OPERATING INSTRUCTIONS

KLEMT Echolette

Showstar

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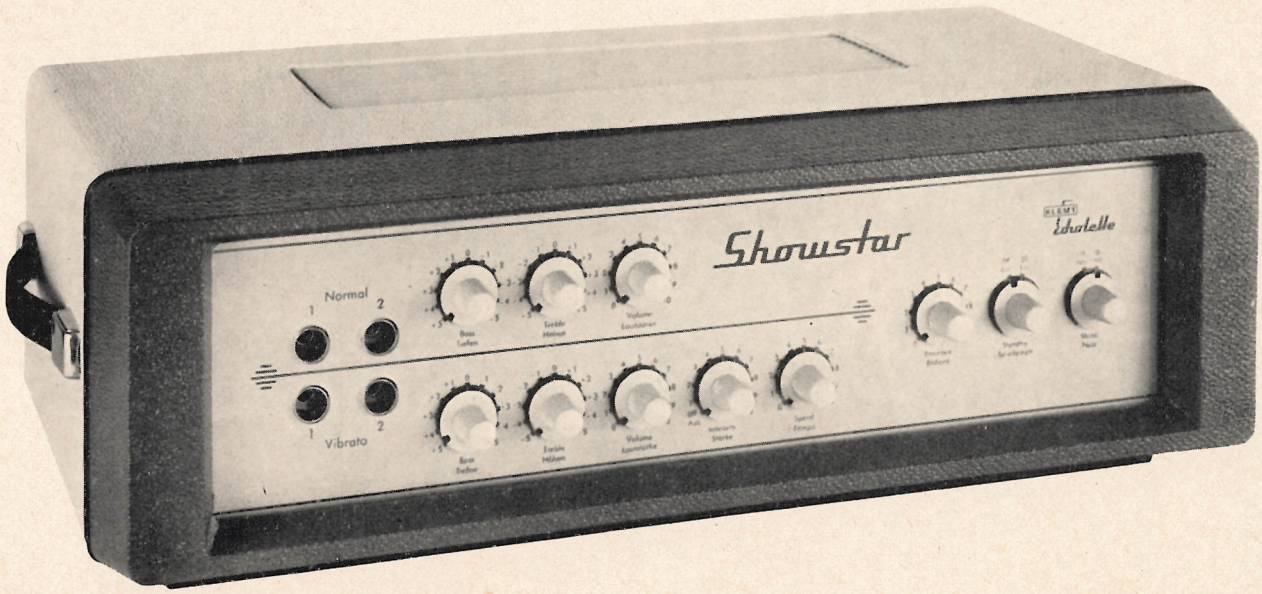
Amplifier S 40
Showstar



SHOWSTAR

Specifications:

Output power:	40 Watts r. m. s. 50 Watts peak music power
Distortion factor:	2 ½ % at nominal output
Output:	5 Ω — 20 Ω with switch-over
Mixer panel:	2 channels witch each 2 inputs (low to medium impedance), 25 mV input sensitivity level independent volume, bass and treble controls.
Vibrato channel:	adjustable in speed and intensity, switch-off by remote control (pedal).
Separate bass and treble control for each channel:	± 15 dB
Presence control:	+ 12 dB
Signal to noise ratio:	better than 60 dB
Mains voltages:	50—60 c/s, 110 V, 130 V, 150 V, 220 V, 240 V, 250 V.
Power consumption:	100 Watts quiescent condition 200 Watts full output
Valves:	3 pcs ECC 808 1 pc ECC 82 2 pcs EL 34 Silicon-bridge-rectifier B 500, C 400 Selenium rectifier E 50, C 5
Lamps:	2 fluorescent tubes 15 W 1 incandescent lamp 48 V 0,02 A 1 glow lamp with resistor
Dimensions:	490 x 165 x 275 mm (19" x 6 ½" x 11")
Weight:	23 lbs.

The Echolette Amplifier „Showstar" type S 40 is an amplifier designed for use with electric guitars and electric basses. Its frequency response is specially adapted to the characteristics of these instruments.

If using suitable impedance matching or a microphone cable transformer high and low impedance microphones can also be connected to the amplifier. Due to various control possibilities for bass, middle and treble, sound reproduction of excellent quality can be achieved also in this case. Modern valves of type ECC 808 are used in conjunction with a proven low-distortion push pull stage with valves EL 34 and a peak output power of 50 Watts which allows connection of loudspeaker systems with an impedance of 4—6 or 15—25 Ω. The incorporated channel vibrato permits one channel to be modulated with a vibrato without disturbing noises. Even if used for studio purposes the vibrato will not affect the quality of the sound reproduction.

Description of the circuit diagram

The input voltages applied at the two ¼" closed circuit jacks of each channel are each fed to a grid of one valve of the twin triode Rö 1.

The amplified voltage is then fed to a tone control network for bass and treble. This section has been specially adapted to the frequencies and properties of the output of electric guitars and electric basses.

The volume control is past the sound control circuit. From here the voltage of each channel is fed to the control grids of the next twin triode Rö 2, combining and amplifying the voltages from both channels.
The output of valve Rö 2 is fed to the grid of another twin triode Rö 3, operating as a phase inverter for the power valves Rö 5 and Rö 6 in a B-class push pull circuit.

