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SOLDIER'S MANUAL and TRAINER'S GUIDE

MOS 95C

MOS 95C, Corrections Specialist, Skill Level 1, Soldier's Manual

Skill Level 1

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PREFACE

This publication is for skill level (SL) 1 soldiers who hold military occupational specialty (MOS) 95C and their trainers or leaders. It contains standardized training objectives in the form of task summaries that may be used to train and evaluate soldiers on the critical tasks that support unit missions. Trainers and leaders should actively plan for MOS 95C soldiers to have access to this publication.

All tasks in this manual are applicable to active-component (AC) and the reserve-component (RC) soldiers, which include the Army National Guard (ARNG) and the United States Army Reserve (USAR).

The proponent of this soldier training publication (STP) is the United States Army Military Police School (USAMPS). Users of this publication are encouraged to recommend changes and submit comments for its improvement. Comments should be keyed to a specific page, paragraph, and line of text in which the change is recommended. Reasons will be provided for each comment to ensure understanding and complete evaluation. Comments should be prepared using a Department of the Army (DA) Form 2028 and forwarded directly to the Commandant, United States Army Military Police School, ATTN: ATSJ-MP-T, bldg 3203, 401 MANSCEN Loop, Suite 1069, Fort Leonard Wood, MO 65473-8929.

SPECIAL NOTE: The mission of the MOS 95C is changing to be more deployable in units as "internment specialists," who will operate field internment facilities for enemy combatants or detainees of any type, including those who are considered high risk. The experiences of the Army since 2001 have shown the need for the 95C skill set to manage the internment facilities at Guantanamo Bay and elsewhere. The new internment/resettlement company is a TOE company of internment facilities for detainees of any type in coordination with an MP guard company, which will provide additional security.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

CHAPTER 1

Introduction

1-1. General. This manual identifies the individual MOS training requirements for soldiers in MOS 95C, SL 1. It is designed to be used by commanders, trainers, and soldiers to plan, conduct, and evaluate individual training in units. This manual is the primary reference for supporting the self-development and training of every soldier.

1-2. Integration of Individual and Collective Tasks. This manual should be used along with STPs 21-1-SMCT and 21-24-SMCT; Army Training and Evaluation Programs (ARTEPs); and Field Manual (FM) 7-1 to establish effective training plans and programs that integrate individual and collective tasks.

1-3. Task Summaries.

a. Task summaries contain information necessary to conduct training and evaluate soldier proficiency on tasks critical to the MOS. A separate task summary is provided for each critical task. These task summaries are, in effect, standardized training objectives which ensure that soldiers do not have to relearn a task on reassignment to a new unit. The format for the task summaries included in this STP is as follows:

- **Task title.** The task title identifies the action to be performed.
- **Task number.** A 10-digit number identifies each task or skill. Include this task number, along with the task title, in any correspondence relating to the task.
- **Conditions.** The task conditions identify all the equipment, tools, references, job aids, and supporting personnel that the soldier needs to perform the task in wartime. This section identifies any environmental conditions that could alter task performance, such as visibility, temperature, and wind. This section also identifies any specific cues or events (a chemical attack or identification of a threat vehicle) that trigger task performance.
- **Standards.** The task standards describe how well and to what level a task must be performed under wartime conditions. Standards are typically described in terms of accuracy, completeness, and speed.
- **Training and evaluation.** This section may contain a training information outline, an evaluation preparation subsection, and/or an evaluation guide. The training information outline includes detailed training information. The evaluation preparation subsection indicates necessary modifications to the task performance in order to train and evaluate a task that cannot be trained to the wartime standard under wartime conditions. The evaluation preparation may also include special training and evaluation preparation instructions to accommodate these modifications and any instruction that should be given to the soldier before evaluation. The evaluation guide identifies the specific actions, known as performance measures, that the soldier must do to successfully complete the task. These actions are listed in a *pass/fail* format for easy evaluation. Each evaluation guide contains a feedback statement that indicates the requirements for receiving a *GO* on the evaluation.
- **References.** This section identifies references that provide more detailed and thorough explanations of task performance requirements than that given in the task summary description.

b. Additionally, some task summaries include safety statements and notes. Safety statements (danger, warning, and caution) alert users to the possibility of immediate death, personal injury, or damage to equipment. Notes provide an explanation or a hint relative to the performance measures.

1-4. Soldier's Responsibilities. Each soldier is responsible for performing individual tasks that the first-line supervisor identifies based on the unit mission-essential task list (METL). The soldier must perform the task to the standards listed in the soldier's manual (SM). If a soldier has a question about how to do a task or which tasks in this manual he must perform, it is the soldier's responsibility to ask the first-line supervisor for clarification. The first-line supervisor knows how to perform each task or can direct the soldier to the appropriate training materials.

1-5. Interpersonal Communication Skills. The key to the performance of any military police (MP) task is the ability to deal with people. Therefore, an implied element of every task in this manual is that the MP soldier uses his interpersonal communication skills. To be effective, the MP soldier must learn to read body language; recognize trust, hurt, anger, fear, concern, and unconcern in others; and learn to respond to these types of behavior. By developing and using interpersonal communication skills, the MP soldier can defuse many tense situations and reduce the need to use force or physical restraints.

1-6. Noncommissioned Officer Self-Development and the Soldier's Manual. Self-development is one of the key components of the leader development program. It is a planned, progressive, and sequential program followed by leaders to enhance and sustain their military competency. It consists of individual study, research, professional reading, practice, and self-assessment. Under the self-development concept, the noncommissioned officer (NCO), as an Army professional, has the responsibility to remain current in all phases of the MOS. The SM is the primary source for the NCO to use in maintaining MOS proficiency.

1-7. Army Correspondence Course Program. Another important resource of NCO self-development is the Army Correspondence Course Program (ACCP). See DA Pamphlet [Pam] 350-59 for information on enrolling in this program and for a list of courses, or write to the Army Institute for Professional Development, US Army Training Support Center, ATTN: ATIC-IPS, Newport News, Virginia 23628-0001.

1-8. Training Support. This manual includes the following appendixes and sections that provide additional training support information:

- **Glossary.** The glossary is a comprehensive list of acronyms, abbreviations, definitions, and letter symbols.

- **References.** This section contains two lists of references, required and related, that support the training of all tasks in the SM. Required references are listed in the conditions statement and are required for the soldier to do the task. Related references provide more detailed information and a more thorough explanation of task performance.

1-9. Career Progression Chart. The Career Management Field (CMF) 95 Career Progression Model (CPM) shows the promotional potential or professional development of a soldier in each MOS within CMF 95, MP (Figure 1-1).

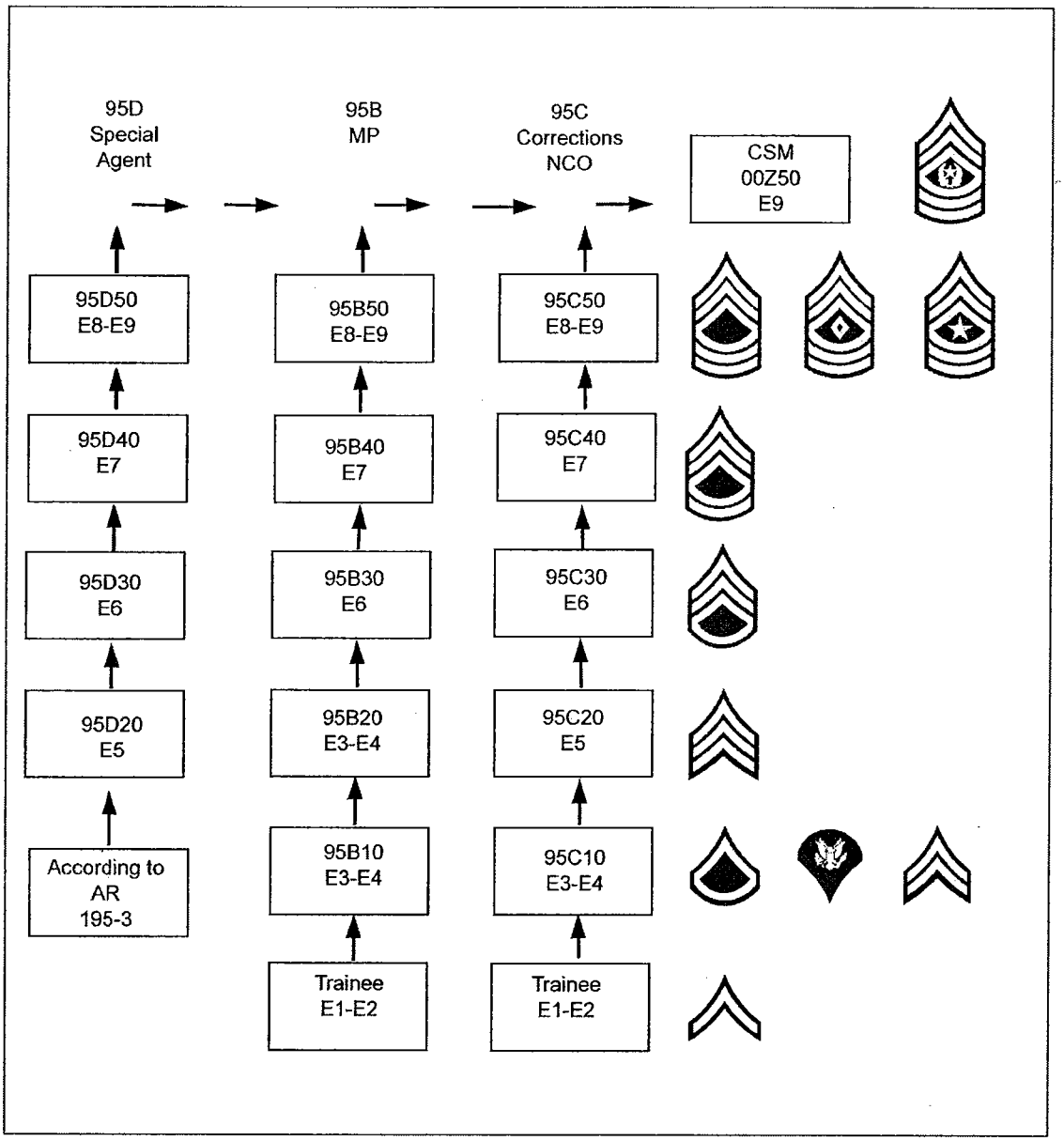

Figure 1-1. CMF 95 CPM

CHAPTER 2

Trainer's Guide

2-1. General. The MOS Training Plan (MTP) identifies the essential components of a unit training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors. Therefore, the MTP should be used as a guide for conducting unit training and not a rigid standard. The MTP consists of two parts. Each part is designed to assist the commander in preparing a unit training plan which satisfies integration, cross training, training up, and sustainment training requirements for soldiers in this MOS.

Part One of the MTP shows the relationship of an MOS skill level between duty position and critical tasks. These critical tasks are grouped by task commonality into subject areas.

Section I lists subject area numbers and titles used throughout the MTP. These subject areas are used to define the training requirements for each duty position within an MOS.

Section II identifies the total training requirement for each duty position within an MOS and provides a recommendation for cross training and train-up/merger training.

- **Duty Position column**. This column lists the duty positions of the MOS, by skill level, which have different training requirements.
- **Subject Area column**. This column lists, by numerical key (see Section I), the subject areas a soldier must be proficient in to perform in that duty position.
- **Cross Train column**. This column lists the recommended duty position for which soldiers should be cross trained.
- **Train-up/Merger column**. This column lists the corresponding duty position for the next higher skill level or MOSC the soldier will merge into on promotion.

Part Two lists, by general subject areas, the critical tasks to be trained in an MOS and the type of training required (resident, integration, or sustainment).

- **Subject Area column**. This column lists the subject area number and title in the same order as Section I, Part One of the MTP.
- **Task Number column**. This column lists the task numbers for all tasks included in the subject area.
- **Title column**. This column lists the task title for each task in the subject area.
- **Training Location column**. This column identifies the training location where the task is first trained to soldier training publications standards. If the task is first trained to standard in the unit, the word "Unit" will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (ANCOC, BNCOC, etc.), the resident course where the task was taught. Figure 2-1 contains a list of training locations and their corresponding brevity codes.

OSUT	One Station Unit Training
ASAC	Apprentice Special Agent Course
UNIT	Trained in the Unit
UI	Unit Integration

Figure 2-1. Training Locations

- **Sustainment Training Frequency column**. This column indicates the recommended frequency at which the tasks should be trained to ensure soldiers maintain task proficiency. Figure 2-2 identifies the frequency codes used in this column.

BA	- Biannually
AN	- Annually
SA	- Semiannually
QT	- Quarterly
MO	- Monthly
BW	- Bi-weekly
WK	- Weekly

Figure 2-2. Sustainment Training Frequency Codes

- **Sustainment Training Skill Level column**. This column lists the skill levels of the MOS for which soldiers must receive sustainment training to ensure they maintain proficiency to soldier's manual standards.

2-2. Subject Area Codes.

Skill Level 1

1	NBC
2	Combat Techniques
3	Night Vision Devices
4	Weapons - M9
5	Weapons - MK19
6	Weapons - M249
7	Weapons - 12 Gauge
8	Urban Operations
9	Vehicle Operations
10	Land Navigation
11	Communications
12	Maneuver and Mobility Support Operations
13	Emergency Procedures
14	Crime Scenes
15	Internment Administration
16	Cellblock Close Confinement Procedures
17	Basic Internment
18	Visitors' Room Procedures
19	Escort Guard Duties
20	Main Gate/Sally Port Procedures
21	Custody and Control
22	Internment Operations

2-3. Duty Position Training Requirements.

2-4. Critical Tasks List.

MOS TRAINING PLAN
95C1

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
		Skill Level 1			
1. NBC	031-503-1030	Prepare the Chemical-Agent Monitor (CAM) for Operation	UNIT	AN	1-4
	031-503-1031	Use the Chemical-Agent Monitor (CAM)	UNIT	AN	1-4
	031-503-1032	Prepare the Chemical-Agent Monitor (CAM) for Movement	UNIT	AN	1-4
	031-503-3005	Submit a Nuclear, Biological, and Chemical (NBC) 1 Report	OSUT	SA	1-4
	031-504-1008	Operate the M8A1 Alarm System	UNIT	AN	1-4
	031-507-1022	Decontaminate Equipment Using M13 Decontaminating Apparatus, Portable (DAP)	OSUT	AN	1-4
2. Combat Techniques	052-192-1021	Locate Mines by Visual Means	OSUT	AN	1-4
	071-326-0501	Move as a Member of a Fire Team	OSUT	AN	1-4
	071-326-3002(SL1)	React to Indirect Fire While Mounted	OSUT	AN	1-4
3. Night Vision Devices	071-008-0001	Mount a Night Vision Sight AN/PVS-4 on an M16A1 or M16A2 Rifle	UNIT	AN	1-4
	071-008-0002	Dismount a Night Vision Sight, AN/PVS-4, from an M16-Series Rifle	UNIT	AN	1-4
	071-315-0003	Operate a Night Vision Sight AN/PVS-4	UNIT	AN	1-4
	071-315-0030	Operate Night Vision Goggles AN/PVS-5	UNIT	AN	1-4
	071-315-2307	Zero a Night Vision Sight AN/PVS-4 to an M16A1 or M16A2 Rifle	UNIT	AN	1-4
	071-315-2308	Engage Targets with an M16A1 or M16A2 Rifle Using a Night Vision Sight AN/PVS-4	UNIT	AN	1-4
	071-710-0008	Operate Night Vision Goggles AN/PVS-7	UNIT	AN	1-4
4. Weapons - M9	071-004-0001	Maintain an M9 Pistol	OSUT	AN	1-4
	071-004-0002	Perform a Function Check on an M9 Pistol	OSUT	AN	1-4

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	071-004-0003	Load an M9 Pistol	OSUT	AN	1-4
	071-004-0004	Unload an M9 Pistol	OSUT	AN	1-4
	071-004-0005	Correct Malfunctions of an M9 Pistol	OSUT	AN	1-4
	071-004-0006	Engage Targets with an M9 Pistol	OSUT	AN	1-4
5. Weapons - MK19	071-030-0001	Maintain an MK19 Machine Gun	OSUT	AN	1-4
	071-030-0002	Prepare a Range Card for an MK19 Machine Gun	OSUT	AN	1-4
	071-030-0003	Zero an MK19 Machine Gun	UNIT	AN	1-4
	071-030-0004	Engage Targets with an MK19 Machine Gun	OSUT	AN	1-4
	071-030-0005	Load an MK19 Machine Gun	OSUT	AN	1-4
	071-030-0006	Unload an MK19 Machine Gun	OSUT	AN	1-4
	071-030-0007	Perform a Function Check on an MK19 Machine Gun	OSUT	AN	1-4
	071-030-0008	Correct Malfunctions of an MK19 Machine Gun	OSUT	AN	1-4
	071-030-0009	Mount an MK19 Machine Gun on a Vehicle	OSUT	AN	1-4
	071-030-0010	Dismount an MK19 Machine Gun from a Vehicle	OSUT	AN	1-4
	071-030-0011	Mount an MK19 Machine Gun on an M3 Tripod	OSUT	AN	1-4
	071-030-0012	Dismount an MK 19 Machine from an M3 Tripod	OSUT	AN	1-4
	071-030-0016	Mount a Night Vision Sight AN/TVS-5 on an MK19 Machine Gun	UNIT	AN	1-4
	071-030-0017	Dismount a Night Vision Sight AN/TVS-5 From an MK19 Machine Gun	UNIT	AN	1-4
	071-030-0018	Zero a Night Vision Sight AN/TVS-5 to an MK19 Machine Gun	UNIT	AN	1-4
6. Weapons - M249	071-010-0006	Engage Targets with an M249 Machine Gun	OSUT	AN	1-4
	071-312-4004	Lay an M249 Machine Gun Using Field Expedients	OSUT	AN	1-4
	071-312-4025	Maintain an M249 Machine Gun	OSUT	AN	1-4
	071-312-4026	Perform a Function Check on an M249 Machine Gun	OSUT	AN	1-4

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	071-312-4027	Load an M249 Machine Gun	OSUT	AN	1-4
	071-312-4028	Unload an M249 Machine Gun	OSUT	AN	1-4
	071-312-4029	Correct Malfunctions of an M249 Machine Gun	OSUT	AN	1-4
	071-312-4030	Zero an M249 Machine Gun	UNIT	AN	1-4
7. Weapons - 12 Gauge	191-381-1252	Perform Operator's Maintenance on a 12-Gauge Shotgun	OSUT	AN	1-4
	191-381-1253	Operate a 12-Gauge Shotgun	OSUT	AN	1-4
	191-381-1254	Engage Targets With a 12-Gauge Shotgun.	OSUT	AN	1-4
8. Urban Operations	071-326-0541	Perform Movement Techniques During MOUT	OSUT	AN	1-4
	071-326-0542	Enter a Building	OSUT	AN	1-4
	071-326-0550	Prepare Positions for Individual and Crew-Served Weapons During MOUT	OSUT	AN	1-4
	071-326-0556	Clear a Building	OSUT	AN	1-4
	071-326-0557	Select Hasty Firing Positions During MOUT	OSUT	AN	1-4
	191-376-5121	Search a Building	OSUT	AN	1-4
9. Vehicle Operations	071-326-0608	Use Visual Signaling Techniques	OSUT	AN	1-4
	551-721-1352	Perform Vehicle Preventive Maintenance Checks and Services (PMCS)	OSUT	AN	1-4
	551-721-1359	Drive Vehicle in a Convoy	OSUT	AN	1-4
	551-721-1360	Drive Cargo Vehicle on Side Roads and Unimproved Roads	OSUT	AN	1-4
	551-721-1363	Drive Vehicle With or Without Trailer/Semitrailer in Blackout Conditions	OSUT	SA	1-4
10. Land Navigation	071-329-1004	Determine the Elevation of a Point on the Ground Using a Map	OSUT	SA	1-4
	071-329-1006	Navigate from One Point on the Ground to Another Point While Dismounted	OSUT	SA	1-4
	071-329-1011	Orient a Map Using a Lensatic Compass	OSUT	SA	1-4
	071-329-1014	Locate an Unknown Point on a Map and on the Ground by Intersection	OSUT	SA	1-4
	071-329-1015	Locate an Unknown Point on a Map and on the Ground by Resection	OSUT	SA	1-4

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	071-329-1030	Navigate from One Point on the Ground to Another Point While Mounted	OSUT	SA	1-4
	071-510-0002	Compute Back Azimuth	OSUT	AN	1-4
11. Communications	113-573-4006	Use the KTC 1400(*) Numerical Cipher/Authentication System	OSUT	AN	1-4
	113-573-6001	Recognize Electronic Attack (EA) and Implement Electronic Protection (EP)	OSUT	AN	1-4
	113-573-8006	Use an Automated Signal Operation Instruction (SOI)	OSUT	SA	1-4
	113-587-2070	Operate SINCGARS Single-Channel (SC)	OSUT	SA	1-4
	113-587-2071	Operate SINCGARS Frequency Hopping (FH) (Net Members)	OSUT	AN	1-4
	113-587-2072	Operate SINCGARS Frequency Hopping (FH) Net Control Station (NCS)	OSUT	AN	1-4
	113-594-2014	Operate Switchboard, Telephone, Manual SB-22/PT	UNIT	AN	1-4
	113-596-1068	Install Antenna Group OE-254/GRC (Team Method)	UNIT	AN	1-4
	113-600-1012	Install Telephone Set TA-312/PT	UNIT	AN	1-4
	113-600-3017	Perform Unit Level Maintenance (ULM) on Telephone Set TA-312/PT	UNIT	AN	1-4
12. Maneuver and Mobility Support Operations	191-376-4105	Operate a Traffic Control Post (TCP)	OSUT	SA	1-4
	191-376-4106	Operate a Roadblock and a Checkpoint	OSUT	SA	1-4
	191-376-4108	Operate a Dismount Point	OSUT	SA	1-4
	191-376-4109	Control Traffic at a Defile and Holding Area	OSUT	SA	1-4
	191-376-4110	Perform as a Member of an In-Transit Security Team	OSUT	SA	1-4
13. Emergency Procedures	191-376-4119	Operate Riot Control Agent Dispersers (M33A1/M36/M37)	UNIT	SA	1-4
	191-376-4121	Use a Riot Baton	OSUT	QT	1-4
	191-376-4122	Position Yourself in Riot Control Formations			

