

SalvationDATA

HDD Repairer (Seagate Barracuda Series)

DEMO

For Seagate Barracuda VII repair and its data recovery needs

User Manual

Based on HDDR SEAGATE PRO **Barracuda VII module K7**. Last updated on December 16, 2005

SalvationDATA Technology, Inc.

FOR PUBLIC RELEASE

APPROVED

By SalvationDATA Lab at 1:59 pm, Dec 16, 2005

Professional Software Solution for Seagate HDD
A SalvationDATA Product

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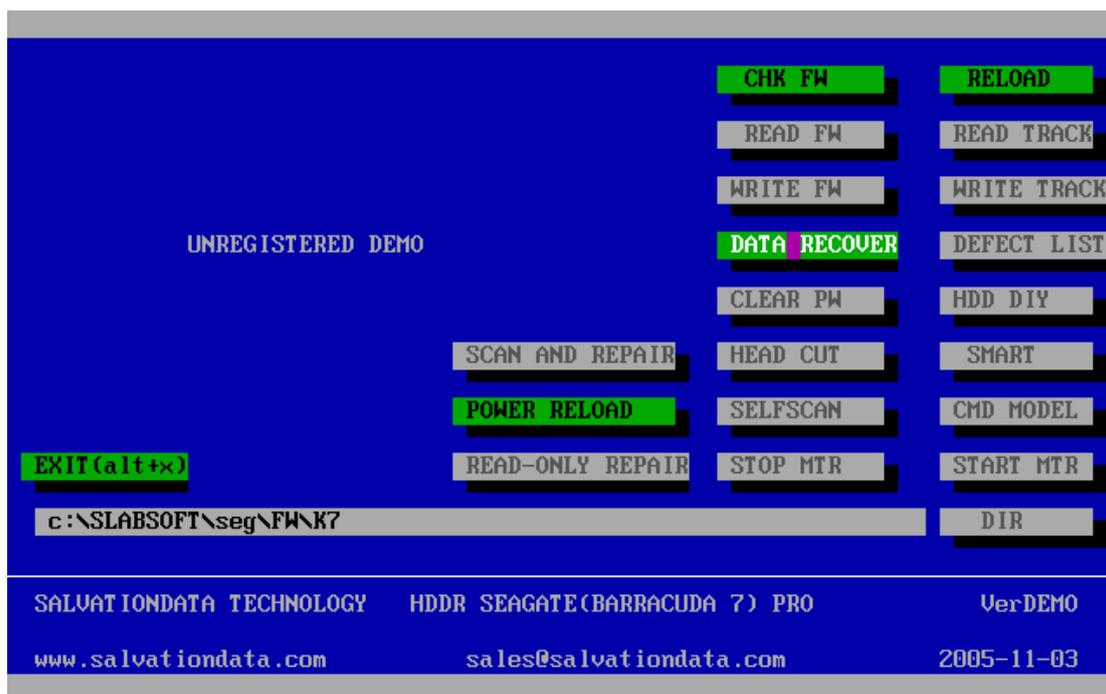
License Agreement

Software Warranty, Guarantee and Discount Coupon

Technical Support

	DEMO Version		PRO Version	
Support List	Barracuda VII		U Series 5 U Series 6 U Series 8 U Series 9CE U Series 10 U Series X Barracuda I Barracuda II Barracuda III Barracuda IV Barracuda V Barracuda VII Momentus 4200.2 Momentus 5400.3 Momentus 7200.1	
Functions	U Series None	Barracuda Series Self Diagnosis Data Recovery Reload Power Reload	U Series Check FW Read FW Write FW Check G-List Clear G-List Check P-List Clear P-List Check T-List G-List to P-List Motor OFF Total Rebuild Clear S.M.A.R.T Read Module Write Module View Head Head Depop/Repop Bad Sector to G-List Bad Sector to P-list Bad Sector to T-List	Barracuda Series Self Diagnosis Read FW Write FW Data Recovery Reload Power Reload Command Mode Motor ON Motor OFF SelfScan Read Track Write Track HDD DIY Head Depop/Repop S.M.A.R.T Manipulation Remove Password Read-Only Repair (Repairing drives report "Fail sys sect.write") Bad Sector Repair (adding P-List) Defect Management (clear G-List, clear P-List, clear T-List, clear ALT-List) Repairing Bad Sector in 43/47 Firmware Zone F Class Malfunction Repair

***Note: The above content would be changed without notification.**



(Figure 01: Main console of HDDR (Seagate) V5.0 DEMO)

Seagate drive families supported by HDDR (Seagate) DEMO V5.0 at present:

Barracuda VII and Barracuda VII SATA, for more supports please purchase the PRO version. (For details of Seagate drive family belongings, please visit Seagate official website at <http://www.seagate.com>).

1. Generals

SalvationDATA HDD Repairer (Seagate) Upgraded Version V5.0 DEMO is developed for Seagate Barracuda VII drives' restoration and data retrieve only (Barracuda 7200.7). This powerful tool enables you to fix an unidentifiable Seagate drive and make data on the drive accessible within 2 minutes. This DEMO provides partial functions of the PRO version only: firmware repair (powerful for unidentifiable drive data recovery), fast read/write firmware based on factory technology, and the most break through technology of running a SelfScan. It can fulfill your restoration and data recovery need towards Seagate Barracuda VII series. The DEMO is made simple-to-use and there are step-by-step operation flows on 2.2.1 Recovering Data from the Defective HDD and 2.2.2 Repairing Defective Drive, which could help you to solve at less 70% Barracuda VII malfunction.

