

**SYSTEM FOR
CREATING COLOR
PRINTOUTS
USING**

BLACK \neq **WHITE**
PRINTERS

**microscreen to hardcopy
in minutes!**

ELECTRONICAL SOFTWARE

YEMACVB

USERS' MANUAL

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INTRODUCTION

The YEMACYB program converts high resolution graphics datafiles saved on disk into high quality color printouts using any supported dot-matrix printer with colored ribbons. These printouts represent an exact color reproduction of the video display in an 11" diagonal format.

YEMACYB creates colors basically the same way that the color comic section of your newspaper is printed, by overlaying various amounts of the primary colors on the surface of the paper. The color separation process is accomplished in software and results in (up to) four datasets, one each for yellow, magenta (red), cyan (light blue), and black. Then these datasets are overprinted one at a time to recreate the video graphics.

The YEMACYB routine is menu driven, this means that you only have to look to the screen to find instructions for the next step in creating a printout. The graphics file is loaded only once and no other disk access is required to create the printout since the routines are all ram based, this means no irritating disk swapping is needed, no intermediate files are generated, and no disk errors.

A graphics datafile must be in the standard (Micropainter 62 sector) format to be printed by the YEMACYB system. Most programs that allow you to create and save graphics to a disk use this format.

Also included on the program disk are auxilliary routines to enhance utilization of your new color printing capabilities.

Congratulations on your selection of the YEMACYB software, a unique first of it's kind product. The YEMACYB system has been designed to take full advantage of the outstanding ATARI graphics, providing maximum flexibility and ease of use while producing very professional results.

LOADING PROCEDURE

Turn on your video monitor and disk drive.

When the busy light goes out, open the disk drive door and insert the YEMACYB program diskette into the drive. Close the disk drive door.

If you have a model 400, 800, or 1200XL, insert your ATARI Basic cartridge into the (left) cartridge slot of your computer then power it on. If you have a 600XL, 800XL, 65XE, or 130XE then the Basic is builtin and all that you have to do is power on the computer (without holding down the OPTION key).

The YEMACYB program will load and start automatically.

OPERATING INSTRUCTIONS

PRINTER SELECTION

Before starting the printing session, make sure that your printer's DIP switches are set properly.

If your printer is mainly used with ATARI 8-bit computer software then the normal settings that allow listings of programs and graphics dumps are fine because this program was designed for you users. You won't have to flip any switches. For those of you who are new to your printer, just make sure that you are not in any special mode like near letter quality. For Epson printers make sure that the printer select DIP switch is set to the on position. For Star users make sure that your DIP switch is set for the Star mode if you selected the Star/Gemini printer class. For C.Itoh users make sure that your DIP switch is set for unidirectional printing.

After the program has loaded you are presented with a menu of printers to choose from. Press the number key on the keyboard that corresponds to the printer number on the printer selection menu for your type of printer.

After the printer type is selected, the computer responds by drawing the main menu. Contained on this menu is an indication of the selected class of printer. Whenever you give input to the YEMACYB program, your entry will generate positive feedback in the form of a redisplay of your entry.

LOADING THE GRAPHICS

If you haven't already done so, remove the YEMACYB program disk and place it into its protective sleeve.

Press any key from the main menu, and the display changes to a prompt for a filename of a graphics file to load.

At this time, insert the diskette that has the graphics that you wish to print into the disk drive and close the drive door. Then type in the filename without the drive prefix and press return. If the program is on the disk and it is in the correct format, it will be loaded into the computer memory. The file's graphics are also displayed after loading until any key is pressed.

If you need to look at the disks directory, type in an asterisk (*) at the filename prompt and the first eight files of the directory are displayed. Press the 'P' key to see the next eight names, this can be continued until all of the filenames have been displayed, or you can press escape or return to return to the filename prompt.

CHANGING THE COLORS

The initial graphics display is replaced with a menu that allows changes to the colors used in the display (thus the printout), we'll call this the color change menu.

On the color change menu, you are prompted for the need to change any colors, yes or no. If no (N) is selected, it is assumed that you are satisfied with the appearance of the display and the color analysis begins.

