

Nakamichi 1000

Tri-Tracer 3 Head Cassette System



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NAKAMICHI 1000 TRI-TRACER

From initial design to final implementation, the Nakamichi 1000 represents the most advanced cassette deck ever made. Nothing has been spared to insure a level of performance that rivals that of professional reel-to-reel recorders. Noise has been reduced to the vanishing point. Speed stability is unconditional. Frequency response has been extended to beyond audibility. Particular emphasis has been placed on reliability and ease of operation. To achieve these goals, conventional cassette technology had to be discarded and new, innovative solutions found. Foremost among them is the use of three completely separate heads for erase, record and playback. What follows is a brief description of this remarkable achievement, the Nakamichi Tri-Tracer System.

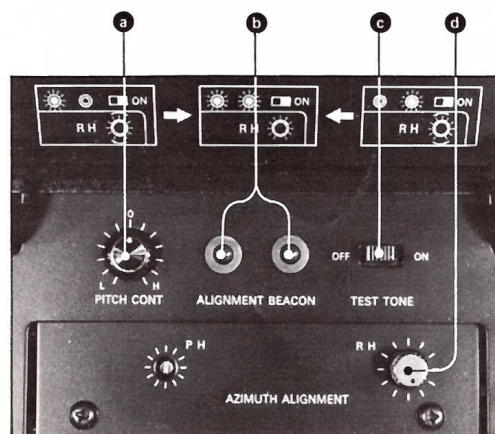
TRI-TRACER

Tri-Tracer is the designation employed by Nakamichi Research Inc. to describe a new generation of cassette recorders. Three head machines that for the first time rival the performance of professional reel-to-reel recorders in every important respect i.e. frequency response, noise, dynamic range, wow and flutter and absolute speed stability.

1 TAPE RUN INDICATOR

Turning the machine on activates a green signal light which serves as visual display of the tape in motion.

2 ADJUSTMENT PANEL LID



A light pressure on the lid causes it to swing open revealing the following:

a Pitch Control

A special control varies the playback speed $\pm 6\%$ to correct the pitch of recordings made on other machines and can also alter pitch for music lessons and similar applications.

b ALIGNMENT BEACON

Proper record head azimuth alignment is crucial to extended high frequency response. And Nakamichi provides a foolproof means for achieving precise alignment everytime. Two small LED's (light emitting diodes) on the panel flash alternately when the head alignment is properly set.

c TEST TONE SWITCH

A 400 Hz test tone oscillator is incorporated as an aid in adjusting the azimuth of the recording head and as a reference tone for adjusting the record/playback level of different tape formulations.

d RECORDING HEAD AZIMUTH ADJUSTMENT SCREW

3 CASSETTE WELL

Convenient front loading enables the user to insert and remove cassettes easily and quickly. A touch of the eject button opens the lid providing access to the cassette tray. A safety lock mechanism prevents accidental opening while tape is in motion. The padded lid reflects the superb workmanship that goes into every unit.

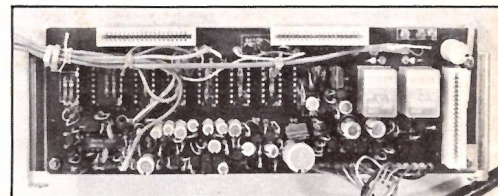
4 EJECT BUTTON

5 TAPE COUNTER

3 digit tape counter

6 IC LOGIC ELECTRONIC CONTROL

Ease of mechanical operation is assured by IC logic and feather-touch solenoids which control all tape functions.



Special noise suppression circuits guard against any extraneous pops and clicks during switching. Illuminated push buttons clearly indicate mode of operation. Other automatic controls include tape start memory, record lock and automatic shut-off.

7 AUTO REWIND SWITCH

By setting auto rewind switch to "on", tape will rewind automatically at end of play.

8 HEADPHONE JACK

A front panel headphone jack permits off-the-tape monitoring during recording and private listening during playback. Standard stereo headphones of a nominal 8 ohms impedance are suggested.

