



*"Technology on the move!"*



## KanguruClone 4HD & 12HD - SATA User Guide

## NOTICES AND INFORMATION

### **Please be aware of the following points before using your KanguruClone**

Copyright© 2010, Kanguru Solutions. All rights reserved.

DOS®, Windows 95®, Windows 98®, Windows NT®, Windows 2000®, Windows ME®, Windows XP®, Windows Vista® and Windows 7® are registered trademarks of Microsoft Inc. Apple® and Macintosh® are registered trademarks of Apple Computer Inc. IBM and OS/2 are registered trademarks of the International Business Machines Corporation. All other brand or product names are trademarks of their respective companies or organizations.

Kanguru Solutions will not be held responsible for any illegal use of this product nor any losses incurred while using this product. The user himself is responsible for the copyright laws, and is fully responsible for any illegal actions taken.

### **Customer Service**

To obtain service or technical support for your system, please contact Kanguru Solutions Technical Support Department at 508-376-4245, or visit [www.Kanguru.com](http://www.Kanguru.com) for web support.

### **Legal notice**

In no event shall Kanguru Solutions' liability exceed the price paid for the product from direct, indirect, special, incidental, or consequential software, or its documentation. Kanguru Solutions offers no refunds for its products. Kanguru Solutions makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. Kanguru Solutions reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.

### **Export Law Compliance**

Regardless of any disclosure made to Kanguru Solutions pertaining to the ultimate destination of the specific Kanguru product, you warrant that you will not export, directly or indirectly, any Kanguru product without first obtaining the approval of Kanguru Solutions and the appropriate export license from the Department of Commerce or other agency of the United States Government. Kanguru Solutions has a wide range of products and each product family has different license requirements relative to exports.

### **FCC Compliance Statements**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the Distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Table of Contents

Notices and Information.....	2
<b>1. Introduction.....</b>	<b>5</b>
1.1 KanguruClone HD Package Contents .....	6
1.2 Specifications .....	6
<b>2. Getting to Know Your KanguruClone .....</b>	<b>7</b>
2.1 Hardware Setup .....	7
2.2 Appearance of KanguruClone 4HD / 12HD .....	8
2.3 The Menu System.....	10
2.4 Function Diagram .....	11
<b>3. Using Your KanguruClone .....</b>	<b>12</b>
3.1 Copy Functions .....	12
3.1.1 Disk Copy .....	13
3.1.2 Brief Copy.....	14
3.1.3. Resize Copy .....	15
3.1.4 Area Copy .....	16
3.1.5 Ratio Copy .....	17
3.1.6 Disk Compare.....	18
3.1.7 Brief Compare.....	19
3.1.8 Area Compare .....	20
3.1.9 Ratio Compare .....	21
3.2 Diagnostic Functions.....	22
3.2.1 Random Seek.....	22
3.2.2 Seq. Seek .....	23
3.2.3 Write Pattern.....	24
3.2.4 Read Verify .....	25
3.3 Tool Functions .....	26
3.3.1 Full Erase.....	26
3.3.2 Scan Disk .....	27
3.3.3. Quick Erase .....	28
3.3.4 Min Acoustic.....	29
3.3.5 Max Perform .....	30
3.3.6 HDD Wipe .....	31
3.3.7 Check Sum.....	32
3.3.8 Port Test.....	33

<b>3.4 Configuration Functions .....</b>	<b>34</b>
3.4.1 HD Mode.....	34
3.4.2 Tran Mode .....	35
3.4.3 Pwn On Mode.....	36
3.4.4 Power On Wait .....	37
3.4.5 Power Off Wait.....	38
3.4.6 Cap. Chk.....	39
3.4.7 Security .....	40
3.4.7.1 Enabling Security .....	40
3.4.7.2 Disabling Security .....	41
3.4.8 Set Pattern .....	42
3.4.9 Set Copy Areas .....	43
3.4.10 Set Copy Ratios .....	44
3.4.11 Wipe Cycles.....	45
3.4.12 HPA. Chk.....	46
3.4.13 Trans BLK.....	47
3.4.14 Resize Part.....	48
3.4.15 Btn. Snd. ....	49
3.4.16 HD Info .....	50
3.4.17 Load Default.....	51
3.4.18 Update Version.....	52
3.4.19 About.....	53
 <b>4. Troubleshooting.....</b>	 <b>54</b>
 <b>5. FAQ .....</b>	 <b>55</b>
 <b>6. Tech Support.....</b>	 <b>55</b>
 <b>7. Warranty .....</b>	 <b>56</b>
 <b>RMA Procedure.....</b>	 <b>56</b>

## 1. Introduction

Congratulations on your purchase of the KanguruClone HD-SATA from Kanguru Solutions.

The KanguruClone is a high speed, stand-alone UDMA IDE and SATA hard drive duplicator that can simultaneously clone up to 4 or 12 hard drives (depending on model). The duplicator has many advanced features for the IT professional, yet a novice can begin cloning hard drives within minutes of taking it out of the box.

The KanguruClone copies the content of a Master hard drive to up to 4 or 12 drives simultaneously (depending on model). With ultra fast copy speeds of up to 6GB/min, the KanguruClone is one of the fastest cloning systems available.

### Features

- ✓ Up to 6GB/min transfer rates
- ✓ Simultaneously clone up to 4 or 12 hard drives (depending on model)
- ✓ HDD Size and Brand independent: Supports all standard ATA (IDE) and SATA Hard Drives. Master & Target drives can be different sizes, brands and models.
- ✓ One-year Standard Warranty: This system comes complete with a one-year parts and 90 day labor warranty.
- ✓ Clones any operating system: including DOS, Win98, Win2K, Win NT, Win XP, Win Vista, Linux, Mac and many more.
- ✓ 9 Copy Functions:
  - **Disk Copy** - Full copy, sector for sector
  - **Brief Copy** - Copies only sectors with data (compatible with major file systems)
  - **Resize Copy** - Copies HDDs with different capacities
  - **Area Copy** - Copies a defined area of the Master HDD
  - **Ratio Copy** - Copies a defined percentage of the Master HDD
  - **Disk Compare** - Compares Master HDD to Target HDD for accuracy
  - **Brief Compare** - Compares only sectors with data (compatible with major file systems)
  - **Area Compare** - Compares a defined area of the Master HDD
  - **Ratio Compare** - Compares a defined percentage of the Master HDD
- ✓ Powerful diagnostic functions
- ✓ Supports HPA (Host Protection Area) copy

## 1.1 KanguruClone HD Package Contents

If any of the following items are missing, please call Kanguru Solutions' Tech Support department at: (508) 376-4245, extension 2 and replacement parts will be shipped to you ASAP.

- KanguruClone HD unit with internal power supply
- AC power cable
- Manual & User registration

### 4HD Models:

- 7 x SATA data + power cable
- 5 x 3.5" IDE data cable
- 5 x 2.5" IDE adapter cable
- 5 x molex power cable

### 12HD Models:

- 15 x SATA data + power cable
- 13 x 3.5" IDE data cable
- 13 x 2.5" IDE adapter cable
- 13 x molex power cable

## 1.2 Specifications

KanguruClone 4HD - SATA	
LCD Screen	20 x 4 Characters back-lit LCD
Input Device	4 Push Buttons
Dimensions	7" x 20" x 4"
Weight	20 lbs. (shipping weight)
Power Supply	Standard 250W ~ 4P Power (5V~12V)
Operating Temperature	5°C ~ 55°C
Relative Humidity	20% ~ 60%

KanguruClone 12HD - SATA	
LCD Screen	20 x 4 Characters back-lit LCD
Input Device	4 Push Buttons
Dimensions	28" x 20" x 4"
Weight	42 lbs. (shipping weight)
Power Supply	Standard 520W ~ 4P Power (5V~12V)
Operating Temperature	5°C ~ 55°C
Relative Humidity	20% ~ 60%

## 2. Getting to Know Your KanguruClone

### 2.1 Hardware Setup

1. Place the KanguruClone where there is proper ventilation. Avoid using the KanguruClone in environments with high temperatures.
2. Before plugging in the AC Power Cable, please make sure that the voltage is adjusted to the same as your local voltage 110V/220V.

**Note:** Make sure that sufficient power is supplied to the KanguruClone. Incorrect power will cause faulty operation. It is highly recommended that you use a UPS (uninterruptible power supply) with the KanguruClone.

3. The unit is designed to hold the Master drive in the bay located on the front of the unit. Before connecting a PATA Master drive, make sure that the jumpers are set to either MASTER or CABLE SELECT. You may now connect the Master drive.
4. You are now ready to begin using your KanguruClone. To begin, turn on the unit with the power switch located on the back panel.

