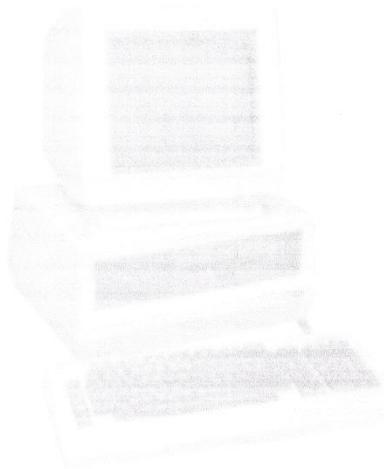


SIRIUS 1



HARD DRIVE

INSTALLATION

INSTRUCTIONS

SIRIUS 1 / VICTOR 9000

About Hard Drive Machines.

There is a time in any machines life that parts wear out or just stop working. There is not a machine that is in the world today or tomorrow that will eventually wear out. Mechanical parts are more susceptible than electrical parts as with the latter there are no moving parts. Some of the parts that make up the Sirius 1 are long since obsolete and therefore impossible to obtain. This is not too much of a problem especially with the hard drives as there are still a good many of the MFM type drives to be found, on the second hand market, at reasonable cost.

Originally the Sirius 1/ Victor 9000 came with three sizes of hard drive, a 5 meg, a ten meg or a 30 meg. The utility that comes on the Hard Drive version of the System Disk only caters for the ten and thirty meg hard drives.

There were several companies that produced external add-on hard drive units for the Sirius thus keeping two floppies and a hard drive or even two hard drives. With the external drive unit a separate power supply housed in the external case powered the drives.

Hard Drive Sub-system

Within the Sirius there are three major components that make up the hard drive system. They are the hard drive interface card that fits in one of the expansion slots on the motherboard. This is connected to a Xebec controller card, by way of a 50 way ribbon cable, within the hard drive mounting frame and finally the hard drive itself that is connected to the Xebec controller card via two ribbon cables. The larger of the two being the Controller cable and the smaller the Data cable. The final necessity is of course the power supply that is the standard power supply but with extra cabling and plugs to power the hard drive and Xebec controller.

Seagate Hard Drives

The type model of hard drive best suited to the Sirius 1 are the Seagate MFM hard drives with the 'ST412' interface. Only 17 sectored disks are allowed for such as the ST-225 (20meg) or the ST-251 (42.8 meg) but 32 sectored (RLL) disks can be used but with a loss of capacity. An ST-238 with 32.7 megs using RLL and a 32 bit sectors will format to 21½ meg approx. using 17 sector format.

Any drive size from 10 meg up to 40 meg are suitable. The drives must also be ½ height that is about 1½ inches or 40 mm thick. Most suitable drives are also 5¼ inches or 134 mm wide.

I have detailed Seagate drives as they are readily available on the second hand market. Any other manufacturers drive will do the same as the Seagate drives. The most important pieces of information that is required is the number of cylinders and the number of heads on the drive. The formatting program will provide defaults to use for the rest of the necessary information required for formatting. See page xxxx.

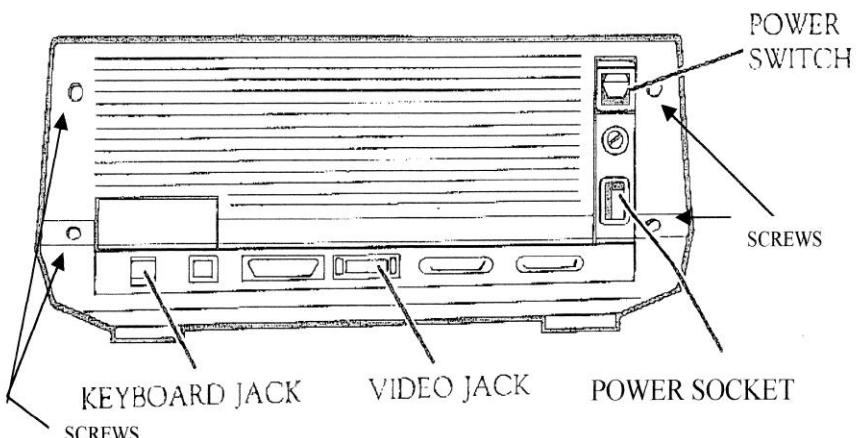
Fitting a Replacement Hard Drive.

Tools Needed...

A good quality cross head screwdriver, two flat head screw drivers with a large flat and another with a smaller end, a pair of long nosed pliers, a pencil and paper , and some small sticky labels.

