KANGURU™
Secure. Anytime. Anywhere.

Kanguru Hard Drive Tower Duplicator
User Manual

Notices and Information

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 for web support.

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.

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Introduction

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Congratulations on your purchase of the Kanguru Clone Tower Duplicator from Kanguru Solutions.

The Kanguru Clone is a high speed, stand-alone SATA hard drive duplicator that can make up to 5 or 11 hard drive clones simultaneously (depending on model). The duplicator has many advanced features for IT professionals, yet a novice can begin duplicating hard drives within minutes of taking it out of the box.

The Kanguru Clone copies the content of a Source hard drive to up to 5 or 11 target drives simultaneously (depending on model). With fast copy speeds up to 6GB/min, the Kanguru Clone is the economical choice for your duplication project.

Features

- Up to 6GB/min transfer rates
- Simultaneously duplicate up to 5 or 11 hard drives (depending on model)
- Capacity and brand independent
- Supports all standard 3.5" SATA hard drives. Source & Target drives can be different capacities, brands and models.
- Tool-free installation. 3.5" SATA drives can be connected to the duplicator without the need for trays, cabling or adapters.
- 2.5" SATA hard drive up to 9.5mm thickness supported with adapters (additional 2.5" adapters sold separately)
- Duplicates any operating system: including DOS, Win98, Win2K, Win NT, Win X P, Win Vista, Win 7, Win 8, Linux, Mac OS X and many more.
- One-year Standard Warranty: This system comes complete with a one-year parts and 90 day labor warranty. One-year and two-year extended warranties available, contact Kanguru sales for more information.
- 3 Convenient Copy modes:
    - Brief Copy - Copies only sectors with data (compatible with most major file systems)
    - Resize Copy - Copies from smaller Source drives to larger Target drives
    - Disk Copy - Full, sector for sector duplication
- Supports H PA (Host Protection Area) and DCO (Device Configuration Overlay) copy
- Up to 999 x wipe cycles (7 x wipe cycles complies with the American DOD 5220-22.M Standard)

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.

- Kanguru Clone Tower Hard Drive Duplicator unit with internal power supply Power cable
- 2 x 2.5" to 3.5" SATA cartridge adapter
    - Additional 2.5" to 3.5" SATA cartridge adapters sold separately. Please call 1-888-526-4878

Before First Use

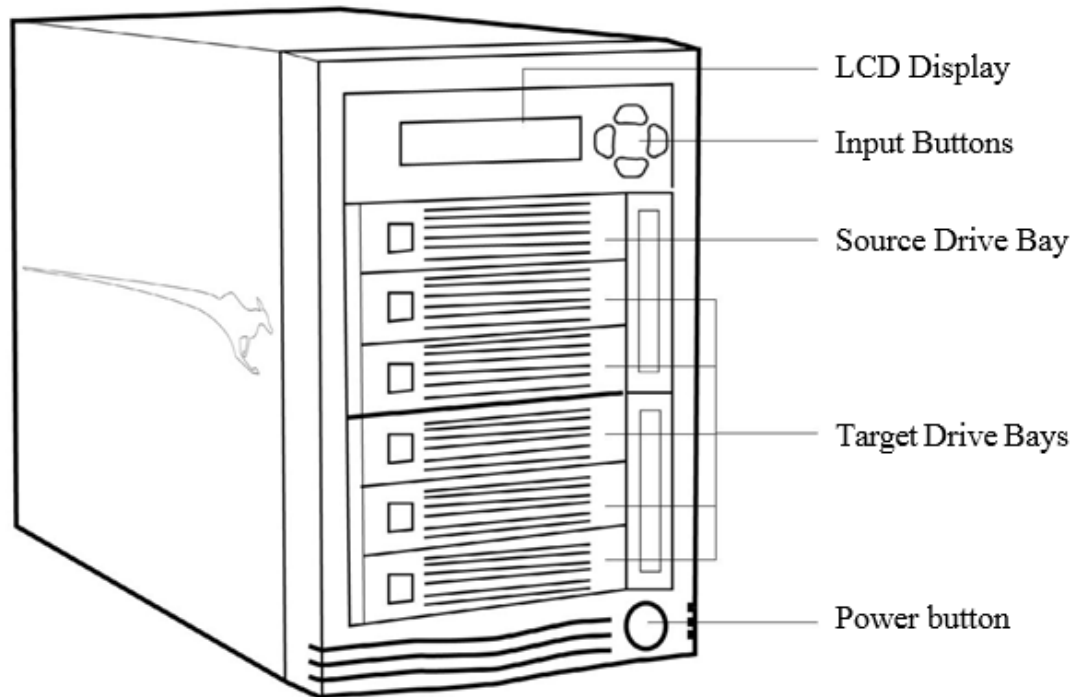<div style="text-align: right; font-size: 2em; font-weight: bold;">2</div>

1. Place the Kanguru Clone Tower Duplicator where there is proper ventilation. Avoid using the Kanguru Clone in environments with high temperatures.
2. Before plugging in the AC Power Cable, please make sure that the voltage adjustment switch is set to your local voltage 110V/220V. The voltage adjustment switch is located on the back of the unit, above the power cable connection. *Note: Make sure that sufficient power is supplied to the Kanguru Clone. Incorrect power will cause faulty operation. It is highly recommended that you connect your Kanguru Clone using a UPS (uninterruptible power supply).*
3. You are now ready to begin using your Kanguru Clone. To begin, turn on the unit by pushing the power button.

Things to remember
- Make sure that sufficient power is supplied to the Kanguru Clone. Incorrect power will cause faulty operation. It is highly recommended that you use a UPS (uninterruptible power supply) with the Kanguru Clone.
- The Kanguru Clone 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.
- It is OK to connect and disconnect Source or Target drives while the Kanguru Clone is powered on. However, do NOT connect or disconnect drives while any operation is running on the drive or if duplication is in progress.
- The Kanguru Clone Tower has a number of bays where you can insert hard drives.
  - Source drives should be inserted in the Source bay located at the top and labeled 'S'.
  - Target drives can be inserted into any bay below the Source
- Insert all Source and Target hard drives before you execute an operation.

CAUTION! Disks may be hot when removing them from the hard drive duplicator. It is recommended that you wait a minute before removing drives post duplication.

