

# Data Recovery

Case Studies and Common Repair Problems

Chapter 18

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# Maxtor Redefine Primary Head

- **Maxtor HDD Redefine the Primary Head**
- **Problem:** Maxtor 6Y series has problems in SA to read the FW using the primary head.
- **Solution:** Redefine the primary head.
- **Procedure**
- 1. Prepare FW and ROM donor file.
- \*Note: It is advised to obtain the FW and ROM files from the original drive. If this is not possible we need to find a donor HDD to obtain the FW and ROM files from. The donor HDD needs to have 1) same model number 2) same first three digits of S/N as the patient drive and 3) COD file.
- \*\*Note: ROM files require the same primary head. For instance the patient HDD primary head is #3. Therefore we need to find a ROM file from a donor HDD using the primary head 3. On the patient drive the primary head #3 is bad. We need to redefine the primary head to #4. In this case our donor HDD; needs to have a primary head #4 to obtain the FW and ROM files from.
- 2. Connect HDD to Maxtor console.
- 3. Power on HDD.

# Maxtor Redefine Primary Head

- **Load HDD Management**
- 4. **Load HDD Management:** Load from the HDD.
- \*Note: The drive has 3 heads, #3, #4, and #5. Primary head is #3.
- **FW Download**
- 5. **FW DOWNLOAD:** “All” read all modules of the primary head.
- **Parameter Operation Column**
- 6. **Parameter operation column:** Select head and manually change 3 to 4
  - \*Note HDD primary head is now #4.
- **FW Upload**
- 7. **FW UPLOAD:** Select the upload path.
- 8. **Select ALL:** selects all modules.
- 9. **SMART UPLOAD:** up loads all modules.
  - \*Note: Important to run **FW DEFECT SCAN** due to the fact Head #3 can not be directly written to Head #4.

# Maxtor Redefine Primary Head

- 10. Head #4 has successfully written FW to the drive. After FW has been written the ROM has to be written next.
- 11. Power off HDD
- 12. Disconnect HDD from console.
- 13. Set HDD to safe mode.
- 14. Attach HDD to console.
- 15. Power on HDD and wait for ready
- **ROM Operations**
- 16. **ROM OPERATIONS.** Write ROM Back, select donor ROM file.
- \*Note: The HDD is a 6Y1B series, which corresponds to the 11th letter of the ROM "J". The ROM ending number is 4 which correspond to the primary head #4.
- \*\*Note: If the ROM 11th letter is "W" this corresponds to the Maxtor series 6Y1V
- 17. Select the appropriate ROM file for your drive.
- 18. The ROM file is directly written to the ROM chip. "**BUSY**" and "**DSAP**" will be lit on the consol and the status indicate will show "**VERY BUSY**".

# Maxtor Redefine Primary Head

- **HDD Boot Management**

- 19. **HDD BOOT MANAGEMENT**: To check the progress of the ROM operations.
- 20. ROM has successfully loaded to HDD.
- 21. Power off HDD
- 22. Disconnect HDD from console.
- 23. Set HDD to Master mode.
- 24. Connect HDD to console.
- 25. Power on HDD

- **Load HDD Management**

- 26. **LOAD HDD MANAGEMENT**; From the HDD.
- \*Note: The Select heads indicate Head #4 is the primary head. Primary head redefinition allows us to correct problems in drive malfunction, unstable head, and bad sectors in the FW area.

# Maxtor Repairing FW Problems

- **Maxtor Repairing FW Problems**
- **Problem**
- HDD is not recognized or recognized by factory alias.
- **Solution**
- Set HDD to safe mode and load FW donor file. Repair all broken FW in SA.
- **Procedure**
- 1. Set HDD to safe mode.
- 2. Connect HDD to console.
- 3. Power on HDD
- **Load HDD Management**
- 4. **Load HDD Management:** From the file, select FW donor file to be loaded.
- **HDD Boot Management**
- 5. **HDD Boot Management:** Load Boot and locate the FW donor file named "Boot. COD"
- 6. **Load ROM:** loads the FW donor file ROM to HDD.
- 7. **Load All Mods:** loads FW modules to HDD.

# Maxtor Repairing FW Problems

- **HDD Reset**
- 8. **HDD Reset:** starts the motor spinning and aligns the heads.
- **Load RAM**
- 9. **Load RAM:** select the “**BOOT**” file
- **HDD Load Management**
- 10. **HDD Load Management:** From the File and choose the resource file.
- **HDD Parameters**
- 11. **HDD Parameters:** check the parameters of the HDD after resources have been loaded. If the Boot file loaded successfully the drive will not show the correct parameters.
- \*Note: If Boot failed to load successfully the drive will indicate LBA 0. It is necessary to find another FW donor file to load to the HDD.

# Maxtor Repairing FW Problems

- **HDD Boot Management**
- 12. **HDD Boot Management:** Perform a SA R/W test. The test will indicate if it is successful or not.
  - \*Note: if test is successful it is possible to perform operations in the SA. If test fails it is necessary to check the FW donor file first. Second perform a check on the HDD heads to see if there is a head problem.
- **FW Defect Scan**
- 13. **FW Defect Scan:** Scan all Mods. This checks the SA modules to see if there are problems inside the SA.
  - \*Note: There are broken modules in the SA that need to be repaired.
- **FW Upload**
- 14. **FW Upload:** choose the appropriate FW donor file.
- 15. Select the broken modules from the list to be uploaded to the HDD.
  - \*Note: Modules 24, 56, and 120 belong to one group. They are P List modules and can not be uploaded to the drive during this operation. Module 51 is a P List Log module and can not be uploaded to the drive during this operation.
- 16. Module 56: the module is broken. It belongs to a group of modules and needs to be uploaded in a group. The group modules are 56, 57, and 79.
  - \*Note: It is important to upload these modules at the same time.



# Maxtor Repairing FW Problems

- **FW Defect Scan**
- 17. **FW Defect Scan:** scan all modules to check if they have been repaired successfully.
- 18. Modules are repaired successfully power off HDD.
- 19. Reset HDD to Master mode.
- 20. Connect HDD to console
- 21. Power on HDD
- **HDD Load Management**
- 22 **HDD Load Management:** From the HDD to check drive condition. If drive has been repair successfully it will load the drive with the correct parameters.

# Maxtor Repairing Damaged P-List Modules

- **Maxtor Repairing Damaged P-List Modules**
- **Problem**
- P-List modules are unique for each HDD; they are modules 24, 55, and 120. It is possible that these modules will receive damage and need to be repaired. In order to repair these modules we need an exact donor file. When repairing these modules it will change the data inside the drive and cause data loss. It is possible to repair the P-List modules without data loss to the HDD.
- **Solution**
- Using PLIST.BIN to repair a defective P-List
- **Procedure**
- Perform a scan on all FW modules to determine if the P-List modules group contains damage.

# Maxtor Repairing Damaged P-List Modules

- **Defects List Operations**
- View P-List. This will generate a back up copy of the P-List files named **PLIST.BIN** AND **PLIST.TXT**. Provided that Module 51; is good and has no problems.
- \*Note: If Modules 51 contains errors it is not possible to generate a back up copy of the original P List.
- \*\*Note: saves a copy of “.BIN” and “.TXT” to the defined download path.
- Once the **PLIST.BIN** and **PLIST.TXT** files have been saved it is possible to repair the P-List modules.
- **Empty GP**
- The original GLIST and PLIST need to be emptied before importing the PLIST.BIN file.

