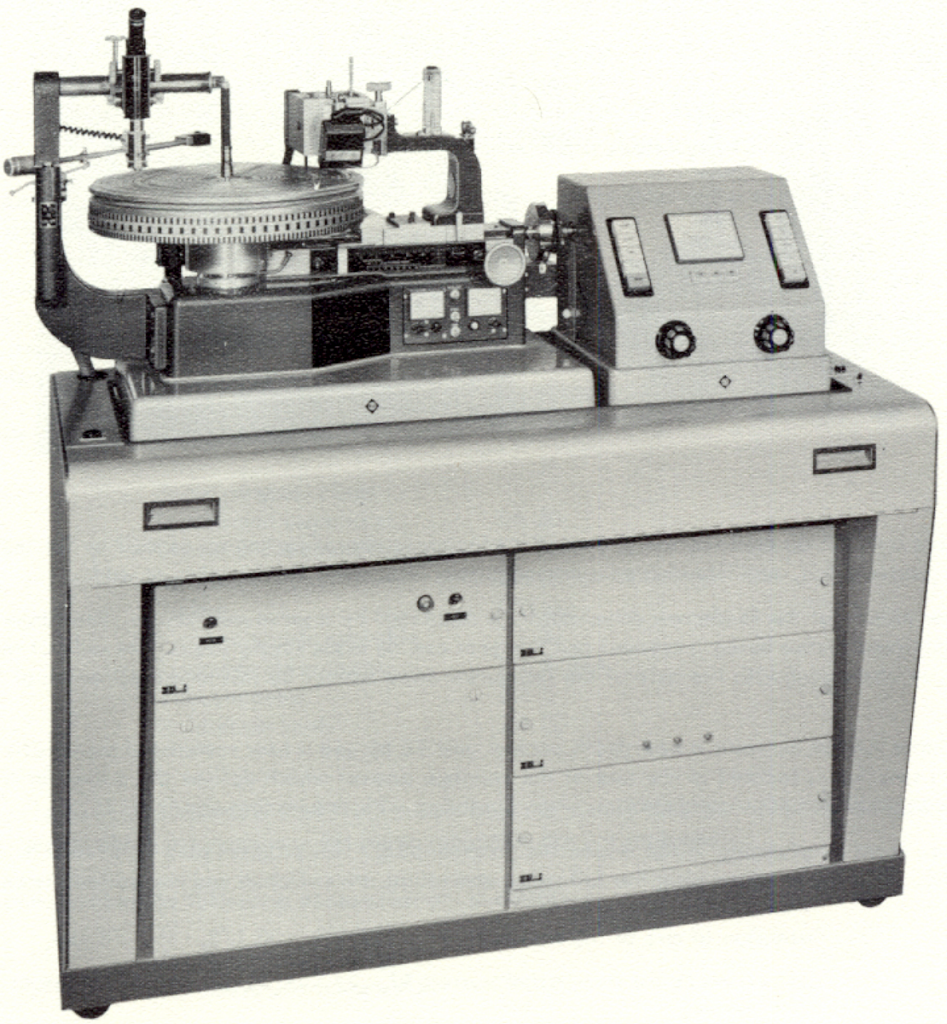
DISK CUTTING LATHE SYSTEM VMS 66 - MONO-STEREO

VMS 66 - 910 - 02 - 00

The disk cutting lathe system VMS 66 is the latest addition to the world-famous line of disk mastering lathes made by a company with the "know how" that comes from nearly 40 years of experience in the design, construction and manufacture of disk recording machines and associated equipment.

The machine system is designed for cutting Mono and Stereo records of all standard diameters and revolutions per minute. Most modern control systems make the optimum utilization of the available disk surface possible. The cutting process is partly automatic. Start and stop of the tape deck, lowering and lifting of the cutter, and cutting of lead-in and final groove are performed automatically. All means for full-automatic disk cutting are provided.



