

Technics RS-1700

by Panasonic

New Product Information

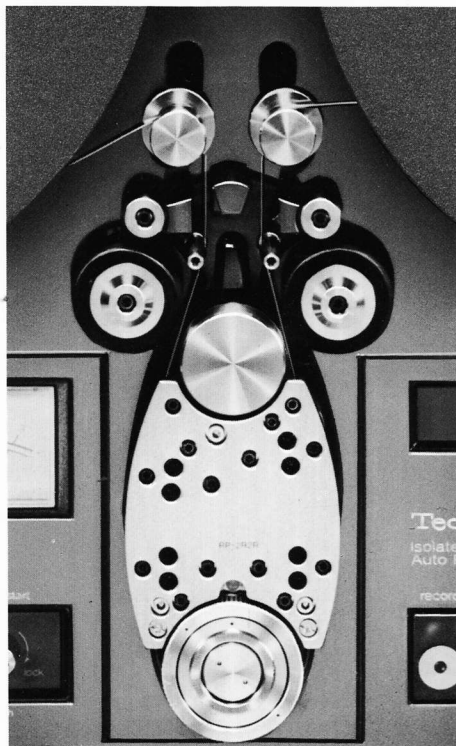
"Isolated Loop" Quartz-Locked
Direct-Drive Three-Motor Auto-Reverse
Open-Reel Tape Deck



Auto-Reverse

This leaflet is an English translation of Japanese leaflet of the model RS-1700 which was recently announced as a new product from Technics in Japan.

RS-1700 Symmetrical "Isolated Loop" Tape Path—The Perfect Design for Auto-Reverse with Equal Performance in Either Direction



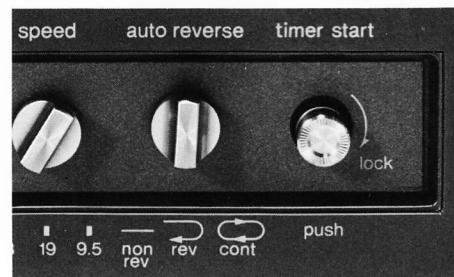
perfect symmetrical structure of the "Isolated Loop", formed by a single super-large capstan (34 mm in diameter), reversing roller, and pair of pinch rollers exerting equal pressure on the capstan, means that tape may be transported in either direction under exactly identical conditions, thereby maintaining the same high standard of performance. The RS-1700, which is basically the same precision "wonder" machine as the epochmaking RS-1500US, reveals the full potential of the "Isolated Loop" tape path by completely eliminating any loss of performance in the reverse direction. It really should be called the "two-way-forward" tape deck rather than just another auto-reverse deck. The incredible wow and flutter of 0.018% (15 ips) remains unchanged in both forward and reverse directions.

Photoelectric "No Touch" Reverse Point Detection

Precision, fail-proof reversing action is assured by the unique infrared LED—infrared filter—infrared sensitive transistor tape-end detector system. No mechanical contacts, no wear on tapes. When the transparent leader tape reaches the detector mechanism, a 512 Hz quartz-controlled flicker beam generated by the infrared LED passes

through the tape and infrared filter to activate the infrared sensitive transistor (designed to respond only to this intermittent infrared radiation). The emission spectrum and infrared sensitive transistor thus make mis-operations due to external light practically impossible.

Multiple Auto-Reverse Functions



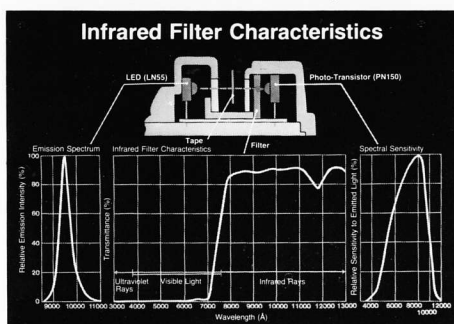
Three Basic Transport Modes

The RS-1700 features 3 separate auto-reverse transport modes:—"cont", "rev", and "non rev". In "cont" mode, tapes will play endlessly until commanded otherwise, in "rev" mode, a single cycle will be completed in either record or playback modes, while in "non rev" mode, tape transport will be the same as any other tape deck.

