dbx

DX5
Compact-Disc Player

with
OverEasy Compression,
DAIR,
and
Ambience Control

Instruction Manual

"dbx" and "OverEasy" are registered trademarks, and "DAIR" and "Digital Audio Impact Recovery" are trademarks, of dbx, Mass. USA, a division of BSR NA Ltd.

FEDERAL COMMUNICATIONS COMMISSION NOTICE

This player generates and uses radio-frequency energy and, if not installed in strict accordance with our instructions, may cause interference to radio and TV reception. It has been type-accepted and found to comply with the limits for a Class-B computing device in accordance with the specifications in subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this player does cause interference to radio or TV reception, which can be determined by turning the DX5 on and off, you're encouraged to try one or more of these measures:

Reorient the receiving antenna;

Relocate the DX5 with respect to the receiver, or move it away from the receiver;

Plug the player into a different outlet so that it and the receiver are on different branch circuits;

If necessary, consult your dealer or an experienced radio/TV technician for additional suggestions.

You also may find helpful a booklet prepared by the FCC, "How To Identify and Resolve Radio-TV Interference Problems." It's available from the US Government Printing Office, Washington, DC 20404, stock no. 004-000-00345-4.

Radio Interference Regulations: This product complies with Directive No. 776/889/EEC.

CAUTIONS

This player contains a laser system and is classified as a Class-1 laser product. To use the DX5 properly, read this owner's manual carefully and keep it for reference. In case of any trouble, contact dbx or your dealer or distributor. To prevent being exposed directly to the laser beam, do NOT try to open the enclosure. Use of controls, adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.

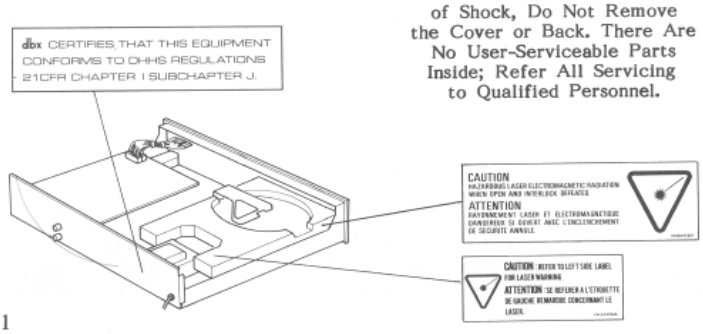
WARNING

TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS COMPONENT
TO RAIN OR MOISTURE.

This triangle, which appears on your component, alerts you to the presenece of uninsulated dangerous voltage inside the enclosure -- voltage that may be sufficient to -- constitute a risk of shock.

This triangle also appears on your component, and it alerts you to important operating and maintenance instructions in this accompanying literature.

CAUTION
To Reduce Further the Risk of Shock, Do Not Remove the Cover or Back. There Are No User-Serviceable Parts Inside; Refer All Servicing to Qualified Personnel.



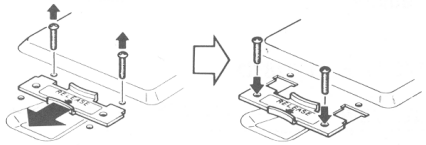
INSPECTION and INSTALLATION

Your unit was carefully packed at the factory in a protective carton. Nevertheless, be sure to examine both carton and contents for any signs of damage that may have occurred during shipping. If there is such evidence, don't destroy the carton or packing material, and notify your dealer or distributor immediately.

In any case it's a good idea to save the carton and packing materials should you ever have to ship your unit in the future.

In addition to the DX5 and remote control, hookup cables, and this manual, the carton should contain a warranty/registration card. Please fill it out and send it to us.

To keep the delicate laser assembly immobile during shipping, the DX5 base has been in it two transport screws tightened down with a lock. These MUST be loosened before you operate the unit. Get a Philips screwdriver, put a newspaper or towel on a flat surface, and place the DX5 on it, upright on its left side. Loosen the screws, slide the (red) lock toward the front, and secure it with the screws in its new position. It's ESSENTIAL that this procedure be reversed if you ever transport your DX5 in the future (make sure there's no CD in the player before putting the screws back on).



