

CHAPTER - 1

INTROCUCTION

PRELIMINARY

1. The Electronic Voting Machine (EVM) for local body elections is a reliable system for conduct of elections in which one or more persons have to be elected out of many candidates. This can be used for multiple posts and multiple votes.
2. EVM consists mainly of two units - (a) Control Unit and (b) Ballot Unit with a cable for connecting it with Control Unit. A Ballot Unit caters upto 15 candidates. Four Ballot Units linked together catering in all to 60 (minus number of Ballot Buttons blocked for display of the name of the post) candidates can be used with one Control Unit.
3. EVM uses a modern microcomputer and other Large Scale Integrtion (LSI) chips. It operates on a special Power Pack. It is tamper-proof, error free and easy to operate. It is easily portable. The polling information once recorded is retained in its memory even when the Power Pack is removed.
4. The machine is according to the design approved by the State Election Commission and is manufactured by Electronics Corporation of India Limited. It is the end product of considerable experience and extensive trials in Elections under the guidance of the State Election Commission.
5. This chapter aims at introducing the machine and familiarizing the election officials with its functioning.

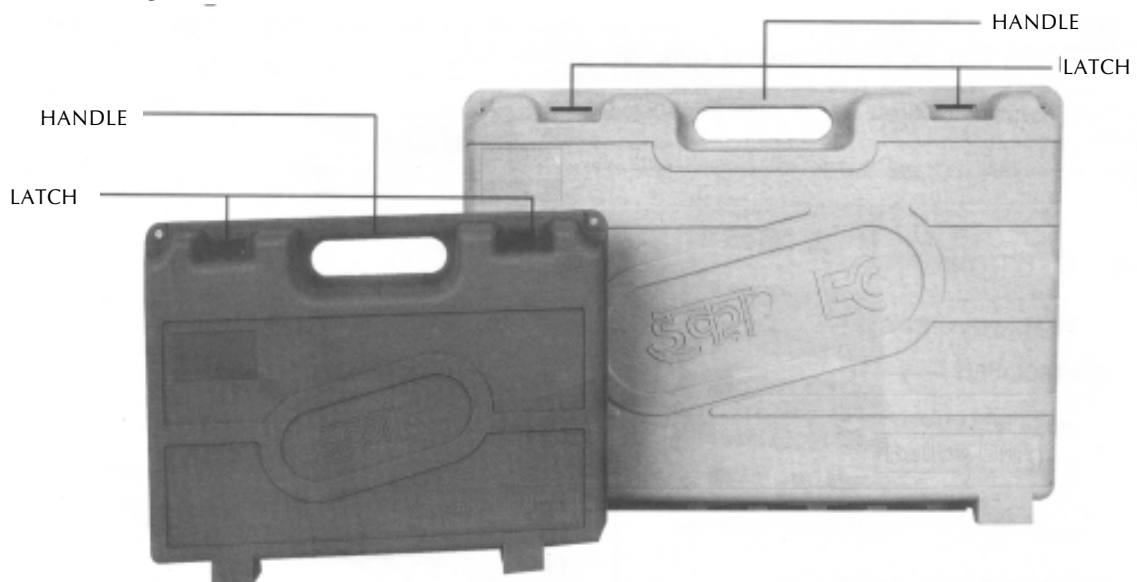


FIG. 1 BU, CU Carrying Cases (Closed condition)

OPENING OF CARRYING CASES

6. The Ballot Units and Control Units are supplied in separate carrying cases. A carrying case can be opened by pressing latches simultaneously on both sides of the handle, as shown in fig. 1.
7. Remove the units from the carrying cases carefully by using both hands.

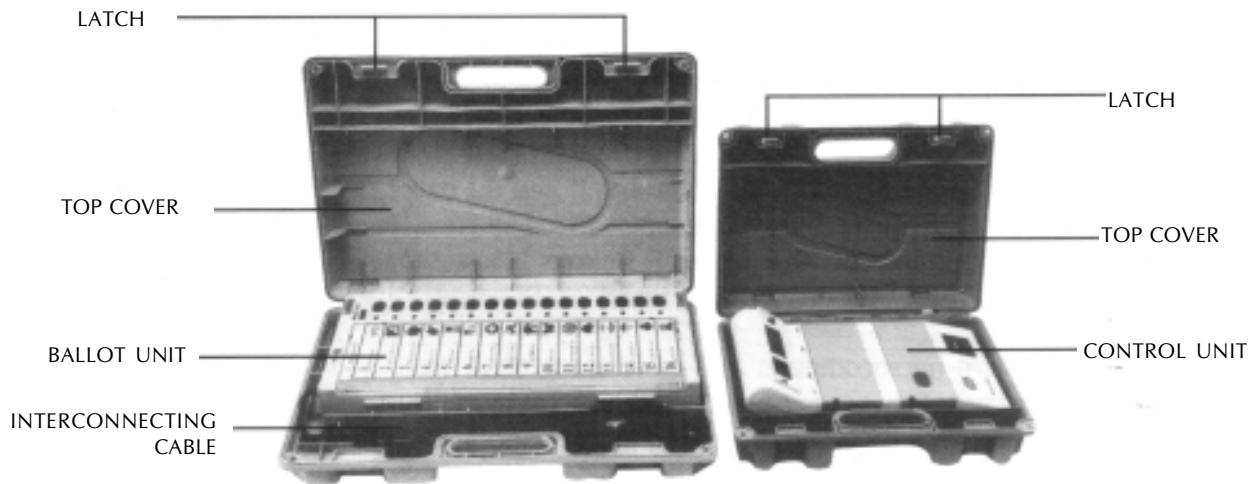


FIG. 1 (A) BU, CU Carrying Cases (open condition)

INSPECTION

- 8.1 After opening the carrying cases verify that cases contain the items shown in fig 2 (i.e. Ballot Unit along with the Interconnecting cable and Control Unit.)



FIG. 2 Item of EVM

8.2 Power Pack for EVM will be supplied separately (Fig. 2A)

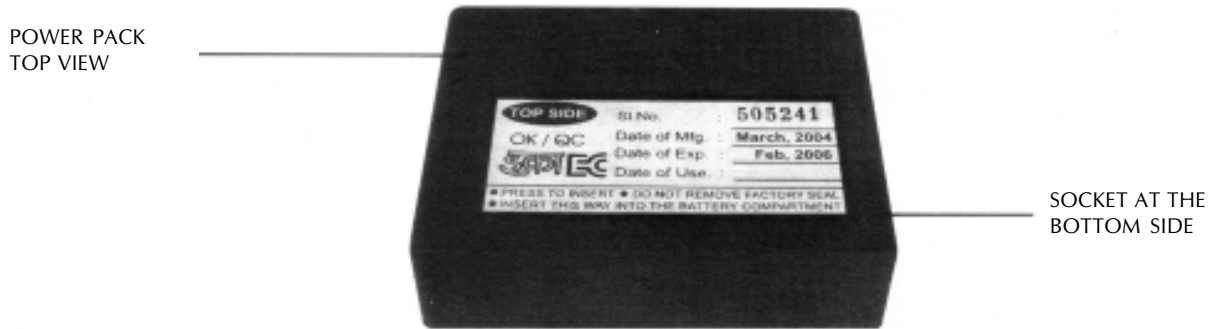


FIG. 2A Power Pack of EVM (To be installed in Control Unit)

BALLOT UNIT

9. The Ballot Unit is that unit of the machine which the voter operates to exercise his franchise.
10. It consists of a rectangular box. The box, which is shown in fig. 3, has -
 - a. Interconnecting Cable
 - b. Ready Lamp
 - c. Slide Switch Panel
 - d. 16 Candidates buttons. Last button is of red colour with 'End' printed on it.
 - e. 16 Candidates Lamps and
 - f. Provision for insertion of Ballot paper containing the S. Nos., Names and Election symbols of contesting candidates under a transparent acrylic sheet (Ballot Paper Screen).

Note :

1. If more than one Ballot Unit is used, then the Ballot papers may be numbered clarifying which Ballot paper shall go into which Ballot Unit.
2. For Multi post Ballot paper, different coloured papers may be used for different posts.