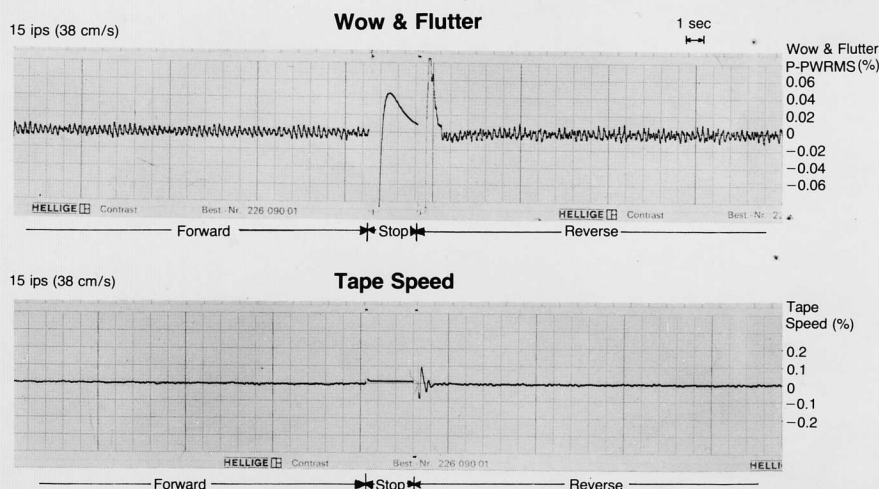
	non rev	rev	cont
playback	→	→	→
record	→	→	→
fast forward, rewind	→	→	→

The "Isolated Loop" Reveals Its Full Potential in "Two-Way-Forward" Auto-Reverse

The ingeniously conceived "Isolated Loop" structure (first introduced in the Technics RS-1500US) was primarily designed to eliminate hitherto "unsolvable" problems such as speed deviation and fluctuation, wow and flutter, and modulation noise. But that was by no means the end of the story. The



Wow & Flutter and Tape Speed Accuracy Before and After the Reverse Point



Auto-Stop in Fast Forward and Rewind Modes

In "cont" and "rev" modes, this highly efficient photoelectric tape-end detector is also utilized to bring tape transport to an automatic stop in fast forward and rewind modes. This feature can be used to even greater effect by inserting transparent leader tape in between desired selections.

Pre-Timed Auto-Reverse Recording and Playback

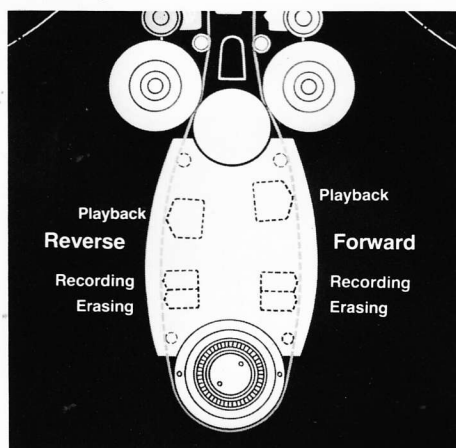
By connecting up the RS-1700 to an audio timer, the pre-timed automatic recording or playback will also continue in the reverse direction. If the timer is so designed, a second recording or playback session will continue in the same direction.

Direction Indicator Lamps

The reverse and forward control keys are equipped with built-in blinker lamps for immediate indication of transport direction during all modes, and even when pause or stop keys are pressed.

