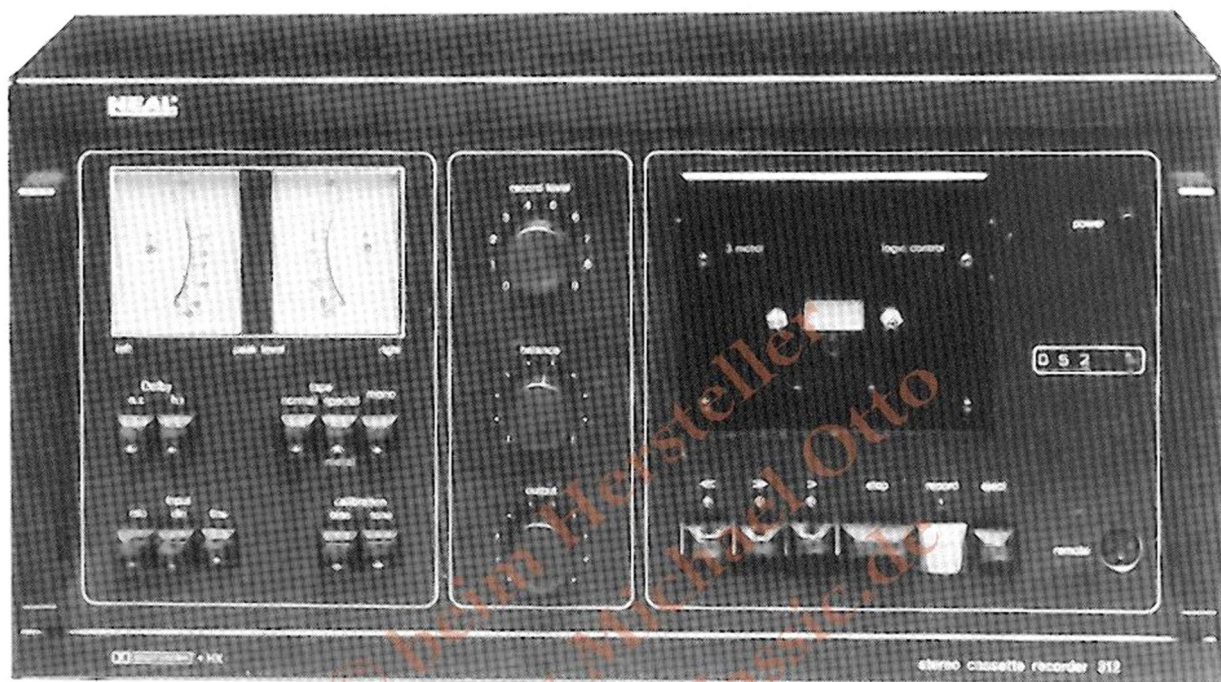


Professional cassette recorders for studio, audio visual & communications systems



### 312 Stereo cassette recorder

The 312 Stereo Cassette Recorder incorporates 'Dolby HX' and metal tape capability.

Dolby HX (Headroom Extension) eliminates the so-called 'cassette sound'. Until now cassette recorders could make some music recordings sound dull. Dolby HX restores the open, clear sound of the original. It does this by automatically varying the recording to suit the music. This is how it works.

High level bias gives low distortion, freedom from dropouts, and reduced modulation noise.

Low level bias gives maximum high frequency response.

Dolby HX varies the bias level and high frequency pre-emphasis instantaneously to suit the record signal, thus providing optimum bias at all times.

High level high frequency signals

can now be recorded without sounding dull.

Dolby HX only operates in record. It does not operate in replay. The HX improvement is therefore still preserved when recordings are played back on ordinary cassette machines.

New Sen-alloy heads are used in the 312.

This now gives extended head life and the very best results with metal and more conventional tapes.

The 312 has two peak reading meters and Dolby B noise reduction. Each channel has three inputs, microphone, line (phono) and DIN. Mixing can be obtained using external controls.

