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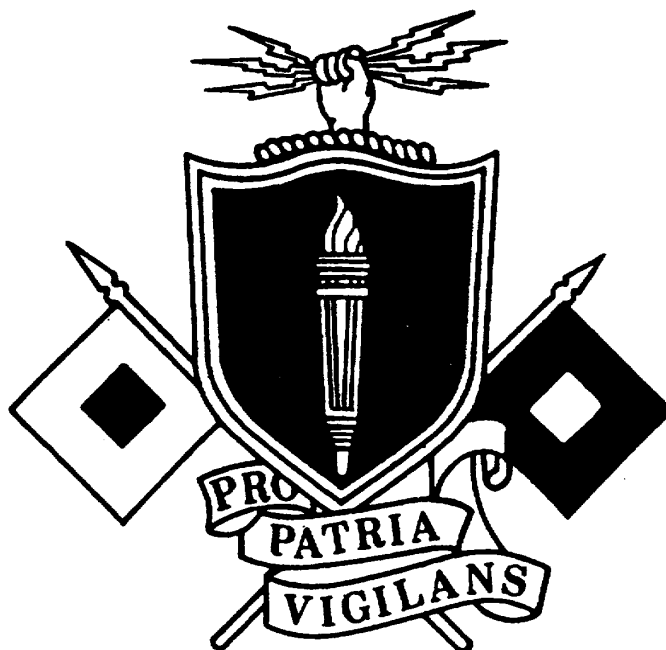
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**SUBCOURSE  
SS0536**

**EDITION  
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## **DOCUMENTATION CINEMATOGRAPHY**



**THE ARMY INSTITUTE FOR PROFESSIONAL DEVELOPMENT  
ARMY CORRESPONDENCE COURSE PROGRAM**

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**READINESS /  
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**THRU  
GROWTH**

US ARMY MOTION PICTURE SPECIALIST  
MOS 25P SKILL LEVEL 1 COURSE

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DOCUMENTATION CINEMATOGRAPHY

SUBCOURSE NO. SS 0536-B  
(Developmental Date: 19 October 1990)

US Army Signal Center and Fort Gordon  
Fort Gordon, Georgia

Four Credit Hours

GENERAL

This Documentation Cinematography subcourse is designed to teach you the knowledge necessary to perform tasks relating to documentation of subjects in both tactical and nontactical situations. It provides information on various filming techniques, team coverage, captions, and slating. This course is presented in three lessons, each lesson corresponding to a terminal objective listed below. The techniques are also applicable to television cameramen.

Lesson 1: FILMING TECHNIQUES

TASK: Describe the various techniques of filming subjects for Army documentation purposes.

CONDITIONS: Given information and diagrams describing various techniques of filming subjects for Army documentation purposes.

STANDARDS: Demonstrate competency of the task skills and knowledge by correctly responding to 80 percent of the multiple-choice test covering filming techniques.

(This objective supports SM Tasks 113-577-5010, Perform Aerial Motion Media Photography; and 113-577-4040, Perform Motion Picture Filming Techniques for Television.)

Lesson 2: PERFORM TEAM COVERAGE

TASK: Describe the various methods of conducting team coverage.

CONDITIONS: Given information and diagrams about team coverage.

STANDARDS: Demonstrate competency of the task skills and knowledge by correctly responding to 80 percent of the multiple-choice test covering team coverage.

(This objective supports SM Task 113-577-2036, Document Military Operations with Motion Media.)

Lesson 3: PREPARE MOTION PICTURE SLATES AND CAPTIONS

TASK: Describe various types of slates and captions.

CONDITIONS: Given information and diagrams about slates and captions.

STANDARDS: Demonstrate competency of the task skills and knowledge by correctly responding to 80 percent of the multiple-choice test covering slates and captions.

(This objective supports SM Task 113-577-5007, Film with Double System Sound.)

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**\*\*\* IMPORTANT NOTICE \*\*\***

**THE PASSING SCORE FOR ALL ACCP MATERIAL IS NOW 70%.  
PLEASE DISREGARD ALL REFERENCES TO THE 75% REQUIREMENT.**

Whenever pronouns or other references denoting gender appear in this document, they are written to refer to either male or female unless otherwise indicated.

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## INTRODUCTION TO DOCUMENTATION CINEMATOGRAPHY

These three lessons on documentation cinematography are designed to teach you the methods of using cinematography to document subjects for your unit. Army Visual Information units are becoming more tactically oriented and will require efficient documentation. Most of this camera work will be performed in the field. The techniques in this subcourse are designed for both motion picture and television specialists. The methods are suitable for motion picture and television cameras. Your ability to support the Army with usable motion picture footage may well spell the difference between mission failure and mission accomplishment.

The term "visual information" has replaced "audiovisual" in the Army of excellence.



LESSON 1  
FILMING TECHNIQUES

TASK

Describe the various techniques of filming subjects for Army documentation purposes.

CONDITIONS

Given information and diagrams describing various techniques.

STANDARDS

Demonstrate competency of the task skills and knowledge by correctly responding to 80 percent of the multiple-choice test covering filming techniques.

REFERENCES

FM 11-82 and FM 11-40

Learning Event 1:

DESCRIBE DOCUMENTATION PHOTOGRAPHY

1. Army documentation still photography has been in existence since the camera was first invented. All military actions and functions have been documented over the years since the motion picture camera was invented. Documentation of the Army is a continuing function of Visual Information (VI) units in times of peace and war. Motion picture and television are becoming interoperable and the term motion media represents both types of equipment and techniques. Of course, in the Civil War, only still photo cameras were used.

a. Peacetime documentation includes documentation of training, medical research and development, public affairs, and historical subjects. It is used to tell the Army story and to record its missions.

b. Combat documentation (COMDOC) consists of the above and also includes coverage of combat (C), combat support (CS), and combat service support (CSS) unit missions. Visual Information (VI) COMDOC activities support command and Army missions, and US national objectives.

c. VI Combat documentation support teams will be engaged in motion media operations on day one of any battle. In some cases the documentation may start 24 hours before hostilities begin.

2. Combat (tactical) documentation covers the following:

a. Battlefield documentation, which extends from the forward line of troops (FLOT) to Corps, consists of the following types of media coverage:

(1) Military operations from day one of the battle and information of immediate value to commanders and their staffs for use in planning, conducting and evaluating combat, combat support, and combat service support effectiveness.

(2) Friendly positions before, during, and after the battle. This includes providing front and reverse panoramics, camouflage discipline, and fields of fire.

(3) Opposing forces (OPFOR) positions should also be documented, if possible, to detect camouflage and possible avenues of approach.

(4) On the scene close-in terrain analysis documentation for operational traffic supportability planning, barrier location and identification.

(5) Aerial spot imagery which provides motion media of friendly and OPFOR positions to augment intelligence photography.

(6) Military operations to furnish HQDA staff, training developers, and military historians with combat and doctrinal material for evaluation and development of effective counter measures.

(7) Battlefield damage of friendly force equipment to provide operational tacticians and logisticians immediate information to develop effective counter measures.

(8) Battlefield damage to indigenous property for use by Civil Affairs in adjudicating claims.

(9) Battlefield damage of OPFOR equipment to provide operational tacticians and logisticians immediate information on effectiveness of friendly weapons and tactics and to provide information for long-range research and development activities.

(10) Field medical procedures as required by the field medical commander, to furnish visual and audio information of immediate intelligence and operations value.

(11) Initial battle engagements of new weapons and support systems and revised tactics to provide HQDA staff and commanders and their staffs at all levels, and Combat, doctrinal, material and training developers, information for validation of new equipment doctrine.

(12) Visual documentation of captured OPFOR supplies, material, equipment, personnel and documents for commanders and their staffs at all levels for use in planning, conducting and evaluating combat, combat support and combat service support activities. This material may be of

immediate importance to the Intelligence, Psychological Operations (PSYOPs), Military Police and Public Affairs communities and will be ultimately used by military historians.

(13) This coverage is usually conducted in the division area of responsibility.

b. Combat documentation of the Corps consists of, but is not limited to, the following:

(1) Support PSYOPs by providing documentation of prisoners of war (PW); morale, welfare, and condition of clothing and equipment; and the affect of battle on the civil population.

(2) Support military police by providing documentation of PW identification and enclosure construction, PW morale and welfare, adequacy of control procedures, and visual information support for investigation as required.

(3) Document plans and procedures for rear area protection which includes camouflage discipline, fields of fire, and reverse panoramics.

(4) Support military intelligence with documentation of captured material and damaged OPFOR or friendly equipment.

(5) This coverage is usually acquired in the corps area behind division lines.

c. Tactical documentation in Echelons Above Corps (EAC) which include Theater Army, consists of, but is not limited to, the following:

(1) Support PSYOPs operations when required (same as Corps).

(2) Support military police operations when required (same as Corps).

(3) Support military intelligence operations when required (same as Corps).

(4) Support Public Affairs News Media Centers and assists Public Affairs Units when required.

(5) Augment Corps mission requirements.

(6) Cover the deep battle.

(7) Cover the rear battle.

3. Equipment.

a. VI COMDOC support organizations are equipped with state-of-the-art motion picture and videotape, and equipment as required.

b. Organic vehicles, tentage, and other related equipment will be authorized on the VI detachment TOE. VI COMDOC team members are self-sufficient and capable of operating in the field with a 15-day basic load of supply. VI COMDOC support teams are attached to a subordinate unit with a complete basic load. Processing support is provided by Corps or Theater VI units.

Learning Event 2:  
DESCRIBE MOTION PICTURE TECHNIQUES

1. Camera techniques for uncontrolled action must be mastered in order to film combat or tactical training documentation. The same basic style applies to both training and actual wartime documentation. All the techniques used to film in peacetime are also used in wartime or tactical conditions. Composition, depth of field, cut-ins, cut aways, screen direction, basic sequence and exposure are still required when shooting COMDOC. The main difference is that the surroundings are hostile and you may not always be able to shoot exactly as you wish due to battlefield situations.

a. Composition is an important part of documentation photography. All the techniques you know concerning framing, arranging, and elements of the scene are required when possible. There are times when this is not possible. Keep in mind the following points on composition.

(1) Four lines of composition include; horizontal, which indicates peace and quiet; vertical that indicates strength and power; diagonal which indicates force and action; and curved which indicates grace and charm (fig 1-1).

