tape [redacted] 901

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Chromasette

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July 1981

Who are these people, and why do you care...?

Howdy! I'm Dave, the editor and reluctant yarn-spinner of this publication. Across from me sits Robin amid an example of orderly chaos. She (yes, she) handles the business and buck end of this operation. Next to her works (constantly!) Donna, a jack-of-all-operations here and head of production. In the closet hides Tom, champion rubber band dodger, programmer, and hardware salvager. Underfoot runs Jed Dog, vacuum cleaner. This is CHROMASETTE Magazine...

GE = .6381 * CTR 80

Filename	English Translation	PMODE	PCLEAR	Locations
			GE / CTR-80	
COVER	First Cover	3/4	(4) 4	8 & 126
HOWFAR	How Far	(Ø)	1 18	32 & 144
BLOCKADE	Blockade	3	(4) 33	56 & 164 118
ACUMEN	Acumen	(2)	(4) 45	74 & 178
DISRTATN	Dissertation	(2)	(4) 59	94 & 194 141
BLAST	Blast	(2)	(4) 71	110 & 207

Locations are for the R/S CTR-80. If the first copy of a program won't load, try the second. If neither copy loads, return the tape for disciplining and a prompt replacement. PMODE and PCLEAR values in parentheses are not explicitly set in the programs and may have to be entered before loading or running the programs. Otherwise, an OM, FJ, or SN error may occur.

* FIXES ETC BLOCKADE 908 P3 COVER 905 P5

Our First Cover! It's hard not to get all choked up about it. Well, it's hard for me not to, anyway. Watch as our name spins, climbs, and flashes all over the screen. Then list the program. What IS all that garbage? Lines 50-62 contain 7 strings (LO$(Ø)-LO$(6)) of 192 characters apiece. Each of these characters holds the info to paint our banner at the top of the screen. How was this done? Just close your eyes and click your heels...

First, the 192 character arrays were typed in with random characters to make room for the graphic info. By using the VARPTR instruction, the first byte of each of the strings was located. Then the banner was drawn on the screen (a time-consuming project). Now the graphic screen memory (holding the bytes that make up the banner) was read using the PEEK function and the values that were read were stuffed into the arrays using the POKE command.

The reason that the strings look so funny after they have been stuffed (sounds like Thanksgiving) is that the values of the stuffing bytes are generally greater than the value of the largest ASCII character (decimal 127). The computer then treats these values as if they were tokens for BASIC keywords, and puts the whole keyword in the string. For example, if you look at LO$(Ø) (line 5Ø), it looks as though the string is composed of a bunch of 'OFFs'. It is! The token for the keyword 'OFF' is 17Ø (AA hex), which in binary is 1Ø1Ø1Ø1Ø. In PMODE 3, it takes just 2 bits to set the color of a pixel. So our 'OFF' byte is actually setting the color of each of 4 pixels to '1Ø'. A '1Ø' is either blue or magenta, depending on the color set you are using. Since the banner is mostly blue with yellow writing, you can see why most of the string is filled with 'OFF's (4 blue pixels in a row). "Another

example, please!" Ok, in line 52 you will find the keyword 'CLEAR'. Its value is 149 decimal, 95 hex, or 10010101 binary. Breaking the binary number into pixel colors we get 1 blue ('10') and 3 yellows ('01', '01', '01') - a background pixel and 3 pixels that make up a bit of the word 'Chromasette'.

A word of caution to those of you who wish to try packing strings with graphic info - if you stuff a 0 (zero) in a character array (in PMODE 3 that would be 4 pixels in a row of either green or buff), the BASIC interpreter will interpret the 0 as the end of the string or a couple 0s in a row as the end of the program. In other words, goodby program!