# Maxtor Repairing Damaged P-List Modules

- **Import P-List**
- Select the appropriate download path and **PLIST.BIN** file saved.
- This procedure will reload the original drives' P-List and restore data to the HDD.
- PLIST Import 32 records to the listing. Once finished importing an OK status is indicated.

# Maxtor Repair Defect P-List using HDD Doctor and Data Compass

- **Maxtor Repairing Defect P-List Using HD Doctor in Conjunction with Data Compass**
- **Problem**
- The HDD original P-List modules are damaged and it is not possible to make a copy of the PLIST.BIN and PLIST.TXT files. These files are needed in order to repair the original P-List damaged Modules 24, 55, and 120.
- **Solution**
- Repair the original P-Listing with Module 51. Module 51 is composed of two parts; 1) HUTIL, and 2) HUSR that are separate records of the original information contained inside the U-List and P-List. As long as the original P-List has not been changed or modified we can use this module to restore the P-List to the original condition.
- **Procedure**
- Connect HDD to Maxtor console and power on HDD. The HDD will show a Ready status.
- **HDD Load Management**
- **“Load from HDD”**. The HDD enters into error state; power off HDD and set drive to safe mode. Reattach HDD to console and power on the HDD

# Maxtor Repair Defect P-List using HDD Doctor and Data Compass

- **HDD Boot Management**
- **“Load Boot”**; Select the corresponding FW donor file for the HDD.
- Once Boot has successfully been loaded; **“Load ROM”**, allow; the ROM to finish loading.
- **Load All MODS**
- Loads the FW donor files Mods.
- **\*Note:** If an error occurs during this process we need not be concerned with this error. The only error we need to be concerned with is the important modules for this drive.
- **HDD Reset**
- Powers off/on the HDD to start spindle motor spinning. Drive will go from Busy to Ready State on completion.
- **Load RAM**
- Select the appropriate FW donor RAM file to be loaded.

# Maxtor Repair Defect P-List using HDD Doctor and Data Compass

- **HDD Load Management**
- **From the File** to load the HDD.
- **HDD Parameter**
- Once the HDD has loaded from file you should be able to see all the drives' parameters. If an error has occurred then the Boot was not successful.
- **FW Defect Scan**
- Scan Key Mods.
- \*Note: during scan we can see that Modules 24 P-List module is broken and has to be repaired. In order to repair this Module we need to import the original P-List.
- **Defect List Operation**
- To repair the original P-List modules we need to export Module 51.
- **View P-List**
- This will display the original P-List and make a back up copy of **PLIST.BIN** and **PLIST.TXT** files and store them in the download path.
- **FW Upload**
- Modules 24, 55, and 120 belong to the P List group. This operation requires uploading the entire group of modules at the same time in order to repair the original P-List.
- **P-List** modules are uploaded to the drive.

# Maxtor Repair Defect P-List using HDD Doctor and Data Compass

- **FW Defect Scan**
- Upon completion of load scan key modules. If the scan indicates all modules are normal turn off the HDD, disconnect, set to Master Mode, connect back to console, power on HDD.
- **Load HDD Management**
- Load from HDD. Check to see if HDD loads correctly after importing another P-List for the HDD. We can now use the Data Compass to check the drive status and see if it is possible to recover data from the HDD.
- Power off HDD and remove from Maxtor console.
- **Data Compass**
- Attach HDD to Data Compass and power on HDD. Keep the default setting and enter into **Sector View** to check user data.
- **Sector View**
- The sector view shows data in user area after importing non-original P-List.



# Maxtor Repair Defect P-List using HDD Doctor and Data Compass

# Maxtor Repair Defect P-List using HDD Doctor and Data Compass

- **DCEXP**
- Open program, Open disk, From Data Compass.
- Note: HDD partition shows an 800 MB drive attached. \*Note: this is not the size of the original HDD. Click on the partition to open Root directory.
- **Root Directory**
- The Root directory shows the MFT as normal. But when viewing files inside we see the folders and data all contain errors.
- Mark files inside the list for recovery. Right click on marked files and save to target disk.
- \***Note:** Files were recovered.
- **Verify User Data**
- Locate saved data and verify if data is possible to be read.
- Note: User data is impossible to read and shows only illegal characters. The non-original P-List has changed the status of good sectors and has now marked them as bad. This is what causes the files recovered to be unreadable. In order to correct this problem and retrieve data off the drive we need to correct the original P-List of the HDD. Turn off DC and disconnect HDD. Reconnect HDD to Maxtor console.

# Maxtor Repair Defect P-List using HDD Doctor and Data Compass

- **Defect List Operation**
- **Empty P-List:** After P-List is emptied it is possible to import original P-List to the HDD.
- **Confirm Operations**
- “**Yes**” to empty the P-List.
- **Import P-List**
- Locate the original P-List that has been saved under **PLIST.BIN**.
- **Note:** PLIST.BIN is module 51 used to repair the original P-list of the HDD. After Module 51 is successfully loaded power off HDD and connect to Data Compass.
- **Data Compass**
- DCEXP, Open disk: From Data Compass.
- Note: After import of original P-List three partitions are shown for the HDD. Double click on the Partition to enter Root directory. Check Root director for errors in Data. Directories show that data can now be recovered from the HDD.
- **Records to Recover**
- Specify the records to be recovered. Save to target disk. After saved check the target disk to read data files. All data files are now recoverable.

# Maxtor Depop Head to Recover Data

- **Maxtor Depop Head to Recover Data**
- **Problem**
- HDD has many bad sectors. It is not possible to continue to scan this drive due to the problem. There are too many bad sectors to add to the P List, zerofill, or perform a Selfscan to repair.
- **Solution**
- To recover data from the HDD a Depop operations needs to be preformed. The drive is divided into 16 sections; each section can be scanned individually to avoid further data loss and scanning the drive multiple times.
- \*\*Note: This function is only valid for drives with more than one head.
- **Procedure**
- 1. Set HDD to safe mode.
- 2. Connect HDD to Maxtor console.
- 3. Power on HDD and wait for the drive to become "Ready".
- **Load HDD Management**
- 4. **LOAD HDD MANAGEMENT:** Load from HDD

# Maxtor Depop Head to Recover Data

- **Section Operations**
- 5. **SECTION OPERATIONS:** Load Section Table.
  - \*\* Note we can see the section distributed between the 16 sections.
- 6. 16 partitions are shown, starting from 00 to 0F. Each partition includes: 1) beginning track information, 2) ending track information, 3) head information, 4) beginning LBA, and 5) ending LBA.
- 7. The frame indicates the sections table.
- 8. **START SCANNING:** scan all bad sectors on the head that has been chosen.
- 9. The scan shows a large number of bad sectors on Head #3. In order to repair this HDD the depop operation will need to be performed. The HDD has a total of 4 heads 2,3,4, and 5. The frame indicates the heads are 364, 380, 380, and 380. To depop the HDD Head #3 change the value from 380 to 000.
- 10. **Save:** the HDD information.
- 11. Power off HDD.
- 12. Power on HDD

# Maxtor Depop Head to Recover Data

- 13. **LOAD HDD MANAGEMENT:** Load from HDD.  
\*Note after drive has loaded from HDD the indicators show that Head #3 has been successfully depop.
- 14. After completion of the operation it is possible to restore HDD to normal condition again. Upload: module #147 (**Section modules**) to the HDD.
- 15. Power off HDD.
- 16. Power on HDD.
- 17. **LOAD HDD MANAGEMENT:** Load from HDD.
- \*\*Note the drive has returned to normal status.