Gaining access...

Switch off the computer and disconnect the computer from the main supply by removing the plug from the supply socket. Remove the mains lead from the socket in the rear of the Sirius. Remove the printer lead from the printer port, if you have one. Remove the monitor plug from its socket on the rear of the Sirius. Unplug the keyboard lead from the socket on the rear of the Sirius.

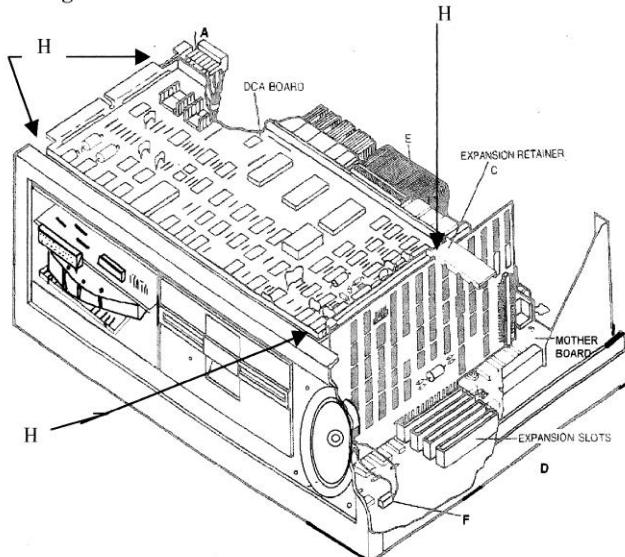


Extract the four screws recessed in the rear cover using a cross head screwdriver. Carefully pull the cover away from the main body of the computer. Take care if the reset button is of the type that is fitted to the rear cover. It is plugged into a set of pins on the rear of the motherboard. Gently lift off the top cover from the computer using a slight backward motion to free a pair of lugs at the front of the cover. You are now ready to dismantle the workings to access the hard drive.

Before proceeding any further have your pencil and paper ready. It is important that you make notes of the various plug and socket connections as you dismantle them. Number the plugs and sockets as you go.

A mistake could be costly

Doing it...



View of the drive
Chassis with the
front fascia removed.

Lift off the expansion retainer. Remove any cards that are slotted into the expansion slots starting with the card nearest to the outer casing of the computer. Note their orientation relative to the fan and the slot they are in. The final card to be removed should be the card nearest the disk drives. Remove this card carefully as it has a 50 way ribbon cable attached to it. Unplug the 50 way ribbon cable using the small flat head screw driver as a lever taking care not to stress or damage either the card or the cable plug. Put the cards in a safe place. Make notes !!!!!!!

Disconnect the DC power plug (A) and the small speaker plug front right of mother board. Remove the 50 way ribbon cable (D) from the rear of the Disk Controller board (the board on the top of the disk drives).

Remove the power plug (A) from the Disk Controller board.

Slacken off the five screws that secure the disk drive chassis. There are two on each side of the disk drive chassis and one between the disk drive chassis and the power supply.

Slide the disk drive chassis forward and lift free of the mother board and outer casing.

Remove the four screws that hold the front fascia and remove it.

Close the disk drive door.

Carefully slacken off the two or four screws (H) that secure the Disk Controller board and disconnect the power plug on the Xebec controller card (the card the sits above the hard disk).

Replace the Disk Controller board and tighten the two or four screws.

Unplug the Control and Data ribbon cables.

CONT...

You are now ready to remove the hard drive.

Turn the disk drive chassis face down with the Disk controller board away from you. Remove the four screws securing the hard drive sub-assembly. Carefully extract it by lifting it upwards. Place it on a flat surface. Lay down the disk drive chassis in a safe place.

Remove the four recessed screws in the side of the housing that secure the hard drive in the sub-assembly.

Disconnect the earth strap if there is one.

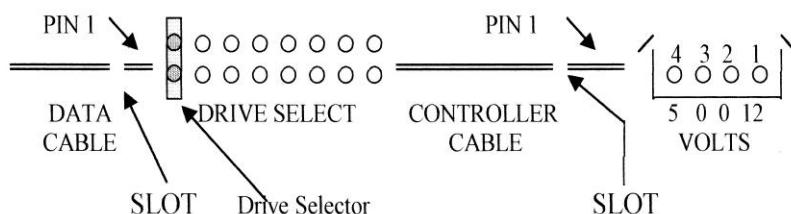
Extract the hard drive

Put the old hard drive in a safe place.

