

## AUDIO VISUAL EDUCATION

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Module IV

Duplicating Processes

Unit 5

Photo Copying  
-----Instructional Objectives:

1. Name the four types of photo copying processes.
2. Describe the situation in which electronic static copies can be advantageously used.
3. State when a translucent carrier sheet is to be used for electro-static copying.
4. State the precautions to be observed for protecting copy paper.
5. Explain the proportion of toner concentrato and dispersent used for preparing developer.
6. Identify the operating parts of Lennox -200 copier.
7. Arrange in the serial order the performance checklist items for operating a 'Lennox -200 copier'.
8. Operate a 'Lennox -200 copier'.

## AUDIO VISUAL EDUCATION

## SCRIPT BOOK

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Module IV                    Duplicating Processes.  
Unit     5                    Photo Copying  
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PHOTO COPYING

Photo copying processes and equipment for the same are now available in many varieties, because of their varied advantage, they are becoming increasingly popular for instructional purposes. The photo copying process is classified into different systems. i.e., diazo, infra red, diffusion transfer and electrostatics. We are limiting our studies to one type of "electrostatic copier". Electrostatic copiers are available for taking copies from sheet originals and pages of printed books. The electrostatic copier which we are using is Lennox 200 copier.

LENNOX - 200 COPIER

This is a sheet fed electrostatic copier and will produce copies instantly from any type of original matter, hand written, typed or printed text and photographs. For producing good quality copies, proper care and handling of the equipment is important.

ORIGINALS FOR COPYING

It is important to select good originals for copying as the copy tanken is not likely to be better than the original. Originals must be in the form of sheets, the thickness not more than that of a post card and width not exceeding 216 mm. You can say the sheets can be of A4 size.

Thin sheets with edges badly torn or crumbled are likely to create problems in feeding. In such cases use the tranlucent carrier sheets. Badly torn originals can be kept inside this carrier and fed into the machine.

A word of caution - Detach any staples, pins or extraneous matter before the original is fed into the machine, as this will damage the transporting system in the machine.

#### COPY PAPER

Lennox needs special coated copy paper sheets for taking copies. Maximum width of copy paper is 216 mm and the length can vary. The lengths of copy paper usually available are 339, 279 and 140 mm. The papers should not be kept for a long time exposed to light. It should be kept free of moisture and in a "black" closed packing like any photo sensitive paper. The coated side of the paper is much whiter than the other side, while copying the coated side faces the original.

#### DEVELOPER

For image development the process uses a toner mixture. This mixture consists of Toner concentrate and dispersent mixed in the proportion of 6 cc concentrate to 1 litre of dispersent.

The toner tank is fitted inside the machine and is accessible when the top cover is lifted. The mixture can be filled in this tank using a funnel. The toner tank needs frequent replenishment and this is indicated by a warning light. For replenishing the tank  $\frac{1}{2}$  can of toner mixture is added. If the test copies are found to be faint few drops of toner concentrate may be added.

