

Technics

RS-B965

Quartz Direct Drive,
Dual-Capstan 3-Head Cassette Deck

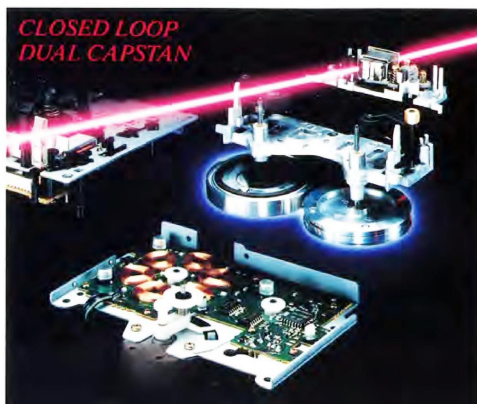
- 1. Quartz Direct Drive, Dual-Capstan Closed Loop.*
- 2. Isolated Circuit Blocks with Independent Power Supplies.*
- 3. Linear Magne-Field Class AA System.*



RS-B965

The Finest Technics Cassette Deck Ever Made.

Performance Features



CLOSED LOOP
DUAL CAPSTAN

TAPE TRANSPORT

Quartz Direct Drive

If a deck can prevent any variations in speed as the tape passes over the heads, then it is well on its way to high fidelity. Of the three motors used by the RS-B965, the one most critical to tape speed is the capstan motor. In the B965, the primary capstan is in fact an extension of the motor's shaft. It is driven directly, in a planar opposed mechanism, boasting high torque to resist load fluctuations. Motor speed is locked to an unwavering quartz crystal oscillator. Instead of a conventional FG servo which may suffer from lag, a digital servo directly checks and corrects motor speed to promptly compensate for any deviations from the rated speed.

Dual-Capstan Closed Loop

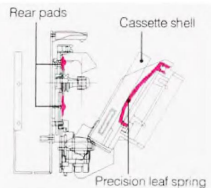
Tape speed in the critical area where the tape contacts the heads is under the control of only one capstan in most decks. The B965, however, employs two capstans — the second capstan is on the supply side of the heads.

This Dual-Capstan configuration isolates the tape from outside factors such as tape load, reel motor torque, and external vibrations. To maintain critical rotational accuracy, the two capstans are linked by a precision belt, forming a closed loop around the head contact area. This significantly reduces modulation noise and wow & flutter.

Every detail of this Dual-Capstan Closed Loop system reflects unparalleled quality. Different

capstan diameters avoid sympathetic resonances. The highly rigid aluminum diecast chassis precisely supports the verticality of both capstans, while vibration damping diecast zinc alloy is used for the head base. Supply-side pinch roller height is individually adjusted before each deck leaves the factory. To improve speed accuracy and enhance the isolation effect of the closed loop, we etch just the part of the capstan that actually contacts the tape; entire surface etching is not as effective. And to promote optimum head-to-tape contact, the tape guides are made of a higher precision, lower-friction, higher durability ceramic-composite. An enlarged felt pad contact area and clutch contribute to uniform back tension.

Cassette Stabilizer



As the motorized lid closes, a precision leaf spring firmly holds the cassette in position against six rear pads, thereby suppressing vibrations caused by friction between the tape and slip-sheet. This cassette stabilizer improves tape-to-head contact and helps prevent modulation noise.

3-Head System

Extended high frequency response results from narrower playback head gap width (0.8μ). Greater dynamic range results from wider recording head gap width (4μ). Technics' own high-flux density MX alloy construction and pure copper coils improve linearity while raising saturation flux density. Real-time monitor-as-you-record capability is enhanced by separate encode/decode circuitry for dbx⁺ as well as Dolby[®] B-C NR.

AMPLIFIER CIRCUIT

Isolated Circuit Blocks

Sources of electrical "noise" include a deck's bias oscillator, display meters, transport mode switching logic circuits, and line-input/recording-NR circuits. Inside the B965 these circuit blocks are isolated and shielded to prevent transmission of electromagnetic interference which could distort or muddy the audio signal. The shielding plates also serve to strengthen the chassis. In addition, both the signal paths for recording and playback are kept as short as possible in a reasonable layout that preserves waveform fidelity. It's the same kind of painstaking attention to detail that you see in high-end audio amplifiers.