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	191-381-1250	React to a Bomb Threat and/or a Bomb in an Internment Facility	OSUT	QT	1-4
	191-381-1258	Participate in Riot Control Formations to Control Internees	OSUT	QT	1-4
	191-381-1320	Take Action in the Event of a Fire at an Internment Facility	OSUT	QT	1-4
	191-381-1321	Take Action in the Event of Disorder at an Internment Facility	OSUT	QT	1-4
	191-381-1322	Take Action in the Event of an Escape	OSUT	QT	1-4
	191-381-1324	Apply Priorities of Force Within an Internment Facility	OSUT	QT	1-4
	191-381-1369	Perform as a Member of a Forced Cell Move (FCM) Team	OSUT	QT	1-4
	191-381-1370	React to an Internee Attack Using Self-Defense Techniques	OSUT	QT	1-4
14. Crime Scenes	191-376-5125	Collect Evidence	OSUT	AN	1-4
	191-381-1371	Protect the Integrity of a Crime Scene in an Internment Facility	OSUT	QT	1-4
	191-381-1372	Identify Evidence and/or Contraband Within an Internment Facility	OSUT	SA	1-4
	191-381-1373	Conduct Interviews Within an Internment Facility	OSUT	SA	1-4
15. Internment Administration	191-376-5138	Prepare Department of the Army (DA) Form 4137	OSUT	QT	1-4
	191-381-1325	Check Department of Defense (DD) Form 2707 for Completeness and Accuracy	OSUT	QT	1-4
	191-381-1326	Verify the Accuracy of Department of Defense (DD) Form 2718	OSUT	QT	1-4
	191-381-1327	Verify the Accuracy of Department of Defense (DD) Form 2708	OSUT	QT	1-4
	191-382-2342	Process an Internee Into an Internment Facility	OSUT	QT	1-4
	191-383-3373	Prepare an Internment Facility Blotter	OSUT	QT	1-4
	191-390-0139	Take Record Fingerprint Impressions	UNIT	SA	1-4
16. Cellblock Close	191-381-1251	Conduct an Inspection or a Shakedown of an	OSUT	QT	1-4

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
Confinement Procedures		Internee's Areas			
	191-381-1317	Observe Internees in Close Confinement	OSUT	QT	1-4
	191-381-1319	Control a Shower and Shave Call Within Close Confinement	OSUT	QT	1-4
	191-382-2347	Inspect the Physical Security of a Cellblock	OSUT	QT	1-4
17. Basic Internment	191-376-0002	Prepare Department of the Army (DA) Form 2823	OSUT	AN	1-4
	191-381-1298	Detect Symptoms of Unusual or Potentially Deviant Behaviors of Internees	OSUT	AN	1-4
	191-381-1302	Perform as a Tower Guard	OSUT	SA	1-4
	191-381-1328	Interact With Internees	OSUT	SA	1-4
	191-381-1339	Prepare a Department of Defense (DD) Form 2713	OSUT	SA	1-4
	191-381-1340	Prepare a Department of Defense (DD) Form 2714	OSUT	SA	1-4
18. Visitors' Room Procedures	191-381-1313	Search a Visitor Room Before and After Visits	OSUT		
	191-381-1329	Inform an Internee of Rules and Regulations Regarding Visitors	OSUT	SA	1-4
	191-381-1330	Assist in the Control of Internee Visits	OSUT	SA	1-4
19. Escort Guard Duties	191-381-1300	Escort Internees on Foot Outside an Internment Facility	OSUT	SA	1-4
	191-381-1301	Escort Internees by Motor Vehicle	OSUT	SA	1-4
	191-381-1540	Escort Internees by Aircraft	OSUT	SA	1-4
20. Main Gate/Sally Port Procedures	191-381-1304	Control Vehicle Entry To and Exit From an Internment Facility	OSUT	SA	1-4
	191-381-1305	Control Packages and Materials at a Main Gate or Sally Port	OSUT	SA	1-4
	191-381-1306	Control Personnel Entry to and Exit From an Internment Facility	OSUT	SA	1-4
21. Custody and Control	191-381-1315	Maintain Accountability of Silverware During Mealtimes	OSUT	QT	1-4

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	191-381-1331	Restrain an Internee	OSUT	QT	1-4
	191-381-1332	Control Internee Movement Within an Internment Facility	OSUT	SA	1-4
	191-381-1333	Frisk an Internee	OSUT	SA	1-4
	191-381-1334	Strip-Search an Internee	OSUT	SA	1-4
	191-381-1335	Control Internee Movement in a Dining Facility	OSUT	SA	1-4
	191-381-1336	Account for Internees	OSUT	SA	1-4
	191-381-1337	Monitor Internee Movement Within an Internment Facility	OSUT	AN	1-4
	191-381-1338	Issue Medication to Internees	OSUT	QT	1-4
	191-382-2295	Segregate Internees by Internee Status	OSUT	SA	1-4
	191-382-2352	Supervise Work Activities Within an Internment Facility	OSUT	SA	1-4
22. Internment Operations	191-376-4100	Perform Enemy Prisoner of War/Civilian Internee (EPW/CI) Security and Control Activities at an EPW/CI Camp	OSUT	AN	1-4
	191-381-1288	Process Authorized and Unauthorized Property Within an Internment Facility	OSUT	SA	1-4

CHAPTER 3

MOS/Skill Level Tasks

Skill Level 1

Subject Area 1: NBC

Prepare the Chemical-Agent Monitor (CAM) for Operation
031-503-1030

Conditions: You are given a protective overgarment ensemble with a protective mask and attached hood, a CAM, Technical Manual (TM) 3-6665-331-10, Department of the Army (DA) Form 2404, a pencil, and a directive to prepare the CAM for operation in an area where chemical contamination may occur. This task is performed in mission-oriented protective posture (MOPP) 4.

Standards: Identify the components, controls, and indicators of the CAM. Perform before operation preventive-maintenance checks and services (PMCS). Perform required troubleshooting procedures so that the CAM passes a self-test and a confidence test in both G and H modes.

Performance Steps

1. Identify the components, controls, and indicators.
2. Perform before-operation PMCS.
3. Perform a self-test.
4. Perform a confidence test.

NOTE: If the CAM passes a self-test and a confidence test, it is ready for operation.

5. Prepare DA Form 2404 with deficiencies if the CAM fails to respond after you followed troubleshooting procedures. Turn the CAM in for maintenance.

Evaluation Preparation: Setup: Give the soldier an operational CAM, TM 3-6665-331-10, accessories (carrying case and components), and the training devices and equipment necessary to perform the task.

Brief soldier: Tell the soldier to assume MOPP4 and perform the steps necessary to prepare the CAM for operation. Evaluation will be based on individual performance and adherence to safety precautions.

Performance Measures	GO	NO GO
1. Identified the components, controls, and indicators.	___	___
2. Performed before-operation PMCS.	___	___
3. Performed a self-test.	___	___
4. Performed a confidence test.	___	___
5. Prepared DA Form 2404 with deficiencies if the CAM failed to respond after following troubleshooting procedures. Turned the CAM in for maintenance.	___	___

Evaluation Guidance: Score the soldier GO if all measures are passed (P). Score the soldier NO-GO if any measure is failed (F). If the soldier fails any measure, show him how to do it correctly.

References

Required
DA FORM 2404
TM 3-6665-331-10

Related
TM 3-4230-216-10
TM 3-4240-279-10
TM 3-6665-307-10

Use the Chemical-Agent Monitor (CAM)
031-503-1031

Conditions: You are given a CAM that has been prepared for operation and Technical Manual (TM) 3-6665-331-10. You are in the appropriate mission-oriented protective posture (MOPP) level. You are given the order to perform monitoring procedures for personnel and equipment.

Standards: Perform monitoring procedures for personnel and equipment according to TM 3-6665-331-10.

Performance Steps

1. Prepare the CAM for operation as outlined in Task 031-503-1030.
2. Perform operating procedures for changing modes.
3. Monitor the object or area.
4. Get to know the operating environment and local interferents.
5. Recognize malfunctions and troubleshoot following the steps in TM 3-6665-331-10.
6. Remove the CAM from operation.

Evaluation Preparation: Setup: Evaluate this task during a field exercise or during normal training. Gather all necessary equipment and materials. Provide an area large enough to properly set up the CAM and perform monitoring of personnel and equipment. Develop several sets of conditions for testing purposes. Use approved simulants for the CAM to simulate contamination.

Brief soldier: Tell the soldier to assume the appropriate MOPP level and perform the steps necessary to put the CAM into operation.

Performance Measures	GO	NO GO
1. Prepared the CAM for operation as outlined in Task 031-503-1030.	___	___
2. Performed operating procedures for changing modes.	___	___
3. Monitored the object or area.	___	___
4. Got to know the operating environment and local interferents	___	___
5. Recognized malfunctions and troubleshot.	___	___
6. Removed the CAM from operation.	___	___

Evaluation Guidance: Score the soldier GO if all measures are passed (P). Score the soldier NO-GO if any measure is failed (F). If the soldier fails any measure, show him how to do it correctly.

References

Required	Related
TM 3-6665-331-10	GTA 03-06-004

Prepare the Chemical-Agent Monitor (CAM) for Movement
031-503-1032

Conditions: You are given mission-oriented protective posture (MOPP) 4 gear, the assigned protective mask with hood attached, M8 and M9 detector paper, an M291 decontaminating kit, an M256 detector kit, a CAM, Technical Manual (TM) 3-6665-331-10, and the directive to perform monitoring procedures for movement.

Standards: Decontaminate the CAM according to FM 3-5. Remove the CAM from operation, perform shutdown procedures, and perform after-operation preventive maintenance checks and services (PMCS) according to TM 3-6665-331-10.

Performance Steps

1. Decontaminate a contaminated CAM before shutdown. Decontaminate for—
   a. Nuclear agents. Refer to TM 3-6665-331-10 and FM 3-5 for radiological material.
   b. Biological or chemical agents. Refer to TM 3-6665-331-10 and FM 3-5 for decontaminating biological and chemical contamination.
2. Remove the CAM from operation.
3. Prepare the CAM for movement to a new location and for return to operation at the new location.
4. Place the CAM back into operation by performing a self-test and the confidence test as explained in Task 031-503-1030.

Evaluation Preparation: Setup: Evaluate this task during a field exercise or normal training. Gather all necessary equipment and materials. Provide an area large enough to properly set up the CAM and perform monitoring of personnel and equipment. Develop several sets of conditions for testing of personnel and equipment. Use approved simulants for the CAM to simulate contamination.

Brief soldier: Tell the soldier to assume MOPP4 and perform the steps necessary to prepare the CAM for movement.

Performance Measures	GO	NO GO
1. Decontaminated a contaminated CAM before shutdown.	___	___
2. Removed the CAM from operation.	___	___
3. Prepared the CAM for movement to a new location and returned it to operation at the new location.	___	___
4. Placed the CAM back into operation by performing a self-test and the confidence test.	___	___

Evaluation Guidance: Score the soldier GO if all measures are passed (P). Score the soldier NO-GO if any measure is failed (F). If the soldier fails any measure, show him how to do it correctly.

References

Required
FM 3-5
TM 3-6665-331-10

Related

Submit a Nuclear, Biological, and Chemical (NBC) 1 Report
031-503-3005

Conditions: You are in an area where a nuclear, biological, chemical (NBC) attack has just occurred. Given a watch, a map, a compass, a protractor, a pencil, paper, and the NBC report format guide (Graphic Training Aid [GTA] 03-06-008 or Department of the Army [DA] Form 1971-7-R).

Standards: Submit a spot report (SPOTREP) to give attack notification. Submit the appropriate NBC 1 report in the correct format and with the correct content.

Performance Steps

1. React to an NBC attack or hazard.
   a. React to a nuclear attack or hazard.
   b. React to a chemical or biological attack or hazard.

NOTE: The purpose of the SPOTREP is to give immediate notification of the NBC attack.

2. Submit a SPOTREP immediately (use the size, activity, location, unit, time, and equipment [SALUTE] format if possible) for attack notification.

3. Submit an NBC 1 (observer's) report after gathering the available data.
   a. Complete the required information as outlined in GTA 03-06-008, Field Manual (FM) 3-3 (chemical or biological), or FM 3-3-1 (nuclear) to include—
      (1) Line B: The location of the observer (use grid coordinates or place name).
      (2) Line D: The date-time group (DTG) of the attack (specify local or Zulu time).
      (3) Line H: The type and height of burst (nuclear) or type of agent and persistency (chemical or biological).
      (4) Line C, the direction of the attack in mils or degrees from the observer or Line F, the location of the attack, grid coordinates, or place name.
   b. Select the proper communication precedence.

NOTE: Flash reports should not be delayed for lack of information.

      (1) Use flash precedence if this is the first attack of its type (the first nuclear attack, the first biological attack, or the first chemical attack)

NOTE: A flash precedence is used to report the first use of NBC weapons against United States (US) troops.

      (2) Use immediate precedence for all other attacks.

NOTE: Line L (nuclear) is measured 5 minutes after the attack, and Line M (nuclear) is measured 10 minutes after the attack. Submit the NBC 1 nuclear report after Line L or Line M is measured. The M256-series chemical-agent detector kit takes 16 minutes to produce reliable results. Submit the NBC 1 report after this test is done.

   c. Submit the NBC 1 report to the correct places.

NOTE: Units selected by the division level NBC center (NBCC) as designated observers (applies only to nuclear bursts) also submit the NBC 1 report directly to the division level NBCC. All units submit the NBC 1 report to their higher headquarters (HQ).

Evaluation Preparation: Setup: Gather the items provided in the conditions statement. Develop a situation containing observer data (this information may be written). A different situation should be developed for each type of report.

Brief soldier: Tell the soldier that the test will consist of submitting SPOTREPs and preparing and submitting NBC 1 reports. Give the necessary items to the soldier, including the data that you developed. Tell the individual to give a warning and prepare reports of an NBC event.

Performance Measures	**GO**	**NO GO**
1. Reacted to an NBC attack or hazard.	____	____

Performance Measures	GO	NO GO
2. Submitted a SPOTREP immediately for attack notification.	____	____
3. Submitted an NBC 1 report after gathering the available data.	____	____

Evaluation Guidance: Score the solder GO if all steps are passed (P). Score the solder NO-GO if any step is failed (F). If the soldier fails any step, show him how to do it correctly.

References

Required	Related
DA FORM 1971-7-R	
FM 3-3	
FM 3-3-1	
GTA 03-06-008	

Operate the M8A1 Alarm System

031-504-1008

Conditions: Given an M8A1 alarm system, an M273 maintenance kit, BA3517/U and BA3030 batteries, a reel of field wire (WD-1/TT), a wire cutter, a licensed operator, Technical Manual (TM) 3-6665-312-12&P, and a directive to employ the alarm in the fixed-emplacement mode.

Standards: Perform an operator-level preventive-maintenance checks and services (PMCS), and operate the M8A1 alarm system according to TM 3-6665-312-12&P, without causing damage to the equipment. Standards are not degraded when this task is performed in mission-oriented protective posture (MOPP) 4.

Performance Steps

NOTE: Before using the M43A1 detector, ensure that the operator has had training in radiation safety.

1. Perform an operator-level PMCS on the M8A1 alarm system according to TM 3-6665-312-12&P.

NOTE: If a cell or pump module is damaged, notify the nuclear, biological, chemical (NBC) noncommissioned officer (NCO). The NBC NCO must notify the NBC officer and the radiation protection officer (RPO).

a. Perform a PMCS on the M43A1 detector.
   (1) Inspect the detector's exterior for corrosion, dirt, and broken or missing parts.
   (2) Inspect the rain shield and the adapter assembly for dirt or broken parts.
   (3) Inspect the flowmeter for dirt or cracks.
   (4) Inspect the top case for broken, loose, or missing parts.
   (5) Inspect the bottom case, paying special attention to heater contacts and the rubber seal.

WARNING: DISCONNECT THE POWER SUPPLIES BEFORE PERFORMING MAINTENANCE. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

   (6) Conduct an operational check.

b. Perform a PMCS on the M42 alarm.
   (1) Inspect the alarm's exterior for dirt, corrosion, and broken or missing parts.
   (2) Conduct a horn, light, and battery test.

WARNING: DISCONNECT THE M10 OR M10A1 POWER SUPPLY FROM THE ALTERNATING CURRENT (AC) POWER OUTLET BEFORE REMOVING THE FUSES. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

c. Perform a PMCS on the M10 or M10A1 power supply.
   (1) Inspect the exterior for broken or missing parts.
   (2) Inspect the cable assembly for cut, mashed, or frayed cables.
   (3) Check the 2-ampere fuse. If the fuse is missing, replace it with a spare.
   (4) Ensure that a spare fuse is present.
   (5) Check for a broken or missing clamp catch.

d. Perform a PMCS on the M182 or M228 mounting kit.
   (1) Ensure that the mounting kit components are securely fastened to the vehicle.
   (2) Check the cable assembly for worn, cut, mashed, or frayed insulation.

NOTE: Do not operate an M43A1 detector indoors without an outlet filter. Never operate an M43A1 detector inside a moving vehicle. Do not dispose of a used outlet filter except under the supervision of the NBC NCO, the NBC officer, or the local RPO. Wear disposable gloves when disposing of a used outlet filter.

2. Operate the M8A1 alarm system under usual conditions according to TM 3-6665-312-12&P.

a. Assemble the M8A1 alarm in a fixed-emplacement alarm system using one of the following five configurations:
   (1) Configure the M43A1 detector and the BA3517/U battery.
   (2) Configure the M43A1 detector, the BA3517/U battery, and the M10A1 power supply.
   (3) Configure the M43A1 detector, the BA3517/U battery, and the M10 power supply.
   (4) Configure the M43A1 detector and the M10A1 power supply.

Performance Steps

(5) Configure the M43A1 detector and the M10 power supply.

b. Connect the M42 alarms to the M43A1 detector (one to five alarms per detector).

c. Follow applicable operation procedures for fixed emplacement according to TM 3-6665-312-12&P.

3. Operate the M8A1 alarm system under severe conditions according to TM 3-6665-312-12&P.

4. Correct all operator-level deficiencies, and report any uncorrected deficiencies to the supervisor according to TM 3-6665-312-12&P.

Evaluation Preparation: Setup: This task can be evaluated during a field exercise. Gather the necessary equipment and supplies identified in the conditions statement. Simulate operational alert signals by allowing smoke (except cigarette smoke) to come into contact with the M43A1 detector unit. Allow the soldier to use TM 3-6665-312-12&P.

Brief soldier: Tell the soldier to perform all procedures according to TM 3-6665-312-12&P, without causing damage to the equipment.

Performance Measures	**GO**	**NO GO**
1. Performed an operator-level PMCS on the M8A1 alarm system. a. Performed a PMCS on the detector. b. Performed a PMCS on the alarm. c. Performed a PMCS on the power supply. d. Performed a PMCS on the mounting kit.	___	___
2. Operated the M8A1 alarm under usual conditions.	___	___
3. Operated the M8A1 alarm under severe conditions.	___	___
4. Corrected all operator-level deficiencies, and reported all uncorrected deficiencies to the supervisor.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show him how to do it correctly.

References

Required	**Related**
TM 3-6665-312-12&P	DA PAM 738-750

Decontaminate Equipment Using M13 Decontaminating Apparatus, Portable (DAP)
031-507-1022

Conditions: Given an area of chemical contamination on a vehicle or a piece of equipment and a directive to decontaminate the area with an assembled M13 DAP. This task is performed in mission-oriented protective posture (MOPP) 4.

Standards: Decontaminate the specified areas by spraying decontaminating solution number 2 (DS2) from an M13 DAP and then scrubbing the area.

Performance Steps

1. Hold the brush of the M13 DAP about 3 feet from the contaminated area (Figure 031-507-1022-1).

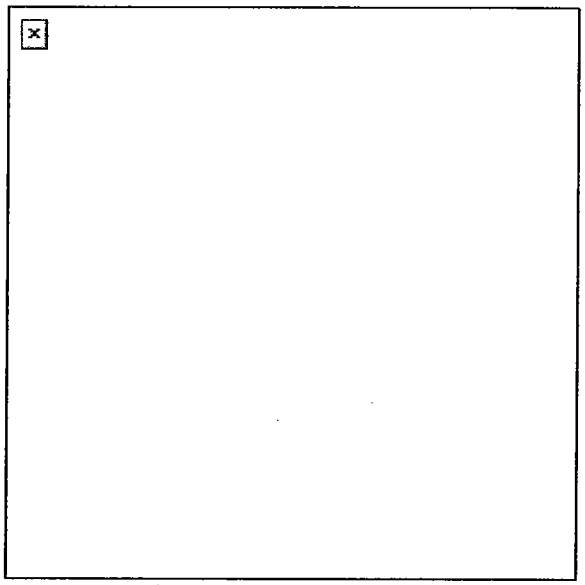

Figure 031-507-1022-1
M13 DAP

2. Start at the highest point on the equipment and work down.

NOTE: This prevents contamination from flowing over decontaminated areas.

