

OTARI

MX-5050 COMPACT PROFESSIONAL RECORDER

ONE AND TWO CHANNEL VERSIONS



- Full capability professional machine.
- Exceptional signal-to-noise and crosstalk.
- Front panel edit and cue.
- Motion sensing control logic.
- Extra reproduce head for other format.
- Selective reproduce for overdubbing.
- Bias adjustable for high energy tapes.
- Front accessible bias, EQ, operating level.
- Hysteresis synchronous or dc servo capstan.
- Built in test and cue oscillator.
- 600 ohm, +4 dBm output, XLR's.
- Remote control for all transport functions.

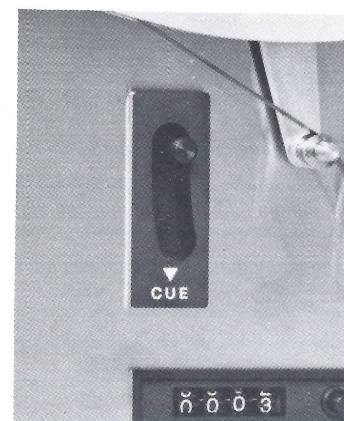
Since its introduction in late 1974, Otari's MX-5050 Compact Professional Recorder has proven its value where it counts—in day-to-day use in hundreds of broadcasting, recording, and educational applications. Customer acceptance and repeat orders tell this recorder's story better than we can: it is a full professional recorder in a compact package with the performance, features, and reliability you expect from the larger machines.

Basically, it has 10½ inch reels, three motors, four heads, and 15/7½ or 7½/3¾ ips tape speeds. It is available in one, two, four, and eight channel versions. (This sheet covers the one and two channel versions. Ask for Specification Sheet S-108 for the four channel, or S-110 for the eight channel.)

The full track version is designated MX-5050-FL and is intended primarily for broadcast use. It has 7½/3¾ ips tape speeds with three full-track heads plus an extra half-track reproduce head and reproduce amplifier to play back half-track tapes. The two channel version is called the MX-5050-2S (half-track stereo). It has either 15/7½ or 7½/3¾ ips speeds, and also has four heads. The three regular heads are half track. The extra head is quarter track.

Both MX-5050 versions share the bulleted features above, plus these: gentle positive tape handling, built-in precision aligned splicing block on head cover, separate line and microphone input level controls, capstan located on non-oxide side of tape, record lockout control, optional road case, rack mounting adaptor, or floor console, variable or fixed output (at standard operating level—switchable between +4 or -10 dBm), and optional balanced line input transformers.

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.



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

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

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 $\frac{1}{2}$ ips, or 7 $\frac{1}{2}$ / $\frac{3}{4}$ ips). Reel Size to provide proper tension for 10 $\frac{1}{2}$, 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 removed.

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).

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 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.

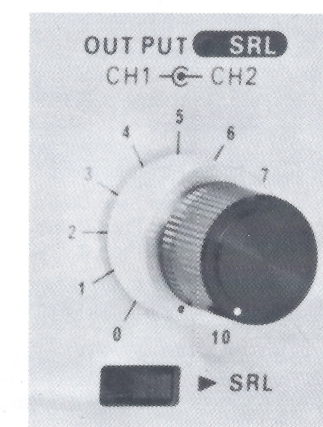


Front Adjustable Bias and Equalization. At the bottom of the electronics panel are eight protective screw caps, behind which are located the adjustments for bias, low and high

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.

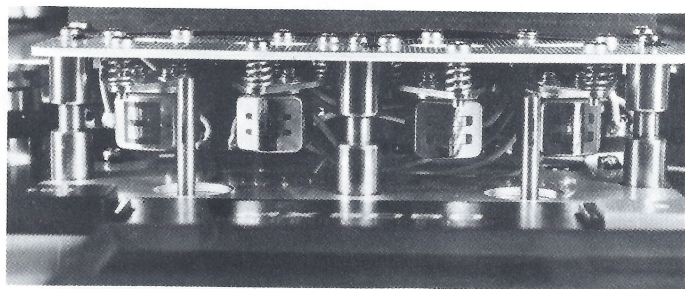
Test Oscillator. Built into the MX-5050 is a one kHz test oscillator. This is very convenient for adjusting bias or to provide an audible cue. The test oscillator signal can be switched to appear on the output meters and is adjusted by the front panel line-input level controls.

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.





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 capstan 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).

