HardBox manual update -- Revision 8 utility disk

2nd August 1982

Revision 8 of the utility disk contains the following files :

UNIVERSAL WEDGE	- Commodore DOS support program
CONFIG.8032	- Configure program compiled in PETSPEED
CONFIG	- Configure program, uncompiled version
CONFIG.OLD	- Configure program, revision 5
DIAG.8032	- Diagnostic program compiled in PETSPEED
DIAG	- Diagnostic program, uncompiled version
DIAG.OLD	- Diagnostic program, revision 5
MIRROR	- Mirror utility program
SYSTEM MAINT	- user area maintenance program
LOGIN PROGRAM	- log into a new user area
SET UNIT NUMBER	- change IEEE device number of HardBox
USERS	- list user area parameters
USERS 40 COLUMN	- version for 3000/4000 series PETs
FILE TRANSFER	- copy sequential and program files
REL FILE COPY	- copy relative files
BLOCK COPY	- copy direct access data
DELETE FILES	- interactive file delete program
CTRLR CODE V17.3	- Corvus data file used by DIAG program

The new versions of the CONFIG and DIAG contain better prompting and more facilities, but compiled versions are only available for the 8032 computer. The uncompiled versions will work on all 32K PETs but are, of course, slower.

New diagnostic program (DIAG.8032, DIAG)

DIAG.OLD is the original diagnostic program which allows you to read the Corvus and Hardbox version numbers, run a format check or test the head servo. This program will work on all 32K PETs. The new diagnostic utilities allow you to perform any of the following functions on the Corvus drive -

V - Read version numbers
C - CRC (format) check
H - Head servo test
F - Format the drive
U - Update controller code
R - Read or check controller code
M - Multiplexer paramters
S - Spare track table
O - Track offset table

The V function enables you to read the firmware version numbers of the HardBox and the Corvus controller, and the controller type (revision A or B).

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The CRC check function (C) will check the specified Corvus drive (0-7) for bad sectors, and attempt to correct them if any are found. This takes a few minutes, and when complete the number of bad sectors found (and hopefully corrected) is printed. It is recommended that this format check command should be performed repeatedly until no bad sectors are found. THIS COMMAND SHOULD ONLY BE PERFORMED WHEN NO OTHER USERS ARE ON THE SYSTEM.

The H function seeks continuously between the innermost and outermost data tracks to verify correct movement of the head. You will be asked for the physical Corvus drive number (which may range from 1 to 8, with 20 Mbyte drives appearing as two drives). In a single drive system this will normally be drive 1 (or drives 1 and 2 for a 20 Mbyte drive). Any errors encountered during the test will be reported. To stop this test, press any key on the PET keyboard.

The F option is used should the need arise, to reformat a Corvus drive. THIS OPERATION WILL DESTROY ANY DATA ON THE DRIVE INCLUDING THE CONTOLLER CODE. The drive cannot be used without the controller code, therefore when the formatting is complete this command automatically chains into the U (update controller code) command. In order to use the F (format) command the FORMAT SWITCH (second from the right) on the front of the Corvus drive needs to be ON (i.e. to the right).

The U (update controller code) command is used when you need to install a new version of the Corvus controller code on the drive, or when the controller code gets destroyed for some reason (such as reformatting the drive). The controller code is read from a separate disk file "CTRLR CODE V17.3", which must be resident on a FLOPPY DISK, not on the hard disk being updated.

The R (read or check) controller code function is primarily used to verify that the controller code on your drive corresponds byte-for-byte with the current release. If it doesn't you should update it using the U command above.

The D command displays drive parameters such as the number of physical tracks and sectors, and the sector interleaving. Since all physical drive accesses are transparent to the user, this information is of little practical use with the HardBox.

There are several tables within the Corvus drive which can be read or altered by the user. One table involves the Corvus multiplexer (Constellation), and this is accessed using the M command. A map determines what kind of device is connected to the eight Constellation slots. For use with the HardBox all slots should be set to "M". The four polling parameters specify the bus timing for the Constellation and in general should not be altered.

The "spare track table" (S command) is used to add or remove a track number from a list of up to 7 bad tracks which are to be

skipped. Altering this table will effectively destroy the data on the drive.

The last command is the "O" (virtual drive offset) command. Its purpose is to access a table of seven "virtual" drives which can be used to make the Corvus appear by software as if it were up to seven drives daisy-chained together. This is done by giving each virtual drive a physical track offset. The virtual drive then starts at this physical address and extends to the end of the physical disk. Virtual drives numbers that are not used are entered as "-" in the table.

r example a 20 Megabyte Corvus drive is often made to appear as o 10 Megabyte drives using the following offset table :

drive #	track offset
1	0
2	976
3	-
4	-
5	-
6	-
7	-

As there are 20 sectors per track an offset of 976 tracks is equivalent to a sector offset of 19520. There are two virtual drives in this example.

drive #	logical sectors	physical sectors
1	0 to 38459	0 to 38459
2	0 to 18939	19520 to 38459

NEW MIRROR UTILITY

This utility provides a backup mechanism for the hard disk using the optional Corvus Mirror video cassette recorder interface. IT SHOULD ONLY BE USED WHEN NO OTHER USERS ARE ON THE SYSTEM.

The version currently supplied gives information and options not provided in the original release. The four commands available are :

BACKUP

This enables a backup copy of a whole Corvus drive (or alternatively just one user area) to be made on video cassette. If you have more than one drive then each drive must be backed up separately. You will be asked for the date, time and up to two 64-character lines of comments you wish to appear on the tape header. Start the VCR when you are instructed to do so, and then

press the RETURN key. There will be a delay of about 10 seconds to allow the tape to come up to speed before writing commences. You will be informed when the operation is complete in the event of any disk read errors occurring during the backup.

