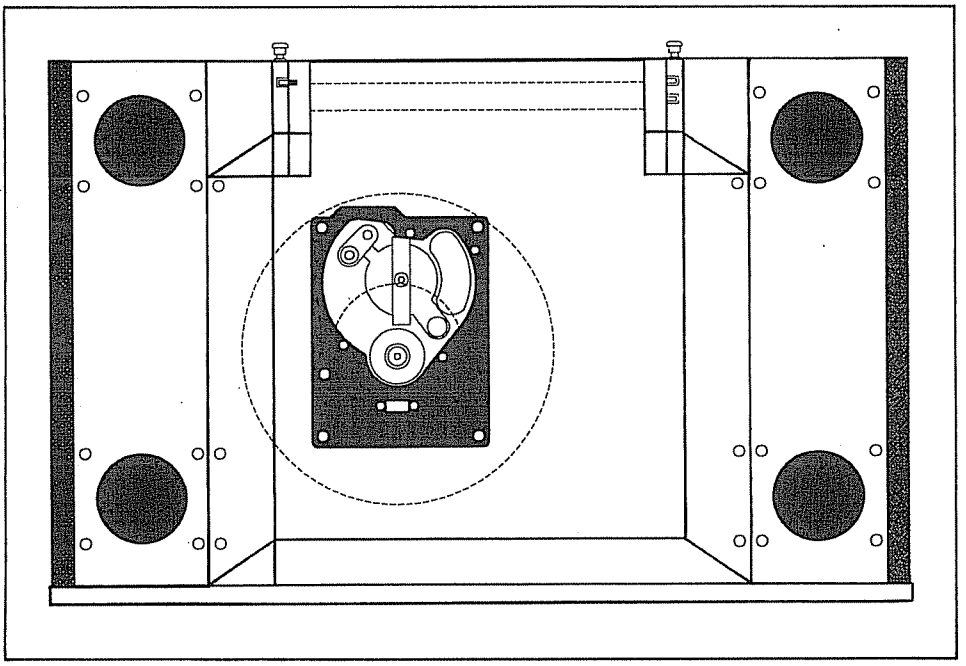
KRELL
DIGITAL INC.

MD-1 OWNERS REFERENCE



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INTRODUCTION

Welcome to the Krell Digital family of audio components. You have joined a select group of discriminating listeners who enjoy the finest in music reproduction.

Krell Digital (KDI) is dedicated to the design of technologically advanced components for the reproduction of digitally recorded music. Our designs continue the Krell philosophy of uncompromising performance through leading-edge technology.

Your MD-1 CD Turntable represents the culmination of extensive research and design engineering. Designed for pure accuracy in digital data recovery, the MD-1 incorporates an extremely accurate CD ROM laser transport, proprietary circuitry, four point suspension, and massive, machined aluminum chassis construction. These attributes are blended into an elegant component whose artistic design is matched only by its playback capabilities.

This Owner's Reference is divided into several sections, each designed to perform a different function. The sections cover critical installation material, a "Q & A" section where we provide answers to questions which may arise, a Technical Assistance Glossary for technical explanations and an insight into the unmatched capabilities of your MD-1 CD Turntable.

Throughout this reference, there will be numbers in boldface, and brackets; i.e. {xx}. These are component designators which coincide to a particular item of the MD-1 on the "Component Recognition Drawings."

You may encounter some key words or phrases which are unfamiliar. We have tried to anticipate these potential unknowns in order to assist you in understanding the technologies developed for this component. You will notice that these phrases are italicized. This type indicates that an explanation is included in the Glossary.

We may not have anticipated all the terms for which you would like further clarification. In this event, or should you have any questions or suggestions, please feel free to contact your authorized dealer or the KDI staff for assistance.

In the unlikely event that your MD-1 should require service, you will be pleased to know that your component is backed by a comprehensive Customer Satisfaction policy and one of the most advanced service facilities in the industry. For detailed information on the terms and conditions of service, please consult your warranty registration card or, if you are outside the Continental United States, your authorized Krell Digital Distributor.

