pictures smaller than the buffer (less than 736x482 NTSC, 736x566 PAL) are centered with black borders on the top,bottom, left, and right. Pictures greater than the buffer are cropped from their center. DCTV's buffer contains the cropped image.

If center is off, the picture is placed into the buffer with the top-left corner aligned with the top left of the buffer. Pictures smaller than the buffer will have black on the right and bottom. Pictures larger than the buffer will be cropped. If the DCTV Paint screen is set to non-overscan and the picture being loaded is overscan both the top and left sides will be hidden. Change the DCTV Paint screen to overscan to expose these sides.

RGB Filter - When on, pictures are filtered as they are loaded by DCTV. Sometimes a file not created by DCTV needs to be filtered to remove imperfections in the image. (Technical types call these imperfections chroma artifacts and other luminance cross talk.) Many times a file is fine and won't need to be filtered or only small areas of the image need fixing. If this is the case, spot filtering can be done with DCTV Paint.

5   Click on Load to retrieve the Porsche.DCTV file.

PROCESSING

By now you should have the Porsche picture on your composite display. These images were scanned using DCTV and a color video camera with a standard video light. The images were put together using DCTV Paint. While the image looks good, we can do several things to change it.

1. The grays (the car) in the picture are quite bright. Locate the brightness control (Brite) in the processing menu and move the slider to the left until a -4 appears in the window to the right of the control.

2. Did you notice that when you moved the Brite slider the MAKE and COMM (Commit) buttons began flashing? This is DCTV's way of telling you that you have made changes in the picture that are not displayed or contained in DCTV's image buffer. DO NOT CLICK THE COMM BUTTON UNTIL YOU ARE SURE YOUR IMAGE IS COMPLETE! COMM will modify the data in the DCTV buffer and your original image will be erased.

    Now click MAKE to display the difference a -4 brite setting made in the picture.

3. Locate the sharpness control (SHARP) and move it to the right until a +8 appears in the display box to the right of the control and then select MAKE to display the changes. You should be able to see more features on the car now.

4. When you've finished making changes and are pleased with an image, select COMM to commit the image to the DCTV buffer. This insures that the image, with your modifications, is ready for use from DCTV Paint or Convert. Click on COMM and then yes on the COMMIT requester to commit your image to the DCTV buffer.

When processing your work, it's better to make small changes to the image one step at a time. In this way you can determine what produced the effect you wanted or didn't want. If you change the settings for Color, Tint, Brite and Sharp at the same time it's nearly impossible to determine which of the items produced what effect. Experimenting with the controls, and the experience you gain, will assist you in determining what settings are needed to produce the desired results.

SAVING THE IMAGE

Let's save the modified picture so that we can later convert it to a standard Amiga file using DCTV Convert.

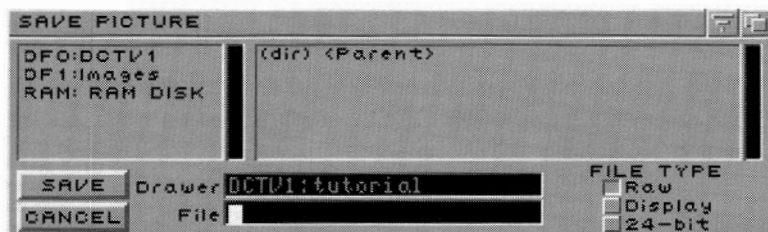   1.   Click on SAVE on the Digitize and Process panel.

Fig 6 Save requester

    2.   The SAVE PICTURE requester will appear. Note that the SAVE requester uses the same directory and file information as the LOAD requester.

    3.   Insert one of your blank formatted disks in your drive and choose the drive/volume from the devices and volumes contained on the left side of the requester. If you are using a hard drive, select your hard disk from these devices and choose the directory you wish to store the file from the directories shown in the right side.

4.   The name of the volume you selected should appear in the requester's Drawer text entry gadget. To change the name of the file, click to the right of the Porsche.DCTV name in the File text entry area and backspace over the existing name. An Amiga-X will also clear this area. Type in the name of your new file but **do not** hit return.

5.   When we load the file later we will not need the 24-bit data so select RAW or Display in the FILE TYPE area at the bottom right of the requester. Set this on. When you're done, select SAVE and your image will be stored on your formatted disk.

Always save work in progress as a RAW file to maintain image integrity.

See Appendix I - DCTV File Types - for more information on the uses of the different DCTV file formats.

That's it... you have now learned how to Digitize, Process and load and save your images with DCTV. Let's move on now and learn how to work with DCTV paint.

SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

PAINT

CONVERT

PAINT

Painting with DCTV is unlike painting in any other environment. While some idioms remain the same - the paintbrush, canvas, and colors - the medium is different. The medium is video. Everything you do in DCTV, from drawing a rectangle to tinting an image, is translated into a video waveform. Although you view the images in a pixel-oriented universe (your monitor), DCTV frees you from the constraints of individual pixels.

DCTV's universe is the video universe, with over 16 million colors. The rules that govern DCTV are the same rules that govern broadcast television. Terms like Chrominance and Luminance will dominate our discussion of the DCTV paint tools. These terms (Chrominance, the color component of a signal, and Luminance, the brightness of a signal) are central to the operation of DCTV.

These tutorials will guide you through some of the operations available to you in DCTV Paint, and will help you better understand painting in a video environment.

Whenever you see the following DCTV logo in the tutorial sections, please let it remind you that you should either restart the DCTV program or reset the options and features to their default status.

If a section of the manual refers to a specific gadget or tool and does not show an example of it please refer to Appendix E.

If your Amiga doesn't have enough memory to do certain operations in the tutorial you can free some memory by going to the Options page Screen SET and turning off interlace.

DCTV USER'S GUIDE

THE BASIC TOOLS

Computer artists who have traditional art experience describe
painting with DCTV as being much closer to painting with oil
paints or water colors than anything they've ever used on a
computer. Let's walk through the basic steps of using DCTV Paint:

1. Start DCTV.

2. Click on PAINT from the Welcome Screen.

3. Click on the Brush tool in the Tool Bar.

You are now in DCTV Paint. Arrayed before you are some of the
most powerful tools available on a personal computer. Notice that
the Paint panel is actually made up of two panels: the palette panel
(top) and the brush panel (bottom). These panels are individual,
and may be present in conjunction with another panel, depending
upon the mode or action selected.
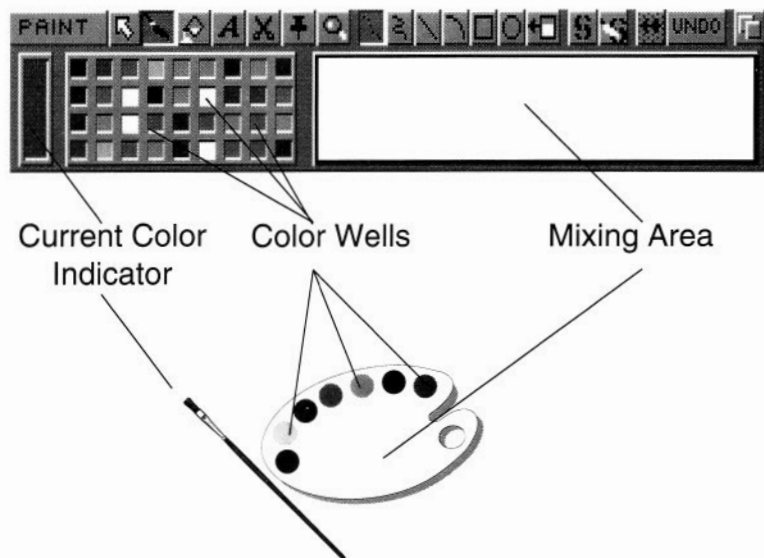
PALETTE PANEL

Fig. 7 Palette Panel

The palette panel is divided into three sections. From left to right, these sections are:

Current Color Indicator - This vertical bar will display the color you are currently using.

Color Wells - These squares contain and display the "base colors" of the current palette. You are not limited to these colors, of course. They are there for your convenience.

Mixing Area - This area allows you to mix different paints.

Let's explore these tools.

1. Using the left mouse button, click on one of the colors from the Color Well area. Now, click on another. Notice how the Current Color Indicator changes to reflect the color you've chosen. Finally, click on the brightest red.

2. Move your cursor into the Mixing Area, to the right of the Color Wells. Sketch something by holding down the left mouse button while moving the mouse. Do the same with another color, and then try the same thing on the DCTV "canvas."

3. DCTV Paint comes up in "dotted line draw" mode. This is one of the drawing modes available. Feel free to try other tools as you experiment. For the purposes of this tutorial, however, we'll assume that you're in dotted line draw mode.

4. Move to the lower panel. This is the Brush panel. We'll change the size of the brush: Click, hold, and drag the slider in the Size gadget. Move it all the way to the right. The size indicator should now say 20. Click once in the mixing area, and note the size of the "dot."
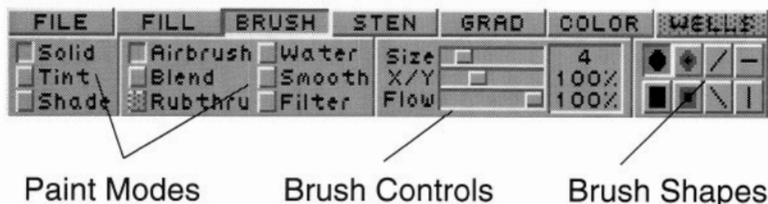
FILE	FILL	BRUSH	STEN	GRAD	COLOR	WELLS
Solid	Airbrush	Water	Size □	4	● ● / —
Tint	Blend	Smooth	X/Y □	100%	■ ▨ \	
Shade	Rubthru	Filter	Flow □	100%	

Paint Modes   Brush Controls   Brush Shapes

Fig. 8 Brush Panel

5.   Note the 8 brush shapes at the right-hand side of the Brush panel. Click on the square brush, just under the round brush. Click on the whitest color from the color wells, and paint the mixing area until it is completely white. Then, select a blue color from the color wells.

6.   Note the Flow gadget. This allows you to control the amount of paint coming from the brush. With the Flow rate set at 100%, click once in the mixing area. Note that the color of your brush stroke is the same as the color you chose from the color well. Now, reduce the Flow rate to 35% by "grabbing" the Flow slider and moving it to the left. Click three times at the same point in the mixing area, noting the color each time. As you can see, the color becomes more intense with each click.

So far, we've been using the mixing area as a canvas. Let's try using it to actually mix colors.

1.   Choose the round solid brush. Set the size to 10, and set the flow rate to 100%. Select a red color, and make a smear of red about the size of a nickel in the mixing area.

2.   Do the same thing with blue and yellow, forming a triangle of colors.

3.   Set the flow rate to 50%. Select Blend from the left half of the brush panel. Place the cursor over the red smear, hold down the left mouse button, and slowly move through the yellow and blue areas, into the white. Do the same thing, starting over another color.

Note how the colors blended, as if the paint was still wet. You can use this technique to create any shade or color imaginable.

Let's examine Watercolor mode. Normal paint modes behave as if the brush has an inexhaustible supply of paint. Watercolor mode more closely imitates "real" painting. In this mode, your brush receives an initial charge of paint, which runs out as you move your brush along the canvas.

1.   Choose the gadget marked Water.

2.   Set the flow rate to 65%.

3.   Select yellow from the color wells.

4.   Move to the black Canvas area. Click and hold the left mouse button down and slowly drag the mouse. Notice how the paint slowly fades, as the supply runs out. The Flow rate determines how quickly this happens. Try the same thing with different colors. You will notice that although the initial charge of paint runs out, the brush stays "wet." If you move through a color on the canvas, the brush will "pick up" some of that color.

COLOR CREATION

We'll continue this tour of Paint in the Color panel. If you're not already in Paint mode, click on the Paint gadget. We'll leave the options as they are. Click on the Brush icon (second from the left, in the Tool row) to go into Paint mode. From there, click on the COLOR mode selector. It's the gadget second from the right, in the middle row of gadgets. This brings up the Color panel allowing you to create the color of your choice.
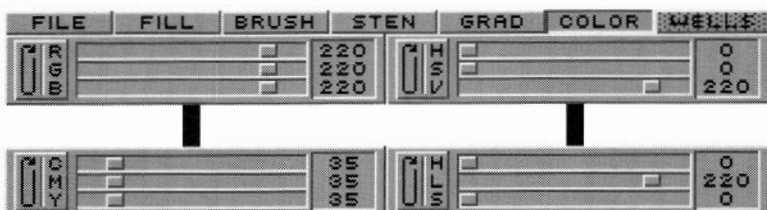

Fig. 9 Color Attributes

You might want to refer to the Reference section of this manual for an explanation of how the Color Selector works. Right now, though, experiment.

1. The Color Selector on the left should be in RGB mode. If it is not, click on the Mode selector (to the left of the sliders) until it says RGB.

2. Move each of the three sliders to different positions. Notice how the current color indicator to the left of the color wells changes as you move the sliders. In RGB mode, you change the amount of Red, Green, and Blue in the color.

3. Click on the Mode selector once, so that it says CMY. In this mode, you create colors based upon the amount of Cyan, Magenta, and Yellow. Again, move the three sliders to different positions and watch the Color indicator bar change.

4. Try the same thing with the selectors on the right - the HSV and HLS modes. Each of these modes changes the color in a different way. Experiment. Notice how a change made on one set of color selectors is reflected on the other side.

Each of the available modes serves a different purpose. Let's look at an example of using different modes to achieve different results.

1. Select RGB mode. Move the Red and Green sliders all the way to the right. This will give you a bright yellow.

2. Click on the Mode selector again to move to CMY mode. Note that the Yellow slider is all the way to the right. Move this slider halfway to the left, noting how the color becomes paler. If you move the slider all the way to the left, the color will turn completely white. Finally, move the slider all the way back to the right.

3. Click on the right Mode selector to move to HSV mode. Move the Value slider (V) halfway to the left. Notice how the color becomes darker. At the leftmost position, the color becomes completely black. Move this slider back to the right. Now, move the Saturation slider to the left. You'll notice that this slider has the same effect on your color (yellow) that the Yellow slider has. Move this slider back to its original position.

4.   Click on the Mode selector one more time to move
to HLS mode. Note that the Lightness slider is
midway. Move it to the right. Your color will
change to white. Now, move it all the way to the
left. Your color will turn black. From the middle
position, moving to the right, this slider behaved
like the Saturation slider in the HSV gadget. From
the middle position to the left, it behaves like the
Value slider in the HSV gadget.

For a full explanation of these selectors, read the Reference section.
For now, experiment until you hit upon a color you like.

COLOR SELECTION

In addition to creating colors with the color selector you can also
pick them. Here's how the picking selection works:

Clicking on a color area in the Color Well selects that color.

Shift-clicking on a color on the screen, mixing area, or gradient
preview bar selects that color.

Shift-clicking on a well in the Color Well deposits the current color
in that well.

Now that you know how to create and select colors, it's time to
start painting. We'll begin the tutorial with two of the Paint modes
available to you: Tint and Shade.

*Pressing CTRL will show the color components of the current color in the
Status Bar. You will see something like R:0 G:151 B:75.*

TINT

This part of the tutorial works from the Paint panel. Remember to SET your screen for Depth 3, Mode non-interlaced, and Size regular. If you are not already there please go to Paint now.

For this example, we'll need to load a picture from the Images disk. Go to the File Panel. Click on the File Gadget at the left of the middle bar. Click on the LOAD gadget at left under the word "Picture".

Select the picture "Porsche.DCTV" from the Tutorial directory, and hit RETURN or click on LOAD. Select "NO" for "ADOPT PICTURE SETTINGS?".

You'll be looking at a composite picture of a Porsche and the moon.. We're going to turn this into a multi-colored vehicle. Make sure you have the Brush panel selected.

> 1.   Click on the Tint option.

> 2.   The default brush size is 4. Locate the Size gadget in the lower section of the panel, and move the slider to the left until you have a brush size of 3.

HINT: A single click to the left or right of any slider button will lower or raise that slider's value by 1.

> 3.   Pick the top blue from the color wells and click on the Dotted Line tool.

Then, move your cursor to the front one third of the car. Press the left mouse button, and carefully fill in the car body.

You'll notice that only the color of the car changes. All of the details - the shadows, the edges of the body - remain intact. This is because you are altering only the Chrominance, or color component, of the image. The shading of the image - areas of lightness and darkness - is controlled by the Luminance portion of the signal. This technique, by the way, is identical to the method used to colorize black-and-white movies.

Choose the top yellow from the color wells.

Repaint the car door yellow. You'll notice that no matter what color you select, the definition of the car will remain the same. You can change the amount of color you tint with by changing the Flow setting. A setting of 100% will give you the maximum tint for that color. Reducing the Flow setting will reduce the amount of color you apply.

Choose the top red from the color wells. Recolor the top and rear one third of the car.

The car now looks like it really needs a paint job. Choose a color of your choice and recolor the entire car one color. To make this job easier you may use a bigger brush or use the rectangle tool with the fill turned on.

If you like the looks of your freshly repainted Porsche go ahead and save it using the SAVE option located under Pictures in the FILE panel. Choose Display for the FILE TYPE. Save it to another name.

SHADE

Go to the BRUSH panel. Click on the Shade gadget. Again, pick a color. Using the Dotted line tool and a size 4 brush paint part of the car body.

The first thing you'll notice is that all detail is lost when you do this. Shade works by altering the Luminance of the colors to match the luminance of your brush color. Note that the colors of the image do not change; only the shade of those colors changes. What you have done is alter the brightness - the luminance - so that it is the same everywhere you have painted.