We suggest not putting your new CD player next to or on top of your receiver/tuner or your tape deck(s); if possible, put it at least one component away from these units. Also don't put the DX5 near a TV set or cable switcher. If you experience any RFI (radio-frequency interference) problems, consult the FCC notice, previous page.

Don't stack any components on top of the DX5, either, and don't put heavy items (stacks of LPs, for example) there. Finally, avoid putting the unit in direct sunlight or near heat, and avoid locations subject to vibration, dust, cold, and moisture or near sources of hum from transformer or motors.

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SPECIFICATIONS

Without dbx processing

Frequency response	10 Hz-20 kHz +/-0.3 dB
THD	Less than 0.003% at 1 kHz, 2-V output
Dynamic range	96 dB
Maximum output	2 V
Output noise	100 dB below 2 V
Pickup	Three-spot ("triple-beam") laser
Number of D/A converters	2
Converter resolution	16 bits
Smoothing filter	Linear-phase digital (176.4 kHz oversampling rate) with 3rd-order analog
Output impedance	330 ohms
Channel separation	90 dB
Dimensions	17-1/8"W x 3-1/2"H x 11-7/8"D
Weight	11 lbs
Power	See rear of unit; 23W

The DX5 also features three unique dbx signal-processing circuits:

DAIR, Digital Audio Impact Recovery, a 2-band design for adding impact to musical transients;

COMPRESSION control, also a 2-band design, for background listening, making car cassettes, and easier taping of CDs

AMBIENCE control, for adding and subtracting difference information in the midrange and treble, increasing/decreasing the spaciousness of sound.

SPECIFICATIONS

With dbx processing

THD	Less than 0.07%
Dynamic range	Variable from 70 dB (full Compression) through 96 dB (knobs fully leftward) to 106 dB (full DAIR)

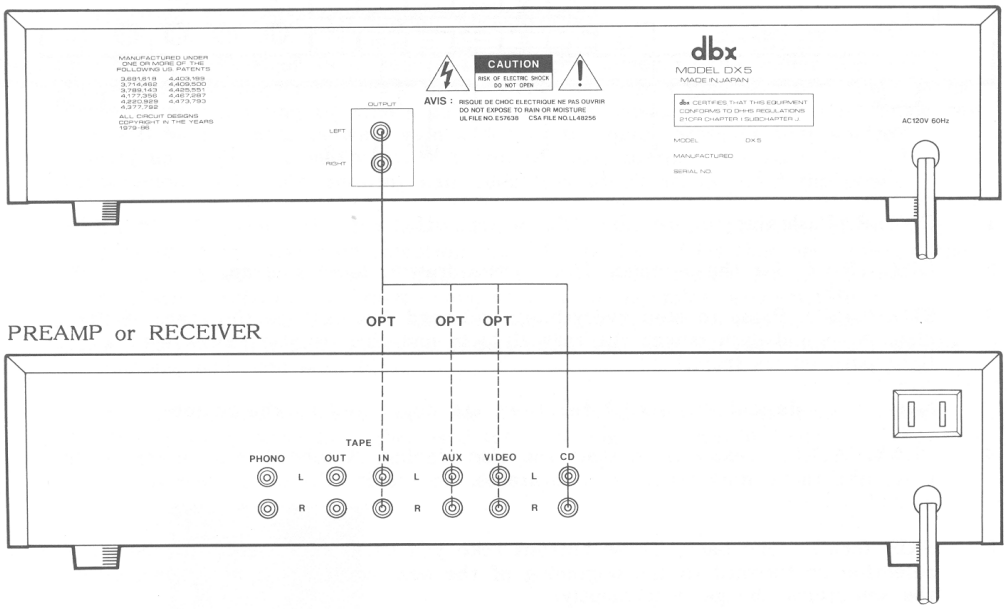
Notes

1) Specifications are subject to change.
2) All data are from 20 Hz-20 kHz unless otherwise specified; outputs are loaded by 10 k-ohms in parallel with 1000 pF; all voltages are rms (root-mean-square).
3) Dynamic range is defined as the difference between the maximum and minimum recordable signals.
4) Output noise is IEC A-weighted.
5) All dbx units are designed to drive loads of at least 5k-ohms in parallel with 1000 pF or less.

