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FURUTECH *deMag* LP, DISC and Cable Demagnetizer

The Furutech **deMag** *completely demagnetizes* LPs and optical disc media such as CD, CD-R, DVD, MD, Game CD, Photo CD, SACD, and DVD Audio. Plus it's an indispensable accessory for keeping interconnect cables, connectors and power cords demagnetized to prevent magnetic signal distortion.

Disc Magnetization Is No Mystery

The silk-screened label on an optical disc contains chemical compounds such as iron, nickel, and cobalt. These materials are all strongly magnetic and easily remagnetized. The reflective information-bearing surface of optical media contains 99% aluminum, but 1% of these same highly magnetic materials! Even aluminum is considered a weak magnetic conductor.

Amazingly, optical discs actually magnetize as they play! A magnetic field is actually induced as they spin. This same elemental process takes place with CD, CD-R, DVD, and MD. Particular attention is due MD as it's the most prone to magnetization effects such as problems reading discs.

Other so-called demagnetizers on the market including specialist products, head erasers, bulk erasers, etc. don't even completely demagnetize your discs. Rather, some of them actually *induce* magnetism! Take spinning demagnetizers, for example. After the disc stops, a section of the CD is left exposed to the fixed magnet below. Because Furutech's **deMag Ring Magnet Technology** ramps the power up then down again, all residual magnetism is completely removed.

Demagnetization Isn't Just For Optical Media Anymore!

The deMag works for disc media *as well as cables, connectors, and power cords!* (See below.) *No part of the playback chain should be disturbed by resolution-sapping magnetic interference.*

The graphs below show that untreated magnetic fields have a direct effect on data retrieval. These errors are easily perceived with today's high resolution systems. Look for coarse video distortion and listen for grainy, unmusical sound.

But magnetism is a naturally occurring process, so it can be said by looking at the data below that it is, in fact, *virtually impossible* to achieve a clean, precise signal without going through a properly designed demagnetization process!

Furutech's **deMag** is the answer. It's the *only* way to experience top system performance by demagnetizing optical media, power cords, interconnects of all kinds, and their connectors! You should know that demagnetization was a mainstream technique routinely performed by disc manufacturers all over the world. Because of tight, ultra-competitive pricing, most manufacturers skip this important step these days. *Top performance can only be achieved by demagnetizing all discs before recording!*

Demagnetizing LPs

How can an LP be magnetized? It's plastic!

The fact is that pigment added to the plastic during the manufacturing process is the culprit. The minute amount of ferrous material in the pigment causes LPs to become magnetized. Testing at the Tokyo Nanotechnology center with a IHI Gauss meter showed that after an LP was treated with the **deMag** the magnetic field of the LP was lowered from 620~630 nT to 572~582 nT (nanotesla: a unit of magnetic field strength, 1 Tesla = 10,000 gauss – see below).



The Sound

Demagnetizing *both sides* of optical media before play results in a greater sense of power, dynamics, and resolution, with cleaner, blacker backgrounds and a larger, more stable soundstage, vivid tonal colors and deeper extension at both ends of the frequency range. Demagnetization also allows the delicacy, refinement and nuance of a performance to shine through, along with micro- and macro-dynamics you need to realize the full potential of music and movies.

Using the **deMag** improves the sense of *surround sound involvement* in every two-channel and multichannel home theater system. Visceral, exciting sound heightens the participatory sense of music and especially home theater. Details of image and sound that simply weren't there before enable a truly extraordinary experience.

The Image

Since the **deMag** Demagnetization Process eliminates all magnetic distortion noise, video displays of all types benefit from less ghosting, color shift, "snow", vertical and horizontal interference lines. After treatment you'll notice a higher resolution picture with more finely graded contrast, clean and precise, with bright, beautifully saturated colors and a more sophisticated color pallet.

Don't forget that the **deMag** can also be applied to video systems; cables, power cords, audio cables and their connectors!



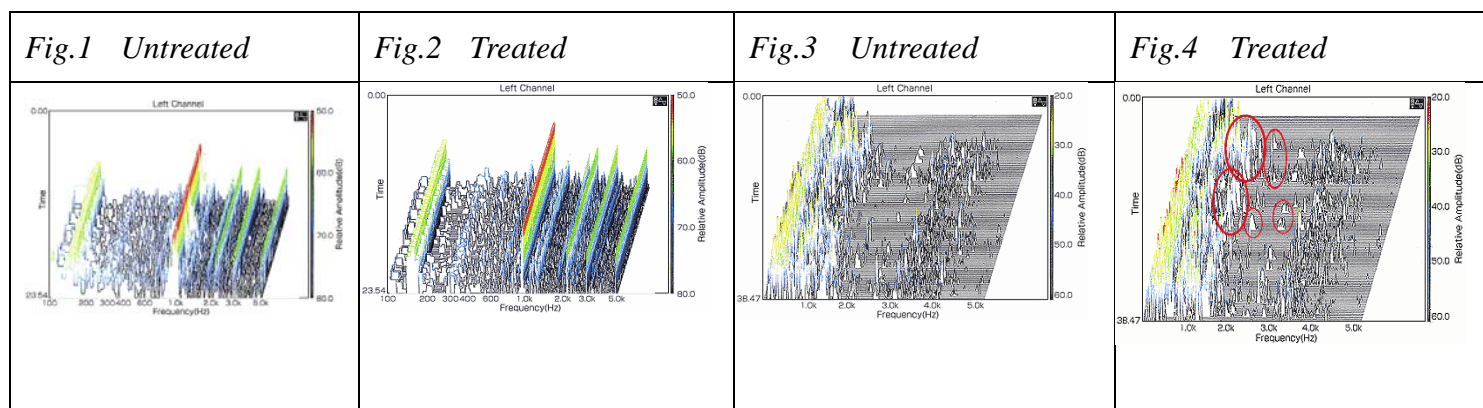
Demagnetizing Cables

Electric current generates a magnetic field as it flows through a power cord or conductor. However, *magnetic impurities within the materials themselves become magnetized* and introduce further magnetic distortion. Just loop your cables and power cords with their connectors on the **deMag** and begin treatment.