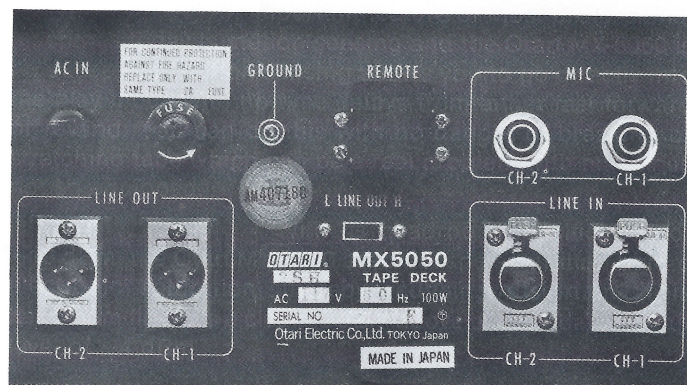
Extra Reproduce Head. Two channel MX-5050 versions include a second reproduce head in the quarter-track format. Full track versions have an extra half track head. This extra head is especially convenient since it allows the playback of tapes recorded in the other format without requiring an additional machine.

Head Selector Switch. Located on the top of the head assembly is a slide switch which selects between either the regular reproduce head or the extra reproduce head.

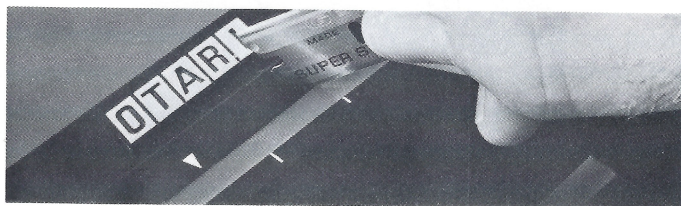


MX-5050's have a front panel pitch control which allows a $\pm 7\%$ correction of the tape speed during playback.

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 operation from a generator is desired. Also, in situations where a tape was recorded off-speed, servo equipped



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 and a floor console. Accessories include: balanced input transformers and remote control panel. The MX-5050 can also be supplied for operation on other voltages and line frequencies.

OTARI

MX-5050 COMPACT PROFESSIONAL RECORDER

MOUNTING CONFIGURATIONS
AND ACCESSORIES



MX-5050-FL. Single channel version of the MX-5050 with full-track record and reproduce, plus an extra two track reproduce head and reproduce electronics channel for playing back two channel tapes.



Rugged portable road case for full track and two channel MX-5050's. Includes front and back covers.



Remote control unit for all transport functions except speed change.

ORDERING INFORMATION

Model	Description
MX-5050-FL	One-channel full-track record and reproduce with half-track reproduce capability for two channel playback. 600 ohm balanced output. Hysteresis capstan motor. Wood cabinet mounting standard.
MX-5050-2SH and MX-5050-2SL	Half-track two channel. High speed (H) 15 and 7½ ips, or low speed (L) 7½ and 3¾ ips. Four heads: three ½ track (erase, record, reproduce), one ¼ track (reproduce), 600 ohm balanced output. Hysteresis synchronous capstan motor. Wood cabinet mounting standard.
MX-5050-2SHD	Half-track two channel as above, with dc capstan servo instead of hysteresis synchronous motor.



Floor cabinet with casters converts the MX-5050 into a studio console machine.

SPECIFICATIONS

TRANSPORT:

Tape Width and Channels: 1/4 inch (6.3 mm) wide.

One channel: full track.

Two channel: 0.075 inch (1.9 mm) track width.

Tape Speeds: One channel: 7 1/2 and 3 3/4 ips (19 and 9.5 cm/s).

Two channel: 15/7 1/2 ips (38/19 cm/s) or 7 1/2/3 3/4 ips.

Maximum deviation 0.15% with 1.5 mil (0.038 mm) tape and hysteresis synchronous motor.

Rewind Time: Less than 90 seconds for 2500 foot reel.

Reel Size: 10 1/2 inch EIA or NAB; 5 or 7 inch plastic.

Heads: One channel, Model MX-5050-FL Full Track:

Four head stacks: Full track erase, 1/2 track reproduce, full track record, full track reproduce.

Two channel versions: Model MX-5050-2S Half-track:

Four head stacks: 1/2 erase, 1/4 reproduce, 1/2 record, 1/2 reproduce.

Motors: Capstan: Two speed hysteresis synchronous or variable speed ($\pm 7\%$) dc servo controlled motor.

Reels: Two induction torque motors.

Flutter and Wow: (Measured per NAB weighted):

Tape Speed

15 ips less than 0.05%

7 1/2 ips less than 0.06%

3 3/4 ips less than 0.12%

ELECTRONICS

Connectors: Line: Standard three-pin XLR.

