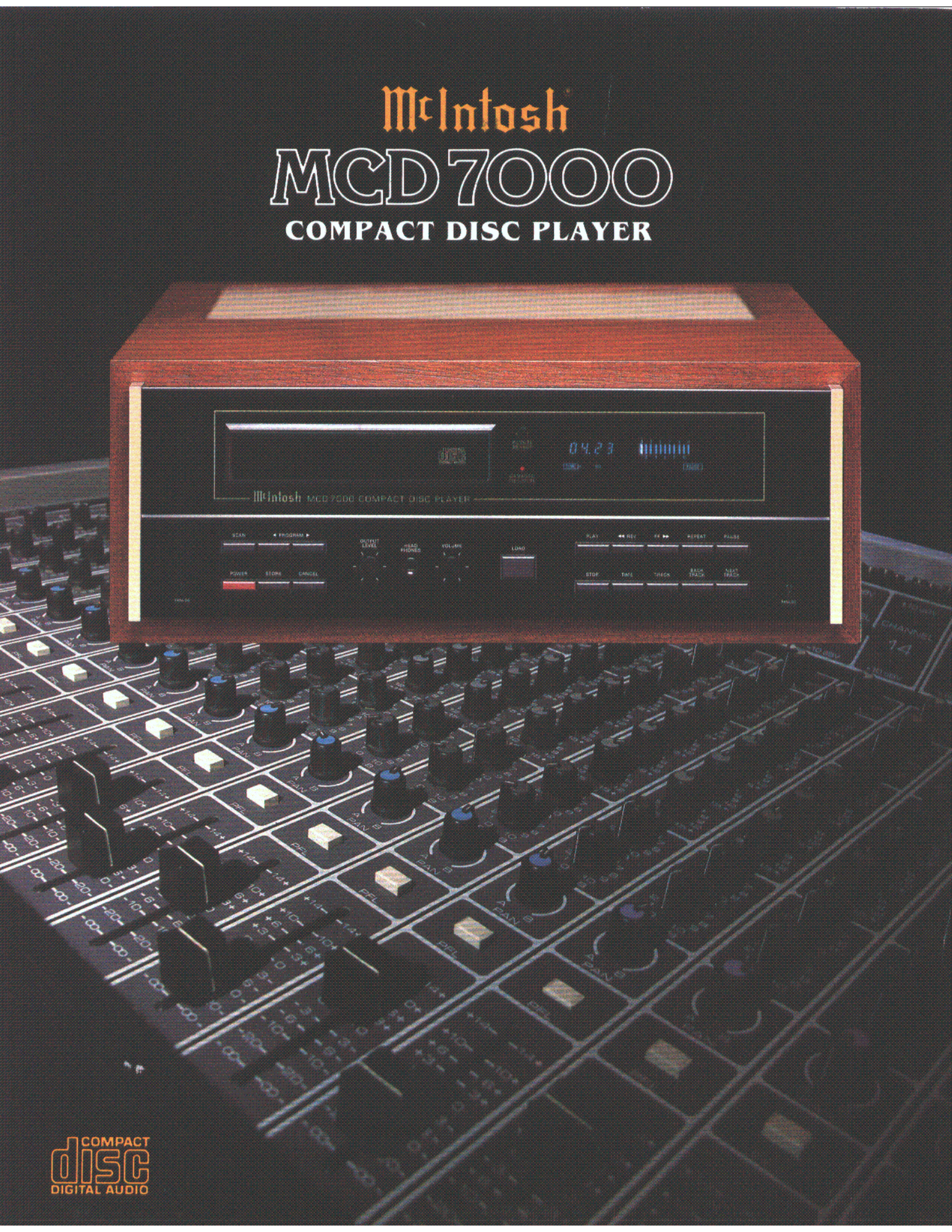
McIntosh

MCD7000

COMPACT DISC PLAYER



COMPACT disc DIGITAL AUDIO

Music reproducing instruments that carry the McIntosh name have always been designed to maintain the McIntosh reputation for best sound, for durability and for long life. McIntosh has, since 1949, lead the industry in technological advancement. McIntosh has always earned the foremost reputation for quality performance, McIntosh has provided user oriented facilities and appearance and McIntosh design always provides for ease of maintenance or repair. These fundamental elements are incorporated in the McIntosh Compact Disc Player. Yet, additional requirements were demanded for long term superior listening performance.

