HPB

HEAD OF "P" BRANCH

A.F.O. 5377/44

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ADMIRALTY FLEET ORDER

INSTRUCTIONAL FILM TRAINING—PROVISION OF CINEMA PROJECTORS, FILMS AND ASSOCIATED APPARATUS

ADMIRALTY, S.W.1,
11th October, 1944.

The following Order having been approved by My Lords Commissioners of the Admiralty is hereby promulgated for information and guidance and necessary action.

By Command of Their Lordships,

To Commanders-in-Chief, Flag Officers, Senior Naval Officers, Captains and Commanding Officers of H.M. Ships, Vessels and C.O. Craft (See A.F.O. 3758/44), Superintendents or Officers in Charge of H.M. Naval Establishments, and Admiralty Overseers concerned.

H. V. Markham

NOTE :—The scale of distribution is approximately half that shown in the Admiralty Fleet Order Volume, 1941, Instructions, paragraph 10.

HEAD OF "P" BRANCH

5377

5377.—Instructional Film Training—Provision of Cinema Projectors, Films and Associated Apparatus

(N.T.—11 Oct. 1944.)

INTRODUCTORY NOTES ON VISUAL TRAINING (C.F. B.R. 873)

Visual training, as it is applied to the Royal Navy, may be defined as the practice of using specifically designed motion picture films and still strips to assist instructors in their task of enabling officers and men to understand and remember facts and theories which will help them more efficiently to carry out their duties.

2. The problem of co-ordinating the use of visual aids to training is the responsibility of the Director of Naval Training, Admiralty, Queen Anne's Mansions, London, S.W.1, to whom all queries on matters of policy should be addressed.

3. Broadly, the problems involved fall into four main categories—

Production
Distribution
Projection
Utilization

4. Of these divisions, the first two, Production and Distribution, are direct responsibility of Admiralty (D.N.T.). Projection and Utilization, on the other hand, are, in the main, problems which must be solved by the users.

5. This classification, however, cannot be considered as hard and fast, because Production must obviously be directed to the requirements of the users, who must frequently sense the need for a particular visual aid, originate its conception and assist in its production.

6. So, too, the user is obviously concerned with distribution problems, for he must know how to secure his films and film strips.

7. Projection (the physical problem of showing the visual aids) and Utilization (the technique which the instructor uses to make them most effective) must also be the concern of Admiralty. Guidance must be given regarding the provision of equipment, its maintenance and the conditions of service for the operators. Guidance must also be given regarding Utilization, because visual training is a new science and its laws comparatively unknown. Utilization forms the basis of the whole structure because, no matter how good your films, how easily available, or how perfect the facilities for projecting them may be, the value will be largely lost if they are incorrectly used.

8. Utilization, then, is the user's big problem and as such it is dealt with first in this A.F.O. Thereafter will be found, for reference, all that need be known about Production, Distribution or Projection.

UTILIZATION

9. *Value of Films in Training.*—Visual instruction by cinematography is a comparative newcomer to the field of training in the services, and for this reason the full implications of this medium are not generally appreciated by those who use—or could use—the film as an aid to their instruction.

10. It is therefore essential to know something of the background, on the strength of which the power of the film has been applied to Training. It is necessary firstly to know the theory behind visual learning, then something of what has been done in the past towards discovering how best this theory may be applied and finally to recognize certain rules which have been agreed regarding this application.

11. *General Theory.*—The brain has three main sense channels through which all knowledge must pass—Sight, Hearing and Touch. Training can be classified into three phases :—

(i) Imparting comprehension of main principles.
(ii) Explanation of detail and fixing this on the memory.
(iii) Encouraging familiarity by practical experience.

12. At first sight these phases appear to fit naturally to the three sense channels—comprehension by sight, explanation by words and practical experience by touch. Though this is broadly true—to the extent that each phase has a dominant sense channel attached to it—there are other factors which have to be taken into consideration :—

(a) Maximum efficiency in instruction is achieved by making use of all sense channels.
(b) Vision has a more enduring effect on the memory than sound.
(c) The memory, i.e. the faculty of receiving impressions, retaining them and subsequently recollecting them, needs cultivation and stimulus.
(d) The three phases of training must be dovetailed.

13. It is found, therefore, that in practice the separate phases must each make use of all three sense channels, but in varying degrees.

14. Of these three sense channels it has been said that the sight channel has the most enduring effect on the memory—it also has the most stimulating effect on the mind. It is more easy to understand, or comprehend, a thing seen than one that is merely described, or felt without being seen. Vision makes meaning clearer

15. Films and film strips always employ vision as their main medium of explanation. They should always employ sound because the employment of two sense channels is better than one (therefore it is obvious that a silent film or film strip should always be supplemented with oral commentary and analysis by the instructor), and where possible they should employ touch as well (the Dome Teacher is the classic example of the employment, through film, of all three sense channels).

16. It appears, therefore, from the foregoing, that visual aids have two main functions—to give comprehension, and to make meaning clearer—and a third less normal function, to provide a practical trainer simulating reality.

17. *Past Experience.*—During the past twenty years various trials have been conducted—both in this country and the U.S.A.—to determine the effectiveness of visual instruction as compared with conventional oral methods. Though these experiments are inconclusive and there is still much room for research they have shown beyond doubt that visual methods are superior in their capacity to give comprehension—that an audio-visual method is more effective than the spoken word in teaching detail—and that visual methods are definitely superior to others in fixing matters upon the memory. There is, therefore, ample justification for the introduction of a greater degree of visual instruction into the training curricula of the Services.

APPLICATION OF PREVIOUS NOTES ON VISUAL TRAINING TO NAVAL PURPOSES

18. In the Royal Navy, practical experience has shown that visual aids are eminently suitable for Naval training purposes, especially when the periods of training have to be drastically curtailed and instruction has to be carried out, largely under unrealistic conditions, with limited facilities.

19. The general uses to which these visual aids can best be put, may be summarized as follows :—

(a) The background instruction of new entry officers and ratings.
(b) General education—including an insight into the Empire war effort.
(c) Technical and scientific instruction.
(d) Instruction in tactical subjects and fighting methods.
(e) Recognition of ships and aircraft.
(f) Revision, testing, and supplementing technical knowledge.

20. The instructor should always keep in mind that the film, whether sound or silent, is his assistant and not his master. The film will help him in his teaching, but it will not do the teaching for him. The film will help him because :—

(a) The moving picture gives a more vivid and lasting impression than a still picture, and infinitely more than a mere word picture.
(b) The magnification possible on the screen provides a clear view of objects and processes for a much greater number of people than could gather round the instructor for observation.
(c) Slow motion will make clear what happens on occasions when the actual movement is too rapid for the human eye to follow ; and speeded-up motion will compress into a few seconds events which, in fact, take many days to develop.

(*d*) By means of animated diagrams there can be shown the simultaneous processes involved when, for example, the trigger is pressed or a petrol engine is started.

21. It is of first importance that the instructor should be quite clear not only of the subject of the film shown, but how it deals with the subject matter and when to show it with greatest advantage. Consequently, his preparation should include the following points :—

(1) He should always see the film himself before showing it to a class. (It is also of value to see that the film has arrived from the distribution centre properly serviced and spooled.)

(2) He should note carefully the commentary (or in the case of silent films, the captions) and be prepared with explanations of points which are difficult to follow.

(3) He should decide the exact point in the lesson when the film is to be used.

(4) When possible he should use the " Film Strip " after the film has been shown to ensure that the lessons demonstrated have been fully assimilated.

22. *Fixing Facts on the Memory.*—Generally speaking, facts and experiences that have been passed to the brain by the senses remain in the memory—an apparently forgotten fact can easily be recalled to mind by an effort of will or through the recollection of an associated event or person, e.g. when meeting an old friend after a long period, many apparently " forgotten " incidents come back to the mind.

23. The ease with which a memory can be recollected depends upon the strength of the first impression. For example, a fact which has made a deep impression or one that has been well pushed home, is more likely to come back more easily when required than one which was passed over lightly in the first instance.

24. The fixing of facts, therefore, depends upon the manner and degree of presentation—a fact that is explosive in its originality will blast a deep impression on the mind and will for long afterwards return to the mind without mental effort. Unfortunately, all the facts given in training are not of this violent nature and it is necessary to make use of cumulative repetition in order to make a deep impression.

25. *How the Film and Film Strip can Help.*—It has already been stated that things *seen* are understood most clearly and remembered longest, and considerable thought has been applied to the problem of just how best the film can assist the Naval instructor in putting over his teaching in the most powerful and impressive manner possible.

26. Experiment has shown that the moving film, in order to be of lasting value as an instrument of instruction, must be produced with one aim in view, and must be guided by a few simple principles.

27. The aim of an instructional film may be any one of four general objects :—

(*a*) To produce a required state of mind in the men under instruction—*Morale films.*

(*b*) To provide an overall view of a subject—either for introduction or revision—in fact, *Comprehension films.*

(*c*) To give a detailed analysis of a subject—the *Detail film.*

(*d*) To provide opportunities for men to practice a skill requiring a high degree of visual efficiency—*the Practice film.*

Of these four, the third, the detail film, is the most usual type and the most difficult to produce or use skilfully.

28. (i) If the aim is to fix facts on the memory, the film must be simple, interesting and short. If it moves too quickly or covers too much ground it becomes confusing. If it goes too slowly, or fails to build up logically by omitting vital points, it becomes boring. If it is too long (and it must be realized that it is quite possible to concentrate two hours normal instruction in a 10 or 15 minute film), it will probably fall into one of these two errors or even if it sustains interest, much of the instruction will be so lightly fixed on the memory that the work of consolidating the knowledge gained will be much more difficult.

(ii) It appears then that the film, when dealing with a subject in detail, can never be expected to do the teaching job on its own.

(iii) It is the instructor's responsibility to see that the points made in the film are pushed home into the memories of the men under instruction.

(iv) To help him in this, modern practice provides a detailed analysis of the film in film strip form. This consists of a series of photographs cut from the moving film—of special photographs, diagrams, captions, drawings and other aids to the memory. It is intended that it shall be shown after a moving film so that the salient points can be gone over one by one. The " Film Strip " is simply used in a portable still projector ; the still pictures can be thrown on a screen or light wall and each can be exhibited as long as desired.

(v) There is nothing new in this form of projection—it is the modern counterpart of the magic lantern—the originality of the method lies in the construction of the strip which is designed purely for the purpose of imprinting facts on the memory.

29. By means of a film strip the Instructor can make an appeal to the eye using good visual material, arranged in sequence in the best instructional order. In this way, film strips give the Instructor guidance and help. The Instructor, however, must be thoroughly versed in the subject, as he will need to amplify what is projected on the screen. By aiding all Instructors equally, the film strip makes for uniform training. But it is just *an aid to training.* It cannot do the job unaided. Its effectiveness in driving home the lesson depends entirely upon the Instructor, upon his ability to *plan* the film strip lesson, and *present* that lesson to the class.

30. Broadly speaking, there are two categories of film strip :—

(*a*) *A Film Strip which is linked to a Training Film.*—This type is a summary of the film, and enables an Instructor to go over its main points a second time, so as to impress them on the trainee's memory and be certain that they have been understood. Film strips of this kind are normally shown immediately following the training film to which they are linked.

(*b*) *A Film Strip not directly linked to any Training Film,* and designed to stand on its own as a Visual Training Aid. This type of strip is usually used to cover detail training where movement is not essential for comprehension, but where it is necessary to take the class slowly through a series of actions, and where it is often necessary to stop or refer back to previous pictures.

In addition, there is a third type of visual aid employing the film strip medium, termed the Photo Diagram Strip.

This visual aid consists of diagrams and or photos *not* necessarily linked together with any form of continuity, but enabling instructors :—

(i) To project instead of draw Technical and other wall diagrams needed to illustrate their lectures ;

(ii) To introduce new equipment before it is available for practical instruction.

31. Experiments have shown that the film strip is one of the most potent visual aids available to the Instructor, and should be looked upon by his as his best link between the subject and the class under instruction.

32. *Advantages and Disadvantages of the Film and Film Strip.*—Summarizing, it is possible to say that the film and film strip form together one of the most effective single methods of instruction yet discovered. Each have their unique advantages which implement each other.

33. There are, however, disadvantages which must not be overlooked. Both may be summarized as follows :—

Advantages of the Moving Film—

(i) It brings the outside world into the classroom.

(ii) It can show the complex parts of a whole in their relation to each other.

(iii) It can show the intricate movements of related parts.

(iv) It provides realism and links the student to the subject.

(v) It can survey a broad field in a short time.

(vi) It can focus attention and emphasize particular points.

(vii) It can make use of realistic illustrative examples.

(viii) It has the benefit of the best of teaching methods—visual instruction.

(ix) It has power to take high quality instruction to a large audience.

With these attributes the film can be made to cover much ground in a short time, and it can give a descriptive picture far beyond the scope of other methods of teaching. The primary function of the film, therefore, is to act as precursor to the treatment of the subject in detail.

34. *Disadvantages of the Moving Film.*—(i) In general it moves too quickly for the mechanism of the memory.

(ii) It requires elaborate set up projector, screen and hall.

(iii) It works in darkness—away from desk and notebook.

(iv) It permits no stops for questioning.

(v) It lacks the personal compelling power of the individual instructor.

(vi) It is rigid in so far that whilst it can allow for fast or slow mentalities, it cannot cater for both.

(vii) It is inelastic, since it cannot be adjusted to individual plans of instruction.

From these it is seen that the moving film is principally limited by its speed and its lack of personal magnetism. To overcome these shortcomings special measures are necessary in the showing of films.

35. *Advantages of the Film Strip.*—(i) It enables a class to be taken step by step over their course of instruction.

(ii) A pause can be made at each step for questions.

(iii) The pictures and diagrams are designed to live in the memory.

(iv) The Film Strip is built to a plan of associated ideas.

(v) The Instructor is given guidance and help.

(vi) It saves the labour of making large wall diagrams.

(vii) The Film Strip is easy to make and costs very little.

(viii) Still projectors can take good instruction to small ships or outlying areas.

(ix) The still projector is simple in operation and can be used in a lighted room.*

36. *Procedure for showing Different Types of Films.*—In order to ensure that each type of film is shown correctly, it is necessary to treat each type individually and to arrange the lesson plan accordingly.

37. The following general rules have, therefore, been evolved to be used as guides to the showing of the four types :—

Procedure for showing "Morale" Films—

(i) They may be shown as part of normal entertainment in the evenings in the recreational shows. In this case they should be shown on their own merits without lecture or introduction.

(ii) They may be introduced in Dog Watch Lectures on general topics connected with the life for which the men are preparing themselves.

(iii) They may be shown in instructional hours and should then be accompanied by a vigorous lecture to supplement the film. Discussion should be encouraged afterwards, and the lecturer should use the film to help him work up a spirit of keenness and enthusiasm.

38. *Procedure for the showing of "Morale" and "Comprehension" films.*—(i) The instructor—who must of necessity be fully conversant with the contents of the film—gives a short "Introduction." By doing this he compels the attention of his class and focusses their interest ; he may even stimulate anticipation by giving a brief outline and, if he is skilful, he will convince each member of his audience of the personal value of the instruction about to be given.

(ii) The film is then shown with as little delay as possible. In this connection it is important for Instructors to realise that the average man cannot maintain sustained attention for longer than 20–30 minutes and for this reason not more than 3 reels of film should be given at a sitting. Most instructional films are built on a segmental principle which allows for this treatment—it is for the Instructor to decide how many reels he will use at any one time. The Instructor should always associate himself with the film by being present during the showing.

(iii) A "discussion" must invariably follow the film. This should be a definite stimulant to the class to reconstruct the film in the memory—it is not sufficient to ask "Any questions" and leave it at that. The Instructor with his complete knowledge of the contents of the film should run over the main points on a "Do

You Remember" principle. At each point he should invite comment and questions. It is only in this way that a class can be stirred into mental effort—if they are asked to comment on the instruction as a whole, their memories are confused by the breadth of vision of the film and as often as not they will remain dumb.

If time permits the "discussion" should end with definite questions to individual members or, better still, with a second showing of the film.

39. *Procedure for showing Films which give Explanation of Detail.*—(i) The introductory talk in this case must focus the attention on the particular part of the subject which is to be dealt with in detail by the film. It is highly important that the class have a clear conception of the position of the film instruction in relation to other parts of the syllabus. It is desirable for the Instructor to outline the scope of the film and to explain the function and purpose of each component part. In those cases where a "comprehension" film has not been shown the Instructor must preface a "detail" film by a broad illustrative survey.

(ii) The average "detail" film requires intense concentration and for this reason not more than 2 reels should be shown at any one time.

Films which deal with detail are frequently designed for advanced instruction —it is therefore clearly desirable for the Instructor to make note of any points which are beyond the capacity of his class.

(iii) The discussion following a "detail" film must, of necessity, be precise. The majority of technical films are built up by connecting groups of detail into a chain of related functions. Each group should contain a logical step by step advance through the intricacies of the subject. The Instructor should be able to recognize these groups and, in conducting the discussion, should take his class step by step through each group in turn.

In asking questions at the end he should remember that it is detail which has been taught and he should frame his questions accordingly.

Since intricate points are sometimes difficult to grasp from a swift moving film it is even more important that a detail film is given a second showing whenever possible.

40. *Procedure for showing "Practice" Films.*—(i) They may be used in entertainment programmes between feature films. Aircraft recognition are especially suitable for this type of show.

(ii) Special "newsreel" programmes are sometimes arranged to include short films of topical interest livened by cartoons. Practice films can be included in such programmes—especially the "quiz" type of film which leads to competition and argument in the audience. This stimulates interest, but it should be remembered that the correct answers must be given in the film. Not more than one should be given at a time.

(iii) They may be given in instructional hours, usually at the end of a lesson devoted to the particular subject—or to fill in odd hours in transition periods or at the end of courses.