# Maxtor Removing HDD ATA Password

- **Maxtor Removing HDD ATA Password**
- **Problem**
- HDD data area is protected by an ATA password. HDD is detected correctly in BIOS and not possible to read data from the HDD.
- **Solution**
- Clear the ATA password by modifying module #26 or “Other Operations” “Clear HDD Password”
- **Procedure**
- Attach HDD to console
- 2. Power on HDD
- **HDD Load Management**
- 3. **HDD Load Management**
- 4. **“Load from HDD”**
- \*Note: HDD protected by password

# Maxtor Removing HDD ATA Password

- **Sector View**
- 5. **Sector View**
- 6. **Enter HDD Sector: “View Sector”**
- \* Note: Data area shows only 6666 and HDD has gone into an “Error” state.
- 7. **Reason:** HDD error conditions happen on a sudden interrupt to the HDD. During normal working condition; if the HDD experienced a sudden power loss, disconnected when running, during format experienced a power loss, or during a write operation experienced a power loss. The HDD can enter into a password protect mode without notification.
- **FW Download**
- 8. **FW Download:** View the modules list and check the password module.
- \*Note: The module has changed and now indicates a password protect.



# Maxtor Removing HDD ATA Password

- 9. Double click on Module 26 to open module in hex view.
- \*Note the third and fourth bits have been changed from “0500 0000” to “050B 0001” This bit has been changed putting an ATA password on the HDD.
- 10. Module 26 no password example:
- **Other Operations**
- 11. Other Operation: **“Clear HDD Password”**
- 12. Power off HDD
- 13. Power on HDD
- **Load HDD Management**
- 14. **LOAD HDD MANAGEMENT: “From the HDD”**
- \*Note: Password has been removed.
- The HDD LBA status has been changed. It is possible to access the data area on the HDD.

# Maxtor Removing HDD ATA Password

- **Sector View:**
- 15. Sector view: View the data area.
- Note: Clear HDD Password reads the password module, clears the module, sets the modules back to default value, and write the module to the SA replacing it with a password adopted signature.
- If Clear HDD Password operations does not work it is possible to manually edit Module 26. Change the code “050B 0001” to “0500 0000”. This will reset the password module to the password-adopted signature.

# Maxtor Electronic Failure on DiamondMax 9

- **Maxtor Electronic Failure on Diamond Max 9**
- **Drive:** Maxtor Diamond Max Plus 9 (6Y080L0 series)
- **Controller Board:** Multi-layer Calypso III, 7200rpm
- **Symptoms of Failure:** Drive Dead
- Diamond Max Plus 9 power to HDD is 3 phase and oxidation. This is the common cause for loss a phase in this HDD. Loss of one or more phases will cause the MOSFET to fail. If the MOSFET fails the “combo” chip fails too.
- Secondary damage will be sustained to:
  - A. The board
  - B. Electronic components surrounding the MOSFET and combo chip
  - C. Read/Write head chip
- **\*\*Note:** Electrical damage is not limited to the PCB; the read/write chip is located on the head assembly. In order to reach this chip it requires the drive be stripped down in a clean room.

# Maxtor HDD Only Works in SA-B

- **Maxtor HDD Only Works in SA-B**
- **Problems**
- HDD had corrupted FW modules in SA-A. The HDD would only read from SA-B. Repaired corrupted FW modules but HDD will not switch back to SA-A.
- **Solution**
- Rest HDD to work in SA-A so data can be recovered from HDD.
- **Procedure**
  1. Attach HDD to console
  2. Power on HDD
  3. HDD Load Management
  4. From the HDD
    - \*Note: HDD code shows RBMC1TU0; the second number is B; indicates working in SA-B
  5. Power off HDD
  6. Set HDD to safe mode
  7. Power on HDD
  8. Load HDD Management
  9. From the HDD
  10. FW Defect Scan
  11. Scan All Mods

# Maxtor HDD Only Works in SA-B

- 12. FW Upload
  - \*Note to upload ATA and P-List modules in a group. Modules: 24, 55, 56, 57, 78, and 120
  - Upload the two groups is invalid and HDD will not return to SA-A
- 13. Module table select Module 149. The module sets the drive to SA-A or SA-B. If the module is set in SA-B this can manually be modified to return the drive to work in SA-A
- 14. Double click Module 149 to open in Hex editor
  - \*Note: sting 0x000 third entry and string 0 x 1F0 last entries define the HDD SA. The entry 01A5 and 2E31 numbers 01 and 31 represent SA-B

# Maxtor HDD Only Works in SA-B

- 15. Two options for repair: 1) upload module 149 from FW donor file to reset SA-B back to SA- A and 2) Modify the 01 to 00 and the 31 to 11
- 16. Direct Write
- 17. Power off HDD
- 18. Reset HDD to Master
- 19. Power on HDD
- 20. Load HDD Management
- 21 “Load From HDD”
- \*Note: Drive now loads from SA-A and is possible to recovery data from HDD.

# Maxtor Translator Regeneration

- **Maxtor Translator Regeneration**
- **Problem**
- Drive is detected in BIOS but can not access the data area. In data area all data is shown as “6666”
- **Solution**
- Perform “translator regeneration”, (P-List backup and import).
- **Procedure:**
- 1. Attach HDD to console
- 2. Power on HDD
- 3. **HDD Load Management**
- 4. **Load from HDD**
- 5. **View Sector**
- \*Note data area only shows “6666”

# Maxtor Translator Regeneration

- 6. Defect Lists Operations
- 7. View P List
- 8. Check the back up file. Locate P List that has been saved.
- 9. Defects Lists Operations
- 10. Empty GP
- 11. Import P List
- 12. The P List loads
- 13. Power off HDD
- 14. Power on HDD
- 15. Load HDD Management
- 16. From the HDD
- 17. View Sector
- 18. Check data area
- \*Note: Data is now readable.



# Western Digital Black I Identification Error “XYZ”

- **Western Digital Black I Identification Error “XYZ”**
- **Problem**
- The BLACKI attached to the WD console show error when reading the drive and the drive ends in “XYZ” Problem can be caused by two reasons: first the PCB could have been replaced prior to receiving, and second the PCB could be experiencing problems or the ROM chip is corrupted
- **Solution**
- **Locate** and identical donor HDD, same model number, motor, code, and PCB. Backup all FW on the donor HDD. Swap the donor PCB with the patient PCB. Upload module 11 from donor PCB to patient HDD.
- **Procedure**
- 1. Locate donor HDD
- 2. Load Management
- 3. Load from HDD
- 4. Backup FW
- 5. Power off HDD
- 6. Un-attach donor HDD from console
- 7. Remove PCB
- 8. Attach PCB to patient HDD
- 9. Attach patient HDD with donor PCB to console.
- 10. Power on
- 11. Load Management
- 12. Load from HDD

# Western Digital Black I

## Identification Error “XYZ”

- 13. Upload FW
- 14. Locate the FW file from the donor HDD
- 15. Upload Module 11 “**ATA MOD**” to donor PCB on patient HDD
- 16. Other Operations
- 17. Power off
- 18. Exit program
- 19. Enter program
- 20. Load Management
- 21. Load from HDD
  - \*Note: HDD is now detected and data can be retrieved from drive.

