



STM-800

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Tape recorder STM-800 is the new professional tape-recorder family of the Mechanical Laboratory. The equipment can be applied in different fields of sound recording. The equipment is in a rack, its angle of inclination is variable, and its wheels can be broken down, having been constructed for traditional studio application. Its portable version can be used for high level musical reports and out-of-studio recordings.

Its rack-mounted version can be used in so called automatic studios. The code controlled construction is applied in TV-technics, however the achieved precise synchronism makes it very useful in radio applications as well.

The casting based, massive construction is capable of continuous operation. The mechanical and electronical module system ensures the fast maintenance and repairing. The editor unit in the equipment serves the traditional editing, the electronical amplifier-control system enables the electronical editing.

High-power DC winding engines ensure the fast, precise performance of the transport tasks. The electronical system of the equipment ensures very precise tape tension control, fast rises, accurate forwarding speed and the perfect compensation of the irregularities of the tape reels. The electronical commutation of the main engine is a DC engine of high running accuracy. Its newly developed signalling system provides very good tape running evenness. When the different tape speeds are switched on, the engine ensures that both in the faster and in the slower speeds the speed deviation (ei. the time of setting) is very short.

It is a traditional mono-stereo, code controlled and double channel version, and the combinations of these features meet the requirements of the users.

The channel controlling system of the double-channel equipment ensures the complete controlling of the two sound channels, and at the two selectable outputs corresponding to each channel any sound information can be presented.

The autolocator and the varispeed modes of operation enables each previously known recording technological methods and ensures the application of new methods as well.

The mode register ensures the presetting of several different modes of operation. A built-in error-indicator system ensures the instant indication and localizing of the appearing errors. The rotating disc helps the fast and simple adjusting and controlling.

The following description is related to the double channel code controlled equipments, in the cases of simpler constructions some of the services are missing consequently.

Services:

1/ Channel controlling system

Both sound and code channels can be controlled independently of one another. During the recording each channel can be programmed in Ready-Safe mode of operation. The READY mode of operation enables, the SAFE mode prohibits the recording on the selected channels. The SYNC-REPRO-MUTE-INPUT key group controls the two-two sound outputs independent of each other. The two outputs can be switched with the OUT I-II selector button.

The CHANGE button ensures the presetting of the output-combination in the active mode of operation. The CH I, CH II, and TIME CODE keys indicate the activity of the different channels. Upon pressing of the OUT I MUTE button the OUT I is muted and activated.

2/ The function of the button row accommodated on the bottom of the switching board is to select the modes of operation. From left to right:

<< winding to the left

ENABLE: enabling of the REC-SEED L-H - MODE CHECK switches (red buttons) when pressed simultaneously

STOP/UNLOAD: Stop or only mechanically broken down state (STOP + EVENT ENABLE)

PLAY/DUMP: Replay and "waste-paper basket" mode of operation according to the corresponding mode

RECORD/SPOT ERASE: in the case of enabling recording mode of operation and spot erasing (Event En. + REC)
Winding to the right.

REHEARSE: in the case of electrical editing the test of the "inserted" section without actual recording.

SEARCH/CUT: search and mechanical cutting according to the corresponding mode

CYCLE: cyclic mode of operation between two points.

FAST PLAY: fast constant speed play, with adjustable speed.

3/ Functions of the button group accomodated in the middle of the switching field.

From left to right, from top to bottom.

KE button (and the KE buttons in general)

Presetting of the display or display row above the button, for the numerical and continuous adjustment.

REM ALL: in code mode of operation using the equipment as a master it ensures the common control of the slave devices.

TAPE TO MEM: enters the momentary tape time into the memory.

MODE CHECK: ensures the adjustment of the basic mode of operation of the equipment (+ ENABLE)

MASTER: Master-Slve switch

TAPE TIME: Displays the momentary tape time

CUE Displays the content of the nubor displayed on the Cue display.

REC START: Displays the starting point of the preset recording.

REC END: Displays the final point of the preset recording.

CYCLE END: cyclic operation from the selected Cue point to the point adjusted and displayed here.

OFFSET: The time difference between the master and slave devices is displayed on the screen.

GEN TIME: Displays the momentary time of the Master time code generator.

USERS: It serves for the displaying of the user's bits accomodated in the time code.

The displayed information can be modified at the same time

EVENT ENABLE: It carries out the activating of the actions rendered to it.

EVENT DISABLE: It serves for the elimination of the Rec. end and Rec. start indications.