#### Things to remember

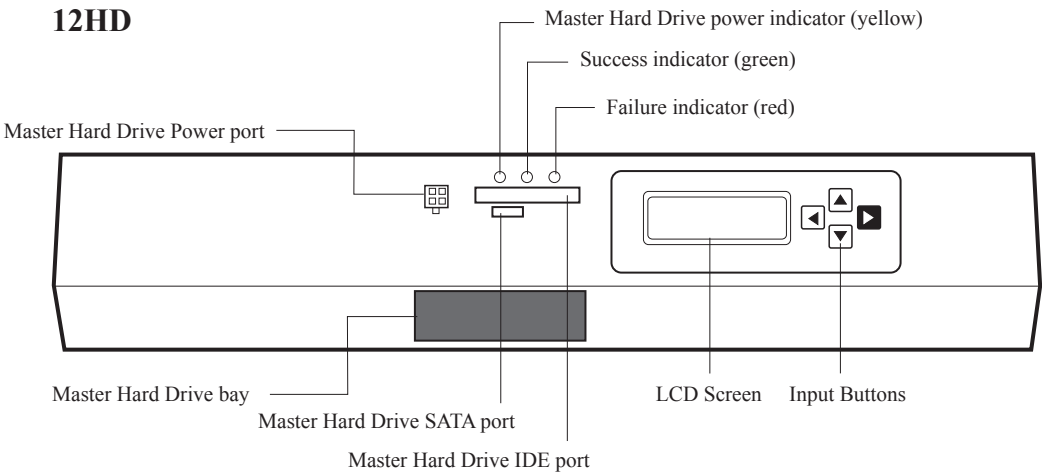
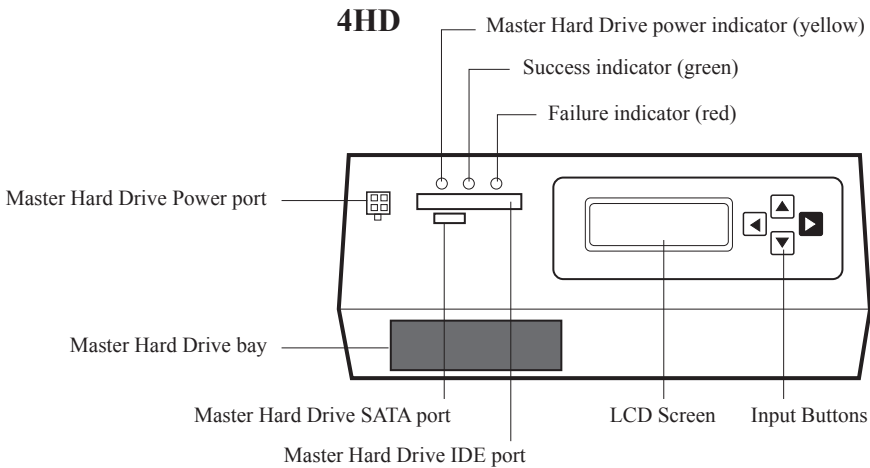
- Make sure that sufficient power is supplied to the KanguruClone. Incorrect power will cause faulty operation. It is highly recommended that you use a UPS (uninterruptible power supply) with the KanguruClone.
- The KanguruClone is powered by an internal power supply that is controlled by a rocker switch located at the rear of the unit.
- The KanguruClone supplies power to all drives during a cloning session. There is no need to connect an external power source to the drives. The unit can supply up to 1.5A at 12V and up to 1A at 5V to each drive.

**Note:** the drives are not powered until you start a copy operation.

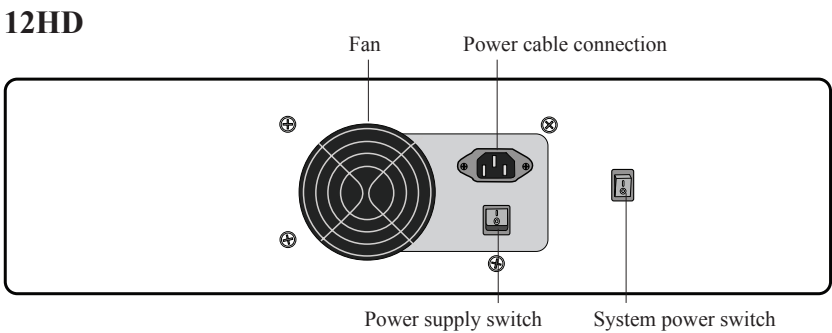
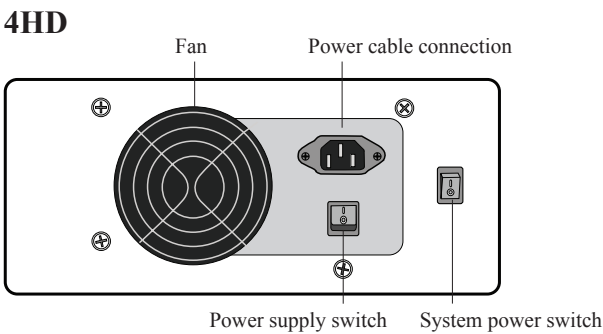
- It is OK to connect and disconnect Master or Target drives while the KanguruClone is powered on. However, do NOT connect or disconnect drives while any function is running or is in progress. The yellow status light will turn on to indicate that the unit is cloning or operating.
- The supplied cables are NOT standard cables like the ones found in a PC. Do not attempt to use these cables in a PC nor to use PC cables with the KanguruClone. Doing so may cause damage to the unit and drives.

## 2.2 Appearance of KanguruClone 4HD / 12HD

### Front View

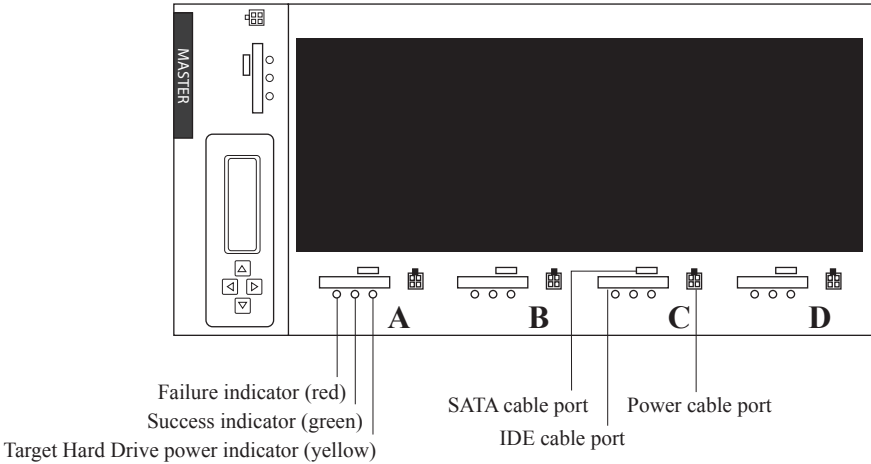


### Rear View

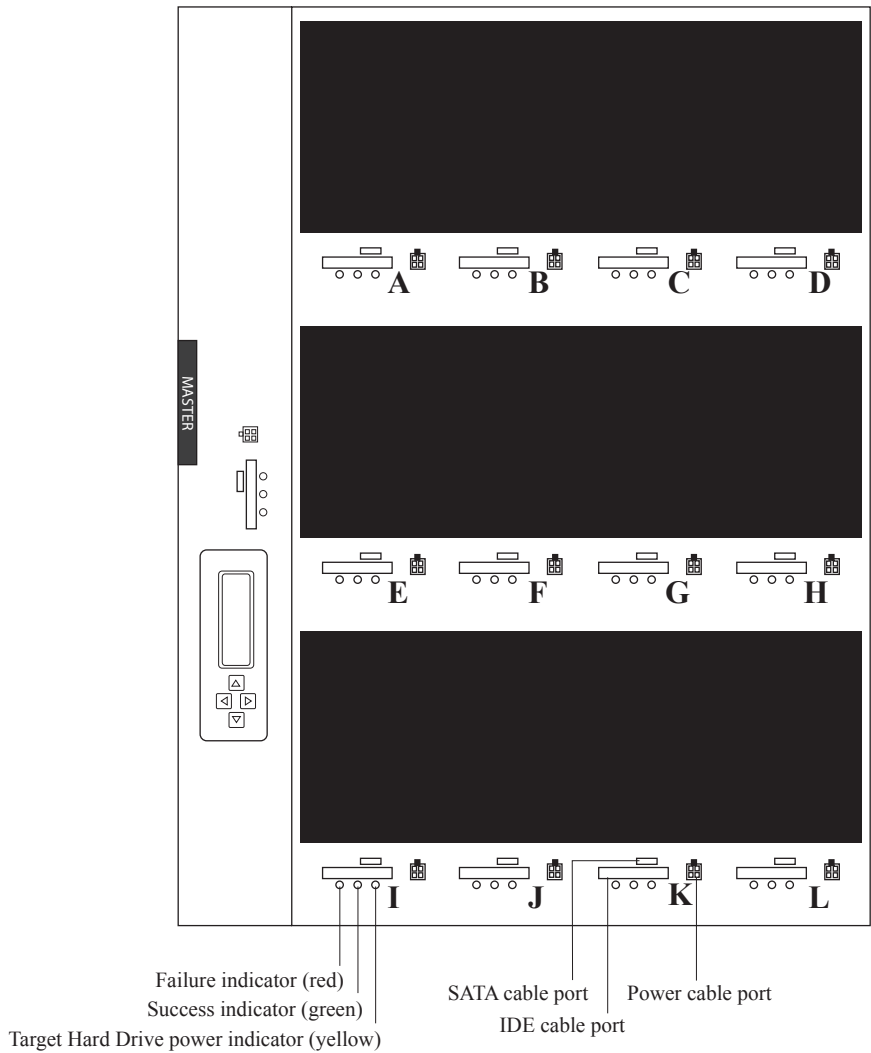


Top View

4HD



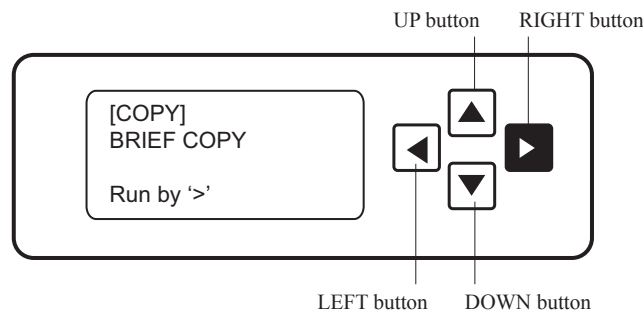
12HD



## 2.3 The Menu System

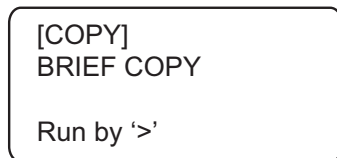
Kanguru Solutions designed the KanguruClone's menu system with the professional in mind. The menu system is fast, responsive, and easy to navigate. This means fewer key presses are needed to achieve a desired action.