Before using the utility:

Important Attention: The following steps shall occur in the order they are listed unless otherwise specifically allowed.

1. Install the HDD Repairer Seagate DEMO V5.0 on your computer:

You must have Windows 98® installed as the primary operation system before you can install and use the software, this software requires supports from Windows 98®. Run the SETUP.BAT program you obtain from SalvationDATA, select "Y"

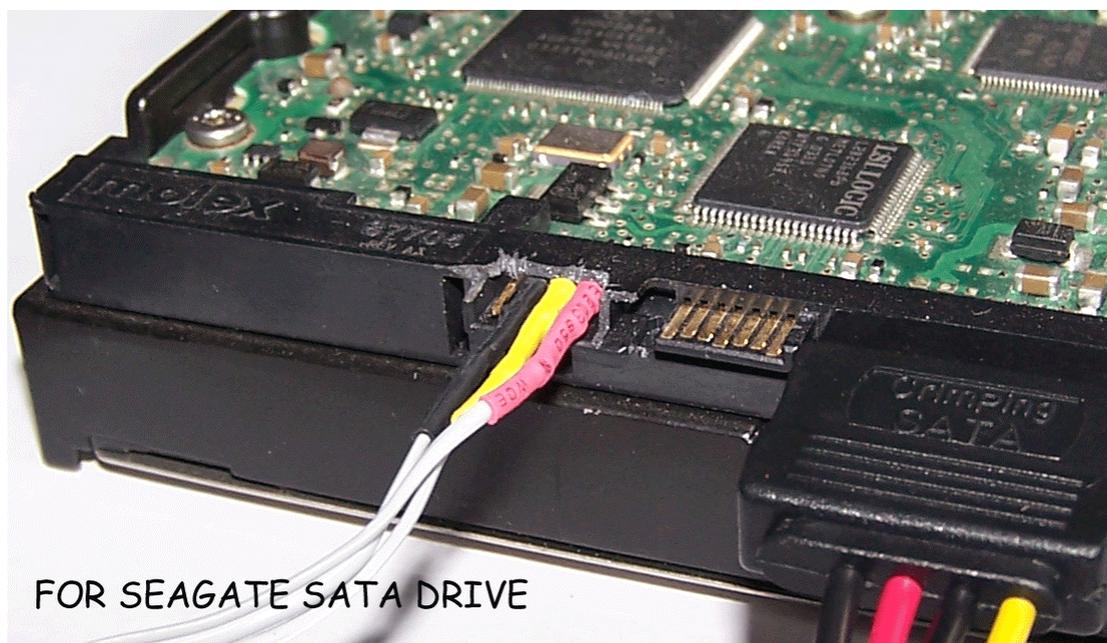
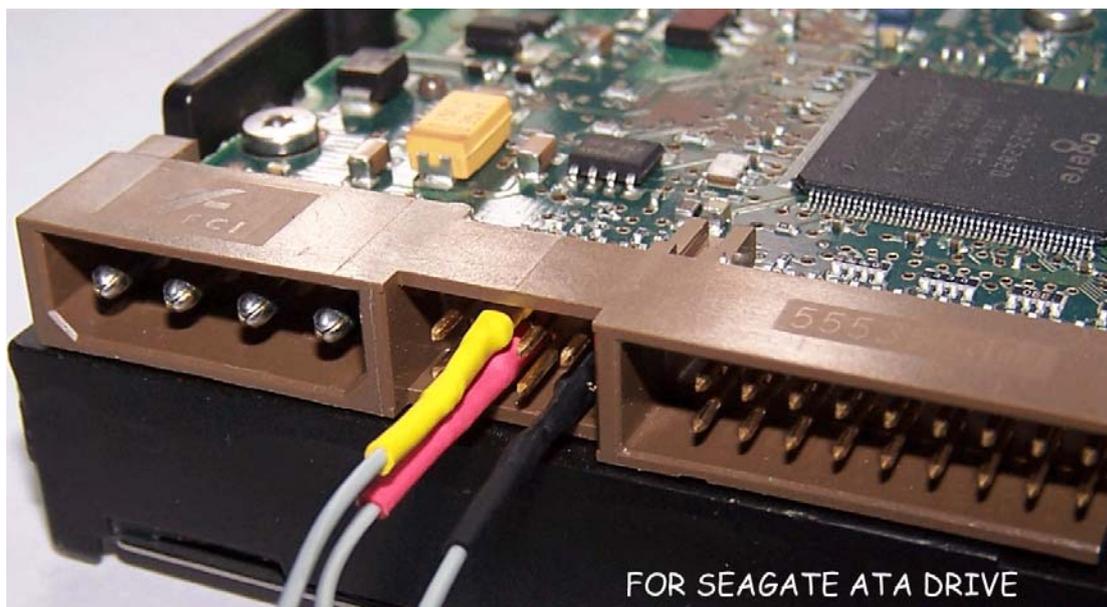
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when asked during the installation; the installer would install the HDDR Seagate DEMO V5.0 on your C:\... automatically (the installation path could not be changed, please make sure your C:\... is formatted as FAT); after the installation finish, restart your computer.