# Western Digital Black I PCB Swap

- **Western Digital Black I PCB Swap**
- **Problem**
- WD HDD experience problem with the PCB. The WD HDD is vulnerable to overheating, power surges and spikes. A bad power supply combined with a power spike can burn the spindle motor chip on the PCB. When this occurs the computer reboots or shuts down completely. After; you will notice a burning smell coming from the computer. The HDD When powered on the HDD will not spin up and can not access the data area or SA of the HDD.
- **Solution**
- A PCB swap needs to be made. Before swapping the PCB make sure the ATA MOD is compatible with the ROM.
- **Procedure**
- 1. **Matching a PCB:** 1st match the drive model/part number. The entire number needs to match including the information after the dash. Match WD1200BB-00DAA3; the DCM is related to the firmware written to the drive.
- 2. Second you'll need to match the PCB part number. The base part number is important. The dash level is equally important; they must match for a PCB swap to work.
- 3. Attach donor HDD to the console
- 4. Power on
- 5. Load from HDD
- 6. Backup FW
- 7. Back up all FW from donor drive for the primary and secondary heads.
- \*Note see sections 2 Backup FW
- 8. Power off HDD
- 9. Disconnect HDD

# Western Digital Black I PCB Swap

- 10. Disconnect PCB from donor HDD
- 11. Attach donor PCB to patient HDD
- 12. Attach to the console
- 13. Power on HDD
- 14. Load from HDD
- 15. Upload FW
- 16. Locate the FW donor file
- 17. Upload "Surface adaptor Modules" Module 43 and Module 4C
- 18. Power off HDD
- 19. Power on HDD
- 20. Load Management
- 21. Load from HDD
- 22. Sector View
- 23. View HDD sector
- \*Note data can be seen on the HDD

# Western Digital Black I PCB Swap

- **Summary**
- After repair of a HDD with PCB swap data can show “6666” and “ffff”. The following are reasons for this problem:
  - 1. HDD is locked – removed HDD password
  - 2. P/O list error – perform translator regeneration
  - 3. Surface adaptor error – upload Module 43 and Module 4C

# Western Digital Translator Regeneration Failed

- **Western Digital Translator Regeneration Failed**
- **Purpose**
- Built in function that translates the PCHS to LBA, activates operations and modifications towards the FW
- **Problem**
- Error message: **“Translator Regeneration Failed”**
- **Solution**
- 2 steps to correct this problem
- **Western Digital Translator Regeneration Failed Step 1**
- 1. Check all modules, damage to modules will cause an error when performing “Translator Regeneration”
- 2. **FW Defect Scan**
- 3 **Pri**
- 4 **Select All**
- 5. **Scan**
  - **Note:** if error exists in FW modules replace the broken modules from FW donor file.

# Western Digital Translator Regeneration Failed

- **Western Digital Locate Donor Drive**
- The requirements for Donor HDD are:
  - 
  - A) Identical Model Type
  - B) Capacity
  - C) Motor code
  - D) Head Distribution
  - **Silver I** requires identical model number only.
  - **Silver II, Black I and Black II** requires identical model number, identical drive motor code, and identical head distribution.
- 6. Attach Patient drive to console
- 7. **Load from HDD**
- 8. **Upload FW**
- 9. Locate FW donor file directory

# Western Digital Translator Regeneration Failed

- 10. Check all Modules to upload to patient HDD
- 11. **“PRI”**
- 12. **Write**
- Note: Writes all “Modules” from FW donor file to patient drive.
  
- **Western Digital Step 2 Translator Regeneration Failed**
- 1. **Defect List Operations**
- 2. **View Defect List**
- 3. Check errors inside the G-List and P-List
  - Note: errors inside the G-List or P-List can cause an error when running “Translator Regeneration”
- 4. Before proceeding back up all FW files on patient drive. This will ensure you may recovery the HDD if something goes wrong. Save a copy of the HDD module 43 P-List.
  - \*Note: **Silver II** P-List module is “**Module 43**”. **Black I** P-list module is “**Module 33**”. Pay attention to the drive family for the location of the P-List module.
- 5. **Clear G-List**
- 6. **Translator Regeneration**



# Western Digital Translator Regeneration Failed

- 7. **Clear P-List**
- **\*Note:** important before continuing on with this step make a back up copy of the P-List module first. This is needed in order to restore the original P-List back to the drive. If a back-up copy of the P-List module can not be made **do not perform Clear P-List. All data on the HDD will be lost and will results in a drive that can not be used again.**
- 8. **Translator Regeneration**
- 9. **View Defect List**
  - **\*Note:** After clearing G-List and P-List and performing Translator Regeneration the results show no records in the G-List and P-List. In order to recover he P-list and data from the drive upload the original back up copy of P-List to the HDD
- 10. **Upload FW**
- 11. **Locate the back up copy of the FW file you have saved.**
- 12. **Locate the P-List Module**

# Western Digital Translator Regeneration Failed

- 13.Upload the P-List module to the primary and secondary SA of the HDD.
- 14.**FW Defect List**
- 15.**View Defect List**
- Note: After writing back the P-list module to the HDD it is possible to read the P-List again on the HDD.

# Western digital L Format Problem

- **Western Digital L Format Problem**
- L-Format is not normally recommended to perform. After this operation problem can arise from this. If L – Format: has been performed; and a problem exists after this operation. Follow the following steps to correct the HDD problem.
- **Problem**
- The HDD reports in Ready, the serial number is filled with illegal characters, and the LBA = 0.
- **Solution**
- Locate compatible FW donor file for the HDD. Upload the Module 31.
- **Procedure**
- 1. Attach HDD to console
- 2. Power on HDD
- 3. Load Management
- 4. Load from HDD
- 5. Download FW
  - \*NOTE: only module 41 can be seen on the HDD, and only the track information is show.
- 6. The HDD track information is available. The SA modules are not available.
- \*Note: when the track information is available a FW donor file needs to be located.

# Western digital L Format Problem

- 6. Locate compatible FW donor file
- 7. Upload FW
- 8. Locate the FW donor file and enter to the “Upload Path”
- 9. Upload Track 31 to HDD
- 10. Power off HDD
- 11. Power on HDD
- 12. Load Management
- 13. Load from HDD
- 14. Backup FW
  - \*Note: after uploading Track 31 to the HDD it is possible now to read the modules inside the SA
- 15. Upload FW
- 16. Locate FW donor file and enter to the “Upload Path”
- 17. Select “PRI”

# Western digital L Format Problem

- 18. Select "SEC"
- 19. Check All
- 20. Write
- 21. Power off HDD
- 22. Power on HDD
- 23. Load Management
- 24. Load from HDD
  - \*Note: the HDD is now recognized and the LBA is correct. The model serial number is not correct and needs to be modified.
- **Misc Operations**
- 25. Modify Serial Number
- 26. Write to Drive
- 27. Power Control "Off"
- 29. Power Control "On"
- 30. Load HDD Management
- 31. Choose Drive Family
- 32. From HDD

# Western digital L Format Problem

- \* Note: the serial number modification has taken effect. When performing a L-Format all data is lost on the HDD. It is not possible to perform this operation if data is needed on the HDD. This operation is only used in drive repair. A HDD in such condition is not possible to repair with any other solution. The only possibility to have access to the module table is to upload Track 31 from a FW donor file. All modules in the table need to be replaced with the FW donor modules.

