

**AMPEX**

# MR-70 MASTER RECORDER SPECIFICATIONS

**TAPE WIDTH AND CHANNEL CONFIGURATION AVAILABLE:**

- ¼" tape — 1 or 2 channels
- ½" tape — 3, or 4 channels
- 1" tape — 4, 6, or 8 channels

**TAPE SPEEDS AVAILABLE:** 7½ and 15 ips, or 15 and 30 ips.**REEL SIZE:** 11½" maximum, EIA, NAB or CCIR reels, or hubs; CCIR reel adaptors available.**INPUT:** 20K ohms unbalanced convertible to 20K ohms balanced with the addition of a plug-in bridging transformer. Will accept line levels from -20 to +12 vu. Low impedance microphone input by use of accessory plug-in Nuvistor pre-amp.**OUTPUT:** Strappable for 150 or 600 ohms, balanced or unbalanced, with nominal line levels of +4 vu or +8 vu.**EQUALIZATION:** Equalization switching automatic by transport speed selector. Choice of curves at each speed provides for NAB, CCIR, or AME (15 ips only) as well as adjustments to accommodate other curves in the 17.5 to 100 microsecond range with or without the 3180 microsecond low frequency pre- and post-emphasis.**ELECTRONICS:** Completely NuvistORIZED; only 2 types of military/industrial grade Nuvistors are used.  
6 each type 7587 and 12 each 7895 per channel of electronics;  
4 each type 7895 in master bias/erase oscillator.**OVERALL FREQUENCY RESPONSE:**

15 ips NAB ± 1 db 50 cps to 15 kc, ± 2 db 30 cps to 20 kc.

7½ ips NAB ± 1 db 50 cps to 12 kc, ± 2 db 40 cps to 15 kc.

**SIGNAL-TO-NOISE RATIO:**

Peak Record Level to Unweighted Noise (db)*	Full Track ¼" Tape (0.234 Trk Width)	4-Track 1" (0.180 Trk Width)	3-Track ½" Tape (0.100 Trk Width)	2-Track ¼" Tape (0.075 Track Width)
			6-Track 1" (0.095 Trk Width)	4-Track ½" Tape (0.070 Track Width)
15 ips NAB	70	69	66	65
7½ ips NAB	70	69	66	65
30 ips (17.5 μs)	72	71	68	67

\*Peak Record Level is defined as the level of a long wavelength signal whose remanent flux is 6 db above that of Ampex operating level. On typical tape this corresponds to the 3% third harmonic distortion level. Unweighted noise measured with a filter whose response is -3 db at 30 cps and 15 kc with an 18 db per octave roll-off above 15 kc using 201-type low noise tape biased for maximum sensitivity at 15 mil wavelength.

30 ips (17.5 microseconds) full track heads ± 1 db 50 cps to 20 kc.

30 ips (17.5 microseconds) multi-track heads ± 1 db 100 cps to 20 kc, ± 2 db 50 cps to 20 kc.

**BIAS/ERASE OSCILLATOR:** Plug-in master oscillator on transport; 150K cps nominal bias/erase frequency.**TAPE LIFTERS:** Automatically lifts tape from heads in fast wind modes; edit switch cancels lifters.**ERASURE:** A mid-frequency signal recorded at peak record level will be reduced at least 68 db by the erasing system. Ferrite erase head is utilized.**CHANNEL SEPARATION:** When recording with signal on one track and without signal on an adjacent track (bias only), the signal-to-crosstalk ratio will be greater than 50 db mid band.**EVEN ORDER DISTORTION:** The second harmonic distortion of a 500 cps signal recorded at peak record level (approximately 3% third harmonic distortion) will be less than 0.5%.**FLUTTER AND WOW:**

15 ips less than 0.05% rms

7½ ips less than 0.08% rms

30 ips less than 0.05% rms

Measured according to ASA Z57.1-1954 measuring all components from 0.5 cps to 250 cps.

**START TIME:** (to stable tape motion) Tape will be within ± 0.2% of nominal speed in 0.5 seconds.**TIMING ACCURACY:** Better than ± 0.15%.**FAST MODES:** Continuously variable from 0 to 400 ips. Rewind time approximately 80 seconds for 2400-foot reel.