41. Procedure for showing Film Strips.—(i) The film strip is best shown in a classroom, and whenever possible the pictures should be thrown on a small screen of white paper. To get good definition the "throw" of the projector should not be more than 25 ft., which will give a picture at least 6 ft. wide. Classes should therefore, be limited to a size which will permit all members getting a good view of details shown on the screen.

(ii) The Instructor—who must have a thorough knowledge of the film strip in use—gives a brief introductory talk. (If it is a strip linked to a film, he will recall general memories of the film, which the class will already have seen). The still projector is then operated to show each picture in turn.

(iii) As each picture is shown upon the screen the Instructor should read out loud the caption that appears thereon. In this way the eyes and ears of the class are brought into use.

(iv) If necessary, the Instructor will then amplify the sense of the caption in his own words, with the object of clearing up any misunderstanding—he will then invite questions and comment, and will deal with these before turning to the next pictures.

(v) Whenever an underlined caption appears the Instructor should warn his class to make particular note and—if the class is so equipped he should tell them to write these captions in their notebooks. If this is done the class will carry away

with them brief reminder notes of the cardinal points of the instruction and, at some future date, will be able to stimulate their memories into a recollection of the instruction as a whole.

(vi) When each small series of pictures illustrating a cardinal (underlined) point and its associated ideas have been projected, the Instructor should show his class how all these are bound together by association—if necessary turning back to emphasize his point. In this way he will dig deep impressions and bind cardinal points to associated pictures so that subsequently the whole series will tend to rise together into the conscious memory.

42. *The Visual Training Unit.*—It becomes obvious that Visual Training must include a co-ordinated plan in which both films and strips play their part.

43. These Visual Training Units must be in turn, interpreted with the Instructor's main plan of action—before they are produced, full consideration must be given to the audience for whom they are intended, the ground that must be covered and the degree of detail which is to be taught, together with the time available to do the teaching and the other aids which are available to help.

44. To illustrate this in practice, two examples may be used :—

(1) Showing the plan of campaign recommended for the users of the Damage Control Visual Training Unit, and

(2) Showing how the Passive Defence Unit should be used.

Example (1).—(i) Full details of the instructional content of the film and the three film strips, together with hints to instructors on their use, are contained in a pamphlet entitled " Guide to Users of the Training Film ' Ship Safety ', and the Related Film Strips ". This pamphlet will be issued automatically to all users of these Visual Training Aids.

(ii) In this guide it is pointed out that adequate instruction in Ship Safety takes four hours.

(iii) Visual Training Aids consist of the following films and film strips :—

Film Strip	" Float and Fight "
Film	" Ship Safety "
Film Strip	" Move and Fight "
Film Strip	" Control of Openings "

The film strip " Float and Fight " with its introductory talk and discussion, provides enough instructional material for one hour.

(iv) The Instructor should explain to the class that the general object of this piece of instruction is to show quite simply :—

(*a*) Why a ship floats.

(*b*) How the special construction of a warship enables it to stand considerable damage in action without being sunk.

(*c*) The part each member of the ship's company plays in the organisation which is designed so that a ship shall float and fight as long as possible.

(v) It is recommended that this film should be used after the film strip " Float and Fight " as an introduction to the main part of the subject of *Ship Safety*, which is to be taught by the other two film strips " Move and Fight " and " Control of Openings ", as described below.

(vi) The object of the film should briefly be explained to each class before actually showing it. It may reasonably be expected that the film will succeed in giving a bird's eye view over the whole problem, and facilitate the more detailed instruction which must follow it.

(vii) *Object of the Film.*—The average new entry to the Navy, officer or rating, has no conception of the meaning of the words " Damage Control " and does not realize the major influence it exerts on ship construction.

(viii) This film is designed to make every officer and rating serving afloat aware of his personal responsibility for the control of damage in action to a ship, and of his share in preserving its water-tight integrity.

(ix) It is pointed out that lack of control means more extensive damage, and even hazard to the ship itself. The film shows that a ship can be hazarded by :—

(*a*) Acts of carelessness such as leaving loose working or personal gear lying in odd corners.

(*b*) Failure to observe the rules concerning watertight doors.

(x) It also shows that a ship can be saved by :—

(*a*) Building of a " watertight integrity consciousness " in the mind of each member of the ship's company.

(*b*) Careful observance of the rules for closing watertight doors and openings. The film shows that if attention is paid to these matters it makes all the difference between a ship sunk and a ship limping home to fight another day.

(xi) The film strip " Move and Fight " only requires about 20 minutes ; for this reason it will probably be convenient to show this film strip and the film " Ship Safety " together in the same instructional period.

(*a*) Some idea of how the machinery in a ship is dispersed and protected.
(*b*) Details of the anti-fire arrangements.
(*c*) More details of " Damage Control " arrangements.

(xii) " Control of Openings " is the longest film strip. It is, itself, divided into eight parts and contains enough instructional material to be spread over two (or even three) of the normal periods in training programme.

(xiii) The Instructor should explain to the class that the general object of this piece of instruction is to teach quite simply the system of markings and securing of openings throughout the ship, considered under the headings :—

Risk Markings	Part 2
Control Markings	Part 3
Securing of Openings	Part 4
Identification of Openings	Part 5
Control Modifying Markings	Part 6
Miscellaneous Markings	Part 7

Part 1 of this strip consists of a short recapitulation of the main lessons learnt from the other two film strips.

Part 8 consists of a " Memory Quiz ", or examination, by means of which the instructor can test the knowledge gained by the class on the subject of " Damage Control ".

(xiv) It is presumed that the film strips " Float and Fight " and " Move and Fight " will have preceded the showing of this strip, since apart from their own particular instruction they are intended to pave the way for " Control of Openings ".

(xv) It follows from that that to give adequate instruction on " Ship Safety ", using the film and the three strips, the training programme should schedule a minimum of four periods, of about 1 hour each, arranged as follows :—

Period I ...	Film strip, " Float and Fight " ...	1 hour
Period II ...	Film, " Ship Safety "	30 minutes
	Film strip, " Move and Fight " ...	20 minutes
Period III and IV	Film strip, " Control of Openings "	2 hours
		(paragraph 11)

(xvi) If the film is not available, or there is not time enough in the training schedule to show it, an Instructor proposing to use the film strips instead is advised to precede the use of the first film strip with a brief introductory talk, which might take the form of a story told along the lines of the theme of the film. This should serve to bring home to each man under training his own immense personal responsibility for the safety of his ship.

45. *Example (2).*—(i) As in Example (1), the visual training unit is accompanied by a guide fully explaining what it consists of and how it should be used.

(ii) The following extract shows how it should be fitted into the training programme. The subject of *Passive Defence* is taught by a film in five parts and five film strips, the whole spread over a two-day course.

" (*Letter references refer to a syllabus of practical work*).

First Day

0900—0940 ...	Practical work (a) and (b).
0945—1030 ...	Film " War Gases " and P.D. film strip Part I.
1030—1040 ...	Stand Easy.
1040—1100 ...	Practical Work (b).
1105—1150 ...	Film " Methods of Offensive " and P.D. film strip Part II.
1330—1400 ...	Practical work (e) and (f).
1405—1450 ...	Film " Respirator " and P.D. film strip Part III.
1450—1500 ...	Stand Easy.
1500—1530 ...	Practical Work (b) and (c).

Second Day

0900—0945 ... Film " Protective Clothing and Personal Cleansing " and P.D. film strip Part IV.
0950—1015 ... Practical Work (d) and (g).
1020—1105 ... P.D. film strip Part V, followed by film " Decontamination "
1105—1115 ... Stand Easy.
1115—1200 ... " Fire Fighting " lecture, followed by film " Fire Fighting " (Part I).
1330—1400 ... Practical Work (I) and (j).
1400—1410 ... Stand Easy.
1410—1540 ... Practical Work (h)."

46. *The Visual Training Aid Guide.*—In order to assist instructors to assess the value of a visual training unit rapidly and accurately and to show them how best it may be used, guides should be issued giving all possible help on these points. These should be studied carefully and the recommendations adapted to the needs of the ship or establishment concerned.

Such guides are not always available at the moment, but it is hoped that in future they will be produced and issued concurrently with the films and strips.

47. *The Visual Training Officer.*—In accordance with the terms of A.F.O. 792/44 a visual training officer should be appointed to each ship or establishment carrying cinema equipment.

48. This officer should be responsible for seeing that visual training aids are used to full efficiency.

49. In order to be able to do this he must make himself familiar with the routine for procuring and utilising the aids and he must know the laws which govern their correct usage.

50. Roughly summarized they are as follows :—

Rule 1. Visual training is a technique used by an Instructor to assist him in his teaching job. *Thus, film strips or any pictorial material must be regarded and used as an aid to the instructor.*

Rule 2. The material available must be known thoroughly.

Rule 3. It must be fitted carefully into the Lesson Plan.

Rule 4. It must, if possible, be used in the course of the lesson in the classroom itself and with as little dislocation to routine or discipline as possible.

Rule 5. The mechanics of projection must be efficiently arranged beforehand. This includes the siting of the projector, having films ready rewound and handy, the projectionist in place, preparation for any blacking out required and the correct seating of the audience to give comfort, ease for note-taking without ease for sleep, and avoidance of undue eyestrain. Hints on how these are to be achieved are given under the section " Operation " in this handbook.

Rule 6. Any available printed matter dealing with the visual aids to be used should be studied and recommendations should be applied to the particular situation.

Rule 7. Each film or film strip should be introduced to the class before instruction begins in order to prepare them mentally for what is inevitably a concentrated lesson.

Rule 8. The speed of showings depends upon the detail contained in the film, the amount of knowledge already possessed by the class, and the degree of thoroughness with which it is required the lesson shall be learned. Moving films should be given in amounts ranging from 5 to 30 minutes. Very technical detail films should never be shown more than one reel at a time (10–15 minutes). Most instructional films are conveniently split up into parts designed to be used in this way and a typical hour's instruction may be taken as follows :—

Introduction	10 minutes
Film	15 minutes
Discussion, question and answer	10 minutes
A film strip or a further reel of film	20 minutes
Summing up	5 minutes

These times will of course, always be varied within the limits described above, depending upon the object of the lesson.

Rule 9. Any showing of a film or film strip, or part of a film, should be followed by a discussion (with question and answer) to ensure that all important points have been properly understood.

51. *Supply of Projectors.*—Approval has been obtained for the provision of cinema equipment to shore establishments where training is carried out for a minimum of 500 trainees per annum. Projectors, which are naval stores, will be supplied in sizes to show either 16 mm. or 35 mm. film, according to the dimensions of the hall to be used as a cinema and the circumstances under which the projector is to be used. Requests for these projectors should be made in duplicate to D.N.T., Admiralty, Queen Anne's Mansions, London, S.W.1, and should be accompanied by .—

(*a*) Full details of the space or hall in which it is proposed to use the projector, with sketch drawings in plan and elevation giving length, breadth, and height to eaves or beams (*see* (ii) below), location and size of any platform and projector room ; also the position of exits.
If available, a copy of an architect's plan is preferred.

(*b*) Electric current supply available, *i.e.*, A.C. or D.C. voltages. If A.C. whether single and/or three phase.

(*c*) Details of complement held, numbers of men trained, subjects in which training is given.

(*d*) Details of subjects in which it is desired to give instruction by film.

52. *Selection of Rooms for Cinemas.*—The following information is given as a guide for the selection of suitable rooms as instructional cinemas :—

(*a*) Rooms should have plaster or soft composition board interior walls. Buildings with interior walls of tile, glazed brick, hard asbestos or metal sheeting, or similar material, should be avoided if possible, owing to the bad acoustic properties of these substances.

(*b*) In order that a screen may be provided of dimensions suitable for the size of audience to be accommodated, proportions of rooms to be used as cinemas should be as indicated in the following table :—

(a) Length of auditorium (from screen to back row of audience)	(b) Minimum unobstructed vertical height of auditorium	(c) Minimum unobstructed width of roof span at height given in Col. (b)
ft.	ft. in.	ft. in.
25	9 3	5 3
30	10 0	6 0
35	10 6	6 6
40	11 3	7 3
45	11 9	7 9
50	12 6	8 6
55	13 0	9 0
60	14 0	10 0
65	14 6	10 6
70	15 0	11 0
75	15 9	11 9
80	16 6	12 6
85	17 0	13 0
90	17 9	13 9
95	18 6	14 6
100	19 0	15 0
105	19 9	15 9
110	20 3	16 3
115	21 0	17 0
120	21 6	17 6

(*c*) The heights given in column (*b*) of the above table are minima and can be exceeded, but it will be appreciated that if the height is unduly great in proportion to the length, acoustic difficulties may result.

53. Two projectors will be allowed to each establishment covered by this approval, but difficulties of supply do not permit of this being carried into effect at present.

Supply of cinema equipment to seagoing ships is dealt with as follows : 35-mm projectors, A.F.O. 793/40 ; 16-mm. projectors, A.F.Os. 3426/42 and 5093/43.

54. Appendix II gives particulars of standard equipments for 35-mm. projector equipments for shore establishments, and 16-mm. " Gebescope " and " Ampro " equipments for H.M. ships and shore establishments. The articles in Table I are supplied for every installation, and Table II shows the equipment which will vary according to the requirements of individual installations. Owing to production difficulties, it is not always possible to supply all the items listed at the same time as the projectors. Deliveries of such items will be made without further demand as supplies become available.

Particulars of 35-mm. cinema equipment supplied to H.M. ships are shown in Establishment List K.I.

55. *The Use of Instructional Projectors for Recreational Purposes.*—The charge of ½*d.* per head, laid down in paragraph 2 (*d*) of A.F.O. 1795/40, for the use of instructional equipment in shore establishments for recreational purposes is to be paid to the Accountant Officer of the establishment, who will take the amount on charge in his public account as a credit to Vote 8 II J.

56. *The Use of Commercial Cinemas for Instructional Film Training.*—Arrangements have been made through the Cinematograph Exhibitors' Association for certain commercial cinemas in the United Kingdom to be available for showing naval instructional films to naval personnel without charge. This applies only to hours outside commercial cinema showings. In areas where there are a number of cinemas, exhibitions will normally be arranged upon a rota basis. Where, however, the circumstances are such that it is necessary to use a particular cinema at regular and frequent intervals, payment may be made from public funds for the hire of the cinema concerned, but this should not exceed three guineas for any one performance, except with prior Admiralty approval.

57. *Privately Owned Cinema Projectors—Use of, for Instructional Purposes.*—Their Lordships have had under consideration the question of the utilization of privately owned cinema projectors for the showing of instructional films to personnel in shore establishments. After consultation with the establishments concerned, it has been decided that where it is necessary to utilize privately owned equipment for instructional purposes, payment may be made from public funds of a fee of 5*s.* for each exhibition of a film, subject to a maximum payment of £1 a month in respect of any one projector, the cost being chargeable to Vote 11 N (8).

58. *Servicing of Projectors in Shore Establishments and Ships.*—It has been recognized that all projectors, whether in domes, miniature tracer ranges, or training establishments, should be serviced regularly, if possible once very six weeks. The following servicing arrangements have therefore been made and every use should be made of these to avoid damage and breakdowns to equipment.

59. *Cinema Maintenance Officers.*—Cinema maintenance officers have now been appointed as follows :—

(1) Commander-in-Chief, Rosyth :—
Accommodated in H.M.S. " Cochrane " for Scotland, North East England and Ireland.

(2) Admiral Commanding Orkneys and Shetlands Scapa :—
Accommodated at R.N. Base, Lyness.

(3) Commander-in-Chief, Portsmouth :—
Accommodated in H.M.S. " Vernon " (P) for South, East and West England.

(4) F.O.I.C., Liverpool :—
Accommodated in H.M.S. " Wellesley " for Western Approaches Command south of the Scottish Border.

A further extension of the maintenance system is under consideration, and details will be promulgated separately as further depots are established.

60. Cinema Maintenance Officers are responsible for supervising the maintenance and efficiency of cinema projectors in :—

(*a*) Shore establishments.

(*b*) Dome aiming teachers.

(*c*) Ships attached to the Home Fleet.

61. In order to maintain the efficient servicing of cinema projectors until such time as the necessary staff can be supplied to assist the cinema maintenance officers, a contract C.P. 4E/69963/42, dated 31st August, 1942, has been placed with Messrs. Gaumont British Equipments, Limited, for the servicing of shore establishments, and in cases where cinema maintenance officers cannot at present service equipments, the Gaumont British servicing engineer will be requested by the C.M.Os. to visit stations until such time as it is possible for these officers to undertake the work themselves. The Commanding Officer concerned will be informed of the Gaumont British engineer's visit. This contract is confined to emergency visits which will only be made at the request of the Cinema Maintenance Officer.

62. Emergency servicing should, wherever possible, be done by cinema maintenance officers and commanding officers should contact their appropriate cinema maintenance officer in a case where repairs, spare parts or maintenance of their projectors is required, which is outside the scope of the duties laid down for cinema projectionists, i.e. running repairs and general cleaning.

63. The cinema maintenance officers or their representatives, will visit shore establishments as frequently as possible to inspect the cinema equipment, and all facilities should be afforded for this purpose.

64. Suggestions will be made by the cinema maintenance officer, where necessary, for the improvement of instructional cinemas. Action should be taken upon these suggestions by commanding officers in consultation with D.N.T., Admiralty, where necessary.

65. Commanding officers of ships and establishments are to arrange facilities for these officers to make complete reports on all installations. Copies of these reports should be forwarded to D.N.T., Admiralty, by the cinema maintenance officer and one left with the ship or establishment concerned. These reports should include any recommendation for improving the efficiency of the cinema installation which cannot be carried out locally.

66. Their advice should be sought on the following matters :—

Selection of a suitable room for cinema, installation difficulties, improvements to acoustics, quality of projection, etc.

67. *Handbooks.*—An instructional handbook is supplied with every projector. Copies of the handbook for 35-mm. portable projectors may be replaced by demanding handbook, Pattern 7571, through normal store channels.