Whew! We finally got the arrays stuffed. Now to put them back on the screen when the program is run. A BASIC routine could be written to reverse the stuffing process, but copying 1344 bytes from the strings to the screen is slow (it was tried, and it is slooooooow). How about machine language? It's fast, but where does one put the machine language routine? What if we stuff it in a character array too? Line 65 contains the routine, and lines 70-95 access the routine with the USR function, passing the function the address of the first byte of LO$(0). You will find another machine language routine in line 110. This reads the top 1344 bytes of the graphic memory and copies them to another graphic screen location passed by the USR1 and USR2 functions. If the USR2 function is used, the bytes are complimented before copying, making yellow into blue and blue into yellow. At the end of First Cover (lines 20000 on), you will find the routines used to pack lines 65 and 110 if you are not bored to tears with this stuff yet. For masochists, the assembly listings of these routines will be included in next month's ramblings. Another note of caution: Be sure to declare all of the variables used in a program containing embedded machine language routines before setting up the USR functions with the DEFUSR instruction. All of the variables in the Color Computer are dynamically allocated, so introducing a new variable might change the memory location of the machine language routine a bit causing your USR jump to be off (probably disastrously).

The cover program will be a monthly feature in CHROMASETTE. It will be non-interactive and non-ending with some interesting graphic carrying-ons happening in the space below the banner (the banner will always be at the top of the screen and it will be undisturbed). The graphic playing will only stop occasionally to flash our little copyright notice and damage disclaimer, then it will start again. Hit the <break> key for relief.

Attention HAMs and IBMs! The second program this month is How Far, a program that will give you the distance and angle between any two points on the earth. You just feed it the latitudes and longitudes of the two places and it spits the result back to you. There is also a data base of cities (which you can add to, change, or delete from within the limits of your memory) with their associated coordinates that can be accessed. Some of you may recognize this program from the July 1979 CLOAD. There will probably be a lot of programs that formerly appeared in CLOAD making an encore in CHROMASETTE (there are 3 this month). Some are not too difficult to translate (How Far only took one night) but some are almost total rewrites (Blockade took a week). All will be good programs, and all programs will receive a bit of grooming on the second pass.

A funny thing happened on the way to testing this months issue after the master tape had been made and the duplication process had begun. I loaded in First Cover, ran it, and then I loaded in How Far. An OM error came up on the screen! The cover program had reserved (PCLEARed) 4 pages of memory for its graphics. But How Far is a large program that uses that same space for the program itself. So I typed PCLEAR 1 to get rid of the extra pages. And I got an FN error! Now what? Oh, that's right, First Cover also used PMODE 3 and

4. Those PMODEs require 4 pages of memory. So before I could PCLEAR 1 I had to PMODE 0. Ah, that's better. Now to reload and run the program. Hey, it works! Then I went to run Blockade, and I got a FN error in line 5000. Is this Candid Camera? Line 5000 has a PMODE 3 instruction in it. That means needs 4 pages of graphic memory. Ok, I'll type PCLEAR 4 first (these machines are sooo picky). Now the program runs great!

On power-up, it appears that all of the programs run without having to type in the above mentioned PMODEs and PCLEARs (although a SN error in line 6 of How Far comes up, but typing RUN again convinces the computer that the line is OK and the program executes fine). But when one program is run right after another program, problems can arise with the memory allocation. I will try to make this less of a problem in future issues. In the meantime, let's call it a learning experience...

You've already heard the next program mentioned a couple times. Blockade was one of our more popular CLOAD entries, and the Color Computer version is as good - no, better! If you have joysticks, use'em! If you don't, you can use the keyboard to play. You win by reaching 100 points, being 100 points ahead of your opponent, or having your opponent go below -100 points. You get points by running into the little squares (targets) that appear randomly on the playing field. These targets randomly range in value from 1 to 9 points. When you hit one, the value of the target is added to your score and your 'snake' grows one length for every point you get. Don't take your time getting over to a target when it appears, however, because they stay on the playing field for only a random amount of time. Also, if you run into yourself, a wall, or your opponent you lose 10 points. If you both run into something other than a target at the same time (or run into each other), you both lose 10 points. And if you both hit a target at the same time, you bot get the value of the target, then you both lose 10 points for hitting each other.

