THE Clone Newsletter

DEDICATED TO FRUSTRATED DISK USERS

The first issue of The CLONE NEWSLETTER was released in mid-February and reactions to it have been pouring in ever since. Most of the comments have been very supportive and positive in nature. Some of you, however, while complimenting us on its content and subject matter, did feel that the premiere issue was a bit slim quantity-wise. Well, in this, the first official subscriber's issue, the number of pages have been increased to twelve, a solid fifty percent more than the previous. We have tried to include the kind of information that most CLONE and UNGUARD users seem to want, based upon the letters and calls we have been receiving. If, however, there is something which we have not covered, that you would like to see in future editions, please let us know. It is really only through user feed-back that we can hope to meet the various needs of our subscribers.

►$100 REWARD◄

THATS RIGHT!!! We will pay from $10.00 to $100.00 for accepted articles, short stories, Commodore news, dealing with subjects of interest to the CLONE USER Community. Submit your typed, double spaced (if it's possible) manuscript to:

EDITOR: The Clone Newsletter
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PO BOX 198
Butler, N.J. 07405

We are sorry but all submissions cannot be acknowledged or returned. Please include your phone number so that we can contact you if we are interested in using your article. See our other articles for additional ways that you can contribute to the CLONE NEWSLETTER.

FANTASTIC FILER™
"A COMPLETE DATA BASE FOR THE COMMODORE 64.."
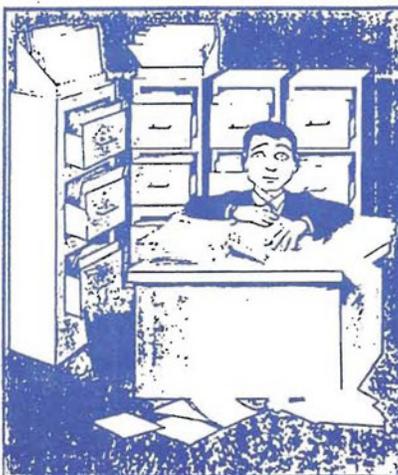
"SOLVES YOUR FILING PROBLEMS"

SCREEN DUMP 64
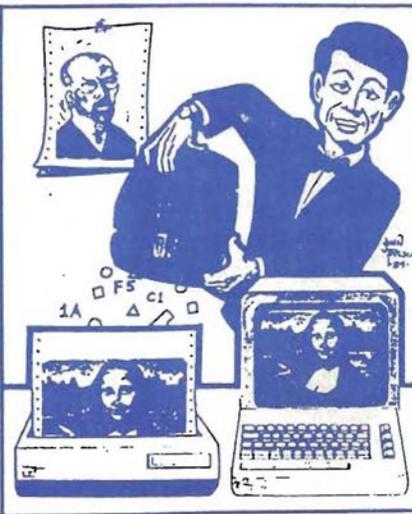
MR. TESTER™
"A COMPLETE DIAGNOSTIC FOR YOUR COMMODORE 64' AND 1541 DRIVE'"

Micro-Ware introduces a trio of new products- details on the following page
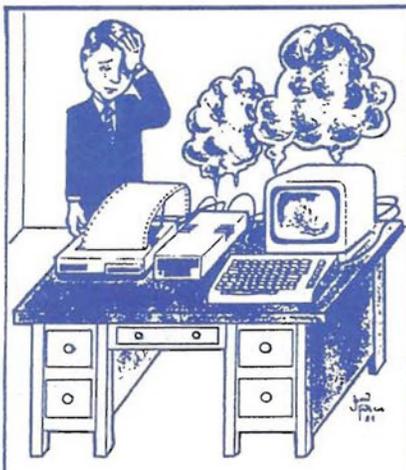
******WHAT'S NEW FROM MICRO-WARE DISTRIBUTING******

How would you like to have an exact copy of the screen from your favorite game (with your high score preserved!) printed out on paper? Or some fantastic piece of artwork you just created using a drawing utility --- saved for posterity for all to see! Well, if this interests you then Micro-Ware may have just what you've been looking for. It's called SCREEN DUMP 64 and will be available soon on disk.