The technical term for one of these color changes is "display list interrupt", which is one of the many special features of your computer system. It is abbreviated on the color change menu as D.L.I.

If yes is selected, the menu displays a prompt asking for a scan line to insert a color change at. If your picture file is graphics 7 then the allowable range is from 1 to 96, if your file is graphics 7+ then the range is from 1 to 192.

For example, if you want to modify a graphics 7+ display halfway down the picture, you would enter 96 as the scan line number.

Once the scan line has been entered, the prompt changes to a request for a color register to change. The allowable range of inputs is 1 to 4 which correspond to the color memory registers 708, 709, 710, and 712 (a.k.a. color 1, color 1, color 3, and color 0 in ATARI Basic) which are the ones used in the high resolution four color modes. Selecting one of the color registers for changes causes the prompt to change to one asking for a new color value to be input for the selected color register at the specified scan line. All of the pixels that use the specified color register on the specified scan line and all scan lines below the specified scan line are updated to the new color. Pressing return instead of keying in a new color causes the program to return to the prompt that asks for a scan line. When you enter a new color the menu is updated with the new information and then another keyhit will cause the program to cycle back to ask for another scan line to modify the colors at.

You should change the colors from the top to the bottom of the display because all pixels that use the selected color register that are below the selected scan line are also altered.

Continue with the procedure of selecting a scan line and color register then entering a new color value, until all of the colors that you want to change are altered.

The color values are the even numbers 0-254. A color chart representing the default palette is provided in the program packaging for reference.

To exit the color change mode, just press the escape key at the scan line prompt. If any colors were changed, the display will update to show the graphics with the new colors. Press any key to remove the graphics display and to return to the color change menu for more alterations if necessary. If no colors are changed from the color change menu, YEMACYB begins the color analysis when the escape key is pressed at the scan line prompt.

There are a maximum of 768 (192 scan lines x 4 color registers) color changes possible for any given display. (There are only half that many for a graphics 7 display.) You might not want to enter this data more than once. Available from the color menu are options to save the color changes that you have keyed in for later use, and to retrieve any color changes that were previously saved.

If the option console key is pressed, a routine to save the current colors is invoked. A warning message is generated which the user must respond to before the color data is written to the disk. This color data is not saved in a DOS format, but unconditionally writes the last six sectors of the diskette with the color data.

If the select console key is pressed, it activates the color load procedure. A warning message is generated and the user has the choice whether to proceed with the load or not. If the new color data is loaded from the disk, it replaces the current color data. After the color data load is finished, the display updates to the graphics to allow viewing of the new display.

If you want a monochrome (one color) printout, press the start console key from the color change menu. A warning message advising that the colors are about to be modified is generated and the user is asked to verify the action. Responding yes will convert the display to shades of gray (colors 0-14) and cause the graphics display to be placed on the screen for review.

The YEMACYB system is designed to provide an exact representation of the video screen display. However, there are several factors that affect the matching of colors between the video screen and the printout.

Some of the factors that affect the printout are: the whiteness of the printer paper, the color of the printer ribbons, the ambient light quality, and the paper thickness setting on the printer.

Some of the factors that affect the video display are: the version of the Antic chip used in your computer, the adjustment of the color circuit in your computer, your video monitor's brightness, tint, and color settings, and the type of phosphor used to manufacture your cathode ray tube.

As you can see, there are many factors that affect the matching of the colors.

The default color palette of YEMACYB is a version of the colors that most closely matches the video output from the majority of systems tested. But your display may differ from your printout due to one or more of the aforementioned reasons.

If you feel that the default colors are not suitable, you have the facility to create your own color palette. See the utilities documentation on YPALETTE.BAS for instructions on how to create a modified palette.

Once an alternate palette has been created, it can be loaded over the default palette by placing the diskette containing the new palette into the disk drive, and pressing the ctrl-C keystroke combination while at the color change menu. The video screen's border will turn gray to indicate that an alternate palette is being used.

