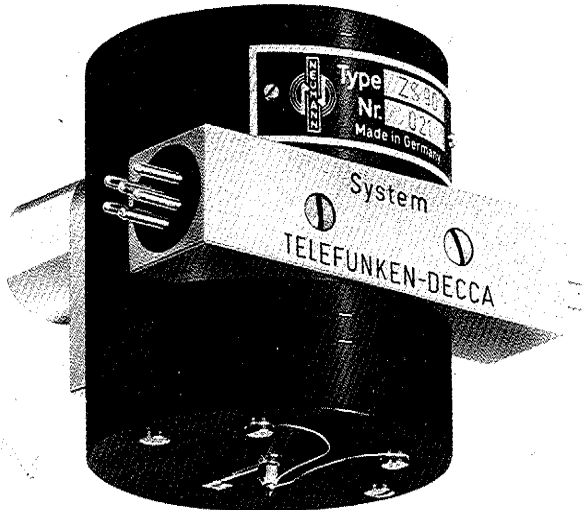


STEREO DISK CUTTERHEAD
TYPE ZS 90/45

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TECHNICAL DATA

FREQUENCY RESPONSE OF EACH COMPONENT	30 to 15,000 cps
CHANNEL SEPARATION	greater than 30 db
NON-LINEAR DISTORTION	less than 1%
SAPPHIRE COLLET	for .72 mm diameter sapphire
DIMENSIONS	2 1/8" high x 2" diameter
WEIGHT	15 ozs.

DESCRIPTION

The Stereo Cutterhead ZS 90/45 is a double electro-dynamic feedback cutter. This principle was chosen to hold distortion to a minimum. The armature is in the shape of a spherical cap, at the closed end of which the sapphire is mounted. On this armature are wound the two driving coils for the orthogonal motions, as well as a second set of coils for the generation of the feedback voltages. These latter feedback coils are mounted directly at the sapphire mounting to make sure that the feedback voltages will be a true presentation of the stylus motion.

One of the driving coils imparts to the stylus a vertical and one a horizontal motion. Simultaneous actuation of both coils produces motion at 45 degrees to the surface of the disk.

The sum (A+B) and difference (A-B) of the two signals A and B are produced by the Differential Converter SU 2, thus providing the proper motions at +45 and -45 degrees to the disk surface. This conforms to today's universally accepted 45/45 recording standard.

This cutterhead can, however, be operated without differential converter, and will then produce proper motions at 0 and 90 degrees to the disk surface.

MECHANICAL DETAILS

The Stereo Cutterhead ZS 90/45 has at its back a standard mounting rib, identical to other lateral cutters such as MS 52H, Ortofon, Gramplan etc. A plug-in adapter, which is vertically adjustable along this rib, is supplied with the cutter. With this adapter the cutterhead mounts in the cutterhead suspension unit of the AM 32b Stereo Disk Recording Machine, which is uniquely suited to the mounting and proper electrical connection of the ZS 90/45 Stereo Cutterhead.

Electrical connection of the two main windings, the two feedback windings and the stylus heating wires are through two 6-pin connectors located on either side of the cutter.

The sapphire is held in place by a small sleeve nut and is easily exchangeable. The two heating wire ends are clamped to two spring-loaded clamps.

OPERATING DETAILS

Besides the cutting lathe, two power driving amplifiers and two feedback amplifiers are required for the operation of the Stereo Cutterhead ZS 90/45. The NEUMANN amplifiers have the following specifications:

The LV 60 Power Cutting Amplifier has plug-in equalizers corresponding to the standard RIAA, DIN, etc. pre-emphasis curves. Important performance data are as follows:

FREQUENCY RESPONSE	30 to 15,000 cps
INPUT IMPEDANCE	greater than 1000 ohms
INPUT LEVEL REQUIREMENT	0 dbm
POWER OUTPUT	60 watt max.
POWER SUPPLY REQUIREMENT	110/127/220 volt 50-60 cps
DIMENSIONS	21" x 8" x 10" (Gr.5 DIN 41490)
TUBE COMPLEMENT	3 x EF 804s, 1 x E 80CC, 2 x EL 156

The amplifier is built up on a rack-mounted chassis with removable front plate. It is push-pull throughout and its output stage operates class AB.

The GV 2 Feedback Amplifier has a built-in power supply as does the power amplifier and is similarly built on a rack-mounted chassis with removable front panel. Important performance data are as follows:

FREQUENCY RESPONSE	30 to 15,000 cps (matches both the LV 60 Power Amplifier and ZS 90/45 Cutterhead)
OUTPUT SOURCE IMPEDANCE	200 ohms balanced
POWER SUPPLY REQUIREMENT	110/127/220 volts 50-60 cps
DIMENSIONS	21" x 2 5/8" x 8" (Gr.1 DIN41490)
TUBE COMPLEMENT	2 x E 80CC and 1 x EF 80

Both the Power Cutting Amplifier LV 60 and the Feedback Amplifier GV 2 are singly built up and may be interchanged among themselves, providing greater operating stability. There are, of course, two amplifiers of each type needed for each stereo installation.

Further useful components for operation of the Stereo Cutterhead System are:

- a) WV 2 Equalized Playback Preamplifier (see special description)
- b) SI 2 Circuitbreaker Unit

This unit is of identical dimensions as the GV 2 Feedback Amplifier and provides automatic interruption of either or both main windings of the cutterhead in case that the capabilities of either winding be exceeded. A signal indicates the winding interruption while a reset button restores operation. Besides the two current meters (which may be located remotely) there is also a relay supply which may be used for automation of other parts of the stereo cutting system.

- c) VG 1 Amplifier Rack (see special description)