68. *Log Books.*—Log books are available for use with cinema projectors and should be demanded from Keeper of Stationery and Printing, Admiralty—Form 5—1174 Established February, 1942, T.S.D. 18/42.

These should be kept fully up-to-date, and will be inspected periodically by the Cinema Maintenance Officer or Instructional Film Distributing Officer when visiting establishments.

69. *Care of Cinema Projectors.*—Considerable damage is being caused by the " stripping " of cinema projectors by ships' personnel.

70. D.N.T. 8932 " Notes on the Instruction Manual for GeBescope 16-mm. Sound and Silent Film Projector," is issued to all ships and establishments supplied with 16-mm. GeBescope projectors, and its contents are to be brought to the notice of officers responsible for these equipments.

71. Cinema projectors are not to be dismantled other then by Cinema Maintenance Officers or their staffs. Where it is not possible to obtain the services of a Cinema Maintenance Officer (e.g. outside home waters), no part of the projector may be dismantled unless it is absolutely necessary and the responsible officer is present.

72. *Causes of Breakdowns.*—The two most frequent causes of breakdowns in cinema projectors have been found to be over-lubrication and condensation of moisture in the projector.

(1) *Condensation.*—The chief cause of this has been found to be lack of heating in the projection box; this fault has been prevalent in ships. The projection box should be maintained as nearly as possible at an equable temperature of approximately 60° (*see* A.F.O. 5938/43). Glass windows should be fitted in the operating box apertures in order to retain as much warmth as possible and to exclude the damp, as water condensed on the objective soundhead optical system or on the picture projection lens will cause serious projection difficulties.

(2) *Lubrication.*—Excessive lubrication of 35-mm. or 16-mm. projectors leads to leakage of oil into the head amplifier, amplifier and electrical circuits, thus destroying the insulation and causing electrical fires. As these projectors have "Oilite" bearings, the chance of seizure from lack of oil is very small and danger lies in over, rather than under, lubrication. In no projector should the oil applied to oiling points exceed one drop at each application. No oil should be applied to any part of the projector other than to the oiling points, except to preserve the free running of parts (e.g. idle rollers), which are not lubricated from those points.

73. *Thirty-five millimetre projectors* should be oiled once in every running day at the routine oiling points as detailed in the handbook supplied with the projector. Oil should be applied before films are shown and the projector should be run for about twenty minutes without film, after which any excess of oil should be wiped off with a clean cloth. Cross box oil should be changed after every eighty hours' running time.

74. *Sixteen millimetre GeBescope projectors* should be lubricated at the six oiling points set out in the instruction book. Experience has shown that the lubrication of CeBescope projectors should be carried out once in every ten running hours (not every five hours as detailed in the handbook).

75. *Sixteen millimetre Ampro projectors* should be lubricated at the central oil well as instructed in the handbook.

76. *Lubrication of film.*—Experience has also shown that new prints of technicolor gunnery films supplied for use with 16-mm. projectors are liable to jump off the sound drum.

77. If this difficulty is experienced, the film should be lubricated, vide A.F.O. 2920/43, paragraph 16, and reference made, if necessary, to a cinema maintenance officer for adjustments to be made to the projector. If the film can has the words "This film has been polywaxed" stamped on the label, further lubrication is not required.

78. *Accessories.*—(i) Spares. A reasonable supply of spare parts for running repairs is supplied to all ships and establishments with the original projector and a full list of the equipment so provided is to be found in Appendix II of this A.F.O.

(ii) CO_2 cylinders, Pattern 7535—Refilling. There is a shortage of CO_2 cylinders, Pattern 7535, which are used with the automatic fire extinguisher fitted to 35 mm. cinema projectors.

79. When existing cylinders have been used, they are, therefore, to be returned by ships and services to the nearest dockyard or area naval store for refilling which is to be arranged at the earliest possible date under standing contract dated 30th November, 1939, C.P.57681/39, with the Pyrene Co., Ltd., Great West Road, Brentford, Middlesex.

80. If more convenient, discharged cylinders may be sent direct from shore establishments, payment for filling being made by the Accountant Officer. A record of the cylinders dealt with in this manner is to be kept in a subsidiary account, Form D.186, and accounted for in accordance with the procedure contained in B.R.4, Article 13 (9).

81. The terms of the contract quoted above are as follows:—

(1) Empty cylinders to be forwarded carriage paid.

(2) The price to be paid for refilling and resealing 8 oz. cylinders with CO_2 and returning, carriage paid, to the following distances:—

100 miles	200 miles	400 miles
1 only, 5*s.* 3*d.* each.	1 only, 5*s.* 6*d.* each.	1 only, 6*s.* each.
2–4, 5*s.* each.	2–4, 5*s.* 3*d.* each.	2–4, 5*s.* 9*d.* each.
5 or more, 4*s.* 9*d.* each.	5 or more, 5*s.* each.	5 or more, 5*s.* 6*d.* each.

Stocks of cylinders should not fall below two or exceed six for any installation.

82. *Supply of Still Projectors.*—(i) *Basis of Supply.*—Still projectors will be supplied without demand to ships and establishments using film strips on the basis of one per instructional cinema projector plus one per five hundred men borne.

(ii) *Spares.*—Replacement lamps for still projectors should be demanded through Naval Store channels from S.N.S.O., Britannia Works, 54, Neasden Lane, London, N.W.10.

Damaged projectors should be returned to the same authority and replacement demanded. Reports of damage should be made to Admiralty (for D.N.T.) giving in full the circumstances and full reasons for the breakdown.

83. *Maintenance of Still Projectors.*—The following information and instructions are promulgated for the efficient operating of this projector. *See* A.F.O. Diagram 390/43.

84. *General.*—(i) Keep projector clean and dry and in its case when not in use.

The still projector is designed for use in classrooms; and with a throw of 20 ft. it will at that distance give a 6 ft. picture, with good definition. Where necessary for large audiences, it can be used successfully with a throw up to 60 ft., giving a picture size of 18 ft.

Lens, glass aperture plates and condensers should be cleaned, and polished regularly, with methylated spirit or other cleaning fluid, finished off with a dry chamois leather. Aperture plates should not be removed, but condensers are easily taken out for cleaning by lifting condenser unit out bodily.

When setting up the projector, bring extending feet (1) to the front of the base and pull out extension legs.

Film strips must be wound with the first frame (or picture) on the outside of the roll and the emulsion or dull side outwards so that when threaded this emulsion side faces the light.

(ii) *Resistance.*—The projector may be used with any electric supply from 110 volts to 250 volts, a separate unit resistance being supplied with tappings at 115, 200, 210, 220, 230, 240 and 250 volts. Great care should be taken to see that the small plug in the side of the resistance is screwed into the correct socket marked with the ship's voltage supply. The resistance is connected to the projector by means of the short lead fitted with a 2-pin socket (9) giving 115 volts output to the projector lamp.

(iii) *Projector Lamp.*—Projector lamps fitted are 115 v. 100 w. pre-focus, Type A. They are designed to burn base down and care should be taken never to move or tilt projector while lamp is burning. Always have projector lamp switched off when threading film strip.

(iv) *Screens.*—Special screens are not issued for use with still projectors and where an ordinary cinematograph screen is not available, any matt white opaque material or surface will serve.

(v) *Threading Film Strip.*—Open film gate by releasing catch (2) and swing lens jacket outwards. Insert film strip in top magazine (3), thread through slot (4) at the bottom of the magazine, leaving 4 ins. of film free. Pull forward retaining arm (5). Place film strip over sprocket teeth, seeing that they are properly engaged and insert end of film under overhanging edges of film track (6). Close gate securely. Important: The film strip is advanced by turning the operating knob (7) in a clockwise direction. Care should be taken to see that the film follows the twisting curve of the film track into the take-up magazine, which should then begin to rotate.

Connect mains plug (10) into source of supply and turn on projector lamp switch at side of projector.

(vi) *Focussing.*—Pull out lens (8) slightly and turn operating knob in a clockwise direction until an image is seen on the screen, then move the lens forwards or backwards as necessary with a twisting motion until image is clear and sharp.

(vii) *Framing.*—Framing is very essential as this model is fitted with a releasing rear aperture glass, and it must be noted that the operating knob should be turned anti-clockwise until the full picture is on the screen.

Each quarter turn of the operating knob advances the film strip by one frame or picture. To reverse or repeat a picture turn knob anti-clockwise. When reversing relieve the film strip from binding or forming a loop at top of the gate by placing a finger inside the top magazine and turning film roll slowly to the right to make the roll smaller.

Raising the picture on the screen is done by means of a milled screw at the front of the projector base; this screw should be returned to normal before replacing projector in its case.

FIRE REGULATIONS

85. *Fire Precautions—Danger of Fire.*—(i) *Necessity for Care in Storing Films.*—It is impossible during the war for all films to be made on a non-inflammable or acetate base. For this reason all films should be regarded as highly inflammable and precautions taken accordingly.

(ii) In certain instances in shore establishments fires have been started owing to carelessness of cinema operators in handling these inflammable films and by failing to observe essential fire precautions in projection rooms and re-winding rooms.

(iii) A Warning Notice (S.1546) has been issued; two copies per installation to all ships and establishments holding 35-mm. cinema equipment.

(iv) These notices should be prominently displayed in the re-winding room and in the projection room and in any other room or space in which 35-mm. films are stored.

(v) Further copies of this notice (S.1546) are obtainable on application to the Keeper of Stationery and Printing.

(vi) This danger does not apply to 16-mm. films, all of which are printed on non-inflammable stock.

(vii) For further information on fire regulations. reference should be made to the following Fleet Orders :—

A.F.O. 5938/43. 35-mm. Cinema Projection Equipment—Fire Precautions Required and Rules for Installation

A.F.O. 2672/44 and A.F.O. 3367/44. Film Libraries—Regulations for the storage of 35-mm. Film in Shore Establishments in excess of 200 reels.

(viii) *Training of Operators.*—The danger of fire from films is emphasized throughout the W.R.N.S. cinema operator's training course and fires are actually started, demonstrating this danger, to give every operator practice in how to deal with these outbreaks and to give her confidence in cases of emergency.

(ix) *Reports of Fire.*—Should a fire occur in the cinema a report on the circumstances should be forwarded to D.N.T. without delay. This report should include :—

(*a*) Cause of the fire.
(*b*) Damage caused.
(*c*) Fire precautions existing before the fire.
(*d*) Steps taken to prevent a recurrence of the fire.

INSTITUTION OF CINEMA BRANCH—CONDITIONS OF SERVICE

86.—In view of the growing importance of the instructional film, and the need for properly trained and qualified operators and maintenance staff to deal with cinema equipment, a new Branch has been instituted, for the period of the war, to comprise ratings employed on cinematography in connection with instructional films used in H.M. ships and establishments.

87. *Title and Administration.*—The new Branch will be called the "Cinema Branch", ratings to be known as "Cinema Operator, with A.B. and the usual higher ratings. Training will be arranged by the Commodore, R.N. Barracks, Chatham, under the Commander-in-Chief, The Nore. It is intended that cinema operators shall be recruited gradually and trained, and shall replace other ratings hitherto employed on cinematograph work in sea-going ships, Able and Ordinary Seamen being reduced from complement and quarter-bill on a head-for-head basis. Cinema operators will be divided between the three port divisions. The Cinema Training School at Chatham will become the headquarters for projection training, and will be staffed by members of the Cinema Branch.

88. *Duties and Employment.*—The Cinema Branch will embrace all types of work connected with instructional training films, i.e. :—

(*a*) Operation of cinema projectors, including running repairs and routine maintenance.
(*b*) General repairs and overhaul by specially trained maintenance parties under command of cinema maintenance officers.
(*c*) Work on production of films at the Film Production Unit at Tipner.
(*d*) Training of cinema operators.

89. *Pay.*—The scale of pay (1925) for ratings in the Cinema Branch will be the same as that of the Photographer Branch, namely :—

	Per diem s.	d.
Cinema operator	3	6
After 3 years man's service	3	10
After 6 years man's service	4	2
Leading Cinema Operator	5	1
After 3 years as such	5	5
P.O. Cinema Operator	6	9
After 3 years as such	7	2
After 6 years as such	7	7
C.P.O. Cinema Operator	8	3
After 3 years as such	8	9

With subsequent triennial increments of 6*d.* a day.

(ii) Ratings will be entered for training as Ordinary Seamen, and hold that rating until the successful completion of their initial course, when they will be rated Cinema Operator. Store allowance at 6*d.* a day will be payable to ratings while in charge of cinema equipment.

(iii) Ratings of other branches who are necessarily employed as cinematograph operator for service purposes until ratings of the new branch become available, will continue to be eligible for the allowance authorised in Appendix XVII, Part 3, No. 7, K.R. & A.I., but the allowance will not be payable to ratings of the cinema branch.

(iv) Ratings of the cinema branch may be employed on the projection of recreational films in their own ship or establishment provided there is no interference with their instructional duties. They will not, however, be allowed in complements solely for recreational duties. Where volunteers have operated cinema equipment with efficiency for recreational purposes, there is no objection to these men continuing this voluntary work at the discretion of the Commanding Officer. The responsibility for the efficiency of the equipment must, however, remain with the official cinema operator. On every day on which films are shown, the operators should be allowed one hour before and half an hour after the programme for the care and maintenance of the projectors and films.

(v) It will take a considerable time to provide Cinema Operators for all ships, and priority of draft will be given to newly-commissioned ships and to those ships where existing arrangements are not satisfactory.

90. *Recruitment and Transfer.*—The Cinema Branch will take effect from 5th May, 1944. From that date all ratings on the Wireman (C.P.) Branch are to be transferred to the equivalent rating in the Cinema Branch. Transfers will be on a provisional basis until ratings have successfully completed a two weeks' course of training at R.N. Barracks, Chatham, and/or passed the prescribed test. Ratings so transferred will not lose seniority for advancement through lack of opportunity to take the course or test.

Ratings of other branches may not transfer to the Cinema Branch except those at present employed on duties laid down in paragraph 3 (*b*) and (*c*) above and then only with Admiralty permission.

91. *Advancement.*—On completion of initial course, men will be rated Cinema Operator, and after six months' service as such will be eligible, if recommended, for advancement to Acting Leading Cinema Operator, by port division roster. Confirmation as Leading Cinema Operator will follow on completion of twelve months' satisfactory service. Leading Cinema Operators will be eligible for advancement, if recommended, to Acting Petty Officer Cinema Operator on completion of one year's service in the Leading rate, including Acting time. Twelve months' satisfactory service will be required for confirmation as Petty Officer. Petty Officer Cinema Operators will be eligible for advancement to Chief Petty Officer, if recommended, after three years as Petty Officer including Acting time. Advancement to Leading rating and above will be by port division roster. All time as Wireman (C.P.) will count for service as if served in the Cinema Operator Branch.

Certain ratings employed on specialist duties required for film production work, training of cinema operators, or maintenance of cinema equipment, who may have long-standing experience of these duties in civil life, may be recommended for

accelerated advancement. Such accelerated advancement will be by Admiralty approval only, and it will be necessary to state the length and type of the special experience.

92. *Complements and Drafting.* (i) Cinema operators will be allowed to ships and establishments in accordance with the following scale :—

If supplied with 16-mm. projector only ... 1 cinema operator.

If supplied with 35-mm. projector ... ... 2 cinema operators.

(Ships supplied with both 16-mm. and 35-mm. projectors are not entitled to more than two cinema operators.)

(ii) Ships and establishments in home waters should apply to their manning depot for ratings as required, stating sizes of projectors. Ships and establishments abroad should apply to the Station Drafting Authority. Male operators will only be allowed to establishments having no accommodation for W.R.N.S. personnel.

(iii) Cinema Operators will be borne in lieu of an equal number of Ordinary Seamen.

(iv) On completion of training at the school at Chatham, cinema operators are to be allocated to port divisions in the following proportions :—

Portsmouth	20 per cent.
Devonport	40 per cent.
Chatham	40 per cent.

They should be discharged to the R.N. Barracks, Portsmouth, Devonport and Chatham accordingly.

W.R.N.S. Cinema Operators—Conditions of Service

93. The following instructions concern the general conditions of service of W.R.N.S. cinema operators (including W.R.N.S. Dome A.A. teacher operators).

94. W.R.N.S. cinema operators constitute a specialized category and are employed to operate projectors used for instructional films in shore establishments at home where full-time operating is required, and where they can take the place of active service personnel who are, or would be, allocated for this purpose.

95. Recruits are at present entered in the W.R.N.S. Central Depot, and given a course of technical training at the R.N. School of Cinema Projectionists in the R.N. Barracks, Chatham, prior to being drafted to fill requirements in appropriate Naval establishments.

96. W.R.N.S. cinema operators may be employed in dome A.A. teachers, but should not take charge of the dome teacher nor carry out routine maintenance duties in it until they have passed the necessary examination for leading rate.

97. Where there is no leading Wren available, one male leading cinema operator should always be retained to work in the dome teacher.

98. W.R.N.S. cinema operators will, after enrolment, continue on the lower unspecialized rate of pay whilst undergoing training and, on satisfactory completion of training, will be granted the lower specialized rate of pay. On termination of a minimum of three months' service on the lower specialized rate, they may be advanced to the higher specialized rate if recommended as being competent in the required duties. These are operating, cutting, splicing and general repair of film programmes and routine maintenance of cinema projectors.

99. Advancements will be from a single roster maintained at Chatham and, in addition to fulfilment of the qualifications laid down in A.F.O. 4864/42, paragraph 8, will be conditional upon the passing of tests to be laid down by the Admiralty. These tests will be open to all Wren cinema operators whether they are employed as assistant operators in dome teachers or in a normal instructional cinema. Wren operators employed in dome teachers who pass the approved test will take charge of the dome teacher and release male ratings in this duty.