CRITICAL INFORMATION

We understand that the desire to listen to your favorite music through this fine component may take precedence over reading this document. However, your MD-1 is a sophisticated, state-of-the-art audiophile component. **It should always be connected with great care.**

For this reason we have compiled the Installation Guide to enable you to install your CD turntable quickly and correctly, without the possibility of damage through haste.

When you have completed your installation, we suggest you return to the Design Features section of this manual for more information on the performance characteristics of your MD-1.

If you experience operational difficulties with your CD Turntable, do not attempt any repairs or adjustments on your own. **THERE ARE NO USER SERVICEABLE PARTS WITHIN THE MD-1.** Contact your authorized Krell Digital dealer for assistance.

INSTALLATION GUIDE

Fold out the Component Recognition Drawings located on the last page of this booklet for a visual reference during installation.

UNPACKING

Save all packing materials. While unpacking the MD-1 take note of the following items:

Caution: Do not remove the lucite dust cover at this time! This cover is extremely delicate, and will be permanently scarred if mishandled. Follow the instructions provided in this reference for safe installation.

1. 1 - Dust Cover, encased in a protective sleeve.
2. 1 - CD Stabilizer.
3. 1 - AC power cord.
4. 1 - MD-1 CD Transport.
5. 1 - MD-1RC Remote Control
6. 3 - AAA Batteries, and wrench for the MD-1RC
7. 1 - Packet containing both the Owners Reference and **Warranty card.**

Note: If any of these items are not included, please contact your authorized dealer immediately for assistance.

PRECAUTIONS

Disconnect your amplifier's AC cord from the wall receptacle. Turn off all other components.

SHIPPING

If, for any reason, you must ship your MD-1, repack the unit in its original packaging to prevent transit damage. **If the unit is being sent to the KDI facility for service, we suggest you send the cover and the remote control unit.**

ASSEMBLY

MD-1

Follow these steps to prevent accidental damage to the Dust Cover while placing and locking the dust cover into its hinge blocks.

1. Position the MD-1 on a firm surface with the front panel facing away from you.
2. Locate the two chrome Fixing Pins {16} on the rear surface of the hinge blocks. Using your fingers, pull these pins out until they reach the end of their travel. This will clear the pins from the hinge slots when viewed from the top.
3. Place a towel or soft cloth on a table top. Lay the dust cover (still in the sleeve) on this surface in such a way that the cover flap is facing up, and toward your body. Open the velcro flap.
4. Fold the flap under and, by sliding back a small portion of the sleeve, expose the tail section of the cover. You will see black Hinge Mount Pins {21} embedded in this section; two on your left, and one on your right. These pins should correspond to the slotted openings in the hinge blocks.

   Note: This is the required orientation for inserting the cover into the hinge blocks.
5. Holding the dust cover through the sleeve in the elevated (vertical) position, insert the cover's Hinge Mount Pins into the slotted openings of the Hinge Blocks {15}.
6. Insure that the Hinge Mount Pins are completely "bottomed." While keeping hold of the top of the cover, use your other hand to press the Fixing Pins back into the Hinge Blocks. This will effectively lock the dust cover into the hinge damping system.

7. With the dust cover still in the vertical position, pull off the protective sleeve. To close the dust cover, simply tip it out of its rest position. The cover's damping system will control the descent onto the upper deck of the MD-1.

   Caution: Do not exert any force on the cover in an attempt to increase its rate of descent. This may cause damage to the hydraulic descent assembly.

MD-1RC REMOTE CONTROL

1. Remove the two hex-head screws at the bottom of the remote control top plate. This will expose the battery storage compartment.
2. Insert the three AAA batteries in their respective slots in accordance with the polarity markings in the battery receptacle.
3. Replace the battery compartment cover, and insert the two hex-head screws. Do not over-tighten these screws.

PREPARATION OF INSTALLATION SITE

Before you physically install your MD-1 we recommend that you follow these guidelines in choosing the location for your CD Turntable.