Parts and Functions

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Front View

- LCD Display
- Input Buttons
- Source Drive Bay
- Target Drive Bays
- Power button

Rear View

- Exhaust fans
- Voltage Adjustment Switch
- Power Cable Connection

Parts and Functions
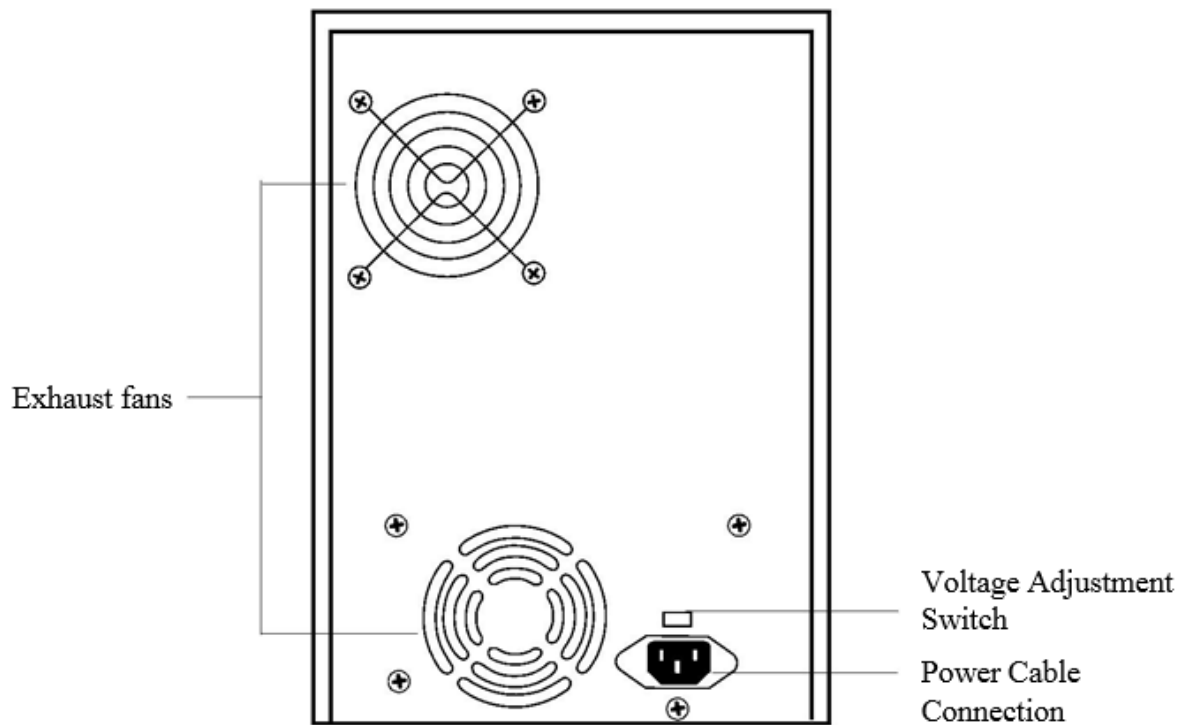
Inserting hard Drives
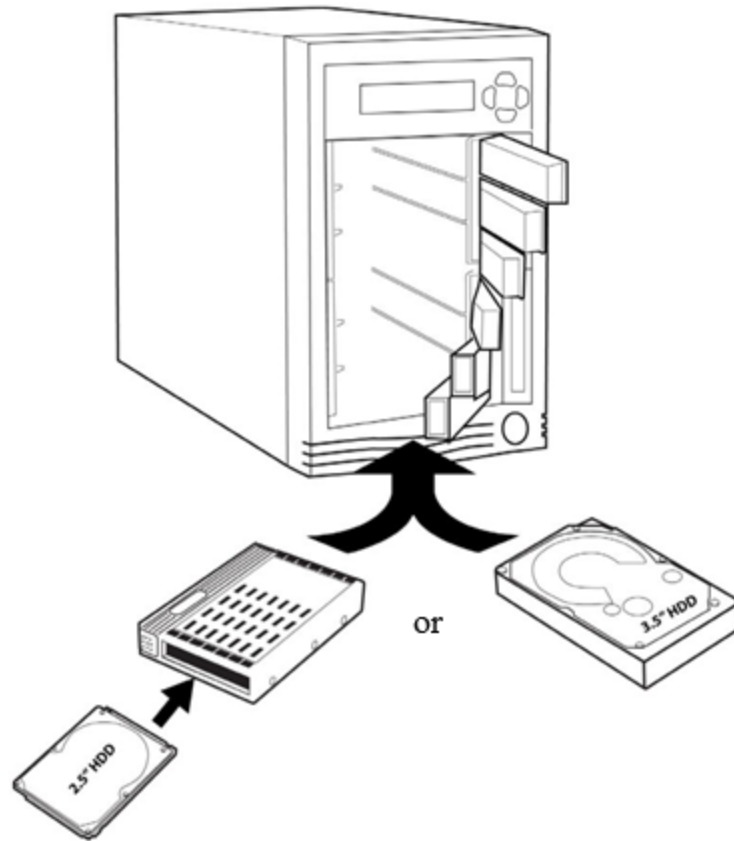
The Kanguru Clone Tower Duplicator features a simple, tool-less rack design that makes connecting your SATA hard drives quick and easy. Each bay can be opened by lifting the latch switch on the door.

- 3.5" SATA drives can be inserted directly into any of the Kanguru Clone bays with the SATA connectors facing down and into the duplicator.
- 2.5" SATA drives must be inserted into the 2.5" to 3.5" adapter cartridge first. Afterwards the cartridge can be inserted into the any of the bays the same as a 3.5" drive. *Note: The 2.5" SATA adapter cartridges will only fit drives with a maximum thickness of 9.5mm.*

To eject the 2.5" drive from the adapter cartridge, press down firmly on the eject button and the 2.5" drive will slide out of the adapter cartridge.

User Interface

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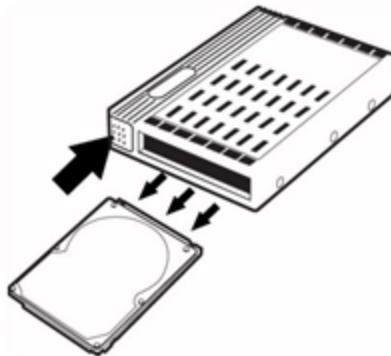
Kanguru Solutions designed the Kanguru Clone's menu system with the professional in mind. The menu system is fast, responsive, and easy to navigate. This means fewer key presses are needed to achieve a desired action.

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

UP Arrow	Button used to select different menu items.
Down Arrow	Button used to select different menu items.
ENT	This is a confirmation button and allows you to proceed to the next screen.
ESC	This is your cancel button and will return you to the previous screen.

