# Index

1. Introduction	P.1
-HD4 / HD12 Introduction	P.1
-Features	P.1
2. Unpack the box	P.2
3. Assembly & Attentions	P.3
4. Appearance of HD4 / HD12	P.3
5. Function Operation & Introduction	P.6
5.1-Function Diagram	P.6
5.2-Basic operation	P.7
5.3-COPY Hard Disk	P.8
5.4-DIAGNOSTIC	P.17
5.5-TOOL	P.21
5.6-CONFIGURATION	P.28
6. Specific	P.43
7. Troubleshooting	P.44



# **1. Introduction**

Thank you for used the HD4/HD12 UDMA100 machine; it's an excellent performance and an effective Hard Disk Duplicator; it is designed for mass production in the hard disc duplication.

#### **FEATURES:**

1.Support UDMA and SATA transffered modes, and the hardware own 6GB wideband.

(The machine's performance is base on the hard disc's performance)

- 2.Support all ATA (IDE) and SATA Hard Disk which are including 3.5" / 2.5" / 1.8" Hard Disk.
- 3. High speed duplication performed on the all copy ports.
- 4. Each copy ports is a independent slot, It will be not to affect each others during the duplication process.
- 5. Powerful Diagnostic function, to perform an excellent hard disc quality control .
- 6.Powerful Copy functions to handle every situation.
- 7.Support to format Hard Disk.
- 8. Support HPA(Host Protection Area) copy.
- 9. Resize Copy performs automatic sizing and size checking of the master.
- 10.Support full erase and quick erase the hard disc.
- 11. Easily operation and user friendly.
- 12. Easily to use Hard Disk to upgrade latest firmware.

#### Notice :

#### HD4/HD12:

Copyright© 2008, An Chen Computer Co., Ltd. All rights reserved.

The HD4/HD12<sup>®</sup> and associated software are copyrighted and registered in accordance with the laws and regulations of Taiwan R.O.C.

All brand and products names are trademarks of their respective Owner An Chen Computer Co., Ltd. will not be responsible for any illegal use of this product nor any losses created by this product. The user himself should take consideration on the copyright laws and if he/she takes any illegal action, he/ she will have to take full responsibility on his actions.



# 2.Unpack

Please check the accessory box as following

# HD4

Model	Spec.	Quantities	Model	Spec.	Quantities
HD4 main machine	Set	1	3.5" ->2.5" Connector	Pcs	10
3.5" IDE Flat Cable	Pcs	10	8 cm Power Cable	Pcs	10
SATA HD Signal Cable	Pcs	10	AC Power Cable	Pcs	1
Manual	Pcs	1			

# HD12

Model	Spec.	Quantities	Model	Spec.	Quantities
HD12 main machine	Set	1	3.5" ->2.5" Connector	Pcs	26
3.5" IDE Flat Cable	Pcs	26	8 cm Power Cable	Pcs	26
SATA HD Signal Cable	Pcs	26	AC Power Cable	Pcs	1
Manual	Pcs	1			

#### Note:

If you bought additional spare parts, please make sure the model and quantities.





# 3. Assembly and Attention

### 3.1 Assembly

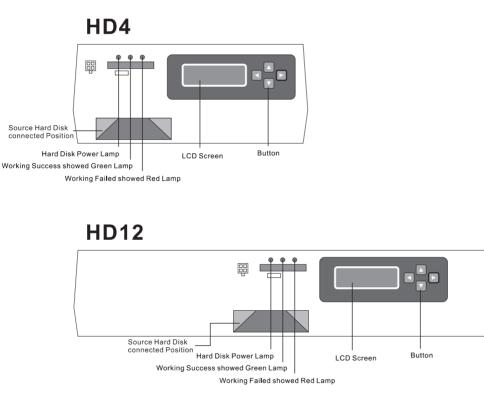
•Please make sure all Hard Disk's jumper set as "MASTER or CABLE SELECT".

### 3.2 Attention

- •Running the machine with a stable voltage, and avoid to put together with a big electronic device.
- •Place the machine where the air is circulation through the room, and avoids the machine work under the high temperature environment.
- •The hard disc is very sensitive when is working; so have to avoid any possible to shock the machine.

# 4. Appearance of HD4 / HD12

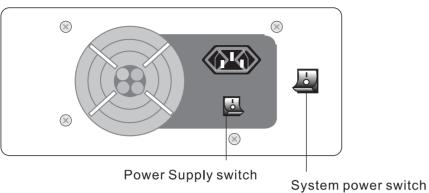
### **OThe front view**



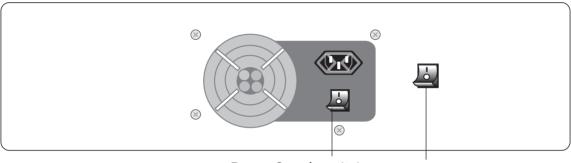


### **◎The rear view**

#### HD4



# HD12



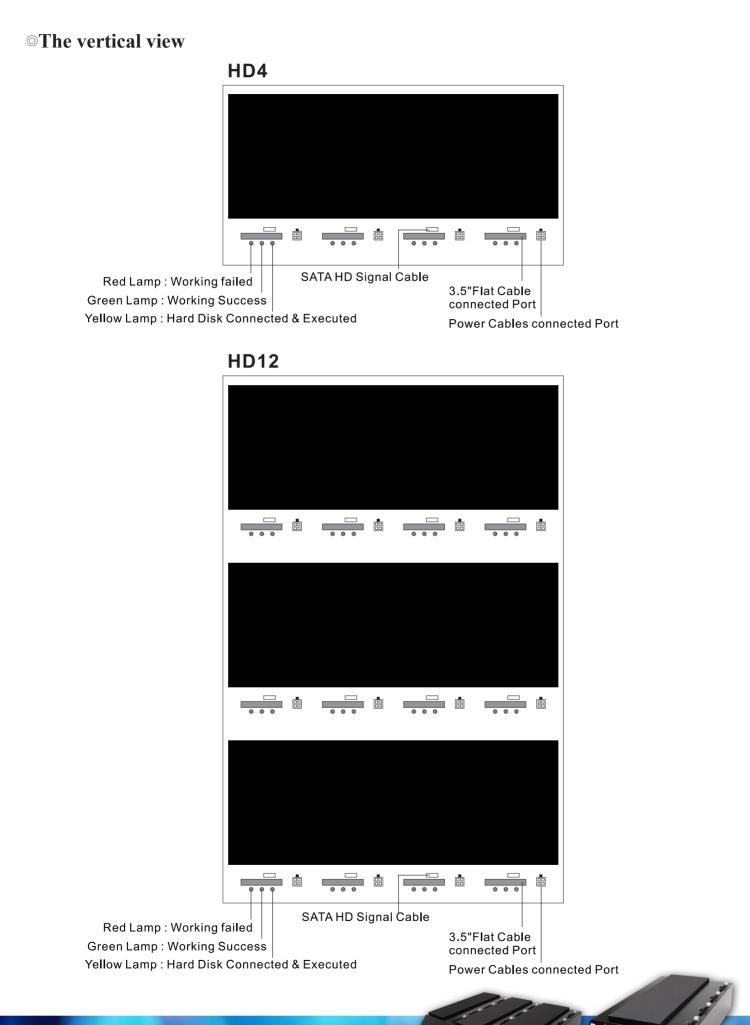
Power Supply switch

System power switch

#### **◎The left side view**

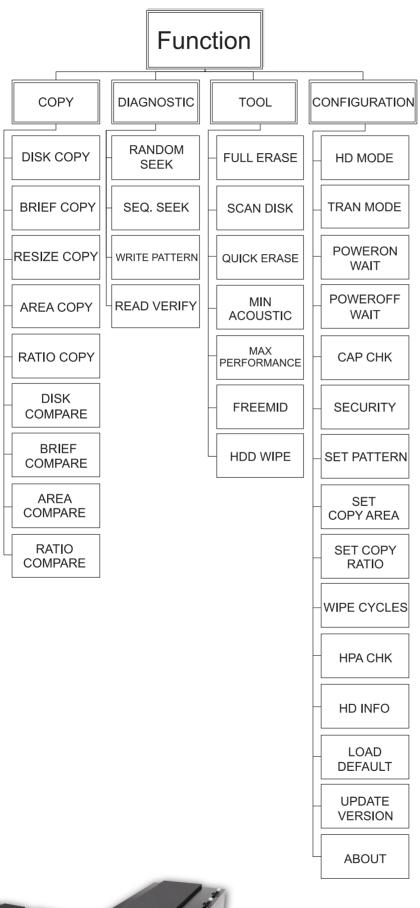






# 5. Function operation and Introduction

## **5.1- Function Diagram**





#### **5.2- Basic Operation**

1.Connect the source Hard Disk on the source position.

