

MSB TECHNOLOGY

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384 kHz 32-bit Audio is Here!

DATA CD IV USERS MANUAL REV 2 (3/12)

DATA CD IV SPECIFICATIONS

OUTPUTS:	COAXIAL, TOSLINK, BALANCED AES/EBU, MSB NETWORK AND THREE EXPANSION SLOTS.
CAPABILITY:	RED BOOK CD AND .WAV FILES ON DVD UP TO 32 BIT, 384kHz
OPTIONS:	UPSAMPLING OR DOWNSAMPLING UP TO 384 kHz (FOR NON- MSB DACs)
DRIVE:	USER CHANGABLE S-ATA CD ROM DRIVE

DATA CD IV USERS MANUAL

UNIQUE PRODUCT - A CD TRANSPORT USING A COMPUTER DRIVE?

MSB has lead the industry with the perfection of new playback technologies. We produced the first high-end CD player using Ladder DAC technology in the 1980s. Then the first AC3 player and first THX approved laser disc player in the 90s. Our XPORT upgrade finally gave access to SACD and high resolution music on discs and our groundbreaking iLink digital iPod system introduced in 2007. Now the MSB Platinum DATA CD IV Transport is an optimized player for standard CDs and high resolution audio from CDs and DVDs (like the HRx discs by Reference Recordings). It sends perfected, jitter-free digital audio data from its solid state memory to any Digital to Analog Converter (DAC)..

THE UPSAMPLING UPGRADE

Upsampling is a good thing in an audio system. It is an option with this transport. It is also a part of the MSB Platinum DAC. Upsampling twice is a bad thing so if you have the MSB DAC IV, then you do not need the upsampling upgrade. Other DACs will probably benefit from MSB upsampling. Why does upsampling change the sound of a DAC? Different digital filters are used for different input sample frequencies. They sound different. Most DACs will sound much better with an equivalent higher frequency input, and for those, upsampling can be a real benefit.

SETUP AND QUICK START

The front panel is quite simple with few user controls. Insert the disc and play.

Power - The Data CD IV requires a 12 volt DC supply. Such a supply is available on the Platinum DAC Power Base. A separate Desktop supply is also available.

Outputs - The Platinum comes standard with one MSB Network (CAT5), AES/EBU balanced, coaxial (RCA) and optical digital audio outputs, ranked in order of performance. Connect any digital output to any DAC.

What to Play

This transport will play standard audio CDs and will play UDF format .WAV files stored on a DVD.

BURN-IN

The concept of burn-in is little understood. Does it take your ears some time to get used to the incredibly detailed and life-like sound of an MSB product or is something actually changing? The feedback we receive leads us to recommend at least 100 hours of burn-in on this Product. Customers generally recommend one month.

Warning: Please verify that the product you just purchased is covered under warranty. This DAC was sold to the Distributor named on your box label and in the "about" section of your setup screen. The country and date of manufacture is also specified. If the country and year do not match your purchase location, your warranty may be invalid. Check with MSB.