CLIPS

You may desire many objects in this picture. You can easily add more, if you'd like by clipping and duplicating existing items. DCTV Paint offers you a number of different ways to make clips. You can cut rectangular areas, elliptical areas, or areas of any shape. We'll use the Continuous Line tool to make a freehand clip.

1.   Click on the Continuous Line tool. Then, click on the Clip tool. (It looks like a pair of scissors.)

2.   Move your cursor to the front tire, press the left mouse button, and draw a line around the tire. When you are satisfied with the shape of the outline (this indicates the area you'll be clipping) release the mouse button. If you want to abort the clipping procedure, you can hit the space bar to abort the clip. If you do not like the clip you made you can do it over by clicking on the Clip tool again or pressing "c".

Once you have completed the clip, you will see a flowing marquee around the clip. Before we stamp this clip down anywhere, lets resize it.

Rotate Gadgets   Size Gadgets   Shadow Gadgets

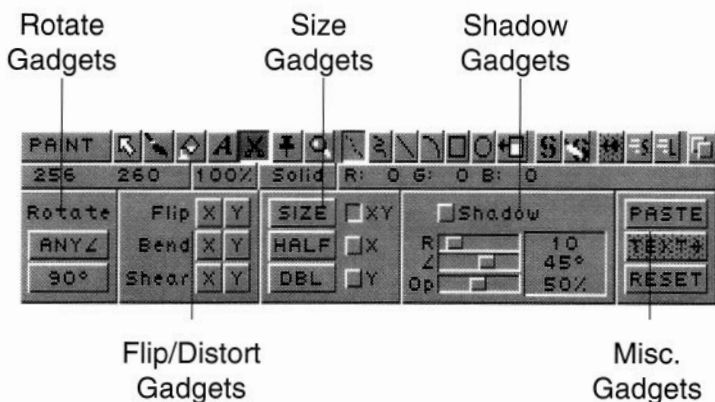Flip/Distort Gadgets   Misc. Gadgets

Fig. 10 Clip Panel

3.   Drag the clip to the top half of the canvas but don't PASTE it yet. Click on the HALF gadget. The clip will be half as tall and half as wide as it was before.

You could also do this manually by clicking on SIZE. You can resize symmetrically by holding down the ALT button while you move the mouse. When you do this, both the height and width will change at the same rate. If you're unhappy with the change you've made, click on the RESET gadget. This will return your clip to its original condition.

4.   Now it's time to stamp it (paste it or tack it) somewhere. We are going to a pile of wheels behind the car. Click in the middle of the clip, hold down the left mouse button, and move your cursor to the rear of the car. You'll notice that the clip is redrawn whenever you pause in the same place. This is to help you position it. Once you're happy with the position of the clip, release the mouse button. The clip will be drawn in position, but it will not be tacked down yet. You can do this

by either clicking anywhere outside of the clip, or by clicking on the PASTE gadget. Clips remain active even after being tacked down so lets move the clip again to another spot be hind the car. Position it. Paste it.

Clips, by the way, are subject to the rules of the Paint mode you have selected. If you are in solid mode, the image of the clip will be tacked into place. If you are in Tint mode, however, only the chrominance portion of the clip will be tacked into place. The colors of the clip will be transferred to the region underneath. If you are in Shade mode, the luminance of the clip will be transferred.

If you want to be a bit more realistic, you might try rotating the clip a little bit.

1. Click on the ANY L (any angle) gadget. Again, a marquee will be attached to your cursor. Holding down the left mouse button, move the cursor up, down, left, or right. The clip will rotate in the direction of your movement.

2. Note that the amount of the angle of rotation is displayed in the left section of the Status Bar.

3. When you're satisfied with the degree of rotation, release the mouse button. The clip will be redrawn in its new position.

Of course, you can do more than just resize and rotate your clip. Try the FLIP, BEND, and SHEAR modes to mold your clip into different shapes.

Do this pasting multiple times until you have a large pile of different shaped wheels and tires behind the car.

ADVANCED PAINT FEATURES

Files needed for this portion of the tutorial can be found in the "tutorial" directory on DCTV Disk 3. These files are Porsche.DCTV, Porsche.sten, Cactus.sten, Fence.sten, and Coyote.br.

Make sure that the screen is SET to 3 bit-planes, non-interlaced, and SIZE Regular.

Let's take this beautiful car under this giant moon and relocate it to the beautiful American SouthWest.

1. Load the Porsche.DCTV image using the FILE/ Picture/LOAD option. If prompted regarding the size, click on NO.

2. Load the Porsche.sten using the FILE/Stencil/ LOAD option.

3. Go to the FILE Palette Load gadget. Load earth.pal from the Disk 1 palettes drawer. Click on the paint brush gadget to return to the color wells. Choose the dark brown, third column from the left, in the bottom row.

4. Choose the STEN Panel. Click on INV. The car should now be protected by a grey mask.

5. Choose the Rectangle tool and Draw Filled tool.

6. Press the Right Mouse button to get rid of the control panel.

Hint: Use the right mouse button to make the control panel disappear and appear as needed.

7. We are going to color the earth with our brown. Place the cursor just below the horizon at the left edge of the picture. Click and drag the rectangle tool so covers the bottom half of the screen. When finished click Right mouse button to bring the control panel back.

8. Go to the FILE panel and load a clip called coyote.br. This is brush that was created in Deluxe Paint that is being loaded into DCTV as a clip. When prompted click on Proceed.

9. Since this is now a clip, click on the Tack gadget. The clip appears. Lets turn him around. Click on the X next to the word "Flip" on the CLIP panel.

10. Position the cursor over the middle of the clip and click and drag the clip onto the back end of the car. When it is positioned properly click outside of the marquee.

11. Load the stencil called "fence.sten".

12. Load the wood.clip. Go to the FILL panel and click twice on the gadget that says Solid or until it says Pattern. Click on the flood fill tool (looks like a can of paint pouring) and click in the unprotected area of the fence.

13. Click on the Use Stencil tool to deselect it. (Loading a stencil turned it on.) Look at what has been done so far. Use the right mouse button to view the entire picture.

14. Reload the default palette (default.pal) by going to FILE palette LOAD.

15.   Click on GRAD. Click on the bottom right gadget marked "CL". This cleared the gradient tabs.

16.   Click on the black in the color wells and then click over the left side of the preview bar to place the black tab. Put the darkest green in the middle and the lightest blue or cyan on the right. Click on the double headed arrow gadget (<->) at the lower right. This will spread the colors out evenly. Click on the preview bar to see the gradient you've created.

17.   Go to the FILL panel and click on "Pattern" three times. "Gradient" should now appear. The word "border" should be below it.

18.   Load cactus.sten.

19.   Click on the Flood Fill tool (between the brush and the A).

20.   Position the flood fill tool over the center part of the cactus. Click. Now do the right and left parts.

21.   Go to the GRAD panel. Click on the green tab in the center and drag it up and away. It disappears. Click on the crossed arrows to exchange positions. Click on the preview bar.

22.   Go to the FILL panel. Click on the gadget under the word "Gradient" twice. It should change from "Border" to "Vertical".

23.   Flood fill the rock by the fence.

24.   Turn off Use Stencil.

25.   Lets add some text. Click on the Text gadget on the tool bar. (It is the letter A.)

26.   After the font list has been created choose a type-face that you like. It should be about 24 points. In the Text entry area type in "WHEELS".

27.   Click on the "-> Clip" gadget at the right of the text entry area.

28.   The word "WHEELS" should appear in a marquee just like any other clip would. The last color we choose was the green in the gradient so our clip is green. Lets change it to white.

29.   Click on the WELLS panel. This is a second color wells that you can use when a panel like the CLIP panel is being used. Click on the whitest well.

30.   Regenerate the text-clip by clicking on the "TEXT ->" gadget.

31.   Move the clip to its final resting place above the top of the car. If possible make sure that the word "WHEELS" covers some of the moon. The white of the text blends into the moon so we need a shadow to separate them.

32.   Click on the Shadow button. Set R (distance) to 5. Set the angle to zero degrees. Use the Shift key when you drag to easily reach zero. Since we want to separate the text from the moon we will set the Op (opacity) to 100%

33.   Paste the text down. Click on the paint brush gadget.

34.   Save your masterpiece.

Congratulations! You've just completed a short tutorial on many of the features of DCTV Paint

There are many variations using the DCTV Paint features you've just learned about. One of the more interesting pictures floating around the offices of Digital Creations has a room with 4 programmers sitting in it. That may not seem too unusual, until you notice that they are all the same person. (You can see this image, and others, in the file AlteredOnes.DCTV.) Randy - the subject of this unusual study - created this image by first digitizing the room, then digitizing himself in four different positions. One by one, he rubbed through an image of himself, being careful to mask (use stencil) off the areas he didn't want to cover.

With a little practice, you'll find it easy and fun to achieve effects worthy of a professional video studio. The only real limit is your imagination. Paint is just one piece of the puzzle, and we've only covered some of that piece in this tutorial. The best way to learn how to use the tools of DCTV is to use them. We've seen a lot of spectacular images created with DCTV and Paint, and we know that what we've seen only scratches the surface. This is a new world, and you are the explorer.

SECTION 2

TUTORIALS

BEGINNING WITH DCTV

DIGITIZE AND PROCESS

PAINT

CONVERT

CONVERT

Now that you've learned how to Digitize and Paint with DCTV there's only one skill left. . . converting your images for use in other Amiga programs or to share with friends who don't have DCTV.

To complete this tutorial we will use the Porsche.DCTV image used previously.

1.   Go to the Digitize and Process menu and load the picture.

2.   Select CONV from the menu to go to the Convert menu.

3.   The Convert menu displays on the standard Amiga RGB display. When you selected CONV the composite monitor went blank. Switch to the standard RGB Amiga display.
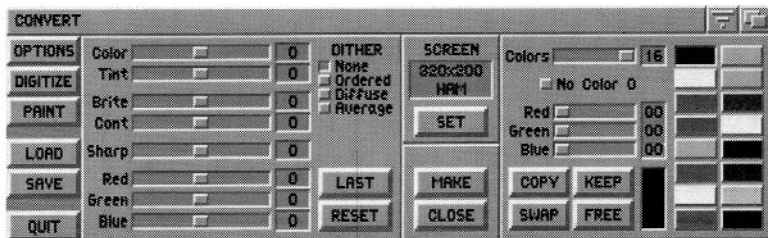
Fig. 11 Convert Page

4.   Notice that the Convert screen is blank and the MAKE button is flashing. Click MAKE to bring your image into Convert.

5.   Convert should now display the DCTV logo on its display. A picture that looks good in composite mode may not look as good when displayed in

RGB. Here the Color appears a bit high. Click to the left of the slider for Color control until a -3 appears in the box to the right of the slider. Click Make to display the changes.

6. The picture has decreased color saturation but is still a bit bright. Set the Brite control to -2 and click Make to see the effect.

By now you should have a fairly clean picture on the Amiga display. Unless you've modified the settings it is a HAM picture with 4096 colors and could be used with any Amiga software that uses this format. Many programs, such as Deluxe Paint III, require that the image have 64 colors or less. Let's reduce the number of colors in our logo.

1. Click on SET and bring up the Screen Mode menu. If your menu is set to the defaults it should indicate that the Mode is Lo Res, the size is a normal 320 X 200 NTSC or 320 x 256 PAL, and it is a HAM picture with 4096 colors.

2. Let's reduce the number of colors to 32. Click on the box next to 32 in the Colors area to make the change and then select USE to return to the Convert menu. When you return the Convert display will be black and MAKE will be flashing.

3. Select Make to display the car in 32 colors.

While the image has taken on some graininess it is still a usable image and could be brought into a standard paint program for modification. You also could dither this image to see the effects dithering would have.

DITHERING THE IMAGE

1.   Select Ordered under the Dither options and then Make to display the changes.

2.   Repeat number 1 for Diffuse and Average. When you've examined these dither patterns, select Normal to return the car picture to its original form.

Using the Color options on the right side of the Convert menu you can perform many special effects. Let reduce the number of colors used to see the effect it has.

1.   Click to the left of the Colors slider until the number displayed is 25 and then press Make to display the changes. Notice that although we have reduced the number of colors from 32 to 25 the picture still has the basic colors of the original.

2.   Lets reduce the colors down to 10 by clicking to the left of the colors slider until 10 is displayed. Press Make to display the changes. Notice that as we reduce the number of colors the image begins to flatten out, but even with 10 colors, retains the basic colors of the original image.

3.   To see the maximum effect bring the colors slider all the way to the left. The number 2 should be displayed in the Colors status box. This will produce a basic two color image, which one would normally consider to be black & white. Let's make sure the image is black & white before we select Make.

4.   Click on the color on the top left of the Color Wells on the right of the Convert menu. Notice that the color is now displayed in the area next to the KEEP and FREE buttons. Lets make this color white by sliding the Red, Green, and Blue sliders all the way to the right. A 15 should show in all of the status boxes next to the sliders when you're done.

5. Click on the color just below the one we've just turned white. Let's make this black by pushing the Red, Green, and Blue sliders to the left. A 00 should appear next to each slider.

6. To make sure we keep these colors fixed, double-click on the KEEP button. A small dimple appears in each color indicating it has been selected. Now click MAKE to display the Porsche in black & white.

SCRATCHING THE SURFACE

Our intent with these tutorials was not to walk you through each and every feature in DCTV. If we did that, in all the myriad of combinations of functions available, you couldn't carry the manual you're now reading. Our intent is to provide you the basic skills necessary to begin producing DCTV art.

We've only scratched the surface of the possibilities available. Again, EXPERIMENT! Remember that if you don't understand something the Reference section of the manual will have a description of the item you're puzzled about.

Don't be afraid to try something new since, more than likely, the results will be interesting. Even if the results aren't what you expected, you've furthered your knowledge of DCTV and, even better, had fun while doing it!

SECTION 3

REFERENCE

DIGITIZE AND PROCESS

PAINT

CONVERT

DIGITIZE AND PROCESS

DCTV's built-in digitizer allows you to create DCTV art using your video equipment.

Starting Up

Enter the Digitize and Process section of DCTV either by selecting Digitize or using the Amiga-D key shortcut from either the entry, convert or paint menus. The Digitize and Process page is displayed on your DCTV composite screen while a representation is displayed on the Amiga's RGB monitor.
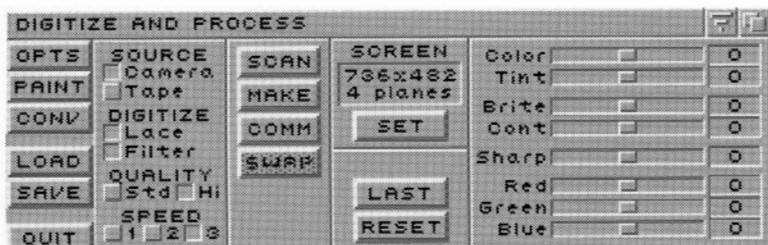
Fig. 12 Digitize and Process Page

The Digitize and Process Page

DCTV's Digitize and Process page is divided into four sets of tools, System, Image Capture, Image Control, and Image Processing.

DCTV USER'S GUIDE

SYSTEM TOOLS

In the left menu you'll find six buttons:

OPTS   Selecting options brings up a sub-menu for select-
ing the operating parameters of DCTV. Available
are options to shut-down Workbench under low
memory conditions, to enable the swap page if
enough memory is available, and to save icons for
your images. Selecting Save from the sub-menu
records your choices for future use, while Use
enables them for the current DCTV session. Can-
cel exits the sub-menu without changes.
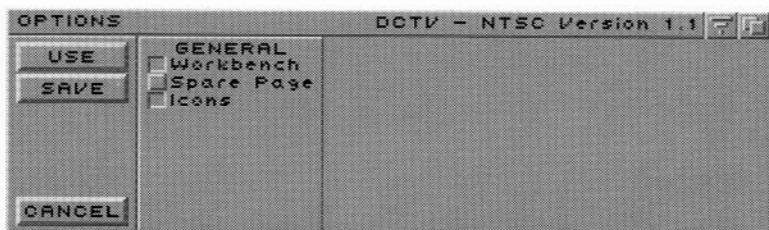
Shortcut: Amiga O

Fig. 13 Options Requester

PAINT   PAINT moves you to the Paint section of DCTV.

Shortcut: Amiga P

CONV   CONV is short for Convert and moves you to the
convert section of DCTV.

Shortcut: Amiga C

LOAD
Load an image into DCTV. LOAD will automatically sense the type of file you are loading and convert it to the proper format for DCTV display.

Shortcut: Amiga L

SAVE
Save an image in RAW, Display, or 24-bit IFF format.

Shortcut: Amiga S

QUIT
Exit from DCTV to Workbench. If you select this requestor in error, cancel returns you to DCTV.

Shortcut: Amiga Q

IMAGE CAPTURE

The image capture tools control how your image is digitized and tells DCTV the type of video equipment you'll use. DCTV will capture images from any video source. In order for your image to be captured it must be free of movement for 6 to 10 seconds. Any video noise, such as that created by many consumer video decks when held in pause, will be picked-up in the image created by DCTV. Even when a paused image looks rock solid to the eye, it may still have noise in the signal that will show up when digitized with DCTV.

While testing DCTV we found that some VCRs demonstrate a tendency to interlace backwards. If you are using a VCR and diagonal lines appear broken or severely stair stepped type <CTRL> F1 to rearrange the scan lines.

SOURCE

Camera
Sets up DCTV to digitize signals from a color video camera.

Tape
Sets up DCTV to digitize signals from a video tape, laser disc or a still video camera such as the Canon Xapshot.

DCTV USER'S GUIDE

DIGITIZE

Lace   Determines the number of fields of information DCTV will use to make a picture. Interlaced will require twice as much memory as non-interlaced.

Filter   Sets up filters to decrease noise in your captured image.

