

TECHNICOLOR DREAM

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Demonstration Graphics by the authors

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A GUIDE TO USING TECHNICOLOR DREAM

BY
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WHAT IS TECHNICOLOR DREAM?

Technicolor Dream is a collection of programs that allows you to create pictures with far greater realism than has previously been possible using an 8-bit Micro.

With an initial range of 256 colours, all of which can be used on one screen, together with a choice of 128 filters, the scope for the computer artists is truly remarkable. However, when you also take into account the amazing 'mix' facility, in which any two colours can be mixed and used in combination with any of the filters to give a staggering 8 million or so possible combinations, here surely is a program of absolutely unrivalled versatility in which the artists is literally limited only by the scope of his imagination.

In addition, there is also an 'effects' section which allows you to do virtually anything, from changing the colours already selected to producing a negative image of your picture. (see under ADVANCED EFFECTS later in this booklet)

If you have an Epson RX80 or Epson compatible printer (other printer owners can make use of the basic handler and basic listings at the rear of the TECHNICAL NOTES section), you will be able to obtain a hardcopy of your artwork.

The program was originally conceived with a view to improving the quality of artwork associated

with games software. Therefore, any pictures created can be used in your own programs if so desired. (see LOADING AND SAVING PICTURES)

GETTING STARTED

Plug the joystick into controller jack 1 and, if you have an Atari Touch Tablet, plug this into controller jack 2.

LOADING 400/800 (48K) DISK

Turn on your disk drive before you turn on your computer. Wait for the busy light to go off, then insert the TECHNICOLOR DREAM disk into the disk drive and turn on your computer. (see your disk drive 'owners guide' for complete instructions on loading and saving programs).

LOADING 400/800 (48K) TAPE

Place the TECHNICOLOR DREAM tape into your data recorder and fully rewind the tape. Turn on the computer while holding down the start key and the computer will 'bleep'. When this happens, press 'play' on your data recorder and hit the 'return' key on the computer, and the tape will begin to load.

Should you experience an 'error' whilst the program is loading, rewind the tape again, advance to '2' on the tape-counter and

try the same procedure again. Because all the tapes are not always recorded from the same start point it is important to find the correct starting position for your copy of **TECHNICOLOR DREAM**, but by advancing the tape slightly before each attempt and checking the tape-counter you will soon know the correct position to begin loading the program.

A title screen will appear while the computer loads the main program, after which the 'Help' screen

will be displayed and the program is ready to use.

LOADING XL/XE COMPUTERS

Disk users on XL/XE computers should follow the instructions above for 400/800 DISK but hold down 'option' key when switching on the computer.

TAPE users on XL/XE computers should follow the instructions above for 400/800 TAPE but hold down 'option' and 'start' keys together when switching on computer.

**PLEASE NOTE: DO NOT PRESS
THE 'RE-SET' KEY DURING
YOUR USE OF THIS PROGRAM.**

THE "HELP" SCREEN

When first using **TECHNICOLOR DREAM** you may be a little uncertain as to the functions of all the relevant keys. For this reason the 'Help Screen' has been included and is the first screen you will see when the program has loaded.

To access this screen at any other time press the 'Escape' key (ESC).

Note: XL/XE owners can also use the 'Help' key.

The Help Screen looks like this:

HELP

OPTION (O to F) Select Colour
SELECT (O to F) Select Luminance
START Select Colour and Luminance
SPACE Put 256 Colour Menu on Screen
CTRL C Fill Screen with Colour
CTRL B Fill Screen with Luminance
CTRL S Storage Page
CTRL P Print Screen on Printer
CTRL D Draw a Line
CTRL E Special Effects Screen
CTRL M Toggle Shade Mode

ESC Return to Menu

The first four options are self-explanatory. Below we give a guide to the use of the remainder:

CTRL C - This will fill screen with a previously selected colour.(Drawing Area Only)

CTRL B - This will fill screen with a previously selected luminance.(Drawing Area Only)

CTRL P - This will give you a hard copy of your artwork. However, you must have the picture you wish to print on the screen and the printer must be on line for this function to work correctly.

CTRL M - This effectively turns on (or off) the mix mode.