Location Notes

1. Ideally, the MD-1 should be placed on the top of an audio component cabinet or some other, open air, rigid platform.
2. The MD-1 may be placed in a cabinet. It will require 15.0 inches of vertical clearance between the bottom and top shelves for proper operation of the cover.
3. The MD-1 may be operated without its cover. Six inches vertical clearance is adequate to allow convenient access to the disc transport area.
4. The location should be within 2 meters of the digital signal processor. If longer distance is required, we recommend using a fiber optic data link as it is more suited to long distance runs.
5. Run the male end of the supplied AC cord from the power supply location to a nearby wall socket. This will be easier to accomplish now, as the component itself is not in the way. DO NOT PLUG THE AC CORD INTO THE WALL SOCKET AT THIS TIME!

   Caution: While the MD-1 has superb regulation and does not require a dedicated AC circuit, we strongly advise against any connections through extension cords or multiple AC adaptors. High quality 15 amp, grounded AC strips are acceptable.

PLACEMENT

Position the MD-1 in its appointed location in such a way that the unit will not fall if it is not held, yet leaving access to all rear panel connections.

1. Connect the Digital Output from the MD-1 {10 or 11} to a Krell Digital Software Based Processor, or any other compatible digital-to-analog audio processor.

   Notes: a. The MD-1 is compatible with both industry standard *Fiber Optics* {10} or *Coaxial* {11} via RCA connection.

   b. Remember, the MD-1 is a CD Transport only. It is not designed to connect directly to any preamp or analog signal processor.

   c. Care should be taken in selecting the type of cable used to link the MD-1 to your processor. If *coaxial* cable is to be used, it should be 75ohm, non-capacitive, and have a bandwidth in excess of 10MHz to prevent *dropout* errors.

2. Insert the female end of the AC cord into the socket {13} on the rear panel of the chassis. The male end should not be plugged into the wall at this time.
3. Next, position the MD-1 as you wish it to remain during normal use.

LEVELING

The four suspension towers in the MD-1 chassis allow minor leveling adjustments for optimum servo performance during playback. To achieve leveling, simply turn the knurled tower caps {14} either clockwise or counter clockwise to achieve the desired leveling. Use an accurate, lightweight level to verify your adjustments.

Caution: The tower levelers are designed for small adjustments of approximately ± .5" for each tower. They will stiffen when they reach the end of their travel. Do not force them beyond this point.

INITIAL POWER UP

1. Plug the AC cord into the wall socket. Do not plug your amplifier in yet!
2. Remove the small, blue, foam transit insert {18} which is immobilizing the laser servo arm.

   Note: Keep this insert for future use.

3. Turn your MD-1 CD Turntable "ON." You will notice two "dashes" appear in the display window {1}, and the transport hub {19} will turn for a brief moment. These are indications of a correct start up sequence.

   Caution: Should you have any major deviation from this sequence, do not attempt to play the unit. Disconnect it prior to powering up any other components and contact your Krell Digital dealer immediately.

4. Turn your Krell Digital Software Based Processor or other compatible digital-to-analog audio processor "ON."
5. Your Processor system should now "*boot-up*" in accordance with its manufacturer's specifications.
6. Gently place a Compact Disc onto the transport hub {19}, making sure that the disc is centered.
7. Gently position the "CD Stabilizer" on top of the CD centered on the transport hub.

   Caution: Do not use any disc stabilizing tool besides the KDI "CD Stabilizer." This device has been specially machined to precisely match the CD ROM transport. Failure to heed this warning may cause damage to the laser transport. Also, the MD-1 will not operate correctly without the CD Stabilizer.

8. Press the {PLAY} button.

Your MD-1 installation is now complete. Please refer to the OPERATIONS ASSISTANCE section of this guide for a description of function methods on the MD-1.

The MD-1 CD Turntable is a precision audiophile component. From conception to production, it was designed for superior performance without unnecessary clutter or complication.

