

# vibrograf® B 200

solid state

Instructions for use



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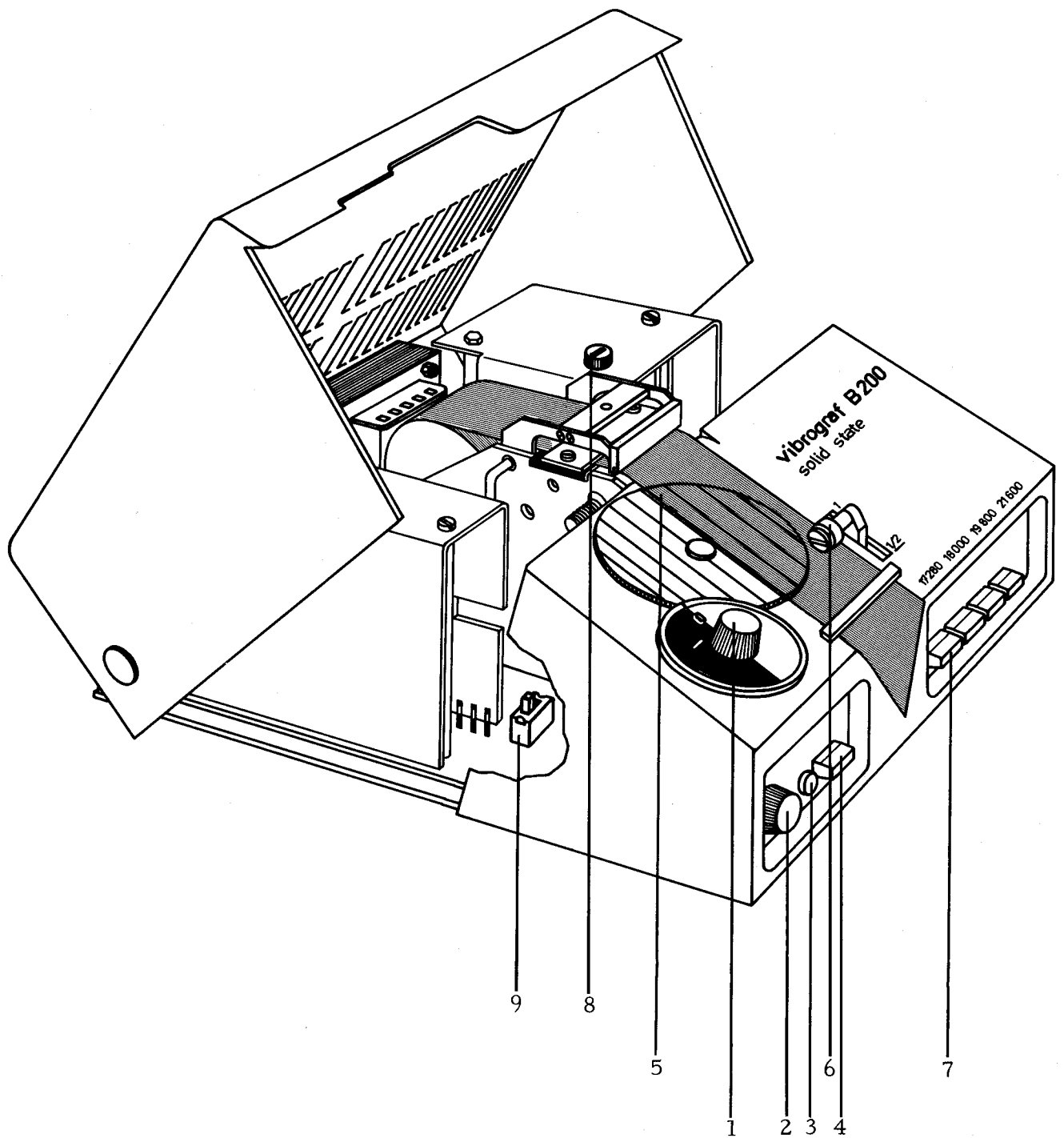


Fig.1

- |   |  |
|---|--|
| 1 | Reading disc knob                      |
| 2 | Volume control and on and off knob     |
| 3 | Pilot lamp                             |
| 4 | Starting button (print and paper feed) |
| 5 | Reading disc                           |
| 6 | Paper control lever and speed selector |
| 7 | Beat selector buttons                  |
| 8 | Secondary fuse                         |
| 9 | Selector switch for automatic control  |