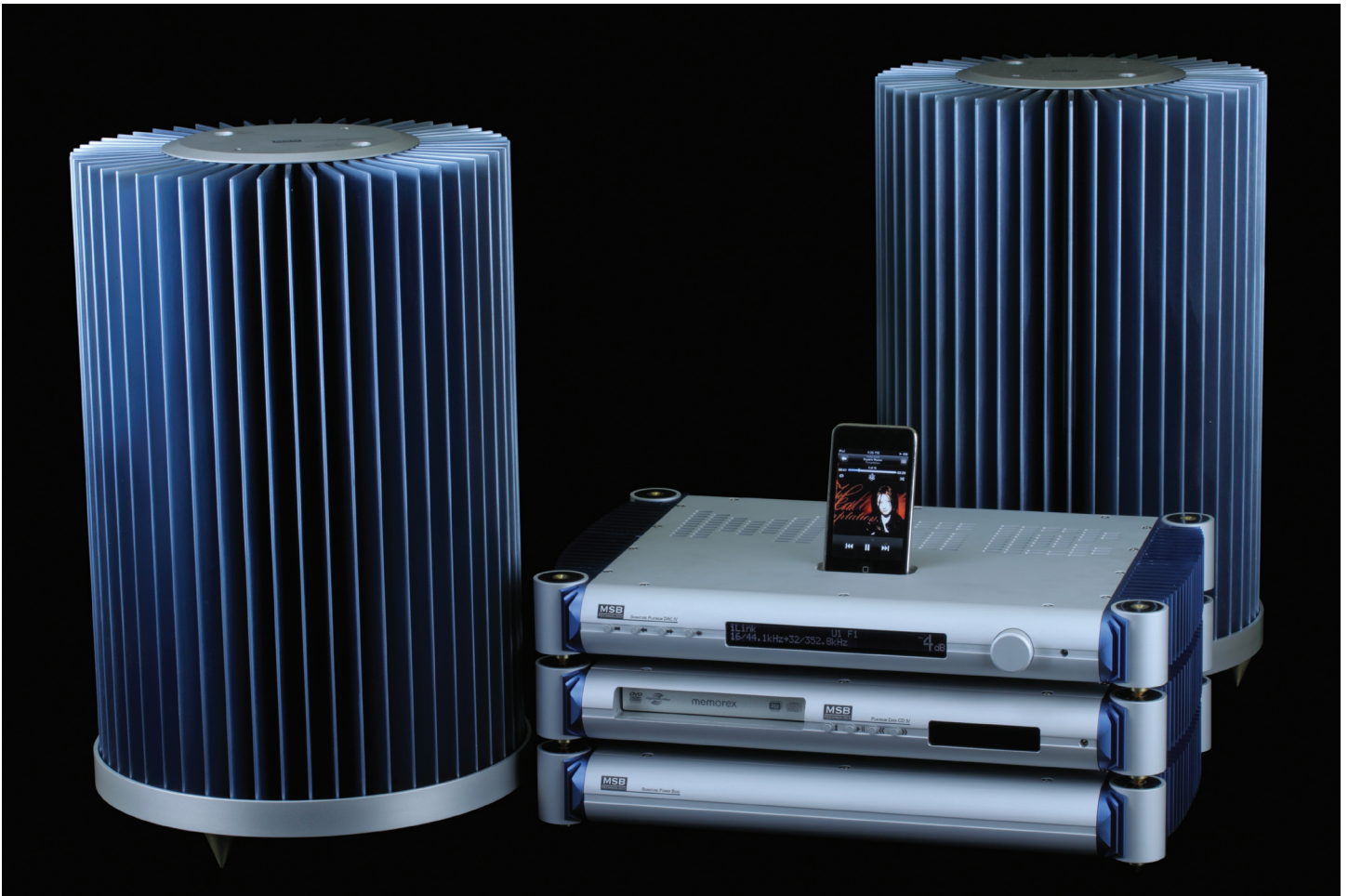
The MSB PRO I2S Network

One of the most powerful features of MSB products is the PRO I2S network. Most new MSB products have a PRO I2S connection available. The MSB PRO I2S has the following capability:

- Works with standard CAT6 cable
- Simultaneous transmission of 8 audio channels with 32 bit resolution at 384 kHz sampling rate.
- MSB CAN Interbox communication Bus (for communications between boxes)
- Low Jitter master clock distribution from the DAC back to the Transport.

This network is our answer to 384 kHz audio transmission and multichannel transmission in the same package. We provide network outputs on our own transports and offer a source upgrade to your transport as well. With multichannel sources, up to 8 channels of decoded data can be sent through one wire to separate DACs. CAT6 wire is very convenient as it has become the standard for all computer networks. Several cables are available for connecting MSB transports to the Platinum Line including CAT6 cable at any length up to 80 feet.





Here is the complete MSB System, available in Matt White or Satin Black.