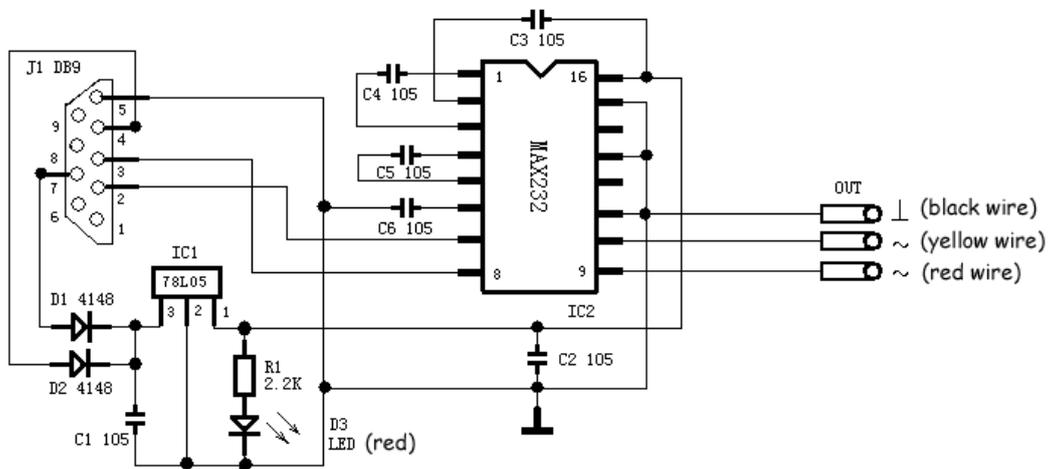
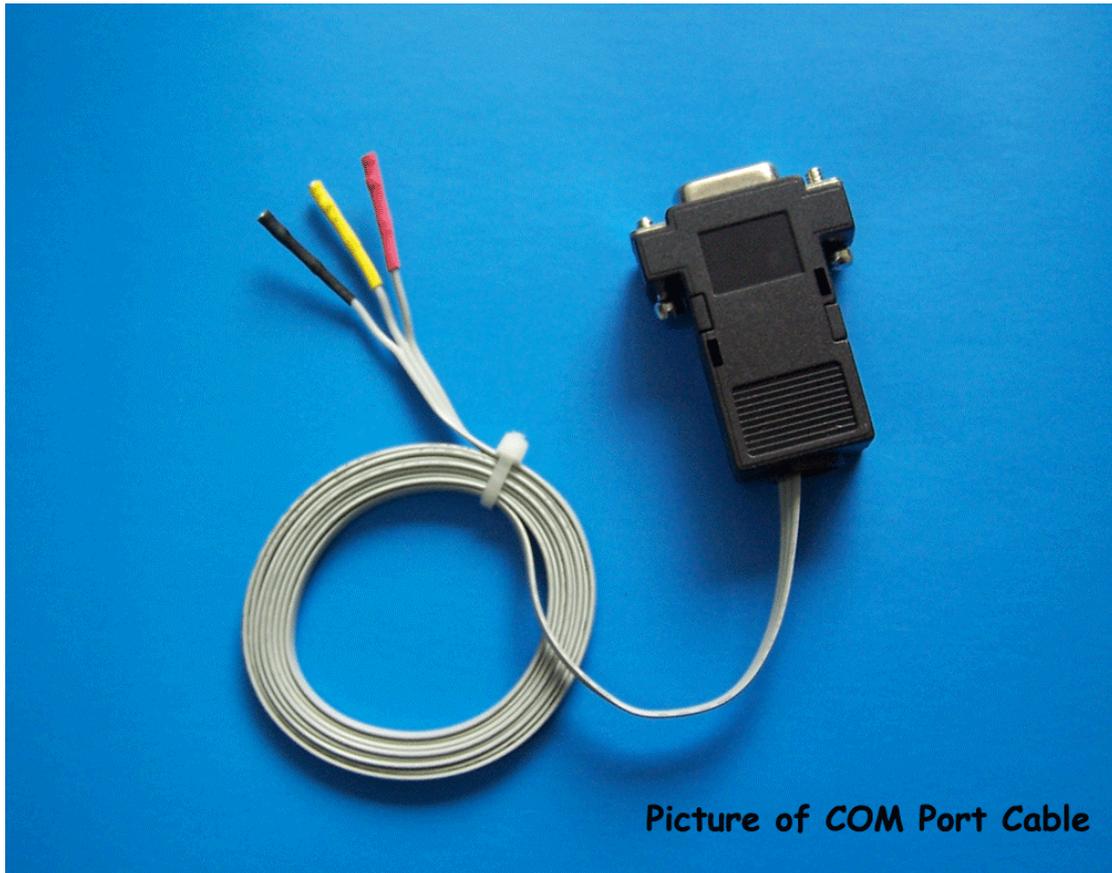
Note: the following steps are what you have to perform every time before you can use the HDDR Seagate DEMO V5.0.

2. Connect the target HDD to the COM2 port correctly with the COM port data cable provided as shown in the following Figures (there are different connections for IDE and SATA drive):



(Figure 02: different COM port data cable connections for ATA/SATA drives)

The terminal with three connectors of different colors (black, yellow and red) should be applied to the jumpers of the drive as the above shown while the other terminal with a COM port interface should be applied to the **COM2** port of the working computer with the software installed.



(Figure +001: Picture of the COM Port Data Cable and its design plan)

If there is any problem of the connection, there would be a “**ERR TYPE**” prompt when you try to run the program on step 6 (see Figure 03), then you would have to check the connection, otherwise the utilities would not function on that “misconnected” drive.