CTRL D - This allows the user to draw straight lines. To do this simply position the cursor at the point where the line is to start and press the joystick 'fire' button once. Now reposition the cursor at the point where the line is to end.



TECHNIQUE

Choosing a colour

If you press the space bar, the computer will draw 256 colour boxes on the screen. To select a colour, simply position the cursor over the desired colour using the joystick (or Touch Tablet) and depress the 'start' key. The colour selected will appear in the lefthand box of the three large boxes you will see, together with a code at the bottom of the screen.

The three large boxes are for use during the 'mix' mode and will be explained more fully in the 'ADVANCED EFFECTS' section which appears later on in the booklet.

If you now look at the 'palette' you will see 16 colours, each of which is available in 16 luminances, giving 256 different colours in all, any of which can be selected at any time.

Drawing

Having selected a colour, press the space-bar and the palette will disappear leaving a blank screen. The palette can, of course, be re-accessed at any time by pressing the space-bar. To draw, press either the button on the joystick or one of the buttons on the Touch Tablet. To change colour during drawing, simply re-follow the procedure given in paragraph one (Choosing a Colour) or select a colour directly from the screen you are now on! (See Hints and Tips on page 11).

Alternative Colour Selection

Colours can be changed at any time using the 'option' and select keys whereby 'option' gives the colour and 'select' the luminance. To do this however, you will need to understand the code which appears at the bottom of the colour palette as we mentioned in paragraph one.

This code takes the form of a number or letter followed by a further number or letter; the first of which represents the number of the row on the palette and the second the number of the column. the palette is effectively a 16x16 grid and to see how the numbers 0 to 15 inclusive translate to single figures, please see Table 1 (below).

TABLE 1

Number	Equiv	Number	Equiv
0	0	8	8
1	1	9	9
2	2	10	A
3	3	11	B
4	4	12	C
5	5	13	D
6	6	14	E
7	7	15	F

To choose a colour therefore, press 'option' together with the appropriate value between 0 - F To choose a luminance use the same method but press 'select' instead of 'option'.



Storing and Re-storing Pictures

Before doing anything that could cause a picture to be spoiled, it is advisable to use the 'Store' function.

To do this it is necessary to call up the effects screen first (CTRL..E).

Example:

```
>ST (RETURN)
```

This will save your picture in a special storage screen, allowing experimentation. To re-access your stored picture, you must use the 'Restore' function.

Example

```
>RE (RETURN)
```

This will replace the current picture with the previously stored image.

Using Filters

When composing a picture, you may wish to experiment with various lighting effects, as in photography. This can be achieved by the use of the 'filter' option included in the program.

The only way to access a colour filter is by first choosing a colour using the 'option' and 'select' keys (not the main palette).

Example

```
(OPTION)(0-F)(SELECT)(0-F)
```

If the numbers selected were B (Green) and 8 (Luminance value) this would result in a fairly light green filter. To use this, or any other

filter on your picture simply press 'control' F (CTRL F).

Try experimenting with different filters, as amazing results can be achieved.

Note: To remove a filter, change all values to 0.

Example

```
(OPTION)(0)(SELECT)(0) CTRL..F
```

Mixing Colours

To widen the range of colours available to the user, a 'Mix' facility has been included.

To mix two colours, firstly call up the palette (Space bar) then press 'control' M (CTRL M) to enter the 'Mix' mode.

Look at the three large boxes at the bottom of the screen. From left to right the first box shows the colour presently in use. This may be altered if so desired by using the joystick and pressing 'start'. The second box represents the 'Mix' colour, i.e. the colour to be added to the first. This is chosen by using the 'Option' and 'Select' keys in the usual manner.

Example

```
(OPTION)(0-F)(SELECT)(0-F)
```

The third box represents the mixed colour, i.e. the resultant colour which will now be in use.

Press the space-bar to remove the palette and start drawing.

To exit the 'Mix' mode, simply press 'control' M (CTRL M) and you will then revert to the original colour as in box one.



LOADING & SAVING FILES

Before you can load or save any file (picture), you must first enter the storage screen. This can be achieved by pressing the 'control' key and 'S' (CTRL S)

Disk

If you have the disk version you will see:-

STORAGE

- L) Load Picture
- S) Save Picture
- I) Index Disk Pictures
- D) Delete Disk Pictures
- F) Format Blank Disk

Loading a Picture

To load a picture, insert picture disk into drive 1, press 'L', then enter device (Disk), filename (up to 8 characters can be used).

