

# Ferrograph Series 75 'Super Seven'

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# Ferrograph Series 75 'Super Seven'

**Series 75 is a full new range of stereo tape recorders utilising Ferrograph's quarter-century of experience in supplying first-quality machines to meet the requirements of critical users. Super Seven instruments benefit from field experience gained world-wide from thousands of the Series Seven recorders, which they replace. All the proven advantages of these rugged recorders have been retained, and a number of very important features are incorporated:**

**Capacity for 10½" professional spools**

**More powerful spooling motors**

**Larger, edge-lit VU meters**

**Electrical tape tensioning**

**A-B comparison switch for each channel separately**

**Bass and Treble controls for each channel**

**Push-buttons for 'multi-play', 4-input mixing on one channel, and echo on one or both channels**

**Stereo headphone socket: switched DIN speaker sockets**

**New styling in the modern image**

Acceptance of 10½" spools gives greatly extended running times in normal use and, where a program source of first-class technical quality is available, the opportunity for selecting a higher recording speed without the likelihood of 'running out' of tape. Reel retainers for cine spools are now built in, and adaptors are available for the NAB hubs on 10½" spools. A two-position switch provides a small change in the tape tension system to give optimum conditions for the size of spool in use. Super Seven machines have exceptionally good 'quick start' characteristics together with an excellent frequency response and very low wow and flutter.

Low noise is an inherent characteristic of these recorders but, especially where the lower speeds are to be used frequently, or where 1/4-track machines are employed – particularly when a 'multiplay' recording is to be built up by repeated transfer – the advantages of the Dolby Noise Reduction system type B, become of increasing value.

All Series 75 machines are available with or without this facility. When fitted, a switch allows the Dolby circuits (one pair in the Record channel, another pair for Replay) to be switched in or out as required.

Associated with the Dolby recorders is a switched multiplex filter which may be required when recording from some stereo tuners. The filter attenuates the 19kHz carrier which, if not attenuated by the tuner, could falsely trigger the Dolby circuitry.

Proper provision is made for recording signals which have already been processed by Dolby circuits (when copying Dolby tapes). An intermediate setting of the Dolby switch takes the record characteristic out of circuit, leaving only the replay characteristic in circuit, giving the correct conditions for both functions.

Controlled tape tension is important for long-term and short-term speed accuracy, for protecting the tape from possible damage, and for giving good winding characteristics during spooling. Super Seven machines produce the appropriate tension by applying a small reverse torque to the motor of the feed spool. For fast spooling, a single knob gives continuous control of speed from maximum in one direction, through zero to maximum reverse speed. Suitably muted reproduction during spooling aids rapid location of any desired recorded passage.

Maximum flexibility is provided by a comprehensive selection of controls for each channel. Each of the two record channels has its own microphone socket and gain control, line input socket and gain control, and these two signals can be mixed. A single Record Mode switch selects stereo operation or mono on either track. Each replay channel has its own volume, treble and bass controls, and individual 600-ohm and low-level outlets. Each track is associated with a pair of push-buttons selecting either the incoming (source) signal or the 'off-tape' reproduction, allowing immediate A-B comparisons to be made.

Simply by pressing push-buttons, transfer (by re-recording) can be made from upper to lower track, or lower to upper track. By suitable use of this facility with the Record Mode switch and the source/tape switches, four-input mixing is available onto one channel. Also, echo can be added to either or both channels.

Super Seven machines are available with or without power amplifiers and speakers fitted. Those with the amplifiers – 10 watts rms per channel – have switched DIN sockets for external speakers and two speakers fitted internally. All models have a socket for connecting stereo headphones. Finish of the recorders is in natural wood, with brushed aluminium front panel. They are suitable for vertical or horizontal operation and an attractive transparent dust cover is available as an optional extra.