Provided on the YEMACYB program diskette is an alternate palette that can be used as an inverse color palette (i.e., the dark colors become light and the light colors become dark like a b&w photograph negative).

COLOR ANALYSIS

The color analysis procedure is automatically started upon exit from the color change menu. This routine scans the graphic data along with the color change data to determine the color composition of the display. Four scans are performed to determine what colors are necessary to recreate the graphics. Any detection of a primary color in the data will trigger the need for that pass during the printing phase. If no data is found for a particular primary color, a message is generated to that effect, and no printing is allowed for that color.

The color analysis is not performed for a forced monochrome display.

The results of the color analysis is displayed throughout the remainder of the printing process as a reminder of what colors are needed to print the graphics display.

PRINTING IMAGES

After the color analysis phase, the lower portion of the screen is updated with with informatory messages pertaining to the printer dip switch settings. Press any key to continue. Then a message asking you to ready the printer and paper is displayed. At this time (with the printer powered off) position the paper to the normal top of form position. Take care to make sure that the paper has no excess tension on it and feeds freely. The paper exiting from the top of the printer should line up horizontally with the paper coming into the printer. This assures that the image will be printed with no slant. After you are sure of the paper position, turn on the printer.

If any key is pressed at this time, (except for escape which returns control to the color menu,) the master registration mark is printed on the first sheet and the paper is advanced to the second sheet. If there is only one color involved in the printout, the registration marking is not necessary and is not created.

After the master registration mark has been printed, the display is updated to the print color selection menu. At this time, replace the printer ribbon with one the color to be used for the first printing pass.

After the ribbon change, you may press one of the number keys to start printing the pass. The "1" key starts the yellow, "2" the magenta, "3" the cyan, and "4" the black pass printing. If the image was in a forced monochrome mode you may only select black to print, but you may place any color ribbon you like in the printer. The printing of a pass may take from approximately 20 to 255 seconds. Please don't touch the paper during the printing process to avoid banding.

The space bar acts as a pause control during the printing of a pass. If the printing is paused any other keyhit (except break) will cause the printing to resume. Pressing the escape key during the printing process will cause the printing to stop and the program returns ready to print the next registration mark if a pass has been completed already, or it returns to create the master registration mark if no passes have been completed.

After the requested pass has been finished, the bottom of the screen is updated with a message prompting you to set up the paper for the next printing pass. At this time you should turn off the printer's power. Position yourself in front of the printer. Then very carefully using your left hand, hold the incoming paper by the edge and pull it back away from the printer while simultaneously rotating the printer platen knob with your right hand so that the top of the knob rolls from the back to the front of the printer.

Carefully maintain an even tension on the paper while rewinding it. Reposition the paper back to the very beginning of the first sheet, and change the ribbon to the next color to be printed.

Now power back on the printer and press any key to make the next registration mark. The registration mark should line up with the master registration. A message is generated asking you to confirm the mark's proper positioning.

If the new mark does line up with the master, then you are ready to print the next pass and respond by pressing the "Y" key.

If the mark does not line up, press "N" in response. Then turn off the printer and rewind the paper back to the starting place. Then power back on the printer.

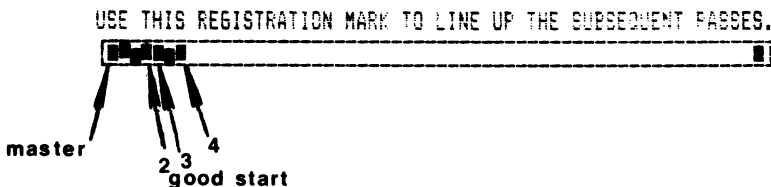
Don't respond "Y" unless the registration mark does in fact line up. Otherwise the print will not align the pixels correctly and the results are unpredictable. Try to remember the placement of the paper before starting the second passes' registration mark, because if the registration is good, the third and fourth passes will start at exactly the same place.

After a good registration has been made, and you have entered "Y" to proceed, the print color selection menu will reappear. You then select the appropriate color (1-4) for the next pass and the printing will start.

Repeat the procedure used for printing the second pass for the third and fourth passes if they are necessary.