# Western Digital Identification Problem

- **Western Digital Fix Identification Problems Caused by Corruption of ATA Overlay Module or ROM Contents**
- **Problem**
- Western Digital ROYL series has a typical malfunction: Corruption of ATA Overlay module and or ROM contents. Symptoms: the HDD can not be detected by BIOS, the LBA value = 0, and the only parameter detected is the head count inside the program. The malfunction is caused by the mismatch of ROM contents stored in the PCB and the ATA overlays in the SA.
- When the HDD is initialized a comparison is made to check the ROM contents against the SA ATA overlays. If the contents do not match the HDD will not initialize. Common if the PCB is not native to the HDD, FW ATA Overlays have been replaced by donor, ATA Overlays are corrupted, and ROM contents are corrupted.

# Western Digital Identification Problem

- **Solution**
- The ATA Overlay is corrupted: If no ATA backup exists from the SA a matching donor drive with same ATA version needs to be used. If ROM is corrupted or PCB burned it is possible to regenerate the ROM from the ROM overlays 0102, 0103, 0105, 0107, and 0109 stored in the SA.
- **ROM Contents**
- Firmware on WD HDD includes the ROM contents stored in the ROM chip and firmware modules in the SA. There are two types of ROM chips; 1st integrated and 2nd stand alone. WD ROYL HDD uses an integrated ROM chip on the PCB. When the HDD initialized the MCU reads ROM contents to RAM and executes the program. The ATA Overlay Modules in the SA are read and compared against the ROM contents stored in RAM. If the two contents match the HDD finishes initializing. If the two contents do not match the HDD halts and the HDD is not detected. In ROYL HDD the ROM contents play an important factor in the initialization of the HDD. In the SA a copy of the ROM contents are stored. If the PCB is burned or ROM contents are corrupted it is possible to rebuild the ROM from these overlays.



# Western Digital Identification Problem

- **ROM Overlays**
- For the purpose of the factory maintenance use, manufacturer divides ROM content backup into several portions, and stores them in several firmware modules. In ROYL HDD; the modules are 0102, 0103, 0105, 0107 and 0109. In Black I series HDD; the modules are 0A, 0D, 30 and 47. Silver II series; saves ROM contents to a .bin file and does not have backup modules in the SA.
- **Low Speed SA Access Mode**
- In ROYL Series HDD there are two modes to access the SA. First is High Speed and second is Low Speed. The two hierarchies correspond to two separate factory commands. When ATA overlay and or ROM contents are corrupted the HDD will not access the SA using High Speed Load Method. In such cases the drive needs to be loaded by Low Speed Load Method to have access to the SA to perform a ROM regeneration

# Western Digital Identification Problem

- **Royl ROM Regeneration**
- ROYL HDD ROM regeneration is read from the ROM overlay backup modules contained in the SA. The program reads the FW Modules 0102, 0103, 0105, 0107, and 0109. Compiles the information and writes the contents to the ROM chip.
- **Backup FW ROM Modules from SA**
- Connect HDD to console, power on, enter Load Management menu, select ROYL family series, Low Speed, and Load from Drive.
- Backup FW save a copy of Modules 0102, 0103, 0105, 0107, and 0109. The modules are needed to regenerate the ROM using the ROM operations “Generate ROM” functions.

# Western Digital Identification Problem

- **Backup ROM Contents to a .bin File**
- Some cases it is not possible to make a backup of the ROM modules from the SA. Such cases are: 1st the HDD is clicking three times, spins up, stops, and repeats this three times, 2nd the drives becomes ready, head is clicking, and drive spins down. In both cases it is not possible to load from HDD. An error message is received. Therefore we have no access to the FW modules stored in the SA.
- In such cases we can still make a backup copy of the ROM modules on the PCB and save this to file. Connect the HDD to console, enter Load Management, power on HDD, select ROYL family, and Low Speed. Once the HDD becomes ready; click on the **Load** button; to define the download path to save the ROM contents to.
- ROM menu; ROM Operations; Read from Drive. The program will read the ROM contents from the PCB and store in the predefined down load path in the file folder ROM.
- \*Note: In order to find the ROM file when needed it is a good idea to create a new file folder with the HDD ID, move the ROM to this folder, and rename. When ROM is saved to file folder it will over write the ROM chip or contents that is stored in this folder.

# Western Digital Identification Problem

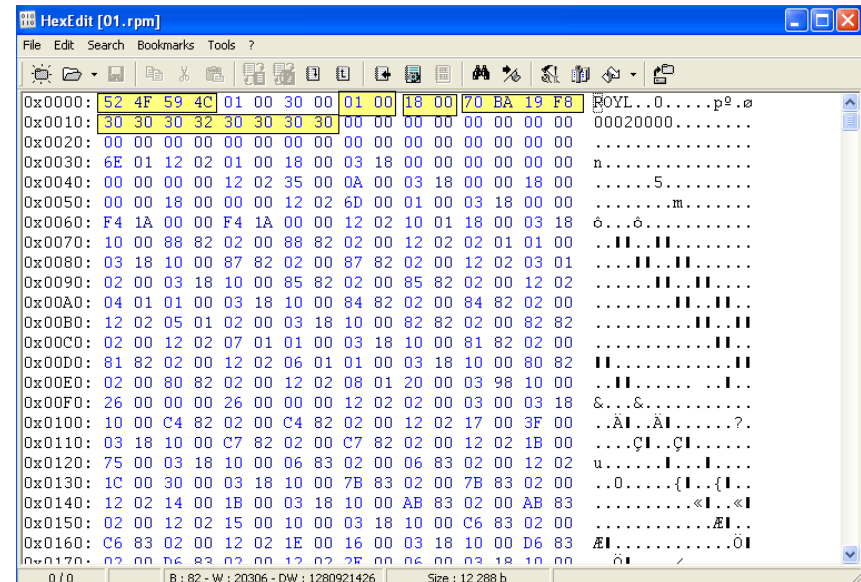
- **Writing ROM Contents to Donor PCB**
- Depending on the ROM back up method used for saving the ROM contents depends on which method is used to write back the ROM contents to the donor PCB.
- 1st ROM contents are saved from SA modules 0102, 0103, 0105, 0107, and 0109. Enter the ROM operations menu. **“Generate ROM”** choose the ROM SA backup modules from the file folder. They are located in the Mod 0 folder. After the location of the Module backup press **“OK”**. The program will use the SA backup modules to write the ROM contents to the PCB board.
- 2nd ROM contents are saved to a .bin file. In such case it is possible to write the .bin ROM file to the ROM chip on the PCB. **“Write ROM”** choose the ROM .bin file that has been saved and press OK. The program will write the .bin ROM file to the PCB board.

