AN INVESTIGATION OF INDIVIDUAL INSTRUCTION AND ITS APPLICATION TO THE OPERATION OF AUDIO-VISUAL EQUIPMENT

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The mounting pressures of increasing school and college enrollments have stimulated interest in problems of the individual student who is unable to pursue an educational path suited to his unique interests and potential. These problems may be due to large classes, isolation from an overextended teacher, or restrictions within rigid, regimented instruction (4). The projected enrollment of students in institutions of higher learning by 1975 is 7,000,000 as compared to 3,600,000 in 1960 (22).

Although individual instruction dates back to 1870 (3), the intensity of interest in it is greater today than ever before. With increased knowledge and rate of change, continued learning may now take place through individual instruction which has been advocated as an instrument for motivation, skill, individual growth and accomplishment. Only through research and investigation can the real effectiveness of individual instruction be determined.

Purpose of the Study

The purpose of this study was to develop and evaluate two forms of individualized instruction to be used in teaching the operation of equipment used in the Audio-Tutorial Laboratory of the Clothing, Textiles and Merchandising Department at Oklahoma State University.

The objectives were:

(1) to develop a unit to teach students how to operate audio-visual equipment;

(2) to develop a test to measure the accomplishment of the unit objectives; and

(3) to compare the effectiveness of teaching the unit by a written method and a tape recorded method.

Definition of Terms

Individual Instruction - the pursuit and acquisition of knowledge and skills by students with limited assistance from an instructor (8).

Audio-Tutorial Laboratory (AT Laboratory) - a classroom furnished with study carrels, a display area and storage space. Each carrel contains a tape recorder, two projectors, a revolving bulletin board and various printed materials.

Carrel - small enclosure for independent study.

Program - subject matter to be learned by students via self-instruction devices.

Quiz Section - small student discussion group.

Limitations of the Study

No effort was made to pair students according to their scholastic records, previous experiences with the audio-visual equipment or exposure to programmed instruction; however, an attempt was made to assign students to groups at random. The programs were alternated as they were handed out to the students. The first student entering the laboratory received Program A; the second, Program B; the third, Program A; etc. Since it was necessary for these particular programs to be completed within one week, the programming principle of

self-pacing was somewhat limited. The limited amount of time in preparation of the unit also prevented testing and revising the second or third time before presenting to the large group. No statistical inferences were made since the two groups involved were not assumed to be samples of any population. The results of this study apply only to this particular situation and these students.

CHAPTER II

BACKGROUND FOR THE STUDY

In the rapidly changing world of education the terms independent study, individualized instruction and individually prescribed instruction are now among the more familiar topics of discussion. Many teachers know a great deal about these educational methods and their possibilities; parents are being informed about independent study through the experiences of their children. Not everyone, however, is aware of the principles behind the technique. Articles in popular magazines tend to emphasize the sensational aspects. Advocates state that these methods will cure all educational ills, while objectors see them as dangerous moves toward dehumanization of education.

Robinson defines independent study as "the pursuit of special topics or projects by individual students under the guidance of faculty advisers apart from organized courses" (16). Rogge states,

> Independent study is defined . . . as independent work or reading sometimes on one's own, sometimes in small groups /sic/, but with such work taking place in the absence of the teacher and in lieu of certain regularly scheduled class meetings (2).

Wirth states, "Independent study is an occasion which provides a person with an opportunity to bring his own ordering to some aspect of experience" (23). The lack of agreement on a definition and on essential attributes of independent study hampers investigation into and communication about the topic. However, individual study (study by one's

self) and self-directed study (study independent from a regularly structured curricula) are frequently associated with the term. Shifting the responsibility for continuing education to the individual has often been identified as the ultimate goal for American education. Learning is change in behavior, and such a change is personal and individualistic (6).

Two studies that help substantiate the potential of independent study are Hartnett and Stewart's research at the University of South Florida and Churchill's study at Antioch College. Results of these studies indicate that students studying independently without class attendance perform equal to or better than matched-ability students in the traditional situation (5, 12).

In 1963, Felder studied independent study practices in American colleges and universities offering four-year programs and having enrollments exceeding 200. He found that 68% of the 445 institutions used independent study in undergraduate instruction (9).

When considering the use of independent study, both advantages and disadvantages should be examined. Major advantages can be considered under the headings of mechanical skills, thought processes and behavior changes. The mechanical skills include: the knowledge of how to find and organize facts; the practice of note-taking, outlining and summarizing; and the writing of papers and projects. The thought processes are continually in use as the student learns to organize and analyze. Independent study teaches the individual to search for information in textbooks and reference materials and to distinguish between items which are facts and those which are not facts. It gives him knowledge based on experience. It helps him to think critically and to select,

determine and compare. In writing down what he studies, the student is forced to think and express his ideas more clearly. He also learns to use his time more profitably (14).

Independent study has a special contribution to make to the mentally, culturally and economically deprived who have met with frustration and disappointment. Through this technique such students may succeed and develop a desire to learn (1, 21). An independent study program may assist nonreaders to become good readers; stimulate nonachievers to become outstanding achievers; or change social isolates into accepted, productive group members. It may also serve as a motivational factor to heighten curiosity or to allow for self expression (20).

Along with the supporting comments come many objections, but when given careful consideration, many of the objections disappear. Among these objections are those discussed by Naal (14). One such objection is that a student can and often does become confused in studying alone. Naal states that confusion can be used as a teaching aid, for only by experiencing the situation will the confusion be resolved. Another objection is that independent study reinforces poor study habits. His answer to this is that no method will automatically correct human nature; however, the teacher in the center of the stage, directing activities and advising students on their individual study problems, can induce improvement. Some objectors feel that only bright students can profit from independent study. Naal says there is no proof of this, for people of all intelligence levels perform activities which require independent thinking and studying. Finally, he comments on the objection concerning the lack of available materials. He interprets

this as an excuse rather than an objection, for teachers need more determination in insisting upon the needed class materials (14).

Other objectors believe independent study creates problems because it prevents keeping the curriculum the same for all students. When studying independently some learners waste time and become frustrated due to the lack of a structured program. In answer to this, Torrance (20) states that while independent study may be useful to all students, it will be far more useful to some than to others. No one technique can be satisfactory for all students.

Dehumanization is probably the most emphasized objection to independent study. According to Torrance, successful use of independent study will not replace teachers, but instead it will require a higher order of teaching skills than any other method of instruction. Independent study requires sensitive and alert guidance, imagination, empathy and a broad range of information. This type of teaching takes more intellectual and emotional energy than traditional methods.

Independent study can be implemented in several ways, one of which is programmed instruction. Programmed instruction is simply a medium through which students can learn on their own. The director of programming for Basic Systems Incorporated has described it this way:

> Programmed instruction refers to a method of teaching based upon psychological principles of individual learning. Material to be taught is broken down into very small steps, called frames. Each frame presents a new bit of information to which the student must make an active response--by filling in a blank, matching terms, completing a problem. He then receives immediate feedback, usually in the form of the correct answer with which he can compare his own. This immediate effect rewards or reinforces his learning. . . (19)

According to Schramm (17), the basic principles surrounding the theory of programmed instruction can be stated:

1. Learning proceeds most easily if it is acquired in small steps. Even the most difficult concept can be learned if broken down to its essential parts and these parts individually learned in a logical order.

2. Active participation is more effective than passive reception. A person learns more and retains it longer if he must do something that supports what he has learned each step along the way.

3. Rewards strengthen or "reinforce" learning, and the greater the reward the stronger the reinforcement. In programmed learning, a student knows at once if he is correct.

4. Learning is easier when a student proceeds at his own pace. In programmed learning, the student proceeds only when he has completed a step and has understood it.

Pula (15), an advocate of programmed learning, cites many factors as contributing to the popularity of this method of instruction. He states that:

1. Programmed learning techniques take the drudgery out of teaching. Teachers react to new situations in a creative manner rather than in a routine way.

2. Students enjoy assuming the responsibility for their learning. Programmed learning allows all pupils to participate actively at all times.

3. Students have individual teachers; the feedback from these "teachers" provides high incentive for learning.

4. More content is covered in a given time and retention is better than through conventional methods.

5. Learning step-by-step facilitates the mastery of skills and ideas.

6. Machines will not dictate educational programs or books and teachers will not be eliminated, but teachers will redirect their effort to more meaningful activities.

Gleason (11), another supporter of programmed instruction, states:

> Perhaps the most significant contribution which programmed instruction will make is dramatizing the necessity of systematic analysis of the teaching-learning process and the determination of the most effective means of instruction for various subject areas as well as various students.

Programs developed thus far can be grouped under the main headings of linear programming and adaptive programming. Linear, or Skinnerian, programming involves step-by-step presentation of material in a fixed, logical, sequential order. All students read and respond to the same material. Following a very short presentation of new material, the student is required to respond, usually by writing a word or two. Steps are so small and the cues and prompts so many that correct answers to the questions are expected and generally obtained. Reinforcement is immediate because the correct answer is available for comparison before moving on to the next bit of information or frame. The program is self-contained from beginning to end; it does not depend on aid from any other source. The goal of the programmer is to reduce the number of cues as much as possible while ensuring the respondent that he can answer the questions or fill in the blanks correctly. No provisions for errors are made since errors are irrelevant to the learning process (7, 15).

Criticisms of linear programming may be enumerated as follows (10):

1. Every student must proceed lock step through every frame regardless of his background or ability.

2. There is a tendency to ask for a particular response rather than allowing a choice between a class of responses.

3. The redundancies of most linear programs would leave few students in doubt about the correctness of their responses. Over-redundancy can be demonstrated by checking the number of responses selected due to cues previously given.

4. The only structure that linear programming employs is serial order.

5. Such programs permit no integrative and judgmental learning.

6. Learners are not trained to discriminate, but only to get an idea of correctness and incorrectness. There is no differentiation among answers.

7. Many linear programs seem to be written from the viewpoint that the learner has had no previous experience with the subject.

Adaptive programming, also called branching, allows for individual differences in the interests and backgrounds of students. This type program is composed of several paths or branches. Variations are introduced in the fixed sequence of step-by-step bits of information. The choice of an answer to a multiple-choice question can be used to direct the student to new material automatically. If an incorrect response is made to an item, the program will direct the student to branch out from the main sequence in order to pick up the information that he lacks. Similarly, if a student demonstrates through his answers that he is familiar with the subject matter being presented, the program may permit him to move ahead more rapidly by allowing him

to omit certain sections (7, 15). Shortcomings of the branching technique are that students may find the right answer by the process of elimination rather than from an understanding of the question, programmers cannot provide branches to take care of all possible needs of individual students and production costs are high (10).

Programming techniques have moved away from strictly linear sequences composed of small steps which concern only subject matter to multiple paths containing maximum step sizes which suggest a concern with student needs. Greater adaptivity to needs of the individual learner is possible with the development of new audio-visual systems. Rules of programming have been relaxed as programmers have begun to produce programs for learners in varied situations (10).

Independent Study in the Department of Clothing, Textiles and Merchandising at Oklahoma State University

Independent study in the AT Laboratory of the Clothing, Textiles and Merchandising Department in the Division of Home Economics at Oklahoma State University was first used in spring 1968. The basic clothing course, Clothing Selection, is taught by this method. Students attend a one hour lecture, a one hour quiz section and spend two to three hours in the AT Laboratory each week.

The AT Laboratory contains twelve study carrels. Each carrel is equipped with a Graflex Filmstrip-Slide Projector, a Kodak Carousel Slide Projector, a Norelco Cassette Tape Recorder and a bulletin board that revolves on an upright stand. Tapes, slides, filmstrips and other materials are available to students in the laboratory. A display area provides space for illustrative materials too large for the carrels.

Independent study in the AT Laboratory can be interpreted as the acquisition of knowledge with limited assistance from an instructor. The students are on their own when using the laboratory. They are responsible for arranging the time spent in the laboratory at their convenience.

CHAPTER III

METHODS, PROCEDURES AND STATISTICAL FINDINGS

The objectives of this study were: (1) to develop a unit to teach students how to operate audio-visual equipment; (2) to develop a test to measure the accomplishment of the unit objectives; and (3) to compare the effectiveness of teaching the unit by a written method and a tape recorded method.

Development of Materials

The first step in the development of the two self-instructional programs was selecting the objectives for the unit and determining the types of programs to be used in a class composed primarily of freshman students. A decision was made to use a tape recording and a programmed booklet applying a combination of programming techniques. The goals of the unit were to teach recognition of controls and skill in operation of the equipment by students.

The two programs were alike in content but different in technique of presentation. The information was divided into three sections each covering one of the three pieces of equipment located in the AT Laboratory carrels. First, the students were introduced to the controls and functions of the machines and second, they were instructed in the steps of proper operation. At various times, the students were requested to practice operation. Program A (Appendix B) was presented in written

form. A combination of both linear and branching programming was used. Students using Program A were given a copy of the program and a cassette tape. The tape was used only for practice in loading and unloading the cassette in the tape recorder. For Program B (Appendix C) students were also given a copy of the program and a cassette tape, but only introductory instructions for operation of the tape recorder were given in written form. The remaining information covering the projectors was recorded on the cassette tape. A general information sheet (Appendix A) was used to indicate the amount of experience the students had had with similar types of equipment or with the programmed technique. It also allowed students to make comments about their program.

Each carrel contained the audio-visual equipment, a filmstrip, slides and illustrations mounted on the bulletin board. The illustrations (Appendix D) showing pictures of the equipment with all controls labeled served as a reference while using the program. The pictures, filmstrips and slides remained in the carrels since both test groups used them. To aid the students in proper loading of the slides, the slides were chosen with printing on the slide image.

A test (Appendix E) to be taken by each student upon completion of the program was developed. Test items were designed to measure the accomplishment of the objectives. The test consisted of a combination of matching, fill-in-the-blank and multiple choice questions. A set of illustrations (Appendix D) was used by each student while taking the test. These pictures were identical to those used during the program except that numbers were substituted for the control names.

After the programs were edited for composition, programming techniques and accuracy of information, both the programs and test were

administered to two freshman women students with no previous contact with the AT Laboratory. This testing was on a one-to-one basis which consisted of the researcher and a representative of the population to be tested. It served the purpose of locating needed revisions. One student used each type program. Each student understood that she was helping to evaluate the programs for necessary revisions; thus she felt free to ask questions and make comments. A testing situation of this nature allowed the programmer to observe how the students interpreted what had been written.

Evaluation of the performance, comments and suggestions of the students indicated a need for clarifying the instructions, as the students had difficulty understanding what they were to do. The test supported the fact that one should not depend on assumptions about what a student may or may not know, for generally it was necessary to add information. Several items which had seemed clear to the investigator were easily misunderstood by the students.

The general information sheet (Appendix A) indicated that more students had worked with similar recording equipment than had worked with either type of projector. In the one-to-one evaluation, the students were given a pre-test, but they were quite concerned that they had to leave so many questions unanswered. Each student was able to answer only a very small percentage of the questions correctly; therefore, the pre-test was omitted on the basis that the poor performance of the students might discourage them prior to the program.

Another purpose of the one-to-one testing was to determine the time required to complete the program and test. With these two particular students, Program A required 3 hours, 25 minutes and Program B

required 2 hours, 45 minutes. This amount of time included completion of pre-test, post-test and the program. Due to the decision to omit the pre-test, this time was reduced.

Administration of the Program

Participants in the study consisted of 220 men and women enrolled in Clothing Selection at Oklahoma State University during the Fall Semester 1969. These students were divided into two groups by distributing Program A and Program B alternately as they came to the AT Laboratory to work, placing 110 students in each group. Twelve students failed to complete the test correctly due to misunderstanding the testing directions; consequently, their scores could not be included in the findings. Six of the twelve had followed Program A and the remaining six had followed Program B. This decreased the population total to 104 in each group.

As the students came into the AT Laboratory, they were handed a program, directed to a carrel and asked to begin work immediately. The students were told to work independently and to ask for assistance from the laboratory attendant only when they had difficulty with the equipment or with the program. Since most students were not able to complete the program in one work period, a file was arranged for keeping the programs between work periods. This eliminated their working on the program outside of the laboratory without the necessary audio-visual equipment. Each student was given a test booklet and a set of illustrations when the program was completed. At the end of the test, all program materials were returned and the student was ready to begin the next unit.