FUTURE UPGRADES

The DATA CD IV contains some really amazing technology. Most of it is quite hidden in every way but the superb sound. This product contains several very large processors and lots of room for further improvements and features. Your investment will prove to be a wise one.

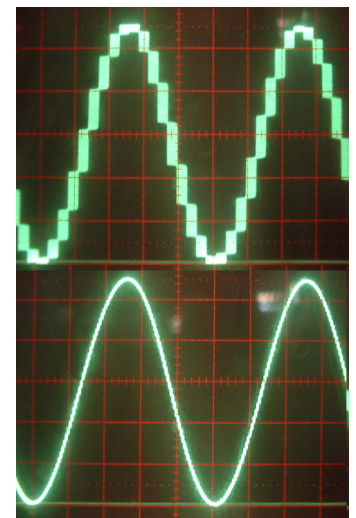
UPSAMPLING

Upsampling has been in and out of vogue for many years. Its benefit has been obvious in one DAC and nonexistent in another. Here is a simple explanation of why MSB feels upsampling is important. Typically the most processor intensive task in a DAC is the digital filtering. A digital filter takes a look at a window of the music being played, and because that music was received from a digital source, there are holes in it, between data bytes. The filter looks at the shape of the signal in the window and tries to figure out what the missing data is. The bigger the window, the better a job it does, and the bigger processor is needed.

Well depending on the sample frequency of the incoming data, a different digital filter is run. Each is a little different and each may not sound the same. As a result, CDs at 16 bit and 44.1 kHz might sound better or worse than 24 bit 96 kHz files in a particular DAC. But generally, the higher the sampling frequency, the more processor power can be applied to look at a bigger window and the better job the digital filter can do. So we recommend synchronous upsampling, where the original data points are preserved, but the spaces between them are filled in.

The MSB upsampling is a part of our Platinum DACs and does not need to be duplicated in the transport, but in the case where this transport may be used with another DAC, the upsampling upgrade would be worthwhile.

UPSAMPLING
EFFECT



**SIGN WAVE (0 DB, 19.95 kHz TEST TONE
SCOPE SETTINGS 2 V/DIV, 10 USEC/DIV)**

LOADING NEW FIRMWARE

Loading new Firmware will permanently change the operation of your Transport. MSB Technology can configure custom software for your DSP to meet virtually any requirement. Playing a CD track containing the new firmware will erase the current software and replace it with the contents of the update file. The firmware update process takes about 20-30 seconds and you **MUST NOT INTERRUPT THE POWER TO THE CD PLAYER** while the new firmware is loading. You must wait for the message after the Firmware Update before interrupting your Platinums power. If the power to the Platinum is interrupted during a firmware update you will have to return it to MSB for reprogramming. MSB will charge you a small fee for this service. If you have accidentally loaded firmware that you do not wish to have on your Platinum do not try to cancel it while it is loading, simply wait for the update to complete and then load the firmware you do wish to have.

Step One, Burn the CD - When burning a CD containing the new firmware you must burn the .wav audio file directly to a CD without first converting it to another audio format such as MP3. Converting the .wav file to another format will destroy the careful formatting which allows the unit to load filters directly from a CD. The burning program you use must be bit perfect.

Step Two, Play the CD - If the file has not been burned to the CD bit perfect, the track containing the new firmware will play an introduction and a short tone followed by a Firmware Update Failed message. With a successful load the tone will just be followed by a 5 to 15 second silence followed by music. The new firmware is loaded but not running at this point, you need to reset power to your unit.

Step Three, Enjoy Your New Features - Custom Firmware permanently changes the software running on your unit. This change occurs immediately following a firmware update. If you are not happy with your new firmware simply load your old firmware using the instructions above.



REAR PANEL DIGITAL DETAILS - (RIGHT TO LEFT)

Power Input – This product must be plugged into a Platinum power base with the 12 V optional digital supply. It will not work with any previous MSB power supplies such as the P1000. An alternative would be the 12 V desktop supply also available. Connector pinnout is shown below.