QUALITY

Quality controls the number of fields DCTV uses to digitize the data. The default setting, Hi, provides the optimum setting and results in the best possible image. The standard setting (Std on the menu) reduces the number of fields captured by DCTV. The standard setting is useful for reducing the size of the image buffer in critical memory situations.

SPEED

DCTV has three speed settings available. For a strong video source under normal conditions the proper selection would be 3. If your video source is less than perfect you will get better results using a setting of 2. If DCTV has difficulty recognizing your video source it will automatically step-down to a speed which better matches the video signal. The speed setting of 1 is recommended for use in developing special effects when used in conjunction with the pause control during scanning.

IMAGE CONTROL

DCTV's Image Control tools are used to digitize images and, with DCTV's Image Processing Tools, modify the image for use by DCTV Paint and Convert.

SCAN   Selecting Scan begins the capture of an image by
DCTV. After selection you may view and focus
the video source's image on DCTV's composite
display. As indicated on the standard Amiga
display, click the left mouse button to begin capture
or the right mouse button to cancel. During the
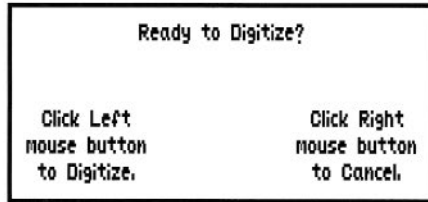scan you may abort by clicking the mouse button.

```
┌─────────────────────────────────────────┐
│          Ready to Digitize?             │
│                                         │
│                                         │
│   Click Left              Click Right   │
│   mouse button            mouse button  │
│   to Digitize.              to Cancel.  │
└─────────────────────────────────────────┘
```

Fig. 14 RGB Digitize Requester

Clicking the left mouse button during scanning
pauses and allows you to alter the scanned image.
This provides a way to introduce some interesting
effects into the image. To resume scanning, click
the left mouse button.

Shortcut: Amiga D or F1

MAKE   Make modifies the image on the display when
you've made changes to the parameters in DCTV's
Image Processing tools. To remind you that you
have modified the parameters, the Make button
will flash until you've rebuilt the display. Make
modifies only the screen display and NOT the
data stored in DCTV's buffer.

Shortcut: Amiga M or F2

COMM   Comm is short for commit. Selecting Comm
modifies the data stored in the DCTV buffer.
Comm permanently modifies the buffer data to
match the settings of the current image display. If
you select Comm by accident you will be pre-
sented with a requestor allowing you to cancel
this action without affecting the buffered image
data.

DCTV USER'S GUIDE

SWAP   If you have enabled the Swap page you may move
            from the current screen to a second image screen.
            DCTV will hold a maximum of two separate
            images in memory. The Swap button will be
            unavailable and ghosted if you have not set the
            swap page option or do not have enough system
            memory available.

            The minimum requirement for using swap is two
            megabytes of Amiga memory.

IMAGE PROCESSING

SCREEN

Screen displays the current image size and number of bit-planes

SET	SET takes you to the Screen Mode where you can set the digitizing environment for the screen.

SCREEN MODE

MODE	When this button is in, interlace is on.
DEPTH	Changes the number of bitplanes used by the image to either 3 or 4. Due to video's natural dithering you will observe very little difference in most images. However, when saving your work for use by other Amiga programs, the 4 bitplane selection will typically provide a better image.
SIZE W	Enter the width here or use this to see the size chosen on the right.
SIZE H	Enter the height here or use this to see the size chosen on the right.
PRESETS	REG, STD OSCAN, VIDEO, CUSTOM are all preset amounts dependent on the interlace mode.
LAST	Swaps the current image parameters with those last used. Last may be used to quickly show the differences in an image resulting from changes to other Image Processing tools.
RESET	Sets the settings to the default parameters found at program start-up.

Color   Increases or decreases the saturation of color in the image. Along with the increase or decrease of color you may find that the amount of noise in the picture is increased or decreased correspondingly.

Tint   Like the hue or tint control on the television, tint controls the shades of color in the image.

Brite   Increases or decreases the brightness of the image. Please note that this is a very active control with a small amount of change making a large adjustment in the image's brightness.

Contrast   Enhances or decreases the difference between light and dark features of the image. Contrast can be used to bring out the edges and transitions within the image but may result in some loss of image detail.

Sharp   Increase or decrease the sharpness of an image. This control can be used to enhance edges and bring out details in the image. Transitions between objects can be sharpened or softened by increasing or decreasing the control.

Red   Increase or decrease the amount of red in the image.

Green   Increase or decrease the amount of green in the image.

Blue   Increase or decrease the amount of blue in the image.

SECTION 3

REFERENCE

DIGITIZE AND PROCESS

PAINT

CONVERT

PAINT

This section of the manual is intended as a reference guide to the tools and options available in DCTV Paint. The operation and options available are listed for each tool and mode, and some examples provided. More examples can be found in the Paint Tutorial.

NAVIGATING IN PAINT

You get to paint by clicking on the PAINT button, on the left side of the opening panel, also the Digitize and Convert panels. There are no pull-down menus in Paint. Everything is controlled through various panels, and subpanels. Each major tool, and each mode has its own panel.

You can get to DIGITIZE, CONVERT, or OPTIONS from PAINT by clicking on the appropriate gadget.

Mouse operations in PAINT are the same as they are throughout DCTV. All options are accessed through panels, and all operations are accomplished through the left mouse button. In Paint, the right mouse button is used solely to remove panels or to bring them back.

Aborting Operations

Most PAINT operations can be aborted by pressing the spacebar. If the creation of an object - such as a rectangle - has already begun, it will be halted in progress at the point where it is when you hit the spacebar. If you are dragging out a line, curve, rectangle, ellipse, or filled shape, you can hit the spacebar before you release the left mouse button and the entire operation will be aborted.

UNDOing Operations

You can UNDO most operations in Paint by pressing "u" or clicking on the UNDO gadget on the tool bar if your Amiga has enough memory and the UNDO feature is enabled.

THE PAINT PANEL

When you click on the PAINT button, the Paint Options screen will come up. This screen allows you to select the global paint options, as well as interlace and number of bitplanes.
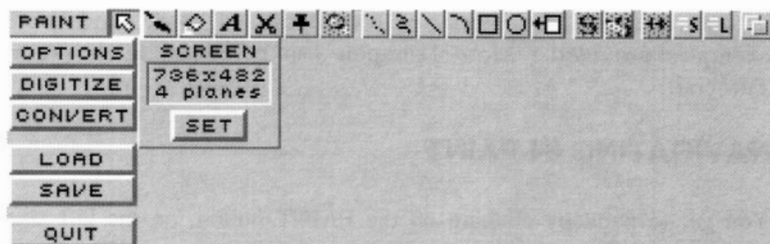
Fig. 15 Paint Options Page

SCREEN

Before you enter Paint, you can specify the characteristics of the Paint Screen. These are:

SCREEN

Screen displays the current image size and number of bit-planes

SET   SET takes you to the Screen Mode where you can set the digitizing environment for the screen.
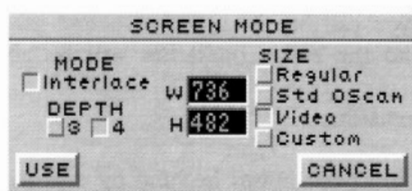
SCREEN MODE

Fig. 16 Screen Mode

MODE   When this button is in, interlace is on.

DEPTH   Changes the number of bitplanes used by the
                     image to either 3 or 4. Due to video's natural
                     dithering you will observe very little difference in
                     most images. However, when saving your work
                     for use by other Amiga programs, the 4 bitplane
                     selection will typically provide a better image.

SIZE W   Enter the width here or use this to see the size
                     chosen on the right.

SIZE H   Enter the height here or use this to see the size
                     chosen on the right.

PRESETS   Regular, Std Oscan, Video, and Custom are all
                     preset amounts dependent on the interlace mode.

USE   Use these settings.

CANCEL   Cancel new setting and return to previous page.

Low Memory Situations

*The above settings affect how much memory you will use when in Paint
mode. Operating with Interlace, Overscan, and a Depth of 4 will use the
most memory. If you are operating with less than 2 megabytes, you may
need to conserve memory by selecting no interlace, no overscan, and a
depth of 3. The more memory you have available, the more features of
DCTV Paint you will be able to use. Operations like Stencil and Spare
Page and even Clips are subject to the amount of available memory. If you
run too low, you will not be able to use these operations.*

DCTV USER'S GUIDE

OPTIONS
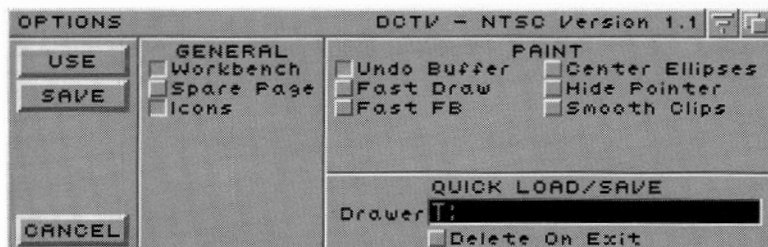
Fig. 17 General and Paint Options

GENERAL   Same as described in Section 2 - Beginning in DCTV/OPTIONS.

PAINT

Undo Buffer   When enabled allows the use of the UNDO function.

Fast Draw   This option reduces the number of bitplanes DCTV uses to 3 during draw operations. When the Amiga operates in 4 bitplane mode, it may need to "borrow" cycles from the CPU to keep the screen refreshed. When this happens, there is less CPU time left over for other operations. Dropping to 3 bitplanes allows draw operations to proceed at full system speed.

Fast FB   Because of the complexity of DCTV drawing operation, it is not always possible for the display to keep up with the mouse. Fast Feedback creates a dotted line that tracks the movement of the mouse, allowing you to have visual feedback on your current operation. The dotted line turns into a "marquee" when the mouse stops, and the operation completes when the mouse stops.

Center Ellipses

This option affects the way ellipses and circles are drawn. Normally, when drawing an ellipse, the starting point becomes the outer edge after the figure is complete. When Draw From Center is selected, the starting point becomes the center, and the ellipse expands around that point.

Hide Pointer If you select this option, the mouse pointer will be hidden any time you perform a draw operation on the Paint screen. As soon as the left mouse button is released, after a Paint operation, the mouse pointer will reappear.

Smooth Clips This option, when selected, will apply a smoothing operation to clips which have been resized. This helps to reduce "pixelization" of clips which have been enlarged. It also applies antialiasing to clips which are reduced in size. This helps to preserve detail. Smoothing adds to the time it takes to perform a resizing operation. For faster operation, turn smoothing off.

QUICK LOAD/SAVE

This allows the user to target a place to have the Quick Load and Save feature save the files. Defaults to T:. Option to have file deleted on exit from program.

After you have made your selections on this panel, click on the Brush icon. This icon is second from the left, on the tool panel. This will take you into Paint Mode.

Shortcut: b

DCTV USER'S GUIDE

PAINT MODE

Clicking on the brush brings you into Paint mode and brings up the Brush panel. There are 10 different panels in Paint, serving different functions.

The Tool Bar
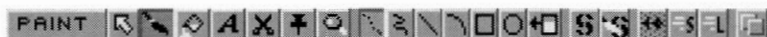
*Fig. 18 The Tool Bar with Spare Page
and Quick Save and Quick Load*
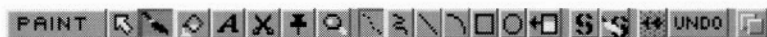
Fig. 19 The Tool Bar with Spare Page and Undo

These bars contains all the paint tools, as well as the Options and Screen-Top-Back gadget. Notice that Undo replaces Quick Save and Quick Load when chosen. Taken in order, from left to right, the tools are:

Options Shortcut: Right Amiga-O

Clicking on this gadget will take you to the Paint Options page.

Brush Shortcut: b

Clicking on this gadget will take you to Paint, from Options.

See: Brush Panel

Flood Fill

Shortcut: f

Clicking on this gadget will put you into Flood Fill mode. There are four types of Fills available: Solid, Pattern, Gradient, and Warp. Select these Fill types, with various options, from the Fill panel. Flood Fill works with stencil.

See: Fill Panel

Text

Shortcut: t

The Text tool allows you to select a font (and its size) from any font directory, and lets you select the style and attributes of that font as well. All controls for the Text tool are on the Text panel, which comes up automatically when you select the Text tool.

See: Text Panel

Clip

Shortcut: c

This gadget allows you to "cut" an area from your graphic, and brings up the clip panel. This tool works with the draw mode you have selected. If you have selected continuous freehand draw, you can draw a freehand line around the area to be cut. When the left mouse button is released, that region will be cut. If you are in rectangle mode, you will be drawing a rectangular region to be clipped. Circle/Ellipse mode allows you to clip elliptical or circular regions. Once you have cut a clip, you are put into Tack mode.

A clip can be "stamped" anywhere on the screen. Once you have cut a clip, you can resize it, flip it, rotate it, shear it, and warp it. All the options associated with clips are available through the Clip panel, discussed later.

See: Clips Panel

Tack   Shortcut: p

Clicking on this gadget puts you in Tack mode. Once you have clipped a region, Tack mode allows you to place it anywhere on the screen. Click on the region you have clipped (it will be identified by a "marquee" line) and, holding the left mouse button down, move the mouse until the clip is where you want to paste it. Whenever you pause, the clip is redrawn.

Click anywhere outside the marquee line to paste your clip on the screen, or click on the Paste gadget.

Clicking on the brush gadget will take you out of tack mode. You may return to tack mode at any time. If you have not cut out any other clips, your last clip will return to the screen.

Tack mode is also used to activate text stencils and auto-clips.

See: Clips Panel

Magnify   Shortcut: m

When you click on the Magnify gadget, a marquee square appears on the screen. This square indicates the area to be magnified

You may move this square with the mouse to the area you want to magnify. When it is in position, click the left mouse button and the region will be magnified. Once in Magnify mode, you may move about the screen by using the cursor direction arrows. Click again on the Magnify gadget to exit Magnify mode.

Use the "i" (In) or "o" (Out) or the "<" (less than) or the ">" (greater than) keys to change the power of magnification. Using the "m" shortcut will toggle between normal mode and magnify mode using the last magnification chosen. The power of magnify is normal, 2X, 4X, or 8X.

The Drawing Tools

Dotted Freehand Line

Shortcut: s

When you click on this gadget, you are put into Dotted Freehand Line Draw mode. When you draw in this mode, you are actually laying down a series of dots. If you move the mouse slowly, the dots will be spaced close together, and will form a solid line. The faster you move the mouse, the further apart the dots will be spaced.

Continuous Freehand Line

Shortcut: d

In this mode, DCTV will track the mouse as closely as possible, and will draw a solid line. It is likely that you will be moving the mouse faster than DCTV can do the calculations necessary to create the line, so it's a good idea to have Fast Feedback selected.

Straight Line

Shortcut: v

When you select this gadget, you will be in Straight Line mode. Click the mouse once to specify the start of the line, and move the mouse to the endpoint of the line. DCTV will display a "rubber band" to show you where the line will be drawn. When you are satisfied with the line, click the left mouse button again, and the line will be drawn.

Curve

Shortcut: q

Clicking this gadget places you in Curved Line mode. In this mode, you can draw lines ranging from simple arcs to sinusoidal curves. Curves are defined by four points - two end points, and two control points. By creating these points on the screen, you define a "cage," within which the curve is drawn.

Hold down the left mouse button to start the curve. The starting point is the first endpoint. Now, move the cursor to the other end of your desired curve. When you release the mouse button, you will have created the second endpoint for the curve. (You'll have a straight line at this point, as indicated by the marquee line. It will turn into a curve when you define the control points.) Move the cursor around the screen. You'll notice the marquee line forming a curve in response to the movement of the cursor.

You have a choice at this point: You can click the left mouse button at any desired position, and the curve - with only one control point - will be drawn. You can create a second control point by holding down the left mouse button. The first control point is created when you press the left mouse button; the second control point will be created when you release the mouse button.

Bezier curves - the type of curves we are creating - can be a little difficult to understand. If you can visualize the curve as conforming to the shape of its "cage" then these curves will be easier to understand.
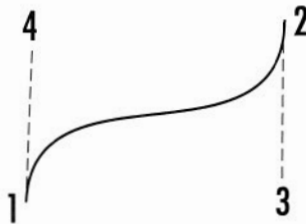
Fig. 20 Bezier Curves

The previous illustration demonstrates a bezier curve with two control points. The numbers indicate the control points. Points 1 and 2 are the

endpoints; 3 and 4 are the control points. The dashed lines from the control points to the curve illustrate the relationship between these points.

You also can draw closed curves by clicking once at the start of a curve and releasing the left mouse button. Then, hold the mouse button down, move to the mid-point of your curve and release the button. You will get a kind of "tear drop" shape from this operation.

Rectangle   Shortcut: r

This tool allows you to create rectangular shapes. Hold down the left mouse button, and drag out the shape in any direction. When you release the button, your rectangle will be drawn.

Squares can be drawn by holding down the ALT key while dragging out the rectangle.

Ellipse   Shortcut: e

This tool allows you to create circles and ellipses. Hold down the left mouse button, and drag out your shape in any direction. This tool draws from the edge of the ellipse unless Center Ellipses is chosen in Paint/Options. When you release the button, the ellipse will be drawn.

Circles can be drawn by holding down the ALT key while dragging out the ellipse.

Draw Filled Shortcut: D

Clicking on this gadget affects the way Continuous Draw, Straight Line, Curve, Rectangle, and Ellipse operate. The Rectangle and Ellipse tools will now draw filled shapes. The Straight Line tool becomes a Filled Polygon tool, and the Curve Tool creates filled, amorphous shapes. The Rectangle and Ellipse tools operate the same as before, but the Straight Line and Curve Tools behave differently.