SCREEN DUMP 64 will transfer to your printer an exact copy of what you see on the screen, including hires graphics, sprites (multi-color or hires), and text. The nice thing about this program is that since it creates its own operating system where the kernal normally resides, it won't steal any memory away from you. And what this means, is that it is completely transparent to any other program you may wish to use. You just load it in and use your computer the way you normally would as if nothing were there. Then, whenever you want, press a button and voila ---a perfect repro!

SCREEN DUMP 64 will be sold retail for $29.95, however as a service to our readers, it will be available for a limited time at the introductory price of only $18.00.

All you shoebox filers, out of the closet, I want a word with you! If you own a computer (if you're reading this I have a strong hunch you do) and you haven't used a database program yet, then you're truly missing out on one of the most powerful applications for your micro. By putting your info (business accounts, menus, Christmas card lists, whatever!) on to a database, you gain instant access to any particular element of the lot. Not to mention the added benefit of no more messy shoeboxes filled with scraps of paper!

Those of you who have used a database program in the past may have despaired over the unnecessary complexity that so many of them seem to fall prey to.

Well, I am very pleased to tell you that Micro-Ware will be introducing a database program that we believe is one of the most powerful AND user friendly (read as E-A-S-Y to use) that we've ever seen. It uses super-fast relative files, and an extremely flexible operating system to permit quick data retrieval. The name of this program is FANTASTIC FILER and it will be available on disk at the retail price of $29.95. However, as readers of the CLONE NEWSLETTER, you will be able to purchase FANTASTIC FILER at the introductory price of only $18.00.

Do you ever get that queasy feeling in your stomach that something just isn't right with your computer equipment? What I mean is, you load a new program, and then all of a sudden your printer starts to wheeze, your drive begins to shake, and your screen starts to roll. What's wrong??? Is it your computer? Your drive? That new piece of software? The point is, its sometimes very hard to determine what part of your system may be at fault when things go wrong...however we have the answer.
As was mentioned in our last issue, we are introducing a diagnostics program which will be called MR.TESTER. MR.TESTER will perform a thorough check on the condition of your Commodore 64, 1541 disk drive, monitor, and printer, and alert you to any possible problems in their operation. This software will be available to registered owners of CLONE/UNGUARD for only $24.00.

Dear Sirs:

I received my copy of THE CLONE MACHINE recently and I am extremely happy with it. The reasons for this letter are many and I need to highlight them.

1) Results with CLONE/UNGUARD - I have successfully backed-up software such as EASY SCRIPT, BLUE MAX, and LOGO by following the instructions included with UNGUARD. The manual is well written and easy to follow.

2) Copy scheme for BLUE MAX - By a qirk of fate, while I was backing-up BLUE MAX, the output disk generated an error and aborted the session. The copy scheme I had devised included:

    a)   Initialization
    b)   Copy 01/00 - 17
    c)   Copy 18/01 - 35
    d)   Set Errors   01/01-22, 01/03/23, 01/04-20, 02/04-20, 02/06-20,
         04/12-23, 04/13-20, 06/18-23, 14/03-23, tracks 25-35 E21,TC=99
    e)   Copy 18/00

The aborted copy ran, and I have since used the following copy scheme with no apparent problems:

    a)   Initialize
    b)   Copy 01/00 - 17
    c)   Copy 18/01 - 24
    d)   Copy 18/00

3) Problems in backing-up BUSICALC II - BUSICALC II from Skyles Electric Works has a complicated protection scheme that includes error no.29 on tracks 1 through 4. The other errors cause no problems, but since UNGUARD cannot duplicate an error no.29, I am dead in the water. Have you come across this before, and do you have any suggestions on backing up this software?

4) Backing-up UNGUARD - Finally, my biggest worry is that my CLONE/UNGUARD disk will bomb out and I will be without this software until the mails can get me another. Your CLONE NEWSLETTER suggested that you would not give out the secret of your protection 'now'. Have I waited long enough and can you now divulge your secret?

Thank you for your fine product and excellent newsletter. I look forward to future upgrades, future issues of the newsletter, and your timely help on my problem with BUSICALC II.

Edward D. Snouwaet, Muncie, In.

Ed. note: We haven't seen BUSICALC II, however our best advice is to substitute a different error for the no.29 ... this will usually work. Maybe one of our readers has had some luck with this program; if so let's hear from you.

We have been hearing all sorts of reports from people who claim to have solved the CLONE/UNGUARD puzzle. We will publish the first copy plan for it that we receive, giving full credit to its author.

