Radio Shack
Dealer/Franchise
TRS-80 UPDATE

GETTING ACQUAINTED WITH THE HARD DISK

Our new 8 meg hard disk system 26-4150 has been released for shipment. For new hard disk customers, quote 4 months for delivery. We hope to have all orders received prior to 12/1/81 shipped by 1/30/82.

The customer will have to bring in the Model-II for installation of the primary unit. When the first secondary unit is purchased at a later date, only the primary unit needs to be brought in. Each unit, primary and secondary, contains a terminating resistor pack. When a secondary unit is installed, the terminator must be removed from the primary unit. Now, if a third unit is installed, the terminator may be removed from it before delivery to the customer and this unit may be placed between the primary and the existing secondary without having to bring in either of those units.

When moving the hard disk, extreme caution is needed. The spindle lock on the bottom of the unit MUST be in place if the unit is to be moved. The correct procedure is to tilt the unit back gently, lock or unlock the spindle as needed, then gently set the unit back down flat.

Take care if you have to rotate the spindle to make the locking hole line up. It should be rotated as the arrow indicates to prevent damage to the platter.

When the unit is not running, the read/write heads ARE in physical contact with the media. Turning the spindle with the arrow will not damage it but rotation against the arrow can cause the head to dig in to the media and damage one or more tracks.

Demonstrating the unit to a customer should be easy. Move Profile-II with your demo data base or mailing list on it up to the hard disk using FCOPY. Make the one byte patch needed (see attached list) and anyone will be impressed with the improvement in speed.

A good example is Profile II. Existing Profile data bases can be moved to the hard disk and will operate fine, the problem shows up when you try to create a NEW data set. The "DEFINE FILE" module asks which drive you wish to place the data on, but will not accept "4" for an answer. A one byte patch fixes this.

All of our inhouse testing has shown that this is going to be a very solid, reliable product. Data or program loss is unheard of and mechanical failure of production units is non-existent.

The operating system is comfortable to use. From the user point of view, it is the same as TRSDOS 2.0 with the exception of a few additional parameters to existing library commands and 5 new commands (SAVE, RESTORE, FILES, FCOPY, and FLOPPY OFF).

From a programming view point you may get a few questions about FORMAT. You can not directly access 2.0 floppy files after booting from the hard disk, or access the hard disk files after booting from floppy 2.0. The hard disk is using a new 4.0 format. You may move (FCOPY) files from TRSDOS 1.2 or 2.0 to the 4.0 format, either on the hard disk or to a floppy that has a 4.0 format (i.e. formatted from the hard disk). Also you may FCOPY files back from 4.0 to a pre-formatted 2.0 floppy but not back to 1.2 format.

The reason for the format change was a major change in the directory structure. TRSDOS 2.0 would only allow 96 directory entries and this was a little light for a hard disk (We have 306 files on one unit and only use about 5.1 Meg). The new directory is set up during initialization for a default number of entries of 336 but may be specified at the time of init to any value up to 1220. Another change from 2.0 is the number of extents allowed. TRSDOS 2.0 only allowed 16 extents, TRSDOS 4.0's only limit is disk space.

QUESTIONS

We are getting numerous phone calls from the field about several key features on the 26-4150 Hard Disk. Here are answers to some of the most often asked questions.

Q. What software will run or not run ?

A. Nearly all of the programs will run as they are. A few require minor changes to a Basic module (3-4 lines) or a patch to machine language modules. See attached list for full details.

A good example is Profile II. Existing Profile data bases can be moved to the hard disk and will operate fine, the problem shows up when you try to create a NEW data set. The "DEFINE FILE" module asks which drive you wish to place the data on, but will not accept "4" for an answer. A one byte patch fixes this.

Some of our programs have hard coded drive numbers for speed of data handling. Before these programs can be run, you will have to issue a "FLOPPY OFF" command from TRSDOS-HD. This tells the operating system to disregard any hard coded drive numbers and use the first drive that it finds containing the filename it needs or which is available for creating a new file, in this case, drive 4.

Most of our programs fall in the above categories. The throughput of the programs will increase from 2 to 12 times and the capabilities or limits of the programs increases drastically. However, four programs will not change their limits because they are using an internal memory index or a limiting counter set to a hard number. These programs are:

26-4501	General Ledger	26-4505	Accounts Payable
26-4502	Inventory Management	26-4507	Mailing List-II

Four programs will be re-released because of needing more than just a few patches to make them operate on both hard disk and floppy. These will be available shortly as a no-charge replacement for users that need to move the program to hard disk. There will be no enhancements made to the program other than making it operate on the hard disk. These programs are:

26-4710	Program Editor	26-4715	Bisync 3270
26-4714	ReformaTTer	26-4716	Bisync 3780

One program (26-4602 Inventory-Multi drive) will be released in 2 versions. The original version uses 4 floppies to handle up to 9000 inventory items, and a rework of the original program (no catalog number yet) to take full advantage of the hard disk would handle about 57,000 if you wanted to dedicate most of the hard disk storage to it.