The menu system is controlled by 4 push buttons located to the right of the LCD screen.



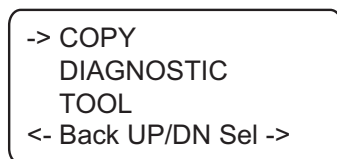
There are three tiers to the KanguruClone's menu system:





### Main Menu



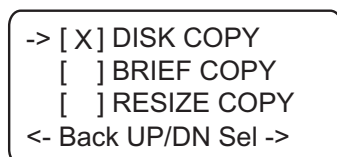
-  : Press the LEFT button to enter the Setup Menu.
-   : Press the UP or DOWN button to navigate between modes (COPY, DIAGNOSTIC, and TOOL)
-  : Press the RIGHT button to start the selected mode.





### Setup Menu



-  : Press the LEFT button to enter the Main Menu.
-   : Press the UP or DOWN button to navigate the modes.
-  : Press the RIGHT button to enter the function menu for the selected mode.

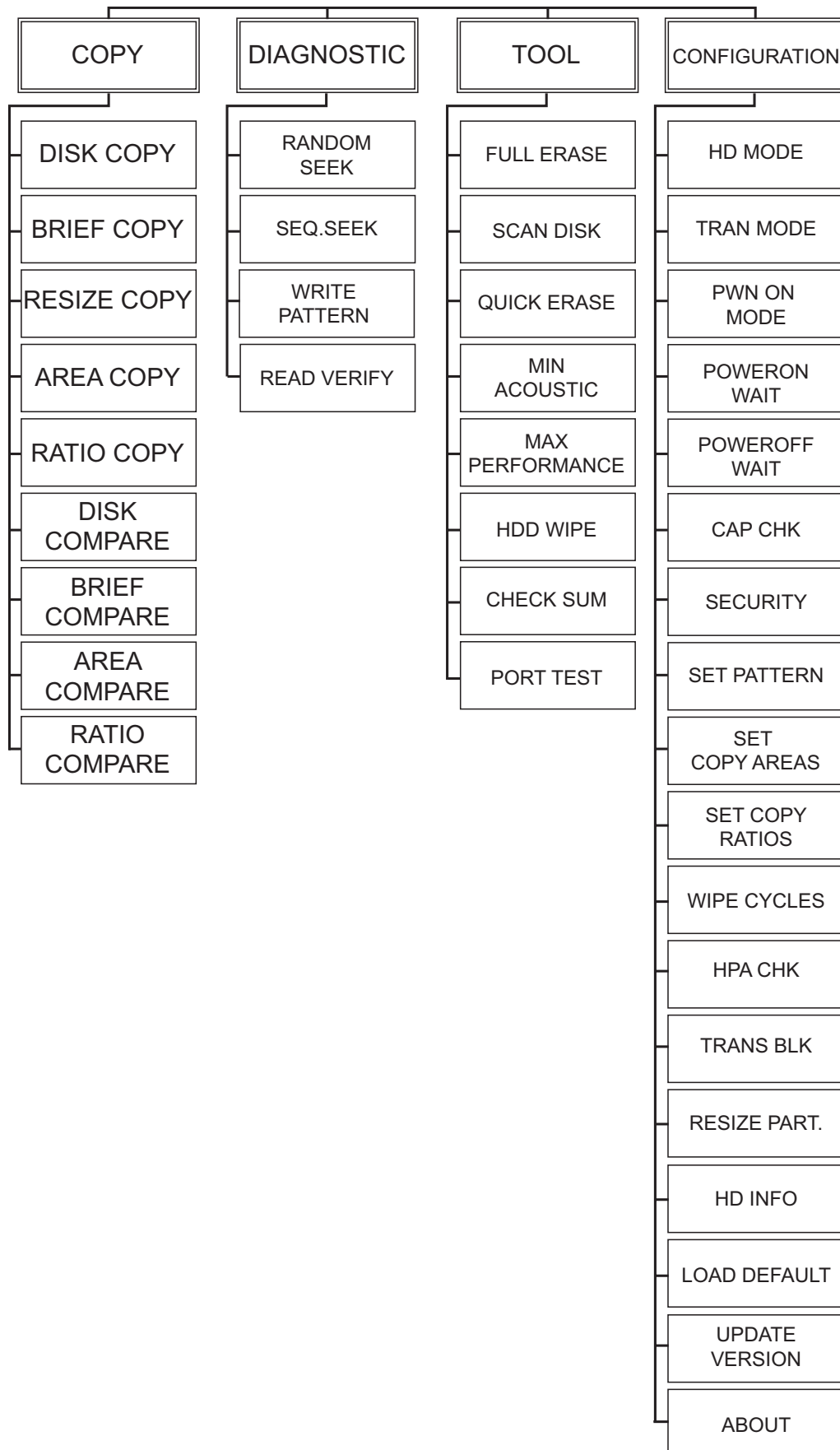
### Function Menu



-  : Press the LEFT button to go back to the Setup Menu.
-   : Press the UP or DOWN button to navigate functions.
-  : Press the RIGHT button to select or deselect a function. A selected function will be marked with an [ X ].

After selecting a function, press the LEFT button until you return to the Main Menu. The selected function should appear on the Main Menu screen. Press the RIGHT button to start the function.

## 2.4 Function Diagram



### 3. Using Your KanguruClone

Before you begin any function, connect all Master and Target hard drives. All PATA hard drives must have their jumpers set to either MASTER or CABLE SELECT.

The KanguruClone has 4 main modes: COPY, DIAGNOSTIC, TOOL and CONFIGURATION. You can navigate between these modes from the Setup Menu by pressing the UP / DOWN buttons. When you have reached the desired mode, press the RIGHT button to enter that mode.

#### 3.1 Copy Functions

The KanguruClone can clone hard drives in one of 5 ways: Disk Copy, Brief Copy, Resize Copy, Area Copy and Ratio Copy.

After duplication has been completed you have 4 options for verifying that all of the Target hard drives match the Master: Disk Compare, Brief Compare, Area Compare and Ratio Compare.

**Note:** Compare functions can be used in conjunction with the Copy functions to achieve an all in one Copy and Compare function. To do so, simply select a Copy function and a Compare function at the same time.

### 3.1.1 Disk Copy

The Disk Copy function clones hard drives sector-by-sector from the Master to the Target(s) and supports all data formats. This mode is slower than other modes but it is also the most reliable copy method. **Disk Copy is the default COPY function.**

**Note:** When performing a Disk Copy, Kanguru Solutions recommends using Master and the Target disks of the same capacity. If you want to clone a Master hard drive to Targets of a different capacity, please use the Resize Copy function. For more information on Resize Copy, please see section 3.1.3 *Resize Copy*, p.15.

-> COPY  
DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.

-> [ X ] DISK COPY  
[ ] BRIEF COPY  
[ ] RESIZE COPY  
<- Back UP/DN Sel ->

2. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the DISK COPY function. Press the RIGHT button to select DISK COPY.

[COPY]  
DISK COPY  
  
Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Disk Copy.

5. Once the KanguruClone has finished cloning, it will display a "V" for verified target drives or an "X" for failed drives.

### 3.1.2 Brief Copy

The Brief Copy function clones only sectors with data and will skip the blank sectors (including data hidden in sub channels). This mode is the fastest but will only support the following file systems: FAT, FAT16, FAT32, NTFS, HFS, EXT1, EXT2, EXT3.

**Note:** When performing a Brief Copy, Kanguru Solutions recommends using Master and the Target disks of the same capacity. If you want to clone a Master hard drive to Targets of a different capacity, please use the Resize Copy function. For more information on Resize Copy, please see section 3.1.3 *Resize Copy*, p.15.

```
-> COPY
    DIAGNOSTIC
    TOOL
<- Back UP/DN Sel ->
```

1. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.

```
[ ] DISK COPY
-> [X] BRIEF COPY
[ ] RESIZE COPY
<- Back UP/DN Sel ->
```

2. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the BRIEF COPY function. Press the RIGHT button to select BRIEF COPY.

```
[COPY]
BRIEF COPY

Run by '>'
```

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Brief Copy.