Dear Micro-Ware,

    Last Thursday I received UNGUARD with the revised TCM. I think the program is the greatest thing for Commodore 64 computer users. It is fantastic for backing up your valuable programs and it is too tedious for those who want to make a buck of other people's work.
    I have backed up most of my software, with the exception of the software by Electronic Arts. If there is a solution to backing up the Electronic Arts software, please let me know. It took me 2 months to get a replacement for a defective game I had purchased (ARCHON - it would not load). UNGUARD is second to none!

Rudi Barkey, Covina, Ca.

Ed. Note: Thanks Rudi- see the TROUBLE SPOTS section for info on EA.
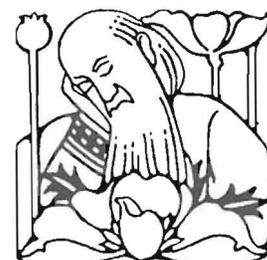
LETTERS (cont.)

Dear Sir or Madam:

Let me start by saying thank you for a very good utility program that
allows the user to finally take control of his library.

Here are two copy plans for the SOLUTIONS section of the newsletter.

    1) NIGHTMISSION PINBALL - Sublogic Corp.
        Init.
        Copy 1/0 - 2
        Copy 4/0 - 35
        Set Errors: Track 3 all blocks no.21

    2) MICROSOFT MULTIPLAN - Hesware
        Init.
        Copy 8/0 - 30
        Set Errors: Track 1, Sector 1, Error no.23

Again let me say THANKS for the most useful program to come down the
pike to date. I'm sure the DIAGNOSTIC program will also be very
popular. Please let me know about the DIAGNOSTIC program as soon as
details are available.

John W. Diana

Ed. Note: See elsewhere in this issue, John, for more details about
the diagnostic program MR.TESTER. And thank YOU much for your letter
and comments.

Dear Sirs:

Here are four more programs that I have solved the code and was able to
copy utilizing the UNGUARD and THE CLONE MACHINE.

The first one is DAVID'S MIDNIGHT MAGIC by Broderbund Software.

        Initialize with UNGUARD
        Copy 01/00 - 01
        Copy 03/00 - 17
        Copy 18/01 - 33
        Copy 35/00 - 35
        Set Errors:
            These are all error 23. Set at track 2, blocks 0 thru 11 and
16 thru 20.
            Set error 27 at track 34/00. Copy 18/00.

The second one is O'RILEY'S MINE by Data Soft Inc.

        Initialize with UNGUARD
        Copy 01/00 - 17
        Copy 18/01 - 35
        Set Errors:
            Track 1 is error 21.
        Copy 18/0

The third one is I.F.R. FLIGHT SIMULATOR by Academy Software.

        Initialize with UNGUARD
        Copy 01/00 - 17
        Copy 18/01 - 35
        Set error 23 at track 33, block 5.
        Copy 18/0

The fourth one is TYPING TUTOR by Academy Software.
All the same as I.F.R. FLIGHT SIMULATOR.

I hope that other people are sending in the results of their endeavors
as well. We need all the help we can get sometimes with these software
manufacturers.

You have a beautiful product here and keep up the good work.

Clifford R. Johnsen Jr., Melrose Park, Ill.

Ed. Note: Thanks Cliff, for your help and kind words. Note the
shorter copy plan for MIDNIGHT MAGIC described in this issue's
SOLUTIONS section.

```
               BNE  $C02D     ;if not then repeat
               JSR  $FFCC     ;yes, clear channels
               LDX  #$06      ;open error chnl for input
               JSR  $FFCF     ;input 1st digit of error no.
               CMP  #$32      ;compare with '2'
               BNE  $C068     ;if not equal then branch
               JSR  $FFCF     ;input 2nd digit of error no.
               CMP  #$31      ;compare with '1'
               BNE  $C068     ;if not equal then branch
               JSR  $C052     ;passed test, close files
               RTS            ;and return
       $C052   JSR  $FFCC     ;clear channels
               LDX  #$0F      ;command channel output
               JSR  $FFC9     ;kernal CHKOUT routine
               LDA  #$49      ;send out initialize
               JSR  $FFD2     ;command 'I0'
               LDA  #$30      ;to disk drive
               JSR  $FFD2     ;kernal CHROUT routine
               JSR  $FFE7     ;close all files
               RTS
       $C068   JSR  $C052     ;initialize drive
               JMP  $FCE2     ;jump to power reset
       $C06E   $23            ;'#'
               $55  $31  $3A  ;'U1:'
               $32  $20  $30  ;'2 0'
               $20  $33  $35  ;' 35'
               $20  $31  $0D  ;' 1' <ret>
```

Once this program is in place, all that needs to be done is to jump to
it using the BASIC 'SYS' command as follows: SYS 49152
from somewhere near the beginning of your program.