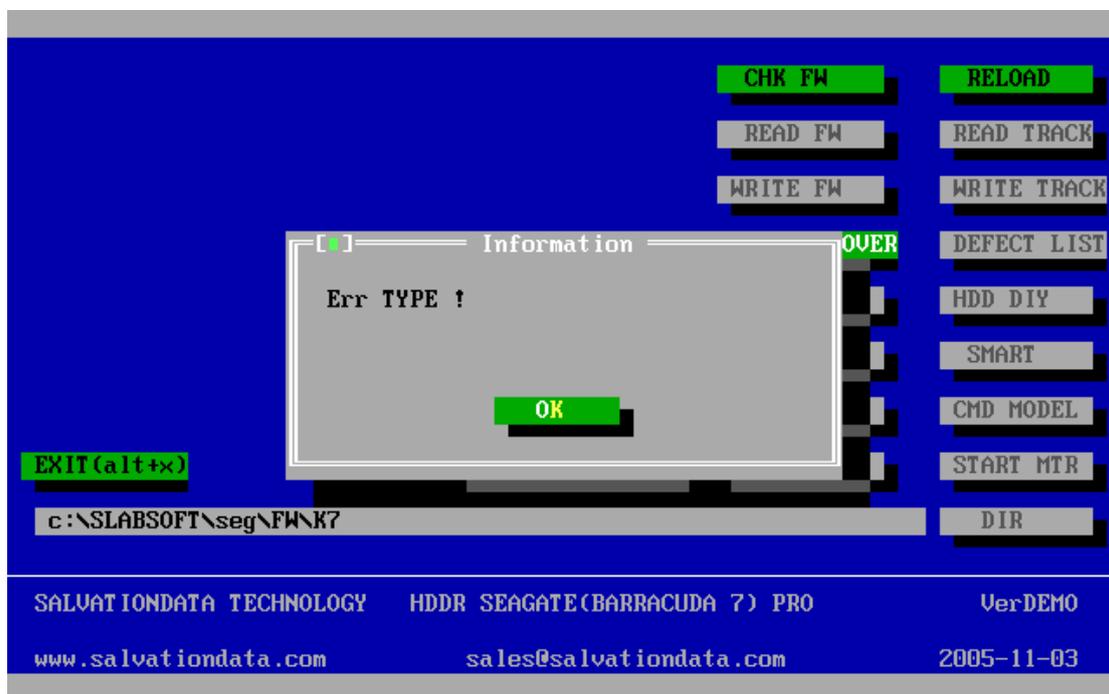
3. Connect the power supply to the drive.

4. **(Very Important)**

Start the computer that has already had the HDDR Seagate PRO V5.0 installed to "6. Safe mode command prompt only" that bypassing all startup files by pressing key [F8] on the keyboard when starting up and selecting the [6. Safe mode command prompt only] option. HDDR Seagate PRO V5.0 needs to be run on pure DOS of Windows 98®.

5. Run the applicable main program (named K7DEMO.BAT) locates in directory C:\SLABSOFT\SEG\... or the one in the root directory C:\..\).

6. After the program had been successfully loaded (it would take about 20 seconds for loading), you will see the program main console as the one shown on Figure 01.



(Figure 03: Error Type)

Windows and Windows 98 are registered trademarks of Microsoft Corporation.

2. Start Using the Utility

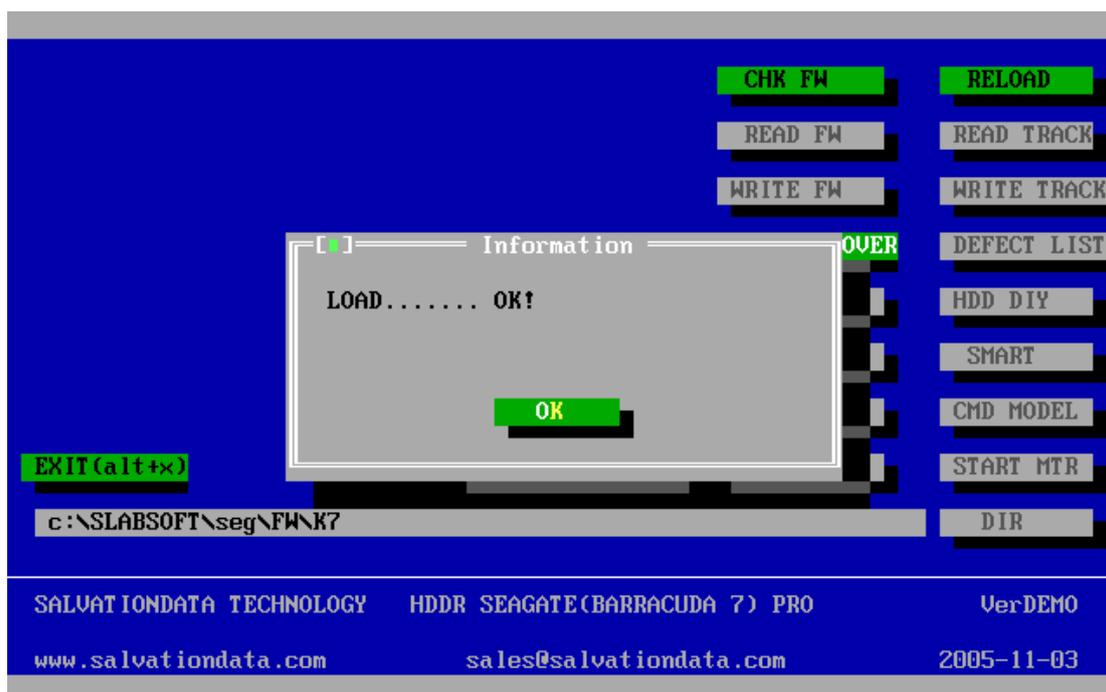
- 2.1 The Utilities

2.1.1 Entering The Program Console

If everything is check passed, you will be entering the console and there will be a prompt "Load...OK" (see Figure 04); or if there is misconnection on the COM port data cable or power supply, there will also be a prompt "ERR TYPE" (see Figure 03). Even when the drive is unidentifiable, as long as there is no problem in its PCB and connection, there would be prompt "Load...OK".