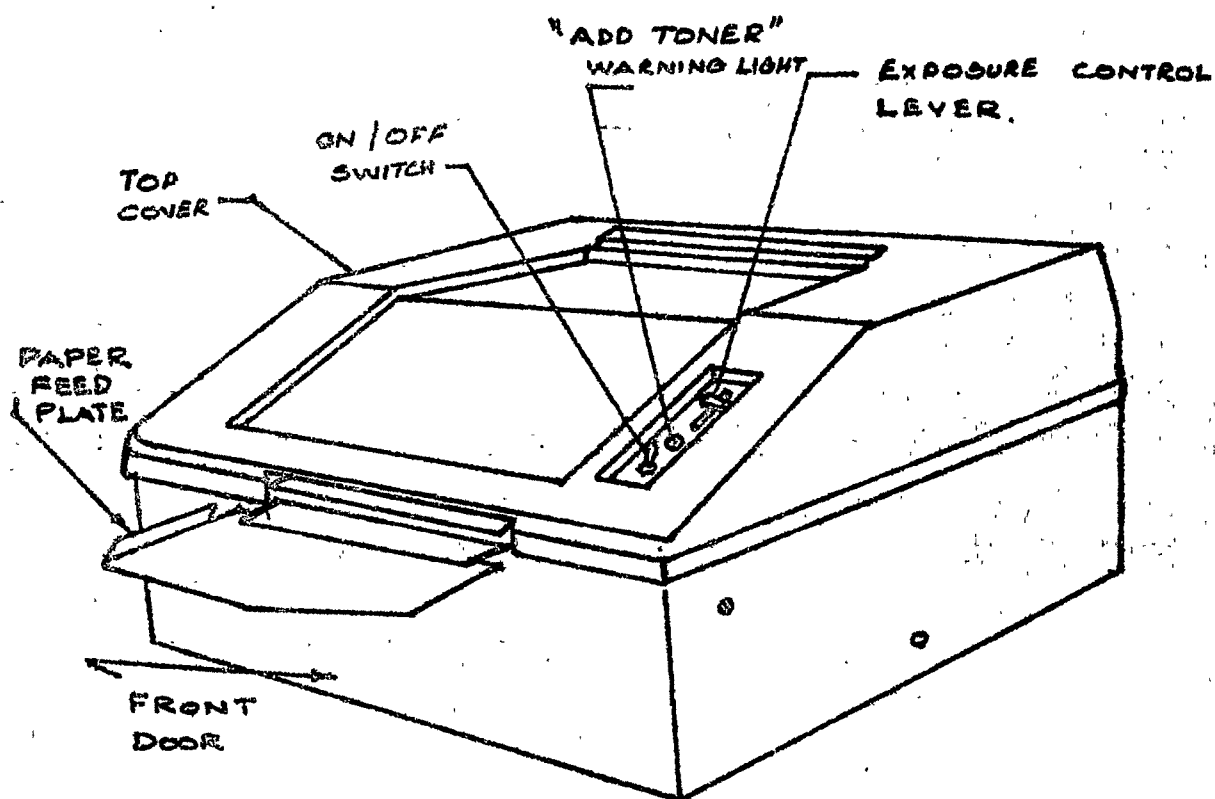
NOTE: The concentrate must be vigorously shaken before pouring it into the tank. Keep the lid always tightly closed.

#### OPERATING PARTS OF LENNOX - 200 COPIER

The machine movement is controlled by an ON/OFF switch, just above the switch is the Warning light. The warning light comes on when the level of the toner mixture is low in the tank.

The exposure control lever is located near the warning light. This can be positioned depending on the type of print needed - dark or light.

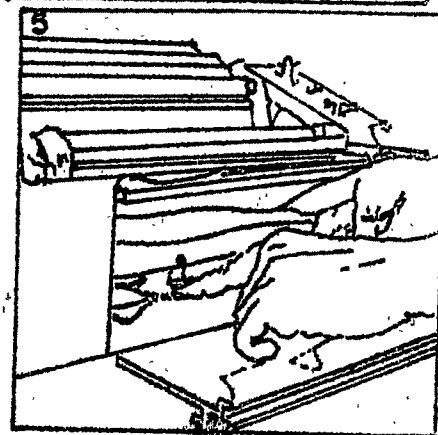
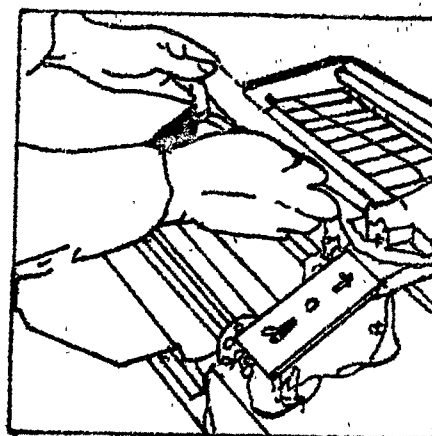
The paper feed plate is a loose piece and is fitted just above the front door. This helps to position the original and copy paper correctly for feeding.



The front door can be opened after removing the feed plate. In the event of any jamming of original during operation. Open this door and locate the lever, press the lever, and the original can be picked up.

The top cover if lifted, the toner and most of the moving parts (copy transport and developing) can be located. In the event of any copy jamming during operation it can be removed by pulley the flap on the top of the machine. It is always advised to disconnect the power source before attempting to remove the jammed copies.

M IV/5-3/58



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Module IV

Duplicating Processes

Unit 5

Photo Copying Time 2½ min.

Practical Exercise No: 47.

A. PROBLEM

Using Lennox 200 Photo copying machine,  
take a copy of the given sketch.

B. EQUIPMENT & MATERIALS

1. Lennox 200 photo copier.
2. Copy holder.
3. Copying paper (Chemically coated).
4. Developer (toner).

C. POINTS FOR GRADING

1. Neat copy.
2. Uniform exposure.
3. Correct operations.

D. Deadline for the project : June 15th.

M IV/U 5/Pr.Ex. 47.

## AUDIO VISUAL EDUCATION

Module IV

Duplicating Processes.

Unit 5

Photo Copying.

Pr.Ex.47 Performance check list for OPERATING LENNOX 200 COPIER.