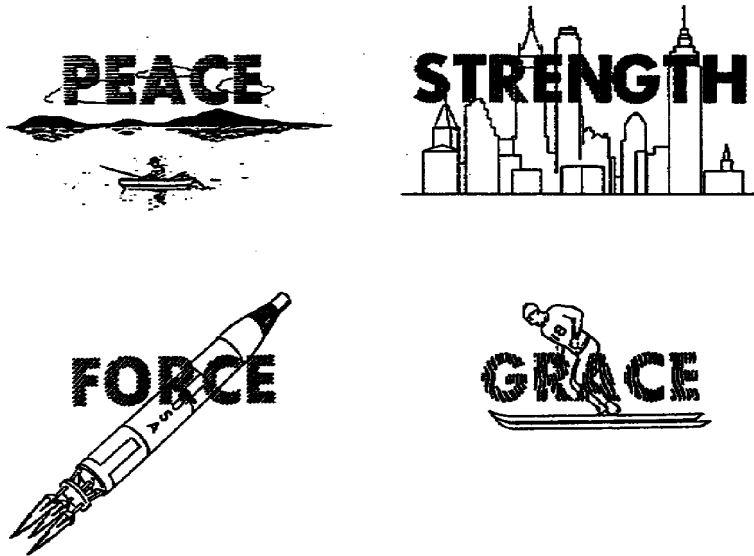


Figure 1-1. Meaning of lines

(2) Depth puts the viewer in the picture. Remember, your pictures or scenes are in two dimensions. You must create the feeling of depth. Depth adds direction and atmosphere to a scene.

(3) Camera angles add to a scene. Shooting from a low angle adds apparent height to a subject. A shot looking down decreases the apparent height of a subject. Shooting from the right or left of a subject can add depth and provides a look at the front and side of the subject.

b. Depth of field is an important factor when filming action. All uncontrolled action requires a complete understanding of depth of field which also includes understanding hyperfocal distance (HFD).

(1) Depth of field is the distance from the nearest to the farthest point in a scene that is in focus. It may or may not include infinity. Hyperfocal distance (HFD) is the distance from the lens to the nearest point in acceptable sharpness when the lens is focused at infinity. If you focus your lens on the HFD, everything from one half the HFD to infinity will be in focus. This gives you the greatest depth of field and always include infinity (fig 1-2).

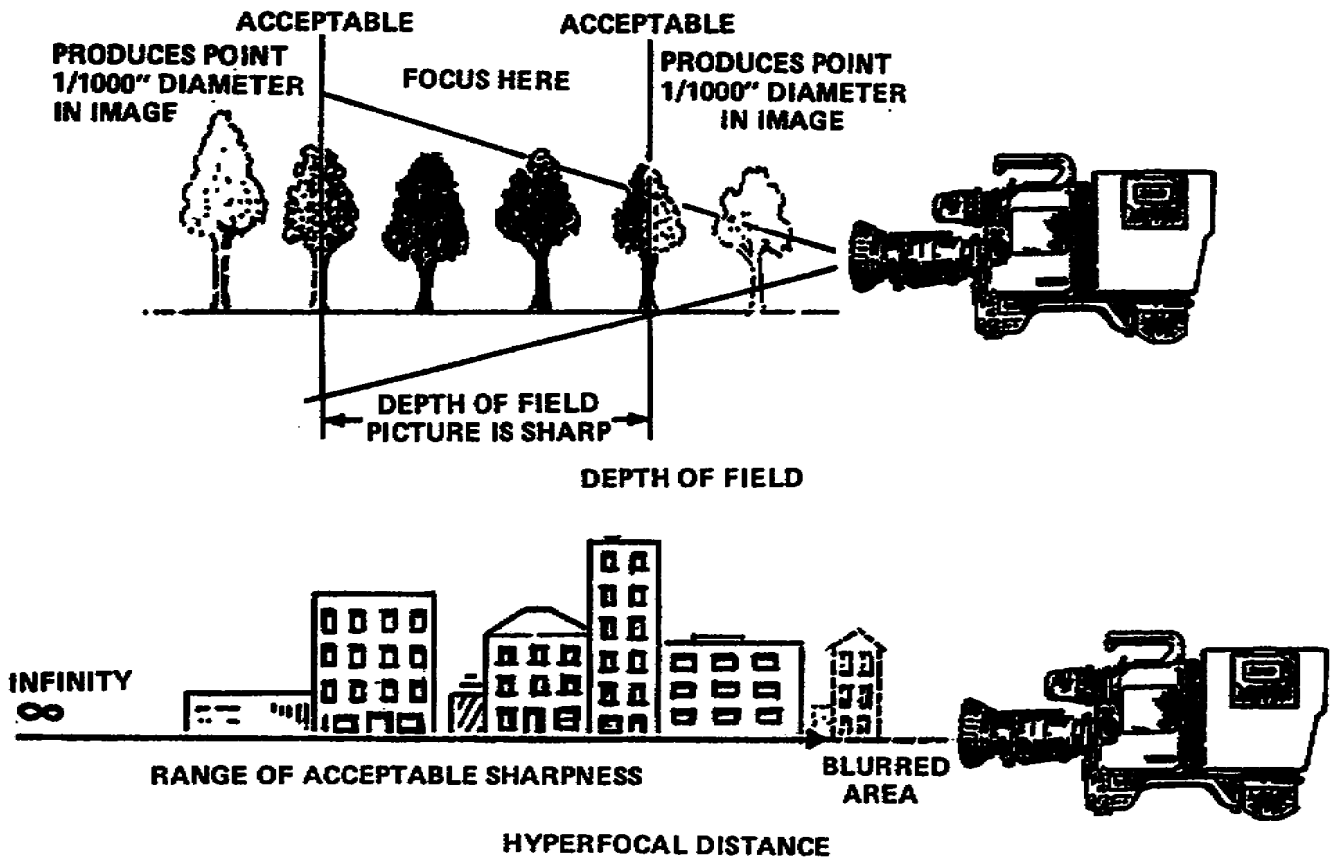


Figure 1-2. Depth of field and hyperfocal distance

(2) The formula for HPD is:

$$H = \frac{F^2 \times CC}{12 \times f}$$

- (a) Where H = Hyperfocal distance in feet  
F = Focal length of lens in inches  
cc = Circle of confusion (1/1000" for 16mm cameras)  
f = Aperture (f/stop)

(b) If you have a 25mm lens on a 16mm camera, the HPD for f/5.6 is 10 feet, 2 inches. Therefore, if you focus your lens on 10 feet, 2 inches, (the HFD), your depth of field will extend from 5 feet, 1 inch (half the HPD) to infinity.

(c) All of these formulas can also be figured in meters and millimeters. Keep in mind that focal lengths, distance and cc must all then be in meters. Do not mix inches and millimeters in the formula.

(3) Using the HFD will allow you to shoot at different distances and not have to take the time to focus. Time and stress can be your worst enemy when filming. Under combat conditions, taking time to focus each shot could cause you to miss a shot or expose yourself to unnecessary danger.

(4) The following examples in Table 1-1 are representative of HFD and depth of field. They can be used for tactical documentation purposes. For more critical purposes use the chart that comes with your lens or the formula for HFD.

DEPTH-OF-FIELD AND HYPERFOCAL DISTANCE FOR 25mm LENS								
HYPERFOCAL DIST.	40'	27'	20'	14'	10'	7'	5'	4'
	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR
50	22' INF.	18' INF.	14' INF.	11' INF.	8' INF.	6' INF.	4' INF.	3' INF.
25	15' 66'	13' 18'	11' INF.	9' INF.	7' INF.	5' INF.	4' INF.	3' INF.
15	11' 24'	10' 31'	8' 56'	7' INF.	6' INF.	5' INF.	3' INF.	3' INF.
10	8' 13'	7' 15'	6' 18'	6' 31'	5' 39'	4' INF.	3' INF.	2' INF.
8	6' 10'	6' 11'	5' 13'	5' 17'	4' 36'	3' INF.	3' INF.	2' INF.
6	5' 7'	5' 7'	4' 8'	4' 10'	3' 14'	3' 29'	2' INF.	2' INF.
5	4' 5'	4' 6'	4' 6'	4' 7'	3' 9'	3' 14'	2' 122'	2' INF.

DEPTH-OF-FIELD AND HYPERFOCAL DISTANCE FOR 50mm LENS								
HYPERFOCAL DIST.	181'	116'	81'	58'	40'	29'	20'	15'
	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR
50	38' 72'	35' 88'	31' 130'	26' 361'	22' INF.	18' INF.	14' INF.	11' INF.
25	21' 29'	20' 31'	18' 36'	17' 43'	15' 64'	13' 157'	11' INF.	9' INF.
15	13' 16'	13' 17'	12' 16'	12' 20'	11' 23'	10' 30'	8' 55'	7' INF.
10	9' 10'	9' 10'	8' 11'	8' 12'	8' 13'	7' 15'	6' 19'	5' 29'
8	7' 8'	7' 8'	7' 8'	7' 9'	6' 10'	6' 11'	5' 13'	5' 17'
7	6' 7'	6' 7'	6' 7'	6' 7'	6' 8'	5' 9'	5' 10'	4' 13'
6	5' 6'	5' 6'	5' 6'	5' 6'	5' 7'	5' 7'	4' 8'	4' 10'

DEPTH-OF-FIELD AND HYPERFOCAL DISTANCE FOR 100mm LENS								
HYPERFOCAL DIST.	646'	481'	323'	231'	162'	117'	81'	58'
	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22
LENS FOCUS (FEET)	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR	NEAR FAR
100	86' 118'	82' 127'	76' 144'	70' 176'	62' 260'	54' 651'	44' INF.	37' INF.
50	46' 54'	45' 56'	43' 59'	41' 63'	38' 72'	36' 88'	31' 129'	27' 315'
25	24' 26'	23' 26'	23' 27'	22' 28'	21' 29'	20' 31'	19' 36'	17' 43'
15	14' 15'	14' 15'	14' 15'	14' 16'	13' 16'	13' 17'	12' 18'	12' 20'
10	9' 10'	9' 10'	9' 10'	9' 10'	9' 10'	9' 10'	9' 11'	8' 12'
8	7' 8'	7' 8'	7' 8'	7' 8'	7' 8'	7' 8'	7' 8'	7' 8'
7	6' 7'	6' 7'	6' 7'	6' 7'	6' 7'	6' 7'	6' 7'	6' 8'

Table 1-1. Representative lens charts

c. Cut-ins and cutaways are always required to maintain scene continuity. In many cases they may not be shot during the filming of a specific sequence. You will probably have to shoot them after the main action has terminated. However, you must provide cut-ins and cutaways when filming under any conditions.