There is another situation that "ERR TYPE" prompt comes forth: when there is malfunction on the PCB of the drive. In this case you can have it solved by swapping the PCB (**Notice: this solution is not suitable for Barracuda VII drives**). When you receive a "ERR TYPE" prompt, you should first try to connect a good drive to enter the program to make sure it is not a problem of the connection.

Here is a simple method for solving the problem that some drives keep receiving "ERR TYPR" for ever: switch off the power supply to the drive; then switch on the power supply to the drive; press **[CTRL+C]** to reset the drive; then perform **[Power Reload]** when the connected drive status becomes ready. In most of the cases, it should be "Load...OK" then.



(Figure 04: Entering the software)

2.1.2 About The Function Keys

2.1.2.1 CHK FW (check firmware)

After you receive a "Load...OK" prompt and then enter the program and gain control, the primary step for your recovery job should be **[CHK FW]**; this step is very important and should never be skipped. Press **[CHK FW]** in the submenu and you will see a display window shown as follows:

```

CHK FW
Close window

3.06 08-21-03 17:50
(P)PATA Reset
MasterAge=50 Type=20 MxCyl=16358 MxHd=0 MxSct=44C BSz=0000
Pgm=50 Trk=0E61C(0E61C).0(0).007(006) Zn=0 Err=00 ErCt=000
:5050000020000000 AX`5JX4E2GQ` `000000000000`0E5F0-0E66F`
SRAM Oonly = AT
ALPINE - 1_Disk 3.06 08-21-03 17:50
Built for ALPINE,GRAND2,Diamondback,TI1761 PreAmp,STL6 And
<(<(Interface task reset
1024k x 16 buffer detected
ALPINE - 1_Disk M.14 01-16-03 11:51
Head Mask 0000 - Switch to full int.
Spin Ready
3.06 08-21-03 17:50
(P)PATA Reset
Master

```

(Figure 05: Diagnosis information window)

Special Tutor: Meanings of the diagnosis information

Row 1: **3.06** represents the firmware version of the drive, **08-21-03 17:50** represents the last modification time of the firmware, basically it is also the date of manufacture. These are two key codes for identifying a firmware module (you may notice that we define the firmware by combining these two key codes **306082103**; you should use this kind of definition rule when you are establishing a firmware backup).

Row 2: **(P) PATA Reset** represents the current drive uses an IDE interface.

Row 3: **MasterAge=50**. This is a very important parameter for determining the current status of the drive: **50** represents normal status, **4F** represents error status; generally you should handle a drive not showing **50** with **[DATA RECOVER]** directly (details about **[DATA RECOVER]** please refer to the following chapters).

TYPE=20 represents the type of the read-write head.

Row 5: **AX `5JX4E2GQ`** represents the serial number of the drive, you could have it changed with **[HDD DIY]** (details about **[HDD DIY]** please refer to the following chapters).

Row 10: **1024K x 16 buffer detected** represents that there is 1 megabyte PCB buffer in the current drive.

Row 11: **ALPINE -1_DISK M.14 01-16-03 11:51** represents the version of the PCB and chipset and manufacture date.

Row 12: **Head Mask 0000 -switch to full int. spin ready** represents read-write head has

been fully initialized, ready to accept instructions.

The **[CHK FW]** utility will generate a copy of **Diagnose.txt** and save in the defined working directory after the **[CHK FW]** finished. You could send this diagnose text to us for assistance if there is any fathomless problem.

Annex: FAQs and solutions.

OVERLAY FAIL. The ATA module has been damaged. (Solution: upload the **1#-ATA** module for replacement, which is downloaded from the drive itself or an identical good drive. Details about upload/download firmware module please refer to the **Read/Write FW** chapters).

RD ERR XXXX.XX.XX. Error found when reading the specific sector, belongs to firmware problem. (Solution: handle with **[DATA RECOVER]**).

STUFF. Hard drive needs to be initialized, also belongs one kind of firmware problem. (Solution: handle with **[DATA RECOVER]**).

Error Reading Boot Adaptives. The key firmware module has gone, operation disabled. (Solution: There is no solution for this kind of drives currently).

