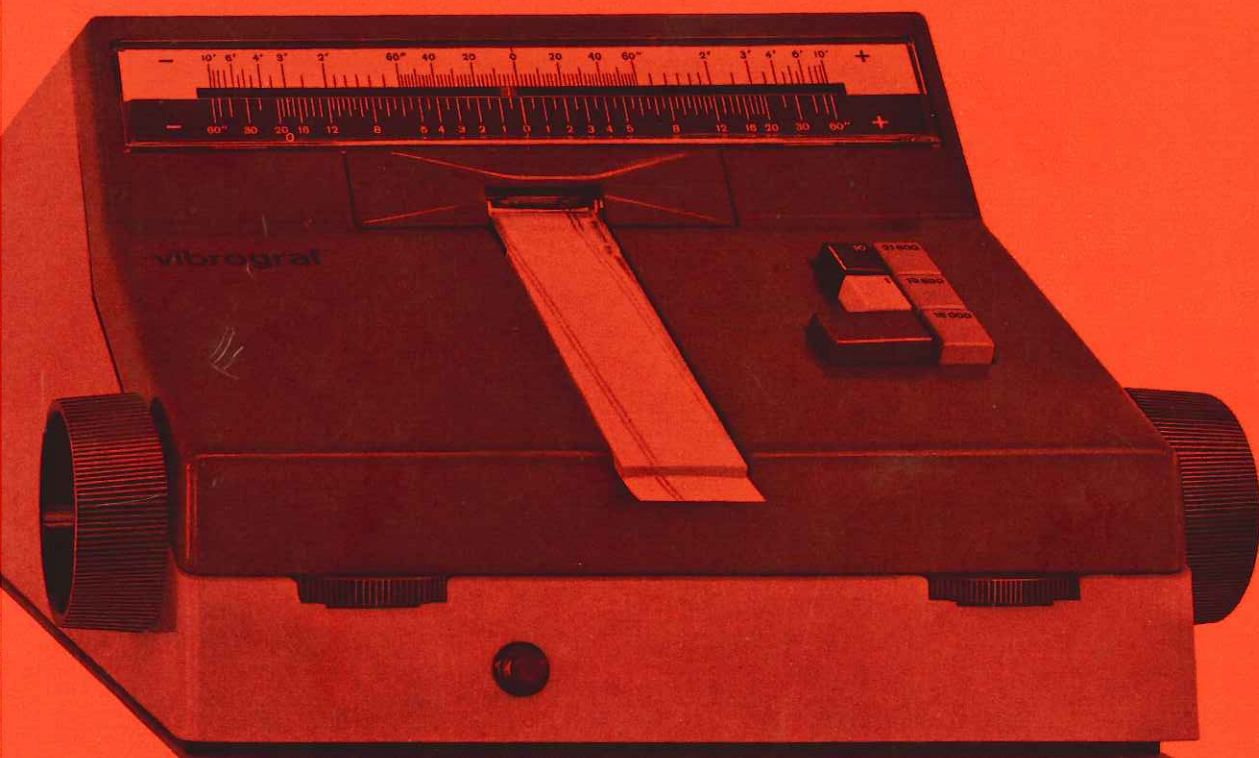


vibrograf[®] VS 500

Operating
instructions



Summary

| | | |
|-------------|--|---|
| Page 4 | Two important points Input voltage selector and line voltage Connections | |
| Page 5 | Checking the path of the ink ribbon | |
| Page 6 | Placing the paper roll in position | |
| Pages 7-8 | Start and use of the machine | a Start and preliminary settings b Volume control setting c Daily rate measure d How to stop the recording e How to use the automatic control f Vibrograf VS 500 standard g Paper re-winding socket; earphone socket h Connection of the Diapatest® DT 311 |
| Page 9 | Vibration groups Interpretation of diagrams | |
| Pages 10-11 | Changing the ink ribbon | |
| Page 12 | Correct placing of the ink ribbon | |
| Page 13 | Maintenance | Lubrication Air circulation Regulation of printing intensity Miscellaneous recommendations |
| Page 14 | Warranty | |

Two important points

"Vibrograf VS 500" is the general definition for both the standard model and the automatic model. This definition is used in all operating instructions. Each time it is necessary to distinguish between the machines the exact definition is used.