When you create a filled shape, it will be filled in a manner determined by your selection in the Fill panel. The default setting for Fills is Solid.

See: Fill Panel

Filled Polygon Shortcut: V

In this mode, the Line Draw tool becomes a filled Polygon tool. Click once to start the line, and - holding the left mouse button down - move the cursor to the next vertex in your desired shape. Release the left mouse button and the first side will be established. Move the mouse to the next point and click once. Repeat this for every additional side you desire. You will notice that the cursor is "rubber-banded" to the origin, so that your shape is always enclosed.

When you reach the final point in your shape, click the left mouse button twice. Your figure will be drawn and filled in.

Holding down the ALT key during this operation will only allow you to draw lines in increments of 15 degrees.

Curve   Shortcut: Q

As with the Straight Line tool, each click will create another "corner" for this shape. Actually, these corners are anchors. The shape will continue to curve around the midpoint you specify, but the line will now flow between your starting point and the last anchor.

Filled Ellipse   Shortcut: E

The Ellipse tool, in Filled mode, behaves the same as it does in outline mode. Click the left mouse button once to start the shape, hold it down, and move the cursor outward from the origin. When you have completed the desired shape, release the mouse button and the filled ellipse will be drawn.

Filled Rectangle   Shortcut: R

The Rectangle tool behaves identically in Filled mode as it does in Outline mode. Click the left mouse button once to start the rectangle, hold it down, and move the cursor outward from the origin. When you have achieved the desired shape, release the mouse button and the filled rectangle will be drawn.

Stencil   Shortcut: ` (Accent Grave)

Clicking on the Stencil gadget turns the stencil on. (When the Stencil button is depressed, the stencil is on. When the Stencil button is out, the stencil is off.)

Stencil Draw   Shortcut: ~ (Tilde)

Stencil Draw mode is where you create your stencil. A stencil is a one-bitplane mask which "protects" anything under it. When you create a stencil, you are describing areas on the screen that cannot be painted over. (You can think of the paint you are laying down on the screen as masking tape.) The controls for Stencil attributes are all found on the Stencil panel, which is brought up when you click on STEN on the attributes selector bar..

See: Stencil Panel

Swap Page   Shortcut: j

If you have set "spare page" as your global option, clicking on this gadget will swap your current screen with the spare page.

Copy to Spare: J

Quick Save   Shortcut: S

The Quick Save gadget allows you to save the current picture immediately. It will be saved to the device and directory you have specified in the Paint Options section.

Quick Load   Shortcut: L

The Quick Load gadget will load the picture saved in the Quick Load buffer. Clicking on the Abort gadget will stop this operation.
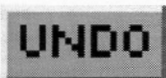
Undo   Shortcut: u

Clicking on the UNDO gadget (or pressing u) deletes the last operation performed from the screen. Clicking or pressing a second time "un-does" the undo. Must be enabled in the Paint/ Options first.

Screen To Back

Shortcut: Left Amiga-n

This gadget sends the DCTV screen to the back.

THE PALETTE PANEL
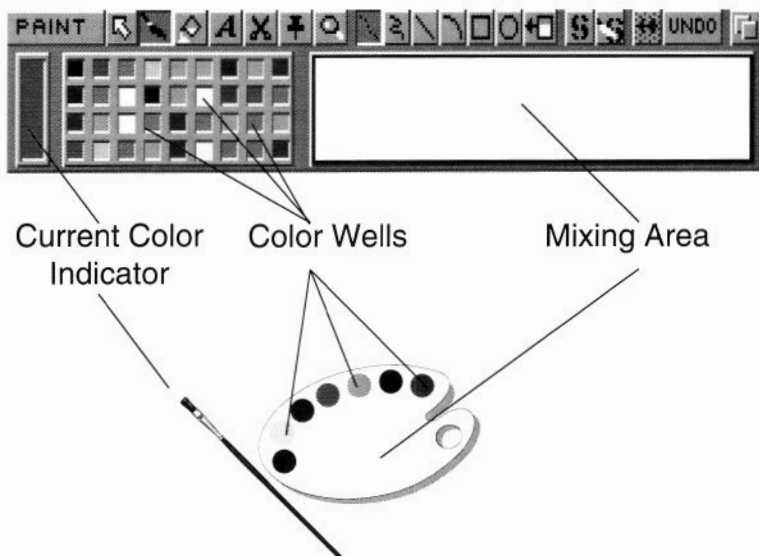
Fig. 21 The Palette Panel

Current Color:

> This bar will show the color you have currently
> selected. As you change colors, either by selecting
> a color from the color slot area, the screen, or by
> creating one with the color controls, this indicator
> will change. Clicking on this indicator will cause
> the artist's palette to fill with the current color.

Color Wells   These 36 wells hold the colors of your choice.
When you first run DCTV, they will be filled with
the default colors. You may replace any of these
colors choosing a color, holding down the shift
key, and clicking on the desired well.

There is also another Color Wells panel found under the name WELLS on the middle bar selector. It contains the current color, the color wells (in a different configuration) and the stencil and shadow colors. The lower WELLS can be reached when another panel is preventing you from using the wells on the top half of the Paint page.

Artist's Palette

This is a "mixing area" for your colors. You can use this area the same way an artist uses the palette. Blend colors here, until you get the results you like. Then, while holding down the shift key, click on the desired color. Your brush will now use that color.

THE CLIP PANEL

Rotate Gadgets   Size Gadgets   Shadow Gadgets

Flip/Distort Gadgets   Misc. Gadgets
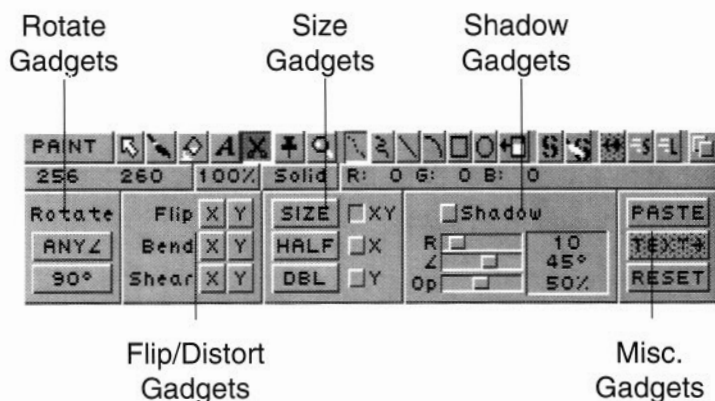
Fig. 22 The Clip Panel

The CLIP PANEL provides the means to alter your current clip. Since text can be created as a clip these operations will work on text clips as well.

ROTATE GADGETS

ANY *L*

The ANY *L* (any angle) gadget allows you to rotate your clip any amount around its center. When you click on this gadget, your clip will be bounded by a marquee. Hold down the left mouse button, and move the pointer in a circular direction around the center of the clip. You will notice the left part of the status bar indicates the amount of rotation. When you pause the rotation for a couple of seconds the marquee will be redrawn. When you're satisfied with the position of the clip, release the mouse button. The clip will be redrawn in its new rotated position.

90 DEG

This gadget will rotate your clip one-quarter turn clockwise. (Holding down the shift key when you click on this gadget will rotate your clip one-quarter turn counter-clockwise.) Each time you click on this gadget, the clip will be rotated an additional 90 degrees.

Shortcut: z (clockwise) & Z (counter-clockwise)

FLIP/DISTORT GADGETS

FLIP

X

This gadget will "flip" your clip 180 degrees - reverse it - along the X axis. This creates a mirror image of the original clip.

Shortcut: x

Y

This gadget flips your clip 180 degrees along the Y axis. FLIP Y will, in effect, turn your clip upside-down.

Shortcut: y

BEND

X

This gadget allows you to "bend" your clip any amount along the X axis. After you click on the BEND X gadget, a marquee will appear along the boundary of your clip. Hold down the left mouse button. Then, by moving the mouse to the right or left, your clip will "bend" in the direction you move.

Y

Like the BEND X gadget, this will allow you to bend your clip, but along the Y, or vertical, axis. After you click on the BEND Y gadget, a marquee will appear along the boundary of your clip. Hold

down the left mouse button. Then, by moving the mouse up or down, your clip will "bend" in the direction you move.

SHEAR

X

Shearing a clip is similar to bending it. After you click on the SHEAR X gadget, a marquee will appear around your clip. The top of the clip is anchored, and the bottom is free to move. By holding down the left mouse button, you can move the bottom of the clip to the right or left. Note that the sides of the clip remain parallel during this operation.

Y

If you click on the SHEAR Y gadget, the shear operation will take place vertically, along the Y axis. The clip will be anchored at its left-most point, and the top and bottom sides will remain parallel as you move the right-most side up and down.

SIZE GADGETS

The Size Gadgets will perform the sizing operations dependent upon the Axis choice buttons - XY, X, or Y. For example DBL with X on will double the size along the X axis only but DBL with XY on will double both the width and height of the clip.

SIZE

Hitting the SIZE gadget puts you into a mode that allows you to make your clip larger or smaller. You will see a "marquee" on the screen, forming the boundary of your clip. You resize a clip by holding down the left mouse button and dragging the mouse. If you drag away from the center of your clip, it will become larger. Drag toward the center, and it will become smaller.

If you hold down the ALT key during this opera-
tion in the XY mode, your brush will maintain the
same aspect ratio while you resize it. That is, its
height and width will remain in the same propor-
tion. You can press the ALT key at any time during
a resize, or you can release it at any time. If you
have the ALT key pressed when you release the
mouse button, your resized clip will retain its
aspect ratio.

HALF

Clicking on this gadget will halve the size of your
clip along the chosen aspect.

DBL

Clicking on this gadget will double the size of your
clip along the chosen aspect.

SHADOW GADGETS

The shadow gadgets allows the DCTV user to
automatically create a drop shadow for text or
clips. The distance from the clip, the angle from
the clip, and the darkness of the shadow are
controlled by the settings of these gadgets.

The shadow gadgets will only work on a clip or
text clip when the Shadow button is chosen (in).

R   R is the distance (radius) of the drop shadow from
the clip.

L   The **L** (angle) allows you to set the angle of the
shadow relative to the clip. Zero degrees is to the
right and 90 degrees is straight down.

Op   Opacity controls how much of the underlying
DCTV image will show through the shadow.

The color of the shadow is chosen and set using the
Wells panel. The default color is black.

MISC GADGETS

PASTE   Clicking on the Paste gadget will paste, or tack, your clip at the position of the clip.

TEXT   This gadget will generate or regenerate text clips created on the Text panel. Use this to recolor text. clips

RESET

The RESET gadget will restore your original clip.

Hint: AUTO-CLIP You can make any filled shape into a clip by typing "C" (SHIFT-c) immediately after the shape is drawn. Note that this only applies to shapes created with any of the filled geometrical tools. Selecting the Tack tool will activate the clip, which will appear where the filled shape was drawn.

Importing Deluxe Paint brushes

Deluxe Paint brushes may be loaded into DCTV Paint through the Clip Load requester. The brushes will appear as DCTV clips an may be used as such.

DCTV USER'S GUIDE

THE FILE PANEL
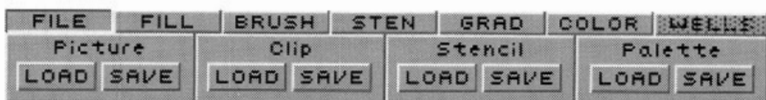
Fig. 23 The File Panel

The file panel allows you to do all of your file handling from inside of DCTV Paint. All DCTV file types - pictures, clips, stencils, and palettes - can be either loaded or saved with some options available.

All gadgets are available except when there is nothing to save. The gadget will then be ghosted.

Picture

Load　DCTV Display, RAW, 24-bit and standard IFF images can be loaded into DCTV Paint here. If the picture does not match the screen preferences (size, interlace, bit planes) you will be asked if you wish to adopt the images settings.

Options: Auto Scale, Center, RGB Filter

Save　Save your DCTV image here. Before clicking on SAVE be sure that you have determined which file type - Raw, Display, or 24-bit - you wish to save your image as. The default is RAW. For more information on DCTV file types please see Appendix I.

Options: Raw, Display, 24-bit

Clip

Load   DCTV clips and brushes made with Deluxe Paint can be loaded into DCTV Paint here. The Use Position option will place the clip at the place it was created.

Options: Auto Scale, Use Position, RGB Filter

Save   Saves DCTV clips.

Options: none

Stencil

Load   Previously created stencil can be loaded into DCTV here. Stencil can use stencils made in Deluxe Paint.

Options: none

Save   Saves DCTV stencils.

Options: none

Palette

Load   Loads DCTV palette information. You can selectively load all or part of the palette information by using the options buttons.

Options: Color Wells, Gradients, Mixing Area

Save   Saves all DCTV palette information.

Options: none

HINT: Save your favorite palette using the name "initial.pal" and set palettedrawer=<dir> (see Appendix G - Tool Types) using a directory of your choice to have DCTV start up with your palette.

DCTV USER'S GUIDE

THE FILL PANEL

FILE	FILL	BRUSH	STEN	GRAD	COLOR	WELLS
CLEAR	C Solid	Hilite		Warp		0%
WIPE	C Color	C Horiz.		Hilite L		0%
				Hilite H		100%

C Horiz.

C Vert.

C Point

C Solid	C Gradient	C Pattern	C Warp
C Color	C Border	C Tile	C Horizontal
C Solid	C Gradient	C Pattern	C Warp
C RubThru	C Horizontal	C Brick	C Vertical
C Solid	C Gradient	C Pattern	C Warp
C Filter	C Vertical	C Wallpaper	C Point
	C Gradient	C Pattern	
	C Linear	C MirrorTile	
	C Gradient		
	C Radial		
	C Gradient		
	C Remap		
	C Gradient		
	C Spiral		
	C Gradient		
	C 4-Point		

Fig. 24 The Fill Panel

There are two general types of fills. One is the kind that occurs in Filled Draw mode, and the other is a fill that is applied to a region with the Flood Fill tool. In Filled Draw mode (Filled Rectangle, Filled Ellipse, etc.) an object is automatically filled when it is created. When you use the Flood Fill tool, you specify an area with the stencil that is to be filled. Flood Fill arbitrarily fills any area not protected or bounded by the stencil.

Screen Clearing

CLEAR   Clicking on the CLEAR gadget will clear the Artist's Palette to the current brush color. Holding down the SHIFT key while clicking on CLEAR will clear the screen to the current brush color.

       Shortcut: K

WIPE   Clicking on the WIPE gadget will fill the Artist's Palette according to the current Fill mode. Holding down the SHIFT key while clicking on WIPE will fill the screen according to the current Fill mode. If you have selected Solid fill, the screen (or palette) will be filled with the current color. If you have selected Gradient, the fill will be governed by your Gradient settings. Any Fill mode is valid for a wipe operation.

       Shortcut: W

Type of Fill

Solid

    Color The Solid Fill option will flood-fill a region with the current brush color.

   Rub Thru

       This mode will fill your shape with information from the spare page. (You must have a spare page, of course, to use this mode.) This mode works with the Flow Rate setting. A Flow Rate of 100% will rub an opaque image through. At lower settings, the image will become more transparent, allowing more of the existing background to show through.

       Fill Directions: None.

Filter This choice will apply filtering to the area that you specify.

Gradient

Gradient Fill will flood-fill your shapes with the gradient pattern you have defined in the Gradient section.

Gradient Fill Directions

Border

The Gradient pattern will follow the contours of the border on your shape. The gradient will be applied horizontally, from left to right.

Horizontal

The Gradient pattern will be applied horizontally, from left to right, as the colors appear in the Gradient Preview bar.

Vertical

The Gradient pattern will be applied vertically, from top to bottom.

Note: The direction (horizontal, vertical) refers to the manner in which the gradient is laid down. A Horizontal gradient will result in bands running vertically; the color change will be horizontal. A Vertical gradient will result in bands running horizontally.

Linear

The gradient pattern will be applied in a direction you specify. After your shape is drawn, a rubber-band line will be strung from the center of the object to your cursor. The gradient will proceed in the direction of the line, moving from your cursor towards the object. Move your cursor until the line indicates the direction you'd like. Click once, and the gradient will be drawn.

Radial
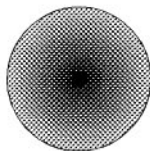
The gradient pattern will be drawn as a series of concentric rings. After your shape is drawn, a rubber-band will be stretched from the center of the object to your cursor. Your cursor indicates where the center of the gradient will be. Once you click, the gradient will be drawn from that point outward. (The gradient will be drawn only within the object you've created, but it will be drawn as if it were a circle whose center is the cursor.)

Remap

The Remap function is one of the most powerful features of DCTV. Remap allows the replacement of colors on the screen based on the colors on the gradient preview bar in relationship to the corresponding luminance level.

Gradient preview bar

000   127   255

Luminance level
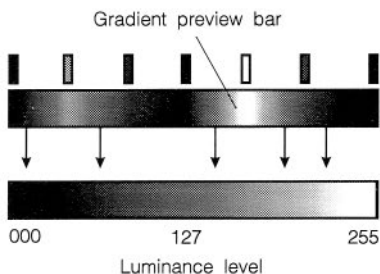
Fig. 25 Remap

Remap works with the solid, tint, and shade modes.

Spiral

Spiral uses the current gradient and swirls the colors out in a four step process. First draw the object to be filled with the spiral. Second, set the fill center point by clicking once. This point may be outside the boundaries of the object drawn. Third, set the spiral start angle by clicking again. Zero degrees is to the right. This is the initial angle of

the gradient. Fourth, set the amount of twist desired by moving the cursor around the center point. A rubber band spiral will indicate the path of the spiral. Check the status bar for information during this process.