Example

D:PIC1 (No extender required)
then press RETURN. Your picture will now load and be displayed automatically.

Saving a Picture

To save a picture, first place

a formatted blank disk in drive 1, press 'S' then enter device (Disk) and filename you wish to use. (Up to 8 characters can be used)

If you wish to save your picture in **uncompacted format** depress CTRL D (or CTRL C for cassette version). Otherwise your picture will be saved out in compacted format.

Example

D:PIC1 (No extender required)

then press RETURN. Your picture will now be saved.

Indexing Disk Pictures

Insert picture disk in drive 1, (or program disk if you have not yet saved any pictures of your own; a number of sample pictures are already on file). Press 'I' and a list of previously saved pictures will appear as well as the number of free sectors remaining. Press any key to return to menu.

Deleting a Picture

Insert picture disk in drive 1,

press 'D', then enter device (Disk), filename (up to 8 characters).

Example

D:PIC1 (No extender required)

then press RETURN. On this occasion you will be prompted for a 'Yes' or 'No' (Y/N) answer to delete the file. If you press 'Y' the file will be deleted. If you press 'N' you will return to menu.

Formatting a Disk

Insert a blank disk into drive 1, then press 'F', the disk will now be formatted.

(For users with more than one disk drive, this only formats disk in drive 1.)



Your copy of **TECHNICOLOR DREAM** contains some demonstration pictures.

To load any of these from the **DISK** version first access the **STORAGE SCREEN** by pressing the control key & 'S' together (CTRL S) Then type 'I' to see the index and after choosing the picture you wish to see, type 'L'.

When the prompt appears type **D:** followed by the title as seen on the index screen eg: **HAYWAIN** Hit the **RETURN** key and your picture will load after a few seconds.

Now you are ready to try your first experiment! Use the joystick plugged into port 1 to move the cursor around the picture and you'll see how easy it is to 'dip' into any of the colours you can

see on the screen. Position the cursor over any pixel on the screen and press the 'start' key. Move the cursor to an area containing another colour and hold down the joystick 'fire' button while moving the cursor. You see the colour you were touching when you pressed the 'start' key has been transferred to your on-screen cursor! That's how easy it is to select your colours! By hitting the space bar you will bring the 256 colour screen into view over the picture. After a few seconds you can move the cursor to any of the colour blocks and pick up a new colour by pressing the 'start' key again. Hit the space bar to turn off the colour palette and you can add the colour you have just chosen to any point on the picture.

ADVANCED EFFECTS

Effects Screen

When composing a picture, you may wish to alter the colour configuration of your composition. To cater for this an effects section has been included. To enter the 'effects' section press 'control' E (CTRL E). You will see a black and white miniature of your picture and a prompt (>) is given for user command.

Note: You can exit the effects screen at any time by typing 'E' (RETURN).

Changing a colour

To change a colour on your picture, first of all you must find out the value of the colour you wish to change, then you must find out the value of the colour you wish to change to. If you have difficulty in doing this, see 'CHOOSING A COLOUR' located earlier in this booklet. (See index-page 3)

Example

If you wanted to change colour 2 (Brown) to colour 9 (Turquoise) you would enter the following command:

```
>CHANGE C,#2,#9(RETURN)
```

This will change all colour 2's (Browns) to colour 9's (Turquoises). Any colour can be altered in the same

ADVANCED EFFECTS: (See page 10 for Authors' Technical notes on the effects screen.)

way by simply substituting the correct colour values after the '#' signs.

Changing a Luminance

To change a luminance, you follow the same procedure but replace the 'C' with 'L'.

Example

```
>CHANGE L,#2,#9(RETURN)
```

This will change all luminances with the value 2 to luminances with the value 9.

Creating a Negative

To create a negative of your picture, simply enter the following command:

```
>EOR L,#F(RETURN)
```

Adding Luminance

The brightness of the picture can be increased by adding a value (1 - 7) to all existing luminance values.