Every Par Excellence Feature of the Original RS-1500US Has Been Either Retained or Improved Upon

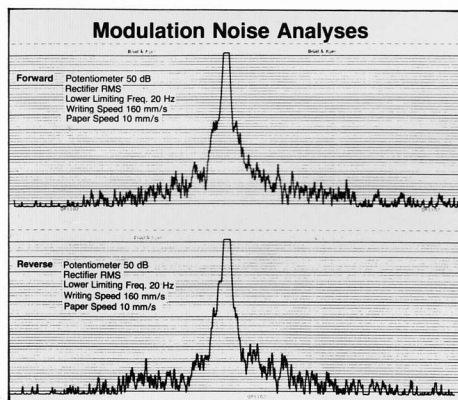
Unique 6-Head Configuration



Super Alloy laminated heads are used for both playback ($2\mu\text{m}$ gap) and recording ($10\mu\text{m}$ gap), while a double-gap ferrite head is used for erasing. Completely separate sets of heads are employed for forward and reverse directions.

Imperceptible Modulation Noise in Either Direction

As the following diagrams illustrate, the "Isolated Loop" all but eliminates modulation noise in either direction.



Highly Reliable Forward/Reverse Head Switching Relay

The gold-clad twin-contact relay employed in switching forward and reverse heads responds immediately and efficiently to all switching commands. Switching time is of the order of 0.1 sec.

Interchangeable Plug-In Type Head Assembly

The 24-pin plug-in type head assembly may be removed quite easily for simple replacement with other Technics head assemblies which will become available in the future.

Highly Stable Bias Oscillation

In view of the replaceable head assemblies, an independent constant voltage circuit and power amplifiers have also been included in the bias oscillator stage, thereby further improving the stability of the bias oscillation frequency and output level.

Direct-Drive 3-Motor Tape Transport

Quartz-Locked Direct-Drive Capstan Motor

By bringing the high-torque DC direct-drive capstan motor under the control of a quartz oscillator phase control system, the RS-1500US achieved unprecedented performance in motor speed control and the elimination of wow and flutter. Improving upon such a near-perfect system was hard to imagine, but the RS-1700 has done just that, by adopting newly developed IC's for even stricter control of phase, speed, torque, etc despite changes in load, temperature, power, and time.

Integrated Direct-Drive Reel Motors

Employing the same integrated rotor-platter structural design as Technics direct-drive turntables, the RS-1700 reel motors consist of integrated reel-base and rotor coupled to the fixed stator. Tape speed from start to finish during fast forward and rewind modes remains unchanged.

Tape Tension Control

In addition to the "Isolated Loop", designed for intimate and stable tape-to-head contact by eliminating the effects of changes in tape tension, the RS-1700 even employs an electronic tension control system to prevent any changes in tape tension occurring in the first place, thereby making doubly sure modulation noise remains at an indiscernible level.

Aluminum Diecast Chassis

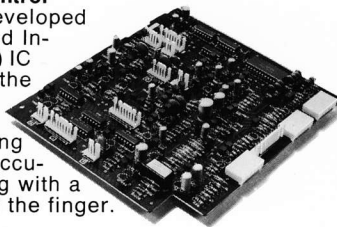
The housing blocks for all three direct-drive motors are firmly set into the precision-designed aluminum diecast chassis to ensure greater stability for longer operational life.

IC Logic Control

Newly Developed I²L IC for Surer Tape Transport Control

The newly developed

I²L (Integrated Injection Logic) IC employed in the RS-1700 is really fail-proof, ensuring immediate, accurate switching with a light touch of the finger.



Electro-Brake and Quick-Play

Changing directly from any transport mode to any other is both possible and efficient in the RS-1700, thanks to the logic controlled Electro-Brake which slows the tape down to almost a stop by applying a reverse torque to the supply reel, before applying the mechanical brake. This means greater safety and longer life for both mechanism and tape. Furthermore, with this sophisticated logic control system, the RS-1700 goes from any mode to a momentary stop and then in a mere 0.7 second to play mode by only touching the forward or reverse button.