2.Connect the targets Hard Disk on the targets position.

3.Please choice the copy function from the Copy Mode before running.

(Some Copy functions need extra setting, so as to work correctly. Please refer to relative documents.)

© LCD Screen owned four buttons: Upward, Downward, Leftward, Rightward.

Upward and Downward : Function select button.

Leftward : Back to previous level button.

Rightward : Confirmed button.

#### Main Menu



#### Setup Menu



1.Press 「←」 button back to Setup Menu. Press 「↑」 or 「↓」 button to select COPY、 DIAGNOSTIC、TOOL、CONFIGURATION functions. Press 「→」 button to start running.

2.Press 「←」 button back to Main Menu. Press 「↑」 or 「↓」 button to find desired information. Press 「→」 button to go Function Menu.

#### **Function Menu**



3.Press  $\lceil \leftarrow 
ight
ceil$  button back to Setup Menu. Press  $\lceil \uparrow 
ight
ceil$  or  $\lceil \downarrow 
ight
ceil$  button to find idea function. Press  $\lceil \rightarrow 
ight
ceil$  button once to show [X] : means this function had selected or canceled. Press  $\lceil \leftarrow 
ight
ceil$  button thrice to back to Main Manu, then, Press  $\lceil \rightarrow 
ight
ceil$  button to start running.

\* After user selected copy functions, please press  $\ulcorner \leftarrow \lrcorner$  button several times to back to Main Menu; then, press  $\ulcorner \rightarrow \lrcorner$  button to start running. \*

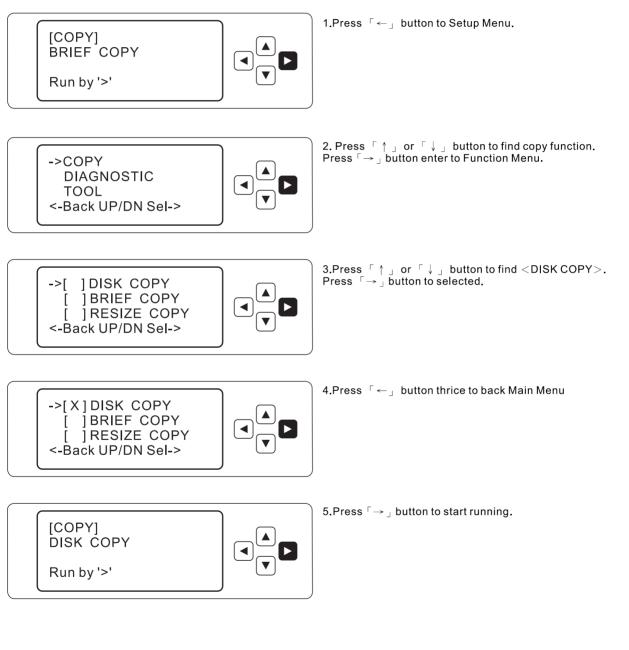
# 5.3-COPY Functions 5.3.1-DISK COPY

It will copy the hard disc through sector by sector, this function support any types' Hard Disk and file system.

#### Notice !

The source and target's Hard disk capacity must be the same, otherwise, may be it will lead to the data incompletely and incorrectly.

Operation:



8

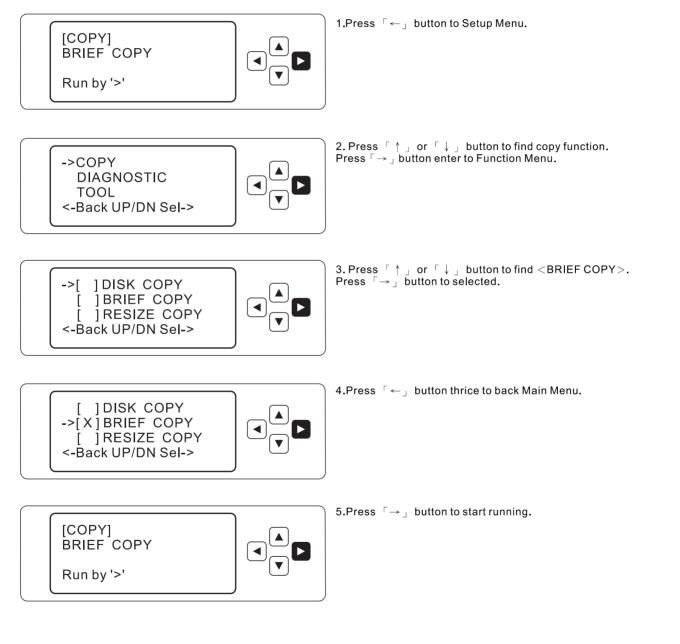
#### **5.3.2-BRIEF COPY**

The *<*Brief Copy*>* is default setting.

It will only copy the data area, and skip blank area. It's the best efficiency function for copy or format data mode; it support file system included the Microsoft Windows /Dos (FAT12 · FAT16 · FAT32 · NTFS) · LINUX(EXT1 · EXT2 · EXT3 · XFS · ReiserFS) · Apple Macintosh(HPFS).

#### Notice !

The source and target's Hard disk capacity must be the same, otherwise, may be it will lead to the data incompletely and incorrectly.



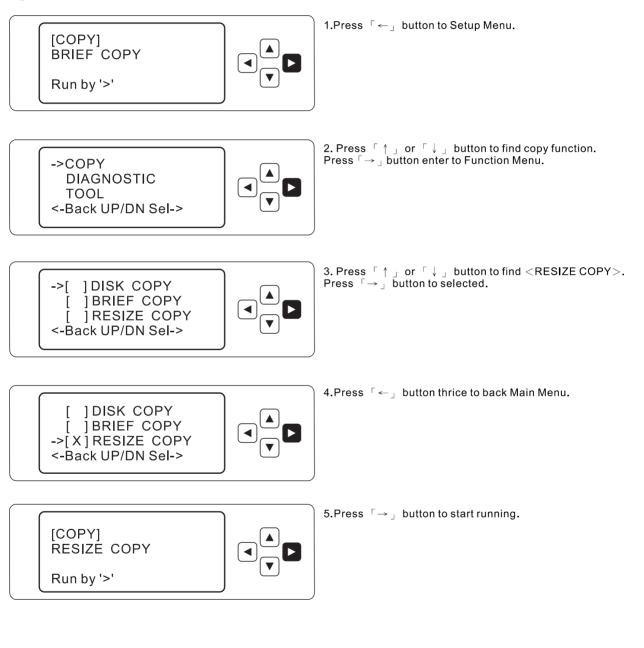


# **5.3.3-RESIZE COPY**

Resize Copy performs automatic sizing and size checking of the master and copy hard disc.; it support file system included the Microsoft Windows/DOS (FAT12 \cdot FAT16 \cdot FAT32 \cdot NTFS) \cdot LINUX(EXT1 \cdot EXT2 \cdot EXT3).

#### Notice !

We only support Linux from small size to big size hard disc.



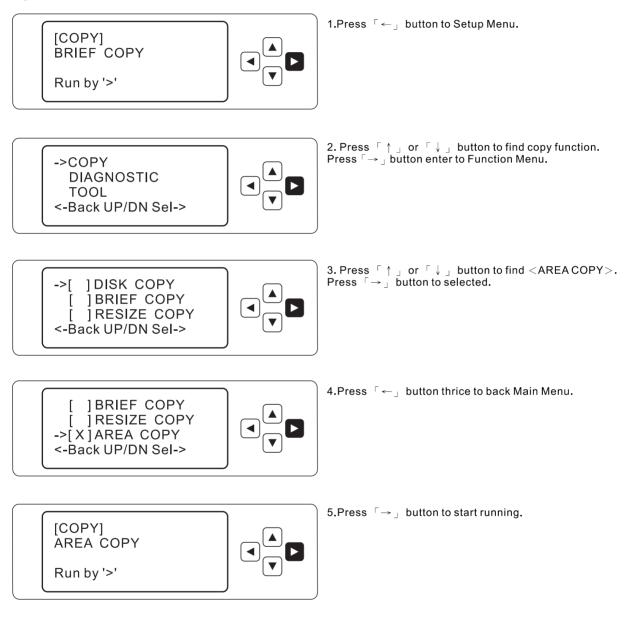


### 5.3.4-AREA COPY

It allows user to define up to 8 sets allocation on the hard disc, and then the machine will copy the hard disc according to the allocation.

#### Notice !

Before running the Area Copy, User have to enter <CONFIGURATION> function to choose <Set Copy-Area>function, then definite copied area allocation.





