

OTARI *MX-5050*

COMPACT
PROFESSIONAL
TAPE RECORDER



OTARI

Front Panel Edit Control. High on any list of desirable production features is an edit mode. This permits you to spill tape in the area between the capstan and the take-up reel by deactivating the end-of-tape lever and take-up motor. Besides spilling tape, you can also rock the reels back and forth to precisely locate a point on the tape.



Adjustable Cue. Very useful in conjunction with the editing capability is adjustable cue. This allows you to quickly locate portions of a tape by defeating the tape lifters in the head assembly. Tape lifters are put on a machine to lengthen head life by preventing tape contact with the heads during fast forward and rewind. The cue control defeats the tape lifters so that you can hear an audible signal. On the MX-

5050, the cue is adjustable, which allows you to reduce the amplitude of the audible signal to prevent overloading monitor amplifiers, speakers, and earphones.

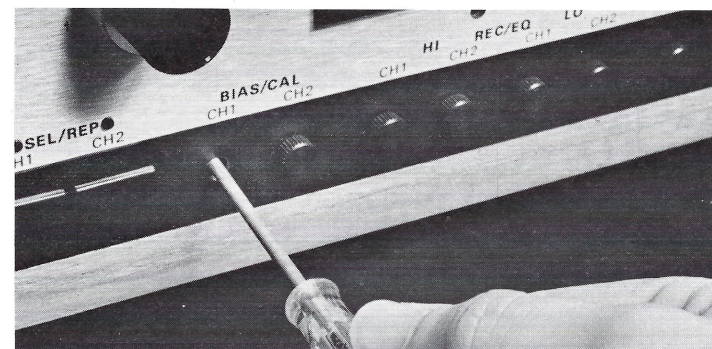
Input Controls. Another convenience feature is that the microphone and line input controls have been combined coaxially for each channel. This makes it simpler to mix inputs from these two sources for a given channel without having to shift your hand quickly to another control.

Operating Controls. All operating controls are grouped logically just above the electronics panel. On the left are Power, High-Low for the two speeds (either 15/7½ ips, or 7½/3¾ ips), Reel Size to provide proper tension for 10½, 7, or 5 inch reels, and the Edit control discussed above. On the right are the tape motion controls for Record, Play, Stop, Rewind, and Fast Forward. All these tape motion controls can be remoted.

In addition to the Record control here, you will note that separate record controls for each channel are located at the bottom left of the electronics panel. This provides a record lock-out or safe position to prevent accidental erasure. To record, you must not only press the Play and Record button simultaneously, but you must consciously select which channel you wish to record on by pressing the Channel one or two record buttons on the electronics panel. As an added benefit, when you are monitoring previously recorded material in the Play mode, the recorder can be put into Record without any clicks or pops by pressing the Play and Record buttons at the same time (this assumes the Record safe push buttons are in the Record position for the track desired). On four-channel machines these record buttons are marked Channels one, two, three, and four.

Selective Reproduce. This important production feature allows a new track to be added to previously recorded tracks in perfect time synchronization. Within the electronics, it temporarily switches the record head for a given channel (or more than one channel on the four track version) to the reproduce electronics so that a

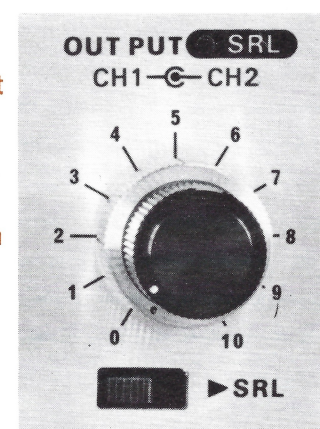
performer can listen to previously recorded material on earphones and lay down a new track in time sync. Sound quality in this mode is excellent for this purpose, though not quite as good as in the regular play mode.