Statistical Findings

Data analysis was made using two independent groups since the students were not treated as matched pairs. The test scores were divided into two groups: Program A and Program B. The mean scores, variance, standard deviation and standard error of the mean for each group may be found in Table I. The significance of the difference as measured by the use of a t-test is shown in Table II. The non-significance of the difference of the means indicated that there was no significant difference in performance after using the two programs.

Out of the possible 121 points the range of test scores for Program A was 115 to 26, while the scores for Program B ranged from 117 to 53. This showed that students scored higher after using Program B than Program A. Students using Program B also expressed a more favorable attitude toward independent study than did those using Program A. Fewer students objected to the length of Program B than to the length of Program A. "Too long" was a frequent objection from students having used Program A. The fact that the student had to listen instead of read during the learning process may have made Program B seem shorter and generally more appealing. Another objection to Program A was that it was "elementary". The information in the linear section was over-emphasized and the technique of the branching section was distracting because students had to turn pages continually. The sections using a combination of programming techniques were more interesting to the students. From both observation of the students and test scores it seemed that the recorded technique used in Program B was slightly more effective in terms of student performance. Program B also received many more favorable reactions from the students.

TABLE I

TEST MEAN SCORES, VARIANCE, STANDARD DEVIATION AND STANDARD ERROR

Program	Group Size	Mean	Variance	Standard Deviation	Standard Error of the Mean
A	104	100.067	167.772	12.9527	1.27012
B	104	100.346	115.103	10.7286	1.05202

TABLE II

t-TEST COMPARISON BETWEEN GROUPS

	D.F.	t-statistic	Significant Difference
A - B	206	0.16907	No

One of the greatest difficulties experienced while programming was achieving clarity in writing. The student cannot identify the purpose of the program unless the meaning is the same to the student as it was to the writer. The one-to-one testing uncovered several items that were unclear, but even more were discovered after the large group testing. Due to the limited amount of time, it was impossible to test and revise again. The following major program revisions were made after the one-to-one testing and prior to use Spring Semester 1970: general instructions for each section were clarified; operational procedure for each machine was outlined more completely; and answers to the test items were alphabetized to speed the answering process. Appendices B and C include both programs in their revised forms.

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to develop and evaluate two forms of individualized instruction to be used in teaching the operation of equipment in the AT Laboratory of the Clothing, Textiles and Merchandising Department at Oklahoma State University. The objectives were: to develop a unit to teach students how to operate audio-visual equipment; to develop a test to measure the accomplishment of the unit objectives; and to compare the effectiveness of teaching the unit by a written method and a tape recorded method.

Summary

Two forms of programmed instruction were developed by the researcher: a written booklet using a combination of programming techniques (Program A) and a tape recording (Program B). After the programs were completed and visual materials were developed, a test was constructed to measure student attainment of the unit objectives. Prior to presentation, each program was tested on a one-to-one basis to assist in the revision of the programmed materials.

The programs were revised as indicated by the one-to-one testing and then given to 220 students enrolled in the Clothing Selection course at Oklahoma State University during the Fall Semester 1969. The programs were distributed alternately as students came into the

laboratory. The test was given to each student as he completed his program.

Analysis of the data included a comparison of group means and a t-test to determine any significant difference. Results of this analysis showed no significant difference between the mean scores of the two methods of self-instruction.

Conclusions

Students can adequately recognize the controls and learn the operational skills by using either of the programs; that the recorded technique was preferred to the written method based on student reaction as well as performance; and that through the use of these self-instructional programs definite improvement in equipment operation has been observed.

Recommendations

The following recommendations are made for further study:

1. Repeat the study using a population paired according to student abilities and previous experiences to determine whether there is a relationship between student performance and previous knowledge.

2. Conduct a similar study with populations of the same age to determine the suitability of the unit for college freshmen.

3. Teach the unit using a different combination of programming techniques and multimedia approaches in search of a more effective method.

4. Compare Program B with a program of a different technique to see which method receives the more favorable reaction.

5. Construct a test with less emphasis on memorization of machine controls and more on performance.

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APPENDIX A

APPENDIX A

GENERAL INFORMATION SHEET

Program: A_____ B_____

Classification: Freshman___ Sophomore___ Junior___ Senior___

Have you worked with any of these pieces of equipment before?

Cassette tape recorder _____
Filmstrip-slide projector _____
Carousel slide projector _____

Have you used any materials which were written using the programmed instruction technique? Yes ____ No____

After completing your program, return to this page and make any comments you wish concerning this method of teaching. (e.g., what should be added, omitted, did you like or dislike it, why)

COMMENTS:

APPENDIX B

APPENDIX B

PROGRAM A

AUDIO-TUTORIAL LABORATORY EQUIPMENT

The objectives of this program are:

1. To introduce the student to three specified pieces of equipment:

   Norelco Cassette Tape Recorder
   Graflex Filmstrip-Slide Projector
   Kodak Carousel Slide Projector

2. To instruct the student in the operation of the three specified pieces of equipment (listed above).

   The operation includes:

   -preparing the tape recorder for use, inserting the tape, playing and rewinding the tape, and turning off the machine.

   -preparing the filmstrip-slide projector for use with both slides and filmstrips.

   filmstrip-insert filmstrip
   project filmstrip
   turn off the projector

   slide-insert and remove slide changer
   load slides
   project slides
   turn off the projector

   -preparing the carousel slide projector for use, loading slides, projecting slides, and turning off the projector.

This information is presented in the form of a program--an educational device that guides you, the student, through a series of experiences leading to a working knowledge of the equipment in the laboratory. It is self-instructional so you are on your own without the aid of an instructor.

Within the text of this program, there will be numbers in parentheses. These numbers refer to the illustrations of each piece of equipment and their attachments. The illustrations are found on the revolving bulletin board in your carrel. Referring to these pictures will assist you in identifying machine controls and understanding the operation of each machine.

Each piece of equipment is discussed so that you are first introduced to the controls and their functions. Then you progress through the operation procedure taking part as you go. Becoming familiar with a machine's controls and their functions is a major step in knowing how to operate a machine.

With this introduction you are ready to begin the program. Read carefully and follow instructions. Good luck!

TAPE RECORDER

TAPE RECORDER CONTROLS

In this section, the material is divided into small steps called frames. Each frame presents some information omitting a word or phrase which you must write in the blank space or giving you a choice between two words. After making each response, check your answer with the confirmation given in the left hand column of the page. The correct answers are given to the immediate left of each frame and should be covered while completing this program. Use the cover provided. Do not operate the recorder.

1-No response required

1-Place the tape recorder in front of you with the two knobs in the lower right hand corner. Proceed to frame 2.

2-controls

2-You will notice along the front edge of the recorder a row of pushbuttons and knobs called controls (numbered 5-12 on the illustration). They are called controls because their use regulates what the recorder does. The recorder will respond to your use of one of the _____.

3-controls

3-The operation of the recorder is dependent on how the operator uses the controls. In order to operate this machine properly, you (the operator) must be able to identify and use the _____.

4-volume control

4-Let us begin with the knob at the far right. It is the volume control (12). This knob has two functions. One is to turn the recorder on and off. A clockwise turn until it clicks will turn it on, while a counterclockwise turn past the click will turn it off. The control used to turn the machine on and off is the _____.

5-turn the volume control to the off position

5-Although the recorder will stop automatically at the end of the tape, the volume knob must be turned off to break the electrical circuits. The last step in machine operation is to _____.

6-volume control

6-The second function of the volume control is to control playback volume after the machine is turned on. Once the machine is on, a clockwise turn will increase volume, while a counterclockwise turn will decrease volume. The control used to regulate how loud the tape plays is the _____.

7-to regulate volume and turn recorder on and off (either order)

7-Two functions of the volume control are _____ and _____.

8-tone control

8-The knob to the left of the volume knob is the tone control (11). It adjusts the frequency response on playback permitting tone adjustments. If the recorded voice is difficult to understand, it may become more clear with an adjustment of the _____ _____.

9-counterclockwise tone control

9-A counterclockwise turn of the tone control will decrease treble, while a clockwise turn will decrease bass. A very high voice may be made more desirable by a (clockwise/counterclockwise) turn of the _____ _____.

10-volume

10-In normal operation of the recorder, the first control to be used would be the (tone/volume) _____ control.

11-red

11-There are seven pushbuttons--six are white and one is red. Only the white pushbuttons are used during the playback operation. The red pushbutton is used when recording; therefore, you will never push the red button. Of the seven pushbuttons, you will not push the _____ pushbutton.

12-CASSETTE

12-The first pushbutton you will use is the one labeled CASSETTE (5). Pressing the CASSETTE pushbutton releases the Cassette Holder (2) and causes the holder to pop up for easy loading. In order to insert a tape, the holder must be opened by pressing the _____ pushbutton.

13-tape

13-The cassette (1) is a plastic cartridge which contains the recorded tape. The enclosure of the tape in the plastic case prevents handling of the _____.

14-pressing down with the fingers

14-After loading the tape, the Cassette Holder is closed by carefully pressing it back into place with the fingers. To bring the tape into position, close the Cassette Holder by _____.

15-CASSETTE

15-If by mistake you insert the wrong tape, which pushbutton would you use to change tapes? _____

16-Cassette Holder

16-The purpose of the Cassette Holder is to hold the tape while being played. In order to listen to a tape, the cassette must be put into the _____ _____.

17-loading or unloading the cassette

17-Since pressing the CASSETTE pushbutton causes an immediate release of the Cassette Holder, it is important not to press CASSETTE except when loading or unloading the cassette. Push the CASSETTE pushbutton only when _____.

18-PLAYBACK

18-The PLAYBACK pushbutton (6) is indicated by a single arrow pointing to the right (▶). Pressing this button begins the tape action and plays the tape. For normal listening, the tape is started with the _____ pushbutton.

19-volume control

PLAYBACK

19-The machine should be turned on before starting tape motion. The control used to turn the machine on is the _____ _____ and the control for playing the tape is the _____ pushbutton.

20-FAST REWIND

20-Above the pushbutton to the right of the PLAYBACK pushbutton you will find a pair of arrows pointing to the left (◀◀). This button is called FAST REWIND (7). It winds the tape onto the left reel at a high speed. Each time a tape comes to its end, rewind onto the left reel unless you plan to listen to the other side immediately. The tape must be on the left reel in order to play when PLAYBACK is depressed. A quick way to rewind is by pushing the _____ pushbutton.

21-is

21-To listen to side two of a continued tape, turn the cassette over without rewinding at the end of side one. After turning the cassette over, the tape (is/is not) ready to listen to.

22-FAST REWIND

STOP

22-It is not necessary to be at the end of the tape to use the FAST REWIND pushbutton. It may also be used when rewinding only a short distance. The amount of tape that is rewound depends on how long you allow the tape to run before pressing STOP. The STOP pushbutton is used to stop all tape action. If you wish to rewind only a very short part of the tape, you may use a rapid succession of first pushing the _____ pushbutton then the _____ pushbutton.

23-FAST FORWARD

23-Next to the FAST REWIND pushbutton, you will observe double arrows pointing right above it (▶▶). This is the FAST FORWARD pushbutton (8). The use of this button causes the tape to wind onto the right reel at a high speed. To advance to another part of the tape without listening to the part you are passing over, you may use the _____ pushbutton.

24-FAST FORWARD

24-After inserting the tape and discovering you need only hear the end, you can skip the beginning by using which control? _____

25-STOP

25-Before you can fast forward a tape, the tape must not be in motion. To stop all machine action, depress the _____ pushbutton.

26-PAUSE

26-The pushbutton to the right of FAST FORWARD is PAUSE (9). This button allows for temporary stops without switching off all circuits. Pressing PAUSE a second time will release it. A brief stop to take notes could be accomplished by depressing the _____ pushbutton.

27-STOP

27-The pushbutton at the extreme right in the row of pushbuttons is STOP (10). The STOP pushbutton is depressed when the tape has been completed and you want to turn the recorder off. Although the machine automatically stops at the end of a tape, it is a safety precaution to press the STOP pushbutton. Frequently a lesson or recording will be finished before the end of the tape, but you will be told so you can then push the STOP pushbutton. To ensure complete shutdown prior to turning the machine off, press the _____ pushbutton.

28-STOP

28-The STOP pushbutton releases all depressed pushbuttons except PAUSE. Since the tape cannot be in motion when changing speed or direction, the STOP pushbutton is depressed before pushing either the FAST FORWARD or FAST REWIND pushbuttons. Before rewinding a tape, stop all tape action by pressing the _____ pushbutton.

29-STOP

PAUSE

29-The STOP pushbutton can be used to release all depressed pushbuttons except PAUSE, and the PAUSE is released merely by pressing it a second time. To release the FAST REWIND pushbutton use the _____ pushbutton and to release PAUSE use the _____ pushbutton.

30-STOP

PAUSE

30-The difference between the STOP and PAUSE pushbuttons is that to change speed or direction you use the _____ pushbutton, while to allow for other momentary activities you use the _____ pushbutton.

31-program index counter

31-Occasionally several sections of information are included on the same tape. In this case, numbers are assigned to the beginning of each recorded section.

In the upper left hand corner of the tape recorder is a three digit indicator called a program index counter (3). It allows you to advance the tape to a specific section using the number indicated by the counter. If the section is to begin at 235, how do you know at what point to stop. Look at the _____ _____ _____.

32-program index counter

32-You may forward the tape to any desired place skipping unwanted material by watching the _____ _____ _____.

33-counter reset

33-To the immediate right of the counter is a small button called the counter reset (4). Pushing the reset button returns the counter to 000. For accurate use of the counter it must always be on 000 before you press PLAYBACK at the beginning of the tape. To be sure the indicator is on zero, you need only push the _____.

34-000

counter reset

34-When a cassette is first loaded, the counter reading must be _____. It will read this only after pushing the _____.

35-No response required

35-You have now been introduced to all the controls you will use while operating the tape recorder.

36-earphones

36-In addition to the controls, there is an attachment used with the recorder called the earphone set (14).

Earphones are used with the tape recorder for individual listening. To prevent disturbance to others while listening to a tape, use the _____.

37-earjack

socket

37-The earphones are plugged into the socket (13) on the recorder. The connective part of the earphone set is called an earjack. To use the earphones, plug the _____ into the _____.

38-No response required

38-Now that you can recognize the tape recorder controls, you are ready to begin operation. If the recorder is handled correctly and carefully, it will give better and longer service.

TAPE RECORDER OPERATION

Now that you have learned the tape recorder controls and their functions, the operation will be easier.

READ the steps of operation outlined below. Do not attempt to operate the tape recorder until you have carefully read all 9 steps. (Refer to the numbered illustration as you trace the steps.)

1. Depress CASSETTE pushbutton (5), slide cassette in place (open end should face you), push cassette all the way into the holder and snap down lid of cassette holder (2) to lock it in place. (When using the pushbuttons, depress them until they hold.)

2. Insert earphone jack into socket (13) and put on the headset. (The socket is found on the back of some recorders and on the front of others.)

3. Switch on by turning volume control (12) clockwise past the click.

4. Reset counter to zero.

5. Depress PLAYBACK pushbutton (6).

6. Adjust volume (12) and tone controls (11) to desired listening level.

7. Always push the STOP pushbutton (10) when you have finished the tape.

8. Before removing the cassette (1), rewind the tape to the beginning using the FAST REWIND pushbutton (7).

9. In order to play the other side or a different cassette, depress the CASSETTE pushbutton (5). If the recorder is going to be turned "off", depress the STOP pushbutton (10) first and turn volume control (12) to its maximum counterclockwise position before removing the cassette.

Turn to the next page to begin actual operation of the cassette tape recorder.

Now it is time to begin operation of the tape recorder. After writing your answer to each question, perform the operation requested.

1. What are the steps for inserting the tape?

   1.
   2.
   3.

   NOW LOAD THE CASSETTE TAPE.

2. How do you begin playing the tape?

   1.
   2.

   BEGIN PLAYING THE TAPE NOW, SKIMMING THE MATERIALS IN ORDER TO REACH THE END QUICKLY.

3. After you have listened to the tape, what steps should you take?

   1.
   2.
   3.
   4.

   FOLLOWING THESE STEPS, TURN THE MACHINE OFF.

Were you able to hear the tape or did you have difficulties? If you feel you need review, study the instructions for operation before trying again. Before leaving the tape recorder, be sure the tape is rewound and the machine is turned off.

As a matter of individual review, try to list the important steps involved during normal operation in the space below.