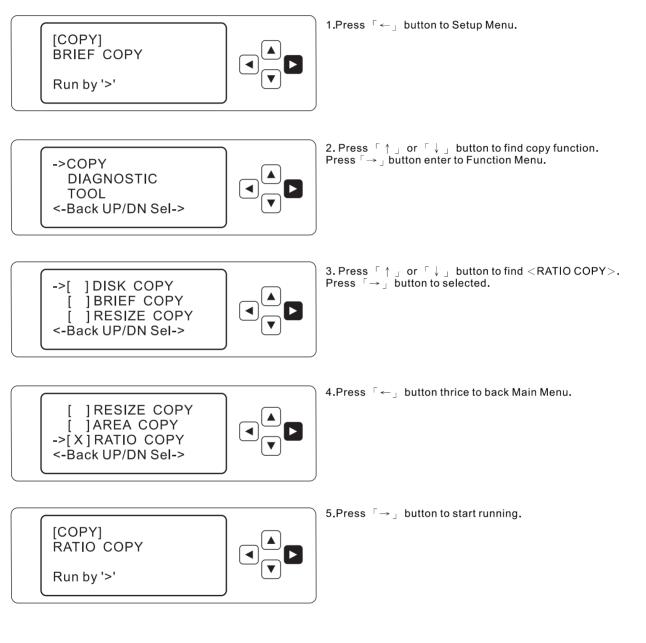
# **5.3.5-RATIO COPY**

The machine divides the hard disc upon a division of the total sectors into 1000 units, and user is able to assign a number how many units would like to copy.

#### Notice !

User have to enter <CONFIGURATION> function to choose <Set Copy-Ratio>function, then definite copied area percentage.

Operation:



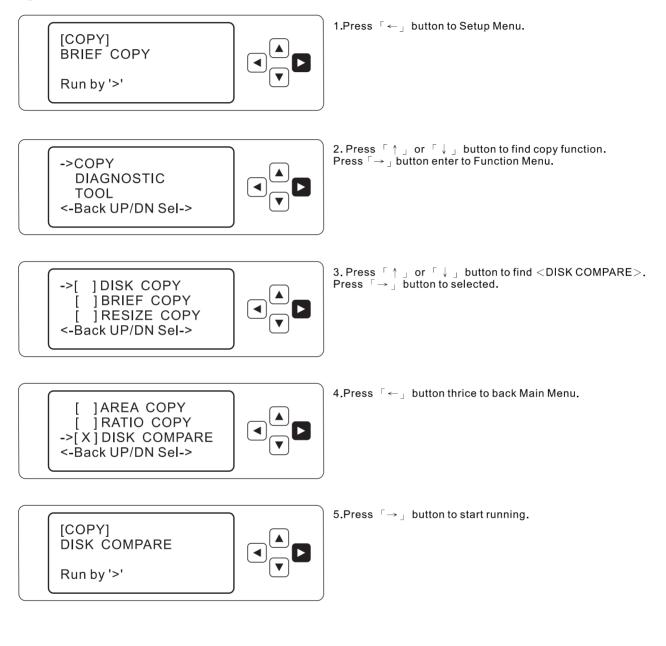
12

### **5.3.6-DISK COMPARE**

It compare the hard disc between the source and target through sector by sector

#### Notice !

This function can execute with the *<*DISK COPY*>* function.



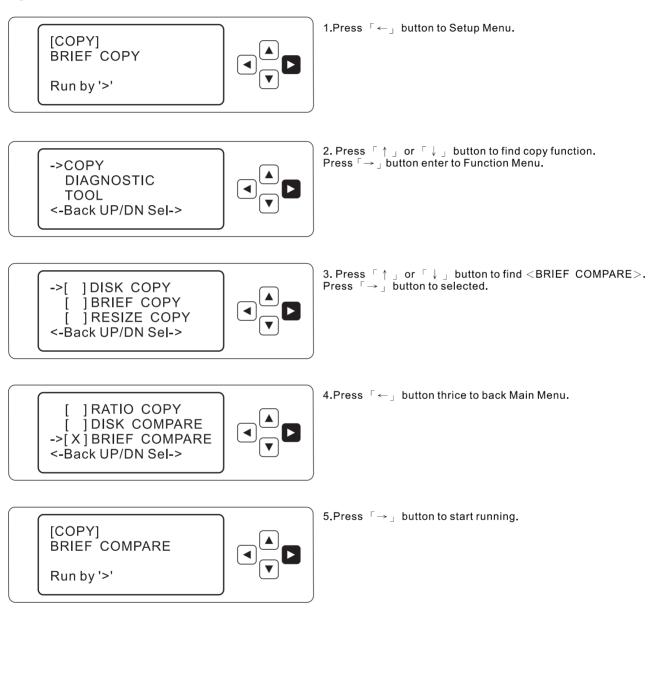


# **5.3.7-BRIEF COMPARE**

Only compare the sectors with information, and skips the blank sectors, then, this function will assure all the target Disks have the same information as the source Disk.

#### Notice !

This function can execute with the *<*BRIEF COPY*>* function.



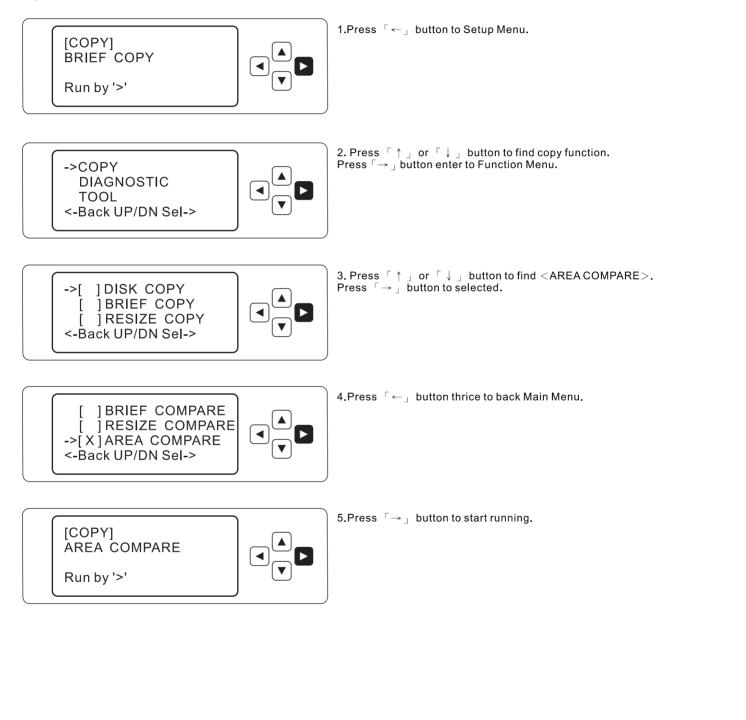


#### **5.3.8-AREA COMPARE**

This feature should be followed Area Copy, only compare the area of sector which have defined before.

#### Notice !

This function can execute with the <AREA COPY> function.



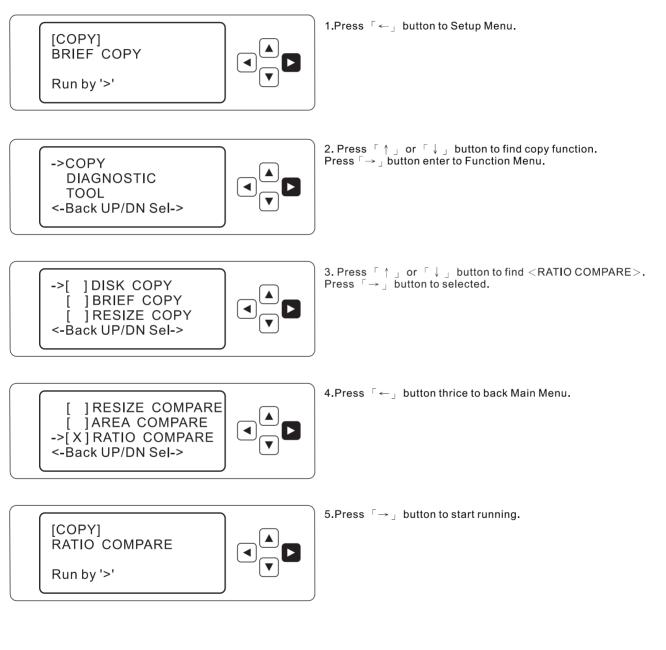


## **5.3.9-RATIO COMPARE**

This feature should be followed Ratio Copy, only compare the area of sector which have defined before.

#### Notice !

This function can execute with the <RATIO COPY> function.