Incorporated in the MD-1 are the Queuing and Search features which simply and effectively allow you to access different sections of a CD. The entire feature selection group is also available through the remote control.

These features are discussed below in the order they appear on the front panel from left to right.

Display {2}

Press this button to change from a 'Track/Index' to a 'Time Into Track' display. Track Index indicates the track on the disc being played. Time Into Track indicates elapsed time for the track being played.

Power {3}

This button will alternately turn the MD-1 "ON" and "OFF."

Stop {4}

Pressing this button will cease playback and clear the memory of what track was being played.

Example: If {PLAY} is pressed after {STOP}, the MD-1 will begin playback from the beginning of the first track.

Play {5}

{PLAY} will initiate playback of a disc. If {PLAY} is depressed while playback is already in progress, the MD-1 will restart the current track from the beginning.

<| Step Back One Track {6}

To step one track backwards, press { <| } once. The MD-1 will retreat to the previous track. Pressing {PLAY} will then begin playback from the selected track.

|> Step Forward One Track {7}

To step one track forwards, press { |> } once. The MD-1 will advance to the next track. Pressing {PLAY} will then begin playback from the selected track.

Note: If the MD-1 is in the midst of playback when either of these two buttons are pressed the unit will either advance or retreat and automatically begin playback of the newly selected track. The display will update to the current track selected.

Note: Multiple presses of these two function buttons will cause the MD-1 to seek the specified number of tracks either forward or backward. The Display will update to the current track selected.

<|| Search Reverse {8}

To search in reverse, press and hold { <|| }. The MD-1 will audibly search back through the current track selection.

||> Search Forward {9}

To search in forward, press and hold { ||> }. The MD-1 will audibly search forward through the current track selection.

Note: The music will resume normal playback from the newly designated point when the search buttons are released.

Note: The MD-1 automatically advances through three stages of Reverse or Forward search with approximately 5 seconds between each stage.

A. SLOW Search ------ Audible
B. FAST Search ------ Audible
C. LIGHTNING Search - Inaudible

Note: When in LIGHTNING Search, the audio portion is muted, while the laser is searching at extremely high speed.

Pause: Remote only

This button will stop playback and hold the playback position. When {PAUSE} is pressed a second time, the music will resume from the precise point of the original break.

Indexing

Although the MD-1 does not have a specific button assigned to Index Search, the drive processor has this helpful capability. To access this particular type of search, follow these steps:

A. Press {STOP}
B. Use the {|>} key to step forward to the desired track.
C. Press the {DISPLAY} key to change to the "Time Into Track" mode.
D. Again press {|>}. You will notice that on the right side of the display the number 1 has appeared. This signifies the first index for this track. Press the track forward key repeatedly until you reach the desired index.
E. Press {PLAY}. The MD-1 will locate the correct track and begin playback.

CARE AND CLEANING

Please read this section carefully to prevent cosmetic damage through improper cleaning methods or materials.

Laser Transport Assembly

1. Due to the exposed nature of the laser assembly on the MD-1, extra care should be taken to insure that it is not accidentally contaminated with fingerprints, cleaning liquids, etc. During day-to-day use, the laser {17} will not become dirty or contaminated any faster than with an enclosed transport. However, the laser should be cleaned at least twice annually to remove residue from smoke and airborne oils. To clean the laser lens, simply place a drop of CD cleaning fluid on a **clean, lint free** cloth and gently wipe the lens clean.

Cautions: a. Do not oil the laser transport! These mechanisms are completely self contained, not requiring customer service maintenance.

b. Do not touch any part of the exposed laser and servo system with your hands as this could accidentally damage the drive unit.

Cover & Black Lucite Table Plate

1. To remove finger marks and small scratches we recommend a light hand glaze which is specifically designed for plastics and painted surfaces. At Krell Digital we use a product from the 3M Company called, "Imperial Hand Glaze." Its part number is 05990. Follow the manufacturer's directions.
2. Should deeper scratches need to be removed, we recommend a light to medium duty plastic polish such as that from the Novus Company's "Plastic Polish #2." Follow the manufacturer's directions, and then use the light 3M type glaze to remove any swirl marks.