VERIFY

Having backed up a version of the current system, you may wish to verify that it has been recorded properly. To do this use the VERIFY command, position the tape at the start of the recording to be verified and start the tape when instructed to do so. The number of soft (i.e. recovered) errors, disk errors and hard errors (i.e. blocks needing retry) will be printed if any occured. There will probably be several soft errors over a long recording. If no hard errors occurred then the message :

-- All data received --

will be displayed on the screen, otherwise the addresses of the 512-byte Corvus blocks in error will be displayed on request and you will be prompted to do a retry (re-read the tape) to try to recover these blocks.

RESTORE

This command is similar to VERIFY but actually restores the data to the disk, and might be needed in the event of a disk failure or accidental erasure. Either a whole disk or just one user area may be restored.

IDENTIFY

This command reads the header from a Mirror VCR recording so that it can be identified. The following information is displayed :

IMAGE ID	(always 1 for HardBox tapes)
IMAGE SIZE	(the number of kilobytes times 2)
SYSTEM	the type of system which recorded the tape (e.g. HardBox or CP/M)
DATE and TIME	when the recording was made
COMMENTS	2 lines of user supplied comments made at the time of recording

DELETE FILES program

This utility is designed to provide a convenient way of clearing up long directory listings by selectively scratching unwanted files. All files (default) or a named group of files names may be displayed and for each matching file the question :

DELETE (y/n) ?

is asked. When the end of the directory is reached, the program gives the number of files to be deleted and asks whether to delete them or not.

Relative file copying program

A program is now provided on the HardBox utility disk to allow relative files to be copied to and from floppy disk. The file being copied has to be smaller than the size of the diskette.

The program asks for source and destination unit #, and source and destination drive number (0 or 1).

Then files or file groups may be copied, by specifying the file name, using the "*" and "?" wildcard characters if desired. Each RELATIVE file matching the file specification will be copied.
In order to copy a relative file, its record length must be known in advance so that the destination file can be opened. You will be prompted for the number of bytes in a record (1 to 254). If you reply with a carriage return, you will be prompted individually for the record length of each file in the group being copied.

By specifying a record length of zero, you can force the program to find the record length experimentally by trying each size from 1 to 254, the range of record sizes allowed on the PET floppy. (This currently only works when copying FROM floppy disk, and is time-consuming when copying a lot of small files).

Each record is displayed on the screen as it is copied. After all the files in the specified group have been copied, the program will ask :

ANY MORE FILES (Y/N) ?

giving the option of copying another file or file group between the same pair of drives.

BLOCK COPY program

This HardBox utility program, first introduced in REVISION 6 of the utility disk (20 April 1982), allows "track-by-track" copying of direct access blocks between the Corvus hard disk and a PET floppy unit. Its purpose is :

(1) to allow demonstration diskettes which contain direct access information to be copied to the hard disk and run.

(2) to allow direct access areas which are configured to look

track- and sector-wise like an 8050, 4040 or 3040 to be backed up onto or restored from a floppy disk.

The transfer process takes about 15-20 minutes for an 8050, and about 5-7 minutes for a 3040 or 4040.

COPYING FROM HARD DISK TO FLOPPY :

Only information from the direct access area of the hard disk is transferred (named files from the hard disk directory will NOT be transferred). The following data will be copied to the floppy disk (which should first have been formatted in the normal way) :

for 8050 format :

logical sectors 0 to 28 of logical tracks 1 to 39
logical sectors 0 to 26 of logical tracks 40 to 53
logical sectors 0 to 24 of logical tracks 54 to 64
logical sectors 0 to 22 of logical tracks 65 to 77

for 4040 format :

logical sectors 0 to 20 of logical tracks 1 to 18
logical sectors 0 to 18 of logical tracks 19 to 24
logical sectors 0 to 17 of logical tracks 25 to 30
logical sectors 0 to 16 of logical tracks 31 to 35

for 3040 format :

logical sectors 0 to 20 of logical tracks 1 to 18
logical sectors 0 to 19 of logical tracks 19 to 24
logical sectors 0 to 17 of logical tracks 25 to 30
logical sectors 0 to 16 of logical tracks 31 to 35

Note that the blocks corresponding to the "directory" and "BAM" on a floppy disk are not copied (track 18 on the 3040 and 4040, track 39 and the first 2 sectors of track 38 on the 8050). This is because if this information were corrupted the diskette could not be re-read.

Part of the screen RAM is used as a copying buffer, so that the contents of each block are displayed on the screen during copying.

TRANSFERRING BLOCKS FROM FLOPPY TO HARD DISK:

This is the reverse of the process just described. All information on the floppy will be treated as direct access blocks, regardless of whether it is part of a named file or not. The floppy's directory information will not be transferred.

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HARDBOX OWNER REGISTRATION FORM

To enable us to keep you informed of any new developments, expedite repairs, and to entitle you to prom updates as and when they become available this registration should be completed and returned to Small Systems Eng at the address above.

NAME:

ADDRESS:

TEL No:

HARDBOX SERIAL No: 301945 831212

PURCHASED FROM: RPU 831215
Västerås

YOUR HARDWARE CONFIGURATION:

THE CORVUS DRIVE:

SIZE: 6M

SERIAL No: 213-AH0083.PA (important)

ARE YOU USING THE CONSTELLATION ? Y/N

ARE YOU USING THE MIRROR ? Y/N

PET SOFTWARE RUNNING ON YOUR SYSTEM:

COMMENTS: