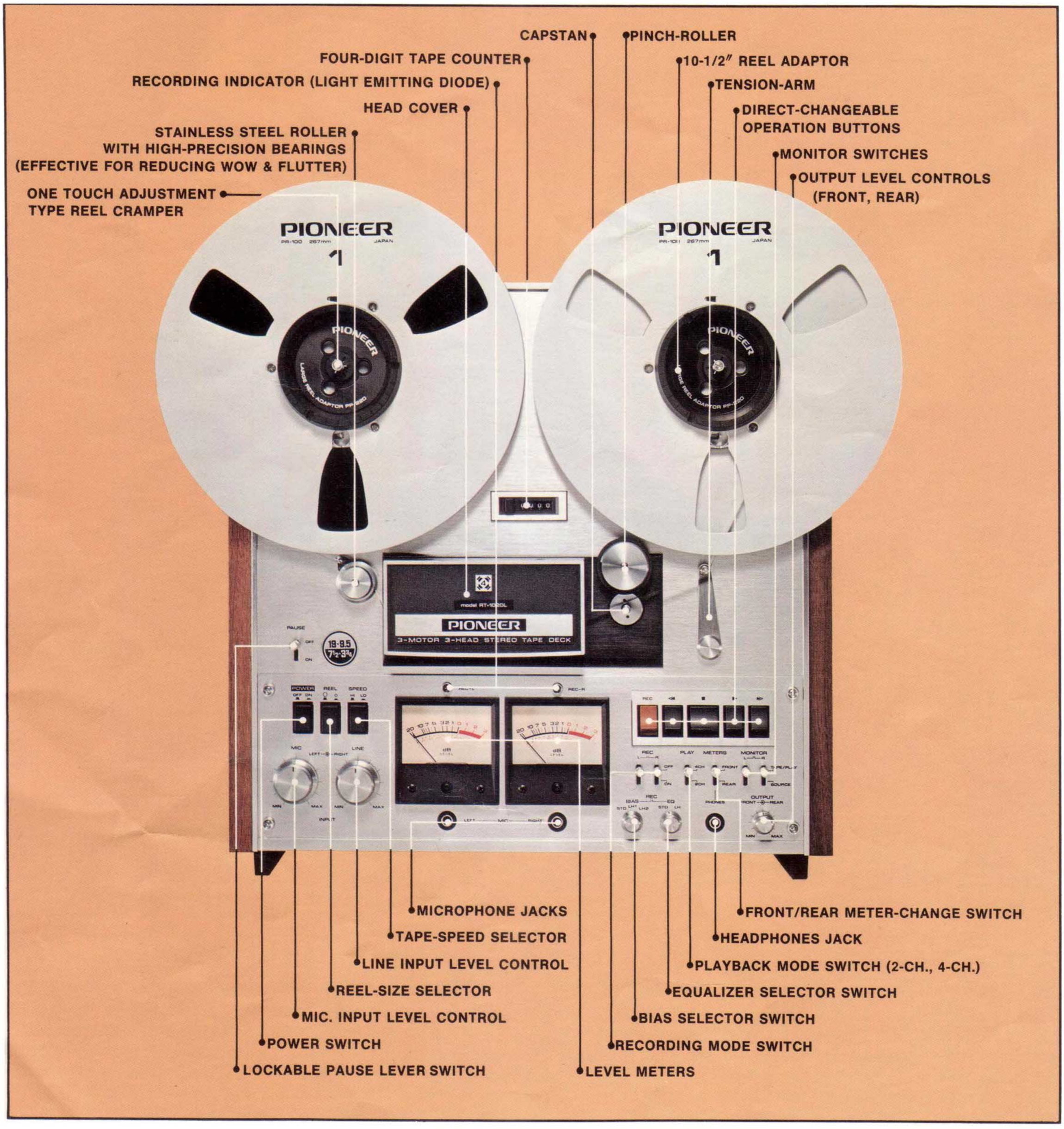
PIONEER®

RT-1020L

Professional three-motor, three-head stereo tape deck with 10-½-inch (267mm) reel and four-channel reproduction capability.