9 TAPE START MEMORY SWITCH

If you wish to replay a specific section of the tape, simply reset the tape counter to zero at the beginning of that section, then set the memory switch to "on". To replay simply press the rewind button and the tape will return to the preset point and stop.

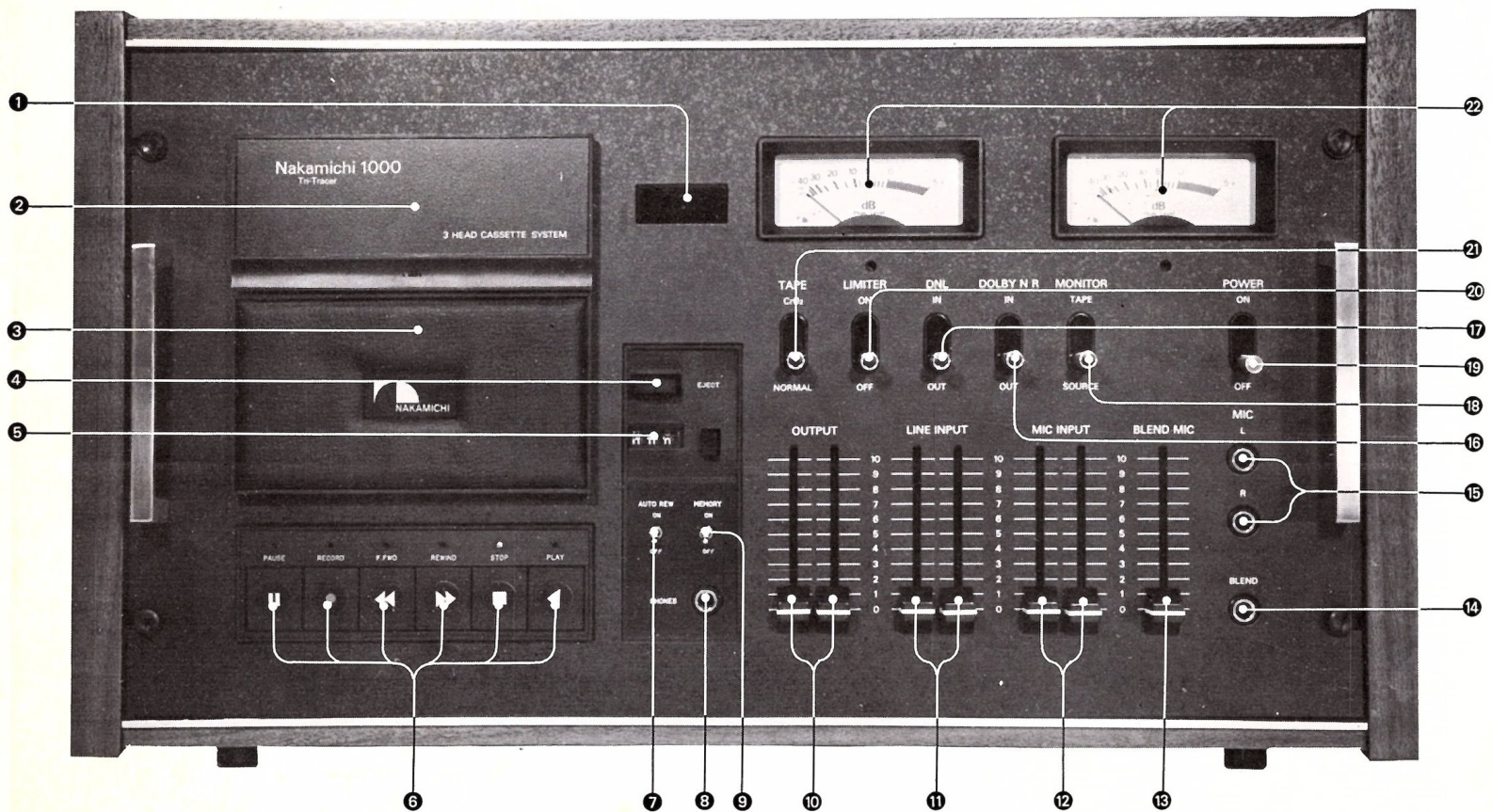
10 LINE OUTPUT LEVEL CONTROLS

As previously noted, these controls enable the user to match record and playback levels during recording and to adjust the output of the recorder to match the level of other components in a hi-fi system.