(1) A cut-in is a technique for maintaining continuity and for bridging gaps in action. It is usually a closeup or extreme closeup, e.g., a sequence shows two people meeting and shaking hands in a long or medium shot. The handshake is a closeup "cut-in."

(2) A cut-away directs the camera (audience) from the main action to show some parallel action that is taking place at the same time. While filming a troop review, cut away to the crowd watching, or to the reviewing stand for the expression of the general, then back to the troops marching.

d. Screen direction must be maintained whenever possible. In most cases on the battlefield, you will not be able to do this. Remember that the cut-in and cutaway can be used to cover a change in direction. In addition you can use a prominent object to orient the audience to the movement of the subject, and film around the subject to show a change in direction.

e. Basic sequence is the most important technique in filming. A motion picture or television documentation is lost without good basic sequence. The basic sequence consists of long shots (LS), medium shots (MS), closeups (CU), extreme long shots (ELS), and extreme closeups (ECU). All these shots, used in a certain sequence, will make a motion media presentation more understandable to the audience.

(1) The usual arrangement of a basic sequence is the opening shot which is a LS or ELS showing the overall local or subject. This is followed by a MS which narrows down the subject to a specific area or unit. This is followed by a CU that focuses the audience attention to the specific thought you are trying to record. After this normally comes a reestablishing shot (RS) that reminds the audience where they are.

(2) From this point on, the scenes can move from LS, to MS, to CU, back to MS, and back to CU or ECU. Remember to reestablish after a few scenes. This technique may not be possible on the battlefield but you should attempt to use the basic sequence as much as possible.

(3) The basic sequence can be used when documenting nonbattle subjects such as captured equipment, medical procedures, camouflage discipline, enemy prisoners of war (EPW) and other rear area subjects.

f. Exposure remains a critical factor in motion picture documentation. Unless your film is properly exposed, your efforts could be for nothing. Basic exposure and the use of light meters do not change on the battlefield. What does change is the surrounding events. You must understand how to use basic exposure and use it almost without thinking (fig 1-3).



### BASIC EXPOSURE GUIDE

To determine the BASIC EXPOSURE for various black and white and color films use the chart below. The chart is based on an average shutter speed for motion picture camera of 1/50 second (24 fps) and average subjects in bright sunlight (frontlighted).

DAYLIGHT FILM SPEED (ISO Index)	10	25	50	100	200	400	
ENGLISH SYSTEM f/stops	5.6	8	11	16	22	32	45

#### TO USE BASIC EXPOSURE:

1. Determine the BASIC EXPOSURE from the above chart by two simple steps:
  - a. Obtain the daylight film speed index for the film you are using
  - b. The correct f/stop can be found directly below the number value of the ISO index
2. This is your basic f/stop setting for average subjects in bright sunlight (frontlighted)
3. Adjust the BASIC EXPOSURE whenever there is a change in:
  - a. Lighting conditions (side or backlighting, open shade, hazy sun, etc.)
  - b. Subject brightness (lighter than normal or darker than normal)

Figure 1-3. Basic exposure guide

(1) Remember that your exposure will be determined by the film speed, now shown as ISO, and lighting conditions. Most battlefields are dull and smokey. Fast films are a must.

(2) Most of your filming will be done at the standard rate of 24 frames per second (FPS). Figure 1-4 is an exposure guide for film with an ISO of 100.

TYPICAL OUTDOOR EXPOSURE GUIDE	
<u>Exposure Index 100</u>	Frames per second = 24 at 1/50th of a second shutter speed
<u>Lighting conditions</u>	<u>f/stop</u>
Bright sun . . . . .	f/22
Hazy sun . . . . .	f/16
Cloudy bright . . . . .	f/11
Cloudy or open shade . . . . .	f/8
Deep shade . . . . .	f/5.6
*These conditions based on average subject with front lighting	
For lighter-than-average subjects: close down . . . . .	1/2 stop
For darker-than-average subjects: open up . . . . .	1/2 stop
For side lighting: open up . . . . .	1 stop
For back lighting, subject fills frame-open up . . . . .	2 stops

Figure 1-4. Outdoor exposure guide

2. The use of filming techniques must be used whenever possible both in training situations and on the battlefield. Some of the techniques will be impossible to use when you are under fire. But you can provide clear, sharp, well-exposed film for your commander if you follow the principles of motion picture filming techniques you use every day.

3. When filming a subject for intelligence, or other than public affairs purposes, place a scale alongside the subject to show size. If it is a radio, weapon, vehicle or other relatively small object, use a ruler or other form of scale. If the subject is large, such as a building, place a vehicle or other object of known size alongside the building. This will act as a scale.

a. All buildings should be filmed to show all sides, three-quarter views, entrances, windows, any special feature, and should always have a scale of some type showing.

b. Equipment must also show all four sides plus three-quarter views along with CU of any handles, knobs, nameplates, or special features (cut-ins or cutaways).

c. As an example, you are documenting a captured building containing weapons. The following set of shots should be taken.

(1) A LS showing the location of the building to include surrounding areas.

(2) A MS showing the outside of the building. This shot should have a scale of some sort. Note that the scale must be alongside the building so that its size can be measured.

(3) More MS of all sides of the building.

(4) A series of CU showing doors, windows, nameplates, address plates, and other identifying features. Each CU should be preceded by a MS or LS showing its relation to the building. Again a scale should be in the scene.

(5) After the outside of the building is documented, you must get shots inside showing what the building contains.

(6) If weapons are stored in cases, get a LS of the cases in relation to the building; e.g., are the cases in only one corner, or is the building full of cases?

(7) Next a MS showing one or two cases of weapons. Try to show any identifying marks on the cases.

(8) This is followed by a CU or ECU of the identifying marks and special features of the case.

(9) Next comes a RS showing the pile of cases.

(10) Now a MS showing a case being opened. Make sure that the case with its markings visible is the same case opened in this scene.

(11) Using the same pattern, show the weapons, special features and markings with CU and ECU shots. Again, use a scale for these shots. Have someone operate (dry fire) the weapon (if possible) while you film.

(12) Finally, back out of the room with RS and MS until you finish with a LS of the overall building and area.

4. Documentation of subjects must follow the basic techniques of filming but must include certain scenes that may not make for a "good" movie. When documenting you are mainly interested in showing the commander what happened and why it happened. If you have good exposure and camera handling techniques along with following the principle of basic sequence, you should obtain good usable documentation footage.

Learning Event 3:  
FILMING FOR TELEVISION

1. A majority of all film documentation will be used on television. This includes but is not limited to field training and evaluation, combat actualities, medical, psychological operations, military police, public construction affairs events, and other military operations in peacetime and during hostilities.

2. There are special camera techniques which are used when filming for television presentation. These techniques should be followed when practical. You may not be able to follow them under combat conditions.

a. Sets and backgrounds.

(1) Wherever possible, avoid pure whites and pure blacks in your scene. TV receivers are not capable of reproducing extreme contrasts, be they color or black and white. Stay away from high and low key in the same scene.

(2) The maximum contrast ratio for TV is 20 to 1. Try to avoid broad areas of the same tonal value. Bold patterns are better than intricate detail. Avoid cutting back and forth between angles where the background is alternately light and dark. Finally, avoid large areas with bright color.

b. Lighting.

(1) The ratio of key-to-fill light should be a maximum of 2 to 1 for color and 3 to 1 for black and white. A somewhat high key with strong backlighting gives the best results. The general intensity of illumination from scene to scene should remain relatively constant. Under tactical conditions, lights and reflections cannot, nor should they, be used. The only exception would be indoors where the light cannot be seen outside. For example, if a key light is 400 foot candles, a back light should be 200 foot candles for color, or about 150 for black and white.

(2) Television has a built-in method of adding contrast to all films shown. For this reason, it is necessary to hold the contrast down when making films for TV. Although films can be printed with less contrast, it is best to film with less contrast from the beginning. Remember, the maximum contrast that TV is capable of presenting is 20 to 1. Most stations want to keep the ratio below 10 to 1. Basically, contrast ratio means that the lightest part of a picture is 30 times brighter than the darkest part, or 10 times brighter in a 10 to 1 ratio.

c. Color temperature and colored light. As with filming for theater projection, avoid mixing light sources within one scene. This is particularly true when filming in color. Mixing light sources of different color temperatures will ruin the color quality and make the film unusable. As a documentation cinematographer, you want to keep the subject as close to its natural color as possible.

d. Camera techniques.

(1) Do not use extreme long shots (ELS) when filming for TV. This is true if any detail in the shot shows. Most TV receivers are not capable of presenting detail in an ELS. For this same reason, keep long shots (LS) to a minimum. Use more medium shots (MS) and closeups (CU) than in normal filming.

(2) Composition. When filming for TV, it is necessary to frame less tightly. You must leave more room at the edge of your frame than you normally would. The first problem is curvature of the TV tube. Also, the tube aperture, that is, the frame that supports the picture tube, cuts off a portion of the edges of the film area. This is called television image cut-off. In other words, what you shoot is not what you will see on the TV screen. For this reason, we use what is known as the safe action area.

e. Safe action area.

(1) Safe action area is shown in figure 1-5. The Arriflex camera has a safe action frame built into the viewfinder. Cameras that do not have this frame built in must be used with this frame in mind. When filming for TV without a special frame in your viewfinder, leave 10 percent around the frame to allow for TV image cut-off. This is especially true when filming CUs.

(2) The safe title area (used when filming titles for TV) is even smaller. You must leave 15 percent around the frame when filming titles for TV.