EVENT TRANSF.: Enables the transferring of the memory contents.

APSM: in search mode of operation it searches the selected point with the duration selected in the mode register. In cyclic mode of operation it lengthens the selected period in both directions.

AUTO OFFSET: it carries out the automatic calculation of the master-slave time code difference.

GEN START: starting of the time code generator.

GEN STOP: stopping of the time code generator.

4/ The numerical keyboard accommodated on the right side of the switching field ensures the numerical settings on the displays activated by means of the KE buttons. The same function is provided by the INC and DEC buttons, with continuous upward and downward running.

The "+" and "-" buttons serve for the entering of the sign.

They also write in the mathematical operations when the different memory contents are added or their difference is calculated. In this case the result is displayed upon pressing the "=" button.

REMOTE: While the button is kept pressed the selected slave devices can be remote controlled.

TONE/%: it gives the adjusted speed deviation of the varispeed mode of operation in tone and % values.

VARI: it activates the previously written speed deviation. (During the recording it is prohibited.)

SPEED L-H: it serves for the selection of the high or low tape speed (+ ENABLE).

The rotating disc accommodated here has very many functions. Its basic function is the winding in variable directions. Upon the pressing of the button accommodated in the middle of the disc the tape can be moved in the required direction in synchronism with the rotation of the disc. Upon the repeated pressing of the button we can perform tape winding in direction and speed adjusted by the rotation of the disc. The further pressings of the button change these two modes of operation from one to the other. The mode of operation can be ceased by pressing the STOP button.

By means of the mode register the rotating disc can be used for other purposes as well. With its help the functions of the INC and DEC buttons can be activated.

1/ General technical data:

Dimensions: 443(+40) x 532 x 220(+console) mm

Weight: 32 kg (+console)

Position during the operation: vertical, horizontal
or between the two

Versions: cabinet version

rack-mounted version

mounted into its own console

The controls board can be opened upwards, under that there are vertically plugged circuit boards (tape transporting system and synchronism electronics).

At the bottom of the equipment, on the left side there are horizontally plugged AF amplifiers above one another.

On the right side there is the CPU electronics and on the rear side there is the connector band.

The error indication on the display is accompanied with the light up of the "ERROR" lamp; the speed error is indicated by the lighting up of the FAULT lamp.

The work point can be preset on both tape speeds for 4-4 tape types.

The tape-end recognition is separated from the tape tension sensor.

Complete remote controllability.

2/ Tape transport system:

Applied reels: OIRT I, II, III.

Maximum reel diameter: 300 mm

Minimum reel core diameter: 45 mm

Applied tape: 50 μ

Tape speed: 9.5 - 19, 19 - 38, 38 - 76

Sliding: \leq 0.1 %

Wow and flutter: 0.04-0.06-0.1 % (38-19-9.5) bew.

Rise time: ≤ 0.5 sec (0.1% bew. till wow and flutter value)

Winding time: ≤ 100 sec/1000 m

Break down time: ≤ 3 sec

Tape counter: hour, minute, second, frame

Tape tension: 0.8 ± 0.1 N (during winding cca. 1 N)
(winding - stop etc. : max. 5N)

Varispeed: -35% - +50% (0.1% or 1/4 sound steps)

3/ AF section:

Recording amplifier: input balanced without transformer
(with transformer if required)

Input impedance ≥ 20 kOhm

Input level: -16 - +20 dBm

Common mode suppression (100 Hz) ≥ 50 dB

Replay amplifier:

Output balanced without transformer (with transformer
if required)

Output impedance ≤ 10 Ohm

Maximum output level: +26 dBm (600 Ohm)

Signal-noise with tape (1020 nWb/m) - Scotch 256 or equ.

(20 Hz - 20 kHz; linear)	38 : 70 dB	Synchronous conn.:
	19 : 68 dB	38 : 68 dB
		19 : 66 dB

Click ≤ -50 dB

Erasing attenuation: ≥ 80 dB

Crosstalk attenuation:	≥ 46 dB (1 kHz)	} Record - play
	≥ 20 dB (1 kHz)	
	≥ 10 dB (10 kHz)	

Frequency sequence:

38 : 30 Hz - 20 kHz ± 2 dB

19 : 30 Hz - 16 kHz ± 2 dB

Synchronous frequency sequence:

38 : 30 Hz - 20 kHz \pm 2 dB

19 : 30 Hz - 16 kHz \pm 2 dB

Distortion (510 mWb/m) Scotch 256 or equivalent

K_3 : \leq 1 %