1. Open front door by turning the knob to horizontal position.
2. Position the feed plate taking care that notch in centre of the plate engages in the guide pin of front door assembly.
3. With plate in position, push back door to close and turn the knobs to lock.
4. Start the machine.
5. With original facing place coated side of the copy paper on top; coated side is much whiter than the uncoated side and can be easily distinguished.
6. Then align the original and copy paper along left and top edges.
7. Rest both sheets against left hand guide edge and move forward so that original enters in lower slot and copy enters upper slot.
8. Release the grip on sheets, immediately when these are caught in the roller.
9. Pick up the original from the bottom and the copy from the top.
10. Switch off the machine and cover the same with the cover.

M IV/5/Pr.Ex.47.

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Module IVPhotocopying  
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Pr.Ex.47 Operating Lennox 200 copier.

The check list given under are not in a sequence. Number 1,2,3 ... against each step in the correct sequence.

PROCEDURE:

- \_\_\_\_\_ a. Rest both sheets against left hand guide edge and move forward so that original enters in lower slot and copy enters upper slot.
- \_\_\_\_\_ b. With the original facing up, place coated side of the copy paper on top. Coated side is much whiter than the uncoated side and can be easily distinguished.
- \_\_\_\_\_ c. Open the front door by turning the knob to horizontal position.
- \_\_\_\_\_ d. With plate in position, push back door to close and turn the knobs to back.
- \_\_\_\_\_ e. Then align the original and copy paper along left and top edges.
- \_\_\_\_\_ f. Start the machine.
- \_\_\_\_\_ g. Position the feed plate taking care that notch in centre of the plate engages in the guide pin of front door assembly.
- \_\_\_\_\_ h. Switch off the machine.
- \_\_\_\_\_ i. Pick up the original from the bottom and the copy from the top.
- \_\_\_\_\_ j. Release the grip on sheets, immediately when these are caught in the rollers.

AUDIO VISUAL EDUCATION



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Module IV

Photocopying

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Pr. Ex.47. Operating Lennox 200 copier

The Check list given under are not in a sequence. Number 1,2,3 .. against each step in the correct sequence.

PROCEDURE:

- 7 a. Rest both sheets against left hand guide edge and move forward so that original enters in lower slot and copy enters upper slot.
- 5 b. With original facing up, place coated side of the copy paper on top. Coated side is much whiter than the uncoated side and can be easily distinguished.
- 1 c. Open the front door by turning the knob to horizontal position.
- 3 d. With plate in position, push back door to close end turn the knobs to lock.
- 6 e. Then align the original and copy paper along left and top edges.
- 4 f. Start the machine.
- 2 g. Position the feed plate taking care that notch in centre of the plate engages in the guide pin of front door assembly.
- 10 h. Switch off the machine.
- 9 i. Pick up the original from the bottom and the copy from the top.
- 8 j. Release the grip on sheets, immediately when these are caught in the rollers.

M IV/5/Pr.Ex.47/KC 1-1.



## AUDIO VISUAL EDUCATION

## CRITERION TEST

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1. Four types of photo copying processes are
  - a. \_\_\_\_\_ b. \_\_\_\_\_
  - c. \_\_\_\_\_ d. \_\_\_\_\_
2. Lennox 200 copier is used for -
  - \_\_\_\_\_ a. Preparing same size copies from pages of printed books.
  - \_\_\_\_\_ b. Making same size copies from sheet originals.
  - \_\_\_\_\_ c. Making same size copies from pages printed books and originals.
  - \_\_\_\_\_ d. Making enlarged and reduced copies from sheet originals.
3. The maximum width of paper that can be fed into the lennox copier is \_\_\_\_\_.
4. If the original edges are damaged, it can be fed into the copier using \_\_\_\_\_.
5. The two precautions to be observed for the proper protection of copy paper sheets are -
  - a. \_\_\_\_\_
  - \_\_\_\_\_
  - b. \_\_\_\_\_
  - \_\_\_\_\_
6. The side of the copy paper which faces the original is \_\_\_\_\_.