100. Tests for advancement to Leading Wren Cinema Operator will be conducted in the British Isles by the undermentioned officers or their representatives

In addition, there is a Third Officer, W.R.N.S., appointed to D.N.T's. staff at the Admiralty who is available to conduct the tests :—

Officer.	*Area.*
C.C.M.O., Lyness	Orkneys and Shetlands.
I.F.D.O., Great Harbour, Greenock ...	Establishments in Western Approaches Command served by the Glasgow Film Library.
I.F.D.O., H.M.S. " Wellesley ", Liverpool	Establishments in Western Approaches Command served by the Liverpool Film Library.
C.I.F.O., Rosyth	Rosyth Command.
C.I.F.O., Portsmouth	Portsmouth Command.
C.I.F.O., The Nore	Nore and Dover Commands.
C.I.F.O., Devonport (through a rating specially drafted for this purpose).	Devonport Command.
I.F.D.O., London	London Area.

The test will be of a practical nature (verbal for ratings serving at home, and written for those serving abroad) and will be held at the establishment at which the rating is borne and on the equipment she normally operates.

101. The examination may not be taken until ratings have completed the service qualifications for advancement. Applications for the examination of ratings who have qualified by service (including those recommended on Form S.507 (W) before the introduction of the examination) should be made to the examining officer concerned (*see* above). In order to avoid waste of time, Commanding Officers are requested to endeavour to arrange for all ratings in any one establishment to be examined on the same day.

Ratings who fail to pass the test will be ineligible for a further attempt until after the expiry of six months from the date of the previous failure.

Applications for examination from ratings serving abroad who are qualified by service should be made by signal to the Admiralty (D.T.S.D.), and arrangements will be made for written examination papers to be sent out.

102. The advancement roster is to be based on date of passing. Ratings cannot, therefore, be placed on the roster until the qualifying examination (in addition to being qualified by service and conduct). For those ratings who pass the examination at the first attempt, the date of passing is to be ante-dated to the date of qualifying by length of service and this will be their basic date for roster purposes. The date of passing (and roster date) of those who fail at the first attempt is to be the actual date on which they subsequently pass the examination.

103. Wren cinema operators will be allowed as follows :—

(*a*) In 16 mm. instructional cinemas—one Leading cinema operator.

(*b*) In 35 mm. instructional cinemas—two cinema operators for each installation, one to be a Leading Wren.

(*c*) In dome teachers, *see* (*b*) above and paragraph 4.

104. Demands for Wren cinema operators are to be forwarded to the Superintendent, W.R.N.S., The Nore, on Form S.1567.

105. Submissions for the additions to complement of Wren cinema operators should be made through the normal channels to the Secretary of the Admiralty, stating :—

(i) Number of cinemas supplied by Admiralty to the establishment making the demand. (Dual installations, dome teachers, etc., each to count as one cinema.)

(ii) Number of cinema operator ratings already held and duties assigned to them.

(iii) Number of Wren cinema operators required in addition to (ii) above, and the duties which will be assigned to them.

(iv) Estimated average hours per week during which Wren cinema operators demanded in Section (iii) above will be employed in the showing of instructional films.

106. Wren cinema operators are allowed for the showing of instructional films, They may be employed voluntarily to show entertainment films out of working hours as a private arrangement between the individual rating and the establishment concerned.

107. *Distribution of Films—Home.*—Requests for copies of films and all correspondence concerning film distribution should be addressed to the Instructional Film Distributing Officer (I.F.D.O.) at the nearest of the following film libraries :—

Scapa	... ...	R.N. Base, Lyness
Rosyth	... ...	H.M.S. " Cochrane "
Greenock	... ...	Great Harbour
Liverpool	... ...	H.M.S. " Wellesley "
Chatham	... ...	R.N. Barracks
Portsmouth	...	H.M.S. " Collingwood," Fareham, Hants.
Devonport	...	R.N. Barracks
London	... ...	54, Neasden Lane, N.W.10
Londonderry	...	Ebrington Barracks

Instructional Film Distributing Officers have been appointed to each of the above libraries, where stocks of all instructional films will be held for issuing to H.M. ships and establishments under the following conditions :—

(*a*) Permanent loan—when a guarantee can be given that each film supplied will be shown at least three times per week ;

(*b*) Temporary loan—when copies of any particular film cannot be used constantly, i.e. three times per week.

When transport difficulties exist, I.F.D.Os. will set up sub-libraries in their areas, and information as to the location of these sub-libraries should be obtained from I.F.D.Os.

Note.—The above arrangements for the distribution of films is unavoidable owing to the extreme shortage of film stock and film printing facilities, and Commanding Officers are to ensure that I.F.D.Os. are given utmost co-operation in the inter-change of copies of films.

108. *Distribution of Films—Abroad.*—The distribution of films to H.M. ships and establishments abroad will be arranged through Commanders-in-Chief. Instructional Films Officers have been appointed in the Mediterranean and Far Eastern theatres and additional appointments will be promulgated by subsequent Fleet Orders.

109. *Distribution of Dome Rolls.*—Experience has shown that the maximum number of times that a dome attack film can be shown through the projector fitted in a dome-aiming teacher, is approximately 200, but however far short of this figure a film has been shown, it is of no training value to continue using it after it has become so worn that the rating manning the gunsight cannot see the aircraft clearly through the yellow filter in the eyepiece of his backsight.

These films are Naval Store items, and demands for replacements for worn-out copies are to be forwarded to the Naval Store Officer, R.N. Store Depot, 54, Neasden Lane, London, N.W.10, and not to Instructional Film Libraries.

Worn-out dome rolls are to be dealt with as follows :—

Home.—Returned to the Naval Store Officer, R.N. Store Depot, 54, Neasden Lane, London, N.W.10.

Abroad.—To be destroyed in the presence of a responsible officer, and certificates of destruction to be forwarded to the Instructional Film Distributing Officer, Naval Training Department, Admiralty.

110. *Distribution of U.S. Training Films.*—Viewing copies of U.S. training films are received in Admiralty and are screened to all Admiralty Departments. The scale of distribution to be given to any U.S. training film will be decided by Admiralty and promulgated by Fleet Order. H.M. ships and establishments should not demand copies of these films without having viewed them, as in certain instances the equipment and methods used vary from Royal Naval equipment and methods, and incorrect training may result.

111. *Obsolete Films.*—As and when instructional films become obsolete, a Fleet Order will be published and all holders of copies are to return them as follows :—

Home.—Return to the film library from whence they were obtained.

Abroad.—Return to the Naval Store Officer, R.N. Store Depot, 54, Neasden Lane, London, N.W.10.

112. *New Films.*—The initial distribution of newly-produced instructional films will be published in Fleet Orders after consultation with Admiralty Departments concerned and additional copies will only be issued to meet urgent requirements, owing to the difficulty in obtaining extra copies, and this can only be arranged with the printing laboratories when there are no new films awaiting printing.

113. *Damaged Films.*—Should a copy of a film be damaged whilst in the possession of any H.M. ship or establishment, the I.F.D.O. in charge of the issuing library is to be informed, so that arrangements can be made to obtain a replacement of the damaged reels or sections. All damaged copies are to be returned to the issuing library with a report as to the cause of the damage, signed by the Commanding Officer.

114. *Care of Films.*—Films are to be treated with the utmost care as they are costly and difficult to replace, and cutting and joining of reels is to be reduced to a minimum. Copies should be returned to the libraries as follows :—

16 mm.—On spools and not rewound, i.e. " end " outwards ;

35 mm.—In tins, plated off and beginning outwards.

115. *Stowage of Films.*—Attention is drawn to paragraphs 15 and 16 of A.F.O. 5938/43.

116. *Recreational Films.*—Arrangements for the supply of recreational films are made as follows :—

Shore Establishments.—Through the Admiralty Shore Establishments Cinema Fund Committee. Secretary, 19, Tower Street, London, W.C.2. Telephone : Temple Bar 8927. (A.F.O. 3953/42 refers.)

Seagoing Ships.—Through the Royal Naval Film Corporation. Secretary, Royal Victoria Yard, Deptford. (A.F.O. 5580/43 refers.)

Film Strips

117. *Distribution.*—Stocks of instructional film strips will be issued without demand to film libraries and may be obtained on permanent loan by application to the nearest film library.

118. *New Film Strips.*—As and when new film strips become available, copies will be issued without demand to film libraries and a Fleet Order published concurrently.

Appendix I

Catalogue of instructional films and film strips available for use by units of the Royal Navy.

This catalogue has been compiled as a guide to the instructional films and film strips available to Commanding Officers. The procedure for ordering copies of films is summarized in paragraph 107–110 of this A.F.O. This should be used in conjunction with the information set out below.

The films are indexed three ways :—

(*a*) In numerical order giving a synopsis of the contents of the films after each title, except in cases where the title is self explanatory, or where considerations of security make this impossible.

(*b*) Alphabetically (by titles only).

(*c*) Under headings by subject (titles only) as follows :—

Headings	
Acoustics	—
Anti-Submarine	Asdics, Depth Charges, General, Hedgehog, Net-Laying, Squid, Tactics.
Balloons	—
Bombs	—
Camouflage	—
Combined Operations	Close Fighting, Craft, Tactics.
D.E.M.S. and Merchant Navy ...	Anti-Smoke, Gunnery.
Education	—
Electrical	Batteries, Circuits, Compasses, Magnetism and Degaussing, Magnetos and Ignition, Oscillograph, Theory.
Engineering	Boilers, Diesel Engine, Hydraulics, Instruments, Lubrication, Petrol Engine, Power, Road Transport, Tools Welding and Oxygen Cutting.
Fleet Air Arm	Aircraft Design, Air Safety, Bombs and Torpedoes, Catapults, Drill, Engines, Gunnery, Landings, Observer Training, Pilot's Training, Principles of Flight.
Gunnery	Ammunition, Anti-Aircraft (Army), Close Range Weapons, Coast Defence, Drill, Fire Control, Long Range Weapons, Tank and Anti-Tank Weapons (Army).
Historical	—
Infantry and Land Forces ...	Bridging, Drill, Fieldworks, Gas, Obstacles, Signals, Tactics, Weapon Training.
Instructor Training	—
Leadership	—
Marines	Organization.
Medical	Blood Circulation, First Aid, Fleet Air Arm, Health, Hygiene, Respiration.
Meteorology	—
Mines and Mining	Land and Sea.
Minesweeping	L.L. Sweep, O and A Sweeps, Paravanes.
Morale	—
Navigation	Astronomical Triangle, Charts, Compass, Rule of the Road, Time.
New Entry	—
Night Vision	—

Headings	
P. and R.T.	Combat, Sport, Swimming.
Passive Defence	Anti-Gas, Fire-Fighting.
Pre-Entry Training	—
Radar	—
Recognition	Aircraft, Recognition of Aircraft, Quiz Films, Ships, Submarines, Tanks.
Salvage	—
Seamanship	Boatwork, Compass, Drill, Knots, Ship Handling.
Security	Careless Talk, Interrogation of Prisoners.
Signalling	Land, Morse, Visual.
Submarines	General, Technical.
Torpedoes	Care and Maintenance, Fire Control, Smoke, Depth Charges.

In all cases where an A.F.O. or C.A.F.O. regarding the film has been published separately, this is also indicated.

Films and Film Strips are indexed by prefix letter, according to their source of origin, and numbered in sequence of production, as follows :—

A — Admiralty.
B — War Office.
C — Air Ministry.
D — Ministry of Information and British Council.
E — Commercially produced documentaries in the Navy.
F — Commercially produced technical films.
G — United States Navy Department.

Film Strips.—The prefix S before any of the above letters indicates film strips as opposed to moving film.

R.N. Serial No.	*Title and Description*	*Date Made*	*Footage*
A.4	Assessment of Inclination (Silent)	1924	827
A.5	Breech Mechanism, 15-in. (Silent)	1924	249
A.6*	Cut-off and Compensating Gear (Silent)	1924	629
A.7	15-in. Chain Rammer (Silent)	1924	547
A.8	Civil Disturbance (Silent) ... ... Military platoon quells Native riot. Emphasizing that only minimum force necessary must be used, and an accurate record of events kept.	1937	1,029
A.12	Lewis Gun Mechanism (Silent) ... ... Shown by sectional models.	1933	1,006
A.13	Pusher Hoist, 8-in. (Silent)	1933	768
A.15	Submarine Battery (Silent)	1924	3,029
A.16*	Spotting Practice (Silent)	1929	2,036
A.17	Safety Depression Control Gear (Silent)	1933	559
A.19*	Magazine Rounds (Silent) ... ... Daily routine by Officer of Quarters.	1924	1,097
A.20	Recoil System (Silent) ... ... Arrangement of 15-in. gun in and out.		747
A.22	Funeral of H.M. King George V	1936	1,660
A.23	Observers Spotting (Advanced) ... ... Exercises for Naval observers in aerial spotting and control procedure.	1939	3,515

R.N. Serial No.	Title and Description	Date Made	Footage
A.24*	Distribution and Control of Gunfire	1938	2,863
	Part 1—Animated diagrams showing co-operation of aircraft with Battle Fleet, with all wireless signals.		
	Part 2—Selection of targets by each ship. Spotting by aircraft.		
	Part 3—Enemy changes course. Redistribution of fire. Emergency procedure in low visibility.		
A.25*	Minesweeping	1940	6,749
	Part 1—"A" and " O " Sweeps. Sweep channels, use of dam buoys.		
	Part 2—" O " sweep in fast vessels.		
	Part 3—"A" sweep in fast vessels.		
	Part 4—" O " sweep in trawlers.		
	Part 5—"A" sweep in trawlers.		
	Part 6—Formations and turns with "A" sweep.		
	Part 7—Formations and turns with " O " sweep.		
	Part 9—Bow defence gear in trawlers.		
A.26*	Observers Spotting (Elementary)	1940	3,019
	Part 1—Salvoes, mean point of impact, over and under, comparison of 15-in., 8-in. and 6-in. splashes.		
	Part 2—Single ship 15-in. shoot, with commentary and all wireless signals.		
	Part 3—Full calibre firing by " Southampton " class cruiser at " Leipzig " class cruiser.		
A.27	The Inside Story of Lubrication	—	4,165
A.28*	Asdic Instructional (C.A.F.O. 777/42 refers) ...	1939	2,841
	Showing a submarine hunted, detected and sunk by the Portland A/S Flotilla.		
A.29*	Twin Ammunition Supply, 6-in. Mark XXI ...	—	2,771
	Shown by animated diagrams and working models.		
A.30	6-in., B.L. Gun Drill	1939	1,091
A.31	Rule Britannia	1937	443
	A brief survey of naval activities in peace time.		
A.32*	Recognition of Aircraft (A.F.O. 1782/44 refers).		
	Part 1—Introduction I.		
	Part 2—Introduction II.		
	Part 3—Hurricane.		
	Part 4—Heinkel III, Mark V.		
	Part 5—Typhoon.		
	Part 6—Junkers 87B.		
	Part 7—Martlet.		
	Part 8—Wellington.		
	Part 9—Boston I and II.		
	Part 10—Beaufighter I and II.		
	Part 11—Me. 110 (insert of Me. 210).		
	Part 12—Focke Wulf 200K.		
	Part 13—Lancaster.		
	Part 14—Mosquito.		
	Part 15—Sunderland III.		
	Part 16—Liberator II.		
	Part 17—Dornier 217E.		
	Part 18—Mustang.		
	Part 19—Heinkel 177.		
	Part 20—Horsa (Glider).		
	Part 21—Baltimore.		
	Part 22—Mitsubishi T.96.		
	Part 23—Mitsubishi T.97.		
	Part 24—Mitsubishi T.0.		