Pioneer's advanced new open reel tape deck, the RT-1020L, is designed for tape enthusiasts who wouldn't look (or listen) twice at even the finest cassette decks, and who are seeking the ultimate of stereo tape performance. Luxuriously constructed with only the finest materials, built for years of rugged and dependable use under all operating conditions, the RT-1020L offers remarkable cost/performance advantages, a variety of operating conveniences and the versatility that only an expensive machine can provide. Mechanically sound from three-motor tape transport, including six-pole induction motor, to extra-thick chassis and die-cast framework, the RT-1020L delivers the kind of reliability that only a studio engineer would appreciate. Precision performance is another aspect of its all-around dependability, for this deck employs a 4/8 pole two-speed hysteresis synchronous motor, unusually accurate capstan — and then adds the new contour-less hyperbolic-type tape heads for high sensitivity and signal-to-noise ratio. Indicative of its true professional capability, the RT-1020L accepts the large 10-1/2-inch (267mm) reels, rare for a deck of this attractive price. These extra-size reels permit twice the recording and play-back time of ordinary 7-inch reels. You can thus record extra-long symphonies, or other musical performances, without reel or tape changing. And then for four-channel reproduction, the unit is equipped with a four-track in-line tape head and four playback amplifiers — and will play all the new discrete four-channel tapes now on the market. There are many other features, too, that make the RT-1020L the tape deck buy of the year, no matter which other deck you might have been thinking of buying — and no matter how unlimited is your tape budget. For true tape deck value, no one ever has surpassed Pioneer.

RT-1020L

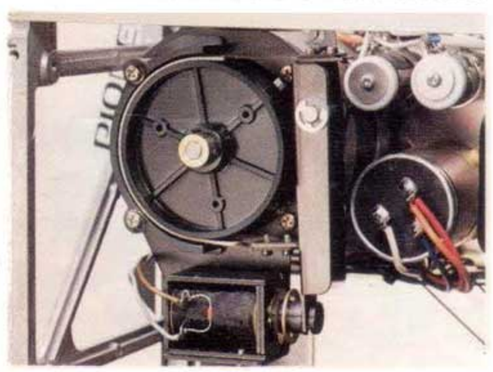

CAPSTAN
PINCH-ROLLER
FOUR-DIGIT TAPE COUNTER
10-1/2″ REEL ADAPTOR
RECORDING INDICATOR (LIGHT EMITTING DIODE)
TENSION-ARM
HEAD COVER
DIRECT-CHANGEABLE OPERATION BUTTONS
STAINLESS STEEL ROLLER WITH HIGH-PRECISION BEARINGS (EFFECTIVE FOR REDUCING WOW & FLUTTER)
MONITOR SWITCHES
OUTPUT LEVEL CONTROLS (FRONT, REAR)
ONE TOUCH ADJUSTMENT TYPE REEL CRAMPER
PIONEER
PR-100 267mm JAPAN
PIONEER
PR-101 267mm JAPAN
model RT-1020L
PIONEER
3-MOTOR 3-HEAD STEREO TAPE DECK
PAUSE
OFF
ON
19·9.5
7½·3¾
POWER
REEL
SPEED
REC-L
REC-R
MIC
LINE
LEFT
RIGHT
MIN
MAX
INPUT
REC
PLAY
METERS
MONITOR
BIAS
EQ
PHONES
OUTPUT
FRONT
REAR
MICROPHONE JACKS
TAPE-SPEED SELECTOR
LINE INPUT LEVEL CONTROL
REEL-SIZE SELECTOR
MIC. INPUT LEVEL CONTROL
POWER SWITCH
LOCKABLE PAUSE LEVER SWITCH
LEVEL METERS
RECORDING MODE SWITCH
BIAS SELECTOR SWITCH
EQUALIZER SELECTOR SWITCH
PLAYBACK MODE SWITCH (2-CH., 4-CH.)
HEADPHONES JACK
FRONT/REAR METER-CHANGE SWITCH

STABILITY, STRENGTH FROM THE 5mm (3/16 inch) THICK CHASSIS BOARD AND DIE-CAST FRAMEWORK

This is an unusually well-built unit. No materials or workmanship have been spared to enhance its durability or reliability. An extra-thick 5mm (3/16 inch) chassis board has been selected for the important front surface board to which the Pioneer three-motor mechanism is firmly and precisely mounted with a separate unit block. For additional framework strength, a die-cast base has been chosen for stable suspension, and to ensure that dimensional precision will last many years after your purchase. Even with all this immaculate construction, the RT-1020L is extremely easy to service when the time arrives for its periodic maintenance.