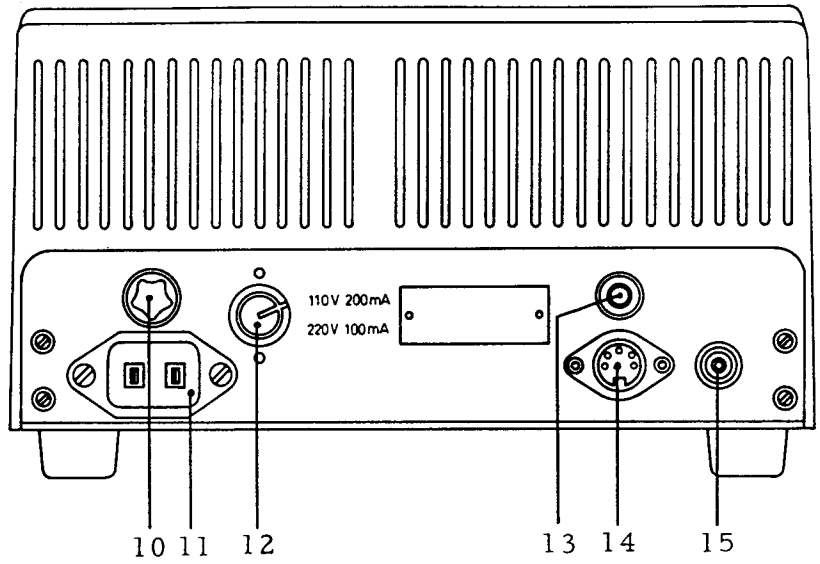


Fig.2

- 10 Primary fuse
- 11 Mains
- 12 Voltage selector
- 13 Auxiliary output for re-roller (6 V)
- 14 Output for earphone
- 15 Watchholder input

- 1  
Before starting the machine
  - a  
Check position of the voltage selector (see 2).
  - b  
Insert roll of paper (see 4).
  
- 2  
To check the voltage selector position

Make sure that the voltage selector 12 is in the correct position that corresponds to the voltage in your area. (In case of doubt ask your local electric company.) All machines sold in the U.S. are set in the 110 volts position for operation on 105 to 125 volts. All machines sold in Canada are for 110 volts only.

To change the voltage selector:

  - a  
Pull the selector knob out and turn so that the indicator line points to either 110 or 220 volts, whichever is proper.
  - b  
Be sure that the primary fuse is of correct size:  
0.25 A for 110 volt operation  
0.125 A for 220 volt operation  
(the secondary fuse is 500 mA in either case).
  
- 3  
Connections
  - 3.1  
Power input  
Connect machine to line with plug 11.
  - 3.2  
Watchholder  
Connect watchholder to jack 15.
  - 3.3  
Earphone (optional)  
Connect earphone to jack 14.
  - 3.4  
Paper re-roller (optional)  
Connect paper re-roller to jack 13.
  
- 4  
Installing the paper roll
  - a  
Make sure the motor is stopped (all machines sold in Canada are disconnected from the mains when cover is open).
  - b  
Cut the beginning of the paper at an angle.
  - c  
Put the roll of paper on the axle and place the paper into position. Make sure that the free end of the paper rolls off from the top of the roll and not the bottom. As shown in figure 1, slide the paper tape into the striking mechanism. Lead the paper under the trans-

parent reading disc 5 then under the paper moving roller 6 by lightly pulling the lever between 1 and 1/2. Make sure that the paper passes underneath the paper guide.

The paper used with the Vibrograf B 200 is a pressure sensitive chemical paper and no ink ribbon is required. Use only Vibrograf paper available through the Watchmaster salesmen or through any authorized Bulova material distributor.

5

#### Starting the machine

a

Turn volume control 2 clockwise until the pilot lamp 3 goes on.

b

Place the paper speed lever 6 in the desired position. (Position 1 for normal paper speed.)

c

Push one of the beat selector buttons 7 to the desired beat (see table 12). When testing Accutron<sup>®</sup> push the 21 600 beat button.

d

Push in starting button 4.

e

Place watch to be observed on the watchholder: the printing system will start automatically. To stop, remove the watch from the watchholder, or, release button 4.

#### Note

If for any reason the automatic feature is not wanted, proceed as follows:

Leave button 4 unpressed. Place watch on the watchholder, then press button 4: the machine will then start. To stop, release button 4. Also see 6.

6

#### Non-automatic control

When the number of vibrations/hour is low (less than 7 200 v/h or 2 tops/s), it might happen that the automatic paper feed control does not work.

If this occurs, suppress the automatic feature, proceeding as follows:

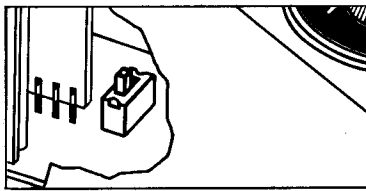
a

Open top of machine.