Just as in the BASIC version, this routine checks for an error 21 on
track 35, block 1. For a different error or location, simply
substitute the desired bytes at the appropriate locations.

Now as promised, here is the basic loader version:

```
10 FOR I=0 TO 123:READ A:POKE 49152+I,A:NEXT:REM setup routine
20 SYS 49152 :REM execute subroutine
30 DATA 169,15,162,8,160,15,32,186,255,169,0,32,192,255,169,2
35 DATA 162,8,160,2,32,186,255,169,1,162,110,160,192,32,189,255
40 DATA 32,192,255,162,15,32,201,255,160,0,185,111,192,32,210
45 DATA 255,200,192,12,208,245,32,204,255,162,15,32,198,255
50 DATA 32,207,255,201,50,208,33,32,207,255,201,49,208,26,32
55 DATA 82,192,96,32,204,255,162,15,32,201,255,169,73,32,210
60 DATA 255,169,48,32,210,255,32,231,255,96,32,82,192,76,226
65 DATA 252,35,85,49,58,50,32,48,32,51,53,32,49,13
```

To use a different error number or location, proceed as follows:

In line 50, the 5th number (50) is equal to the first digit of the
error number plus 48. The 12th number (49) is equal to the second
digit of the error number plus 48.

In line 65, the 10th number (51) is equal to the first digit of the
track number plus 48. The 11th number (53) is equal to the second
digit of the track number plus 48. Finally, the 13th number is equal to
the block number plus 48. Phew!!!

SOLUTIONS

In this issue of the CLONE NEWSLETTER we will present the copy plans for three very popular pieces of software. Each of these were originally copied by using the methods described in the CLONE and UNGUARD manuals. However, through user feedback and bit of experimentation on our part, it was found that much simpler (and quicker) copy plans could be devised. As an example, in our first newsletter, the copy plan for FORT APOCALYPSE was published. It required copying 24 tracks and setting almost 180 errors! Here we will describe a much easier way to copy FORT APOCALYPSE:

```
      Init.
      Copy 1/0 - 19          (don't worry about copying across 18/0)
      Set error
            22/14    E20
```

And that's it! Then simply load as normal (LOAD'FORT',8,1) and start playing.

The second program to be described is NEUTRAL ZONE. This program was a little tricky to work with because its phonied up BAM only showed a small number of the tracks actually used. However, by making use of the CLONE'S Track/Block Editor and the chain following technique (see last section of chapter 6 - CLONE manual), we were able to determine the correct starting and ending tracks for a successful copy.

Here is our copy plan for NEUTRAL ZONE:

```
      Init.
      Copy 14/0 - 24          (again don't worry about crossing 18/0)
      Set error
          1/0    E21    Timing constant = 99
```

Pretty simple stuff, huh? Finally, our last copy plan for now will be for DAVID'S MIDNIGHT MAGIC. This one will be a little bit more complicated than the preceding two. It will require two whole errors!

The copy plan for DAVID'S MIDNIGHT MAGIC:

```
      Init.
      Copy 10/0 - 19
      Set errors
            2/2    E23
            34/0   E27
```

```
*********************************
*                               *
*        WARNING!!!             *
*                               *
*   The copy features of The    *
*   CLONE MACHINE and UNGUARD   *
*   have been developed solely  *
*   for the express use of      *
*   making a backup copy of     *
*   your owned disk.            *
*                               *
*********************************
```


"I JUST MADE AN OBSCENE CLONE FALL"

```
********************************************************************
*******DONGLES!DONGLES!DONGLES!DONGLES!DONGLES!DONGLES!DONGLES!*******
********************************************************************
```