FILMSTRIP-SLIDE PROJECTOR

FILMSTRIP-SLIDE PROJECTOR CONTROLS

As you use this program, the projector should be sitting in front of you--the projector lens pointing toward your right. After reading each paragraph, complete the statement by filling in the blank in your own words. Do not operate the projector.

With the filmstrip-slide projector positioned as directed above, you will find the 3-way switch (1) (off-fan-lamp) on the side opposite the projector lens. It is moved to "lamp" only after the slides or filmstrip are ready to be shown. The projector should be left off until the filmstrip or slide is inserted. After using the projector, always allow the fan to run a few minutes to cool the lamp and projector before turning the switch to the "off" position.

Turn the projector "on" only after _____.

Use the "fan" to _____.

Three projector parts that are closely related during filmstrip projection are the spindle (5), film track (6) and film channel (4). The spindle (5) is placed in the center of the rolled filmstrip. The film and spindle are then lowered to the film track (6) which holds the filmstrip in place while it is being shown. The film channel (4) is the opening into which the filmstrip is threaded.

The spindle, film track and film channel work together to hold the rolled filmstrip in place, but each has a separate function. The spindle is placed _____ then lowered to the _____. The filmstrip is then threaded into the _____.

After the film has been inserted into the film channel (4), the film advance knob (10) is turned in a clockwise direction to advance the filmstrip to the first frame (picture). Sometimes parts of two pictures show at the same time. This can be corrected by using the film advance knob (10). This process is called framing.

Two functions of the film advance knob are:

_____

_____

The projector lens (7) located at the extreme front of the projector is used to obtain a sharp screen image. By turning the lens, you can clear up any blurred appearance of the projected image.

If your projected image is not clear, _____

_____.

Sometimes the image may be clear but may appear tilted or off-center. To correct a tilted image, adjust the leveling knobs (8) until the picture is level. These knobs are located on the two right corners. To center the image, turn the elevating knob (9) to raise or lower the picture on the screen.

What would you adjust:

a. if one side of the image is lower than the other?

_____

b. if the top of the picture was above the screen?

_____

To make showing a filmstrip easier, remote control (2) may be used. The remote control pushbutton cord is connected to the socket in the rear of the remote control box (3) and the projector is turned to "lamp". Occasionally you may wish to depress the button continuously causing the filmstrip to run through the projector for quick previewing, but for individual frame showing you will push only until the film moves one frame.

For quick previewing, the filmstrip may be run through the projector by using the _____.

To advance the filmstrip only one frame using the remote control requires _____.

An attachment used in showing slides is the slide changer (12). The slide changer is inserted through the slide changer door (11) which is lowered to open the passageway. Only one slide can be loaded in the carrier plate at one time. The slide is inserted in the front channel and returns in the rear channel. Before showing a filmstrip, the slide changer must be removed.

In order to show slides, an attachment called a _____ is inserted through the _____ door.

FILMSTRIP-SLIDE PROJECTOR OPERATION

Now that you are familiar with the controls of the Graflex Filmstrip-Slide Projector, this section of the program will teach you how to use the projector.

It is very important that you follow directions carefully and do all that is requested of you. This is not like an ordinary book. The pages are numbered consecutively, but they are not read in this order. You must follow directions given at the bottom of each page. In these directions you may be told to turn to a specific page, or you may make a selection from the two or three choices given. Make only one selection. After deciding on your answer, turn to the page number following that answer. If after turning to the page you find it gives instructions for operation, read the entire procedure before attempting any step. Operate only when directed to do so.

Turn to page 45.

You didn't read the directions very carefully. This is page 43.

Nowhere in this program were you told to turn to this page.

Return to page 42 and follow directions.

A good maintenance procedure is important, but this is not the objective of this section. Your answer is not correct.

You have not learned how to operate the projector yet, so why the concern over maintenance.

Return to page 45 and select another answer.

Wonderful! You can follow directions; the lesson starts here.

The objectives of this program are for you to be able to:

(1) operate the projector as a filmstrip projector.
(2) operate the projector as a slide projector.

With these objectives in mind, you can expect to learn

You must have read too fast. Your choice that all three are required for neither slides or filmstrips is not right.

Can you turn on and off, focus, and frame when showing a filmstrip? Do they also apply to showing slides?

Re-read the operation procedures on page 48 and make another selection.

No, you cannot use all three operations for both slides and filmstrips.

Since slides are inserted only one at a time, will framing be necessary? When do you use framing?

Return to page 48 and review the three operation procedures.

Correct! This program's objectives are only concerned with the use of slides and filmstrips in the projector.

OFF-ON, FOCUSING, AND FRAMING

Whether showing a filmstrip or slides, part of the operational procedure is the same. The projector is turned on by using the 3-way switch--"off-fan-lamp" (1) only after the filmstrip or slides have been inserted and are ready to be shown.

Sometimes the projected image is not clear. To focus, pull out the projector lens (7) until approximate focus is obtained. Complete the focusing by turning the lens (7) until the screen image is sharp.

When showing a filmstrip rather than slides, parts of two frames (pictures) may appear on the screen at once. To correct this, push the film advance knob (10) straight in as far as it will go. While holding the knob in, turn until one picture is centered. Then release the knob (10). This process is called framing.

All three operations "off-on", focusing, and framing are required

(1) only when showing a filmstrip. page 52
(2) only when showing slides. page 50
(3) for neither slides or filmstrip. page 46
(4) for both slides and filmstrip. page 47

Control identification was the objective of the preceding section. Your choice is incorrect.

Have you forgotten already? We have covered the projector controls previously. Why repeat it in this program. If you would like a review of the controls, return to the program covering the projector controls.

Return to page 45 and try again.

Slow down and read more carefully. Your answer, only when showing slides, is incorrect.

Framing corrects the showing of parts of two pictures at once. Would that be possible when showing slides?

Return to page 48, review the three operations, and select another answer.

Your projected image appeared to be reversed; therefore, the filmstrip was threaded backwards.

Was the film rolled correctly? Did it unroll on the spindle from the top? Check your threading procedure and thread the filmstrip again.

If your image is still reversed, review page 52.
If the image is now projected correctly, turn to page 53.
If you are now at the wrong end of the filmstrip, turn to page 56.

It is only when showing a filmstrip that you use all three operations "off-on", framing and focusing. Your answer is correct.

THREADING THE FILMSTRIP

The first step in using the projector for filmstrips involves threading the machine with a filmstrip. Hold the film so that the first picture is right side up and can be viewed in a normal manner. The surface of the film toward you, when so viewed, should always be on the outside of the roll. Make sure the last picture on the filmstrip is on the inside of the film roll. Place the filmstrip on the spindle so the film unrolls from the top of the roll and lower the spindle (5) and film to the film track (6). Pull out 6 to 8 inches of film leader and insert into the film channel (4). Push the filmstrip into the channel (4) until it catches as you turn the film advance knob. DO NOT FORCE. Turning the film advance knob (10) clockwise, advance the film to the first frame.

Now you are ready to use the projector to show a filmstrip. Thread the filmstrip, turn on the projector and advance to frame one, focusing if necessary.

(1) If the image is reversed page 51
(2) If you have begun at the end of the filmstrip page 56
(3) If the image is projected correctly page 53

Since the projected image is correct, you have threaded the filmstrip properly. Depress the remote control pushbutton and quickly preview the filmstrip. At the end of the filmstrip remove it, rewind into a roll ready for use, and return to its container. Be careful to handle the filmstrip by its edges to prevent leaving fingerprints on the film.

We have just discussed the operation of the projector using a filmstrip.

Do you feel that you could do it again without any further instructions?

Yes page 55
No page 52

You better look again. What gave you the idea that the handle would be inserted first? Your choice is incorrect.

This changer position will not allow for passage into the changer door. The carrier handle cannot be inserted. Where should the locking screw be located?

Return to page 55 and make another selection.

Your choice, I could do it again without further instruction, indicates you understand the operation of the projector using a filmstrip. Now go on to slides.

SLIDE PROJECTION: STEP 1 - INSERT SLIDE CHANGER

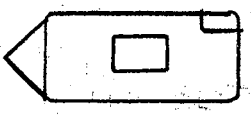
Using the projector for slides involves two major steps--insertion of the slide changer (12) and loading the slides. The procedure for inserting the slide changer (12) is outlined as follows. Lower the slide changer door (11). Rotate the locking screw (15) on the slide changer several turns counterclockwise and align its flat side with the side of the changer housing. Holding the slide changer in the left hand, insert from the name plate side of the projector with the carrier handle (13) at the left and locking screw at the bottom right. Push all the way into the opening until exposed on the opposite side. Tighten the locking screw by turning clockwise until the changer is secure and the flat side of the screw is in a horizontal position. The slide changer housing remains in the projector, but the carrier plate may be moved in and out when looking at individual slides. After showing the slides, the slide changer is removed by rotating the screw until the flat side is aligned with the side of the changer and then withdrawing.

Prepare your projector for slide projection by inserting the slide changer.

Which of the following positions is correct for proper insertion of the slide changer?

(1)  page 61

(2)  page 54

(3)  page 60

You began at the wrong end of the filmstrip. This may make it difficult to view and understand the filmstrip!

Check the direction in which the filmstrip is rolled. Should the last picture be on the outside or inside of the film roll? (See p. 52) Remove the filmstrip and thread it again.

How does the projected image look now?

(1) Reversed? page 51
(2) Correct? page 53
(3) Still the wrong end? page 52

Your reversed image indicates the slide was loaded backwards.

Did the right side of the slide image face the back of the projector? Check your loading procedure and load the slide again.

If your image is still reversed, review page 61.
If your image is now projected correctly, turn to page 58.
If your image is up-side-down, turn to page 59.

Good! Your image was correct because the slide was inserted up-side-down with the right side toward the back of the projector. Remove the slide changer, so the projector will be ready for filmstrip operation.

Slide projection involves two steps--inserting the slide changer and loading the slides.

Do you feel confident of your slide operation?

I need to review slide changer insertion. page 55
I need to review slide loading. page 61
I understand both procedures. page 62

Your up-side-down image should tell you immediately that something was wrong.

How did you insert the slide? Did you put the slide in the projector up-side-down? Check your loading procedure and load the slide again.

What kind of image do you have now?

(1) Reversed? page 57
(2) Up-side-down? page 61
(3) Correct? page 58

Your selection places the locking screw in the upper right hand corner. This placement is incorrect.

One small item might cause a problem. Maybe you had better check the position of the locking screw.

Return to page 55 and make another selection.

Your choice was correct. The carrier handle is at the left and the locking screw at the bottom right.

SLIDE PROJECTION: STEP 2 - LOAD SLIDES

To load slides, pull the carrier plate (16) out as far as possible and insert one slide in the front channel (14) up-side-down and with the right side of the image against the carrier plate. Push the carrier plate (16) all the way in and return to the "out" position. This slide should now be in viewing position. Now insert the second slide in the same position and push carrier in and out. The second slide is now in the showing position and the first slide has returned to the rear channel of the carrier. Each returned slide must be withdrawn from the changer before a new slide can be put into position. The last slide is removed by moving the carrier plate in and out.

Insertion of the slide changer is followed by loading the slides. Load your slides, turn on the projector and focus if necessary.

What kind of image do you project?

(1) Is it reversed? page 57
(2) Is it up-side-down? page 59
(3) Is it correct? page 58

You have indicated that you understand the complete process of slide projection.

To check your knowledge and understanding of the projector, briefly outline in general terms (e.g. - insert filmstrip) the 6 steps in filmstrip projection and the 7 steps in slide projection. You may do this at the bottom of this page.

Compare your outline with the one given on page 63.

How well did you recall the steps of operation?

The operation of the filmstrip-slide projector may be outlined as follows:

Filmstrip -- Thread the filmstrip
Turn the projector on
Focus if necessary
Frame if necessary
Advance the filmstrip one frame at a time
Turn the projector off

Slide ------ Insert slide changer
Insert a slide
Turn the projector on
Focus if necessary
Change the slides
Turn the projector off
Remove the changer for filmstrip projection

This concludes the operation procedure for the projector. Using this piece of equipment and the previous instructions you should be able to use both slides and filmstrips with little difficulty. Again care and caution is required for better performance and an extended operating life.

CAROUSEL SLIDE PROJECTOR

CAROUSEL SLIDE PROJECTOR CONTROLS

The carousel slide projector controls are similar to those of the filmstrip-slide projector.

The controls are discussed in the following paragraphs. After reading each paragraph, write the requested information in the space provided using your own words. DO NOT OPERATE THE PROJECTOR YET!

The projector is turned on by using the selector switch (1). This switch has four positions - "off-fan-low-high". At the "fan" position the cooling fan will operate, but the projection lamp will not be lighted. This cools the machine after a continuous period of use. The low and high settings allow for a choice on the amount of illumination. In your carrel, the low setting will usually be sufficient.

The four positions of the selector switch are: (1) _____, (2) _____, (3) _____, (4)_____.

Each term is fairly self-explanatory but briefly state when you would use each.

(1)
(2)
(3)
(4)

To prepare for slide projection, the slides are placed in the slide tray (8) one to each slot. The tray can hold a total of 80 slides. The slides are held in the tray by the slide lock ring (9). By turning the ring counterclockwise, the ring can be removed for slide loading. A clockwise turn will lock it back in place. Slide identification numbers along the edge of the slide tray allow for correct sequencing or grouping of the slides.

Slides are held in the tray by the _____. The lock ring is removed to _____.

Two small buttons are found on one side of the projector. The forward (12) and reverse (13) buttons are "at-the-projector" controls for forward or reverse movement of the slide tray (8), one slide at a time. One quick push of the button will cause the tray to move one slide space.

The focus knob (10) is used to adjust the projector lens which focuses the screen image.

To combine the ease of rotating the slide tray and focusing, the remote control mechanism (3) may be used. This mechanism has a forward (4) and reverse (5) button and a focus lever (6). Pushing the directional buttons rotates the slide tray one slide space in either direction, while movement of the focus lever focuses the image on the screen. The remote control is connected at the remote control receptacle (2).

When controlling slide movement and image sharpness, the operator has a choice between two sets of controls. The controls are located:

(1)
(2)

To adjust the clearness of the projected image, use either the

_____ or the _____.

The controls which have been discussed may be the only projector parts used in normal operation, but others may be required in certain situations. These are the select button (14), the elevating wheel (11) and the leveling foot (7).

When the select button (14) is depressed and held down, the slide tray can be rotated to select any slide for projection. The select button is also used to rotate the tray to "0" so that the tray can be removed. The projector must be "on" before depressing the select button.

A counterclockwise turn of the elevating wheel (11) raises the front of the projector for vertical adjustment of the screen image. A counterclockwise turn of the leveling foot (7) raises the left side of the projector and corrects a tilted image.

These controls, the select button, the elevating wheel and the leveling foot, have less frequent use, but do play an important part in the effective use of the projector. Briefly give the purpose of each.

(1) select button _____
(2) elevating wheel _____
(3) leveling foot _____

CAROUSEL SLIDE PROJECTOR OPERATION

Now that you have been introduced to the controls and their functions, we will begin actual operation. Each section has questions to answer or operations to perform, so after doing as requested turn to the following page to find the correct answer or procedure.

OFF-ON, FOCUSING, SCREEN IMAGE PLACEMENT

The projector is turned on by using the selector switch (1) only after the slides have been inserted and are ready to be shown.

Sometimes the projected image is not clear. To focus, turn the focus knob (10) or the focus lever (6), which adjusts the projector lens, until the screen image is sharp.

When showing slides, the screen image may be improperly placed. To correct a tilted image turn the leveling foot (7) counterclockwise to raise the left side or clockwise to lower the left side. If the image is straight but not centered, adjust the elevating wheel (11). A counterclockwise turn will raise the image on the screen, while a clockwise turn will lower the image.

Once the image has proper placement, the slide tray may be rotated to any slide you wish to project by pressing the select button (14). The projector must be turned on before the slide tray will move.

(1) What adjustment would be made to lower the left side of the projector?

(2) How would you lower the image so the entire picture would be on the screen?

(3) Turn on the projector, depress the select button and rotate the slide tray. Line up "0" on the tray with the gate index. DO NOT FORCE. When done properly, the tray will move very easily.

(1) A clockwise turn of the leveling foot will lower the left side of the projector.

(2) A clockwise turn will lower the projected image so it can be centered on the screen.