These cleaning products may be found in quality automotive body or detailing shops.

MD-1 QUESTIONS & ANSWERS

Q. My analog-to-digital processor will accommodate either fiber optic or *coaxial* digital inputs. Which output should I use on the MD-1?

A. While a high quality *coaxial* will perform quite well, we would recommend glass *fiber optics* due to its ability to completely isolate the grounding planes between the transport and processor, and its resistance to RF interference.

Q. I have installed the MD-1, but the disc will not turn when I press {PLAY}. What should I do?

A. Check to see if you removed the transit foam {18} from the laser servo arm as stated in the "INITIAL POWER UP" section of this manual.
Caution: Should this not be the cause of your difficulty, do not attempt any repair of this unit. Contact your authorized Krell Digital Dealer / Distributor or Krell Digital Inc.

Q. Do you recommend I leave the MD-1 "ON" at all times?

A. Yes. These circuits are most accurate and stable when left to idle when not in use. In fact, discrete parts age faster when cycled "ON" and "OFF." Your Krell Digital CD turntable will sound better and last longer if left "ON."

You should disconnect the AC cord from the wall outlet before any electrical storms, or if you plan to be away from your home for prolonged periods of time.

Q. Will the MD-1 play if the dust cover is fully raised?

A. Certainly. The unit will function perfectly even with the dust cover removed.

Q. Due to the exposed nature of the laser assembly, is there a possibility of damage through laser radiation?

A. No. If you will look on your component designator drawing you will see that there is an optical sensor {20} positioned to be under the CD when it is positioned on the transport hub. This allows the MD-1 to prohibit the laser from turning on when it is not covered with a CD.

Q. I own many CD's which have CD Rings on them. Am I able to use these discs with the MD-1?

A. Yes. The MD-1 will accept discs with "CD Rings" on them. Due to their very low mass, they will not damage the MD-1's CD ROM drive. While we can neither affirm or deny the benefits derived from the use of CD Rings, we do not feel that any type of disc equilibrium device is required with the MD-1, when properly used with our CD Stabilizer.

Caution: We strongly advise against the use of any type of additional disc stabilizer. These items add too much mass to the laser servo system, and may burn out the drive.

Q. Do you recommend the use of "Cones" or other damping "feet" with the MD-1?

A. Due to the extraordinary rigidity of our machining, and the proprietary damping in our suspension towers, we do not feel that the MD-1 requires additional *"mass coupling"* or isolation.

If you wish to use an after market isolation device, you may do so without fear of damaging the MD-1, so long as that device does not compromise the integrity of the component. Any device which affixes permanently to the chassis, or requires a breach of the external chassis will void the warranty.

Q. While listening to some of my CD's, the MD-1 skips at points where my previous player did not. Is this a defect in the MD-1?

A. No. The very nature of this CD ROM laser is based on extreme accuracy in reading an uncompromised storage medium. This tends to make the MD-1 less forgiving of badly damaged discs. As with any high quality storage medium, be it a vinyl record, tape, CD ROM disc, or digital audio disc, care should be taken to keep that medium clean and free from abrasions.

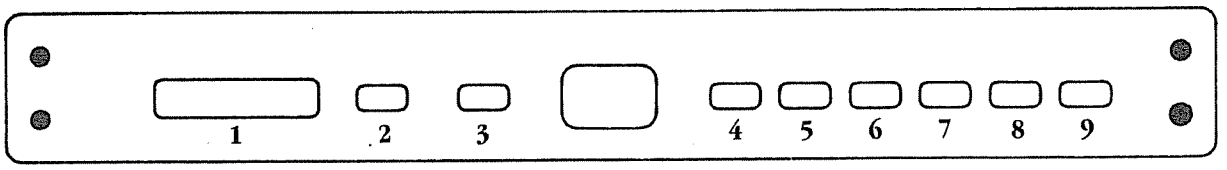
Q. With the MD-1 having two digital outputs, can I connect it to two external processors simultaneously?