11 LINE INPUT 12 MIC INPUT

13 BLEND MIC CONTROLS

All inputs have individual level controls for maximum recording flexibility. In order to maintain the best possible signal-to-noise ratio when recording through the line inputs, the mic inputs are automatically shorted and their controls are inoperative unless microphones are plugged in.



14 BLEND MIC INPUT JACK

15 MIC INPUT JACKS

16 17 DOUBLE NOISE REDUCTION SYSTEM

The Nakamichi 1000 is unique in that it offers two independent noise reduction systems, Dolby NR and the Dynamic Noise Limiter (DNL). By using these two systems in series, noise may be reduced more than 13 dB. Separate Dolby circuitry for both record and playback permits instant monitoring. The DNL system works in playback only and is very effective in reducing the hiss of pre-recorded tapes.

18 MONITOR SWITCH

Since the Nakamichi 1000 is a true three-head machine, provision has been made for an instantaneous comparison of the signal before and after recording. Switching from source to tape enables the user to detect and correct any recording

irregularities. During the playback of recorded tapes the switch should, of course, be set to the "tape" position.

19 POWER SWITCH

When the power switch is activated, the level meters, cassette compartment window and the stop button on the transport are all illuminated.

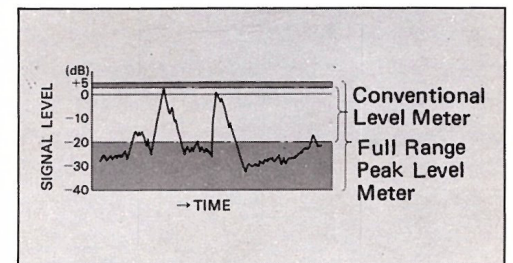
20 PEAK LIMITER

In spite of the unusually wide dynamic range of the Nakamichi 1000, there are those occasions, especially during live recordings, when tape overload can occur. In such instances, you may switch in the built-in peak limiter, which will act almost instantaneously to reduce the possibility of distortion. The action of the peak limiter is so subtle that the resulting signal compression is virtually undetectable.

21 TAPE SELECTOR SWITCH

A special tape selector switch permits the use of either "normal" (high density-low noise) or chromium dioxide (CrO₂) tapes. A flick of the switch provides both proper bias and equalization settings for each of the aforementioned types. Please refer to the recommendations in the owner's manual.

22 DB PEAK LEVEL METERS



The 1000's extended dynamic range permits the use of 45 dB peak reading meters to more accurately reflect true recording conditions.

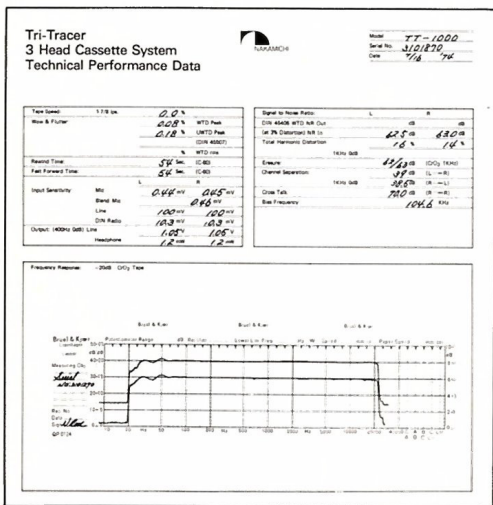
● 3-POINT SOUND PICKUP

In addition to the standard mic inputs, a third blend mic input is provided. Each input has its own level control thus permitting professional quality mixing. The blend mic is particularly helpful in high lighting solo instruments and voices.