From the print color selection menu you can press escape to return to the color change menu. If the shift-escape key combination is pressed, the program returns to the load picture file menu. If the ctrl-escape key combination is pressed from the print color selection menu the system will reboot (coldstart).

You probably should practice with an old ribbon first to get the hang of these procedures. After you become familiar with your printer's characteristics, you will probably get the paper to line up first time, every pass. But at first have patience because you will not be used to estimating the position of the paper for the registrations. The key is to remember that if the newest registration mark appears too low on the paper, you started the paper too high in the printer and you have to move the paper down to meet the mark. Conversely, if the registration mark is too high on the paper, you started the paper too low in the printer and you must start with the paper up higher in the printer for the next registration attempt. If the registration mark does line up, you will be precisely positioned for the next pass.



HINTS

- ALWAYS print yellow first.
- Keep a set of ribbons to be used only for printouts.
- Keep the set of ribbons in a sealed package between printing sessions.
- Use the brightest blue ribbon that you can obtain, and the blackest black.
- Place your printer in a location that has enough clearance for easy access to the rear.
- Before printing each pass, make sure that the paper going out is aligned with the paper coming into the printer.
- Make sure that there is an even tension on the paper, both incoming and outgoing, before starting any pass.
- Never touch the paper after the printing of a pass has started.
- Never turn the printer platen knob with the printer powered on.
- After the last pass has finished, and you are going to make another printout, leave the black ribbon in the printer for the registration marking.
- Make sure that the paper is centered on the platen to produce artwork suitable for framing.
- Adjust your paper thickness lever to a medium pressure setting.
- For those users who have spool type ribbons, be sure to wipe clean all ribbon guides with tissue before installing a yellow ribbon.
- Read all of the instructions.

UTILITY DOCUMENTATION

These utility programs are designed to enhance your YEMACYB experience. They are stand alone programs that require the BASIC cart installed. They are all menu driven and self documented, so they need no real detailed explanations except for a statement of their general purposes and any hidden features or other uses. There is no DOS on the YEMACYB program disk and one is not necessary to run the YEMACYB program. However these utilities do need a DOS to run properly. These programs were developed and tested using ATARI DOS 2.0S. However, most any dos will do if it dosen't eat up too much memory. The files that are on the YEMACYB program disk with a .PIC filename extension are graphic data files ready to be used in the YEMACYB program. Any file with a .WIN extension is a window file, and any file with a .DLI extension is a color data file.

MENU.BAS - Run this load and go menu driven file loader program to eliminate your having to type in the utility's file name, just hit a number key.

YFLIPPER.BAS - Takes a Micropainter format picture file (graphics 7 or 7+) and mirror flips it then (re)saves it to disk. When this program prompts for the new file name, if you press return only, the source file name is reused.

YSAVUSCR.BAS - If you have any existing basic routines that create a graphics 7 or 7+ type display you can capture those graphics to disk in the standard Micropainter format by calling this program while the graphics are displayed. (i.e., insert a line like this one:
2310 RUN "D:YSAVUSCR.BAS":END

YDLISCON.BAS - The colors that are saved on disk from the color change menu are not in dos format. To convert them to and from (single density) dos format, use this program. Any color files in dos format will automatically be given a file name extension of "DLI".

YBAREBON.BAS - Most of you have a full screen graphics 7+ editor. Most of you don't have a graphics 7 editor. This is a menu driven graphics 7 editor that requires a joystick in port #1. Use the escape key to go from graphics to text and back. When in the graphics press the return key to go into text entry mode, and the return key to exit the text entry mode.

YPALLETT.BAS - The table of data starting on line 10000 contains the color encoding for each hue. There are 45 (0-44) defined dot patterns available for palette definitions. These patterns are defined in a 4x4 grid, so there can be from 0 to 16 dots in any pattern. Pattern 0 is the one with no dots. Pattern 25 is the one with all dots used. The rest of them have differing numbers. If you inspect the numbers used in the encoding you will see 4 numbers for each of the 8 hues in every color family. These are the yellow, magenta, cyan, and black patterns used to make the hue. For example black is encoded 0,0,0,25, and white is 0,0,0,0. Another palette example in the orange family, the darkest hue is 36,25,0,35 (notice no blue present), and the lightest hue is encoded 6,29,0,0 (black and blue are absent). Feel free to modify the table by replacing the numbers. After you have modified the palette number table you can save it as a basic file for later use. However YEMACYB needs the palette in YEMACYB format which means saved out on disk on sectors 711-714. You can save the palette data in the YEMACYB format by running the program.