Menu Diagram

Main Copy Menu		Setup Menu		
↓		↓		
Brief	SET COPY	DCO Check	Total Copy Count
↓	↓	↓	↓
Resize	SET COMPARE	BTN. Sound	Set to Default
↓	↓	↓	↓
Full	Brief Immediate	Show EXE Time	Update Firmware
↓	↓	↓	↓
Verify	Optimize Log Table	CMD Timeout	Burn In
↓	↓	↓	
Erase/Wipe	HDD Wipe	Tran Size	
↓	↓	↓	
Setup	Skip Read Error	Set Write Pat	
	↓	↓	
	No Cap Check	Device Info	
	↓	↓	
	HPA Check	System Info	

Defining Copy and/or Compare

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Before performing a duplication, take a moment to define the SET COPY 17 and SET COMPARE 18 options under the Setup Menu 15. These options will tell the duplicator how the Disk and Brief modes will operate.

Set Copy Functionality

When **SET COPY** is enabled Brief 10, Resize 11, and Disk 12 modes will execute a Copy process. The SET COPY option is enabled by default.

To change the **SET COPY** option:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see Setup 15.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **SET COPY**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**

```
SETUP
>[*] SET COPY
```

Set Compare Functionality

When **SET COMPARE** is enabled Brief and Disk modes will execute a Compare process, comparing the data between the Source and Target drives and confirming that they are identical. The **SET COMPARE** option is disabled by default.

To change the **SET COMPARE** option:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see Setup 15.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **SET COMPARE**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**
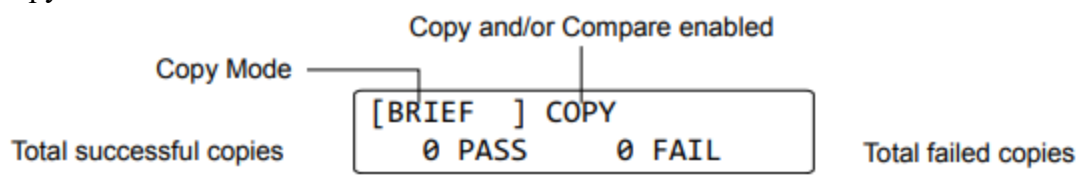
```
SETUP
>[*] SET COMPARE
```

Set Copy & Compare Functionality

Both the **SET COPY** and **SET COMPARE** options can be enabled at the same time. When both options are enabled Brief and Full modes will execute a **Copy & Compare** process, copying the data from the Source to the Target drives and then comparing the data on all drives to ensure that they are identical.
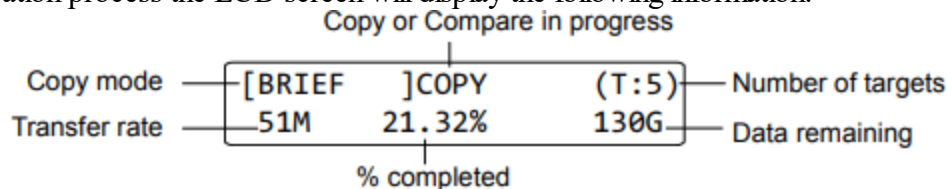
Duplication Process

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*IMPORTANT! Insert all Source and Target hard drives before you execute a Copy operation. Additionally, DO NOT remove any drives while duplication is in process. If you want to stop the duplication process, press the **ESC** button to cancel at any time.*

To execute the duplication of a Source hard drive:

1. Power on the duplicator.
2. From the Main Copy Menu [9] press the **Up** or **Down** buttons until you see the desired copy mode. The Kanguru Hard Drive Tower Duplicator offers Disk [12], Brief [10], and Resize [11] copy modes.


```
                          Copy and/or Compare enabled
     Copy Mode  ─────────────────────┐
                          [BRIEF  ] COPY
     Total successful copies    0 PASS      0 FAIL   Total failed copies
```

3. Once you have selected the desired copy mode, press the **ENT** button to execute the copy function. Before the duplication process begins the system will check for any connected drives.
4. Once all drives have been detected and initialized, the duplication process begins. During the duplication process the LCD screen will display the following information:



```
                       Copy or Compare in progress
     Copy mode ──── [BRIEF   ]COPY      (T:5) ──── Number of targets
     Transfer rate ── 51M    21.32%     130G ──── Data remaining
                          % completed
```

WARNING! Do not remove any drives while duplication is in process. If you want to stop the duplication process, press the ESC button to cancel at any time.

5. Once the copy process has completed the Kanguru Clone will list each Target drive location with either a "V" or "X".
   o V - Appears next to any drive verified to have completed duplication successfully.
   o X - Appears if a drive failed duplication for any reason. When a drive fails duplication, an error code can be generated. For a list of common error codes and their meanings, please see Error Code List [38].

```
[BRIEF   ]COPY               [BRIEF   ]COPY
1:X  2:V  3:V  4:V  5:V       1:K 2:11 3:11 4:11 5:11
```
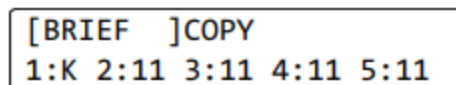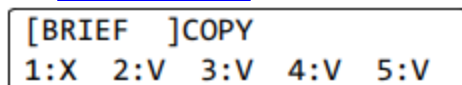
6. Press any button to return to the Main menu. The duplicator will automatically keep a running count of the number of passed and failed duplications until you change copy modes.

```
[BRIEF   ]COPY
     4 PASS      1 FAIL
```
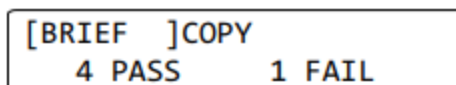
Main Copy Menu

The **Main Copy Menu** is the navigation screen that you first see after your device has completely booted.

|	
Brief 10	Brief mode performs actions only the sectors that contain data and skips any blank sectors (including information hidden in sub channels). This mode is commonly the fastest mode and it supports the following file systems: FAT, FAT32, exFAT NTFS, EXT2, EXT3, EXT4, HFS, HFS+, JFS, XFS.
Resize 11	Resize mode is used to copy between Source and Target drives of different capacities. Resize copy supports the following file systems: FAT, FAT32, NTFS.
Disk 12	Disk mode performs operations sector by sector from the Source to the Target. This mode is commonly the slowest mode and it supports all major file system formats.
Verify 13	Verify will check that all sectors are readable on the drive connected to the side of the duplicator labeled TARGET. If a hard drive fails duplication, you should run the Verify feature to ensure that the drive is healthy.
Erase 14	Erase deletes all information on any hard drive connected to the side of the duplicator labeled TARGET. Data is erased by writing zeros into each sector on the hard drive.
Wipe 14	The HDD Wipe operation ensures that data on the hard drive is completely erased and unrecoverable. The Wipe operation can be run from 1 to 999 times consecutively. 7x Wipe Cycles complies with the American DOD 5220-22.M standard. *Note: The more Wipe Cycles you configure, the longer the overall Wipe process will take.*
Setup 15	The Setup Menu provides access to settings on the duplicator to alter certain functions and view information on the device or drives connected to it.