Front Adjustable Bias and Equalization. At the bottom of the electronics panel are eight protective screw caps, behind which are located the adjustments for bias, low and high record equalization, and an amplitude adjustment for the standard reference level. The advantage of having these controls on the front panel cannot be overestimated, particularly in today's recording world where readjustment of bias and record equalization is becoming routine to get maximum benefit from the new high energy mastering tapes. Secondary electronics adjustments that seldom need attention, are easily accessible by removing the bottom panel of the case.

Test Oscillator. Built into the MX-5050 is a one kHz test oscillator. This is very convenient for adjusting bias or to provide an audible cue. The test oscillator signal can be switched to appear on the output meters and is adjusted by the front panel line-input level controls.

Standard Reference Level Output. For the many situations where a fixed output of known level is required, the MX-5050 has a front panel switched Standard Reference Level. When in this position, the output is fixed at a +4 dBm level. This level can be adjusted to another amplitude, such as +8 dBm, if desired.

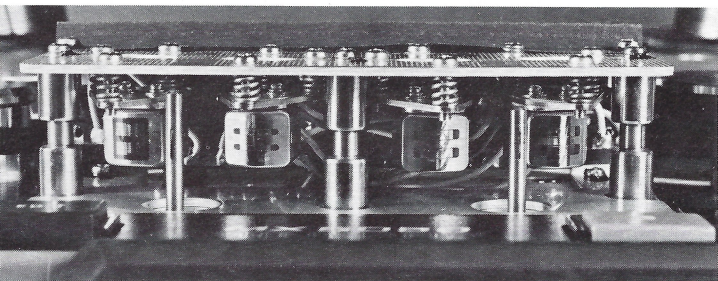


Hysteresis or dc Servo Capstan. The MX-5050 is normally supplied with a hysteresis synchronous motor. An optional dc servo is available for those applications where the power line may be of doubtful accuracy or where you may want to vary the tape speed by use of an external voltage controlled oscillator. Also, in situations where a tape may have been recorded off speed, servo equipped MX-5050s have a front panel pitch control which allows a ±10% correction of the tape speed.





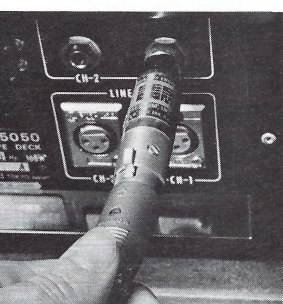
Straight Line Tape Threading. The Otari MX-5050 retains the traditional straight line path common to the vast majority of professional recorders. The advantage of this is that there is no relearning process and you are assured of perfect tape threading every time. You will notice that the position of the pinch roller is on the non-oxide side of the tape as is the case with most professional recorders. In contrast, many hi-fi recorders have the pinch roller and the capstan on the opposite side, so that the hard metal of the capstan rather than the soft rubber of the pinch roller is contacting the oxide side of the tape.



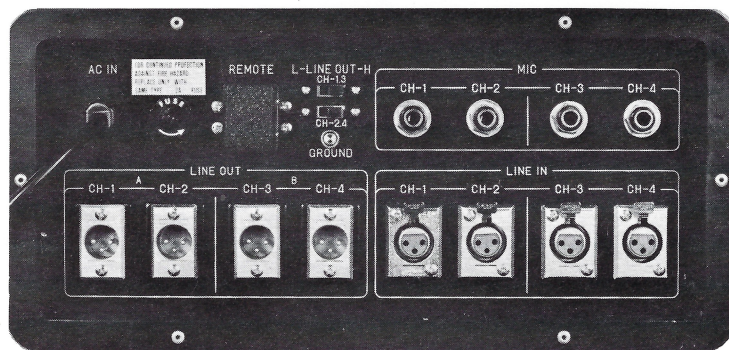
Rugged Permalloy Heads. Otari heads are fabricated from hard Permalloy. This rugged material gives the best compromise between extended head life (as compared to standard mu-metal heads) and signal output (as compared to ferrite heads with their associated noise problems).

Extra Reproduce Head. Two channel MX-5050 versions include a second reproduce head which can either quarter-track or half-track depending on the configuration of the other heads in the machine. This extra head is especially convenient since it allows the playback of prerecorded tapes from other sources in a different format without having to have another machine.