# Western Digital Identification Problem

- **Corrupted ATA Overlay Module**
- ATA Overlay Modules for WD ROYL series HDD are easily corrupted and can cause the HDD to stop working correctly. In ROYL series the ATA modules is 0011, the module works in conjunction with the ROM modules 0A.bin, 0B.bin, 0D.bin, 30.bin, 47.bin and 4F.bin stored in the ROM. If the ATA modules is corrupted; the HDD spins down; and the drive can not start. It is necessary to read the ROM modules from the HDD. Read the 4F.bin ROM module and find a compatible donor ATA Module to upload to the HDD.

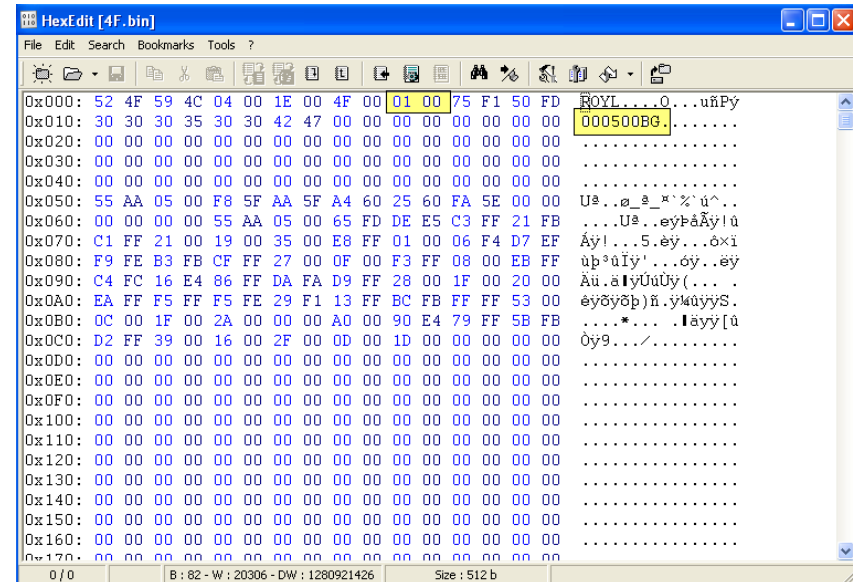
# Western digital Reading ROM SA Module

- **Reading ROM and SA Module**
- **SA Module 0001** – Map module. 52 4F 49 4C is the header. In ROYL modules the header appears in each SA module.
- 01 00 – Drive ID
- 1B 00 – Drive length
- 70 BA 19 F8 – CRC
- 30 30 30 32 30 30 30 30 – Version



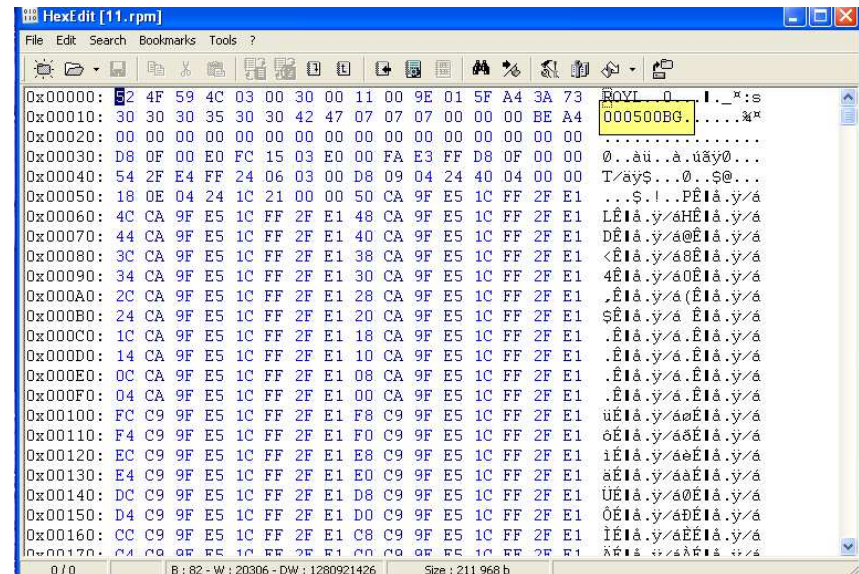
# Western Digital Finding Compatible ATA Module 011

- **Finding Compatible ATA Module 011**
- The ROM module version for **4F.bin** is **“000500BG”**. This matches the ATA overlay version in Module 0011 stored in the SA,
- Attention needs to be paid when reading the 4F.bin module. A back up copy of the Module is stored but contains different ATA overlay information for the back



# Western Digital ATA Overlay 011

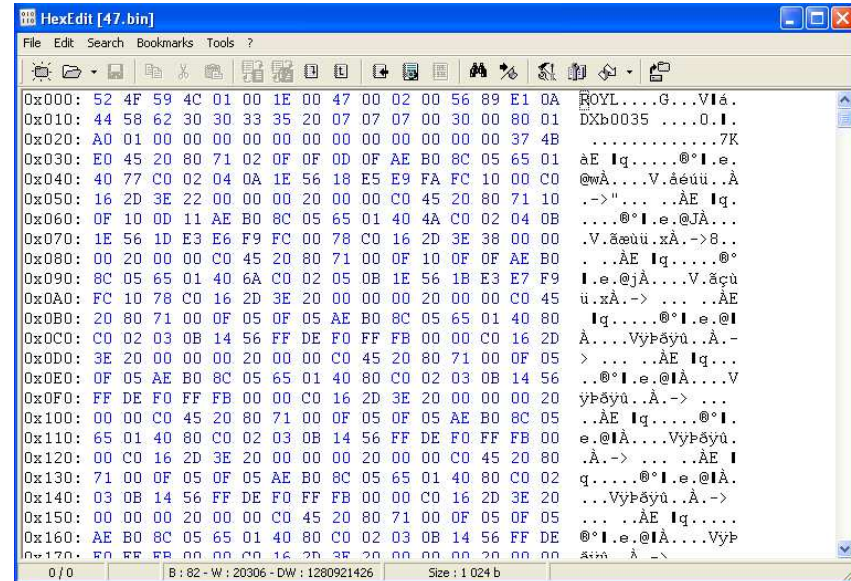
- **ATA Overlay 0011:**
- The ATA Overlay module version is **“000500BG”**.
- When replacing a corrupted ATA overlay module it is necessary to find another module 0011 with the corresponding code **“000500BG”** to be compatible with the HDD ROM version module **4F.bin**.





# Western Digital Compatible PCB Version for Hot Swapping

- **Compatible PCB Version for Hot Swapping:**
- **ROM 47.bin:**
- ROM 47.bin stores the information for the head stack. Inside the 47.bin modules the information for micro jog is stored. It is necessary to compare the two ROM 47.bin modules to make sure they are compatible to be used in hot swapping.



# Western Digital Compatible PCB Version for Hot Swapping

- WD2500JB-00REA0 is an older model Marvell series belonging to the Sterling family. The .bin ROM modules stored in this series are: 0A.bin, 0D.bin, 30.bin and 47.bin. Note there is no 4F.bin module in this series. The ROM version of the HDD does not store information for the ATA overlay modules in this drive series.
- Other Marvell series HDD .bin files are: 0A.bin, 4F.bin, 30.bin, and 47.bin. When the 4F.bin module is present in the ROM.bin special attention needs to be given to the ATA overlay modules in the SA to make sure it is compatible.
- Each drive in the Marvell series stores the 47.bin ROM modules. A comparison needs to be made of the module to assure the head stack is compatible with the patient HDD.