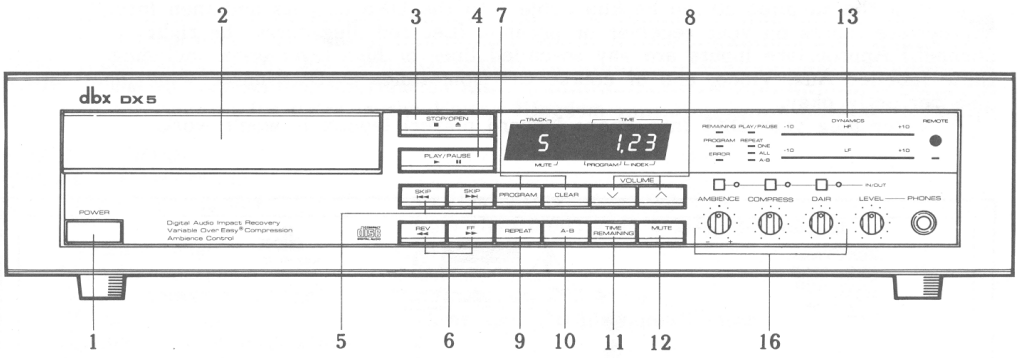
CONNECTION

Plug the supplied stereo hookup cable into the DX5 outputs and then into the appropriate inputs on your receiver or preamp. (Let red plug carry the right channel.) Appropriate inputs are any so-called line- or high-level ones, including those labelled Aux, Video, and of course CD (sometimes DAD). Unused Tape inputs are also perfectly okay.

Never plug your DX5 into Phono (record player) inputs; it won't work.



FRONT PANEL



1 POWER. Push this to turn the DX5 on and off.

2 DISC TRAY. Set the compact disc in this drawer, label side up.

3 STOP/OPEN. Press to stop everything, and send you back to the start of the disc. A second push makes the tray slide in and out. (It also closes with a light push on its front.)

Note that this and the next 7 functions are duplicated on the remote.

4 PLAY/PAUSE. Press this to start the disc playing. A second push interrupts disc play, like the cueing lever on a turntable. To restart the disc, press it again.

5 SKIP forward and back. These buttons take you back to the start of the current selection or forward to the beginning of the next one. If you hold down either, the selections change continuously.

6 REVerse and Fast-Forward. These let you skim through the music in either direction, listening at a quiet level; if you hold down either, the scanning accelerates. Note that pitch doesn't change. (If you want no sound at all, hit Pause first.)

7 PROGRAM and CLEAR. This lets you program the order of selections (up to 16) on a disc. Push the button once and the choice comes up ("1," then "2," etc.); push the SKIP forward and SKIP back keys to get to the selection you want (let's say no. 9); push the Program key again and the function sets selection 9 and at the same time goes to the next choice, "2," where you can put selection no. 5. And so on. It sounds trickier than it is.

To cancel a program, press Clear (or open the tray).

8 VOLUME. These buttons raise and lower the level of the sound, according to their arrows.

9 REPEAT. This turns the Repeat functions on and off. You can repeat one track, the entire disc, or your own grouped "program" of selections.

10 A-B. This is used to program and repeat any part (a phrase or solo, etc.) on the disc. Push the button at the beginning of the part you want to start the repeat from and push it again at the end of the part.
To cancel the repeat, press A-B third time.