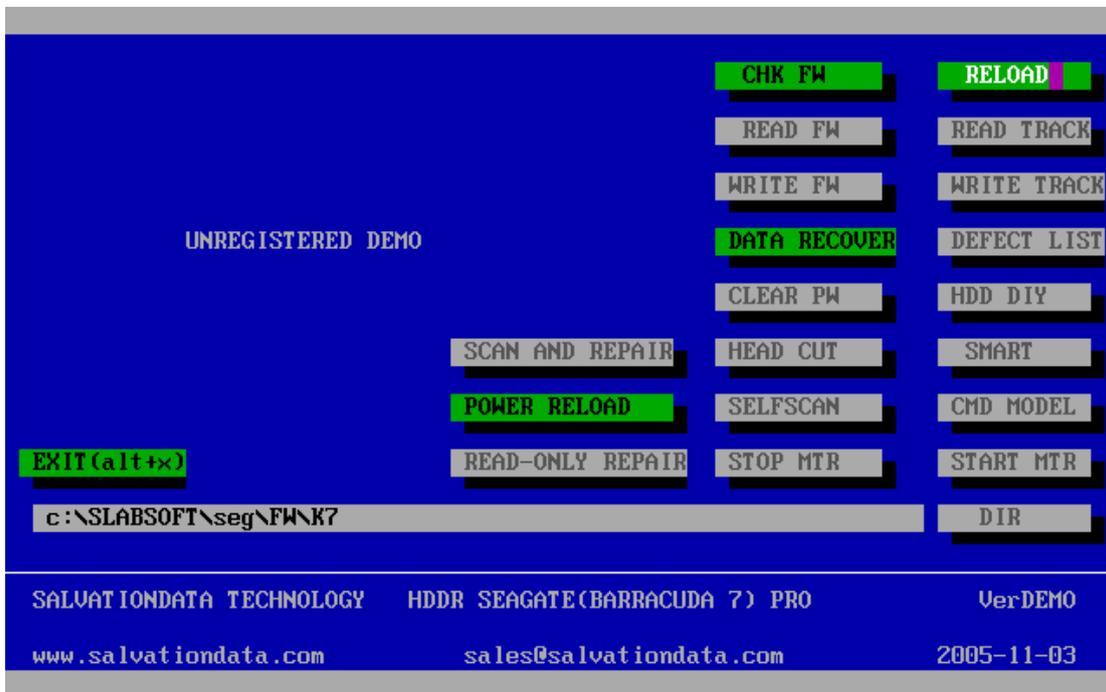
Application code incompatible with serial flash code. The PCB is not matching with the platter. (Solution: have the PCB changed).

Head Mask 000F - Head Mask 000F - Head Mask 000F - Head Mask 000F - Head Mask 000F. The read-write head has been damaged. (Solution: open the platter and have the head changed).

For other FAQs and solutions, please contact us specifically or look into the following thread: <http://www.xlybest.org/ShowPost.asp?id=280> (in Chinese Only).

2.1.2.2 Reload

Used for initializing the connected drive and the program. You would need to use this function after you perform a “disconnection-connection” of the power supply or data cable operation to the drive due to some reasons without restarting the program; the re-connected drive and the program would initialize and be standby after that. Also this Reload could be used for initializing the connected drive when you go from one operation to another.



(Figure 06: Reload)

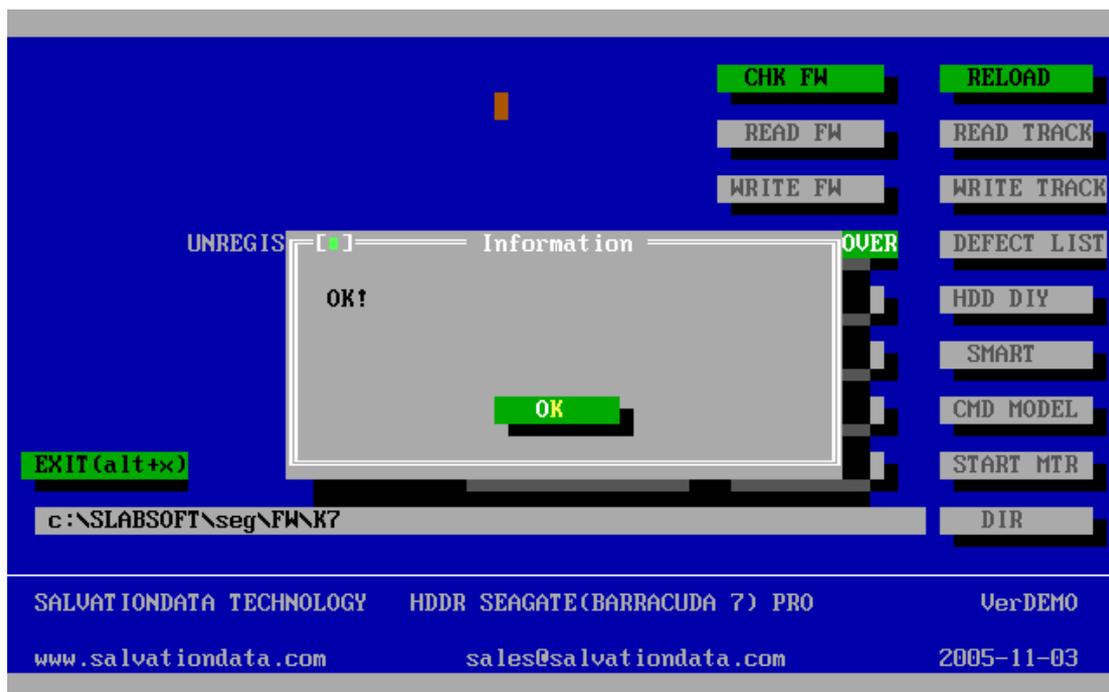
2.1.2.3 DATA RECOVER (corrects firmware module malfunction)

[DATA RECOVER] is the most excellent utility for data recovery and drive repair. For those drives which are unidentifiable in the BIOS, keep showing "BUSY" when connected with MHDD, **[DATA RECOVER]** takes about 2 minutes only to have it fixed, all the data on the connected drive would be protected during the **[DATA RECOVER]** and would be accessible right after the **[DATA RECOVER]**.

Note:

1. Run [Reload] before running **[DATA RECOVER]**, especially in situation that you have just run another utility in the software.
2. During the **[DATA RECOVER]**, the software would lock your mouse until it finishes the work and prompt you "OK!" (See figure 07).
3. After **[DATA RECOVER]** you could load the connected drive on your system and extract all the data directly (pay attention to the jumper setting).
4. You would also need to run **[DATA RECOVER]** after you performed **[Total SelfScan]** and had the 1#-ATA uploaded to finish the routine (Refer to follow section on SelfScan).