Q. And Scripsit 2.0 ???

A. A version will be released with a new catalog number as a hard disk only version. Much of the speed of Scripsit 2.0 is due to the fact that all available memory was used including some that is needed by the hard disk. The new version will have a few overlays that will be called in only as needed by the user. This should not be a noticeable delay from hard disk but would have caused very noticeable delays if done this way from floppy.

Q. How about the Scripsit Dictionary ?

A. As soon as Scripsit HD is completed, we'll know. It should cause no problem. The only module that is known to need a change is INSTALL, and a patch should correct it. If a new version IS needed, it will be done. The Dictionary is an disk I/O intensive program and should really whiz on the hard disk system.

Q. What about BACKUP ?

A. There are 2 new utilities that were added to the TRSDOS operating system called "SAVE" and "RESTORE".

SAVE writes to a floppy in a special (extended density) format and is much faster than the standard floppy backup. Standard floppy format takes about 3 minutes and backup from one floppy to another takes another 8 1/2 minutes for a total of about 11 1/2 minutes for 460K. The SAVE utility writes the track and data in one pass then verifies it. Each full disk takes only 2 1/2 minutes to SAVE 660K. That amounts to 30 percent more data per disk and about 1/5 of the time. Saving 5 meg of data will only take 8 floppy diskettes and 20 minutes.

The SAVE command can also be passed some parameters that will cut down on the amount of data needing to be backed up. With the options, you may Save only data that has been created after a certain date or data that has been updated since a certain date. Using the BUILD utility, you may create a file of filenames to be SAVEd. You also have full wildcarding, SAVE only filenames that begin with ABC or end with a particular extension like /BAS or /DAT.

RESTORE operates about the same way and same speed as SAVE. Even if you have SAVED an entire 5 to 6 meg of data to floppy, you may only need to restore filenames with a specific extension or creation date. As each disk is created by SAVE, it is assigned a volume number and an ID. RESTORE will prompt you for the correct volume of the disk set needed and will verify that it is correct.

USING RADIO SHACK APPLICATION PROGRAMS WITH THE TRS-80 MODEL II HARD DISK SYSTEM

December 18, 1981

As of the above date, most Radio Shack Model II System (Language) or Application programs will run with TRSDOS-HD while others require a slight modification.

(NOTE: If a Radio Shack program is not on the following list, do not use it with TRSDOS-HD.)

Before any Radio Shack System or Application program will run with TRSDOS-HD, you must use FCOPY to transfer the program (and files) to the hard disk. For specific details on FCOPY, see your Hard Disk owner's manual.

For example, to transfer JOB COST (26-4513) to Hard Disk, you must first power up your Model II Hard Disk System following the correct start-up procedure.

Next insert the diskette with the data you want to transfer (FCOPY) into Drive 0. (In this case, the JOB COST program disk.)

Your system should display TRSDOS-HD Ready.

Type FCOPY 0 TO 4 SYS ALL <ENTER> to begin transferring each program, data file, and the appropriate system language (RUN COBOL, etc.) support programs to the hard disk. Once transfer is complete, TRSDOS-HD Ready will be displayed.

To run the transferred program (JOB COST), type:

```
FLOPPY OFF <ENTER>
JB <ENTER>
```

Note: If the program you wish to transfer consists of more than one diskette, you must transfer each diskette individually. Use the procedure described above.

It should be noted that most of the multiple program diskette systems (i.e., 3-diskettes) will have duplicate programs on program diskettes 2 and 3. The duplicate program name will result in TRSDOS-HD prompting:

```
filename/ext) Existing File - Copy over it? (Y/N/Q)
```

where filename/ext is a TRSDOS file specification such as SCREEN/COB.

You should respond by typing N <ENTER>. In other words, you do not need to copy over an existing file unless specifically instructed to do so.

The following programs do not require modification to run under TRSDOS-HD.

Each time you run these systems, you must enter the TRSDOS-HD FLOPPY OFF command to ensure proper operation on the hard disk.

Catalog Number	Program Name
*26-4504	Accounts Receivable
26-4505	Accounts Payable
26-4507	Mailing List II
**26-4511	VISICALC
26-4513	Job Costing
26-4520	Time Accounting
26-4545	Litigation Support
26-4560	WESTLAW Terminal Prog
26-4601	General Ledger (3-diskettes)
26-4604	Accts Receivable (3-diskettes)
26-4605	Accts Payable (3-diskettes)
26-4607	Order Entry (3-diskettes)
26-4608	Sales Analysis
26-4703	COBOL Dev. System
26-4704	COBOL RUNTIME System
26-4713	Ser. I Editor Assembler

*If General Ledger (26-4501) is used with A/R (26-4504), the following modifications are required:

1. Insert the A/R (26-4504) into Drive 0.
2. When TRSDOS READY appears, type:

```
PATCH ARGL  A=EFAF F=476C C=4152
RENAME Glbatch ARbatch
PATCH ARbatch R=1, B=10 F=476C, C=4152
PATCH ARbatch R=34, B=206 F=476C, C=4152
```

This modification will remove duplicate name conflicts between "Glbatch" for A/P and Payroll and "Glbatch" for A/R.