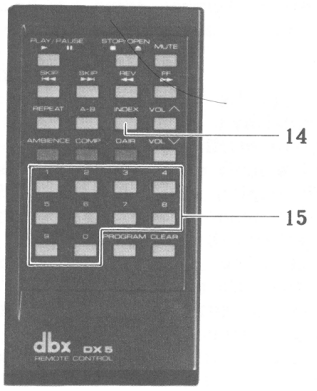
11 TIME REMAINING. Each time you press this the Time display mode changes. First is remaining time for the selection playing, then remaining time for the disc, and then elapsed time for the selection playing.

12 MUTE. Press to reduce the volume markedly.

13 LED display. The right-hand, red rows show gain added to the higher frequencies (HF) and lower frequencies (LF). In the DAIR mode this gain will be impact added to the sound according to what's going on in the music. In the Compress mode the rows will be in synch, showing gain added to the quiet passages that you're bringing up to greater audibility. The yellow rows, to the left, work in Compression mode only, showing gain reduction which brings down the peaks.

14 INDEX (On the Remote). This lets you use the DX5's Index function, if you are not playing the programmed selections and, if you have CDs that are indexed (the CD program booklet will say if this is the case). This feature means you can locate musical subsections--movements, phrases, arias, solos, etc.--within a section, like lines and scenes in an act of a play. To get to the indexed subsection you want, push Index on the remote, then hit the index number on the 1-0 buttons, and then push Play.

15 1-0 Buttons (on the remote). These buttons are used to select the track number for playing and programing. Also used for selecting the index number.



16 **The dbx SIGNAL-PROCESSING CIRCUITS (In/Out pushed to light LED); also remote controllable**

COMPRESS. Turning this knob rightward progressively reduces the program's dynamic range -- that is, the difference in level between loud and soft. This compression makes the quiet passages louder and the loudest passages somewhat reduced, without harming the sound otherwise. The feature is essential for CD background listening as well as for making tapes of CDs using non-dbx noise reduction or for making tapes for your car stereo that you can hear all dB while driving.

DAIR (Digital Audio Impact Recovery). Turning this knob rightward adds impact to musical transients -- the attack at the beginning of a drum beat, for example. This increases the "punch" and excitement that are already so much part of the CD listening experience.

AMBIENCE. This knob controls the amount of midrange and treble "difference information," letting you change the spaciousness of the sound.

Turn this knob to the left (-) to tighten the stereo image; the channels get blended (L+R) in the midrange and treble. This will accentuate the centeredness of an ensemble, for example. Turning it to the right (+) opens up the stereo image by adding in channel-difference information to the midrange and treble, which usually will increase the ambient spaciousness around the music, as for symphonic works. Either way, it sounds a little as if you're modifying the mike placement or the mix of a recording; some master tapes as revealed by the CD format sound better with added difference information (they have more "airiness"). But whatever your source material, it's instructive and fun to play with this knob's settings.

Note that all three of these processing features are out of the signal path when the knobs are centered. In addition, when the LED is out, the circuit is bypassed altogether.

HANDLING COMPACT DISCS

CDs don't have to be kept as scrupulously clean and unmarked as LPs, but large scratches (and warps) may cause mistracking. Hold CDs by the edge and/or center hole; put them in the case after playing; and to clean them wipe with a soft dry or water-moistened cloth from center out to edge, not in a circular motion. Don't use LP-cleaning products, anti-static sprays, alcohol, etc.

DIGITAL CONTROL:
MORE ABOUT COMPRESSION, DAIR, and AMBIENCE CONTROL

Compression

Everyone appreciates the quiet background, aordinary clarity, and unstrained peaks of compact discs. For serious listening at healthy levels, this wide dynamic range permits an unprecedented feeling of liveness or you-are-there-ness to the sound, as if we're actually present while the tape's rolling at the recording session.