### Leading Mechanical Features

- 3 motors, 3 heads, 3 speeds
- 4-digit tape position indicator
- Start/stop can be remote-controlled
- Immediately suitable for time-switch operation
- Automatic stop at end of tape (or in case of tape breakage)
- Foil auto-stop at any point on tape
- Continuously-variable spooling speed
- Very quick start (approx 1/10 sec.)
- Modular construction speeds access



## Leading Electrical Features

- All-silicon, solid-state electronics
- Separate VU meter and bias adjustment for each channel
- Mic. and Line inputs and controls for each channel
- 600 $\Omega$ , Low Level and Headphones outputs from each channel
- Models with power amplifiers have two internal loudspeakers
- Metering and monitoring of source or tape on each channel
- Click-free change into or from Record mode without stopping tape
- Transfer switch for track-to-track multiple recording
- Pre-set adjustment of output levels to external amplifiers

## Accessories

Ferrograph can supply a wide range of accessories and associated equipments to complement and extend the versatility and outstanding performance of these technologically advanced recorders. These include a VHF Stereo Tuner, 20 + 20 and 60 + 60 Stereo Amplifiers, Microphones, Headphones, a signal-operated switching unit, endless loop tape cassette, foot-operated switch, head defluxer, hub-adaptors for NAB-centred 10 $\frac{1}{2}$ " spools and a transparent plastic lid. The endless loop cassette includes the necessary template and drilling/tapping instructions. Information on these items is contained in separate publications covering the Tuner (SFM1), the 20 + 20 Amplifier (F208), the 60 + 60 Amplifier (F608) and a detailed Accessories brochure. These are available on request.

## Models Available

(All Series 75 machines are Stereo)

Model No.	Track Size	Tape Speeds			Power Amplifiers and Speakers
7502	$\frac{1}{2}$	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ 9.5	1 $\frac{7}{8}$ in/s 4.75cm/s	None
7502H	$\frac{1}{2}$	15 38	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ in/s 9.5cm/s	None
7522	$\frac{1}{2}$	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ 9.5	1 $\frac{7}{8}$ in/s 4.75cm/s	2 $\times$ 10 watts 2 Loudspeakers
7522H	$\frac{1}{2}$	15 38	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ in/s 9.5cm/s	2 $\times$ 10 watts 2 Loudspeakers
7504	$\frac{1}{4}$	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ 9.5	1 $\frac{7}{8}$ in/s 4.75cm/s	None
7504H	$\frac{1}{4}$	15 38	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ in/s 9.5cm/s	None
7524	$\frac{1}{4}$	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ 9.5	1 $\frac{7}{8}$ in/s 4.75cm/s	2 $\times$ 10 watts 2 Loudspeakers
7524H	$\frac{1}{4}$	15 38	7 $\frac{1}{2}$ 19	3 $\frac{3}{4}$ in/s 9.5cm/s	2 $\times$ 10 watts 2 Loudspeakers

Standard machines are in natural wood cases (unpolished lid supplied for protection during transit).

Add suffix A for 117V, 60Hz instruments.

Add suffix D for models incorporating Dolby Noise-Reduction circuits. (Due to Dolby Licensing requirements, these circuits do not operate at 15in/s on  $\frac{1}{2}$ -track models).