Recognition of Aircraft—(*contd.*)

A.32*	Part 25—Mitchell N.A.B. 25.		
	Part 26—Lightning.		
	Part 27—Barracuda.		
	Part 28—Aichi T.99.		
	Part 29—Kawanishi 97.		
	Part 30—Me. 210.		
	Part 31—Marauder.		
	Part 32—Blohm and Voss 138.		
	Part 33—Mitsubishi 01.		
	Part 34—Avenger.		
	Part 35—Army 97.		
	Part 36—Thunderbolt.		
	Part 37—Dakota.		
	Part 38—Skymaster.		
	Part 39—Sasebo.		
	Part 40—Army 01 Fighter.		
	Part 41—Navy 97 Torpedo Bomber.		
	Part 42—Focke Wulf 190.		
	Part 43—Ju. 88.		
	Part 44—Firefly.		
	Part 45—Me. 110.		
	Part 46—Junkers 188.		
	Part 47—York.		
	Part 48—Tempest.		
	Part 49—Mustang III.		
	Quizcraft Series.		
	Part 101—Spitfire, Hurricane, Ju. 88, Blenheim IV, Halifax.		
	Part 102—Hudson, Tomahawk, Airacobra, Wellington, Ju. 87B.		
	Part 103—Defiant, Catalina, Beaufighter, Stirling, Manchester.		
	Part 104—Me. 109E, Boston III, Maryland, Sunderland, Whitley.		
	Part 105—Mustang, Fulmar, He. 111K, Beaufort, Me. 110.		
	Part 106—Typhoon, Lancaster, Ju. 52, F.W. 190, Mosquito.		
	Part 107—Mitchell, Liberator, Lightning, Marauder, Fortress II.		
	Part 108—Auster, Horsa, Hotspur, Hamilcar, Dakota.		
	Part 109—Barracuda, Thunderbolt, Vengeance, Spitfire V, Bermuda.		
	Part 110—Skymaster, F.W. 200K, Martlet, Tarpon, Japanese Navy O Fighter (Zeke).		
	Part 115—Albemarle, Firefly, York, Me. 109f Warwick.		
	Note.—The approximate length of each part of Aircraft Recognition films is 500 ft.		
	Testcraft I (A.F.O. 1079/44 refers)		
	Testcraft II (A.F.O. 1079/44 refers)		
	Testcraft III (A.F.O. 1079/44 refers)		
	Testcraft IV (A.F.O. 1079/44 refers)		

R.N. Serial No.	Title and Description	Date Made	Footage
A.35*	Torpedo Control (Exercise " A.C.1 ") (Silent) ...	1937	691
A.36*	Torpedo Control (Exercise D.A.) (Silent)	1937	442
A.37*	Torpedo Control (Low Visibility) (Silent)	1939	639
A.38*	Torpedo Control (Night Exercise S.N.) (Silent) ...	1937	1,122
A.42*	Torpedo Control (Bruce Live Practice) (Silent) ...	1939	366
A.45*	Smoke Floats (Silent)	1939	399

R.N. Serial No.	Title and Description	Date Made	Footage
A.47*	H.M.S. "Guardian" Net Laying and Recovery Trials (Silent).	1935	1,700
A.53	Fire Fighting (Shore Establishments)	1942	4,636
	Part 1—Equipment and personnel.		
	Part 3—Drill. Heavy trailers, heavy unit, relaying water, light trailer pump, spray nozzles, hose ramps, flag and hand signals.		
	Part 4—Practical demonstrations on a burning house.		
	Part 5—Oil fuel fire fighting.		
A.54	Full Tilt	1941	2,965
	The story of the Fairmile patrol boat. Shows how these craft are built by mass production methods.		
A.55*	Launching and Recovery of Aircraft in Ships fitted with Catapults.	1940	2,825
A.56*	A.A. Gunnery—Eyeshooting (in colour)—		
	Part 1—Introductory. Meaning of "aim-off"		1,000
	Part 2—Approach angle		1,500
	Part 3—Shows how amount of aim-off to be applied is affected by approach angle and speed of target. Use of the cartwheel sight.		1,800
	Part 4—Respective responsibilities of layer and trainer.		750
	Part 5—Maximum effective range		900
	Part 9—Demonstration attacks	1942	1,100
	Part 10—Aiming practice (typical attacks) ...	1942	1,000
	Part 11—Aiming practice (German attacks) ...	1942	1,000
	Part 12—Aiming practice (Italian attacks) ...	1942	1,000
	Part 13—Aiming practice (Japanese attacks) ...	1942	1,000
S.A.56*	Eyeshooting	1944	
	Parts 1–3.		
	This is a synopsis of the moving Film A.56, Parts 1, 2 and 3.		
A.57*	The elementary Theory of Asdics (C.A.F.O. 777/42) refers).	1941	2,656
A.58	Next of Kin	1942	9,336
	Full length feature film dealing with security. A Brigade Group is trained and equipped for a raid on the French coast. The whole operation is given away to the enemy through careless talk, espionage, etc.		
A.60	The Gun	1941	2,022
	Primarily designed to inform American opinion on the necessity for arms production in relation to the Battle of the Atlantic. Suitable for preliminary instructions of H.O. ratings as a film of general war interest.		
A.61	Duties of Lookouts	1941	2,272
	Arcs of sweep. Use and care of binoculars. Methods of reporting. What to look for. A.A. look-outs. Look-outs at night.		
S.A.61	Duties of Look-out	1944	67 frames
	This is an analysis of the film A.61.		
A.62	The McGregor Williams' method of Life-saving ...	1941	421
A.63	Duties of the Helmsman	1941	2,823
	Principles of steering, wheel and course orders, use of telegraphs and engines.		
S.A.63	Duties of Helmsman	1944	107 frames
	This is an analysis of the film A.63		

R.N. Serial No.	Title and Description	Date Made	Footage
A.64	Boats and Boatwork	1942	
	Part 1—Introduction. Types of boats in use in the Navy and their construction.		1,000
	Part 2—Preparing a seaboat. Lowering and hoisting a whaler under way.		1,200
	Part 3—Lowering and hoisting in harbour. Landing on a beach.		1,000
	Part 4—Boat pulling.		1,000
	Part 5—Sailing.		1,600
SA.64	Boats and Boatwork		
	Part 1—Types of Boats and their construction ...	1944	45 frames
	Part 2—Lowering and hoisting at sea	1944	71 frames
	Part 3—Lowering and hoisting in harbour ...	1944	48 frames
	Part 4—Pulling	1944	30 frames
	Part 5—Sailing	1944	91 frames
A.66	Taking Soundings	1941	2,874
	The hand lead and Kelvin machine		
SA.66	Taking Soundings		
A.68*	U-Boats—Recognition and Attack by Naval Aircraft. (C.A.F.O. 777/42 refers.)		
	Part 1—Types and construction. Appearance in various states of trim when viewed from the air. Examples of traces when left submerging.	1941	700
	Part 2—Method of attack by naval aircraft ...	1941	800
A.69*	A.A. Gunnery—Use of Tracer Ammunition. (A.F.O 772/42 refers.)	1941	4,800
	Part 1—Observation of tracer.		
	Part 2—"Hosepiping".		
	Part 3—Tracer-assisted eyeshooting.		
A.70*	U-Boats' Attack on Convoys. (C.A.F.O. 777/42 refers).	1942	
	One reel each part. A series of diagrammatic films based on analysis of actual incidents illustrating the lessons to be learnt from U-Boat attacks on convoys.		
	Reel No. 1		636
	Reel No. 2		620
	Reel No. 3		734
	NOTE.—Distribution restricted to A/S Establishments only. (C.A.F.O. 128/43 refers.)		
A.71	The Luftwaffe	1941	2,655
	An aid to aircraft recognition, showing German aircraft in action.		
A.72	Let's Talk Rubbish	1941	880
	The salvage of waste materials in the Navy.		
A.73*	Magnetic Minesweeping—The LL. Sweep	1941	
	Part 1—First principles		1,200
	Part 2—Handling the gear		550
	Part 3—Operation of the sweep		1,800
	Part 4—Formations and turns		1,900
A.74*	Radiolocation (Radar). (C.A.F.Os. 1027/43 and 1183/43 refer.)		
	Part 1—Elementary principles	1942	1,035
	Part 2—Types 285 and 286 in a destroyer ...	1942	1,188
	Part 3—Types 281 and 285 in a cruiser (high angle).	1942	1,457
	Part 4—Typical echoes	1943	1,518
	Part 5—Type 271 in a frigate	1943	1,627
	Part 6—Observation of fall of shot	1943	803
	Part 7—Types 273 and 284 in a cruiser (low angle).	1943	3,104

R.N. Serial No.	Title and Description	Date Made	Footage
A.74*	Radiolocation (Radar) (*contd.*).		
	Part 8—Height finding—Types 278 and 281 ...		2,740
	Part 10—Auto barrage unit		1,421
	Part 11—P.P.I.		1,829
	A.S.V. ... ... (C.A.F.O.s 1027/43 and 1183/43 refer)		1,638
	L.R./A.S.V.		1,146
	Use of A.S.V. ...		1,909
	Use of A.I.		
	I.F.F.		823
	H.M.A.		1,018
	A.I., Mark IV ...		1,623
	A.I., Mark V ...		782
	A.I., Mark VIII ...		
	A.S.V. (X) Part 1 (C.A.F.O.762/44 refers) ...		1,860
	A.S.V. (X) Part 2 (C.A.F.O. 1359/44 refers) ...		1,727
	Automatic Following		1,068
A.75*	Asdic Operating Procedure (C.A.F.O. 777/42 refers)	1942	
	Part 1—Simple contact procedure. Layout and basic use of equipment.		1,200
	Part 2—Simple sweeping procedure		500
	Part 3—Advanced contact procedure. Holding swing of ship. Lost contact procedure. Bearing drawing rapidly right or left. Final stage of attack, showing types 124 and 128.		1,000
	Part 4—Practical demonstration of an attack ...		850
A.76	Raising Steam	1942	2,059
	Shows the process in a " J " Class destroyer, with a description of the Admiralty 3-drum water tube boiler.		
A.77*	Deck Landing	1942	1,834
	Layout of flight deck, Ranging, Taking off. Accelerator. Landing. Use of bats. Controlled landings.		
S.A.77	Deck Landings	1944	85 frames
	Shows " Flying off " and the means employed for aircraft " Landing " on Carriers. The duties of the control Officer and the importance of trusting and obeying his signals.		
A.78	First Aid in the Royal Navy	1942	
	Part 1—Types of unconsciousness. Concussion, intoxication, fits and fainting.		
	Part 2—Simple anatomy. Bones of the skeleton		2,100
	Part 3—Common forms of fracture. The Neil Robertson stretcher. The Thomas splint. Application of slings.		3,000
	Part 4—Bleeding. Circulation of blood, stopping haemorrhage, use of St. John's tourniquet.		2,000
A.79*	The 2-in. Rocket Weapon	1942	
	Part 1—Introduction. Shows the weapon being successfully used against a dive-bombing attack and explains its advantages for certain purposes.		755
	Part 2—Ammunition. Shows by picture and diagram the functions of charge, fuze, shell and fins. Testing and maintenance. The effects of wind on flight.		927
	Part 3—Trough mounting. Shows by picture and diagram the testing of the electrical circuits loading, sighting, firing and misfire procedure.		952

R.N. Serial No.	Title and Description	Date Made	Footage
A.79*	The 2-in. Rocket Weapon—contd.		
	Part 4—Gimbal Mounting (as for Part 3) ...		826
	Part 5—Pillar Box Mounting (as for Part 3) ...		871
	Part 6—Blast. The effects of blast from each type of mounting; shows that the machines can be handled with confidence. (A.F.O. 2724/43 refers)		412
A.80*	Daily Inspection of Naval Aircraft	1942	3,008
	Part 1—The Walrus.		
A.81	Air Gunner	1942	7,395
	A " cautionary tale " taking three air gunners through their training and demonstrating mistakes of all types which are commonly made by them due to their negligence and thoughtlessness.		
A.82*	Asdic Attacks (C.A.F.O. 777/42 refers)	1942	
	Part 1—The approach to the collision point ...		950
	Part 2—The approach to the firing point ...		1,100
	Part 3—The approach by asdic instruments ...		1,500
	Part 4—The approach by asdic instruments—additional equipment.		1,000
A.83	Tracing an Earth	1942	
	Shows a repair party tracing and locating an earth in one section of the rung main.		1,549
A.84	Anchor Work (A.F.O. 4061/43 refers)	1942	
	Part 1—Introduction. Shows by diagram the gear on the fo'c'sle of a warship, and explains its functions (2 reels).		1,329
	Part 2—Coming to Anchor. A modern battleship from the moment she enters harbour till she is secured at eight shackles.		896
	Part 3—Weighing Anchor. A modern battleship from shortening in to leaving harbour.		968
	Part 4—Securing to a buoy. Shows the operation of cutting anchor in a battleship and then securing to a buoy.		1,004
A.84(*b*)	Wires and Fenders (A.F.O. 5211/43 refers)	1942	
	Part 1—Securing alongside; shows by picture and diagram a destroyer coming alongside her berth, and securing, with particular attention to the function of each wire, positioning of catamarans and use of fenders.		965
	Part 2—Casting off. Destroyer casting off from alongside and proceeding to sea. Demonstrates the use of springs in casting off.		765
A.85	" One Company "	1942	3,974
	Y entry recruiting film, showing entry and training of three boys destined for pilot, observer and executive officer.		
A.87*	The Vaagso Raid	1942	2,847
A.88	Practical Visual Signalling	1942	3,445
	Flag hoists—common errors and avoidance. Care of telescopes. Semaphore—mechanical and hand flag. Signal projectors—20-in., 10-in., 6-in. Aldis, intermediate box and trigger lanterns. Signalling torches. Signalling to A/C. The Verys pistol.		
A.89	The Diesel Engine	1942	4,824
	Theory of operation—2 and 4-stroke types. Construction and oiling systems. Diesel engines in marine craft.		

R.N. Serial No.	Title and Description	Date Made	Footage
A.90	Oxygen Cutting (Silent) ... ... Some industrial applications. Part 1—Cutting a ship in two. The hand cutting blowpipe. Part 2—Oxygen cutting by automatic machine. Fabrication of ship's parts by various types of machine.		3,000
F.91	The Oxy-A[illegible]ylene Welding of Non-Ferrous Metals (Silent). Construction of aluminium and copper tanks, etc.		920
A.92	Depositing Stellite with the Oxy-Acetylene Flame (Silent).		1,176
A.93	Oxy-Acetylene (Silent) ... ... An impression of the production and application of these gases. Suitable as an introduction to the use of oxy-acetylene.		1,135
A.94	Cast Iron Welding (Silent) ... ... Repairing fractured and worn castings.		1.060
A.95	The Demolition of the " Mauretania " (Silent) ...		1,092
A.96	Steel Tank Construction (Silent) ... ... The rightward and two-welder vertical upward methods of welding.		913
A.97	The Shorter Process of Surface Hardening (Silent) Methods of application, with many practical examples of shortenising on gear wheels, shafts, etc.		1,666
A.98	Fabricating a Steel Angle Bracket (Silent) ... Cutting plates to size and shape and welding with the electric arc.		820
A.99	Elementary Oxy-Acetylene Welding (Silent) ... Part 1—Correct procedure for setting up and handling the equipment. Part 2—Instruction in elementary welding, emphasizing mistakes likely to be made.		2,799
A.100	Bronze Welding of Light Gauge (Silent) ... ... Copper tubing, fittings and heating and hot water installations.		2,295
A.101	Fabrication of Steel Parts (Silent) ... ... Production by means of oxygen machine cutting and electric welding of a bell crank and spur wheel.		651
A.102	Oxy-Acetylene Welding in Automobile Engineering (Silent). Body chassis and casting repairs. Building up of worn parts.		1,586
A.103	Bronze Welding of Cast Iron (Silent) ... ... Examples of the extensive use made in Australia of bronze welding for the jointing and repairing of iron castings.		2,136
A.104	Application of Oxygen in the Steelworks (Silent) ...		2,454
A.105	Cutting Heavy Section Cast Iron (Silent) ... ... Showing the removal of a large cast iron spider from a steel shaft by oxy-acetylene cutting.		899
A.106	Close Combat ... ... How to defend yourself even though unarmed.	1942	2,228
A.107	The Kriegsflotte ... ... Complementary film to A.71 (The Luftwaffe) showing German warships and naval aircraft.	1942	1,084

R.N. Serial No.	Title and Description	Date Made	Footage
A.108	Care and Maintenance of Depth Charges (A.F.O. 2725/43 refers).	1942	2,600
A.109	Care and Maintenance of Depth Charge Release Gear (A.F.O. 2725/43 refers).	1942	1,606
A.110	The Gyro Compass (A.F.O. 4062/43 refers) ... (Care and Maintenance, starting and stopping routines).	1942	
	Part 1—The Admiralty Sperry (3 reels)		2,000
	Part 2—The Sperry, Mark XIO, Model O (2 reels)		1,600
	Part 3—The Sperry, Mark XIU, Model 1 (2 reels)		1,350
	Part 4—The Brown (3 reels)		2,500
A.111*	Meet the Ship ... ... For the New Entries. Shows the lay-out of a modern cruiser.	1942	3,097
A.112	I Don't Smoke, Thank You ... ... Designed to show merchant navy personnel the dangers of making smoke and methods of prevention.	1942	2,477
A.113*	Advanced Base ... ... Shows the organization and work of an M.N.B.D.O.	1942	8,613
A.115*	Convoy Counter Attacks (Silent). Special distribution only.	1942	1,049
A.116	Boiler Cleaning ... ... Shows the routine in a destroyer. (A.F.O. 2257/43 refers.)	1942	2,000
A.117	Defence of Shore Based Aircraft Against Gas Protection from Spray. Methods of decontamination. The steam jenny, swabbing, weathering. (A.F.O. 3002/43 refers.)	1943	3,351
A.118*	Fleet Fighter (8 reels)... ... ... Another " cautionary tale " which follows a class of fighter pilots through their course, explaining what is expected of them and showing what may happen to those who disregard the lessons taught at a fighter school. Includes cockpit drill, R/T instruction, pin-pointing practice, homing practice, sighting practice, Hudson trainer, Link-Fisher trainer, gunnery practice and formation flying. (A.F.O. 3003/43 refers.)	1943	5,296
A.118(a)*	Fighter Tactics. (A.F.O. 3003/43 refers) ... ... Reel 4 of A.118 above, which deals with fighter tactics in diagrammatic form, can be shown as a separate film under the serial number.	1943	1,072
A.120	Barrage Firing in Local Control (in colour), 2 reels Purpose of barrage—size of area affected by shellburst. Setting deflection and range. Fixed ranges. When to open fire. Observation and corr[illegible]ion of initial aiming errors. Importance of high rate of fire. Battle scene illustrations. (A.F.O. 949/43 refers.)	1943	1,716
A.122	The Ford V-8 Marine Engine ... ... Care and Maintenance in small craft.	1942	2,014
A.123	The Bofors Gun	1943	
	Part 1—General handling. Deals with ammunition, loading, firing, misfire procedure and general aspects of the mounting (2 reels).		1,967
	Part 2—Mechanism. Function of mechanism, whether in single or auto-fire (2 reels).		1,467
	Part 3—Stripping and maintenance. Starts with unshipping the barrels and shows complete stripping of mechanism, lubrication, and final assembly (3 reels). (A.F.O. 3149/43 refers.)		2,721

R.N. Serial No.	Title and Description	Date Made	Footage
A.124	Aircraft Gun Maintenance. (A.F.O. 283/44 refers)	1944	6,791
	Part 1—Introduction (1 reel).		
	Part 2—Removing Guns from Aircraft (1 reel).		
	Part 3—Preparing Ammunition (1 reel).		
	Part 4—Examination of Guns—Section 1 (1 reel).		
	Part 4—Examination of Guns—Section 2 (B.F.M.) (1 reel).		
	Part 5—Gun Installation and Alignment (2 reels).		
	Part 6—Stop Butt Firing—Section 1—0·303-in. Browning Gun (1 reel).		
	Part 6—Stop Butt Firing—Section 2—20-mm. Hispano (1 reel).		
	Part 6—Stop Butt Firing—Section 3—20-mm. Hispano (1 reel).		
A.125*	Checking Torpedo Equipment on Naval Aircraft (C.A.F.O. 875/44 refers.)		
	Part 1—Barracuda	1944	2,091
	Part 2—M.A.T. IV	1944	1,115
A.126*	The Hedgehog Apparatus. (C.A.F.O. 777/42 refers)	1943	1,500
	Part 1—Introduction. The weapon and method of attack with A/S equipment.		
	Part 2—Instruments. Recorder, centre-bearing disc, modified Vickers clock and bearing transmitter.		1,100
	Part 3—The attack. Diagrammatic plot and analysis of a hedgehog attack, showing how information from the Asdic team is used by the Captain.		900
	Part 4—The hedgehog team. Mechanics of H/h mounting. Loading and firing drill.		1,700
	Part 5—Care and maintenance, with explanation of electrical circuits.		2,800
A.127*	Attack on U-Boat No. 1 (Silent). Special distribution only.	1942	714
A.128	Jig-Saw...	1943	3,236
	Showing the danger of careless talk and actions likely to help the enemy.		
A.129	Escort Teams at Work	1943	1,061
A.130	Tips on Training	1943	4,279
	An edited version of the two American films, " Military Training " and " Tips for Teachers ".		
	Part 1—The teaching method of instruction, contrasted with a " bare lecture ".		
	Part 2—Other methods of instruction, the demonstration, group performance, " County Fair " (or Museum of Errors), coach and pupil.		
A.131	Fifth Column of Smoke . (A.F.O. 282/44 refers) ...	1944	2,300
	Designed to show Merchant Navy personnel the dangers of making smoke and methods of prevention.		
A.132	Passive Defence. (A.F.O. 568/44 refers)	1944	5,068
	Part 1—War Gases (1 reel).		
	Part 2—Methods of Offensive (1 reel).		
	Part 3—The Respirator (2 reels).		
	Part 4—Anti-Gas Clothing and Personal Cleansing (1 reel).		
	Part 5—Decontamination (2 reels).		

