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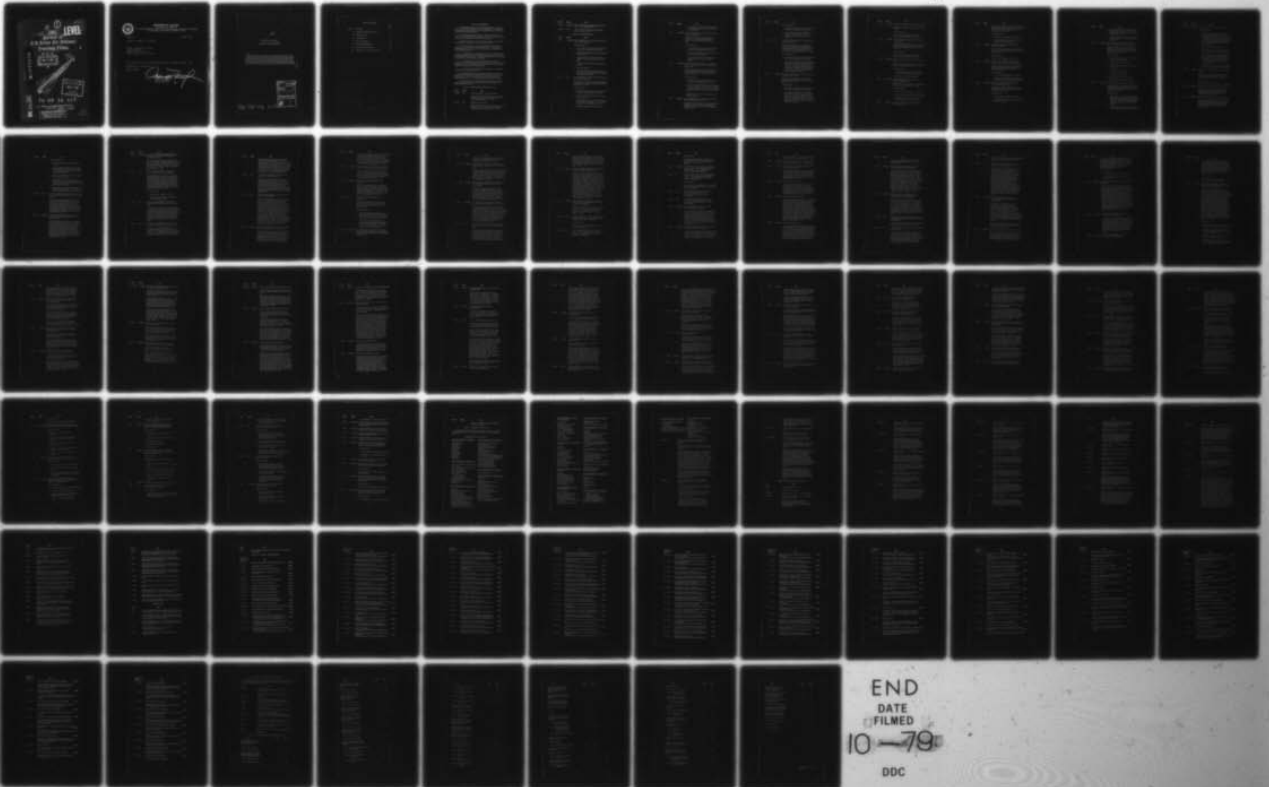
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REVIEW OF U.S. ARMY AIR DEFENSE TRAINING FILMS.(U)  
1961

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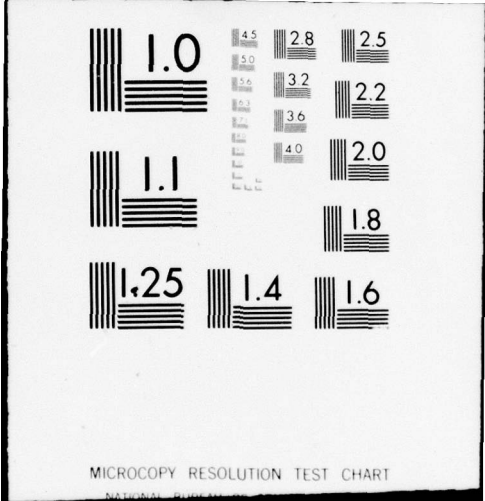
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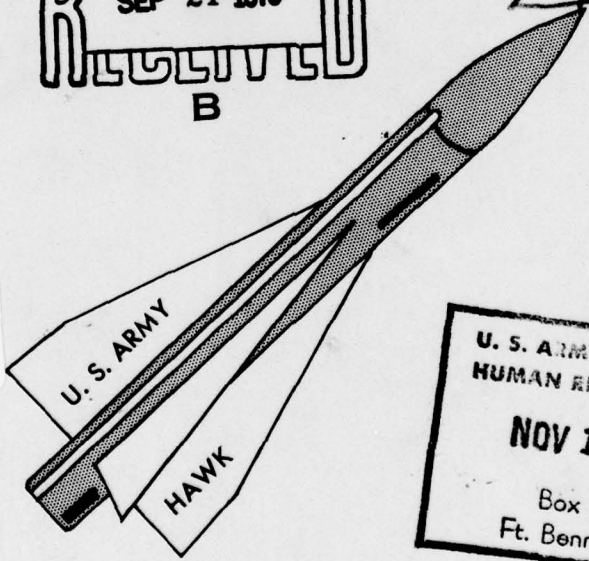
LEVEL II

# Review of U.S. Army Air Defense Training Films.

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FOR THE CHIEF:

A large, stylized handwritten signature in black ink, which appears to read "Alexander Nicolini".

ALEXANDER NICOLINI  
Major, Infantry  
R&D Coordinator

-A-

REVIEW OF AIR DEFENSE  
TRAINING FILMS AND FILMSTRIPS

↓  
A review of existing training films and filmstrips pertaining to air defense is made each year in order to assist in the formulation of a production program for new and revised films. This annual review also provides a valuable aid to instructors who use these films. Discrepancies in existing films are indicated, and a current rating is shown for each film. This review supersedes the booklet, <sup>WH</sup> 1960, Review of U. S. Army Air Defense Training Films, published by this School. ↗

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## Section I. INTRODUCTION

1. The following training films and filmstrips pertaining to air defense were reviewed and rated by the U. S. Army Air Defense School. This pamphlet lists air defense films available and provides supplementary information for the instructor who may show these films.
2. The training films and filmstrips were rated as excellent (80 to 100 percent correct), acceptable (60 to 80 percent correct), or poor (below 60 percent correct). Notes to instructor are included where applicable.
3. Films for which the U.S. Army Air Defense School is not responsible, but which may be of instructional value, are listed in section V.
4. Films rated as poor are not considered adequate for instructional purposes, and recommendations have been made to the U. S. Continental Army Command that films in this category be declared obsolete or withdrawn from active Army film libraries.
5.
  - a. All films listed in this catalog are for the use of training instructors, I&E leaders and other film users of the Regular Army and Reserve components in the Air Defense Training Program. Those films prefixed with an asterisk (\*) have been legally cleared for Public Relations Programs.
  - b. Care should be exercised in selecting films and filmstrips for exhibition to insure that they pertain to the proper material. Some training films and filmstrips rated as acceptable pertain to limited standard materiel and have little value for training on later model equipment.
  - c. All titles of films and filmstrips are unclassified. Classifications shown pertain to the contents of the film.
6. Personnel using these films are requested to submit constructive comments and recommendations that will assist in keeping the films and instructor's film references current. The remarks should be submitted to Nonresident Instruction Department, U.S. Army Air Defense School, Fort Bliss, Texas.
7. Further information concerning the status of air defense training films may be obtained by writing to the Nonresident Instruction Department or by telephoning Fort Bliss 2-0175.

## Section II. MISCELLANEOUS FILMS (Misc or MF)

<u>MF No.</u>	<u>Rating</u>	<u>Title</u>
20-7986	Poor	Aircraft Recognition - - Soviet Jet Aircraft.  Individual structural and performance characteristics of these Russian jet aircraft, the MIG-15, YAK-15 (modified), and MIG-9 (15 min -- 1953).
20-7991	Poor	Recognition of Jet Aircraft.  Depicting the salient structural features and performance characteristics of the F9F Panther, F2H Banshee, F3D Skynight, and F7U Cutlass (15 min -- 1953).

<u>MF No.</u>	<u>Rating</u>	<u>Title</u>
44-8263	Acceptable	Guided Missiles of the Armed Forces (U) (14 min -- 1954 -- color) (CONFIDENTIAL).
44-8406	Poor	Visual Problems Induced by Supersonic Speeds (47 min -- 1955 -- color).

Section III. TRAINING FILMS (TF)

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
4-640	Acceptable	Care and Maintenance of the 90-mm Antiaircraft Gun, Part I: Routine Inspection.  Notes to Instructor:  <ol style="list-style-type: none"> <li>1. Title should be "90-mm Gun M1 or Mount M1A1." This film is not applicable to other mounts.</li> <li>2. Oil preservative lubricant should be used instead of OE 10 and 20.</li> <li>3. Soda ash solution is no longer used for bore cleaning. Use rifle bore cleaner or hot soapy water.</li> <li>4. PLM should be used instead of machine gun oil, aircraft.</li> <li>5. GAA has replaced OG.</li> <li>6. When cleaning bore, the breechblock should be removed or care taken to protect the breechblock from drippings and damage.</li> </ol>
4-641	Poor	Care and Maintenance of the 90-mm Antiaircraft Gun, Part II: Regular Inspection:  Daily inspection; cleaning breech and firing mechanism; checking bore and fuze setter; preparing ammunition for use (19 min -- 1943).  Notes to Instructor:  <ol style="list-style-type: none"> <li>1. Title should be "90-mm Gun M1 on Mount M1A1." This film is not applicable to other mounts.</li> <li>2. Color of painted projectile is OD and not yellow as stated in film.</li> <li>3. The sequence of checks on the recoil mechanism should be stated; for example, the indirect check is made prior to checking the reserve oil.</li> <li>4. Equilibrator adjustment is made by ordnance.</li> </ol>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		5. Bore cleaner is now used with soda ash and water as a secondary cleaning solution. Slush brush is no longer used.
4-642	Acceptable	<p>Care and Maintenance of the 90-mm Antiaircraft Gun, Part III: Routine Checks.</p> <p>Traversing and elevating checks necessary for preparation of fire; checking and changing oil in recoil and counterrecoil buffer system (29 min -- 1943).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>1. Title should be "90-mm Gun M1 on Mount M1A1." This film is not applicable to other mounts.</li> <li>2. The gun jack test should be made before the direct check of the recoil mechanism.</li> <li>3. This film shows the guncrew filling the recoil cylinder with oil. This job is an ordnance function.</li> </ol>
4-644	Acceptable	<p>Care and Maintenance of the 90-mm Antiaircraft Gun, Part V: Firing, Safety Precautions, and Maintenance After Firing.</p> <p>Duties of each member of guncrew in preparing gun for firing; handling ammunition -- loading and firing of gun; details of proper maintenance after firing (12 min -- 1943).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>1. Title should be "90-mm Gun M1 on Mount M1A1." This film is not applicable to other mounts.</li> <li>2. After misfire the film shows the guncrew removing the firing mechanism. This action does not conform to current safety procedures. The round should be removed only after several attempts have been made to fire.</li> <li>3. Use rifle bore cleaner to clean after firing, not salsoda solution.</li> </ol>
4-1144	Acceptable	<p>Care and Maintenance of the 90-mm Antiaircraft Gun, Part VI: Remote Control System M2.</p> <p>Orientation and synchronization in azimuth and elevation; calibration corrections; traversing and elevation mechanisms; remote control system; troubleshooting (23 min -- 1943).</p>

TF No.            Rating                            Title

Notes to Instructor:

1. Title should be "90-mm Gun M1 on Mount M1A1." This film is not applicable to other mounts.
2. This film shows the guncrew replacing an amplifier in the remote control system. This operation is done by the battery artillery mechanic.

4-1145            Poor            The 90-mm Antiaircraft Gun, Part I: Emplacement, Using the Prime Mover.

Positions and sections of bogies, carriage, bogie frame, pedestal, bogie axle, bogie buffer, and trace in traveling position and emplacement of gun; demonstration of gun emplacement; teamwork of crew; duties of section members (45 min -- 1943).

Notes to Instructor:

1. Title should be "90-mm Gun M1 on Mount M1A1." This film is not applicable to other mounts.
2. The automatic rammer shown in the opening of film is obsolete. Settling rounds should be fired before dirt is placed under outrigger, when emplacing. Counterpoise cylinder cover should not be left on cylinders when using low-angle fire directly over the bogie because the covers may be damaged by concussion.

4-1146            Acceptable    The 90-mm Antiaircraft Gun, Part II: Emplacement Without Use of Prime Mover.

Duties of gun section members when emplacing 90-mm gun without prime mover; steps in approved sequence (30 min -- 1943).

Notes to Instructor:

1. Title should be "90-mm Gun M1 on Mount M1A1." This film is not applicable to other mounts.
2. The automatic rammer shown in the opening of film is obsolete. Settling rounds should be fired before dirt is placed under outrigger, when emplacing. Counterpoise cylinder cover should not be left on cylinders when using low-angle fire directly over the bogie because the covers may be damaged by concussion.

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
4-1147	Acceptable	<p>The 90-mm Antiaircraft Gun, Part III: March Order: Meaning and execution of MARCH ORDER (30 min -- 1943).</p> <p>Note to Instructor:</p> <p>Title should be "90-mm Gun on Mount M1A1." This film is not applicable to other mounts.</p>
4-1148	Acceptable	<p>The 90-mm Antiaircraft Gun, Part IV: Technique of Antitank Firing.</p> <p>Principles of antitank fighting; factors involved in shooting at moving tank; important points in antitank fire technique with the 90-mm AA gun (42 min -- 1943).</p> <p>Note to Instructor:</p> <p>Title should be "90-mm Gun on Mount M1A1." This film is not applicable to other mounts.</p>
4-1149	Acceptable	<p>The 90-mm Antiaircraft Gun, Part V: Direct Fire Drill.</p> <p>Duties of each gun squad member; shown in practice and under combat conditions (23 min -- 1943).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>Title should be "90-mm Gun on Mount M1A1." This film is not applicable to other mounts.</li> <li>Point out that M7 director is obsolete.</li> </ol>
4-1280	Acceptable	<p>The Multiple Machine-Gun Mounts, Part I: Operation and Maintenance.</p> <p>Mount in action; defense against low-flying airplanes; servicing and maintenance (39 min -- 1944).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>Film does not include larger power charger.</li> <li>The type of turret drive switch shown is obsolete.</li> <li>The voltmeter is not used to check charge of batteries; a hydrometer should be used.</li> </ol>
44-1347	Acceptable	<p>The 90-mm Antiaircraft Gun on the M2 Mount, Part I: Emplacement.</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		Table model demonstration; field exercise with crew in action; gun commander selects site for emplacement; duties of crew members; four important steps of emplacement (24 min -- 1944).
		Notes to Instructor:
		1. This film is also applicable to Mount M2A1.
		2. Indirect check on recoil mechanism should be made before elevating the gun tube.
44-1348	Acceptable	The 90-mm Antiaircraft Gun on the M2 Mount, Part II: March Order.
		Two-bogie 90-mm antiaircraft guns being readied for march order; procedure described; guncrew in action (26 min -- 1944).
		Note to Instructor:
		This film is also applicable to mount M2A1.
44-1349	Acceptable	The 90-mm Antiaircraft Gun on the M2 Mount, Part III: Hasty Emplacement for Antitank Firing.
		Elevation, depression, and traverse in preparing gun for quick firing from wheels; emphasis on speed and accuracy (11 min -- 1944).
		Notes to Instructor:
		1. This film is also applicable to mount M2A1.
		2. The prime mover should be moved farther away to reduce its interference with the field of fire.
44-1350	Acceptable	The 90-mm Antiaircraft Gun on the M2 Mount, Part IV: Preparation for Firing.
		Four important checks in preparation for firing; checking gun, orientation, synchronization, and operation (35 min -- 1944).
		Notes to Instructor:
		1. This film is also applicable to mount M2A1.
		2. Calibration corrections on guns are no longer a standard procedure.

