

PREFACE

Nudmehi Software's REPLICA 1+1 BACKUP and UTILITIES SYSTEM now makes it possible to make a working backup of any Atari computer disk out on the market prior to 8/15/82. Because of its unique capacity to be updated, the program has the facility to universally make a duplicate of any Atari computer disk. As programs become available which REPLICA cannot currently back-up, we will, at regular intervals, supply an update to the user at a nominal fee. This will not require the user to send Nudmehi Software the REPLICA program disk, rather we will send the user an updated data disk. With these data disks, REPLICA will be able to backup more and more programs. As a registered owner, you will receive notices as to the availability of updates.

OVERVIEW

The REPLICA 1+1 BACKUP and UTILITIES SYSTEM was designed because of the growing need for software backup protection. At present, the majority of software companies have no backup policy. The computer disk is an extremely fragile medium; if a piece of software is purchased and is accidentally destroyed or rendered useless, the user must again purchase that program. The REPLICA 1+1 BACKUP and UTILITIES SYSTEM resolves this problem by allowing the user to make working backups of any Atari computer disk available prior to 8/15/82. IF IT IS POSSIBLE TO PURCHASE A BACKUP, WE STRONGLY URGE YOU NOT TO USE REPLICA. REPLICA 1+1 IS NOT INTENDED FOR THE ILLEGAL DUPLICATION OF COPYRIGHTED MATERIALS.

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1. REPLICA 1+1 BACKUP AND UTILITIES SYSTEM CONTENTS

Enclosed you will find:

- 1 REPLICA 1+1 Master Diskette
- 1 REPLICA Data Disk #1
(labeled 'Nudmehi')
- 1 Micro Screwdriver
- 1 REPLICA 1+1 Documentation

If you have purchased the REPLICA 1+1 through a dealer, you must call or write us to be placed on our update mailing list.

2. GETTING STARTED WITH REPLICA

Setting Up

To start, you must first attach your Atari 810 disk drives(s) to your Atari 400 or Atari 800 Computer System. Make sure that your system has at least 24k. For the purposes of this program, it is often advantageous to have a 48K SYSTEM. If you are not familiar with the Atari system, refer to the Atari 400/800 and Atari 810 user's manuals.

Running REPLICA

After the system is set up, turn on drive #1 and wait until the 'busy' light goes off. Now insert the REPLICA 1+1 program diskette. Remove all cartridges and turn on the computer system. After the Nudmehi logo appears, a menu will be displayed:

Replica 1+1 V.1.0

Backup System
Utilities System
Mode Change

Choice ?

To enter the Backup Subsystem, hit 'B'.
To enter the Utilities Subsystem, hit 'U'.
To change the verify/no verify option, hit 'M'.

3. USING THE BACKUP SUBSYSTEM

Source and Destination Drives

The source drive holds the original disk, while the destination drive holds the backup disk. If you have one drive, then the source and destination drives are both '1'. If you have two drives, and wish to place the original disk in drive #2 and want to place the duplicate disk in drive #1, then you should press '2', '1'. The REPLICA BACKUP program asks for this information on the blue lines above the command line (upper part of the screen).

Backup System Screen Display

The screen is color coded to provide the user with important information. The source and destination drives are printed on the dark blue lines. The current command is displayed on the dark orange lines. On the dark green line the sector number appears, and the bright orange lines surround the error window. As you become familiar with the program you will find that it is extremely useful to have these areas color coded and thus easily discernible. These colors may be different on your TV set/monitor.

Inserting the Original and Backup Disks

Your original program disk or 'source' should be placed in the source drive, just as the blank backup disk should be placed in the destination drive. If both drives are the same, then the source and destination disks should be inserted and removed as the REPLICA

BACKUP program requests.