The grid bias of both power valves can be balanced by means of an adjustable resistor R 50, and the voltage can be adjusted by means of R 53.

The sectionally wound output transformer perfectly covers the frequency range 30 c/s — 20 kc/s.

The secondary of the transformer can be switched from 5 to 20 Ω. The output voltage is available at an output jack provided for connection of loudspeakers.

To improve the linearity of the response curve a negative feed-back voltage is tapped from the secondary of the output transformer and is fed to the cathode of the phase-inverter valve via an adjustable network.

The bridged „double T" network with control „presence" allows the degenerate feed-back to be cancelled over a limited frequency range. This permits to produce a „steel" sound with electrical guitars.

Past the volume control photo resistor Ph 1 will act upon the vibrato channel through potentiometer „vibrato intensity" thus producing a vibrato free from undesired noise. The vibrato circuit acts as a volume control operated in the rhythm of the vibrato frequency. Unlike other types of vibrato circuits, the circuit used does not produce any additional noise nor does it distort the output voltage.

The photo resistor Ph 1 is illuminated by light L 1 which is controlled by a multivibrator with twin triode valve Rö 4. Lamp L 1 can be short circuited by means of a switch to be plugged into the jack „vibrato pedal" so that no light will reach photo resistor Ph 1.
The vibrato generator will still operate as indicated by the pilot light Gl 1 which will flash in the rhythm of the vibrato.

The vibrato can be switched off by means of switch „vibrato intensity off" which applies a negative voltage to one of the grids of the twin triode valve Rö 4.

The vibrato speed is adjustable from 3 to 15 cycles per second by means of control „vibrato speed".

The mains transformer can be switched to all usual mains voltages and carries windings to deliver the anode, heater and grid bias voltages.
The anode voltage supply uses a full wave silicon rectifier bridge and the negative grid voltage is produced by a selenium rectifier D.

The anode voltage of the amplifier can be switched off by means of switch „Standby".
For mains voltages near 110 Volts the 1 Amp fuse with time lag (to be used with 220 Volts) should be replaced by a 2 Amp fuse.

For decoration purposes two fluorescent tubes illuminate the front panel. The proper voltage for both lamps L 15 W 25 is switched over automatically by the mains voltage selector.

Illumination may be switched off with the switch „Light on — off" at the rear.

A special circuit (without starter) is provided for the fluorescent lamps with preheating of the filaments and with a grounded screen to assist starting due to increased capacitance.
Series resistors are used to reduce the current to the lamps.

The circuit has been designed so that the lamps do not load the mains transformer. They are connected in series when operated from 220—250 V mains and shunted in case of 110—130 V mains.

Operating instructions

Mains connection:

At the rear of the Echolette amplifier Showstar S 40 in the left hand section of the cabinet are situated the connector sockets for the mains cord, the fuse holder and the mains voltage selector, the switch „Light on" and the switch „Ground".

Before starting operation it is important to see that the mains voltage selector is set to the appropriate mains voltage.

For voltages of 110 V, 130 V, 150 V a. c. the inserted 1 A fuse should be replaced by the 2 A fuse to avoid overloading of the fuse.

When leaving the factory the selector is set to 220 V mains voltage.

Input connection:

The inputs „Vibrato 1", „Vibrato 2", „Normal 1" and „Normal 2" at the illuminated front panel of the Echolette amplifier Showstar S 40 allow connection of medium- und low-impedance electrical guitars and electrical basses.

High impedance microphones can also be connected to each of the four inputs if the delivered voltage corresponds to the input sensitivity of the amplifier Showstar S 40.

Low impedance microphones of 50 or 200 Ω source impedance will only produce an adequate output voltage if suitable impedance matching or a microphone cable transformer is used. The ¼" closed circuit input jacks are provided for the usual 6,35 mm plugs similar to type PL 55.

Output connection:

The output jacks for connection of the loudspeakers are located at the rear of the Echolette amplifier Showstar S 40: At the bottom the jack for the speaker, in the middle the switch for 5 Ω — 20 Ω and at the top the jack for the remote control of the vibrato.

How to operate?

The equipment is ready for operation when the mains cord is plugged in, the instruments are connected to the jacks „input" and the loudspeaker to the jack „Speaker".

By turning clockwise knob „Mains on" the Echolette amplifier Showstar S 40 is switched on.
Shortly afterwards the fluorescent lamps will illuminate the front panel and the amplifier is ready for use.

By turning knob „Standby" clockwise to position „on" the amplifier is ready to be used after the vibrato glow lamp is off.

With knob „Standby" in position „Standby" the amplifier will be switched off while the valve heating is continued. Thus the amplifier can instantly be put into operation by switching knob „Standby" to position „on".

The separate controls for the channels „Normal" and „Vibrato" (from left to right) „bass", „treble" and „volume" allow control of the connected microphones by their low frequencies, high frequencies and volume.

The vibrato channel comprises two controls „Intensity" and „Speed" which allow the vibrato to be set to the liking of the musician.

Control „presence" allows the adjustment of a sound with a steel-character. This control is operative on both channels and stresses mainly the frequencies around 3500 cps. Except for use with electric guitars, this control should always be at zero.

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