**VISICALC will not scan for files. To have it scan Hard Disk, specify Drive 4 as /SL:4.

The following programs will require modifications as described below before they can be FCOPYed for hard disk use:

```
==================================================================
Catalog #    :  26-4512
Program Name:   Profile II
Modification:   PATCH CREATE/EFC A=51AE F=34 C=38
------------------------------------------------------------------
Catalog #    :  26-4701
Program Name:   FORTRAN
Modification:   PATCH EDIT A=5D53 F=CA635D C=000000
                PATCH EDIT A=5EDA F=60 C=61
------------------------------------------------------------------
Catalog #    :  26-4702
Program Name:   Editor Assembler
Modification:   Same as FORTRAN (26-4701).
------------------------------------------------------------------
Catalog #    :  26-4705
Program Name:   Compiler BASIC
Modification:   PATCH RSBASIC/LIO A=377D F=FD5609FD5E08
                                         C=014700090000
                PATCH RSBASIC/LIO A=3786 F=ED53 C=0022
                PATCH RSBASIC/OLF R=156 B=126 F=FD5609FD5E08
                                              C=014700090000
                PATCH RSBASIC/OLF R=156 B=135 F=ED53 C=0022

                When RUNBASIC is chaining a series of programs under
                the 4.0 Hard Disk operating system, it will give an
                error 25 (PASSWORD PROTECTION) when it attempts to
                open the ISAM module a second time.  This patch will
                correct this problem.
                PATCH RUNBASIC A=2AF2 F=11612B C=CD9D2B
                               A=2B9D F=000000000000000000
                                      C=11612B2323233652C9
------------------------------------------------------------------
Catalog #    :  26-4706
Program Name:   BASIC Runtime
Modification:   PATCH RSBASIC/LIO A=377D F=FD5609FD5E08
                                         C=014700090000
                PATCH RSBASIC/LIO A=3786 F=ED53 C=0022
==================================================================
```

The following programs will run simply by FCOPYing them over to your hard disk system. However, there are some special notes you should be aware of:

==========

Catalog # : 26-4501
Program Name: General Ledger
Comment : The current release version (2.0 on TRSDOS 2.0a) will not respond to a "Printer Not Ready" condition. If the system stops and does nothing when it is supposed to be printing, check the printer. When the printer is ready, it will automatically resume normal operation.

Catalog # : 26-4502
Program Name: Inventory Control
Comment : This system will not respond to a "Printer Not Ready" condition under TRSDOS-HD. If the system stops and does nothing when it is supposed to be printing, check the printer. When the printer is ready, it will automatically resume normal operation.

Catalog # : 26-4503
Program Name: Payroll
Comment : The current version (2.0 on TRSDOS 2.0a) operates under TRSDOS-HD without any modifications. If you use the automatic General Ledger update feature, you must execute the FLOPPY OFF command before running the update.

Catalog # : 26-4510
Program Name: VERSAFILE
Comment : The current version operates on TRSDOS-HD without modification. There is a procedure for the user to specify drive numbers. This will not effect the operation of the system as long as the user specifies the proper drive numbers. Under normal conditions, files are placed on the first available drive (e.g., Drive 4 with TRSDOS-HD).

Catalog # : 26-4540
Program Name: Statistical Analysis
Comment : The current version operates on TRSDOS-HD with one exception. The "Directory" option (to list the available data files) will not accept drive numbers greater than 3. There are program modifications available to allow the "Directory" option for Drives 4-7.

Modification for Lines 13000 and 13010

Existing Line 13000:

```
13000 CLS:INPUT "DIRECTORY OF FILES ON WHICH DISK
DRIVE (0-3) ";J%
```

Change Line 13000 To:

```
13000 CLS:INPUT "DIRECTORY OF FILES ON WHICH DISK
DRIVE (0-7) ";J%
```

Note: The prompt is changed from "(0-3)" to "(0-7)".

Existing line 13010:

```
13010 IF J% <0 OR J% > 3 THEN 1300
```

Change line 13010 to:

```
13010 IF J% < 0 OR J% > 7 THEN 13000
                          ELSE SYSTEM "DIR"+ STR$(J%):
GOTO 13060
```

Note: The second comparison is changed to allow drive numbers up to 7 rather than to 3. The incorrect branch to line 1300 is corrected to line 13000. The line is re-written to allow for the presence of several new legal drive numbers.

If the Model II is operating under TRSDOS-HD, attempting to read the directory of TRSDOS 2.0 formatted diskettes in drives 0-3 will result in an ERROR 39 (an illegal input/output attempt). Floppy diskette access for the DIR command is not permitted under TRSDOS-HD. You may delete lines 13020-13050 (optional).