But who needs all this dynamic range for background listening? If you turn up the quiet passages so you can hear them, the loud moments will shake the room, and if you keep the volume so the peaks are tolerable, you lose all the low-level details. Furthermore, for taping with non-dbx noise reduction (which means relatively limited dynamic range for the tape deck) and for making cassettes for your car (where much of the dynamic range is lost to road and engine noise), a compressor is mandatory.

dbx is the compressor leader in the pro audio world. We make the best-selling and best-sounding compressors, using our famous OverEasy (gradual-onset) circuits. So who else would introduce the first CD with a compressor -- and one that doesn't produce the held-back feeling you get with other compressors? (Find the loudest pop FM station in your dial and you'll probably hear what we mean by this held-back, constricted feeling.) Moreover, the DX5's compressor doesn't add noise or hiss to the CD. It just makes the quiet passages more audible at low listening levels and the loud peaks a little fierce. It gives you control over this wonderful new medium.

Digital Audio Impact Recovery

Most CDs today -- virtually all pop ones, for example -- are still produced from analog master tapes. This almost invariably means that loud transient attacks, as of percussion, have been at least a little limited or compressed during the recording of the master tape, sometimes more than a little. Other times they get clipped by the saturation of the tape itself. The unique dbx DAIR circuit, a fast-acting two-band design covering the full range of audio frequencies, can help recover these lost peaks, up to a potential +10 dB, depending on the program. Furthermore, 16-bit PCM (pulse-code modulation) recording, which is what must be used at some point to fit the music into the CD format, is still not wide enough in dynamic range to capture everything successfully. A kick drum or a brass blast, for example, can produce a sound-pressure level (SPL) whose initial impact up to close is much greater than 110-120 dB. The only way to capture this sonic thrill in the high-90s-maximum dynamic range of 16-bit PCM is to keep the mike back a bit or use a compressor/limiter between the mike and PCM recorder. The brass and kick-drum attacks we hear on CDs are plenty powerful, true, but not really as much as when experienced live.

Ambience

Many audiophiles have complained that CDs sometimes sound hard and unspacious. Compared with LPs of the same tape, it's often true, because phono cartridges invariably add so-called out-of-phase (difference) information, which does increase spaciousness in the sound. While the CD may indeed be giving us an unsurpassedly accurate copy of the master tape, we wouldn't like the shallow sound of it, either. So once again, your DX5 gives you control of the sound quality. The Ambience knob goes from mono in the midrange and treble (all the way left produces L+R) to nearly full channel-difference information in the midrange and treble (all the way right produces, technically, 1.5L-0.5R in the left channel and 1.5R-0.5L in the right, proportions that were chosen through extensive listening). On almost all recordings, this will vary the depth and breadth of the sound stage. In doing this the Ambience circuit adds no noise to the digital sound, unlike another line of CD players with difference-information signal processing, nor does it produce their unpleasing frequency-response changes and other sonic side effects.

And once again, all of these features that give you control of your CD sound -- features that make a difference you can really hear with this player -- can be completely bypassed when you so desire.

WARRANTY and FACTORY SERVICE

All dbx products are covered by a limited warranty (warranties for products purchased outside the USA are valid only in the country of purchase and the USA). For details, consult your warranty card or your dealer/distributor.

The dbx Customer Service Dept. will help you use this product. For answers to questions and information on problems not in this manual, write to:

dbx
71 Chapel St.
Newton, Mass. 02195 USA
Attn: Customer Service

You also may call (617)964-3210 during business hours (USA Eastern Time). The telex is 92-2522.

Should problems arise, consult your dealer or distributor. If it becomes necessary to have your equipment serviced at the factory, repack the unit, including a note with a description of the problem and the date of purchase, and send the unit freight prepaid to the above address, marking it Attn: Repairs.

FOR USERS IN THE UNITED KINGDOM

Important

The wires in the unit's main lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live.

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The blue wire must be connected to the terminal that is marked with the letter N or coloured black;

The brown wire must be connected to the terminal that is marked with the letter L or coloured red.

Ensure that all terminals are securely tightened and that there are no loose strands of wire.

Warning

This unit must be protected by a 3-amp fuse, preferably using a fused plug.

Also, do not remove the cover without first disconnecting the unit from the mains supply.