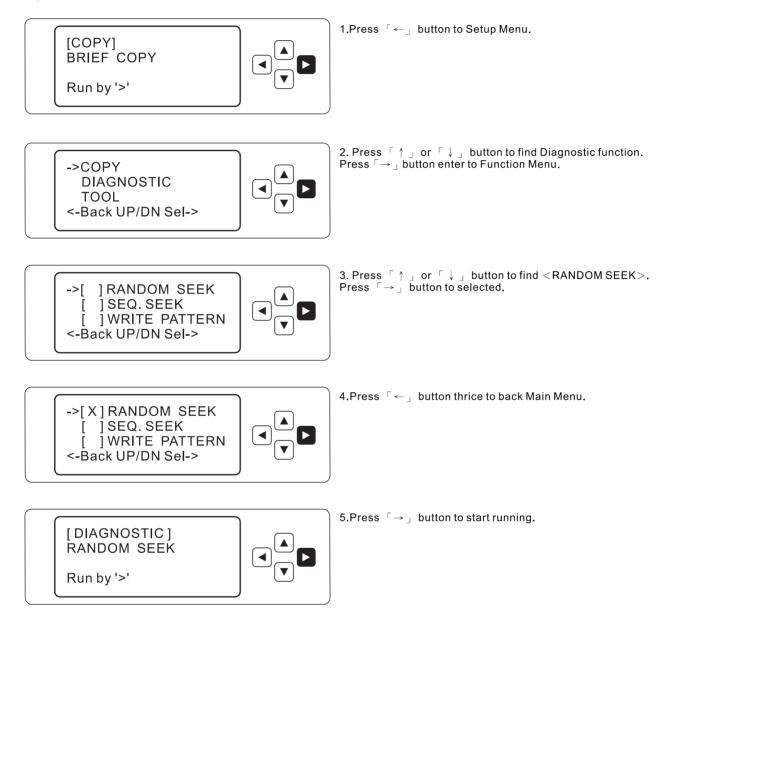
## **5.4-DIAGNOSTIC**

User can select more than two functions to execute.

#### **5.4.1-RANDOM SEEK:**

Move the read/write head in random.

Operation:

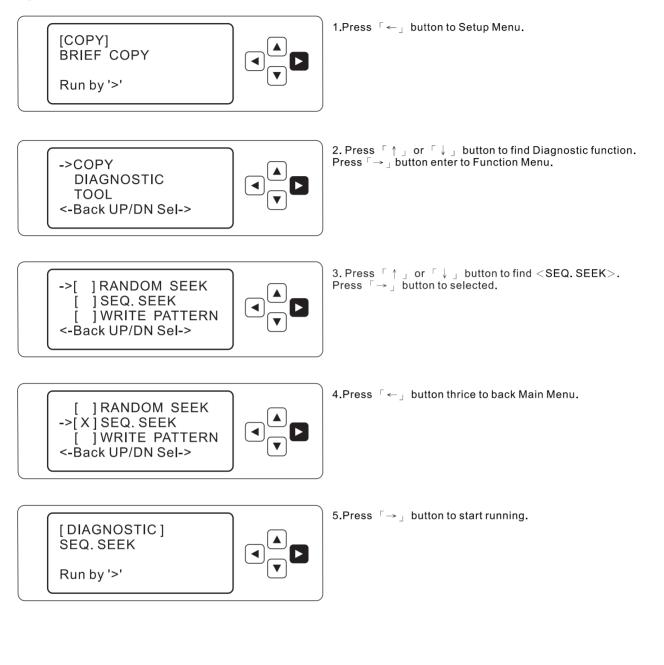


17

# 5.4.2-SEQ. SEEK

Move the read/write head in sequence.

Operation:



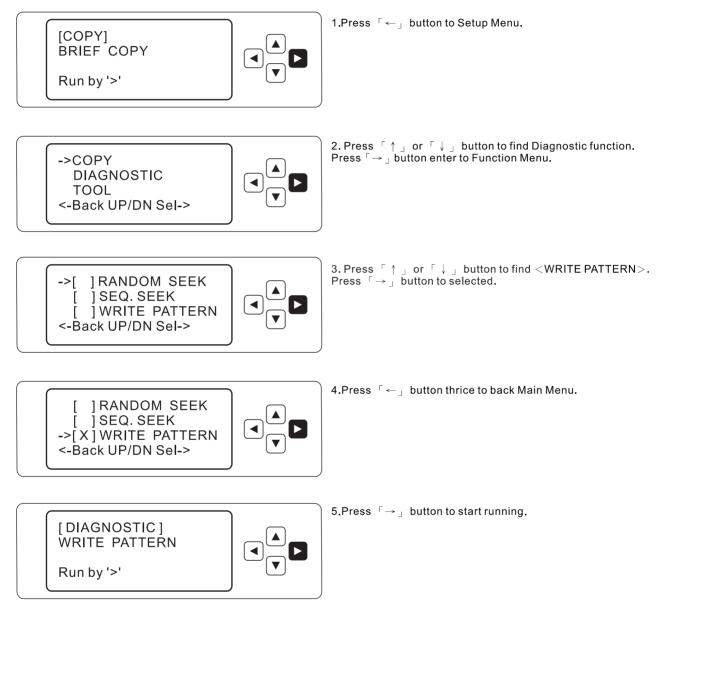


#### **5.4.3-WRITE PATTERN**

User can accord to ideas to set the pattern from  $0000 \sim FFFF$  and then fill out the hard disc with the pattern.

 $\odot$  The default value is "0000" !

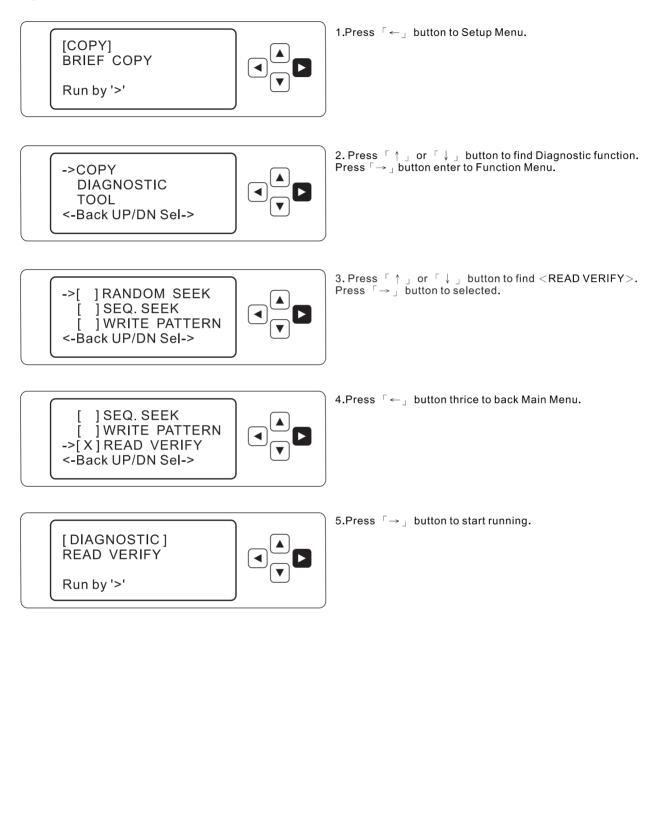
 $\odot$  User can find the "SET PATTERN "function under CONFIGURATION Manual, so as to change the pattern value.





# **5.4.4-READ VERIFY**

It is a useful function to check the hard disc whether have bad sector or not.





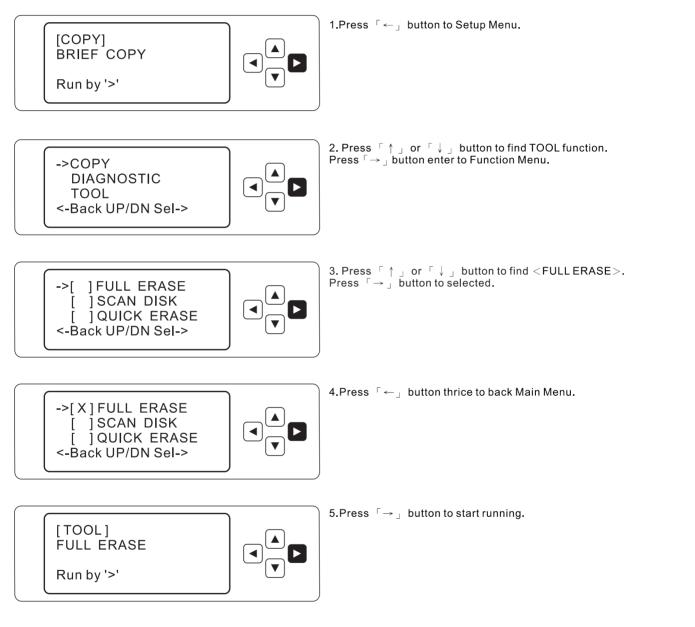
# 5.5-TOOL

It can select more than two functions to execute at same time.