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		<p>3. The complete procedure for checking synchronization is not covered in the synchro check. The balance of the procedure is shown in check operation later in the film.</p> <p>4. Reference is made to FM 4-127 at the end of the film; this publication has been superseded by FM 44-27.</p>
44-1351	Acceptable	<p>The 90-mm Antiaircraft Gun on the M2 Mount, Part V: Inspection of Ammunition and Firing.</p> <p>Operations and duties of the ammunition squad of a guncrew in inspection and handling propelling charges; loading, pointing, and firing; reloading and firing (23 min -- 1944).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>1. A safer method of unloading gun is to open the breech before ramming rolls.</li> <li>2. Ammunition must be crimped 360°.</li> <li>3. Amplifier switch is turned on after the driving motor switch.</li> <li>4. Ammunition is reversed in pits.</li> <li>5. The height finder is obsolete.</li> <li>6. Manual cutout switch no longer used.</li> <li>7. Director not used in Regular Army units.</li> </ol>
44-1554	Acceptable	<p>Light AAA with Infantry and Armored Divisions.</p> <p>The primary missions, organization, weapons, and employment of light AAA battalion with infantry and armored divisions under diversified tactical conditions (18 min -- 1952).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>1. All references to organization (air defense and infantry) are obsolete. Specifically there are no regiments or battalions in the present infantry organization, and the self-propelled battalion consists of 64 M42 fire units -- 16 to each of 4 batteries.</li> <li>2. Frequent reference is made to the "Vulnerable Area," which is now called the "Vital Area."</li> </ol>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
44-1680	Acceptable	Light AAA in Close Fire Support of Infantry.  Notes to Instructor:  1. All references to organization (air defense and infantry) are obsolete. Specifically, there are no regiments or battalions in the present infantry organization; the self-propelled battalion consists of 64 M42 fire units—16 to each of 4 batteries and the 4.2-inch heavy mortar company is now the 4.2-inch heavy mortar platoon of the combat support company.  2. The radios in this film are obsolete.  3. A false impression is created that air defense units can borrow radios from the supported unit.  4. A false impression is created that air defense units will abandon their air defense positions early to prepare for the ground support role. In all probability, unless relieved by another unit, these preparations would be made in the air defense position.  5. Immediately before moving out to ground support positions, the unit is bunched too close together.
44-1780	Acceptable	Employment of the AAFCS M33 Fire Control System Trailer.  Showing the arrival of the M33 radar trailer at a desert site and the procedure for emplacement of the M33 fire control system (17 min -- 1952).  Note to Instructor:  Waveguide lens should not be lifted by the waveguides.
44-1781	Acceptable	Emplacement of the AAFCS M33 Acquisition Radar.  Showing emplacement of the acquisition antenna assembly by personnel of range platoon but not showing the actual operation of the acquisition radar system (14 min -- 1953).
44-1782	Acceptable	March Order of the AAFCS M33 Fire Control System.  Showing that the AAFCS is packed in three separate vehicles; emplacing acquisition antenna assembly and emplacing tracking antenna are two separate actions that can be performed simultaneously (15 min -- 1953).

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		Note to Instructor:  The upper optical system is normally removed for a road movement.
44-1783	Acceptable	March Order of the AAFCS M33 Acquisition Radar.  Illustrating how to perform the march order of the acquisition antenna assembly in two simultaneous steps (16 min -- 1952).  Note to Instructor:  It is dangerous for men to stand beneath the acquisition radar when it is being lowered.
44-1858	Acceptable	The Computing Sight M19 Series (M19A1 and M38): Nomenclature and Operation.  Discussion of the nomenclature and the operation of the computing sight M19 series, types M19A1 and M38; detailed explanation of method of orienting, leveling, and setting the sight at proper super-elevation; five steps for engaging target; how to engage targets flying a variety of courses; climbing and diving targets (27 min -- 1954).  Note to Instructor:  Film demonstration of a directly-at-the-gun-type course is incorrectly referred to as an incoming diving course.
44-1886	Excellent	Antiaircraft Fire Control System M33: Fire Mission.  Begins with a swift run-through of action in an AAFCS M33 during a fire mission; units of an AAFCS M33 shown in relation to each other in a step-by-step breakdown of action: the plotting boards, the computer, the tactical control console, the tracking console, the radar power control panel, and the various illuminated screens; demonstration of how to operate the panel controls; a fire mission from target pickup to destruction of target (17 min -- 1954).
44-1887	Acceptable	Antiaircraft Fire Control System M33: Orientation and Synchronization.  A definition of and the need for orientation of the AAFCS M33 prior to fire; demonstration of the known datum-point method of orientation for both acquisition and tracking radars, including determination of parallax; orientation by backsighting with an aiming circle is also shown (both acquisition and

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		tracking radars); proper adjustment of the data transmission system; adjustment of the precision indicator (18 min -- 1954).
44-1888	Acceptable	<p>Antiaircraft Fire Control System M33: Start and Stop Procedure.</p> <p>Shows how this equipment locates and tracks aerial targets by radar and computes and transmits firing data electrically; separate components; procedure to energize and deenergize; three stages of energizing and deenergizing (18 min -- 1954).</p>
44-2139	Poor	<p>The Nike Ajax SAM Battalion, Orientation and Synchronization, Part I: Leveling of the Tracking Groups.</p> <p>This film depicts the fine-leveling procedure, explaining how the A- and B-levels of the antenna assembly are determined, how the data are recorded and readings computed, and finally, how periodic level checks are made (21 min -- 1955). (Will be reedited.)</p> <p>Note to Instructor:</p> <p>Tolerance in fine leveling is 2 digits, or divisions, not 2.5.</p>
44-2142	Poor	<p>The Nike Ajax SAM Battalion, Orientation and Synchronization, Part IV: Data Transmission Adjustments.</p> <p>This film shows through animation what has been performed in the orientation and synchronization procedures prior to making data transmission adjustments; the procedures included in data transmission adjustments; and the checks that are performed at the missile-tracking consoles to insure that the data units are in adjustment (25 min -- 1955).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>1. The elevation orientation section of the film is obsolete.</li> <li>2. The time servo should be set at 0.1 second rather than at zero as stated in the film.</li> </ol>
44-2143	Poor	<p>The Nike Ajax SAM Battalion, Orientation and Synchronization, Part V: Parallax Corrections and Adjustment at Launcher Position Units (U) (36 min -- 1956) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		Notes to Instructor:
		1. The interlock sequence on the LPU cabinet is obsolete.
		2. It is not necessary for the operator to go from the MTR console to the director station trailer to check computer power, as shown in the film. A phone check is sufficient.
		3. Show the null-voltage test set method of figuring radar-to-launcher parallax.
		4. Derivation of the $A_L$ angle should be shown so that battery control area personnel will know what the launcher personnel want when they are ready to figure the launcher heading.
		5. Personnel at the consoles and antennas should be shown with handset-headsets on their heads at all times during O&S when it is necessary to talk.
44-2144	Poor	The Nike Ajax SAM Battalion, Battery Control Area, Part I: Emplacement and Preparation of the Tracking Radars.  The film begins with an explanation of why correct emplacement of the tracking radars is necessary. It then shows a target-track radar arriving at its position area towed by a prime mover and the procedures for emplacement. Since the procedure for emplacement of the MTR and TTR is identical, the emplacement of only one is shown. Safety precautions and teamwork during emplacement are also covered (17 min -- 1955).
44-2145	Acceptable	The Nike Ajax SAM Battalion Battery Control Area, Part II: Assembly and Adjustment of Radar Collimation Set.  This film illustrates the procedure for assembling the radar collimation mast. Main points covered include: Determining position of mast; locating entry points for anchor rods and plates; installation of rigid waveguide sections and mast sections; attachment of crossarm assembly; installation of cables and wires; installation of boom assembly; mounting target head assembly on mast head; installation of flexible waveguide assembly. The radar collimation mast is then ready to be adjusted and erected (30 min -- 1955).

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
44-2146	Acceptable	<p>The Nike Ajax SAM Battalion, Battery Control Area, Part III: Erection of the Radar Collimation set and Final Adjustments.</p> <p>This film depicts the steps in the adjustment and erection of the radar collimation mast assembly. Main points covered include: adjustment of target head assembly; erection and final adjustment of collimation mast; mounting of rf test set; attachment of flexible waveguide (15 min -- 1955).</p>
44-2147	Poor	<p>The Nike Ajax SAM Battalion, Launching Area, Part I: Emplacement of Launcher Equipment.</p> <p>Designed for Nike Ajax troops and AA commanders and their staffs, this film depicts emplacement of launching equipment. Main points covered include: removal of launching control and power cabinets from control trailer; emplacing control cabinet on power cabinet; emplacing launching control trailer; assembly and installation of flight simulator unit on mast assembly; emplacing launcher sections; attaching loading racks (38 min -- 1955).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>1. Braking system is either air or electric.</li> <li>2. The desired emplaced height of the launcher is not stated (36-42 inches).</li> </ol>
44-2149	Poor	<p>The Nike Ajax SAM Battalion, Launching Area, Part III: Reload Procedures and Drill for Launcher-Loader.</p> <p>This film depicts the procedure for reloading the launcher after the last missile is fired, underscoring the importance of teamwork. Main points covered include lowering launcher and disconnecting electrical connections, unlocking rail locks, emplacing new missiles onto launcher, securing rails, securing hydraulic and electrical connections, elevating launcher, and crew returning to revetment (16 min -- 1956).</p>
44-2152	Poor	<p>The Nike Ajax SAM Battalion, Preparation of the Missile, Part III: Booster Uncrating and Joining.</p> <p>This film presents the detailed procedure for uncrating the booster and joining the missile and booster. The uncrating procedure includes removing igniter from its compartment in the booster crate, checking the booster for short and open circuits</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		with the squib tester, placing the booster on the transporting and handling rails, and securing launcher lug plates. The joining procedure includes removing the dust cover from the nozzle of the missile, ascertaining that the wooden bugger ring is in place, joining the missile and booster, cradling the missile and locking it in support, making hydraulic and electrical connections, adjusting switch and installing the top fin (23 min -- 1955) (REVISED 1957).
44-2154	Poor	The Nike Ajax SAM Battalion, Preparation of the Missile, Part V: Oxidizer Servicing.  This film covers the procedure for servicing the missile with oxidizer. Safety precautions are observed throughout the operation. The servicing procedure includes handling acid barrels and acid, servicing step by step, replacing the missile accessories, removing and caring for the servicing hose, neutralizing acid spillage, and decontaminating equipment, clothing, and personnel (20 min -- 1955) (REVISED 1957).
44-2161	Poor	The Nike Ajax SAM Battalion, Procedures and Drill, Part I: Normal Procedures.  The film opens with the battery in white equipment status. The switchboard operators are on duty in each area. The battery is given STANDBY by AADCP and all battery personnel man their stations. The men are shown performing their yellow equipment status checks. As the target approaches the defense area, the battery is placed in blue equipment status and the checks performed at this time are shown, also the launching area finishes getting ready to fire. When the battery control officer gets a hostile target on the PPI, he designates it to the target-track radar operators who transfer it to the target-track radar. A good view of the signal panel in the battery control trailer is shown as it indicates to the battery control officer the exact status of the battery. At the proper time, the battery control officer fires the Nike (21 min -- 1956).
44-2162	Acceptable	The Nike Ajax SAM Battalion, Procedures and Drill, Part II: Alternate Communication Procedures.  This film demonstrates the alternate communication procedures for transmitting data needed to launch missiles. Under normal conditions, data are transmitted between the battery control area and the launching area by cable. When these cables are not operable, emergency measures are employed and communication is carried on by means of radio,

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		field wire, and telephone switchboards. The methods used in transmitting information via telephone switchboards are depicted in detail, showing the activities in both the battery control and the launching areas. Presentation then illustrates the alternate communication procedures used when the launching control trailer is not operable (34 min -- 1956).
44-2163	Acceptable	Nike Ajax SAM Battalion, Orientation and Synchronization, Part VI: Orientation of the Launcher Rail.  This film specifically concerns orientation of the launcher. In order to position the roll gyro in the missile, the azimuth of the launcher must be known. This film demonstrates, step by step, exactly how this azimuth is determined (8 min -- 1956).
44-2164	Acceptable	Nike Ajax Underground Installation, Part I: Introduction.  This film gives general views of an underground site and the three basic reasons for using underground installations. Through animation, the main features of an underground site are presented showing their position in relation to one another. The remainder of the film shows how the various components are operated (29 min -- 1956).
44-2165	Poor	Nike Ajax Underground Installation, Part II: Section Drill.  This film shows the specific duties of each man of a 6-man section, in white, yellow, blue, and red statuses, as well as in reload procedures (34 min -- 1956).  Notes to Instructor:  1. Sound track sequence: the elevator can be heard going up and the locking bolts going into place after the comment that the lights indicate the elevator is up and the bolts are in place.  2. The film has the section panel operator lowering the elevator with the master control switch in the elevator position. The switch must be in the console position for the section panel operator to control the elevator.
44-2166	Acceptable	Nike Ajax Battery, Energizing and Deenergizing the Ground Guidance Equipment, Part I: Acquisition Radar (U) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		This film deals with energizing and deenergizing the acquisition radar equipment under normal and emergency conditions (26 min -- 1957).
44-2167	Acceptable	Nike Ajax Battery, <i>Energizing and Deenergizing the Ground Guidance Equipment, Part II: Target-Track Radar.</i>  This film demonstrates the procedures for energizing and deenergizing the target-track radar under normal conditions. Performance of each step in its proper sequence of operation is shown in detail. In deenergizing the target-track radar, the energizing procedure is reversed. Deenergizing in an emergency is also covered (12 min -- 1957).
44-2168	Acceptable	Nike Ajax Battery, <i>Energizing and Deenergizing the Ground Guidance Equipment, Part III: Missile Tracking Radar.</i>  This film demonstrates the procedures for energizing and deenergizing the missile-track radar under normal conditions, emphasizing the importance of performing each step in its proper sequence. Main teaching points cover: Preenergizing checks, ventilation and temperature control, energizing during normal operation, deenergizing during normal and emergency operation (11 min -- 1957).
44-2169	Acceptable	Nike Ajax Battery, <i>Energizing and Deenergizing the Ground Guidance Equipment, Part IV: Computer.</i>  This film demonstrates the procedures employed in energizing and deenergizing the Nike Ajax computer, emphasizing the performance of each step in its proper sequence. The computer is explained as the brain of the missile system transmitting target information to the missile to guide it to the point of intercept. Main teaching points stressed cover ventilation and temperature control; energizing procedure during normal operation; and deenergizing during normal and emergency operation (8 min -- 1957).
44-2170	Poor	Nike Ajax Battery, <i>The Ground Guidance Equipment. Operation of the Personnel Heating and Ventilating System.</i>  This film demonstrates the proper operation and adjustment of the personnel heating and ventilation system of the Nike Ajax trailers. Stress is placed on the performance of each step in its proper sequence and points of safety. Presentation details the procedures relative to heat, cooling, and ventilation control under normal conditions when ac

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		power is available. Operation of the heating and ventilation system on batteries during an emergency when ac power is not available is also covered, and the importance of proper temperature and ventilation for the efficient operation of the Nike Ajax trailer under all types of weather conditions is underscored (9 min -- 1957).
44-2174	Excellent	<p>The Nike Ajax Multi-Channel Data Recorder, Part I: Operation (U) (FOR OFFICIAL USE ONLY).</p> <p>This film describes the purpose of the recorder for checking, correcting, and perfecting Nike Ajax performance. Using animation and live action, the features and operation of the principal recorder components are explained -- galvanometers, lamps, camera system, calibrated adjustment scale, and trace identifier. The purpose and action of the galvanometer lamps, grid lamps, timer lamp, and record numbering lamps are covered in detail. The adjustments of the various elements of the recorder are then demonstrated. With the set in proper operating condition, the operator's actions are followed as he loads up for the shoot, and after the shoot as he unloads the tape record of the missile's performance adhering to prescribed safety measures, and sends it on for processing and evaluation (34 min -- 1957).</p>
44-2175	Acceptable	<p>Nike Ajax Multi-Channel Data Recorder, Part II: Tape Analysis (U) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).</p> <p>This film describes the correct method of analysis of the data recorder tape. The proper means of insertion, correct alinement of the tape in the recorder, removal, and analysis of the tape (46 min -- 1958).</p>
44-2246	Acceptable	<p>Nike Ajax Missile Tests, Part I: Calibration of the RF Test Set (U) (9 min -- 1956) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).</p> <p>Note to Instructor:</p> <p>Frequency detuning is accomplished by turning frequency knob <u>down</u>; not up.</p>
44-2247	Poor	Nike Ajax Missile Tests, Part II: Voltage Receiver Sensitivity, Power, and Frequency Checks (U) (6 min -- 1956) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).