Main Copy Menu

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Brief

Brief mode performs actions only the sectors that contain data and skips any blank sectors (including information hidden in sub channels). This mode is commonly the fastest mode and it supports the following file systems: FAT, FAT32, exFAT NTFS, EXT2, EXT3, EXT4, HFS, HFS+, JFS, XFS.

Note: If the Source is not formatted as a supported file system, then the duplicator will automatically switch to Disk mode 12.

For information on how to change this mode to Copy, Compare, or Copy & Compare, please look at Defining Copy and/or Compare 7.

```
[BRIEF  ] COPY
```

```
[BRIEF  ] COMPARE
```

```
[BRIEF  ] COPY + COMPARE
```

Main Copy Menu
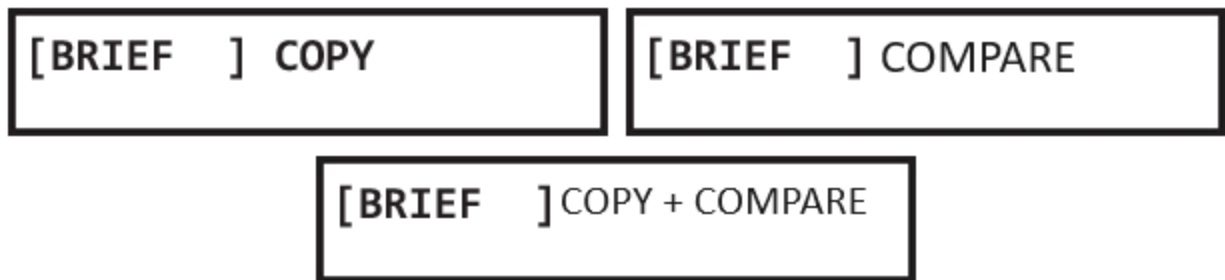
Resize

RESIZE mode is used to create duplications of a Source drive that is smaller in capacity than the Target drives. The Resize mode only allows for copying from a smaller capacity Source to larger capacity Target drives. Target drives must all be the same capacity. Resize mode supports the following filesystems: FAT, FAT32, NTFS.

Note: If the Source drive is not formatted in a supported file system, then the duplicator will automatically switch to Disk mode 12.

```
[ RESIZE ] COPY
```

Main Copy Menu

<div style="text-align: right; font-size: xxx-large;">8</div>

Disk

Full mode performs operations sector by sector from the Source to the Target. This mode is commonly the slowest mode and it supports all major file system formats.

Note: If you have attempted to use either <u>Brief</u> [10] or <u>Resize</u> [11] and the Source is not formatted as a supported file system, then the duplicator will automatically switch to Full mode.

For information on how to change this mode to Copy, Compare, or Copy & Compare, please look at <u>Defining Copy and/or Compare</u> [7].

```
[  FULL  ] COPY
```

```
[  FULL  ] COMPARE
```

```
[  FULL  ] COPY + COMPARE
```

Main Copy Menu
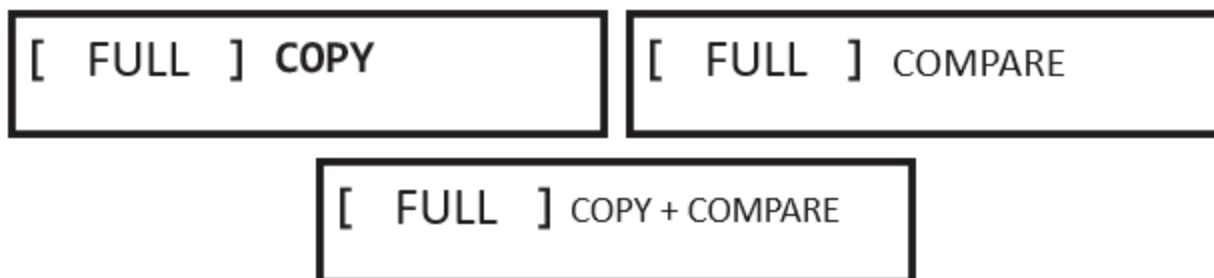
Verify

VERIFY will check all connected hard drives and determine whether they are readable. The verification operation checks any connected Target hard drives and verifies that all sectors on the hard drive are readable.

To **Verify** your hard drives:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see **Verify**.

```
[VERIFY]
   0 PASS      0 FAIL
```

3. Insert your Target drives into any available Target bays. Press the **ENT** button to begin the Verify process. The following screen will be displayed during verification:

Number of Target drives

```
[VERIFY]              (T:5)
68M     0.65%         248G
```

Data verification rate — Percentage verified — Remaining data

4. Once the verification process has completed, the Kanguru Hard Drive Tower Duplicator will list each Target drive location with either a "V" or "X".
   o V - Appears next to any drive verified successfully.
   o X - Appears if a drive fails verification for any reason. When a drive fails verification, an error code can be generated. For a list of common error codes and their meanings, please see Error Code List 38 .

```
[VERIFY]
1:X  2:V  3:V  4:V  5:V
```

```
[VERIFY]
1:K 2:11 3:11 4:11 5:11
```

5. Press any button to return to the Main menu.

Main Copy Menu

Erase/Wipe

The ERASE operation deletes all information on any connected Target hard drives by writing zeros into every sector of the hard drive, sector by sector. You can also configure the Kanguru Clone to run a Disk Wipe instead of an Erase operation. Although the Erase operation will remove the data from a drive, data may still be retrievable afterwards with the proper tools. The only method for permanently removing data and making it impossible to recover is to run a Disk Wipe.

CAUTION! The Erasing/Wiping a hard drive will delete all data and file systems. Make sure that any important data is backed up before executing the Erase/Wipe operation. Only hard drives inserted into the Target bays will be erased. A hard drive in the Source bay will not be affected.

To Erase your hard drives:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see **Erase**.

```
[ERASE ]
    0 PASS       0 FAIL
```

Note: If you have configured the HDD WIPE option under the Setup menu, then the ERASE function will appear as WIPE and will display the number of wipe cycles next to it. For instructions on changing the number of wipe cycles see HDD WIPE 21.

Number of wipe cycles
```
[WIPE ]x001
    0 PASS       0 FAIL
```

3. When **Erase** is displaying for you, Insert your Target hard drives into any available Target bays. Press the **ENT** button to begin the **Erase** process.

```
                                    Number of Target drives
[ERASE   ]              (T:5)
76M      21.32%         130G
Data erasure rate                  Capacity remaining
Percentage completed
```

4. Once the Erase process has completed, the following screen will be displayed:

```
[ERASE   ]
1:V   2:V   3:V   4:V   5:V
```

5. Press any button to return to the Main Copy Menu.

*WARNING: Some data stored on SSDs may not be permanently deleted by the Wipe function. Due to the wear leveling technology used with flash-based memory, sanitation techniques which are proven to permanently remove information from HDDs are not as thorough in removing data from SSDs.*

Setup Menu

9

The SETUP MENU provides you with options and operations for the user.