More than 90% of the defective Seagate drives not identified in the BIOS could be fixed by **[DATA RECOVER]** and data retrieved.



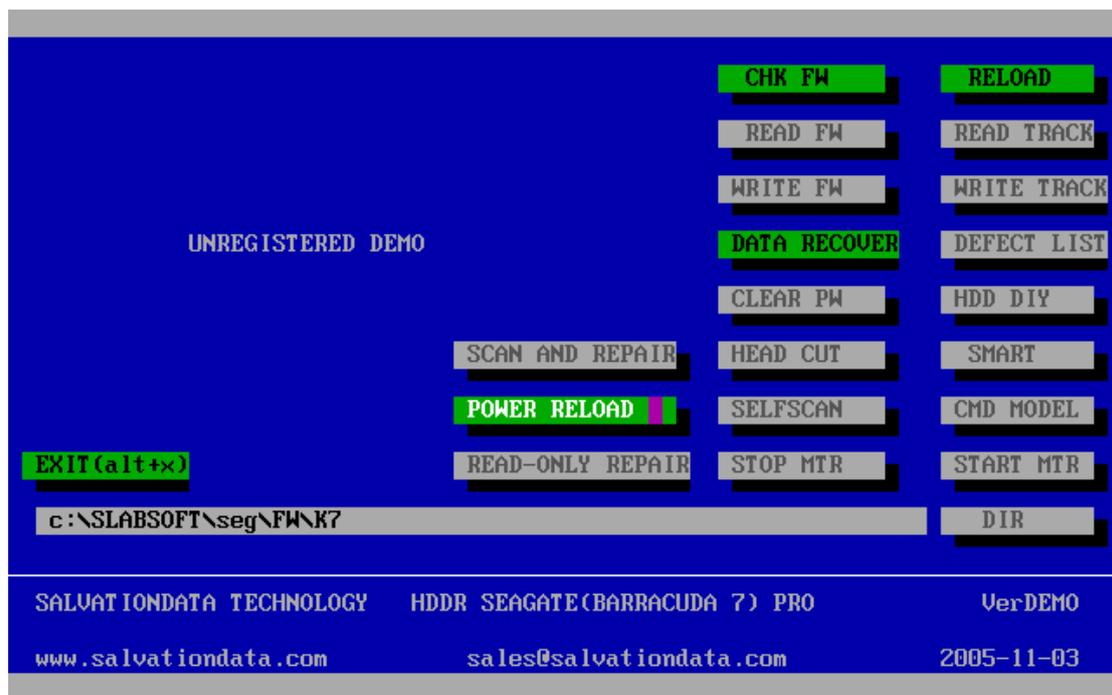
(Figure 07: DATA RECOVER)

2.1.2.4 Power Reload (to compulsorily load the connected drive)

Function for resolving drive-loading problems. Use this utility to compulsorily manually load the connected drive if the software fails to detect and have the connected drive loaded.

Note:

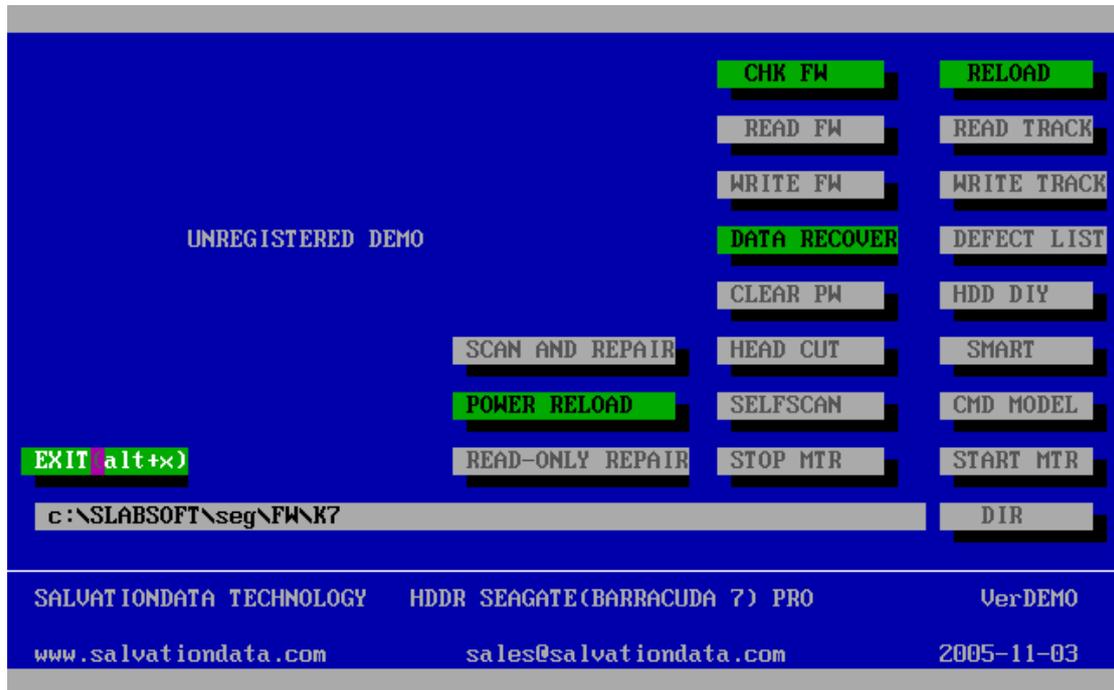
Use the corresponding software module to load the connected drive based on its model. For example use Barracuda 7 module for Seagate Barracuda VII series drives (see 3. Annex for details).