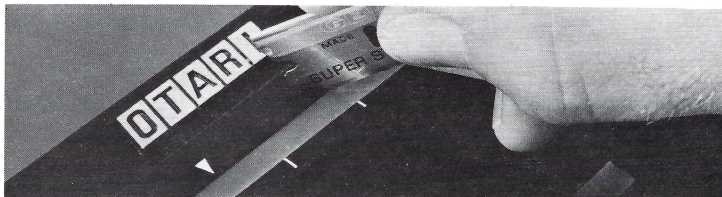
Switchable Half/Quarter Track. Located on the top of the head assembly is a slide switch which selects between either the quarter-track or half-track reproduce head mounted on the MX-5050 head assembly.



Plug-in Mic Transformers. Accessory plug-in balanced-line microphone transformers are available to connect low impedance microphones directly to the high impedance microphone input of the MX-5050 when a mixer is not being used.



XLR Connectors, +4 or -10 dBm Outputs. All input and output line connectors are professional XLR type. Microphone input connectors are standard quarter inch phone jacks, as is the case on most professional recorders, since it is assumed that the microphones will be connected to the recorder through a mixer. Also on the rear panel is the High/Low line out switch. In the high or H position, a normal +4 dBm 600 ohm output is supplied for most recording and broadcasting uses. In the low or L position, a lower output at -10 dBm, for such applications as driving a P.A. or hi-fi power amplifier, is available. Input and output impedances and balanced or unbalanced line configurations vary with MX-5050 model. Full details are in the Specification Sheet. For remote operation, all transport motion controls are brought out to a jack on the rear panel.



Built-in Splicing Block. A unique feature of the MX-5050 is a precision aligned splicing block mounted on the head cover. (This is such a good idea, it's a wonder that no one thought of it before.) Note the white diamonds on the block. These indicate the precise position of the erase, record, and reproduce heads so that you can very accurately position the tape for a splice. Also, the vertical splicing cut on the block is exactly aligned with the gap on the reproduce head. This simplifies marking the tape for tight splicing.

Motion Sensing. An important feature of most professional machines today is motion sensing and the Otari MX-5050 is no exception. Motion sensing allows you to go directly into the play mode with no time delays from either fast forward or rewind. You can do this with no danger of breaking or stretching tape which can be a real problem with machines not so equipped.

Headroom +19 dBm. With its headroom specification of +19 dBm, the Otari MX-5050 assures tape saturation before electronic saturation thereby reducing distortion. This headroom figure is a clear 15 dBm above the standard output level of +4 dBm.

Packaging Options and Accessories. The MX-5050 is normally supplied in a walnut finish case. Optionally a rack mount kit for a standard 19 inch rack is available, as is a rugged portable road case. Accessories include: balanced input and output transformers, microphone transformers, and remote control panel. The MX-5050 can also be supplied for operation on other voltages and line frequencies.

OTARI

MX-5050

Otari's new MX-5050 Compact Recorder is a full capability two or four channel professional machine scaled down in size and price, but not in performance, features, or reliability. Make no mistake about it—the Otari MX-5050 is not a hi-fi recorder with a few professional features tacked on.

Instead it's a creative production tool for the professional and semi-professional recording engineer. It's also a natural for the musical group that wants to produce its own audition or practice session tapes but can't afford a larger, more expensive machine.

Where can you use the MX-5050? It will handle a wide spectrum of professional recording and production assignments with ease: audiovisuals, broadcast recording of all types, musical groups, high school and college bands, church and religious recording, motion picture sound, drama classes, and local theater groups, to name a few.

Look at the creative production features and exceptional performance the Otari MX-5050 has to offer. (While you're at it, compare these with your typical large tape machine costing two to three times more.) Whether you're an old pro or just getting started in the business, we think you'll find that the MX-5050 is the sensible alternative in compact professional recorders. It's got everything you need to produce tapes of true professional quality.