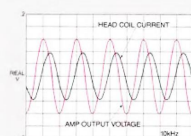
Independent Power Supplies

Linearity and freedom from interference are such important considerations when recording from CDs that we even separated the power supplies for the different circuit blocks. Independent, stabilized, balanced power supplies are provided for recording EQ, recording NR, playback EQ, and playback NR. The use of $\pm 15V$ instead of $\pm 10V$ for the recording equalizer confers still higher linearity. Of course, separate transformer windings also isolate

the audio circuit power supply from the transport and loading mechanism power supply.

Linear Magne-Field Class AA

To help make sure that the output waveform (after playback) is closely in phase with the input waveform (before recording), Technics developed the Linear Magne-Field Class AA system. Located after the recording amp, the Linear Magne-Field circuit is designed to help reduce electromagnetic transducer non-linearity, thanks to a refinement of the Technics Class AA circuit technique. This helps prevent phase shift and controls the mid-to-high frequency impedances caused by head-coil inductance. Phase Compensation Circuitry in the playback amp actively corrects for time axis misalignment introduced by EQ filter group-delay characteristics. This helps improve waveform fidelity.



As shown above, a conventional record amp exhibits major phase delay and gain loss between amp output voltage and actual head-coil current flow. The Linear Magne-Field Class AA system helps remedy this situation.

Dolby[®] HX Pro

HX Pro extends the headroom of virtually any tape, allowing it to record more high frequency information without overloading and causing distortion.

More Valuable Features

- One-piece tape head base of diecast zinc alloy maintains azimuth accuracy.
- Sendust guard on erase head protects high frequency signals from flux leakage in non-erase modes.
- 2-motor full-logic control.
- Built-in dbx and Dolby B-C noise reduction systems.
- Phase compensation circuitry in playback amp.
- Low-distortion PXS capacitors.
- MPX filter on/off switch.
- Non-resonant TNRC base.
- Large insulating feet.

Convenience Features

Advanced Precise Record-Level System (APRS)

When a record level is set too low, quiet passages may be obscured by noise. When it's set too high, the signal peaks may be distorted. With this problem in mind, Technics designed the advanced, precise record-level system, which simplifies setting the ideal record level. First, the peak level meters will show the level of the highest peak which has been input so far. Then you simply adjust the record-level control until the indicated peak moves to the optimum setting. This feature is great for use with the peak level search on Technics CD players.



Peak hold FL meter unit and APRS (advanced precise record-level system) LS

Dual-Range FL Peak-Hold Meters

For those who want to maximize the benefits of APRS, meter range can be set to give even more precise indication. Whereas the normal range covers $-30dB$ to $+16dB$, the fine range uses $1dB$ steps to indicate levels from $-7dB$ to $+8dB$.



Record-level calibration



Bias calibration

Semi-Automatic Bias/Rec-Level Calibration



Before recording music on a tape, you can optimize frequency response and noise reduction performance by using the B965's bias/rec-level calibration function. First, run the tape in record mode and press the rec-cal button — markers will appear on the FL meters (which will automatically have switched to fine indication). Then adjust the rec-level knobs individually so that meter indications just hit the markers. Press the recal button again to generate a high 10kHz tone on the left channel and a low 400Hz tone on the right channel. Then adjust the bias control knob so that both tones give the same indication (or customize to match your special recording needs). Finally, press the rec-cal button a third time to return meter operation to normal.

Usually, you only need to perform

this procedure once for a particular tape brand and formulation (normal, CrO₂, or metal). But it's so easy that you may wish to calibrate your deck more often, before every major recording session, for example. After all, in a professional recording studio, deck calibration is part of the daily routine.

Linear Electronic Counter

This 4-digit display can show you the elapsed tape time in minutes and seconds. You can also switch to 3-digit tape counter indication.

Whether the counter is set to show the time or tape position, you can have the tape rewind and automatically stop at the "00.00" or "000" position. Repeat play is also possible.