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		Note to Instructor:  In the measurement of receiver sensitivity, the time dials are set to the code of the missile to be tested plus 0.1 microsecond rather than to the exact code.
44-2248	Acceptable	Nike Ajax Missile Tests, Part III: Nonresponse to Adjacent Codes, Pattern Modulation and Response Time (U) (8 min -- 1956) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
44-2249	Poor	Nike Ajax Missile Tests, Part IV-A: Measurement of Burst, Fail-Safe Time, and Buzz Voltages (U) (7 min -- 1956) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
		Note to Instructor:  In the roll buzz voltage adjustments, the roll position switch should be placed in the flight position instead of the preset position.
44-2250	Poor	Nike Ajax Missile Tests, Part IV-B: Yaw and Pitch Servo Tests (U) (8 min -- 1956) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
44-2252	Poor	Nike Ajax Missile Tests, Part VI: Precise Command and Internal Operation (U) (7 min -- 1956) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
44-2255	Acceptable	Nike Ajax SAM Battalion, Missile Defueling, Part I: Preparation for Defueling.  This film depicts the procedure for preparing the missile for defueling. Main points covered include positioning missile booster trailer, emplacing handling dolly on trailer, separating the missile from booster, emplacing missile on dolly, removing missile beam assembly, removing tunnel 1 for access to fueling vent, removing booster from area, and grounding the trailer. The missile is ready for defueling (15 min -- 1956).
44-2256	Acceptable	Nike Ajax SAM Battalion, Missile Defueling, Part II: Removal of Starting Fluid and Oxidizer.  This film demonstrates the step-by-step procedure for removing the starting fluid and oxidizer from the missile. Safety precautions are observed throughout the film. First, the procedure for removing the starting mix is presented; then, the procedure for

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		removing the oxidizer. The film concludes with a recapitulation of the major points (30 min -- 1955).
44-2340	Acceptable	Introduction to the IFF, Mark X - Identification of Friend or Foe (19 min -- 1957). (Under revision.)
44-2359	Acceptable	The Skysweeper - Orientation and Synchronization, Known Datum Point Method.  This film depicts the orientation and synchronization procedure by use of the known datum point method, to include the following: collimation; boresighting; adjusting azimuth, scanner, computer periscope range, alinement of radar, target selector; checking transmission (29 min -- 1956).
44-2360	Acceptable	The Skysweeper - Artillery Drill.  The film shows the detailed duties of the members of the Skysweeper radar crews in commands, reports, and actions. How the men's duties dovetail with each other to develop effective teamwork. Maintenance duties are not covered in this film nor the specialized duties of the fire control mechanic and the generator operator (25 min -- 1957).
44-2528	Acceptable	Operation of the Skysweeper Radar.  This film describes the characteristics, energizing, testing, and operation of the Skysweeper Radar M4, an integral part of the Skysweeper Fire Control System M38 used to control the Skysweeper 75-mm gun. Features and functions of the M4 are illustrated in detail. Teaching points cover: preparing the radar for operation from a march order position, energizing the control and meter panels, preoperative tests and adjustments—antenna servo, range servo, transmitter and search tests; searching and tracking the target, sector span search, and target selector operation firing; alternate ranging—automatic ranging, manual ranging and stored or estimated altitude methods (36 min -- 1957).
*44-2530	Acceptable	Nike-Guardian of the Cities.  This film depicts the steps involved in launching and firing the Nike Ajax, including assembly and preparation for launching, fueling, installation of warheads, transfer to launcher, final operating tests, alerting, and firing. Next, acquisition, identification, and designation of target for firing and use of the plotting board are shown and also covers the firing of the Nike Ajax from underground. The film then briefly discusses the features and capabilities of Nike

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		Hercules, which, together with the Nike Ajax, is continually on the alert in defense of the country (15 min -- 1957).
44-2544	Acceptable	<p>The Effects of Electronic Countermeasures on Air Defense Radars (U) (CONFIDENTIAL).</p> <p>This film explains the purpose and principles behind electronic countermeasures, showing how radar jamming is caused and how it can be recognized. Electronic and nonelectronic jamming are discussed, showing how they appear on the 4 types of radar screens - PPI and J-, A-, and B-scopes. Teaching points cover local interferences; window jamming - aft and forward dispensed chaff; transmission jamming; cw and modulated cw; noise-modulated jamming, low-, medium-, and high-frequency modulated jamming, tramlines, criss-cross, and railings. Recognition and defense against jamming in the form of "gate," "walling," "spoofing," and "rabbits" are also covered (22 min -- 1957).</p>
44-2545	Acceptable	<p>Nike Ajax Battery, Defense Against Electronic Countermeasures (U) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).</p> <p>This film explains the different types of jamming of the radars such as local interferences; forward or aft dispensed chaff; transmission cw, modulated cw, low-, medium-, and high-frequency modulated jamming, and how they are to be recognized as soon as they appear on the screens. The different means of combating these jammings are carefully explained throughout the film. How to recognize, report, and take antijamming action are key subjects (27 min -- 1957).</p>
44-2546	Poor	<p>AAFCS M33 Defense Against Electronic Countermeasures (U) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).</p> <p>This film deals with the M33 radar and has the same <i>teaching points</i> as TF 44-2545 (24 min -- 1957).</p>
44-2547	Poor	<p>Skysweeper Radar System Defense Against Electronic Countermeasures.</p> <p>This film represents the presently accepted techniques necessary to combat enemy jamming. The film is primarily concerned with teaching basic operation techniques necessary to overcome electronic and nonelectronic jamming and deception, screen presentations include nonelectronic (window) and electric (transmission) jamming on the PPI and</p>

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		A-scope with operator techniques involved to counter jammings as mentioned in TF 44-2545 (18 min -- 1957).
44-2548	Poor	<p>Surveillance Radar System AN/TPS-1D—Defense Against Electronic Countermeasures.</p> <p>This film teaches how to recognize and combat enemy radar jamming, underscoring the importance of electronic countermeasures to the effectiveness of the surveillance radar system. The characteristics of nonelectronic (window) and electronic (transmission) jamming are explained and illustrated on the PPI and A-scope. Various forms of transmission jamming are depicted including cw, tramline, railing, criss-cross, spoofing, and random noise jamming. Measures and techniques involved in counteracting each jamming condition are shown, giving attention to the proper use of the MTI switch, antijam switch, gain controls and change of operating frequency. Stress is placed on the importance of prompt reporting of jamming to the Army air defense command post (18 min -- 1957).</p>
44-2584	Acceptable	<p>Nike Ajax SAM Battalion, O&amp;S, Part III; Collimation of the Tracking Radars using the Data Dial Method.</p> <p>This film shows how the two axes of a radar, the antenna (or mechanical) axis and the electronic axis are collimated by use of the data dials of the radar so that they are parallel and point in identical directions. Each type of axis is described, then brought parallel in azimuth. The need for making exact calculations at each stage of collimation is shown. The operators at the antenna are in contact with the operator at the tracking console by telephone so that he may plunge and rotate the antenna as needed by the men at the antenna.</p> <p>The film also demonstrates how to make checks on the telescope and on the level bubble to insure the antenna is level (20 min -- 1958).</p>
44-2605	Acceptable	<p>Nike Hercules SAM Battalion, O&amp;S, Part I: Leveling.</p> <p>Introductory remarks are on the importance of leveling, the film then goes briefly into the overall process of orientation and synchronization, which is sketched in animation. Its purpose in the film is to point up the absolute need for precision leveling. A</p>

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		<p>sequence is devoted to the physical features of the tracking radars with special emphasis on the radome and the master precision level assembly. Animation then gives a general picture of how adjustments are made on the mechanical axis. This general presentation is followed by a step-by-step account of the leveling operation (25 min -- 1958).</p> <p>Notes to Instructor:</p> <ol style="list-style-type: none"> <li>1. Trailer tow bar should be raised and locked.</li> <li>2. Technician in background should not kick, or stand on, cable.</li> </ol>
44-2606	Acceptable	<p>Nike Hercules SAM Battalion, O&amp;S, Part II: Optical Adjustments.</p> <p>The film first explains adjustment of the optical system as the next step following precise leveling of the tracking radar mounts. The telescope is placed in the telescope mount assembly. Procedures to insure perfect alinement are shown. The film then takes up five specific adjustment procedures: the telescope reticle check, adjustment for perpendicularity, viewing telescope check and alinement, reticle level adjustment, and telescope spirit level adjustment. Precise detail, by animation, is shown of the use of the reticle check target to indicate errors in reticle alinement, adjustment of telescope level vial, adjustment of the telescope mount so that the sighting telescope points in the same direction as the antenna, correction of azimuth reading on the azimuth data dial unit (26 min -- 1958).</p>
44-2607	Acceptable	<p>Nike Hercules SAM Battalion, O&amp;S, Part III: Collimation (U) (CONFIDENTIAL).</p> <p>An introductory sequence explains the purpose of collimation, using animation to detail the process of making the mechanical axis, the optical axis, and the electronic axis parallel. Once key figures are secured through calculations, adjustments of both antenna and telescope are performed. Following adjustments, a semianimated sequence further explains the steps covered thus far resulting, in effect, in a comprehensive summary (30 min -- 1958).</p>
44-2608	Acceptable	<p>Nike Hercules SAM Battalion, O&amp;S, Part IV: Orientation (U) (CONFIDENTIAL).</p>

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A brief definition of orientation is given in the introductory remarks. This is followed by a step-by-step procedure in orienting both the target-track radar and the missile-track radar. The film goes to the director station trailer to perform an orientation check, then to the tracking station trailer for a synchronization check. Details are in both animation and live action (30 min -- 1958).

Note to Instructor:

Error meters would not read zero-error on high sensitivity even under ideal conditions.

44-2609

Acceptable

Nike Hercules SAM Battalion, O&S, Part V: Parallax Corrections and Launcher Position Unit Adjustments (U) (CONFIDENTIAL).

The film begins with explanation of parallax correction and its need, the parallax corrections between the radar and launching area and between the missile and tracking radars. Graphic delineation of principle behind parallax correction between two tracking antennas in animation, showing why measurements are needed, and how applied. Detailed calculations of the several angles are not demonstrated. This sequence (in animation and live action) is followed in similar fashion by delineation of parallax correction between radar and launching area. This film also deals with adjustment of launcher position units with live action at missile-track radar, missile-tracking console, LPU cabinet, and the launching area. Film shows sighting the missile-track antenna on an erected missile, making fine adjustments of the LPU, adjusting the azimuth and elevation error meters, with constant checks on the A-scope for range (20 min -- 1958).

Notes to Instructor:

1. Figures given for H settings are most improbable and would not be encountered in practice.
2. Figure given for H setting of center of launching area is incompatible with figure given later for H setting of the sample LPC.
3. Center of launching area is not set in relation to the MTR as apparently implied.
4. Lights and controls on missile radar control console are at times in a condition incompatible with the adjustment being performed.

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44-2610	Acceptable	<p>Nike Hercules SAM Bn, Emplacement and Preparation of Monorail Launcher Part I: Emplacement.</p> <p>This film demonstrates the step-by-step procedures for emplacing the Nike Hercules monorail launcher on the launching pad, and installing the loading and storage racks.</p> <p>Salient teaching points cover preemplacement check; hoisting, securing, and leveling the launching pad; installing and leveling the loading and storage racks. Safety precautions to be observed are underscored. Properly emplaced, the launcher is ready for the operational checkout (19 min).</p>
44-2611	Acceptable	<p>Nike Hercules SAM Bn, Emplacement and Preparation of Monorail Launcher, Part II: Preparation.</p> <p>This film demonstrates the preoperational checks performed by the launching crew in preparing the Nike Hercules monorail launcher for operation after it has been emplaced.</p> <p>Salient teaching points cover visual and hydraulic preoperational checks; operational up cycle and down cycle without a round; shutdown procedure. When these checks are completed, the launcher is ready to receive its missile (13 min).</p>
44-2612	Acceptable	<p>Nike Hercules SAM Bn, Reload Procedures.</p> <p>This film demonstrates the reload procedures performed by the launching crew after a Nike Hercules missile is fired.</p> <p>Salient teaching points cover rolling empty rail off the launcher and locking new missile into position; positioning rail with missile on launcher; checks on warhead and arming devices, power supply, hydraulic pressure gages, and voltages; plugging squib cable into squib receptacle. Safety precautions are underscored throughout. Lastly, the launching signal is given and the missile is fired (15 min -- 1959).</p>
44-2613	Acceptable	<p>Nike Hercules SAM Bn, Emplacement and March Order of the Acquisition Radar.</p> <p>This film details the procedure of assembling and emplacing the acquisition radar of the Nike Hercules system. It begins with the acquisition radar in transit condition arriving at its prepared or indicated position. Salient teaching points cover selection of</p>

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		<p>emplacement site; emplacement of the components forming the barbette, the acquisition modulator, receiver transmitter, and drive unit; anchoring the barbette; emplacement of the antenna; installation of waveguides to bring the antenna into electrical circuit. With the acquisition radar properly emplaced, the truck and electronics shop, which housed the components, are removed from the area. Lastly, it is pointed out that the march order is essentially the reverse of the emplacement procedure (38 min -- 1959).</p>
44-2614	Acceptable	<p>Emplacement and March Order of Nike Hercules Tracking Radars.</p> <p>This film details the procedure of emplacing one of the two Nike Hercules track radars. It begins with the track radar, in transit, arriving at its already prepared location. Then in detail and in their necessary order, the steps and methods of freeing the antenna from its trailer are presented; the installation of the antenna legs, the assembling of the hoist, and the installation of the reflector and radome cover. This film takes the assembly of the antenna as far as its incorporation into the electrical circuits of the Nike Hercules system (35 min -- 1959).</p>
44-2615	Acceptable	<p>Nike Hercules Missile, Part IV: Final Preparation of Warhead and Forward Body Sections.</p> <p>Initially, the inspection, uncrating, and installation of the warhead body section are covered. Upon mating the warhead body section with the missile aft body section, emphasis is placed on proper torquing of bolts and installation of the wiring harness and electrical connections. Lastly, the missile forward body section is attached to the warhead section, with particular attention given to the installation of the boltwell covers, transponder cable group, and access doors. This completes the assembly procedure, and the Nike Hercules Missile is ready to be transported to the launching area for firing operations (27 min -- 1959).</p>
44-2625	Poor	<p>Nike Radar Test Set, Part I: Preliminary Adjustments.</p> <p>This film demonstrates the procedure for calibrating the Nike radar test set, used to check the overall performance of both the missile- and target-track radars.</p>

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		Salient teaching points cover turning on the main power and setting the controls in the radar van prior to calibration; volt, zero, and infinity adjustments; optimum performance check. Properly calibrated, the test set is ready for use to check out the performance of the tracking radars (4 min -- 1959).
44-2626	Acceptable	<p>Nike Radar Test Set, Part II: Measurement and Adjustment of Receiver Frequency and Sensitivity of the Tracking Radars.</p> <p><i>This film demonstrates the step-by-step procedures used to measure the oscillator frequency and receiver sensitivity of the Nike tracking radars to insure smooth and accurate tracking.</i></p> <p>First, the adjustment of the radar test set target oscillator frequency is shown, detailing adjustment of the frequency control; subsequent adjustment of the repeller and output controls; measuring the newly set-in frequency for accuracy.</p> <p>Next, the receiver sensitivity check is depicted, showing how to measure receiver sensitivity in sum, azimuth, and elevation channels (5 min -- 1959).</p>
44-2627	Acceptable	<p>Nike Radar Test Set, Part III: Measurement and Adjustment of Transmitter Frequency and Power of Tracking Radars.</p> <p><i>This film shows the procedure to be followed in measuring the transmitted power and frequency of the Nike tracking radars.</i></p> <p>Salient teaching points cover use of radar test set for measuring transmitted power; determining the transmitted frequency of the radar by using the frequency meter of the test set; method for changing the transmitted frequency to a different frequency (3 min -- 1959).</p>
44-2628	Acceptable	<p>Nike System Missile Tracking Radar, Missile Automatic Frequency Control Adjustment.</p> <p><i>This film demonstrates the step-by-step procedure for performing the missile radar automatic frequency control adjustment.</i></p> <p>Salient teaching points cover energizing the missile-track radar; setting controls, switches and test points; BO and AFC adjustments; adjusting for correct screen signals. It is pointed out that the target radar AFC adjustment, not shown in the film, is performed in a similar manner (8 min -- 1959).</p>

