

# EMT 930 Studio Turntable

A complete turntable/equalizer system designed for years of heavy duty studio use. Three speeds, remote controlled start/stop of the auxiliary turntable, tone arm and cartridge with equalizer.



## EMT 930-900 Shock-Absorbing Frame

The EMT 930-900 Shock-Absorbing Frame was developed especially for the EMT 930 Studio Turntable. It affords a high degree of isolation from environments in which mechanical disturbances can be expected, for instance from nonrigid floors, from poorly constructed consoles, and from acoustic feedback induced by nearby sound sources or transmitted from vibrating components in the vicinity of the turntable base.

The shock-absorbing frame consists of a support structure and the turntable mounting frame, which is suspended from the support by a system of coil springs and rubber rods. By predetermining the dominant vibrational directions, it has been possible to minimize the effects on the chassis not only of translational accelerations, which play a minor role in any event due to the precise, balanced constructions of the tone arm, but above all of rotational disturbances. The springs are dimensioned for the mass of the 930 and are highly damped. Because of the suspension points selected, the resultant force vector produced as the sum of all external disturbances acts upon the center of gravity, so that no mode change (for example, from translational into rotational forces) can occur. High-frequency spring vibrations are inhibited by the rubber connecting rods.

When the shock-absorbing frame is used, the turntable is secured in the elastically suspended mounting frame instead of directly in a console. The console cut-out must be made somewhat larger than the perimeter of the frame to allow unobstructed motion of the suspended turntable chassis. Should the appearance of the frame disturb the aesthetics of a studio installation, a surrounding elevation with the approximate dimensions of 502 x 402 mm and 35 mm radius of curvature at each corner can be fabricated. The motion of the upper part of the frame can be arrested by a locking mechanism for mobile van use.

This is the classic EMT turntable, proven throughout the world since its initial introduction thirty years ago and continually improved to keep pace with modern requirements. Early units can be converted to current specifications.

## Drive functions and application

The turntable drive system consists of an AC mains driven synchronous motor with a three step pulley shaft. A precision vulcanized rubber idler wheel transmits the motor torque to the inner rim of the heavy main turntable. Speed change is accomplished by changing the height of the idler; the speed selector switch is locked during rotation to prevent inadvertent operation. Stroboscopic divisions at the rim of the auxiliary turntable allow speed accuracy to be checked. The remote controllable brake and muting during run-up enable exact cueing to any point on a record. The tone arm is provided with a precision lowering device and stylus position illumination.

## Amplifier electronics and circuitry

The EMT moving coil pick-up cartridges with integrated stylus lens are particularly suitable for use with the 930. They are secured by means of a bayonet connector and knurled collar to the EMT 929 Tone Arm, which is statically and dynamically balanced in all directions. A choice of two equalizer amplifiers is offered: The EMT 155 features switchable equalization characteristics and a separate scratch filter, while the EMT 153 affords fixed equalization according to international standards. Both amplifiers are fully solid state and include high quality input and output transformers. The outputs are balanced and floating and deliver normal studio levels. Separate, fully independent outputs are provided for headphone monitoring.

The EMT 930 Studio Turntable has been constructed for console mounting. All mechanical and electrical components are integral to the main chassis; and the turntable is thus rigidly coupled to the adjacent environment. The EMT 930-900 Shock Absorbing Frame, available as an accessory, affords considerable mechanical isolation from external vibrations and impact disturbances.

Various models are offered for mono and stereo reproduction and for various pick-up cartridges.

A custom designed dust cover may be ordered as part number EMT 930 PC.

# EMT 930 Studio Turntable

## EMT 155 st Amplifier

The EMT 155 st Equalizer Amplifier provides all common phonograph equalization characteristics: stereo, 75 $\mu$ s; mono, 75 and 50  $\mu$ s (IEC/NAB/RIAA/DIN); 25  $\mu$ s (BBC); and 0  $\mu$ s (FLAT). The built-in scratch filter with continuously variable rolloff frequency (between 2 kHz and 20 kHz) affords particular advantages in the reproduction of older, 78 rpm records. This amplifier employs silicon planar transistors throughout and can be installed even in older models of the EMT 930 (beginning with Serial Number 3589) without any wiring changes.

Amplifier	
EMT 153 st	stereo equalizer amplifier for EMT T series pick-up cartridges
EMT 153 st/47 kohms	stereo equalizer amplifier, 47 kohms input impedance for magnetic pick-up cartridges
Equalization characteristics DIN, NAB, IEC, RIAA	75/318/3180 $\mu$ s
Input sensitivity EMT 153 st EMT 153 st/47 kohms	1 mV 10 mV
Output level (nominal output) into 200 ohms into 600 ohms	+ 6 dB (1.55 V) + 15 dB (4.4 V)
Frequency response	60 Hz to 15 kHz $\pm$ 1 dB at 40 Hz -2 dB
Harmonic distortion at nominal level	less than 0.1 % 200 Hz to 6.3 kHz less than 0.3 %, 60 Hz to 15 kHz
Intermodulation distortion (DIN 45 403) 4000/50 Hz (1:4) Signal-to-noise ratio, rms, unweighted Signal-to-noise ratio, peak, weighted Cross talk 40 Hz to 15 kHz	less than 0.1 % better than 68 dB better than 70 dB better than 45 dB
Stereo/mono switch Headphone output	mono, approx. 450 mV on 200 ohms supplied from the EMT 930 turntable power supply or from an external AC source (12.5 V, maximum re- quired current 300 mA)
Power requirements	width 110 mm (4 3/8") height 90 mm (4") depth 210 mm (8 3/8") approx. 1.9 kg (4 1/4 lbs)
Approx. dimensions	
Weight	

Amplifier	
EMT 155	mono amplifier for EMT OF series pick-up cartridges
EMT 155 st	stereo amplifier for EMT T series pick-up cartridges
Equalization (switchable during operation) according to DIN 45 536/37 46/47, NAB, RIAA	75/318/3180 $\mu$ s mono/stereo 50/318/3180 $\mu$ s } mono 25/318/3180 $\mu$ s } only 0/318/3180 $\mu$ s }
DIN 45 533 BBC FLAT	
Input sensitivity EMT 155	10 mV (internal soldered connection for 1 mV)
EMT 155 st	1 mV (internal soldered connection for 10 mV)
EMT 155 st/47 kohms	10 mV
Output level (nominal output) into 200 ohms into 600 ohms	+ 6 dB (1.55 V) + 15 dB (4.4 V)
Frequency response	40 Hz to 16 kHz $\pm$ 1 dB
Harmonic distortion (at nominal level)	less than 0.2 % from 200 Hz to 12 kHz, less than 0.4 % at 40 Hz
Intermodulation distortion (DIN 45 403) 4000/50 Hz (1:4) Signal-to-noise ratio rms, unweighted Signal-to-noise ratio, peak, weighted Cross talk EMT 155 st 30 Hz to 16 kHz	typically 0.5 % better than 60 dB better than 70 dB better than 50 dB
Scratch filter, roll-off continuously frequency variable	low-pass filter, 10 dB/octave; -3 dB point 2 to 20 kHz
Headphone output	mono, approx. 250 mV into 200 ohms serviced from the EMT 930 turntable power supply or from an external DC (24 V, 100 mA) or AC (12 V, 200 mA) source
Power requirements	width 110 mm (4 1/2") height 100 mm (4") depth 210 mm (8 3/8") approx. 2.1 kg (4 1/2 lbs)
Approx. dimensions	
Weight	

## Order No.

### Models

9 930 000	Stereo, 50 Hz AC mains frequency, EMT 155st Stereo/Mono Equalizer Amplifier, 929 Tone Arm, TSD 15 Pick-up Cartridge
9 930 001	Mono, 50 Hz AC mains frequency, EMT 155 Mono Equalizer Amplifier, convertible to stereo, two pick-up cartridges with sapphire stylus (one each OFS 25 and OFS 65)
9 930 002	Same specifications as 9 930 000, but for 60 Hz AC mains frequency
9 930 003	Same specifications as 9 930 001, but for 60 Hz AC mains frequency
9 930 010	Stereo, 50 Hz AC mains frequency, EMT 153 st Stereo/Mono Equalizer Amplifier, no scratch filter, fixed equalization characteristic 75/318/3180 $\mu$ s, with 929 Tone Arm and TSD 15 Pick-up Cartridge
9 930 012	Same specifications as 9 930 010, but for 60 Hz AC mains frequency
9 930 014	Stereo, 50 Hz AC mains frequency, EMT 153 st Stereo/Mono Equalizer Amplifier with 47 kohms input impedance, no scratch filter, fixed equalization characteristic 75/318/3180 $\mu$ s, without pick-up cartridge but with empty shell suitable for mounting magnetic pick-ups
9 930 016	Same specifications as 9 930 014, but for 60 Hz AC mains frequency

### Accessories and important spare parts

9 930 980	Single console, operating height 800 mm, vertically adjustable feet $\pm$ 25mm, for all 930 models
9 930 970	Single console, operating height 800 mm, vertically adjustable feet $\pm$ 25mm, for installation of 9 930 900 Shock-Absorbing Frame
9 930 900	Shock-Absorbing Frame
930-PC	Dust hood (transparent plastic)
930-S	One set of lamps and fuses
7 930 006	Motor assembly, 50 Hz
7 930 012	Motor assembly, 60 Hz
7 930 237	Auxiliary turntable, 50 Hz
7 930 398	Auxiliary turntable, 60 Hz
7 930 003	Electromagnetic brake
9 930 901	Brake shoe compl.
7 927 411	Brake disk with felt ring
7 927 052	Intermediate drive wheel (VULKOLAN)
9 929 000	Tone arm
9 153 001	Equalizer amplifier, stereo/mono, without scratch filter, equalization characteristics 75/318/3180 $\mu$ s
9 153 000	Same model as 153 001 but 47 kohms for use of magnetic pick-up systems
9 155 001	Equalizer amplifier, mono
9 155 000	Equalizer amplifier, stereo/mono
7 930 690	1 bottle of special oil, 500 ccm
9 930 902	Capacitor kit for motor alignment
930 910	Transport Trunk incl. shock-absorbing frame