Microphone: Standard 1/4 inch phone jack.

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

Microphone: Minimum -70 dBm, unbalanced, nominal 50 k ohms (usable range 150 ohms to 50 k ohms).

Outputs: Line: Variable or fixed level.

Fixed level: +4 dBm or -10 dBm rear panel switch selectable.

Headroom: +19 dBm before clipping.

Impedance: 600 ohms, balanced.

Headphone Jack: -24 dBm, nominal 8 ohms.

Equalization: NAB standard for 3 3/4, 7 1/2 and 15 ips.

Signal to Noise Ratio (overall record/playback):

Tape Speed	TWO TRACK		FULL TRACK	
	Weighted	Unweighted	Weighted	Unweighted
15 ips	65 dB	63 dB	—	—
7 1/2 ips	65 dB	63 dB	69 dB	66 dB
3 3/4 ips	64 dB	62 dB	68 dB	65 dB

Measured with respect to a record level of 520 nWb/m to biased tape noise when using 3M 206, Ampex 456, or 3M 250 tape.

Crosstalk: At 1000 Hz on adjacent tracks:

Two track: greater than 55 dB.

Frequency Response (overall record/playback):

15 ips (at 0 VU): 50 to 22,000 Hz ± 2 dB.

35 to 25,000 Hz ± 3 dB.

7 1/2 ips (-10 VU): 50 to 18,000 Hz ± 2 dB.

30 to 20,000 Hz ± 3 dB.

3 3/4 ips (-10 VU): 50 to 12,000 Hz ± 2 dB.

30 to 15,000 Hz ± 3 dB.

Specifications based on Ampex NAB alignment tape and 3M 206.

Distortion: Less than 1% at 1000 Hz at 185 nWb/m.

Test Oscillator Frequency: Nominal 1000 Hz.

PHYSICAL

Operating Position: Vertical or horizontal.

Power Requirements: 117 volts, 60 Hz, single phase ac, 100 watts.
(Servo version: 117/220/240 volts, 50/60 Hz.)

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: 53 lbs. (24 kg). Portable case: 62 lbs. (28.2 kg).

Mounting: Walnut finish cabinet (standard); portable case, floor console, or rack mounting adaptor (optional).

Standard Accessories: Empty 10 1/2 inch NAB reel, precision hold down knob, fuse, NAB reel shims, operating manual.

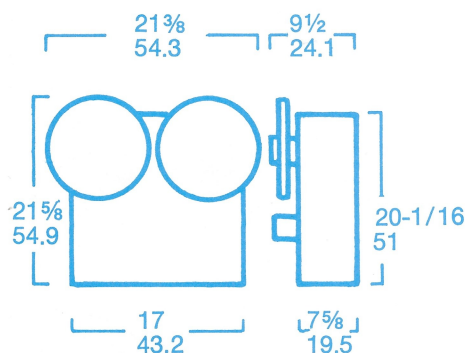
Optional Accessories: 600 ohm balanced input transformers, remote control, line adaptor cables, portable case, floor console, rack mounting adaptors.

Size: Height: 21 3/8 inches (54.9 cm) including reel overhang.

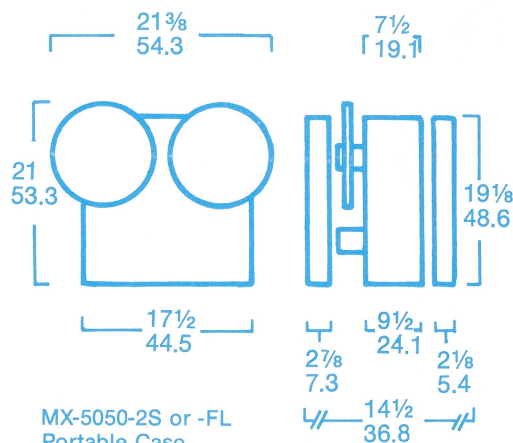
Width: 21 3/8 inches (54.3 cm) including reel overhang.

Depth: 7 1/2 inches (19.5 cm)

Portable case adds front and back covers for total depth of 14 1/2 inches (36.8 cm).



MX-5050-2S or -FL
Wood Cabinet



MX-5050-2S or -FL
Portable Case

Otari reserves the right to change specifications without notice or obligation. This specification sheet applicable in North America.



Otari Corporation
981 Industrial Road
San Carlos, California 94070
(415) 593-1648
TWX: 910-376-4890

EFFECTIVE APRIL 1978
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