(3) Did the slide tray move easily? If not, the select button may not have been fully depressed or the projector may not have been turned on. The gate index and the "0" slot should be aligned with each other.

LOADING AND UNLOADING THE SLIDE TRAY

In order to load the slide tray, the slide lock ring must be removed. The slides may then be inserted, one to a slot. To assure a correctly projected image, insert the slides as follows. As you hold the slide by the lower right hand corner and look at the right side of the slide image, rotate the slide until the image is up-side-down. You are still looking at the right side of the slide, but the corner you were holding is now the upper left hand corner. With the slide in this position drop it in the slide tray so the right side of the slide image is facing the back of the projector. (Refer to the illustration.) Once the slides are loaded, the lock ring is replaced and locked in place.

When loading slides begin in slot number 1, but be sure the slide tray is rotated (select button) so the slide identification number "0" is at the gate index (15).

At the end of the presentation, you will unlock the slide lock ring (9), remove the slides and replace the slide lock ring.

Load the slides and turn on the projector. Focus, level and elevate if necessary.

What kind of image did you project?

(1) Reversed?
(2) Up-side-down?
(3) Correct?

(1) The reversed image indicates the slide was loaded backwards. Were you looking at the right side of the slide image? Check your loading procedure and load the slide again.

(2) Your up-side-down image is not what you want. How did you insert the slide? It should have been inserted up-side-down. Check your method of loading and load the slide again.

(3) Your image was correct because the slide was inserted up-side-down with the right side of the slide image toward the back of the projector.

SLIDE PROJECTION

The slide tray (8) has been loaded and now the selector switch (1) is moved to low. To advance to the next slide or return to the preceding one, simply press the forward (12) or reverse (13) button. You may choose between the remote control or the controls at the projector. When all the slides have been shown, move the selector switch to "fan" to cool the machine for a few minutes before turning off.

> Try operating the projector with both the controls at the projector and those on the remote control mechanism. Forward the slides, then reverse them.

Which method do you prefer? There should be no difference in the performance, but the remote control may prove more convenient when operating the projector while sitting a few feet away.

If all has operated properly and you feel confident of the procedure, remove the slides and switch to "fan" to allow the projector to cool before turning off.

At this point you should be able to operate all three pieces of equipment--the Norelco Cassette Tape Recorder, the Graflex Filmstrip-Slide Projector and the Kodak Carousel Slide Projector. If there are any questions in your mind concerning the operation of any of these, you might find it to your advantage to review.

APPENDIX C

APPENDIX C

PROGRAM B

AUDIO-TUTORIAL LABORATORY EQUIPMENT

The objectives of this program are:

1. To introduce the student to three specified pieces of equipment:

Norelco Cassette Tape Recorder
Graflex Filmstrip-Slide Projector
Kodak Carousel Slide Projector

2. To instruct the student in the operation of the three specified pieces of equipment (listed above).

The operation includes

-preparing the tape recorder for use, inserting the tape, playing and rewinding the tape, and turning off the machine

-preparing the filmstrip-slide projector for use with both slides and filmstrips

filmstrip--insert filmstrip
project filmstrip
turn off the projector

slide--insert and remove slide changer
load slides
project slides
turn off the projector

-preparing the carousel slide projector for use, loading slides, projecting slides, and turning off the projector.

This information is presented in the form of a program,--an educational device that guides you, the student, through a series of experiences leading to a working knowledge of the equipment in the laboratory. It is self-instructional so you are on your own without the aid of an instructor.

This presentation is via a recording. The material which is given at the beginning in written form will introduce you to the tape recorder controls and show you how to begin the operation, but from that point on, all you need to do is listen to the tape and follow the instructions.

Within the text of this program, there will be numbers in parentheses. These numbers refer to the illustration of the tape recorder and the cassette. The illustrations for all equipment are found on the revolving bulletin board in your carrel. Refer to these pictures for assistance in identifying machine controls and understanding the operation of each machine.

Each piece of equipment is discussed so that you are first introduced to the controls and their functions. Then you progress through the operation procedure taking part as you go. Becoming familiar with a machine's controls and their functions is a major step in knowing how to operate a machine.

With this introduction you are ready to begin the program. Read and listen carefully and follow instructions. Good luck!

TAPE RECORDER CONTROLS

Place the tape recorder in front of you with the two knobs in the lower right hand corner. Refer to the illustrations at any time.

You will notice along the front edge of the recorder a row of pushbuttons and knobs called controls (numbered 5-12). They are called controls because their use regulates what the recorder does.

VOLUME KNOB

Let us begin with the knob at the far right. This knob is the volume control (12). It has two functions. One is to turn the recorder on and off. A clockwise turn until it clicks will turn the volume on, while a counterclockwise turn past the click will turn the volume off. Although the recorder will stop automatically at the end of the tape, the volume knob must be turned off to break the electrical circuits when the machine is not in use.

The second function of the volume control is to control playback volume after the machine is turned on. A clockwise turn will increase volume, while a counterclockwise turn will decrease volume.

TONE KNOB

The knob to the left of the volume knob is the tone control (11). It adjusts the frequency response on playback permitting tone adjustments. If the recorded voice is difficult to understand, it may become more clear with an adjustment of the tone control.

A counterclockwise turn of the tone control will decrease treble, and a clockwise turn will decrease bass.

CASSETTE PUSHBUTTON

There are seven pushbuttons--six are white and one is red. Only the white pushbuttons are used during the playback operation. The red pushbutton is used when recording; therefore, you will never push the red button. When using the pushbuttons, depress until they hold.

The first pushbutton you will use is the one labeled CASSETTE (5). Pressing the CASSETTE pushbutton releases the Cassette Holder (2) which causes the holder to pop up for easy loading. In order to insert a tape, the holder must be opened by pressing the CASSETTE pushbutton.

The cassette (1) is a plastic cartridge which contains the recorded tape. The enclosure of the tape in the plastic case prevents handling of the tape.

After loading the tape, the Cassette Holder is closed by carefully pressing it back into place with the fingers. THE TAPE MUST BE ON THE LEFT REEL IN ORDER FOR THE TAPE TO PLAY WHEN PLAYBACK IS DEPRESSED. To start the tape at its beginning, the entire tape must be wound on the left side.

PLAYBACK PUSHBUTTON

The next pushbutton is the PLAYBACK pushbutton (6) which is indicated by a single arrow pointing to the right (▶). Pressing this button begins the tape action and plays the tape.

The machine must be turned on before starting tape motion. The control used to turn the machine on is the volume control, and the control for starting the tape is the PLAYBACK pushbutton.

FAST REWIND PUSHBUTTON

Above the next pushbutton you will find a pair of arrows pointing to the left (◀ ◀). This button is called FAST REWIND (7). It winds the tape onto the left reel at a high speed. Each time a tape comes to its end, rewind the tape to the beginning unless you plan to listen to the other side immediately.

However, it isn't necessary to be at the end of the tape to use the FAST REWIND pushbutton (7). FAST REWIND may also be used when rewinding only a short distance. The amount of tape that is rewound depends on how long you allow the tape to run before pressing STOP (10). The STOP pushbutton, which we will discuss shortly, is used to stop all tape action. If you need to return only a very short distance, you will first use a rapid succession of pushing the FAST REWIND pushbutton then the STOP pushbutton.

FAST FORWARD PUSHBUTTON

Proceeding to the next button, you will observe double arrows pointing right above it (▶▶). This is the FAST FORWARD pushbutton (8). The use of this button causes the tape to wind onto the right reel at a high speed. To advance to another section of the tape without listening to the part you are passing over, you may use the FAST FORWARD pushbutton.

PAUSE PUSHBUTTON

The pushbutton to the right of FAST FORWARD is PAUSE (9). This button allows for temporary stops without switching off all circuits. When stopping briefly to take notes depress the PAUSE pushbutton (9). The PAUSE releases itself merely by being pressed a second time.

The PAUSE pushbutton should be used whenever you wish to temporarily stop the tape. (Exceptions would be when turning the machine off or before pushing FAST FORWARD or FAST REWIND.) As you stop the tape to work with the pieces of equipment, use the PAUSE pushbutton.

STOP PUSHBUTTON

The pushbutton at the extreme right in the row of pushbuttons is STOP (10). The STOP pushbutton is depressed any time you wish to stop the tape action, except when stopping for only a short time. Then PAUSE is more convenient. Although the machine automatically stops at

the end of a tape, it is a safety precaution to press the STOP pushbutton. Frequently a lesson or recording will be finished before the end of the tape, but you will be told so you can then push the STOP pushbutton. To ensure complete shutdown prior to turning the machine off, press the STOP pushbutton (10).

The STOP pushbutton releases all depressed pushbuttons except PAUSE (9). Since the tape cannot be in motion when changing speed or direction the STOP pushbutton is depressed before pushing either the FAST FORWARD (7) or FAST REWIND pushbuttons (8).

PROGRAM INDEX COUNTER and COUNTER RESET

Occasionally several sections of information are included on the same tape. In this case, numbers are designated for the beginning of each recorded section.

In the upper left hand corner of the tape recorder is a three digit indicator called a program index counter (3). It allows you to advance the tape to a specific section using the number shown by the counter. If the section is to begin at 235, be sure the entire tape is on the left reel, then push FAST FORWARD. Watch the program index counter until it approaches 235, then push STOP.

To the immediate right of the counter is a small button called the counter reset button (4). Pushing the reset button returns the counter to 000. For accurate use of the counter it must always be on 000 before you press PLAYBACK at the beginning of a tape.

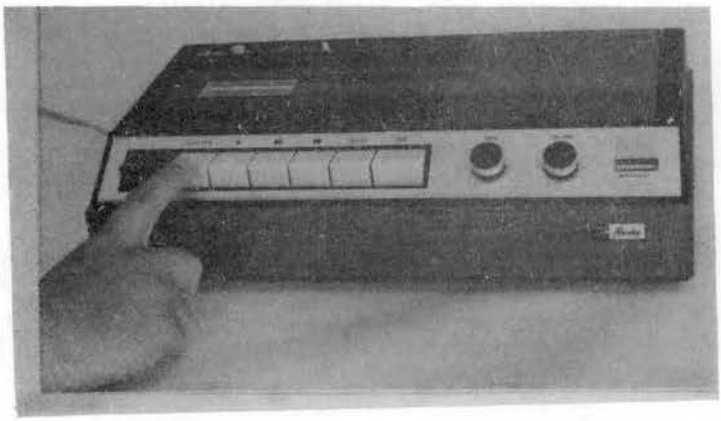
EARPHONES

In addition to the controls, there is an attachment that can be used with the recorder. It is the earphone set. The earphones are used with the tape recorder for individual listening. The connective part of the earphone set, an earjack, is plugged into the socket (13) on the back of the tape recorder. (On some recorders, the socket may be found on the front.)

Now that you know the tape recorder controls, the operation will not be difficult.

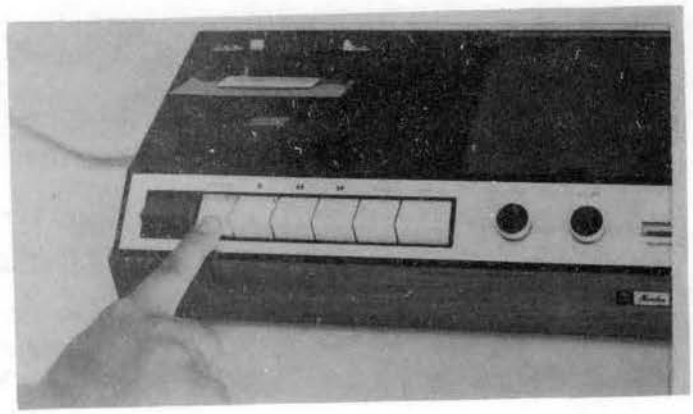
Are you ready to begin operation? Read the instructions very carefully and follow them closely.

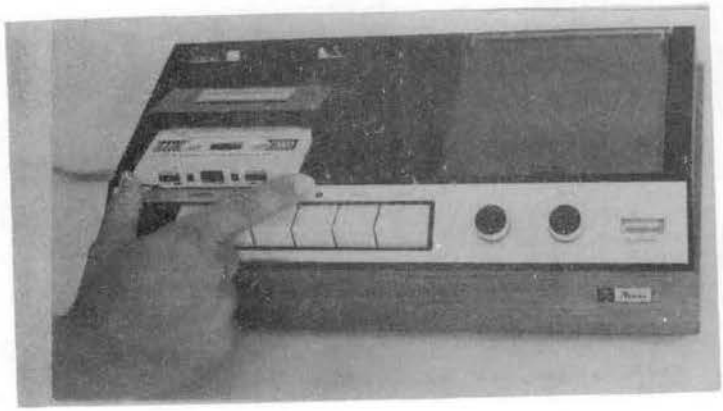
The first step involves loading the cassette tape. These beginning steps are illustrated as an added help to you. They begin on the following page.



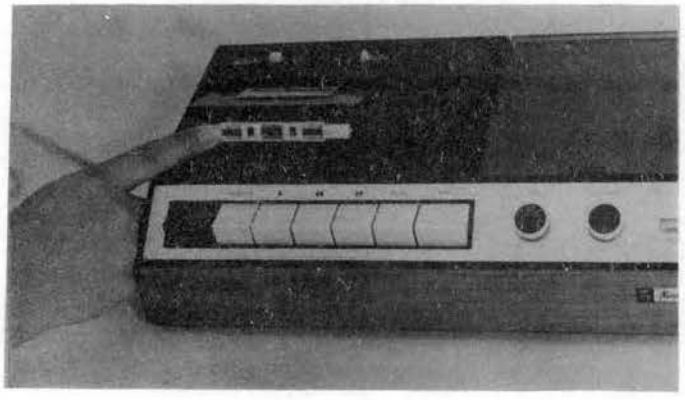
DEPRESS CASSETTE
PUSHBUTTON

CASSETTE HOLDER
OPEN



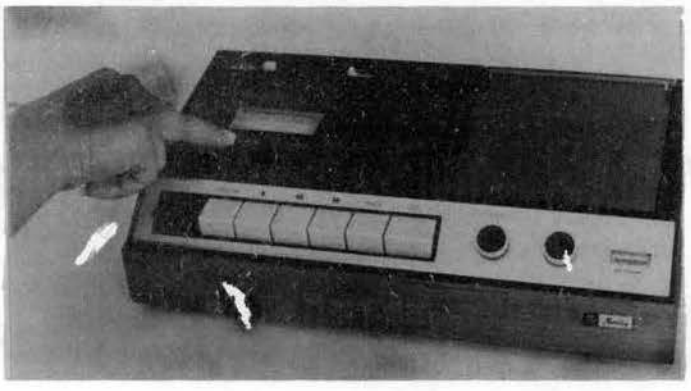


SLIDE CASSETTE IN
PLACE

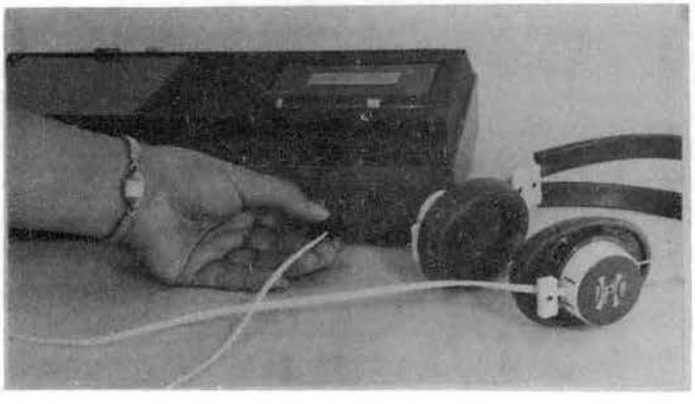


PUSH INTO HOLDER

SNAP DOWN CASSETTE HOLDER



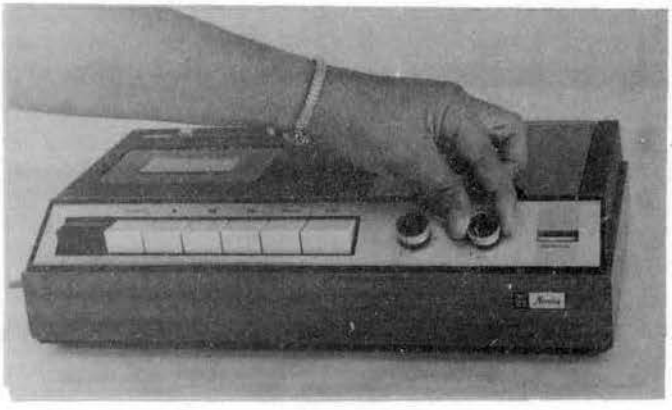
After inserting the tape, reset the counter to 000.