### 5.5.1-FULL ERASE

Erase the whole hard disc in sector by sector.

◎ This function will delete Targets' Hard Disk all data; Once you execute this feature, it is unrecoverable, before you execute it, please make sure the data have been backup one.

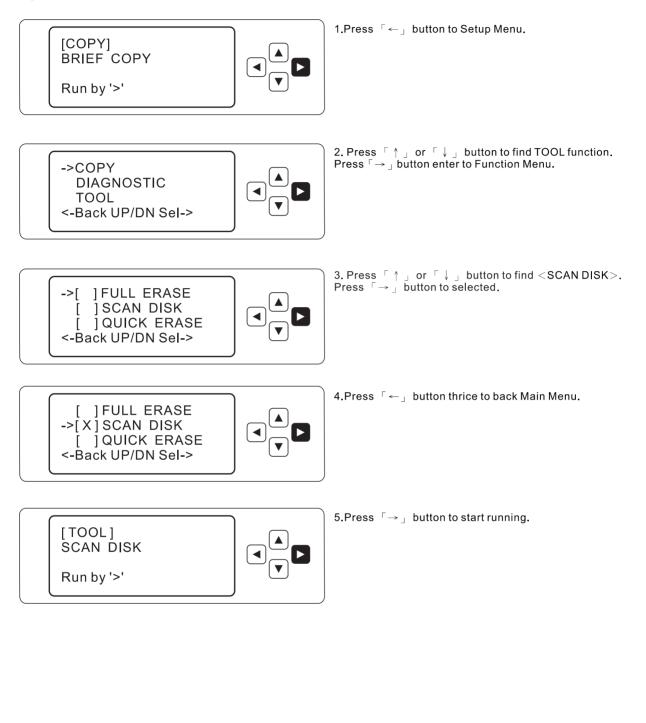




# 5.5.2-SCAN DISK

Quickly check the hard disc whether have bad sector or not.

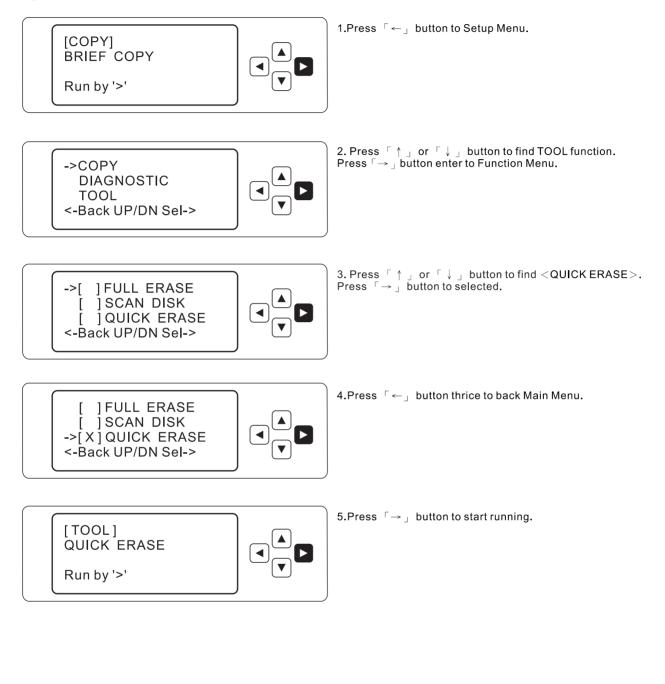
Operation:





# 5.5.3-QUICK ERASE

Quickly delete the MBR(Main Boot Recorder) and Partition Table .



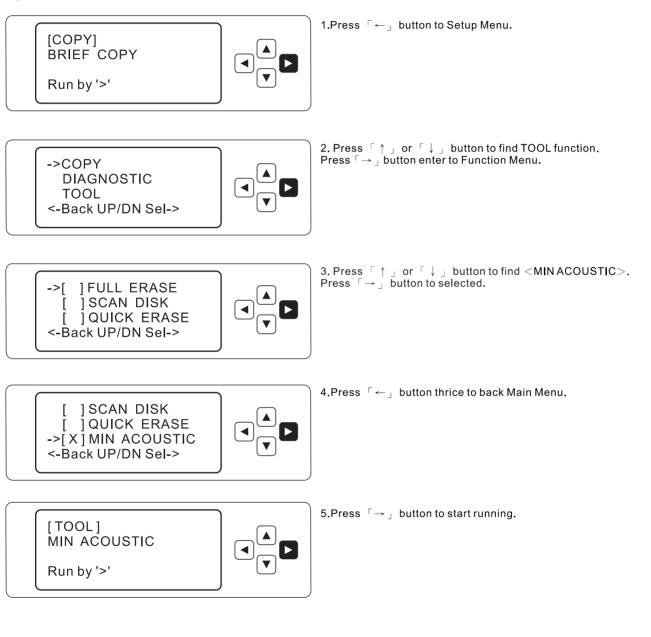


# 5.5.4-MIN ACOUSTIC

When user executed this function, the hard disc will be revised its internal parameter, so as to reduce the noise of the hard disc.

#### Notice !

We strongly not recommend user to use this function, due to this function will affect the data transfer rate of HDD, once the hard disc is executed "MIN ACOUSTIC", and it will not back to normal anymore.



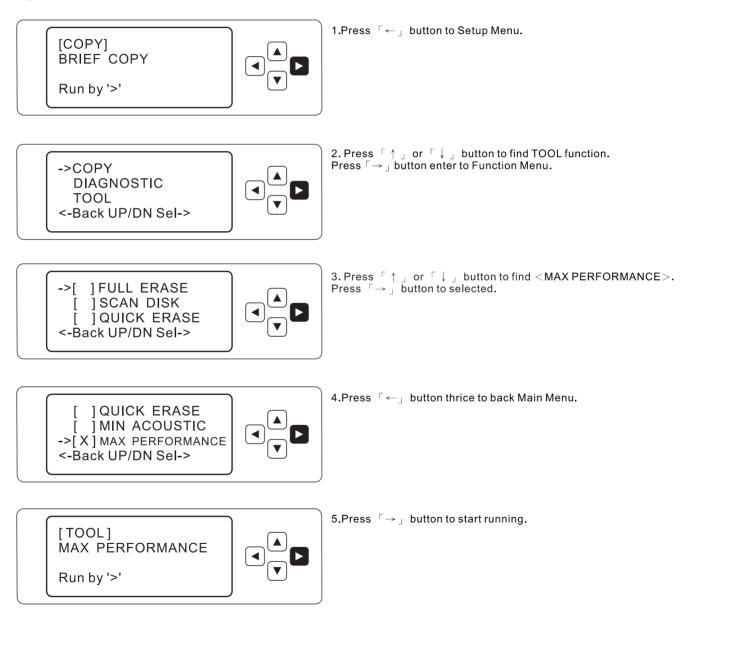


### 5.5.5-MAX PERFORMANCE

When user executed this function, the hard disc will be revised its internal parameter, it make the harddisc to work in the highest performance always.

#### Notice !

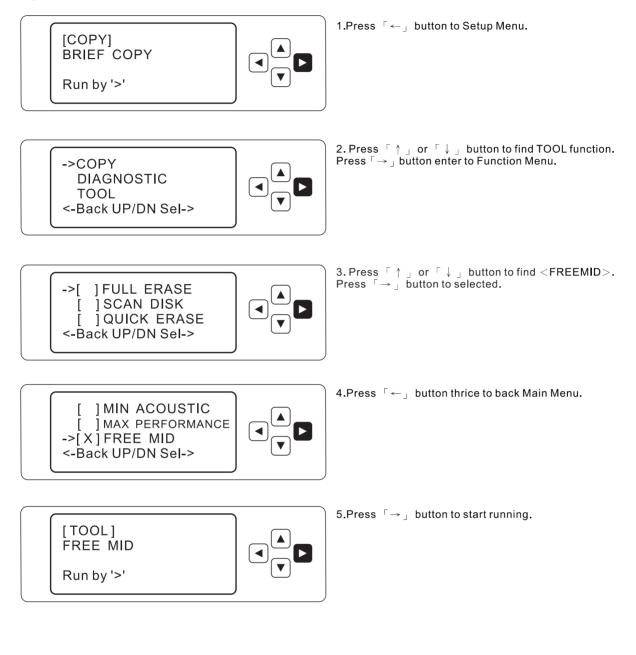
We strongly not recommend user to use this function, due to this function will increase the noise of the hard disc, once the hard disc is executed "MAX PERFORMANCE", and it will not back to normal anymore.



## 5.5.6-FREEMID

This is ODM program, so it only supports specific customers.