# Western Digital Black I Password Locked

- **Western Digital Black I Password Locked**
- **Problem**
- HDD loads but when viewing sectors all data is shown as “6666” and “ffff”. Drive ending LBA is “8888”
- Black I WDC WD 2500JB-00REA0
- WD WMANK6342159
- 20.00K20
- **Solution**
- HDD is password locked and can not see the data on the drive. Clear the password to see data on the
- **Procedure:**
- 1. Attach HDD to console
- 2. Enter WD program
- 3. Load from HDD
- Note: Status indicates “**HDD is locked**” ending LBA = “8888”

# Western Digital Black I Password Locked

- 4. **View Sector**
- 5. "Offset" = 0 or 1
- 6. "Initial Sector": this can be any sector you choose.
- 7. Other Operations
- 8. Clear Password
- 9. OK
  - Note: the HDD password is still locked and the drive remains in a locked state after clearing the password.
- 10. Power off HDD
- 11. Exit Program
- 12. Enter program
- 13. Power on HDD
- 14. Load from HDD
- \*Note this has not cleared the HDD lock on this drive

# Western Digital Black I Password Locked

- 15 Backup FW
- 16. Make a Backup copy of all FW from HDD
- 17. Check All (Modules)
- 18. "Pri."
- 19. Read
- 20. Check All
- 21. "Sec."
- 22. Read
- 23. Check All (Tracks)
- 24. "Pri."
- 25. Read
- 26. Check All
- 27. "Sec."
- 28. Read
- 29. Locate Module 02
- 30. Double click on the module to open in Hex editor
- Note: Modules 02 is the password lock module

# Western Digital Black I Password Locked

- 31. If it is not possible to clear the HDD lock using the Password Clear function Module 02 need to be uploaded to the HDD from a FW donor drive.
- 32. No FW donor can be found for Module 02 in order to unlock the drive it will need to be edited in the Hex editor and directly written to the drive to clean the password lock on the drive
- 33. Backup FW
- 34. Double click on Parameter module (Module 02)
  - Note: this enters the Hex editor for the modules
  - Locate Password codes
  - Locate 300 Line number and find the 6th placement for Hex cores. This is the Hex line that needs to be changed.

# Western Digital Black I Password Locked

- 35. Edit the code from 0F00 to 0100
- 36. Direct Write
- 37. Exit
- 38. Power off HDD
- 39. Power on HDD
- 40. Load Management
- 41. Load from HDD
- \*note the lock on the drive has been removed.

# Seagate 7200.7 Puma2 Report Very Busy

- **Seagate 7200.7 Puma2 Reports Very Busy**
- **Problem:**
- The HDD is not able to access the data area. When selecting “**LOAD FROM HDD**” the drive reports “**very busy**” status. It is possible to access terminal mode on the HDD but reports an error of “**RESTORE**”.
- **Procedure:**
- Connect HDD to console.
- Enter terminal mode.
- CTRL+Z to read terminal output.
- The terminal log indicates that the drive heads PCB, and key modules are not the problem.
- The HDD has an error in one of the modules. An error message “RESTOR” is showing in the terminal output log.
- An error in the drives SMART is causing the ‘RESTORE’ to appear in the terminal log.
- It is necessary to initialize the HDD SMART to repair the drive



# Seagate 7200.7 Puma2 Report

## Very Busy

- **T>1** (changes to Level 1 commands)
- **T>F** (initialized a forced write commands) this is used to avoid a write failure on the HDD.
- **T>N1** (initialize SMART) it is possible to initialize the SMART on the HDD without destroying user data.
- After the SMART was reinitialized the 'RESTORE" error in terminal mode has been correct. But the drive is still not able to be detected.
- If the HDD is still not able to read it is necessary to check "stuff data" on the HDD. The "stuff" is stored on the same track as "SMART". If the "SMART" was corrupted it is possible that there is also a problem with "stuff".
- **T>CTRL+U** (displays the stuff data log in terminal)
- Display the "stuff" data shows an error code: "**Configured-1 Part # :100403229**". The error code is an indicator that "stuff" has not been set.

# Seagate 7200.7 Puma2 Report

## Very Busy

- **T>AT STUFF** (resets the “stuff on HDD)
- “Stuff” repair will set the HDD back to factory alias.
- The HDD identifies as: “ST2DISK4HEAD” with default LBA: “4292967295”.
- Modify the HDD model number, and original LBA value.
- View sector to check the data on the HDD.
- **Conclusion:**
- The HDD would not identify, when loading from HDD the drive stayed in a very busy state. The terminal log reported that the HDD did not have an error with the heads or the PCB. The terminal log showed an error RESTORE on the output screen. The error indicates a problem in the HDD SMART. Once the SMART was repaired the HDD was still not able to be identified correctly. The STUFF data module is on the same track as the SMART module. It is necessary to repair STUFF, check the identification of the HDD, and modify the parameters in order to access data on the HDD

# Seagate 7200.9 Error Reading APP Code

- **Seagate 7200.9 Error Reading APP Code**
- **Problem**
- The HDD is not recognized in the BIOS, there is no apparent clicking coming from the HDD. The PCB and heads on the drive seem fine from examining the HDD. A problem exists in the FW of the HDD that is causing the drive to not be detected.
- **Procedure**
- 
- 1. Attach HDD to HD Doctor Seagate
- 2. Load from HDD
- 3. HDD will not load
- 4. Enter terminal mode
- 5. Power off/on HDD to receive terminal output log
- 6. Terminal output logs indicates an error “Error Restoring Application Code”, and the HDD is in F-Level.
- 7. The APP Code module on the HDD is broken and needs to be repaired. The APP Code Modules needs to be loaded to the buffer of the HDD. After loading the APP Code Module to buffer the drive can read it from the memory and not from the track.
- 8. Locate donor FW for the HDD.
- 9. The donor FW needs to match the model of the HDD, firmware revision, and first 3 digits of the serial number.
- 10. Back up the donor firmware to make sure that Module 7 App Code module is good.