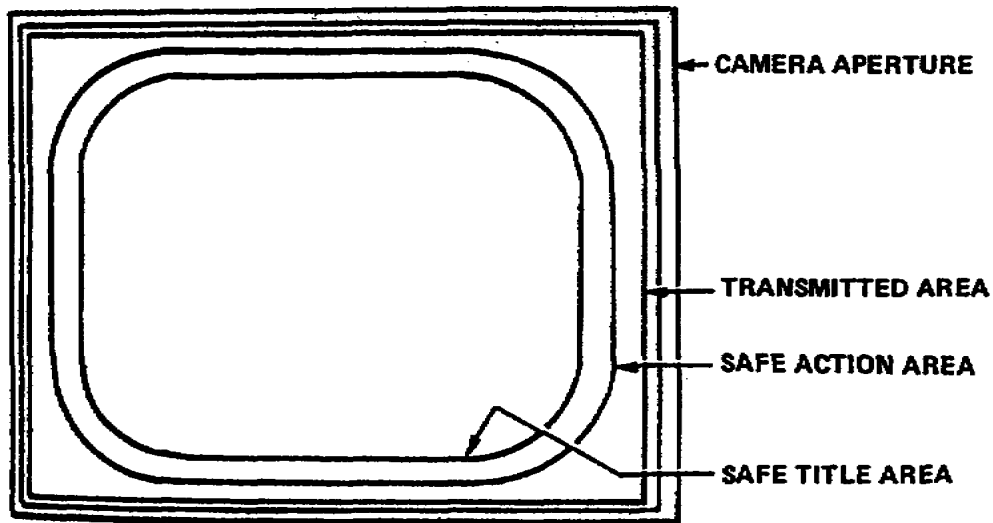


Figure 1-5. Television film apertures and safe areas

f. Camera movement. The same principles apply to moving your camera for TV and theater projection. The main thing to remember is that all dolly

and zoom shots (filming with a varifocal length lens) must be extremely smooth and rather slow when filming for TV.

g. Handholding.

(1) Handholding a camera for television is no different than for any other type of filming. The camera must be rock steady. It is not easy to do. Any type of support that can be used to help in supporting your camera should be used. The body brace or shoulder pod is probably your best choice when a tripod cannot be used.

(2) Even when using a body brace or shoulder pod, you should use your body as a steady support. Make sure the weight of the camera is distributed evenly on both legs. Keep your feet apart and do not twist your body without moving your feet.

(3) When you are handholding a camera, many things must be considered -- proper exposure, framing, camera steadiness, and the weight of the camera. For these reasons you may forget about safe action area. Whenever filming for television, you must frame within the safe action area. If not, your picture will spill out and be lost on the sides of the TV screen.

Learning Event 4:  
AERIAL TECHNIQUES

1. Motion picture aerial documentation photography is accomplished by Army cameramen normally flying in helicopters. Some work can be done in fixed wing aircraft. Any documentation of ground subjects is best accomplished in a helicopter. Most Army fixed wing aircraft are "low wing" and therefore unsuitable for filming ground subjects. Almost all Air Force transport aircraft are suitable due to the large doors which give an unhampered view of the ground.

2. Army aerial photography is not a substitute for Air Force high altitude reconnaissance or Army tactical and intelligence imaging such as that done by the OV-10 Mohawk aircraft. Visual information documentation from the air is interested primarily in spot imagery of selected targets from very low altitudes.

3. Aerial cinematography.

a. Pilot authority and responsibility. The pilot is the aircraft commander. He is responsible for the mission and crew. The success of the mission is of prime importance, but in no instance will the safety of the aircraft or crew be jeopardized for the sake of a film. The pilot is responsible for the issuance of instructions governing all phases of flight operation. In addition to his regular function, the pilot performs the necessary mission preparation as follows:

(1) Attends general briefings.

(2) Coordinates with other crewmembers on route, charts, targets, and items pertinent to individual crew procedures. He also supervises the completion of required forms.

(3) Attends specialized briefings for the mission.

(4) Compiles latest information relative to flight and briefs the crew.

(5) Conducts a specialized crew and emergency procedures briefings.

b. Cameraman's responsibility. As an aerial cameraman, your prime responsibility is obtaining the mission photography, you are nevertheless a member of an aircraft crew. As a crewmember, you must be familiar with crew coordination, bailout procedures, crew safety procedures, and, if the need should arise, survival procedures. The specifics of these procedures will be given to you by the aircraft commander.

(1) Remember, the pilot is the aircraft commander. He is responsible for the aircraft. However, you are responsible for obtaining the photographs. In order to accomplish this, you must let the pilot know exactly what you need. This includes, but is not limited to, the following:

(a) Altitude desired.

(b) Direction of approach.

(c) Direction of circling target.

(d) Attitude of aircraft.

(2) Keep in mind that there may be operational reasons that the pilot cannot comply with your request. Again, remember that the pilot is the commander of the aircraft and crew.

c. Safety. While flying in an aircraft, there are a number of things that you must be aware of.

(1) Keep all film, filters, and other equipment not being used in your pocket or other such place where it will not fly around in the aircraft.

(2) Do not set your camera down at any time. Keep control of it or it may fall out of the aircraft or hit some part, or control, of the aircraft causing damage to the aircraft.

(3) Do not carry any unnecessary articles of clothing or possessions. They are just more items you will have to control.

(4) Do not smoke while flying. A burning cigarette in your lap or ashes in your camera could terminate the mission.

#### 4. Camera techniques and controls.

a. In aerial motion picture photography, three things that differ from ground photography are; choice of focal length, frames per second (fps), and shutter opening (with adjustable shutter). To some extent, the lens size is governed by aircraft altitude and the size of the image you want. The normal lens is usually suitable.

b. When shooting from a moving platform, you should use a faster shutter speed. Usually 32 to 64 fps is best. The lower the altitude or the longer the focal length lens used, the faster the shutter speed selected. Also, the faster the platform is moving, the faster the shutter speed should be. If you are filming another aircraft (air-to-air filming), or are on the ground filming an aircraft (ground-to-air filming), the normal 24 fps can be used. This does not mean that faster fps cannot be used; only that normally it is not necessary.

c. A problem you will encounter while flying in any aircraft is vibration. If you have ever filmed scenes from a moving vehicle, such as an automobile or train, you realize that vibrational motion exists. All aircraft, especially helicopters, have comparable vibrations. One of the basic rules for aerial photography is: "Make sure that the camera is well insulated from aircraft vibration."

d. When using small handheld cameras, hold them in such a way that your body insulates the camera from the aircraft. Do not allow the camera to touch the aircraft. This will transmit any vibrations to the camera.

e. It is important to remember that when shooting from a moving platform, i.e., airplane or helicopter, that the camera is moving as fast as the platform. As a result, you must not use a small-angle shutter opening if your camera has an adjustable shutter. The degree of shutter opening (DSO) must be at least  $100^\circ$  or more. A small DSO will give you choppy footage. This is due to the fact that the shutter is closed most of the time. As a result, the camera has moved (in relation to the ground) a great distance. If you keep your DSO greater than  $100^\circ$ , there will be no problem.

#### 5. Exposure.

a. Exposure control is no different than when shooting on the ground. The use of an exposure meter is suggested. A word of caution: DO NOT take a reading that includes the sky. This is a problem encountered by all cameramen when first shooting from the air. Make sure your meter is aimed toward the ground. You may also use a gray card. Make sure the sunlight (if any) is falling on the card.

b. When setting your exposure, make sure you compensate for any change in DSO, shutter speed, and filter. The cost of sending a cameraman on an aerial mission is high. You must plan and adjust your camera with great care.



## 6. Lenses.

a. In most cases, you will be using a normal lens. On occasion it may be required that you use a long focal length lens. If this is necessary, you must take certain precautions. As you know, it is more difficult to hold a long lens steady. Add this to the fact that an aerial platform is very unstable and you have the makings of the most unsteady and shaky footage you will ever see.

b. If it becomes necessary to use a long focal length lens, then the following steps should be taken to keep the footage as steady as possible.

(1) Use a fast shutter speed (64 fps or faster).

(2) Ask the pilot to try and maintain a slow and vibrationless attitude.

(3) Hold the camera as steady as possible and touch the aircraft with as few points of your body as possible. Focus should always be set on infinity. To maintain this focus, tape the lens setting so it does not move.

## 7. Filters for black and white film.

a. One of the biggest problems the aerial cameraman has to contend with is haze. Aerial haze is the blue of the sky resulting from light reflected off the moisture in the air. At short distances, the amount of haze is too small to have any effect on film; at long distances (which most aerial filming is), the haze may be too heavy to photograph through.

b. Whenever shooting aerials, always use a filter. The heavier the haze or the higher the altitude, the darker the filter must be. Up to 1000 feet (304.7m) use a No. 8 filter (K-2, yellow). From 1000 feet (304.7m) up to 5000 feet (1523m) use a No. 15 filter (G, deep yellow). Above 5000 feet (1523m) use a No. 25 filter (A, red). In some cases, it may be necessary to use deeper filters than those recommended here. For the highest penetration of haze, the use of the infrared film and an infrared filter is recommended.

c. An important point to remember is that not all haze can be penetrated. Haze caused by fog, dust, smoke, or other solid (opaque) particles, cannot be penetrated by any combination of film and filter.

## 8. Filters for color film. When filming in color, it is not possible to use the same filters to cut through haze as recommended for black and white film. We can, however, use ultraviolet and polarized filters.

a. Aerial haze affects color film to an even greater degree than it does black and white film. In addition to fuzzy images, the film takes on a blue cast. Aerial filters, such as the 1A or UV 15, are used when daylight conditions cause an excess of blue to register in color film. Scenes filmed on hazy or cloudy days require the use of a haze filter. It is best to use this type of filter for all aerial shooting in color.

b. Polarized neutral gray filters can also be used with color films. This filter will darken a blue sky without affecting the color balance of the film. This filter is normally used to subdue or eliminate oblique reflections and glare from nonmetallic surfaces, thus increasing color saturation. Nevertheless, it is also used to reduce or partially clear distant haze. Remember that the polarizing filter requires a 4X (two-stop) increase in exposure.

9. Conversion filters.

a. Conversion filters are required whenever an emulsion balanced for tungsten illumination is used in daylight or an emulsion balanced for daylight is used with tungsten illumination.

b. Inferior color will result if daylight film is used with tungsten lighting, even with the recommended filter.

c. If top color balance is desired, select the film recommended for the light source and avoid the use of filters. If one film must be selected for both tungsten and daylight, use a tungsten film to photograph the scenes illuminated under tungsten light. Add a No. 85B filter when filming under daylight illumination.

10. Aerial color films.

a. There are numerous films that can be used for filming aerial footage. The film most commonly used in the military are listed in Table 1-2. Daylight color films are balanced at 5500°K.

FILM	D/T	BALANCED FOR	FILTER FOR DAYLIGHT
EKTACHROME COMMERCIAL 7252*	16/25	3200°K	85
EKTACHROME EF 7242*	80/125	3200°K	85B
EKTACHROME EF 7241*	160/	Daylight**	None

\* Reversal film.

\*\* 5500°-6000°K. (Daylight is the combination of sunlight, 5500°K, and skylight, which usually exceeds 6000°K.)

Table 1-2. Color balance of films

b. If tungsten film must be used, Ektachrome EF 7242 is a good selection. When used with a Kodak Wratten No. 85B filter, it gives excellent results under daylight conditions.