Operation:





### **5.5.7-HDD WIPE**

This is powerful and strict function for erasing Hard Disk, it will automatically follow 4 steps to erase data per cycle time.

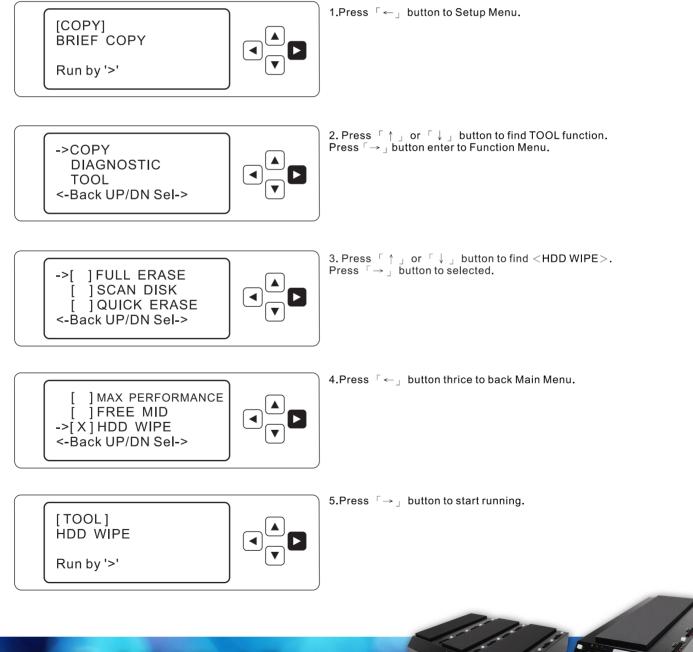
Each time have to finish 4 steps, it can able run up to 9 times; user can set idea executed times at WIPE CYCLES under CONFIGURATION Manual.

◎ Default set 7 times.

Four Steps for follow:

- A. Automatically fill out whole Hard Disk with 0.
- B. Automatically fill out whole Hard Disk with 1.
- C. Automatically fill out whole Hard Disk with random number.
- D. Verify whole Hard Disk to check bad sector inside or not.
- E. Repeat above 4 steps up to ideas set wipe cycles.

Operation:



# **5.6-CONFIGURATION**

# **5.6.1-HD MODE**

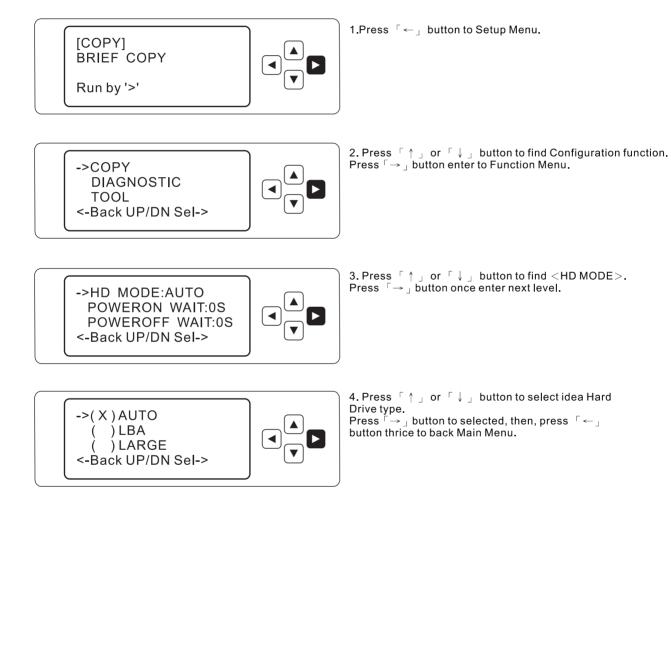
AUTO: Machine will automatically select HDD Addressing Mode.

LBA: Set the HDD Mode to LBA(Logical Block Addressing)

LARGE:Set the HDD Mode to Large Mode.

NORMAL:Set the HDD MODE to CHS Addressing Mode.

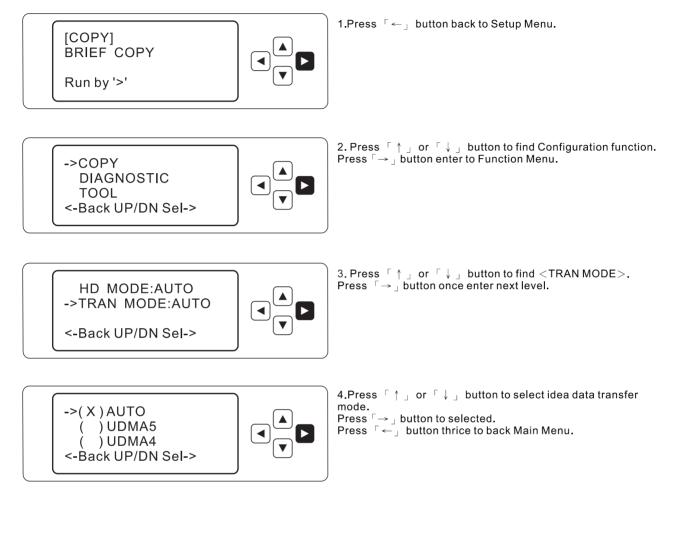
© Default is AUTO.





#### 5.6.2-TRAN MODE

User can accord to ideas to set the data transfer mode into UDMA5-UDMA0 , PIO 4-PIO 0.  $\odot$  Default is AUTO.





## 5.6.3-POWER ON WAIT

Some device can not to be identified immediately by the machine; this is because the device need more time to initiate them by themselves before respond to the system, "POWERON WAIT" allows the machine to extend time enough to avoid that the machine couldn't detect the device. © Default is "6" seconds.

Operation:



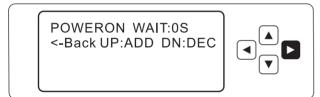


1.Press  $\ \ulcorner \leftarrow \ \lrcorner$  button to Setup Menu.

2. Press  $\[ \uparrow \]$  or  $\[ \downarrow \]$  button to find Configuration function. Press  $\[ \neg \]$  button enter to Function Menu.



3. Press  $\uparrow \uparrow \_$  or  $\uparrow \downarrow \_$  button to find <POWERON WAIT>. Press  $\neg \rightarrow \_$  button once enter next level.



4. Press 「↑」 or 「↓」 button to select idea Hard Drive type.
Press 「→」 button to selected, then, press 「←」 button thrice to back Main Menu.



### **5.6.4-POWER OFF WAIT**

The hard disc's motor can not stop immediately after it is copied completely,

In order to avoid that the hard disc is moved before the motor stop completely,

The machine will delay several seconds to remind user that the machine have worked finish.

This parameter is able to enlarge the times to turn off automatically after the duplication process finish.

Operation:





1.Press  $\ \ulcorner \leftarrow \lrcorner$  button to Setup Menu.

2. Press  $\uparrow \uparrow ]$  or  $\uparrow \downarrow ]$  button to find Configuration function. Press  $\neg \rightarrow ]$  button enter to Function Menu.



3. Press  $\uparrow \downarrow ]$  or  $\uparrow \downarrow ]$  button to find <POWEROFF WAIT>. Press  $\neg \rightarrow ]$  button once enter next level.



4.Press  $\[ \uparrow \]$  or  $\[ \downarrow \]$  button to set machine waiting time. Press  $\[ \rightarrow \]$  button to selected, then, press  $\[ \leftarrow \]$  button thrice to back Main Menu.



# 5.6.5-HPA.CHK

Enable : Open the HPA function. The machine will support the hard disc which is including HPA (Host Protection Area)

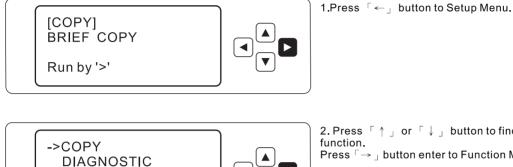
Disable : Close the HPA function. The machine will ignore the HPA, and copy like normal.

O Default is Enable.

TOOL

<-Back UP/DN Sel->

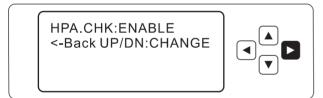
Operation:



2. Press  $\uparrow \uparrow$  or  $\uparrow \downarrow$  button to find Configuration Press  $\lceil \rightarrow 
ight
angle$  button enter to Function Menu.



3. Press  $\uparrow \downarrow$  or  $\uparrow \downarrow \downarrow$  button to find <HPA. CHK>. Press  $\neg \rightarrow \downarrow$  button once enter next level.