R.N. Serial No.	Title and Description	Date Made	Footage
SA.132	Passive Defence	1944	
	Part 1—War Gases		37 frames
	Part 2—Methods of Offensive		32 frames
	Part 3—The Respirator		16 frames
	Part 4—Gas Clothing and Personal Cleansing ...		28 frames
	Part 5—Decontamination		31 frames
	Each part is an analysis of the film A.132, Parts 1–5.		
A.133	Landing Craft	1943	
	Part 2—Landing Craft Tanks. (A.F.O. 5209/43 refers.)		5,399
A.133	Part 3—L.C.T. Berthing at a Hard. (A.F.O. 2191/44 refers.)	1944	1,411
	Part 4—Minor Landing Craft. (A.F.O. 5581/43 refers.)	1943	2,557
A.133	Part 5—Landing Craft Infantry (L). (A.F.O. 3522/44 refers.)	1944	1,545
	Part 6—L.S.I.(H) Flotilla Drill. (A.F.O. 5339/43 refers.)	1943	1,554
	*Part 7—Naval Beach Commandos. (C.A.F.O. 352/44 refers.)	1943	2,513
	*Part 8—Landing Barges. (C.A.F.O. 421/44 refers.)	1943	2,200
A.133	Part 10—Loading and Securing Army Loads (A.F.O. 2063/44 refers.)	1944	2,106
	Part 11—Fire Fighting and Prevention. (A.F.O. 2064/44 refers.)	1944	2,120
	Part 11, Section E—Landing Barge Oiler ...	1944	1,095
SA.133	Landing Craft	1944	
	Part 1—		
	Part 2—		
	Part 3—		
	Part 4—Types of small Landing Craft, for troops or vehicles. Beaching and use of the Kedge.		32 frames
A.134	Ratekeeping (A.F.O. 4692/43 refers)	1943	2,873
	Shows by picture and diagram the methods of assessing enemy inclination and speed ; correcting assessment ; " not apply " procedure. Examples for exercising in inclination and speed estimating (3 reels).		
A.135	A.A. Fire Distribution (A.F.Os. 5210/43 and 957/44, paragraph 7, refer).	1943	2,610
	Part 1—Air Defence Organization.		
	Part 2—Typical A.A. Armament.		
	Part 3—Principles and Examples of Fire Distribution.		
	The film is primarily designed to assist in the training of fire distribution officers and ratings in ships, but it will also be of value in training A.A. ratings in shore establishments provided they have been to sea. Part 3 should be shown to the class at least twice, in order that its lessons may be fully assimilated.		
SA.135	A.A. Fire Distribution.		
A.136*	The Type 144 Asdic Set	1943	2,037
	An introduction to the type 144 set, with an explanation of the automatic control training unit, the bearing recorder and range recorder, concluding with a demonstration attack. (C.A.F.O. 979/43 refers.)		

R.N. Serial No.	Title and Description	Date Made	Footage
A.137	Hints for Instructors. (A.F.O. 4508/43 refers) ... Demonstrating the basic principles of good instructional technique summarized under the broad headings of :— 1. Personality. 2. Preparation. 3. Presentation.	1943	3,182
SA.137	Hints to Instructors ... ... This is an analysis of the moving film A.137.	1944	61 frames
A.139	Spreads. (A.F.O. 814/44 refers) ... ... The film is primarily designed to show the whole of the personnel involved in the long range armament, the cause and remedy of "large spreads". It shows the necessity for a normal spread, and how, in action, good drill at the Director, T.S. and guns, together with careful preparation and frequent drills, are vitally necessary if straddles are to be obtained which will include a large percentage of hits. This film should be shown near the end of the course to all officers and ratings qualifying in gunnery, with the exception of A.A.2 and A.A.3 courses, and in ships to the whole of the long range armament personnel at frequent intervals, particularly before low angle firing practices.	1943	1,404
A.140	A.A. Gun Discipline. (A.F.O. 957/44 refers.) Some of the principles of gun discipline are demonstrated by contrasting performances of a "good" and "bad" crew on a four-barrelled pom pom.		
A.141	Submarine on Patrol ... ... Shows a submarine leaving the depot ship and proceeding on patrol. Includes a torpedo and gun action with diagram of submarine construction. (Edited from "Close Quarters".)	1943	975
A.142*	Introducing the Squid (A.F.O. 4063/43 refers) ... Gives a general introduction to the weapon indicating proposed drill and control by types 144 and 147BX asdic equipment.	1943	1,981
A.143	Censorship ... ... A series of short films (3–5 minutes running time each) emphasizing the need for care in letter writing, and in all forms of correspondence. They are also being designed to overcome a natural dislike of any form of censorship, and to show the necessity for it and for co-operating to make it effective.		
	No. 1—Censorship Organization. (A.F.O. 4949/43 refers.)	1943	520
	No. 2—To Overcome Mistrust. (A.F.O. 33/44 refers.)	1944	507
	No. 3—Dangers of Evasion. (A.F.O. 33/44 refers.)	1944	438
	No. 4—(A.F.O. 815/44 refers)	1944	340
A.144	U.S. Mark XIV Gyro Gunsight. (A.F.O. 5340/43 refers.) The film is designed to teach the operation of the sight to any rating who is required to use it. The theory, construction or internal working of the sight is not dealt with at all. It should be emphasized that the film was made before any sea or action experience in its use had been received, in order that a means of teaching its operation to	1943	1,449

R.N. Serial No.	Title and Description	Date Made	Footage
A.144	U.S. Mark XIV Gyro Gunsight. (A.F.O. 5340/43 refers.)—*contd.* ratings would be available in ships if possible before the fitting of the sights. The drill laid down for its use is therefore essentially of a preliminary nature and may require modification after further experience has been gained. The recommended sequence of instruction in the use of this sight is that the class should first see the film and then see the sight and work it for themselves. After this regular practice in smooth following should be given. It is impossible to emphasize the importance of this following practice.	1943	1,449
A.147	Ship Safety. (A.F.O. 2459/44 refers) ... ... Shows the personal responsibility of every officer and rating for the control of damage in action to a ship and of preserving its watertight integrity.	1944	3,660
SA.148	Ship's Safety	1944	46 frames
	Part 1—Float and Fight ... ... Shows how a ship floats and why watertight bulkheads enable her to keep afloat and fight when damaged.		
	Part 2—Move and Fight ... ... How the propelling units and other essential machinery and control are distributed aboard ship. This strip gives the reasons for this.		30 frames
	Part 3—Control of Openings ... ... The importance of markings on doors, bulkheads, valves and how the strictest observance of these mean the safety of the ship.		103 frames
SA.149	Electro Magnetism ... ... Theory of magnetism as applied to electricity is illustrated by diagrams and captions.	1944	81 frames
A.150*	Care and Maintenance of Asdic Equipment. (C.A.F.O. 351/44 refers.)		
	Part 1—The Sound-Receiver Key	1944	3,189
	Part 2—The Recorder A/S3	1944	4,330
A.151*	Handling and Maintenance of the L.L. Cable. (C.A.F.O. 289/44 refers.)... Describes the construction of the cable; shows correct methods of handling to avoid damage, and demonstrates repairs and drainage.	1944	2,655
SA.151*	Handling and Maintenance of L.L. Cable... ... Illustrates how rough and careless handling impairs the efficiency of L.L. cable, and how to maintain in good condition.	1944	65 frames
A.152	The Navy in Action ... ... Designed to encourage young men to enter the Fleet Air Arm.	1943	1,725
SA.154	Care and Maintenance of Depth Charge Pistols		
	Part 1—This strip gives all care and maintenance routines for depth charge pistols.	1944	63 frames
	Part 2—Shows the four main tests on depth charge pistols.	1944	61 frames
SA.155	Coincidence Range Finder		
	Part 1—Geometric principles and simple laws of light.	1944	45 frames
	Part 2—Builds up step by step the coincidence range finder and explains what it does.	1944	58 frames
	Part 3—Explains halving and coincidence errors and shows how and by whom they are corrected.	1944	

R.N. Serial No.	Title and Description	Date Made	Footage
SA.156	Weather Forecasting in Small Ships ... ... Explains how to forecast weather in small craft by noticing pressure changes, use of the barometer and also by watching the clouds.	1944	50 frames
SA.156	Weather Forecasting in Small Craft ... ... Part 1—Presure and Temperature. How the knowledge of atmospheric pressure, its variation and distribution, and temperature are used in forecasting the weather.	1944	53 frames
A.157	Sailors of To-morrow	1944	2,494
SA.161	Principles of the Director System ... ... Elementary explanation of the director system and why it is used. Suitable for training of Junior Officers and 3rd class ratings.	1944	45 frames
SA.162	Principles of Low Angle Fire Control ... ... Simple explanation of the fire control problem and how it is solved. Suitable for the training of Junior Officers and 3rd class ratings.	1944	56 frames
SA.164	Introduction to Naval Gunnery		
SA.165	Corrections in the Director System... ... ... Explains the corrections involved in the Director system and how and where they are applied. Suitable for training of Junior Officers and 3rd class ratings.	1944	44 frames
SA.166	Submarine General	1944	
	Part 1—Buoyancy ... ... Why the submarine can float, dive and submerge shown in diagrams.		10 frames
	Part 2—A Typical Saddle Tank Sub. ... ... The construction of a saddle tank submarine shown in diagrammatic form.	1944	10 frames
SA.167*	Foxer ... ... Showing the purpose of this A/S device, correct methods of streaming and tripping.	1944	65 frames
SA.168	Assault Course Training.		
	Introduction ... ... Shows how the assault course trains your *mind* and *body* and makes a *fit man*.	1944	16 frames
	Part 1—P.T. ... ... Methods and exercises for training the body.		27 frames
	Part 2—Battle Inoculation ... ... Exercises under battle conditions to acclimatize men to vigorous action under fire.		18 frames
	Part 3—Movement in Water ... ... How to move rapidly through water, landing stores and vehicles, getting ashore through obstacles.		22 frames
	Part 4—Fieldcraft and Close Combat ... ... Personal camouflage and fieldcraft, how to remain invisible, and methods of surprise attack.		19 frames
	Part 5—Descent ... ... The various means of *descent* from all heights and obstacles.		19 frames
	Part 6—Ascent ... ... How to climb, the methods employed against natural and artificial barriers.		27 frames
	Part 7—Crossing Gaps ... ... The various methods of crossing streams and other natural gaps, the importance of balance.		23 frames

R.N. Serial No.	Title and Description	Date Made	Footage
SA.170	Ship Safety ... ... Personal Protection. How to prevent becoming a needless casualty, efficient means of protection and how to aid your shipmates.	1944	50 frames
SA.171*	Radar Equipment Series ... ... Type 285 M (3). An advanced strip showing by photographs and wiring diagrams the construction and assembly of Type 285 M (3).	1944	127 frames
SA.174	Landing Craft Wiring.		
	Part 1—Minor Landing Craft Wiring L.C.R. (R) Shows by photographs and wiring diagrams the layout and construction of the L.C.P. (R) Navy Diesel engine.	1944	26 frames
A.175	Chemistry of Fire	1944	3,914
SA.176	Silhouettes for Landing Crews.	—	—
A.176	Silhouettes for Landing Craft Crews. (A.F.O. 2460/44 refers.) This film deals with the recognition of coastlines from operational sketches, and the means to be adopted to keep on correct leading bearing.	1944	2,279
SA.177*	The Squid.		
	Part 1—Introduction ... ... A brief explanation of a new A/S weapon, including the *asdic* side.	1944	57 frames
	Part 2—The Crew ... ... Introducing the numbers of the crew and O.O.Q. in charge and their duties.	1944	76 frames
	Part 3—Mechanical Care and Maintenance ... Detailed instructions how to keep the gear in first rate condition and how to charge the breech block.	1944	63 frames
SA.178*	Hedgehog	1944	
	Part 1—Introduction ... ... Brief explanations of A/S weapon in four sections.		55 frames
	Part 2—The Control Gear ... ... Methods of fire control in A and B types, starting up the gyro and how to line up.		54 frames
	Part 3—Firing Circuit ... ... Location of firing and test gear. Firing circuit and tests.		69 frames
	Part 4—The Crew ... ... Introducing the crew and their duties.		73 frames
	Part 5—Care and Maintenance ... ... Drills to be carried out.		43 frames
SA.179	A Welders Ten Commandments		41 frames
SA.180	Radar Introduction Series, Parts 1–5.		
SA.181	H.A. Theory School		22 frames
SA.183	Merchant Ship Recognition (A.F.O. 3659/44 refers.)		
SA.184	Landing Craft Wiring (Major).		
SA.185	Counter Sabotage Ships.		
A.186	I'm saying Nothing	1944	2,000
SA.187	Dynamo and Motors		73 frames
SA.188	Radar Operational Series, Part II.		
SA.190	Clearance Obstruction for L.C.		
SA.193	Aircraft Recognition—Pacific Series		37 frames
OOSA.500	Preparation and Maintenance Rocket, 5-in. (Top Secret).		

R.N. Serial No.	Title and Description	Date Made	Footage
B.81	Steering.		
	Part 1—Builds up and explains components of Ackerman steering as applied to motor vehicles.	1937	1,000
	Part 2—Deals with various steering boxes and shows some faults.		1,000
B.82	Brakes...	1937	
	Part 1—Object of brakes on M.T. vehicles. Components of internal expanding brakes.		1,000
	Part 2—Deals with Girling, hydraulic and servo systems. Touches on brake efficiency.		1,000
B.83	Gears	1937	
	Part 1—Builds up from simple levers and wheels the principle of gear-box.		1,000
	Part 2—Shows gears and shafts in crash type gear-box and deals with the selector mechanism.		1,000
B.85	Magneto Ignition	1937	
	Part 1—Deals briefly with elementary magnetism. Shows main components and condenser.		1,000
	Part 2—Examination and faults...		1,000
B.86	Battery and Dynamo	1937	
	Part 1—Elementary, primary and secondary cell to evolution of accumulator.		1,100
	Part 2—Generation of current by elementary mechanism and builds up dynamo.		900
B.104	Height Finding—Principles of	1940	1,000
B.107	Name, Rank and Number ... ... Interrogation of Prisoners of War ; shows various German methods of obtaining information from prisoners.	1940	3,600
B.108	Field Clinometer and Secondary Battery " Bubble and Juice ".	1940	
	Part 1—Tests and adjustment to clinometer ...		900
	Part 2—Testing and maintenance of battery with some remarks on cables.		900
B.112	Mechanical Mathematics. A.A. instruments ...	1940	
	Part 1—Addition and Subtraction		800
	Part 2—Multiplication and Division		600
	Part 3—Solution of triangles		700
	Part 4—" Memory ". Explains graphic range tables and three-dimensional cams.		900
B.116	Guns—3·7-in.	1940	
	Part 1—Breech Mechanism		900
	Part 2—Recoil system		800
	Part 3—Recoil system (contd.)		700
B.118	Box Girder Bridge—small ... ... Reconnaissance of site, erection.	1941	1,800
B.123	On Parade ... ... A demonstration of foot and arms drill.	1941	1,800
B.124	Cable Laying—Cable " D " 8 ... ... Employment of mechanical cable layer No. 1 and showing the duties of personnel.	1940	1,800
B.129	Provision and Replenishment of Petrol in the Field	1941	2,700
B.133	Anti-Personnel Obstacles (Advanced) ... ... Booby traps.	1941	1,800
B.135	Assault Bridge ... ... Reconnaissance, organization and construction of a complete Kapok bridge.	1941	3,800
B.139	Camouflage for All Arms ... ... Cover in the field and methods of camouflage. Suitable for land fighting classes.	1941	2,700