Linear time counter

3-digit tape counter

CD Direct Input

To preserve the purity of signals from a digital source such as a CD player, you can set a front panel switch to shorten the signal path between input and recording head. This eliminates unneeded gain, thereby enabling recording to proceed with higher S/N ratio and reduced possibility of crosstalk.



Cassette Power Loading



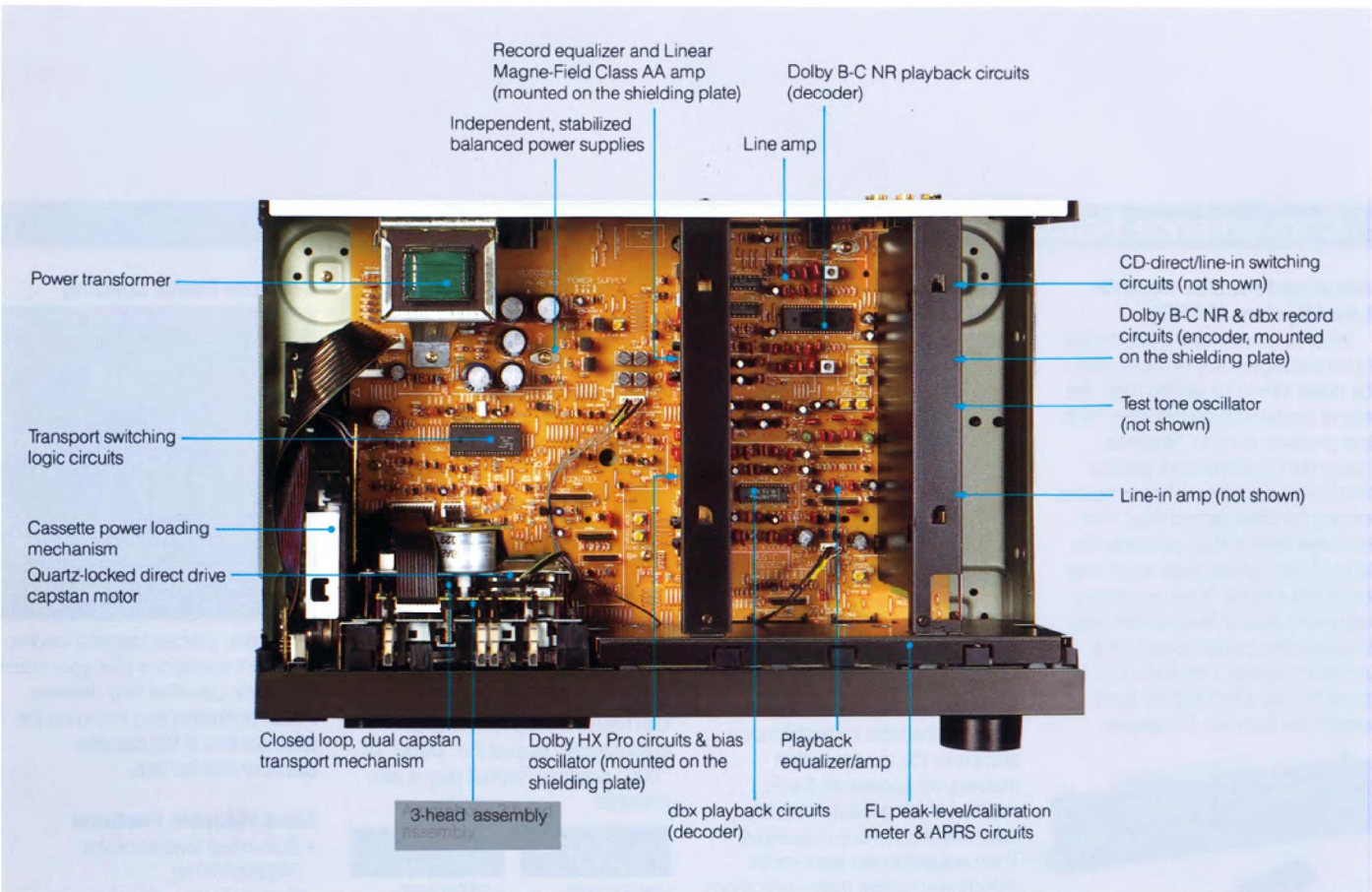
Smooth, precise cassette loading and eject operations give your tapes the gentle care that they deserve. Power operation also improves the effectiveness of the cassette stabilizer mechanism.