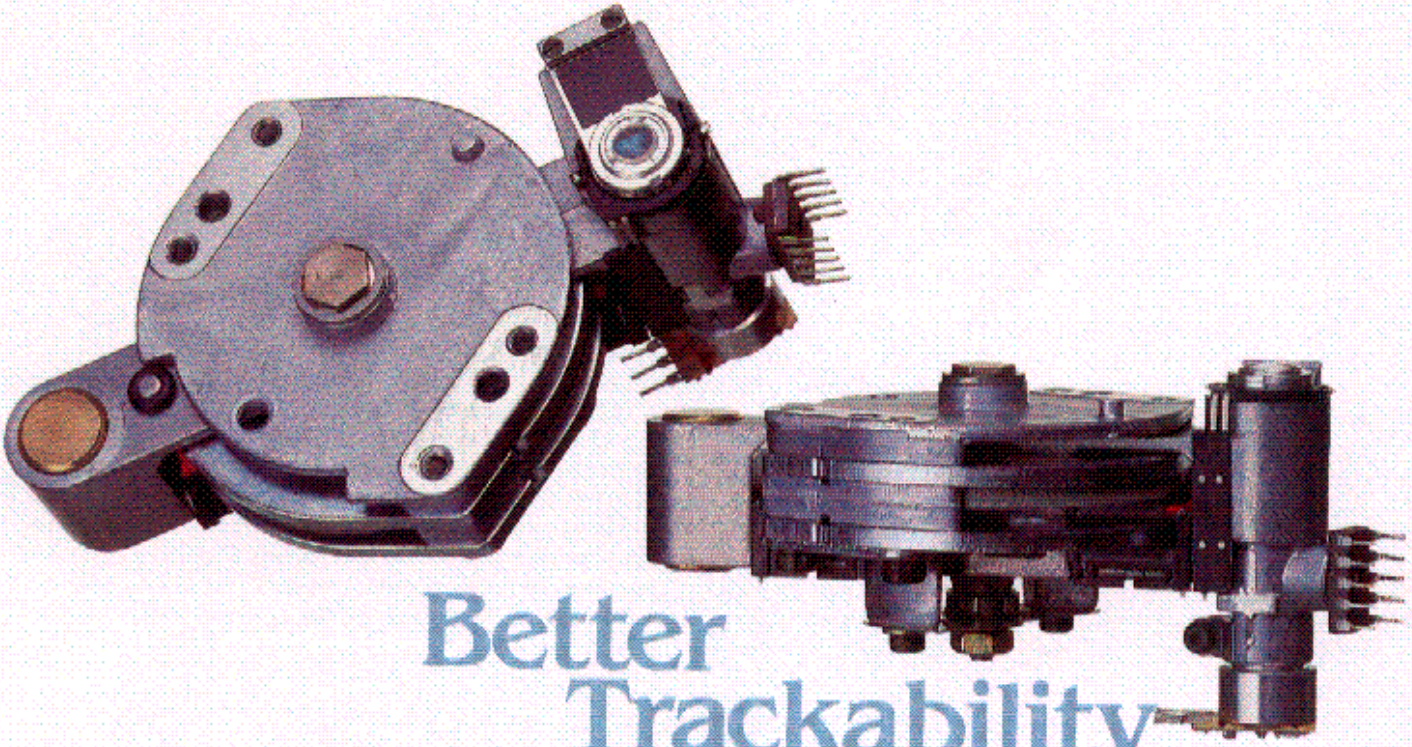
Let's look at some of the electronic and reproduction requirements for superior sound. You, a critical listener, demand noise free, distortion free and restriction free music reproduction. The digital disc holds great promise for the satisfaction of these demands. In spite of the latent possibilities, there has been some consumer criticism of "digital sound". Here are some ideas of what the McIntosh Compact Disc Player does to produce near perfection in music.

Playback sound quality that has the ability to recapture the true studio sound. Techniques like Double Digital Filtering and special error correction makes the McIntosh player audibly better in sound quality. You will hear it.

The task of the compact disc player is to decode the encoded data, use it to control drive motor speed and laser spot tracking, correct errors, derive the sound information, and present it in a way to satisfy the most critical ears, your ears. McIntosh has the best thought-out design which will bring you the highest satisfaction.

In the Compact Disc system, the original sound is sampled, measured and quantized (converted to binary numbers). It thus becomes a pulse code modulated (PCM) signal representing the original sound, but before being encoded on disc, it is specially processed to keep the sound pure, and to make playback easy and convenient. Control and display information is added to provide fast access and programming possible.

Special Eight-to-Fourteen modulation (EFM) ensures that a maximum of sound information can be packed into the disc which requires a minimum of error correction, provides vital timing information, and improves trackability. Sophisticated Cross-Interleaved



Better Trackability

Reed-Solomon Code error correction (CIRC) can compensate for quite large gaps in the sound data caused, for example, by a disc whose surface has been altered through scratches, fingerprints, etc.