A. Yes. Both the Fiber Optic, and the *Coaxial* outputs are active simultaneously during playback.

Q. Will my MD-1 play CD Singles?

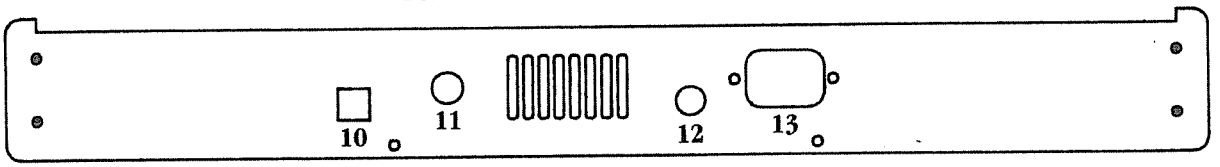
A. Yes. The MD-1 will play the small CD Singles in exactly the same manner as the standard long play CD's.

TOP FRONT (FACE PLATE)

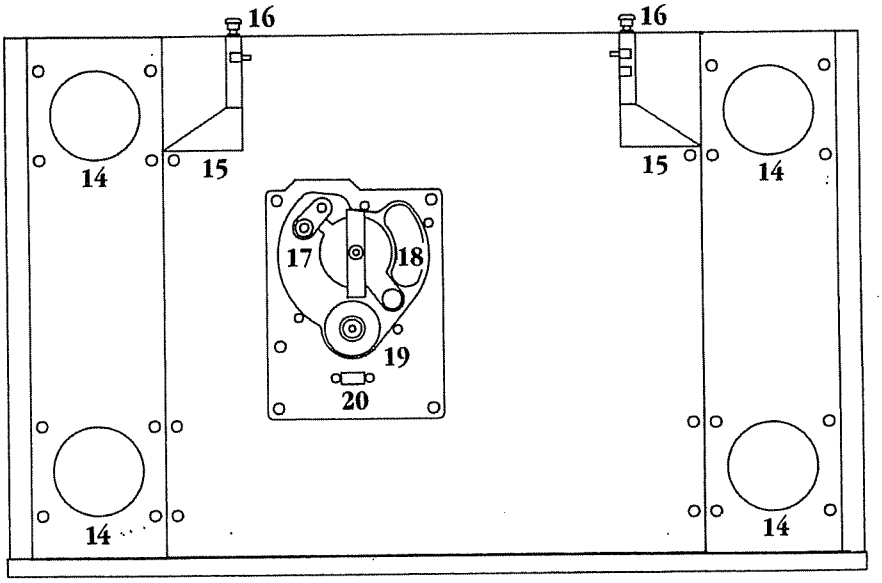


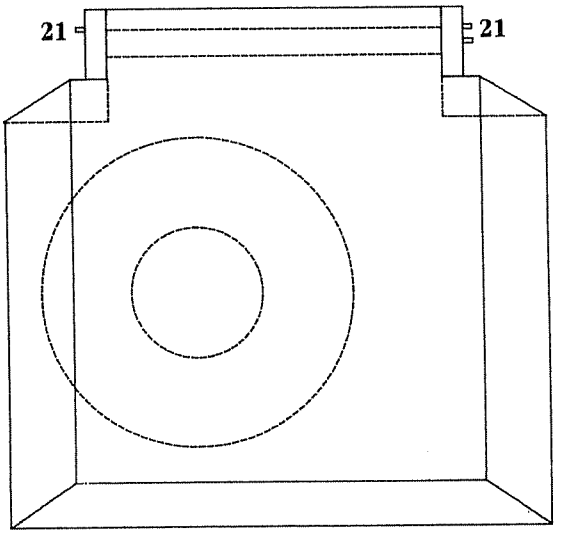
1. Display window
2. Display
3. Power
4. Stop
5. Play
6. Track back
7. Track forward
8. Fast back
9. Fast forward