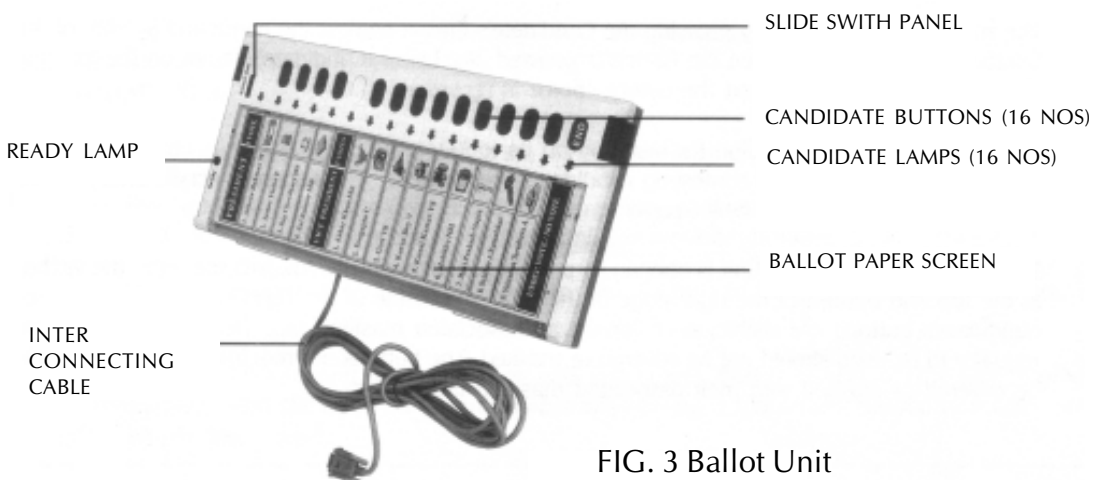


FIG. 3 Ballot Unit

11. The interconnecting cable is a round cable one end of which is permanently attached to the Ballot Unit. To its other end is attached a 9 pin male connector for connecting it to the Control Unit.

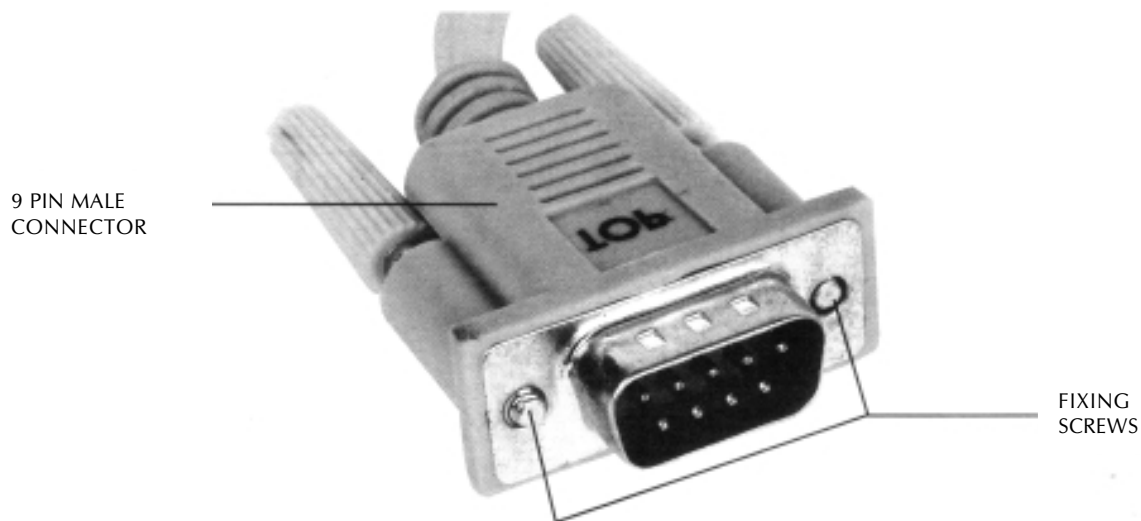


FIG. 4 Inter Connecting Cable

12. The 'Ready Lamp' is on the top left side of the Ballot Unit. This lamp glows GREEN when the 'Ballot' button on the Control Unit is pressed by the Presiding Officer to enable the voter to cast his vote. It goes off when the voter has cast his vote.
13. The Slide switch Panel is on the top right side. The Slide Switch inside the Ballot Unit can be operated to set any one of the four positions viz. 1,2,3, or 4. When only one Ballot Unit is to be used, the Switch is to be set to position 1. The position of the Switch is indicated through the transparent panel on the unit. If a second Ballot Unit is used, the Switch in that unit is set to position 2 and so on.
14. The voter records his vote by pressing the Candidate's button against the name and symbol of the Candidate of his choice. When the Button is pressed, the Lamp (Candidate's lamp) on the left side of that button glows RED and the voter's choice is recorded.
15. The Ballot Unit has a provision for inserting on its top face the Ballot paper in which the S.Nos., Names and symbols of the contesting candidates are printed. A transparent acrylic sheet (Ballot Paper Screen) protects the Ballot paper.
16. The top cover of the Ballot Unit is opened by pressing simultaneously, towards the right, the latches at the top and bottom of the right edge of the Unit. The inside of the Unit is as in fig. 5 Sixteen Candidate's buttons are visible, each having an associated masking tab. The buttons which are required to be used should not be covered or masked. The buttons not required to be used should be covered or masked with their associated masking tabs.

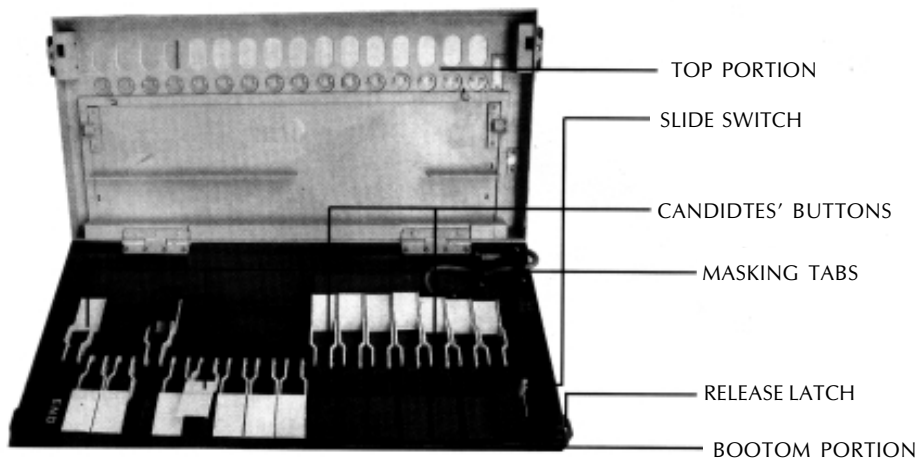


FIG. 5 Inside view of Ballot Unit

CONTROL UNIT

17. The Control Unit controls the polling process. It is operated by the Presiding Officer or the First Polling Officer.
18. Top portion of the Control Unit consists of 4 sections (as shown in figs. 6 and 7)
 - a. Display Section,
 - b. Candidate Set Section,
 - c. Result Section and,
 - d. Ballot Section