Example

```
>ADD L,#1(RETURN)
```

This will effectively add 1 to all existing luminance values, thus brightening the whole picture.

The Effects Screen

The effects screen is found by pressing CTRL E. A small B/W picture is displayed and a prompt is given for a user command. The user command is generally in the format:-

command dest,source

The dest has to be 'L' or 'C' for the luminance or colour screen respectively.

The source can be 'L' or 'C' if one of the screen is to effect the other by the function being performed, or it can be an immediate number written as '0N' with n as a Hex number from 0 to F (4 bit).

Some knowledge of assembly language programming would be helpful to use this section to its best advantage, as many of the functions resemble 6502 assembly language in the way they operate.

The commands are:-

ADD	AND	BL
BR	CHANGE	END
EOR	OR	STORE
RESTORE		

ADD

The ADD function can be used to increase the contrast of a low contrast picture where the luminance levels range from 0 to 7. By ADDING the luminance values to luminance values (lum=lum+2), the contrast of the picture is increased to twice the brightness.

e.g. ADD L,L

If this technique is used where the values of luminance are greater than 7 then the 'out of range' values will overflow into the next pixel.

The brightness of a picture can be increased by ADDING a number to all

of the luminance values, but problems may occur if the values overflow.

e.g. ADD L,03

AND

The AND function can mask out values of the luminance screen not wanted.

e.g.

	Bits	4	3	2	1	0	
lum value		1	0	1	1		=11
		1	1	1	0		=0E
after AND L,0E		1	0	1	0		=10
	masked out				^		
	bit						

BL and BR

BL stands for binary left.

BR stands for binary right.

These commands move the '4 bit' data '1 bit' to the left or right.

e.g.

BL L will binary shift all the lum values left.

BR C will binary shift all the col values right.

CHANGE

The CHANGE command allows you to change any lum value (or colour value) to any other lum value (or colour value)

e.g.

CHANGE L,02,07
will change all 2's on the lum screen to 7's.

CHANGE C,05,02
will change all 5's on the col screen to 2's.

END

Returns you back to the picture.

This can produce a negative of the picture by inverting the bits indicated.

e.g.

```
before      0 1 1 0 =6
EOR L,#F   1 1 1 1 =F
-----
result     1 0 0 1 =9
```

OR

This allows 2 values to be merged together.

e.g.

```
before      0 1 0 0 =4
OR L,#3     0 0 1 1 =3
-----
result     0 1 1 1 =7
```

STORE and RESTORE

Before doing anything that could cause the picture to be spoilt it is advisable to use the STORE function.

This will copy the screen to a special storage screen, so if a mistake is made you can get your screen back with the command RESTORE.

e.g.

```
STORE
EOR L,L
RESTORE
EOR L,#F
END
```

The EOR L,L will clear the lum screen and was a mistake, so the picture was restored with the RESTORE function.

Please note when in normal drawing mode, if you use the color pallet (SPACE BAR) then the picture you are drawing is saved in this same special storage area.

This is a 'BOOT' program on the 'B' side of the tape or an 'AUTORUN' file on the 'B' side of the disk. (Boot with basic)

The graphics handler uses the BASIC language and allows the user to write BASIC programs which use the 'TECHNICOLOR DREAM' pictures.

The handler supports a fast way of loading and saving of non compacted pictures as well as allowing the use of most of the normal screen commands.

N.B. The pictures MUST be saved in non-compacted form from TECHNICOLOR DREAM. See LOADING and SAVING in the manual.

HANDLER COMMANDS

```
XIO 100,#1,4,0,"D:"
XIO 100,#1,4,0,"C:"
```

Loads a file to the luminance screen after it has been opened using the OPEN command.

e.g. OPEN #1,4,0,"D:FILENAME.LUM"
or OPEN #1,4,0,"C:" for Cassette

```
XIO 101,#1,4,0,"D:"
XIO 101,#1,4,0,"C:"
```

Loads a file to the Colour screen after it has been opened as above, disk users change extender to .COL.

To open the Graphic screen itself you use the command
OPEN #2,12,0,"G:"

Once you have opened the Handler (G:) you can then use the screen like any other ATARI I/O device.