Features

The disk cutting lathe system VMS 66 incorporates the following main constituents:

Disk cutting lathe	AM 66
Leadscrew drive unit	VA 66
Drive control device	AS 66
Control amplifier	SV 66
Power supply	NA 66
DC supply	NG 66
Lathe console	ZT 66

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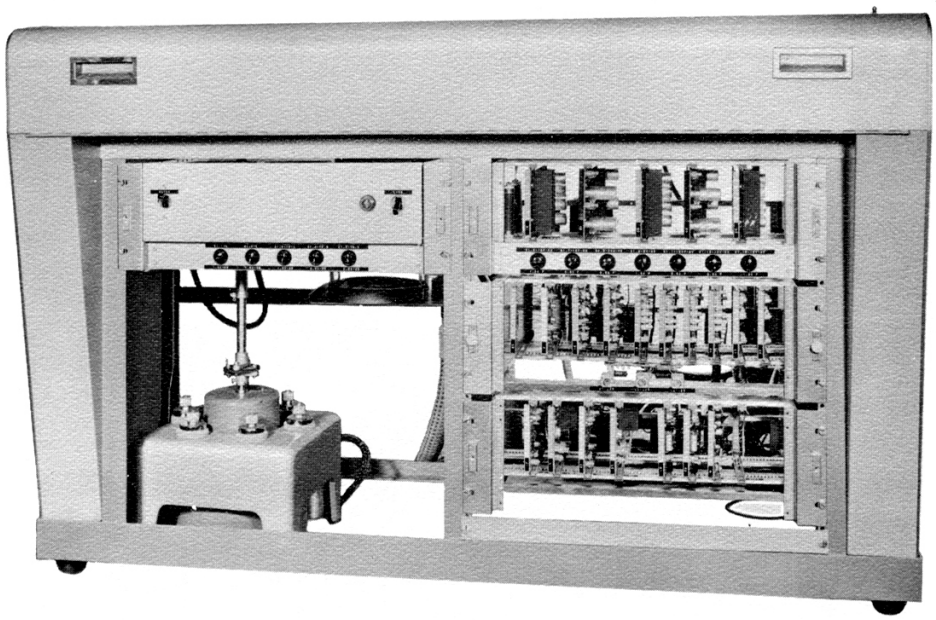
All control units of the machine system are equipped with silicon planar transistors. No relays are included in the system; the switching operations are done by means of electronic switches.

The principal item of the machine system is the drive control system AS 66. It contains the control elements for all fundamental operations. The components are mounted on printed circuit boards plug-in type. The AS 66 is designed as a rack-mounted unit. Both the control amplifier SV 66 for amplitude controlled cutting and the central power supply NA 66 / NG 66 for alimentation of the machine system are designed in the same way. These units are incorporated in the lathe console ZT 66.



The leadscrew drive unit VA 66 contains the motors, the electronic operating knobs, as well as the instruments for indication of the groove pitch, and illuminated coloured plates indicating the function at work.

The revolutions per minute of the leadscrew drive motors is regulated by a servo mechanism. The range of revolutions per minute to be utilized is thus being increased and the gear can be made single stage. The axle of the servo generator is directly connected with the axle of the leadscrew drive motor. By this means all external load variations are controlled.

The disk cutting lathe AM 66 contains a new depth control unit TE 66 and a new cutterhead suspension type SA 66. A number of micro switches is located at the rear of the carriage support which deliver the pulses for the lead-in and the final grooves and for radius compensation when operating with the tracing simulator TS 66.

The turntable speed is set by plugging in the respective program plug. This program plug is located behind the front cover of the ZT 66. With this program plug the following operations are switched and controlled, respectively:

Selection of one of the speeds 16 2/3, 22 1/2, 33 1/3, 45, 78 rpm,

Conversion of the standard diameters 17, 25, or 30 cm and of the respective final groove,

Signalling of these functions to the leadscrew drive unit VA 66,

Limitation of the basic groove pitch to 3 ... 20 grooves/mm,

Conversion of the indicating instrument for the groove pitch (LPI) so that only one scale is necessary for all revolutions per minute,

Conversion of the pitch of the lead-in grooves, spirals and lead-out grooves under consideration of the turntable speed,

Conversion of the cutter lift delay of the cutterhead at the end of the disk,

Conversion of the duration of the safety groove to approx. 1,2 turntable revolutions. This safety groove function can be switched off.

Selection of the start order for the tape-playback console to the disk diameter necessary.

For amplitude controlled cutting also the variable pitch amplification is adjusted to the standardized level for the selected speed and the delay for the depth of cut is converted.