5. Once the KanguruClone has finished cloning, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.1.3. Resize Copy

The Resize Copy function is used to clone Master and Target drives with different capacities. This mode only copies the sectors with information and skips the blank sectors. This mode is faster than Disk Copy, but slower than Brief copy because it needs extra time to calculate the capacity difference between the Master and Target drives.

**Note:** You can only copy from a smaller capacity Master drive to larger capacity Target drives. Target drives in a session must all have the same capacity (e.g. a 40GB Master drive and 60GB Target drives).

```
-> COPY
    DIAGNOSTIC
    TOOL
<- Back UP/DN Sel ->
```

1. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.

```
[ ] DISK COPY
[ ] BRIEF COPY
-> [X] RESIZE COPY
<- Back UP/DN Sel ->
```

2. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the RESIZE COPY function. Press the RIGHT button to select RESIZE COPY.

```
[COPY]
RESIZE COPY

Run by '>'
```

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Resize Copy.

5. Once the KanguruClone has finished cloning, it will display a “V” for verified target drives or an “X” for failed drives.

**Note:** Linux file systems are not supported by the Resize Copy function.

### 3.1.4 Area Copy

The Area Copy function allows you to copy a defined area of the Master hard drive. You can define up to 8 allocation sets on a hard drive. You must define the beginning and ending sectors before using this function. To define the sectors you have to enter the CONFIGURATION mode, select SET COPY AREA and then define the beginning and ending sectors. For more information on defining the beginning and ending sectors, please see section 3.4.9 *Set Copy Areas*, p.43.

-> COPY  
DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.

[ ] BRIEF COPY  
[ ] RESIZE COPY  
-> [X] AREA COPY  
<- Back UP/DN Sel ->

2. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the AREA COPY function. Press the RIGHT button to select AREA COPY.

[COPY]  
AREA COPY  
  
Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Area Copy.

5. Once the KanguruClone has finished cloning, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.1.5 Ratio Copy

The Ratio Copy function allows you to copy a defined percentage of the Master hard drive. The Master hard drive is divided in 1000 units. You must define the beginning and ending percentages before using this function. To define the percentages you have to enter the CONFIGURATION mode, select SET COPY RATION and then define the ratio percentage. For more information on defining the beginning and ending sectors, please see section 3.4.10 *Set Copy Ratio* p.44.

-> COPY  
DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.

[ ] RESIZE COPY  
[ ] AREA COPY  
-> [X] RATIO COPY  
<- Back UP/DN Sel ->

2. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the RATIO COPY function. Press the RIGHT button to select RATIO COPY.

[COPY]  
RATIO COPY  
  
Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Ratio Copy.

5. Once the KanguruClone has finished cloning, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.1.6 Disk Compare

The Disk Compare function compares drives sector by sector to assure that all of the Target drives have the same information as the Master drive. Disk compare can be used in conjunction with the Disk Copy function.

**Note:** Compare functions can only be used when the UDMA transfer mode is disabled. To disable the UDMA you have to enter the CONFIGURATION mode, select TRAN MODE and then define the Transfer Mode as “**UDMA0**”. For more information on Transfer Mode, please see section 3.4.2 *Tran Mode*, p.35.

```
-> COPY
    DIAGNOSTIC
    TOOL
<- Back UP/DN Sel ->
```

```
[ ] AREA COPY
[ ] RATIO COPY
-> [X] DISK COMPARE
<- Back UP/DN Sel ->
```

```
[COPY]
DISK COMPARE
```

```
Run by '>'
```

1. Leave all drives in place after a Disk Copy session has completed.
2. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.
3. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the DISK COMPARE function. Press the RIGHT button to select DISK COMPARE.
4. Press the LEFT arrow twice to return to the Main Menu.
5. Press the RIGHT button to begin the Disk Compare.
6. Once the KanguruClone has finished comparing, it will display a “**V**” for verified target drives or an “**X**” for failed drives.

### 3.1.7 Brief Compare

The Brief Compare function only compares the sectors with information and skips the blank sectors to assure that all of the Target drives have the same information as the Master drive. Brief Compare can be used in conjunction with the Brief Copy function.

**Note:** Compare functions can only be used when the UDMA transfer mode is disabled. To disable the UDMA you have to enter the CONFIGURATION mode, select TRAN MODE and then define the Transfer Mode as “UDMA0”. For more information on Transfer Mode, please see section 3.4.2 *Tran Mode*, p.35.

```
-> COPY
    DIAGNOSTIC
    TOOL
<- Back UP/DN Sel ->
```

```
[ ] RATIO COPY
[ ] DISK COMPARE
-> [X] BRIEF COMPARE
<- Back UP/DN Sel ->
```

```
[COPY]
BRIEF COMPARE

Run by '>'
```

1. Leave all drives in place after a Brief Copy session has completed.
2. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.
3. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the BRIEF COMPARE function. Press the RIGHT button to select BRIEF COMPARE.
4. Press the LEFT arrow twice to return to the Main Menu.
5. Press the RIGHT button to begin the Brief Compare.
6. Once the KanguruClone has finished comparing, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.1.8 Area Compare

The Area Compare function only compares the sector defined by an Area Copy.

**Note:** Compare functions can only be used when the UDMA transfer mode is disabled. To disable the UDMA you have to enter the CONFIGURATION mode, select TRAN MODE and then define the Transfer Mode as “**UDMA0**”. For more information on Transfer Mode, please see section 3.4.2 *Tran Mode*, p.35.

-> COPY  
DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

[ ] DISK COMPARE  
[ ] BRIEF COMPARE  
-> [X] AREA COMPARE  
<- Back UP/DN Sel ->

[COPY]  
AREA COMPARE  
  
Run by '>'

1. Leave all drives in place after an Area Copy session has completed.
2. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.
3. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the AREA COMPARE function. Press the RIGHT button to select AREA COMPARE.
4. Press the LEFT arrow twice to return to the Main Menu.
5. Press the RIGHT button to begin the Area Compare.
6. Once the KanguruClone has finished comparing, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.1.9 Ratio Compare

The Ratio Compare function only compares the sector defined by an Ratio Copy.

**Note:** Compare functions can only be used when the UDMA transfer mode is disabled. To disable the UDMA you have to enter the CONFIGURATION mode, select TRAN MODE and then define the Transfer Mode as “**UDMA0**”. For more information on Transfer Mode, please see section 3.4.2 *Tran Mode*, p.35.

-> COPY  
DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

[ ] BRIEF COMPARE  
[ ] AREA COMPARE  
-> [X] RATIO COMPARE  
<- Back UP/DN Sel ->

[COPY]  
RATIO COMPARE  
  
Run by '>'

1. Leave all drives in place after a Ratio Copy session has completed.
2. From the Setup Menu, press the UP or DOWN buttons to navigate to COPY mode. Press the RIGHT button to enter COPY mode.
3. From the COPY Function Menu, press the UP or DOWN buttons to navigate to the RATIO COMPARE function. Press the RIGHT button to select RATIO COMPARE.
4. Press the LEFT arrow twice to return to the Main Menu.
5. Press the RIGHT button to begin the Ratio Compare.
6. Once the KanguruClone has finished comparing, it will display a “V” for verified target drives or an “X” for failed drives.

## 3.2 Diagnostic Functions

The KanguruClone includes several diagnostic functions to run status reports on any Target hard drive. The following diagnostic functions can be used to verify if a drive can be used with the KanguruClone: Random Seek, Sequential Seek, Write Pattern and Read Verify.

### 3.2.1 Random Seek

The Random Seek function randomly reads sectors to see if there are bad sectors in the hard drive. Random Seek is a quick version of the Sequential Seek, which reads all sectors.

```
COPY
-> DIAGNOSTIC
TOOL
<- Back UP/DN Sel ->
```

1. From the Setup Menu, press the UP or DOWN buttons to navigate to DIAGNOSTIC mode. Press the RIGHT button to enter DIAGNOSTIC mode.

```
-> [X] RANDOM SEEK
    [ ] SEQ. SEEK
    [ ] WRITE PATTERN
<- Back UP/DN Sel ->
```

2. From the DIAGNOSTIC Function Menu, press the UP or DOWN buttons to navigate to the RANDOM SEEK function. Press the RIGHT button to select RANDOM SEEK.

```
[DIAGNOSTIC]
RANDOM SEEK
```

```
Run by '>'
```

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Random Seek.

5. Once the KanguruClone has finished the random seek, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.2.2 Seq. Seek

The Sequential Seek function checks the hard drives in a sequential pattern to check if there are any bad sectors in the hard drives.

Sequential Seek checks all sectors in sequence, unlike Random Seek which checks sectors at random.

COPY  
-> DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to DIAGNOSTIC mode. Press the RIGHT button to enter DIAGNOSTIC mode.

[ ] RANDOM SEEK  
-> [X] SEQ. SEEK  
[ ] WRITE PATTERN  
<- Back UP/DN Sel ->

2. From the DIAGNOSTIC Function Menu, press the UP or DOWN buttons to navigate to the SEQ. SEEK function. Press the RIGHT button to select SEQ. SEEK.