TOP REAR PANEL



10. Fiber Optics out
11. Coax out
12. AC Fuse
13. AC Mains





SPECIFICATIONS

Transport:	Philips CDM-3, swing-arm design with die-cast frame.
Laser:	Single beam
Laser lens:	Glass
Outputs:	Industry-standard digital data only. Industry-standard fiber optics. Coax output via female RCA connector.
Remote Control:	Wireless infrared.
Warranty:	Five (5) years electronic parts Three (3) years transport-related parts
Power:	100, 115, 220, 240 VAC 50/60 Hz.
Fuse Type:	1 Amp 250 Volt Fast Blow (only) 3AG/AGC {12}
Case size:	19.0" wide, 12.5" deep, 6.0" high with cover closed 15.0" high with cover fully opened
Weight:	33 pounds in shipping carton.

MD-1 DESIGN FEATURES

The Krell Digital MD-1 CD Turntable represents the first no compromise Compact Disc transport design in the industry. Its construction is of such high quality, and its design technology so advanced, that it will greatly improve the sonic performance of any home audio system.

Its impressive performance is derived through the precise matching of three fundamental requirements. The first is the necessity for incorporating the most accurate reading device available. The second requirement is to provide a mounting platform of extraordinary rigidity. The third is high grade environmental isolation. This section will deal with the design features implemented to address these three criteria.

CD-ROM Transport

The transport design of the MD-1 is based upon the proven Philips single beam CDM-3 swing-arm motor-drive mechanism. This accurate, ultra-reliable drive has been primarily used for computer-based CD-ROM applications. The CDM-3 employs a heavy die-cast frame to insure accurate alignment of all components. KDI mounts this transport assembly to a sub-frame machined out of solid blocks of aluminum.

To best utilize the capabilities of the CDM-3 transport, KDI designed the unit to function as a top-loader, thereby averting the problems associated with drawer-loading mechanisms and baler bearings. An electronic sensing system determines that a CD is actually on the spindle, thus preventing premature activation of the laser. A specially-machined solid brass weight (CD Stabilizer) clamps and centers the disc, while simultaneously reducing unwanted stress on the motor bearings.

Rigid Mounting Platform

The substructure of the MD-1 begins with a solid aluminum base plate to which all suspension elements are secured. Each part of the suspension system has been meticulously designed and machined from solid aluminum stock. No effort has been spared in achieving overall rigidity of the substructure. All machined parts of the inner system are clear anodized to assure years of trouble-free service.

Four suspension towers are mounted into the substructure. In combination, they isolate the rigid substructure. Leveling is easily achieved by turning the top of the appropriate tower(s). A range of adjustment is provided, allowing placement on any suitable surface. Smooth operation is facilitated by the use of custom, precision-machined nylon and delron bushings. The material integral to the suspension towers has been chosen to achieve maximum isolation from the mechanical-acoustical environment.

Power Supply and Circuitry

A component of this sophistication and close-tolerance accuracy requires circuitry which is as precise as it is stable. For the MD-1 we have incorporated a tightly regulated power supply which provides clean, accurate voltages to our proprietary circuitry.

TECHNICAL ASSISTANCE GLOSSARY

BOOT-UP

The start-up sequence that causes the computer to load the initial operating software.

COAXIAL

A cable design where a center conductor is surrounded by an insulator which is then wrapped with a metallic shield.

DROPOUT

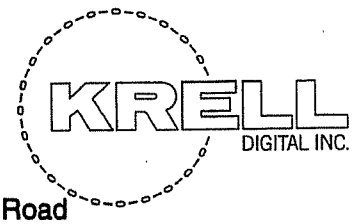
In this usage, dropout refers to periods of silence during digital audio playback.

FIBER OPTICS

An interconnecting link through which digital data is transmitted via a beam of light.

MASS COUPLING

A term referring to the focusing of largely distributed mass onto extremely small points. This is commonly done on products such as the "Cones" and "Tip Toes" used to isolate audio speakers and other components.



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