POSITION x,y

Will position the screen cursor at location x across and y down for use of the commands PUT and GET.

```
PUT #2,x
```

Will put a byte onto the screen.
x=C*16+L

where C is the colour value (0 to 15) and L is the Luminance value (0 to 15).

```
GET #2,x
```

This is the opposite of PUT and will get a byte from the screen.

```
C=INT(x/16)  
L=x-(C*16)
```

```
PRINT #2;DUMMYS;
```

Will print the contents of the DUMMYS to the screen.

PLOT and DRAWTO can be used providing a GRAPHICS 9 command is given before using the OPEN #2,12,0,"G:" command. PLOT and DRAWTO use the Luminance for PLOTTING, but by POKING location 89 with 129 will then PLOT on the Colour screen. POKE 89 WITH 97 to return PLOTTING to the Luminance screen.

This program will load a picture from the disk or cassette and display it.

Lines 40 to 70 load the Luminance part of the screen and lines 80 to 110 load the colour part.

The Handler is opened after loading because the screen uses display list interrupts which will be disabled by the loading process. The idea of having a graphics handler is so that your TECHNICOLOR DREAM pictures can be altered by a BASIC program giving you COMPLETE control over creating a better picture

```
10 GRAPHICS 9  
20 REM CHANGE ALL "D:etc...  
30 REM TO "C:" FOR CASSETTE  
40 OPEN #1,4,129,"D:FILENAME.LUM"  
50 REM LOAD LUM FILE  
60 XIO :00,#1,4,0,"D:"  
70 CLOSE #1  
80 OPEN #1,4,129,"D:FILENAME.COL"  
90 REM LOAD COL FILE  
100 XIO 101,#1,4,0,"D:"  
110 CLOSE #1  
120 REM OPEN THE GRAPHICS SCREEN  
130 OPEN #2,12,0,"G:"  
140 GOTO 140
```

A picture can be loaded and a simple BASIC program could tilt the picture then re-save it. The effects that you can use are only limited by your imagination.

GRAPHIC 8 CONVERTER PROGRAM (FOR DIGITISED PICTURES)

```
1 REM  
2 REM BASIC VERSION  
3 REM  
4 REM  
5 REM Graphic 8 converter for  
6 REM Technicolor Dream  
7 REM by Keith Watterson  
8 REM and David Forward  
9 REM  
10 DIM LINE1(79),LINE2(79),LINE3(79)  
20 DIM FILES(15),FILERS(15),FILEWS(15),FILECS(15),AS(1),MCODES(10)  
30 IOBUFLO=852:IOBUFHI=853:IOLENLO=856:IOLENHI=857:IOCPD=850  
40 MCODES="hhh*LVd"  
50 REM the 's' and the 'd' above are both in inverse video  
100 PRINT "File Name >>D:";INPUT FILES  
110 FILERS(1)="D:";FILERS(3)=FILES  
120 X=LEN(FILES):L=X  
130 FOR I=1 TO X:AS=FILES(I,I)  
140 IF AS="." THEN L=L-1  
150 NEXT I:X=L
```

```

160 FILES(1)="D:";FILES(1)="D:"
170 FOR I=1 TO X:FILEW$(I+2)=FILES(I);FILEC$(I+2)=FILES(I);NEXT I
180 FILEW$(X+3)=".LUM";FILEC$(X+3)=".COL"
190 ? :? "Output Files will Be ";FILES
200 ? :? "and a Dummy File ";FILES
210 ? :? "Do you Require Smoothing (Y/N)";:INPUT A$:FLAG=2
220 IF A$="Y" OR A$="y" THEN FLAG=1
230 IF A$="N" OR A$="n" THEN FLAG=0
240 IF FLAG=2 THEN 210
300 OPEN #1,4,0,FILES
310 GRAPHICS 9:YPOS=0
320 FOR LINE=0 TO 95
325 REM *****READ 1st LINE*****
330 FOR X=0 TO 39
340 GET #1,A
350 H=INT(A/16):L=A-(H*16)
360 LINE1(X*2)=H
370 LINE1(X*2+1)=L
380 NEXT X
390 REM *****READ 2nd LINE*****
400 FOR X=0 TO 39
410 GET #1,A
420 H=INT(A/16):L=A-(H*16)
430 LINE2(X*2)=H
440 LINE2(X*2+1)=L
450 NEXT X
455 REM *****MERGE THE TWO LINES*****
460 FOR XPOS=0 TO 79
470 H=LINE1(XPOS):L=LINE2(XPOS)
480 SUM=INT((H+L)/2):IF SUM>15 THEN SUM=15:COLOR SUM:PLOT XPOS,YPOS
490 COLOR SUM:PLOT XPOS,YPOS
500 NEXT XPOS
510 YPOS=YPOS+1
520 NEXT LINE:CLOSE #1
530 IF FLAG=0 THEN GOTO 1000
540 REM *****SMOOTHING*****
550 Y=0
560 FOR X=0 TO 79
570 LOCATE X,Y,A:LINE1(X)=A
580 LOCATE X,Y+1,A:LINE2(X)=A
590 LOCATE X,Y+2,A:LINE3(X)=A
600 NEXT X
610 GOSUB 800
620 FOR Y=2 TO 120
630 FOR X=0 TO 79
640 LINE1(X)=LINE2(X)
650 LINE2(X)=LINE3(X)
660 LOCATE X,Y+1,A:LINE3(X)=A
670 NEXT X
680 GOSUB 800
690 NEXT Y
700 GOTO 1000
800 FOR X=1 TO 78
810 ADV=LINE1(X-1)+LINE2(X-1)+LINE3(X-1)
820 ADV=ADV+LINE1(X)+LINE2(X)+LINE3(X)
830 ADV=ADV+LINE1(X+1)+LINE2(X+1)+LINE3(X+1)
840 ADV=INT(ADV/9)
850 COLOR ADV:PLOT X,Y+1