A number of our readers have written to us asking what one can do about
programs that are designed to only operate correctly when some sort of
hardware key or 'DONGLE' is plugged into the computer. Well this is a
tough one because where hardware is involved, it generally isn't easy
to make a backup disk that will work by itself. As was mentioned in
the last CLONE NEWSLETTER, after locating the section of program code
that 'reads' the dongle, it would be possible to change the code so
that the absence of the dongle would not cause failure. The problem is
that locating this code is in many cases not a trivial task. Even if
the bulk of a program is written in basic, it is likely that the dongle
checking routine is in machine language, thus requiring familiarity
with the 6502 language and a M.L. monitor as well. To make things even
harder, quite often the pertinent code will be encrypted (yes, just
like some TOP-SECRET government information!) so that some intrepid
hacker with his trusty monitor in hand will not locate it. In such a
case, the only real way to proceed would be to read the code from the
beginning and analyze what was going on, certainly a tedious process.

However, I have not presented you with this gloomy story just to send
you away feeling depressed and hopeless - there is some help to be
given.

We recently received the following advice from a very enterprising
CLONE/UNGUARD user that should prove to be both useful and interesting
to many of you.

SCRIPT 64 Users:

I had my key burn out. It had a very bad habit of dropping the program
after I had typed several screens of information into the computer. In
discussing this problem with a friend, and with much help from a very
accurate volt-ohm meter, we developed a hardware answer to the problem.
 The following information will allow you to build a backup key to be
used in port 1 just like the key that comes with the program. You
SCRIPT 64 owners already know that a backup disk may easily be produced
using the CLONE MACHINE.

Parts List:
     R1 - 136k ohm 5% resistor (we used two 68k ohm in series)
     R2 - 110k ohm 5% resistor (we used one 100k ohm and one 10k ohm)
     One female joystick connection (look in your parts box)

     Looking at plug from front, as from computer:
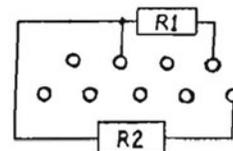
Submitted by Steven D. Gaub

Ed. note: Many thanks to Steve from all of us for his very helpful
comments. Steve will be receiving a check for $25 for his contribution
to the CLONE NEWSLETTER. So how 'bout it folks - we're sure that there
are many more wizards out there just like Steve who would enjoy sharing
their knowledge with other readers (and picking up some easy cash in
the process!). We urge you to send us the details of your own personal
triumphs in unlocking any hardware or software protection schemes.

YOU CAN'T TELL A DRIVE BY ITS COLOR (or WHICH JUMPER IS WHICH?)

Did you know that there is more than one type of 1541 drive? The early 1541's were shipped in a white plastichousing which matched the color of the VIC-20. There was a changeover some months back (just before the drought) and now drives are shipped in a darker housing which matches the color of the Commodore-64.

It turns out that there is more than just a color difference between these types of drives. In general, the early drives contained a large electronics circuit board (commonly referred to as the 'long board'). This is the same board that was used in the original 1540 drives (remember those?). The only difference is a ROM change. If you have a 1540 you can turn it into a 1541 simply by changing the ROM.

The newer drives have a different electronics board. Changes were made to make it less costly to manufacture. It is (or at least it is supposed to be) functionally equivalent to the older 1541's. The new circuit board is smaller and is consequently referred to as the 'short board' (it's about 9 1/2 inches long, almost 2 inches shorter than the 'long board').

The 'short board' also has jumpers on it just like the 'long board'. These jumpers are used to change the power-on device number from its factory set value of 8 to either 9, 10, or 11. This is described in the 1541 manual and the older 'long board' had these jumpers clearly marked as '1' and '2'. The 'short board', however, does not have these jumpers marked. So which is which? Well, the two jumpers are located about 2 inches from the front edge of the circuit board, and just about in the middle in the other direction. They are next to each other with one closer to the front and the other closer to the rear. The jumper towards the front is '1' and the one towards the rear is '2'. Cutting the trace on '1' will add 1 to the device number making it 9. Cutting jumper '2' will make the device number 10 and cutting both makes the device number 11.