You are now ready to install the new hard drive.

Before you install the hard drive make sure it is set up as described below.

On the electronic card attached to the hard drive you will see a power socket, two edge connectors and a set of 16 pins arranged in 2 rows of 8. A black or white plug should be fitted across the first set of pins. These are the main connections to the hard drive. It is vitally important to connect all the plugs etc. the correct way round. With the Data and Controller ribbon cables the edge of the ribbon cable that has a coloured stripe on it is the 'Pin 1' end and this edge lines up with the slot end of it's connector. See below:



END VIEW OF ELECTRONIC CARD

When you are satisfied that all is as it should be fit the new hard drive doing the reverse of the above procedures. Use the notes that you have been making.

When you have assembled the units and completed the installation you are now ready to set up the new drive.

ACT Sirius 1 User Group (UK)

Tools Needed...

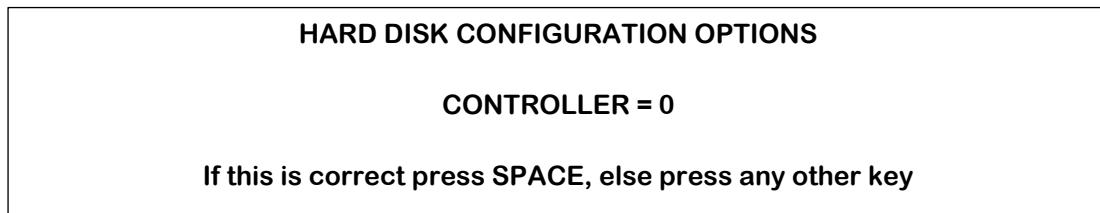
A copy of the 'Issue' MS-DOS 2.11 floppy disk version, A copy of 'Issue' MS-DOS 2.11 hard disk version. This latter disk contains the 'Formatting' programme and the 'Autoset' programme. It is possible to use the Victor 2.11 floppy disks but the process may differ. It is assumed that the drive is already installed in the system box and the Sirius / Victor 9000 is ready to boot up.

Formatting...

Before you can use the hard drive you will need to initialise and format it to the Victor HD system to hold the computer data. First boot up the machine using the 'Issue' floppy disk version of the operating system. This must be done as the Sirius will lock up if you use the hard disk version before initialising and formatting a hard drive. When the Sirius has booted up remove the floppy version of the operating system from drive B: and insert the hard drive version of the operating system.

At the B: prompt type 'FACTORYF' and press 'return'

The "HARD DISK CONFIGURATION OPTIONS" dialog appears.



If you only have one hard drive then press SPACE to continue:

The "FACTORYF -- VERSION 4.4" dialog box appears.



These options refer to the interface on the hard drive and not to a specific model number i.e. ST-225. The ST-225 has a Seagate 412 interface.

Do not press any of the "f" keys as indicated but instead press "Shift F4" as this will allow you to input data about your drive.

Questions are presented on the screen that require some input from you. Below I have listed them all but they will appear one at a time. You input data and press ' return ' after each one. Do not worry if you make a mistake as you are given the option to check your input and if necessary start this sequence over again. In this example I have used the data input for a Seagate ST-225 -- 20 meg. drive.

```
Input the number of cylinders (default = 306) »? 615
Input the number of heads (default = 4) »? 4
Input the seek control byte (default = 7) »? 7
Input the 1 st reduced write cylinder (default = 128 ) »? 616
Input the 1 st write precompensation cylinder (default ) »? 300
Input the ECC burst length (default = 11) »? 11
Input the Interleave factor (default = 5 ) »? 4
```

When all is completed the screen then shows your input to the questions. If they are all correct then press the 'SPACE' bar. If not then press any other key to repeat the process again.

You are now requested to input a serial number for the drive. This can be any number you like up to eight digits in length or the actual drive serial number as on the drive side or just the model number i.e. 225. When done press 'return'

You are asked to confirm the number and press ' SPACE ' if correct.

You are then asked to enter number of bad tracks. Any bad tracks should already be marked as bad by the on board BIOS. It is safer to enter a number ' 0 ' and press return'

You are then asked to confirm this and press ' SPACE ' if correct.

You should now see a screen as detailed below:

```
If this is correct press SPACE otherwise hit any other key ?
Enter the Drive Serial Number Please ?
```

225

The serial number read was 225

If this is correct press space otherwise press anything else

Enter the number of bad tracks from the shipping slip ?