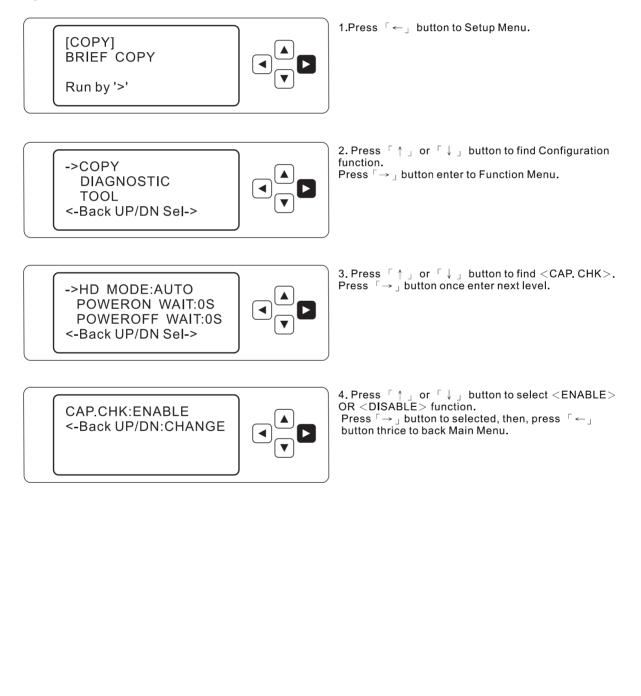
4. Press  $\uparrow \ \_$  or  $\neg \downarrow \ \_$  button to select <ENABLE> OR <DISABLE> function. Press  $\[ \rightarrow \]$  button to selected, then, press  $\[ \leftarrow \]$ button thrice to back Main Menu



### 5.6.6-CAP.CHK

ENABLE : When user executed the  $\ \ DISK \ COPY \ \ or \ \ BRIEF \ COPY \ \ \ functions, the machine will check the capacity between the source & target Hard Disc whether is same or not, If the capacity is different between source and target, the machine will escape Copy Mode. After user set finished, the LCD screen will show <CAP> words at right.$ 

DISABLE : When user executed the  $\ \ \Box$  DISK COPY  $\ \ \Box$  or  $\ \ \Box$  BRIEF COPY  $\ \ \Box$  functions, machine will not check the capacity between source & target Hard Disc capacity.



## 5.6.7-SECURITY

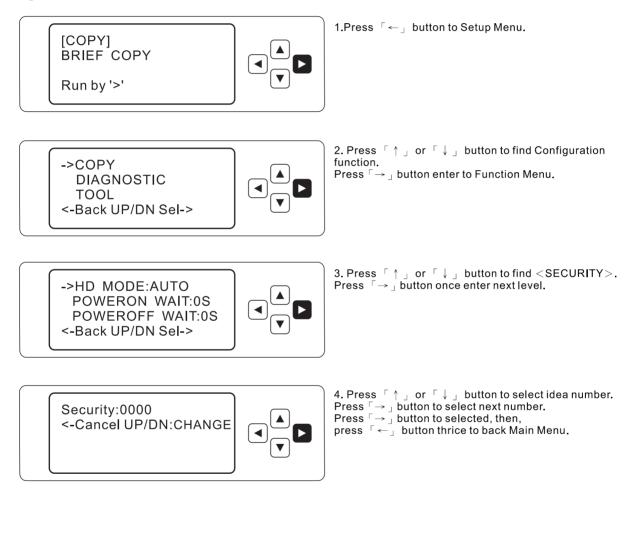
ENABLE : Executed this function, user will be request to input 4 numbers as a password. After finished setting, user will be requested to input password before enter the setup manual.

DISABLE : Close the feature.

\*In case the security code is forgotten, user can use the general code to unlock it. General Code - [6211]

O Default is Disable.

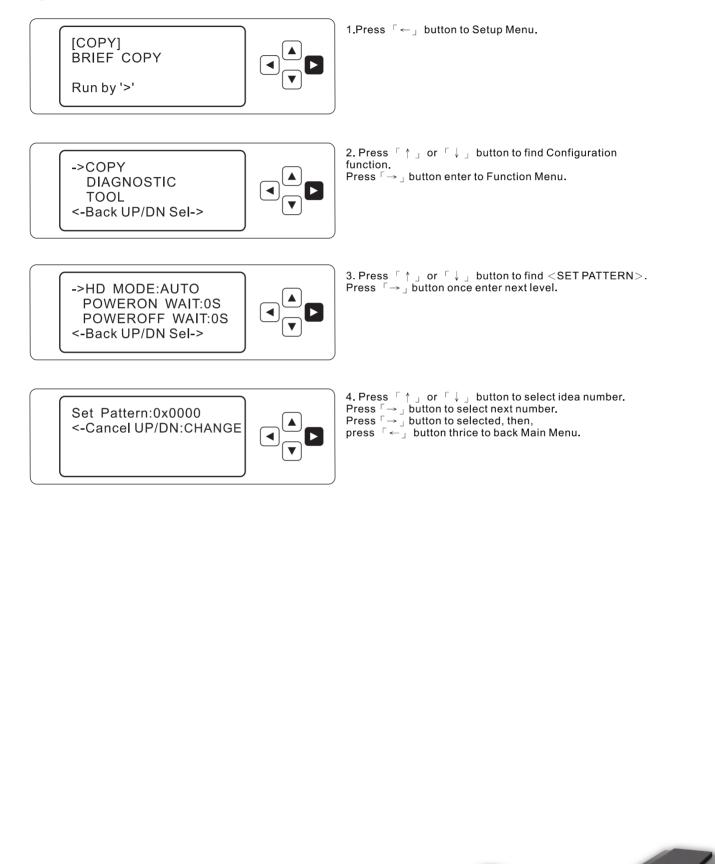
Operation:





### 5.6.8-SET PATTERN

User can change any pattern number to write down the hard disc from x0000 to xFFFF.

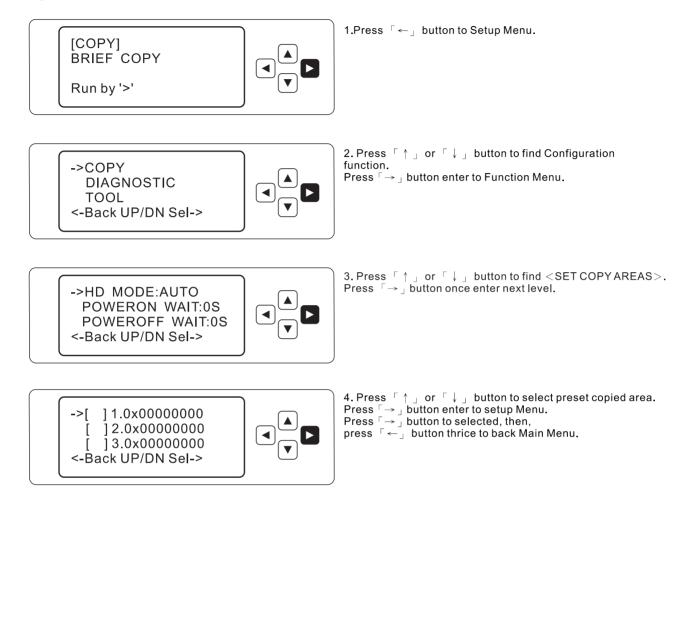




# 5.6.9-SET COPY AREAS

User is able to define up to 8 sets areas before running Area Copy.

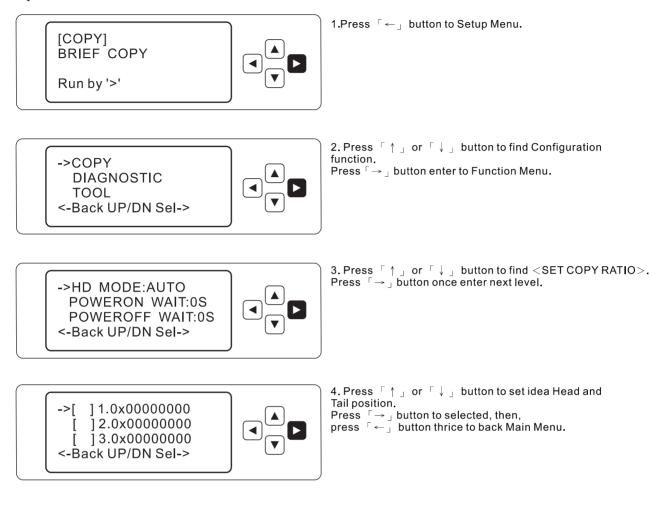
Operation:





## 5.6.10-SET COPY RATIO

User is able to define here how many percentage would like to copy.