IF ALL LOOKS WELL AT THIS POINT,

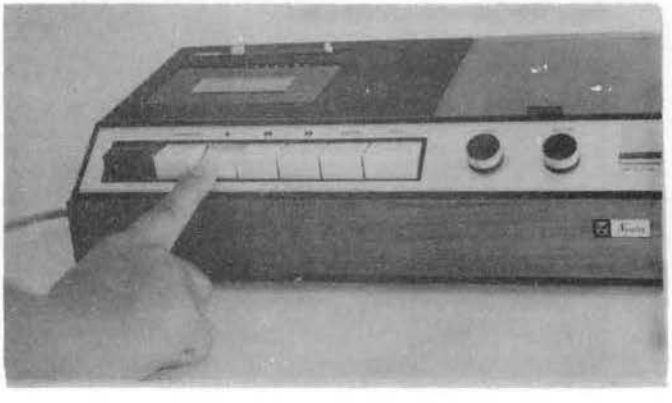
PLUG EARPHONES INTO SOCKET AND PUT ON HEADSET

TURN VOLUME
CONTROL ON



From this point on, you will receive all instructions on the tape. While listening, refer to both the piece of equipment and the labeled illustrations. LISTEN CAREFULLY!

If by chance the tape fails to play, review these written instructions and begin again.



DEPRESS PLAYBACK
PUSHBUTTON

TAPE RECORDER SCRIPT

If you are now hearing a voice through your earphones, consider yourself successful. You may wish to adjust the volume or tone knobs to make listening easier.

As you listen to this tape, there will be moments when music will play. When this occurs push the PAUSE pushbutton and follow the instructions which were given. After you finish, release the PAUSE pushbutton and continue.

If you wanted to play the other side of this cassette, you would depress the CASSETTE pushbutton after the tape action had stopped. Then you would turn the cassette over and insert as before. If the recorder was to be turned off, the STOP pushbutton would be depressed first and the volume control turned to its maximum counterclockwise position before removing the cassette.

As a review of some of the controls and to practice their use, make note of the program index counter number, rewind the tape to its beginning, then return to this place.

PAUSE.

Are you with us again? As we begin discussing additional pieces of equipment, remember that you may repeat any portion of the material by simply depressing STOP, FAST REWIND, STOP again, then PLAYBACK to re-play. Use the PAUSE pushbutton for brief stops when referring to illustrations or taking notes.

This is the end of the discussion of the Norelco Cassette Tape Recorder. We will now proceed to the Graflex Filmstrip-Slide Projector. Listen to the entire discussion of the projector before beginning operation.

With the projector in front of you and the projector lens toward your right, you will find the 3-way ("off-fan-lamp") switch on the back side opposite the projector lens. The projector is turned on by moving the 3-way switch to "lamp" only after the filmstrip or slides have been inserted and are ready to be shown.

Three projector parts that are closely related in filmstrip projection are the spindle, film track and film channel. The spindle is placed in the center of the rolled filmstrip. The film and spindle are then lowered to the film track when holds the filmstrip in place while it is being shown. The film channel is the opening into which the filmstrip is threaded.

After the end of the filmstrip has been inserted into the film channel, the film advance knob is turned in a clockwise direction to advance the filmstrip to the first frame. Sometimes parts of two frames or pictures may appear on the screen at once. To correct this, push the film advance knob straight in as far as it will go. While

holding in the knob, turn until one picture is centered. Release the knob. This process is called framing.

The projector lens located at the extreme front of the projector is used to obtain a sharp screen image. To focus, pull out the projector lens until approximate focus is obtained. Complete the focusing by turning the lens until the screen image is sharp.

Sometimes the image may be clear but may appear tilted or off-center. To correct a tilted image, adjust the leveling knobs until the picture is level. These knobs are located on the two right corners. To center the image on the screen turn the elevating knob which raises or lowers the picture.

To make showing a filmstrip easier, remote control may be used. The pushbutton cord for remote control is connected to the socket in the rear of the remote control box and the projector is turned to "lamp". Occasionally you may wish to depress and hold the button causing the filmstrip to run through the projector for quick previewing, but usually for individual frame showing you will push only until the filmstrip moves one frame.

Now we will begin instructions on the operation of the projector using a filmstrip. DO NOT BEGIN OPERATION UNTIL AFTER ALL INSTRUCTIONS HAVE BEEN GIVEN. The first step involves threading the machine with a filmstrip. Hold the filmstrip so that the first picture is right side up and can be viewed in the normal manner. The surface of the film toward you, when so viewed, should always be on the outside of the roll. Make sure the last picture of the filmstrip is on the inside of the film roll. Place the rolled film on the spindle so the film unrolls from the top of the roll and lower the spindle and film to the film track. Pull out 6 to 8 inches of film leader and insert into the film channel. Push the film into the channel until it catches as you turn the film advance knob. DO NOT FORCE. Turning the advance knob clockwise, advance the film to the first frame.

Following these directions, thread the filmstrip, turn on the projector and advance to frame one, focusing if necessary.

PAUSE.

If your image was reversed, the filmstrip was threaded backwards. Was the film rolled correctly? Did it unroll off the spindle from the top? If you begin at the end of the filmstrip, it may be difficult to understand. Check the direction in which the filmstrip is rolled. Should the last picture be on the outside or inside of the film roll? Remove the filmstrip and thread it again. If your image was correct, continue.

PAUSE.

If your projected image was correct, you threaded the projector properly. Depress the remote control button and quickly preview the filmstrip. At the end of the filmstrip, remove it, rewind into a roll

ready for use and return to its container. Be careful to handle the filmstrip by its edges to prevent leaving fingerprints on the film.

If you feel you could do it again without further instructions, go on to slides. If not, listen to the instructions again and then thread the filmstrip.

Using the projector for slides involves two major steps--insertion of the slide changer and loading the slides. To show slides with this projector, an attachment called the slide changer is used. The slide changer is inserted through the slide changer door which is lowered to open the passageway. Only one slide can be loaded in the carrier plate at one time. The slide is inserted in the front channel and returns in the rear channel. Before showing a filmstrip the slide changer must be removed. After listening to the procedure for inserting the slide changer which follows, you will be asked to insert the slide changer.

Lower the slide changer door. Rotate the locking screw several turns counterclockwise and align its flat side with the side of the changer housing. Holding the changer in the left hand with the carrier handle at the left and locking screw at the lower right insert from the name plate side of the projector. Push all the way into the opening until exposed on the opposite side. Tighten the locking screw by turning clockwise until the changer is secure and the flat side of the screw is in a horizontal position. After showing slides, the changer is removed by rotating the screw until the flat side is aligned with the side of the changer and then withdrawing.

Now, prepare your projector for slide projection by inserting the slide changer.

PAUSE.

If inserted correctly, the carrier handle is at the left and the locking screw at the lower right. You may have had difficulty if you tried to insert the changer handle first or if the changer was upside down with the screw in the upper right. When in use, the slide changer housing remains in the projector and the carrier plate is moved in and out when looking at individual slides.

When loading slides, you will pull the carrier plate out as far as possible and insert one slide in the front channel up-side-down and with the right side of the image against the carrier plate. Push the carrier plate all the way in and return to the "out" position. The first slide should now be in viewing position. Now insert the second slide in the same position and push carrier in and out. The second slide is now in the showing position and the first slide has returned to the rear channel of the carrier. Each returned slide must be withdrawn from the changer before a new slide can be put into position. The last slide is removed by moving the carrier plate in and out.

Insertion of the slide changer is followed by loading the slides. Load the slides and turn on the projector, focusing if necessary.

PAUSE.

What kind of image do you project? If the image is up-side-down, you put the slide into the projector right-side-up. If you have a reversed or up-side-down image, check your method of loading and load the slide again. If your image was correct, continue.

PAUSE.

If your image was correct, it was because the slide was inserted up-side-down with the right side of the film against the carrier plate.

If you feel you need to review projector operation, do so now. Depress PAUSE if you plan to work with the projector. If not, remove the slide changer.

After using the projector, always allow the fan to run a few minutes to cool the lamp and projector before turning the switch to the "off" position.

To check your knowledge and understanding of the projector, briefly outline in general terms the 6 steps in filmstrip projection and the 7 steps in slide projection. Use the back of your program for your answers.

PAUSE.

Filmstrip operation includes:
- Thread the filmstrip
- Turn the projector on
- Focus if necessary
- Frame if necessary
- Advance the filmstrip one frame at a time
- Turn the projector off

Slide operation includes:
- Insert slide changer
- Insert a slide
- Turn the projector on
- Focus if necessary
- Change the slides
- Turn the projector off
- Remove the changer for filmstrip projection

This concludes the operation procedure for the filmstrip-slide projector. Using this piece of equipment and the previous instructions you should be able to view both slides and filmstrips with little difficulty.

The third and last piece of equipment is the Kodak Carousel Slide Projector. This projector has controls similar to those of the filmstrip-slide projector. Knowing a machine's controls and their functions is the major part of knowing how to operate the piece of equipment. After being introduced to the controls and their functions,

you will begin operation. DO NOT OPERATE UNTIL YOU ARE GIVEN SPECIFIC INSTRUCTIONS.

The projector is turned on by using the selector switch. This switch has four positions - "off-fan-low-high". At the "fan" position the cooling fan will operate, but the projection lamp is not lighted. The fan cools the machine after a continued period of use. The "low" and "high" settings allow for a choice on the amount of illumination. In your carrel the "low" setting will probably be sufficient. The projector is turned on only after the slides are inserted and ready to be shown.

When preparing for slide projection, the slides are placed in the slide tray, one to each slot. The tray can hold a total of 80 slides. The slides are held in the tray by the slide lock ring. By turning the ring counterclockwise, it unlocks and can be removed for slide loading. A clockwise turn will lock the ring back in place. Slide identification numbers along the edge of the slide tray allow for correct sequencing or grouping of the slides.

Two small buttons are found on the right side of the projector. The forward and reverse buttons are "at-the-projector" controls for forward or reverse movement of the slide tray, one slide at a time. One quick push of the button will cause the tray to rotate one slide space.

Sometimes the projected image is not clear. To focus, adjust the projector lens by turning the focus knob until the screen image is sharp.

To combine the ease of rotating the slide tray and focusing, the remote control may be used. This mechanism has a forward and reverse button and a focus lever. Pushing the directional buttons rotates the slide tray one slide space in either direction, while movement of the focus lever focuses the screen image. The remote control cord is connected at the remote control receptacle.

The controls which have been discussed may be the only projector parts used during normal operation, but others are required in certain situations. These are the select button, the elevating wheel and the leveling foot.

When showing the slides, the screen image may be improperly placed. To correct a tilted image turn the leveling foot counterclockwise to raise the left side or clockwise to lower the left side. If the image is straight but not centered, adjust the elevating wheel. A counterclockwise turn will lower the image, while a clockwise turn will raise the image.

Once the image has proper placement, the slide tray may be rotated to any slide you wish to project by pressing the select button. The projector must be on when the select button is depressed and held down. Release of the select button will stop tray movement.

Look at your slide tray. Line up "0" on the tray with the gate index by depressing the select button and rotating the slide tray.

PAUSE.

In order to load the slide tray, the slide lock ring must be removed before inserting slides. The slides may then be inserted, one to a slot. To assure a correctly projected image, insert the slides as follows. As you hold the slide by the lower right hand corner and look at the right side of the slide image rotate the slide until the image is up-side-down. You are still looking at the right side of the slide but the corner you were holding is now the upper left hand corner. With the slide in this position drop it in the slide tray so the right side of the slide image is facing the back of the projector. You may refer to the illustration for additional help. Once the slides are loaded, the slide lock ring is replaced.

When loading slides begin in the slide slot number one, if the slide tray has been rotated using the select button so the slide identification number "0" is at the gate index.

At the end of the presentation, unlock the slide lock ring, remove the slides and replace the slide lock ring.

Prepare your projector by rotating the slide tray so "0" is at the gate index, load the slides and turn on the projector. Focus, level and elevate if necessary.

PAUSE.

What kind of image did you project? A reversed or up-side-down image indicates the slide was loaded wrong. Did you insert the slide up-side-down? Which way did the slide face? If your image was incorrect, check the loading procedure and load the slide again. If loaded correctly, continue.

PAUSE.

A correct image occurs when the slide is inserted up-side-down and the right side of the slide image toward the back of the projector.

After the slide tray has been loaded, the selector switch is moved to low. To advance to the next slide or to return to the preceding one, simply press the forward or reverse button. You may choose between the remote control or those at the projector. When all the slides have been shown, move the selector switch to "fan" to cool the machine before turning it off.

Try operating your projector with both the controls at the projector and those on the remote control mechanism. Forward the slides, then reverse them.

PAUSE.

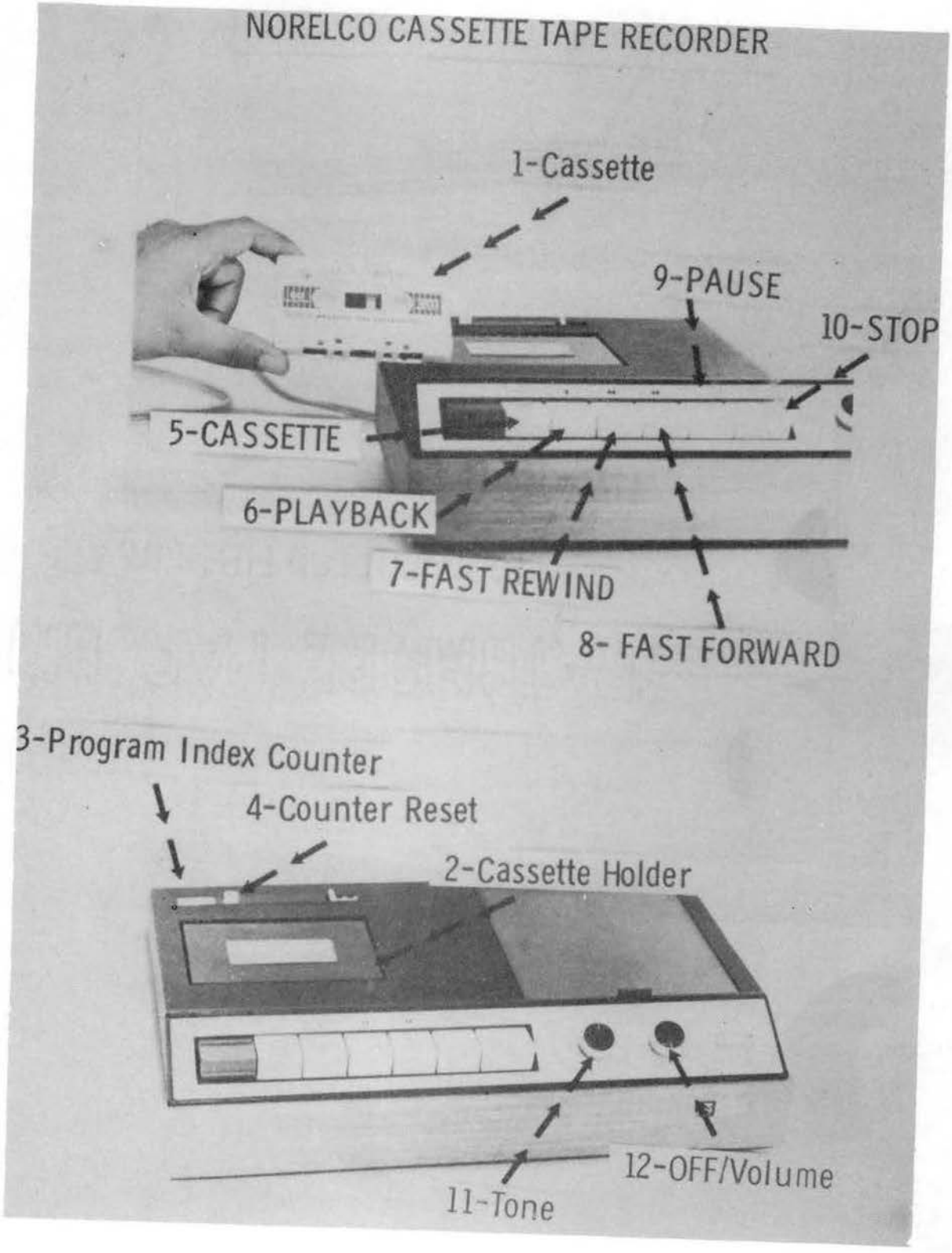
Which method do you prefer? There should be no difference between the performance of either, but the remote control may prove more convenient if operating the projector while sitting a few feet away.