The three outputs are line (phono), DIN and a controlled headphone/high level line output giving in excess of +8dBm.

Built-in full calibration facilities

allow the machine to be set up for any make of tape.

The transport is a super smooth, three motor, logic controlled, solenoid actuated mechanism which provides full cassette protection.

The stop sensor can be used to switch on a second recorder if required.

Complete remote control of all deck functions via the remote socket on the front panel enables either simple remote control or programmed operation using external circuitry.

Every 312 can be used vertically or horizontally as a front or top loader. In addition, a kit is available for mounting into a 19 inch rack.

## 312 Technical Specification

<b>Tape transport</b>	
Type	NEAL 3-motor heavy duty mechanism, solenoid operated and logic controlled.
Tape speed	1.875 in/s (4.76 cm/s).
Fast wind and rewind times	Less than 50 seconds for C60 cassette.
Wow & Flutter	Less than 0.09% rms DIN weighted.
Cassette protection	Fully automatic complete dis-engagement of mechanism at end of tape or in the event of a stalled defective cassette.
<b>Controls</b>	
Input selectors	Select either microphone, low level line (DIN) or high level line inputs.
Record level	Dual ganged potentiometers at outputs of input amplifiers.
Balance	Gives infinite left right control of recording balance.
Phones output	Dual ganged potentiometers controlling headphone (high level line) output.
Dolby n.r.	Operates Dolby Noise Reduction circuits.
Dolby hx	Operates Dolby hx circuits.
Mono	Enables recording on both tracks from a mono input, and gives mono output at the headphone socket.
Tape - Normal Tape - Special/Metal	Select different bias levels, recording pre-emphasis and replay networks for either ferric or chrome/metal tape by solid state switching.
Calibration - Tone	Switches on 500Hz recording signal for record calibration and level setting in tape copying.
Calibration - Bias	Displays bias level on the meters.
<b>Meters</b>	
Type	Twin peak reading meters. Electronic time constants are 2ms rise time and 400ms fall time. Meters indicate true pre-emphasised recording signal. Bias level is measured when Calibration Bias switch is depressed.
Calibration	0dB corresponds to 220nWb/m flux density.

### Recording amplifiers

Input	Input for 0dB recording level	Input impedance	Socket
Microphone	300 $\mu$ V	2k ohms	1/4" jacks
High level line	100mV	20k ohms	phono
Low level line	3mV	10k ohms	5 pin DIN

Overload margin on all inputs better than 40dB.

### Replay amplifiers

Frequency	Characteristic	Special	Normal	Socket
70/3180 $\mu$ s				
120/3180 $\mu$ s				
Output	Output level	Output impedance	Socket	
Line output	600mV fixed	1k ohms	phono	
DIN output	600mV fixed	1k ohms	5 pin DIN	
Headphone/ high level line	4V controlled	50 ohms	1/4" 3 contact jack	

Output levels referred to 220nWb/m flux density. All outputs protected against short circuit.

### Frequency response

Normal Ferric Oxide tape: 35Hz - 14000Hz (+1 -3dB)

Special Ferric Oxide, Chromium Dioxide and metal tape: 35Hz - 15000Hz (+1 -3dB)

### Crosstalk

Record on left (right), replay on right (left), better than 37dB.

### Signal to noise ratio

Signal to noise ratios (CCIR weighted) referred to 3% third harmonic distortion.

Dolby hx off, Dolby n.r. off: Special tape: 57dB. Normal tape: 57dB.

Dolby hx on, Dolby n.r. on: Special tape: 66dB. Normal tape: 66dB.

### Power supplies

220-250V, 50Hz or 105-125V, 60Hz.

### Dimensions

446 x 226 x 155mm (17.5 x 8.9 x 6.1 in).

### Weight

8kg (17 1/2 lb).

\*Dolby is a trade mark of Dolby Laboratories Inc. The Company reserve the right to improve this specification without notice.

# NEAL

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