YWINDOWS.BAS - Everything you always needed and more. No more erase and redraw. Cut and overlay. You can merge two pictures using this one. -19-

This software product and the included documentation are sold "as is" without warranty as to their performance. The entire risk as to the quality and performance of the computer software program is assumed by the user. The user, and not the manufacturer, distributor, or retailer assumes the entire cost of all necessary service or repair to the computer software program.

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YEMACYB EXTRA SHEET

- Never write to the YEMACYB system disk, doing so will destroy the data on the disk, rendering it useless.
- Graphics 7 is a 4 color per scan line mode with a resolution of 160H by 96V. Graphics 7+ is a 4 color mode of 160H by 192V resolution and is the one used by most commercially available graphic editors. Graphics 7+ is also known as GR.7 1/2. On the XL/XE machines it's called graphics 15, and for ML hackers it is known as Antic mode E. Both of these graphics modes use the hardware registers 708, 709, 710, and 712 for the screen colors.
- Standard (MICROPAINTER) format files contain the screen data (3840 bytes for GR.7 or 7680 bytes for GR.7+), with the four color register values appended. Standard files can be created from the popular MICRO ILLUSTRATOR editors by pressing the ">" key during the graphics display. This hidden feature creates a file named "PICTURE" in the standard format minus the appended color values. Any file in standard format (named "D1:PICTURE") can be loaded into the graphics screen by pressing the "<" key, however the color values are ignored. Other systems most notably COMPUTEREYES, and the ATARIGRAPHICS/ATARI Light Pen (both highly recommended accessories) also create graphic disk files compatible with YEMACYB.
- Saved on the YEMACYB disk is a set of color changes (D.L.I.s) that will create a full screen 128 color display that can function as a reference color chart when printed. To print the color chart, boot the YEMACYB program and load in COLCHART.PIC (supplied on the system disk) as the graphics file to print. Then from the color change menu load in the color changes supplied on the system disk by pressing the select console key.
- The default palette fundamental hues are: Black=0, White=14, Yellow=28, Orange=52, Red=84, Violet=114, Blue=146, Green=210.
- The YEMACYB system utilities were developed using an unmodified ATARI DOS 2.0S, therefore any DOS used to load them should be as small or smaller to ensure proper operation. They can be invoked from the menu program. When finished with a utility just reinvoke the menu program to access another utility function. The utility YSAVUSCR.BAS can not be invoked from the menu program because it is a screen graphics capture routine and the menu text screen is neither graphics 7 or 7+.
- There are a few undocumented features in YBAREBON.BAS. The logo/inverse key acts as the return key does to close the text entry with a simulated carriage return/line feed for quick text entry. Also in text entry mode, the delete-backspace key will delete the last character typed only. The undo function will delete all text entered while in the text entry mode. Whenever the program is not in the text entry mode but in graphics edit, the space bar acts to temporarily remove the cursor from the display.
- Refer to figure 1 for the dot patterns corresponding to the values used in YPALETTE.BAS to create an alternate color palette. The color values used in the YPALETTE.BAS utility represent the default color palette.
- Refer to figure 2 for the correct dip switch settings for your printer model.
- The registration mark example in the users manual was created by the SG-10 printer. Figure 3 is an example of an C.I.TOH or EPSON registration. The last "8" is an acceptable registration.
- other EPSON graphics compatible printers ~~might~~ have to follow an extra step to create a printout. Only the registration line is printed initially. Then the user must align the first and subsequent passes to the registration. Figure 4 is an actual four color, four pass registration, the last four "8"s were acceptable start.
- Figure 5 is a reproduction of the fonts available in the text entry mode of YBAREBON.BAS.
- HAVE FUN.