If you and your opponent both go over 100 on the same turn, the one with the highest score should win. This is not the case... And the bug was found after the issue went to duplication. I've been playing this particular game for over a year and never ran across this problem. So much for thorough testing! To fix this problem, edit line 1030 to read:

```
1030 IF(XS>=100ORXS-MS>=100ORMS<-100)ANDXS>MS THENQ$=Z2$:GOTO1060
```

Blockade also has a little machine language routine (actually 4 similar routines) embedded in a string array (line 5300). This routine takes the program's screen location of a 4 pixel by 8 pixel square (PMODE 3) and returns an X, Y, X+7, or Y+7 value (depending on which USR function is called) needed by the BASIC 'PUT' routine to put a block in that location. The assembly listing of this routine will also be included in next month's meanderings. If you want a little more speed, take out the 'PLAYP$:' statement in line 55 (no more beep beep beep beep).

Almost forgot to mention the single player option. With it, the left player operates normally, but the right player can't crash (unless you both try to occupy the same spot at the same time). If you are truly playing by yourself, center the right joystick or the program will appear sluggish at times. Someone can also play the right player if they want to, which makes for an interesting, if not totally fair, game. This started out as a debug routine that was used as the program was being modified for the Color Computer, but I liked it enough to incorporate it into the program. That's why it's a bit flakey! A feature!

Acumen is a game from the same genealogy as Tic-Tac-Toe except that words

are used rather than hugs and kisses (ain't that more realistic?). There are nine words (the same words each time) to choose from and you must try to get 3 words with 1 similar letter before your opponent. You can also play against the computer at different levels of difficulty, from easy (good for the ego) to hard (purely frustrating).

Want to show your friends that you REALLY know something about the computer field? Do you have to write a speech for your local public official to give at the annual Crabgrass Pull? Dissertation is for you! Watch as it spews a stream of grammatically correct garbage to the screen or to a printer. Put the proper serious tone in your voice and read it aloud. Doesn't it sound familiar?

Blast is first in a probably long line of shoot-em-ups to grace our oxide. It's fast, loud, and fun. Joysticks are necessary.

More features...

The first thing you may notice about the tape it that it is not rewound. If you did not notice this, you had a lot of trouble loading it (and you probably had a rough morning to boot). This is a feature! The tape has a tendency to loosen up in the mail, so by rewinding it at home you tighten it up a bit and the tape will load better. Kudos to Ron Jeffries of The Code Works (Cursor Magazine for the Commador PET computer) for this handy excuse that allows us to slide on rewinding the tapes after duplicating them.

Send us your tired, your poor, your huddled masses...

Do you have Color Computer programs that might be of interest to our subscribers? We would like to see them and possibly buy them for publication in CHROMASETTE. The programs must be original (not some other author's code or direct translations of programs from other machines) and your name and address must be somewhere in the program. At first we will also look at translations of programs that formerly appeared in CLOAD Magazine (we own most of those) as long as they make good use of the Color Computer's graphic capabilities. Since we are so overstaffed at this time (note - sarcasm), it may take 4 to 6 weeks before you hear from us on your submission.

Shout it out...

We have a little space left in these sheets for ads (sizes start at 1/8 page). If you have something to sell, we know a lot of people with money. Write Robin for ad rates.

Teacher, teacher...

So you want to know more about this colorful little machine? Check out the many magazines that deal with the microcomputer world. Just to name a few, there's Creative Computing, 80 Microcomputing, Personal Computing, onComputing, and The Alternate Source. These magazines have all had one or two articles on this beast (the articles in June 1981's 80 Microcomputing and Volume II Number 1 of The Alternate Source were especially informative) and your local microcomputer shop or your local library should be able to direct you to a copy or twelve.