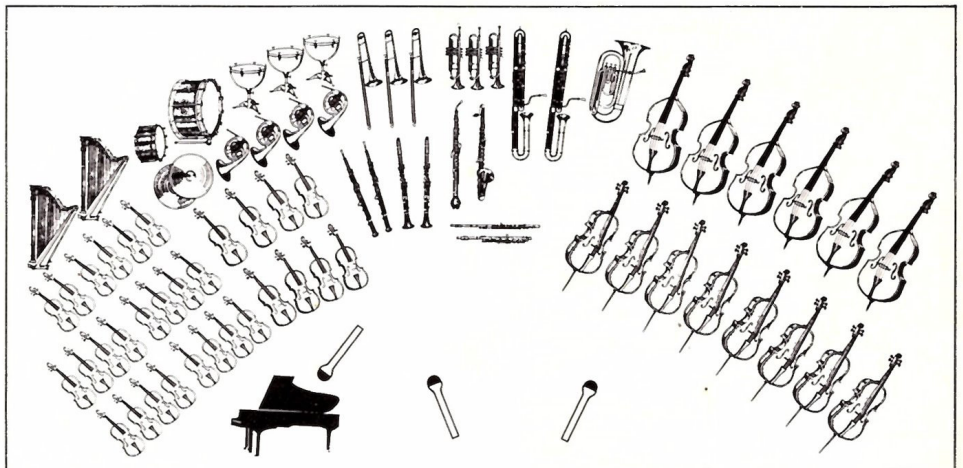
● ANTI-TAPE SPILL DEVICE

All Nakamichi Tri-Tracers incorporate a unique sensing system that guards against tape spill and jamming. At the first sign of an improperly functioning cassette, the machine shuts itself off until the condition is rectified. The primary causes of spill or jamming are poorly made cassette housings or sub-standard tapes. And in the case of C-120 cassettes, which are not recommended for use in the 1000, the high friction levels built up within the cassette housing.

● TT-1000 PERFORMANCE DATA

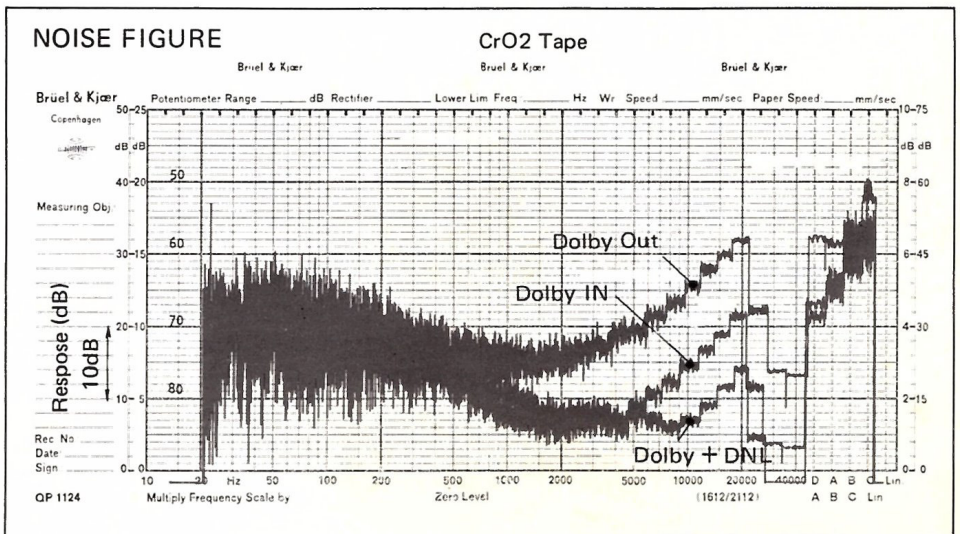
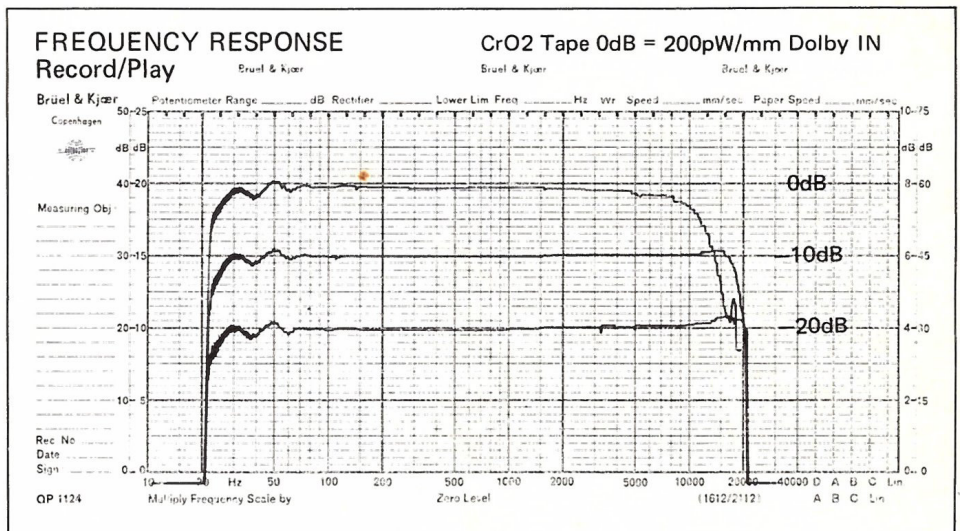