## Specification

<b>Recording Medium</b>	Magnetic tape $\frac{1}{4}$ in (6.3 mm) wide, on reels of up to $10\frac{1}{2}$ in (270 mm) diameter.
<b>Track Width</b>	$\frac{1}{2}$ track – .090 in (2.3 mm); $\frac{1}{4}$ track – .043 in (1.1 mm).
<b>Head Gap Width</b>	Record head – $250\mu$ in ( $6.3\mu$ ); Replay head – $80\mu$ in ( $2\mu$ ).
<b>Operating Tape Speeds</b>	Three (3): – $7\frac{1}{2}$ , $3\frac{3}{4}$ , $1\frac{7}{8}$ in/s (19, 9.5, 4.75 cm/s) Suffix H: 15, $7\frac{1}{2}$ , $3\frac{3}{4}$ in/s (38, 19, 9.5 cm/s)
<b>Tape Speed Accuracy</b>	Better than $\pm 1\%$ (at specified frequency).
<b>Playing Time Per Track</b>	3,600 ft (1,080 m) of tape – 1 hr 36 min at $7\frac{1}{2}$ in/s (19 cm/s) 3 hr 12 min at $3\frac{3}{4}$ in/s (9.5 cm/s)
<b>Fast Wind Time</b>	Continuously variable in either direction; at fast speed approx. $1\frac{1}{4}$ min for 1,200 ft (360 m) of tape, approx. 3 min for 3,600 ft (1,080 m) of tape.
<b>'Wow' and 'Flutter'</b>	Less than 0.08% at $7\frac{1}{2}$ in/s (19 cm/s) 0.15% at $3\frac{3}{4}$ in/s (9.5 cm/s) 0.20% at $1\frac{7}{8}$ in/s (4.75 cm/s) High Speed Models (Suffix H) Less than 0.08% at 15 in/s (38 cm/s) 0.10% at $7\frac{1}{2}$ in/s (19 cm/s) 0.15% at $3\frac{3}{4}$ in/s (9.5 cm/s)
<b>Frequency Response</b>	Record-Replay, using Long Play Ferrotape type B. 15 in/s (38 cm/s) : 30-20,000Hz $\pm 2$ dB $7\frac{1}{2}$ in/s (19 cm/s) : 30-17,000Hz $\pm 2$ dB $3\frac{3}{4}$ in/s (9.5 cm/s) : 40-14,000Hz $\pm 3$ dB $1\frac{7}{8}$ in/s (4.75 cm/s) : 50- 7,000Hz $\pm 3$ dB
<b>Replay Characteristic – D.I.N. (N.A.B. on 117V models)</b>	15 in/s (38 cm/s) : 35 $\mu$ sec $7\frac{1}{2}$ in/s (19 cm/s) : 50/3180 $\mu$ sec $3\frac{3}{4}$ in/s (9.5 cm/s) : 90/3180 $\mu$ sec $1\frac{7}{8}$ in/s (4.75 cm/s) : 120/1590 $\mu$ sec
<b>Channel Separation</b>	Stereo operation – approx. 50dB; Mono operation – better than 65dB at 1,000Hz.
<b>Maximum Output (per channel)*</b>	10 Watts R.M.S. into 8-16 $\Omega$ loudspeaker.
<b>Amplifier Distortion*</b>	Less than 0.25% R.M.S. at all levels up to 10 Watts.
<b>Signal to Noise Ratio</b>	Unweighted, including hum, better than 60dB – ref. 2% distortion.
<b>Bass Control</b>	Continuously variable up to $\pm 15$ dB at 50Hz, $\pm 20$ dB at 20Hz.
<b>Treble Control</b>	Continuously variable up to $\pm 10$ dB at 10kHz, $\pm 15$ dB at 20kHz.

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## Specification Continued

<b>Internal Loudspeakers*</b>	Two (2) – elliptical 7 in × 4 in (18 cm × 10 cm).
<b>Input Level</b> (for full depth recording)	Microphone: 300 $\mu$ V-15mV at 10K $\Omega$ , Recommended Source: 250-2,000 $\Omega$ . Line: 50mV-10V at 2M $\Omega$ , Recommended Source: any impedance.
<b>Outputs</b> (from full depth recording)	600 $\Omega$ : 2V at 600 $\Omega$ . Low Level: 300mV into 10K $\Omega$ or greater. *Loudspeaker: up to 10 Watts R.M.S. into 8-16 $\Omega$ . Phones: suitable for headphones of approx. 8-600 $\Omega$ .
<b>Power Supply</b>	200-250V, 50Hz; Suffix A: 117V, 60Hz.
<b>Power Consumption</b>	100 Watts approximately.
<b>Overall Dimensions</b> (with lid)	20 $\frac{1}{4}$ in wide × 17 $\frac{1}{2}$ in × 10 in (515 mm wide × 445 mm × 255 mm).
<b>Weight</b>	55 lb (25 kg).

\* Not applicable to 7502 models or 7504 models.

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