0

No bad tracks

If this is correct press space otherwise press any other key

WARNING -- ALL DATA ON THE DISK WILL BE DESTROYED -- WARNING

To proceed press 'SPACE'

To STOP press ANY OTHER KEY?

To proceed with the format press the 'SPACE' bar. Do not stop the formatting process as this will render the hard drive useless until it is re-formatted. You may not hear any noises emanating from the hard drive. The format will take about 41/2 to 5 minutes (ST-225) When the format is complete you are asked again about forcing tracks into the bad list. Enter an 'N' for this.

The computer then adds a bad track for in service diagnostics. This completes the formatting process.

If you experience a problem see the **Fault Finder I** section at the end of this article

You are returned to the B: prompt.

Initialising...

If the formatting stage went well you are now at the stage where the drive needs to be initialised ready for use. Initialising sets up the necessary partitions and writes the FAT (file allocation table) and directories on the disk that DOS needs to keep track of the contents of the drive.

At the B: prompt type 'AUTOSET' and press 'return' This will load the Autoset programme that will carry out this function.

Displayed on the screen is one of a selection of various partitions you can set up on your hard drive. To scroll through these press any key. When you have decide how you want to set up your hard drive. Do not select an external drive if yours is internal drive as you will have problems with drive names.

To select your choice first press the 'ALT & C' keys together. A list of the possible options are displayed. Type in the setting that you want

If you have formatted a Seagate ST225 to its full 20 megabyte capacity type '110' and press 'return' The drive should initialise. If a message appears informing you that that file could not be opened hit any key and start 'Autoset' again and use a different selection..

If initialisation was successful you are then prompted to insert HD system floppy into B: and press any key to reboot your system. The system will boot from the B: drive.

If you experience a problems see the **Fault Finder 2** section at the end of this article

Finally...

All that remains is to transfer that system files to the hard drive. These files are needed to boot up from the hard drive.

At the B: prompt type 'SYS B: A:' and press 'return'

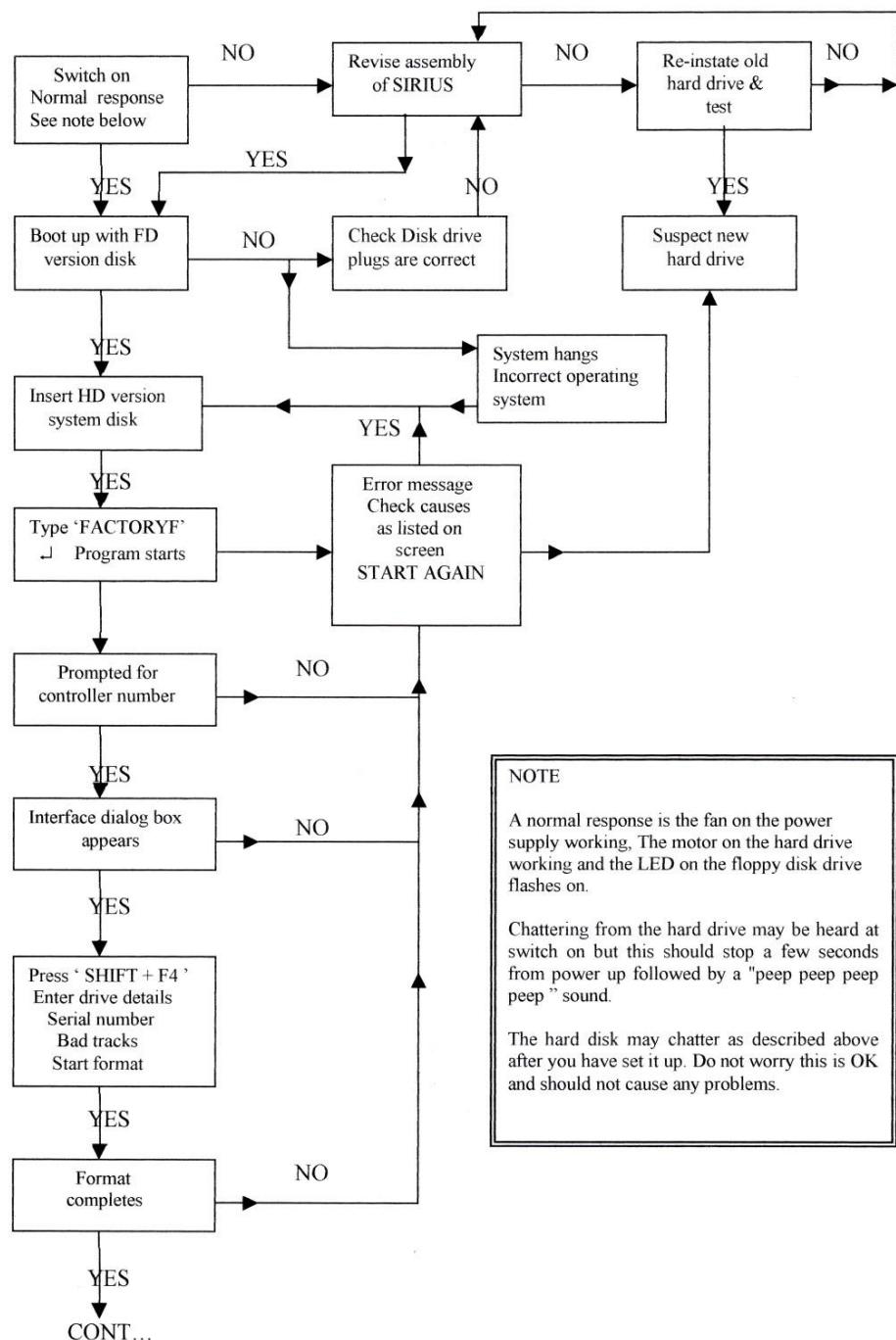
If for any reason an error message says that the CONFIG.XXX files are not found and you know that they are on the disk use the 'COPY CON*.* A:' to copy them to the A: (hard) drive also copy the 'PORT*.DEV' and the 'PPORT.DEV' to the A: (hard) drive.