11. Types of aerial shots.

a. Horizontals. A horizontal shot is taken of such things as the side of a mountain, dam, bridge, or tall building.. It is best not to shoot at right angles to the line of flight. The apparently greater rate of travel will cause the subject to flash across the screen so rapidly that the audience will not clearly see the object filmed. This is similar to shooting fast-moving objects in ground photography (fig 1-6a). A shooting angle more in line with the line of flight will minimize this effect. Where possible, shoot at a 45-degree angle from the line of flight. Either forward or toward the rear of the aircraft is suitable. This will minimize choppy or jumpy film.

b. Verticals. Vertical motion pictures are almost never taken. However, if it is necessary to take a vertical photograph, the camera must be pointed straight down (fig 1-6b).

c. Obliques. There are two types of oblique photographs, low and high. Low obliques do not show the horizon. They are usually about 50 degrees from the vertical (fig 1-6c). High obliques show the horizon and are about 60 degrees from the vertical (fig 1-6d). These numbers are approximate and should not be considered binding. The best angle for motion pictures is a low oblique with the camera tilted about 45 degrees from the vertical.

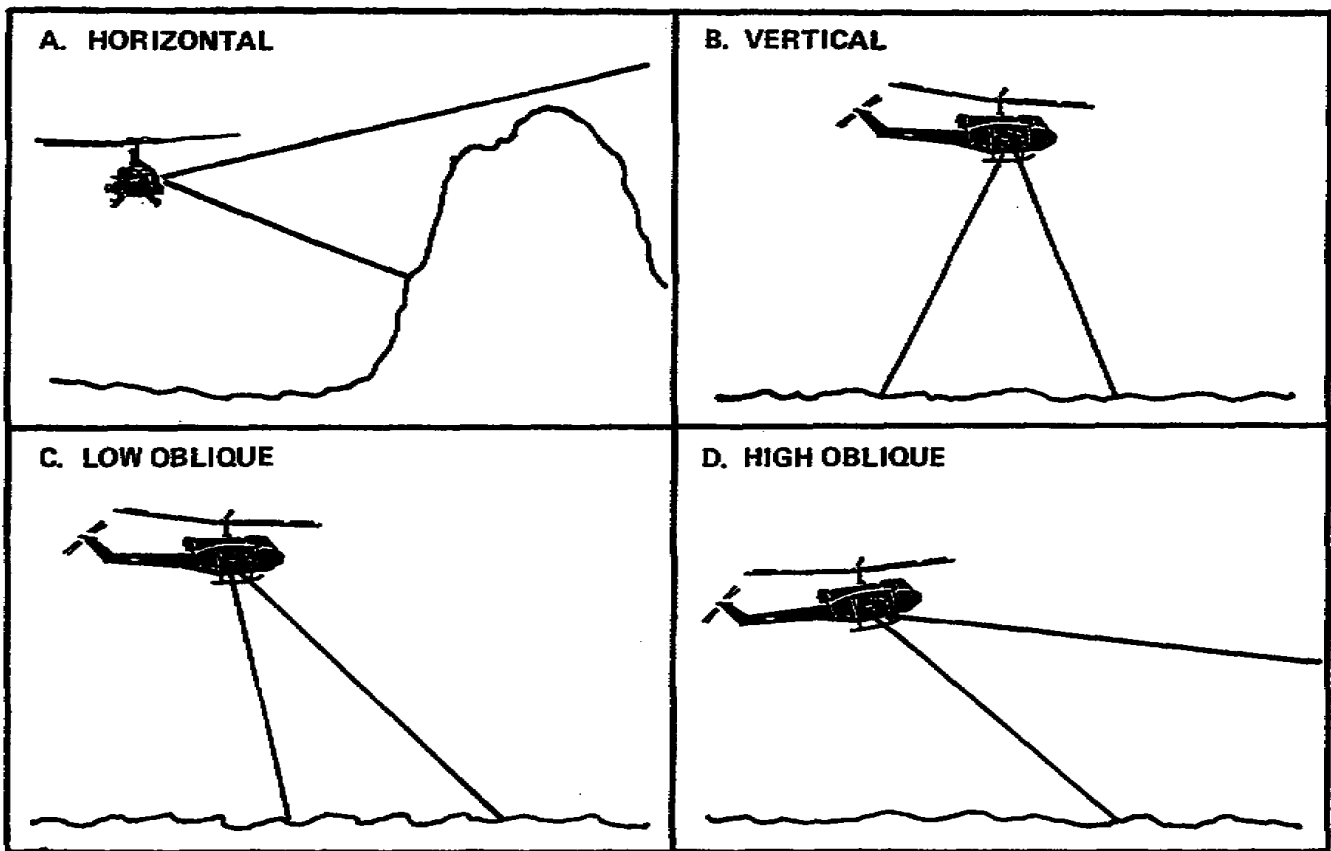


Figure 1-6. Aerial angles

d. Light direction. Cross lighting is the best type of lighting for aerial work. Shadows falling to the side of objects give contrast, depth, and visual measurement to the scene. A combination of middle oblique angle, 45° line-of-flight angle, and side or cross lighting will result in the best type of motion picture aerial scene coverage.

## 12. Framing.

a. The main subject should be centered in the frame. On occasions, a small portion of the aircraft (wing tip, strut, skid, etc) will add depth to the scene. However, this technique must not be overdone. Remember that the lens should remain focused on infinity.

b. When using a camera that does not have through-the-lens viewing, you must be careful not to have parts of the plane in the lens viewing area. Watch out for window edges, air ports, and curved glass. When shooting through glass windows and doors (plexiglass), keep the lens as close to the glass as possible to minimize distortion. Whenever possible, open the window or door before filming.

## 13. Using basic sequences.

a. Just as in ground photography, so also in aerial photography it the basic sequence used. The long shot (LS), medium shot (MS), and closeup (CU) are used to show the target. Your establishing shot can be made as you approach the target. LS, MS, and CU may be made at various altitudes as the aircraft circles the target.

b. As an example, the LS can be made at 1500 feet (457m), and the MS at 1000 feet (304.7m), and the CU at 500 feet (152.3m). Altitudes will, of course, vary depending on the situation. Shooting as the aircraft circles the target will furnish the requisite changes of angles.

c. When shooting a target, especially from a low altitude, keep in mind the direction of the sun. Avoid having the sun behind the target. This will avoid the flare caused by the sun shining directly into the lens.

## Learning Event 5: SHOOTING UNDER STRESS

1. Photography is photography under any circumstances. The only thing that changes is the location and conditions under which you must film.

a. When you are given a script and told to shoot a story, you are usually not rushed. However, when you are shooting a COMDOC subject in wartime or peacetime, the action is fast and furious. There usually is no time for advance planning. All your thinking must be done on the run and immediately. You cannot ask the subject to "hold it" while you reshoot the scene. You get one chance and one chance only. This type of situation separates the amateur from the professional.

b. If you have mastered the technique of proper exposure, focus, and framing, then you can do these almost automatically. This leaves you free to think about the next shot. You must plan ahead. You must ask yourself, where will the action move to from here? Good cameramen seem to have a sixth sense about these things. Have you heard the term "being at the right place at the right time"? It always seems that the great cameramen are there and at the right time.

c. In order to overcome the stress of shooting under a time limit, and the violence at the battlefield, it is necessary to be a master of the basics of cinematography. Proper exposure, sharp focus, and correct framing are the basics. If these can be done automatically, then you are free to concentrate on the action at hand. The first time you have to stop to think about exposure, focus, or framing, is the time you will miss the most important action.

d. If you must think about what your f/stop should be for a certain shot, or what lens to use, then you cannot concentrate on your filming. A good cameraman is so proficient that he does the mechanical portions of his job automatically. This leaves him free to be both creative and news conscious.

## 2. Holding the camera.

a. We have stressed that you should use a tripod whenever possible in motion picture photography. However, if you are shooting a sequence from halfway up the mast of a radio antenna, or from over the railing of a bridge, a tripod may be a handicap rather than a help. Also, working on the ground among crowds at a parade might require you to handhold the camera. There is also a possibility that on some occasion, when you could use a tripod, you may not have one with you. You can probably imagine many more instances when you will have to hold the camera to cover the action and you should be able to do it well. To become proficient, you should practice.

b. The technique for COMDOC handheld operation is basically the same for all cameras. Size and weight are the main differences between them. Generally, sound equipment is too heavy for handheld operation. This is not to say that sound cameras cannot ever be used in this manner because there is always an exception to the rule. If it means getting or not getting the shot, you will probably find some way to support even the heaviest of cameras. Our discussion here, however, applies only to practical use of handheld cameras.

c. Success or failure in handheld camera operation depends primarily on the proper stance.

(1) First, you must stand with your feet about 18 inches (45.72 cm) apart for good support and to help prevent body sway.

(2) Next, hold the camera with both hands and use any aids, such as leather straps, etc, that the manufacturer may provide on the camera. Many cameras are made to rest naturally against your forehead as you look through the viewfinder, thus providing another point of support.

(3) Finally, pull in your elbows and, if you can, press them firmly against your sides while filming the scene.

d. Practice the proper stance while holding a camera and see just how steady you can be. It will also help if you can hold your breath while shooting -- provided the scene isn't too long. This eliminates the rise and fall of your chest. And when you assume the stance, try to relax. Being tense can actually cause your muscles to jerk and vibrate, producing the very movement you are trying to eliminate.

e. Another technique vital to good handheld scenes is the ability to shoot a smooth pan or follow shot. The method is to hold the camera the same way you would for any other handheld shot, except that in this case you face your body toward the direction in which the action will be going as you finish the scene. Then, keep your feet in place but turn your body towards the subject. This is much like winding a spring but you wind your body instead. Start filming the subject as it approaches and turn your body as the pan is taking place. As the object is passing by, your body gradually unwinds and you are in a comfortable position as the scene ends.

f. A good point to remember in handholding any camera is to take advantage of any stationary support you can find available. A telephone pole, tree, truck hood, or even another person will assist in steadying your camera. The main thing to remember is that whenever possible, use a tripod. However, when this is impossible, then use anything you can to support your camera. It is very difficult to handhold a camera properly. Any help you can get in the way of a support should be used.

3. Body braces. There are a number of items available to assist you in handholding a camera. These supports attach to the tripod socket of a camera. Most have a half circle brace that fits over your shoulder. Another extension rests on the abdomen. This distributes the weight of the camera over a large part of your body. Another type is similar to a rifle stock with an open half circle that fits around the shoulder. The main purpose of the brace is to relieve your arms of the weight of the camera, making it easier to handhold a camera.