Every Nakamichi 1000 undergoes complete testing and adjustment and proof of performance data is included with each machine.

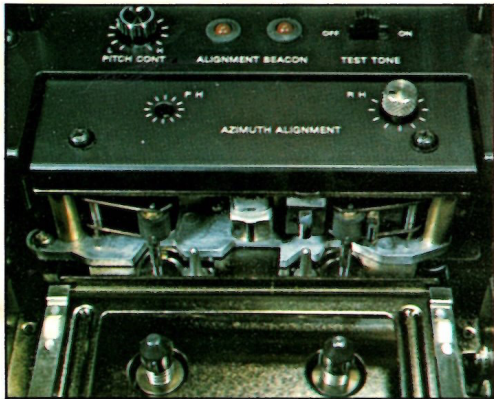


A SAMPLE OF 3-POINT SOUND PICKUP

● TT-1000'S ACTUAL TYPICAL PERFORMANCE DATA

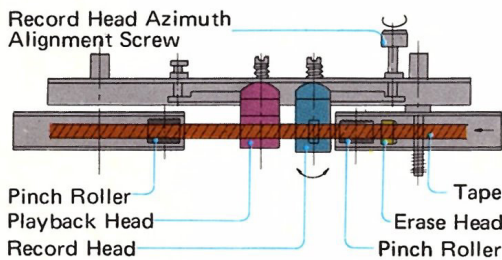
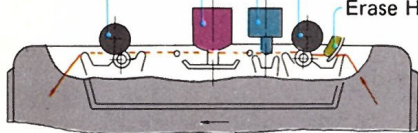


● 3-HEAD CONFIGURATION



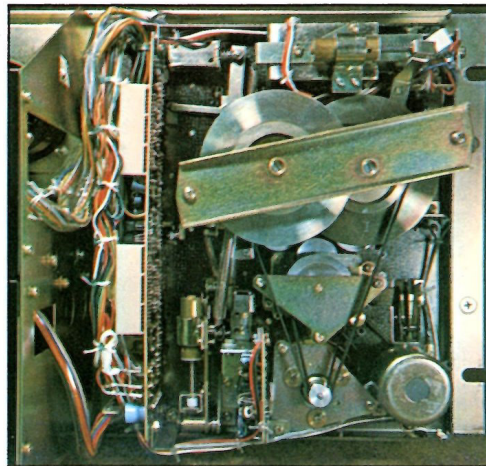
Playback Head
Pinch Roller

Record Head
Pinch Roller
Erase Head



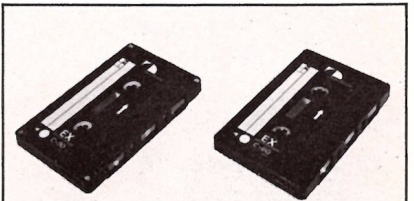
Three completely separate heads - erase, record, playback - afford off-the-tape monitoring, but more importantly, extend flat frequency response to beyond 20,000 Hz. The record head is of Hi-Mu ferrite with a five micron gap to insure optimum tape saturation. The playback head has a special Hi-Mu hard permalloy core with thin titanium film laminations permitting a gap width of only 0.7 microns, thus extending high frequency response.