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44-2629	Acceptable	<p>Nike System, Missile Tracking Radar, Range Zero Set and Coding Interval Adjustment.</p> <p>This film demonstrates procedures for performing the range zero and coding interval adjustments on the Nike Ajax missile-track radars necessary to acquire a missile.</p> <p>First, the range zero adjustment is shown. Salient teaching points cover setting radar controls; positioning the antenna; recording range unit dial reading; calculating correct range zero setting; adjusting range zero control and range unit dial; adjusting radar control and pulse generator.</p> <p>The second portion of the film details the steps involved in the coding interval adjustment. Main points stressed include setting controls for coding interval adjustment; positioning the antenna; recording range unit dial reading; positioning coder pulse on automatic range; calculating coder pulse range; adjusting coder pulse to correct range reading (6 min -- 1959).</p>
44-2630	Acceptable	<p>Nike System, Tracking Radars, Range Unit Zero and Slope Adjustment.</p> <p>This film demonstrates the procedure followed in performing the range unit zero and slope adjustment on the Nike Ajax system to insure accurate range indications and proper tracking.</p> <p>Salient teaching points cover energizing the radar; setting range unit controls and adjusting test amplifier; zero adjustment; slope adjustment; main gate adjustment (4 min -- 1959).</p>
44-2631	Acceptable	<p>Nike System, Orientation and Synchronization, Tracking Radar Collimation, Data Dial Method.</p> <p>This film demonstrates the collimation of the target-track radar using the data dial method.</p> <p>Salient teaching points cover establishing communication to the target-track console; adjusting the target-track radar in azimuth and elevation; adjusting dial readings; locking on test signals; rechecking collimation. It is pointed out that the procedures for target-track radar collimation are applicable to the collimation of the missile-track radar (6 min -- 1959).</p>

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44-2633	Excellent	<p>Nike Ajax Missile Using UDMH as Starting Fluid.</p> <p>This film demonstrates the step-by-step procedure for performing the UDMH filling operation on the Nike Ajax.</p> <p>Salient teaching points cover missile check prior to filling operation; protective clothing worn by crew; preparation of starting mix fill equipment; draining the UDMH into the missile; removal of fill equipment from immediate area; decontamination and neutralization of spillage area; returning missile to normal (6 min -- 1959).</p>
44-2761	Excellent	<p>Defense Acquisition Radar Performance Checks.</p> <p>This film demonstrates the accurate method of making radar performance checks on defense acquisition radars to determine operating efficiency of equipment.</p> <p>In introduction, the features of the 3 types of acquisition radars are reviewed -- AN/TPS-1D, AN/TPS-1G, and AN/FPS-36. Factors affecting radar range are outlined. Test equipment authorized for performing radar checks is shown.</p> <p>Next, radar performance checks are conducted on the AN/TPS-1D for demonstration. Salient teaching points cover: preliminary adjustments; transmitter frequency check; transmitter power check; receiver minimum discernible signal check; measured radar performance; and overall efficiency of the acquisition radar. Proper completion of the radar performance data sheet is underscored (35 min -- 1959).</p>
44-2782	Excellent	<p>Nike Ajax Missile Warhead Installation.</p> <p>This film demonstrates the procedures employed to install the Nike Ajax warhead, including the testing and installation of the arming devices. Safety precautions to be observed are emphasized.</p> <p>In the revetted area, the following steps are taken: grounding the missile flatbed trailer; removal of missile tunnels; removal of warhead covers; preparation of missile to receive warhead; installation of rear, center, and nose warhead sections; installation of the explosive harness; replacement of warhead covers; and replacement of missile tunnels. Proper torquing of bolts and screws is underscored throughout. The missile is then moved to the launching area where the arming devices are checked and installed. This completes the installation of the warhead in the Nike Ajax missile (34 min -- 1960).</p>

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44-2789	Excellent	Introduction to the HAWK System (U) (CONFIDENTIAL).  The film begins with an introduction to the major pieces of equipment composing the Hawk battery and shows one method of their emplacement in a normal field army site. Each piece of equipment is then considered separately, with regard to its functioning and its relation to other pieces of equipment in the battery (30 min -- 1960).
44-2815	Excellent	Nike Hercules Missile, Part I: Inspection Uncrating and Initial Assembly.  This film covers the initial steps in the assembly of the Nike Hercules missile. It begins with the identification of the major pieces of equipment used in the assembly operation.  The procedure for inspection, depressurization, and opening the rear body section and forward body section container is shown. Removal of the forward body section from the rear body section and the removal of the rear body section from the container are shown. Preparation of the container for storage or shipment ends the inspection and uncrating of the rear and forward body sections. The film may be stopped for discussion at this point or continued to show in detail uncrating and inspection of the rear main fins and elevons, the electrical connections to the forward body section, and finally, joining the forward body section to the rear body section for the assembly area checks. The film ends with the missile ready for air and oil servicing of the accessory power supply (30 min -- 1959).
44-2819	Excellent	Explanation of Doppler Phenomenon.  This film explains the effect upon the frequency of a wave caused by movement of the transmitter, the receiver, or both. It also covers some uses, including detection of low-altitude aircraft and measurement of radial velocity (19 min -- 1959).
44-2829	Excellent	Introduction to Continuous Wave Radar.  The film opens with a demonstration of the inherent capability of the FM cw radar to eliminate scope ground clutter around a low-flying target. It proceeds to illustrate and explain how the cw radar derives radial velocity and range information, correlating the basic information with the use of frequency-time graphs as opposed to the usual amplitude-time graphs. Several basic cases of velocity and range are discussed. A brief explanation of doppler is also included (16 min -- 1959).

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
44-2838	Excellent	The HAWK Battery, Sequence of Engagement (U) (CONFIDENTIAL).  This film gives a demonstration of a Hawk battery sequence of engagement. The emphasis is placed on events as they occur in the battery control central. The major functions of each of the consoles and the most significant duties of each of the operators are explained. The film closes with a sequence of engagement as it might normally appear (13 min -- 1959).
44-2858	Excellent	The AN/MSG-4 (Missile Monitor) (U) (CONFIDENTIAL).  This picture is basically an orientation film. It shows an overall description of the physical layout, and a general explanation of the electronic and tactical operation of the Missile Monitor (25 min -- 1959).
44-2859	Excellent	Theory of Moving Target Indicator Operation.  This film explains the principles of radar moving-target indicator (MTI) operation, and describes how malfunctions can be detected and corrected.  In the introduction, the manner in which acquisition radars function to indicate stationary target returns is reviewed. The function of the MTI in allowing moving target signals to be seen on the radar scope is defined (20 min -- 1960).  Then, the basic MTI circuit is presented, outlining the functions of the major components. By means of animation, it is explained how the MTI operates to remove stationary target signals from the indicator and to show moving target returns. Salient teaching points discussed cover 2-pulse signals, phase relationship between received and reference signals, role of the phase detector, delay and nondelay channels, canceler, and AGC. For demonstration purposes, a signal from a stationary target and a signal from a moving target are taken through the entire system, with the selector switch in MTI position.  Lastly, the importance of MTI operation in relation to the effectiveness of the air defense mission is underscored (20 min -- 1960).
44-2860	Excellent	Nike-Hercules SAM Battalion: The Firing Battery in Operation (U) (CONFIDENTIAL).

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		<p>This film shows the general operation of the Nike Hercules battery in a fire mission. It deals in a general way with the Nike Hercules battery's part in the defense of CONUS. The function of each section and personnel of the battery is explained. The film begins with the general exposition of the contribution of Nike Hercules batteries to defense of important areas of the continental United States. At the point the operation of the battery begins, the status of the battery is WHITE ALERT. The operation of each part of the section is explained in detail as well as the duties of each man in the battery. The film carries the section through the BLUE and RED status and the destruction of an invading plane (25 min -- 1960).</p>
44-2890	Acceptable	<p>The HAWK Battery Launching Platoon, Part I: Launcher Operation.</p> <p>This film introduces the Hawk launcher and shows how it is emplaced and prepared for operation.</p> <p>Salient teaching points cover delivery of launcher to Hawk battery site, emplacement of the launcher; installation of the local control unit (LCU), installation of the field telephone; attachment of the power cables to the launcher, energizing procedure; and alinement of the launcher with the illuminator. The missiles are then loaded onto the launcher by the loader. Lastly, the controls are set for normal operations. The launcher is ready for firing (17 min -- 1960).</p>
44-2891	Excellent	<p>The HAWK Battery Launching Platoon, Part III: Loader Operation.</p> <p>This film describes the function, capability, and operation of the Hawk loader.</p> <p>The loader lets the Hawk battery load up to three missiles simultaneously. In this way, the Hawk system realizes a high sustained rate of fire. The procedure used to operate the loader is depicted in detail. Salient teaching points cover energizing the loader, delivery of loader by truck to the Hawk battery site, indexing loader with missile pallet, transfer of three missiles from pallet to loader, disengaging loader from pallet, delivery of loader to launcher, and transfer of missiles unto launcher (14 min -- 1960).</p>
44-2940	Excellent	<p>Nike Ajax SAM Battalion: Nike Ajax Battery Alert Status Checks and Adjustments: The Computer (U) (CONFIDENTIAL).</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		<p>This film demonstrates the alert status procedure for energizing the Nike Ajax computer, the proper parallax, OL, and burst-time bias dial settings as well as the step-by-step alert status checks and adjustments before an engagement. The film opens with the computer operator in the battery control trailer, following him and an assistant through the amplifier balance test, the plotting board checks, and the preaction checks. Since each of these checks is covered in existing publications that operator personnel must use as a reference, complete film coverage is not always given. However, enough coverage is given to explain the procedure (14 min -- 1960).</p>
44-2941	Excellent	<p>Nike Ajax Battery, Alert Status Checks and Adjustments - The Tracking Radars.</p> <p>This film depicts the alert status checks and adjustments performed on the Nike Ajax tracking radars to prepare them for firing. The procedures are performed on the missile-track radar for demonstration.</p> <p>Initially, the steps taken to energize the radar are shown. Then, the following alert status checks are detailed angle sensitivity, noise balance, range zero, and sync command system (20 min -- 1960).</p>
44-2947	Excellent	<p>Nike Hercules Radar Test Set - Part I: Preliminary Procedure.</p> <p>This film depicts the preliminary procedure for calibrating the radar test set prior to use in various checks and adjustment of the two tracking radars.</p> <p>The steps taken to calibrate the power meter at the radar set are shown. Main teaching points cover energizing the radar test set prior to initial calibration and proper adjustment of the various knobs and switches on the power meter associated with the calibration of the power supply (3 min -- 1960).</p>
44-2948	Excellent	<p>Nike Hercules Radar Test Set, Part II: Measurement of Receiver Frequency and Sensitivity of Tracking Radar (U) (5 min -- 1960) (CONFIDENTIAL).</p>
44-2949	Excellent	<p>Nike Hercules Radar Test Set, Part III: Measurement and Adjustment of Oscillator Power and Frequency.</p> <p>This film details the steps followed in the measurement and adjustment of the oscillator power and frequency of the Nike Hercules radar test set. The procedure, the same for both the missile and target oscillators, is performed on the missile oscillator for demonstration.</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		<p>Main teaching points cover calibration of rf power db meter, proper adjustment of measure frequency counter, calibration of power output of missile oscillator, and final setting of switches.</p> <p>With the missile and target oscillators properly calibrated, the test set can perform its function efficiently in the adjustment of the Nike Hercules system (7 min -- 1960).</p>
44-2950	Excellent	<p>Nike Hercules Acquisition Radar: Removal and Placement of Magnetron.</p> <p>This film demonstrates the step-by-step procedures for removing and replacing the magnetron in the Nike Hercules acquisition radar.</p> <p>Initially, the removal procedure is depicted. Main teaching points cover removal of access covers from the transmitter-receiver group; removal of the hot box from the rf power control panel; removal of the magnetron blower hose, filament, and cathode connections, removal of the magnetron tuning drive and waveguide cables, and removal of the magnetron.</p> <p>Next is shown how the magnetron is replaced; the replacement procedure is the reverse of the removal procedure (7 min -- 1960).</p>
44-2951	Excellent	<p>Nike Hercules Acquisition Radar: Removal and Replacement of Traveling Wave Tube and Noise Generators.</p> <p>This film shows the step-by-step procedures required to remove and replace the traveling wave tube and noise generators, underscoring the precautions to be taken with both components.</p> <p>First, the removal of the traveling wave tube from the magnetic housing is detailed. Then, the removal procedure is reversed to replace the tube. Due to the fragility of the tube, extreme caution when taking the tube out and reentering it into the magnetic circuit is stressed. Next, the removal and replacement of the noise generator tubes are depicted. In conclusion, the access door to the receiver-transmitter group is closed (7 min -- 1960).</p>
44-2952	Excellent	<p>Nike Hercules Radar Test Set: Tracking Radar Range Unit, Zero and Coding Interval Adjustment (U) (CONFIDENTIAL).</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		The daily range zero and coding interval adjustment is shown. Closeups of the various switches, knobs, meters, and indicators are shown in their proper place as the adjustment is performed. D1 through D7 is calculated step by step (9 min -- 1960).
44-2953	Excellent	Nike Hercules Tracking Radar Range Gate Adjustments (U) (CONFIDENTIAL).  The procedure for performing the range gate adjustment is shown. Closeups of the various knobs, switches, indicators, and adjustment procedures are shown in their proper places as the adjustment progresses (6 min -- 1960).
44-2954	Excellent	Nike Hercules Tracking Radars Beacon Track Automatic Frequency Control Checks and Adjustments (U) (CONFIDENTIAL).  The step-by-step procedure for performing the beacon track AFC adjustment is shown. Closeups of the various indicators, meters, switches and knobs associated with this adjustment are shown in proper sequence as the adjustment progresses (6 min -- 1960).
44-2955	Excellent	Nike Hercules Tracking Radars: Transmitter Checks and Adjustments (U) (CONFIDENTIAL).  The daily transmitter checks and adjustments for the two tracking radars is shown. The first portion of the film covers the TTR, and the second half of the film covers the MTR. Closeups of all indicators switches and knobs pertinent to this adjustment are covered (7 min -- 1960).
44-2956	Excellent	Nike Hercules Tracking Radars: Range Modulator Balance Adjustments.  This film depicts the range modulator amplifier balance adjustment performed daily on the Nike Hercules tracking radars to insure accurate range tracking in the automatic mode of operation.  The adjustment procedure, applicable to both tracking radars, is demonstrated on the missile-track radar. Main teaching points cover energizing the tracking radar, adjustment of the various switches, knobs, dials, and meters in proper sequence, adjustment of range balance and transmitter balance variable resistors (5 min -- 1960).
44-2957	Excellent	Nike Hercules Tracking Radars: Automatic Gain Control, Checks and Adjustments.