PROFESSIONAL FEATURES AND CAPABILITIES

- Motion sensing. • Front panel edit and adjustable cue.
- Synchronous reproduce for overdubbing.
- Exceptional signal-to-noise, headroom, and cross-

COMPACT RECORDER THE SENSIBLE ALTERNATIVE IN COMPACT RECORDERS

- talk. • 600 ohm, +4 dBm output. • Front adjustable bias, equalization, and reference level.
- Bias adjustable for new high energy mastering tapes.
- Test and cue oscillator. • Hysteresis synchronous or variable speed dc capstan servo.

Professional vs Consumer. What separates a professional machine from a hi-fi recorder? First of all, performance, but not just performance alone. As many of you are aware, performance specifications are often quoted differently in the professional and the consumer worlds. On the surface, some hi-fi specs may seem superior to the more realistic and conservative specifications of the professional machine. Regardless of the numbers game being played, professional specifications are better. And, equally important, they are long term specifications. This is another way of saying that professional machines are more reliable under conditions of continuous heavy-duty usage.

Aside from better specs, an important difference is in the creative production features that a recording engineer takes for granted on a professional machine he uses day in and day out. Basically, these features allow him to handle the tape more easily and naturally.

When comparing a professional and hi-fi recorder, look for things like edit and cue controls, front adjustable bias and equalization, record safe position, selective reproduce for overdubbing, XLR connectors, built-in test oscillator, and motion sense. Let's take a look at these and other features in detail.



MX-5050 Performance Specifications

Tape Width & Channels: ¼ inch (6.3 mm)
2 channel (0.075 in. or 1.9 mm track width)
4 channel (0.040 in. or 1.0 mm track width)

Tape Speeds: 7½ and 15 ips (19 and 38 cm/s)
3¾ and 7½ ips (9.5 and 19 cm/s)
Maximum deviation 0.15% measured with 1.5 mil (0.038 mm) tape (hysteresis synchronous motor)

Reel Size: 5 and 7 inch plastic or 10½ inch, EIA or NAB

Heads: Two channel versions: Model MX-5050-2S Half-track, Model MX-5050-4S Quarter-track

Four head stacks:

MX-5050-2S: ½ erase, ¼ reproduce, ½ record, ½ reproduce

MX-5050-4S: ¼ erase, ½ reproduce, ¼ record, ¼ reproduce

Four channel version: Model MX-5050-QX

Four head stacks: erase (tracks 1 and 3), erase (tracks 2 and 4), record (four track), and reproduce (four track)

Other head configurations available on special order

Motors: Capstan: Two speed hysteresis synchronous or dc servo controlled motor

Reels: Two induction torque motors

Connectors: Line input and line output, standard three-pin XLR. Microphone, standard ¼ inch phone jack

Inputs: Line: Minimum -15 dBm, unbalanced 50 k ohms
Minimum -15 dBm, balanced 600 ohms with optional transformer

Microphone: Minimum -70 dB, unbalanced, nominal 50 k ohms (high impedance)

Outputs: Line: Level: +4 dBm or -10 dBm rear panel switch selectable
Headroom: +19 dBm before clipping
Impedance: MX-5050-2S: 600 ohms unbalanced (balanced standard in U.S. and Canada)
MX-5050-4S and MX-5050-QX: 600 ohms unbalanced (600 ohms balanced with optional transformer)

Headphone Jack: -24 dB, nominal 8 ohms unbalanced

Equalization: NAB standard for 3¾, 7½ and 15 ips (EIA, CCIR, and IEC also available)

Frequency Response: 15 ips: 35 Hz to 22,000 Hz ± 2 dB
7½ ips: 30 Hz to 18,000 Hz ± 2 dB
3¾ ips: 30 Hz to 12,000 Hz ± 2 dB

Signal to Noise Ratio:

TAPE SPEED	TWO TRACK		FOUR TRACK	
	WEIGHTED	UNWEIGHTED	WEIGHTED	UNWEIGHTED
15 ips	68 dB	65 dB	65 dB	62 dB
7½ ips	68 dB	65 dB	65 dB	62 dB
3¾ ips	67 dB	64 dB	64 dB	61 dB

Specifications referred to 1000 Hz reference when recorded on 3M 250 or Ampex 456 or equivalent tape using unbalanced output

Crosstalk: At 1000 Hz on adjacent tracks:

Two track: greater than 60 dB

Four track: greater than 55 dB

Flutter and Wow: (Measured per NAB weighted):

TAPE SPEED	
15 ips	less than 0.05%
7½ ips	less than 0.06%
3¾ ips	less than 0.15%

Distortion: Less than 1% at 1000 Hz at 200 nWb/m

Test Oscillator Frequency: Nominal 1000 Hz

Operating Position: Vertical or horizontal

Power Requirements: 117 volts, 60 Hz, single phase ac, 100 watts. Or 220/240 volts, 50 Hz, single phase ac, 100 watts

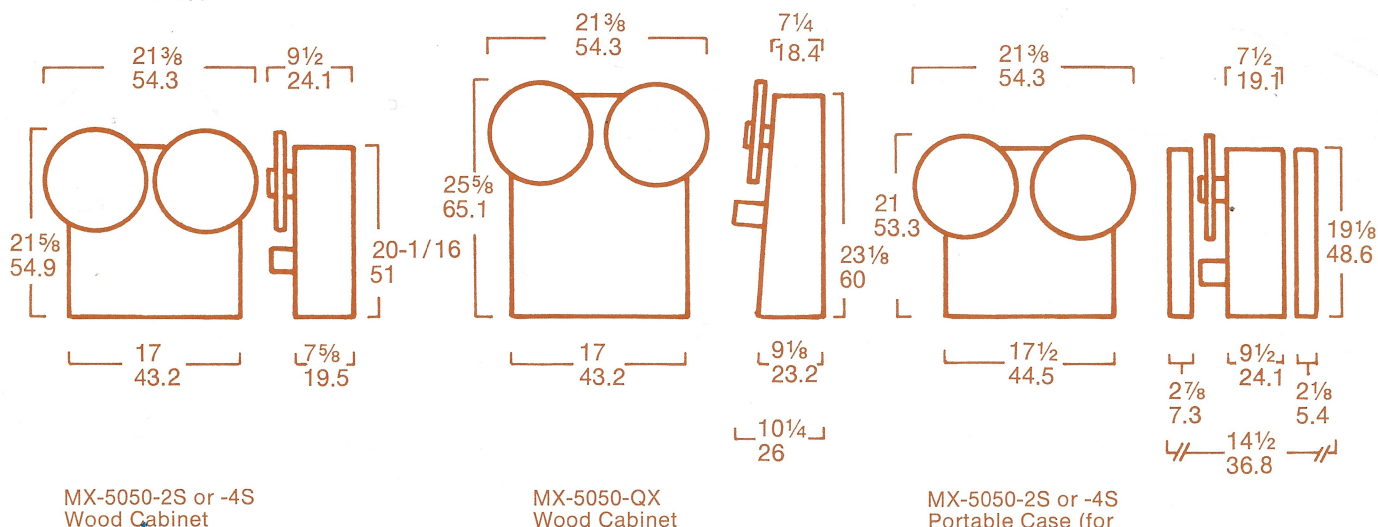
Operating Environment: 40° to 104°F (5° to 40°C)
20 to 80% RH

Storage Environment: -5° to 113°F (-20° to 45°C)
10 to 80% RH

Weight: Cabinet: two channel 50 lbs (22.7 kg), four channel 60 lbs (27.2 kg). Portable case: two channel 62 lbs (28.2 kg), four channel 75 lbs (34 kg)

Mounting: Walnut finish cabinet, portable case, or rack mounting kit

Standard Accessories: Empty 10½ inch NAB reel, NAB reel precision hold down knob, fuse, NAB reel shims



Otari reserves the right to change specifications without notice or obligation.

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