4. Shoulder pods. Almost all newer motion picture and television cameras have shoulder pods and are designed to be placed on the shoulder. This makes carrying and holding very simple. The camera is placed on your shoulder and one hand supports the camera body or lens enclosure. The other hand is free to focus or make other adjustments.

a. You must be aware of dangerous terrain or equipment at your filming location. You could fall over obstacles in your path, or back into a moving truck, tank, or other machinery. All cinematographers must always be aware of their location in relation to the surroundings.

5. Shooting under stress is an everyday occurrence for most cinematographers. It can be overcome if you understand what causes it. For the most part, it is the fear of not getting the shot. Everyone is scared on the battlefield. If you are a master of your craft, you will have one less thing to be scared of. Remember that shooting under tactical conditions still requires all the same camera techniques used when shooting a production in the studio.

LESSON 1  
PRACTICE EXERCISE

1. What must you NOT do while performing aerial documentation?
  - a. Hold your camera tightly
  - b. Stand up in the aircraft
  - c. Smoke
  - d. Talk
  
2. You are documenting a subject from a helicopter. What can you do to add depth to the scene?
  - a. Use a wide-angle lens
  - b. Use a telephoto lens
  - c. Show part of the aircraft
  - d. Shoot from various altitudes
  
3. You are filming an aerial mission. What frames-per-second should you use?
  - a. 8
  - b. 16
  - c. 24
  - d. 32
  
4. What must be included in a documentation film used for intelligence purposes?
  - a. Dated slate
  - b. Exposure
  - c. A scale
  - d. Name of intelligence unit
  
5. You are documenting a subject that you know will be on television. What is the maximum contrast ratio you should use in the scenes?
  - a. 2 to 1
  - b. 5 to 1
  - c. 10 to 1
  - d. 20 to 1



LESSON 2  
PERFORM TEAM COVERAGE

TASK

Describe the various methods of conducting team coverage.

CONDITIONS

Given information and diagrams about team coverage.

STANDARDS

Demonstrate competency of the task skills and knowledge by correctly responding to 80 percent of the multiple-choice test covering team coverage.

REFERENCES

FM 11-40

Learning Event 1:  
TYPES OF COVERAGE

1. Coverage of some types of missions requires more than one cameramen. However, the fact that you have a group of cameramen on a mission does not guarantee that the mission will be covered properly. There are many reasons for missing footage even when more than one cameraman is working. Winding the camera, refocusing, setting the f/stop, changing the camera viewpoint, loading or unloading, and any number of unpredictable events could keep you from filming all the action. Team coverage is two or more cooperating cameramen in a coordinated effort to cover one mission. It is important that each cameraman cooperate. If not, they may both be loading cameras at the same time. When this happens, footage is lost.

2. Types of coverage.

a. Semipermanent. In this type of coverage, you will have one or more fixed and one or more mobile cameras. This type of coverage is suitable for missions where most of the action will pass or occur at a known point. A parade is one example. The fixed camera(s) is placed in such a manner that the main action can be observed, Long shots (LS) and medium shots (MS), and in some cases closeups (CU), can be obtained by use of different focal length lenses or a varifocal lens. One or more mobile cameras are used for the cut-ins (CI) and cutaways (CA). The mobile cameras can also provide the varying angles necessary for an interesting film.

b. Leapfrog. This method uses two cameramen alternating in getting into position. While one camera is running, the other is moving into position. When the second camera starts running, the first stops and the cameraman "leapfrogs" the second cameraman and gets into position. This type of coverage is useful when covering "key" action. An example would be a VIP tour where each stop must be covered.

c. Constant shooting. Constant shooting coverage is a technique used when the entire action from start to finish must be covered. To accomplish this, you must have two cameras and two cameramen. The first cameraman starts shooting just before the action starts and continues shooting until he runs out of film. Approximately one minute before the first cameraman runs out of film, the second cameraman starts filming the action with the second camera. He continues filming until he runs out of film. In the meantime, the first cameraman has reloaded his camera and again starts filming just before the second camera runs out of film. This procedure is followed until the required action is completely filmed. An example of this would be a very important person (VIP) making a speech that lasts 40 minutes and the maximum film load for your cameras are 400 feet (121.02m). To film the entire speech without any breaks, each cameraman would reload his camera one time. On this type of coverage an additional cameraman is normally used to shoot cut-ins and cut-aways of crowd reaction which the editor can use to make the film more interesting.

d. Sectional. Each cameraman is assigned a specific part of an action as his mission. An example would be a race. One cameraman covers the start, one the turns, and one the pits. More than one race or event can be covered in this manner.

### 3. Coordination of effort.

a. The first step in coordination is proper preparation. All members of a team must be aware of what the mission is and what kind and method of coverage is desired.

b. Coordination is necessary to obtain proper overlap, avoid duplication of effort, keep out of each other's field of view, obtain sufficient variety of scenes and angles, and most important, maintain screen direction.

### 4. Aggressive methods.

a. When we say, use aggressive methods to obtain coverage, we don't mean swing a heavy bat and clear a path to your assignment. What we mean is that you cannot be timid. You may have to film a subject in the rain. You should do all you can to keep your camera dry but it does not mean to not get your feet wet. Cameramen by the very nature of their work must get wet, cold, come close to heat stroke and get into some very scary situations.

b. We do not say that you should risk your life every time you go out on a mission. Cameramen should take advantage of every safety device and precaution that is available. However, you may have to elbow your way past a group of 6-foot-4, 250-pound cameramen that are trying to get the

same picture you are. A cameraman has to have a certain amount of aggressiveness in order to accomplish the mission. This does not mean that you have to be obnoxious.

c. You may be filming a sequence that calls for the subject to do a task that he does not feel like doing at that time. In order to control the action according to your shooting outline, you are going to have to convince that person that the task must be done. Again you must be aggressive but not obnoxious.

Learning Event 2:  
TEAM FILMING

1. Before a team of cameramen can go out and film an FTX, or the real thing, they must have a plan for shooting. Human nature being what it is, every team member wants to get that great shot. Team coverage does not work this way. The very title "team coverage" gives you an idea of what is required. Let's set up a scenario for team coverage.

a. The mission calls for four cameramen to cover a brigade in the attack during an FTX. The attack will include artillery, tanks, and mechanized infantry.

b. Your team leader assigns one person to initially cover the artillery, one the tanks, and two the infantry. After the battle starts, each person will have another subject to cover.

(1) The person covering the artillery will want to get shots of the movement, sitting, laying of the guns, preparing ammunition, and the fire direction center, as well as the actual firing of the guns. After this is covered, and there are no new artillery subjects to cover, this cameraman can be sent to cover other rear area action. This could be medical, mess, supply, repair, maintenance, or other Combat Support (CS) and Combat Service Support (CSS) activities.

(2) The person covering the tank action would obtain the same type of scenes of the tanks as the artillery cameraman. This includes but is not limited to; uploading equipment, assembly, moving out, convoy, moving into positions, actual firing, and maneuver. As time and the situation permits, this cameraman can then cover resupply, medical, maintenance, and various other functions.

(3) The cameramen with the infantry will cover the same types of scenes as above, plus tactical operations center (TOC) activities. After the initial coverage is complete, rear area coverage may be covered.

c. At this point the team members can be moved to any location that requires coverage. The main thing to remember is that the team should not duplicate its coverage unless it is required for specific coverage.

The team leader will provide you with guidance to reassemble at some point during the battle to adjust the coverage as necessary.

2. As a team member you must plan your shooting so as not to miss an important event and also not to saturate one subject with coverage.

3. Planning coverage. There is a saying that two minutes after the battle begins, all the plans can be thrown away and new ones made. This may be true, however, if there is no plan to begin with, how can you change it? Planning is an important requirement to visual information coverage. When you are working as a team, it is even more important.

a. Your team chief will provide the overall plan of action; location, time to report, if you will be in a separate location from each other, or together with a specific unit. Planning and coordination is more important if the team will remain with one unit. In this case you do not want to "trip" over each other getting the coverage.

b. When a small unit or area is to be filmed, each cameraman must have an assigned spot to work from. If you are assigned to film one squad or fire team, then stay with that unit and do not leave it. Your team chief may want to move you at a later time and he must be able to find you.

c. Communications are a problem on the battlefield. You will most likely not have any radio communications with the team leader. You will not be able to use the unit radio as it will be needed for tactical purposes. If you are in a rear area, and the battle is not around you, a radio or telephone may be available. Your team chief or detachment commander will make arrangements for communications when required.

4. Part of all planning is equipment. When you go into a tactical situation, you must be completely equipped both to survive and to obtain footage.

a. As a cameraman and as part of a team, you must arrive at the unit you are covering with everything you need. This includes:

(1) Camera equipment, film, charged batteries, filters, and spares (the spares being batteries, filters and film).

(2) You must also make sure you have your complete TA 50 equipment. You cannot expect to have the unit you are covering supply you with a helmet, canteen or weapon. You must make sure you have all the things necessary to survive.

(3) Visual information doctrine calls for all cinematographers to also carry a basic load into a tactical situation. This includes: rations, ammunition, and fuel for vehicles. If you will be assigned to a unit for an extended period of time, the unit you are attached to will provide resupply for food, water, and fuel.

(4) Make sure your equipment, photographic and military, is properly maintained. Keep your camera clean and all batteries fully charged at all times. Do not wait until "tomorrow" to perform maintenance.

b. Never arrive at a unit asking for help or support. You must be self-sufficient when you arrive. No well-trained unit will accept you into their "territory" if you appear untrained, ill-equipped, or out of place. You must appear professional when arriving at a unit. Training and practice will provide this professionalism. Remember, you are a soldier first and a cameraman second.

5. Proper preparation, coordination of effort, and good maintenance of your equipment are musts for any cameraman. When team coverage is concerned, it is even more important.

LESSON 2  
PRACTICE EXERCISE

1. You are filming a parade, what type of coverage is recommended?
  - a. Close-up and cutaways
  - b. Cut-ins and cutaway
  - c. Semipermanent coverage
  - d. Follow the main action
  
2. When using semipermanent coverage, how can a long, medium, and close-up shot be obtained?
  - a. By using a mobile camera
  - b. By using a field camera
  - c. By refocusing the camera
  - d. By use of different focal length lenses
  
3. What type of coverage is best for shooting key action?
  - a. Sectional
  - b. Constant shoot
  - c. Leapfrogging
  - d. Aggressive methods
  
4. You are using two motion picture cameras. How many times do you have to reload each camera to film a 40-minute speech with a 400-foot film magazine?
  - a. Once
  - b. Two times
  - c. Three times
  - d. One magazine is enough

LESSON 3  
PREPARE MOTION PICTURE SLATES AND CAPTIONS

TASK

Describe various types of slates and captions.