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		<p>This film shows the automatic gain control checks and adjustments performed daily on both tracking radars of the Nike Hercules system.</p> <p>The procedure, applicable to both radars, is demonstrated on the target-track radar. Main teaching points cover energizing the tracking radar, adjustment of the various switches, dials, meters, knobs, and indicators in proper sequence, adjustment of the signal on the range scope screen (5 min -- 1960).</p>
44-2958	Excellent	<p>Nike Hercules Tracking Radars Receiver Sensitivity Checks (U) (CONFIDENTIAL).</p> <p>The procedure for performing the daily receiver checks are shown. A step-by-step procedure is outlined with closeups of the various knobs, dials, meters, and indicators shown as the check progresses. In-tolerance readings are obtained for all channels in this film. This film is applicable to systems 1219 and above (11 min -- 1960).</p>
44-2959	Excellent	<p>Nike Hercules Tracking Radars, Angle Modulator Amplifier Balance and Error Pulse Converter, Checks and Adjustments.</p> <p>This film demonstrates the angle modulator amplifier balance and error pulse converter checks and adjustments performed daily on the two tracking radars to insure proper reaction to error signals.</p> <p>The procedure followed in making this adjustment is shown on the target-track radar. Main teaching points cover energizing the radar, adjusting the azimuth balance variable resistor, adjusting the elevation balance variable resistor, azimuth and elevation drift check, final positioning of azimuth and elevation switches (5 min -- 1960).</p>
44-2960	Excellent	<p>Nike Hercules Tracking Radars: Angle Sensitivity Checks and Adjustments (U) (CONFIDENTIAL).</p> <p>The daily angle sensitivity checks and adjustments are shown. Closeups of the various switches, knobs, meters, dials, and indicators are shown in their proper place as the adjustment is performed (5 min -- 1960).</p>
44-2961	Excellent	<p>Nike Hercules Tracking Radars Range Calibrate Checks and Adjustments (U) (CONFIDENTIAL).</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		The step-by-step procedure for performing the daily range calibrate checks and adjustments is outlined. This film was made on a Nike Hercules system above 1219 but is applicable for systems below 1219 (4 min -- 1960).
44-2962	Excellent	Nike Hercules Tracking Radars: Range Zero Checks (U) (CONFIDENTIAL).  The procedure for performing the daily range zero adjustment on the target-track radar is shown. Closeups of dials, indicators, switches, and knobs are shown in their places in the adjustment. This film is applicable to systems 1219 and above (5 min -- 1960).
44-2963	Excellent	Nike Ajax Radar Test Set, Part IV: Measurement of Angular Sensitivity and Range Rate of Tracking Radars (U) (6 min -- 1960) (CONFIDENTIAL).  This film presents the detailed procedures used in measurement of MTR and TTR angular sensitivity and range rate. Points emphasized are application of power; acquiring radar test set, check of azimuth and elevation channels for correct sensing and sensitivity, and dynamic range check (range rate).
44-2975	Excellent	Nike Hercules SAM Battalion, Battery Control Area Alert Status: System Checks and Adjustments, Part I: Director Station (U) (CONFIDENTIAL).  The IFC operators of a 15-minute alert battery respond to BATTLE STATIONS. Starting at plate volts, they perform alert status checks and adjustments on the acquisition radar and the computer (22 min -- 1960).
44-2976	Excellent	Nike Hercules SAM Battalion, Battery Control Area Alert Status: System Checks and Adjustments, Part II: Tracking Station (U) (CONFIDENTIAL).  The IFC operators of a 15-minute alert battery respond to BATTLE STATIONS. Starting at plate volts, they perform alert status checks and adjustments on the missile-track radar and target-track radar. Since the TTR and MTR are checked in essentially the same manner checks are shown only on the MTR except when procedures are different (21 min -- 1960).
44-3012	Excellent	Nike Hercules Missile, Part III: Missile Motor Installation (Missile Rocket Motor Installation).

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		<p>This film deals with the installation of the missile motor in the rear section of the Nike Hercules missile. In addition to the mechanical aspects of this assembly, certain electrical checks made at this time are shown and explained. The entire action of the film takes place in the revetted area. It explains in detail the preparation of the rear body of the missile to receive the motor. It then shows, in their proper order, the steps necessary to uncrate and inspect and install the motor (28 min -- 1961).</p>
44-3028	Excellent	<p>Continuous-Wave Radar, Frequency Modulator: Magnetron Isolation and Frequency Modulation.</p> <p>This film explains the basic concepts of frequency modulation in continuous-wave (cw) radars.</p> <p>In introduction, the importance of frequency modulation control in cw radars for accurate receipt and transmission of target intelligence is defined.</p> <p>Presentation goes on to show how the modulator develops and controls frequency modulation by performing magnetron isolation and modulation. A ferrite modulation device together with animated diagrams are used to demonstrate the rotation of transmitted energy, by a fixed amount to produce magnetron isolation and by an alternating amount to frequency-modulate the carrier.</p> <p>In closing, the contribution made by frequency-modulated, continuous-wave radars to our guidance missile system is underscored (16 min -- 1961).</p>
44-3058	Excellent	<p>Introduction to Tri-Slot Operation, Part I: Conical Scanning (U) (CONFIDENTIAL).</p> <p>This film explains the principle of conical scanning when using a continuous-wave radar receiver. Animated diagrams show various methods of developing conical scanning. The reasons for and advantages of using the Hawk missile tri-slot system are discussed. Animation is used to show the development of the error signal, the separate pitch and yaw error signals, and the use made of these signals in tracking a high-performance target (11 min -- 1961).</p>
44-3059	Excellent	<p>Introduction to Tri-Slot Operation, Part II: Tri-Slot Operation (U) (CONFIDENTIAL).</p> <p>This film explains the principle of conical scanning when using a continuous-wave radar receiver.</p>

<u>TF No.</u>	<u>Rating</u>	<u>Title</u>
		<p>Animated diagrams show various methods of developing conical scanning. The reasons for and advantages of using the Hawk missile tri-slot system are discussed. Animation is used to show the development of the error signal, the separate pitch and yaw error signals, and the use made of these signals in tracking a high-performance target (20 min -- 1961).</p>
44-3062	Excellent	<p>Hawk Battery (Mobile) Reconnaissance, Selection, Preparation and Occupation of Position, Part II: Movement and Occupation.</p> <p>The film opens with an introduction stressing the mobility of a Hawk battery. In the main body of the film, it is explained how a mobile Hawk battery can be divided into two echelons, substituting the assault fire command console for the battery control central in one echelon. This presentation is followed by a typical example of the order of march for the forward echelon's equipment and vehicles. Basic formations by which vehicles may be moved are demonstrated. The 1st echelon then makes a daylight occupation of positions. This presentation is followed by a dramatization of a single Hawk battery firing in two widely separated places at the same time. Next the 2d echelon is shown moving at night, with a demonstration of its order of march. The order of march for the battery as a single unit is then shown. The film closes as the 2d echelon makes a night occupation of positions. Both echelons merge, and the battery once again functions as a single unit (22 min -- 1961).</p>
44-3067	Excellent	<p>Nike Hercules SAM Battery: The Nike Hercules Battery in the Surface-to-Surface Role.</p> <p>This film deals with the steps necessary to convert the Nike Hercules battery to the surface-to-surface role. It considers a normal battery in the condition existing when the field army commander orders the destruction of a concentration of the enemy under circumstances preventing air attack and at distances too great to be reached by his conventional artillery. After the steps taken to convert the battery to this mission, the film deals with the steps taken to arm the nuclear warhead. Each operation is explained, and considerable emphasis is placed on the necessity for accuracy. The conversion of rectangular map firing data to polar coordinates is explained. The necessity for and application of these firing data to the Nike Hercules system are also shown in this film (28 min -- 1961).</p>

Section IV. FILMSTRIPS (FS)

<u>FS No.</u>	<u>Rating</u>	<u>Title</u>
4-15	Acceptable	Fire Control and Position Finding, Antiaircraft Artillery, Part I: Elements of Data (1942).
4-16	Acceptable	Antiaircraft Guns and Accessories, Part II: 90-mm Antiaircraft Gun (1942).
		Notes to Instructor:
		1. Title should be "90-mm Gun M1 on Mount M1A1."
		2. Equilibrator modifications are not shown. Explain the modifications.
4-67	Acceptable	Direct Fire Sights for Antiaircraft Guns, Part I: Theory of Leads (1943).
		Note to Instructor:
		Delete references to 3-inch gun and M4 director.
4-110	Acceptable	Direct Fire Sights for Antiaircraft Guns, Part II: Description and Nomenclature (1943).
		Note to Instructor:
		Frames 47-61 refer to the 3-inch guns and should be deleted.
4-113	Acceptable	Direct Fire Sights for Antiaircraft Guns, Part III: Aiming and Orientation (1944).
		Notes to Instructor:
		1. Reviews theory of leads.
		2. Refers to 3-inch gun.
4-140	Acceptable	Direct Fire Control for Automatic Weapons, Part III: Tracer Observation (1943).
		Notes to Instructor:
		1. Frame 6 shows tracer burnout ranges for caliber .50 machine gun and 40-mm ammunition, which are outdated.
		2. Frame 2 refers to 3-inch gun.
4-141	Acceptable	Antiaircraft Artillery Guns and Accessories, Part III: 90-mm AA Gun on M2 Mount (1943).

<u>FS No.</u>	<u>Rating</u>	<u>Title</u>
		Note to Instructor:  This filmstrip is also applicable to Mount M2A1.
4-144	Acceptable	Antiaircraft Artillery Guns and Accessories, Part V: The 90-mm AA Gun on the M2 Mount (1943).  Notes to Instructor:  1. Frame 8. Add "opening and closing mechanism."  2. Frame 29. Add "on M2 gun, hand-opened lever is a cam instead of gear and sector operation."  3. Frame 42. On M2 gun, firing lever is on right side of cradle.  4. Frame 52. Amplifier M1A1 (fuze) is on top carriage left vertical side frame.  5. Frame 53. Hydraulic check index finger is not shown.
4-149	Acceptable	Antiaircraft Artillery Ammunition, Part I: General Handling and Cal .50 Ammunition (1943).  Notes to Instructor:  1. The primer of each round should be checked.  2. Frames 65-68 show fabric instead of metallic belt.  3. Frame 67 shows combat load as being 1 tracer, 2 AP, 2 incendiary. Should be 1 tracer, 4 AP, 2 incendiary.
4-153	Acceptable	Antiaircraft Artillery Multiple Gun Mounts, Part III: The Multiple Cal .50 Machine Gun Mount, M45, General Description (1943).  Notes to Instructor:  1. Filmstrip pertains only to small power charger.  2. Frame 42. Voltmeter no longer used.  3. Only the old (rear) type of solenoid is shown; explain the new (top) type of solenoid.  4. Frame 47. M18 sight replaced MK IX.

<u>FS No.</u>	<u>Rating</u>	<u>Title</u>
		5. Reference to "limit stop lever" should be "elevation stop lever."
4-154	Acceptable	Antiaircraft Artillery Multiple Gun Mounts, Part IV: The Multiple Cal .50 Machine Gun Mount M45, Assembly and Operation (1944).  Notes to Instructor:  1. Filmstrip pertains only to small power charger.  2. Frames 25 and 28. Voltmeter no longer used.  3. Backplate solenoid obsolete.  4. MK IX sight replaced by M18.  5. Poor sequence.
4-160	Acceptable	Antiaircraft Artillery Guns and Accessories, Part IV: The 90-mm AA Gun on the M2 Mount, Leveling Mechanism (1943).  Notes to Instructor:  1. This filmstrip is also applicable to mount M2A1.  2. Frame 17. Shields do not fold back in traveling position.  3. Frame 26. Firing platform has been modified.  4. Frame 39. Photo of traversing rack incorrect.  5. Frame 58. Recoil should be 26 to 28 inches.  6. Frame 59. Recoil length should be 42 to 44 inches.
*4-181	Acceptable	The Medium Tractor M4, Part I: Operation (1944).
4-200	Poor	Field Fortifications for Antiaircraft Artillery, Part I: Basic Principles (1944).  Notes to Instructor:  1. All uniforms and materiel are obsolete, including leggings, gas masks, generators, guns (single barrel 40-mm) and director.

<u>FS No.</u>	<u>Rating</u>	<u>Title</u>
		2. The foxhole displayed is inadequate because it ignores overhead cover, which is mandatory on the nuclear battlefield.
*4-201	Poor	Field Fortifications for Antiaircraft Artillery, Part II: Automatic Weapons (1944).  Notes to Instructor:  1. All uniforms and materiel are obsolete, including leggings, gas masks, generators, guns (single barrel 40-mm), director, and water-cooled machine guns.  2. A false impression is given in frame 22. The weapon must be able to fire horizontally.  3. The generator is referred to as the powerplant in frames 31 through 35.  4. A fortification for a generator (frames 31 through 35) must include provision for an exhaust extension to preclude operator asphyxiation.
*4-202	Poor	Field Fortification for Antiaircraft Artillery, Part III: Guns (1944).  Notes to Instructor:  1. All uniforms and materiel are obsolete, including leggings, gas masks, generators, guns (90-mm and water-cooled machine guns), director, height finder, and radars.  2. The generator is referred to as the powerplant in frames 45 through 51.  3. A fortification for a generator (frames 45 through 51) must include provisions for an exhaust extension to preclude operator asphyxiation.
4-204	Acceptable	Antiaircraft Artillery Ammunition, Part III: Ammunition for AA Guns (1944).  Notes to Instructor:  1. Frame 67. Ammunition is not fixed; it is separated ammunition.  2. Last two frames obsolete since 3-inch gun has been declared obsolete.  3. Standard MT fuze for 90-mm gun is M502.

<u>FS No.</u>	<u>Rating</u>	<u>Title</u>
		4. Standard PD fuze for 90-mm gun is M51A5.
*4-250	Acceptable	Antiaircraft Artillery Fire Control and Position Finding, Part XII: Orientation of the Gun Battery in Azimuth (1944).
4-251	Acceptable	Antiaircraft Artillery Fire Control and Position Finding, Part XI: Parallax Corrections (1944).
4-255	Acceptable	Direct Fire Sights for Antiaircraft Guns, Part IV: Firing and Adjustment (1944).
*44-14	Acceptable	Antiaircraft Artillery Fire Control and Position Finding, Part XIX: The Director M5A2.
44-18	Acceptable	Antiaircraft Artillery Guns and Accessories, Part II: The 90-mm AA Gun on M1A1 Mount, Section A: The Bogie and Pedestal (1945).
		Notes to Instructor:
		1. This filmstrip is not applicable to other mounts.
		2. Frame 25. Delete "as the handbrakes are released."
44-19	Acceptable	Antiaircraft Artillery Guns and Accessories, Part XII: Section A (1945).
44-20	Acceptable	Basic Mechanism Guns and Accessories, Antiaircraft Artillery, Part XII: Section B (1945).
		Note to Instructor:
		Delete references to M7 director in frames 34-45, where applicable.
44-21	Acceptable	Antiaircraft Artillery Guns and Accessories, Part II. The 90-mm AA Gun on M1A1 Mount, Section B: Leveling Mechanism, Top Carriage Cradle (1945).
		Note to Instructor:
		This filmstrip is not applicable to other mounts.
44-22	Acceptable	Antiaircraft Artillery Guns and Accessories, Part II: The 90-mm AA Gun on M1A1 Mount, Section C: The Gun Assembly (1945).
		Notes to Instructor:
		1. This filmstrip is not applicable to other mounts.

<u>FS No.</u>	<u>Rating</u>	<u>Title</u>
		2. Frame 43. "Retracting spring" erroneously titled "return spring."

Section V. OTHER PERTINENT FILMS

The following listed films are not the responsibility of the U.S. Army Air Defense School but may be of value for various phases of air defense artillery instruction.