No matter how valuable or expensive your system is, the only way to achieve top performance is by demagnetizing your problems away! There are no other demagnetizers on the market that can be used in such a versatile and effective way. The **deMag** Demagnetizer can even be used on metal-based accessories like CD stabilizers or speaker terminals.

Testing... Testing

Examining (fig.1 and fig.3) in the graphs below, the untreated output clearly shows multiple peaks at other than the 1kHz test tone. These peaks represent noise and distortion caused by magnetic field interference. The amplitude and fast rise-time of these sidebands indicate a negative impact on audio and video resolution. Looking more closely, white or blank areas can be seen in the 1kHz sidebands. Our engineers believe these are caused by read errors. You can also see small peaks between 200 to 800Hz that represent noise and distortion products.



After demagnetization, the excessive peaks in the 1kHz sidebands disappear, as do the blank “read problem” areas. The peaks become more uniform in height and chaotic interference patterns seen before demagnetization are almost gone. The peaks of other sideband components are more uniform and the range between 200 to 800Hz is cleaner. These graphs clearly show that the S/N ratio is much improved after demagnetization, while audible distortion is lowered.

Note the highlighted areas in fig.4 at about 20 seconds between 1kHz and 5kHz. You can see the number of peaks increases, meaning there’s more information as a result of demagnetization. The peaks’ height also generally increase with the same result—more information.

CD Test

Recording Time 4:45

	Output Power Level PWL dB	Total Harmonic Distortion % THD	Signal-to-Noise Ratio % SNR
No YUMI	-13.36	72.11	2.047
UC YUMI	-13.36	71.75	2.117
RD YUMI	-13.94	70.99	1.866

No YUMI: Music CD prior to deMagnetization
UC YUMI: Results of treatment with another brand of CD deMagnetizer
RD YUMI: Results of treatment with Furutech deMag DeMagnetizer

Note that RD YUMI -- the **deMag** treated measurements -- has the lowest output power level (PWL). Interestingly the Peak Level Analyzer shows *more peak activity* as the noise floor drops post-demagnetization. **DeMag** treatment also makes for the lowest THD; evidently demagnetization lowers distortion as well.

Looking at UC YUMI using another brand of demagnetizer we see the signal-to-noise ratio actually *increases* after treatment! The other device under test doesn’t ramp up, hold, then ramp down its power like the **deMag**. Our analysis reveals this device doesn’t, in fact, demagnetize anything, but simply lines up or makes uniform the alignment of an existing magnetic field. That’s why the SNR increased after treatment.

CD-ROM Test

Notice the Read value is 590KB/s with 65 points total prior to demagnetization, and 620KB/s with 69 points after demagnetization. The rising rate seems to indicate the **deMag** improves the read performance of CD-ROMs.

There are times when a CD-ROM or RAM disc either cannot be read or recorded to. This is often caused by damage to the information-bearing substrate of the disc. Or... *it could just be magnetized!* Try it! Those pesky discs may play again.

	READ KB/s	Total
Before	590	65
After	620	69

The above measurements were made with a Marantz CD-16SE Player and NEC PC-98 Xa7 Computer running Spectral Lab's Soft-Sound.

More Furutech Technology: Two-Stage Cryogenic and Demagnetization *Alpha Process*

Using cutting-edge technology and materials, Furutech developed a low-temperature two-stage process that significantly improves every facet of audio and video performance. The treatment begins during the manufacturing process with a deep, conditioning cryogenic freeze of all metal parts. Using high-end refrigerants -- liquid N₂ or He -- Furutech achieves temperatures of between -196 to -250C. The treated parts actually change their molecular structure at these extremes of temperature relieving internal stress. The molecules bond together more tightly and the overall structure becomes more stable. This improves electrical conductivity and so power and signal transfer.

Step two in the Alpha Process exposes these same parts to the patented Ring Demagnetization treatment as found in the deMag. Ordinary high power magnets used for this purpose often increase magnetization effects; they leave some areas more magnetized than others. Our patented process uses controlled attenuation to completely eliminate magnetization for immediately more vivid and colorful improvements. Ring Demagnetization further enhances conductivity of all treated materials.

All metallic parts used in Furutech products go through the Alpha Process to keep all connectors, conductors, and metal parts in a perfect stress-free, stable and highly conductive state.

Supporting Data

Components used for this test:

CD player - Marantz CD-16SE

Computer - PC-98 Xa7

Spectral Lab's Soft-Sound Technology

Specification:

- Dimension: 487mm/19" W x 68mm/2.7" H (without spikes) x 470mm/18.5" D
- Net Weight: 11.0Kgs/24lbs
- Rating: 110VAC ±15V (USA)
- Rating: 230VAC ±10V (Europe)