3. Open the pump valve by turning it to the "in-line" position (Figure 031-507-1022-2).

Performance Steps

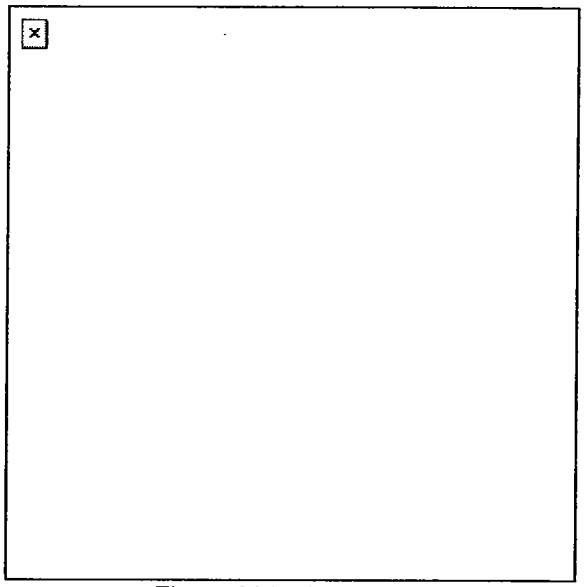

Figure 031-507-1022-2
M13 Pump Value

4. Operate the pump until DS2 flows from the hole in the brush.
5. Pump one stroke, sweeping an area of 4 to 5 feet while spraying DS2. Close the pump valve.
6. Use the brush to scrub DS2 over the contaminated surfaces.
7. Keep repeating steps 1 through 6 until the surfaces being decontaminated are wet.
8. Complete steps 1 through 7 in sequence.

NOTE: Whenever possible, remove DS2 from decontaminated surfaces after a contact time of 30 minutes by rinsing with water or wiping with rags.

Evaluation Preparation: Setup: Evaluate this task during a field exercise or a normal training session. For test purposes, the soldier must be in MOPP4 with an M13 DAP available and a selected piece of equipment or vehicle that is contaminated.

NOTE: Since DS2 should not be used during training, use a training container that is painted black and filled with water or a mixture of water and antifreeze.

Brief soldier: Tell the soldier to assume MOPP4 and perform the steps necessary to decontaminate a chemically contaminated area on a vehicle or equipment.

Performance Measures	**GO**	**NO GO**
1. Held the brush of the M13 DAP about 3 feet from the contaminated area.	___	___
2. Started at the highest point on the equipment and worked down.	___	___
3. Opened the pump valve by turning it to the "in-line" position.	___	___
4. Operated the pump until DS2 flowed from the hole in the brush.	___	___

Performance Measures	GO	NO GO
5. Pumped one stroke, sweeping an arc of 4 to 5 feet while spraying DS2. Closed the pump valve.	___	___
6. Repeated steps 1 through 6 until the surfaces being decontaminated were wet.	___	___
7. Completed steps 1 through 7, in sequence.	___	___
8. Used the brush to scrub DS2 over the contaminated surfaces.	___	___

NOTE: Whenever possible, items that had been sprayed or scrubbed with DS2 were rinsed with water or wiped off with rags after 30 minutes contact time.

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show him how to do it correctly.

References

Required	Related
	TM 3-4230-214-12&P

Subject Area 2: Combat Techniques

Locate Mines by Visual Means

052-192-1021

Conditions: You are given a mission to locate mines by visual means. You are given an area with a possible minefield and different minefield characteristics.

Standards: Locate possible mine sites, and visually search suspected areas for mines and trip wires. Ensure that no visible mines, parts of mines, or trip wires are overlooked.

Performance Steps

1. Locate possible mine sites by looking at the following areas:
   a. Avenues of approach.
   b. Key intersections and turnouts.
   c. Trails, paths, and cleared spots in wooded areas.
   d. Approaches and exits to bridges, fords, and tunnels.
   e. Wood lines.
   f. Depressions and ditches.
   g. Open fields or grassland.

2. Search possible mine sites for suspected mines and trip wires by looking at the following areas:
   a. Damaged vehicles.
   b. Dead animals.
   c. Areas avoided by the local population.
   d. Signs of digging.
   e. Signs of concrete or asphalt removal.
   f. Holes or grooves in the road.
   g. Boxes or parcels placed along the road or shoulder of the road.
   h. Parked vehicles or bicycles without operators.
   i. Wire on the road surface or extending onto the shoulder of the road.
   j. Metallic devices on the road surface or extending onto the shoulder of the road.
   k. Evidence of vegetation disturbance along the shoulder of the road.
   l. Evidence of mine-peculiar supplies (such as wrenches, shipping plugs, wrapping paper, and safety collars from fuzes).
   m. Disturbance of road potholes or puddles.
   n. Difference in the amount of moisture or dew on the road surface.
   o. Difference in plant growth (such as wilting, changed colors, or dead foliage).
   p. Disturbance in previous tire tracks.
   q. Signs posted on trees that covertly alert the local populace to the presence of mines.

NOTE: In addition to the above indicators, knowledge and recognition of likely threat mines, intelligence preparation of the battlefield, and plotting of likely ambush sites may also warn of buried mines.

3. Report all suspected areas to the noncommissioned officer in charge (NCOIC).

Evaluation Preparation: Setup: Provide a mined or simulated mined and trip-wired area that has the different characteristics listed.

Brief soldier: Tell the soldier to look at the terrain and visually locate mined and trip-wired areas.

Performance Measures	**GO**	**NO GO**
1. Located possible mine sites.	___	___

Performance Measures	GO	NO GO
2. Searched possible mine sites for suspected mines and trip wires.	____	____
3. Reported all suspected areas to the NCOIC.	____	____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show him how to do it correctly.

References

Required	Related
	DVC 05-17
	ENG 051-142
	FM 20-32
	IN0606
	IN1002

Move as a Member of a Fire Team

071-326-0501

Conditions: In a designated position (other than team leader) in a moving fire team.

Standards: You will react immediately to the fire-team leader's example by performing the same actions he does in the designated position within the formation.

Performance Steps

1. Fire team formations describe the relationship of the soldiers in the fire team to each other. Standard fire team formations are the wedge (Figure 1), modified wedge (Figure 2), diamond (Figure 3), and file (Figure 4).
   a. Fire team wedge (Figure 1). This is the basic fire team formation. It has the following characteristics:

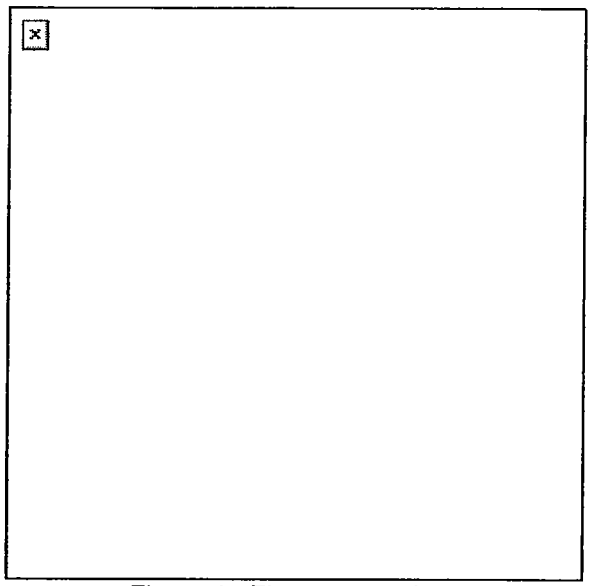

Figure 1. Fire team wedge.

   (1) Is easy to control.
   (2) Is flexible.
   (3) Allows immediate fires in all directions.
   (4) Provides all-round local security.

   b. Modified wedge (Figure 2). When rough terrain, poor visibility, or other factors reduce control of the wedge formation, the sides are closed up to (almost) a single file. When moving in less rugged terrain and control becomes easier, soldiers resume their original positions. The modified wedge can also be used for extended periods when traveling on roads or trails. It has the following characteristics:

Performance Steps

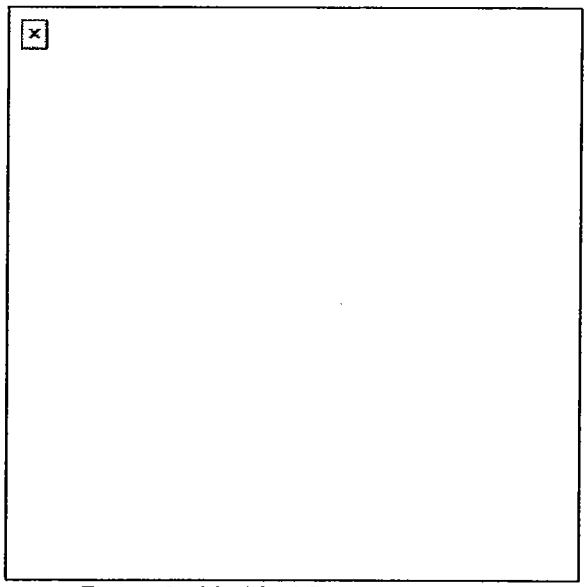

Figure 2. Modified fire team wedge.

(1) Is easier to control in reduced visibility or rough terrain.
(2) Provides less security to flanks than a wedge but more than a file.
(3) Masks fires initially to the front and rear for the majority of the team.

c. Fire team diamond (Figure 3). This formation is a variation of the wedge. It is most often used when the fire team is operating alone or is the lead security element (point) for a column or file. It has the same characteristics as a wedge except there is--

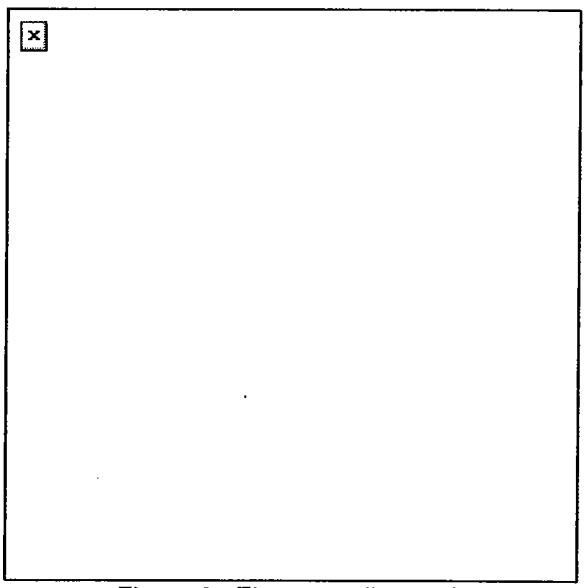

Figure 3. Fire team diamond.

(1) Reduced frontage.
(2) Increased security to the rear.
(3) Immediate fires in all directions, but one man's fires are always masked.

d. Fire team file (Figure 4). When the fire team is not using a wedge or diamond formation, it uses the file. The characteristics of the file are--

Performance Steps

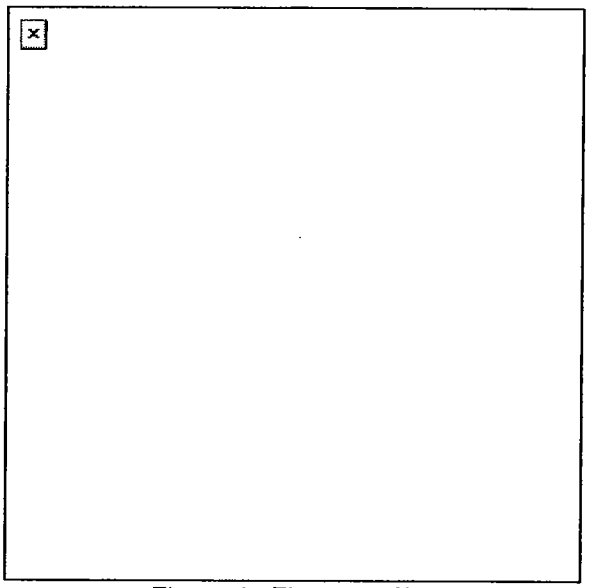

Figure 4. Fire team file.

(1) Provides maximum control.
(2) Provides minimum frontage. It is the easiest formation to use in close terrain or vegetation.
(3) Facilitates speed of movement.
(4) Is less flexible than the wedge or diamond.
(5) Provides immediate fires to flanks, but it masks most soldier's fires to the front and rear.

2. The distances between soldiers in the formation depend on the terrain, visibility, and control factors. The normal interval in daylight is about 10 meters. Formations should not be held rigid, but should vary according to the factors of mission, enemy, terrain, troops, and time available (METT-T).
   a. The interval is increased in open terrain.
   b. The interval is decreased when visibility is limited by underbrush, terrain , darkness, smoke, or dense fog.
   c. The normal interval is resumed as soon as conditions permit.

Evaluation Preparation: Setup: This task will be tested during a platoon or larger tactical exercise. The fully combat equipped soldier will move as part of a fire team, operating as part of a platoon conducting a dismounted movement to contact. The soldier may act as any duty position except team leader.

Brief Soldier: Tell the soldier that he is a member of a fire team moving within the fire team formation, that he must use proper movement techniques within the formation as dictated by terrain and visibility, and that he must follow the team leader's instructions or signals.

Performance Measures	**GO**	**NO GO**
1. Keeps relative distance within the formation.	___	___
2. Maintains visual contact with the team leader.	___	___
3. Performs the same action as the team leader while maintaining relative position.	___	___
4. Maintains the appropriate interval within the formation based on visibility, terrain, and the team leader's instructions and signals.	___	___

Performance Measures	GO	NO GO
5. Assumes the proper position within the formation as the formation changes.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 3-21.71
	FM 7-7
	FM 7-8

React to Indirect Fire While Mounted
071-326-3002(SL1)

Conditions: In a combat environment, given a combat-loaded tracked vehicle.

Standards: Reacted to indirect fire by moving the vehicle from the impact area, then continued the mission.

Performance Steps

1. Direct that all hatches be closed.
2. Direct movement away from the impact area.
3. Analyze the situation.
4. Give a situation report.
5. Continue the mission.

Evaluation Preparation: Setup: At the test site, provide all equipment and materials listed in task conditions statement. Use only dummy ammunition for training purposes. Take soldiers on a simulated march.

Brief Soldier: Tell the soldiers that they must react to a simulated indirect fire mortar or artillery fire while mounted in a tracked vehicle.

Performance Measures	GO	NO GO
1. Gives an order to close all hatches.	___	___
2. Directs movement away from the impact area.	___	___
3. Analyzes the situation.	___	___
4. Gives a situation report.	___	___
5. Continues the mission.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier fails any steps, show what was done wrong and how to do it correctly.

References

Required	Related
	FM 3-21.71
	FM 7-7

Subject Area 3: Night Vision Devices

Mount a Night Vision Sight AN/PVS-4 on an M16A1 or M16A2 Rifle
071-008-0001

Conditions: Given an M16A1 or M16A2 rifle, an operating AN/PVS-4 out of the storage case with batteries installed, empty cartridge case, and mounting knob assembly.

Standards: AN/PVS-4 is secured to the carrying handle of the rifle without causing damage to the equipment, and the night vision device is functioning properly.

Evaluation Preparation:

Performance Measures	**GO**	**NO GO**
WARNING: Be sure there are no rounds in the weapon before attempting to mount the AN/PVS-4. The weapon must be on SAFE. CAUTION: The AN/PVS-4 is a precision electro-optical instrument and must be handled carefully at all times.		
1. Inspect equipment. a. Visually inspect equipment for obvious damage and/or missing parts. (1) Mounting knob assembly. (a) Stripped threads. (b) Missing nuts and/or washers. (2) AN/PVS-4. (a) Batteries. (b) Controls and indicators. b. If serviceability is questionable, return to maintenance personnel as non-operational.	____	____
2. Mount the AN/PVS-4 to the rifle. a. Position the sight in the groove on top of the rifle and align the threaded hole on the sight mounting adapter of the AN/PVS-4 with the hole in the carrying handle of the rifle. b. Attach mounting knob assembly. (1) Insert the threaded end of mounting knob assembly through hole in carrying handle into hole of AN/PVS-4. (2) Turn mounting knob clockwise until tight (if necessary, place empty cartridge case over the lever arm to increase leverage as the mounting knob assembly is tightened). **Note: If you encounter difficulty, turn the sight and the rifle upside down. Place the rifle handle onto the sight mounting adapter, lining up the hole in the handle onto the sight mounting adapter. Place the mounting knob assembly through the hole in the handle and rotate clockwise.** c. Test the AN/PVS-4 to ensure it is mounted securely. Grasp it and attempt to move it back and forth. d. If the AN/PVS-4 does move, retighten the mounting knob.	____	____

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show him what was done wrong and how to do it correctly.

Dismount a Night Vision Sight, AN/PVS-4, from an M16-Series Rifle
071-008-0002

Conditions: Given an M16-series rifle with mounted AN/PVS-4, storage case, and carrying bag. The AN/PVS-4 is in the OFF position, with batteries installed, and is mounted with the mounting knob assembly.

Standards: Removed the AN/PVS-4 night vision sight from the rifle, and removed the batteries from the sight. Placed the sight, batteries, and mounting knob assembly in the storage case without damaging them.

Performance Steps

1. Dismount the AN/PVS-4 from the M16-series rifle.
   a. Unscrew mounting knob assembly in a counterclockwise direction until the assembly is free, then remove it from the weapon.
   b. While removing the mounting knob assembly, hold the AN/PVS-4 and then remove it from the rifle.
   c. Remove batteries.

2. Place items in the storage case.
   a. Place batteries and mounting knob assembly into designated compartments in the storage case.
   b. Place AN/PVS-4 into carrying bag and then into designated compartment in the storage case.
   c. Close top of storage case and fasten all four latches.

Evaluation Preparation: SETUP: At the test site, provide all equipment and material shown in the task condition statement.

BRIEF SOLDIER: Tell the soldier to remove the AN/PVS-4 from the M16-series rifle and replace it in its storage case.

Performance Measures	GO	NO GO
1. Dismounted the AN/PVS-4 from the M16-series rifle.	____	____
2. Placed items in the storage case.	____	____

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

References

Required

Related
TM 11-5855-213-10

Operate a Night Vision Sight AN/PVS-4
071-315-0003

Conditions: At night given an AN/PVS-4 in its carrying case and a BA-5567/U (lithium) battery or two BA-3058/U (alkaline) batteries with AA battery adapter.

Standards: Correctly place the AN/PVS-4 into and out of operation.

Performance Steps

1. Unpack the sight.

CAUTION: Relieve air pressure inside the carrying case by pressing the core of the relief valve, located near the handle, before releasing the latches.

   a. Release the latches securing the top of the carrying case, and remove the top.
   b. Remove the carrying bag from the carrying case. Open the bag and remove the sight.
   c. Inspect the sight for damage (cracks, chips, abrasions) and ensure that the decals are readable. Report deficiencies.

CAUTION: The AN/PVS-4 is a precision electro-optical instrument. They must always be handled carefully. Be sure to turn the ON-OFF /TUBE BRIGHTNESS and ON/OFF/RETICLE BRIGHTNESS switches OFF before installing batteries.

2. Install the batteries (Figure 1).

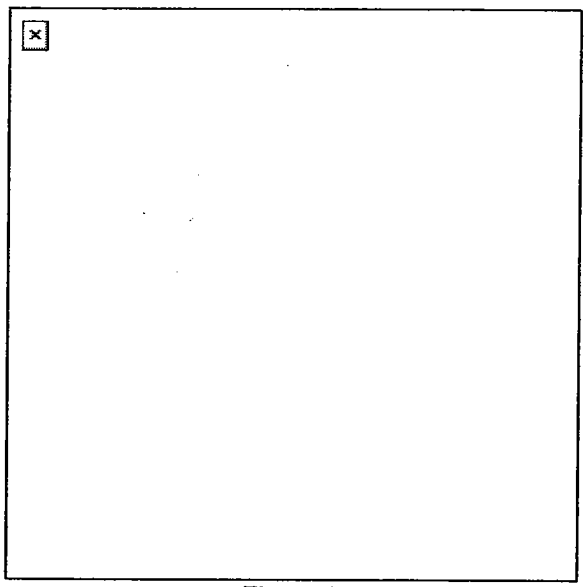

Figure 1
Battery emplacement

   a. Remove the battery caps by turning them counterclockwise.
   b. Insert a battery in each cap with the negative (-) terminal (raised end) facing into the cap.
   c. Replace the battery caps and tighten them snugly.

3. Operate the device under normal conditions (Figure 2).

Performance Steps

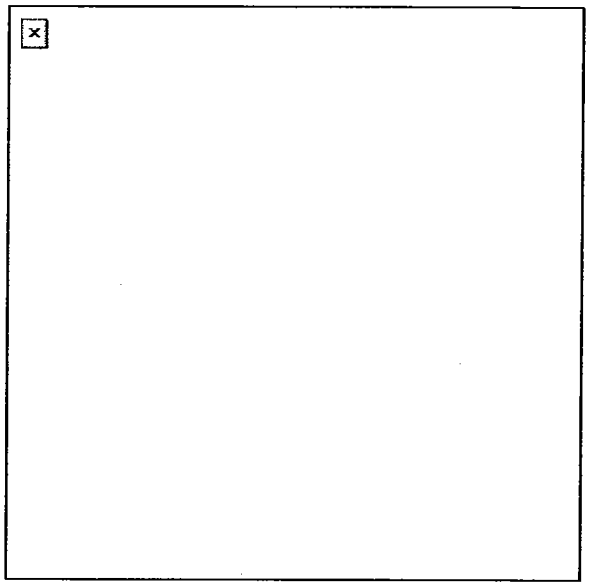

Figure 2
Controls and indicators

WARNING: Using the sight without the eye guard installed may cause detection by the enemy and, when operated on a weapon, can result in physical injury to the operator because of weapon recoil.

NOTES: 1. The daylight cover must be installed during the daylight and removed at night.
2. Batteries must be removed when the sight is not in use, to prevent accidentally turning on the sight.

a. Press the eye against the eye guard to open the rubber leaves that prevent the emission of stray light.
b. Turn the ON-OFF/TUBE BRIGHTNESS control clockwise to turn on the sight.

NOTE: If the equipment fails to operate, refer to the troubleshooting procedures in Technical Manual (TM) 11-5855-213-10.

c. Adjust the ON-OFF/TUBE BRIGHTNESS control to the lowest setting that provides good target-to-background contrast.
d. Turn the ON-OFF/ RETICLE BRIGHTNESS control clockwise to turn on the light-emitting diode. Adjust the light intensity so that the reticle is just visible against the background.