Synchronization information is also needed, and the data stream is finally divided into equal-sized blocks called frames. Thus, quite a complex data pattern is contained in the pits pressed into the Compact Disc.

The McIntosh MCD 7000, above all others, will uncover the total encoded sound unaltered!

Here are some of the techniques behind this achievement: In designing a digital disc playback system several important performance characteristics must be recognized and satisfied. A look at the mechanical configuration first: The reading rate of the laser must be constant yet the increasing diameter of the spiral recorded track causes an ever changing track speed. This makes it necessary to vary the speed of the disc linearly and smoothly without introducing any mechanical incompatability. Should gears or cogs be used in a drive system, mechanical discontinuities can be excited that will interfere with the reading ability of the laser. Any vibratory movement can modify the detection, reading and response of the laser as it reads the microscopically small embossed digital information characters encoded on the disc.

In lesser designs, these mechanical errors use up a substantial portion of their limited error correction (CIRC) capability. When the error correction reserve is all used up correcting these mechanical errors, the music suffers. It can be distorted or even completely rejected for short periods of time! McIntosh has protected your music listening with a drive system designed to eliminate these mechanical difficulties.

Trackability is the extent to which a player stays on track to read out all the encoded information on a compact disc. The McIntosh player is engineered to track better than others, even when the disc has deposits, fingerprints, scratches, etc.

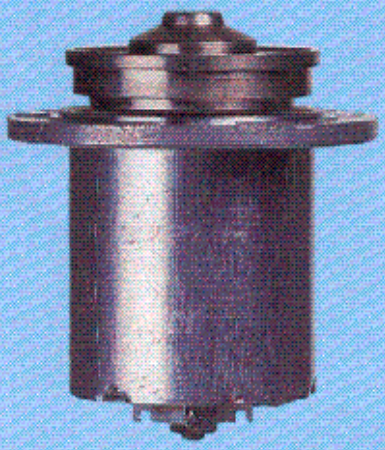
A laser beam cannot sit in a groove. It has to be steered along a microscopically narrow track and held at the exact focal distance. The quality of the read-out depends on built-in trackability. To make sure of this, the McIntosh solid-state laser unit avoids unnecessary bulkiness and complexity.

The elegantly compact unit is precisely balanced and uses one beam only, where others need three. It is held on track by a servo that responds to disc eccentricity or unevenness, has built-in compensation for varying disc reflectivity or changes of the laser, and remembers its proper position if atmospheric deposits, fingerprints, scratches etc. should interrupt the light beam. The focus servo is equally impervious to light variations, and it is exceptionally fast and accurate on the initial run-in-where it is vital to establish the focal distance quickly. Better trackability produces a higher quality readout, refined still further by superior ERCO error correction.

Where many digital players use gear trains to move the scanning laser and optical assemblies, the McIntosh Digital Disc Player is different. It has these critical elements mounted on a beautifully balanced bearing assembly. This assembly is designed specifically for the mass of the moving elements and the torque required. Its operating characteristics are like the D'Arsonval movement used in the meter movements in electronic measuring equipment where the requirements for accuracy and repeatability are greatest.

These are significant factors in giving that extra edge - that very noticeable edge - of purity to McIntosh Compact Disc reproduction.

Digital Phase-Locked-Loop Motor Control



Digital motor control circuits are general in Compact Disc Players. They speed read information from the disc, compare it with the player's quartz master clock, and adjust motor speed accordingly. The McIntosh MCD 7000 has an integrated circuit that uses digital Phase-Locked-Loop motor control, which guarantees that the motor speed is not only locked to the correct value, but permanently held in the correct phase relationship. It's the most effective system of all for eliminating wow and flutter, and taking care that the sound is absolutely pure. A powerful factor in superior McIntosh playability-your guarantee of the best in compact disc sound.

The McIntosh Digital Disc Player has a linear torque, vibration free, flutter free, controllable speed motor, a motor whose torque does not vary with speed!

To enhance the quality of the performance of the motor, it is mounted to a precision platform. Assembled to this precision platform are all the moving members of the reproduction system; the optical reader and control, the laser source and reader, rotating turntable, and the self centering support spindle for the disc. The unique suspension system which supports the precision platform in the total assembly isolates the sound reproducing system from externally caused vibration or shock.

How Numbers Become Beautiful Music

Compact Disc sound is reconstituted out of a series of quantized binary numbers. The numbers are read out at more than twice the highest audio frequency. The very process involves the presence of higher frequencies, a series of 'mirror images' of the original sound, that extend as 'modulation bands' up to 200 kHz and higher. To preserve the pure total sound intact, these 'modulation bands' must be filtered out.