If all has operated properly and you feel confident of the procedure, remove the slides and switch to "fan" allowing the projector to cool before turning it off.

At this point you should be able to operate all three pieces of equipment--the Norelco Cassette Tape Recorder, the Graflex Filmstrip-Slide Projector and the Kodak Carousel Slide Projector. If there are any questions in your mind concerning the operation of any of these, it might be to your advantage to review.

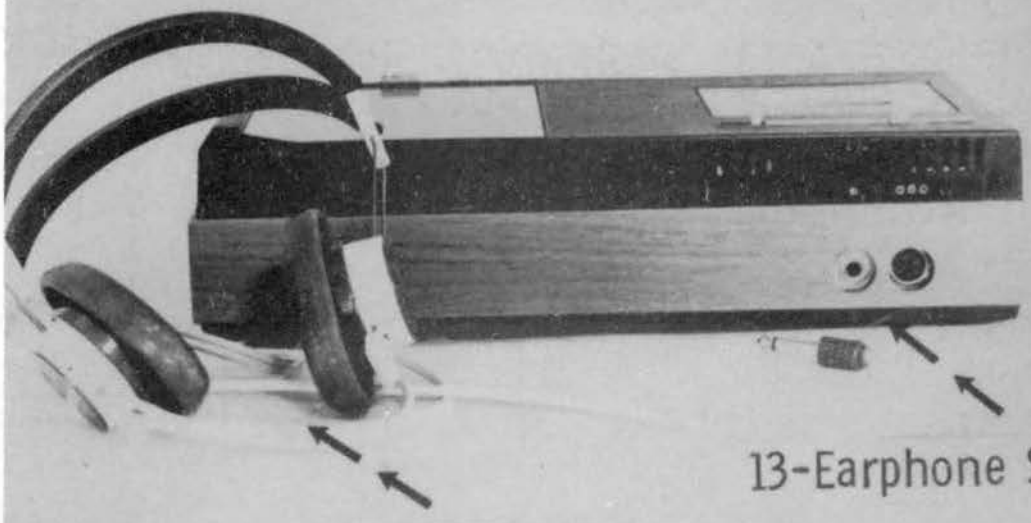
APPENDIX D

PROGRAM A AND B ILLUSTRATIONS


NORELCO CASSETTE TAPE RECORDER
1-Cassette
9-PAUSE
10-STOP
5-CASSETTE
6-PLAYBACK
7-FAST REWIND
8- FAST FORWARD
3-Program Index Counter
4-Counter Reset
2-Cassette Holder
12-OFF/Volume
11-Tone