CAUTION: Excessive reticle brightness may damage the image intensifier tube.

e. Turn the diopter focus ring (Figure 2) to obtain the clearest image of the reticle pattern.
f. Turn the objective focus ring (Figure 2) until the target in the field of view is sharply defined.

NOTE: During surveillance or target engagement, the operator must adjust the objective focus to ensure a sharp image at different ranges.

4. Perform after-operation procedures.
   a. Turn the reticle and tube brightness controls fully clockwise.
   b. Remove both batteries.
   c. Replace the sight in the carrying case.

Evaluation Preparation: Setup: At the test site, provide all the materials and equipment given in the task conditions statement.

Brief Soldier: Tell the soldier to remove the AN/PVS-4 from its storage case and place it into operation. Tell him to take the AN/PVS-4 out of operation and replace it in its storage case.

Performance Measures Note: Steps 1and 2 are to be executed in sequence.	**GO**	**NO GO**
1. Remove sight from the carrying case. a. Release the air pressure. b. Release the latches. c. Inspect the sight for damages.	___	___
2. Install the batteries. a. Place the ON-OFF/TUBE BRIGHTNESS switch to OFF. b. Place the ON-OFF/RETICLE BRIGHTNESS switch to OFF. c. Remove the battery caps (two each). d. Insert the batteries (two each) correctly (negative [-] terminal facing into the cap). e. Replace caps (two each).	___	___
3. Turn the ON-OFF/tube brightness control to ON.	___	___
4. Turn the ON-OFF/reticle brightness control to OFF.	___	___
5. Perform after-operation procedures. a. Turn the ON-OFF/tube brightness control to OFF. b. Turn the ON-OFF/reticle brightness control to OFF. c. Remove both batteries. d. Replace the sight in the carrying case.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	TM 11-5855-213-10

Operate Night Vision Goggles AN/PVS-5
071-315-0030

Conditions: At night, given a set of AN/PVS-5 goggles complete with batteries.

Standards: At night, given a set of AN/PVS-5 goggles complete with batteries.

Performance Steps

1. Perform preoperational checks.

CAUTION 1: The AN/PVS-5 is a precision electro-optical instrument and must be handled carefully. Keep caps on objective and eyepiece lenses when not in use. Do not expose the unprotected objective lens to bright light with power applied to the goggles. Damage to the image intensifier can result.

a. Remove the goggles from the carrying case.

CAUTION 2: The neck cord must be placed around the user's neck when the goggles are removed from the carrying case.

b. Place the neck cord around your neck.

c. Make sure the rotary switch is in the OFF position.

CAUTION 3: The rotary switch must be in the OFF position when the batteries are installed.
WARNING: Do not use mercury or rechargeable NiCad batteries. Using these batteries could result in system failure, which could cause personnel injury.

WARNING: Danger of explosion. Do not transport batteries in pockets or other containers containing metal objects such as coins, keys, etc. Metal objects can short circuit batteries and cause them to become very hot. The BA-5567/U (lithium) batteries could explode.

WARNING: The BA-5567/U (lithium) battery contains sulphur dioxide gas under pressure and should be handled in the following manner: (1) The BA-5567/U (lithium) batteries have safety vents to prevent explosion. When they are venting sulphur dioxide gas, you may smell it or hear the sound of gas escaping. When the safety vents have operated, the batteries are fairly safe from bursting but will be hot and must be handled with care. (2) Do not heat, puncture, disassemble, short circuit, attempt to recharge, or otherwise tamper with the batteries. (3) Turn off the equipment if the battery compartment becomes unduly hot. Do not open the battery compartment, but turn in the goggles to maintenance and report the problem.

d. Install the BA-5567/U (lithium) battery or BA-3058/U (alkaline) battery.
   (1) Remove the BA-5567/U (lithium) battery cap or BA-3058/U (alkaline) battery cap(s).
   (2) Insert the BA-5567/U (lithium) battery with the recessed (+) side in first. Insert the BA-5567/U (alkaline) batteries with the flat (-) side in first.

WARNING: For AN/PVS-5B and AN/PVS-5C: Do not use the goggles with more than one type of battery at a time. Putting both battery types in your goggles at the same time draws off power and will severely reduce battery life of both types.

NOTE: The BA-5567/U (lithium) battery compartment is the same for the AN/PVS-5, AN/PVS-5A, AN/PVS-5B, and AN/PVS-5C. The upper battery compartment for the BA-3058/U (alkaline) batteries is on the top of the face mask for the AN/PVS-5B and for the AN/PVS-5C.

   (3) Replace the battery cap and tighten it firmly to ensure a watertight seal.

2. Prepare the goggles for operation.
   a. Snap the headstrap to the face mask, making sure all straps are extended to their maximum lengths.
   b. Move the objective focus knob and diopter adjustment ring throughout their range to make sure they rotate freely.
   c. Remove the eyepiece lens caps.
   d. Place the goggles on your head and adjust the headstraps.
      (1) Bend your head so that you are facing the ground.

Performance Steps

(2) With straps loosened, place the goggle headstrap on your head.
(3) Grasp the headstrap side (horizontal) band adjustment with both hands and slowly pull band adjustment until face mask cushion just touches your face.
(4) Continue pulling straight back on the straps until the goggles feel snug.
(5) With your head still bent, grasp center (vertical) band adjustment and pull until snug.
(6) Lift your head to a normal viewing position and make final adjustments on all bands until you have a comfortable, stable fit.

e. Remove objective lens cap.

3. Operate the goggles.

CAUTION 4: Perform the following procedures in the dark.

a. Set the rotary switch on the ON position. A green glow will appear in each eyepiece after a slight delay.
b. Adjust the diopter adjustment rings. After the eye relief is set, the diopter adjustment ring adjusts between the eye and the eyepiece. Adjust both eyepieces by turning the diopter adjustment rings counterclockwise.
c. Adjust the objective focus knobs. Adjust both objective focus knobs to infinity, all the way counterclockwise and back approximately 1/16 turn to infinity. If you are focusing on an object less than 100 to 200 feet away, adjust the focus knobs slightly to the right. Adjustment of the objective focus knobs regulates the target distance that is in focus. The objective focus knobs are located right on the objective lenses.
d. Loosen the lever clamp (wing nut) counterclockwise and gently pull the monoculars apart to their fullest extent. Then, gently push the monoculars together to attain a proper sight picture.
   (1) The proper sight picture has one circular image with a slight overlap.
   (2) An improper sight picture may be due to the monoculars being improperly positioned in front of the eyes.
   (3) Tighten the lever clamp (wing nut) clockwise finger tight. Do not over tighten the lever clamp (wing nut).
e. Adjust the clamp knobs.
   (1) Loosen the clamp knobs counterclockwise and adjust the monoculars to attain the desired monocular tilt. The monoculars have a tilt range of 25 degrees.
   (2) The monoculars may be adjusted fore and aft in the slot of the face mask assembly within a 0.39 inch (10 millimeter) range. This adjustment changes your field of view. Start by placing the monoculars as close to your eyes as possible and then move them outward. The position is a matter of individual preference. Placing the monocular close to the eye allows an excellent view of the monocular image. If the monocular lenses are more than 0.71 inch (18 millimeters) from the eye, your field of view will be less than 40 degrees.

NOTE: If the eyepiece lenses are not properly aligned with the eyes, optimal resolution will not be achieved. Proper alignment of the eyepiece lenses is achieved when the distance between the monoculars matches the distance between your pupils and the line of sight is the same as the vertical angle of the binoculars. When all the eyepiece adjustments (eyespan, vertical, and tilt) are properly set, the edges of the images in both monoculars will be clear.

   (3) Tighten the clamp knobs clockwise, finger tight. Do not over tighten the knobs.

4. Adjust the focus.

NOTE: When setting the diopter adjustment, you can achieve a clear image in each eye (monocular) and yet have a blurred image or develop eyestrain when viewing with both eyes.
NOTE: The following procedures is performed outdoors at night while wearing the goggles.

a. Preset the objective focus knob and diopter adjustment ring of both monoculars fully counterclockwise.
b. Turn on the goggles.
c. Look at the edge or some detail of a building or other man-made structure at least 100 feet (33 meters) away.
d. Cover your left eye, or cup your hand over the left objective lens. Do not close your left eye. Be careful not to touch the lenses.

Performance Steps

e. Turn the right diopter adjustment ring clockwise until you first obtain a clear image, and stop.

NOTE: If you continue to turn the diopter adjustment ring clockwise, the image may seem clear initially, but you could experience eyestrain or headaches after prolonged use.

f. Refine the focus of the right objective lens by very slowly turning the right objective focus knob until the sharpest image is obtained.
g. Repeat steps 4c through 4f above for the left monocular.
h. After adjusting both monoculars for best focus, cover the objective lens of the left monocular and view the image through the right monocular, checking to see if the image is still clear. Then cover the right monocular with the right hand and view the image through the left monocular. If either monocular is not clear, repeat steps 4c through 4g.
i. With both eyes open, make final objective focus adjustments. If necessary make minor adjustments.
j. Turn off the goggles.

5. Operate the goggles for reading.

NOTE: Keep both eyes open when focusing.

a. Turn on the goggles to the infrared (IR) position by pulling the switch down and turning it clockwise. (On the AN/PVS-5, you do not have to pull the switch down to turn it to IR.)
b. Check that the IR illuminator has been turned on by passing your hand directly in front of the goggles. If the contrast appears extra bright, turn the rotary switch to the ON position from the IR position.
c. Turn the objective focus knobs fully clockwise to view up close.
d. Cover your left eye. Keep both eyes open. Adjust the right diopter adjustment ring until the viewing area becomes as clear as possible.
e. Adjust the right objective focus knob for the clearest image of your reading material.
f. Cover your right eye. Keep both eyes open. Adjust the left diopter adjustment ring until the viewing area becomes as clear as possible.
g. Adjust the left objective focus knob for the clearest image of your reading material.
h. Have an observer wearing night vision goggles check carefully for stray light that may be visible at the edges of your face mask cushion.

WARNING: The IR illuminator is for conditions of extreme darkness. The light from the illuminator can be detected by the enemy using night vision devices, so only use the IR illuminator for emergencies. The purpose of the IR illuminator is for viewing within approximately 6 feet (2 meters).

6. Operate the IR illuminator.

a. Pull down and turn the rotary switch to the IR position and observe that the area to your immediate front is lighted. (On the AN/PVS-5, you do not have to pull the switch down to turn it to IR.) As the IR illuminator is turned on, the momentary flash that you see is normal.

WARNING: Two major disadvantages occur when the IR illuminator is used. First, it makes the night vision goggles an active IR system, and when illuminated, the operator is subject to detection by enemy systems. Second, when the illuminator is used, the battery power is consumed six times faster.

b. Check that the IR illuminator has been turned on by passing your hand directly in front of the goggles. If the contrast appears extra bright on your hand, the IR illuminator is lighted.

7. Install and remove the demisting shields.

NOTE: Use the demisting shields if the eyepieces become fogged during operation. CAUTION: Demisting shields will be damaged if wiped while wet or with wet lens paper.

a. Remove the demisting shields from the goggles carrying case. Snap the demisting shields over the eyepiece lenses. Be careful not to smudge the eyepiece lenses or demisting shields.
b. Remove the demisting shields by grasping them and pulling them off the eyepiece lenses. Place them back in the carrying case.

8. Operate the goggles in the standby mode.

Performance Steps

a. During extended periods of nonuse, turn the rotary switch to OFF. Observe that the green glow disappears immediately from the goggles.
b. Remove the goggles from your head.
c. Let them hang by the neck cord around your neck.

9. Perform shutdown and storage procedures.
   a. Remove goggles.
      (1) Shut down goggles by turning rotary switch to OFF.
      (2) Unsnap side straps.
      (3) Unsnap center strap.

CAUTION 5: When removing the headstrap at the fastener, lift snap only at LIFT DOT to avoid tearing the strap or breaking through the face mask. The white dot on the strap's button is the only place the button releases on its own. The LIFT DOT is not on the AN/PVS-5B headstrap.

   b. Replace the objective lens caps and eyepiece caps.
   c. Remove batteries.
      (1) Unscrew the battery caps.
      (2) Remove the BA-5567/U (lithium) battery or BA-3058/U (alkaline) batteries from the battery compartments.
      (3) Replace the battery caps.
   d. Loosen the clamp knobs and lever clamp (wing nut).

CAUTION 6: Failure to loosen the clamp knobs and lever clamp (wing nut) before stowing could result in damage to the face mask.

   e. Place the goggles and batteries in the carrying case, and secure the latch.

Evaluation Preparation: Setup: Evaluate this task at night or in a classroom where you an control the light to simulate nighttime conditions. Provide the soldier with a set of AN/PVS-5 night vision goggles, complete with components and fresh batteries.

Brief Soldier: Tell the soldier to prepare the goggles for operation, attach the components, operate the goggles, and shut down and stow the goggles under the following conditions: normal operation, extreme darkness, and rain or high humidity. Tell the soldier that he must notify you before turning the goggles ON and after turning them OFF, so you can darken or lighten the room accordingly. Tell him not to energize the goggles when the room lights are on.

Performance Measures	**GO**	**NO GO**
1. Perform preoperational checks. a. Remove the goggles from the carrying case. b. Place the neck cord around your neck. c. Make sure the rotary switch is in the OFF position. d. Install the battery(ies).	____	____
2. Prepare the goggles for operation. a. Install the headstraps. b. Remove the eyepiece lens caps. c. Put on the goggles and adjust the headstraps. d. Remove objective lens caps.	____	____
3. Operate the goggles. a. Turn the rotary switch to ON. b. Adjust all controls to obtain proper sight picture. c. Make sure the infrared illuminator is not turned on.	____	____
4. Perform shutdown and storage. a. Remove goggles. b. Turn the rotary switch to OFF.	____	____

Performance Measures **GO** **NO GO**

c. Replace the lens caps.
d. Remove the battery(ies).
e. Loosen the clamp knobs and lever clamp (wing nut).
f. Place the goggles and battery(ies) in the carrying case.

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

Zero a Night Vision Sight AN/PVS-4 to an M16A1 or M16A2 Rifle
071-315-2307

Conditions: Given an AN/PVS-4, mounted on a zeroed M16A1 or M16A2 rifle, a magazine with 18 rounds of ammunition, a silhouette target (with a 25-meter zeroing target attached) 25 meters from the firing point, and sandbags. Note: Ensure that the AN/PVS-4 has the M16, M203 sight reticle installed.

Standards: Place the center of a three-round shot group 7 centimeters (cm) below the target aiming point. Note: The sight may be zeroed during daylight or darkness. If zeroed during daylight, the daylight cover must be used. CAUTION Use of the sight under high light conditions without a daylight cover will damage the image intensifier assembly.

Performance Steps
CAUTION
Prolonged use of the sight under high light without a daylight cover will damage the image-intensifier assembly.

1. Assume a good prone-supported position 25 meters from the target.

2. Place the sight into operation (see Task 071-315-0003, Operate a Night Vision Sight AN/PVS-4).

WARNING: Do not use the sight without the eyeguard attached or weapon recoil may cause personnel injury.

3. Adjust the azimuth and elevation controls so that the reticle aiming point is about in the center of the sight's field of view.

4. Fire three rounds to seat the sight on the weapon. Fire them into a safe area; try not to hit the zero target. Retighten the mounting knob.

5. Place the zeroing range aiming point of the reticle on the target aiming point; fire three rounds to obtain a good shot group (Figure 1). Use either the M16A1 25-meter zero target (NSN 6920-01-167-1392) shown in Figure 2 or the M16A2 25-meter zero target (NSN 6920-01-253-4005) shown in Figure 3. When zeroing the night vision sight, you can use either of these targets with either the M16A1 or M16A2 rifle. Use the marginal information on the target to adjust the sights on the rifle-not the night vision sight.

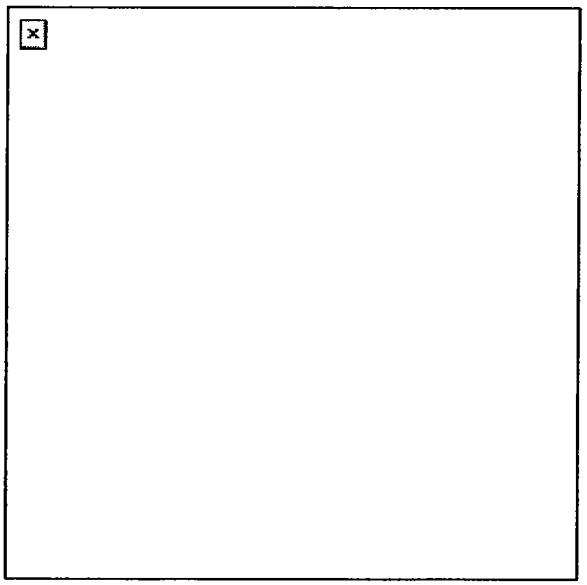

Figure 1. Zero aiming point.

Performance Steps

6. Locate the center of the shot group. From the center of the group, adjust the reticle to move the center of the shot group to a point 7 centimeters (10 1/2 squares on the M16A1 target; 7.8 squares on the M16A2 target) directly below the target aiming point (Figure 2 and Figure 3). Mark the reticle adjustment actuators to show the direction of round impact movement.
   a. Each click of the azimuth or elevation adjustment actuator moves the strike of the round 0.63 centimeter (1/4 mil or about 1/4 inch at a 25-meter range.
   b. On the M16A1 zero target, 1 1/2 squares equals 1 centimeter and 10 1/2 squares equals 7 centimeters (Figure 2). On the M16A2 zero target, each square is .9 centimeter and 7.8 squares equal 7 centimeters (Figure 3).

Figure 2. M16A1 zeroing target.

Figure 3. M16A2 zeroing target.

7. Perform the following actions after you adjust the controls:

Performance Steps

a. Move a weapon so that the reticle aiming point is again on the target aiming point.
b. Repeat Task Step 5 and Task Step 6 until the center of the shot group is 7 centimeters below the target aiming point as shown in Figure 4 and Figure 5.

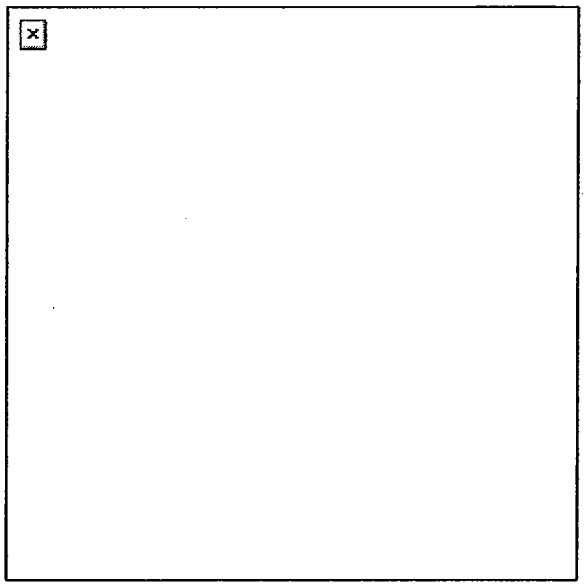

Figure 4. Sample 25-meter zeroing target for M16A1.

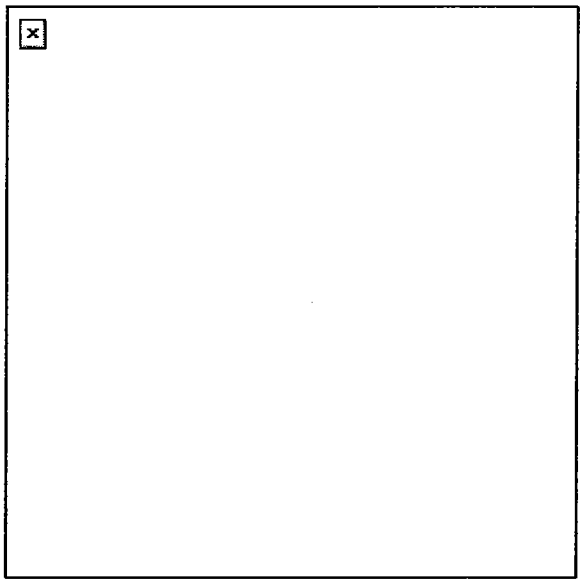

Figure 5. Sample 25-meter zeroing target for M16A2.

8. During zeroing, make sure the soldier places reticle aiming point (Figure 1) on the target aiming point in the silhouette's center of mass. Figure 6 shows what a zeroed shot group should look like.

Performance Steps

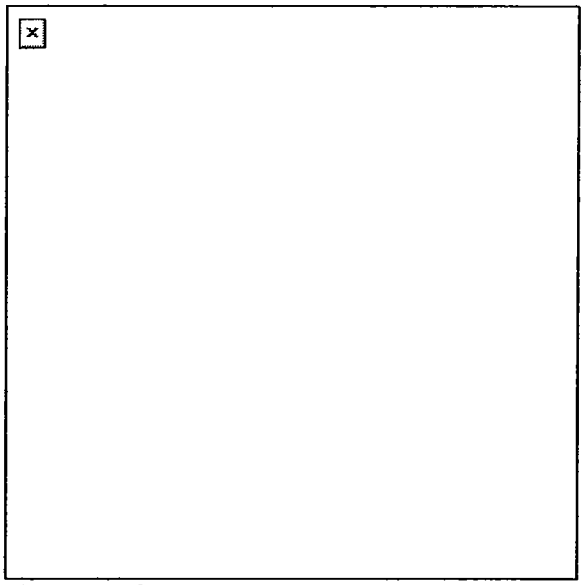

Figure 6. Sight picture and zeroed shot group.

EXAMPLE: From the center of the shot group in Figure 4, move the azimuth adjustment actuator 11 clicks to the left.
- Move the elevation adjustment actuator down 17 clicks.
- From the center of the shot group in Figure 5, move the azimuth adjustment actuator 9 clicks to the left. Move the elevation adjustment actuator 16 clicks.