We strongly suggest that you read carefully the operating instructions and proceed according to these instructions, step by step.

Input voltage selector and line voltage

Before you plug the machine to the line socket, it is mandatory to check the position of the voltage selector. If it has to be changed, unscrew the center knob of the voltage selector, pull out the ring and replace it so that the number shown through the window corresponds to the line voltage.

Inside the knob, there is a fuse 5 mm in diameter and 20 mm in length (DIN 41571/41680 or SNV 24480). The fuse to be used depends on the line voltage as follows:

| | |
|-----------|-------|
| 110-125 V | 0,4 A |
| 150 V | 0,3 A |
| 220-240 V | 0,2 A |

On the right of the voltage selector is a secondary fuse of 1 A; its value should never be changed.

The machine is designed to run on AC current with either 50 or 60 cycles (Hz).

Connections

To connect the Vibrograf VS 500 to the line current:

1 connect the machine to the line socket with the plug and line cord supplied with the machine

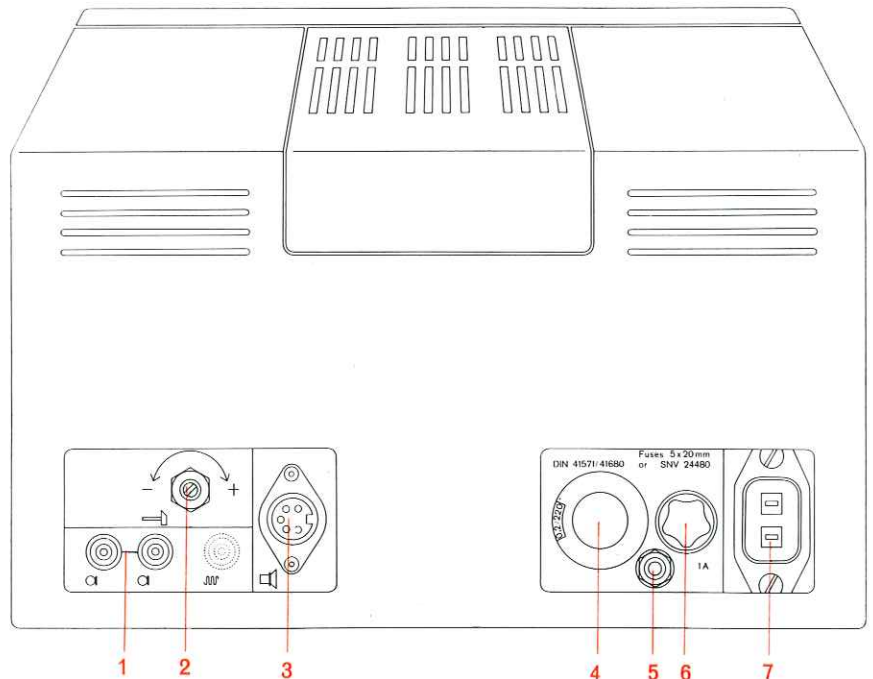
2 connect the microphone to one of the microphone sockets. Never connect two microphones at the same time.