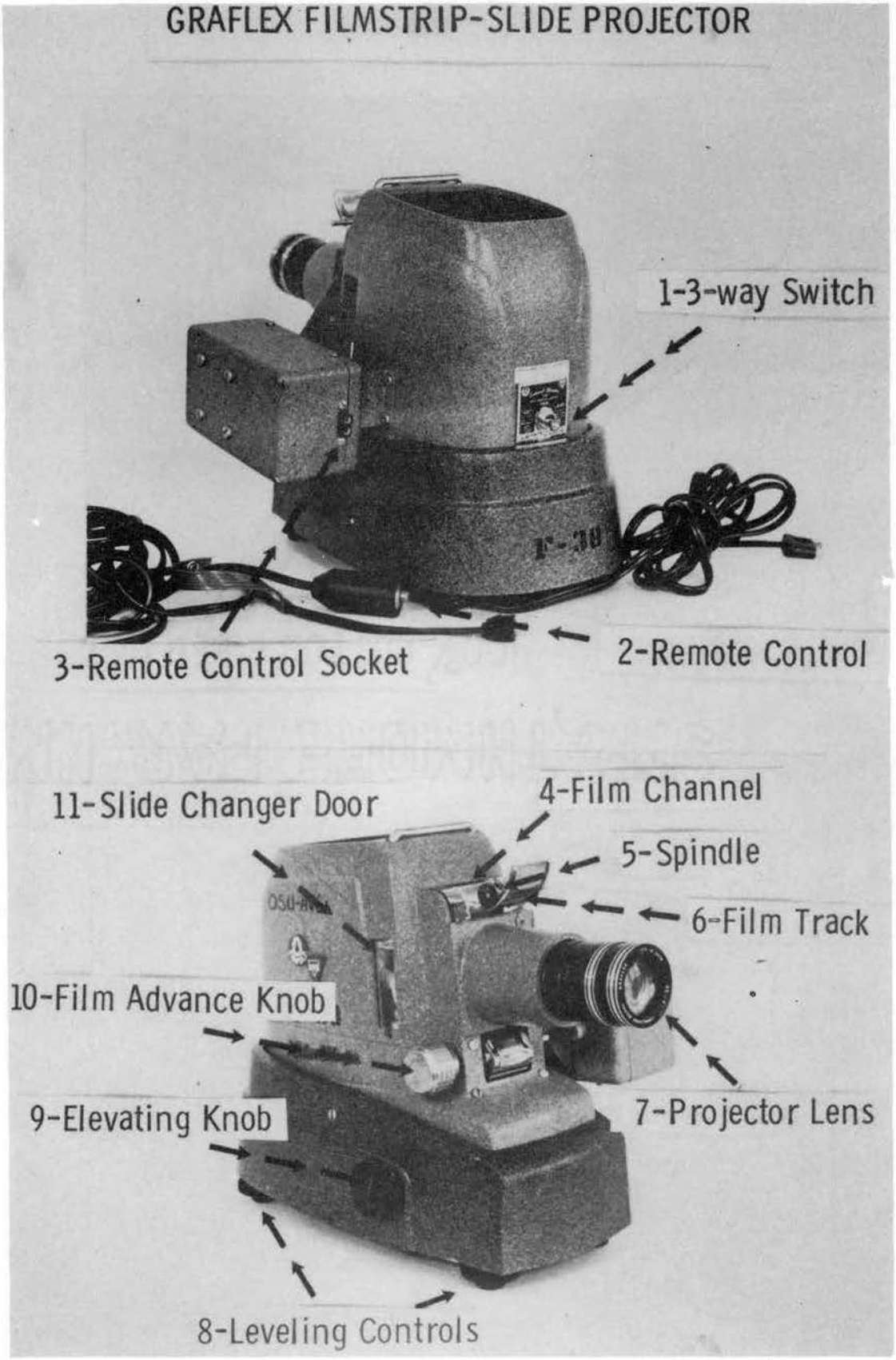
NORELCO CASSETTE TAPE RECORDER

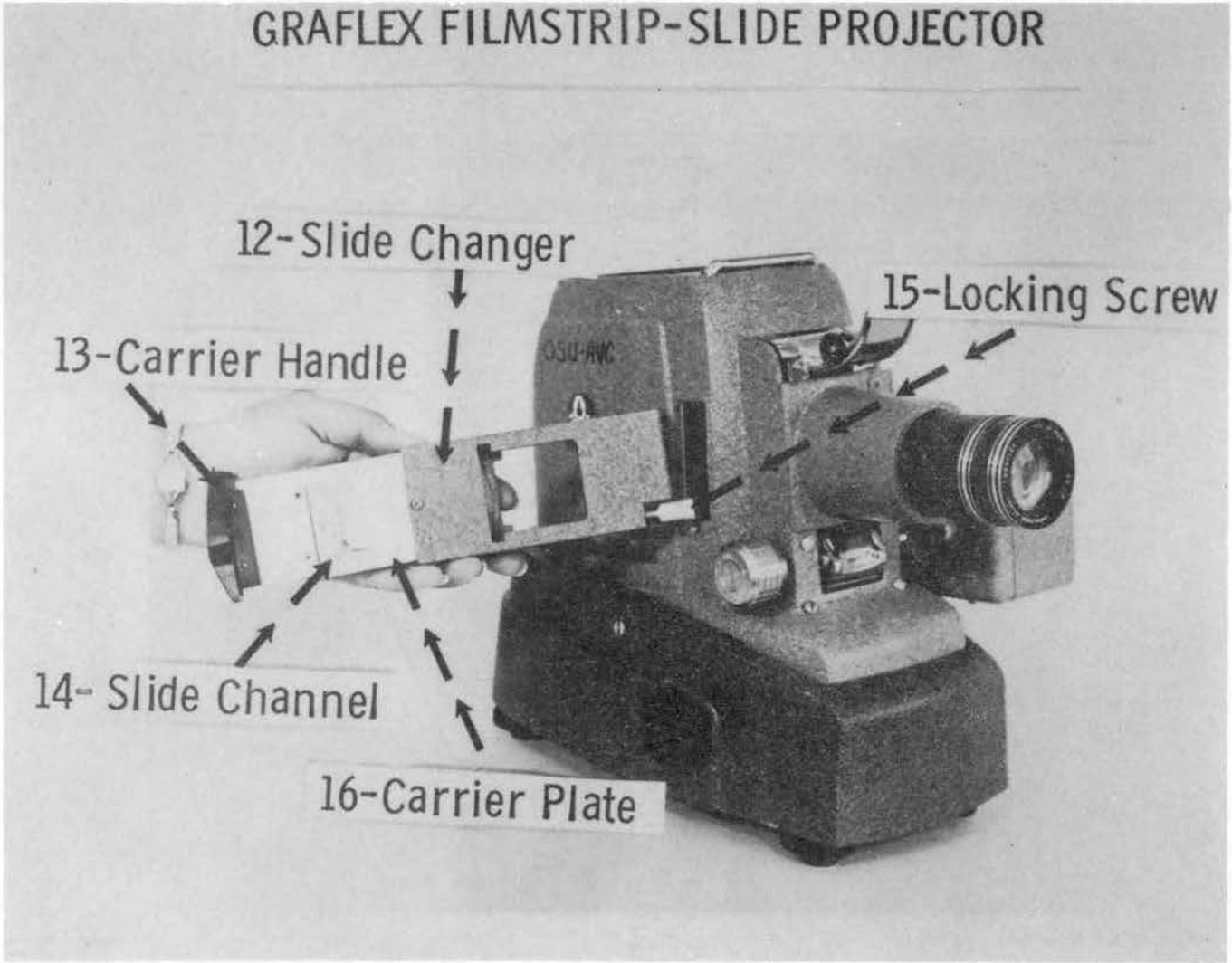
Back of Recorder

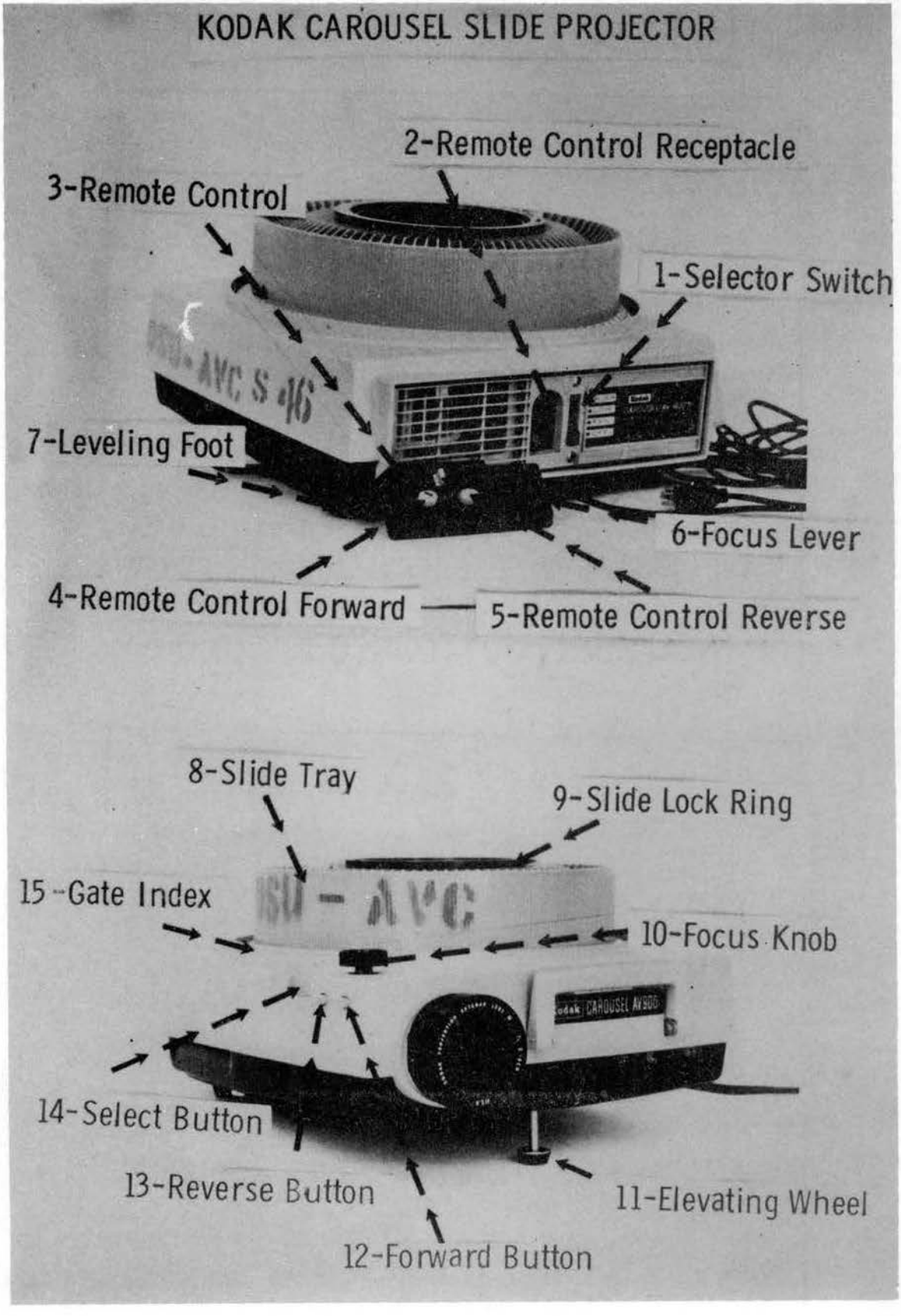


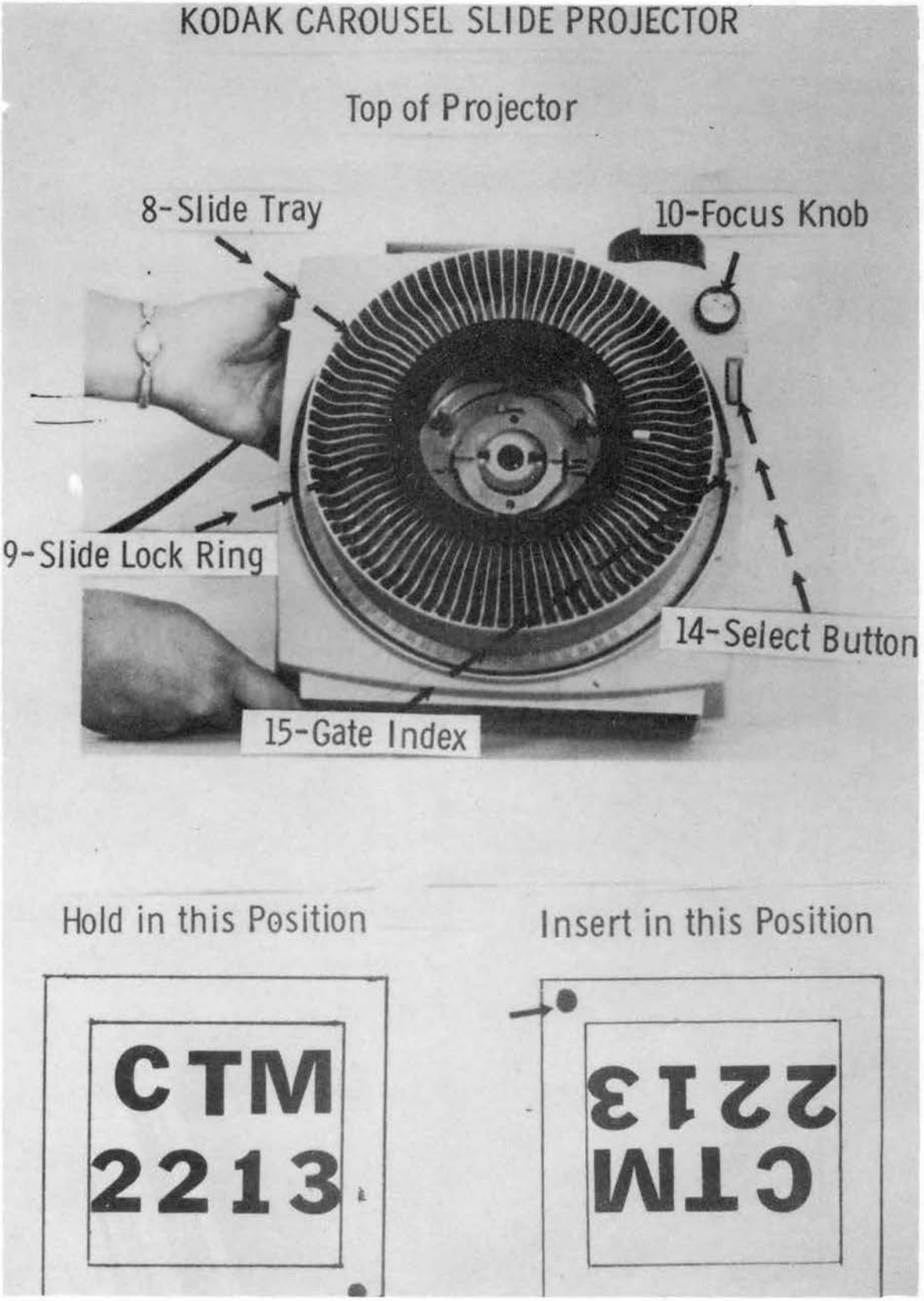
13-Earphone Socket

14-Earphones

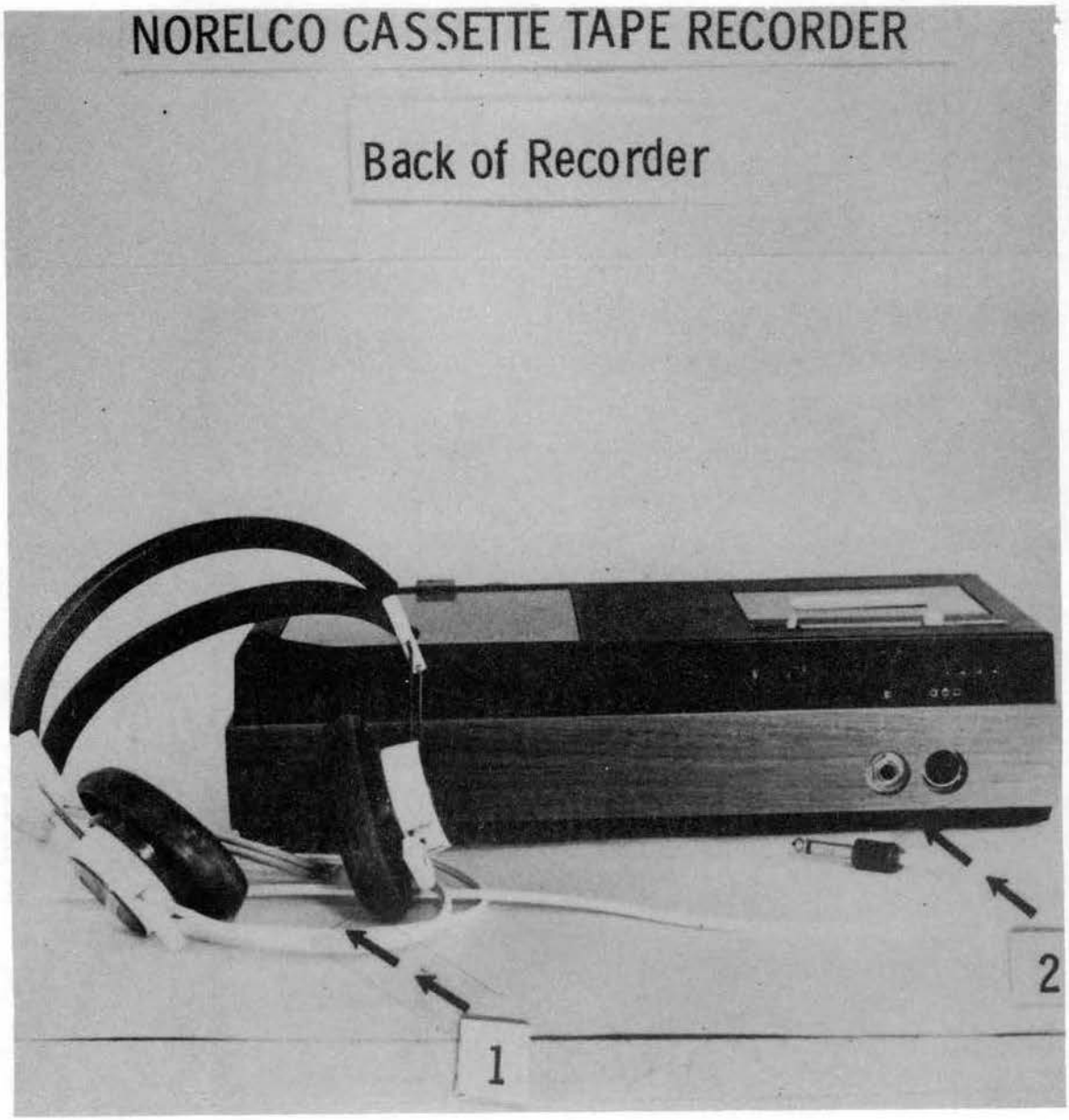

GRAFLEX FILMSTRIP-SLIDE PROJECTOR
1-3-way Switch
2-Remote Control
3-Remote Control Socket
11-Slide Changer Door
4-Film Channel
5-Spindle
6-Film Track
10-Film Advance Knob
9-Elevating Knob
7-Projector Lens
8-Leveling Controls

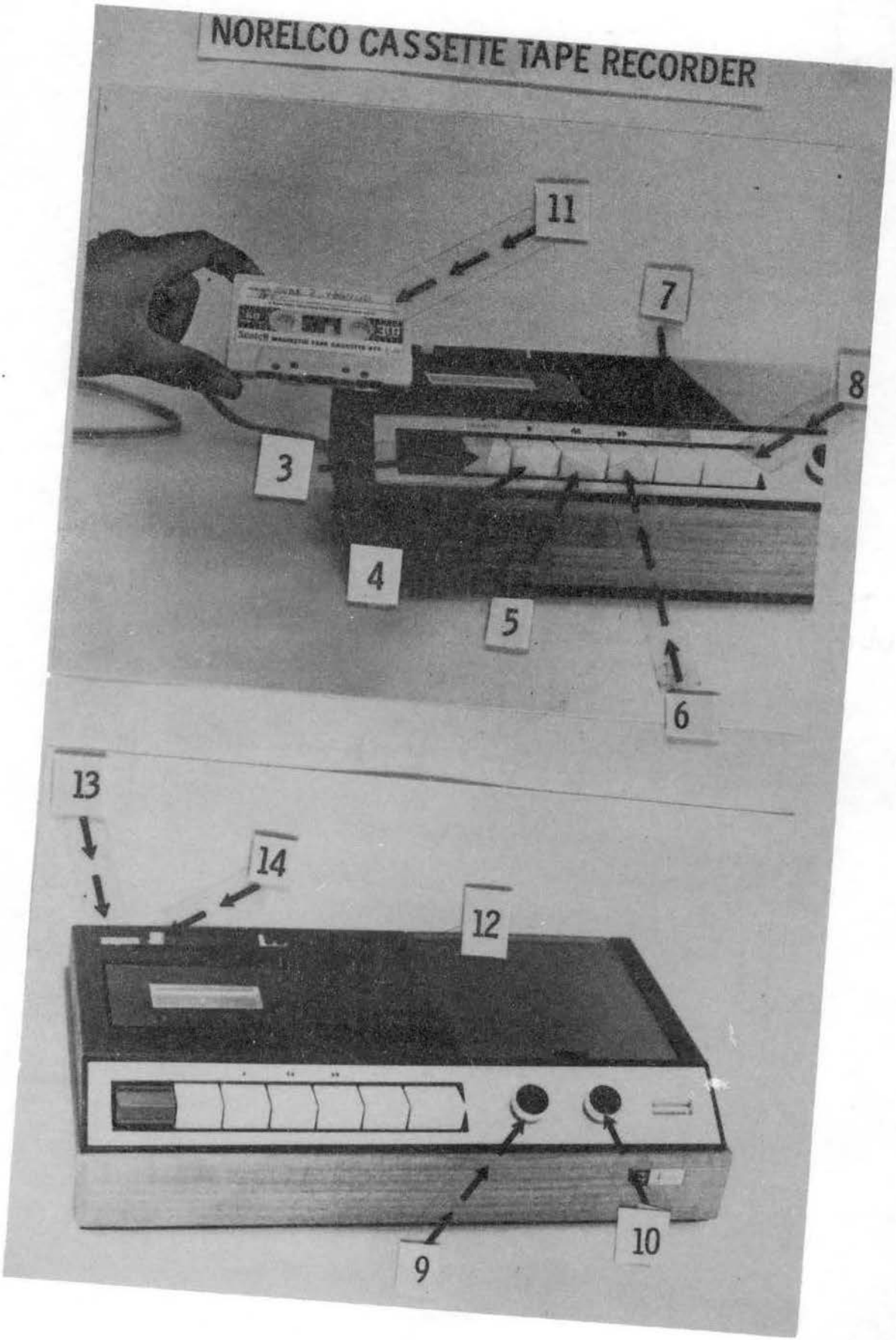

GRAFLEX FILMSTRIP-SLIDE PROJECTOR
12-Slide Changer
15-Locking Screw
13-Carrier Handle
14- Slide Channel
16-Carrier Plate

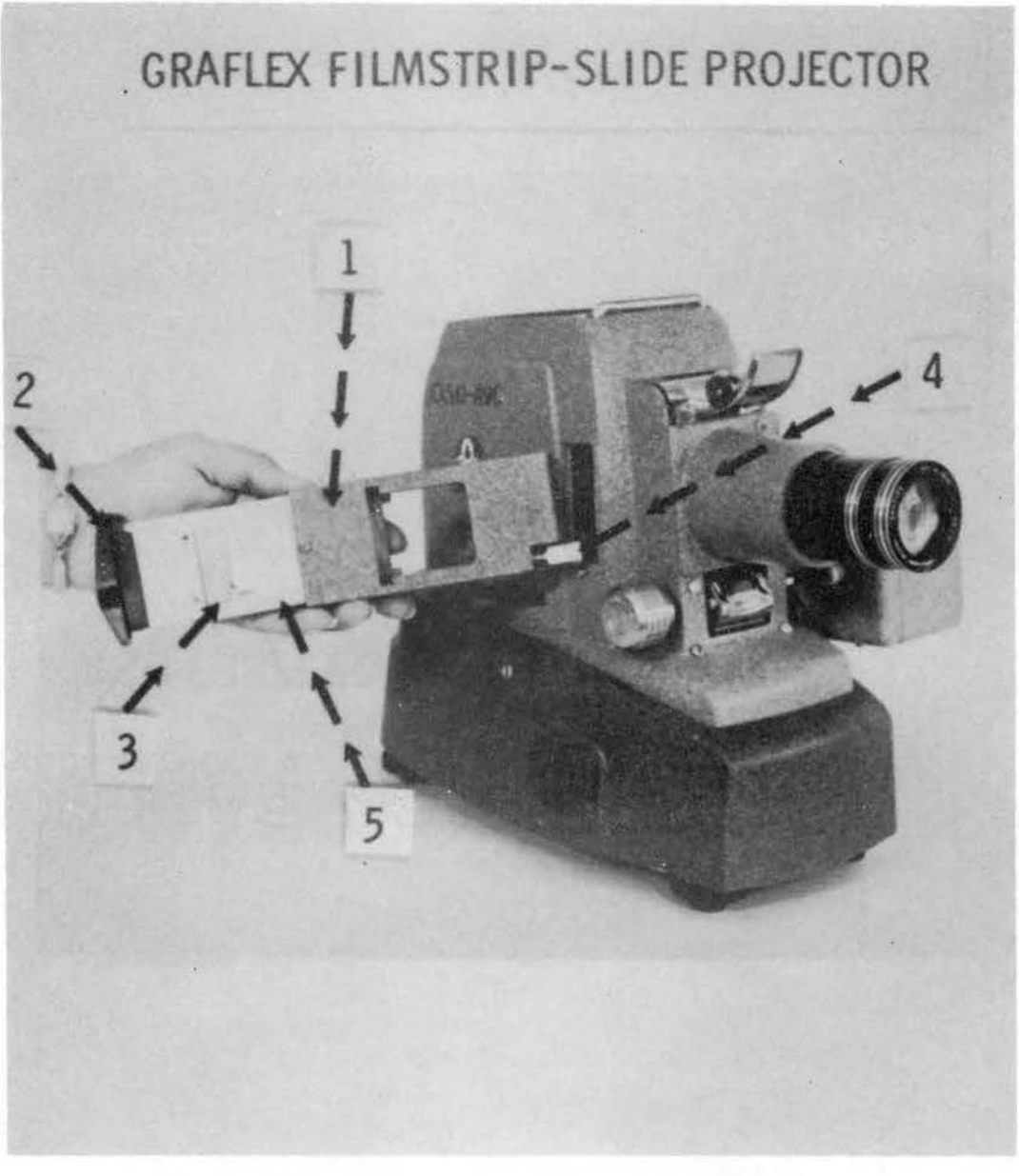

KODAK CAROUSEL SLIDE PROJECTOR
2-Remote Control Receptacle
3-Remote Control
1-Selector Switch
7-Leveling Foot
6-Focus Lever
4-Remote Control Forward
5-Remote Control Reverse
8-Slide Tray
9-Slide Lock Ring
15-Gate Index
10-Focus Knob
14-Select Button
13-Reverse Button
11-Elevating Wheel
12-Forward Button