R.N. Serial No.	Title and Description	Date Made	Footage
B.146	Anti-Vehicles Obstacles (Elementary) ... ... Showing the use of tank obstacles, including road blocks, wire rope, obstructions, ditches, slopes and trees ; and defensive tactics.	1941	4,000
B.151	Water Purification ... ... Deals with the filtration, sterilization and distribution of water in the field and the training water duty personnel.	1941	3,700
B.153	Infantry Reconnoitring Patrol by Night ... ... Deals with orders for patrol, preparation, bounds, methods of movement over varying types of country and finally the return to report information.	1941	1,800
B.155	Everybody's Business ... ... Fire prevention.	1941	1,800
B.162	Tank Weapons—Besa and 2-pdr. ... ... General description.	1941	900
B.163	Gas ... ... Dealing with the care and maintenance of gas equipment and its employment in the field.	1941	4,700
	Light A.A. Series	1941	
B.173	Layout and Remote Control		1,000
B.175	Ordnance Q.F. 40-mm.		1,000
B.176	Ordnance Q.F. 40-mm. (contd.)		1,000
B.177	The gunnery problem and theory of its solution with No. 3 predictor.		1,000
B.178	Method of solving the gunnery problem with Predictor No. 3.		1,000
B.180	Mechanism of the Predictor No. 3		1,000
B.193	Besa Gun ... ... Reel 1—Stripping the Besa Machine Gun. Reel 2—Care and Cleaning. Reel 3—Mechanism. Reel 5—Immediate Action (contd.).	1941	4,500
B.194	2-pdr. Gun ... ... Reel 1—Stripping and Assembly. Reel 2—Mechanism. Reel 3—Care and Cleaning.	1941	2,700
B.202	Unarmed Combat ... ... Methods of attacks and defence, showing how an unarmed man can deal accurately and quickly with a ruthless enemy.	1941	2,800
B.208	Salvage Sense ... ... Showing importance of salvage and method of collection within the unit.	1941	1,700
B.209	Mosquito and Malaria ... ... Demonstration of preventative equipment.	1942	1,800
B.210	Housefly ... ... Showing cause of dysentery and other sickness.	1942	1,800
B.211	Louse ... ... Decontamination of personnel. Effects of lice as regards typhus, etc.	1942	1,800
B.220	Camouflage—Air View ... ... In colour. This film shows how, by careful siting, and by avoiding shine and shadow, military positions may escape detection from the air.	1942	2,000

R.N. Serial No.	Title and Description	Date Made	Footage
B.221	River Crossing ... ... A diagrammatic analysis of the planning, deployment and conduct of a typical river crossing operation by an infantry division. (N.B. for senior officers only.)	1942	1,800
B.265	Barr and Stroud Range Finding ... ... Theory, drill and mechanism as applied to 9-ft. Barr and Stroud range finder.	1942	1,500
✗ B.278 OBSOLETE	Use of Mechanical Equipment in Defence ... Shows mechanical methods of excavation, levelling and haulage.	1942	2,000
B.284	Pontoon Equipment, Mark V ... ... Part 1—Construction and Use of Rafts	1942	2,000
B.287	Economy of Fuel ... ... Economy of coal, gas and electricity.	1941	1,800
B.293	Task 16—Care of Tyres ... ... Depicts the manufacture and re-conditioning of tyres, their care and maintenance.	1942	1,800
B.305	Pontoon Equipment, Mark V ... ... Part 2—Construction and Use of Trestles, Sliding Bay and Half-floating Bay.	1942	3,300
B.306	Pontoon Equipment, Mark V ... ... Part 3—Construction and Use of Pontoon Landing Bay.	1942	2,000
B.318	War-Time Journey ... ... Shows importance of road sense and avoidance of careless and dangerous driving.	1942	3,600
SB.549	Vision at Night		60 frames
B.602	Beware Butterfly Bomb. (A.F.O. 3924/43 refers.) Shows how to deal with the German S.D.2 anti-personnel bomb. How to avoid casualties and minimize delays.	1943	2,652
B.765	You Too Can Get Malaria ... ... (A.F.O. 3660/44 refers.) Shows a soldier who, considering it unnecessary to take precautions against becoming infected malaria, falls a victim, and in his delirium imagines himself court-martialled by his colleagues whom he has let down.	1944	
B.7532	Discussion Technique in the Army. (A.F.O. 1080/44 refers.) The film demonstrates the history, purpose and methods of the Army Bureau of Current Affairs. It shows the discussion group method, which has proved very successful in the Army and Air Force and elsewhere used. It should be seen by all officers, but ratings would find it interesting.	1943	2,000
C.33	Course Finding	1938	2,579
C.43	Boxing "Do's and Dont's"...	1936	2,333
C.52	Current of Electricity...	1935	2,105
C.73	Knots, Lashings and Lifting Gear	1939	3,000
C.78	Fog	1939	2,139
C.82	Ice Formation	1939	2,936
C.92–6	Principles of Flight (Part 1)	1938	
	Reel 1—Airflow		900
	Reel 2—Airflow		900
	Reel 3—Streamlining		500
	Reel 4—Cambered Wings		500
	Reel 5—Lift and Drags Coefficients		1,400

R.N. Serial No.	Title and Description	Date Made	Footage
C.98–104	Principles of Flight (Part 2)...	1938	
	Reel 1—Scale Effect		1,000
	Reel 2—Scale Effect		400
	Reel 3—Aspect Ratio		700
	Reel 4—Equilibrium and Stability		1,000
	Reel 5—Methods of Representing the Air Forces on an Aeroplane.		1,000
	Reel 6—"Weather Cock" or Static Stability ...		1,000
	Reel 7—Effect of a Tailplane in Obtaining Equilibrium in Steady Level Flight.		600
C.160	Thermionic Valve	1934	3,228
C.168–169	Principles of Flight (Part 4)...	1938	
	Reel 1—Aileron Drag		1,000
	Reel 2—Balances Control		800
C.170	Map Projection	1938	2,284
C.175	Internal Combustion Engine ... ... Heat and work.	1935	986
C.176	Four-Stroke Cycle		977
C.177	Valve Timing		933
C.185–186	Principles of Flight (Part 3)	1938	
	Reel 1—Directional Stability in Level Flight ...		400
	Reel 2—Fore and Aft Control		500
C.187	Orthographic Projection	1938	2,559
C.191	Temperature, Pressure and Wind	1940	3,816
C.197	Fixing Position	1938	2,408
C.201	Interpretation of Aircraft Instruments	1938	3,236
C.205	Knots, Splices and Balloon Repairs	1939	3,278
C.210	Claudel Hobson Carburettor		1,052
C.211	Ignition. Deals with Ignition in Aircraft Engines...		1,000
C.212	Two-Stroke Cycle		1,000
C.242	Cooling		964
C.243	Elementary Supercharging		1,206
C.244	Principles of Carburation		1,000
C.245	Magnetos. Types of magneto in aircraft engines ...		1,000
C.251	Lessons in Aiming for Air Gunners (R.A.F.) ...	1940	2,473
C.259	Fire Fighting (R.A.F.) ... ... In relation to aircraft.	1939	920
C.264	Synoptic Meteorology...	1940	2,449
C.273	The Micrometer	1940	1,000
C.314	Daily Inspection of a Spitfire (R.A.F.) ... ... Shows duties of wireless electrical mechanic, rigger, armourer, mechanic.	1940	4,684
C.321–322	Lessons for the Bomb Aimer. Elementary Theory	1941	2,000
C.323–324	Finding Wind-Speed and Direction by 3-Course Method.	1941	2,000
C.325–326	Finding Wind Speed and Direction by Head and Wind Gauge Bar.	1941	2,000
C.327–328	Bombing Procedure	1941	2,000
C.329–331	Dive Bombing	1941	3,000
C.333	Morse Signals—Without Interference	1941	4,670
C.339	Interrogation of Prisoners of War ... ... In the form of a narrative dealing with pitfalls which await prisoners in enemy's hands.		2,940
C.350	Morse Signals—With Interference ... ... Morse signals at 18 w.p.m. with or without interference.	1941	5,005

R.N. Serial No.	Title and Description	Date Made	Footage
C.366	Tactical Use of Clouds	1941	1,971
C.407	Defence against Gas (R.A.F.) ... ... As applied to R.A.F. Stations.	1940	4,000
C.413	The Vernier Scale	1939	1,000
C.416	Aircraft Torpedo	1941	4,089
C.445	Use of Oxygen in High Altitude Flying		3,000
C.449	The Dowty Hydraulic System	1941	2,744
C.471	Turret Drill (R.A.F.) ... ... Frazer Nash and B. and P. Turrets.	1941	5,154
C.502	Lessons in Aiming for Machine Gunners (R.A.F.) ...	1941	2,160
C.505	Effect of Centrifugal Force on Crews. Effects of "G" on Air Crews.		1,687
C.589	Lindholme Dinghy ... ... For rescuing crews.	1941	2,000
C.604	Re-arming a Bomber (R.A.F.)	1942	2,243
C.618	Balloon Drills ... ... Balloon handling.	1941	7,000
C.690	Hydromatic Airscrew (Hamilton)	1941	1,505
C.700	Cross Country Map Reading...	1942	3,500
C.728	Re-arming a Fighter	1942	4,000
C.778	Prepare for Ditching ... ... Ditching drill as applied to a Halifax.	1942	4,638
C.1845	Streamlined Colour. (A.F.O. 3662/44 refers) ... Deals with the proper method of applying paint to fighter aircraft.	1944	
C.1866	Down in the Mouth. (A.F.O. 5971/43 refers.) ... Deals with oral hygiene in acute gum infections and also shows the correct method of cleaning the teeth.	1943 1943	3,106 1,110
C.1888	Information Please. (A.F.O. 5972/43 refers.) ... The film is designed to show German methods of interrogation of prisoners of war and how valuable information can be obtained by such methods.	1943	3,106
D.501	Atlantic Patrol		895
D.502	All Hands (Anti-Gossip) ... ... A sailor in a café tells his girl when his boat is due to leave. The information is passed step by step to a U-boat commander.		1,032
D.505	Ferry Pilot		2,279
D.506	Fighter Pilot		701
D.507	Food Convoy		927
D.508	Heroes of the Atlantic		1,389
D.509	H.M. Minelayer		736
D.512	Keeping the Fleet at Sea		883
D.513	Lofoten	1942	564
D.514	Men of the Lightships		2,372
D.515	Merchant Seamen		2,179
D.516	Naval Operation		662
D.517	Royal Australian Navy		602
D.518	Sam Pepys Joins the Navy ... ... Shows typical joining routine of the Navy.		734
D.519	Sea Cadets		715
D.520	Seaman Frank Goes to Sea		657
D.521	Target for To-night		4,468
D.522	The Pilot is Safe		780

R.N. Serial No.	Title and Description	Date Made	Footage
D.523	W.R.N.S.		746
D.524	The North Sea		2,700
D.525	Night Mail		2,110
D.526	Speaking from America		950
D.527	How the Telephone Works		810
D.529	Decontamination of Streets	1942	1,500
D.530	H.M.S. "King George V"		1,600
D.531	Coastal Command. (A.F.O. 1446/43 refers.) ...		6,600
D.535	Desert Victory. (A.F.O. 2726/43 refers.)		5,465
D.536	Close Quarters	1943	
D.537	World of Plenty. (A.F.O. 284/44 refers.) ... ... Deals with the problems of world food production and distribution. Discussion groups can be held after the film has been shown, so that its implications can be discussed.	1943	4,263
D.538	The Volunteer. (A.F.O. 569/44 refers) ... ... Describes the importance of the Air Branch maintenance ratings to the work of the Fleet Air Arm and consequently to the Navy generally.	1943	4,131
D.539	Life Begins Again. (A.F.O. 690/44 refers) ... Shows how, after hospital treatment, even the worst casualty can regain a great measure of his former life and that his career is by no means at an end.	1943	2,000
D.541	Eve of Battle. (A.F.O. 3664/44 refers.) ... ... Deals with Allied preparations for the invasion of France.	1944	
D.558	Sea Scouts		1,000
D.559	S.O.S.		1,180
D.560	Sailors Without Uniform		927
D.561	Steel Goes to Sea		1,531
E.612	In Which We Serve. (A.F.O. 4060/43 refers) ...		10,295
F.701	The Cathode Ray Oscillograph ... ... Demonstrates the working of the C.R. oscillograph and its use in radio research and D/F.		2,000
F.702	The Fundamentals of Acoustics		1,000
F.703	Sound Waves and their Sources		1,000
F.706	Maintenance of Sparking Plugs		2,000
F.707	Aircraft Design ... ... A Study of the research work of the National Physical Laboratory in connection with improvements in aircraft design. Shows research work in the Metallurgy and Aerodynamics Departments.		1,000
F.709	Swimming and Diving ... ... Part 1—Back and Breast Stroke. Part 2—Life Saving. Part 3—The Crawl. Part 4—Floating and Ornamental Swimming. Part 5—Development of Speed. Part 6—Water Polo. Part 7—Diving (Elementary). Part 8—Diving (Advanced).		8,000
F.710	Breathing ... ... The effect of good Breathing on Health.		1,000
F.711	The Blood ... ... Its Functions and Constituents.		1,000
F.712	Circulation ... ... Circulatory System of the Heart and Arteries.		1,000

R.N. Serial No.	Title and Description	Date Made	Footage
F.713	The Filter ... ... Necessity for using Pure Water.		1,000
F.720	First Principles of the Petrol Engine		974
F.721	First Principles of the Compression Ignition Engine		418
F.722	Transfer of Power		1,968
F.723	Springs		1,192
F.724	First Principles of Lubrication		1,000
F.725	Lubrication of the Petrol engines		763
F.726	Maintenance of the Poppet Valve Cylinder Assembly		2,000
F.727	Maintenance of the Sleeve Valve Cylinder ...		3,000
F.728	Master Control Carburettor		3,000
F.729	Ignition. ... ... Made by the B.T.H. Research Laboratory for the Bristol Aircraft Company.		3,600
F.730	How to File		1,000
F.731	Variable Pitch Airscrews		
F.732	Camouflage ... ... In colour. Forms an introduction to the subject of camouflage of buildings.	1940	1,000
F.733	The Acid Test ... ... Shows the care and maintenance of batteries.		1,000
F.734	Two-Speed Supercharger		3,000
F.735	Hammers, Chisels, Punches and Drifts (A.F.O. 1081/44 refers.)	1943	807
F.736	Files and Filing (A.F.O. 1081/44 refers.)	1943	930
F.737	Spanners, Screwdrivers and Pliers (A.F.O. 1081/44 refers.)	1943	830
F.738	Taps, Dies and Reamers (A.F.O. 1081/44 refers.)	1943	1,020
F.739	Hacksaws, Shears and Vice-clamps. (A.F.O. 1081/44 refers.)	1943	680
F.740	Measuring and Marking. (A.F.O. 1081/44 refers.)	1943	940
F.741	Locking Devices. (A.F.O. 1081/44 refers.) ...	1943	960
G.13	Navigation.	1942	1,687
	Part 2—Charts ... ... Employs animated diagrams and some straight photography to explain the meaning, advantages and limitations of Mercator, gnomonic, Lambert conformal projections.	1942	1,673
	Part 4—Astronomical Triangle ... ... Shows how the astronomical triangle is formed and demonstrates its use in determining the position of ships on the earth's surface. Animation is used throughout.	1943	3,674
	Part 5—Time ... ... Divides the globe into time zones, divides time into apparent, sidereal, and mean time; illustrates the use of chronometer, and gives examples of three means of computation of time and its reckoning. Animated diagrams are used throughout.	1943	1,553
	Part 6—Star Identification ... ... The apparent movement of the stars across the sky is discussed briefly. Twenty-three basic navigation stars, together with several important constellations are located and identified.	1943	3,747
	Part 7—Dead Reckoning, Plotting and Celestial Lines of Position. Develops basic plan of Mark III board; plots in geographic position and solution of wind problem.		