ACCURATE, RELIABLE THREE-MOTOR TAPE TRANSPORT MECHANISM

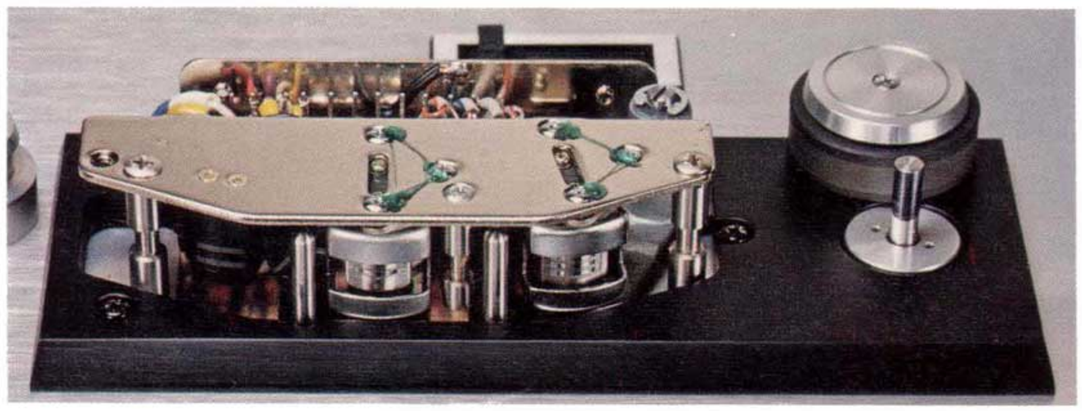
So much of the reliable performance of a tape deck depends on the accuracy and precision of its motors. For the RT-1020L, Pioneer has selected the finest in the world for accuracy and reliability. A 4/8 pole two speed hysteresis synchronous motor is employed for driving the capstan that is attached to the flywheel, and permits the use of a 6mm (1/4 inch)ϕ capstan with error of only 0.2μ for driving the flywheel rotation. The flywheel itself is distinctive, being the 100mm (15/16 inch)ϕ type, large enough to obtain optimum flywheel rotation. This combination, of course, is perfection in itself and ensures a constant capstan speed regardless of voltage fluctuations. Still another reason for the RT-1020L's reliable performance is the use of a six-pole special induction motor for reel drive, chosen by Pioneer to prevent excessive force from being applied to the tape. This motor is a large step beyond the more conventional eddy-current type motor or induction motor, which are usually used for reel drive motors in three-motor tape decks. Both of these motors have disadvantages, however, with the eddy-current usually delivering low-efficiency despite its excellent torque characteristics, and the induction motor giving off what are called "hunting effects", even though it is famed for a large starting torque. The six-pole special induction motor has both the advantages of the eddy current and induction motors, and a few more besides. It has little motor inertia, for one thing. And it is the first motor ever used in a tape deck of this price that features differential bandbrakes, which protects the tape from excessive force. The RT-1020L also delivers another advantage for stable tape tension: its back tension changing switch lets you adjust the torque characteristics according to the tape reel size you prefer. This feature also prevents "dropout."



DIFFERENTIAL BANDBRAKE

SUPREME SOUND REPRODUCTION FROM HYPERBOLIC TAPE HEADS WITH EXTRA-WIDE DYNAMIC RANGE AND FOUR-CHANNEL REPRODUCTION

The three heads of this tape deck permit easy source/tape monitoring while you record. The playback head is the four-track in-line type, characterized by severely checked phase characteristics in the contour-less hyperbolic design. Because the track-width of 1mm is without deviation, the deck delivers very high sensitivity and signal-to-noise ratio, and greater than 50dB separation over the 100 to 10KHz bandwidth. This four-track tape head and four independent playback amplifiers enable you to reproduce all four-channel discrete tapes. A second head for recording is the two-channel type, distinguished by sensitive bias characteristics. The recording head also has a balanced hyperbolic design for smooth head-to-tape touch.