If you are wondering why one would ever consider changing the device number of the disk drive from its value of 8, it's because the computer cannot talk to two (or more) disk drives with the same device number. So if you happen to have a second drive then you must change its device number in order to use it together with the first one. Of course, you could change the device number with a software command (as described in the 1541 manual), but this is somewhat cumbersome since you have to turn on only one drive first, send the command, and then turn on the second drive. Worse yet is the fragility of a device number set via software. A subsequent disk error might cause the drive to go through a cold initialization sequence which would set the drive number back to its power-up default value (the one set by the jumpers). If this ever happened it would probably 'lock-up' the serial bus and bring your program to a screeching halt.

So, if you intend to seriously use two (or more) drives, then it's best to change their device numbers by using the jumpers.

Ed. Note: The preceding article was submitted by Bob Kovaks. Bob is the inventor of the CONNECTION, the first intelligent CBM-64 printer interface. Many thanks Bob, for a fine article indeed!

The people here at Micro-Ware who are involved with the CLONE/UNGUARD program have been extremely gratified to hear from so many of you how much this software is appreciated and how well it works. However, we are perfectionists, and no matter how high the percentage of programs that CLONE/UNGUARD can copy goes (its hovering at about 95% right now), we will accept nothing less than 100 percent. Of course time stands still for no one, and even as I write this it is certain that someone, somewhere is devising a CLONE-PROOF protection scheme. However, as you might have guessed, we too are working on future enhancements and my point here is to just hint at what may be forth coming from Micro-Ware.

The major source of trouble at this point revolves around a method of protection that utilizes a technique known as half-tracking. Basically, what this means is that some data is written in between the 'normal' tracks on a disk. When this disk is then copied, the half-tracked data is missed and an unusable backup is the result. The one software house known to us that uses this scheme shall remain nameless here except to say that they are well versed in the construction business, if you get my drift!
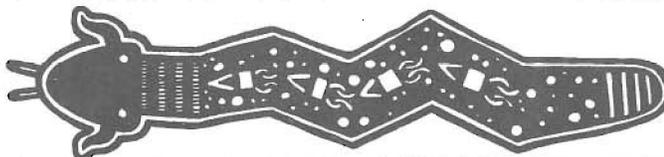
BUGS/FIXES

As noted in the last issue of the CLONE NEWSLETTER, BUGS/FIXES will be a regular column here to report on any problems may crop up from time to time and to suggest solutions, alternatives, etc. In this endeavor we welcome all comments, criticisms, and thoughts from our readers. Full credit will be given to those submitting constructive information.

In this issue, we felt that it might be very useful to print a section of the troubleshooting guide that our customer service personnel use when helping people who call in with problems involving CLONE/UNGUARD.

I CAN'T CREATE THE ERROR THAT I WANT

Because of their individual characteristics, it will sometimes be impossible to put two or more particular errors down together on consecutive blocks. However, by experimenting, in almost every case it will be possible to put down an acceptable combination of errors that will yield a successful copy. The important thing to remember is that most programs will not be very particular about the exact type of errors that are found when the error track/block(s) are checked. Also remember that although a program may have many errors throughout the disk, because of the time involved, only one or two of them will ever probably be checked for.

MY CLONE/UNGUARD COPIES THE WRONG BLOCK

The CLONE program has a minor bug in it that causes people on occasion to believe that it has copied the wrong block(s) of a given track. What happens is that when the starting point for a copy is not the first block of a track, the screen display will erroneously indicate the copying of this first block anyway apparently ignoring the users instructions. This is no cause for concern as the program in actuality DOES NOT copy this block and will in all cases only copy those blocks that the user has selected.

HOW DO I DEAL WITH AN ERROR NUMBER 29

UNGUARD does not provide a direct way of generating an error number 29. However, by experimenting it may be possible to create this error in the following way. Try putting an error number 21 with a low timing constant on the block immediately following the block where the error 29 is supposed to be. This has been found to produce the desired result in many cases.

In part one of this article, we examined the procedure for creating a copy protected disk of your own software using the CLONE/UNGUARD programs. To review, the cookbook approach is as follows:

1. Decide where your copy protection blocks will be.

2. Put statements into your program to test these blocks.

3. Use THE CLONE MACHINE to copy your program onto a new diskette. Save the original as your master copy.

4. Use UNGUARD to put the error codes you want onto the new diskette in the right place.

5. You now have a copy protected program. Test run it to make sure everything works as you expected.

It was then described how to write a short subroutine in BASIC that would test for the existance of the errored sector. The absence of this error would cause the user to be promptly dumped out of the program.