SUBJECTS USED IN R&D REPORTS

<u>R&amp;D FILM REPORT No. 1 (S), APR 57</u>	<u>R&amp;D FILM REPORT No. 4 (C), DEC 57</u>
Nike Ajax (S)	Jupiter Nose Cone Recovery (C)
Nike Hercules (S)	Hawk Loader (U)
Hawk (S)	Dart Shaped Charge Test (C)
Honest John (S)	Modular Fuze Assembly (C)
Corporal (S)	Quadrotor (U)
Dart (U)	Multifuel Engine Test (U)
Little John (S)	New 8x8 Truck (U)
Lacrosse (S)	Quick Opening Parachute (U)
Sergeant (S)	Honeycomb Shock Absorbing Material (U)
Redstone (S)	T-113 & T-117, Personnel Carriers (C)
Jupiter (S)	XM-384 Cargo Truck 1 Ton 8x8 (U)
	Fireproofed Clothing (U)
	E-13, Protective Mask (U)
	Automatic Mine Layer (U)
	Portable Weather Radar (U)
	Study in Tank Gun Laying (C)
<u>R&amp;D FILM REPORT No. 2 (C), JUL 57</u>	<u>R&amp;D FILM REPORT No. 5 (C), MAR 58</u>
Jupiter, First Firing at Cape Canaveral, Florida (C)	Greenland (C) (22 min)
Hawk, Low Altitude Firing Tests (U)	
H-37, Helicopter (U)	
T-92, New Light Tank (U)	
The Flying Platform (U)	
Air Drop Tests	
Air Drop, Jeep (U)	
Air Drop, Tank (U)	
Aerial Delivery (U)	
Rough Terrain Forklift Truck (U)	
Helmet Radio (U)	
Trainfire (U)	
<u>R&amp;D FILM REPORT No. 3 (C), OCT 57</u>	<u>R&amp;D FILM REPORT No. 6 (CRD), AUG 58</u> (28 min)
Jupiter (C)	Jupiter (CRD)
Sergeant Erector-Launcher (C)	Explorer III R&D Support of IGY Program (U)
Nike-Hercules (C)	Printed Transistors (U)
Portable Pipe Line (U)	Solar-Powered Helmet Radio (U)
Helicopter - XH-40 (U)	Aluminum Suit (U)
Single Place Inflatable Aircraft (U)	Plastic Cartridge Case (U)
Armored Vehicle Launched Bridge (U)	High-Velocity Injection Device (U)
New Two Man Tent (U)	Piasecki Flying Jeep (U)
Army Power Package Reactor (U)	Doak Aircraft (U)
Helicopter Transportable Radio-Teletype Station AN/GRC-46 (U)	Redstone "A" Frame (U)
Automatic Jet Injection Apparatus (U)	Mobile Lox Plant (U)
	Lacrosse Shaped Charged Warhead (C)
	T-236, Sp 8-Inch Howitzer (U)

R&D FILM REPORT No. 7 (SRD),  
OCT 58 (29 min)

Zeus (SRD)  
Redstone Tactical Firing (C)  
Jupiter Prototype (S)  
Pershing Mock-Up (C)  
Two-Place Inflatoplane (U)  
T-235, 175-MM Gun (C)  
Rolling Fluid Transporter (U)  
T-300, Heat Cartridge (S)  
SADM (SRD)  
Dash - Dot (S)  
Davy Crockett (SRD)  
Vertol Tiltwing (U)

R&D FILM REPORT No. 8 (S), FEB 59  
(27 min)

Pioneer III (S)  
Gordo (S)  
Q-5, Aerial Target (C)  
Talos Evaluation (S)  
Missile Monitor (C)  
Cigarette Fuze (U)  
T-10, Canopy Spiller (U)  
E-42, Flame Rocket (C)  
Flying Jeep (U)  
Molded Sole Shoes (U)  
Mouth to Mouth Resuscitation (U)  
Cat and Mouse (C)  
Solar Furnace (U)

R&D FILM REPORT No. 9 (S), MAY 59  
(24 min)

Caribou (U)  
Pneumatic Dunnage (U)  
Vortex Ring Parachute (U)  
T-238, Chemical Rocket (S)  
XM-72 Rocket Grenade (C)  
SS-10, Antitank Missile (C)  
Hawk VS Q-5 (S)  
Army Simulators (U)

R&D FILM REPORT No. 10 (SRD),  
OCT 59 (24 min)

Camp Century (S)  
E-33 Universal Spray Tank (S)  
Phase II - Little John (C)  
New Lightweight Trucks (U)  
SD-2 Surveillance Drone (C)  
T-120 Wrecker-Recovery Vehicle (U)  
Avrocar (S)  
Psychochemical Agent (LSD) (S)

R&D FILM REPORT No. 10-Continued

Honest John Improved (C)  
Bone Glue (U)  
Davy Crockett Weapons Systems (SRD)

R&D FILM REPORT No. 11 (S), NOV 59

Mohawk (U)  
Doak (U)  
Truck Utility XM-408 3/4 Ton 6x6 (U)  
Convertible Mule XM-443 (U)  
Beach Discharge Lighter (U)  
Rough Terrain Forklift Truck with  
Crane (U)  
Pentadome Air Supported Shelter (U)  
Free Air Suspension System (FASS) (U)  
Pershing Guidance System (S)  
Saturn (S)

R&D FILM REPORT No. 12 (S), JUN 60

Goers (U)  
Tank, Main Battle M60 (C)  
Self-Repelled M155 Howitzer T196 (C)  
Intestinal Biopsy Capsule (U)  
Claymore Mine T48E1 (C)  
Gravel Mine (S)  
Surveillance Radar Airborne AN/APS-85  
(U)  
Surveillance Radar Airborne AN/APQ-86  
(C)  
Infrared AN/AAS-5 (C)  
Pershing Captive Test (S)  
Zeus Firing Test (S)

R&D FILM REPORT No. 13 (C), DEC 60

Pershing ( )  
Thermal Cream ( )  
Redeye ( )  
Converted Plane ( )  
Piasecki ( )  
Aerial Car Flying ( )  
Doak ( )  
Caribou ( )

R&D FILM REPORT No. 14 (S), DEC 60

The Vigilante System (C)  
Vigilante A (Towed)  
Vigilante B (Self-Propelled)  
Pershing Development Progress (S)  
Task Fighter (HUMMRO) (U)  
Cargo Carrier Amphibious, T116 (U)

R&D FILM REPORT No. 14-Continued

Ground Effect Machine Program (U)  
Flying Scooter  
Flying Do-Nut  
Curtiss-Wright Air Cars  
High-Speed Teletypewriter Family (U)  
Unmanned Surveillance System, SD/5 (C)  
Missile Borne TV Feasibility Test (S)

R&D FILM REPORT No. 15 (SRD), JUN 61

Shillelagh (S)  
Incendiary Burster, M4 (C)  
Avrocar Hovering Test (C)  
TADM (SRD)  
Multipurpose Jammer Evaluation (C)  
Manpack VT Fuse Jammer (C)  
Fluid Amplification (U)  
Command and Reconnaissance Vehicle  
T114 (U)  
Overland Train (U)  
Antivehicular Mine Planter (C)

R&D PR No. 1

United States Army Research and Development:  
Progress Report Number One (both B&W and color  
28 min).

This progress report is on the objectives, scope, and accomplishments of the Army research and development program.

The Army R&D program is designed to keep abreast with the challenges of the nuclear age and improve the Army's readiness for national defense. The advancements made thus far significantly affect the tactical concept, flexibility, and versatility of weapons, equipment, and safety of personnel. The features, capabilities, and use of the following achievements are described: old and new Honest John; Little John; Lacrosse; self-propelled 8-inch howitzer; armored wrecker recovery vehicle; rolling fluid transporter; armored vehicle launched bridge; Caribou (twin-engine, all-purpose, fixed-wing aircraft); Iroquois (turbo-powered helicopter).

Lastly, presentation outlines several significant research projects currently underway: Project DOAK (aircraft research); new army boots; aluminum fire-fighting suit; Nike Hercules vs Q-5 target missile; Hawk vs QF-80 fighter plane.

R&D PR No. 2

United States Army Research and Development:  
Progress Report Number Two (both B&W and color  
28 min).

This report is on the objectives, scope, accomplishments, and future goals of the Army research and development program.

In introduction, the significant role of Army research and development in maintaining the Army's readiness in the face of the new tactical concepts of the modern age is defined.

The body of the film highlights the features, capabilities, and use of some of the outstanding accomplishments to date: Lighter, amphibious, resupply, cargo 5-ton; beach discharge lighter; battalion missile operations system AN/MSQ-18

tank, main battle, M60; personnel carrier M13; intestinal biopsy capsule; universal engineer tractor, rubber-tired; 175-mm gun, T235; GOERS cargo carrier tanker; Mohawk; new family of FM combat radios.

TF 9-3102 Nuclear Weapons Adaption Kits (U) (B&W 23 min -- 1961).

This film is classified CONFIDENTIAL RESTRICTED DATA. (Atomic Energy Act 1954)

TF 10-2965 Protective Gear for Handling Guided Missile Liquid Propellants (Color, 22 min -- 1961).

This film describes the need for and proper use of protective gear designed for personnel engaged in guided missile liquid propellant handling operations.

The features and fundamentals related to the use of the green ensemble (worn in warm climate) and black full and limited protection ensembles (worn in cold climate) together with their associated breathing apparatus are presented. Salient teaching points cover inspection of gear before donning, use of repair kit, dressing and undressing procedures, special precautions taken before entering the work area, handling contaminated gear, decontamination after propellant transfer operations.

The responsibility of the safety officer in determining the type of ensemble and breathing apparatus to be worn in specific situations is underscored. Finally, it is pointed out that the black ensemble will ultimately replace the green ensemble and will be worn both in warm and cold climates.

#### ARMED FORCES SCREEN MAGAZINE (AFSM)

<u>No.</u>	<u>Title</u>
AFSM 52	Nike Missile (18 min -- 1954).
OC 8	Challenge of Outer Space.
MF 9-8175	Nike System Test (13 min -- 1954) (CLASSIFIED).
MF 9-8704	(WSMR Film Report No. 3): Search into Space (color, 21 min -- 1956).
	Mission of Systems Engineering Branch at Holloman Air Research Center—research and development activities on current missile tests instrumentation.

<u>No.</u>	<u>Title</u>
MF 9-8705	(WSMR Film Report No. 1): Eyes of the Range (color, 21 min -- 1956).  Operation of electronic and optical instrumentation used by Flight Determination Lab to observe, record, and evaluate missile flight test data.
MF 11-8924	(WSMR Film Report No. 4): Signals for Missiles (color, 23 min).  "Signals for Missiles" tells the story of a unique organization at White Sands Missile Range, the White Sands Signal Missile Support Agency. It is the story of an organization that grew from a group of 10 men and two radar vans in 1946 to 2,000 military and civilian employees currently operating a \$53,000,000 plant.
MF 45-9504	(WSMR Film Report No. 12): Rolling for Rocketry (color, 18 min).  "Rolling for Rocketry" depicts the operation of a bus system at White Sands Missile Range that has logged over four billion passenger miles without a single personal injury and at a cost of as little as one-half cent per mile to the average rider.  Transportation is an area of vital concern in working with missiles, and "Rolling for Rocketry" shows how one phase of this problem was solved at White Sands Missile Range.
MF 45-9506	(WSMR Film Report No. 30): Fort Churchill--Springboard for Science (color, 12 min).  This motion picture portrays activity at Fort Churchill, Canada, in preparation for the International Geophysical Year rocket firings at the Canadian wilderness base.
MF 45-9503	(WSMR Film Report No. 15): Proving Tomorrow's Weapons (color, 28 min).  "Proving Tomorrow's Weapons" graphically outlines the role of Ordnance Mission at White Sands Missile Range as the principal Ordnance Corps installation for the execution of all technical and engineering responsibilities associated with the flight and laboratory testing of guided missiles and rockets that may be assigned for evaluation.

<u>No.</u>	<u>Title</u>
MF 45-9507	(WSMR Film Report No. 29): Prelude to IGY (color, 12 min).  Against a backdrop of the frozen Arctic, the final preliminary firings and last minute checkouts of equipment are shown as the curtain rises on the International Geophysical Year.
MF 45-9508	(WSMR Film Report No. 44): Missile Recovery (color, 16 min).  One vital reason for the importance of White Sands Missile Range in the missile picture is the comparative ease of recovery of missiles for study. This film shows the important work of range recovery personnel in picking up impacted missiles anywhere on the range and returning them to the laboratories for examination.
MF 45-9505	(WSMR Film Report No. 6): From Flight to Facts (color, 15 min).  A missile shoot is no more successful than the data gathered from its flight. Here is the story of how those data are collected and evaluated by the Data Reduction Division of Integrated Range Mission.
MF 45-9501	(WSMR Film Report No. 17): What Goes Up (color, 21 min).  This film depicts the historical development and present generation of the missile flight safety system at White Sands Missile Range. This system insures that missiles impact in safe range areas.
MF 45-9510	(WSMR Film Report No. 53): Countdown at White Sands (color, 26 1/2 min).  A depiction of missile flight-data-gathering instruments at White Sands Missile Range and the operations involved in missile test scheduling, climaxed by a dramatic portrayal of how range activities are controlled and coordinated during a Nike Hercules test.
MF 45-9509	(WSMR Film Report No. 52): They Major in Missiles (color, 13 1/2 min).  A dramatic film treatment of the Cooperative Training Program at White Sands Missile Range. Students enrolled in this program attend classes at New Mexico State University and Texas Western

No.

Title

College for six months of each year. During the remaining six months, they receive on-the-job training in their chosen field as employees of White Sands Missile Range.

MF 45-9502

(WSMR Film Report No. 31): Frontier Beyond the Sky (color, 26 1/2 min).

Produced for the National Academy of Science, this is a film report on the world-wide United States International Geophysical Year Rocket Program for upper atmospheric research. Animation is used to depict the nature of experiments and upper air structure.

MF 45-9511

(WSMR Film Report No. 21): Nike Hercules (color, 5 min).

MF 45-9513

(WSMR Film Report No. 28): Nike Ajax (color, 5 min).

MF 45-9512

(WSMR Film Report No. 20): Corporal (color, 4 1/2 min).

MF 45-9514

(WSMR Film Report No. 19): Honest John (color, 4 min).

MF 45-9515

(WSMR Film Report No. 72): Little John (color, 3 1/2 min).

MF 45-9517

(WSMR Film Report No. 56): Redstone (color, 5 1/2 min).

MF 45-9526

(WSMR Film Report No. 55): Redstone at White Sands (color, 19 min).

This film depicts the preparation and firing of a Redstone missile at White Sands Missile Range. The general nature of the missile system is explained as field artillery troops are shown emplacing and firing a missile that was instrumented for analysis of its performance.

MF 45-9500

(WSMR Film Report No. 73): Snodgrass Task Force (color, 14 min).

This film is a dramatic presentation of the operations involved in Snodgrass Task Force, during which both tactical and instrumented Nike Hercules air defense missiles were fired at jet drone aircraft. Firings, target intercepts, and recovery from the sea of instrumented nose cones are shown. The film inspires confidence in our air defense troops and in their mighty weapon—the Nike Hercules.

<u>No.</u>	<u>Title</u>
MF 45-9548	(WSMR Film Report No. 12): Pogo Hi (color, 10 min).  This film tells the story of the development, testing, and final use of a low-cost, high-altitude target system. A high-altitude target was needed at White Sands Missile Range for testing of such missile systems as the Nike Hercules, Talos, and Falcon. The film includes both art work and live photography to demonstrate how the Pogo Hi missile releases a parachute target at altitudes of 100,000 feet or more.
MF 45-9521	(WSMR Film Report No. 58): Photo-Optics at White Sands (color, 12 min).  A broad look at the multiplicity of photo-optical systems employed at White Sands for recording missile flights, high speed sled runs, static engine tests, etc. Some spectacular slow motion shots are included.
MF 45-9529	(WSMR Film Report No. 78): Milestones of Missilry (color, 9 min).  This film presents a missile parade of all the Army missiles tested at White Sands. The treatment is dramatic, employing background music and sound effects. Missile firings, from the early-day V-2's to the latest Nike Zeus, are shown.
MF 45-9518	Tularosa Frontier.  Excellent shots of entire family of missiles.
MF 20-9377	The Broken Bridge (color 44 min).  This film correlates the Army Missile program with the operational missiles deployed overseas and the R&D missiles under test and evaluation. The method of conveying information about the missile strength of the Army involves a personal experience of Audie L. Murphy through whose participation in the film the story is related. Murphy, World War II's most decorated soldier, revisits the European Command to witness the actions of the modern Army with particular emphasis on missile deployment. During this trip Murphy visits Norway, Germany, Italy and Turkey, the Far East, and White Sands Missile Range, New Mexico. He is shown the Ajax, Hercules, Corporal, Honest John, and Redstone missiles and rockets in Europe and the Far East. At White Sands, General Trudeau, Chief of Research and Development, guides Murphy to launching sites to witness firing of Lacrosse, Sergeant, Honest John, and Hawk. They also view and explain Little John, Redeye, and Nike

No.

Title

Zeus. This film was shot on location in Europe, White Sands Missile Range, and Hollywood, California. It is an exceptional film and designed for ease of understanding by all personnel.

MF 44-7556

Nike (CLASSIFIED).

MF 44-8062

Nike System Field Test (CLASSIFIED).

MF 44-8352

Nike - For Defense of America (color, 13 min).

\*MF 45-8354

Guided Missiles (26 min -- 1954).

\*MF 45-8698

Nike for the Defense of Your Community.

SLIDE KIT (SK)

SK device 5-QQ-8

Aircraft Recognition.