To use the machine simultaneously with a Gradoscop®:

1 connect a microphone to the Vibrograf VS 500 as indicated above

2 plug one end of a connecting line to the remaining microphone socket and connect the other end to either input socket of the Gradoscop (the microphone can also be connected to the other input socket of the Gradoscop)

Fig. 1



- 1 Microphone sockets
- 2 Regulation of striking intensity
- 3 Headphone socket
- 4 Voltage selector and primary fuse
- 5 Socket for paper feed and of the Diapatest DT 311 (Vibrograf VS 500 standard: paper feed only)
- 6 Secondary fuse
- 7 Mains plug

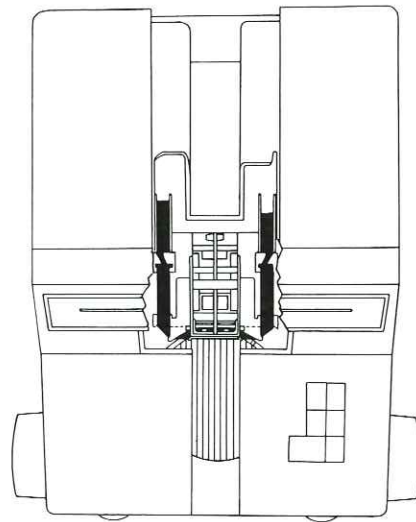
Checking the path of the ink ribbon

Remove the upper cover. Free it by pulling towards you the plexiglas paper protector. Remove likewise the hinged holding device.

The placement of the ink ribbon must precisely follow the indications shown on page 12 and fig. 2 and 3.

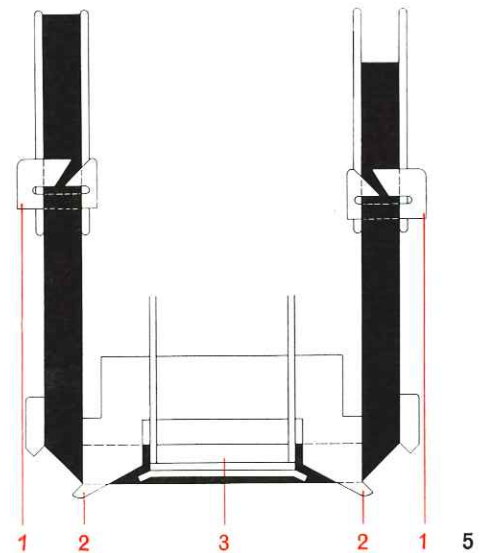
If the ink ribbon is out of place, see instructions on page 12 on how to replace it.

Fig. 2



- 1 Ribbon holder
- 2 Striker bar
- 3 Guide marks

Fig. 3



Placing the paper roll in position

First, make sure that the motor of the machine is stopped (red push-button in off position).

Remove as indicated above, the upper cover and the plexiglas paper protector. Insert the paper roll making sure that the free end of the paper rolls from the bottom of the roll, not from the top. Cut the end of the paper at an angle (fig. 4.)

Pull the lock of the paper press device in the direction indicated by the arrow (fig. 5) then guide the paper so that it will reappear under the bar. Take hold of the paper and pull towards you (Do not use tweezers for this operation). Push back the paper press lock.

Start the machine (see next chapter) and check to make sure of the perfect free motion of the paper roll and of the ink ribbon.

Replace the upper cover, fasten the plexiglas paper protector, making sure that the two holding devices are directed towards the top of the machine.