CONDITIONS

Given information and diagrams about slates and captions.

STANDARDS

Demonstrate competency of the task skills and knowledge by correctly responding to 80 percent of the multiple-choice test covering slates and captions.

REFERENCES

AR 25-1  
DA Pam 25-91  
FM 11-40  
FM 11-82

Learning Event 1:  
DOCUMENTATION SLATES

1. Motion picture slates are a very important part of filming. The slate used to identify motion picture scenes may take any one of several forms. In emergencies, cameramen on news assignments have written scene identification on a scrap of paper and photographed it before shooting the scene. In most instances, however, the slates used are more formal. They may be made up to show whatever information is considered necessary, such as the title or project number of the film, the name of the cameraman, and the number of the scene and the take. Some slates also identify the camera, the lens used, and the exposure. The date and even the time of day are sometimes shown. If you are part of a large organization employing a number of crews, the unit number or the name of the director or supervisor of the crew might be included. In short, the slate should contain all the information required for proper identification of a scene.

a. In all cases the following information should be included: name of cameraman, visual information facility or unit, subject, date of exposure, locations, film roll number, special symbols or markings, project number, if applicable, and camera and its identification number, if applicable.

b. The slate may actually be a plain piece of slate with the data lettered on it in white chalk. It may also be ruled into blocks in which essential information is inserted. For shooting sound sequences, the slate includes a clap stick which is closed sharply at the end of the filming of the slate. For shooting silent sequences, a simple slate is all that is needed.

c. When using a slate, place it in front of the camera and run off approximately 5 feet (1.52m). Remember that you must focus on the slate. Usually the focusing distance can be estimated but if you are in doubt, measure the distance to the slate, and then set the focus. The slate should be photographed so that it fills the complete frame. If the slate is too far away from the lens, the lettering will be so small that the editor will have difficulty in reading it. Then, after photographing the slate, don't forget to refocus on the scene to be photographed.

d. A typical slate is shown in Figure 3-1. This slate is a good field slate for documentation work. It is a combination information slate and color control patch. This slate is valuable to the film processing laboratory to determine color balance.

e. When you are photographing from a script, slate each scene. If you are filming without a script, use a slate only at the beginning of the roll. If, for any reason, you don't have time to photograph the slate at the beginning of roll, photograph it at the end of the roll. This is known as "end slating."

f. All documentation footage must have a slate. This applies to both film and television. Many TV cameramen will only "audio slate," that is, record the slate over the microphone. This provides no visual slate. If for any reason the sound is lost, the slate is lost. Always use a slate which is visible on the screen. Figure 3-2 shows a typical sound slate as used in motion picture filming. This type of slate is only required for double system sound.

2. Although you, the cameraman, do not derive any particular value from the slate, the film editor will be hampered, if not completely lost, when slates are not used. This is particularly true when your scenes are not shot in the same order as written in the script. In the field under tactical conditions, the slate is just as important except for different reasons. A roll of motion picture film or TV tape with no slate may very well be worthless to the commander. If he doesn't know what the roll relates to, he cannot make a decision. Always slate your film or TV tape.



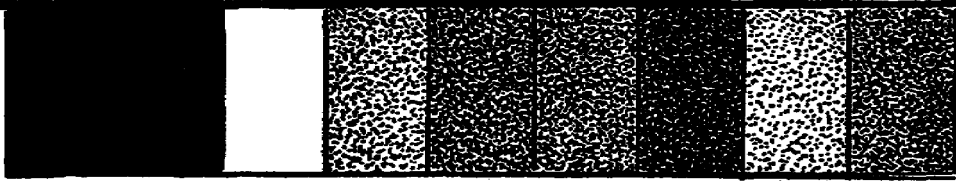
GRAY SCALE										SERIES
<b>C</b> Red-Filter Negative Cyan Printer	<b>M</b> Green-Filter Negative Magenta Printer					<b>Y</b> Blue-Filter Negative Yellow Printer				
.00	.10	.20	.30	.50	.70	1.00	1.30	1.60	1.90	
VI UNIT			PROJECT NUMBER			DATE				
69th VI CO			SPX-129-87			3/4/87				
CAMERAMAN			CAMERA & NO.			FILM TYPE				
WALLER			A'FLEX-14			EMS-7256				
SUBJECT:		OPERATION "SHOE BOX"					ROLL NO.			
LOCATION:		W. BERLIN, W. GERMANY					8			
										
black	3-color	white	cyan	violet	magenta	primary red	yellow	green		
<b>COLOR CONTROL PATCHES</b> <small>These colors have been selected as representative of those inks commonly used in photomechanical reproduction</small>										

Figure 3-1. Typical slate



Figure 3-2. Sound slate

Learning Event 2:  
CAPTIONS FOR DOCUMENTATION

1. Captions are as important to film and television documentation as good exposure. Keep in mind that when you are in the field, you may not see your footage until it is in a completed production. For this reason, both your photographer's captions and motion picture captions must be complete and contain all the information necessary to allow the laboratory to assemble your film into a complete story.

a. Without captions, your footage or tape cannot be used. Consider the following: production laboratory may service many cameramen that are scattered all over a continent. On any given day the laboratory could receive footage from each cameraman. This film, after processing, is viewed and prepared for use in various news, documentary, or training films. While viewing the films the captions are read to get some idea what is happening and where. Suddenly a sequence of 200 feet (60.96 meters) is viewed and there are no captions. This film cannot be used.

b. Films without captions are worthless. Never submit a roll of film without a complete caption. Every caption must have the basic information necessary for identification. In addition to your name, unit, date, and subject, the summary should include the who, what, where, why, when and how.

c. Information may be lumped together in an essay-type description of the coverage or broken into outline form with individual subheadings, as shown below. Either method is acceptable as long as all pertinent items are included.

(1) Who. Give names of persons prominently shown in your film. When a group is shown, such as a team, squad, platoon, etc, captions need not include each person. Just identify the group and perhaps single out the leader for listing by name, hometown, etc. Be sure to have correct spelling. If in the military, include hometown and occupational specialty as well as a brief summary of subject's background. Be sure to include any noteworthy happening in the life of your subject(s).

(2) What. You must identify and provide pertinent nomenclature and facts concerning equipment, machinery, materials, structures, bridges, installations, and prominent landmarks or other terrain features. These items are captioned whether they are part of the main action or just incidentally appear in the background of your scenes.

(3) Where. Give the location of your story or assignment. If the location is a prominent or well-known place, just name the town or city and the state or country in which it is located. If the location is not well known, be more specific. Give the name of the town and its approximate distance and direction from one or two well-known cities, or from any prominent terrain features or landmark.

(4) Why. In many captions the "why" may not exist. Why pertains primarily to particular operational procedures in which an explanation of why this thing is being done in this particular way is a vital part of the story being told.

(5) When. The date is already given in the caption heading, but here you may add the time of day. Include time belt or whether standard or daylight saving time. The time may be particularly important on aerial coverage and in some types of intelligence coverage.

(6) Show. This item also may not apply in some film stories. However, if a film story is supposed to show how something is made or how some process is done, then it would be advisable to supplement the footage with a step-by-step description of how the entire operation, or any specifically vague portion of the operation, is accomplished. This is particularly important when the film scenes, in themselves, do not fully explain the "how."

d. If your captions are handwritten, be sure to print all names, whether persons, cities, or towns. Additional material such as maps, freehand sketches, bulletins, brochures, etc, may be attached to your captions.

2. The motion picture photographer makes notes on a photographer's caption book (Form 3315, fig 3-3) at the time the film is exposed. These captions are cross-referenced to external marks on rolls of exposed film.

Later, the photographer prepares a motion picture caption (DD Form 2537 fig 3-4 front, and fig 3-5 back.) Motion media caption sheets must be filled out as completely as possible, because they serve as the source of information for the commentary that is usually written at a later time.

a. The final caption will be made in five copies based on field caption data. The original and two copies of the DD Form 2537 are shipped in the TV/film canister, or with the media material package. One copy remains at the camera person's unit, and one copy is sent to the higher headquarters of the unit that performed the shooting.

b. The heading of DD Form 2537 is self-explanatory. The classification assigned at the office of origin will be placed in the block "Original Security Classification." If it is unclassified, it is so stated. In blocks of the heading that do not apply, enter "NA."

c. Block 14, VIRIN, must have the unit's Defense Visual Information Activity Number (DVIAN), then the type of media work performed, and the year, then other information as determined by the local activity. For example, SPC Woodrow W. Wilson shot a Video Tape Original (VTO) for the 332nd time in 1989. The VIRIN block would contain the following data: A2306 (DVIAN NUMBER)-VTO-89-WW(HIS INITIALS)-322-U.

### 3. Motion picture caption preparation.

a. DA Pam 25-91, Visual Information Procedures, is the guiding document concerning captions. It says that motion pictures will be captioned as follows:

(1) DD Form 2537 (Visual Information Caption Sheet) will be used for the final caption. (Figures 3-4 and 3-5 are illustrations of the front and back of the new DD Form 2537.)

(2) The heading of DD Form 2537 is self-explanatory. "NA" will be entered in blocks of the heading that do not apply.

(3) Put the summary or master caption data in block 15 (Fig 3-4).

(4) A complete description will be given for each roll of film/recording. The rolls will be numbered sequentially. All persons, locations, organizations, weapons, and equipment will be fully identified.

(5) Enter reel time and scene description in block 19 (Fig 3-5).

#### b. Master caption of summary.

(1) When filming a story that consists of more than one roll of film, you will find it necessary to write a cover story. This is where your background material comes into play. The cover story is in addition to the

individual roll captions. The cover story is a narrative which describes the locate, subject, and overall object of the film. It is sometimes called a master caption. You may film a sequence covering a large area or installation over a period of two or more days. It is not practical to repeat the same basic information in all your roll captions.

(2) A cover story is written to explain the overall mission. It includes a description of the filming area or organization. It contains names of commanders, a description of the mission of the unit, if applicable, and any pertinent information that will be repeated in individual captions. The cover story gives an overall picture of the story being filmed. The individual roll captions can concentrate on the details of that particular roll. The summary of Army captions, if written in sufficient detail, is a cover story.