RS-232 – The RS-232 optional port is used for controlling the transport using a remote system.

Toslink – Although this format has the lowest bandwidth, it is one of the more common outputs on low-end products. It also offers ground isolation between products and noise immunity over long runs. It is unlikely to work at sample rates over 192 kHz.

Coaxial – A good output for short runs and lower frequencies. Limited to 384 kHz, 24 bit data.

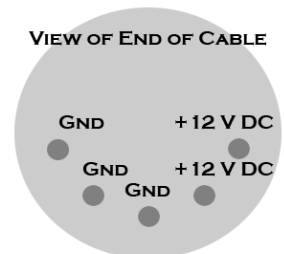
Balanced digital – The AES/EBU Professional output is the preferred output. The balanced nature of this output allows great cable lengths as well as total noise immunity. Limited to 384 kHz, 24 bit data.

MSB Network – The MSB Network uses CAT-6 cabling. It provides an output for use with other MSB products. It can handle data up to 384 kHz and 32 bits.

Aux 1, 2 and 3 – These are currently undefined for future features.



Desktop Supply for DATA CD IV



Power Base Connection Diagram



FRONT PANEL

Although the user interface is very simple and easy to use, in depth menus allow complete control of the Transport

Menu Select (front panel only) – Press the << and >> buttons at the same time on the front panel. It will enter the setup mode at the top of the menu tree. If in the setup, and it doesn't matter where, this same combination will exit the setup and return to the normal operational mode. When in the menu, the << and >> buttons navigate right and left with the >> button making the selections. The Eject button navigates up and the Play button navigates down.

Eject – The eject button on either the front panel or remote will stop the disc and open the drawer. When the drawer is open, it will close the drawer and start the disc playing.



Play/Pause - This button on either the front or remote toggles between play and pause.

Track/Scan - The right and left arrow buttons on the front of the unit or remote will jump tracks when pressed and will scan within the track if held for more than 3 seconds.

Display - The display shows the CD time in the top line and the source bit depth and sample frequency on the bottom line. The current track is displayed on the right in large numbers. Additional indications of special features are displayed. Details are described with that feature.

REMOTE ONLY CONTROLS

The MSB remote can be used to operate several MSB products. The top half is primary for the transport. The center is for the DAC and the lower part for the iLink.

Power – The power button turns on and off the Power Base when the optional front controls have been installed. If your Platinum Power Base does not have a switch on the front, this button will do nothing. When the power base is linked to the Amplifiers and any other MSB products, this button will turn off the entire system. (see power base manual for details)

Numerical Keypad – . The desired track can be directly selected. For single digit tracks such as track 1 you may type 01 for instant access or type 1 and wait a moment.

Stop – Stops the CD from playing but does not eject it.

Repeat – Toggles between three modes. OFF - Track Repeat - Disc Repeat. Display shows a T after the time if on Track repeat and an A for disc repeat or repeat All.

* – This button is reserved for future features.

– This button does nothing unless the upsampling option is installed. Then it toggles between OFF - Inter-sample Harshness Correction (ISHC) ON - ISHC and Upsampling ON. With an MSB DAC, these features are included in the DAC and this should be set to OFF. With any other DAC, ISHC should always be left on and upsampling can be turned on and off as you prefer. The display indicates HC when ISHC is on and indicates both HC and shows a right arrow > and the frequency being upsampled to on the source line, for example, 16/44.1 > 384 showing that a CD is being played and is being upsampled to 384 kHz.

Batteries – The remote control requires two CR2025 Lithium batteries.



MENU OPTIONS

The high level menu options have to do with operation settings. They are things that you may want to change on the fly as you listen to different music or with different equipment. The second level menu options have to do with setup parameter - things you will only need to set once. In most cases you will not need to change any of these settings. See the Menu tree for details.

Upsampling on/off - Upsamples all music being played to the output limit set. Option must be installed for this feature to work. For example if your DAC cannot play 384 kHz files, you would set the limit to 192kHz. Then any file played would be upsampled - or downsampled to 192kHz.