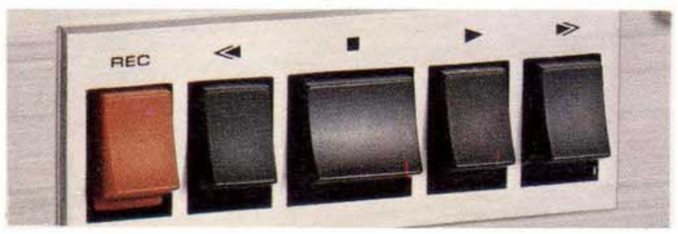
ADVANCED ELECTRONIC CIRCUITS

The playback amplifier of the RT-1020L is the three-stage direct-coupled type that features an extra wide dynamic range—more than 20dB from the 0 VU—and also delivers clear, transparent sound reproduction. Four playback amplifiers are provided for discrete four-channel reproduction capability. Recording amplifiers are independent for LINE input signals and MIC input signals, thus contribute to quality sound and the high signal-to-noise ratio. The MIC amplifier provides superb sensitivity even when used with a 600 ohms class professional microphone with more than 50dB dynamic range. DIN input signals are also fed to the MIC amplifier. The RT-1020L's independent equalizer amplifier features a precise equalization curve and an FET-equipped electronic switch for the playback side as well as a diode-equipped electronic switch for the recording side. These are adjusted to the equalization characteristics of tape speed so that annoying click-noises are reduced. Another feature of the amplifier is a three-position bias circuit equipped with a timing relay to suppress head magnetization resulting from the bias frequency. Pioneer also paid special care in the design of this tape deck to ensure stable voltage in the power supply section and bias section by the use of a compensation circuit. This circuit is the push-pull type noted for excellent efficiency and low distortion at the 125KHz bias frequency. The RT-1020L employs

an IC-equipped headphone amplifier and a constant voltage regulating circuit throughout the all-amplifier stages. Additionally, a solenoid circuit, regulated by transistors, is coupled with the constant voltage supply for use in the pinch-roller and brakes.

ELECTRONICALLY-CONTROLLED DIRECT-CHANGEABLE OPERATION BUTTON WITH AUTOMATIC RECORDING FACILITY, USING PRE-SET TIMER

All operational buttons of the RT-1020L are the mechanical-locked type that reduce the number of relay switches required. This simple but highly reliable feature ensures automatic sound program recording when coupled with the pre-set timer. Changes from one operational mode to another are precise and easy, owing to the timing-relay circuit. The switch from the recording mode to fast rewind, for example is made only by pushing a single button; it is not required that you first stop the machine. For extra safety, voltage of the electronic control sections are set at DC 24V. When power is switched off, all operational buttons are also automatically shut off.



TWO-STEP EQUALIZER, THREE-STEP BIAS SELECTOR

You get true perfection no matter which of the professional-quality tapes you use since the RT-1020L is equipped both with a two-step equalizer and three-step bias selector. The unit is the first in its attractive price range to offer these features.

FOUR-CHANNEL REPRODUCTION FACILITY, FOUR-TRACK IN-LINE HEAD WITH EXCELLENT PHASE CHARACTERISTICS

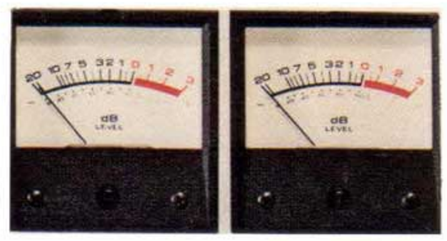
The unit is equipped with a four-track in-line tape head and four playback amplifiers to enable you to play all the discrete four-channel tapes now available. Level of each of the four channels is observed with the level meters by changing a front/rear selector.

OTHER IMPORTANT FEATURES

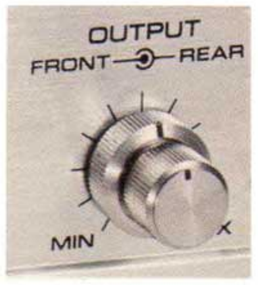
(1) The RT-1020L is equipped with independent L and R record mode switches, permitting a sound-on-sound effect from left to right or vice versa, and Rear to Front sound-on-sound. The deck also permits monitoring both the source sound and the tape recorded sound.

(2) Recording errors are prevented with the unit when its recording more switch is set to the "OFF" position. "Add-on" recordings are also possible when the mode is set to playback.
(3) Four-track monophonic sound recording is possible with the RT-1020L when you wish to use the deck to record voices.
(4) The pause lever switch is the locked type to prevent undesirable noise when you are recording tapes from commercials or announcements.
(5) The RT-1020L has independent MIC and LINE level controls to permit MIC/LINE mixing. Mixing between DIN and LINE is also easily accomplished.

(6) The unit has two tape speeds: 19-cm/s (7-1/2 ips.) and 9.5cm/s (3-3/4 ips.).
(7) An echo sound effect may be added to all program sources utilizing the timing lag between recording and playback heads by the use of standard Y connector cables.



