Technics

The science of sound

RS-B905

Dual-Capstan 3-Head
Stereo Cassette Deck

1. Double 3NR circuitry plus Dolby* HX Pro.
2. Closed Loop, Dual-Capstan 3-Head Transport.
3. Class AA and Phase Compensation Circuitry.

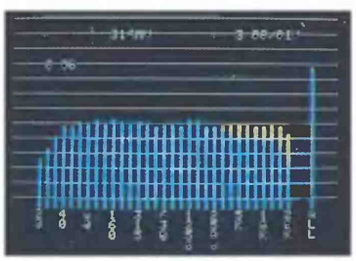
RS-B905

INTRODUCING A HIGH PERFORMANCE CASSETTE DECK

Technics new RS-B905 cassette deck contains Dolby HX Pro—a recording bias control system that gives you cleaner highs and brighter treble. Dolby HX Pro controls the recording bias by continuously optimizing it for each moment in the music. In fact, you can hear the benefits no matter what deck you play the tape on. Dolby HX Pro can even work together with dbx† to further extend the range of analog tape performance. The RS-B905 also includes double 3NR—dbx, and Dolby B-C. Audio purists will also appreciate the RS-B905's Closed-Loop Dual-Capstan 3-Head Transport, a classic approach to high fidelity.

DOLBY HX PRO

Headroom Extension
HX stands for "headroom extension"—an advanced system that dynamically optimizes recording bias to enhance high range performance above 8kHz. It works "behind the scenes", monitoring the input signal's constantly fluctuating high frequency energy and automatically adjusting the bias for maximum fidelity. This helps avoid tape saturation, a problem associated with the usual fixed bias system. The benefits are noticeable at higher recording levels.



Pink noise recorded with and without Dolby HX Pro on a Technics reference tape (TYPE I, normal), at the recording level of 0dB. Test equipment: CROWN BDP-2

dbx Plus HX Pro
Though HX Pro operates independently, it has considerable cumulative benefits when used with dbx. This powerful combination reduces both noise and distortion and helps to capture more musical detail from compact discs.

Complete Compatibility
Since HX Pro operates during the recording process only, it is completely compatible with any tape playback system. You can enjoy the sonic improvement even in your car or personal headphone system.

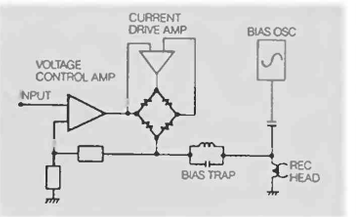
DOUBLE 3NR SYSTEM

dbx and Dolby B-C NR Encode/Decode Circuitry
The RS-B905 has three noise reduction systems. Equally important, they are all in double circuits so you can enjoy 3-head real-time monitoring with correct NR decoding. dbx provides up to 110dB dynamic range while virtually eliminating noise throughout the audio spectrum. This means you can make successful recordings from any source.
Dolby B and C noise reduction systems ensure complete compatibility with other decks and prerecorded cassettes.

MPX Filter On/Off Switch
The MPX filter can be switched on to avoid NR mistracking when recording FM broadcasts.

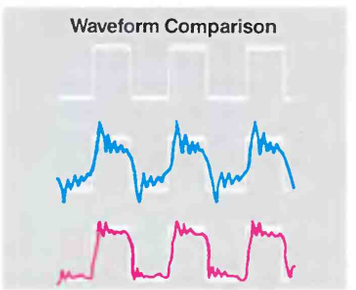
CLASS AA

To bring out the full potential of the RS-B905's superb tape transport and head systems, the deck features Class AA circuit technology, already proven in Technics hi-fi amplifiers. By isolating voltage control from the current load, Class AA helps ensure that the recorded waveform is faithful to the input signal.