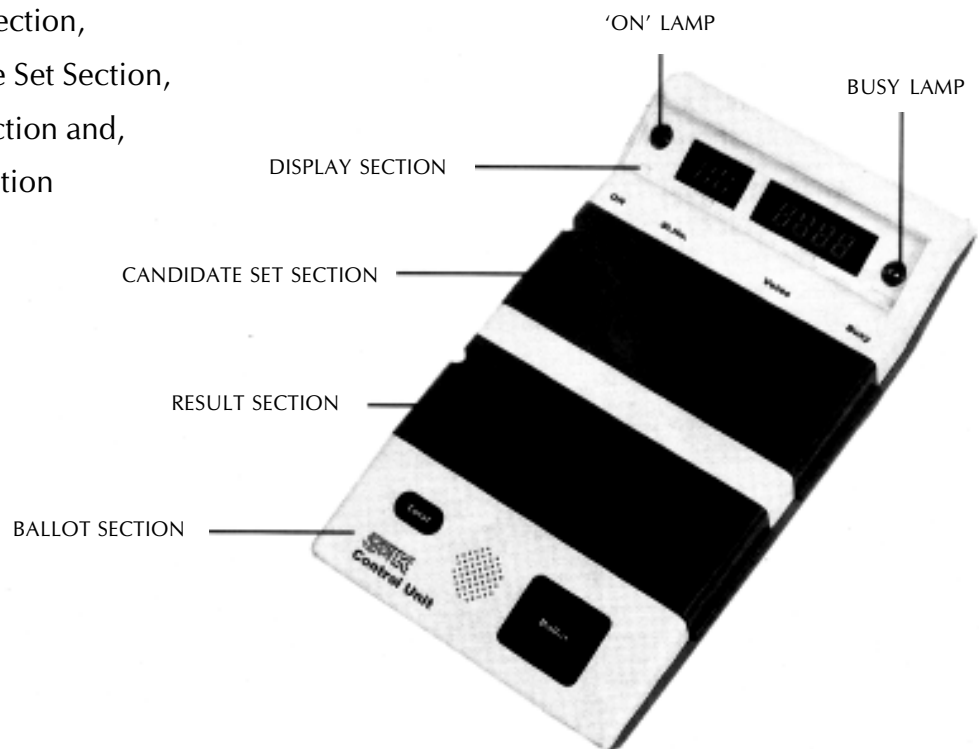


FIG. 6 Front view of Control Unit

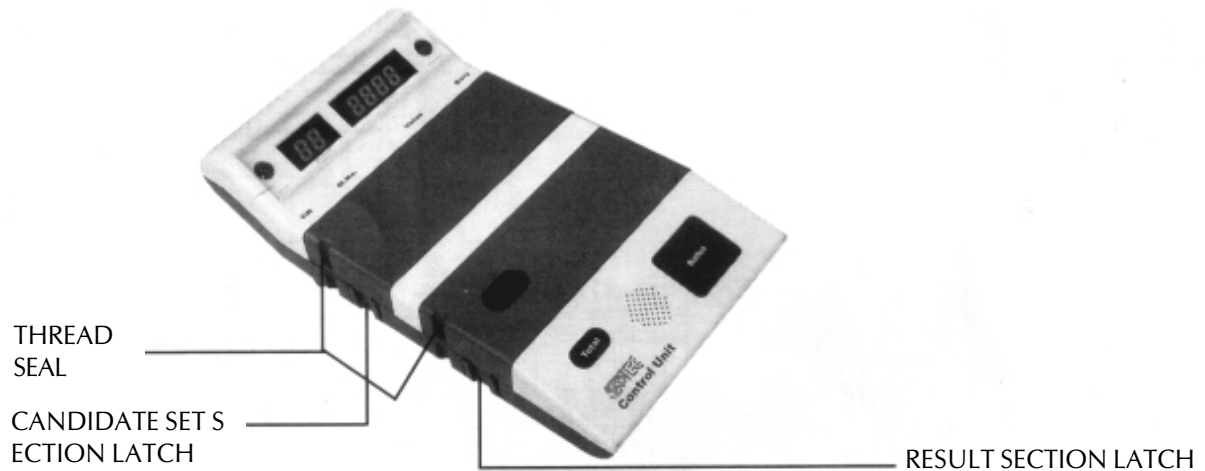


FIG. 7 Front view of Control Unit

19. Display Section consists of two lamps 'ON' and 'Busy' and two display Panels - One of 2 digits and the other of 4 digits (fig. 13). The functions of the lamps and the display panels are explained in paras 25, 26 and 27 of this chapter.
20. The Candidate Set Section (fig. 8) houses a Power Pack compartment and a 'Cand. Set' button compartment. This section has a cover which opens from left to right. On opening its cover, by pressing the latch on the left hand side, the two compartments are seen. The Power Pack compartment is on the left side of the Candidate Set Section and is for fixing the Power Pack. The 'Card. Set' button compartment on the right side is covered with a flap which opens from left to right and can be sealed by thread sea. In this compartment a red 'Cand. Set' button is located. Also, in this compartment, there is provision for fixing Detachable Memory Module (DMM) (Fig. 8A). This DMM must be present for "CLEAR" operation. The Candidate Set Section can be closed and sealed by thread seal as shown in fig. 7.

NOTE : While installing DMM into the CU connector, carefully plug the DMM with proper orientation of the connector pins. This can be done perfectly by practicing. Please refer to Fig. 8A.

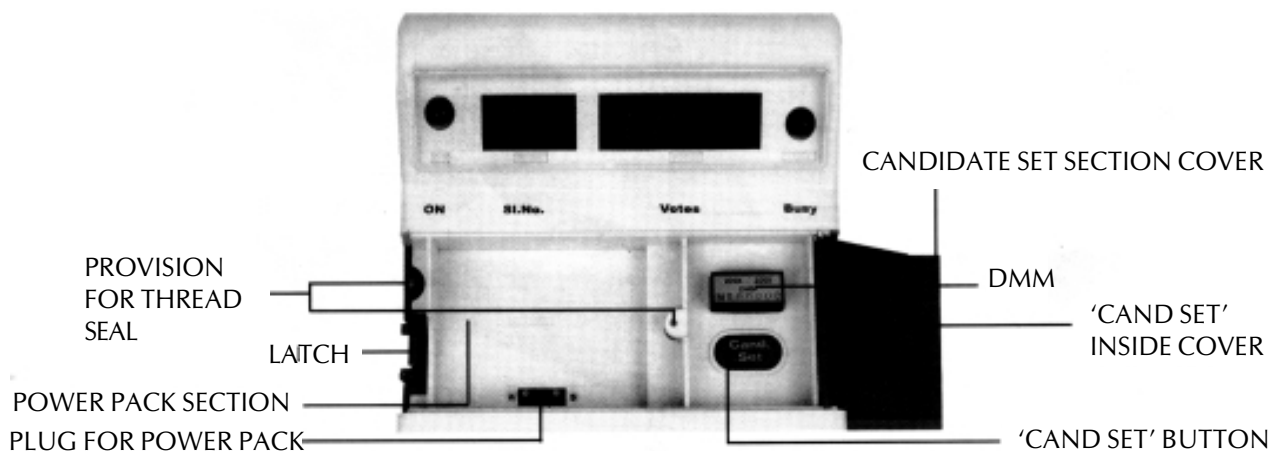


FIG. 8 View of Candidate Set Section

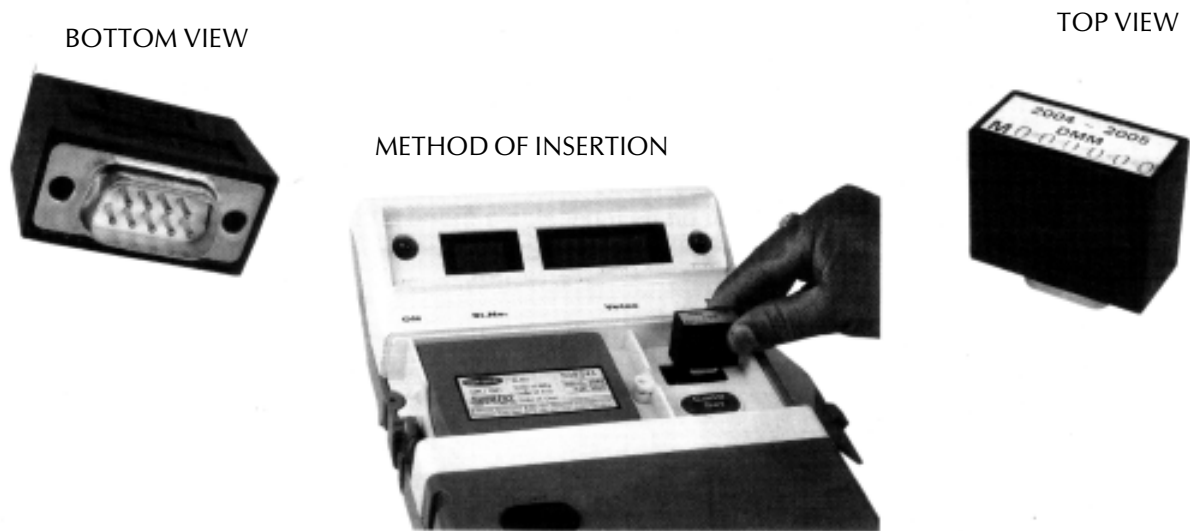


FIG. 8A Detachable Memory Module.