TRAINING FILMS (TF)

<u>TF No.</u>	<u>Title</u>
4-1472	Fundamental Principles of Fuzes (23 min -- 1948).
5-2462	Guided Missile Equipment - Nike - Elevator Locking Bar Cylinder, Replacement and Adjustment (6 min -- 1957).
5-2464	Guided Missile Equipment - Nike - Elevator Locking Bar Cylinder, Removal (6 min -- 1957).
5-2465	Guided Missile Equipment - Nike - Door Cylinders Removal (7 min -- 1957).
5-2466	Guided Missile Equipment - Nike - Part I: Four-Way Valves. Disassembly (9 min -- 1957).
5-2468	Guided Missile Equipment - Nike - Two-Way Valve, Disassembly and Assembly (7 min -- 1957).
5-2469	Guided Missile Equipment - Nike - Bleeding Door Cylinders (5 min -- 1957).
5-2506	Guided Missile Equipment - Nike - Part II: Four-Way Valves, Assembly (6 min -- 1957).
9-960	Gun, Automatic, 40-mm M1, Principles of Operation (25 min -- 1943).
9-1298	Field Repair of Gun, 90-mm M1, and Mount, Gun, Antiaircraft, 90-mm M1A1, Part I (23 min -- 1944).
9-1299	Field Repair of Gun, 90-mm M1, and Mount, Gun, Antiaircraft, 90-mm M1A1, Part II (23 min -- 1944).
9-1300	Field Repair of Gun, Automatic, 40-mm M1, and Carriage, Gun, 40-mm M2, Antiaircraft (21 min -- 1944).
9-1356	The 90-mm Gun, M1A1, Principles of Operation, Part I (29 min - 1944).
9-1357	The 90-mm Gun, M1A1, Principles of Operation, Part II: Recoil Mechanism (21 min -- 1944).
9-1367	Gun, 120-mm, Antiaircraft M1, Principles of Operation, Part I, Section I: Function and Operations; Section II: The Percussion Mechanism (30 min -- 1944).
9-1368	Gun, 120-mm, Antiaircraft M1, Principles of Operation, Part II: Operation of the M9 Power Rammer (10 min -- 1944).

<u>TF No.</u>	<u>Title</u>
9-1376	The Oil Gear Hydraulic Traversing Mechanism, Principles of Operation (21 min -- 1944).
9-1652	Guided Missiles, Theory of Operation (16 min -- 1950).
9-1843	The Antiaircraft Artillery Fire Control Problem (23 min -- 1954).
9-1846	Antiaircraft Artillery Fire Control Systems, Part III: The M9 Type Director with SCR-584 Radar Set (13 min -- 1955).
9-1869	Recoil Mechanisms, Principles of Operation, Hydrospring Type (13 min -- 1954).
9-1934	Methods of Solution of the Antiaircraft Artillery Fire Control Problem, Part II: Conversion between Spherical and Rectangular Coordinates (24 min -- 1955).
9-1948	Recoil Mechanisms, Principles of Operation, Hydropneumatic Type, Part I: Dependent Systems (12 min -- 1954).
9-1949	Recoil Mechanisms, Principles of Operation, Hydropneumatic Type, Part II: Independent Systems (16 min -- 1954).
9-1951	Methods of Solution of the Antiaircraft Artillery Fire Control Problem, Part I: The Linear Speed Method (11 min -- 1954).
9-1952	Guided Missile Propellants, Basic Characteristics (25 min -- 1955).
9-2222	Guided Missile Propellants -- Fire Hazards and Extinguishment (21 min -- 1957 -- color).
9-2300	Nike Ajax Missile Test Equipment, Preliminary Operations (U) (8 min -- 1957)(CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
9-2320	Missile Ord-6 Test Equipment, Position 2, Signal Data Converter Tests (U) (4 min -- 1957)(CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
9-2321	Missile Ord-6 Test Equipment, Position 2, Signal Data Converter Tests (U) (6 min -- 1957)(CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
9-2322	Missile Ord-6 Test Equipment, Position 1, Guidance Section Tests Position 2, Part A Amplifier-Decoder and Radar Modulator Tests (U) (5 min -- 1957)(CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).

<u>TF No.</u>	<u>Title</u>
9-2323	Missile Ord-6 Test Equipment, Part B, Position 2, Amplifier-Decoder and Radar Modulator Tests (U) (5 min -- 1957) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
9-2324	Missile Ord-6 Test Equipment, Position 3, Power Unit and Control Amplifier Tests (U) (6 min -- 1957) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
9-2325	Missile Ord-6 Test Equipment, Position 3, Power Unit and Control Amplifier Tests (U) (5 min -- 1957) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
9-2326	Missile Ord-6 Test Equipment, Position 3, Power Unit and Control Amplifier Tests (U) (4 min -- 1957) (CONFIDENTIAL-MODIFIED HANDLING AUTHORIZED).
11-1385	Technical Principles of Radar, Part I: Introduction (22 min -- 1945).
11-1386	Technical Principles of Radar, Part II: Mechanics (22 min -- 1945).
11-1387	Technical Principles of Radar, Part III: Indicators (45 min -- 1945).
11-1420	Radar Antijamming for the Radar Operator, Part I: Receiver Adjustments (U) (29 min -- 1952) (CONFIDENTIAL).
11-1421	Radar Antijamming for the Radar Operator, Part II: Recognition of Electronic Jamming (U) (28 min -- 1952) (CONFIDENTIAL).
11-1422	Radar Antijamming for the Radar Operator, Part III: Window (U) (32 min -- 1952) (CONFIDENTIAL).

FILMSTRIPS (FS)

<u>FS No.</u>	<u>Title</u>
7-69	The Browning Machine Gun, Cal.50 HB (Flexible) M2 (Ground), Part I: Mechanical Training, Description, Characteristics (1942).
7-70	The Browning Machine Gun, Cal .50 HB (Flexible) M2 (Ground), Part II: Mechanical Training, Assembling and Disassembling by Groups, Head Space Adjustment (1942).
7-71	The Browning Machine Gun, Cal .50 HB (Flexible) M2 (Ground), Part III: Care and Cleaning, Spare Parts, Accessories, and Ammunition (1942).
9-24	The Browning Machine Gun, Cal .50 M2, Part I: Disassembly and Assembly (1942).
9-152	The Browning Machine Gun, Cal.50 M2, Inspection and Gaging, Part I (1943).



<u>Transparency Number</u>	<u>Title</u>	
T 9-11-201	MISSION AND MISSILE INFORMATION TO COMPUTER AND MISSILE- TRACK RADAR (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-202	MISSION AND MISSILE LAMP CIRCUITRY (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-203	MISSION PREPARED CIRCUIT (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-204	NIKE-A ROUND PREPARED CIRCUIT (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-205	NIKE H- XS REQUEST (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-206	LAUNCHER SECTION CONTROL PANEL NIKE H (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-207	LOW ALTITUDE MISSION (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-208	TEST RESPONDER-BIAS VOLTAGE SOURCE (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-209	ELEVON CONTROL ASSEMBLY SCHEMATIC (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-210	T-46 WARHEAD (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-211	POSSIBLE NIKE MISSILE FLIGHT PATHS (FINAL STAGES OF SURFACE- TO-SURFACE MISSION) (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-212	ELEVON ACTUATING MECHANISM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-213	T-45 WARHEAD (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-214	CHANGE OF GAIN OF A <sub>G</sub> AND B SERVOS FOR LA MISSION (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-215	DISPLAYED AIMING POINT FOR SS MISSIONS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-216	FDT FOR SS MISSION (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-217	FINAL DIVE TIME CIRCUITRY - FOR LOW-ALTITUDE MISSION (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-218	LA AND SA FLIGHT TIME COMPARISON (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-219	RIGHT SECTION OF T-H PLOTTING BOARD (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-221	GLIDE BIAS CIRCUITRY (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-222	FUNCTION GENERATOR CURVES FOR LOW-ALTITUDE MISSIONS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-223	NIKE H OL LIMITER (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-224	GLIDE BIAS COMMAND (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-225	NIKE H VELOCITY CORRECTION FUNCTIONS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-226	ORDER LIMIT CIRCUITRY (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-227	DIVE ORDER COMMANDS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-228	ACCELERATION ORDERS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-229	APPLICATION OF ORDER LIMITS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-230	NIKE A IN-RANGE CIRCUIT (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-231	TYPICAL SS TRAJECTORY (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-232.	EFFECT OF GLIDE BIAS, SUPERELEVATION, AND BALLISTIC FALL-IN ON MISSILE TRAJECTORY (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-233	GEOMETRY OF NIKE B BALLISTICS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-234	ACCELERATION ORDERS TO FINS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-235	PRELAUNCH BALLISTICS + <sub>1</sub> CIRCLES (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-236	INPUTS TO THE TURN ORDER CHANNEL FOR OVER-THE-SHOULDER ENLARGEMENTS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-237	MISSILE DIFFERENTIATORS - VELOCITIES FROM POSITION DATA (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-238	CLOSING SPEED SOLVER (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-239	ORDER LIMIT PATTERNS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-240	COMPARISON OF BALLISTICS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-241	TYPICAL LOW-ALTITUDE TRAJECTORY (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-242	GS-17585 CONTROL INDICATOR PANEL (TACTICAL)(U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-243	GS-17591 CONTROL INDICATOR (TARGET DESIGNATE) - FRONT PANEL (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-244	NIKE HERCULES MISSILE CONTROL SYSTEM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-245	ELECTRONIC GATE - BLOCK DIAGRAM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-246	PULSE GENERATOR (MIXING AND SWITCHING) BLOCK DIAGRAM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-247	PULSE GENERATOR - VOLTAGE DIVIDER CIRCUIT (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-248	PULSE GENERATOR - BLOCK DIAGRAM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-249	WAVEFORM CONVERTER - OSCILLOSCOPE PATTERNS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-250	WAVEFORM CONVERTER - OSCILLOSCOPE PATTERNS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-251	NIKE HERCULES SURFACE-TO-SURFACE SEQUENCE OF EVENTS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-252	PULSE COINCIDENCE-PULSE SEQUENCE-PLUS 7G PITCH COMMAND (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-253	PULSE COINCIDENCE-PULSE SEQUENCE-MINUS 7G PITCH COMMAND (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-254	NIKE H CODING (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-255	GS-17809 WAVEFORM CONVERTER (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-256	DELAY PULSE GENERATOR (BLOCK DIAGRAM)(U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-257	GS-17586 RADAR CODER SET (MISSILE GUIDANCE) - FUNCTIONAL BLOCK DIAGRAM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-258	NIKE MISSILE CONTROL SYSTEM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-259	DUPLEXER ASSEMBLY (MONOPULSE) (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-260	DIFFERENCE BORESIGHT FOR NIKE B ANTENNA (MAXIMUM EXPECTED VARIATIONS) (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-261	GS-17563 TRACK REFLECTOR ASSEMBLY - RADIATION PATTERN - ELEVATION PLANE (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-262	GS-17563 TRACK REFLECTOR ASSEMBLY - RADIATION PATTERN - AZIMUTH PLANE (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-263	MISSILE-TRACK RADAR ZERO RANGING (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-264	GS-17699 CONTROL-INDICATOR (CODER) (BLOCK DIAGRAM) (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-265	RADAR CODER (PITCH AND YAW) WAVEFORMS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-266	MISSILES PREPARED AND A <sub>G</sub> TRANSMISSION (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-267	TIME SERVO SWITCHING (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-268	TIME SERVO (SECOND PER SECOND RATE LOOP CLOSED) (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-269	STEERING PHASE TIME SOLUTION (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-270	SOLUTION FOR MISSILE TURN ANGLE (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-271	TARGET STEERING DIFFERENTIATORS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-272	RESOLUTION OF MISSILE COORDINATES (MISSILE COORDINATE CONVERTER) (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-273	RESOLUTION OF TARGET COORDINATES (TARGET COORDINATE CONVERTER) (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-274	SIMPLIFIED $\pm$ DTA SOLUTION FOR INITIAL TURN PROBLEM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-275	RADAR CLEARED CIRCUIT FOR INITIAL TURN PROBLEM - CTA NEG RELAY CIRCUIT FOR INITIAL TURN PROBLEM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-276	INPUTS TO- $G_T$ AMPLIFIER FOR INITIAL TURN PROBLEM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-277	SIMPLIFIED + CTA AMPLIFIER SOLUTION FOR INITIAL TURN PROBLEM (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-278	GS-17808 PULSE GENERATOR - OSCILLOSCOPE PATTERNS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-279	SIMPLIFIED + $G_Y$ AND + $G_P$ SOLUTION FOR INITIAL TURN PROBLEM-VELOCITIES FROM POSITION DATA (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-280	INPUTS TO THE + CTA NETWORK AND RADAR CLEARED RELAY AMPLIFIER (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-281	DIFFERENCE TURN ANGLE SOLVER (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-282	CRITICAL TURN ANGLE SOLVER (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-283	NIKE HERCULES MISSILE TIME CORRECTION (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-284	BALLISTIC ELEVATION ANGLE + SERVO (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-285	SEA LEVEL BALLISTICS - NIKE AJAX AND NIKE HERCULES (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-286	LOW-ALTITUDE RELAYS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-287	NIKE I IN-RANGE GEOMETRY (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-288	HANDSET CONTROLS (U) (Transparency itself is classified CONFIDENTIAL.)	(B& W)
T 9-11-289	CONTROL-INDICATOR (TACTICAL) EVENT RECORDER POWER CIRCUIT	(B& W)
	Description: Schematic diagram showing relation between battery control console and switchboard cabinet.	
T 9-11-290	EXTERNAL-INTERNAL CONTROL NIKE-H LAUNCHING AREA	(B& W)
	Description: Diagram showing the various controls in the section control-indicator and launcher operating control- indicator.	
T 9-11-291	DELAY LINE HEAT	(B& W)
	Description: Schematic diagram showing path taken from ready relay circuit in section operating control-indicator to delay line detector in missile and delay line heater in missile.	
T 9-11-292	SAME PREPARED	(B& W)
	Description: Schematic diagram showing path of same prepared relays in section control-indicator and launcher operating control-indicator.	
T 9-11-293	INTERAREA CIRCUITS (PART 2) USING ORGANIC CABLES	(B& W)
	Description: Diagram showing system of interarea circuits using 5-pr cable-run No. 48, spiral four cable-run No. 46, and 5-pr cable-new Nike B.	

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-294	INTERAREA CIRCUITS (PART 1) USING ORGANIC CABLES Description: Diagram showing system of interarea circuits using field wire pr 1, pr 2, pr 3, and pr 5 cable run No. 47.	(B& W)
T 9-11-295	FIRE COMMAND AND LAUNCH ORDER SECTION Description: Schematic drawing showing position and action of components in section control-indicator.	(B& W)
T 9-11-296	MISSILE POWER CONTROL AND DISTRIBUTION Description: Diagram showing the distribution of power to the launcher operating control-indicator from the section control-indicator.	(B& W)
T 9-11-297	COMMUNICATIONS SYSTEM LAUNCHER SECTION Description: Diagram of system showing the inter- relationship of the major components.	(B& W)
T 9-11-298	TELEPHONE ALERT SWITCHING NIKE-H LAUNCHING AREA Description: Diagram of system depicting location and action of components.	(B& W)
T 9-11-299	FAIL-SAFE CONTACTS CONFIGURATION FOR TEST PURPOSES Description: Diagram showing relation between missile and GS-17810 pulse generator.	(B& W)
T 9-11-300	MISSILE RF TEST SET OSCILLOSCOPE PATTERNS Description: Drawings showing patterns 1 and 2.	(B& W)
T 9-11-301	COMMUNICATIONS SWITCHING INDICATOR CIRCUIT NIKE-H-LCT Description: Diagram showing operation and location of components.	(B& W)
T 9-11-302	INTERAREA CIRCUITS - CARRIER OPERATION Description: Diagram showing operation of system.	(B& W)
T 9-11-303	INTERAREA CABLE CONDUCTOR ASSIGNMENTS (CABLES 47 AND 48) Description: Diagram showing position and action of cables.	(B& W)

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-304	APS FUELING CART AND SCHEMATIC	(B& W)
	Description: Schematic diagram indicating location of component parts of fueling cart.	
T 9-11-305	RADAR TEST ANTENNA	(B& W)
	Description: Diagram of antenna.	
T 9-11-306	NIKE FORMATION TRACKING PROBLEM	(B& W)
	Description: Diagram showing operation of mechanism.	
T 9-11-307	LAUNCHER SUPPORT	(B& W)
	Description: Diagrams showing permanent and elevator installation and field installation of mechanism.	
T 9-11-308	DOWNLATCH MECHANISM	(B& W)
	Description: Diagram of mechanism indicating major components.	
T 9-11-309	SHEAR SEAL VALVE	(B& W)
	Description: Diagrams showing interior and exterior of mechanism.	
T 9-11-310	TRACK ADAPTION DETAILS	(B& W)
	Description: Diagrams showing elevator adaption above and underground, field adaption, and satellite adaption.	
T 9-11-311	INTERAREA CIRCUITS USING FIXED PLANT CABLES	(B& W)
	Description: Schematic drawing showing interrelationship between the cables in the battery control area and launching area.	
T 9-11-312	AC POWER DISTRIBUTION LAUNCHER CONTROL TRAILER	(B& W)
	Description: Schematic drawing showing source and flow of power within the launching control trailer.	
T 9-11-313	AC POWER DISTRIBUTION LAUNCHER SECTION CABINET	(B& W)
	Description: Schematic drawing showing source and flow of power within the launching section control-indicator cabinet.	