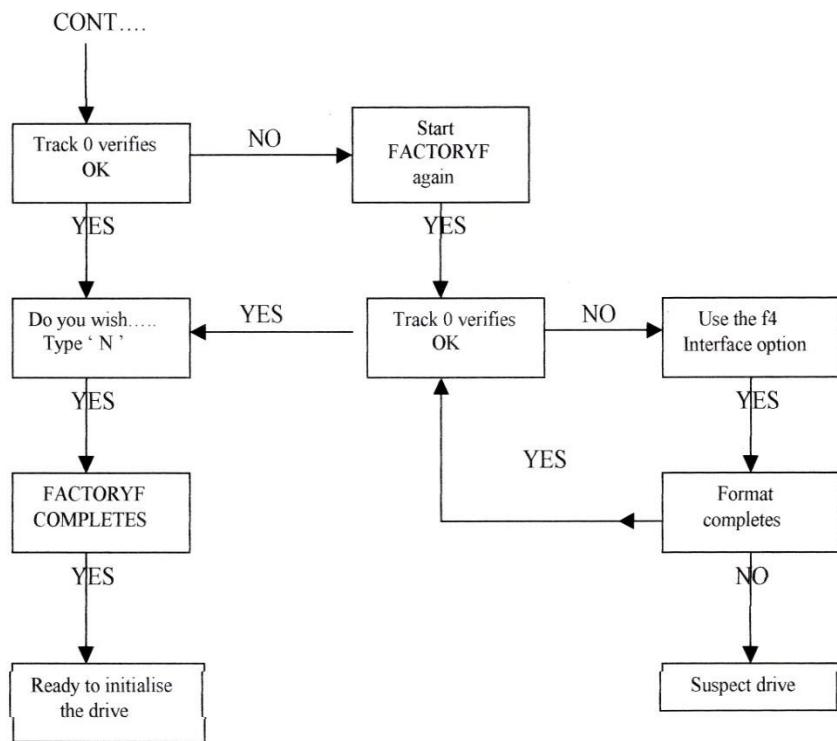
A progress of the copy is displayed on screen. When completed remove disk from the B: drive and power off your machine. Wait for 30 seconds and power on the machine. The computer will boot up from the hard drive. Run 'CHKDSK' to confirm all is well.

Transplant successful.....