21. The cover of the Result Section has an elliptical aperture on the left hand side through which the 'Close' button is seen. The left portion of the Result Section houses a black 'Close' button. The right portion is actually an inner compartment with its own door (Fig. 9)

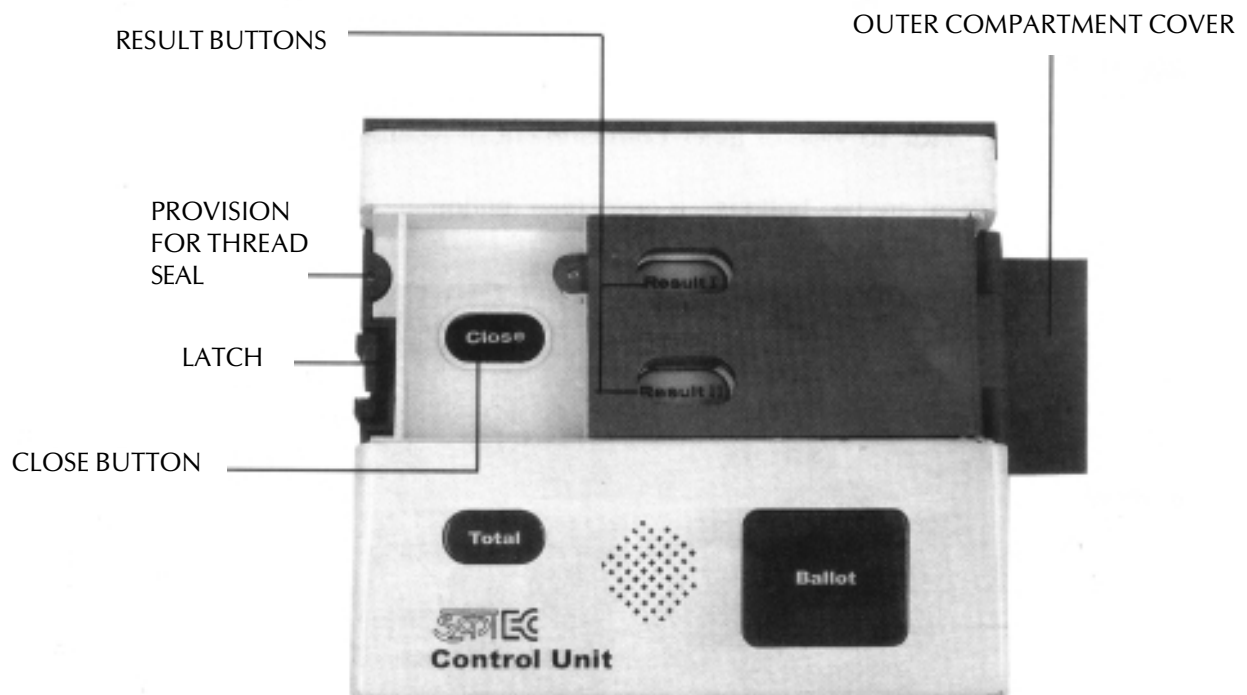


FIG. 9 View of Outer compartment of Result Section

22. The door of the inner compartment has two elliptical apertures through which buttons marked 'Result - I' and 'Result - II' are seen. **The inner door can be opened by inserting the thumb and a finger through the two apertures above the 'Result-I' and 'Result-II' buttons and then pressing the inner latches simultaneously, slightly inwards. In no case, this inner door should be forced open without releasing the latches in the manner described above, to avoid any damage to this most vital compartment.** On opening the door of the inner compartment there will be seen on its inner side a frame around the two apertures for fixing Green Paper Seal. This will also reveal three sub-sections with two yellow buttons marked 'Result-I' and 'Result-II' and a white 'Clear' button.

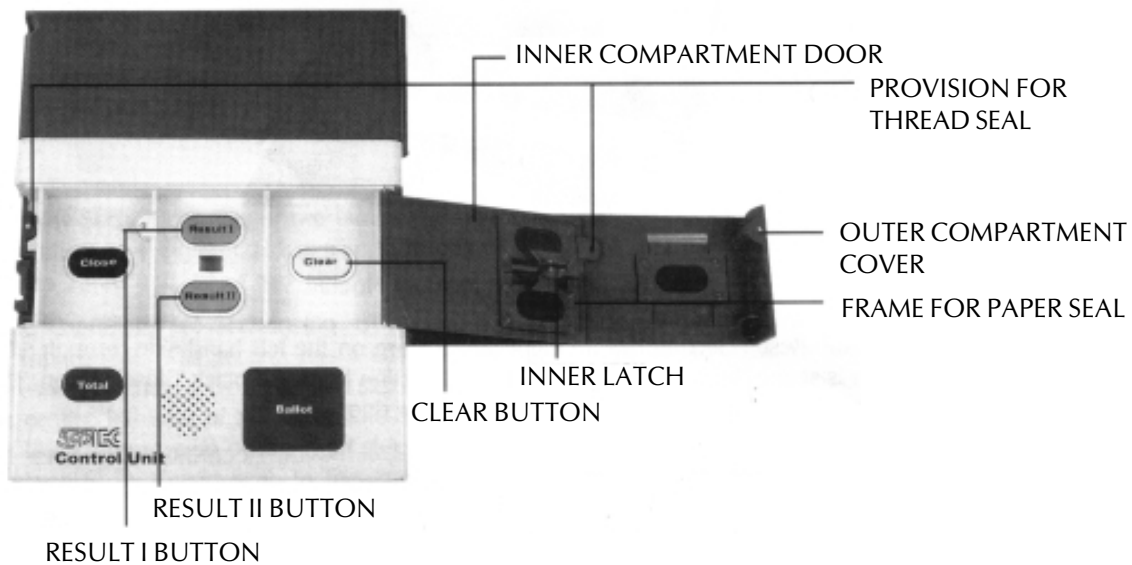


FIG. 10 View of Inner Compartment of Result Section

23. In the Ballot Section there are two buttons - a grey "Total" button and a large blue "Ballot" button, as shown in Fig. 11.

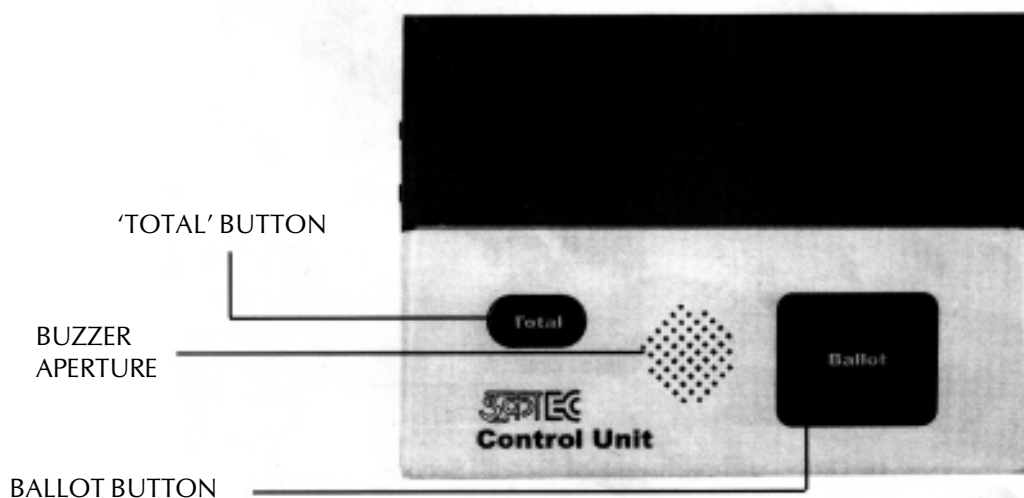


FIG. 11 View of Ballot Section

24. The bottom portion of the Control Unit has also a compartment with a cover. This cover is hinged in the bottom and opens swinging downwards, when the latch in the middle is pressed downwards. This has a provision for thread sealing. The cover, when opened will reveal a female connector on the left hand side for plugging the Interconnecting cable from the Ballot Unit and 'Power' switch in the middle, for switching the EVM ON or OFF (fig. 12). The right hand side male connector is for data transfer.