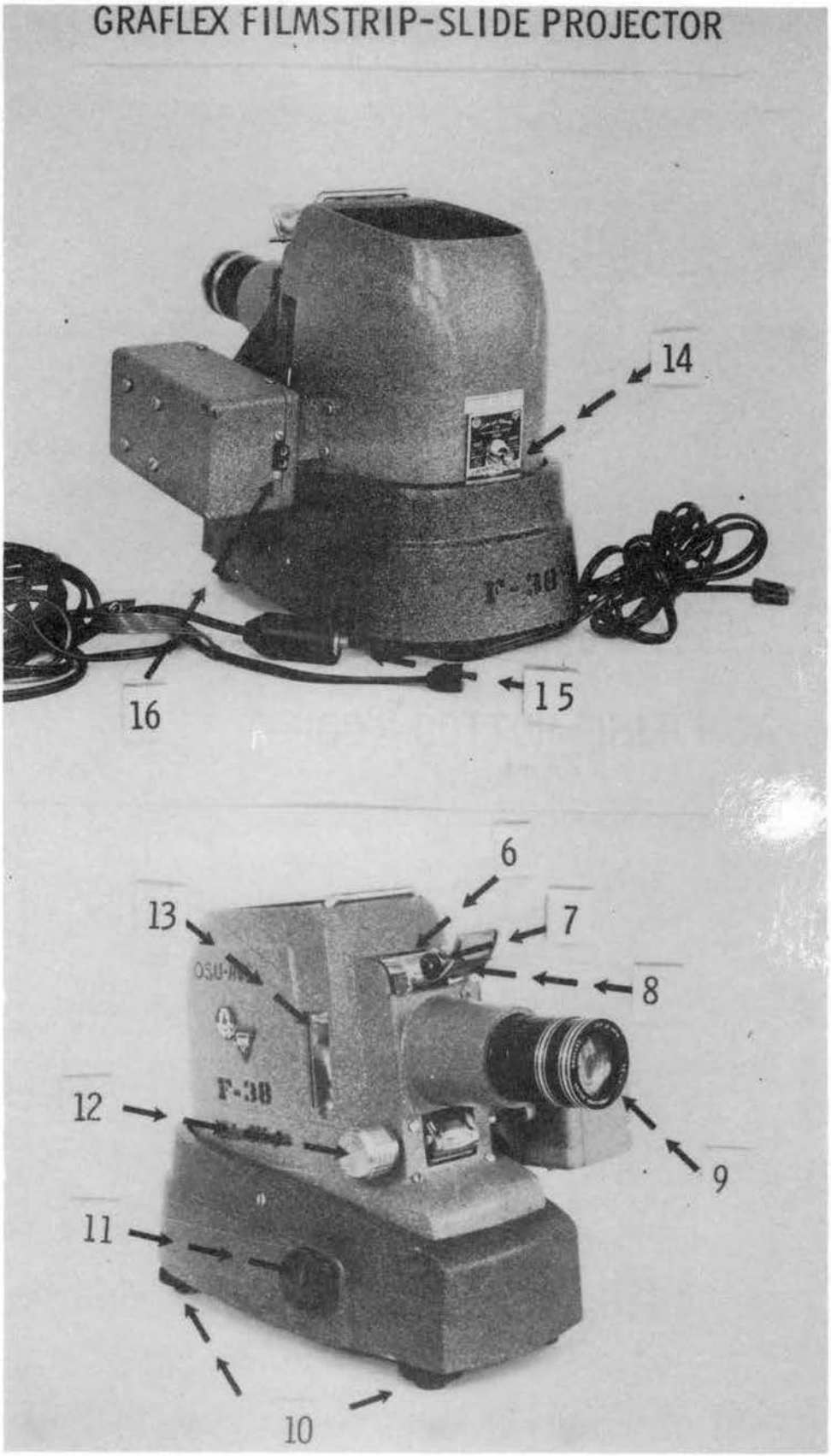

KODAK CAROUSEL SLIDE PROJECTOR
Top of Projector
8-Slide Tray
10-Focus Knob
9-Slide Lock Ring
14-Select Button
15-Gate Index
Hold in this Position
Insert in this Position
CTM
2213
CTM
2213

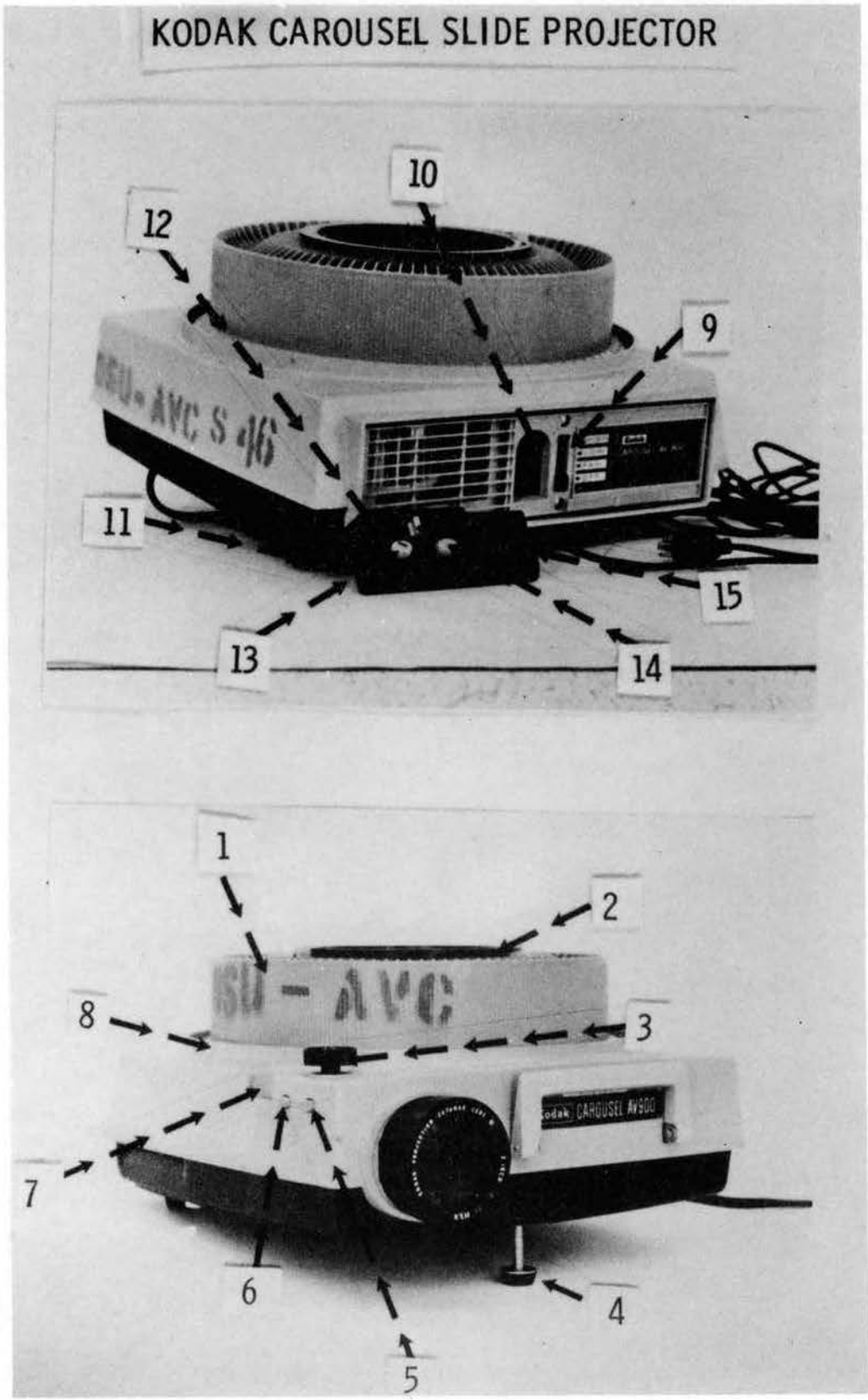
TEST ILLUSTRATIONS


NORELCO CASSETTE TAPE RECORDER
Back of Recorder
1
2


NORELCO CASSETTE TAPE RECORDER
11
7
8
3
4
5
6
13
14
12
9
10


GRAFLEX FILMSTRIP-SLIDE PROJECTOR
1
2
3
4
5


GRAFLEX FILMSTRIP-SLIDE PROJECTOR
14
16
15
6
13
7
8
12
9
11
10


KODAK CAROUSEL SLIDE PROJECTOR
10
12
9
11
15
13
14
1
2
8
3
7
6
4
5

APPENDIX E

APPENDIX E

AUDIO-TUTORIAL LABORATORY EQUIPMENT TEST

You have just finished a program on the Audio-Tutorial Laboratory equipment. Now we would like for you to take this test to indicate what you have learned by using this method of instruction. Work as quickly as possible, but do the best you can.

Refer to the set of illustrations while taking this test.

TAPE RECORDER CONTROLS

1. Identify the machine controls by writing the letter of each control's name to the right of its corresponding number on this answer sheet. The numbers (1-14) on this answer sheet correspond with those on the tape recorder illustration.

2. Match the functions listed with the controls by writing the letter of the function to the right of each control name.

TAPE RECORDER CONTROL FUNCTIONS:

a. Adjust frequency response on playback mode; clockwise reduces bass and counterclockwise reduces treble
b. Allows the operator to advance to a specific section
c. Attachment for individual listening
d. Contains your recording tape in handy plastic cartridge
e. Control for regulating playback speed
f. Controls automatic or manual recording
g. Controls playback volume and turns machine on and off
h. Earphone outlet
i. Erases recording errors when depressed
j. Holds cassette tape; pops-in, pops-out at finger touch control
k. Indicates good or bad recording level
l. Indicates when tape is about to end
m. Microphone outlet
n. Outlet for remote control cord
o. Plays tape when depressed
p. Rewinds tape onto left-hand reel at high speed
q. Stops all tape action; releases all depressed pushbuttons except PAUSE
r. Temporarily stops tape motion without switching off amplifier circuits; depress again to release
s. When depressed, cassette pops-up, pops-out for easy reloading
t. Winds tape onto right-hand reel at high speed
u. Zero reset pushbutton for counter

CONTROLS:

a. Automatic/manual switch
b. Cassette
c. Cassette holder
d. CASSETTE pushbutton
e. Counter reset
f. Earphones
g. FAST FORWARD pushbutton
h. FAST REWIND pushbutton
i. Outlet
j. PAUSE pushbutton
k. PLAYBACK pushbutton
l. Program index counter
m. Record level meter
n. Sound deflector
o. STOP pushbutton
p. Tape eraser
q. Tone knob
r. Volume/off knob

Control	Function
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	

TAPE RECORDER OPERATION

Read the situation given below, then write in the letter of the missing step from the list on the following page making the operational procedure complete and in the right order.

1. Load the cassette tape and play the tape.

   a. _____
   b. Slide cassette into Cassette Holder
   c. Close Cassette Holder
   d. _____
   e. Turn on volume control
   f. _____

2. Play a tape which begins on side one and continues on side two. It has already been loaded for side one.

   a. PLAYBACK pushbutton
   b. STOP pushbutton
   c. _____
   d. Turn cassette over
   e. Close Cassette Holder
   f. Reset counter
   g. _____

3. You have just finished listening to a tape and have pushed STOP. You decide to play it again. What will you do?

   a. _____
   b. STOP pushbutton
   c. _____

4. The class bell has rung, but you are not finished listening. How will you know where you stopped? _____ What will you do when you return to work?

   a. CASSETTE pushbutton
   b. _____
   c. _____
   d. Reset counter
   e. Turn on volume control
   f. _____
   g. STOP pushbutton
   h. _____

5. Stop tape action to take notes.

   a. _____

6. Re-play a small portion of recording before continuing.

   a. _____
   b. FAST REWIND pushbutton
   c. STOP pushbutton
   d. _____

TAPE RECORDER OPERATION STEPS

(Words in all capitals refer to pushbuttons.)

a. Close cassette holder

b. Depress automatic re-play

c. Depress CASSETTE

d. Depress FAST FORWARD

e. Depress FAST REWIND

f. Depress PAUSE

g. Depress PLAYBACK

h. Depress RECORD

i. Depress STOP

j. Insert cassette tape

k. Plug in earphones

l. Program index counter

m. Recording meter

n. Reset counter

o. Turn cassette over

p. Turn on volume knob

FILMSTRIP-SLIDE PROJECTOR CONTROLS

1. Identify the projector controls by writing the letter of each control to the right of its corresponding number on this answer sheet. The numbers (1-16) listed below correspond with those on the illustration of the filmstrip-slide projector.

2. Match the functions or uses listed with the controls by writing the letter of the function to the right of each control name.

FUNCTIONS AND USES OF FILMSTRIP-SLIDE PROJECTOR CONTROLS:

a. Adjusts image placement on screen
b. Adjusts tilted image
c. Allows several slides to be shown at once
d. Attachment for slide viewing
e. Centered in rolled film
f. Control for operating at a distance
g. Ejects slide changer
h. Entry for filmstrip
i. Entry into projector for the slide changer
j. Locks the slide changer in place
k. Moves filmstrip forward or backward
l. Outlet for remote control
m. Part of carrier plate which holds slides while being shown
n. Sharpens projected image
o. Supports spindle and film
p. Transfers slides in and out of viewing position
q. Turns projector on and off
r. Used to move carrier plate in and out of the slide changer

CONTROLS:

a. Carrier plate
b. Ejector
c. Elevating knob
d. Film advance knob
e. Film channel
f. Film track
g. Framing knob
h. Leveling controls
i. Locking screw
j. Projector lens
k. Remote control
l. Remote control socket
m. Rewind take-up
n. Slide changer
o. Slide changer door
p. Slide changer handle
q. Slide channel
r. Spindle

Control	Function or Use
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	

FILMSTRIP-SLIDE PROJECTOR OPERATION

Write the letter of your answer on the line to the left of the question.

____1. Pick the group of operational steps which is listed in the order for proper operation.

a. Turn on the projector
Place film on spindle
Lower film and spindle to the film track
Guide film into film channel
Turn advance knob to first frame

b. Guide film into film channel
Place film on spindle
Lower film and spindle to the film track
Turn advance knob to first frame
Turn on the projector

c. Place film on spindle
Lower film and spindle to the film track
Guide film into film channel
Turn advance knob to first frame
Turn on the projector

____2. Pick the group of operational steps which is listed in the order for proper operation.

a. Load the slide
Insert slide changer
Move carrier plate in and out
Turn on the projector

b. Insert slide changer
Load slide
Move carrier plate in and out
Turn on the projector

c. Insert slide changer
Turn on the projector
Load slide
Move carrier plate in and out

____3. When the filmstrip is rolled for projection, the right side of the picture should be on the:

a. inside of the roll
b. outside of the roll

____4. The last picture of the filmstrip is on the:

a. inside of the roll
b. loose end

____5. When filmstrip is placed on the spindle, it unrolls from _____ of the roll.

a. top
b. bottom

____6. The slide changer is inserted with the locking screw in the _____ corner.

a. upper right hand
b. upper left hand
c. lower right hand
d. lower left hand

____7. Load the slides:

a. up-side-down, wrong side toward the back of the projector
b. right-side-up, wrong side toward the back of the projector
c. up-side-down, right side toward the back of the projector
d. right-side-up, right side toward the back of the projector

____8. The remote control mechanism may be used to:

a. advance the filmstrip
b. focus the film image
c. reverse the filmstrip
d. all of the above

CAROUSEL SLIDE PROJECTOR CONTROLS

1. Identify each numbered part by writing the letter of its name from the list given to the right of each corresponding number found on this answer sheet. The numbers (1-15) listed below correspond to those on the slide projector illustration.

2. Match the control with its function by writing the letter of the function to the right of each control name.

CAROUSEL SLIDE PROJECTOR CONTROL FUNCTIONS:

(Some choices may be used more than once)

a. Adjust for close-up or distant projection

b. Adjust vertical placement of the screen image

c. Allow backward movement of the slide tray, one slide at a time

d. Clears a blurred projected image

e. Corrects a tilted screen image

f. Gives forward, reverse and focusing control a few feet from the projector

g. Holds slides in the slide tray

h. Outlet for remote control cord

i. Permits forward movement of the slide tray, one slide at a time

j. Point at which the slide tray "0" is positioned when beginning projection

k. Push to automatically skip one slide

l. Regulates light output

m. Releases the slide tray for showing any slide at any time

n. Slide container

o. Slide ejector

p. Turns the projector on and off

CONTROLS:

a. Automatic timer

b. Ejector lever

c. Elevating wheel

d. Focus knob

e. Forward button

f. Four-way selector switch

g. Gate index

h. Leveling foot

i. Microphone outlet

j. Remote control

k. Remote control focus lever

l. Remote control forward

m. Remote control receptacle

n. Remote control reverse

o. Reset button

p. Reverse button

q. Select button

r. Slide lock ring

s. Slide tray

t. Zoom lens

Control	Function
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	

CAROUSEL SLIDE PROJECTOR OPERATION

Write the letter of your answer on the line to the left of the question.

____1. Pick the group of operation steps which is listed in the order for proper operation.

a. Turn on the projector
Load slides
Press forward button

b. Load slides
Turn on the projector
Press forward button

c. Load slides
Press forward button
Turn on the projector

____2. If two groups of slides are to be shown and are placed on opposite sides of the slide tray, you may quickly advance to the second group by pressing the _____ and manually moving the tray.

a. gate index
b. reset button
c. select button
d. remote control forward button

____3. A total of _____ slides may be shown using one tray.

a. 85
b. 80
c. 75
d. 70

____4. To be inserted correctly, the slide must be: (select 2 answers)

a. up-side-down
b. right-side-up and
c. right side of the slide toward the back of the projector
d. back side of the slide toward the back of the projector

____5. Begin loading slides in slot number _____.

a. 0
b. 1
c. opposite the gate index
d. it doesn't matter

____6. What operative procedures can you control with the remote control mechanism?

a. Forward
b. Reverse
c. Focus
d. All of the above

VITA

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Candidate for the Degree of

Master of Science

Thesis: AN INVESTIGATION OF INDIVIDUAL INSTRUCTION AND ITS APPLICATION TO THE OPERATION OF AUDIO-VISUAL EQUIPMENT

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