Step-1	Step-2	Step-3	Step-4
Draw	Set	Set	Pull
Object	Center	Angle	Spiral
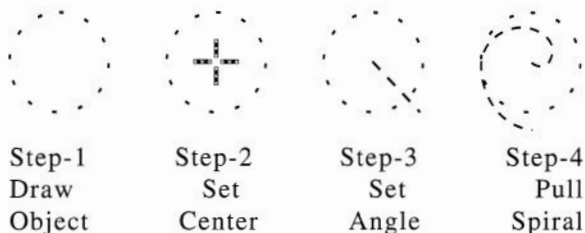
Fig. 26 The Four Steps of Spiral Fills

4- Point

The Gradient pattern will begin at the four "corners" of a shape - the topmost left point, the topmost right point, as well as the bottom left and right points - and will proceed toward the center of the shape.

Pattern

Pattern Fill will flood-fill your shapes with the current clip.

Pattern Fill Directions:

Tile
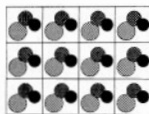
This mode will fill your shape with the existing clip, in tile fashion. The clip will be laid down, from right to left, in even rows and columns until the shape is filled.

Brick
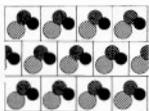
Brick fills are similar to Tile fills, but each row is offset 50% horizontally with respect to the rows above and below just as in a brick wall.

Wallpaper
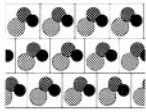
Wallpaper fill will "stamp" your clip in rows across the screen, from left to right. Because it is unlikely that multiple clips will exactly fill the width of a screen, some portion of a clip is normally left over. That portion will be carried over to the next row, resulting in a slight offset for each successive row.

MirrorTile
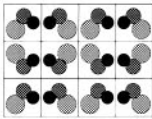
MirrorTile will make a fill pattern using the current clip. The pattern will be a repetitious grouping of left and right as well as up and down reflections.

Warp

Warp will apply perspective to the clip, as if the clip was being wrapped around a cylindrical or spherical object.

Warp Directions:

Horizontal

This direction will wrap a pattern around a horizontal cylinder.

Vertical

This direction will wrap a pattern around a vertical cylinder.

Point

A Point Warp will wrap a pattern around a spherical object.

Warp Factor

This control determines how severely the fill pattern will be bent or curved. You might imagine the same size clip being warped to form a small sphere and a large sphere. The clip will be curved more

when it is warped in the shape of a small sphere. In DCTV terms, this warp would have a greater depth than the same clip warped in the shape of a larger sphere.

Highlight

When you use highlight, a fill will have its transparency varied to simulate the effect of light being cast on the object. You can choose from horizontal, vertical, or point highlights. A Horizontal highlight will give the appearance of an object that is illuminated by light from the side. A Vertical highlight gives the appearance of an object that is illuminated from above (or below). Point highlight lets you set a single point at which light strikes the object. The range of the highlight - from its least transparent portions to its most transparent - is controlled by the Lo and Hi sliders.

Lo   The Lo control sets the low end of the transparency scale as it applies to Highlight. This control will determine how transparent the most transparent portion of a highlighted fill will be.

Hi   The Hi control sets the high end of the transparency scale as it applies to Highlight. This control determines how transparent the highlight will be at its least transparent point.

The Hi point of a highlighted fill is the highlight itself, and the Lo points are the outer boundaries of the highlight. If you reverse the normal settings - set Hi to 0%, or some low percentage, and set Lo to 100%, or some high percentage, the behavior of highlight reverses. The Highlight point will now be the most transparent, and the outer boundaries will be the least transparent.

Highlight Direction:

None No highlight.

Horizontal
> The highlight will range from the highlight point outward, horizontally. The highlight point is set by placing the cursor at the desired highlight point and double-clicking the left mouse button.

Vertical
> The highlight will range from the highlight point to the upper and lower boundaries. As with Horizontal, you set the Highlight point by double-clicking the left mouse button at the desired location.

Point When you select Point highlighting, a line will appear on the screen. Drag this line to the point where the highlight should be, and double-click. This area - the point - will be the focal point for the highlight.

THE BRUSH PANEL

Paint Modes   Brush Controls   Brush Shapes
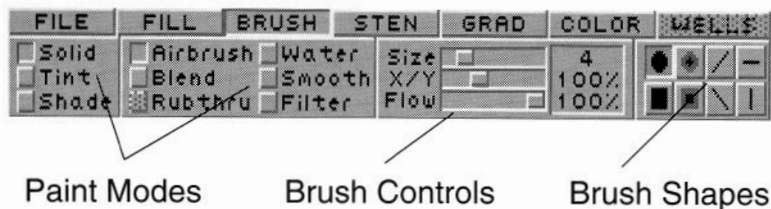
Fig. 27 The Brush Panel

Size

The brush size gadget is a slider that allows you to select from 20 different brush sizes. Moving the slider to the right increases the size of the brush.

X/Y

This gadget controls the aspect ratio of a brush, its vertical size with respect to its width. When the slider is set to 100%, the brush is as tall as it is wide. At 200%, the brush will be twice as tall as it is wide. At 50%, it will be half as tall as it is wide. The choices range from 50% to 200%, in increments of 1%.

Flow

This slider controls the rate at which paint is applied to the canvas (screen). If you think of the brush as an airbrush, this control would let you lay down anything from a fine mist to a heavy layer. It operates differently according to the mode you have selected. In Solid mode, it controls the luminance, value, or component (R,G,B or C,M,Y) of the color. If you are using the RGB color control, you would notice that at a flow rate of 100%, our red had an R component of 255. At 75%, the R component drops down to about 190. At 50%, the R component will be about 126.

Each time you make a pass, if the flow rate is set to something less than 100%, you will build up the color to a maximum of 100%. Also, when the flow

rate is less than 100%, any color placed over another will not cover it completely. (The effect is similar to painting a darkly-colored wall with a light paint. It takes a thick coat to cover the old color completely.)

Paint Modes

There are 9 paint modes in all. These are divided into three effects (Solid, Tint, and Shade) and six styles (Airbrush, Rub Thru, Smooth, Water, Blend, and Filter).

Solid   This is the classic paint mode. You select a color, and use it to paint on the screen. The "paint" is applied at a rate determined by the Flow setting. Your paint will be "thinned" at Flow settings of less than 100%, so how well you cover colors already on screen is dependent upon the Flow setting.

Shortcut: F1

Tint   In tint mode, the color you are painting with is used to modify colors already on screen. The color component, chrominance, of the color you are using replaces the chrominance of the color you paint over. The luminance, or level of brightness, remains intact. Tint mode leaves the characteristics of an image intact, while changing the colors. For example: A black-and-white picture lacks Chrominance. There is only Luminance. Details are distinguished by their levels of brightness. In Tint mode, you can "colorize" a black-and-white picture by using a particular color to add chrominance to the luminance already present. The chrominance of your brush will be applied to the screen colors in direct proportion to the flow rate. A flow rate of 100% will transfer all the chrominance from your brush to the screen colors, while a flow rate of 50% will transfer only half the

chrominance. (The effect is similar to thinning the pigment you're using to dye something. Use less, and the effect is diminished.)

Shortcut: F2

Shade

Shade is the opposite of tint. In shade mode, you modify the luminance of a picture, while the color remains intact. If you have selected white, any color you paint over will become brighter. Selecting a color with a lower luminance value - black, for instance - will cause anything you paint over to become darker. Like Tint, the amount of luminance information transferred from the brush to the screen will depend upon the Flow setting. A setting of 100% will transfer all the information, while a setting of 50% will transfer only half.

Shortcut: F3

Airbrush

Airbrush is the default painting mode. The airbrush has a continuous supply of paint, and deposits it directly on the screen, at a rate determined by the flow setting. Airbrush, by itself, does not modify any paint already on screen.

Shortcut: F4

Watercolor

In Watercolor mode, your brush is charged with a finite amount of paint. As you paint a line, the color will thin and eventually run out just as a real brush would. The Flow setting determines the amount of paint on the brush. At 100%, Watercolor mode behaves like Airbrush mode. As you reduce the setting, your paint runs out more quickly. The brush used in Watercolor mode is permanently "wet." After the initial charge of paint is gone, Watercolor mode behaves just like Blend. The brush will continually "pick up" some paint that is underneath it and mix it with whatever colors it encounters. Again, the degree to which this happens is determined by the Flow setting.

The effects available in Watercolor mode are what you would expect if you were really working with watercolors. This mode allows you to create lines that soften, and regions of color that vary in intensity.

Shortcut: F5

Blend
Blend mode allows you to mix adjacent colors. The area underneath the brush is examined, and is "mixed" with the current brush color, according to the Flow setting. When Flow is set to 100%, the brush color is fully mixed with the area under the brush. At 50%, only half as much color information would be taken from the brush.

Shortcut: F6

Smooth
Smooth mode takes the area under the brush, divides it into cells, and examines the contents of each cell. Then, according to a preset algorithm, the colors in each cell are modified to match the average of the area. The extent of the modification depends upon the position of the cell. The overall effect of Smooth is to soften areas of color transition.

Shortcut: F7

Rub Thru
Rub thru allows you to remove part of the main picture, replacing it with the same region from the spare page. You may use Rub Thru with the other features of DCTV Paint - like variable Flow rates - for some spectacular effects.

Shortcut: F8

Filter
Filter mode allows you to modify your image so that it will better conform with the characteristics of video. While an image digitized with DCTV will follow video rules, it is possible to create or import an image that will contain color transitions

that just can't be done with video. These transitions can result in false colors, fringing, banding, and other undesired effects. In Filter mode, the area under the brush will be examined, and Paint will attempt to modify any "illegal" transitions it might find. A full explanation of video can be found in Appendix B.

Shortcut: F9

Brush Shapes

The section of the Brush Panel to the far right contains eight gadgets, each of which represents a brush. The image on each gadget shows the shape of the brush you will get by clicking on that gadget.

Circle   Selecting this brush will give you a circular brush.

Square   This brush is shaped like a square.

Cone   The Cone brush gives the 3-D effect of a cone, as seen from above. This brush is most heavily shaded in the center, with the color gradually tailing off toward the perimeter.

Pyramid   The Pyramid brush gives the 3-D effect of a pyramid, as seen from above. Like the cone brush, the color is concentrated in the center region and tails off toward the perimeter.

Diagonal1   This selection gives you a brush shaped like a forward slash.

Diagonal2   This diagonal brush runs in the opposite direction like a backward slash.

Horizontal   This brush is a horizontal line.

Vertical   This brush is a vertical line.

THE STENCIL PANEL

Fig. 28 The Stencil Panel

The features on the STEN panel only work when one of the two stencil tools on the main tool bar are selected. There is the Stencil (a plain S) tool and the Stencil Draw (an S with a brush though it) tool.

Stencil   Selecting the Stencil Use tool will enable protection of the images using a stencil or mask.

Stencil Draw

Clicking on the Stencil Draw tool puts you into Stencil Draw mode. From this point on, whatever you draw will alter the current stencil, or create one, if none exists. You may add to the stencil, or delete from it.

COLOR

This gadget allows you to define the color which will comprise your stencil. When you click on this gadget, the current color will become the Stencil color. This color is for your benefit only, to help differentiate the stencil from the image. It has no effect upon the stencil. You should choose a stencil color that will contrast with your image, to make the stencil easier to see. You can change the color of the stencil at any time by selecting (or creating) a color and clicking on the Stencil Color gadget.

FREE   Clicking on this gadget will free the current stencil mask from memory.

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CLR   (Clear) Clicking on this gadget will clear the cur-
                     rent stencil mask.

INV   (Invert) Clicking on this gadget exchanges the
                     non-stencil areas with the stencil areas.

HIDDEN   Hidden makes the stencil invisible.

TRANSLUCENT

                     This allows you see some stencil and some of the
                     image beneath it.

OPAQUE   Clicking on Opaque will block the image from
                     view with a solid color stencil.

ADD   Everything you draw after clicking on ADD will
                     be added to the stencil mask.

DEL   Everything you draw after clicking on DEL (for
                     Delete) will be subtracted from the stencil mask.

COLOR CLOSENESS

This mode allows you to specify a range of color to which the stencil will apply. The settings on the Color Closeness sliders govern the range to which Closeness applies.

The central color in the Closeness range is the current brush color. Once you have selected a brush color, the stenciling operation will only apply to colors within that range. (If you are in ADD mode, the stencil mask will only be applied on top of colors in the Closeness range. The stencil mask will not be applied over colors outside this range.)

COLOR CLOSENESS

Color closeness allows you to define a range of values that will apply to Stencil.

Chroma   This is the color component of the video signal. Use this slider to specify the percentage by which the chrominance component may vary from the selected color and still fall under the Closeness umbrella.

Luma   This is the light component of the video signal. Use this slider to specify the percentage of the luminance component may vary from the selected color and still fall under the Closeness umbrella.

By using the Chroma and Luma settings together, you can tell the system "Consider any color that is about this blue, and about this shade to be this color." Note that there are certain combinations of colors that are too extreme to fall under the Closeness umbrella, even with Chroma and Luma settings of 100%.

THE GRADIENT PANEL

Color Tabs   Tab Action Keys

Dither Slider   Gradient Preview
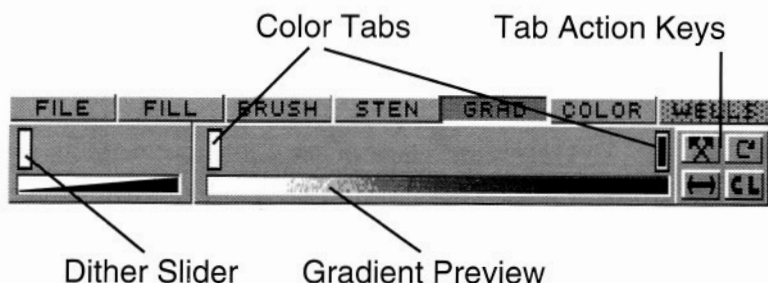
Fig. 29 The Gradient Panel

Gradients are one of the Fill choices. Gradients consist of transitions from one color to another. The Gradient panel allows you to specify the manner in which a gradient is created, what colors are used, and how the transitions occur. Gradients are set by a series of color tabs. The gradient will range from the color indicated by one tab to the color indicated by the next, and so on. For example: If you have set three tabs - one red, one yellow, and one blue - the gradient will range from red through yellow and on to blue. The transition will be smooth, unless you have indicated that a particular transition should be abrupt. You may use as many as 25 transitions in a gradient. Of these 25 tabs, you may define as many as 23 as "double" tabs. (The end tabs are always singles.)

The Gradient Panel allows you to define and create the Gradient. To use gradients, you must select the Gradient option from the Fill panel. (To reach the Fill panel, click on the gadget labeled "FILL.") The Fill panel also will allow you to select how the gradient is applied. You may select from Horizontal, Vertical, Both, 4 Point, and Radial.

Gradient Preview Bar

This area allows you to preview your gradient. When you click on this bar, the gradient will be calculated and will be displayed in this area.

Setting Color Tabs

Color tabs are set by clicking in the area above the gradient indicator. You may select a color in any of the usual ways: Clicking on a color in the color slot area, or holding down the shift key and clicking on a color in either the artist's palette area or the screen, or you may create a color with any of the color tools. Once you have the desired color, move down to the Gradient panel and click where you want to place the tab. Tabs may be moved, once they are placed, by clicking on them, holding down the mouse button, and moving to the right or left. To remove a tab, click on it, hold the mouse button down, and move the tab off the gradient panel. When you release the mouse button, the tab will be removed.

You also may replace the color in an existing color tab by holding down the Shift key and clicking in the tab.

Abrupt Color Transitions (Double Tabs)

When the color tabs are placed horizontally, the transition from one color to the next will be smooth. If you place one color on top of another, and create a double tab, the transition will be abrupt. The color will change, at the double tab, from the previous color to the one you have just placed. (An abrupt tab is split into two parts. The transition (next) color appears on the bottom, and the previous color appears on the top.)

Setting The Gradient

Once you have arranged your color tabs, click in the Gradient Preview Bar. The gradient will be calculated, and the result will be shown in the bar.

Saving Custom Gradients

Gradient information will be saved as part of a user created palette. From the LOAD PALETTE Requester you may choose to load the color wells, the gradient, or the mixing area.
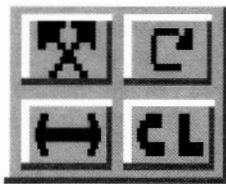
Tab Action Keys

Fig. 30 The Tab Action Keys

These four gadgets will distribute your tabs evenly, reverse their order, clear them, or choose from four predefined gradients.

Flip Tabs

Clicking on this gadget will cause your tabs to be reversed horizontally.

Next Gradient

This gadget allows you to choose from four sets of gradients. Each time you click on this gadget, the next gradient from the list will be activated.

Distribute Tabs

Clicking on this gadget will cause your tabs to be evenly distributed through the gradient area.

Clear Tabs

Clicking on this gadget clears all tabs.

Dither Slider

This slider affects the dither, or the manner in which the colors mix from one gradient transition to another. When the slider is all the way to the left, the transition from one color to another will be smooth and orderly. The transition from red to yellow, for example, would proceed in smooth steps, gradually changing shade from red to orange to yellow. Moving the slider to the right increases the dither. This "scatters" the color change over a wider area.

For example: Take a screen area consisting of 8 scan lines. In the middle of this area, the color in a gradient changes from blue to green. We will assume that the boundary between blue and green runs vertically. With no dither, the change would occur right at the line, on every scan line. With dithering, the change will occur in a different, random place on each scan line. This might be to the right of the boundary, to the left of the boundary, or right on the boundary. The amount of dither determines how far from the boundary the outer "zone" of change is placed.