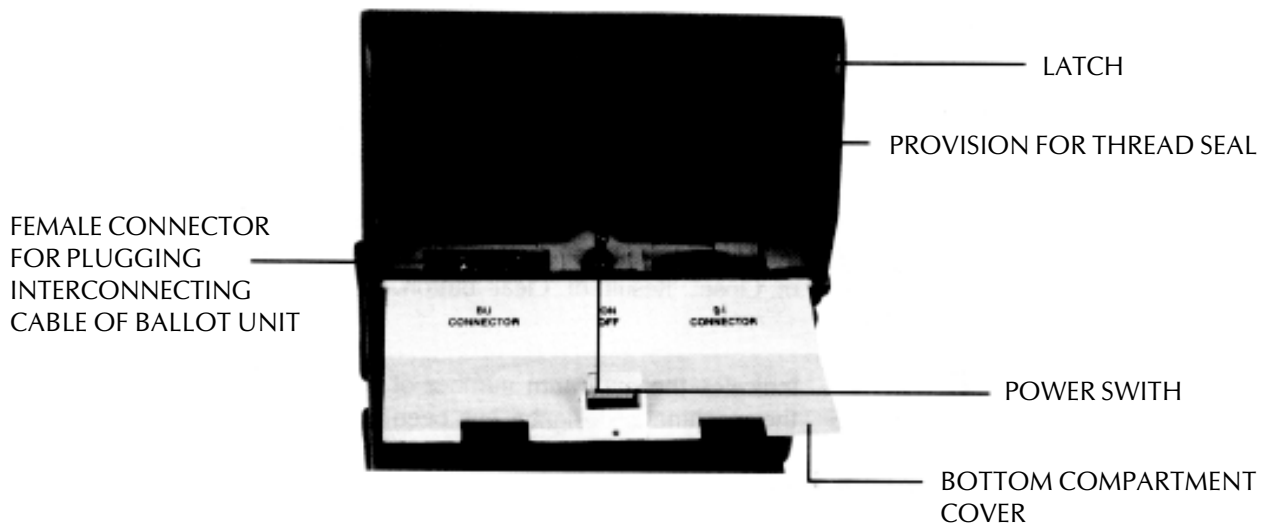


FIG. 12 View of Bottom Compartment

'ON' Lamp

25. The 'ON' lamp is located at the top left corner of the Display Section. When the Power switch is pushed upwards to the 'ON' position, the lamp glows 'GREEN' to indicate that the EVM is ready for use (fig. 13).

'BUSY' Lamp

26. The 'Busy' Lamp is located at the bottom right corner of the Display Section. It glows 'RED' when the 'Ballot' button is pressed by the polling official to enable the voter to cast his vote. It goes off when the voter has cast his vote (fig. 13).

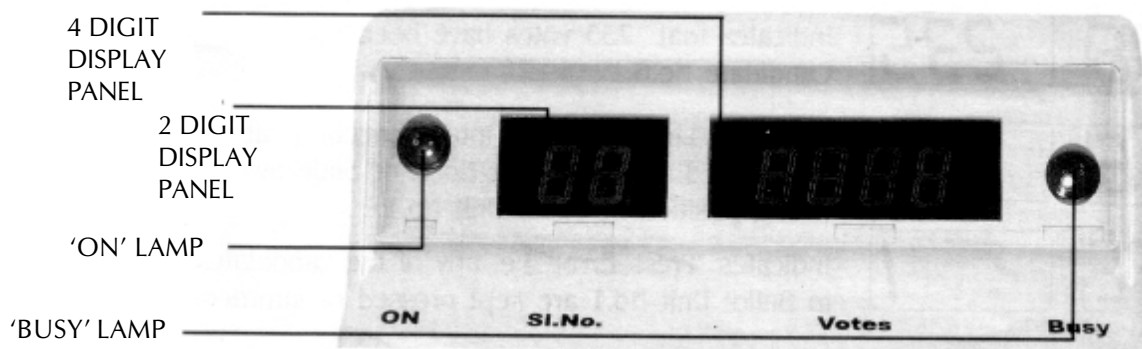





FIG. 13 View of Display Section

DISPLAY PANELS

27. There are two display panels - a 2 digit Display Panel on the left side and a 4 digit Display Panel on the right side (fig. 13).





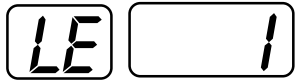
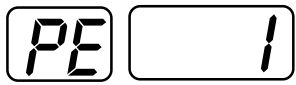
a) 4 digit Display Panel :

Various types of display which appear on this panel alone (with no simultaneous display on 2 digit Display Panel) and what these mean are indicated below -

- i.  indicates a button on the Control Unit has been pressed out of sequence.
- ii.  indicates the end of display sequence after pressing of 'Close', 'Result' or 'Clear' button.
- iii.  indicates the maximum number of votes for which the machine is designed has been polled.

b) Display on both Panels :

Various types of display which appear on both the Display Panels simultaneously and what these mean are indicated below -

- i.  Indicates that the machine is set for single post only
- ii.  Indicates that for post no. 2 there are 8 candidates from whom the voter can elect maximum 3.
- iii.  Indicates that total No. of voters who voted is 1487.
- iv.  Indicates that 235 votes have been polled for Candidate No. 6.
- v.  Indicates "Link Error" i.e. interconnecting cable is missing or snapped for Ballot Unit No. 1, or Slide Switch is in wrong position in Ballot Unit No. 1.
- vi.  Indicates "Press Error" i.e. any of the candidates Buttons in Ballot Unit No. 1 are kept pressed or jammed.

BEEP TONES

28. Whenever the Control Unit displays any information, a buzzer in the Unit gives a 'beep' sound. As explained below, the duration of the 'beep' sound varies according to the nature of information displayed :-
- a. A 'beep' of not less than 2 seconds after a voter casts his vote.
 - b. A 'beep' of 2 seconds, after any change in the information as indicated in the display panel. For example, when displaying total, candidate set, individual results etc.
 - c. Short interrupted 'beeps' to draw attention to any malfunctioning, disconnection, errors etc.
 - d. A beep of 4 seconds when a button is pressed out of sequence.



CHAPTER - 2

FUNCTIONS OF BUTTONS / SWITCHES / DMM

BALLOT UNIT

Candidate's Button (Fig. 3)

1. Against each candidate's name and symbol, there is a button, the access to which is through an opening in the Ballot Unit. A voter has to press the button against the candidate of his choice to record his vote for that candidate. When the voter presses the buttons against the candidates of his choice, the corresponding RED lamps glow. When the voter completes the voting the RED lamps will go OFF, the "READY" lamp will go OFF, a beep sounds for few seconds and the "BUSY" lamp will go OFF. These are indications that the votes have been recorded to the candidates of his choice. If the voter does not wish to vote to some or all the candidates, he has to press the last button of the last Ballot Unit. This button is in red colour and "END" is printed on it.

Slide Swith (Fig. 3 and 5)

2. The slide switch has markings 1,2 3 and 4. The switch should be kept in position '1','2','3', or '4' as explained in para 8 of chapter-3. The position of the switch can be seen through the window at the right side top of the Ballot Unit.

CONTROL UNIT

Power Switch (Fig. 12)

3. To switch ON the EVM, the 'Power' switch is to be pushed upwards to the position marked 'ON'.

Cand Set Button (Fig. 8)

4. The 'Cand Set' button is used for setting the EVM for the number of candidates contesting the election. For details refer para 12 (c) and 12 (d) of chapter 3.