Fig. 4

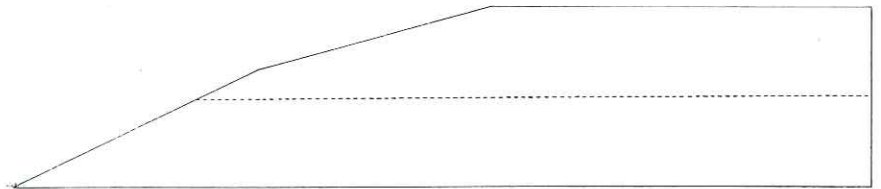
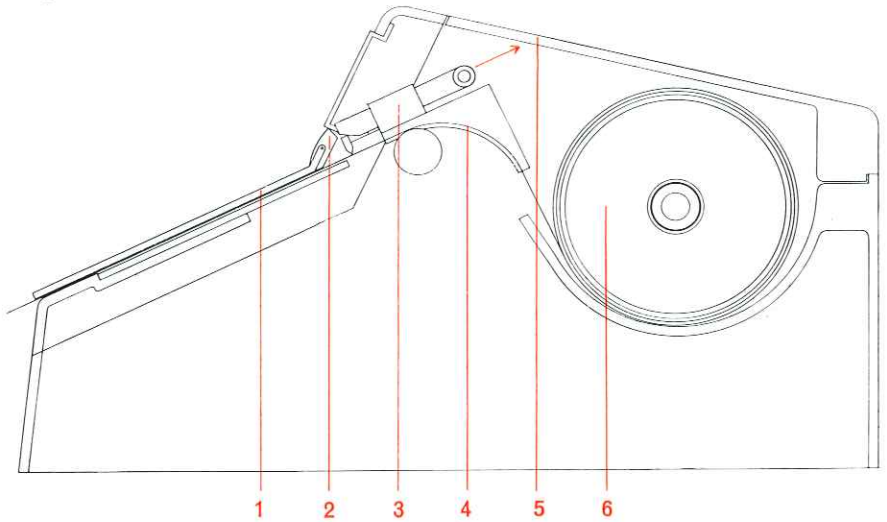


Fig. 5



- 1 Paper protector
- 2 Hinged holding device
- 3 Lock of the paper press device
- 4 Paper guide
- 5 Upper cover
- 6 Paper roll

Start and use of the machine

a Start and preliminary settings

To start the machine, turn the left knob (fig. 6) anti-clockwise until you hear a click and see that the red pilot light is on. This same knob also regulates the light intensity under the slits of the reading disk. Turn the knob until the slits are clearly shown through the paper.

Place the watch or the movement to be checked on the microphone and push the appropriate push-button of the desired beat. Select the paper speed by pushing in the white push-button for normal speed, or the black push-button for a speed reduced ten times. The speed can be changed during the test.

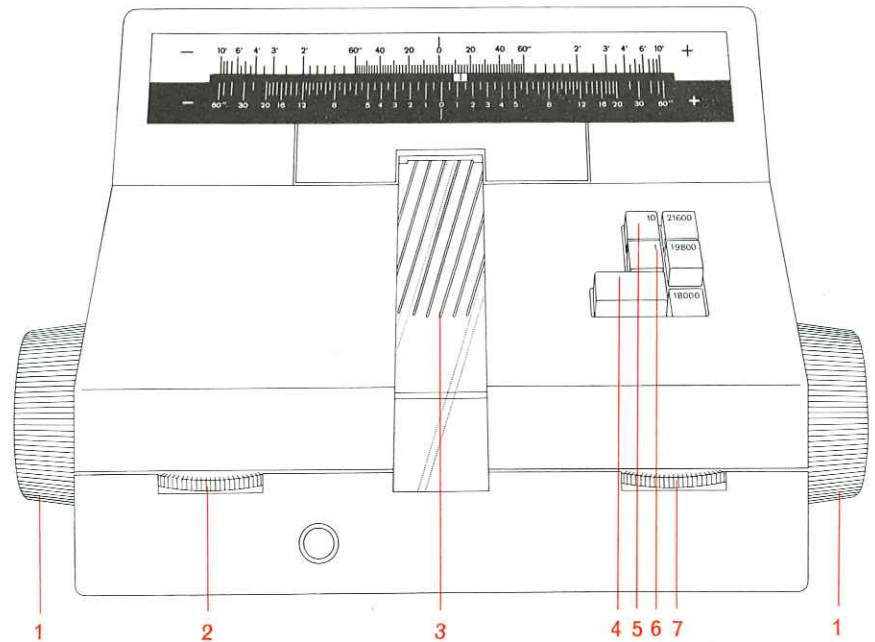
Start the striking mechanism and the paper by pushing in the red push-button.

b Volume control setting

To regulate the level of volume of the watch, turn the knob on the right anti-clockwise until it stops (minimum volume); then increase the volume gradually by turning the knob clockwise until the printing on the tape appears neat. Then slightly turn the knob further in the same direction, in order to have enough volume.