The groove cut with variable pitch and depth dependent on the amplitude is controlled by the control amplifier SV 66. A new method is being applied. The control amplifier equalizes the modulation to the space needed, dependent on the amplitude and frequency under consideration of the cutting characteristic. It also distinguishes between vertical modulation, outer groove wall, and inner groove wall. The control signals for the vertical modulation are taken from both the prelistening channels, the one for the outer groove wall from the right prelistening channel and the one for the inner groove wall from the left modulation channel. The control system requires an interval of half a turntable revolution between prelistening head and playback head on the tape deck.

The control signals are stored in four groups of four stores in every quarter of a revolution and are kept for half a revolution.

The first group stores the vertical signal for vertical pitch control.
The second group stores the vertical signal for lateral pitch control.
The third group stores the right signal for lateral pitch control.
The fourth group stores the left signal for lateral pitch control.

The three components for lateral pitch control change the speed of the lead screw drive, the component for the vertical pitch control changes the depth of cut.

The effect of this new control system is a much greater exactitude of control and thus a better utilization of space. There is only a control for the groove wall that needs space. The interrogated stores are erased as soon as they are not allowed to take any more influence on the control procedures. The storing and erasing functions are controlled by a pulse-generator from the turntable.

Further constituents of the VMS 66 sytem are:

Three program plugs	
Cutterhead suspension	SA 66
Depth of cut control panel	TE 66
Tonearm	ZA 39
Pickup	DST 62
Vacuum chuck turntable	ZA 3
Turntable drive motor	SM 8/3-A
Vacuum pump	ZA 1
Hold down knob	ZA 22

The disk cutting lathe system VMM 66 - MONO differs from the system VMS 66 - MONO-STEREO in so far that four printed circuit boards which are necessary for stereo operation are not included.

For optional augmentation the following accessories are available:

Buchmann-Meyer light for lightband width operation	ZA 21
Strobotron for checking of turntable speed	ZA 42
Tonearm with lowering mechanism	ZA 29
Monophonic feedback cutter complete with associated amplifier system	ES 59
Stereophonic cutter complete with associated amplifier system	SX 15

Technical Data

Turntable speed	78, 45, 33 1/3, 22 1/2, 16 2/3 RPM
Turntable diameter	16", accommodates 17 1/4" blanks
Vacuum-chuck turntable	vacuum area adjustable for 10", 12", 13 1/4" and 16" diameter
for small size blanks	hold down knob
Wow and flutter content	below .05 % peak-to-peak
Rumble below 10 cm/s 1000 Hz	≧70 dB (DIN 45 539)
Grouping	non-visible at 300 LPI (no modulation)
Cutterhead suspension	full automatic with cutter lift, heated stylus switching and electrically controlled depth-of-cut, dash pot with variable damping adjustment
Cutterhead mounting	for Neumann Type ES 59 (mono) and SX 15 (stereo), and all standard cutters like Ortofon, Westrex, Grampian, Fairchild, Presto
Automatic deepening	for lead-in and final groove
Automatic lead-in grooves	set for 7", 10" and 12" records, IEC standards
Final groove	concentric automatically, adjustable to IEC and other standards
Groove pitch range, continuously variable	for 78 RPM from 76 to 306 LPI for 45 RPM from 76 to 382 LPI for 33 1/3 RPM from 114 to 510 LPI for 22 1/2 RPM from 76 to 382 LPI for 16 2/3 RMP from 114 to 510 LPI
Lead-in and spiraling pitch, adjustable	0 ... 1/16" per revolution
Lead-out pitch, adjustable	for 78 RPM 0 ... 0,16" per revolution for 45 RPM 0 ... 0,27" per revolution for 33 1/3 RPM 0 ... 0,35" per revolution for 22 1/2 RPM 0 ... 0,35" per revolution for 16 2/3 RPM 0 ... 0,35" per revolution
Stylus heating current	variable up to 1.5 ampères
Microscope	202 power microscope with calibrated reticle
Power requirements	220 VAC, 50 or 60 Hz, approx. 500 watts
Dimensions of VMS 66 system complete	51 1/2" wide 24" deep 57" high, measured to top of microscope
Weight of VMS 66 system complete	approx. 680 lbs.
Gross shipping weight	approx. 1100 lbs.