```

```
060 NEXT X
070 RETURN
1000 SCREENLO=PEEK(80):SCREENHI=PEEK(89)
1010 OPEN #1,0,0,FILEM$
1020 RESTORE 1040
1030 FOR I=1 TO 6:READ A:PUT #1,A:NEXT I
1040 DATA 4,1,22,5,53,0
1050 POKE IOCHD,11
1060 POKE IOBUFLO,SCREENLO:POKE IOBUFHI,SCREENHI
1070 POKE IOLENLO,150:POKE IOLENHI,10
1080 A=USR(ADR(MCODE$),16):CLOSE #1
1090 OPEN #1,0,0,FILEC$
1100 RESTORE 1040:FOR I=1 TO 6:READ A:PUT #1,A:NEXT I
1110 GRAPHICS 9
1120 SCREENLO=PEEK(80):SCREENHI=PEEK(89)
1130 POKE IOBUFLO,SCREENLO:POKE IOBUFHI,SCREENHI
1140 POKE IOLENLO,150:POKE IOLENHI,10:POKE IOCHD,11
1150 A=USR(ADR(MCODE$),16):CLOSE #1
```

SCREEN DUMP PROGRAM
FOR EPSON FX/MX/RX 80

```

10 REM
20 REM BASIC VERSION
30 REM
40 REM Screen Dump for EPSON FX/MX/RX 80 for
50 REM Technicolor Dream
60 REM By Keith Watterson
70 REM and David Forward
80 REM
90 REM
120 DIM CODE$(7),FILENAME$(15),NAME$(8),BUFFER$(500),GRAY(48):CODE$="hhhLVD"
130 REM the "h" and "d" above are both in inverse video
140 IOCB1CMD=950
150 IOCB1BUFLO=852
160 IOCB1BUFHI=853
170 IOCB1LENLO=856
180 IOCB1LENHI=957
190 RESTORE 460
200 FOR I=1 TO 48:READ A:GRAY(I)=A
210 NEXT I
220 BUFFER$(1)=CHR$(27):REM Set Epson for Normal Bit Image Mode ( 8 Pin )
230 BUFFER$(2)=CHR$(75):REM " " " " " " " " " "
240 BUFFER$(3)=CHR$(101):REM Number of Bytes of Data for Bit Mode ( LO )
250 BUFFER$(4)=CHR$(1):REM " " " " " " " " " ( HI )
260 PRINT " Enter File Name ":INPUT NAME$
270 FILENAME$(1)="D:"
280 FILENAME$(3)=NAME$
290 FILENAME$(3+LEN(NAME$))=".LUM"
300 GRAPHICS 9:SCREENLO=PEEK(88):SCREENHI=PEEK(89)
310 CTRL=7:TYPE=4
320 GOSUB 500:REM Load Screen
330 OPEN #1,B,0,"P:"
340 PRINT #1,CHR$(27);CHR$(65);CHR$(8):REM SET LINE SPACING
350 FOR X=79 TO 1 STEP -1
360 P=5
370 FOR Y=0 TO 118
380 LOCATE X,Y,A
390 PTR=A+4+Y+1
400 BUFFER$(P)=CHR$(GRAY(PTR))
410 BUFFER$(P+1)=CHR$(GRAY(PTR+1))
420 BUFFER$(P+2)=CHR$(GRAY(PTR+2))
430 P=P+3
440 NEXT Y
450 PRINT #1,"          ":BUFFER$
460 NEXT X
470 CLOSE #1:END
480 DATA 255,255,255,191,255,253,247,189,247,189,213,187
490 DATA 174,238,117,214,174,187,170,173,891,170,893,178
500 DATA 885,162,885,885,882,164,841,881,148,881,817,138
510 DATA 864,842,868,888,866,888,864,888,882,888,888,888
520 OPEN #1,TYPE,0,FILENAME$:REM use IOCB's for speed ( faster than 'GET #1' )
530 POKE IOCB1CMD,CTRL:REM 7 = Binary Read 13 = Binary Write
540 POKE IOCB1BUFLO,SCREENLO-6:REM (-6) to Strip of Header Bytes
550 POKE IOCB1BUFHI,SCREENHI
560 POKE IOCB1LENLO,158:REM ( LO ) Length of Screen
570 POKE IOCB1LENHI,18:REM ( HI ) " " " " = $129E (4766) Bytes.
580 A=USR(ADR(CODE$),16)
590 CLOSE #1
600 RETURN

```

HINTS AND TIPS