The old fashioned solution to the need for a filter that has a sharp cut off between the top of the audio frequency band at 20 kHz and the bottom of the lowest "modulation band" at about 24 kHz, has been an analog filter. But a sharp, clear cut-off calls for a complex analog design, and even when all the audio frequencies are preserved while all others are rejected, the phase relationships are inevitably altered. The sound is perceptibly different from the total original sound.

McIntosh chose Double Digital Filtering. It is a trail-blazing process. The binary numbers are sampled at four times the normal rate - a procedure known as quadruple oversampling. All the 'modulation bands' up to 150 kHz are virtually wiped out. Any remaining audible noise is suppressed in a 'noise shaping' circuit before *exclusive* parallel digital-to-analog converters separate the left and right audio channels. The filtering is completely effective, yet phase relationships remain unaltered. The total, original sound is reborn.

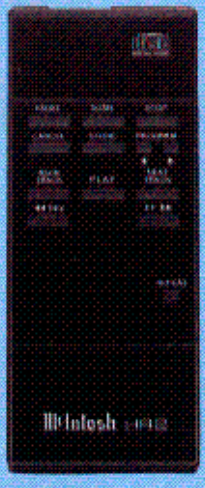
Other player manufacturers have introduced digital filtering circuits, but none achieve the same purity of sound as Double Digital Filtering. You will hear the difference. It becomes especially clear when you listen to solo voices or instruments. The sound is clean, the detail microscopic. McIntosh Double Digital Filtered sound is, quite simple, better sound.

At McIntosh, there has been a long term philosophy: "It is better to be second and right than to have been first and wrong." The comprehensive design of the McIntosh Digital Disc Player evidences the results of that thinking.

COMPARE THESE BENEFITS:

Remote Control Not A Costly Option

Your McIntosh Digital Disc Player is complete including Remote Control. In your hand you have the ability to control all normal operating functions of the disc player. Exclusive Music Scan provides the ability to play the first ten seconds of every track on the disc. As you listen, you have the choice of playing it, or skipping to the next track. It's easy to audition an entire disc, quickly.



When you listen using Music Scan, the numbered bars on the fluorescent display light up to show the total number of tracks on the disc. As each sample is completed the display bar for that track goes out, while the unplayed tracks display bars remain illuminated. To play a complete track when using Music Scan, simply press a touch-button to store the track you like. The corresponding display bar will then stay lit. At the end of the scan the bars alight show you the program you have selected. Could anything be easier than that?

What's more - but only with McIntosh - you can compile music programs directly during Music Scan, without even leaving your armchair! How's that for consumer useability?

Single Touch-Button Control

At a touch, the loading tray glides out to accept the chosen disc, then back to engage the disc in the drive. Play is automatic, unless you decide it should wait on your command.

In play, you can jump to a following track, repeat the track in play, or go back to a previous track. And access is fast; even in a jump from the first track to the last, the music re-starts in about 3 seconds. With 3-speed music search, you can find any music passage on the disc quickly, and play it right on cue with millisecond accuracy. The digital display shows the number of the track in play, and the elapsed playing time. You can tell exactly how much music is left at a glance.

Straightforward, Speedy Operation

Simple, single-touch-button operations are all that are needed. The Next Track, Back-track and Repeat keys, for example, automatically move the laser to the beginning of the exact track required. And the actions are not only easy, they are fast, too. The laser unit can be scanned across an average disc in less than 3 seconds.

Easier Programmability

Programmability gives you ease of selecting and organizing the music in the way you choose. The McIntosh Compact Disc Player has the most convenient and practical programmability anywhere.

You can play the music you want to hear, with McIntosh useful convenient programmability. You can even leave out that which you don't want to hear. The MCD 7000 can be programmed to play up to 20 tracks from any disc, in any order. That's adequate for virtually all discs available now or in the future, and the procedure is simplicity itself. Press a touch-button to bring up the required track on the digital display.

Press another to store it. You can even check your program before or during play, or review the stored track numbers on the display.

Know What's On The Disc Before You Play

Another valuable feature, the Index, is continuously displayed together with its track number.

Controlled Operation in Pause Mode

The 'Pause' facility is not just a simple interruption in play. Of course, that's handy for answering the phone or welcoming a friend. But in the MCD 7000 you can skip tracks, command repeat, even set up or modify a program while pause is operative. When you take 'Pause' off, play starts at once, exactly where you set it up. That's the kind of 'user-friendliness' so typical of McIntosh design.

Personal, Private Compact Disc Sound

With the front-panel headphone jack and independent volume control, you can discover the sheer beauty of Compact Disc sound, undiluted by any external noises or distractions whatsoever. The jack accepts any headphone with an impedance from 8 to 1000 ohms.

