

CHAPTER IV

Maintenance.

The basis of construction of this computer is the principle of assembling separate units, constructed in essence on the elements, used in the pulse technique. In comparison with electromechanical models of computers, the absence of the wear of mechanical components and other units completely changes the nature of maintenance. The need for regular preventive inspection, lubricant and replacing of worn components and mechanical units is eliminated.

In normal usage the machine must be protected from dampness and dust. The removal of dust from the current-carrying surfaces of the circuit boards and units is effected by a soft hair brush, approximately 1- 2 times during the year depending on the operating conditions.

After the end of work the machine should be covered with a special case and the mains plug removed from the mains voltage supply network.

When in the process of completing arithmetic operations or other calculations the result does not appear to correspond to actual value and deviations appear through the fault of the machine, it is necessary via analysis of the operation of the functional diagrams to determine the emergent malfunction.

The arbitrary symbol in the form of common fraction at inputs and outputs of each element of the functional diagram is determined thus: the numerator of fraction - number of the joint contact, the denominator of fraction - number of the board assembly or joint.

From the overall functional diagram one should turn to the functional diagrams of the boards (Fig. 34 - 45), which provide the possibility of a more detailed analysis.

When as a result the analysis of functional diagram it is impossible to reach the desired result, for determining the emergent malfunction, the display panel of an electronic invoice machine « Soemtron-381 » of the type 8601 is connected.

The arrangement of boards in the arithmetic-logic unit depends on the date of manufacture of the machine and can have a normal or reversed sequence, I.E. board 1 or 12 can be the first board from the right side of the arithmetic-logic unit.

IV.1. Indicator panel connection.

- 1) Remove the upper rear cover of the machine.
- 2) Remove the connecting plug from joint V7.
- 3) Connecting the display panel through the contacts of joints V7 and, V8.
- 4) Fit the display legend to the indicator panel (Fig. 32).