Clear Button (Fig. 10)

5. The 'Clear' button is required to be pressed before the start of a POLL for clearing the machine and showing that no votes are already recorded in favour of any candidate. For details see paras 7 and 9 of Chapter 4.

NOTE: "CLEAR" operation is possible only when BU is connected to CU and DMM is fixed inside CU.

Ballot Button (Fig. 11)

6. Ballot button has to be pressed, for enabling a voter to record his vote. When this button is pressed, the 'Busy' lamp in the Control Unit and the 'Ready' lamp in the Ballot Unit will start glowing and will continue to glow until the voter completes voting. This button will again become operational for the next voter only after the votes of the earlier voter are recorded.

Total Button (Fig. 11)

7. The 'Total button, when pressed will show the number of posts and the total number of voters who voted till then, (This button may be pressed at any time after a voter has recorded his vote or before the 'Ballot' button is pressed to enable him to record his vote, but not when the 'Bust' lamp is ON).

Close Button (Fig. 9)

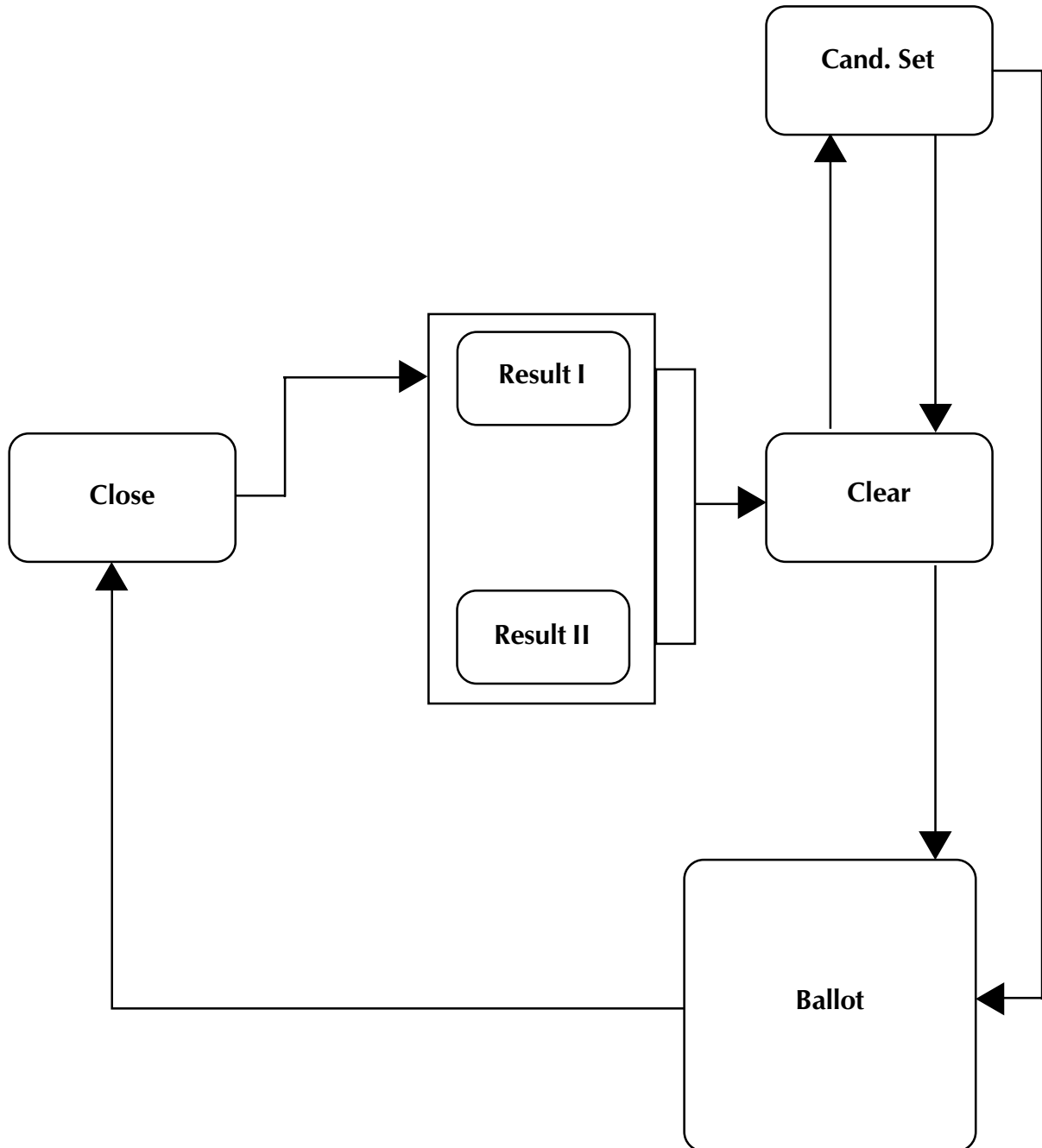
8. Once the 'Close' button is pressed, no further voting is possible. This button is to be pressed at the close of the poll. When this button is pressed, the number of posts, total number of voters who voted and the word 'End' will be displayed on the Display Panel.

Result Button (Fig. 10)

9. When the Result-I button is pressed, the result of the poll for which it is used shall be displayed in the following sequence-
 - No. of Posts.
 - Total number of voters who voted.
 - Post number, No. of contestants for that Post, Maximum number of choices for that Post. Ex. To choose 3 Vice Presidents out of 10 contestants at Post No. 3 the display is P3 10-3.
 - Total votes polled for the post.
 - Votes polled for each candidate sequentially.

After the above display, the Display Panel will show the word 'End'. Result can be seen any number of times by pressing this button again and again.

10. It is essential to note and fully comprehend the proper sequence in which the various buttons of Control Unit have to be operated. Such proper sequence is shown below:



It may be borne in mind that pressing of any button out of proper sequence may not produce the desired effect or result on the Control Unit or the Ballot Unit.

DETACHABLE MEMORY MODULE (DMM) :

Detachable Memory Module contains memory in which the voting data is stored.

11. Two situations may arise where extraction of result is a problem.
 1. Control Unit is available but relevant DMM is not available.
 2. DMM is available, but relevant Control Unit is not available.
12. In the above situations to extract the result adopt the following procedure.

CASE 1: Control Unit is available, but relevant DMM is not available.

1. Insert batter, Switch ON.
2. "Er" will be displayed.
3. Press RESULT I button and keep it pressed.

"Er" will be displayed.

Next relevant up will be displayed.

Now release the RESULT I button.

Result will be displayed.

CASE 2: DMM is avaiable, but relevant Control Unit is not available.

1. Insert this DMM in any Control Unit. Insert battery in CU.
2. Switch ON. "Er" will be displayed.
3. Press RESULT II button and keep it pressed.

Display is "Er".

Next relevant np will be displayed

Now Release the RESULT II button.

Result will be displayed.

NOTE: DMM is to be fixed into or removed from CU only when CU is switched OFF.



CHAPTER - 3

COMMISSION OF EVM BY RETURNING OFFICER

PRELIMINARY

1. Before supplying the EVMs to the Presiding Officers for use at polling stations, the machines have to be prepared by the Returning Officer for such use. The Returning Officer has to prepare the machine for such use in the presence of the candidates/agents at such place or places and during such hours on such dates prior to the date of poll as he may fix having regard to the number of machines which have to be so prepared, the time required for transporting such machines to the polling stations and other relevant factors. The Returning Officer shall, at least one week before the date of poll or as the case may be, fix the dates on which the preparation of EVMs is to be taken up by him, give notice of the same in writing to each candidate or his election agent intimating him the place or places where the machines will be so prepared and the date and time at which such preparation will commence. He shall also intimate the candidate/his election agent the number of representatives that every candidate will be permitted to bring with him at the aforesaid place or places, depending on the number of machines to be prepared for use.