Evaluation Preparation: Setup: At the test site, provide all equipment and materials given in the task conditions statement. Also provide a bipod for the rifle.

Brief Soldier: Tell the soldier to zero the AN/PVS-4 to the rifle within 18 rounds or less.

Performance Measures	**GO**	**NO GO**
1. Place the AN/PVS-4 sight into operation.	___	___
2. Zero the AN/PVS-4 sight to the rifle within 18 rounds or less.	___	___
3. Remove the AN/PVS-4 sight from operation.	___	___

Evaluation Guidance: If the soldier passes all steps, score him a GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	TM 11-5855-213-10

Engage Targets with an M16A1 or M16A2 Rifle Using a Night Vision Sight AN/PVS-4
071-315-2308

Conditions: During darkness, given an M16A1 or M16A2 rifle with a mounted and zeroed AN/PVS-4; one silhouette target between 50 and 100 meters, one at 150 meters, and one between 200 and 250 meters; and one magazine with 18 rounds of ammunition.

Standards: Fire all 18 rounds and hit the targets at least nine times (there must be at least five hits on the 150-meter target and at least two hits each on the 50- to 100-meter target and the 200- to 250-meter target).

Performance Steps
NOTE: Ensure the AN/PVS-4 has the proper sighting reticle (Figure 1).

1. Place the sight into operation (see Task 071-315-0003, Operate a Night Vision Sight AN/PVS-4).
2. Use the sight reticle. When used with the rifle, the AN/PVS-4 sight reticle consists of two parts (Figure 1).
   a. Use the upper part of the reticle (range scale) to determine range to the target.
   b. Use the lower part of the reticle for aiming the weapon.

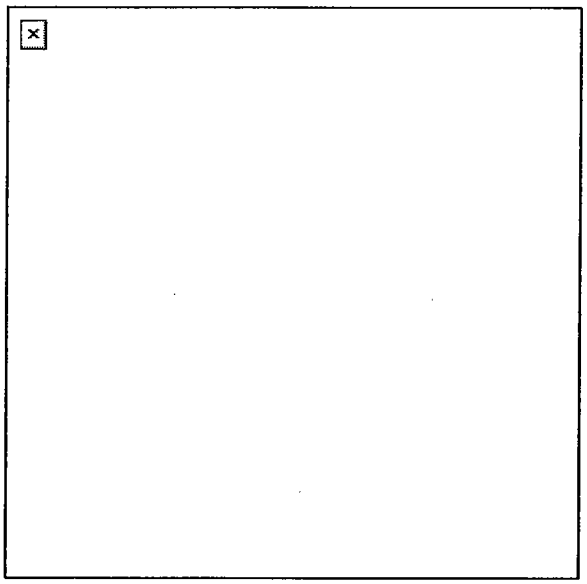

Figure 1. Sight reticle.

NOTE: Ensure the AN/PVS-4 is mounted to the rifle using the rifle mounting adapter and not the M203 mounting bracket.

3. Determine range to target.
   a. The vertical lines on the range scale tell how far away a 6-foot tall man is.
      (1) Place the target on the horizontal line and match it with one of the vertical lines (A, Figure 2).
      (2) Read the number at the bottom or top of the vertical line. That is the distance in hundreds of meters to the target.
      (3) If the figure is the same height as the vertical line above and below the horizontal line, the distance will be half of the number at the top or bottom of that line (B, Figure 2).
      (4) The man shown in A, Figure 2 is 400 meters away; the man in B, Figure 2 is 500 meters away.

Performance Steps

Figure 2. Range determination using vertical lines.

b. The horizontal line of the range scale indicates the range (in hundreds of meters) of a 20-foot target such as a tank or large truck viewed from the side.
   (1) Place the left edge of the vehicle at the left side of the horizontal line (Figure 3).
   (2) Read the range to the tank from the scale at the right edge of the tank. As shown in A, Figure 3, the range to the vehicle is 1,000 meters.
   (3) When viewed from the front or rear, the vehicle width is about half the length. Read the placement of the vehicle width on the range scale as half the range scale value. As shown in B, Figure 3, the range to the vehicle is 400 meters.

Figure 3. Range determination using horizontal lines.

4. Engage targets using the sight reticle.

Performance Steps

a. The rifle aiming point for ranges out to 250 meters is the center of the three straight lines (zero aiming point) (Figure 4). The top of the vertical line is the aiming point for 400 meters, and the bottom of the line is the aiming point for 600 meters.

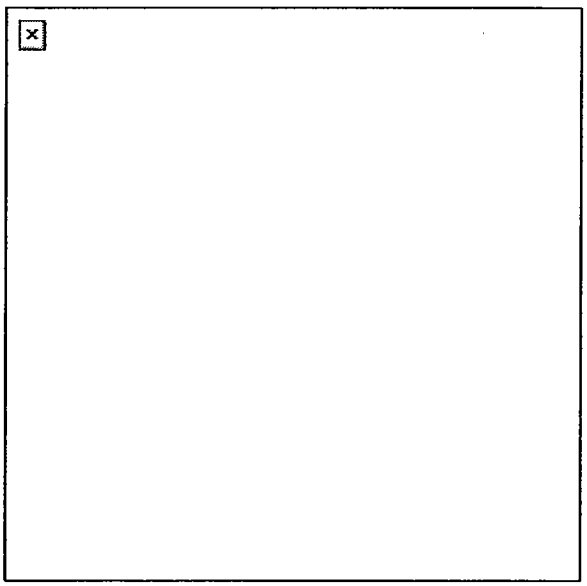

Figure 4. Zero aiming point.

b. Locate the target, estimate the range, and place the proper aiming point on the target.

WARNING: To prevent eye injury from weapon recoil, attach the eye guard to the sight before firing the weapon.

c. Fire the weapon using correct marksmanship procedures.

NOTE: When firing the rifle, disregard the three dots to the right of the aiming point; you would only need these if you were firing the M203 .

Evaluation Preparation: Setup: At a live-fire range, provide the equipment and materials given in the task conditions statement. Turn off the sight after evaluation.

Brief Soldier: Tell the soldier to engage all targets with a minimum of 9 hits out of 18 rounds.

Performance Measures	**GO**	**NO GO**
1. Place the AN/PVS-4 into operation.	___	___
2. Engage targets.	___	___
2. Use the sight reticle to determine range to targets. a. The 150-meter target with at least five hits. b. The 50- to 100-meter target with at least two hits. c. The 200- to 250-meter target with at least two hits.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	TM 11-5855-213-10

Operate Night Vision Goggles AN/PVS-7
071-710-0008

Conditions: At night, given night vision goggles AN/PVS-7 with components and batteries.

Standards: Prepare, operate, shut down, and stow the night vision goggles AN/PVS-7 without revealing your position and without damaging the equipment.

WARNING: To avoid physical and equipment damage, avoid bright light sources (e.g., sunlight, vehicle lights) while using the night vision goggles. These extreme light sources can impair the efficiency or damage the intensifier tube. The equipment requires some night light (moonlight or starlight) to operate. The level of performance depends upon the level of light. Night light is reduced by passing cloud cover or while operating under trees or in building shadows and other light shielding conditions. The equipment is less effective viewing into shadows and other darkened areas. The equipment does not operate through rain, fog, sleet, snow, or smoke. Adjust vehicular speed to prevent overdriving field of view when conditions of possible reduction or loss of vision exist.

WARNING: Batteries can explode if heated or contents can cause irritation if improperly handled.

WARNING: Infrared (IR) illuminator can be detected by enemy night vision devices.

Performance Steps
WARNING: To avoid personal injury or damage to the AN/PVS-7B goggles, consider the following limitations and safety precautions while using the goggles:

1. **The goggles require some moonlight, starlight, or both to operate.**
2. **The amount of available light determines the goggles' level of performance.**
3. **Operating in shadow form buildings or trees reduces nightlight.**
4. **The goggles are less effective for viewing into shadowed and other darkened areas than in lighter areas.**
5. **The goggles are less effective when viewing through rain, fog, sleet, snow, or smoke.**
6. **When using goggles from a moving vehicle in the fog, rain, sleet, snow, or smoke, vehicle speed must be reduced to avoid over-driving the range of view.**
7. **Between the last and first quarters of the moon, during operations requiring the use of a protective mask, or both, the assistance driver should use a night-vision device.**

1. Prepare the goggles for operation.

CAUTION: Handle all optical components with extreme care and protect against dirt, dust, fingerprints, and excessive moisture.

a. Inventory carrying case content to ensure the following accessories are present (Figure 1):

Performance Steps

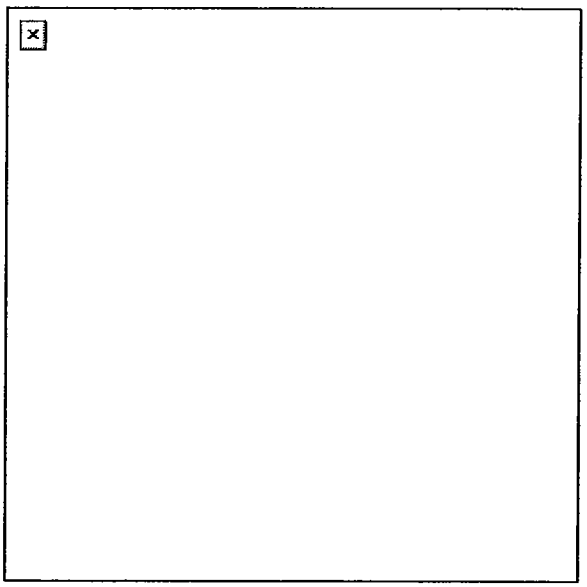

Figure 071-710-0008-1
AN/PVS-7B Night Vision Goggles and Accessories

(1) Headmount assembly.
(2) Demist shields.
(3) Brow pads (medium and thick) (thin pad is attached to headmount assembly).
(4) Operator's manual.
(5) Lens paper.
(6) Carrying case strap.
(7) Light interference filter (LIF).
(8) Sacrificial window.
(9) Batteries: (2 BA-3058/U or 1 BA-5567/U).
(10) Goggles assembly.

b. Inspect the goggles assembly and components for serviceability.
   (1) Ensure that the goggles assembly rotary switch is in the OFF position. Inspect goggles assembly and components for any damage to optical surfaces, body, eyecups, OFF-ON-PULL/IR switch, and battery cap.
   (2) Ensure all optical surfaces are clean. Clean with clean water and lens tissue if needed (Figure 2).

Performance Steps

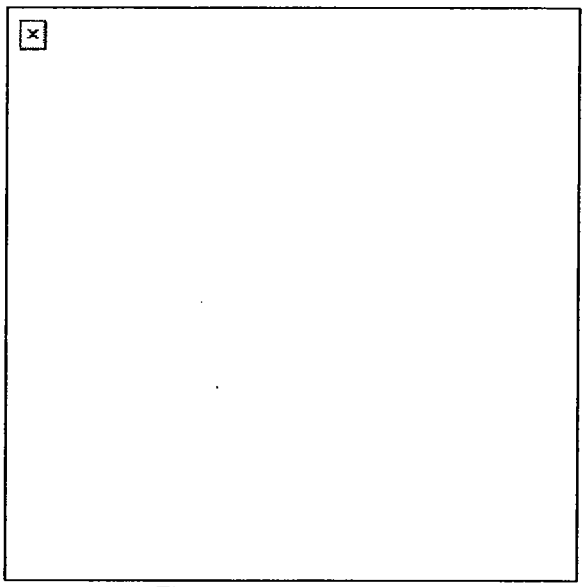

Figure 071-710-0008-2
Optical Surfaces and Other Components

c. Install batteries.

(1) Check and ensure that the OFF-ON-PULL/IR switch is in the OFF position before installing batteries.

(2) Comply with all warnings and danger statements that apply to handling batteries.

WARNING: o Batteries (alkaline, lithium, and mercury) present a potential hazard. Do not heat, puncture, disassemble, short-circuit, try to recharge, or otherwise tamper with the batteries.

o If the batteries compartment becomes unusually hot, turn off the equipment. Try to wait until the batteries cool before you remove them.

o Batteries have safety vents to prevent explosion. When they vent, you will notice an irritating odor or hear the sound of gas escaping. After batteries vent, they are fairly safe, but you must still handle them with care.

DANGER: IF YOU INHALE SULPHUR DIOXIDE, SEEK MEDICAL ATTENTION.

(3) Remove the battery cap. Insert two AA batteries (BA-3058/U) or one lithium battery (BA-5567/U) in the battery compartment, positive end (+) first.

(4) Replace the battery cap. Tighten it firmly to ensure a watertight seal (Figure 3).

Performance Steps

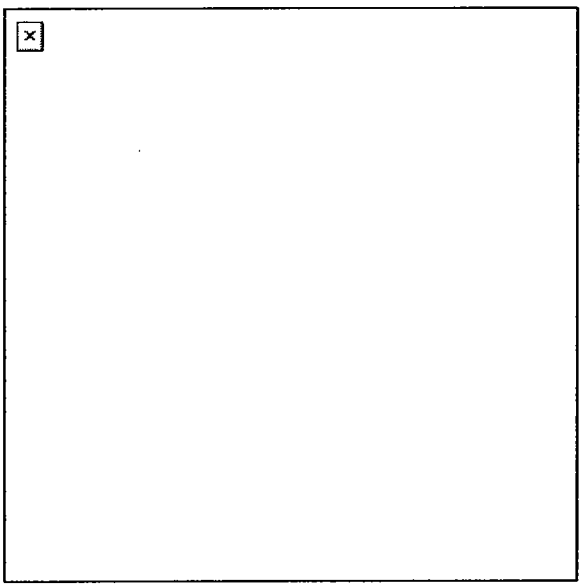

Figure 071-710-0008-3
Battery Installation

d. Perform an operational check.
   (1) Position the OFF-ON-PULL/IR switch to ON. Observe that a green glow gradually appears in each eyepiece.
   (2) Pull the OFF-ON-PULL/IR switch knob and rotate it clockwise to the IR position. Observe that a red light appears in the left eyepiece. This indicates that the IR source is operating. The IR source is located on the left front of the goggles. Do not block it while operating the goggles.
   (3) Turn the OFF-ON-PULL/IR switch counterclockwise to the OFF position. Observe that the red light and green glow disappear.

2. Operate goggles.
   a. Focusing the goggles. If you normally wear eyeglasses, remove them to operate these goggles. You can focus the goggles, so you will not need your eyeglasses.
      (1) Focus on the image intensifier screen using the diopter adjustment rings.
      (2) Focus on objects at varying distances using the objective focus adjustment.
   b. Handheld operation.
      (1) Position the goggles so that the eyecups seal around your eyes to prevent green glow from escaping.
      (2) Position the OFF-ON-PULL/IR switch to ON.
      (3) Adjust the interpupillary distance by sliding the eyepieces either together or apart so both eyes can observe the entire field of view at the same time.
      (4) To set the diopter adjustment rings, close your left eye and adjust the right diopter ring for the clearest focus on the image intensifier screen. Then, close your right eye and adjust the left diopter ring for the clearest focus on the image intensifier screen.
      (5) Adjust objective lens focus while observing a distant object (at least 4 meters distance) until the sharpest view is obtained.
   c. Head mount operation.
      (1) Adjust the headmount assembly (Figure 4).

Performance Steps

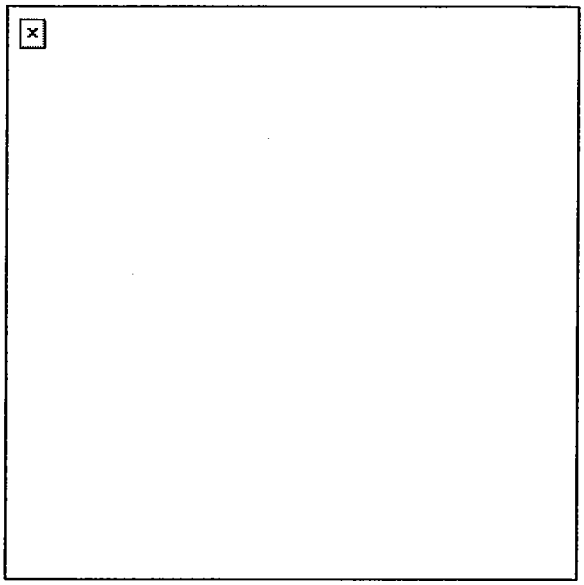

Figure 071-710-0008-4
Headmount Assembly

(a) Loosen the four chin straps on the headmount assembly until the end of each strap is about 2 inches from the sliding bar buckles.

NOTE: When installing a headmount assembly over a protective mask, make sure you do not break the seal of the protective mask around your face.

(b) Grasp the neck pad assembly with both hands. Pull it over your head and down to the back of your neck. If the head mount is too loose, replace the thin pad with the medium or thick pad. The pads are held in place by hook-pile tape.

(c) Fasten the front and rear snaps in place with your left hand. Hold the chin cup in position on your chin. Adjust both rear chin assembly straps until you feel light pressure against your chin. Stop. Do not tighten the strap any farther.

(d) Continue to hold the chin cup in position. At the same time, remove slack from the front and rear chin straps. Once you have done so--stop. Do not tighten them any farther.

(e) Make sure cross-strap assembly does not twist. To remove slack from it, adjust the vertical adjustment strap at the neck pad.

(f) Adjust the chin straps and the vertical adjustment strap until both chin cup and the headband assembly are in a comfortable but firm position.

(g) Depress the socket release button. Position the headmount socket all the way forward.

(2) Install the goggles on the headmount assembly.

(a) Align the goggles latch with the headmount socket. Press and hold the goggles latch lever while you place the goggles into the headmount socket. Release the latch when the goggles fully engage the socket.

(b) Depress the socket release button. Move the goggles back toward your eyes until the eyecups and eyepieces are comfortably aligned. The eyecups must seal around your eyes and prevent the green glow from escaping.

(3) Adjust goggles for operation.

(a) Position the OFF-ON-PULL/IR switch to ON.

(b) Adjust the interpupillary distance. Slide the eyepieces either together or apart so you can observe the entire field of view (FOV) with both eyes at the same time.

Performance Steps

(c) Set the diopter adjustment rings. Close your left eye and adjusting the right diopter ring for the clearest focus on the image intensifier screen. Close your right eye and adjust the left diopter ring for the clearest focus on the image intensifier screen.

(d) Adjust the eye relief distance. Press the socket release button. Move the goggles backward or forward to obtain a full field of view of the image intensifier. If necessary, readjust the diopter rings to obtain the best image.

(e) Adjust the objective lens focus while observing a distant object (at least 4 meters away) until you obtain the sharpest possible view.

(f) Readjust the vertical strap assembly until the goggles align with your eyes.

(g) If necessary, adjust the kevlar or M1 headband inside the helmet for a proper fit over the headmount assembly.

3. Operate goggles under unusual conditions.
   a. Extreme darkness.
      (1) Pull the OFF-ON-PULL/infrared (IR) switch out and rotate it clockwise to the IR position.
      (2) Ensure the eyecups are positioned to prevent light escaping from the goggles.

WARNING: The infrared source is a light that is invisible to the unaided eye for use during conditions of extreme darkness. However, the enemy can detect it with night vision devices. The infrared source is used to see objects within a distance of 3 meters.

   b. Dust and sand. Attach the sacrificial window to protect the objective lens from scratches and other damage.
      (1) Remove the sacrificial window from the carrying case.
      (2) Carefully push the sacrificial window over the objective lens until it pops.
      (3) Turn the sacrificial window clockwise until it snaps in place.
      (4) Remove the sacrificial window by reversing the installation procedures.
   c. Rainy and humid conditions. Press each eyecup over the diopter retainer ring. Rotate it into correct viewing position.
      (1) Remove the eyecups by carefully pulling them off the diopter ring.
      (2) Carefully press a demist shield onto each eyepiece. Do not smudge eyepiece or demist shields.
      (3) Replace eyecups. Press each eyecup over the diopter retainer ring. Rotate it into correct viewing position.
   d. Laser threat environment. Install the light interference filter (LIF). Using this filter will slightly reduce system gain.
      (1) Remove the container/wrench from the carrying case.
      (2) Remove the lens cap or sacrificial window from the objective lens of the goggles.
      (3) Open the container/wrench and remove the LIF.
      (4) Hold the LIF by the notched end. Thread it clockwise into the end of the objective lens.
      (5) Use the ridged side of the container/wrench as a wrench. Engage the ridges on the container with the ridges on the LIF. Hand tighten the LIF.
      (6) Place the empty container/wrench back into the pouch in the carrying case.

NOTE: The lens cap and the sacrificial window will fit onto the end of the objective lens with the LIF in place. However, the lens cap and sacrificial window will not snap into place without the LIF attached.

      (7) Replace the lens cap or the sacrificial window onto the end of the objective lens and over the LIF.
      (8) Remove the LIF by reversing the installation procedures.
   e. Nuclear, biological, chemical (NBC) environment
      (1) Place the protective mask on your head per instructions provided with the protective mask.
      (2) Make sure you do not break the seal of the protective mask around your face when you install the headmount assembly over the protective mask.

4. Install and operate the snap-on compass.

Performance Steps

a. Remove the objective lens cover from the goggles. Secure the snap-on compass to the lens with the round part of the activation button facing down.
b. Turn the goggles on. Push up on the activation button to determine azimuth direction.

5. Attach the 3X magnifier telescope assembly.
   a. Objective focus cover attached. Push the objective focus cover sleeve onto the goggles' objective focus ring.
   b. Objective focus cover not attached to goggles. Screw the 3X magnifier directly into the goggles' objective focus ring.