A Word About Bad Sectors

'Bad sectors' are actually parts of the disk which were never formatted. Because it is necessary for the REPLICA 1+1 BACKUP program to look at the entire disk, it must read over the bad sectors. When this occurs the drive 'grunts' and makes a loud scraping noise. This is a recalibration method used by the 810's operating system. The noise made is loud and annoying, however, it does not harm the drive in any way.

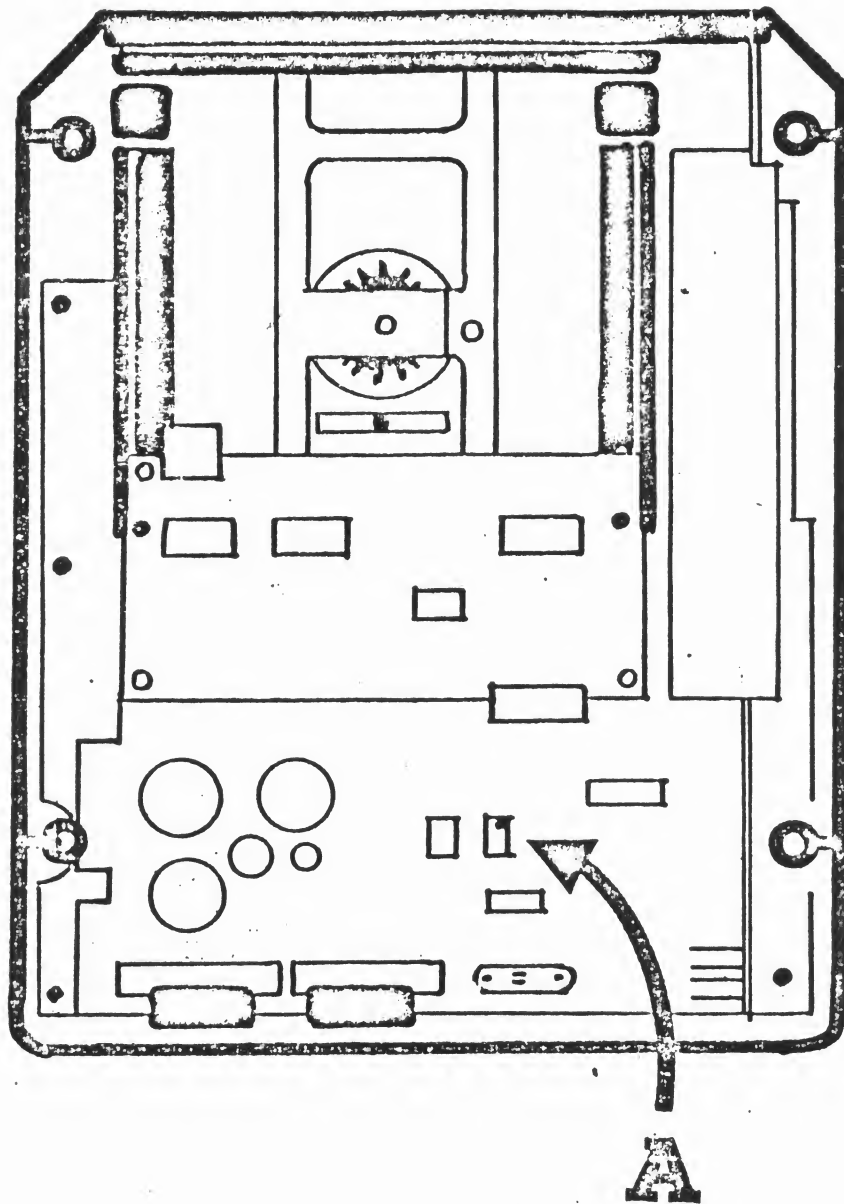
If there are 'bad sectors' on a disk, REPLICA must create them on the duplicate backup. Thus a speed test, in digital format, will be displayed the following way:

Drive Speed = 289 RPMs on drive #1
Speed should be 200(+/-5) RPMs
TYPE RETURN TO CONTINUE

It will then be necessary to lower your destination drive's speed.