To enter the **Setup Menu**:
1. Power on the duplicator.
2. From the Main Copy Menu press the **Up** or **Down** buttons until you see Setup.

- Use the **UP** or **Down** buttons to navigate the different menu options.
- Tap the **ENT** button to enter an option or change an option's setting.
- Tap the **ESC** button to exit an option or return to the Main Menu.

The Setup Menu provides access to the following options:

|	
SET COPY [17]	Allows the user to enable or disable the Kanguru Hard Drive Tower Duplicator to perform the Copy [7] process.
SET COMPARE [18]	Allows the user to enable or disable the Kanguru Hard Drive Tower Duplicator to perform the Compare [7] process.
Brief Immediate [19]	When you run a Brief Copy the duplicator will analyze the Source completely first, and then follow the analysis result to copy the data from the Source to the Target drives.
Optimize Log Table [20]	When using Brief Copy to duplicate a Linux disk, the duplicator will take additional time to build a comprehensive data map which will allow for better duplication speed during the copy process.
HDD Wipe [21]	The HDD Wipe operation ensures that data on the hard drive is completely erased and unrecoverable. The Wipe operation can be run from 1 to 999 times consecutively. 7x Wipe Cycles complies with the American DOD 5220-22.M standard.
Skip Read Error [22]	Allows the user enable or disable the Kanguru Hard Drive Tower Duplicator from attempting to skip any read errors occurring on the source drive.
No Capacity Check [23]	Allows the user to enable or disable the Kanguru Hard Drive Tower Duplicator checking the capacity of the target drive compared to the source drive to confirm there is enough capacity for a duplication to occur.
HPA Check [24]	Allows the user to enable or disable the Kanguru Hard Drive Tower Duplicator checking for HPA partitions.
DCO Check [25]	Allows the user to enable or disable the Kanguru Hard Drive Tower Duplicator checking for DCO partitions.
BTN. SOUND [26]	Allows the user to enable or disable the button sound on the Kanguru Hard Drive Tower Duplicator.
Show EXE Time [27]	This option allows you to enable or disable whether the total execution time for an operation is displayed on the LCD screen.
CMD Timeout [28]	CMD TIMEOUT allows you to set the number of commands the duplicator will send to a non-responsive drive. If the duplicator experiences any issues when attempting to communicate with an

	attached drive, the duplicator can send 1 to 9 unreturned ATA commands to the drive before it errors out.
Tran Size 29	TRAN. SIZE setting allows you define the data transfer block size for each ATA command
Set Write Pat 30	The SET WRITE PATTERN setting is used to define the data that you want written to all sectors of your drives during a Disk Erase operation.
Device Info 31	Displays information about the drives that are connected to the Kanguru Hard Drive Tower Duplicator.
System Info 32	Displays the version of Firmware that is on the Kanguru Hard Drive Tower Duplicator
Total Copy Count 33	Displays the total number of results from duplication processes on the Kanguru Hard Drive Tower Duplicator.
Set to Default 34	Reverts all settings to the firmware default settings.
Update Firmware 35	Provides the ability to update the firmware on the Kanguru Hard Drive Tower Duplicator.
Burn In 36	The BURN IN function allows the system to perform a Copy, Compare, Verify or Erase function continuously to stress test for endurance, reliability and stability.

Setup Menu

9

Set Copy

The SET COPY option allows you to enable or disable the Copy operation. For information on how to alter this, please refer to [Defining Copy and/or Compare](7).

```
SETUP
>[*] SET COPY
```

Disabled	[Disk](12), [Brief](10), or [Resize](11) modes will not perform a Copy operation.
Enabled	Disk, Brief, or Resize modes will perform a Copy operation *Note: This is the Default setting.*

Note: To perform a Copy & Compare operation, set both the SET COPY and SET COMPARE options to enabled.

Setup Menu

9

Set Compare

The SET COMPARE option allows you to enable or disable the Compare operation. For information on how to alter this, please refer to Defining Copy and/or Compare 7 . The Compare operation is not supported by Resize 11 .

```
SETUP
>[*] SET COMPARE
```

Disabled	Disk 12 and Brief 10 modes will not perform a Compare operation. *Note: This is the Default setting.*
Enabled	Disk and Brief modes will perform a Compare operation.

Note: To perform a Copy & Compare operation, set both the SET COPY and SET COMPARE options to enabled.

Setup Menu

Brief Immediate

If you are experiencing issues when running Brief 10 Copy, you can disable the BRIEF IMMEDIATE function which may improve the chance of a successful duplication.

Disabled	When you run a Brief Copy the duplicator will analyze the Source completely first, and then follow the analysis result to copy the data from the Source to the Target drives. Duplication through Brief Copy will take longer when Brief Immediate is disabled.
Enabled	When Brief Immediate is enabled, data copying and analysis are done at the same time during Brief Copy. This is the faster option. *Note: This is the Default setting.*

To change the **Brief Immediate** setting:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see Setup 15 .
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Brief Immediate**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**

Setup Menu

Optimize Log Table

The OPTIMIZE LOG TABLE option can be enabled to help improve Brief [10] Copy performance when duplicating Linux drives by building a more extensive data map prior to copying.

Disabled	Brief Copy will operate as normal. *Note: This is the Default setting.*
Enabled	When using Brief Copy to duplicate a Linux disk, the duplicator will take additional time to build a comprehensive data map which will allow for better duplication speed during the copy process.

To change the **Optimize Log Table** setting:
1. Power on the duplicator.
2. From the Main Copy Menu [9] press the **Up** or **Down** buttons until you see Setup [15].
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Optimize Log Table**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**

Setup Menu

HDD Wipe

The HDD WIPE option allows you to enable or disable HDD Wipe operation. When enabled, the ERASE 14 operation in the Main Copy Menu 9 will change to WIPE. The HDD Wipe operation ensures that data on the hard drive is completely erased and unrecoverable. The Wipe operation can be run from 1 to 999 times consecutively. 7x Wipe Cycles complies with the American DOD 5220-22.M standard. *Note: The more Wipe Cycles you configure, the longer the overall Wipe process will take.*

```
[SETUP  ]
>[007]WIPE CYCLES
```

Unlike an Erase, which writes zeros to every sector on the hard drive, a Wipe Cycle is a four-step process that ensures that data is unrecoverable. The four steps are as follows:
1. All sectors on the hard drive(s) are written to with 0's.
2. All sectors on the hard drive(s) are written to with 1's.
3. All sectors on the hard drive(s) are written to with a random pattern of 0's and 1's.
4. All sectors on the hard drive(s) are verified

Disabled	The Wipe functionality is turned off. In the Main menu you will see ERASE. *Note: This is the Default setting.*
Enabled	The Wipe functionality is turned off and you will now see WIPE in the Main menu instead of ERASE.