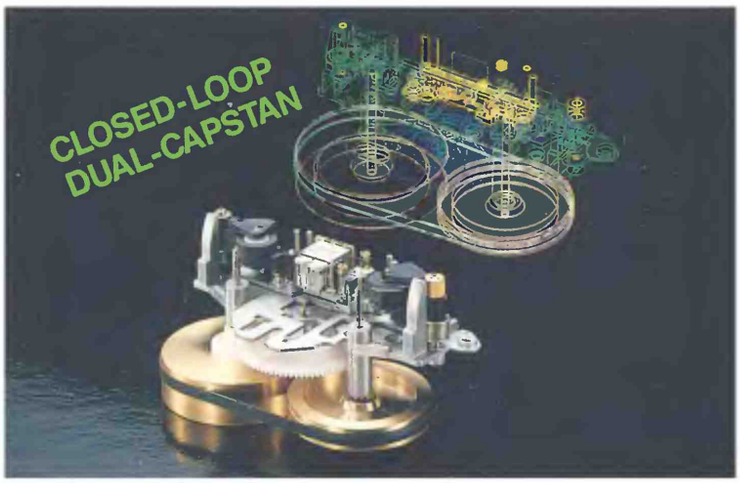
PHASE COMPENSATION CIRCUITRY

This circuitry compensates for phase distortion which arises during the equalization process. The result is accurate waveform fidelity, so you hear more of the high frequency linearity contributed by HX Pro. An additional benefit is improved sound quality in second generation copies.

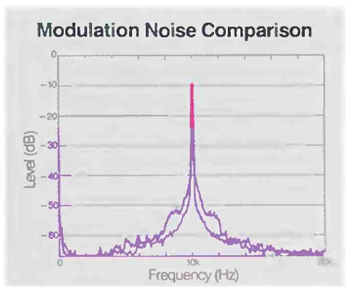


CLOSED-LOOP, DUAL-CAPSTAN TRANSPORT

Isolated Tape Path
The actual storage and retrieval of information on magnetic tape occurs only where the tape contacts the magnetic head. Everything else in the system is there to assist in that delicate transfer. Success depends on how precisely we can position the tape relative to the head and how well we can stabilize the tape's movement. The aim is to minimize such measurable factors as output level fluctuation, modulation noise, and wow and flutter.
The RS-B905 uses a closed-loop, dual-capstan transport to isolate the tape from outside influences over the critical millimeters where micron-order



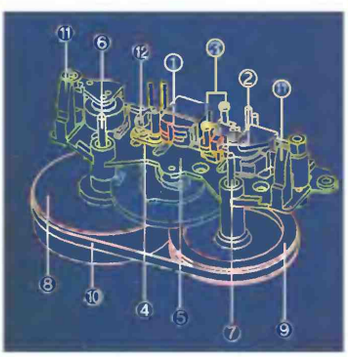
specifications are essential. The supply capstan is linked by a belt to the take-up capstan, forming a closed loop of magnetic tape across the head contact area. The two capstans are slightly different in diameter to avoid sympathetic resonances and to maintain good contact between the tape and the heads. This transport is key to the RS-B905's low modulation noise and low wow and flutter of only 0.04% WRMS (±0.12% DIN.)



Closed-loop, dual-capstan (RS-B905)
Conventional single-capstan drive
Test frequency: 10kHz
Test tape: Technics reference tape (TYPE I, normal)

Integrated Diecast Capstan and Head Blocks

To position the cassette and tape precisely, relative to the heads, the RS-B905 uses diecast integrated manufacturing techniques. In this configuration, not only are the capstan and pinch roller bearings die-cast as part of the chassis, but the special guide pins are also mounted directly on the main chassis. This technique reduces the possibilities for head/tape positioning errors. A dual pin pivot supports the rec/pb head unit above the diecast head base, effectively maintaining the initial azimuth and tilt and height settings.



① Separate rec/play head
② Erase head
③ Dual pin pivot
④ Diecast head base
⑤ Integrated diecast chassis
⑥ Take-up capstan
⑦ Supply capstan
⑧ Take-up flywheel
⑨ Supply flywheel
⑩ Drive belt
⑪ Guide pin
⑫ Tape guide

2-Motor Drive

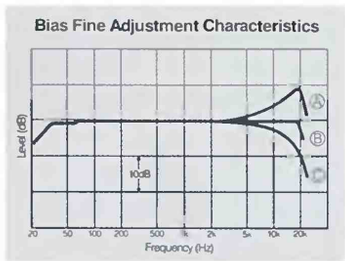
A 2-motor drive allows for division of labor and specialization of tasks. To maintain constant tape speed past the heads during recording and playback, the RS-B905 uses a precision DC servo motor. A second DC motor moves the reel tables.