BALLOT UNIT

2. The Ballot Unit has to be prepared by the Returning Officer by -
 - a) Inserting the Ballot paper,
 - b) Masking the Candidate's buttons, which are not required to be used,
 - c) Setting the Slide Switch at the appropriate position, i.e. 1,2,3 or 4, as the case may be according to the number of such units which are to be used depending upon the number of candidates and the sequence in which, they are to be used and
 - d) Sealing the unit.
3. After taking out the Ballot Unit from the carrying case, the top cover of the unit may be opened carefully by pressing simultaneously, towards the right, the latches at the top and bottom on the right edge of the unit (Fig. 14) and swinging the cover up (Fig. 5).

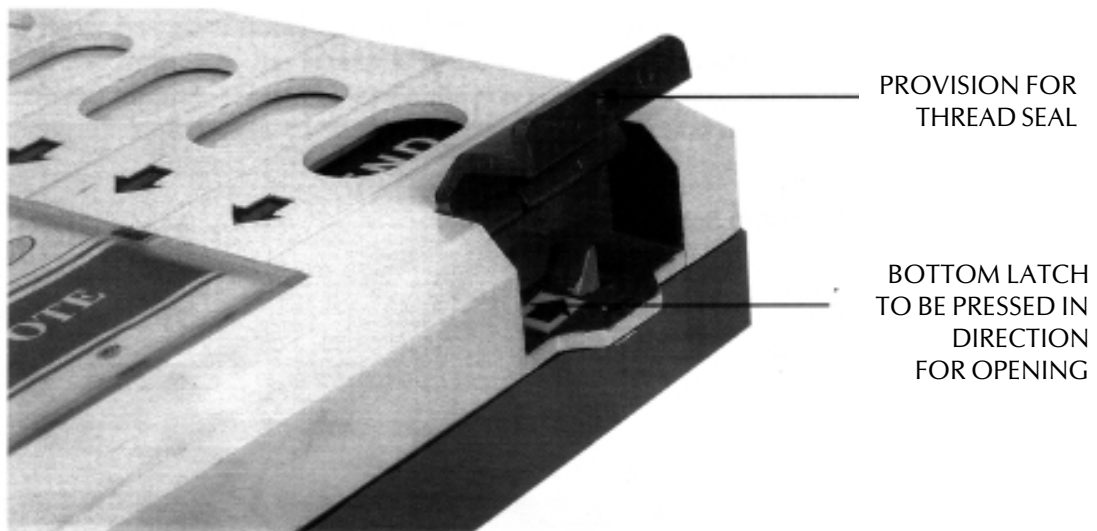


FIG. 14 View of Latches

OPENING OF BALLOT PAPER SCREEN

4. Open the Ballot Paper Screen which is a transparent acrylic sheet hinged to the top cover on the extreme left side. The release latches are inside the top cover (Fig. 15). By pressing the latches simultaneously, first slightly towards right and then pushing them downwards, the Ballot Paper Screen will become free for opening on the upper side of the top cover (Fig. 16). While opening the screen, care should be taken to ensure that it is not damaged.

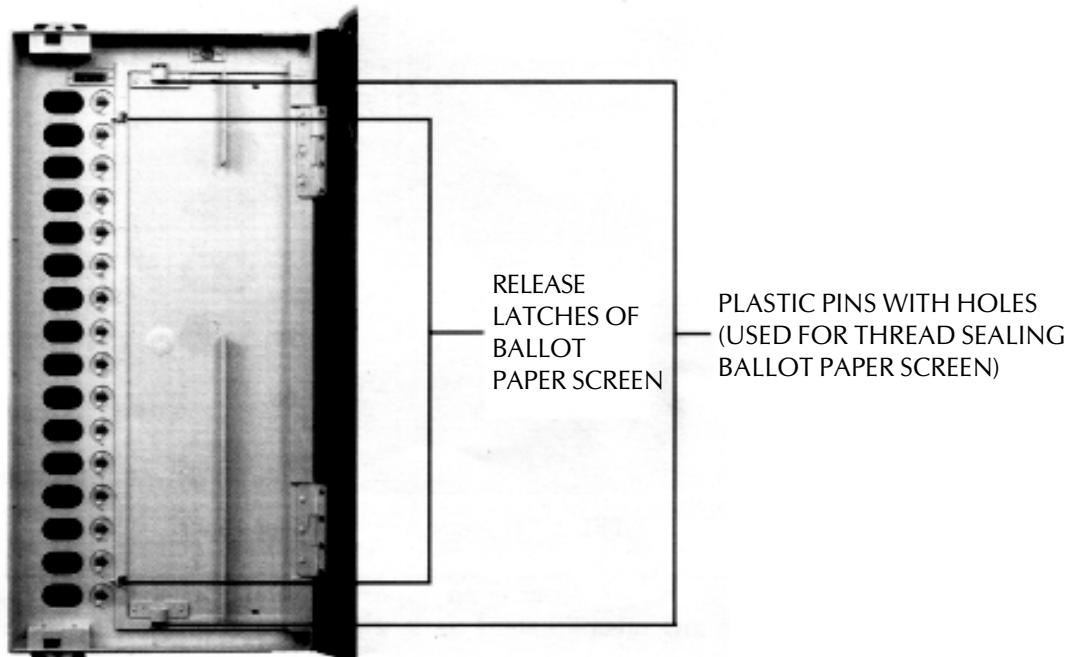


FIG. 15 Inside View of Top Cover

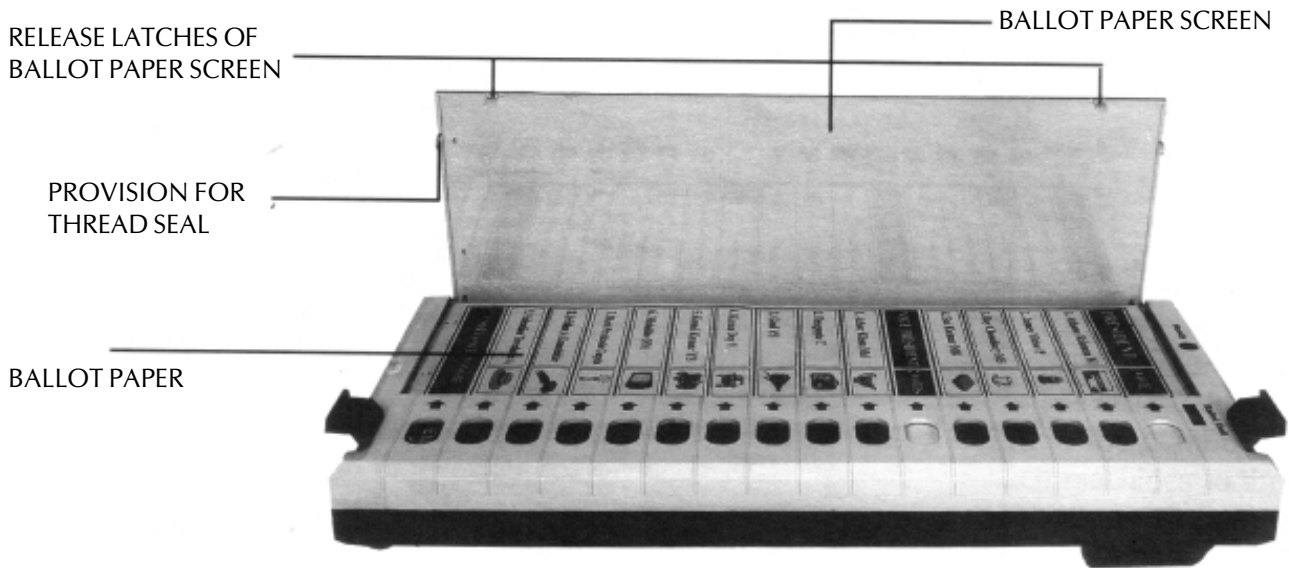


FIG. 16 View of the Upper Side of Top Cover

FIXING OF BALLOT PAPER

- Place the Ballot paper in the space provided for the purpose on the upper side of the top cover. Align the Ballot paper properly so that each candidate's name and his symbol are in line with the corresponding Candidate's lamp and button. After ensuring this alignment, close and press fit the Ballot Paper Screen to secure the Ballot Paper firmly underneath that screen (Fig. 17).