Fig. 6

- 1 Side wheel
- 2 Knob for starting the machine and for regulating the luminous intensity
- 3 Illuminated slits
- 4 Red push-button
- 5-6 Push-buttons for selecting paper movement speed (VS 500 automatic)
- 7 Knob for regulating volume



c Daily rate measure

Turn either one of the side wheels so as to bring the illuminated slits in a parallel direction with the printed tape.

The position of the red index on the scale shows the error of the daily rate. The upper scale (white) shows the error at regular paper speed. The lower scale (black) shows the error at the reduced paper speed (ten times).

d How to stop the recording

Release the red push-button to stop the striking mechanism and the paper feed.

e How to use the automatic control

To obtain the automatic control of the striking mechanism and paper feed, it is necessary to leave the red push-button pushed in. Then in this position, the striking mechanism and paper feed will automatically start when a watch is placed on the microphone. When the watch is removed the recording will automatically stop.

f Vibrograf VS 500 standard

The Vibrograf VS 500 standard does not include the automatic control of the recording.

The recording is controlled manually by the red push-button as indicated above.

In addition, the Vibrograf VS 500 standard has only one normal paper speed and therefore only one reading scale.

g Paper re-winding socket; earphone socket

The Vibrograf VS 500 has a socket (fig. 1) for a connection to a synchronized system of re-winding the tape (this accessory is particularly useful when several machines are used as a control unit, and it is available upon demand.)

Another socket (fig. 1) is for the earphone which is standard equipment with each machine.

h Connection of the Diapatest DT 311

The microphone frequency divider Diapatest DT 311 (control of tuning fork movements) can be connected onto the paper-winding socket.

This possibility is however, not in existence for the Vibrograf VS 500 automatic.

Vibration groups

| | | | | |
|---------------------------------|--------|---------------|---------------|-------------------|
| 10 | 21 600 | 18 000 | 19 800 | 21 600 |
| | | 3 600 | 7 290 | 4 320 |
| | | 4 200 | 19 800 | 4 800 |
| 1 | 19 800 | 6 000 | | 5 400 |
| | | 6 300 | | 8 640 |
| | | 7 200 | | 10 800 |
| | 18 000 | 9 000 | | 14 400 |
| | | 12 000 | | 17 280 (2 traces) |
| | | 12 600 | | 21 600 |
| | | 16 800 | | |
| | | 18 000 | | |
| | | 21 000 | | |
| | | 25 200 | | |
| | | 36 000 | | |
| Normal paper speed | | 109 mm/mn | 120 mm/mn | 131 mm/mn |
| Reduced paper speed (ten times) | | 10,9 mm/mn | 12 mm/mn | 13,1 mm/mn |

Interpretation of diagrams

Please refer to the other booklet, called "Interpretation of diagrams", which is delivered with each machine.

Changing the ink ribbon

This operation is best done when one of the spools is almost empty.

- 1 Remove the upper cover, the paper protector and its hinged holding device as shown on page 5
- 2 Pull the paper press lock (fig. 5) to free the paper
- 3 Take out the paper roll
- 4 Remove the empty spool from its axle and unroll completely the rest of the ribbon

- 5 Remove the other spool (with ribbon) and delicately slide the ribbon out of its guide track

- 6 Slide the end of the ribbon under the reading scale and then pull it towards you with the help of tweezers, through the front opening (fig. 7)

- 7 Place the new spool on one of the axles making sure that the ink ribbon unwinds from the top and not from underneath (a slight click is heard when the new spool is locked in place)