THE COLOR PANEL
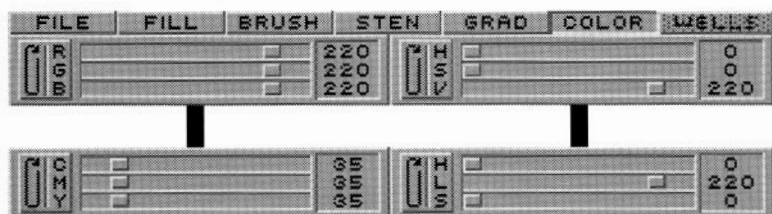
Fig. 31 The Color Selector

Color Selector

The color selector has four modes - RGB, CMY, HSV, and HLS. Each of these modes allows you to create any of 16,777,216 possible colors, and each mode gives you a different way to do it. Each tool has three sliders, and each slider (except hue, which has 360 degrees) has 256 steps, 0-255.

The selectors are arranged in two banks of two. The left bank has RGB and CMY while the right bank has HSV and HLS. After a color adjustment is made on one side the new color will be reflected in the information on the other side.

The color values can be recalled at anytime by holding down the CTRL key. The information will be displayed in the right section of the status bar. The values will be in the format of the last color selector chosen or adjusted.

RGB   The three sliders on the RGB gadget allow you to set a color based on the Red, Green, and Blue components. Red, Green, and Blue are "additive" colors.

CMY

The three sliders on the CMY gadget allow you to set the Cyan, Magenta, and Yellow components of your color. These colors are the "complements" to Red, Green, and Blue, and used primarily in printing. Cyan, Magenta, and Yellow are "subtractive" colors.

HSV

These sliders allow you to select a color according to its Hue, Saturation, and Value.

The Hue slider allows you to step through a color wheel, one degree at a time. There are 360 possible settings for this slider.

The Saturation slider allows you to control the amount of color present. A small level of saturation results in a pale, washed-out color; increasing the amount of saturation gives you a more vivid, intense color.

The Value slider allows you to set the reflected luminance of your color. This control is not the same as the luminance control on the HLS gadget. Reducing the amount of Value present in a color is similar to dimming the lights in a room. The color will go from full intensity to black as Value is reduced.

HLS

These sliders allow you to create a color according to its Hue, Lightness, and Saturation. This control differs from the HSV gadget in the function of the Luminance slider.

The Hue slider allows you to step through a color wheel, one degree at a time. There are 360 possible settings for this slider.

The Lightness slider controls the amount of lightness of a color. Unlike the Value slider, this control allows you to set the "temperature" of a color. You can think of this slider as adding white to a color. At full value, the color will be white. At the lowest setting, your color will be black. The "pure" value of your color is reached when this slider is in the middle.

The Saturation slider allows you to control the amount of color present. A low level of saturation results in a pale, washed-out color; increasing the amount of saturation gives you a more vivid, intense color.

THE WELLS PANEL
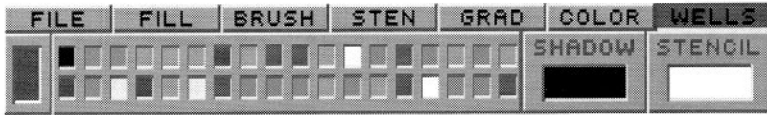
Fig. 32 The Wells Panel

The WELLS Panel is a second view to the main color wells. All changes in one are automatically reflected in the other.

In addition to providing an easy way to get to the color wells from the clip panel, WELLS also provides a way to control the stencil and shadow colors. Like other wells, choose a color and then Shift-click it into the shadow or stencil wells

THE TEXT PANEL

Font Size Selector   Text Entry Gadget
Font Selector   Display Area

Current Font
Current Size   Aspect Gadgets
Reload Gadget   Style Gadgets
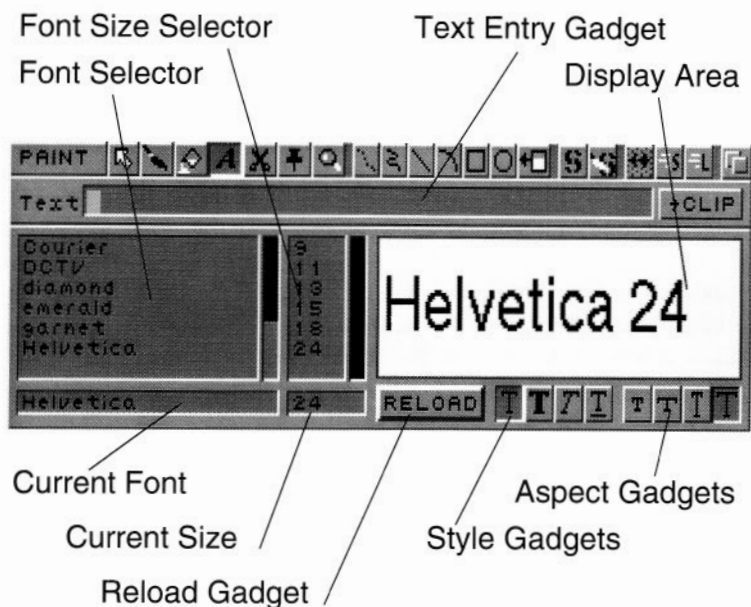
Fig. 33 The Text Panel

The text panel allows you to select a font and its size, set its attributes and appearance, and create a line of text to be placed on the screen either as a clip or as a stencil (when Draw Stencil is on).

TEXT PANEL FEATURES

Text Entry Gadget

> This is the area where you will type the text you wish to place on the screen. When you have entered your text, hit "-> Clip". A clip will be made using the current color. You may then place your text just as you would place any other clip, by either clicking outside the marquee, or by clicking on the Paste gadget.

Font Selector

> The Font Selector allows you to choose a font from the current FONTS: directory. Clicking on the name of the font will choose that font. The current font's name will be displayed in the Current Font gadget and its size will be displayed in the Current Size gadget.

Note: Under WorkBench 2.0, the Current Size gadget is a string gadget and you can enter a size not currently available. This will make a new font from either bit-mapped fonts or outline fonts.

RELOAD (Reload Fonts List Gadget)

> If you need to specify a different fonts directory, you may do so from the CLI or SHELL. Use the `Assign Fonts: DestinationPathName:` command. Once you have changed the FONTS assignment, return to the DCTV screen and click on RELOAD - the reload fonts list gadget. Fonts will now be read from the new fonts directory.

> To select a font, position the cursor over the name of the font and click the left mouse button. Once you have done this, the information for that font will be read from the fonts directory. The available sizes for that font will appear in the right half of the requestor, and a sample of that font will appear in the Text Display window. You may select a different point size by positioning your cursor over the desired size and clicking on the left mouse button. The text in the Display window will be redrawn in the current size.

Below the Text Display window are two groups of gadgets. These gadgets control the appearance of the text.

Style Gadgets

> The four gadgets on the left are the standard Style gadgets. You may select Plain, or you may select any combination of Bold, Italic, and Underline. Click on any one of these gadgets to turn the

option on, and click again to turn it off. Any
selections you make will be reflected immediately
in the Display area.

Aspect Gadgets

The four gadgets on the right control the size
attributes of the typeface. You may select normal,
wide, tall, or wide and tall. You may select only
one of these options. Again, any selections you
make will be reflected in the Display area. You
may use size attributes in combination with style.

-> Clip

The -> Clip gadget remains ghosted until text is
entered in the Text Entry Gadget. This gadget
turns your entered text into a clip.

*To recolor a text clip choose a new current color and click on the
"TEXT ->" gadget on the Clip Panel.*

COLOR TEXT

You may use color fonts with DCTV. Under
AmigaDOS 2.0 this is automatic but under
AmigaDOS 1.3 you must run the ColorText wedge
before you run DCTV Paint. The ColorText wedge
may be found with Deluxe Paint III or with most
color fonts you purchase.

The color fonts will show up in the text display
area as black and white but will be in full color
when made into a clip.

To recolor color fonts use the tint function after
you have tacked them down.

SECTION 3

REFERENCE

DIGITIZE AND PROCESS

PAINT

CONVERT

CONVERT

DCTV's Convert offers an easy way to move your DCTV images to a format that can be used on a standard Amiga. Converting your art makes it available for use by other Amiga software or as a means to share your creations with friends who don't have the DCTV hardware.
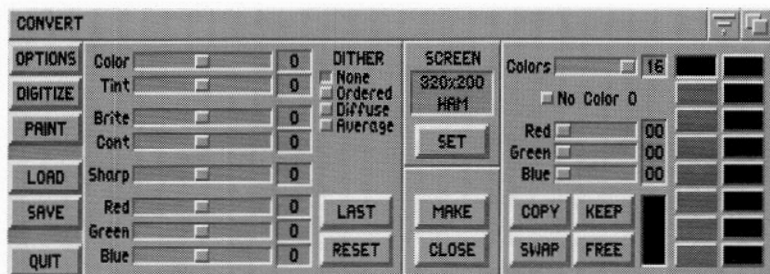
Fig. 34 Convert Page

Starting Up

Enter the Convert section of DCTV either by selecting "Convert" or using the Amiga-C key shortcut from either the StartUp or Digitize and Process or Paint menus. The Convert menu appears on the standard Amiga display. When using Convert no image appears on DCTV's composite display.

The Menu

DCTV's Convert menu is divided into four sets of tools, System, Image Processing, Image Control, and Color Processing.

DCTV USER'S GUIDE

SYSTEM TOOLS

On the left of the menu you'll find six menu buttons:

OPTIONS   Options provides a sub-menu for selecting the operating parameters of DCTV. Available are options to shut-down Workbench under low memory conditions and to enable the swap page if enough memory is available. Selecting Save from the sub-menu records your choices for future use, while Use enables them for the current DCTV session. Cancel exits the sub-menu without changes.

                    Shortcut: Amiga O

DIGITIZE   Digitize moves you to the Digitize and Process section of DCTV.

                    Shortcut: Amiga D

PAINT   Paint move you to the Paint section of DCTV.

                    Shortcut: Amiga P

LOAD   Load an image into DCTV. Load will automatically sense the type of file you are loading and convert it to the proper format for DCTV display.

                    Shortcut: Amiga L

SAVE   Save an image or the image's palette in RGB IFF format.

                    Shortcut: Amiga S

QUIT   Exit from DCTV to Workbench. If you select this requestor in error, cancel returns you to DCTV.

                         Shortcut: Amiga Q

IMAGE PROCESSING

Convert uses the same image processing controls that you find in the Digitize and Process section of DCTV. In fact, when you move your image from Digitize to Convert it will retain the same image processing settings.

Color   Increases or decreases the saturation of color in the image. Along with the increase or decrease of color you may find that the amount of noise in the picture is correspondingly increased or decreased.

Tint   Like the hue or tint control on the television, tint controls the shades of color in the image.

Brite   Increases or decreases the brightness of the image. Please note that this is a very active control with a small amount of change making a large adjustment in the image's brightness.

Cont   (Contrast) Enhances or decreases the difference between light and dark features of the image. Contrast can be used to bring out the edges and transitions within the image but may result in some loss of image detail.

Sharp   Increases or decreases the sharpness of an image. This control can be used to enhance edges and bring out details in the image. Transitions between objects can be sharpened or softened by increasing or decreasing the control.

Red   Increases or decreases the amount of red in the image.

Green   Increases or decreases the amount of green in the image.

Blue   Increases or decreases the amount of blue in the image.

DCTV USER'S GUIDE

DITHER

Dithering is the process used to mix colors to produce a new color. DCTV offers three different dithering controls which use a distinct method for dithering the image. Since the results obtained by each method are dependent on the complexity of the image you are working with, some experimentation is required to determine which method best suits the situation.

None   DCTV's default setting. No dithering of the image is performed.

Ordered   Dithers using a regular pattern which is determined by how far the color being produced is from the data contained in the DCTV buffer.

Diffuse   Dithers using a pattern which spreads out the colors.

Average   Dithers using the average of the distance from the buffer data to the color being produced.

IMAGE CONTROL
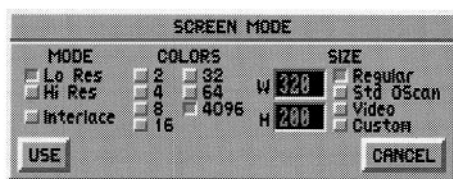
Fig 35 Convert Screen Mode Requester

SET   In addition to providing feedback on the screen size and the number of colors being used, screen set provides a sub-menu for setting up the screen mode of your image. The sub-menu includes controls for setting the screen mode (Lo-resolution, High-Resolution, and interlaced Lo and Hi-Resolution), the number of colors used by Convert's color palette, and the size.

Convert allows you to set the following non-interlaced screen sizes:

MODE	WIDTH	NTSC HEIGHT	PAL HEIGHT
Lo-Res	320	200	256
Hi-Res	640	200	256
Video Lo-Res	368	241	283
Video Hi-Res	736	241	283
Custom Lo-Res	320-368	200-241	256-283
Custom Hi-Res	640-736	200-241	256-283

By selecting Interlace the following screen sizes are available:

MODE	WIDTH	NTSC HEIGHT	PAL HEIGHT
Lo-Res	320	400	512
Hi-Res	640	400	512
Video Lo-Res	368	482	566
Video Hi-Res	736	482	566
Custom Lo-Res	320-368	400-482	512-566
Custom Hi-Res	640-736	400-482	512-566

The numbers provided for custom screen sizes represent the range of allowed inputs. Any screen size within the range may be assigned. Please note that if you select an exact screen size normally assigned to lo-res, hi-res or DCTV images, Convert will automatically deselect the custom option and select the appropriate type of image for the size you have input.

Color   Color assigns the number of colors used by the
                     Convert color palette. When using a high-res
                     screen the maximum number of colors available is
                     16.

After completing your choices select OK to use these options or
Cancel to exit the sub-menu without making changes.

Make   Make modifies the image on the display when
                     you've made changes to Convert's settings. To
                     remind you that you have modified the parame-
                     ters, the Make button will flash until you've re-
                     built the display. Convert's Make function modi-
                     fies the screen display.

                     Shortcut: Amiga M

Close   Allows the RGB screen to be closed under condi-
                     tions where system memory is critical.

Last   Swaps the current image parameters with those
                     last used. Last may be used to quickly show the
                     differences in an image resulting from changes to
                     other Convert settings.

Reset   Sets Convert back to start-up default parameters.

COLOR PROCESSING

Colors   The Colors slider resets the number of colors used
                     in the color palette which you set via the Mode
                     menu. If you selected 4096 HAM under mode the
                     maximum number of colors in the palette will be
                     16. If you selected 64 colors the maximum number
                     of colors in the palette will be 32 which represent
                     the base colors of the 64 color palette. Selecting
                     color palettes of 2 to 32 colors via Mode provides
                     the expected number of colors to be displayed
                     here. The minimum number of colors you may set
                     is 2.

No Color 0   When using a genlock the background video is displayed within the Amiga graphic through any area of the picture which uses Color 0, the color represented in the top left corner of Convert's color palette. Selecting No Color 0 will ghost this color and provide an image that will not allow video to show through when using a genlock device.

Color Control   The Red, Green and Blue (RGB) sliders are used to control the amount of each color in the selected color of the Convert palette. To select a color click the left mouse button on the color you wish to use. Use the RGB sliders to increase or decrease the amount of each color to create a new color for use in the palette.

Copy   Copies the current color to another spot in the palette. When Copy is selected the cursor will have a "TO" attached to it until you select the spot where the color should be copied.

Swap   Swap moves the color information for the currently selected color register to another register. As the name implies, the color information is traded between the two registers. After selecting Swap the cursor will have the word "with" attached to it until you select the color you wish to swap.

Keep   Keep locks a color so that its color register is not changed when an image is rebuilt using the Make command. To keep a color select the keep key and click on the color you wish to keep. A dimple will appear in the selected color. Keep only affects the conversion process. You may use the color controls to modify a color even if it was selected to be kept.

To Keep several adjacent colors select the Keep button and hold down the SHIFT key while selecting the colors. After selecting the initial color you want to keep you only need to move the pointer over the adjacent color in order to Keep it.

To Keep all of the colors double click on the Keep button with the left mouse button.

Free

Free unselects a color you selected to Keep. If several colors have been selected you may double click the free button to free all colors.

SECTION 4

APPENDICES

TROUBLESHOOTING

We designed this section to help you with any problems you encounter while using DCTV. We compiled this list of hints from the most common problems encountered while designing and testing DCTV and through our own analysis.

REPAIR PROCEDURE

If you find that your DCTV doesn't function properly, please follow these steps:

1.   Find the symptom from the following hints and tips starting on page A-4.

2.   Try all the suggested solutions for the problem.

European/PAL DCTV owners please check the box for information on your customer service representative in Europe.

3.   If DCTV still doesn't function properly, call Digital Creations customer support at (916) 344-4825. **Be prepared to report the results of the Pixel Adjustment, the Alternate Computer Test, and the Power Test.** If, after talking with you, one of our representatives, determines that your DCTV needs repair you will be given an RMA (Return Materials Authorization) number.

4.   Carefully package DCTV in its original packaging along with a completely filled out photocopy of the Digital Creations Return Form found on page A-3 of Appendix A.   Do not include disks, manuals, or the cover sleeve. When shipping your DCTV please insure it for its full retail value. Digital Creations will not be responsible for the cost of packages lost in shipment.

5.   Send DCTV to:

> Digital Creations
> Customer Service, RMA (Your number goes here)
> > **at the Address provided to you** by our customer
> > service representative.

IMPORTANT

• **Initial contact with Digital Creations must be made by telephone; please no letters or FAXes on first contact.**

• We cannot accept packages without a proper RMA number on the address label.