7. The toner mixture is prepared by mixing \_\_\_\_\_ and \_\_\_\_\_. 93

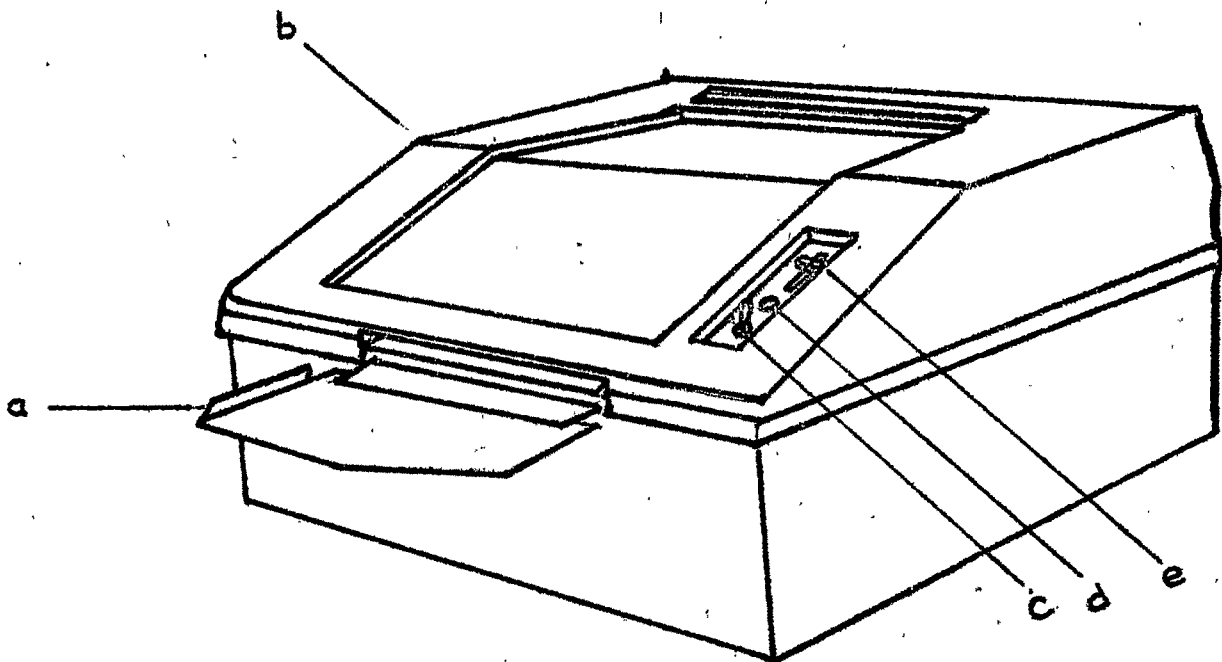
8. The proportion of toner concentrate and dispersant in the toner mixture of Lennox-200 Photo copier.

- |                    |            |
|--------------------|------------|
| _____ a. 10 cc     | -- 1 litre |
| _____ b. 60 cc     | -- 1 litre |
| _____ c. 6 cc      | -- 1 litre |
| _____ d. 10 litres | -- 10 cc.  |

9. Dark or light prints from a Lennox copier can be controlled by the \_\_\_\_\_.

10. The component in the Lennox-200 copier which helps to align the papers correctly while feeding is \_\_\_\_\_.

11. The sketch below is of a Lennox 200 copier. Identify the parts by placing the letter denoting the parts against the corresponding parts listed.



- \_\_\_\_\_ 1. Exposure control lever.
- \_\_\_\_\_ 2. Warning light
- \_\_\_\_\_ 3. Paper feed plate
- \_\_\_\_\_ 4. Front door
- \_\_\_\_\_ 5. ON/OFF switch.

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MODULE IV: Duplicating Processes.  
Unit 5: Photo Copier  
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1. Four types of photo copying processes are:  
a. Xerox; b. Diazo c. Infra-red d. Dye transfer.
2. Lennox 200 copier is used for:  
   a. Preparing same size copies from pages of printed books.  
\*    b. Making same size copies from sheet originals.  
   c. Making same size copies from pages of printed books and originals.  
   d. Making enlarged and reduced copies from sheet originals.
3. The maximum width of paper that can be fed into the Lennox copier is 216 mm.
4. If the original edges are damaged, it can be fed into the copier using a carrier sheet.
5. The two precautions to be observed for the proper protection of copy paper sheets are:  
a. kept free from moisture.  
b. black coloured closed packet (packing).
6. The side of the copy paper which faces the original is the coated side.
7. The toner mixture is prepared by mixing toner concentrate and dispersent.
8. The proportion of toner concentrate and dispersent in toner mixture of Lennox 200 copier is  
\*    c. 6 cc - 1 litre.
9. Dark or light prints from a Lennox copier can be controlled by the exposure control lever.
10. The component in the Lennox 200 copier which helps to align the papers correctly while feeding is feed plate.
11. Identification of the parts of the Lennox 200 copier.  
  e 1. Exposure control lever   d 2. Warning light.  
  a 3. Paper feed plate   f 4. Front door.  
  c 5. ON/OFF Switch.