Upsampler Select - Upsampling algorithms may also be selected from among the preloaded options.

About - Displays information about the unit including the version number, serial number, distributor, and year of manufacture.

Output Limit - This limits the output sample rate for cases where a DAC will be used that cannot handle the higher sample rates that the MSB DATA CD IV produces. Higher sample rate files can be played, but will be downsampled to accommodate the limits of your older MSB DAC or non-MSB DAC.

ISHC - Turns on and off Inter-sample Harshness Correction. This should always be left off for use with MSB DACs as they already have this feature and turned on for use with any other DAC.

Display Brightness - Adjustable from 1 to 15.

Display on/off - When turned off, the display pops on for a bit any time anything is adjusted, then turns off again.

Restore Settings - Puts settings back to factory default setting.

TROUBLESHOOTING

No Sound and Display (reads “No Disc”) - The disc is badly damaged or of an unsupported format.

No Output Bit Depth indicated on Display (reads “0 bits”) - This means a disc is detected but is not playing. Press Play to be sure it is playing.

Does not eject or play - Power off and on. Press eject during the power up phase.

No sound but Display indicates frequency and bit depth and time is changing - This means your disc is playing for sure. The problem lies in your connection to the DAC or your DAC settings. Be sure you are not playing a file with a sample rate that exceeds your DACs capability.

WARRANTY

All MSB products carry a one year warranty in the country of origin. No returns accepted without an RMA. All units must be returned to the distributor in the country of origin. The DAC displays the distributor in the “about” tab of the menu. The power base has the distributor and country printed on the box. MSB will not make warranty repairs on grey market products. Be sure the product you purchased is authorized to be in your country. Upon receipt, MSB will repair or replace any defective product. All product shipped FOB Aptos. Shipping and shipping damage is the responsibility of the consignee.

THE CD DRIVE

The drive is the key component of most CD Transports but over the 20 plus years we have been designing and building CD Transports and players we have always sought a way to gain the performance we wanted without having to depend on the quality of a mass produced drive. This new computer approach to reading a CD divorces us completely from total dependence on the drive quality and reliability. We listened to, and tested dozens of drives before selecting the one we have, but lets face it, drives contain moving parts that fail over time. For that reason we adopted the same idea as the designer of your computer. We use a totally stock drive which you can easily replace yourself. We have chosen what we think is the best drive available today but if tomorrow you, or we come across another drive you can just pop it in and see how it sounds. Any S/ATA CD/DVD ROM drive will work. The drive performs just one function, it reads the data from the disc, the same exact function the drive performs in the computer. As we control the drive, as long as it does what it is told, it should perform well. The art in this product is knowing what to tell that drive to do, and what to do with the data once we have it.

PUTTING .WAV FILES ON A DVD

Any .wav audio file can be played with this transport up to 384 kHz and 32 bit. Burn a DVD with the UDF file format and do not make the DVD multi-session. MSB provides a complete set of test files on the MSB web site that can be downloaded and burned to a DVD. When played, the Platinum DAC IV will verify that the files have been downloaded and burned to a DVD bit perfect, so you can have confidence that when you transfer music files, they are correct.

DATA CD IV
Menu Tree

Press the << and >> buttons on the front panel to enter the menus.