FAULT FINDERS

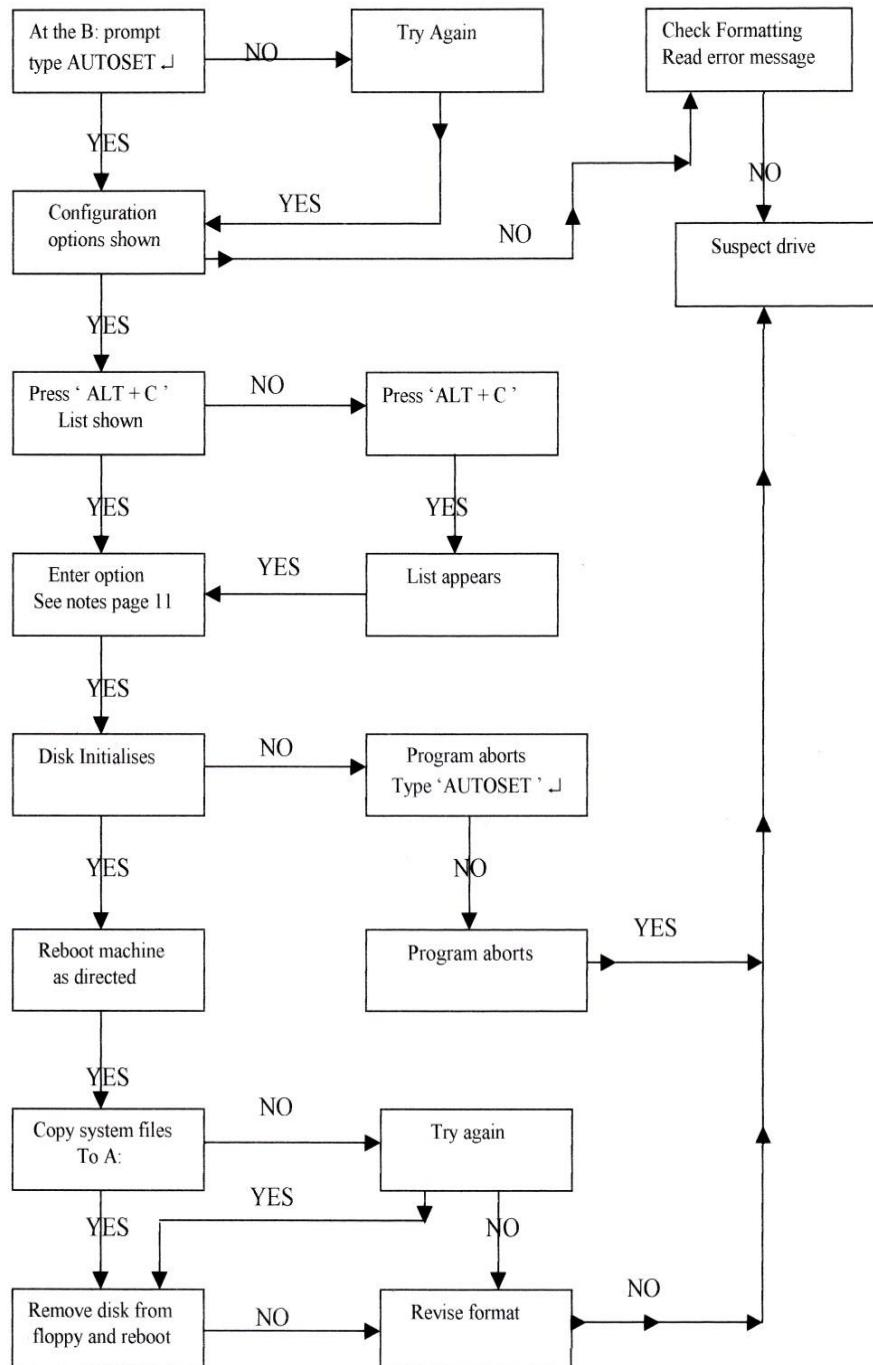
Fault Finder 1 ... Assuming the machine is full assembled.





At this stage if you try to access the A: drive you will get a ' SEEK ERROR ' message.

Fault Finder 2 ... Assuming the hard drive is formatted.



NOTES

If you have formatted an ST-225 to its full capacity then use the ' I10 ' filename.

If you have formatted an ST-225 to only 10 meg then use either:

I10, I5N5, I2N8, I5*2

If you have formatted an ST-251 to its full capacity of 41.5 megs only use the ' 3I15N15 ' filename.

There are many other hard drives that may be suitable for use.

IMPORTANT NOTICE

The information contained in this article relating to the installation of a replacement hard drive within your Sirius 1 / Victor 9000 is only a guide to the process. You carry out the steps detailed in this article at **your own risk**. No responsibility can or will be accepted by the author for any subsequent loss or damage sustained to ones-self or machine or parts as a direct or indirect result of following this article. There are no warranties or guarantees implied that the above procedures will work on any machine.

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