6. Stow the night vision goggles (Figure 5).

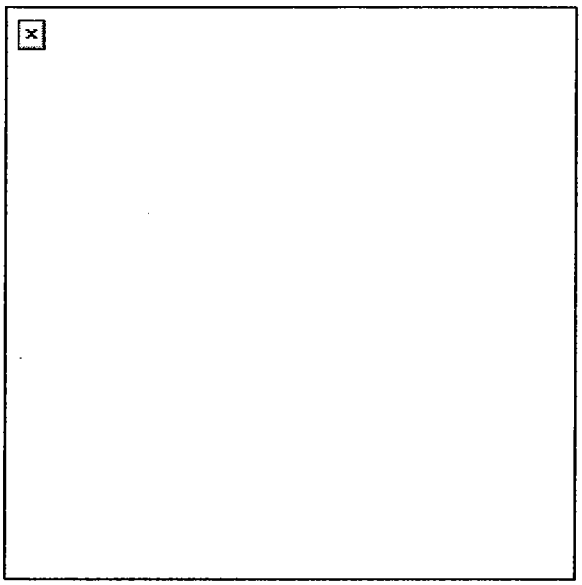

Figure 071-710-0008-5
Goggles Stowed in the Carrying Case

a. Shut down the goggles. Move the OFF-ON-PULL/IR switch to OFF.
b. Remove the goggles from the head mount (if attached). Depress the latch lever and remove the goggles.
c. Unscrew the battery cap, remove the battery, and replace the battery cap.
d. Remove the demist shields and sacrificial window, if installed.
e. Install the lens cap.
f. Ensure the goggles are free of dirt, dust, and moisture.
g. Place the demist shields and the battery into their proper carrying case pockets.

CAUTION: To prevent damage to window, place the sacrificial window at bottom left or right corner of the carrying case accessory pocket.

h. Place the lens paper, sacrificial window, and operator's manual in the accessory pocket located under the shallow pocket that contains the goggles.
i. Place the goggles (objective lens down) into the shallow pocket of the carrying case.
j. Remove the headmount assembly. Unsnap the front and rear straps. Lift the headmount assembly up and off your head. Stow the assembly in the deep pocket of the carrying case. Close the carrying case.

Evaluation Preparation: Setup: Evaluate this task in a classroom where light can be controlled to simulate nighttime. Provide the soldier with a set of night vision goggles AN/PVS-7B, components, and batteries, as described in the task conditions statement.

1. Have the soldier prepare the goggles for operation, operate the goggles using the headmount

assembly, shut down the goggles, and stow the goggles.

2. Evaluate the soldier's ability to select and attach the appropriate components by telling him to prepare the goggles for operation in the following conditions: dust and sand, rain or high humidity, or laser threat environment. If snap-on compass and 3X magnifier are available, evaluate the soldier's ability to attach them to the goggles.

Brief Soldier: Tell the soldier that he is to prepare the goggles for operation, operate the goggles using the headmount assembly, shut down and stow the goggles, and attach components to operate the goggles in various conditions as instructed. Tell him that he must notify you before turning the goggles ON and after turning them OFF, so you can darken or lighten the room. Tell the soldier not to energize the goggles when the room lights are on.

Performance Measures	**GO**	**NO GO**
1. Prepare goggles for operation. a. Inventory carrying case content to ensure all accessories are present. b. Inspect the goggles assembly and components for serviceability. c. Install batteries correctly. d. Perform an operational check.	___	___
2. Operate goggles in hand-held mode.	___	___
3. Operate goggles with head mount. a. Adjust the headmount assembly for proper fit. b. Install goggles correctly on the headmount assembly. c. Adjust goggles for operation/	___	___
4. Operate goggles during unusual conditions. a. Extreme darkness. Operate goggles using IR source. b. Dust and sand. Attach the sacrificial window. c. Rainy and humid conditions. Install demist shields to minimize diopter fog. d. Laser threat environment. Install the light interference filter (LIF). e. NBC environment. (1) Place the protective mask on your head in accordance with (IAW) instructions provided with the protective mask. (2) Do not break the seal of the protective mask around your face when you install the headmount assembly over the protective mask.	___	___
5. Install and operate snap-on compass (if available).	___	___
6. Attach 3X magnifier telescope assembly (if available).	___	___
7. Stow the night vision goggles.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

Subject Area 4: Weapons - M9

Maintain an M9 Pistol

071-004-0001

Conditions: Given an M9 pistol; magazine; bore brush; cleaning brush; M4 cleaning rod; cleaning patches; small-arms swabs; clean, dry cloths; cleaner, lubricant, preservative (CLP), and a requirement to maintain the M9 pistol.

Standards: The pistol is disassembled, cleaned, lubricated, assembled, and is operational.

Performance Steps

1. Clear the pistol.
   a. Place the safety lever in the SAFE position.
   b. Hold the pistol in the raised pistol position.
   c. Depress the magazine release button; remove the magazine from the pistol.
   d. Pull the slide to the rear; remove any chambered round.
   e. Push the slide stop up, locking the slide to the rear.
   f. Look into the chamber to ensure that it is empty.

2. Disassemble the pistol and magazine.
   a. Depress the slide stop and let the slide go forward.
   b. With your right hand, hold the pistol with the muzzle slightly raised.
   c. With your forefinger, press the disassembly lever button (Figure 1).

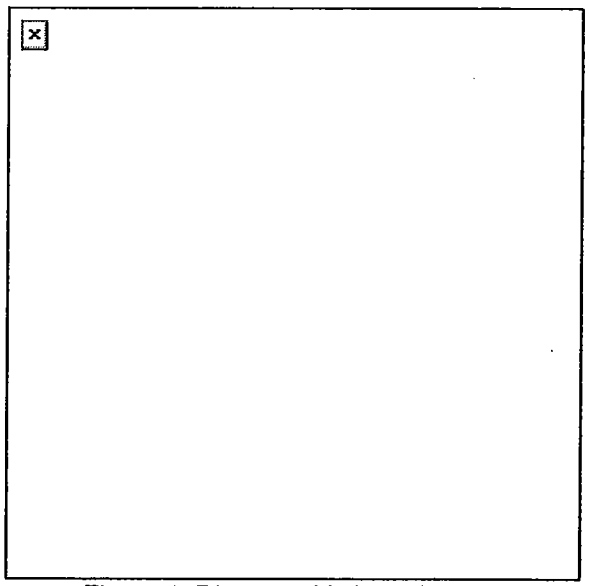

Figure 1. Disassembly lever button.

   d. Rotate the disassembly lever downward until it stops.
   e. Pull the slide and barrel assembly forward (Figure 1), and remove it from the receiver.
   f. Slightly compress the recoil spring and spring guide. At the same time, lift them up and remove them, allowing the recoil spring to stretch slowly (Figure 2).

Performance Steps

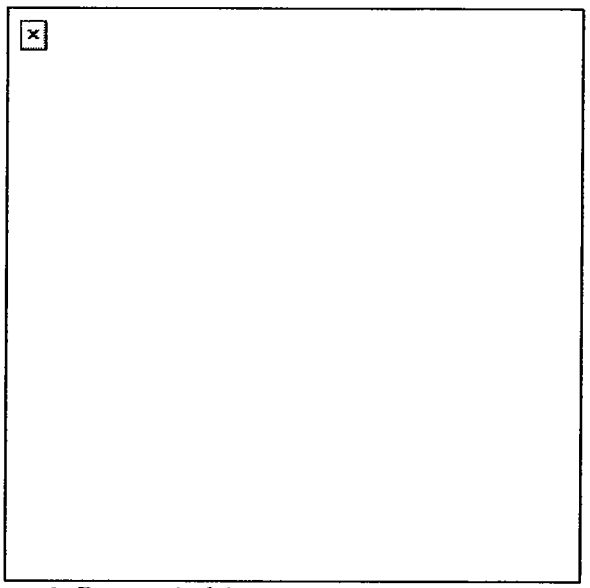

Figure 2. Removal of the recoil spring and spring guide.

g. Separate the recoil spring from the spring guide.
h. Push in on the locking block plunger while pushing the barrel forward slightly. Lift and remove the locking block and barrel assembly from the slide (Figure 3).

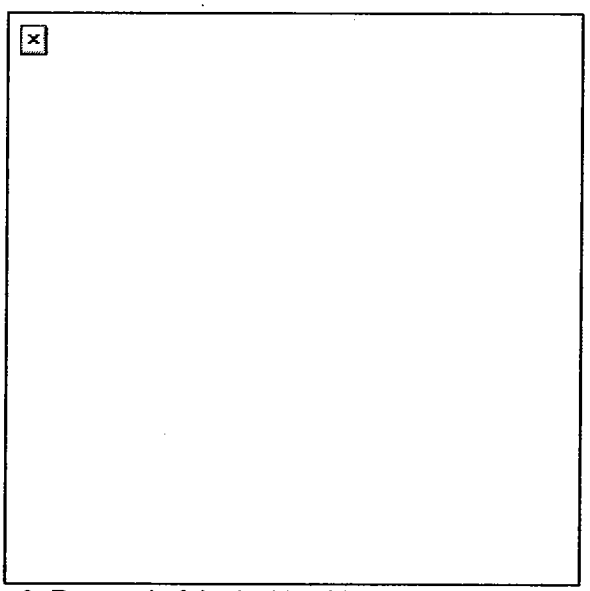

Figure 3. Removal of the locking block and barrel assembly.

i. Disassemble the magazine (Figure 4).

Performance Steps

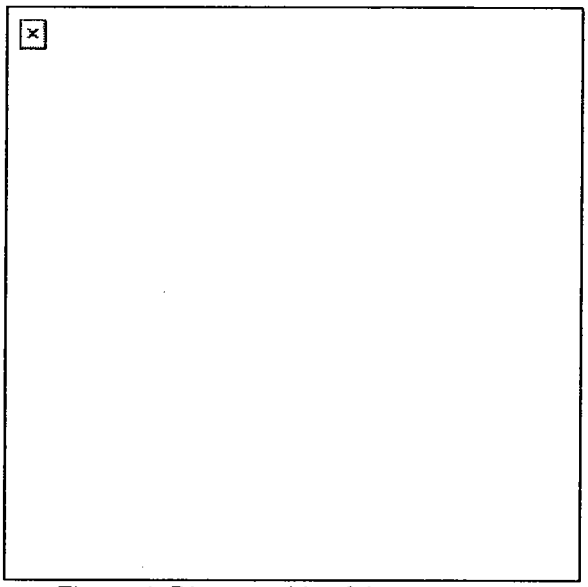

Figure 4. Disassembly of the magazine.

(1) Grasp the magazine firmly, with the floor plate up and the back of the magazine tube against the palm of your hand.
(2) Depress the locking block to make the locking block plunger protrude.
(3) Using the locking block plunger, push down on the floor plate retainer stud.
(4) Slide the floor plate slightly forward with your thumb.
(5) While removing the floor plate, use your thumb to keep pressure on the magazine spring.
(6) Remove the floor plate retainer, the magazine spring, and the follower from the magazine tube.
(7) Remove the magazine spring from the follower.
(8) Remove the floor plate retainer from the magazine spring.

3. Clean the pistol and magazine.

CAUTION

Use the bore brush to clean only the bore. Using it on any other part of the pistol will cause damage.

a. Slide assembly.
   (1) Clean slide assembly with a cloth. Use CLP on a soft brush to remove excess dirt and carbon.
   (2) Wipe dry with a clean cloth.
b. Barrel assembly.
   (1) Attach a bore brush to a cleaning rod. Moisten the bore brush with CLP and insert it into the chamber end of the barrel. Make sure the brush completely clears the muzzle before you pull it back through the bore. Repeat this procedure several times to loosen carbon deposits.
   (2) To clean and dry the barrel, push a clean swab through the bore. Repeat as necessary with fresh swabs until a swab comes out clean.
   (3) Clean locking block with a soft brush.
   (4) Clean the recoil spring and spring guide with CLP and a soft brush or cloth.
c. Receiver assembly. Wipe the receiver assembly clean with a cloth and, if needed, a soft brush.
d. Magazine (Figure 4).
   (1) Wipe the magazine tube and the follower with CLP, a cloth, and a soft brush.

Performance Steps

(2) Clean the magazine spring, floor plate retainer, and floor plate with a clean cloth.

e. Holster. Remove dirt from exterior with stiff brush. Wipe interior with clean cloth.

f. Ammunition. If ammunition gets wet or dirty, clean it and remove corrosion from it at once using a dry cloth.

4. Inspect for serviceability.
   a. Slide assembly.
      (1) Check to ensure the ambidextrous safety moves freely.
      (2) Check the firing block for damage.
      (3) Check the rear sight for looseness.
   b. Barrel assembly.
      (1) Inspect the bore and chamber for pitting or obstructions.
      (2) Check the locking block plunger to ensure the locking block moves freely.
      (3) Inspect the locking lugs for cracks and burrs.
   c. Recoil spring and recoil spring guide.
      (1) Check recoil spring to ensure it is not bent or damaged.
      (2) Check recoil spring to ensure it is straight and free of cracks and burrs.
   d. Receiver assembly.
      (1) Check for bends, chips, and cracks.
      (2) Check to ensure the slide stop and magazine stop move freely.
      (3) Check the guide rails for excessive wear, burr, cracks, or chips.
   e. Magazine assembly (Figure 4).
      (1) Check for damage to the spring and follower.
      (2) Inspect magazine lips to ensure they are not bent excessively and to ensure they have no cracks and burrs.
      (3) Check to ensure the magazine tube is not bent.
   f. Ammunition.
      (1) Check for damaged or corroded ammunition. Turn in heavily corroded or damaged ammunition.
      (2) Check to ensure ammunition is free of oil and grease.

5. Lubricate the pistol and magazine.

NOTES:

1. CLP, lubricant oil (LSA), and lubricating oil (LAW) are the only lubricants authorized for this pistol.

2. You can use CLP and LSA interchangeably.

3. Before firing, remove excess lubricant from the bore.
   a. Lubricate all parts with a light coat of LSA or CLP at temperatures above -10 degrees Fahrenheit, or LAW at temperatures below +10 degrees Fahrenheit.
   b. Do not mix LAW with other lubricants.

6. Assemble the pistol (Figure 5).

Performance Steps

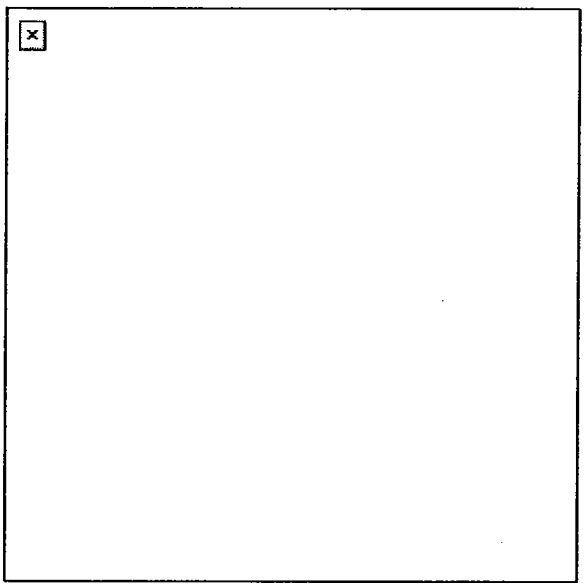

Figure 5. Insertion of the barrel assembly.

a. Grasp the slide with the bottom facing up.
b. With the other hand, grasp the barrel assembly with the locking block facing up.
c. Insert the muzzle into the forward end of the slide. At the same time, lower the rear of the barrel assembly by moving the barrel slightly downward with light thumb pressure. The barrel will fall into place.
d. Insert the recoil spring guide into the recoil spring (Figure 6).

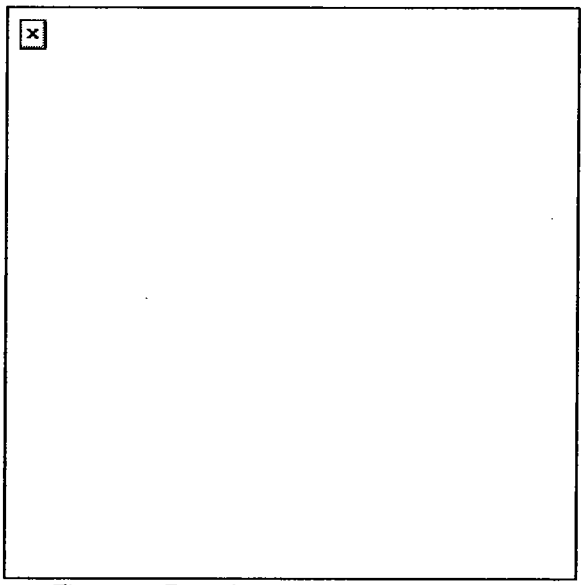

Figure 6. Recoil spring and spring guide.

e. Insert the end of the recoil spring and the recoil spring guide into the recoil spring housing. At the same time, compress the recoil spring and lower the spring guide until it is fully seated on the locking block cutaway (Figure 7).

Performance Steps

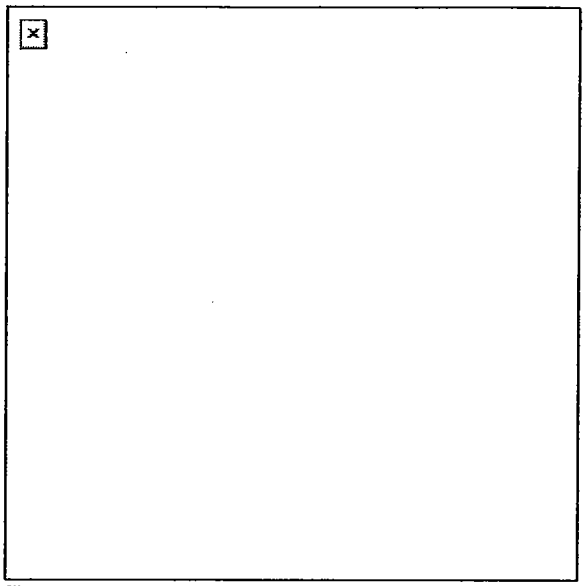

Figure 7. Insertion of the recoil spring and guide.

CAUTION
Be sure that the hammer is uncocked and firing pin block lever is in the down position. If the hammer is cocked, carefully and manually lower the hammer. Do not pull the trigger while placing the slide onto the receiver.

f. Push the firing pin block lever down. Grasp the slide and barrel assembly with the sights up, and align the slide on the receiver assembly guide rails (Figure 8).

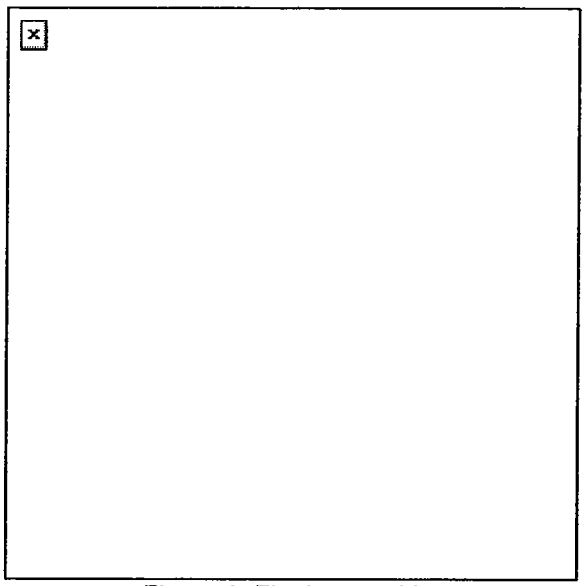

Figure 8. Final assembly.

g. Push until the rear of the slide is a short distance beyond the rear of the receiver assembly and hold. At the same time, rotate the disassembly latch lever upward. A click indicates a positive lock (Figure 8).
h. Assemble the magazine (Figure 4).

Performance Steps

(1) Insert the follower into the top coil of the magazine spring. Make sure the notches on the follower and magazine tube are on the same side.
(2) Insert the magazine spring with follower into magazine tube.
(3) Turn the magazine bottom up, with its back side against the palm of the hand. Attach and center the floor plate retainer on the bottom spring coil.

CAUTION
After inserting the magazine spring, keep tension on it with your thumb. Be careful not to place the lips of the magazine tube on a hard surface while you reassemble the magazine.

(4) Push and hold the magazine spring and floor plate retainer down. At the same time, slide the floor plate over the side walls until it seats fully.
(5) Carefully insert the magazine into the pistol well. You will hear a click when it locks into position.

WARNING
Make sure the pistol is clear and unloaded.

7. Perform a function check.

Evaluation Preparation: Setup: At the test site, provide a field table with all the equipment given in the task condition statement.

Brief Soldier: Tell the soldier that he must clear, disassemble, clean, inspect, lubricate, assemble, and perform a function check on the weapon.

Performance Measures	**GO**	**NO GO**
1. Clear the pistol.	___	___
2. Disassemble the pistol and magazine without damaging any parts.	___	___
3. Clean the pistol, components, and ammunition.	___	___
4. Inspect the pistol, components, and ammunition for defects.	___	___
5. Lubricate pistol and magazine correctly.	___	___
6. Assemble pistol and magazine in correct sequence correctly.	___	___
7. Perform a function check.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	TM 9-1005-317-10

Perform a Function Check on an M9 Pistol
071-004-0002

Conditions: Given an M9 pistol and a requirement to perform a function check.

Standards: Perform a function check to determine whether or not the M9 pistol is operational.

Performance Steps
WARNING:
Ensure the pistol is clear before you perform a function check.

1. Place the safety lever in SAFE position.
2. Insert the empty magazine into the magazine well.
3. Retract the slide fully, then release it. The slide should lock to the rear.
4. Depress the slide stop and allow the slide to return fully forward. At the same time, the hammer should fall to the full forward position.
5. Squeeze and release the trigger. The firing pin block should move up and down. The hammer should not move.
6. Place the safety lever in the FIRE position.
7. To check the double action, squeeze the trigger. The hammer should cock and fall.
8. Squeeze the trigger again, and hold it to the rear. While holding the trigger to the rear, manually retract and release the slide. Release the trigger. You should hear a click, but the hammer should not fall.
9. To check the single action, squeeze the trigger. The hammer should fall.
10. If the pistol functions as indicated during the checks, it is operational.

Evaluation Preparation: Setup: At the test site, provide the equipment listed in the task conditions statement.