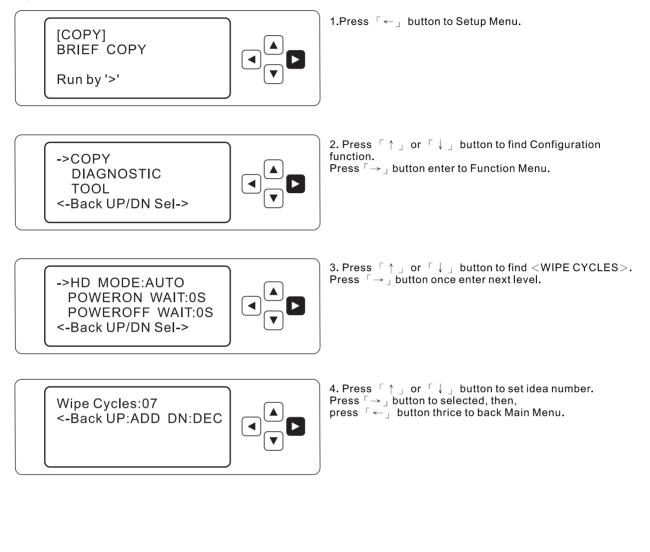


# **5.6.11-WIPE CYCLES**

It is to define how many wipe cycle would like to run, up to 9 times.

O Default is "7" times.

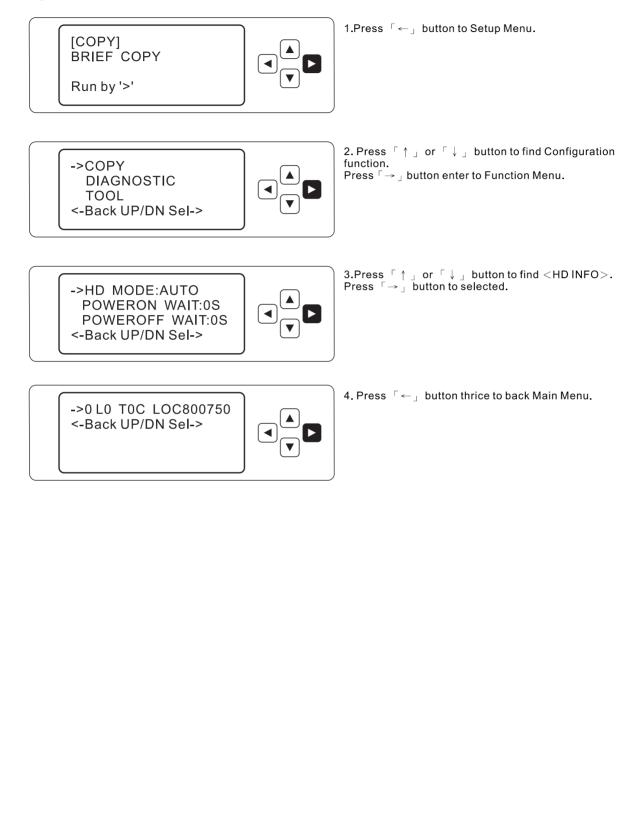
Operation:





### 5.6.12-HD INFO

Check source hard disc including capacity, file system...etc.

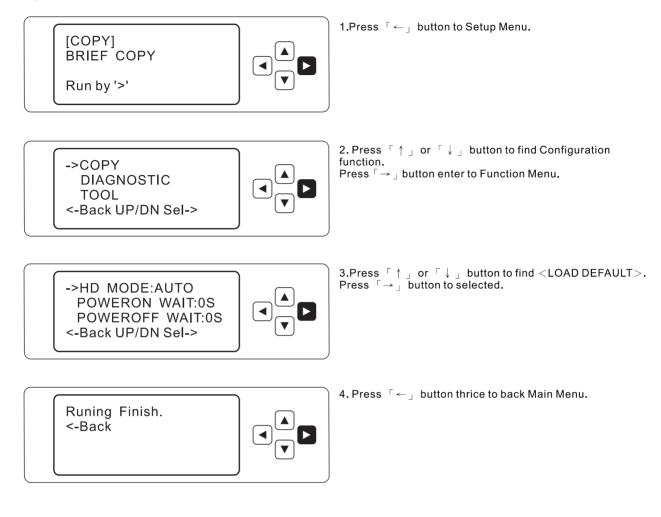




# 5.6.13-LOAD DEFAULT

Go back to the factory defaut.

Operation:





#### 5.6.14-UPDATE VERSION

Update Machine firmware version.

 $\bigcirc$  How to update the machine

1.Receive a latest firmware (it should be a ISO image) from your vender.

2. Make a update disc by Burning software.

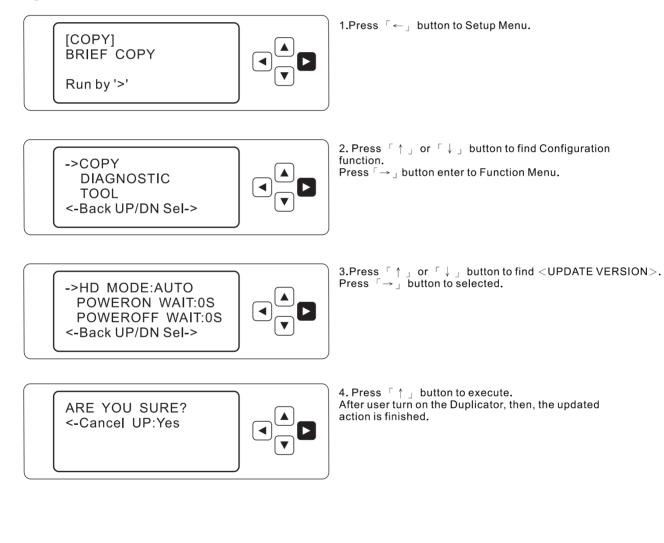
3.Prepare a empty hard disc and then install on the PC.(It's better only one on the PC)

4.Boot the PC from CD/DVDROM.

5.Select "Update" on the screen.

6. Wait for a while until the screen show you successful.

7.Unplug the hard disc from the PC, and then install the hard disc to the source position of the copier. 8.Select "Update version" to update the machine.





# 5.6.15-ABOUT

Display Firmware version.

Operation:



1.Press  $\[ \leftarrow \]$  button to Setup Menu.



- 2. Press  $\uparrow \uparrow ]$  or  $\uparrow \downarrow ]$  button to find Configuration function. Press  $\neg \rightarrow ]$  button enter to Function Menu.
- ->HD MODE:AUTO POWERON WAIT:0S POWEROFF WAIT:0S <-Back UP/DN Sel->
- 3. Press  $\lceil \uparrow 
  ight
  ceil$  or  $\lceil \downarrow 
  ight
  ceil$  button to find <ABOUT>. Press  $\lceil \rightarrow 
  ight
  ceil$  button to find all information



4. After set finished, please user press  $\[ \ \leftarrow \]$  button thrice to back Main Menu



# 6. Specific

# HD4

HD4 Main Part Specifications			
LCD Screen	20 X 4Caracters back-lighted LCD		
Input Device	4 PUSH BUTTON		
Max Devices Quantity	1 to 4 HDD Duplication System		
Dimension	50.6 X 28 X 10 CM		
Gross Weights	5.6 KG		
Power Supply	Standard 250W <sup>,</sup> 4P Power (5V 、12V)		
Environment	Same as PC environment		

# HD12

HD12 Main Part Specifications		
LCD Screen	20 X 4Characters back-lighted LCD	
Input Device	4 PUSH BUTTON	
Max Devices Quantity	1 to 12 HDD Duplication System	
Dimension	69 X 50.6 X 10 CM	
Gross Weights	14 KG	
Power Supply	Standard 500W <sup>,</sup> 4P Power (5V 、12V)	
Environment	Same as PC environment	



# 7. Easily Troubleshooting

- <sup>O</sup> Why machine can not start or no LCD Display?
- 1. Please user checks the machine's voltages suit local voltage.
- 2. Please check the inside power cables broken after open the machine.
- 3. Please check the inside connected cables broken after open the machine.
- <sup>O</sup> Why machine can not backup Hard Disc?
- 1. Please user check the machine to detect all HD at machine, if it is not, please check all outside cables success connect, and all HD jumper have to set into "MASTER" or "CABLE SELECT" position.
- 2. Please user checks the mother Hard Disc data shortage or broken?
- 3. Please user try another new HD to be target part to backup.
- 4. When user use the "Brief or Resize Copy" to backup data, please check the data type of mother HD was supported or not; due to only supported data types can backup.
- 5. Please user checks the target ports of machine can success working.
- <sup>O</sup> Why the machine backup situation happened unstable or backup speed slowly?
- 1. Please user checks all the cables are broken at top of the machine.
- 2. May be one flaw HD to affect others' HD to cause the backup HD speed slowly; so please user try to find where the flaw HD of one by one step.
- 3. May be the Flat cables do not meet the UDMA standards, please user check it.