# Seagate 7200.9 Error Reading APP Code

- 11. Once a donor firmware is located, enter Load Management and manually select the HDD drive family.
- 12. Other Operation; select “Drive to F>”.
- 13. Boot Operation Menu: locate the copy of the back up firmware in the menu box located next to Select Database. Locate the APP Code module from the donor drive.
- 14. Select “Load APP”; do not turn off power to the HDD. If power is lost to the HDD the CE Log error will return. The Load APP application replaces the CE LOG REPAIR. This procedure normally takes 1 to 2 minutes to perform.
- 15. Power must remain on at all time to the HDD once this procedure has finished.
- 16. In order to clone the drive and retrieve data from the HDD remove the IDE cable only and attach to the Data Compass. The drive will remain powered on using the Seagate Doctor. Once attached to the DC on the front panel turn off the Read and Write switches. Power on the DC, select the Run function key to boot the HDD. Enter into the DC Exp menu and back up the HDD.
  - \*Note: If at anytime the HDD loses power it is necessary to perform this procedure again.
- **Conclusion**
- The HDD was not detected in BIOS, the PCB and heads on the drive were fine. The terminal output shows a problem in the APP Code module. It is possible to load a donor APP Code module to the CACHE or Buffer of the HDD so the drive can read from memory. In doing so the HDD can read from the buffer to initialize the drive and retrieve data from the HDD. If power is lost to the drive after the APP Code is loaded to the buffer it is necessary to perform this procedure again

# Hitachi Dynamic Repair

- **Hitachi Dynamic Repair**
- Dynamic repair will repair the NVRAM files on a HDD Hitachi 3.5" when the PCB is damaged.
- **Procedure:**
- PCB damaged locates a new PCB board compatible to your HDD.
- Swap out the PCB board
- Attach the HDD to the HD Doctor for Hitachi
- Initialize the Hitachi program
- Power on the HDD
- Locate a donor resource file for the HDD
- Load from File loading the donor resource file to the HDD
- Read FW
- Check the FW modules in the module listing
- Double click on one FW module to see if you can open and read the module
- The module will show CD14 errors on all bytes inside the module

# Hitachi Dynamic Repair

- NVRAM Operations
- Select Dynamic Repair
- Dynamic repair uses the modules in the SA to repair or update the donor NVRAM on the PCB
- Power off HDD when the repair operation has been completed
- Load management
- Power on HDD
- Load from HDD
- The drive can now boot from the SA A and SA B
- The indicators show the drive ID, serial number, and capacity
- View Sector
- Check the data on the drive by viewing any sector of the HDD after sector 63
- The data on the HDD is readable
- Clone the HDD to a new working HDD to retrieve data from the HDD

# Hitachi NVRAM Structure

- **Hitachi NVRAM Structure**

- 

- **NVRAM Structure:**

- 1: NVRAM version, "A60A"
- 2: Version checksum, "1E602135" (High byte backward, low byte forward)
- 3: FW boot flag. "0×01", boot from SA-A; "0×00" from SA-C, factory copy.
- 4: Head map "00 01 02 00"
- 5: Adaptive parameters of data area, "14F1" (High byte backward, low byte forward)
- 6: Adaptive parameters of data area, "83F8" (High byte backward, low byte forward).
- 7: "XGH7Z3DM", S/N on the label.

# Hitachi Password Removal

- **Hitachi Password Removal**
- On Hitachi HDD the HDD locks for a number of reasons. One a virus has locked the HDD. Two the user has locked the HDD. Three the HDD was shut down incorrectly. Four during a read/write operation the HDD malfunctions and the read/write operation did not complete successfully. In such cases when loading from file you will receive an error message the HDD is locked. In the drive description panel a status indicator indicates the HDD is in a locked state. When the HDD is locked it affects the SA A and B. There is no access to the data area of the HDD. SA C is not affected and the PW module in SA C can be used to unlock the HDD. The HDD has to be switched to factory mode SA C to access the PW modules in SA C to unlock the HDD.



# Hitachi Unlocking PW on 5410

- **Hitachi Unlocking PW on 5410 2.5 HDD:**
- The Hitachi 5410 2.5" HDD password lock is different than other Hitachi HDD. In the 5410 to set the HDD to safe mode to switch to SA C the PCB needs to be removed from the HDD. This is the only way this drive can switch from SA A to SA C. But there is an error in the 5410 design that will not allow the PCB to go to safe mode. In order to put the HDD in safe mode the NVRAM has to be shorted.
- The rest of the procedure is the same as the Appendix when setting the HDD to safe mode. The only different is the procedure to enter safe mode on the 5410 HDD.
- **Procedure:**
- Follow the procedure in the Appendix
- When the program ask to set HDD to save mode
- Remove the PCB from the HDD
- On NVRAM short pins 1 and 4 with tweezers
- Continue to follow the procedure in the Appendix to set the HDD to safe mode
- When the program asks to remove the safe mode jumper remove the tweezers from the NVRAM and continue on with the procedure to set the HDD to SA C
- The rest of the process to remove the PW lock is the same. The only different in the 5410 HDD is how you set the HDD to safe mode.

# Data Compass Recover Data From Bad Sectors

- **Data Compass Recovery Data from Bad Sectors**
- Hitachi HTS4240409AT00 HDD, S/N Q2JE8JKL locks up the OS when attached. The HDD is recognized in the BIOS but when booting from the HDD the system will not boot. When the HDD is attached directly to the MB the OS locks up and will not boot correctly. When the HDD is attached to the USB port the HDD the OS hangs and does not respond.
- **Problem**
- The HDD has bad sectors in the data area.
- **Solution**
- 1. Attach the HDD to the DC
- 2. Power on the DC power supply first then attach the USB to the controller
- 3. Launch the DC Controller program
- 4. Wait for the drive to report on ready DRD and DSC
- 5. Turn off Enable Write so data is not written to the disk surface
- 6. Turn on Enable Read
- 7. Turn off Enable UDMA and enable the PIO mode. The UDMA mode is a high speed read mode and can lock up and hang when bad sectors are encounter. Cloning a disk with extreme bad sectors should be done in PIO mode only.

# Data Compass Recover Data From Bad Sectors

- 8. Attach the destination disk to the PC MB or USB cable. It is recommended to use the MB for cloning. USB to USB is a slow cloning process.
- 9. In a disk with bad sectors it is not recommended to create a shadow disk. If the shadow disk is running the program will directly write data to the source disk. Cases with extreme bad sectors and writing to the disk can result in further data loss.
- 10. Adjust the control knobs for cloning. Bad sectors take time to read and may need to be read more than what the default setting are set for. The controls can be adjusted during the cloning process. Start to clone the HDD and pay attention to how the drive clones. After stop the cloning process and adjust the waiting for readiness time, retry times, soft reset, and hard reset to achieve the maximum sectors read.
- 11. In a case where the HDD has too many bad sectors set the hidden LBA to 1.
- 12. Check the HDD LBA to see if it reports correctly. If the actual LBA the program reports is incorrect manually set the LBA for the HDD.
- 13. Launch the DCEXP program.

# Data Compass Recover Data From Bad Sectors

- 14. Open Disk
- 15. Choose from DC Controller
- 16. Double click on the partition table information
- 17. Open Root directory
- 18. Display the data in the root directory
- 19. In the data area locate the data from the files displayed. The directory tree is the same configuration as your Windows directory tree.
- 20. In a HDD with bad sectors there are two possibilities to recovery data: One by file and two by imaging the entire HDD. If the client only needs certain files on a drive in this condition copy this files to a destination drive first. Take off the most important files and after go back and take the other files. Cloning a drive in this condition can degrade the surface and heads further.
- 21. In the file directory table mark each file for recovery by clicking on the box and adding an X to this file.
- 22. Right click on the file and choose recover files
- 23. Select the destination drive for recovery
- 24. Click on start recovery
- **Conclusion**
- For HDD that have bad sectors in the data area first adjust the DC Controller panel for reading this HDD. Second bring up the DCEXP program and open the source drive from DC Controller. Third open your partition and find your file structure. Select the files for cloning, select your destination drive, and copy the files off the source drive. If the source drives has problems copying these files go to the DC Controller panel and adjust your setting. Try reading the files again and copying them to the target HDD.