Figure 1 - Printer Mib Patterns

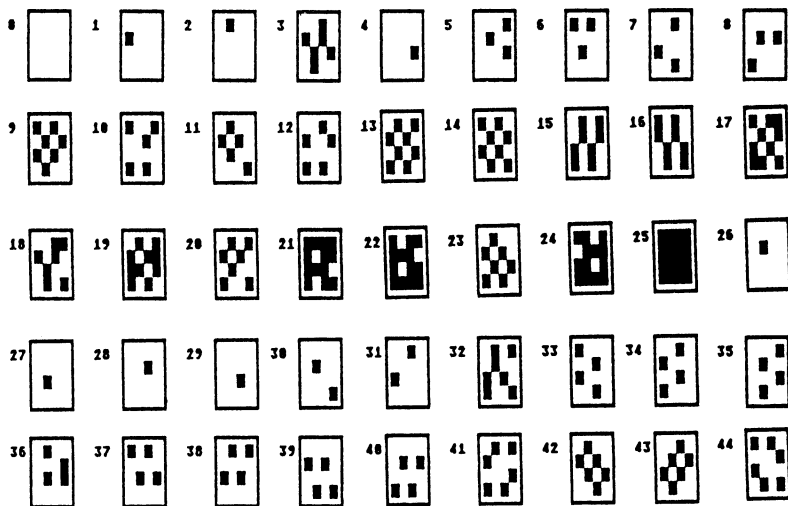


Figure 2 - Dip Switch Settings

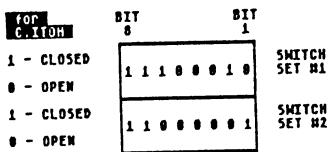


Figure 3 - C-Itch and Epson Registration

USE THIS REGISTRATION MARK TO LINE UP THE SUBSEQUENT PASSES.

Figure 4 - Epson Compatible Registration

COLOR (graphics->printout) SOFTWARE c1986 Michael L. Clayton
 USE THIS REGISTRATION MARK TO LINE UP THE SUBSEQUENT PASSES.

Figure 5 - Examples of Barebones Fonts

DEFAULT FONT - AB12
 YEMACYB FONT - AB12
 ELLIPSE FONT - AB12
 COMPUTE FONT - AB12
 STYLISH FONT - AB12
 descend font - ab12

To make your printer COME ALIVE,
 What you'll need is YEMACYB!!!

||| YEMACYB |||

COLOR GRAPHICS DRIVER FOR POPULAR DOT-MATRIX PRINTERS:

- Uses standard high-res disk picture files as input to produce color printout of the highest quality.
- Directly compatible with picture files created by most popular pad, pen, painter, and digitizer programs.
- Allows independent modification of all colors in each scan line, with a maximum 128 unique simultaneous hues on any print.
- Allows review of graphic before printing, what you see on your video screen is what you'll get on your printout.

INCLUDED AUXILLIARY PROGRAMS:

- GRAPHICS EDITOR
- GRAPHICS CAPTURE
- MIRROR GRAPHICS
- WINDOW GRAPHICS *PRICELESS BONUS*
- COLOR PALLETTE MODIFIER
- D.L.I. FILE CONVERTER
- GRAPHICS, WINDOWS & MORE

HARDWARE REQUIREMENTS:

ATARI 800/XL/XE with minimum 40K ram,
ATARI 810 or compatible disk drive,
ATARI 850 or equivalent graphics compatible interface,
Color video display.

One of these dot-matrix printers (with tractor feed):

C.I.TOH 8510B PROWRITER

EPSON MX-80,FX-80,

STAR GEMINI 10X/15X, SG-10/15

YOU WILL ALSO NEED:

ATARI BASIC Language,

4 PRINTER RIBBONS (1 yellow, 1 red, 1 blue, 1 black),

White continuous fanfold pin feed computer paper.



ELECTRONICAL SOFTWARE

P.O. Box 1106
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Color
Photocopy
of Default
palette.