[DIAGNOSTIC]  
SEQ. SEEK

Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Sequential Seek.
5. Once the KanguruClone has finished the sequential seek, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.2.3 Write Pattern

The Write Pattern function writes a specific pattern that fills the entire HDD with the values configured in the Set Pattern mode. You can define the pattern from 0000 ~ FFFF in CONFIGURATION mode under SET PATTERN. The default pattern is “0000”. For more information on the Set Pattern function, please see section 3.4.8 *Set Pattern*, p.42.

COPY  
-> DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to DIAGNOSTIC mode. Press the RIGHT button to enter DIAGNOSTIC mode.

[ ] RANDOM SEEK  
[ ] SEQ. SEEK  
-> [X] WRITE PATTERN  
<- Back UP/DN Sel ->

2. From the DIAGNOSTIC Function Menu, press the UP or DOWN buttons to navigate to the WRITE PATTERN function. Press the RIGHT button to select WRITE PATTERN.

[DIAGNOSTIC]  
WRITE PATTERN

Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Write Pattern.
5. Once the KanguruClone has finished the write pattern, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.2.4 Read Verify

The Read Verify function reads all sectors to check if there are any sectors that cannot be read.

COPY  
-> DIAGNOSTIC  
TOOL  
<- Back UP/DN Sel ->

[ ] SEQ. SEEK  
[ ] WRITE PATTERN  
-> [X] READ VERIFY  
<- Back UP/DN Sel ->

[DIAGNOSTIC]  
READ VERIFY

Run by '>'

1. From the Setup Menu, press the UP or DOWN buttons to navigate to DIAGNOSTIC mode. Press the RIGHT button to enter DIAGNOSTIC mode.
2. From the DIAGNOSTIC Function Menu, press the UP or DOWN buttons to navigate to the READ VERIFY function. Press the RIGHT button to select READ VERIFY.
3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Read Verify.
5. Once the KanguruClone has finished the read verify, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.3 Tool Functions

The KanguruClone includes several tools that will allow you to scan, tune or erase hard drives. These functions are: Full Erase, Scan Disk, Quick Erase, Min Acoustic, Max Performance, HDD Wipe, Check Sum and Port Test.

#### 3.3.1 Full Erase

The Full Erase function deletes all information on Target hard drives, sector by sector, wiping the drives clean.

This function will delete all data and file systems on any attached Target hard drives. Once you execute Full Erase, any data stored on the hard drive(s) will be permanently deleted. Make sure that you back up any important data before executing the Full Erase.

**Note:** The difference between the Full Erase function and the Quick Erase function is that Full Erase will completely erase the Hard Disk and at the same time verify if there are any bad sectors, while Quick Erase only deletes the boot sector.

COPY  
DIAGNOSTIC  
-> TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.

-> [X] FULL ERASE  
[ ] SCAN DISK  
[ ] QUICK ERASE  
<- Back UP/DN Sel ->

2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the FULL ERASE function. Press the RIGHT button to select FULL ERASE.

[TOOL]  
FULL ERASE  
  
Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Full Erase.
5. Once the KanguruClone has finished erasing the drive, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.3.2 Scan Disk

The Scan Disk Function quickly checks for any bad sectors on the target hard drives.

COPY  
DIAGNOSTIC  
-> TOOL  
<- Back UP/DN Sel ->

[ ] FULL ERASE  
-> [X] SCAN DISK  
[ ] QUICK ERASE  
<- Back UP/DN Sel ->

[TOOL]  
SCAN DISK

Run by '>'

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.
2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the SCAN DISK function. Press the RIGHT button to select SCAN DISK.
3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Scan Disk.
5. Once the KanguruClone has finished scanning the drive, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.3.3. Quick Erase

The Quick Erase function quickly deletes the information in the MBR (Master Boot Record) and the Partition Table of the hard drive.

**Note:** The difference between the Full Erase function and the Quick Erase function is that Full Erase will completely erase the Hard Disk and at the same time verify if there are any bad sectors, while Quick Erase only deletes the boot sector.

```
COPY
DIAGNOSTIC
-> TOOL
<- Back  UP/DN  Sel ->
```

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.

```
[ ] FULL ERASE
[ ] SCAN DISK
-> [X] QUICK ERASE
<- Back UP/DN Sel ->
```

2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the QUICK ERASE function. Press the RIGHT button to select QUICK ERASE.

```
[TOOL]
QUICK ERASE

Run by '>'
```

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Quick Erase.

5. Once the KanguruClone has finished erasing the drive, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.3.4 Min Acoustic

The Minimize Acoustic function will slow down the spin speed of the hard drives to reduce the rotation rate and reduce the level of noise the hard drives make.

**Note:** It is NOT recommended to use this function. The Minimize Acoustic function will affect the data transfer rate of the hard disk. Once executed, you may not be able to reverse this action.

```
COPY
DIAGNOSTIC
-> TOOL
<- Back  UP/DN  Sel ->
```

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.

```
[ ] SCAN DISK
[ ] QUICK ERASE
-> [X] MIN ACOUSTIC
<- Back UP/DN Sel ->
```

2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the MIN ACOUSTIC function. Press the RIGHT button to select MIN ACOUSTIC.

```
[TOOL]
MIN ACOUSTIC

Run by '>'
```

3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Minimize Acoustic function.
5. Once the KanguruClone has finished running Minimize Acoustic on your drives, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.3.5 Max Perform

The Maximize Performance function will set the spin speed of the hard drives to the highest setting to increase the rotation rate and making the hard drive work at the highest performance rate.

**Note:** It is NOT recommended to use this function. The Maximize Performance function will increase the level of noise the hard drives make. Once executed, you may not be able to reverse this action.

```
COPY
DIAGNOSTIC
-> TOOL
<- Back UP/DN Sel ->
```

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.

```
[ ] QUICK ERASE
[ ] MIN ACOUSTIC
-> [X] MAX PERFORM
<- Back UP/DN Sel ->
```

2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the MAX PERFORM function. Press the RIGHT button to select MAX PERFORM.

```
[TOOL]
MAX PERFORM

Run by '>'
```

3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Maximize Performance function.
5. Once the KanguruClone has finished running Maximize Performance on your drives, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.3.6 HDD Wipe

The HDD Wipe function is used to completely erase a hard drive. This is a four step function that ensures that the hard drive is fully erased and data is non-recoverable.

The four steps are as follows:

1. Fill the entire drive with 0's.
2. Fill the entire drive with 1's.
3. Fill the entire drive with a random pattern of 0's and 1's.
4. Verify the entire drive.

**Note:** The HDD Wipe function can be run consecutively up to 9 times. You can configure the number of times it is run consecutively in the CONFIGURATION mode under the WIPE CYCLES function. The default value is set to 7 times. 7 times complies with the American DOD 5220-22.M standard. For more information, see section 3.4.11 *Wipe Cycles*, p.45.

```
COPY
DIAGNOSTIC
-> TOOL
<- Back UP/DN Sel ->
```

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.

```
[ ] MIN ACOUSTIC
[ ] MAX PERFORM
-> [X] HDD WIPE
<- Back UP/DN Sel ->
```

2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the HDD WIPE function. Press the RIGHT button to select HDD WIPE.

```
[TOOL]
HDD WIPE

Run by '>'
```

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the HDD Wipe.

5. Once the KanguruClone has finished erasing the drives, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.3.7 Check Sum

The Check Sum is a fixed-size datum computed from an arbitrary block of digital data that is used for the purpose of detecting accidental errors. This feature is only for use with the Master hard drive.

COPY  
DIAGNOSTIC  
-> TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.

[ ] MAX PERFORMANCE  
[ ] HDD WIPE  
-> [X] CHECKSUM  
<- Back UP/DN Sel ->

2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the CHECK SUM function. Press the RIGHT button to select CHECK SUM.

[TOOL]  
CHECKSUM

Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.

4. Press the RIGHT button to begin the Check Sum.

5. Once the KanguruClone has finished erasing the Check Sum, it will display a "V" for a verified Master drive or an "X" for a failed drive.

### 3.3.8 Port Test

The Port Test function will scan each port and verify that the Master and Target drives are connected and can be accessed. Failed ports are usually the result of one of the following: faulty HD, loose connection or faulty port.

COPY  
DIAGNOSTIC  
-> TOOL  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to TOOL mode. Press the RIGHT button to enter TOOL mode.

[ ] HDD WIPE  
[ ] CHECKSUM  
-> [X] PORT TEST  
<- Back UP/DN Sel ->

2. From the TOOL Function Menu, press the UP or DOWN buttons to navigate to the PORT TEST function. Press the RIGHT button to select HDD PORT TEST.

[TOOL]  
PORT TEST

Run by '>'

3. Press the LEFT arrow twice to return to the Main Menu.
4. Press the RIGHT button to begin the Port Test.
5. Once the KanguruClone has finished testing the drives, it will display a “V” for verified target drives or an “X” for failed drives.

### 3.4 Configuration Functions

The Configuration functions will allow you to change the way the KanguruClone operates. You can configure system settings as well as configure the way other functions operate. The Configuration functions are: HD Mode, Trans Mode, PWN On Mode, Power On Wait, Power Off Wait, Cap. CHK, Security, Set Pattern, Set Copy Areas, Set Copy Ratios, Wipe Cycles, HPA CHK, Trans BLK, Btn. Snd., HD Info, Load Default, Update Version and About.

#### 3.4.1 HD Mode

The HDD Mode function allows you to configure the translation method.