To change the **HDD Wipe** setting:
1. Power on the duplicator.
2. From the Main Copy Menu press the **Up** or **Down** buttons until you see Setup 15 .
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **HDD Wipe**, press the **ENT** button to alter this option.
   a. After enabling **HDD Wipe** The digit furthest to the left will be blinking, indicating that it is selected. Press the **UP** or **Down** button to increase or decreased the value by one.
   b. Press the **ENT** button to select the next digit to the right. Press the **UP** or **Down** button to increase or deceased the value by one. Repeat this step as necessary.
   c. Press the **ESC** button to confirm the number of Wipe Cycles and return to the Setup menu.

6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**.
7. You can now access the **WIPE** function from the **Main Copy Menu.**

```
[WIPE ]x001
   0 PASS      0 FAIL
```

Note: Data on SSDs may not be permanently deleted by the Wipe function. Due to the differences in technology between magnetic platters and flash-based memory, sanitation techniques which are known to permanently remove sensitive information from HDDs may not be as successful in removing data from SSDs.

Setup Menu

9

Skip Read Error

The SKIP READ ERROR option allows you to enable or disable error skipping during Disk⌐₁₂, Brief⌐₁₀, and Resize⌐₁₁ modes.

Disabled	When an error is detected while reading from the Source, the duplicator will cancel the current process. *Note: This is the Default setting.*
Enabled	When an error is detected while reading from the Source, the duplicator will skip the bad sector on the Source and fill it with a zero on the Target.

To change the **Skip Read Error** setting:
1. Power on the duplicator.
2. From the Main Copy Menu⌐₉ press the **Up** or **Down** buttons until you see Setup⌐₁₅.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Skip Read Error**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**

Setup Menu

No Cap Check

The Kanguru Duplicator has a built-in capacity check function which will check the capacity of the Source hard drive and the Target hard drive(s) during Disk 12 or Brief 10 copy processes and determine whether the drives' capacities are the same or if the Target hard drive(s) contains more overall capacity then the Source hard drive.

The options for the **No Cap Check** are as follows:

Disabled	Prior to a Brief or Disk Copy process is performed the system will check the capacity between the Source and Target hard drive(s) to determine whether the capacity is the same. If the capacity is different the process will be canceled. *Note: This is the Default setting*.
Enabled	When a Disk or Brief copy process is executed, the system will not check the capacity between the Source and Target hard drive(s) and start the copy process regardless whether they have different capacities.

To change the **No Cap Check** setting:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see Setup 15.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **No Cap Check**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**

Setup Menu

HPA Check

The Host Protected Area (HPA), sometimes referred to as the Hidden Protected Area, is a partition on the hard drive that is not normally visible to an operating system.

The options for the **HPA Check** are as follows:

Disabled	The system will not check for HPA partitions. Drives that contain HPA may not duplicate successfully.
Enabled	When HPA CHECK is enabled the duplicator will support Host Protection Areas. When you duplicate a Source HDD that contains HPA, the system will detect the HPA partition, unlock it, copy the area and then re-lock the area once duplication is complete. *Note: This is the Default setting.*

To change the **HPA Check** setting:
1. Power on the duplicator.
2. From the Main Copy Menu ⁹ press the **Up** or **Down** buttons until you see Setup ₁₅.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **HPA Check**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**.

Setup Menu

DCO Check

A Device Configuration Overlay (DCO), is a partition on the hard drive that is not normally visible to an operating system. The DCO can report to the system that supported features are nonexistent or that the drive is smaller in capacity than it actually is.

The options for the **DCO Check** are as follows:

Disabled	The system will not check for DCO partitions. Drives that contain a DCO partition may not duplicate successfully.
Enabled	When DCO Check is enabled the duplicator will support Device Configuration Overlay configurations. When you duplicate a Source drive that contains a DCO partition, detect the DCO partition, unlock it, copy the area and then re-lock the area once duplication is complete. *Note: This is the Default setting.*

To change the **DCO Check** setting:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see Setup 15.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **DCO Check**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**.

Setup Menu

BTN. Sound

The Kanguru Duplicators are provided with an audible beep sound whenever there is a button press or if a task has been completed. This feature is able to be enabled or disabled using the **BTN. Sound** setting within the duplicator.

The options for the **BTN. Sound** are as follows:

Disable	The device will not produce any audible sound whenever a button press occurs or if a task completes (successfully or fails).
Enable	The device will produce an audible sound whenever a button press occurs or if a task completes (successfully or fails). *Note: This is the default setting.*

To change the **BTN. Sound** setting:
1. Power on the duplicator.
2. From the Main Copy Menu ₉ press the **Up** or **Down** buttons until you see Setup ₁₅.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **BTN. Sound**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**.

Setup Menu

<div style="text-align: right">**9**</div>

Show EXE Time

The SHOW EXE TIME option allows you to enable or disable whether the total execution time for an operation is displayed on the LCD screen. The total execution time will be displayed after an operation has completed.

The options for the **Show EXE Time** are as follows:

Disabled	The total execution time is not displayed. *Note: This is the Default setting.*
Enabled	The total execution time is displayed.

To alter the **Show EXE Time** setting:
1. Power on the duplicator.
2. From the Main Copy Menu 9 press the **Up** or **Down** buttons until you see Setup 15 .
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Show EXE Time**, press the **ENT** button to alter this option.
6. Press the **ESC** button after selecting the desired setting to proceed back to the **Main Menu**.

Setup Menu

CMD Timeout

CMD TIMEOUT allows you to set the number of commands the duplicator will send to a non-responsive drive. If the duplicator experiences any issues when attempting to communicate with an attached drive, the duplicator can send 1 to 9 unreturned ATA commands to the drive before it errors out.

To change the **CMD Time Out**:
1. Power on the duplicator.
2. From the Main Copy Menu ⁹ press the **Up** or **Down** buttons until you see Setup ¹⁵.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **CMD Time Out**, press the **ENT** button to enter this option.
6. Press the **Up** or **Down** buttons to change the **CMD Time Out** rate.
7. After locating the **CMD Time Out** rate that you are looking to use, press the **ENT** button to save the setting.
8. Press the **ESC** button and you will be brought back to the **Setup** menu.
9. To proceed back to the **Main Menu**, press the **ESC** button.