Servo-Micro-processor Search Protection

McIntosh 3-speed *Music Search* finds music passages quickly using one single touch-button. Touch for a fine step; hold, and search begins slowly, speeds up, and then runs at high speed. The fine stepping mode is accurate to within one second of playback time. That means you can come in exactly on cue at any point in the music that you choose. But *Music Search* has a unique extra feature - search protection. You cannot lose the music search facility should you happen to run forward into the lead-out track, or backward into the lead-in track. With the McIntosh MCD 7000, Search Protection arrests the search at the boundary in each case. And in programmed playback, the boundaries are set at the beginning and end of the track in play, so that your chosen program can never be upset by straying into an unprogrammed track. Easy, safe music search under your full control, always.

Soft Muting

Fingerprints or marks on a disc can disturb the laser beam readout. As far as the audio signals are concerned, the Compact Disc error correction system (CIRC) is an effective counter to disturbance - particularly so in the MCD 7000. It incorporates additional soft muting. Trackability is well protected too.

An additional benefit of soft muting in the McIntosh Compact Disc Player is the smooth, quiet way that control operations are handled. There are no clicks or pops or abrupt interruptions. Soft muting is an imaginative extension of the standard error correction facilities. Soft muting identifies large breaks in the data stream and gently fades out the sound at the beginning of the disturbance and fades it back in at the end.

And that's not only good for quiet control operations, it effectively conceals considerably larger encoded data dropouts caused by dirt, marks or scratches, than is possible with the ordinary system. Here's another plus point for McIntosh playability, another contribution to pure sound for your listening pleasure.

Positive-lock Synchronization

There is still a very real danger that phantom synchronization patterns may be generated - and these can cause clicks and pops because the system is accidentally desynchronized, and then must be synchronized again.

Many compact disc players simply detect successive synchronization patterns, and to them a phantom looks exactly like the real thing. The McIntosh MCD 7000 looks for two synchronization patterns spaced apart at the correct time interval, and rejects phantom patterns altogether. Here is yet another safeguard, not only to playability but sonic purity, greater musical enjoyment and immaculate sound.

PERFORMANCE LIMITS

- Number of Channels: 2 left and right
- Frequency Range: 2-20,000 Hz ±0.3 dB
- Dynamic Range: 96 dB
- Signal-to-Noise Ratio: 96 dB
- Channel Separation: 94 dB (at 1000 Hz)
- Total Harmonic Distortion: 0.003% (at 1000 Hz)
- Wow and Flutter: quartz crystal precision
- D/A Conversions: 16-bit equivalent through over-sampling with digital filter and 14-bit D/A conversion.
- Error Correction System: Cross Interleave Reed Solomon Code (CIRC)
- Audio Output Level: 2 V
- Impedance Headphones: 8/1000 ohms

OPTICAL READOUT SYSTEM

- Laser: semi-conductor AlGaAs
- Wave length: 800 nm

SIGNAL FORMAT

- Sampling Frequency: 44.1 kHz
- Quantization: 16 bit linear/channel

DISC

- Diameter: 120 mm
- Thickness: 1.2 mm
- Rotation (seen from reading side): counter-clockwise
- Scanning velocity: 1.2-1.4 m/s
- Rotation speed: 500-200 rpm
- Playing time (maximum): 74 min. (stereo)
- Track pitch: 1.6 μm
- Material: plastic

POWER SUPPLY

- 120 V, 50/60 Hz, 33 watts

TOUCH-BUTTONS AND CONTROLS

- AC Power
- SCAN
- ◄ Program
- Program ►
- Store
- Stop
- Time
- Track
- Back Track
- Next Track
- Play
- ◄◄ Rev
- FF ►►
- Repeat
- Pause

Controls

- Output Level
- Headphone Volume
- Front Panel Headphone Jack

Special Feature

- Damaged Disc/Mute Error Correction Indicator

MECHANICAL INFORMATION

SIZE:

Front panel measures 16 1/8 inches wide (41 cm) by 5 7/16 inches high (13.8 cm). Chassis measures 13 inches wide (33 cm) including connectors. Knob clearance required is 3/4 inches (1.9 cm) in front of mounting panels.

FINISH:

Front panel is glass with gold/teal nomenclature illumination with anodized gold and black aluminum. Chassis is black.

MOUNTING:

Exclusive McIntosh developed professional PANLOC.

WEIGHT

22 pounds (10 kg) net, 34 pounds (15.4 kg) in shipping carton.

Franchised Dealer:

1400

Cabinet 89.00

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