3-HEAD DESIGN

Different Record/Playback Heads

While ordinary decks use the same head for both recording and playback, the RS-B905 uses separate heads which are optimized for their individual tasks. The wider gap in the recording head helps raise the maximum output level. The narrower playback head gap is essential to extending high-range frequency response. Also, since the heads are separate, you can listen to the actual playback sound a split second after it is recorded. Azimuth problems are reduced by the diecast head block which features computer assisted design.

Rec Level Calibration and Bias Fine Adjustment



Ⓐ Response with bias at minimum value
Ⓑ Response with bias at standard value
Ⓒ Response with bias at maximum value
Test tape: Technics reference tape (TYPE II, CrO_2)

Left and right channel recording level calibration is independently adjustable, as on professional equipment. You can also "fine tune" the recording bias for normal and CrO_2 (high position) tapes. Center click-stops enable easy return to standard positions.

Auto Tape/Source Monitor Select

The deck automatically selects "source" for recording and "tape" for playback. You can also switch manually for a real-time check of your recording.

MICROPROCESSOR FULL-LOGIC CONTROL

Feather-Touch Operation

Comfortable and convenient feather-touch electronic operation ensures positive activation of tape transport functions.

Soft-Touch Electronic Switches

Only a light touch is needed to activate noise reduction, tape monitoring, and MPX filter switching. This electronic system reduces noise and helps improve separation.

3-Color Wide-Range FL Meter

A wide 18-segment display covers a −40dB to +18dB range, with three color regions (red indication above +8dB when using dbx.)

Electronic Tape Counter

A 3-digit fluorescent readout provides a highly reliable tape position reference. Includes a tape-run indicator.