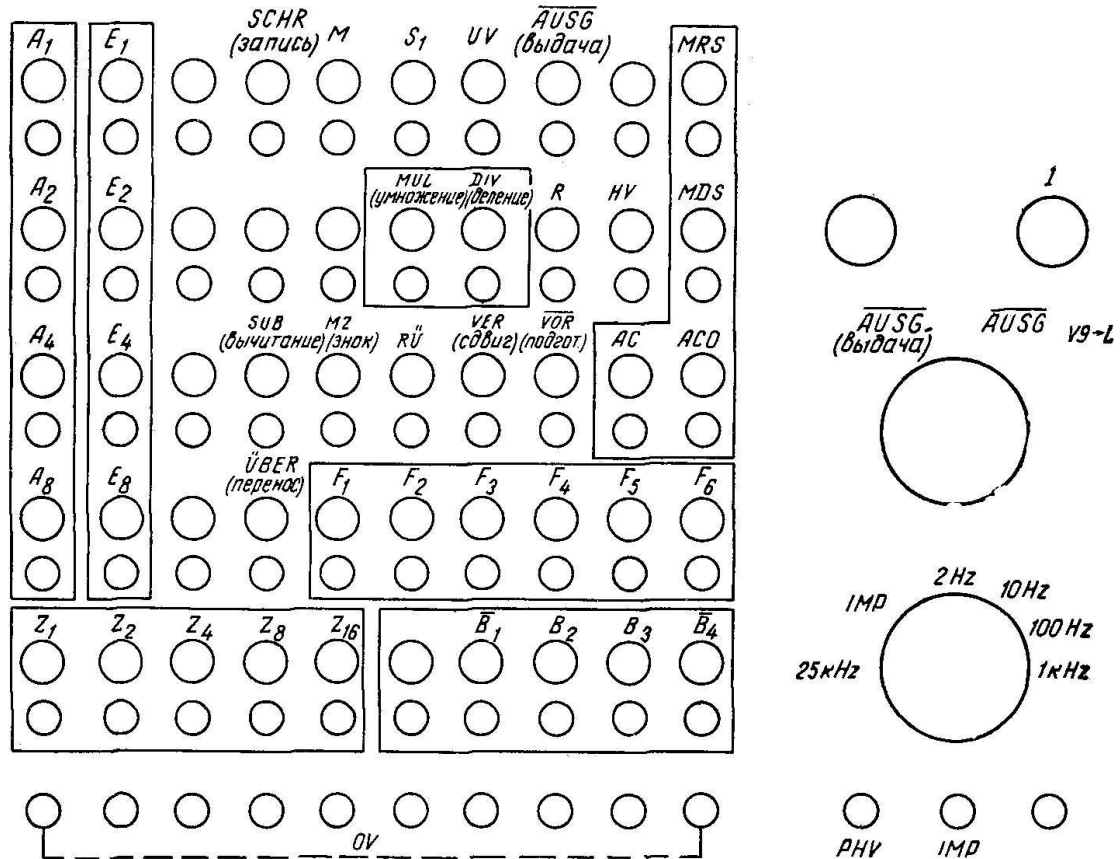


Fig. 32. Indicator panel legend.

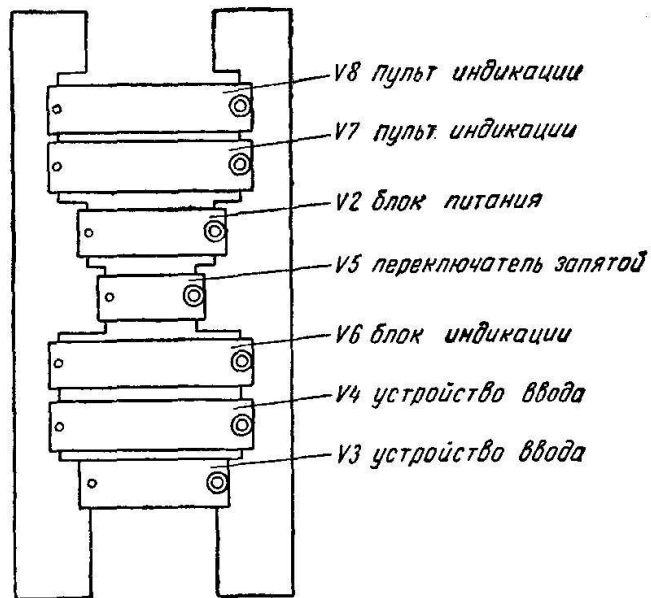
- 5) Connect the mains supply voltage to the machine and the display panel.
- 6) Set the indicator panel switch to the AUSG (0 - 9) position (Fig. 32).
- 7) Turn on the EIN-AUS toggle switch of the display panel to the position EIN (switched).
- 8) Turning the switch EIN - AUS to connect the mains voltage to the schematic of machine.
- 9) Press the Lö key to reset the machine and the indicator panel for checking the completion of arithmetic operations.

Checking the sequence switching the elements of electronic circuit with the completion of arithmetic operations is produced by visual observation of the appropriate signal lamps of the display panel.

A glowing incandescent signal lamp corresponds to a logic 1 signal at output of the equivalent component of an electronic circuit.

Analog free sockets serve for the connection of an oscilloscope to the display panel. Use of the digital and functional keyboard for checking the switching of elements of the machine and completion of arithmetic operations should be produced in the sequence, analogous to the description of chapter 1.

Fig. 33. Diagram of the connector layout on the block AU



During operation with the diagnostic display panel it is necessary to consider the following conditions:

A digital key should be held in the switched position until it is shown on the corresponding indicator lights of the four flip-flops of register E.

Functional keys should be held in the switched position until it is shown that the indicator lights of the Z counter are turned off. The completion of the corresponding operation will occur after the release of the pressed key if are preliminarily **sealed** the diodes of the inputs Z/0 and FU0 Schmitt flip-flop.

With the presence of the diodes at the entrances of the Schmitt trigger indicated the start of operation occurs in 10ms independent of the time of the release of key.

Operational speed of the elements of the network of the machine depends on a master oscillator in the display panel with switched ranges giving frequencies of 2 Hz, 10 Hz, 100 Hz, 1 kHz and 25 kHz.

In the switch position IMP and with each press of the IMP push button generates one clock pulse S, I.E. the possibility of manual control is created.