There are 4 modes:

- **Auto** – The KanguruClone will automatically choose the CHS (Cylinder Head Sector) translation. This is the default setting.
- **LBA** – Translates the physical number of heads to 255. This is the most common translation method used by most PC BIOS systems.
- **Large** – Translates the physical number of heads to 128 or 240. Use this translation method if the Target Drive fails to boot using the LBA translation method.
- **Normal** – Enables normal CHS Translation.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

-> HD MODE: AUTO  
TRAN MODE: AUTO  
PWN ON MODE: BOOST  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the HD MODE function. Press the RIGHT button to enter the HD MODE Setup Menu.

-> ( \*) AUTO  
( ) LBA  
( ) LARGE  
<- Back UP/DN Sel ->

3. From the HD MODE Setup Menu, press the UP or DOWN buttons to navigate the different modes. Press the RIGHT button to select an HD Mode.

### 3.4.2 Tran Mode

The Transfer Mode function allows you to configure the data transfer mode. The transfer modes are: Auto, UDMA5 - UDMA0, PIO4 - PIO0. The default value is Auto.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

HD MODE: AUTO  
-> TRAN MODE: AUTO  
PWN ON MODE: BOOST  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the TRAN MODE function. Press the RIGHT button to enter the TRAN MODE Setup Menu.

-> ( \*) AUTO  
( ) UDMA5  
( ) UDMA4  
<- Back UP/DN Sel ->

3. From the TRAN MODE Setup Menu, press the UP or DOWN buttons to navigate the different modes. Press the RIGHT button to select a Transfer Mode.

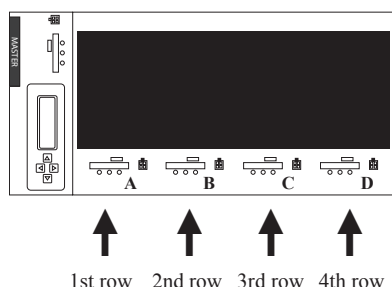
### 3.4.3 Pwn On Mode

The Powering On Mode function allows you to configure the way the KanguruClone powers the ports after the unit is powered on. The powering on modes are: Boost and Sequential. When set to Boost, the KanguruClone will power on every port at the same time. Boost mode is quicker than Sequential mode. The default value is Boost.

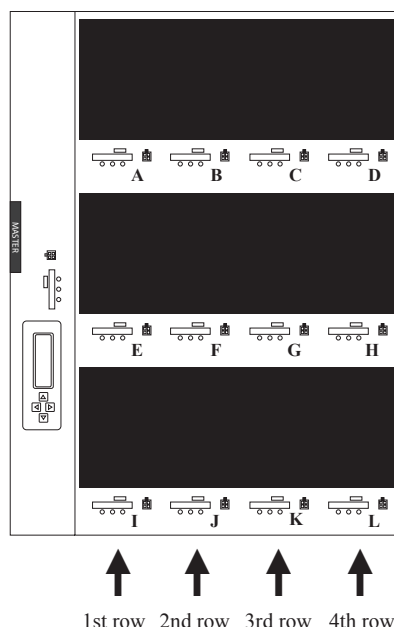
When set to Sequential, the KanguruClone will power on the ports sequentially by rows. The KanguruClone 4HD will power on Port A first, then B, then C and then D. For the Kanguru Clone 12HD, ports A, E and I will power on first, then ports B, F and J, and then ports C, G and K and finally ports D, H and L. Please refer to the following diagrams for details on the port locations.

**Note:** Boost mode uses more power than sequential mode. If your power supply is low, use Sequential mode.

**4HD**



**12HD**



DIAGNOSTIC  
TOOL

-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

HD MODE: AUTO  
TRAN MODE: AUTO

-> PWN ON MODE: BOOST  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the PWN ON MODE function. Press the RIGHT button to enter the PWN ON MODE Setup Menu.

-> ( \*) BOOST  
( ) SEQ.

<- Back UP/DN Sel ->

3. From the PWN ON MODE Setup Menu, press the UP or DOWN buttons to navigate the different modes. Press the RIGHT button to select a Powering On Mode.

### 3.4.4 Power On Wait

The Power On Wait function allows you to configure the KanguruClone's booting time. Some devices cannot be identified immediately by the KanguruClone; this is because the KanguruClone needs more time to initiate the attached devices before they can respond to the system. The Power On Wait function can be increased to allow the KanguruClone more time to detect these devices. The default value is 12 seconds.

**Note:** If you are using large capacity hard drives or “green” power saving drives, it is recommended that the Power On wait time is set to a minimum of 12 seconds.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

TRAN MODE: AUTO  
PWN ON MODE: BOOST  
-> POWERON WAIT: 12s  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the POWERON WAIT function. Press the RIGHT button to enter the POWERON WAIT Setup Menu.

POWERON WAIT:12s  
<- Back UP:ADD DN:DEC

3. From the POWERON WAIT Setup Menu, press the UP or DOWN buttons to increase or decrease the Power On Wait time. Press the RIGHT button to confirm the Power On Wait time.

### 3.4.5 Power Off Wait

The Power Off Wait function allows you to configure the KanguruClone's shutdown time. The hard drives' motor cannot stop immediately after cloning. In order to avoid the possibility of a hard drive being removed before the motor has stopped completely the Kanguruclone's will delay several seconds after the cloning process has finished. The default value is 0 seconds.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

PWN ON MODE: BOOST  
POWERON WAIT: 12s  
-> POWEROFF WAIT: 0s  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the POWEROFF WAIT function. Press the RIGHT button to enter the POWEROFF WAIT Setup Menu.

POWEROFF WAIT:0s  
<- Back UP:ADD DN:DEC

3. From the POWEROFF WAIT Setup Menu, press the UP or DOWN buttons to increase or decrease the Power Off Wait time. Press the RIGHT button to confirm the Power Off Wait time.

### 3.4.6 Cap. Chk

The Capacity Check function allows the KanguruClone to check the capacity between the Master and Target hard drives to determine whether they are the same.

You can enable or disable the Capacity Check function. Capacity Check is disabled by default.

- **Enable** - When the user executes a Disk Copy or a Brief Copy, the KanguruClone will check the capacity between the Master and Target hard drives to determine whether they are the same or not. If the capacity is different between the Master and Target hard drives, the KanguruClone will cancel the cloning process. The LCD screen will display “CAP” in the upper right corner of the Main Menu if Capacity Check is enabled.
- **Disable** - When the user executes a Disk Copy of a Brief Copy, the KanguruClone will not check the capacity between the Master and Target hard drives and the cloning process will begin normally.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

POWERON WAIT: 12s  
POWEROFF WAIT: 0s  
-> CAP. CHK: DISABLE  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the CAP. CHK function. Press the RIGHT button to enter the CAP. CHK Setup Menu.

CAP. CHK: ENABLE  
<- Back UP/DN: Change

3. From the CAP. CHK Setup Menu, press the UP or DOWN buttons to change whether Capacity Check is enabled or disabled. Press the RIGHT button to confirm the Capacity Check status.

### 3.4.7 Security

The Security function allows you to create a four digit password that is used to prevent unauthorized configuration changes to the KanguruClone.

#### 3.4.7.1 Enabling Security

You can enable or disable the Security function. The Security function is disabled by default. When enabled, the KanguruClone will request that the user input the four digit password before they can enter the Setup Menu. The user will still be able to access the Main Menu, allowing them to perform the currently selected COPY, DIAGNOSTIC and TOOL functions.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

POWEROFF WAIT: 0s  
CAP. CHK: DISABLE  
-> Security: DISABLE  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the SECURITY function. Press the RIGHT button to enter the SECURITY Setup Menu.

Security:0000  
<- Cancel UP/DN:CHANGE

3. From the SECURITY Setup Menu, you will see four 0's. Press the UP or DOWN buttons to adjust the left most digit. Press the RIGHT button once to move to the next digit to the right and then use the UP or DOWN buttons to adjust it. Continue until all four digits have been adjusted.
4. When you finish adjusting the fourth digit, press the RIGHT button to confirm the Security password and enable the Security function. If you want to exit the Security Setup Menu before you enable the password, press the LEFT button until you return to the CONFIGURATION Function Menu.

When a user tries to access the Setup menu, KanguruClone will require that they enter the password.

INPUT PASSWORD: 0000  
<- Cancel UP/DN: Change  
Set ->

Press the UP or DOWN buttons to adjust the left most digit. Press the RIGHT button once to move to the next digit to the right and then use the UP or DOWN buttons to adjust it. Continue until all four digits have been adjusted and then press the RIGHT button to confirm.

**Note:** For information on disabling security, please see section 3.4.7.2 *Disabling Security*, p.41.

### 3.4.7.2 Disabling Security

When the Security function is disabled the KanguruClone will operate as normal without any password requirements. If the Security function is already enabled, you will need the four digit password in order to disable it.