There is also one publication devoted entirely to the TRS-80 Color Computer. Color Computer News is published bi-monthly (at this time) by REMarkable Software. The first issue contained an article on fast BASIC graphics, a discourse on 6809 machine code, product news, software reviews, etc. It runs $9/year (6 issues). For more information write them at P.O. Box

1192, Muskegon, MI 49443.

Watch as I pull a rabbit out of this hat...

If it wasn't for the Magic Box, you might have received this issue in December (Christmas in July in reverse). The Magic Box is a utility from Spectral Associates (141 Harvard Ave., Tacoma, Washington 98466 ph. 206-475-8483) that allows you to load TRS-80 Model I and III programs on tape into your Color Computer! There is still a lot of editing to do on converted programs, but the Magic Box makes it easier by marking all of the incompatible BASIC reserved words with asterisks. There is also a very nice (!) feature at the beginning of the program to help you adjust the volume setting on your recorder for loading in the Model I or III tapes. If you have a good sized Model I or III software library, this may be the best $24.95 you ever spent on your Color Computer.

Along the software line, the other utility I used for this issue was SIGMON ($29.95 from Datasoft 19519 Business Center Dr., Northridge, CA 91342 ph. 213-701-5161). SIGMON is a 6809 mini-assembler, dissassembler, debugger, and monitor that comes with good documentation (including the source listing of the assembly language program). It is easy to use and works great for short routines (like the ones in First Cover and Blockade), but since it does not contain an editor, I wouldn't recommend it for large projects.

Be forewarned...

Radio Shack has not released any more information on this, but it appears that there is a ROM bug in the Color Computer. While creating the word Chromasette' for the cover program, I tried to save a graphic character packed string onto tape. When it was loaded back in, some of the characters had been changed and the string was a LOT shorter. Granted, many of the characters that were saved off were not standard ASCII characters, but that should not have mattered (there were not any zeros). Can you imagine saving your name onto tape and having it read back in as 'Joxn Smr' (kinda like the address label on the envelope this cassette came in...).

Those 32K upgrade kits some manufacturers are selling for the Color Computer have caused some overheating problems. Be careful!

Heard a good one lately?

Radio Shack has announced disks for the Color Computer! Hey, that's a good one (hee hee). But I've heard it before. You mean it's in the dealer's price catalog? Up to 4 drives? I won't believe it until I see it (humph). With a maximum free memory size of 13K (R/S standard), what kind of DOS (disk operating system) can it have? Wait'n'see, same time, same channel...

Promises, promises...

I really wanted to include the previously mentioned assembly listings in this month's sheets, but there was a lot of other things to say. Next month you'll get'em all!

Yee-haw, it is done!

Dave

editor

C L O A D M O N T H L Y

"all the fit that's news to load"

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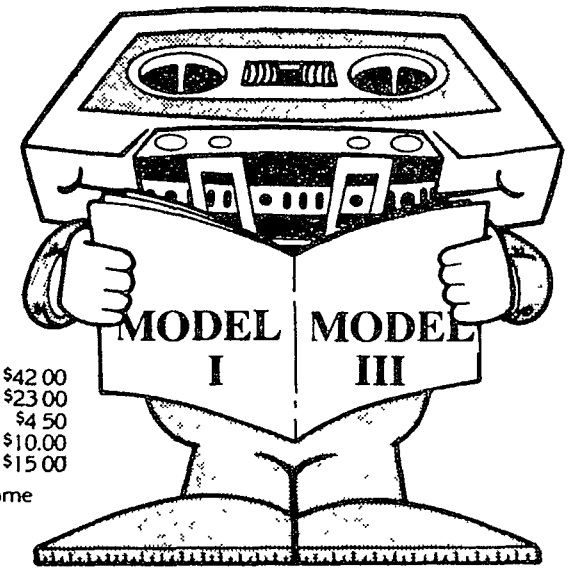

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