**ELECTRONIC OVERLOAD MARGIN:**

Record Amplifier: Total harmonic distortion less than 1% at 50 cps to 15 kc at a constant record current 25 db above a mid-frequency operating level signal.

Reproduce Amplifier: Total harmonic distortion less than 1% at 50 cps to 15 kc at tape saturation level (14 db above operating level).

**OPERATING CONTROLS:**

- Input and output level controls continuously variable with twist lock. Levels are remotely controllable.
- Record selector, 3 position for "Ready," "Safe" and "Selective Synchronization."
- Output selector, 3 position for "Input," "Reproduce" and "Remote A-B" monitor.
- Meter selector, 3 position for "Output," "Bias" or "Erase."
- Mode controls: illuminated pushbutton for power on-off, speed, stop, fast wind, play, edit, record; all remotely controllable.
- Variable fast forward-rewind control (0 to 400 ips) lever bar; not remoteable.

**DIMENSIONS AND WEIGHTS:**

- Transport 19" x 24½" x 12" deep 130 lbs.
- Electronics 19" x 5¼" x 12" deep 27 lbs. (per channel)
- Console 29" wide x 29¼" deep 180 lbs. x 62¼" high (4 channel unit)
- Transport & Electronics may be rack mounted.

**POWER REQUIREMENTS:** Universal voltage transformer Strappable for 115 volts or 230 volts, Adjustable by switch for ±12 volts providing nominal voltages of 103, 115, 127, 218, 230 or 242. Versions for 50 or 60 cps available.

**CURRENT DRAIN**

1 channel machine	115 volts	2.5 amperes,
	230 volts	1.25 amperes
2 channel machine	115 volts	3.0 amperes,
	230 volts	1.5 amperes
3 channel machine	115 volts	3.5 amperes,
	230 volts	1.75 amperes
4 channel machine	115 volts	4.0 amperes,
	230 volts	2.0 amperes

**OPTIONAL ACCESSORIES**

- Sel Sync\* plug-in amplifier (one required per channel) Cat. #4012107-01
- Editing foot pedal Cat. #4012121-01
- Console cabinet Cat. #4010034-01, 02, 03 or 04, depending upon the number of channels.
- 40 db Nuvistor mic plug-in pre-amp Cat. #40196440-01
- 60 db Nuvistor mic plug-in pre-amp Cat. #40196440-04
- Balance bridge input transformer Cat. #4850116-01
- Balanced line input transformer Cat. #4850116-02

\*TM AMPEX CORP.

**METRIC CONVERSION TABLES**

<b>TAPE SPEEDS</b>		<b>TAPE DIMENSIONS (Continued)</b>									
ips . . . . .	1 7/8   3 3/4   7 1/2   15   30   60   120	Length: feet . . . . .	600	1200	1800	2500	3600	5000	7200	9600	
cm/sec . . . . .	4.76   9.52   19.05   38.1   76.2   152.4   304.8	meters . . . . .	185	366	549	762	1097	1524	2195	2926	
<b>TAPE DIMENSIONS</b>		<b>HEAD DIMENSIONS</b>									
Reels: inches . . . . .	14   10 1/2   7   5 3/4   5	Gap Scatter	Interstack Spacing*				Track Width & Spacing*				
cm . . . . .	35.56   26.67   17.78   14.62   12.70	microinches . . . . .	100	inches 1.5 ±0.0005				inches 0.050 0.070			
Widths: inches . . . . .	1/4   1/2   3/4   1   2	mm . . . . .	0.00254	cm 3.81 ±0.00127				mm 1.27   1.778			
cm . . . . .	0.635   1.27   1.905   2.54   5.08	* (IRIG)									
<b>Base Thicknesses:</b>		<b>STANDARD PANELS FOR 19-INCH (48.26 cm) RACK</b>									
inches . . . . .	1 mil   1.5 mil	in. 1 3/4   3 1/2   5 1/4   7   8 3/4   12 1/4   14   15 3/4   17 1/2   19 1/4   21   35									
mm . . . . .	0.0254   0.0381	cm 4.45   8.89   13.34   17.78   22.23   31.12   35.56   40.01   44.45   48.9   53.34   88.9									

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