● TAPE DRIVE MECHANISM

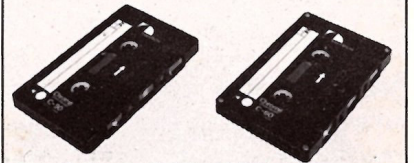


Tape is driven through a closed-loop, dual-capstan system by a feedback-controlled d.c. motor which maintains constant speed over a wide range of line voltage and frequency variations. Two large staggered flywheels smooth out any residual speed irregularities and insure extremely low wow and flutter.

● OPTIONAL ACCESSORIES



EX Tape C-60, C-90



CrO2 Tape C-60, C-90

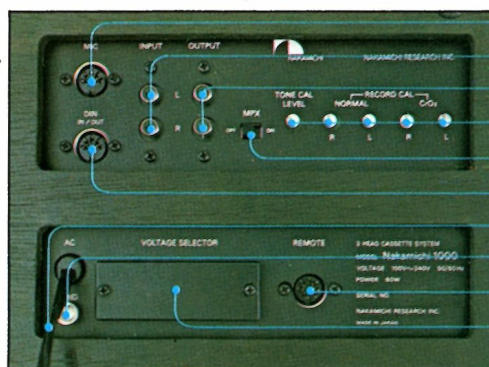


Remote Controller

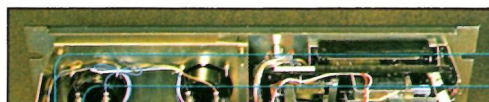


Head Demagnetizer

● REAR PANEL, INSIDE VIEW



- DIN Mic Socket
- Line Input Jacks
- Output Jacks
- Record Calibration
- 19 KHz MPX Filter
- DIN IN/OUT Socket
- Power Supply Cord
- Ground Terminal
- Remote Socket
- Voltage Selector



- Line Amp.
- DNL

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● SPECIFICATIONS

Power Supply . . . 100, 117, 220, 240V
50/60 Hz
Power Consumption . . . 60 W Max.
Tape Speed 1 - 7/8 ips. \pm 1%
Wow & Flutter . . . Less than 0.1%
(DIN 45507 Weighted Peak)
Frequency Response . 35 - 18,000 Hz \pm 3 dB
(Dolby In, High Density
Low Noise Tape)
35 - 20,000 Hz \pm 3 dB
(Dolby In, CrO2 Tape)
Signal to Noise Ratio . Better than 60 dB
(Dolby In, Wrms CCITT
400Hz 3% Distortion)
Total Harmonic Distortion . Less than 2%
(at 1 KHz, 0 dB)
Erasure Better than 60 dB
(at 1 KHz, Saturation Level)
Channel Separation . . Better than 35 dB
(at 1 KHz, 0 dB)
Cross Talk Better than 60 dB
(at 1 KHz 0 dB)
Bias Frequency . 105 KHz
Transistors 134 pcs.
Diodes 68 pcs.
ICs 9 pcs.
Input:
Mic Input 600 ohm 0.5 mV
Blend Mic 600 ohm 0.5 mV
DIN Mic Input . . 600 ohm 0.5 mV
Line 47 Kohm 100 mV
DIN Radio 27 Kohm 10 mV
Output:
Line 1.0 V (Max.) Variable
DIN Line Output . 1.0 V (Max.) Variable
Headphones 1 mW OdB
Dimensions 20-11/16" (W) x 11-11/16" (H)
x 8-5/8" (D)
Weight 39 lbs.

● Specifications and appearance design are
subject to change for further improvement
without notice.

● DOLBY NR under license from Dolby
Laboratories Inc.

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