- 8 Unwind about 30 cm of the ink ribbon

Fig. 7

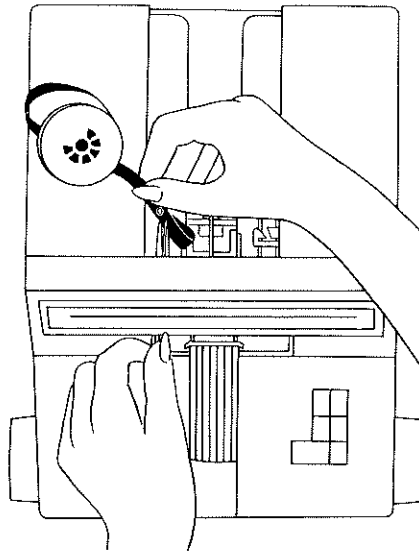
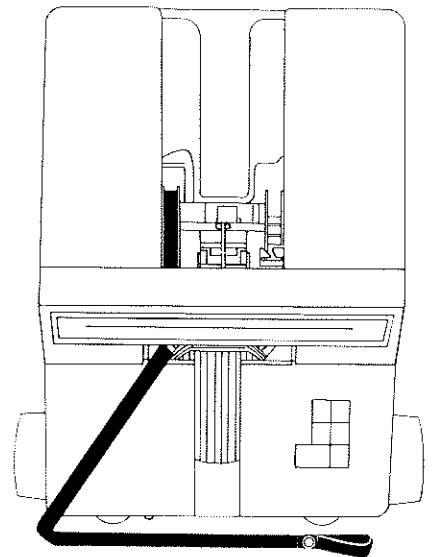


Fig. 8



9
 Without twisting the ribbon, slip the end of the ribbon under the reading scale on the other side of the bar. Tighten the ribbon to the empty spool making sure that it will unwind from the top. Place the spool on its axle as described in point 7

10
 With flat tipped tweezers, slide the ribbon into both ribbon guides situated inside the machine

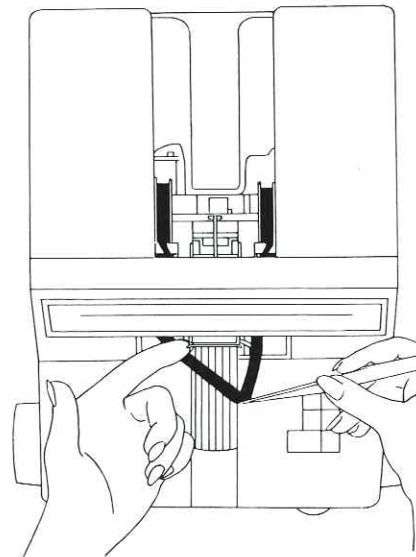
11
 With tweezers, place the ribbon in the grooves on both sides of the bar,

making sure that it is placed correctly between the guide marks; then without bending or twisting, slide the ribbon under the bar (fig. 9 and 10)

12
 Tighten the ribbon progressively by rolling it on one of the spools

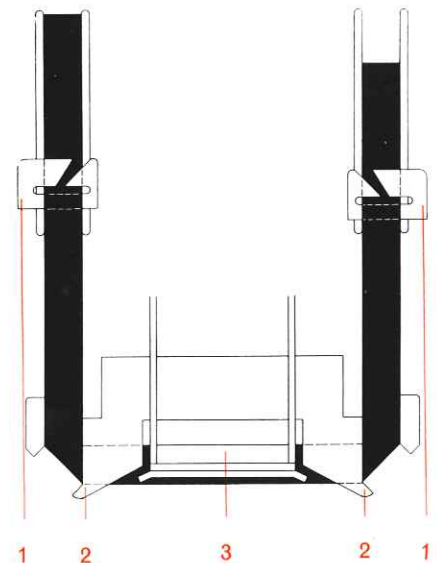
13
 Make sure that the ribbon feed is normal. To test it replace the paper roll and start the machine. After this test, replace the upper cover, the hinged holding device of the paper protector and then the paper protector itself.