INPUT PASSWORD: 0000  
<- Cancel UP/DN: Change  
Set ->

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

POWEROFF WAIT: 0s  
CAP. CHK: DISABLE  
-> Security: ENABLE  
<- Back UP/DN Sel ->

Security:0000  
<- Cancel UP/DN:CHANGE

POWEROFF WAIT: 0s  
CAP. CHK: DISABLE  
-> Security: DISABLE  
<- Back UP/DN Sel ->

1. From the Main Menu, press the LEFT button. You will be prompted to enter the password before you can access the Setup Menu if the Security function is enabled. Enter in the four digit password and press the RIGHT button to enter the Setup Menu.
2. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.
3. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the SECURITY function. Press the RIGHT button to enter the SECURITY Setup Menu.
4. From the SECURITY Setup Menu, press the UP or Down buttons to set all four digits to 0.
5. When you finish adjusting the fourth digit, press the RIGHT button to confirm the Security password. You will be returned to the CONFIGURATION Function Menu and Security should be listed as DISABLE. If you want to exit before disabling the security function, press the LEFT button until you return to the CONFIGURATION Function Menu.

### 3.4.8 Set Pattern

The Set Pattern function is used to define the pattern you want to write to the destination drives. The user can change the pattern from x0000 to xFFFF. This pattern will be written when you run a Write Pattern function. Please refer to section 3.2.3 *Write Pattern*, p.24 for more details.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

CAP. CHK: DISABLE  
Security: DISABLE  
-> Set Pattern  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the SET PATTERN function. Press the RIGHT button to enter the SET PATTERN Setup Menu.

Set Pattern: 0x000  
<- Cancel UP/DN: CHANGE

3. From the SET PATTERN Setup Menu, you will see four 0's. Press the UP or DOWN buttons to adjust the left most digit. Press the RIGHT button once to move to the next digit to the right and then use the UP or DOWN buttons to adjust it. Continue until all four digits have been adjusted.
4. When you finish adjusting the fourth digit, press the RIGHT button to confirm the pattern. If you want to exit the SET PATTERN Setup Menu before you set the pattern, press the LEFT button until you return to the CONFIGURATION Function Menu.

### 3.4.9 Set Copy Areas

The Set Copy Areas function is used to define the beginning and ending of the area you want to copy. Up to 8 sets of areas can be defined.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Security: DISABLE  
Set Pattern  
-> Set Copy Areas  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the SET COPY AREAS function. Press the RIGHT button to enter the SET COPY AREAS Setup Menu.

-> [ ] 1. 0x00000000  
[ ] 2. 0x00000000  
[ ] 3. 0x00000000  
<- Back UP/DN Sel ->

3. From the SET COPY AREAS Setup Menu, press the UP or DOWN buttons to navigate the area sets. Press the RIGHT button to enter an area's Setup Menu.

[ ] Copy The Area  
-> Start: 0x00000000  
Stop: 0x00000000  
<- Back UP/DN Sel ->

4. Use the UP or DOWN buttons to navigate to START. Press the RIGHT button to enter the START Setup Menu.

Start: 0x00000000  
< Cancel UP/DN: Change  
Set >

5. Press the UP or DOWN buttons to adjust the left most digit. Press the RIGHT button once to move to the next digit to the right. When you finish adjusting the last digit, press the RIGHT button to confirm the Start location.

[ ] Copy The Area  
Start: 0x00000000  
-> Stop: 0x00000000  
<- Back UP/DN Sel ->

6. Use the UP or DOWN buttons to navigate to STOP. Press the RIGHT button to enter the STOP Setup Menu.

Stop: 0x00000000  
< Cancel UP/DN: Change  
Set >

7. Press the UP or DOWN buttons to adjust the left most digit. Press the RIGHT button once to move to the next digit to the right. When you finish adjusting the last digit, press the RIGHT button to confirm the Stop location.

-> [X] Copy The Area  
Start: 0x00000000  
Stop: 0x00000000  
<- Back UP/DN Sel ->

8. Use the UP or DOWN buttons to navigate to COPY THE AREA. Press the RIGHT button to select the area.

-> [X] 1. 0x00000000  
[ ] 2. 0x00000000  
[ ] 3. 0x00000000  
<- Back UP/DN Sel ->

9. Press the LEFT button to return to the SET COPY AREAS Setup Menu. The Area you just selected will be marked with an X.

### 3.4.10 Set Copy Ratios

The Set Copy Ratios function is used to define the beginning and ending of the percentage of the drive you want to copy.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Set Pattern  
Set Copy Areas  
-> Set Copy Ratios  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the SET COPY RATIOS function. Press the RIGHT button to enter the SET COPY RATIOS Setup Menu.

-> Head (1/1000): 000  
Tail (1/1000): 000  
  
<- Back UP/DN Sel ->

3. From the SET COPY RATIOS Setup Menu, press the UP or DOWN button to select HEAD. Press the RIGHT button to Enter the HEAD Setup Menu.

Head (1/1000): 000  
  
< Cancel UP/DN:Change Set >

4. Press the UP or DOWN buttons to adjust the left most digit. Press the RIGHT button once to move to the next digit. Continue until all digits have been adjusted. Press the RIGHT button to confirm the Head ratio. You will be returned to the SET COPY RATIOS Setup Menu.

Head (1/1000): 000  
-> Tail (1/1000): 000  
  
<- Back UP/DN Sel ->

5. Press the UP or DOWN button to select TAIL. Press the RIGHT button to Enter the TAIL Setup Menu.

Tail (1/1000): 000  
  
< Cancel UP/DN:Change Set >

6. Press the UP or DOWN buttons to adjust the left most digit. Press the RIGHT button once to move to the next digit. Continue until all digits have been adjusted. Press the RIGHT button to confirm the Head ratio. You will be returned to the SET COPY RATIOS Setup Menu.

### 3.4.11 Wipe Cycles

The Wipe Cycles function allows you to define the number of times you want the HDD Wipe function to run consecutively. You can set the HDD Wipe to run up to 9 times. The default value is 7.

**Note:** 7 x wipe cycles complies with the American DOD 5220-22.M Standard

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Set Copy Areas  
Set Copy Ratios  
-> Wipe Cycles: 07  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the WIPE CYCLES function. Press the RIGHT button to enter the WIPE CYCLES Setup Menu.

Wipe Cycles: 07  
<- Back UP:ADD DN:DEC

3. From the WIPE CYCLES Setup Menu, press the UP or DOWN buttons to increase or decrease the number of Wipe Cycles. Press the RIGHT button to confirm the number of Wipe Cycles.

### 3.4.12 HPA. Chk

The HPA. Check function can be enabled or disabled. When enabled the KanguruClone will check the hard drives for HPA (Host Protection Area). When disabled the KanguruClone will ignore HPA and operate normally. The default setting is enabled.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Set Copy Ratios  
Wipe Cycles: 07  
-> HPA CHK: ENABLE  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the HPA. CHK function. Press the RIGHT button to enter the HPA. CHK Setup Menu.

HPA. CHK: ENABLE  
<- Back UP/DN: CHANGE

3. From the HPA. CHK Setup Menu, press the UP or DOWN buttons to change whether HPA. Check is enabled or disabled. Press the RIGHT button to confirm the HPA. Check status.

### 3.4.13 Trans BLK

The Transfer Block function allows you to define the block size transferred during the various modes. The available options are: Auto, 1, 2, 4, 8, 16, 32, 64 and 128. The default value is Auto.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Wipe Cycles: 07  
HPA CHK: ENABLE  
-> Trans BLK: Auto  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the TRANS BLK function. Press the RIGHT button to enter the TRANS BLK Setup Menu.

-> ( \*) AUTO  
( ) 1  
( ) 2  
<- Back UP/DN Sel ->

3. From the TRANS BLK Setup Menu, press the UP or DOWN buttons to navigate the different block sizes. Press the RIGHT button to select a Transfer Block mode.

### 3.4.14 Resize Part.

The Resize Partition function allows you to define partitions on the Master hard drive that will be Resize Copied to the Target drives. The available modes are: All, End, ID0, ID1, ID2... ID99. "All" will resize all partitions. "End" will resize only the last partition. ID0 - ID99 will resize one specific partition, (ID0 resizes the first partition, ID1 resizes the second partition, ID2 resizes the third partition, etc...).

For example, you have an 80GB Master drive with two 40GB partiions and you are Resize Copying it to a 160GB Target drive. You can configure the Resize Partition function so that after copying is completed, the 160GB Target drive contains two partitions, where the first partition is 40GB and the second partition was resized to 120GB.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

HPA CHK: ENABLE  
Trans BLK: AUTO  
-> Resize Part.: ALL  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the RESIZE PART function. Press the RIGHT button to enter the Resize Partition Setup Menu.

-> Resize Part.: ALL  
<- Back UP:Add DN:Dec

3. From the Resize Partition Setup Menu, press the UP or DOWN buttons to configure the Resize Partition mode. Press the LEFT button to confirm the Resize Partition mode.

### 3.4.15 Btn. Snd.

The Button Sound function allows you to enable or disable the button sound. When enabled, the KanguruClone will produce an audible beep whenever a button is pressed. When disabled, no sounds will be produced when a button is pressed. The default setting is enabled.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

HPA CHK: ENABLE  
Trans BLK: Auto  
-> Btn. Snd: ENABLE  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the BTN. SND. function. Press the RIGHT button to enter the BTN. SND. Setup Menu.

Btn. Snd.: Disable  
<- Back UP/DN: Change

3. From the BTN. SND. Setup Menu, press the UP or DOWN buttons to change between Enable and Disable. Press the LEFT button to confirm the Button Sound mode.