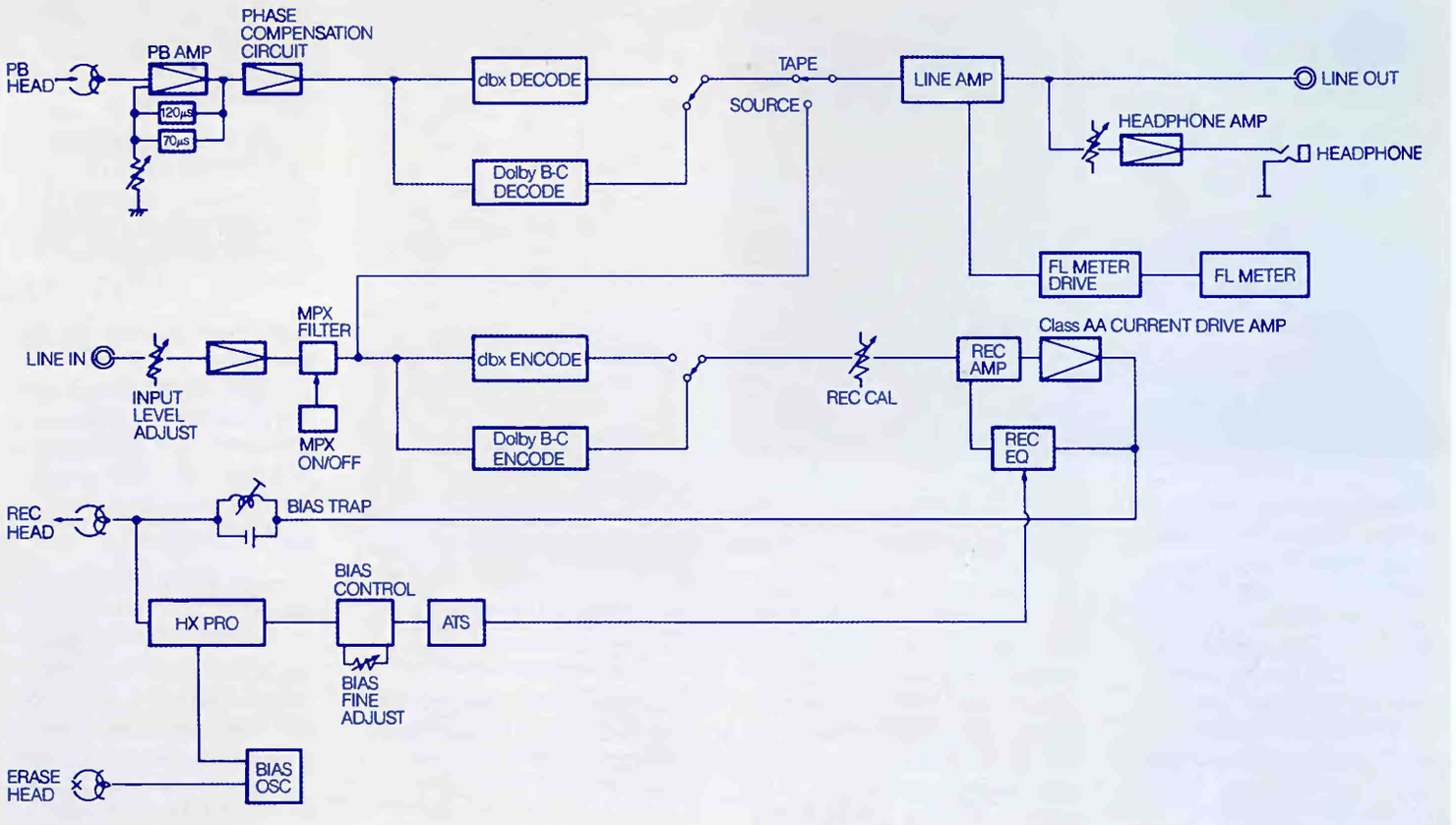
Auto Rec Mute

This feature allows you to automatically record about 4 seconds of silence between songs. These no-signal areas can then be read by the music select function.

Music Select and Repeat

With music select, you can automatically find and begin play of the next song or replay the current song. The repeat function will play the same side up to 16 times.

Block Diagram of RS-B905 Audio Section



OTHER FEATURES

- Auto tape select with FL indicators
  Auto tape select will detect normal, CrO_2, or metal tape formulations and set the standard bias and equalization, automatically.
- Master rec level control
  A large knob and a calibrated scale facilitate precision recording level setting.
- Balance control
  The center click-stop allows you to easily and quickly return to the standard balance setting.
- Headphone output level control
- Timer record/playback selector

* Dolby noise reduction and HX PRO headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX PRO originated by Bang and Olufsen. "Dolby", the double-D symbol and "HX PRO" are registered trademarks of Dolby Laboratories Licensing Corporation.
† dbx is a registered trademark of dbx Inc.

TECHNICAL SPECIFICATIONS

Track System:	4-track 2-channel stereo recording and playback
Tape Speed:	4.8cm/s (1 7/8 ips)
Wow and Flutter:	0.04% (WRMS) ±0.12% (DIN)
Frequency Response:	
Metal tape:	20—22,000Hz 30—20,000Hz (±3dB)
CrO_2 tape:	20—21,000Hz 30—19,000Hz (±3dB)
Normal tape:	20—20,000Hz 30—18,000Hz (±3dB)
Dynamic Range:	110dB (at 1kHz) with dbx in
Max. Input Level Improvement:	10dB or more with dbx in (at 1kHz)
Signal-to-Noise Ratio:	
dbx in:	92dB (A weighted)
Dolby C NR in:	75dB (CCIR)
Dolby B NR in:	67dB (CCIR)
NR out:	57dB (A weighted)
(signal level = max. input level, CrO_2 type tape)	
Fast Forward and Rewind Time:	Approx. 95 sec. (C-60 tape)
Input Sensitivity and Impedance:	
Line:	60mV/47kΩ
Output Level and Impedance:	
Line:	400mV/2.2kΩ
Headphones:	125mV (at 8Ω), applicable headphone impedance 8Ω—600Ω
Bias Frequency:	85kHz
Motors:	2-motor system DC servo motor (x2)
Heads:	3-head system MX combination head (record x1, playback x1) Double-gap ferrite head for erasure (x1)
Power Supply:	AC 120V, 60Hz
Power Consumption:	25W
Dimensions (W x H x D):	43cm x 11cm x 28.5cm ($16^{15}/_{16}$" x $4^{5}/_{16}$" x $11^{1}/_{4}$")
Weight:	5kg (11 lbs.)

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