This time, I will show you how to write the same program in assembly language. This is useful for a number of reasons. First of all, for those of you who may be studying assembly language programming, it should be interesting to see a direct translation of a basic program. Secondly, by using a machine language subroutine to implement your protection scheme, you are certainly decreasing the chances of it being broken by a casual tinkerer.

The following program may be entered and saved using the assembler or monitor of your choice. For those of you without such tools, I have included a listing of data statements and the necessary BASIC program to poke the M.L. routine into place.

```
$C000  LDA  #$0F      ;file number = 15
       LDX  #$08      ;device number = 8
       LDY  #$0F      ;error channel = 15
       JSR  $FFBA     ;kernal SETLFS routine
       LDA  #$00      ;no filename
       JSR  $FFBD     ;kernal SETNAM routine
       JSR  $FFC0     ;kernal OPEN routine
       LDA  #$02      ;file number = 2
       LDX  #$08      ;device number = 8
       LDY  #$02      ;sec. address = 2
       JSR  $FFBA     ;kernal SETLFS routine
       LDA  #$01      ;filename = '#'
       LDX  #$6E      ;low addr. of name
       LDY  #$C0      ;high addr. of name
       JSR  $FFBD     ;kernal SETNAM routine
       JSR  $FFC0     ;kernal OPEN routine
       LDX  #$0F      ;open output channel
       JSR  $FFC9     ;kernal CHKOUT routine
       LDY  #$00      ;set char. counter
$C02D  LDA  $C06F,Y   ;get block read command
       JSR  $FFD2     ;and send it out
       INY            ;increment pointer
       CPY  #$0C      ;is this the last char?
```

LETTERS (cont.)

Dear Micro-Ware:

I received the anxiously awaited first issue of THE CLONE NEWSLETTER
today and wanted to write right back. I have to admit it was just a
bit smaller than I had expected but maybe that's because of it being
the first issue. What was there was good solid information that isn't
available from any other source. Anyway, I thought I would send in a
few of the successful backups I have been able to make using TCM and
UNGUARD. Here goes:
    1. SURVIVOR:
                  Init.
                  Copy 1/0 - 17
                  Copy 18/1 - 24
                  Set error 22 at track 8, sector 16
                  Copy 18/0
    Note: There were various other errors on the diskette but
    they are not needed. Also 25/0 to 35/16 contain error no.21

    2. EASY SPELL:
                  Init.
                  Copy 1/1 - 17
                  Copy 18/1 - 35
                  Set error 22 at 1/0 and 35/1
                  Copy 18/0

    3. BLADE OF BLACKPOOLE:
                  Init.
                  Copy 1/0 - 17
                  Copy 18/1 - 35
                  Set error 23 at 3/1
    Note: There is data under this error, so if it doesn't work
properly use T/B EDITOR to fix.
                  Copy 18/0

    4. BEACH-HEAD:
                  Init.
                  Copy 1/0 - 17
                  Copy 18/1 - 35
                  Use T/B EDITOR to copy 18/18 (contains password)
                  Set error 23 at 18/18
                  Copy 18/0

    5. NEUTRAL ZONE:
                  Init.
                  Copy 2/0 - 17
                  Copy 18/1 - 35
                  Set error 21 at 1/0 (whole track)
                  Copy 18/0

BEACH-HEAD and NEUTRAL ZONE can also be copied by just copying the
individual files and not the entire disk. If this is done, you must
put the password at 18/18 on BEACH-HEAD with the T/B EDITOR, then put
the error.

There are a few diskettes I haven't been able to backup with TCM and
UNGUARD. I have several programs by Electronic Arts Software and as
yet haven't been able to backup any of them. At $49.00 each, I have
been really trying. The code is all the same, so if I knew how to
backup one, I could get them all. I have copied it every way possible
and had hoped you would mention this company in your newsletter.

Thanks for a great product and keep up the good work. How about an
article on the track and sector headers and how to get to them? There
don't seem to be many books out about the internal workings of the
1541.

Jim Moore, Elgin, Fla.

Ed. Note: Thanks for your contribution Jim, and see under the column
TROUBLE SPOTS for our comments on the 'constructions' company (EA).