Setup Menu

Tran Size

TRAN. SIZE setting allows you define the data transfer block size for each ATA command. Generally, larger transfer block sizes are better for duplication purposes than smaller sizes. However, there are some hard drives which can only accept 2MB data transfer size per ATA command. If your drives only support small data transfer block sizes, then you will need to change this setting.

The Transfer Size settings can be set to 128KB, 256KB, 512KB, 1MB, 2MB, 4MB, 8MB and 16MB. *Note: the default value is set to the largest available option for your model.*

To change the **Transfer Size**:
1. Power on the duplicator.
2. From the Main Copy Menu ⌐9⌐ press the **Up** or **Down** buttons until you see Setup ⌐15⌐.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Transfer Size**, press the **ENT** button to enter this option.
6. Press the **Up** or **Down** buttons to change the **Transfer Size** rate.
7. After locating the **Transfer Size** rate that you are looking to use, press the **ENT** button to save the setting.
8. Press the **ESC** button and you will be brought back to the **Setup** menu.
9. To proceed back to the **Main Menu**, press the **ESC** button.

Setup Menu

9

Set Write Pat

The SET WRITE PATTERN setting is used to define the data that you want written to all sectors of your drives during a Disk Erase operation. The Write Pattern can be set to 00, RM (random), AA, A5, 5A, C9, FF, E5 or F6. The default setting is 00.

To change the setting **Set Write Pat**:
1. Power on the duplicator.
2. From the Main Copy Menu ⁹ press the **Up** or **Down** buttons until you see Setup ₁₅.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Set Write Pat**, press the **ENT** button to enter this option.
6. Press the **Up** or **Down** buttons to change the **Set Write Pat** setting.
7. After locating the **Set Write Pat** setting that you are looking to use, press the **ENT** button to save the setting.
8. Press the **ESC** button and you will be brought back to the **Setup** menu.
9. To proceed back to the **Main Menu**, press the **ESC** button.

Setup Menu

<div style="text-align: right; font-size: 2em; font-weight: bold;">9</div>

Device Info

DEVICE INFO allows you to view information about any hard drives currently connected to the duplicator.

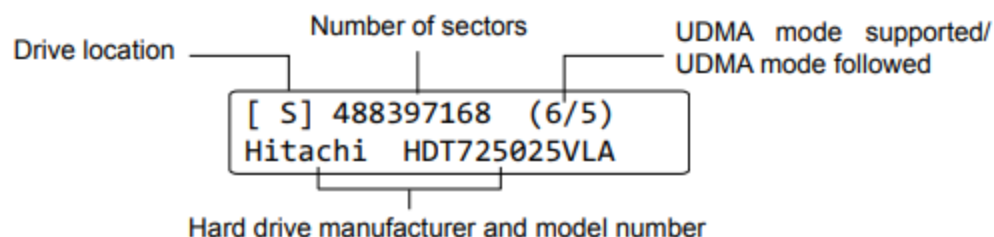To view **Device Information**:
1. Power on the duplicator.
2. From the Main Copy Menu ₉ press the **Up** or **Down** buttons until you see Setup ₁₅ .
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Device Info**, press the **ENT** button to enter this option and view the information about your inserted hard drives.

```
Drive location ─────┐   Number of sectors      UDMA  mode  supported/
                    │        │                  UDMA mode followed
                    │        │                        │
              ┌─────┴────────┴────────────────────────┴──┐
              │ [ S] 488397168    (6/5)                   │
              │ Hitachi   HDT725025VLA                    │
              └───────────────┬──────────────────────────┘
                              │
              Hard drive manufacturer and model number
```
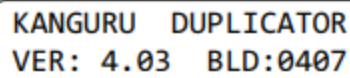
6. Press the **Up** or **Down** buttons to view information about other hard drives inserted into the duplicator.
7. After viewing the information regarding your inserted hard drives, press the **ESC** button and you will be brought back to the **Setup** menu.
8. To proceed back to the **Main Menu**, press the **ESC** button.

Setup Menu

<div style="text-align: right; font-size: 2em;">**9**</div>

System Info

SYSTEM INFO allows you to view information regarding your duplicator's firmware version and build number.

To view the **System Information**:
1. Power on the duplicator.
2. From the Main Copy Menu ₉ press the **Up** or **Down** buttons until you see Setup ₁₅.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **System Info**, press the **ENT** button to enter this option and view the duplicator information.
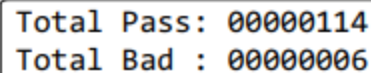
```
KANGURU   DUPLICATOR
VER: 4.03   BLD:0407
```

6. After viewing the duplicator firmware version, press the **ESC** button and you will be brought back to the **Setup** menu.
7. To proceed back to the **Main Menu**, press the **ESC** button.

Setup Menu

Total Copy Count

TOTAL COPY COUNT keeps track of the total number of successful and unsuccessful duplications produced by the system. This is a running count that includes all copy modes.

To review the **Total Copy Count**:
1. Power on the duplicator.
2. From the Main Copy Menu ⁹ press the **Up** or **Down** buttons until you see Setup ₁₅.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Total Copy Count**, press the **ENT** button to enter this option and view your copy counts.

```
Total Pass: 00000114
Total Bad : 00000006
```
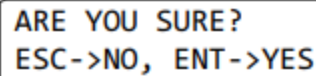
6. After viewing the copy count, press any button and you will be brought back to the **Setup** menu.
7. To proceed back to the **Main Menu**, press the **ESC** button.

Setup Menu

9

Set to Default

SET TO DEFAULT allows you to restore all settings back to their factory default values.

To reset your duplicator to its original default configuration:

1. Power on the duplicator.
2. From the Main Copy Menu ⌐9⌐ press the **Up** or **Down** buttons until you see Setup ⌐15⌐.
3. When **Setup** is displaying for you, press the **ENT** button to enter this menu.
4. You will be able to access the **Setup** menu and from here you can use the **Up** or **Down** buttons to switch menu options.
5. After locating **Set to Default**, press the **ENT** button to enter this option.
6. You will be displayed a confirmation message on the screen. Press **ESC** if you would like to stop the process or press **ENT** to continue with the process.
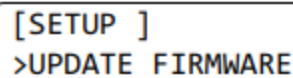
```
ARE YOU SURE?
ESC->NO, ENT->YES
```

7. Once the reset has been completed, you will be displayed a confirmation message on the screen. Press any button to return to the Setup menu.

Setup Menu

9

Update Firmware

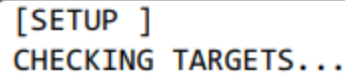The Update Firmware function allows you to upgrade your Kanguru Hard Drive Duplicator to the latest firmware version.