Adjusting Your Drive Speed

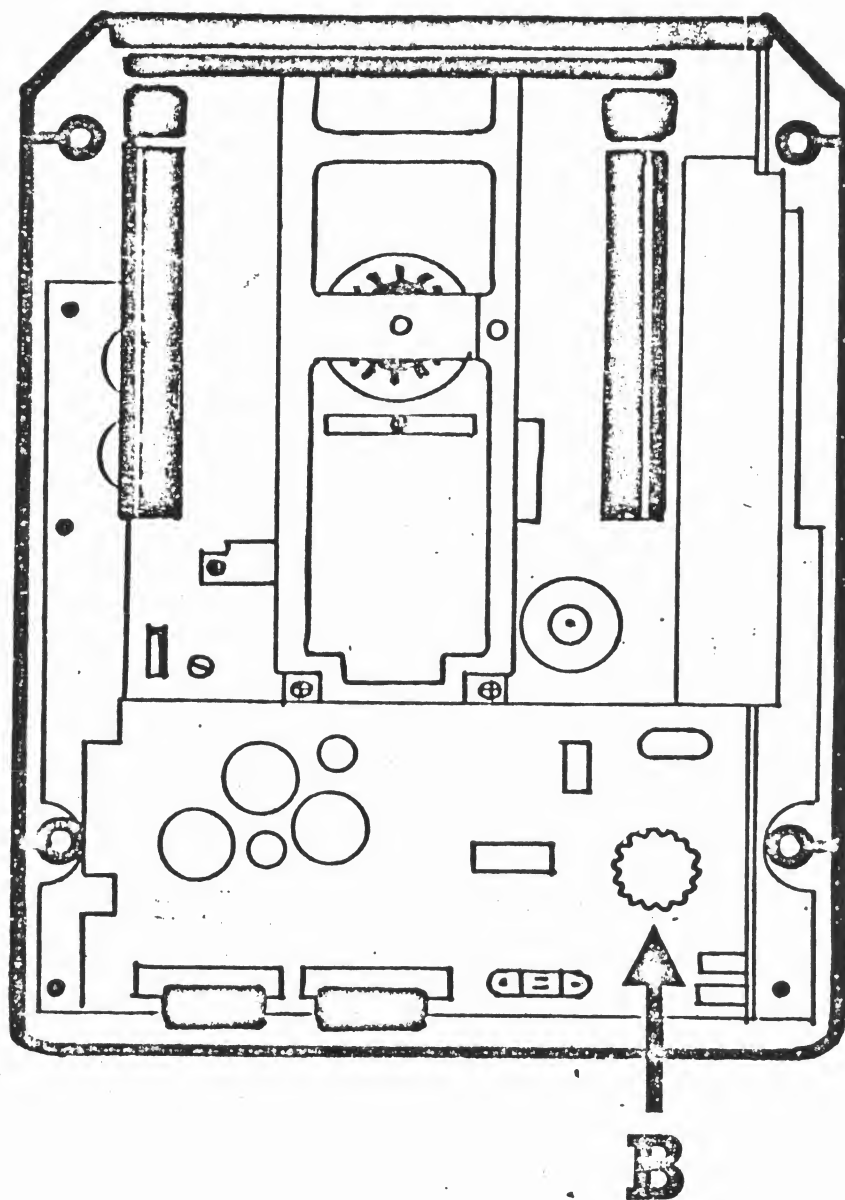
There are two models of the 810 disk drive. The newer drive has a board running across the top and has a small screw adjustment on a green cube labeled '1K' towards the rear of the disk drive (see figure A). The older drive does not have a board running across the top and has a thumbwheel type screw on the rear left of the drive (see figure B). To change your speed in either case, remove the case by prying off the grey tabs located at the top corners of the case. Then, with a standard Phillips head screw driver, remove the screws and take off the top of the case. If there is a board marked 'ANALOG ATARI 810' lying across the drive then it is the newer-type drive. If