A good way of picking colours is to simply place the cursor over the desired colour on your picture and press 'start', thus avoiding the need to continually call up the palette.

Use the 'STORE' function regularly, as mistakes are easily made but not so easily corrected.

Never be frightened to experiment with colours as one or two simple changes can produce stunning effects.

Regularly save your picture to disk (or tape) as the unexpected is always possible. e.g. power failure etc.

Another useful method of selecting

colours is to transfer a selection of shades from the palette onto the screen in a convenient position which can be easily accessed when drawing (e.g. down one edge of the screen). These colours can be painted over in the later stages of your work.

The 'Touch Tablet' can be used to quickly move the cursor around the screen.

CLEARING THE SCREEN

Should you wish to clear the screen to black (for example after a doodling session etc) enter the following commands:

Hold down 'Option' & press 0
Hold down 'Select' & press 0
Hold down CTRL & press C
Hold down CTRL & press B

CASSETTE VERSION

Once you have loaded the **Technicolor Dream** program you will see the "Storage" screen:-

STORAGE

- L) Load Picture
- S) Save Picture

TO LOAD PICTURES

Place tape containing picture files (There are two demo pictures following immediately after the main program) into the data recorder. From the STORAGE SCREEN press 'L' on the keyboard. Then enter C: (for the device name). If it is required to load an uncompressed picture, use CTRL 'C' for device name.

Once the device name is entered and return pressed the computer will 'bleep'. Press "play" on the recorder and then press "Return" on the computer. The picture will then start to load. Halfway through loading, the computer will bleep again and the 'Return' key on the computer should be

pressed again. The picture will then continue to load and after it has finished you will be returned to the drawing screen which will now display the loaded picture.

SAVING A PICTURE

Insert a blank tape into the data recorder and then press "S" from the Storage Screen. When asked to enter device name you should simply enter 'C:' (or 'CTRL C:' for uncompressed pictures). When you press 'Return', the computer will bleep twice. Press 'Play' and 'Record' together and then press the 'Return' key again. The computer will now start to save the picture onto your tape. Halfway through the save, the computer will bleep twice again and you should press the 'Return' key once more allowing the second half of your picture to be saved. Once the operation is completed you will be returned to the drawing screen.