

## DOSOFT - BACKUP COPIER

An advanced file copier/header reader, which provides security backups of almost all copy protected tape software. There are 3 powerful arguments in favour of this:-

1. It is good programming practise to back - up valued programs.
2. When a program is saved down directly from the computer's memory, loading reliability is improved as compared with mass-duplicated recordings.
3. The user has control over the quality of recording tape and cassette housing used. Many commercial tapes are indifferent in both respects.

The illegal distribution of copied programs is not condoned.

### INSTRUCTIONS

The program will read and back up a maximum of 8 sections totalling up to 45k in a single operation. Multiple copies are provided for. It is recommended that you load the program to be copied first, to make sure that it is loading properly, before using the program.

You will be asked to enter the number of sections to be copied. If you don't know how many sections are on the tape either:

1. Enter the maximum number (8) and allow the program to run until the tape has passed the point where it is known that the program has ended. Then press 'RUN/STOP', and the program will automatically enter it's backup phase.

2. Enter "1" and save each section singly (re - run the copier after the section is saved).

Out of Memory: If the copier exits with the message "Out Of Memory", it means that the program is too long to copy in a single pass. Start again, and enter one less than the number of sections previously entered. Then rerun the program and copy the remainder.

Freeze Option: If you depress the 'SHIFT/LOCK' key during the load phase, program execution will halt when the next section is found, allowing you to examine the on screen file details at your leisure. Release the key to continue. Depress the key again if you wish to freeze the next section.

The copier will handle all programs recorded at standard rate (including PSS type "header-less" files). Turbo loaders can be backed up using the instructions provided with "Hypersave".

### Programmer's Note

The 1st section loaded using the copier commences at &1500 plus the low byte of the actual load. This can be useful when examining auto-run programs. For example, say the header reader gives a start address of &02A7 and an end address of &0304. Using the copier it will load at &15A7 to &1604. If you disassemble this area you will be able to see how the code operates, and which vectors have been altered. You can restore the default values to the vectors (in this example at &1600 to &1603, corresponding to the error and warm start vectors at &0300 to &0303), save down the section and thus disable the auto-run (see example "Hypersaving 'The Hobbit'"). Of course, the copier will back up auto run programs automatically, and these notes need only concern the curious.

---

### PROGRAM TYPES

1. A single section, initiated from Basic. Hypersave with @HYP X or @HYP B.
2. Two sections, the 1st being a simple Basic loader. Note the SYS command in the loader. Load the 2nd section. Enter the autostart pokes and Hypersave with @HYP X.
3. Multi-part programs. See attached examples for guidance. Note that some sections may be unnecessary to the program and may be omitted.
4. Auto-runners. These load into the vector table at &0300 to &0333. The programs start address may be contained here. See above programmer's note for guidance.

In principle, all programs may be Hypersaved. The majority (including most popular titles) fall into categories 1 and 2. The others require a little ingenuity on the part of the programmer.

Finding the start address: In most cases this is in the Basic loader. Sometimes, the loader is a SYS call which initiates a machine code loader (eg Manic Miner). This must be disassembled to find the start address (normally a JMP instruction). In the case of auto runners, it may be an altered vector, or in a machine code loader called by the altered vector.

Some hard to find start addresses.

MANIC MINER	16384	MOTHERSHIP	12994	(VERIFY the 1st section, load the second)
CUBURT	64738	JUMPIN' JACK	4551	
BLAGGER	3000	TWIN KINGDOM	37888	EAGLE EMPIRE 18515