there is no such board then you have the older-type drive. To change the speed on the newer type drive, use the micro screwdriver and do the following: Locate the small green block labeled '1K' and turn the screw on the block (Figure A). If you have the older type drive use a standard flat-head screw driver or your fingers (Figure B). You may find that it is possible to get more control with your fingers. Note: The speed adjustment on the older drive is very fine; a large turn affects the speed greatly. The speed adjustment on the newer drive is very coarse; a large turn affects the speed by a small amount. Five or six turns on the newer drive will bring the drive speed down the same amount as approximately 1/2 turn on the older drive.

When writing out bad sectors, lower the drive speed as specified by the program, hit RETURN and bring your speed back up to the standard 288 RPMs. Notice that the '200' value stated in the program when lowering your drive speed is only a rough guideline, however the '288' value when raising your drive speed is a value that should be adhered to.

When lowering your speed, listen for a lack of consistency in the beeping tones. If your TV/monitor emits a continuous beep..beep then the speed is too high. If the beeps are few and far between, and the drive scrapes or 'times-out', then the speed is too low. Listen for the point at which the drive is just barely straining to read. This range is fairly wide and encompasses approximately 15 RPMs. A note to owners of more than one drive: If one of your drives is of the older type, and one of your drives is of the newer type (or is stamped 'DS' <data separator>), then always use the newer as the destination drive. A disk with bad sectors produced with



a newer drive will always work on an older drive. The reverse will not always hold true.

The Error Window

Text in the error window is displayed when an abnormal error is encountered while reading or writing, or when the escape key is pressed (upper left-hand corner of keyboard). If an error occurs during reading the error is displayed and 2 commands:

Write buffer
Track Skip

are shown. These commands are used primarily when the user knows something about the program they are backing up. If you knew for example, that company 'O' creates disks with a bad third track, you would hit escape when you reached the third track (sector 55) and then hit 'T' which would skip that track and also enter it into the 'record' as being bad. Note that this function skips 18 sectors, not one track.

The write buffer command is used when you want to write out the current buffer onto the destination disk. If an error occurs during the writing process (or escape is hit) the commands:

Skip Sector
Format Disk

are displayed. If, while writing, a bad part of the destination disk is detected, the user might hit 'S' to skip writing the current sector. CAUTION: Because the REPLICA 1+1 only writes sectors which contain data, it is almost guaranteed that this sector is significant.

The format disk command is used to

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format the destination disk.

Additional Information About the REPLICA BACKUP PROGRAM

The REPLICA BACKUP PROGRAM loads only the data from the source disk into memory. It does not load blank sectors. Because of this, the program makes extremely fast copies: REPLICA has been known to back up standard DOS programs in only one pass, whereas the DOS program required 3 passes.

When using the 'no verify' option with the REPLICA Backup, note that the bad sectors are read over rather quickly. Also note that REPLICA writes to the destination disk with great speed. The copies here are relatively inaccurate as compared to the verified copies so be aware of this.

As in the entire REPLICA program, the escape key will always get the user to the program's previous program. If one hits escape enough times, the program will return to the main menu.

4. USING THE UTILITIES SUBSYSTEM

The utilities subsystem fulfills the long-time desire for usable utilities for the advanced disk user and for those interested in learning about the Atari disk system. NOTE: Any sector number may be entered in decimal (1-720) or in hex(\$1-\$2D0) by preceding the number with a '\$'.

Change Drive

Some of the utilities default to drive #1 for their disk routines. To change this value use this routine.

RPM Speed Test

The RPM speed test is an enhanced and more accurate version of the speed test

written within the REPLICA BACKUP program. It is used in exactly the same way. When you are completed, hit escape twice.