### 3.4.16 HD Info

The HD Info button allows you to see the following information regarding the hard drive: SEQ, LV, TYPE, OFFLOC, SIZE and ABSLOC. These values are for troubleshooting purposes and cannot be configured.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Trans BLK: Auto  
Btn. Snd: ENABLE  
-> HD Info  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the HD INFO function. Press the RIGHT button to enter the HD INFO menu.

-> 0 L0 T0C LOC800750  
<- Back UP/DN Sel ->

3. From the HD INFO menu, press the RIGHT button to select the Master hard drive. If the LCD screen displays “**No M**”, then there is no Master hard drive connected.

-> SEQ: 0  
LV: 0  
TYPE: 07 NTFS  
<- Back UP/DN Sel ->

4. Use the UP or DOWN buttons to view the information regarding the Master hard drive. Press the LEFT button to return to the HD INFO menu.

### 3.4.17 Load Default

The Load Default function will reset all functions to the default setup, returning the KanguruClone to the original factory settings.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Btn. Snd: ENABLE  
HD Info  
-> Load Default  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the LOAD DEFAULT function. Press the RIGHT button to select LOAD DEFAULT.

Running... Finished  
<- Back

3. All settings will be returned to their default settings and then "Running... Finished" will appear on the LCD screen.

**Note:** It is strongly recommended to load the default settings after updating the firmware. For information on updating the firmware version, please see section 3.4.18 *Update Version*, p.52.

### 3.4.18 Update Version

The Update Version function is used to update the KanguruClone's firmware version. DO NOT use this function unless instructed to do so by a Kanguru Solution technician. You will need to receive the latest firmware version from Kanguru Solutions and then burn the firmware file to a CD or copy it to a hard drive before you can run the Update Version function.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

HD Info  
Load Default  
-> Update Version  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the UPDATE VERSION function. Press the RIGHT button to select UPDATE VERSION.

ARE YOU SURE?  
<- Cancel UP: Yes

3. The KanguruClone will prompt you to confirm the firmware update. Press the UP button to continue with the firmware update. Press the LEFT button to cancel the firmware update.

**Note:** It is strongly recommended to load the default settings after updating the firmware. For information on loading the default settings, please see section 3.4.17 *Load Default*, p.51.

### 3.4.19 About

The About function displays the KanguruClone's current system information.

DIAGNOSTIC  
TOOL  
-> CONFIGURATION  
<- Back UP/DN Sel ->

1. From the Setup Menu, press the UP or DOWN buttons to navigate to CONFIGURATION mode. Press the RIGHT button to enter CONFIGURATION mode.

Load Default  
Update Version  
-> About  
<- Back UP/DN Sel ->

2. From the CONFIGURATION Function Menu, press the UP or DOWN buttons to navigate to the ABOUT function. Press the RIGHT button to select ABOUT.

Kanguru Solutions  
HD Duplicator - SATA  
5.06.1216  
<- Back

3. The KanguruClone will display the firmware information on the LCD screen. Press the LEFT button to return to the CONFIGURATION Function Menu.

## 4. Troubleshooting

Problem	Possible Cause	Solution
The KanguruClone will not start or there is no display on the LCD screen.	The power cable is damaged or not connected securely.	Make sure that the power cable is not damaged and is not loose.
	The voltage of the outlet the KanguruClone is plugged into does not match the KanguruClone.	Make sure that the voltage of the outlet matches the voltage of the KanguruClone.
	The power supply switch or the system power switch is in the Off position.	Make sure that both power switches on the back of the unit are in the On position.
The KanguruClone cannot make copies of a Master hard drive.	The hard drive is not connected or was not detected by the Kanguru Clone.	Make sure that all connected hard drives have been successfully detected by the KanguruClone.
	The cables connecting the hard drive are not connected securely.	Make sure that no hard drive connection cables are loose.
	The hard drive jumpers are not set in the correct position.	Make sure that all the hard drive jumpers are set to the Master or Cable Select position.
	The hard drive may be faulty.	Make sure that the Master hard drive is not broken and does not have errors.
	The hard drive's format is not supported by Brief Copy or Resize Copy.	When executing a Brief Copy or Resize Copy, make sure that the format of the Master hard drive is supported.
The KanguruClone is unstable or operates very slowly.	The data cables from the KanguruClone to the hard drives are not connected securely.	Make sure that none of the data or power cables are loose.
	A hard drive may have an error that is affecting the other hard drives, causing slow operation.	Try to identify the faulty hard drive and replace as needed.
	The cables do not meet the UDMA standards.	Only use the cables provided by Kanguru Solutions with the KanguruClone.

## 5. FAQ

**Q:** Do all Target hard drives have to be the same capacity? Same Brand?

**A:** If you select “DISK COPY” or “BRIEF COPY”, the Target hard drives must have the same capacity as the Master hard drive. The hard drive brand is not important but capacity must be identical.

**Q:** Can I clone a smaller capacity Master drive to larger capacity Target drives?

**A:** Yes, use the “RESIZE COPY” function to clone a smaller capacity Master to larger capacity Targets. However, targets must all be the same size (i.e. you can clone a 20GB Master to four 100GB Targets using RESIZE COPY). **Note:** Linux file systems are not supported by the Resize Copy function.

**Q:** Can I clone to Targets of various brands simultaneously?

**A:** Yes, the machine is able to clone hard drives of different brands as long as they are the same capacity.

**Q:** Can drives with different RPM speeds be cloned together?

**A:** Yes, the machine will adjust to hard drives with different RPMs.

**Q:** Do the Diagnostic features check the Source HDD or the Targets?

**A:** The Diagnostic features will check the Target hard drives.

**Q:** How does the duplicator handle multiple partitions on the Master drive?

**A:** The machine will auto-detect how many partitions in the source hard drive and then copy it, but you are unable to select a specific partition to copy.

**Q:** How does the duplicator handle multiple partitions of varying formats on the Master drive?

**A:** The machine will analyze the File System of the Master drive before it begins cloning.

**Q:** Can the duplicator clone operating systems such as UNIX and OS/2?

**A:** Yes, use the “DISK COPY” function to copy any operating system.

**Q:** Can the duplicator defragment a partition?

**A:** No, this must be done directly by the operating system of your PC.

**Q:** What purpose does increasing the boot time with the “Power On Wait” function server?

**A:** The increased boot time feature is useful when using old hard disks. Older hard disks may need more time to initiate the disk before cloning.

**Q:** Can the Duplicator copy Encrypted HDD's?

**A:** The KanguruClone is able to copy a limited number of encrypted HDD types using Disk Copy.

## 6. Tech Support

If you experience any problems installing your Kanguru product or have any technical questions regarding any of our products, please call our tech support department. Our tech support is free and available Monday thru Friday, 9am to 5pm EST.

Call 1-508-376-4245

Or visit our website at [www.Kanguru.com](http://www.Kanguru.com)

## 7. Warranty

This product carries a \*1 year limited warranty on the power supply, controller, and all internal components. The warranty does not cover any IDE, SATA, or Power cables. Kanguru Solutions is not responsible for any damages incurred in the shipping process. Any claims for loss or damage must be made to carrier directly. Claims for shipping errors should be reported to Kanguru Solutions within three (3) working days of receipt of merchandise. Please refer to the RMA Procedure section of this manual if your duplicator needs servicing.

\*90-day warranty on labor. After 90 days, a \$20.00 service charge will be applied to all RMAs. Shipping back to the customer is covered during the first 90 days of purchase. After 90 days the customer is responsible for shipping both ways.

**Kanguru Solutions does not offer money back returns on its duplicator product lines due to the unique nature of the product. All units will be fully supported under manufacturer's and/or extended warranty plans.**

### RMA Procedure

**All Duplicators being serviced must be packed in the ORIGINAL PACKAGING.** If you do not have your original packaging, you can purchase replacement packaging for \$25.00 from Kanguru's Tech Support Department. Kanguru Solution's warranty will not be honored in the event that a duplicator is received improperly packaged, altered, or physically damaged.

#### **STEP ONE: Call for a RMA Number: 508-376-4245**

Duplicators will not be accepted for repair without a valid RMA number. RMA numbers are valid for 30 days upon assignment. Any return without a valid RMA number will be returned to the customer at their expense.

#### **STEP TWO: Ship and Insure your Duplicator**

Kanguru Solutions strongly recommends you fully insure the duplicator for shipping. Kanguru Solutions is not responsible for if the package is lost or damaged in transit. We suggest using a shipping company that utilizes a "tracking" feature to verify "proof of delivery." The customer is responsible for shipping charges when returning a product. Shipping back to the customer is covered by Kanguru Solutions during the first 90 days of purchase. After 90 days of purchase the customer is responsible for shipping both ways.

Clip and Use this Label to Ship Your Return

Kanguru Solutions Tech. Support Dept. 1360 Main St. Millis, MA 02054	
RMA#	<input type="text"/>



*"Technology on the move!"*



Kanguru Solutions  
1360 Main Street  
Millis, MA 02054  
[www.kanguru.com](http://www.kanguru.com)

02.12.10 V1.3 © 2010 Kanguru Solutions

Legal terms and conditions available at [www.kanguru.com](http://www.kanguru.com). Please review and agree before use. Thank you.