Amplifier Stage of Unrivalled Dynamic Margin

77 dB Dynamic Margin Microphone Amplifier

The 3-stage direct-coupled microphone amplifier, employing strictly selected low-noise circuit components, achieves an almost incredible dynamic margin of 75 dB when the attenuator is switched to the -20 dB position. Live recordings under a very wide range of conditions will be conspicuous for the lack of distortion.

Recording Amplifier with +28.5 dB Linearity

With an SEPP circuit in the recording amplifier output stage, the RS-1700 attains a linearity right up to +28.5 dB (1 kHz) over the 0 VU reference level. Distortion level (0.8%) also exceeds the performance of many professional use models.

Minimal Mutual Interference in Mic/Line Mixing Circuit

The RS-1700 mixing amplifier stage features very little mixing loss, and imperceptible mutual interference between mic and line-in.

3-Position Bias and Equalization Selectors

Complete coverage of all major types of tapes on the market is provided by the independent 3-position bias and equalization selectors.

Operational Precision and Efficiency

The RS-1700 retains the many outstanding operational control functions of the RS-1500US. The major features include the following:-

Double-Scaled VU Meters

Reads up to +6 dB when priority given to S/N ratio, or switchable to +3 dB scale when priority given to linearity.

Real Time Tape Counter

Indicates minutes and seconds to an accuracy of $\pm 1\%$ at 15 ips (38 cm/sec).

Cue Lever

Tape remains in contact with playback head during fast forward and rewind modes for easier location of start and end of recorded selections.

Edit Dial

For precision editing/splicing of tapes, employing the edit points on the reversing roller, and the tape marker.

Pitch Control ($\pm 6\%$)

Tape speed may be increased or decreased by up to 6% (approx. one-half tone).

Battery Operation

With the optional battery adaptor (RP-086), the RS-1700 may be freely used in any location.

Remote Control

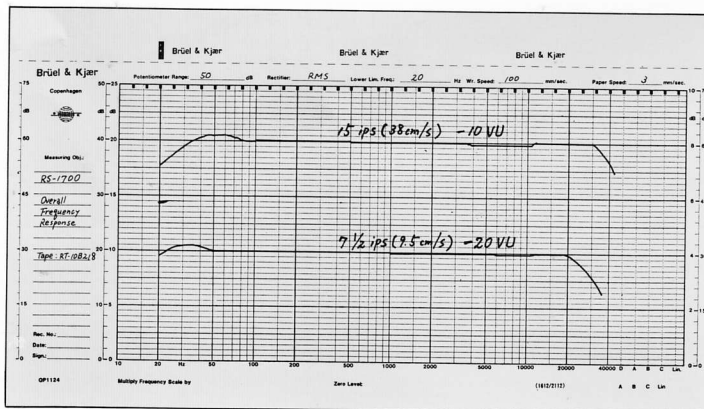
Another useful addition is the optional remote control (RP-9170).

Technical Specifications (tentative)