(Figure 08: Power Reload)

2.1.2.5 Exit (exit the program directly)

Exit to the DOS command line mode by pressing the **[Exit]** button or **[ALT+X]**.



(Figure 09: Exit the program)

- 2.2 Quick Direction On Data Recovery and Drive Repair

2.2.1 Recovering Data from the Defective HDD

Connect the drive -- Enter the software -- "Load...OK" -- Run [**Data Recovery**].

Note:

For **quick direction**, in case the recovery fails the first time you run, please repeat the total **direction** for 2-3 times.

2.2.2 Repairing Defective Drive (for drive without data recovery need only)

The following steps shall be carried out only after: have had the data on the connected drive retrieved and extracted to another good HDD; there is no need for data recovery. Doing the following would have all data on the connected drive lost.

You need the PRO version to perform a defective drive recovery.

1. Connect the drive -- Enter the software -- "Load...OK" -- Run **[CHK FW]** -- Define a folder for storing firmware backup -- Select [Read FW] -- Run [Read All] -- Select [SelfScan] -- Run [Total SelfScan] -- Verify the SelfScan finishes via [View SelfScan] or [CMD Mode] -- Run [Stop SelfScan] -- Select [Write FW] -- Run [Write 1#-ATA] -- Run [DATA RECOVER] -- Run a total "Zero Fill".
2. Connect the drive -- Enter the software -- "Load...OK" -- Run **[CHK FW]** -- Define a folder for storing firmware backup -- Select [Read FW] -- Run [Read All] -- Run [Reset SMART] -- Run [Clear G-List] -- Run a total "Zero Fill" -- Add bad sector left back into G-list by HDD Doctor HYDRA or HDD Scan and Repair Demo 3.0. (HDD Scan and Repair Demo 3.0 is available on our website).

Note:

Solution 1 works on most of the Seagate drives. **DO NOT** perform SelfScan towards Seagate Barracuda VII drives that checked to be read-only (shown as **Fail Sys Sect.Write** in **[CHK FW]**) directly but run **[READ-ONLY REPAIR]** (non-available for DEMO version) to have it fixed first (See **2.1.2.17 Read-only Repair in the PRO version user manual**).

2.2.3 Utilities for Assistance Use

Power Data Extractor PRO - For some defective drives would report an "HDD Fail" or could not be accessed even you got the firmware of it restored, so that the data could not be extracted directly; this is because the defective drive has lots of bad sectors, you could have it repair by fixing the bad sectors, but this would surely have your data overwritten and never retrievable. Power Data Extractor PRO is a utility specially designed for this kind of situation, as long as you have the defective drive identified by BIOS, you could then extract all the available data on that defective drive.

SalvationDATA HDD SHARPOR – A device specially designed by SalvationDATA Laboratory for fast HDD Low-level format/ zero-fill use.

SalvationDATA HDD Doctor HYDRA - Professional hardware device capable for assistance in repairing all kinds of hard drives... Now looking for overseas agents, visit our official website at <http://www.salvationdata.com> for details.

For more firmware backup please visit <http://www.hddf.com> (in Chinese only) or contact SalvationDATA Technology directly.

3. Annex

Index of Seagate Barracuda VII series drives

Series	Model No.	Capacity	Interface	RPM	Physical Head
Barracuda7200.7	ST3160021A	160G	Ultra ATA/100	7200	4
	ST3160023A	160G	Ultra ATA/100	7200	4
	ST3120022A	120G	Ultra ATA/100	7200	3
	ST3120026A	120G	Ultra ATA/100	7200	3
	ST380011A	80G	Ultra ATA/100	7200	2
	ST380013A	80G	Ultra ATA/100	7200	2
	ST340014A	40G	Ultra ATA/100	7200	1
Barracuda7200.7 Plus	ST3200822A	200G	Ultra ATA/100	7200	4
	ST3200021A	200G	Ultra ATA/100	7200	4
Barracuda7200.7 SATA	ST3160827AS	160G	SATA	7200	4
	ST3160023AS	160G	SATA	7200	4
	ST3160021AS	160G	SATA	7200	4
	ST3120827AS	120G	SATA	7200	3
	ST3120026AS	120G	SATA	7200	3
	ST3120022AS	120G	SATA	7200	3
	ST380817AS	80G	SATA	7200	2
	ST380013AS	80G	SATA	7200	2
	ST380011AS	80G	SATA	7200	2
	ST340111AS	40G	SATA	7200	1
	ST340014AS	40G	SATA	7200	1

Note: For drives with model numbers not including in the above forms, you could go search them on the Seagate official website at <http://www.seagate.com> for their family belongings.

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HDDR Seagate Professional Guarantee and Discount Coupon

SalvationDATA Technology, Inc. guarantees that HDDR Seagate Professional will perform as stated. If HDDR Seagate Professional is not able to assist in recovering your data, we will apply the purchase price to our in-lab Data Recovery Services (This coupon does not apply to Upgrades. This coupon also cannot be used with any discount offers). Coupon will be honored once, up to one year from the original purchase date, per registered user. User must provide proof of purchase.

Thank you.

Technical Support

If you encounter any problem during installing or using SalvationDATA HDDR (Seagate) DEMO, please visit us at <http://www.salvationdata.com> for FAQs or quiz on the forum for supports. We will do our best providing service to you.

If you are a registered user of SalvationDATA products, please quote us your information when you face us for services, we will treat it as top priority.

Thank you again for using SalvationDATA product.