R.N. Serial No.	Title and Description	Date Made	Footage
G.14	Useful Knots ... ... Explains and demonstrates how to tie the overhand knot, the square knot, the bowline, the sheep bend, the half hitch, the clove hitch (on a pile), the clove hitch (on a cleat), and the rolling hitch.	1942	2,178
G.16	Streaming and Recovery of Paravanes ... ... Shows by straight photography and animated diagrams the operations involved in streaming and recovering paravanes. Also shows how paravanes cut mine cables.	1941	889
G.19	Essentials of First Aid ... ... Describes some of the medical facilities afloat, methods of transporting and protecting injured men, rescuing and reviving men overcome by smoke, contents of Navy first aid kits, and steps in the examination and treatment of the wounded.	1942	2,900
G.21	Hand-to-Hand Combat ... ... Demonstrates the correct body stance for unarmed combat; explains basic hand-holds and shows how they are broken; shows several methods of getting the assailant to the ground; shows how to search standing and prone prisoners.	1942	4,459
G.23	Men of U.S. Navy ... ... An inspirational and informational type of film intended to give newly enlisted bluejackets a preview of Navy life. Shows something of Navy Department organization, training activities at a Naval Training Station, and typical activities aboard ship.	1942	2,531
G.26	Ships of U.S. Navy ... ... Shows representative types of ships, some of the activities aboard these ships, and the tactical function of each type of ship in the U.S. Navy.	1942	1,666
G.39	Diesel Engine ... ... An introductory survey film which shows how ignition may be achieved by compression, basic Diesel engine types, and forms of air headers and fuel injectors. Diesel pictures are types commonly used in submarines.	1942	2,639
	Part 2—Scavenging and Supercharging Diesel Engines. Shows the operation of two-stroke cycle single and double acting engines and opposed piston engines; discusses methods of scavenging and supercharging air.	1943	1,407
G.40	Diesel Lubrication and Cooling Systems ... ... Employs diagrams, animation and straight photography to show the parts of Diesel lubricating and cooling systems and how they work in relation to each other.	1942	873
	Part 2—Lubrication of the GM-71 Series Engines (A.F.O. 567/44 refers). Shows by the use of animation the course of the oil through the engine, how it lubricates each component part, and demonstrates the working principles of the ventilation system.	1943	1,100
G.41	Construction of Diesel Engines ... ... The general structure of several types of Diesel engines, and the different frame types, cylinder parts, pistons, piston rings, connecting rods, etc., are shown by cross-sectional animated drawings, and straight photography.	1942	1,627

R.N. Serial No.	Title and Description	Date Made	Footage
G.42*	Fighter Direction.		
	Part 1		2,377
	Part 2		1,570
G.45	Rules of the Nautical Road.		
	Part 1—The Halifax Incident ... ... Shows how the Halifax disaster was caused by misinterpretation of a ship's whistle signal; describes international rules; stresses the importance of taking bearings and defines selected nautical terms.	1942	2,475
SG.46	Basic Electricity.		
	Part 1—Magnetism...		62 frames
	Part 2—Static Electricity		73 frames
	Part 3—Current Electricity		74 frames
	Part 4—Electric Cell		50 frames
	Part 5—Storage Battery		83 frames
	Part 6—Electro Magnetism		55 frames
	Part 7—The Generator		79 frames
	Part 8—Alternating Current		90 frames
	Part 9—Electric Motors		66 frames
	Part 10—Electric Meters		83 frames
	Part 11—Applications (i) Heat		60 frames
	Part 12—Applications (i) Motion		56 frames
G.50	Marine Diesel Engines for Power Boats ... ... Shows the Buda marine Diesel engines DA, DB and DD. The mechanical operation of the DB is shown and the points of difference with the DD pointed out.	1942	1,464
G.51	Diesel Engine Governors.		
	Part 1—Woodworth Governors. Shows the operation of Diesel engine governors and explains the operation of overspeed, overspeed trips, and regulating governors. Both straight photography and cross-sectional animation are used.	1942	1,257
	Part 2—G.M. Series 71 (A.F.O. 567/44 refers). Discusses three main assemblies of the governor and their functions. Reviews the operation of the manual fuel control to explain the action of the governor through low, intermediate and high speed ranges.	1943	1,118
SG.53	Diesel Engines.		
	Parts 1 and 2—Four-stroke Cycle		42 and 71 frames
	Part 3—Cooling System		73 frames
	Parts 4 and 5—Electricity and Storage Battery...		95 and 68 frames
	Part 6—Generator		108 frames
	Part 7—Current and Voltage Regulation ...		103 frames
	Part 8—Starting Motor		87 frames
	Part 9—Clutch		55 frames
	Part 10—Engine Lubrication System		63 frames
G.57*	Ship's Radar.		
	Part 2—Operation of SC–1 Radar		2,035
	Part 3—Operation of Fire Control Radar, Mark 3		1,726
	Part 4—Operation of Fire Control Radar, Mark 4		839
	Part 5—Operation of SG Radar		2,172
	Part 10 — Radar Jamming (C.A.F.O. 2703/43 refers).		2,861
SG.58	Lift and Drag ... ... Explains the aerodynamic theories of lift and drag.		77 frames

R.N. Serial No.	Title and Description	Date Made	Footage
SG.59	Flight Instruments. Explains the operation of instruments relating to flight, their basic construction, common causes of faulty reading, and explains compensation required for altitude and temperature factor.		
G.61	Preparation of a Fully Ready Torpedo	1942	
	Part 1—Preliminary Adjustments (Mark 13 Aircraft).		5,530
	*Part 2—Final adjustments (Mark 13 aircraft)		
	*Part 3—Adjustment at the plane		961
G.63	Aerology. (A.F.Os. 2585/44 and 3663/44 refer.)		
	Part 1—Ice formation on aircraft ... ... Shows processes of ice formation, effects of ice on aircraft, and explains how wing ice, ice in the pitot tube, ice on the propeller, and ice in the carburettor become flying hazards.	1943	4,348
	Part 3—Thunderstorms ... ... Deals with the formation of thunderclouds; points out their identifying features; discusses alternatives a pilot may follow when storms are encountered and dramatizes one pilot's experience with a thunderstorm.	1943	3,758
	Part 4—Air Masses and Fronts ... ... Describes the troposphere, the formation of clouds, hot and cold fronts and cyclones and explains the conditions responsible for different kinds of weather.	1943	2,388
G.64	Progressive Maintenance Diesel Propulsion Engine.		
	Part 1—Disassembly of the 8—268A Engine ... Two machinists demonstrate in detail how to remove the air lines, manifold, rocker arm assembly, etc.	1942	2,543
	Part 2—Reassembly 8—268A Engine ... ... Demonstrates the checking of parts for cracks use of the ring expansion tool, insertion of wrist pin bearings, reassembly of the piston and replacing of needles in the eye of the connecting rod.		3,357
G.65	Amphibious Warfare. Part 7 ... ... Shows L.C.M.—3's. L.C.P. and L.C.V. are launched from transport, loaded alongside and stowed aboard ship.	1943	
G.74*	ASE Radar Interpretation		1,608
G.79*	Dive Bombing.		
	Part 1—Introduction.		1,390
G.81	Skeletal Fixation by the Stader Splint.		
	Part 1—Fractures of the Tibia ... ... Demonstrates the features of the Stader splint and its utilization in the case of a fractured tibia. The use of a special right angle splint in case of a proximal or distal fracture in which the smaller fragment is incapable of holding the regular pin bar is also shown.	1943	2,025
G.88	Damage Control		
	Part 6—Elements of Stability. Employs a miniature hull in a glass tank of water to explain principles of buoyancy and gravity, effects of loading on stability and period of roll of a ship.	1943	3,641

R.N. Serial No.	Title and Description	Date Made	Footage
G.91	Training Lookouts (A.F.O. 5712/43). Part 6—Night Vision. Demonstrates the new methods being taught to lookouts for better night vision, stresses the need for "dark adapting" the eyes before going on night duty, and shows techniques for conducting a visual search at night.	1943	2,302
G.99*	Aircraft Anti-Submarine Warfare.		
	Part 1—The Prey		1,484
	Part 2—Finding and Attacking Factors ...		2,080
	Part 3—Selecting Final Point of Aim		2,221
	Part 4—Anti-Submarine Bombing Attack ...		1,520
G.100*	Anti-Submarine Weapons.		
	Part 3—A.S. Projector, Mark 10—The Hedgehog		4,444
G.117	The Enemy Japan (A.F.O. 3661/44 refers).		
	Part 1—The Land. Shows how Japan's poor resources have made her a nation of frugal people and a hoarder of imported stores in order that she might prepare for war.	1943	942
	Part 2—The People. Shows how the regimentation of people, resources and business has been carried on in Japan in preparation for war and gives glimpses of the religious, governmental and economic life of the country.	1943	1,877
	Part 3—Dream of Empire. Shows excerpts from Japan's 10-year march toward world conquest and stresses the fact that they are fanatical in their belief that they are destined to rule the earth.	1943	2,032
G.146*	A.S.G. Radar Interpretation		2,238
G.156	Oral Hygiene (A.F.O. 5466/43 refers) ... ... Shows the material necessary for proper oral hygiene, demonstrates the use of dental floss, the proper method of cleaning teeth, massaging of the gums, and shows results of improper brushing and discusses dentifrices and the care of the brush.	1942	1,082
G.159	Prelude to War ...		
G.160	Nazi Strikes		
G.161	Divide and Conquer ...	(A.F.O. 5299/43 refers)	
G.162	Battle of Britain ...		
G.163	Battle of Russia ...		
G.169	Diesel Engine Fuel System. (A.F.O. 567/44 refers) Shows the basic structure of Diesel fuel systems. Emphasis is placed upon the parts of injectors and fuel pumps and how they operate.	1942	3,729
G.173	Radio Technician Training. Part 1—Capacitance. (A.F.O. 958/44 refers) Demonstrates the flow of electrons through a circuit and shows the charging and discharging of condensers. The variations of a charge on a condenser in relation to time and the behaviour of capacitance with alternating current is discussed.	1943	2,792
G.174	Abandon Ship ... ... Gives methods of leaving the ship, escaping through oil and gasoline, using emergency flotation tactics, rescuing other survivors and defending oneself against predatory marine life.	1943	2,945

R.N. Serial No.	Title and Description	Date Made	Footage
G.177	Cathode Ray Tube—How it Works. (A.F.O. 958/44 refers.) Demonstrates the construction and function of each part of the cathode-ray tube and how it produces visual images on a screen. Explains electrostatic deflection, electromagnetic deflection, and how varied currents affect the position of the spot-light scope.	1943	1,369
G.181	Diesel Engine Marquette Hydraulic Governors ... Discusses the function of the Marquette Hydraulic Governor. The basic construction and operation of the principal parts of the hydraulic system are described and illustrated by means of schematic animation.		3,434
G.186	The York 40mm. Anti-Aircraft Weapon. Part 1—Train and Elevation Power Drive, Mark 5 Hydraulic Mechanism. Discusses the advantages of the power drive over manual operation. Explains by means of animation operating principles of the hydraulic system, how oil operates the gun, how various rates of speed are dealt with, and the hydraulic fluid system of the A and B end.		
			No. of Frames
SG.214	Air Masses ... ... The formation of lows and highs is explained in detail. Rain, the formation of ice, and the occurrence of radiation, advection and upslope fogs are also discussed.		80
SG.215	Air Ocean ... ... Explains by means of straight photography, drawings and graphs the main factors governing weather conditions and explains some of the instruments used in measuring these conditions.		70
SG.216	Weather ... ... Explains the development of high and low pressure areas, cold fronts, etc., and gives measures to be taken by the pilot as he meets them.		50
SG.218	Navy Quiz ... ... Part 2—Aerology. Explains basic cloudshapes and presents questions with possible choices given for correct answer to each. The questions deal with the type and meaning of cloudshapes at various altitudes, meaning of weather symbols and other subjects relating to aerology.		91
SG.219	Stresses in an Airplane ... ... Defines tension, compression, bending, shear and torsion. Points out that size, function, shape and composition of the object determines whether or not provisions will have to be made for it to withstand one or all of the stresses.		66
SG.229	Hydraulic Struts ... ... Shows basic principles of operation of hydraulic mechanisms in general and of the hydraulic shock absorber strut in particular.		44
SG.230	Hydraulic Mechanisms		
SG.250	Adjusting Mechanical Brakes ... ... Describes preliminary checking of the brake system, adjusting the brake, and the final adjustments of the brake hook-up.		40

R.N. Serial No.	Title and Description	Date Made	No. of Frames
SG.251	Adjusting Hydraulic Brakes ... ... Demonstrates the fundamental operation involved in adjusting airplane hydraulic brakes and checking the hydraulic main cylinder, hydraulic lines and wheel cylinders.		69
SG.254	Refuelling the Airplane ... ... Outlines the recommended procedures for airplane refuelling and emphasizes the precautions to be observed.		64
SG.256	Flight Control Systems ... ... Using a stick and rudder pedals ; demonstrates a simple wire control system and explains torque tube systems, combinations of torque tube systems, push-pull tubes and methods of wheel control in aircraft construction.		72
SG.257	Types of Fuel Systems ... ... Explains the operation of both gravity and pressure fuel feed systems. Emphasizes the nature and importance of various parts of those systems. Discusses the dangers and causes of vapour lock.		63
SG.270	Aircraft Tyres. Part 1—Maintenance and Repair. Shows the different type of tyres, tubes and rims that make up a tyre assembly ; tools used in working with tyres ; precautions to be taken in working with tyres to prevent failure and lengthen tyre life ; how to make minor repairs on tubes ; and the importance of periodic inspection and proper inflation.		35
	Part 2—Continues discussion of Part 1		57
SG.271	Receiving Antennas ... ... Explains the electrical theories of receiving antennas.		26
SG.272	Measuring Electrical Units—1		54
	Measuring Electrical Units—2		38
SG.273	Inductive Reactance ... ... Explains the basic theory of inductive reactance and its application to radio instruments.		33
SG.274	Capacitive Reactance ... ... Explains the basic theory of capacitive reactance and its application to radio instruments.		29
SG.342	Pressure Sealing ... ... Explains the purpose of pressure sealing and describes the kinds of steam, air, ammonia, and oil packings ; discusses the differences between packing for fixed joints and movable parts, and the various materials from which they may be made.		69
SG.343	Feed Water ... ... Discusses the function of the feed-water system, its important parts and the advantages of the open direct-contact type and closed type heater.		60
SG.344	Lighting off, Securing and Cleaning Operations ... Illustrates the procedures and precautions to be observed in "lighting off" of starting, and "securing" or shutting down oil fired boilers as installed in the latest Navy vessels.		45

R.N. Serial No.	Title and Description	Date Made	No. of Frames
SG.345	How to use a Micrometer ... ... Tells of the importance of precision measurement, the parts of a micrometer, how ro read the scales, precautions to be observed, and the care of micrometers.		54
SG.346	Fire Room Safety Precautions ... ... Uses negative and positive examples to demonstrate the safety measures which must be taken to protect equipment and personnel in the fire-rooms aboard naval vessels.		49
SG.347	The Boiler ... ... Discusses some of the things which affect the formation of steam such as pressure and temperature, defines such terms as "heat of the liquid", "latent heat of steam" and "superheated steam" and shows the general parts of water and fire-tube boilers and how they operate.		93
SG.348*	Vacuum Tubes. Part 1—Fundamentals. Part 2—Rating and Testing Vacuum Tubes. Part 3—Amplification Fundamentals.		
SG.349*	I.F.F. Operation. Part 1—What is I.F.F. Part 2—Ground and Flight Check.		
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G.452	Mark 13–1 Torpedo ... ... Part 1—Overhauling the Mark 12–1 Gyroscope. Demonstrates the procedure for disassembling and reassembling the gyro and inspecting and adjusting the principle parts.		5,178
G.457	Electricity and Magnetism		
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	Part 3—Storage Batteries...		1,549

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G.582	Inside of Arc Welding (A.F.O. 2461/44 refers) ... Part 1—Fundamentals. Part 2—Flat Position. Part 3—Horizontal Position. Part 4—Alternating Current in Flat and Horizontal positions. Part 5—Vertical Position. Part 6—Overhead position.	1944	
SG.275	Tuning ... ... Describes the theory of tuning a radio circuit.		27
SG.276	Detection ... ... Describes how a radio wave is detected and isolated.		33
SG.277	Audio-Frequency Amplification ... ... Describes the theory and practice of amplification of the audio wave.		25
SG.278	Radio-Frequency Amplification ... ... Describes the theory and practice of amplification of the detected radio wave.		18
SG.279	Reproducers ... ... Describes the construction and operation of headphones and loud speakers.		29
SG.280	Regeneration ... ... Describes principles involved in setting up a regenerative circuit and explains its effects and their control.		23
SG.281	Fire ... ... Shows the three necessary constituents to produce a fire, the five frequent causes for fire, and three means of extinguishing a fire.		41
SG.282	The Use of Fire Extinguishers ... ... Shows how a fire may be extinguished by smothering, cooling or separation, and illustrates five types of extinguishers and their proper method of use.		54
SG.283	Airplane Ignition. Shows the basic operating principle and maintenance of the ignition system.		
SG.284	Fuel and Feed ... ... Explains the operation of both gravity and pressure fuel feed systems; emphasizes the nature and importance of various parts of those systems; and discusses the dangers and causes of vapour lock.		80
SG.286	Engine Instruments ... ... Describes and illustrates the function and use of airplane engine instruments.		60
SG.287	Forces in Flight ... ... Explains the aerodynamic forces acting on the wing in relation to control surfaces and centre of gravity.		72
SG.288	Traffic ... ... Explains the "Rules of the Road" to be observed in the vicinity of landing areas and an established airway.		77
SG.289	Air Pilotage ... ... Explains how to read aeronautical maps and charts and how to plot a course between two points.		70
SG.290	Stability ... ... Explains the stabilizing factors which have been designed into modern airplanes.		50

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SG.291	Radio and Control ... ... Explains the use of aircraft radio in maintaining contact with base stations.		55
SG.292	Plane Performance ... ... Shows by means of straight photography, drawings and graphs, the factors which govern plane performance.		63
SG.293	Airway Aids ... ... The development of airway markers and beacons is traced briefly and some of the course lights, runway markers, and obstruction lights in use today are discussed.		73
SG.299	Landing Gears and Brakes ... ... Outlines three conditions governing the friction that provides braking action. Shows the parts of an external contracting brake and explains the difference between hydraulic and mechanical brakes. Explains the theory of hydraulic mechanisms and shows how the hydraulic system operates in an airplane.		67
SG.305	Valve Operating Mechanism ... ... Explains the four-stroke cycle of an aircraft engine; describes intake and exhaust valves and how they are actuated through rocker arms, push rods, tappets and cam shaft.		77
SG.306	The Story of Aircraft Propellers ... ... Tells something of the history, nomenclature and mechanics of aircraft propellers.		65
SG.312	Instrument Flight Control. Part 1—Diaphragm Instruments. Part 2—Gyroscopic Instruments.		
SG.320	Development of the De-Icer ... ... Traces the need for de-icer equipment, distinguishes between glaze, ice, rime ice, and rime frost and shows the action of the modern de-icer equipment.		54
SG.332	Hydraulic Principles ... ... Demonstrates and explains the basic principles upon which hydraulic systems are based.		37
SG.334	Fire Apparatus Afloat ... ... Explains how the type and method of combustion determine how fires should be fought and shows the various systems and pieces of fire fighting apparatus aboard ship.		59
SG.337	Vacuum Tubes ... ... Describes the theory of operation of vacuum tubes and their function in the radio circuit.		37
SG.340	Drills and Drilling ... ... Describes and explains the uses of twist drills, hand and power drilling tools.		87
SG.341	Turbine Maintenance and Repair ... ... Shows how to prevent trouble by proper maintenance precautions, diagnose turbine trouble, when to make repairs, etc.		114

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(A.F.Os. 793/40, 1795/40, 3426/42, 3953/42, 4864/42, 2920/43, 5093/43, 5580/43, 5938/43, 792/44, 2672/44 and 3367/44.)

(A.F.Os. 4251/43, 4805/43, 5191/43, 6279/43, 677/44, 1184/44, 1789/44, 2573/44, 2948/44, 2999/44, 3137/44, 3275/44, 3812/44 are cancelled.)

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