Brief Soldier: Tell the soldier to perform a function check based on the steps in this task and to determine whether or not the M9 pistol functions correctly.

Performance Measures	**GO**	**NO GO**
1. Place the safety lever in the SAFE position.	___	___
2. Insert the empty magazine into the magazine well.	___	___
3. Retract the slide fully, then release it.	___	___
4. Depress the slide stop and allow the slide to return fully forward.	___	___
5. Squeeze and release the trigger.	___	___
6. Place the safety lever in FIRE position.	___	___
7. Check the double action by squeezing the trigger.	___	___
8. Squeeze the trigger again and hold it to the rear, at the same time manually retracting and releasing the slide. Release the trigger. You should hear a click. The hammer should not fall.	___	___

Performance Measures	GO	NO GO
9. Check the single action by squeezing the trigger. The hammer should fall.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required

Related
TM 9-1005-317-10

Load an M9 Pistol
071-004-0003

Conditions: Given an M9 pistol, a magazine loaded with 9-millimeter (mm) ammunition, and a requirement to load the pistol.

Standards: Seat the magazine fully in the magazine well and chamber a round.

Performance Steps
WARNING
The M9 pistol has single and double action firing modes. When the safety is set to FIRE, squeezing the trigger will automatically cock and fire the pistol (this is the double-action mode).

Keep your finger away from the trigger until you intend to fire.

1. Place safety lever in SAFE position.
2. Insert the loaded magazine into the pistol's magazine well until you hear a click when the magazine seats fully.
3. Point the pistol in a safe direction (usually at the target or skyward).
4. Retract the slide fully and release it. This strips a cartridge from the magazine and chambers it.

Evaluation Preparation: Setup: At the test site, provide the equipment listed in the task conditions statement. You can use dummy rounds to evaluate this task.

Brief Soldier: Tell the soldier to load the M9 pistol so it will fire a round when he squeezes the trigger.

Performance Measures	GO	NO GO
1. Place the safety lever in SAFE position.	___	___
2. Insert the loaded magazine into the magazine well.	___	___
3. Point the pistol in a safe direction (usually at the target or skyward).	___	___
4. Retract and release the slide to chamber a cartridge from the magazine.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	TM 9-1005-317-10

Unload an M9 Pistol

071-004-0004

Conditions: Given an M9 pistol, a loaded magazine, and a requirement to unload an M9 pistol.

Standards: Ammunition is removed from the pistol and magazine, the slide and hammer are at the forward position, and the decocking/safety lever is in the SAFE position.

Performance Steps
WARNING
The M9 pistol will fire single or double action. With the safety in the FIRE position, squeezing the trigger automatically cocks and fires the pistol. This is the double-action mode of firing the pistol. Keep your finger away from the trigger unless you intend to fire.

1. Remove the magazine and the ammunition from the pistol.
   a. Place the safety lever in the SAFE position.
   b. Depress the magazine release button, and remove the magazine from the pistol.
   c. Point the pistol in a safe direction (usually at the target or skyward).
   d. Retract the slide fully to remove the chambered cartridge.
   e. Lock the slide to the rear using the slide stop. Visually inspect the chamber to make sure it is empty.
   f. Release the slide. Ensure the safety lever is in the SAFE position.

2. Remove the ammunition from the magazine.
   a. With one hand, hold the magazine upright, front end forward. With your thumb, firmly press down on the cartridge rim, and push forward. As the cartridge moves forward, tip the forward end of it up and out with your index finger.
   b. Repeat the above steps until the magazine is empty.

Evaluation Preparation: Setup: At the test site, provide the equipment listed in the task conditions statement. You can use dummy rounds to evaluate this task.

Brief Soldier: Tell the soldier to unload the M9 pistol and remove all ammunition from the magazine.

Performance Measures	GO	NO GO
1. Remove magazine and ammunition from the pistol.	___	___
2. Remove ammunition from magazine.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	TM 9-1005-317-10

Correct Malfunctions of an M9 Pistol

071-004-0005

Conditions: Given an M9 pistol; a loaded magazine; 9-mm ammunition; cleaning rod; bore brush; cleaning patches; small-arms swabs; cleaner, lubricant, preservative (CLP); cleaning brush; and a requirement to correct malfunctions on an M9 pistol.

Standards: Interruption in the cycle of functioning caused by faulty action of the pistol or faulty ammunition is eliminated without injury to personnel or damage to the pistol.

Performance Steps
WARNING:
During the following procedures always keep the pistol pointed in a safe direction.

1. Perform immediate action.
   a. When the slide is fully forward and the pistol fails to fire, apply immediate action as follows:
      (1) Ensure the safety lever is in FIRE position.
      (2) Squeeze the trigger again.
      (3) If the pistol does not fire, ensure that the magazine is fully seated, retract the slide to the rear, and release.
      (4) Squeeze the trigger.
      (5) If the pistol still does not fire, remove the magazine and retract the slide to eject the chambered cartridge. Insert a new magazine, retract the slide, and release to chamber another cartridge.
      (6) Squeeze the trigger.
      (7) If the pistol does not fire, replace the ammunition.
      (8) If the pistol fails to fire again, clear the pistol and perform remedial in accordance with (IAW) step 2.
   b. When the slide is not fully seated forward, remove finger from the trigger. With the other hand, try to push the slide fully forward. If the slide will not move forward, proceed as follows:
      (1) Place safety lever in SAFE position.
      (2) Remove the magazine.
      (3) Grasp the slide and retract it to the rear, locking it with the slide stop.
      (4) Inspect the chamber and remove any obstructions.
      (5) Insert another loaded magazine into the pistol.
      (6) Release the slide.
      (7) Place the safety lever in the FIRE position, aim, and squeeze the trigger.
      (8) If the pistol does not fire, clear the pistol and perform remedial action IAW step 2.

2. Perform remedial action.
   a. Ensure the pistol is clear.
   b. Disassemble the pistol and inspect for dirty, corroded, missing, or damaged parts.
   c. Clean dirty or corroded parts. Replace missing or damaged parts.
   d. Lubricate and assemble the pistol.
   e. Inspect magazine for damaged parts. Replace magazine if necessary.
   f. Check for dirty or damaged ammunition. Clean or replace ammunition.
   g. Perform a function check.
   h. Load the pistol and try to fire.
   i. If the pistol does not fire, clear the pistol and notify your supervisor.

Evaluation Preparation: Setup: Provide equipment and materials listed in conditions. Use performance steps in the training outline to evaluate performance of the task.

Brief Soldier: Tell the soldier that the pistol has stopped firing. Tell the soldier to perform immediate and remedial action on the pistol.

Performance Measures	GO	NO GO
1. Perform immediate action.	___	___
2. Perform remedial action.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required

Related
TM 9-1005-317-10

Engage Targets with an M9 Pistol
071-004-0006

Conditions: Given an M9 pistol, one or more loaded magazines, and targets within range.

Standards: Upon acquiring a target - (1) Insert a magazine in the pistol and chamber a round. (2) Grip the pistol properly, assume a firing stance, and fire the round(s) at the target, suppressing, injuring, or killing the target. (3) Perform immediate action on the pistol if it fails to fire. (4) Immediately clear the pistol after firing.

Performance Steps

1. Identify the target(s). The most likely target you will engage is an enemy soldier on foot.

2. Load the pistol in accordance with (IAW) Task 071-004-0003, Load an M9 Pistol.

3. Apply the fundamentals of quick fire.

NOTE: To fire quickly without using the pistol sights, use the pistol as an extension of your arm.

   a. To use the pistol grip, hold the pistol in your nonfiring hand. Form a "V" with the thumb and forefinger of your firing hand.
   b. Place the pistol in the "V", with the sights in line with your firing arm.
   c. Hold your upper arm close to your body, and your forearm at about a 45-degree angle.
   d. Wrap your lower three fingers around the grip, putting equal pressure to the rear with all three fingers (Figure 1).
   e. Place your thumb alongside the pistol without applying any pressure.
   f. Place your trigger finger on the trigger so that it can be pulled to the rear.
   g. Tightly grip the pistol until your hand begins to tremble. Relax until the trembling stops. At this point, you have applied the necessary pressure for a solid grip.

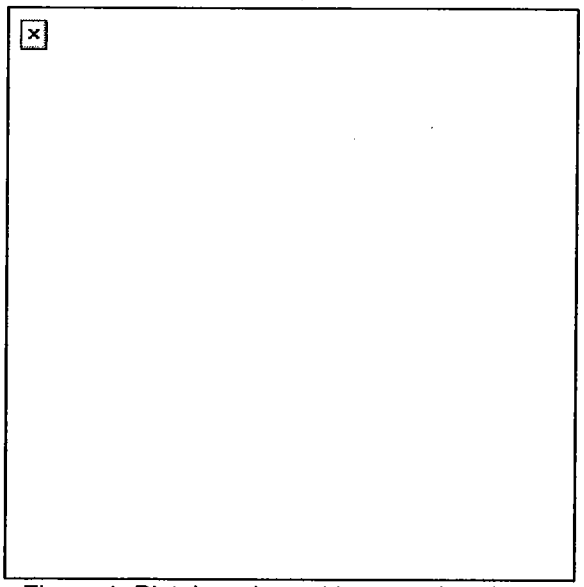

Figure 1. Pistol ready position, one-hand grip.

NOTE: If you relax any of your three fingers on the grip, you must reapply the entire grip.

4. Choose one of the following supported or unsupported grips:

Performance Steps

a. Supported grip. The only supported grip is the one-hand grip (Figure 2). Begin by gripping the weapon as previously described (Task Step 3). Allow the thumb of your firing hand to rest without pressure beside your weapon. Place your trigger finger, between the tip and the second joint, on the trigger, so you can squeeze the trigger to the rear. Your trigger finger must work independently of your other fingers.

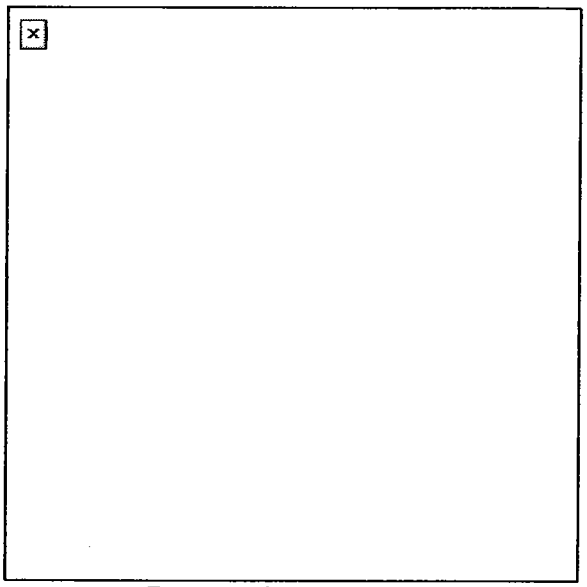

Figure 2. One-hand grip.

b. Unsupported grips. You may use any of three nonfiring hand grips to support your firing hand (Figures 3, 4, and 5).

(1) Fist grip (Figure 3). Begin by gripping the weapon as previously described (Task Step 3). Firmly close the fingers of your nonfiring hand over the fingers of your firing hand. Make sure the index finger of your nonfiring hand is between the middle finger of your firing hand and the guard. Place your nonfiring thumb beside your firing thumb.

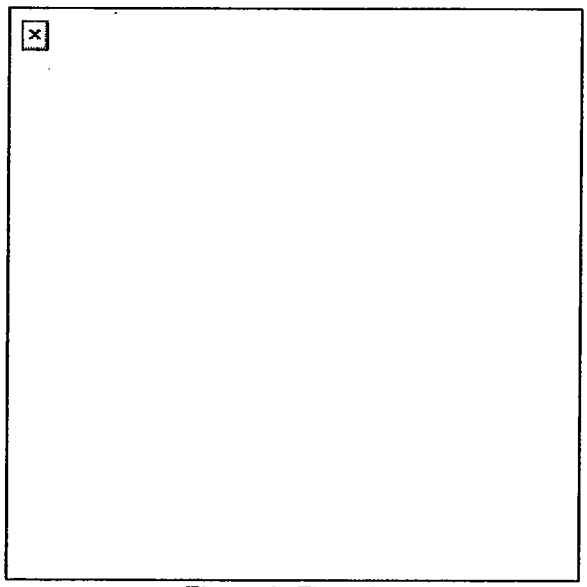

Figure 3. Fist grip.

Performance Steps

NOTE: The M9 pistol has a recurved trigger guard, which allows you to place the index finger of your nonfiring hand on the front of the trigger guard if you wish.

(2) Palm-supported grip (Figure 4). Begin by gripping the weapon as previously described (Task Step 3). Place your nonfiring hand under your firing hand. Wrap your nonfiring fingers around the back of your firing hand. Place your nonfiring thumb over the middle finger of your firing hand.

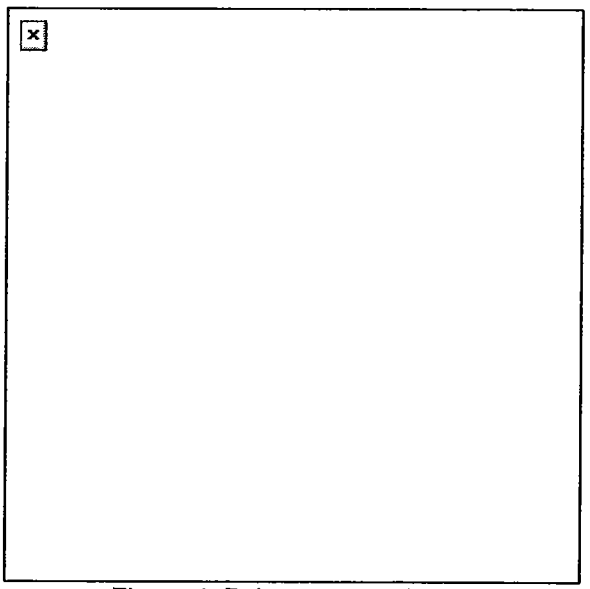

Figure 4. Palm-supported grip.

(3) Weaver grip (Figure 5). Apply this grip the same as the fist grip, but wrap your nonfiring thumb over your firing thumb.

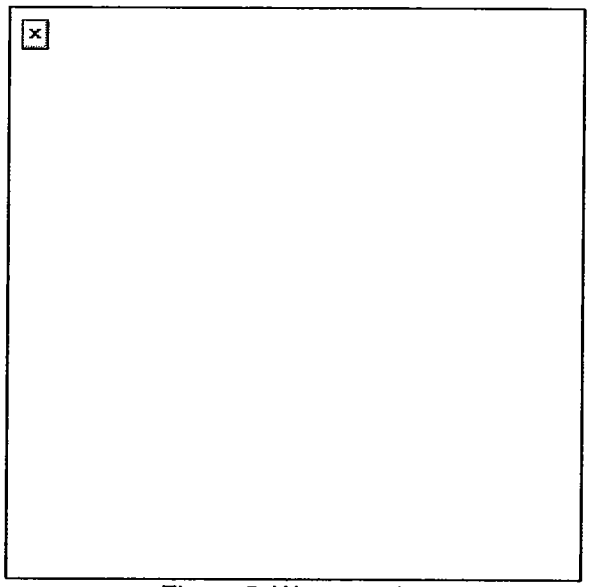

Figure 5. Weaver grip.

5. Select the most stable firing position with the best cover. Consider the following positions:
   a. Prone (Figure 6). To assume the prone position--
      (1) Lie flat on the ground, facing the target.

Performance Steps

(2) Extend your arms to the front, with your firing arm locked.
(3) Wrap your nonfiring hand around either the wrist or the fingers of your firing hand.
(4) Face forward. Keep your head down between your arms and behind the weapon.

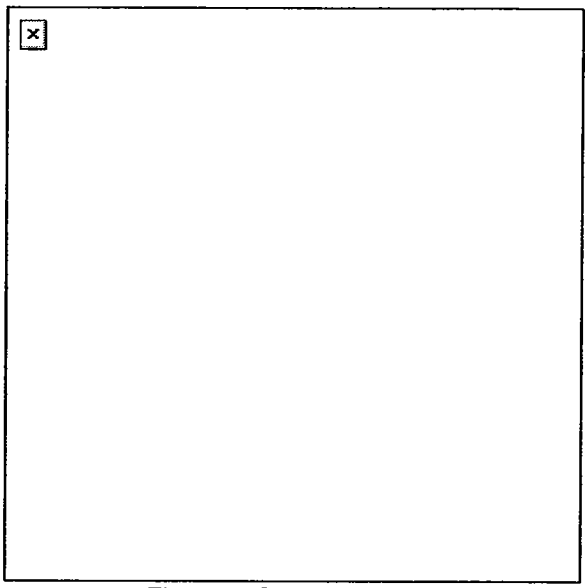

Figure 6. Prone position.

b. Standing-with-support (Figure 7). To assume this position--
(1) Use available cover for support. For example, stand behind a tree or wall.
(2) Stand behind a barricade, with your firing side in line with the edge of the barricade.
(3) Place the palm of your nonfiring hand at eye level on the edge of the barricade, and extend your thumb past the edge of the barricade.
(4) Lock the elbow of your firing arm. Rest your forearm on the extended thumb of your nonfiring hand.
(5) Move the foot on your nonfiring side forward until your toe touches the bottom of the barricade.

Performance Steps

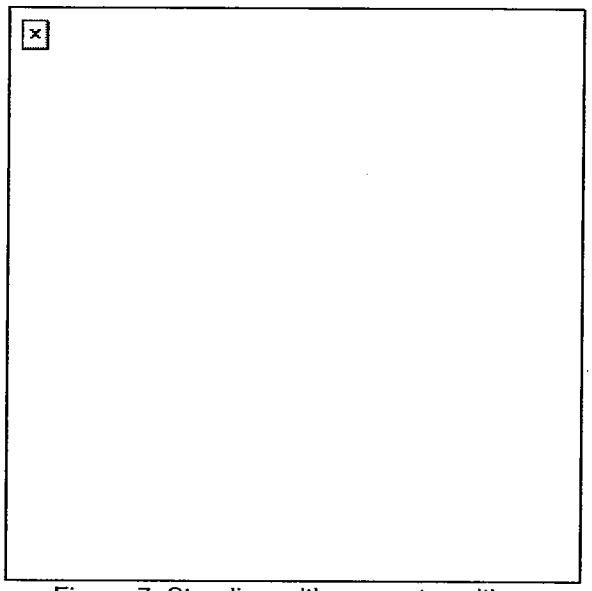

Figure 7. Standing-with-support position.

c. Kneeling (Figure 8). To assume this position--
   (1) Use available cover, such as a low wall, rocks, or a vehicle that you can fire over, for support.
   (2) Place your firing knee on the ground. Put your left knee down to fire left-handed, or your right knee down to fire right-handed.
   (3) Bend your other knee. Place the foot on your nonfiring side flat on the ground, pointing toward the target. Extend your arms over available cover and use it for support.
   (4) Lock the wrist and elbow of your firing arm.
   (5) Wrap your nonfiring hand around your firing fist or wrist to support your firing arm.

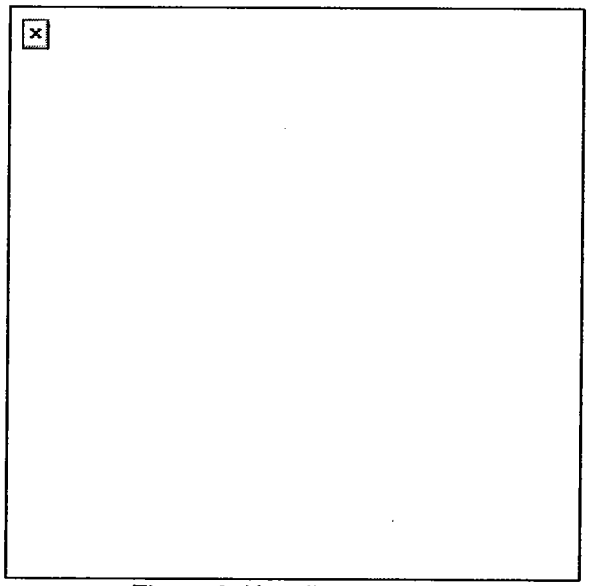

Figure 8. Kneeling position.

NOTE: This position could silhouette you, making you a better target. When possible, fire around the sides of walls, rocks, or vehicles instead of over them.

Performance Steps

d. Standing-without-support position (Figure 9). To assume this position--
   (1) Face the target.
   (2) Place your feet a comfortable distance apart.
   (3) Wrap your nonfiring hand around the fist or wrist of your firing hand. Lock the wrist and elbow of your firing arm toward the target.
   (4) Keep your body straight.

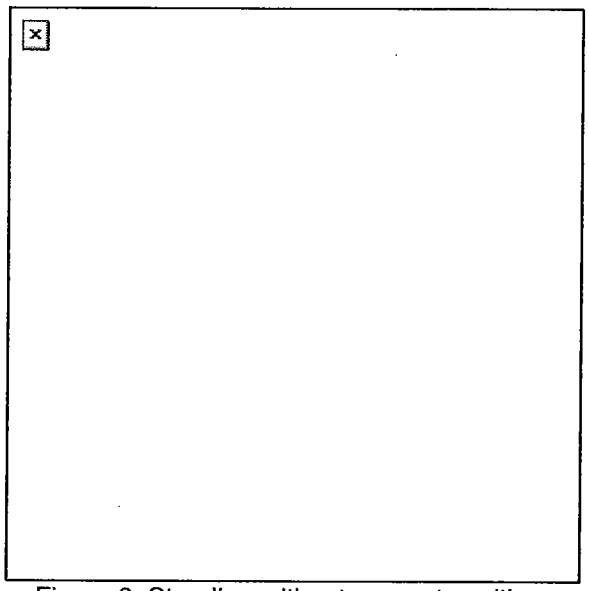

Figure 9. Standing-without-support position.

e. Crouching (Figure 10). This position is the same as the standing-without-support position, except you must bend your knees slightly. Balance by leaning forward at the waist.