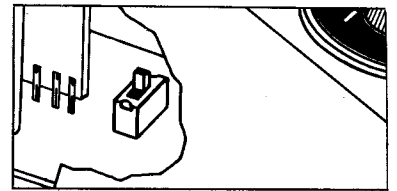
b

Set the selector switch of the automatic control system to the "non-automatic" position (see fig. 3).

To start the operation or to stop it, use starting button 4. Also see 5.



Automatic position



Non-automatic position

Fig. 3

7

Regulating the amplification

a

Turn the volume control 2 clockwise, until the striking sound becomes regular.

b

Examine the tape. Several scattered dots may appear: this means that the volume control 2 is set too high. Gradually turn the volume control 2 counter-clockwise until the interference dots disappear.

If the record appears uneven or irregular it is possible that the volume control 2 is set too low. Turn the volume control 2 clockwise, until a good reading is obtained.

8

Interpretation of record

a

Knob 1 controls the reading disc. When the lines on the transparent reading disc 5 are parallel with the Vibrogram on the tape, the rate of the watch or timepiece under test is indicated on the reading disc. This reading indicates the rate over a 24 hour period.

b

When the paper speed control lever 6 is at position 1/2, the rate indicated on the reading disc should be doubled in order to determine the true rate. The 1/2 position is useful for long-term analysis.

9

Regulation of printing intensity

The B 200 is equipped with an adjustable striker coil. Printing intensity may be modified as follows:

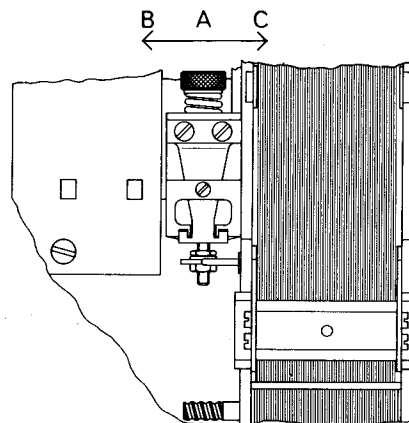


Fig. 4

Printing too heavy  
Turn the knurled knob  
in A-B direction

Printing too light  
Turn the knurled knob  
in A-C direction

10  
Symptoms and remedies  
for minor defects

10.1 The pilot lamp 3 does not light and the motor does not turn when starting button 4 is pushed in.

Remedy:

Make sure proper voltage is present at the receptacle outlet. Check condition of the line cord. Check primary fuse 10.

10.2 The pilot lamp 3 lights but the motor does not turn when starting button 4 is pushed in.

Remedy:

Check secondary fuse 8 (push and turn).  
This fuse is 500 mA in either case.

11  
Maintenance

11.1  
Lubrication

All moving mechanical parts operate on self-lubricating bearings. Oiling is therefore not required and would in fact, be harmful to the machine. If after several years of intensive use, the mechanism becomes noisy, it should be returned to the distributor.

11.2 The Vibrograf B 200 is completely transistorized, therefore there is no danger of overheating caused by tubes. The machine, however, should be normally ventilated and the openings in the cover should not be obstructed.

12  
Main vibration groups

17 280	18 000	19 800	21 600
3 600	3 600	3 600	3 600
7 200	6 000	7 200*	7 200
10 800	7 200	10 800	10 800
14 400	9 000	11 890	14 400
17 280	18 000	14 850	16 200
21 600	21 600	19 800	21 600
28 800	24 000*	21 600*	28 800*
	27 000	26 400*	32 400
	36 000		

\* 2 tracks

Special vibrations on request



## Vibrograf B 200

### Maintenance

1

Cleaning the case  
and keys

Using a damp cloth, wipe the parts that need cleaning. To remove obstinate stains, use soapy water or rectified benzine.

#### Caution

On no account use solvents, abrasives or any other products that might damage the paint.

2

Cleaning the inside face  
of the reticulated disc  
(without removing it)

Take a strip of clean paper, soak it in rectified benzine, fold it several times to make it thicker and pass it underneath the disc, turning the latter in both directions.

The paper used for recording traces is perfectly suitable for this purpose.

3

Replacing the pilot lamp\*

When the apparatus is working normally but the pilot lamp fails to light up, change the bulb in the following way:

a

disconnect the apparatus from the mains

b

take out the green lens, using a knife if necessary

c

take out the burnt-out bulb with a pair of tweezers

d

push the new bulb into its support and replace the lens.

4

Replacing the paper-drive  
roller\*

After the apparatus has been in operation for several years, it may be found that the rubber covering of the roller has become deformed, hardened or split. In this case, it will be necessary to change the roller, proceeding as follows:

a

using a screwdriver, remove the circular clip which is fixed to the end of the roller spindle

b

place the new roller on its spindle and fix the circular clip with the help of a pair of flat-nose pliers.

\*Spare parts can be obtained from the distributors listed in the Vibrograf B 200 instruction manual.