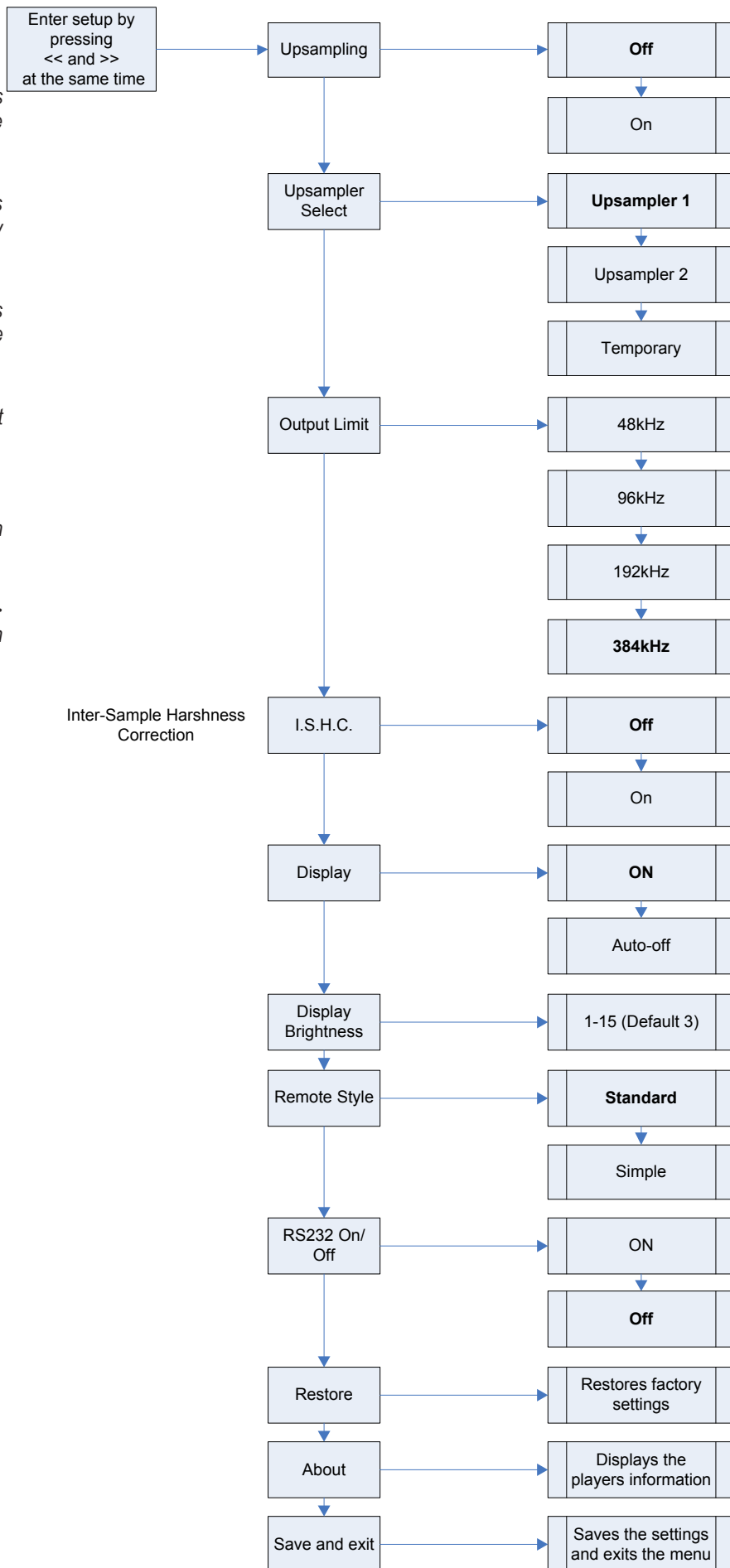
Navigate up and down the options with the front panel Eject and Play buttons.

Use the << and >> arrow buttons to navigate right and left in the menus on the front panel.

Use the the >> button on the front panel to select.

The default settings are shown on the chart in **bold** type.

To exit, press the << and >> together again, or select exit from the menu options.





Here is the procedure for changing the drive.

Removal of the cover - Unplug the AC power. Work on a clean surface. Start by removing the 14 screws of the cover. Carefully remove and set aside the cover.

Unplug the drive connector - A single connector unplugs from the back of the drive.

Remove 4 screws - Turn over the unit and remove the 4 silver screws as shown.

Slide out drive - Pull the drive away from the front panel into the box.

Install the new drive - Slide in the new drive and re-assemble. Note the damping material on the MSB drive provides for quieter operation. You may transfer this foam if desired.