Sector Editor

After making this selection, enter in the sector number in hex or decimal. The sector will then appear in hex on a 8 x 16 grid. To move the cursor, use the control-arrow keys. To determine which byte you are under, add the leftmost number to the uppermost number in the current row and column. To modify a byte, type in the byte in hex. To write the sector hit <cntrl-W>. The computer will respond with:

Type 'Y' to write sector

If you hit 'y' the program will write the current sector. If you hit any other key the program will respond with:

Enter sector to write buffer to

To write the buffer out to another sector, type in the sector number. The other commands implemented are:

(CNTRL-A) prints the sector in
ASCII

(CNTRL-P) prints the sector to the
printer

(Escape) goes to utilities menu

Sector Dissassembler

The sector dissassembler dissassembles a sector into assembly language op codes and operands. All addressing modes and instructions are implemented. If an instruction is not recognized, it is displayed as '???' Towards the left of the

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screen is the number of the current
op-operand. Beside this is the the actual
code displayed in hex.

Sector Search

To search for a length of hex bytes or a
length of ASCII characters, type in the
required input and the sector range. The
sector search will display all occurrences of
these bytes.

Disk Bitmap

The bitmap tells the user which sections
of the disk contain data, which are empty,
which contain errors and what they are.
After the drive number is entered, the
program displays a grid similar to that of
the sector editor. To determine what sector
is at a particular position, add the leftmost
values with the uppermost values. The
characters displayed in the bitmap represent
the following:

'D' = data in this sector
'*' = empty sector
'E' = bad sector
'e' = 139 error sector
'X' = other error (138, etc.)

Three screens of data encompass 1 disk.

Custom Format Scan Analysis V1.0

This is the program which takes the data
from our data disks and, combined with the
original copy, produces a working backup of
normally non-copyable disks. The custom
format scan is used when the REPLICA Backup
program will not make a working copy. To use
the custom format scan, first make a
non-working copy with the Replica Backup
program. You should now have 3 disks:

1. Original program disk
2. Non-working copy
3. Nudmehi data disk

The program tells you what order in which you should insert the disks.

NOTE: Data disk #1 (supplied) contains the parameters for the custom format disks available prior to 8/15/82. As we make more and more data disks available, the custom format scan will be able to do more and more.

5. MORE INFORMATION

Contacting Nudmehi

If you have any questions or comments about REPLICA 1+1 or about any of our other products please feel free to call or write us. This also holds true if you have any suggestions for future products, or if there is a program you would like to see included in the next update.

You may reach us at:
(215) 635-2722

ATARI Technical Manuals

One of the finest sources of information about the Atari computer and the disk system is the Atari technical user's notes available from:

ATARI INC.
1195 BORDEAUX AVE.
SUNNYVALE, CA. 94086

6502 Programming Manuals

Rodney Zaks' PROGRAMMING THE 6502 and Lance Levanthal's 6502 ASSEMBLY LANGUAGE PROGRAMMING are excellent books on the 6502 microprocessor. They are available from

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Sybex and Osbourne respectively.

Percom Speed Adjustment

There are two types of Percom drives, the MPI and the Tandon. The MPI drive has a board running across the top of the drive whereas the Tandon has no such board. Toward's the right of the Tandon's rear board is a potentiometer. This is the drive speed adjustment. The MPI drive has two potentiometers, one on the left and one on the right of the top board. THE POT ON THE LEFT IS THE SPEED ADJUSTMENT. IMPORTANT NOTICE TO PERCOM OWNERS: Nudmehi Software has, on numerous occasions, attempted to obtain the speed adjustment information from Percom INC. without success. Because of this, YOU SHOULD NOT ATTEMPT ANY SPEED ADJUSTMENT WITHOUT MAKING ABSOLUTELY SURE YOU KNOW WHERE THE SPEED ADJUSTMENT IS PLACED.

Because the Percom drives normally run at 300 rpms, you should adjust your drive speed accordingly.

If anyone finds any information on the Percom speed adjustment, please call or write us.