To update your firmware:
1. Contact Kanguru Technical Support or navigate to the Firmware Update page on the Kanguru Support site to receive a firmware update file.
2. Format a SATA hard drive as FAT32.
3. Copy the firmware file to the hard drive.
4. Connect the hard drive to the duplicator's Source bay.
5. From the Setup Menu, use the **Up** or **Down** buttons to navigate to **Update Firmware**.
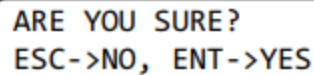
```
[SETUP ]
>UPDATE FIRMWARE
```

6. Press the **ENT** button. The system will check the Source drive for a firmware update.

```
[SETUP ]
CHECKING TARGETS...
```

7. Once the system has confirmed the firmware file, a message will be displayed on the screen asking you to confirm the firmware update. Tap the **ENT** button to proceed or tap the **ESC** button to cancel.

```
ARE YOU SURE?
ESC->NO, ENT->YES
```

8. Wait for the firmware update process to complete.
9. Once the firmware update process has completed, reboot your system and the new firmware version and build number will be displayed on the startup screen.

Warning! Do not disconnect power or turn off the duplicator while updating the firmware. Doing so may cause the duplicator to become non-functional.

Setup Menu

Burn In

The BURN IN function allows the system to perform a Copy, Compare, Verify or Erase function continuously to stress test for endurance, reliability and stability.

To perform a continuous **Burn In** test:

1. From the Setup menu, press the **Up** or **Down** button to navigate to the **BURN IN** option.

```
[SETUP  ]
>[   ] BURN IN
```

2. The **BURN IN** option is disabled by default. Press the **ENT** to enable Burn In functionality.
3. Press the **Up** or **Down** button to configure the BURN IN COUNT. The BURN IN COUNT can be set to: 5, 10, 15, 20, 50 or MX. This will tell the duplicator how many times it should repeat the Burn In test. If set to MX, the Burn In test will run continuously until you manually stop it.

```
[SETUP  ]
>[MX] BURN IN COUNT
```

4. Press the **ESC** button to confirm your selection and return to the Setup menu.
5. From the Setup menu, press the **ESC** button to return to the Main menu.
6. Press the **Up** or **Down** button to navigate to the mode that you want to test.
7. Press the **ENT** button to begin the Burn In test.
8. Once the operation has completed the screen will display the total execution time and the operation count. Once this information has been displayed for a few seconds the operation will start again automatically. This will be repeated until the BURN IN COUNT value configured in step 3 has been reached. *Note: If the BURN IN COUNT was configured as MX, the Burn In test will run continuously until you manually stop it by pressing the **ESC** button.*
9. You can stop the **Burn In** test by pressing the **ESC** button at any time during operation. This will automatically disable the Burn In function and the duplicator will return to normal functionality.

Warranty and Tech Support

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This product carries a 1 year* limited warranty on the power supply, controller, and all internal components. 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. 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.

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

Error Code List 38	Provides the list of common errors on the Kanguru Hard Drive Tower Duplicator.
FAQ 39	Common questions regarding the Kanguru Hard Drive Tower Duplicator.
Troubleshooting 40	Steps on how to troubleshoot common issues with the Kanguru Hard Drive Tower Duplicator.
RMA Procedure 41	The process to have the Kanguru Hard Drive Tower Duplicator sent to Kanguru for an examination and repair.

Warranty and Tech Support

Error Code List

When a drive fails duplication, an error code can be generated. The Error Code List can give you some information to help you understand any problems that occur during duplication.
• KCLONE-5HD-TWR press the UP button to view error codes
• KCLONE-11HD-TWR press and hold the ENT button to view error codes

Error Code	Problem
11	No Error
A	ATA command interface CRC error
B	Check target speed error
C	Compare error
D	Device command timeout error
E	ATA command uncorrectable error
F	Skip read error
G	ATA command ID not found error
H	Channel check sum failed
I	ATA security erase error
K	Unknown error
M	Device Pass
N	No device inserted
O	ATA SMART check error
P	Power on command error
R	ATA read error
S	Source read error
W	ATA write error
Y	PHY off

Warranty and Tech Support

FAQ

Question	Answer
Do all Target hard drives have to be the same capacity? Same Brand?	If you select Disk [12] copy or Brief [10] copy, the Target hard drives must have the same capacity as the Source hard drive. The hard drive brand is not important but capacity must be identical.
Can I clone a smaller capacity Source drive to larger capacity Target drives?	Yes, use Resize [11] copy to clone a smaller capacity Source to larger capacity Targets. However, all Targets drives must be the same size (i.e. you can clone a 20GB Source to five 100GB Targets using Resize copy).
Can I clone to Targets of various brands simultaneously?	Yes, the machine is able to clone hard drives of different brands as long as they are the same capacity.
Can drives with different RPM speeds be cloned together?	Yes, the duplicator can adjust to hard drives with different RPMs.
How does the duplicator handle multiple partitions on the Source drive?	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.
How does the duplicator handle multiple partitions of varying formats on the Source drive?	The machine will analyze the File System of the Source drive before it begins cloning.
Can the duplicator clone operating systems such as UNIX and OS/2?	Yes, use the Disk copy operation to copy any operating system.
Can the duplicator defragment a partition?	No, this must be done directly by the operating system of your PC.
Can the Duplicator copy Encrypted HDD's?	The Kanguru Clone is able to copy a limited number of encrypted HDD types through Disk copy.

Troubleshooting

Problem	Possible Cause	Solution
The Kanguru Clone 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 Kanguru Clone is plugged into does not match the Kanguru Clone.	Make sure that the voltage of the outlet matches the voltage of the Kanguru Clone.
	The system power button is in the Off position.	Make sure that the power button is pressed all the way in.
The Kanguru Clone cannot make copies of a Source 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 Kanguru Clone.
	The connection between the Kanguru Clone to the Source drive is not secure.	Make sure that the Source drives is inserted in Source bay correctly and that the bay door is completely closed.
	The hard drive jumpers are not set in the correct position.	Make sure that all the hard drive jumpers are set to the Source or Cable Select position.
	The hard drive may be faulty.	Make sure that the Source hard drive is not broken and does not have errors.
	The hard drive's file system is not supported by Brief [10] Copy or Resize [11] Copy.	When executing a Brief Copy or Resize Copy, make sure that the file system of the Source hard drive is supported.
	The hard drive contains a Host Protected Area [24].	Enable the HPA CHECK option under the Setup menu.
The Kanguru Clone is unstable or operates very slowly.	The connection between the Kanguru Clone and the hard drives are not secure.	Make sure that the hard drives are inserted correctly and that the bay doors are completely closed.
	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 Kanguru Clone.

Warranty and Tech Support

RMA Procedure

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 year of purchase. After 1 year 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# [ ]