More Valuable Features

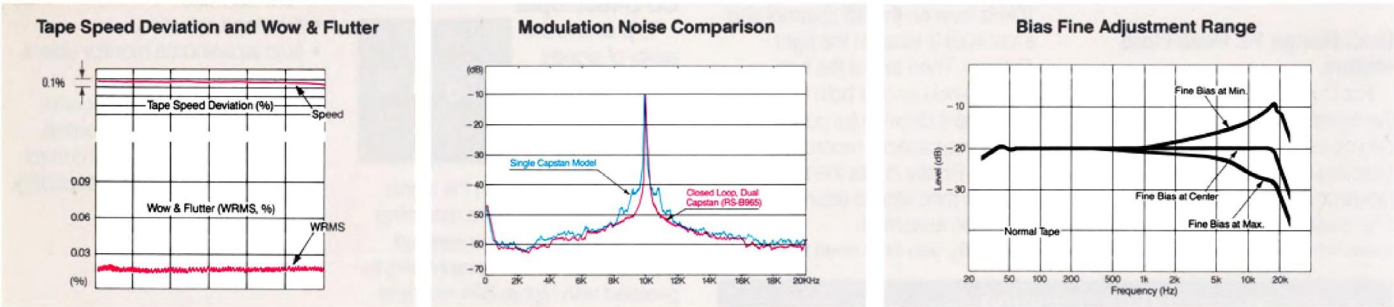
- Built-in test tone oscillator (400Hz/10kHz).
- Feather-touch operation.
- Music select.
- Auto rec-mute.
- Auto tape select.
- Auto tape/source monitor select.
- Memory stop/repeat.
- Large master rec-level control.
- Independent balance control.
- Headphone output level control.
- Timer record/playback capability.



The Inside Reason for the RS-B965's Astounding Performance



Performance Data



Technical Specifications

Record/playback system	
Track system	4-track 2-channel recording and playback
Heads	3-head system
Record/playback	MX head (record x 1, playback x 1)
Erase	Double-gap ferrite with Sendust guard (x 1)
Bias frequency	80kHz
Tape transport	
Tape speed	4.8cm/s
Wow and flutter	0.03% (WRMS), ±0.09% (DIN)
Motors	2-plus-1 motor system
Capstan drive	Quartz direct drive digital servo motor (x 1)
Reel drive	DC motor (x 1)
Cassette loading	DC motor (x 1)
Fast forward and rewind time	Approx. 100 sec. (C-60 tape)

¹ dbx is a registered trademark of dbx Inc.
² Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
"Dolby," the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Audio	
Frequency response	
Metal tape	20Hz — 21,000Hz (DIN)
	20Hz — 20,000Hz (±3dB)
CrO ₂ tape	20Hz — 20,000Hz (DIN)
	20Hz — 19,000Hz (±3dB)
Normal tape	20Hz — 19,000Hz (DIN)
	20Hz — 18,000Hz (±3dB)
S/N ratio (signal level = max. input level, CrO ₂ type tape)	
dbx in	92dB (A weighted)
Dolby C NR in	74dB (CCIR)
Dolby B NR in	66dB (CCIR)
NR out	57dB (A weighted)

Input/output	
Input sensitivity and impedance	
Line	60mV/47kΩ
CD direct	190mV/47kΩ
Output level and impedance	
Line	400mV/less than 1kΩ
Headphones	125mV (at 8Ω), applicable headphone impedance 8Ω — 600Ω
General	
Power supply	AC 220V, 50/60Hz (Europe except U.K.)
	AC 240V, 50/60Hz (U.K., Australia and N.Z.)
	AC 110/127/220/240V, 50/60Hz (other areas)
Power consumption	26W
Dimensions (W x H x D)	430 x 135 x 290mm
Weight	6.4kg

Technics
Matsushita Electric

scans von Michael-Otto