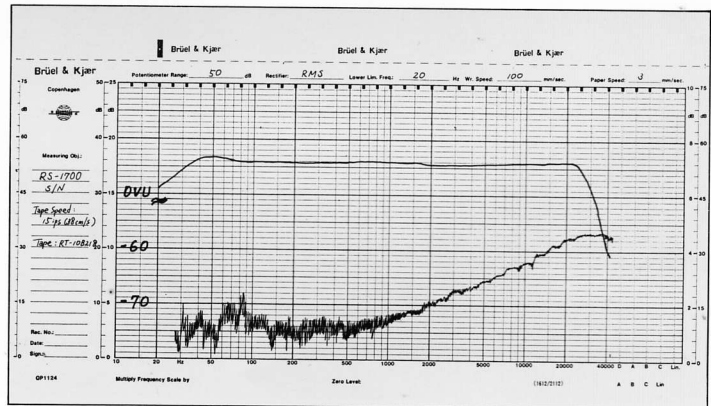
Track System:	Auto-reverse 4-track 2-channel recording and playback (6-head system)
Motor:	Quartz control phase-locked DC brushless direct-drive motor
Capstan;	2-tape tension controlled DC brushless direct-drive motor
Reel Table;	10", 7" and 5" (outside diameter)
Reel Size:	Automatic control for above size of reel
Tape Tension Control:	15 ips, 7-1/2 ips and 3-3/4 ips (38 cm/s, 19 cm/s and 9.5 cm/s)
Tape Speed;	$\pm 0.1\%$ with 1.0 or 1.5 mil thickness tape at 15 ips
Speed Deviation:	0.05% with 1.0 or 1.5 mil thickness tape at 15 ips
Speed Fluctuation:	$\pm 6\%$ (recording and playback)
Pitch Control:	
Wow and Flutter (Rec./PB):	15 ips (38 cm/s); 0.018% WRMS
	7-1/2 ips (19 cm/s); 0.03% WRMS
	3-3/4 ips (9.5 cm/s); 0.06% WRMS
Time Counter Accuracy:	$\pm 1\%$ at 15 ips (38 cm/s)
Fast Forward and Rewind Time:	150 sec. with 2500 feet (762 m), 1.5 mil tape
Reverse Point Detection:	Photoelectric (Infrared LED/filter/photo-transistor)
Frequency Response:	30—30,000 Hz ± 3 dB (—10 dB rec. level)
15 ips (38 cm/s);	20—25,000 Hz ± 3 dB (—20 dB rec. level)
7-1/2 ips (19 cm/s);	20—15,000 Hz ± 3 dB (—20 dB rec. level)
3-3/4 ips (9.5 cm/s);	NAB weighted (185 nWb/m +6 dB)
Signal-to-Noise Ratio:	60 dB
15 ips (38 cm/s);	60 dB
7-1/2 ips (19 cm/s);	58 dB
3-3/4 ips (9.5 cm/s);	measured via tape at 400 Hz
Distortion (THD):	
Operating Level (0 VU)	
15 ips (38 cm/s);	0.8%
7-1/2 ips (19 cm/s);	0.8%
3-3/4 ips (9.5 cm/s);	0.8%

Channel Separation:	Greater than 50 dB
Erasing Ratio:	Greater than 65 dB (rec. at 1 kHz, +10 dB)
Recording Bias:	120 kHz
	Bias level at tape selector "1" 90% "2" 100% "3" 110%
Equalization:	NAB standard
	Position "2" of "EQ" and "BIAS" selectors set for Scotch No. 207 tape
Recording Level Calibration:	Referenced to 185 nWb/m
Inputs:	
MIC;	Unbalanced phone type jack sensitivity 0.25 mV (—72 dB)/4.7 kilohms (0 VU at Vol. max). 2.5 mV (—52 dB)/4.7 kilohms with 20 dB attenuation
	overload margin 55 dB (75 dB with 20 dB att.), applicable microphone impedance 200 ohms—10 kilohms
LINE:	Phono type jack sensitivity 60 mV (—24 dB)/150 kilohms
	overload margin = infinity (line input connected to LINE IN Vol. before amplifier)
THROUGH OUT;	Same as LINE IN (parallel connected to LINE IN)
Outputs:	
LINE;	2 pairs of phono type jack output level 420 mV at 0 VU (output level control at "8"), 600 mV at output level control max.
	output impedance less than 3 kilohms load impedance 22 kilohms over
HEADPHONE;	Stereo phone type jack output level 60 mV at 420 mV line output, load impedance 8 ohms
	55.6 lbs. (25.2 kg)
Weight:	17-1/2" x 19-3/8" x 10-1/8"
Dimensions:	(H x W x D)
	(44.6 cm x 49.2 cm x 25.7 cm)
Rosewood veneer side panels	
Specifications based on use of Scotch No. 207 tape and temperature between 42°F to 102°F (5°C to 35°C)	

Overall Frequency Response



Signal-to-Noise Characteristics



Technics
by Panasonic

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