4. The following is a list of the media type abbreviations used in the VIRIN section (block 14), such as "VTO" as used in the product identifying sequence: A2306-VTO-89-WW322-U.

- ARD - audio record disc
- ATC - audio tape cassette
- ATR - audio tape reel
- BDA - board art
- CDA - compact disc audio
- CDV - compact disc video
- IVD - interactive video disc
- LVD - linear video disc
- MCN - motion picture negative, color
- MCP - motion picture positive, color
- MGM - miscellaneous graphic media
- MPN - motion picture negative, B&W
- MPP - motion picture positive, B&W
- MMM - multimedia
- OTT - overhead transparency
- SCN - still photo negative, color
- SLT - slide/tape
- SPN - still photo negative, B&W
- SPT - still photo transparency
- SSS - slide set
- VSP - video still
- VTC - videotape cassette
- VTR - videotape reel

<b>PHOTOGRAPHER'S CAPTION</b> (AR 108-2)			<b>DATE AND TIME</b> 15 Dec 1988 1130 - 1415
<b>PHOTOGRAPHER'S NAME</b> Sgt. B. Brokers			<b>PHOTO UNIT</b> 22 nd V.I. Co.
<b>PURPOSE FOR COVERAGE</b> Army Information			<b>FILM TYPE</b> Ektar E.F. (Tung)
<b>PROJECT OR JOB NUMBER</b> SPX 88-83			<b>COMPLETE</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>LOCATION OF PHOTO COVERAGE</b> Bang-Phi, Vicinity Tailbar			
<b>SUBJECT</b> Convoy to Bang-Phi			
<b>ROLL</b>	<b>FEET</b>	<b>SCENE</b>	<b>DESCRIPTION OF EVENT</b>
<b>PACK</b>	<b>FRAME</b>		
1	1-10		SLATE
	10-20	1	LS Convoy rolling to Bang-Phi
	20-30	2	MS Leading Convoy Vehicle approaching road junction
	30-35	3	CU Truck wheels churning in mud
	35-45	4	CU Soldiers peering out of Vehicles
	45-55	5	LS MP directing traffic
	55-75	6	MS MP signals convoy to stop - walks over to lead vehicle.
	75-100	7	CU MP points to map shows convoy leader danger area

DA FORM 3315  
1 MAR 77

U.S. GOVERNMENT PRINTING OFFICE: 1979 O-889-114

Figure 3-3. DA Form 3315, Photographer's Caption

<b>VISUAL INFORMATION CAPTION SHEET</b>			
<i>(Read Instructions on reverse before completion)</i>			
<b>1. PROJECT/EXERCISE NAME OR NUMBER</b> SDP 89-12 EXERCISE WINSTON BASSETT 89		<b>2. PROJECT/EXERCISE LOCATION</b> Ft. Atterberry KS	
<b>3. DATE RECORDED (YYMMDD)</b> 890718-890725			
<b>4. CAMERAPERSON/PHOTOGRAPHER</b>			
<b>a. NAME (Last, First, Middle Initial)</b> Wilson, Woodrow W.		<b>b. RANK</b> SPC	<b>c. SERVICE NUMBER</b> 818-22-2996
<b>d. ORGANIZATION</b> USACPD Team B			
<b>5. REQUESTING ORGANIZATION</b> USAISC (DAIS-PSD-B) Ft. Huachuca, AZ 85613-5000		<b>6. MEDIA TYPE (X all that apply)</b>	
		<b>a. STILL PHOTOGRAPHY</b>	<b>d. MOTION FILM</b>
		<b>b. STILL VIDEO</b>	<b>e. MOTION VIDEO</b>
		<b>c. COMPUTER GRAPHICS</b>	<b>f. ARTWORK</b>
		<b>g. ANIMATION</b>	
		<b>h. OTHER/SPECIALIZED (Explain in item 19)</b>	
<b>7. ORIGINAL MEDIA (X all that apply)</b>		<b>8. FILM SIZE</b>	<b>9. FILM TYPE</b>
<b>a. STILL PHOTO</b>	<b>c. MOTION FILM</b>		
<b>b. STILL VIDEO</b>	<b>d. MOTION VIDEO</b>		
			<b>10. VIDEO RECORDING MEDIA</b> Betacam SP
<b>11. VIDEO PLAYBACK FORMAT (If not NTSC, specify)</b> NTSC		<b>12. ORIGINAL SECURITY CLASSIFICATION</b> UNCLASSIFIED	
<b>13. IMAGERY RECORD SENT</b>			
<b>a. NATURE (If not original, specify)</b> ORIGINAL		<b>b. IF ORIGINAL WAS NOT SENT, EXPLAIN WHY</b>	
<b>14. VIRIN NUMBER(S) (If not listed next to individual scene or photograph descriptions)</b> A2306-VTO-89-[WW322-U]			
<b>NOTE: REFER TO PARA 15b (1), (a), (b), (c), and (d) IN THE TRAINING INFORMATION OUTLINE, TASK 113- 577- 5007.</b>			
<b>15. DESCRIPTION OF PROJECT, EXERCISE, ACTIVITY OR EVENT BEING RECORDED</b> MASTER CAPTION: Alpha Company, 47th Engineer Battalion, prepares defensive tank positions for the 85th Armor Battalion during the delaying action portion of the exercise. The company used M9 Armored Combat Earthmover to dig a successive series of positions for M1 tanks in the area of Kiowa Valley.  SUMMARY: Exercise WINSTON BASSETT was a ten-day a division maneuver exercise conducted on the training areas of Fort Attaberry from 12-19 July 1989. All First Division maneuver and support units participate during the three phases of the exercise: defense, consolidation, and counterattack.			
<b>16. ORGANIZATIONAL UNIT SHOWN IN PROJECT, EXERCISE, ACTIVITY OR EVENT</b> Alpha Company, 47th Engineer Battalion, DISCOM.			
<b>17. MAJOR EQUIPMENT OR WEAPON SYSTEM SHOWN IN THE PROJECT, EXERCISE, ACTIVITY OR EVENT</b> M9 Armored Combat Earthmover (ACE)			
<b>18. NAMES OF KEY PERSONS SHOWN IN THE PROJECT, EXERCISE, ACTIVITY OR EVENT</b> PFC Mario Santiago, combat engineer, (Hometown: Evergreen, CO)			

DD Form 2537, MAR 89

442079

Figure 3-4. DD Form 2537, Visual Information Caption Sheet (Front)

<b>19. CAPTION DESCRIPTION OF PHOTOGRAPH(S) OR SCENE(S) (List who, what, when, where, why and how)</b> <b>Reel Time</b> 00:30:22 Slate. 00:30:45 LS Kiowa valley as three M9s move L to R toward the positions they will dig. 00:31:12 MS M9 moving L to R, 3/4 view, approaching camera. 00:31:30 MS M9, stopped, lowers the front blade. 00:31:46 MS M9 driver (PFC Santiago) operating controls. 00:32:10 CU front blade of M9 pushing dirt L to R. 00:32:43 MLS head-on shot as M9, blade down, pushes dirt toward camera. 00:33:02 CU head-on shot of driver operating controls. 00:33:30 RS M9 finishing nearly completed fighting position.		
<b>20. COPYRIGHT OR OTHER RIGHTS IDENTIFICATION (if applicable)</b>		
<b>INSTRUCTIONS</b>		
Items not listed are self-explanatory.		
<b>ITEM</b> 2 Enter the location where the photographs / film/ video described on this caption sheet were taken. 5 Enter the organization which requested the imagery. 6 Describe media being forwarded to VI Records Center by entering an "X" in the appropriate box or boxes. If 6.h is marked, explain in Item 19. 7 Describe medium in which imagery was originally recorded. 8 Enter specific film size, e.g. 16mm, 35mm, 4x5, etc. 9 Enter specific film type, e.g. Kodachrome 64, Ektachrome 200, Plus-X, etc. 10 Specify whether 1", 3/4", VHS, Betacam, M-II, 8mm, etc. 11 Specify if PAL, SECAM, HDTV, etc.	<b>ITEM</b> 13 If not original imagery, list specific type such as copy negative, duplicate negative, video dub, etc. 15 This is the cover story. Give a complete description of the project, exercise, activity, or event being recorded. Provide as much detail as possible. 16 Provide the unit designation and its home location. 17 Describe the major equipment items or weapon system shown. For example, if there is a photograph or video segment showing A-10s flying over M-1 tanks, enter "A-10 aircraft and M-1 tanks" in this item. 18 Include the full name, rank, and position of each person pictured unless all of the above information is included elsewhere on the form and it is indicated which descriptions apply to which scenes or photographs.	
<b>21. FOR USE BY RECORDS CENTER</b>		
a. RECORD ACCESSION DATE (YYMMDD)	b. PRESENT SECURITY CLASSIFICATION (if different from original)	c. FINDING AID KEYWORDS (Using revised DAVIS Thesaurus)

DD Form 2537 Reverse, MAR 89

Figure 3-5. DD Form 2537, Visual Information Caption Sheet (Back)



LESSON 3  
PRACTICE EXERCISE

1. What information below best represents a complete caption?
  - a. Name
  - b. Unit, date
  - c. Identifies equipment
  - d. Name, unit, date, subject, and summary
2. You have just finished the slate, what is important to remember?
  - a. To readjust your f/stop
  - b. To reset your counter
  - c. Refocus on the scene to be filmed
  - d. Measure the distance to the slate
3. What happens to the film when there's no caption provided?
  - a. Use in another film
  - b. The director will use it anyway
  - c. The caption is not that important
  - d. This film cannot be used
4. How much film should be exposed while filming the slate?
  - a. 2 feet
  - b. 3 feet
  - c. 5 feet
  - d. 6 feet

ANSWERS TO PRACTICE EXERCISES

Lesson 1

1.	c	LE 4	para 30 (4)	pg 15
2.	c	LE 4	para 12a	pg 20
3.	d	LE 4	para 4b	pg 16
4.	c	LE 2	para 3	pg 10
5.	d	LE 3	para 2a (2)	pg 12

Lesson 2

1.	c	LE 1	para 2a	pg 25
2.	d	LE 1	para 2a	pg 25
3.	c	LE 1	para 2b	pg 26
4.	a	LE 1	para 2c	pg 26

Lesson 3

1.	d	LE 2	para 1b	pg 32
2.	c	LE 1	para 1c	pg 32
3.	d	LE 2	para 1a	pg 31
4.	c	LE 1	para 1c	pg 32