(8) The level meters have extended linearity against frequency response and signal strength. They are large and very easy-to-read.
(9) The record mode indicator employs the light-emitting diode, free from breakout.
(10) The reel clamp is the one-touch adjustment type permitting fast and easy reel loading.
(11) The unit's tape counter is the four-digit type, offering greater precision and ease in tape editing.



(12) Output level controls on the front panel let you adjust the level of the RT-1020L with your other stereo components.
(13) Design of the RT-1020L is handsome yet functional. All controls are positioned for convenient operation. The deck is a handsome addition to any stereo system, and will perform up to or exceeding the standards of many decks costing much, much more.

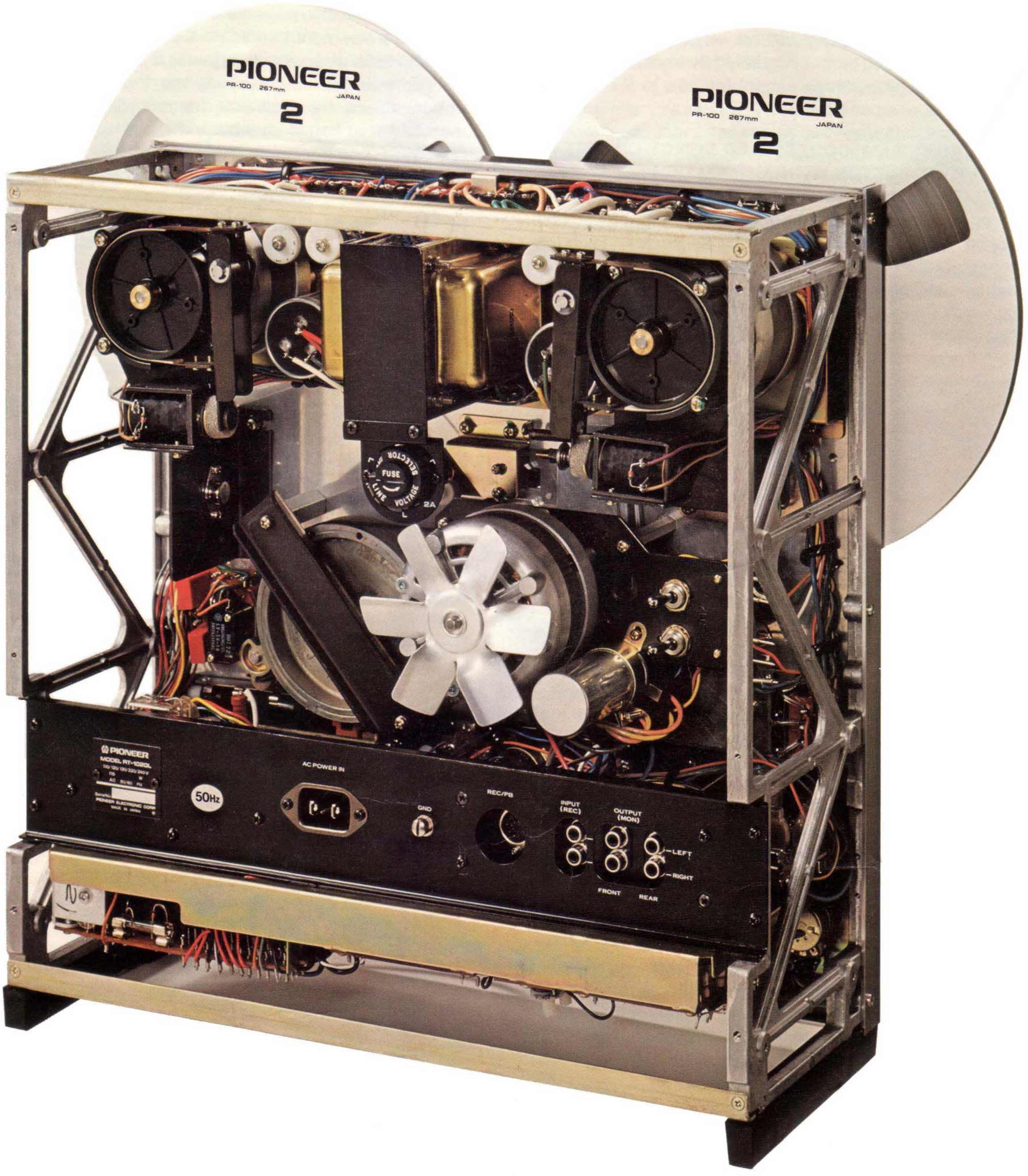
HOW TO USE BIAS, EQUALIZER SWITCHES OF THE RT-1020L