• We cannot estimate how long it will take to repair your DCTV. As a continuing commitment to our customers we will try to repair your equipment as fast as possible.

• We ship all repaired items via UPS Ground and COD any repair costs in the US. If you wish faster shipping time please make arrangements with Customer Service when you receive your RMA number. Any extra shipping costs will be added to the COD amount.

• **PLEASE NOTE:** Foreign customer will be subject to different terms. Please get this information from your customer service representative.

• **PLEASE NOTE:** Prices and policies are subject to change without notice.

DIGITAL CREATIONS RETURN FORM
Must be filled out completely and accurately.
PLEASE PRINT OR TYPE!

RMA# _____

(No units accepted without this number.)

Business Name _____

Your Name _____

Address _____

City _____

State/Prov _____ Zip/Postal Code _____

Day Phone ( ) - _____

Evening Phone ( ) - _____

DCTV Serial # DC _____

Results of Amiga RGB Port Voltage Test

Pin 21 Volts _____ Pin 22 Volts _____ Pin 23 Volts _____

Alternate Computer Check on second Amiga

❑Did Work ❑Did Not Work

Please state problem in your own words

_____

_____

_____

_____

_____

_____

_____

Special Instructions

_____

PLEASE PHOTOCOPY

PIXEL ADJUSTMENT

If a change is made to your computer environment or if you try your DCTV on another Amiga, you may need to try this first.

ALTERNATE COMPUTER TEST

If DCTV doesn't appear to be working properly, trying it on a different Amiga can sometimes help isolate the problem. There is always a chance that the problem you've encountered may be caused by your Amiga. Known Amiga computer problems include defective power supplies, missing voltages on the RGB port where DCTV gets it power, and bad digital-to-analog converters (DACs) on the RGB port that would provide incorrect color information to DCTV. If your DCTV performs properly on another Amiga, it's likely that the first computer is suffering from one of these malfunctions. The solution is to have the Amiga checked by a qualified repair facility.

It's also important to rule out the possibility of cables or accessories causing the problem. The general idea of testing with a second computer is to isolate the offending item through a process of elimination. Try different combinations of computers, cables, and accessories one change at a time until you isolate the problem.

POWER TEST

The proper voltages may not be present on the RGB port of the Amiga. See the power requirements section at the end of this appendix.

TROUBLE SHOOTING HINTS

You turn on the Amiga and nothing happens:

DCTV may not be installed correctly. Verify that DCTV is connected properly to the RGB video port and the parallel port. **Connecting DCTV to any other port will cause damage to DCTV and your Amiga! Digital Creations cannot be held responsible for such damage.**

Your Amiga may not be getting power because the power cord is loose or not plugged in.

If you have a Commodore 2002 monitor please see the section at the end of this appendix.

You don't see a picture on the composite monitor or the picture distorts or tears:

To output composite video DCTV must be connected to the RGB port of the Amiga via the RGB port cable on DCTV. Check to be sure that the DCTV RGB connector is connected properly to the Amiga's RGB port.

The cable may not be connected to the monitor's video in.

The monitor might not be set for composite display.

Your video cable may be damaged. Try another cable.

You may be trying to use DCTV with a television set. DCTV will not work directly with a television. A TV would require a composite video input if it were to work with DCTV. It would be possible to go to the video in on a VCR and use the antenna out to connect to the TV set.

You may not have properly calibrated DCTV's Pixel Adjust. Review the proper method of adjustment contained in Section 1, Installation.

The Amiga's power supply might not be providing the proper voltages to DCTV. Have your Amiga checked by an authorized technician.

The composite picture from DCTV is black and white - no color.

You may have your monitor set to black and white and not to color.

If you are using an NTSC DCTV on a PAL Amiga with the NTSC/PAL jumpers set to NTSC, the NTSC crystal for the computer is required to get color.

The composite color output of DCTV does not match the original colors of converted picture:

> The color and tint controls of your composite monitor may not be properly set. These controls have no function when the monitor is used in RGB mode. When you begin using it as a composite monitor it's likely that these controls will need to be reset. Most monitors have a center position on the controls which can be felt when the control is turned. Start from the centered settings and readjust as necessary.

> Your Amiga's RGB port may be faulty. Have the Amiga checked by an authorized technician.

> Your DCTV's Pixel Adjust may be out of alignment. Review <u>DCTV Installation; Calibrating DCTV</u> for the proper method of calibrating the Pixel Adjust.

Flashing rainbows are present in the composite picture or there is fringing of small details:

> This is a problem with NTSC composite video. Use the filter settings when scanning to reducing fringing.

> You may be using illegal NTSC colors. See Appendix B: Working with video and DCTV.

The output of my video device is not being received by DCTV when I digitize:

> Check to be sure that the cable connecting your video device to DCTV is attached to the video out of your device and the video in of DCTV.

> Your video cable may be damaged. Try another cable.

Make sure that your DCTV unit is plugged in to the parallel port. This is the port that receives data when you digitize.

There is no RGB output from the Amiga to my normal Amiga monitor:

With the Amiga off, check the RGB monitor cable to be sure it is properly connected to the pass-through on the DCTV RGB port cable.

The proper voltages may not be present on the RGB port of the Amiga. See the power requirements section at the end of this appendix.

When you start the DCTV you get a requester that says "PROBLEM Not enough memory to enter Paint page. Try another page"
or
"PROBLEM Not enough memory.

DCTV requires a minimum of one megabyte of RAM on your Amiga. If you have less than a megabyte installed, DCTV will not operate.

If you are using the DCTV program on disk one you should use the split version on disk two instead.

You attempt to digitize and you get a message that says "Digitizer Communication Failure":

This indicates a problem that can't be pinpointed at the time DCTV tried to digitize. Possibilities include bad CIA chips, accelerator/CIA timing clashes, and A/B switch boxes.

DCTV USER'S GUIDE

You start DCTV and get a message that says "Missing DCTV font" or "Couldn't access iffparse.library"

DCTV's software requires that the *DCTV font* is present in the Amiga's font directory OR in the same directory as DCTV and the *iffparse.library* is in the library (LIBS) directory. If you have installed DCTV on your hard disk without using the install routine supplied on the DCTV disk 1 you may not have copied this information to your system. Please see the Installation section in the front of the DCTV User's Guide. For additional information consult your Amiga user manual for information on how to install fonts and libraries.

If you are running DCTV on an Amiga without a hard disk you have probably started your Amiga with a Workbench other than the one supplied on the DCTV program disk. Either restart the Amiga using a copy of DCTV disk 1 or 2 or consult your Amiga user manual for information on how to assign fonts and libraries. Your Amiga's font directory must be assigned to a font directory containing the DCTV font. Your Amiga's library directory must be assigned to a directory containing the iffparse.library.

2090A Owners
When trying to access a file (load or save) on/from the hard drive using the Amiga 2090A hard drive controller the hard drive seems to hang up.

There are known problems using the 2090A, and overscan images. Some ways to avoid these problems are:

Get another controller.

Don't attempt to load/save to the hard disk when in overscan. Turn off the overscan display from Paint's Screen Mode requester.

Put the DCTV screen to the back during saves or loads.

Important! Avoid rebooting while hard disk appears locked. It can cause a validation error on the hard disk.

Commodore 2002 monitors

When attempting to use DCTV with a CBM 2002 monitor you may find that the Amiga does not boot up. There is a voltage on the 2002 that shuts down the DCTV unit.

This problem has been found to exist also in some A1080 and A1084 monitors released just before and after the 2002.

To overcome this problem call Redmond Cable and order Part# RCA 5024. The cable lists for $24. The cable goes between the RGB output on the DCTV and the monitor cable of the 2002. Redmond Cable may be reached at 206-882-2009.

Using A/B Data Boxes

Although we have had success digitizing using A/B data boxes on the parallel port you may not. There seems to be such a variation in the quality of switchboxes and cables that we do not recommend the use of DCTV with them.

For users of DCTVs that have a 68000 (Amigas other than the A3000 and A4000) based system we recommend the Printerface from IVS -714-890-7040. This is a device that lets you send all your printing to another port. Under $100.

Power requirements of DCTV

In order for DCTV to function properly it must receive the proper voltages from the Amiga. If any of these voltages are off by more than one-half volt or missing, then your Amiga needs to be seen by an Amiga technician. These voltages on the RGB port of the Amiga should be:

Pin 21	-5v or -12v
Pin 22	+12v
Pin 23	+5v

Pin 1
(for reference only)   Shield
(use as ground)

Pin 21
-5V or -12V

Pin 22
+12V

Pin 23
+5V
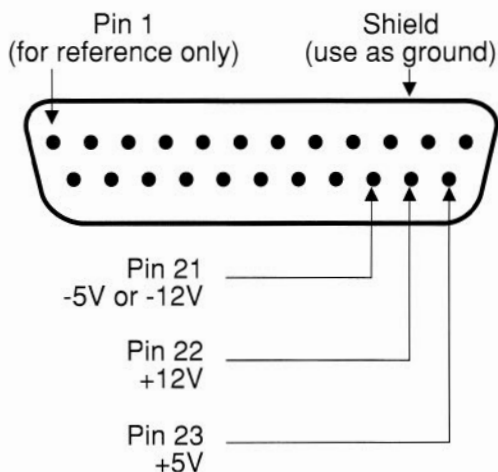
*Fig. 36 Required voltages on the
Amiga's RGB or Video port*

Digital Creations recommends that you have your local Amiga/DCTV dealer check these voltages. If you decide to do it yourself please be careful not to short two of the pins together. *Digital Creations will not be responsible for any damage done when checking these voltages.*

WORKING WITH COMPOSITE VIDEO AND DCTV

Unlike other Amiga paint programs that work with pixels, DCTV uses the characteristics of composite video to allow a 24-bit graphics display. While freeing the Amiga user from the constraints of a 4096 color palette, creating composite video art requires a basic understanding of the constraints of composite video.

When painting with an Amiga program you do not need to be concerned with the colors you use since the Amiga, displaying in RGB video, can output fully saturated colors without any problems. Composite video, however, is very different. If you use fully saturated colors with video you may discover that the colors bleed and appear to move (+crawl+). Take a look at some of the graphics you see daily on television and you will probably find some that demonstrate these symptoms.

DCTV's software will attempt to correct these color problems through the use of built-in error detection and color correction. This is especially true when using the Digitize and Convert features of the DCTV software. When working in DCTV paint these problems may appear in spite of the software's correction abilities. Symptoms of color problems when using Paint would be horizontal lines in what should be a solid color, or bright colors that seem to move on the screen.

Fortunately there are ways to avoid these problems. When selecting colors try not to use those that have RGB values greater that 191 on the RGB scale in the colors menu of DCTV Paint. White is an exception and can typically use values greater than 191 without difficulty. In regular Amiga painting or rendering programs, keep the color levels at 12 or below to keep the colors "legal" for video.

Here are some additional tips for creating graphics that look good in video:

Don't create small patterns of alternating bright and dark colors. A checkerboard of black and white will cause rainbowing and artifacting.

Outline the edges of text with low saturated colors that contrast with the text. As an example, red text looks better with a dark gray or white border.

Create smoother edges by using dark shades of the edge colors to create a strip next to them.

Take a break from the mouse and get back a few feet to a normal television viewing distance. This will not only give your eyes a rest but will also give you another and more accurate view of the video images.

USING DCTV IMAGES WITH AMIGA SOFTWARE

Look for this sticker on packages of Amiga software.

compatible

It means that the software in the box supports the DCTV file format.

DCTV offers a file format and hardware that provides a great way to view and animate images created on the Amiga. At the time this manual was going to press, the following companies either supported the DCTV file format or had plans to do so shortly.

Company	Product
Activa	Real 3D
ASDG	Art Department Professional
Adspec Programming	Draw4D-Pro
Impulse	imagine
Natural Graphics	Scenery Animator
Virtual Reality Laboratories	Vista*pro*

Please continue to look for the DCTV Compatible sticker.

Using DCTV in other software

Images you've scanned, painted or converted to the DCTV file format can be used with nearly all popular Amiga software. For example, you can use AmigaVison to build a multi-media presentation or DeluxePaint III to assemble a DCTV animation. The basic rule is that the software you use must be capable of displaying a normal Amiga high resolution display and the software cannot modify the picture as it's loaded.

Why can't the picture be modified as it's loaded? Good question. The answer is the basic key to how DCTV displays images in a composite format. A DCTV image contains control information on the top and left side which tells the DCTV hardware about the image. If this information changes, the image is no longer usable with DCTV.

We do not recommend trying to use DCTV images in any paint package other than DCTV. If you're using another paint program, be careful not to paint in the top and left of the DCTV image. Beyond this basic caution, your creative abilities are the only limit! The key to working with DCTV images is experimentation.

Creating Animation With DCTV

DCTV can load images from standard Amiga software and convert them to the proper format for DCTV display. As a result, creating animation that will display in the full 24-bit resolution of DCTV adds only one additional step to the standard procedure for creating Amiga animation.

Using your favorite 2D or 3D animation software, (we've used DeluxePaint III & IV, Draw4D-Pro, Scenery Animator, VistaPro, Sculpt, Turbo Silver and Imagine) create the frames for your animation. Load these frames into DCTV and save them in DCTV format. If you are converting a large number of IFF images to DCTV format we have provided the IFFtoDCTV utility. See Appendix G for information on how this utility can speed your work. After your images are converted to the DCTV display format use your animation software to assemble the DCTV formatted images into the final animation. When the animation runs, DCTV will recognize the control information and display it via the DCTV hardware.

PD/Shareware/Freely Distributable Software and DCTV

Included with the DCTV disk are three utilities for making and viewing animations. They are ADAM, MakeAnim, and View. See the readme files for more information.

Printing DCTV images

Using DCTV Convert you can convert DCTV 24-bit IFF images to standard Amiga formats and use them with standard Amiga software. This allows you to print DCTV pictures with any Amiga software capable of using standard IFF images. You won't, however, keep the resolution inherent to the 24-bit DCTV format.

To retain the images' quality you will need to use software that is able to load and print 24-bit IFF images. Some popular Amiga desktop publishing programs (Professional Page 2.0, Saxon Publisher, and PageStream 2.0) allow you to import 24-bit IFF images and print them at full 24-bit resolution.

Rendering Software

The ideal size for rendering seems to be 736 X 480 NTSC or 736 X 566 PAL. If you render to a 24-bit file you can load these 24-bit pictures in DCTV for a beautiful display.

Please check for a ReadMe file on the DCTV disks for additional information regarding converting and rendering .

DCTV USER'S GUIDE

KEYBOARD SHORTCUTS

DCTV offers a number of keyboard shortcuts to help speed your work. A more complete description of the program's function is contained in the DCTV Reference section of your manual. This list is provided for quick reference.

Note: Where a shortcut lists two keys, such as shift-F10 or Amiga-c, you must use BOTH keys to use the shortcut. Shortcuts referring to the Amiga key, such as Amiga-c, require that you hold down the right Amiga key (the A key to the right of the space bar) and press the second key.

GLOBAL SHORTCUTS

These shortcuts are used throughout DCTV:

Mouse .... Clicking the right mouse button will hide the pointer and menu. The left mouse button will hide the pointer and menu when clicked outside the DCTV menu page. When using DCTV Paint, however, the paint cursor remains visible when clicking the right mouse button and the left mouse button will not hide the menu.

F10 .... Cycle control panel through three positions: park, hide, show
Shift-F10 .... Make control panel completely visible
Space bar .... Abort operation
Escape .... Abort operation

One Option Requesters

Return or
Escape   End requester

Two Option Requesters

Y .... Responds to YES in a yes/no requester
N .... Responds to NO in a yes/no requester
Return .... Responds to the left (positive) requester option
Escape .... Responds to the right (negative) requester option

ENTRY PAGE

Amiga-O .... Go to the Options Page
Amiga-C .... Go to the Convert Page
Amiga-D .... Go to the Digitize Page
Amiga-P .... Go to the Paint Page
Amiga-Q .... Quit DCTV

OPTIONS PAGE

Amiga-U .... Use the selected options
Amiga-S .... Save the selected options
Amiga-C .... Cancel any changes

CONVERT PAGE

Amiga-O .... Go to Options Page
Amiga-D .... Go to Digitize Page
Amiga-P .... Go to the Paint Page
Amiga-L .... Load an image into DCTV
Amiga-S .... Save an image
Amiga-Q .... Quit DCTV
Amiga-M .... Make picture

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DIGITIZE PAGE

Amiga-O .... Go to Options Page
Amiga-C .... Go to Convert Page
Amiga-P .... Go to Paint Page
Amiga-L .... Load an image into DCTV
Amiga-S .... Save an image
Amiga-Q .... Quit DCTV
Amiga-D .... Scan an image into DCTV
Amiga-M .... Make image
Amiga-K .... Commit the image to the DCTV buffer
F1 .... Scan an image into DCTV
F2 .... Make image
F3 .... Commit the image to the DCTV buffer
F4 .... Swap current image with the DCTV swap screen
\<Ctrl\>F1 .... Rearrange scan lines if VCR interlaces backwards

PAINT PAGE

Amiga-O .... Go to Options Page
Amiga-D .... Go to Digitize Page
Amiga-C .... Go to Convert Page
Amiga-L .... Load an image into DCTV
Amiga-S .... Save an image
Amiga-Q .... Quit DCTV

F1 .... Solid
F2 .... Tint
F3 .... Shade
F4 .... Airbrush
F5 .... Watercolor
F6 .... Blend
F7 .... Smooth
F8 .... Rub Thru
F9 .... Filter

Return/Enter ... Closes Polygon

PAINT BRUSH KEYSTROKES

1 .... 10% Flow Rate
2 .... 20% Flow Rate
3 .... 30% Flow Rate
4 .... 40% Flow Rate
5 .... 50% Flow Rate
6 .... 60% Flow Rate
7 .... 70% Flow Rate
8 .... 80% Flow Rate
9 .... 90% Flow Rate
0 .... 100% Flow Rate
+ or = ... Make Brush Bigger
- .... Make Brush Smaller

Shift .... Pick color

Alt .... Constraint

CTRL .... Show current color on status bar

SINGLE KEYSTROKE EQUIVALENTS

b .... Brush Tool
c .... Cut Tool
C .... Cut out last filled object
d .... Continuous Freehand Line
D .... Filled Continuous Freehand Line
e .... Ellipse
E .... Filled Ellipse
f .... Flood Fill Tool
h .... Halve
H .... Double
i .... Zoom In
j .... Swap page
J .... Copy current screen to swap page
K .... Clear picture to current color
L .... Quick Load
m .... Magnify
n .... Center Picture (in magnify)

o ....Zoom Out
p ....Tack Tool
P ....Cut out last filled object & go to Paste panel
q ....Curve
Q ....Filled Curve
r ....Rectangle
R ....Filled Rectangle
s ....Dotted Freehand Line
S ....Quick Save
t ....Text Tool
T ....Text -> Clip
v ....Line
V ....Filled Line
W ....Wipe Picture (current fill mode)
x ....Flip clip on X axis
X ....Flip picture on X axis
y ....Flip clip on Y axis
z ....Rotate clip 90 degrees clockwise
Z ....Rotate clip 90 degrees counter-clockwise
` ....Use Stencil
~ ....Stencil Draw (Make Stencil)
! ....Menu
> ....Zoom In
< ....Zoom Out
TAB ....Add/Del stencil mode toggle

DCTV GADGETS & TOOLS

The following pages contain pictures, shortcuts, and names of all the gadgets and tools in DCTV.