Fig. 9



1
 Ribbon holder
 2
 Striker bar
 3
 Guide marks

Fig. 10



Correct placing of the ink ribbon

Remove the upper cover, the paper protector and its hinged holding device, then:

- 1 take out the paper roll
- 2 remove each spool from its axle and place them in the space provided for the paper roll (fig. 11)

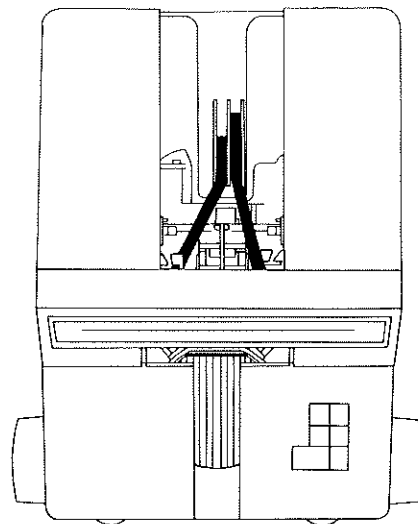
- 3 with tweezers, remove delicately the ribbon from its track and slide it over the bar

- 4 pull back slightly the two spools and slide the ribbon inside the machine

- 5 roll the entire ribbon on the spool with the most ribbon

Proceed then as if you were replacing the ribbon, in other words start from point 6 of the preceding chapter.

Fig. 11



Maintenance

Lubrication

As each mechanical moving part rotates in self lubricating bearings, it would be harmful to oil the machine. If after several years of use, some noise develops, the machine should be sent to a specialized service center.

Air circulation

As the Vibrograf VS 500 is completely transistorized, the heat from tubes is completely eliminated. The transistors used in the Vibrograf VS 500 can function at temperatures up to 55 °C, which means that the machine can be used in any part of the world.

A normal flow of air inside the machine is nonetheless necessary, in order to obtain best results. For this reason, the Vibrograf VS 500 must be placed on a flat surface. It is not necessary to keep the machine in a horizontal position.

Make sure that the air openings in the cover are always unabstracted. Do not place anything on top of the machine.

Regulation of printing intensity

Printing intensity can be perfectly regulated in order to obtain extremely clear diagrams. When the diagram appears to be fading, due to the wear of the ribbon, it is possible to increase the intensity of the printing by turning the special knob (fig. 1). However, it is recommended to change the ribbon as soon as it shows signs of heavy wear, rather than increase for too long the intensity of the printing device. Do not forget to decrease the intensity of the printing device after having changed the ribbon.

Miscellaneous recommendations

The light bulbs used to light the slits of the reading disk are designed to last for several thousand hours. If when the machine is started the slits do not light, return the machine to the nearest qualified service center.

When unplugging the microphone, pull the plug, not the cord.

Finally, if the secondary fuse (fig. 1) blows out, replace it with one of the same value. If it blows out again, the machine should be checked at the nearest qualified service station.

Use only the recording paper prescribed by the manufacturer of Vibrograf and which has the following characteristics:

| | |
|----------------------|--|
| width | $30 \begin{smallmatrix} +0 \\ -0,1 \end{smallmatrix}$ mm |
| thickness | 60-63 g/m ² |
| diameter of the roll | 87 mm |
| quality | 55% unbleached ground wood |

Warranty

The Vibrograf machines and microphones are guaranteed against all defects of parts and workmanship, for an entire year from the date of purchase.

This warranty is not valid if the machine has been repaired by a person not authorized by Reno SA, or if the prescribed operating instructions have not been followed.

In case of repairs made under the warranty, shipment costs will be borne by the customer.

The Vibrograf® VS 500, is a product of Portescap, La Chaux-de-Fonds, Switzerland, manufacturers of Incabloc® shock absorber.

General distributors:
Reno SA
165, rue Numa-Droz
2300 La Chaux-de-Fonds, Switzerland