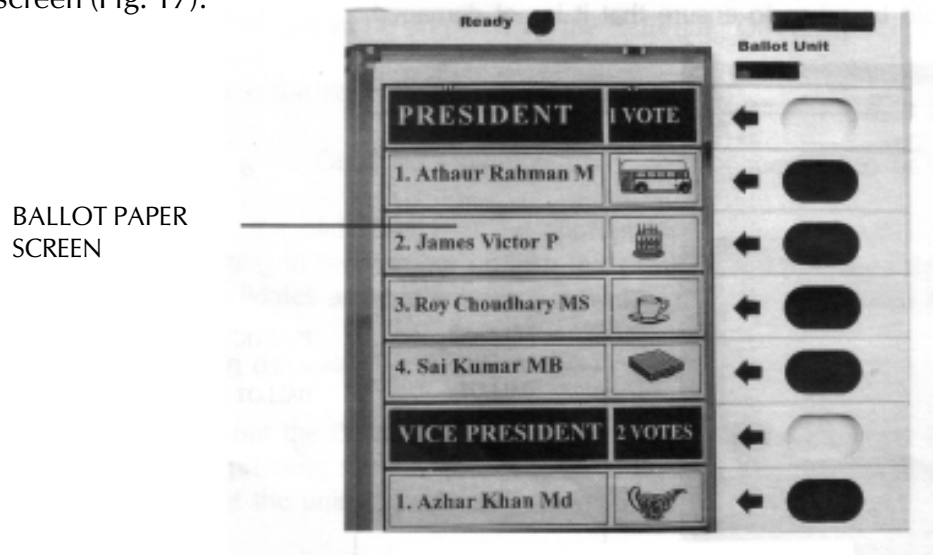


FIG. 17 Properly Aligned Ballot Paper

Note: Alignment of the Ballot Paper is an important step. Please do this carefully. There should not be any misalignment as it will create confusion in the voter's mind.

6. After the Ballot Paper has been firmly fixed and the Ballot Paper Screen has been pressed fit on the upper side of the Top Cover, the screen is to be sealed on the Top cover. This is to be done by passing the thread through the two holes on the screen specially provided for the purpose (Fig. 16) and by putting the thread seal on the prescribed address tag showing the particulars of the election with the seal of the Returning Officer.

MASKING OF CANDIDATES BUTTON

7. Unused buttons are to be masked, including end buttons of Ballot except for the last button in the last Ballot Unit (i.e END button). The white masking tabs should be moved onto the Candidate's buttons not required to be used.

Note : For example, see Fig. 18.

Button 1	-	Masked	-	For "PRESIDENT" post
Button 2 to 5	-	Unmasked	-	For Candidates
Button 6	-	Masked	-	For "VICE PRESIDENT" post
Button 7 to 10	-	Unmasked	-	For Candidates
Button 11 to 15	-	Masked	-	Unused
Button 16	-	Unmasked	-	END button

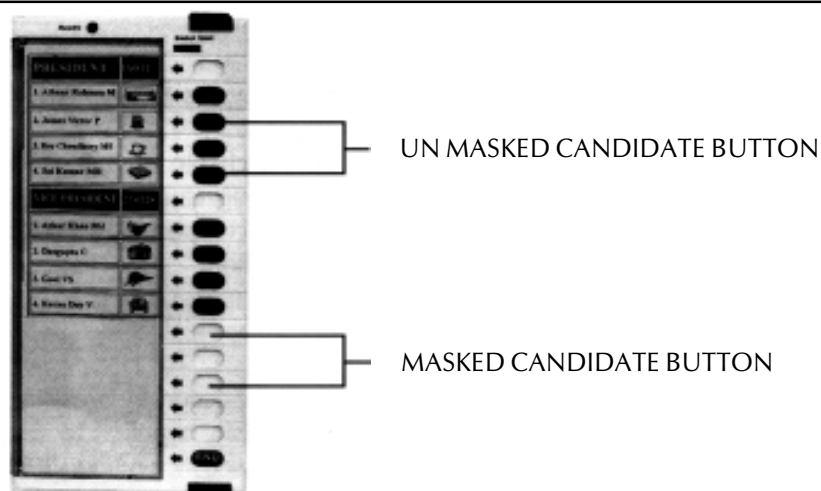


FIG. 18 Ballot Unit set for 2 posts and 8 Candidates

SETTING OF SLIDE SWITCH

8. Inside the Ballot Unit on the top right side, there is a Slide Switch, which has four positions 1, 2, 3 and 4. If only one Ballot Unit is to be used, set this Switch to the position marked '1'. If two Ballot Units are to be used, set this Switch to the position marked '1' in the Ballot Unit which is connected to the Control Unit, and in the second Ballot Unit set this Switch to the position marked '2'. If three Ballot Units are to be used, the Slide Switch will be set to the position marked '1' in the first Ballot Unit which is connected to the Control Unit, to the position marked '2' in the second Ballot Unit which is connected to the first Ballot Unit and

to the position marked '3' in the third Ballot Unit. Likewise, if the 4th Ballot Unit is also to be used then the Slide Switch will be sent to the position marked '4' in the last Ballot Unit (Fig. 19).

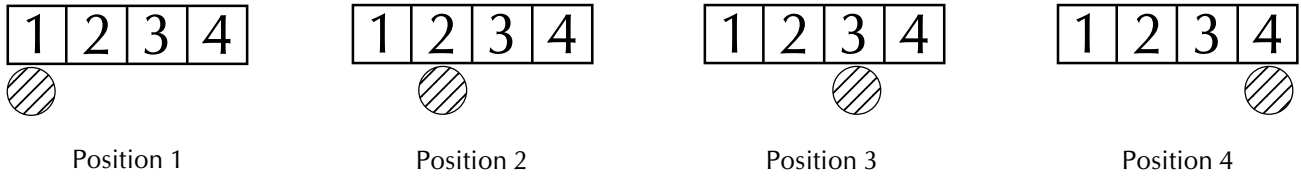


FIG. 19 Slide Switch set to Position '1','2','3','4'

SEALING OF BALLOT UNIT

9. Close the Ballot Unit by bringing the top cover back to its original position. Pass two threads, one through the three holes at the top and other through the three holes at the bottom provided for the purpose and seal each thread with Returning Officer's seal.

Note: While sealing take care that direct flame does not come in contact with Ballot Unit and the molten wax does not fall on any part of the machine.

CONTROL UNIT

10. The Control Unit is to be prepared by the Returning Officer by -
 - a. Installing the Power Pack.
 - b. Checking the presence of detachable memory module.
 - c. Setting the number of contesting candidates.
 - d. Sealing the 'Card. Set' button compartment and
 - e. Sealing the Candidate Set Section.

POWER PACK INSTALLATION

11. Open the cover of the Candidate Set Section by pressing slightly inward the latch provided on the left side. Install the Power Pack specially supplied by mating the socket of the Power Pack to the plug. Ensure that Power Pack is pressed tight. (Fig. 20).

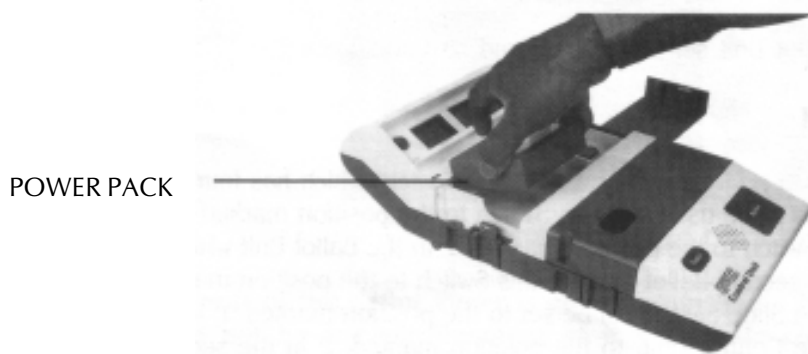


FIG. 20 Installing the Power Pack