Additional information can be found in the reference section.

DCTV USER'S GUIDE

	NAME	SHORTCUT
	Options	Right Amiga-O
	Brush/Paint	b
	Fill	f
	Text	t
	Clip	c
	Tack	p
	Magnify	m
	Dotted Freehand Line	s
	Continuous Freehand Line	d

	NAME	SHORTCUT
	Straight Line	v
	Curve	q
	Rectangle	r
	Ellipse	e
	Draw Filled	D
	Stencil	` accent grave (below ~)
	Stencil Draw	~ tilde
	Swap Page	j
	Quick Save	S

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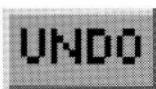
	NAME	SHORTCUT
	Quick Load	L
	UNDO	u
	Screen to Back	Left Amiga-n
	Cycle Gadget	none

Click to move to the next choice
Shift-click to reverse cycle direction
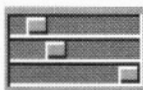
Slider Gadgets   none

Click and hold. Slide right or left to adjust.
Single click left or right in bar will move slider
in that direction. Shift will cause slider to
move in incremental steps.

Ghosted Gadgets   none

This indicates that this option is not available
because of insufficent memory or because this
option has not been activated.
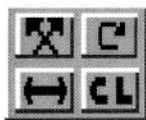
NAME   ## SHORTCUT

Tab Action Keys   none

> Top Left - Flip Tab
>> Flips tabs on X axis.
> Top Right - Next Gradient
>> Cycles through predefined gradients.
> Bottom Left - Distribute Tabs
>> Spreads   tabs evenly.
> Bottom Right - Clear Tabs
>> Removes all tabs.

APPENDIX F

TINT ADJUST

The tint adjust is factory set by Digital Creations and should not require further adjustment. Just in case you accidently change the adjustment, we have included a program to recalibrate the Tint control.

To reset the tint adjustment:

1. Connect a color camera to the DCTV RCA connector labeled Video In. Make sure that DCTV is connected to your Amiga's parallel port before beginning this adjustment.

2. Turn on the color camera.

3. On DCTV disk 1 is a program called TintAdjust. Start TintAdjust from the Workbench by double-clicking the icon. Follow the directions in the program.

This adjustment not present on PAL DCTVs.

TOOL TYPES

Parameters may be placed in the tool types section of the DCTV tool icon to customize how DCTV operates. By selecting the DCTV icon and then selecting Info or Information from the Workbench menu the tool types can be viewed or changed. Here are the tool types DCTV recognizes when starting up:

CLIPDRAWER=<dir>- If present DCTV will use the <dir>ectory given as the default path for clip file operations.

PALETTEDRAWER=<dir> - If present DCTV will use the <dir>ectory given as the default path for palette file operations. If user defined palette called initial.pal is present it will be used upon entry into DCTV Paint.

PROJECTDRAWER=<dir> - If present DCTV will use the <dir>ectory given as the default path for picture file operations.

STENCILDRAWER=<dir> - If present DCTV will use the <dir>ectory given as the default path for stencil file operations.

NOTE: If any of the above tools types are not specified DCTV will use the directory that contains the DCTV software.

PAGE={Paint | Digitize | Convert} - If present DCTV will go directly to the page specified. If no page is specified DCTV will go to the Welcome page. The DCTVProc and DCTVPaint software for one megabyte users does not support this option.

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The following tool type options are created and updated by the save button in the DCTV Options requester.

DCTVPOS={X position, Y position} - Sets the absolute position of DCTV screens.

DRAWCENTER={On | Off} - When {On} DCTV draw ellipses from center. Draws from top left corner when {Off}.

FASTDRAW={On | Off} - If {On} screen displays as 3 bit planes during drawing operations.

FASTFB={On | Off} - If {On} draws with marquee first then redraws the full image. Works with continuous lines. Default is {Off} for 68000 based machines; {On} for 68020 and higher.

ICONS={On | Off} - If present icons will be saved along with saved files if {On}, otherwise they won't {Off}. The default is {On}.

QUICKDRAWER=<path> - If present, the quick save and quick load functions will use the given path. The default is T:.

QUICKDELETE={On | Off} - If (On), the quick save file will be deleted upon exit, or left as is (Off). The default is to not delete the quick save file when exiting DCTV.

RGBPOS={X position, Y position} - Sets the absolute position of RGB screen (Convert).

SMOOTHCLIPS={On | Off} - When {On} clips are antialiased when resized.

SPARE={On | Off} - If present the spare page will be available {On} or turned off {Off}. The default is {Off}. Sufficient memory must be available to enable this option.

UNDO={On | Off} - If present the Undo will be available {On} or turned off {Off}. The default is dependent on available memory. Sufficient memory must be available to enable this option.

WORKBENCH={On | Off} - If present the Workbench will be left on {On} or closed {Off}. The default is {On}.

DCTV UTILITIES

Several utilities from Digital Creations are included for use with DCTV. They are:

Name	Icons	Shell/CLI	Located
IFFtoDCTV	no	yes	Disk1:util
S4DTOILBM	no	yes	Disk1:util
SetPatchMergeCop	no	yes	C:
DISP	yes	yes	Disk1:tool
DoLace	yes	yes	Disk1:tool

Two of these utilities, S4DTOILBM and IFFTODCTV, are designed to help users to convert Sculpt 4D and IFF images to DCTV format. These CLI or Shell based utilities are provided on DCTV disk 1 in the "util" directory.

Using scripts, SPAT, or a file management utility such as DiskMaster, Disk Master II, or Directory OPUS with these utilities allows for bulk file conversion. (SPAT is a pattern matching utilities found in the S: directory of AmigaDOS 1.3 and 2.0. For information on using SPAT see the AmigaDos 1.3 or 2.0 software manual.)

SetPatchMrgCop is a patch that corrects a situation with the bottom lines of display on the Amiga. If your Amiga requires this it will be installed as part of the DCTV software installation using the program on disk 1 called "install".

DISP is a designed to display DCTV display files or any ILBM images.

DoLace is a utility that forces the output of the Amiga (and thus DCTV's composite output) into interlaced video.

More about these in the following pages.

S4DTOILBM

When rendering single frames with 24 bitplanes Sculpt 4D asks for three file names to store the red, green and blue components of the image. The S4DtoILBM utility combines the three files into a single 24-bit ILBM file. S4DtoILBM will also work with Mimetics Framebuffer RGB output that is composed of three files.

Syntax:

S4DtoILBM   -s   <R>   <G>   <B>   <output>   <width> <height>S4DtoILBM <base name>[.r] [-o<output dir>] <width> <height>

separate mode:

-s   -   If specified the program will expect to see the file names of the separate.red, green, and blue image data.

<R>   -   The <red image data filename>

<G>   -   The <green image data filename>

<B>   -   The <blue image data filename>

<output>-   Specify the <output filename> which will contain the converted data from the three input files.

<width>   - <width> of the input image

<height>   - <height> of the input image

base name mode:

<base name>[.r] -

> Name of the red data file with or without its extension. If used in this way the assumption is made that the green file has the same base name except with a .g extension and the blue file has the same base name with a .b extension.

-o<output dir> -

> If specified the output files will be saved into the given directory. When converting multiple files using SPAT this option is used to specify where the converted files are saved. The default is the current directory.

<width>-   <width> of the input image

<height>-   <height> of the input image

Examples:

S4DtoILBM -s pict.red pict.grn pict.blu pict.24 736 482

> Here the three input files come from the same directory and the resultant output file, named pict.24, is stored there also. The input file has an image with a width of 736 and a height of 482.

S4DtoILBM -s df0:pict.red df1:pict.grn pict.blu wb:scenes/pict.24
640 400

> Note that the three files come from three different
> locations, one from df0:, one from df1:, and one
> from the current directory. The result is stored
> into a subdirectory called scenes on wb: into a file
> called pict.24 The input file has an image with a
> width of 640 and a height of 400.

S4DtoILBM pict 736 482

> Using this form assumes that the base name of the
> input file is pict and the three files have the suffixes
> .r, .g, and .b. The output file will be named, by
> default, pict.24.

S4DtoILBM pict -o wb:renderings 736 482

> In this example the output file is stored into the
> directory wb:renderings with the name pict.24.

SPAT S4DtoILBM pict#?.r -owb:renderings 736 482

> Using this form SPAT will match any file in the
> current directory that starts with pict and ends
> with .r. S4DtoILBM will then construct a 24-bit file
> from the .r, .g and .b versions of the matched
> filename and call it the matched name with a.24
> extension. If the directory had files called:
> pict.000.r, pict.000.g, pict.000.b, pict.001.r,
> pict.001.g, and pict001.b, the resultant files would
> be pict.000.24 and pict.001.24.

IFFTODCTV

This utility is used for situations where an IFF file (all Amiga modes and 24-bit IFF, Turbo Silver RGB8, and Sculpt4D 24-bit compressed) is to be converted into a DCTV image or DCTV raw file. IFFtoDCTV is provided so that conversion can occur in bulk using SPAT, a script, or both. Since DCTV display files are IFF files, IFFtoDCTV can also be used to change DCTV files.

Syntax:

IFFtoDCTV <input files...> [options]

<input files...> - Any number of file names to be converted.

Options:

-w<width> - Specifies the width of the output image. Legal values are 640 to 736. Default is 736

-h<height> - Specifies the height of the output image. Legal values are:

        NTSC 200 to 241 or 400 to 482 Default is 482

        PAL 256 to 283 or 512 to 566 Default is 566

-d<depth> - Specifies the depth (bitplanes) of the output image. Legal values are 3 or 4. Default is 4.

-r\<n\>   -   Output image as a DCTV raw file with \<n\> fields. If \<n\> is not specified the default is two fields. Legal values are 1 or 2. If -r isn't specified the output will be in the DCTV display format. Defaults to writing a packed raw file, add -u to write uncompressed.

-b   -   Extract a base name from the input filename. Scanning from the right until a period is encountered, a base name is constructed. The base name is then used as the output filename along with the appropriate extension (.raw or .dctv).

-c   -   Align the picture into the output file at the top left. If an input file image is bigger than the output file image area the resulting output will align the image on the top left corner. If not specified the input file image will be centered on the output file image area.

-f   -   Turn on RGB filtering. If specified, the input image will be filtered to remove chroma and luma artifacts.

-o\<target\> -   Specifies the output directory. If specified the output file will be written to the given directory. If not specified the output file will be written to the current directory.

-s   -   Use Sculpt 4D 24-bit image file ordering. If the input file is from Sculpt 4D this option must be used for the file to be converted correctly.

-u   Write uncompressed raw files. Default is compressed.

-v\<n | p\>   Overrides the Amiga's default video mode. n=NTSC and p=PAL

Examples:

IFFtoDCTV pict.HAM -b -w640 -h400 -d3

> The input file, pict.HAM, is a ham file. The image will be converted into a 640 by 400 three bitplane DCTV display format file with the name pict.dctv.

IFFtoDCTV pict.HAM -w640 -h400 -d3

> The same result as the example above except that the output filename will be pict.HAM.dctv since the -b parameter was not used.

IFFtoDCTV pict.24 -w736 -h482 -d4 -oDCTVStuff -c -f -b

> The 24-bit image file pict.24 is converted into a 736 by 482 four bitplane DCTV display format image file. The file is saved into a directory called DCTVStuff with the name pict.dctv. The image will be filtered and aligned to the top left corner of the 736 by 482 image area.

SPAT IFFtoDCTV dr0:BIGFILES/pict.???.24 -w736 -h482 -d4 -oDCTVStuff -f -b

> The files on the device dr0: in the directory BIGFILES with the form pict.<any three characters>.24 will be converted into four bitplane 736 by 482 image files. The output will be stored into the directory DCTVStuff off of the current directory with the output form pict.<any three characters> .24.dctv.

File management utilities with IFFtoDCTV

There are several file management utilities that make batch conversions of images to DCTV images a simple matter of point and click. Before you can point and click they need to be configured.

DiskMaster

Ver. 1.0   Find the first free user configurable command (cmd1....cmd10) in the second box from the bottom. Pull down the second menu and choose the cmd selection. Enter the following information in the string gadget.

```
IFFtoDCTV %s [options]
```

Ver. 2.0   1.) Use the Add command from the menu. 2.) Enter the following in the command requestor box.

```
Convert, 20, extern SYS:C/IFFtoDCTV %s [options]
```

button name

color

path name & program name

wildcard matching

The previous examples would either require that IFFtoDCTV be in the C: directory, the current path, or have the pathname specified. The "%s" needs to be entered with a lowercase "s". Any of the IFFtoDCTV options may be entered after the %s.

Directory OPUS

In the user configurable section add this:

IFFtoDCTV {f} [options]

Make sure that the "f" in the {f} is lowercase. Have "do all filenames" turned on.

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DISP

DISP (short for display) is a utility that can help the DCTV owner view pictures or make simple slide shows. Since DISP follows all the rules regarding correct screen placement of files and proper centering, all DCTV display files can be easily shown. Any bitmapped file will be displayed.

DISP works in two modes - CLI/Shell or icon driven.

DISP from Icons

Shift and click once on the icon of the DCTV display image you want to see, and while holding the Shift key down, double click on the DISP icon.

To View a drawer of images do the extended Shift-click on the drawer icon.

Next Picture   - Click either mouse button or press the Space bar.
Quit DISP   - Press the ESC key.

DISP from CLI/Shell

Usage: DISP <dir | file> . . . [options]

<dir | file>   Specify either directories or files

options -l   - loop mode

                  -t[secs]- time - Picture duration in seconds. -t0 or -t means no delay between pictures. Defaults to infinite delay when -t is not specified.

Next Picture   - Click either mouse button or press the Space bar.
Quit DISP   - Press the ESC key.

DoLace

Proper video should be interlaced. Video that is not interlaced may have problems in duplication and editing. Pronounced "do lace", DoLace is a utility that will force the video/RGB output of the Amiga computer into interlaced mode. Since the composite output of DCTV is dependent upon the RGB out of the Amiga, DoLace will also force the DCTV images to a legal video interlaced mode.

Why?

The people that will want to use DoLace are the ones wanting to do animations with DCTV. Since a non-interlaced DCTV image has half of the information that an interlaced one does (200 lines vs. 400 lines) it is also half the size in memory requirements. By making the images in your animation non-interlaced you can either run them faster or get twice as many frames in your animation. But the non-interlaced output is now illegal video. Running DoLace will put you back into interlace mode.

Note: Making your images non-interlaced (lessening the number of lines of information) will probably lower the quality of the images that you are producing. Doing a preliminary test on some of the images or doing a short version of the animation first will give you insight into the value of this technique for your application. The source of the images, how they were created, and the actual picture content of those images will determine how well this will work for you.

DCTV FILE FORMATS

DCTV uses several different file formats in addition to the standard Amiga formats. They are DCTV.Raw, DCTV.Display, DCTV.Stencil, DCTV.Palette, and DCTV.Clip. The .extension names are for identification purposes and are not needed by the program.

Raw

> Proprietary format maintains all information to make full color DCTV images. This is the format to use with work in progress. Multiple loads and saves to the same file name will not gain or lose anything in the picture quality. This file can be as large as about 500K.

Display

> This is the most important proprietary file format within DCTV. An ingenious combination of image compression and Amiga compatibility give the ability to store these beautiful images in extremely small files. This allows many animators to get 24-bit quality to composite video without the use of expensive frame accurate controllers.

> As far as the Amiga and other software is concerned this is just a 16 color hi-res IFF ILBM image. The display format has embedded information at the top and left edge of the image that identifies it to the DCTV hardware as a DCTV image. Where normal 16 color images have pixel information DCTV.display images have encoded video wave forms.

> Use in any program that handles 16 color pictures.

Stencil   The stencil is compatible with stencils made in Deluxe Paint III.

Clip   DCTV clips. Proprietary format.

Palette   Stores all the information for the color wells, the gradients, and the mixing area. Proprietary format.

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