BIAS / EQ.	STD	LH1	LH2
STD	General STD (standard) tapes example: SCOTCH 111, 150 tapes, etc.	Some #150 type tapes offer their best performances at this position.	SCOTCH 203, 206 tapes *a little bit level-down but excellent performance
LH	Some #150 type tapes offer their best performance at this position.	Low-noise High-output tapes example: SCOTCH 203, 206 tapes BASF 35LH tapes MEMOREX tapes SONY SLH tapes FUJI FG tapes	TDK SD tapes MAXELL LNE tapes HITACHI UOD tapes AGFA PE36 tapes

NOTE: This chart is based on the measurement by the RT-1020L. Therefore this does not always mean the absolute characteristics of the tapes themselves. (Because this chart includes the characteristics of the RT-1020L's heads.)

PIONEER®

High Performance, Unparalleled Stability from Professionally-Finished Solid Construction!



SPECIFICATIONS

Drive System:	3-motor drive system
Tape Heads:	4-track, 2-channel erasing head x 1 4-track, 2-channel recording head x 1 4-track, 4-channel playback head x 1
Motors:	4/8-pole two-speed hysteresis synchronous motor x 1 (capstan drive) 6-pole inner-rotor special induction motor x 2 (reel drive)
Tape Speeds:	19cm/sec. (7-1/2 ips.), 9.5cm/sec. (3-3/4 ips.)
Fast Winding Time:	Approximately 110 seconds (10-1/2inch reel, 740m) Approximately 90 seconds (7-inch reel, 370m)
Wow and Flutter:	Less than 0.08%, WRMS (0.10%, RMS, at 19cm/sec., 7-1/2 ips.) Less than 0.10%, WRMS (0.13%, RMS, at 9.5cm/sec., 3-3/4 ips.)
Signal-to-Noise Ratio:	More than 55dB
Distortion:	Less than 1%
Frequency Response:	40-20,000Hz ±3dB (at 19cm/sec., 7-1/2 ips.) 40-12,000Hz ±3dB (at 9.5cm/sec., 3-3/4 ips.)
Crosstalk:	More than 60dB (at 1KHz)
Stereo Channel Separation:	More than 50dB (at 1KHz)
Bias Frequency:	125KHz
Inputs:	MIC; 0.25 to 80mV/ 20 Kohms x 2 (standard 1mV)
	LINE; 50mV to 25V/ 100 Kohms x 2 (standard 1mV) DIN; 15mV to 1.5V/1.5 Kohms x 2 (German Standard)
Outputs:	LINE; 316mV (−10dBS) at 50 Kohms load impedance x 2 Output Impedance; 3.3 Kohms x 2 DIN; 316mV (−10dBS) at 50 Kohms load impedance x 2 Output Impedance; 3.3 Kohms x 2 HEADPHONE; 40mV/ 4 to 16 ohms
Accessory Devices:	1. 3-position bias selector 2. 2-position equalizer selector 3. Lockable pause lever 4. 4-digit tape counter 5. Independent Right/ Left tape monitor switches 6. 4-ch./2-ch. playback mode selector 7. Independent Right/ Left recording mode selectors 8. 4-ch. front, rear (meter, headphone) monitor mode selector 9. Independent MIC and LINE recording level controls 10. Output level controls
Power Requirements:	110, 120, 130, 220, 240V (switchable), 50-60Hz
Power Consumption:	115 watts (max.)
Dimensions (overall):	17-5/16(W) x 16-31/32(H) x 8-15/16(D) inches 440(W) x 431(H) x 227(D) mm
Weight:	Without package: 46lb. 5oz./21kg With package: 57lb. 6oz./26kg

NOTE: Specifications and design subject to possible modification without notice.

PIONEER®

PIONEER ELECTRONIC CORPORATION / 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153, Japan.
U.S. PIONEER ELECTRONICS CORPORATION / 75 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. / Luithagensteenweg, "De Meermin", 2030 Antwerp, Belgium.
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. / 178-184 Boundary Road, Braeside, Victoria 3195, Australia.

5,000G-F-6-75 Printed in Japan