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-314	AC POWER DISTRIBUTION NIKE H LAUNCHER	(B& W)
	Description: Schematic drawing showing source and flow of power within the Nike H launcher.	
T 9-11-315	PORTABLE TEST SET DOLLY	(B& W)
	Description: Diagram of the mechanism.	
T 9-11-316	MISSILE DOLLY	(B& W)
	Description: Drawing indicating component parts of mechanism.	
T 9-11-317	NIKE H HANDLING EQUIPMENT	(B& W)
	Description: Diagram showing location of components of equipment.	
T 9-11-318	UMBILICAL ASSEMBLY	(B& W)
	Description: Diagram indicating features and components of mechanism.	
T 9-11-319	BOOSTER FIN MOUNTING ASSEMBLY	(B& W)
	Description: Diagram of equipment indicating components and sequence of assembly.	
T 9-11-320	ELEVON CONTROL ACTUATING ASSEMBLY	(B& W)
	Description: Diagram of mechanism showing component parts.	
T 9-11-321	TRACKING ANTENNA IN ROADABLE CONDITION (ROAD SIDE VIEW)	(B& W)
	Description: Diagram of equipment indicating location of components.	
T 9-11-322	FAIL-SAFE AMPLIFIER CHANNEL (Z1, Z2, OR Z3 OF GS-17555) BLOCK DIAGRAM	(B& W)
	Description: Block diagram showing operational relation between components of the system.	
T 9-11-323	T90E-3 ARMING MECHANISM	(B& W)
	Description: Diagram indicating components of mechanism.	
T 9-11-324	GS-17526 ELECTRICAL CONTACT RING ASSEMBLY	(B& W)
	Description: A cutaway view of system showing location of components in top and bottom of assembly.	

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-325	MAGNETRON COUPLER	(B&W)
	Description: Diagram of mechanism showing position of components.	
T 9-11-326	NIKE H TRACKING ANTENNA - RADOME SUPPORT CONSTRUCTION DETAILS	(B&W)
	Description: Diagram of equipment indicating major components.	
T 9-11-327	NIKE H A <sub>G</sub> SERVO	(B&W)
	Description: Schematic diagram showing interrelationship between components of system.	
T 9-11-328	CONVERSION OF MISSILE EARTH COORDINATES TO GYRO COORDINATES	(B&W)
	Description: Schematic diagram indicating mathematical formula involved.	
T 9-11-329	GS-17575 AZIMUTH DRIVE EQUIPMENT ENCLOSURE	(B&W)
	Description: Diagram showing operational relation between components of the equipment.	
T 9-11-330	NIKE HERCULES BOOSTER	(B&W)
	Description: Diagram of mechanism indicating position of major components with enlarged views of a typical elevon lock and fitting assembly.	
T 9-11-331	INFLUENCE OF CLIMB ANGLE ON LIFT BIAS	(B&W)
	Description: A graph illustration showing mathematical relation between the two elements.	
T 9-11-332	CLIMB ANGLE SERVO	(B&W)
	Description: Schematic diagram showing the factors affecting the climb angle servo.	
T 9-11-333	GS-17451 ACQUISITION MODULATOR (BLOCK DIAGRAM)	(B&W)
	Description: Diagram illustrating interrelationship between components of the modulator.	
T 9-11-334	GS-17450 ACQUISITION RADAR MODULATOR (LOCATION DIAGRAM)	(B&W)
	Description: Diagram of mechanism indicating position of components.	

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-335	TRAVELING-WAVE TUBE (6784) (SIMPLIFIED SCHEMATIC)	(B& W)
	Description: Diagram of equipment depicting location of components and operational voltages.	
T 9-11-336	BOOST PHASE	(B& W)
	Description: Diagram showing equipment and action involved in the boost phase.	
T 9-11-337	DIVE AND INITIAL TURN PHASE	(B& W)
	Description: Diagram showing equipment and action involved in the dive and initial turn phase.	
T 9-11-338	PRELAUNCH PHASE	(B& W)
	Description: Diagram showing equipment and action involved in the prelaunch phase.	
T 9-11-339	INTERAREA CIRCUITS (CARRIER OPERATION)	(B& W)
	Description: Schematic diagram showing components and circuits involved in carrier operations between battery control area and launching area.	
T 9-11-340	FUNCTION OF THE COMPUTER	(B& W)
	Description: Chart showing function of the computer in relation to other Nike Hercules components.	
T 9-11-341	STEERING PHASE	(B& W)
	Description: Diagram showing equipment and action involved in the steering phase.	
T 9-11-343	COUPLING BETWEEN ACQUISITION AND TARGET TRACKING RADARS	(B& W)
	Description: Diagram showing location and action of components involved in coupling operations between the radars.	
T 9-11-344	GS-18083 TRACK ANTENNA HOIST	(B& W)
	Description: Diagram of mechanism indicating location of components and top view of hoist and radome cover storage chest.	
T 9-11-345	ROLL STABILIZATION SERVO LOOP (BLOCK DIAGRAM)	(B& W)
	Description: Block diagram indicating operational connection between guidance set and missile airframe components.	

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-346	OVERALL CONTROL LOOP (BLOCK DIAGRAM)	(B& W)
	Description: Block diagram illustrating interrelationship between components of guidance and control units and missile guidance set group.	
T 9-11-377	INITIAL TURN RELAY CIRCUITRY - TURN ANGLE ZERO RELAY CIRCUITRY	(B& W)
	Description: Schematic drawings showing the factors involved in initial turn relay circuitry and turn angle zero relay circuitry.	
T 9-11-378	GS-17708 SIGNAL GENERATOR (BLOCK DIAGRAM)	(B& W)
	Description: Block diagram illustrating interrelationship between components of the signal generator.	
T 9-11-379	GS-17528 MASTER LEVEL ASSEMBLY	(B& W)
	Description: Diagram of mechanism indicating position of components.	
T 9-11-380	STEERING CONTROL SERVO LOOP (BLOCK DIAGRAM)	(B& W)
	Description: Block diagram showing interrelationship between components of the guidance set and the missile airframe components.	
T 9-11-381	BLOCK DIAGRAM - LAUNCHER CABLING NIKE H LAUNCHER SECTION	(B& W)
	Description: Block diagram indicating operational connection between components of the system.	
T 9-11-382	VIBRATOR CONTROL CIRCUIT	(B& W)
	Description: Schematic diagram depicting circuits involved in the section control-indicator cabinet and the launcher operating control-indicator.	
T 9-11-383	NIKE H LAUNCHER	(B& W)
	Description: Diagram of equipment indicating location of major components.	
T 9-11-384	LAUNCHER ACTUATING CYLINDER OPERATION	(B& W)
	Description: 3 views of mechanism indicating location of major components.	

<u>Transparency Number</u>	<u>Title</u>	
T 9-11-395	FOUR-WAY SOLENOID VALVES	(B& W)
	Description: Diagrams showing equipment and action involved in the Weston 4-way valve-open center and the Parker 4-way valve-closed center.	
T 9-11-396	AIR RELEASE AND MISSILE TEST VALVES	(B& W)
	Description: Diagrams of equipment showing location of components and action involved in the manual 4-way valve.	
T 9-11-397	LAUNCHER UP-LOCK ASSEMBLY	(B& W)
	Description: Diagrams of mechanism indicating inter-relationship between components.	
T 9-11-398	UPPER STRUT LENGTH ADJUSTMENT	(B& W)
	Description: Diagrams of mechanism at 90° firing position, 85° position, and 87½° position.	
T 9-11-399	LAUNCHING RAIL BREAKAWAY	(B& W)
	Description: Diagrams indicating position of components with mechanism in up position and in down position.	
T 9-11-400	RAIL STOPPING AND POSITIONING MECHANISM	(B& W)
	Description: Diagrams illustrating mechanism in reset position and skip position.	
T 9-11-401	LAUNCHER TRANSPORT DETAIL	(B& W)
	Description: Diagram indicating interrelationship between components of equipment.	
T 9-11-402	LAUNCHING RAIL RELEASE	(B& W)
	Description: Diagram showing operational relation between components of the equipment.	
T 9-11-403	LAUNCHER OPERATION SCHEMATIC	(B& W)
	Description: Diagram illustrating the components affecting the operation of equipment.	
T 9-11-404	FREQUENCY AND POWER METER	(B& W)
	Description: Diagram of mechanism.	

Section VII. STATUS OF FILMS IN PRODUCTION

The following training films have been approved for release by the U. S. Army Air Defense School and have been forwarded to USCONARC. Initial distribution of these films is anticipated during FY 1962.

<u>TF No.</u>	<u>Title</u>
44-2892	Nike Hercules System, Radar Coder Set: Checks and Adjustments.
44-2604	The Hawk Battery Control Platoon Battery Control Central Part I: Operation.
44-2893	The Hawk Battery Launching Platoon (Launcher) Part II: Daily and Weekly Checks and Adjustments.
44-2894	Part IIA: Monthly Checks and Adjustments.
44-3061	The Hawk Battery, RSOP Part I: Advance Party, Reconnaissance and Selection.
44-2895	The Hawk Missile, Initial Checkout Part I: Assembly and Preparation Reference and Target Lock Sensitivity and Speed Gate Programing Checks.
44-2896	Part II: Fuzing, Zeroing Drift, Elevon Alinement and Missile Gyro Accelerometer Checks.
44-2897	Part III: Antenna Gyro Radar Gain, Track, Leakage, Safety and Aiming Checks.
44-2617	Introduction to IFF, Mark X System (TF 44-2340 Revision).
44-2616	The Stabilitron

Section VIII. FILMS APPROVED FOR PRODUCTION FY 1962

<u>Title</u>	<u>Reels</u>	<u>Class</u>
Nike Hercules Battery, Defense Against ECM Evaluation and Reporting of ECM		
Part I: Acquisition Radar	1	II
Part II: Target-Track Radar	1	II
Nike Hercules Battery, Defense Against ECM Operation Against Transmitted Deception Devices		
Part I: Acquisition Radar	1	II
Part II: Target-Track Radar	1	II

<u>Title</u>	<u>Reels</u>	<u>Class</u>
Nike Hercules Battery, Defense Against ECM, Operation Against Chaff		
Part I: Acquisition Radar	1	II
Part II: Target-Track Radar	1	II
Nike Hercules Battery, Defense Against ECM, Operation Against CW Jamming		
Part I: Acquisition Radar	1	II
Part II: Target-Track Radar	1	II
Nike Hercules Battery, Defense Against ECM, Operation Against Lock-On Type Jamming		
Part II: Target-Track Radar	1	II
Nike Hercules Battery, Defense Against ECM, Operation Against Spot Type Jamming		
Part I: Acquisition Radar	1	II
Part II: Target-Track Radar	1	II
Nike Hercules Battery, Defense Against ECM, Operation Against Swept Type Jamming		
Part I: Acquisition Radar	1	II
Part II: Target-Track Radar	1	II
Radar AN/FPS-36 w/Phase I Antijam Modification Kit, Defense Against ECM		
Part I: Operation Against Transmission Deception Devices	1	II
Part II: Operation Against Chaff	1	II
Part IV: Operation Against FM Jamming	1	II
Part V: Operation Against AM Jamming	1	II

<u>Title</u>	<u>Reels</u>	<u>Class</u>
Part VI: Operation Against Noise Jamming	1	II
Part VII: Operation Against Spot Jamming	1	II
Part VIII: Operation Against Swept Jamming	1	II
Part IX: Operation Against Barrage Jamming	1	II
The Hawk Battery, Pulse Acquisition Radar, Defense Against ECM	2	V
Part I: Reflected Deception Device (Chaff)		
Part II: Transmitted Deception Device (Spoofers)		
The Hawk Battery, Pulse Acquisition Radar, Defense Against ECM, Operation Against Transmitted Deception Device	2	V
The Hawk Battery CW Illuminator, Defense Against ECM, Operation Against Transmitted Deception Devices (color)	2	V
Nike Hercules HIPAR Acquisition Radar, Checks and Adjustments		
Part I: Stalo Adjustment	1	II
Part II: Driver Adjustment	1	II
Part III: Transmitter Assembly Adjustment	1	II
Part IV: Receiver Adjustment (Video)	1	II
Part V: Receiver Adjustment (Noise)	1	II
Part VI: MTI First Canceller Adjustment	1	II
Part VII: MTI Second Canceller Adjustment	1	II

<u>Title</u>	<u>Reels</u>	<u>Class</u>
Nike Hercules HIPAR Acquisition Radar Emergency Checks and Adjustments Fast Turn-On Procedure	3	V
Target-Track Radar, Target Range Radar Parallax Computation and Adjustment	4	V
Nike Hercules HIPAR Acquisition Radar Removal and Replacement of the Klystron Power Amplifier	3	V
Improved Nike Hercules System		
Part I:	3	V
Part II:	3	V
Nike Hercules Prefire Procedures for XM22E1, XM23E1 and SM97E1 Warheads		
Part I: Mating Warhead Section to Rear Body Section	3	V
Part II: Mating Forward Section to Warhead Section and Post Mating Procedures	2	V
Part III: Procedures in the Launcher Area	1	V
The Hawk Fire Control Platoon Range-Only Radar		
Part I: Operation	2	V
Part II: Emplacement and Energizing	2	V
The Hawk Battery, Orientation and Alinement	3	V
Nike Hercules Missile		
Part II: Accessory Power Supply Servicing	3	V
The Hawk Battery Fire Control Platoon Battery Control Central		
Part III: System Checks and Adjustments	2	V

<u>Title</u>	<u>Reels</u>	<u>Class</u>
Hawk Battery Drills		
Part I: Fire Control Platoon	2	V
Part II: Firing (Launching) Platoon Area	2	V
The Hawk Battery, Fire Control Platoon Battery Control Center		
Part II: Daily and Weekly Checks and Adjustments	2	V
The Hawk Fire Control Platoon Illuminator		
Part I: Description and Operation	3	V
Part II: Emplacement and Energizing	3	V
The Hawk Fire Control Platoon CW Acquisition Radar, Description and Operation	2	V
The Hawk Fire Control Platoon, Pulse Acquisition		
Part I: Emplacement and Energizing	3	V
Part II: Weekly Checks and Adjustments	3	V
The Missile Master AN/FSG-1 (color)	3	VII
Component Parts of an Inertial Guidance System Stabilized Platform	2	V
Coriolis Effect on SSM	2	V
Earth Characteristics, Celestial References, and Space Navigation (color)	2	VII
Part I: Trajectories Established by Earth Phenomena and Star Measurements	3	VII
Part II: Satellite and Space Vehicle Intercepts and Orbits	2	VII

<u>Title</u>	<u>Reels</u>	<u>Class</u>
Electronic Fire Coordination Systems AN/GSG-5 and AN/GSG-6 (BIRDIE) (color)	3	VII
Improved Nike Hercules - Operation in an ECM Environment <u>(10 Separate Class II films)</u>	10	II
Army Air Defense: ECCM Consoles <u>(10 Separate Films)</u>	10	II
AN/MSQ-18 System Integration	3	V
The Improved Nike Hercules System Countermeasures Control-Indicator Group, Checks and Adjustments	3	V
Battery Terminal Equipment for AN/FSG-1 (Missile Master)	3	V
Introduction to the Redeye System	2	V
Nike Hercules Data Recorder		
Part I: Operation	3	V
Part II: Tape Analysis	3	V
Part III: Tape Analysis	3	V

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