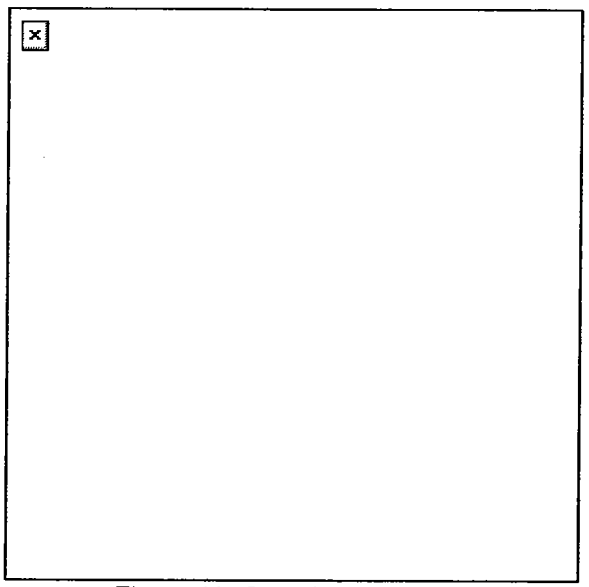

Figure 10. Crouching position.

6. Apply the fundamentals of marksmanship.
   a. Pistol grip. To obtain a proper pistol grip--

Performance Steps

(1) Place the pistol in the "V" formed by the thumb and forefinger of your firing hand. Line the sights up with your firing arm. Wrap your lower three fingers around the pistol. Grip with your middle finger under the trigger guard. Exert equal pressure on all three lower fingers to the rear, back through the wrist and forearm (Figure 1).

(2) Rest your thumb on top of your middle finger when gripping the pistol. Do not exert any downward pressure.

(3) Grip the pistol firmly, but not so firmly that your hand trembles.

b. Sight alignment. To sight properly--

(1) Align the front sight blade in the rear sight notch so that an equal amount of light shows on either side of the front sight. Ensure the top of the front and rear sight are even.

(2) Relax as much as possible.

(3) Maintain the correct sight alignment, and focus on the front sight.

(4) Squeeze the trigger with a steadily increasing pressure straight to the rear, taking care not to disturb the sight alignment until after the hammer falls.

NOTE: When there is more than one target, choose the target that is the greatest danger. This is often the closest target.

Evaluation Preparation: Setup: Evaluate this task during daylight on a 9-millimeter (mm) Combat Pistol Qualification Course. Provide the soldier with 8 magazines and 52 rounds of live ammunition.

Brief Soldier: Tell the soldier to use his own pistol. Tell the soldier he must hit 25 of the 30 targets using correct engagement techniques.

Performance Measures	**GO**	**NO GO**
1. Assume the firing positions: a. Assume the prone position. b. Assume the standing-with-support position. c. Assume the standing-without-support position. d. Assume the kneeling position. e. Assume the crouching position.	___	___
2. Apply the fundamentals of marksmanship.	___	___
3. Engage the targets: a. From the prone position. b. From the standing-with-support position. c. From the standing-without-support position. d. From the kneeling position. e. From the crouching position.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required

Related
FM 3-23.35
TM 9-1005-317-10

Subject Area 5: Weapons - MK19

Maintain an MK19 Machine Gun

071-030-0001

Conditions: Given an MK19 machine gun, an M3 tripod, a traversing and elevating (T&E) mechanism, an M64 cradle mount; rifle bore cleaner (RBC), lubricant oil (LSA), or lubricating oil (LSAT or LAW); grease (GMD); cleaning solvent (PD680); wiping rags or cloth (abrasive crocus); a cleaning rod assembly and a small arms cleaning brush; linked 40-mm ammunition and one spent 40-millimeter (mm) cartridge case.

Standards: Clean and lubricate the MK 19 and its components. Inspect all parts and turn in those in need of maintenance. Reassemble the gun so that it is operational. Clean and inspect ammunition for serviceability, and turn in any unserviceable ammunition.

Performance Steps

1. Clear the MK 19.
   a. Place the safe/fire switch in the safe (S) position. Ensure the bolt is forward.
   b. Open the top cover and inspect the feed tray and extractors on the bolt face to ensure that no round is in the pickup position.
   c. Unlock and pull charger handle 2 to 3 inches to the rear; inspect the face of the bolt and the chamber for ammunition.
   d. Return the bolt to the forward position and rotate the charger handle to the locked position.

2. Disassemble the MK 19.
   a. Remove the feed throat assembly (Figure 1). Squeeze the two sets of grip pins together and pull them straight out.
   b. Remove the bolt and back plate assembly.

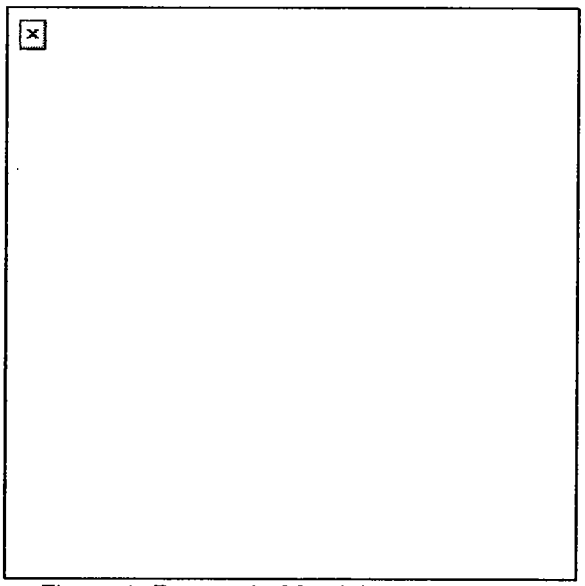

Figure 1. Removal of feed throat assembly

WARNING
Make sure the bolt is in the forward position before you remove the back plate pin assembly. Failure to observe this warning will result in inquiry.

(1) Place the safe/fire switch on fire (F).
(2) Open the top cover.

Performance Steps

(3) Using the rim of a spent cartridge, pull the back plate pin straight out (Figure 2).

Figure 2. Removal of backplate pin.

(4) Lift up slightly on the back plate assembly. Slowly pull the bolt and back plate assembly out of the receiver.

(5) Support the bolt with one hand and maintain a control grip with the other hand. Lift the bolt up slightly and remove it (Figure 3).

Figure 3. Removal of bolt and backplate assembly.

c. Remove the primary drive lever and vertical cam assembly.

CAUTION

Do not rest the vertical cam assembly on its chromed surface.

(1) Reach under the top of the receiver to locate the drive lever lock on the vertical cam assembly and slide the lock rearward about 1/4 inch (Figure 4).

Performance Steps

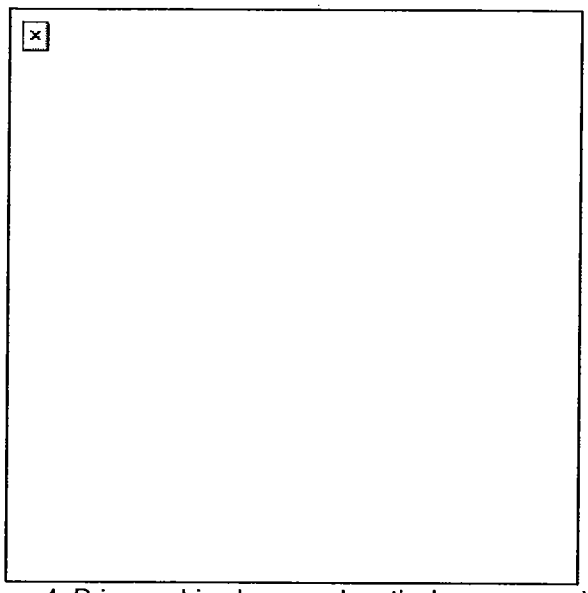

Figure 4. Primary drive lever and vertical cam assembly.

(2) Press down on the primary drive lever's pivot post. This releases the primary drive lever and vertical cam assembly (Figure 5).

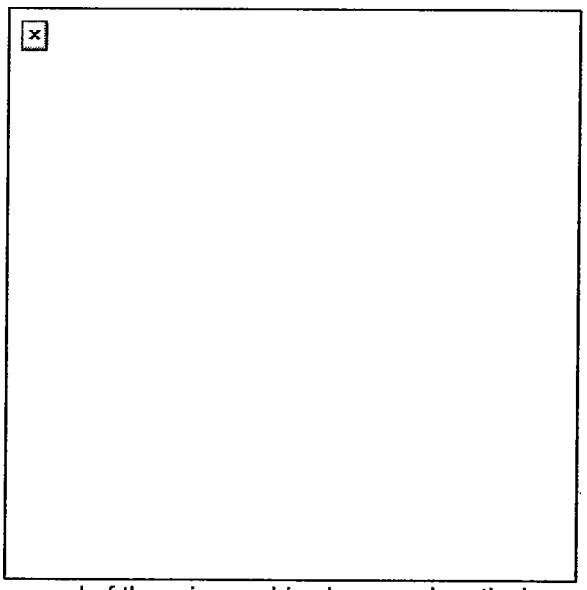

Figure 5. Removal of the primary drive lever and vertical cam assembly.

(3) Pull out the cam (to the rear) and the lever from the receiver.

d. Remove secondary drive lever.

(1) Push down on the pivot post from the outside top cover. This releases the secondary drive lever (Figure 6).

Performance Steps

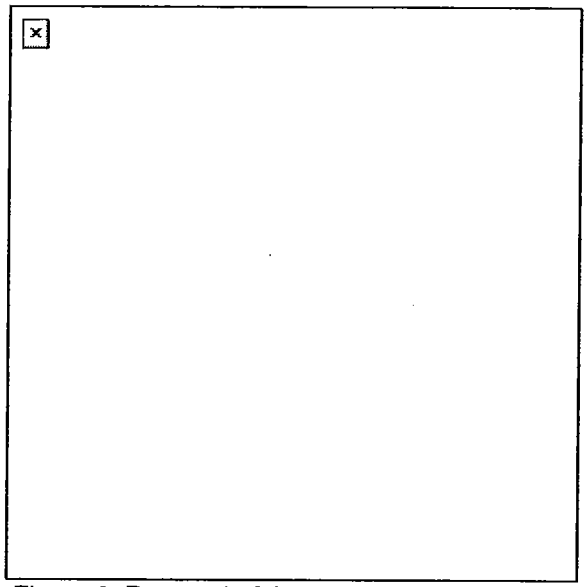

Figure 6. Removal of the secondary drive lever.

(2) Lift out the secondary drive lever from the top cover (Figure 7).

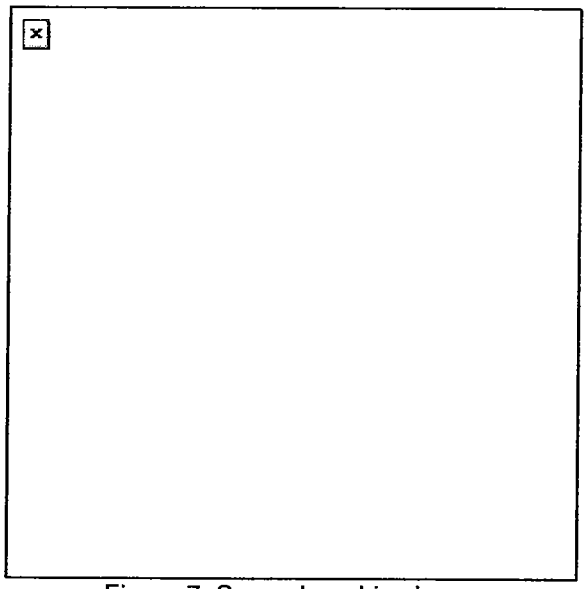

Figure 7. Secondary drive lever.

e. Remove the feed slide assembly (Figure 8).

Performance Steps

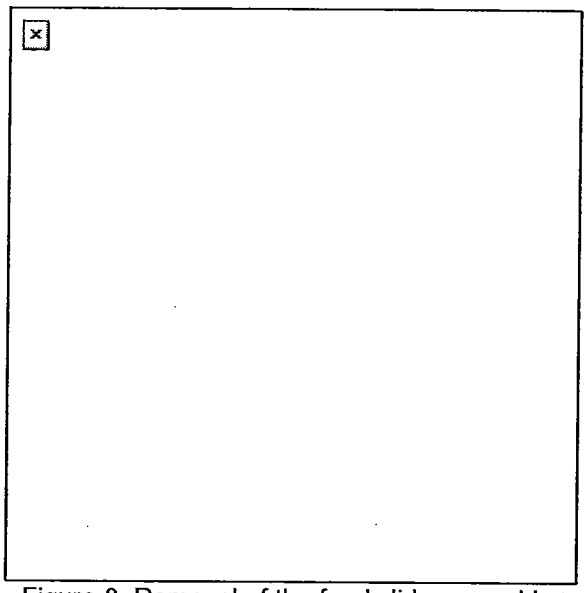

Figure 8. Removal of the feed slide assembly.

(1) Pivot the tray that holds the feed slide assembly out of the top cover.
(2) Move the feed slide assembly to line up the tabs with the slots in the tray.
(3) Lift upward on the feed slide assembly.

f. Remove the top cover assembly and feed tray (Figure 9).

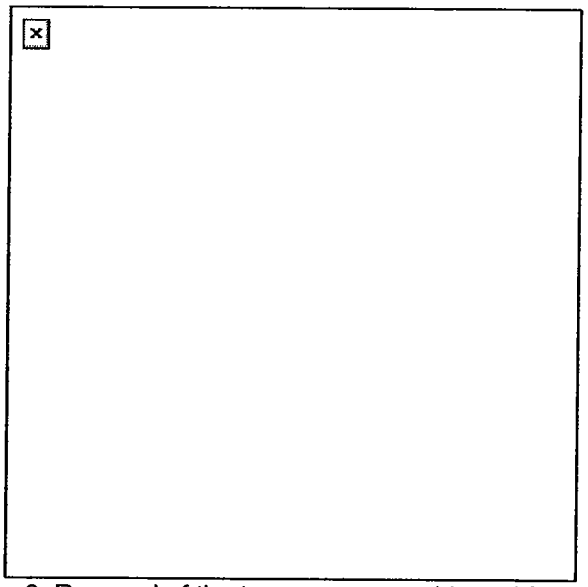

Figure 9. Removal of the top cover assembly and feed tray.

CAUTION
Using your fingers only, not pliers, revive and insert the top cover pins. Forcing the pin could break the small cross pin on the rod.

NOTE: The feed tray must be down for you to remove the top cover pins.

(1) Hold the top cover straight up to align the end of the cross pin.
(2) Pull straight out on the pins.

Performance Steps

(3) Lift off the top cover.
(4) Lift the tray out of the feeder.

g. Remove the alignment guide assembly (Figure 10).

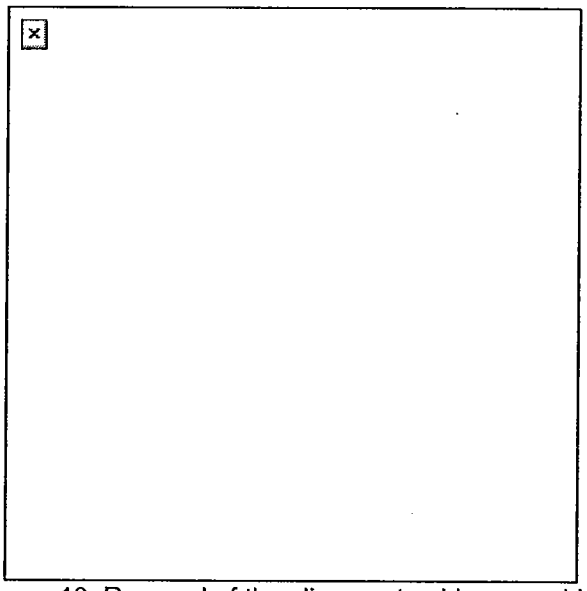

Figure 10. Removal of the alignment guide assembly.

(1) Depress the flat leaf spring by using a cartridge link toggle (male end) or a small tool.
(2) Slide the alignment guide toward the feeder mouth.
(3) Pull rearward on the alignment guide and lift it out.

h. Remove the ogive plunger by pulling it out (Figure 11).

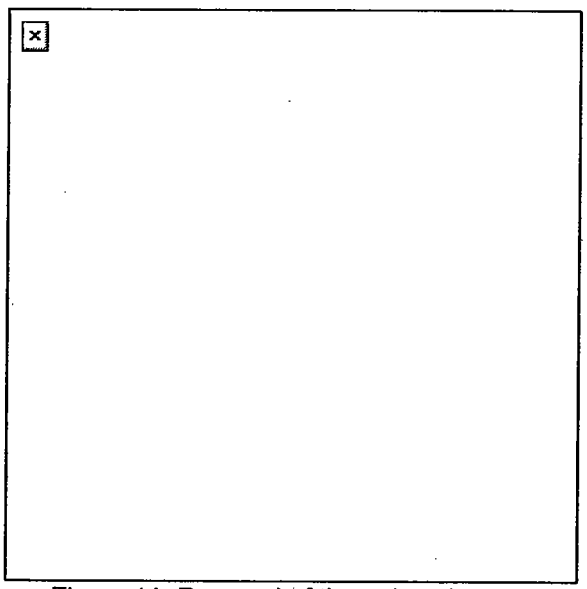

Figure 11. Removal of the ogive plunger.

i. Remove the round positioning block (Figure 12).

Performance Steps

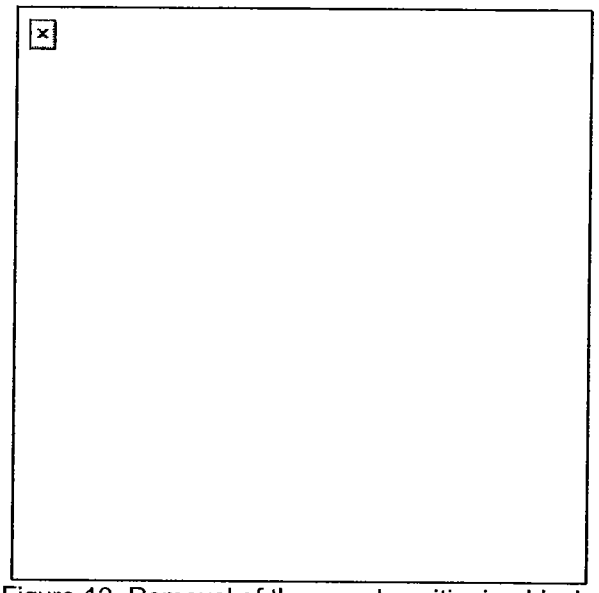

Figure 12. Removal of the round positioning block.

(1) Grasp the two control grips with both hands and lift up slightly to disengage the back plate from the locking lugs in the receiver.
(2) Pull the round positioning block toward the muzzle end of gun.

j. Remove the charger assemblies (both sides) (Figure 13).

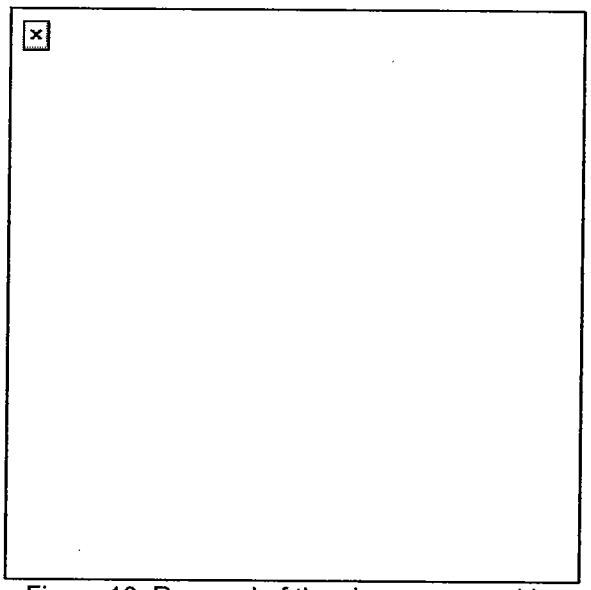

Figure 13. Removal of the charger assembly.

(1) Rotate the charger handle up.
(2) Using either your fingers or a spent case, pry out on the lip of the lock plunger.
(3) Lift up on the lock plunger to retract it; slide the charger assembly all the way to the rear.
(4) Pull the charger assembly away from the receiver.

k. Remove the receiver sear assembly (Figure 14).

Performance Steps

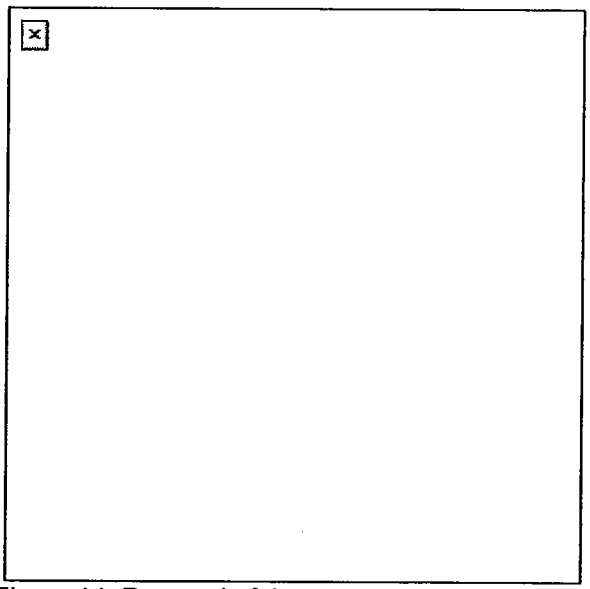

Figure 14. Removal of the receiver sear assembly.

(1) Turn the receiver on its top. Put the safe/fire switch in fire (F) position.
(2) Lift up slightly on the lock pin with your fingers, using a cartridge link.
(3) Squeeze the receiver sear (underneath the safety) and simultaneously rotate the sear housing assembly approximately 15 degrees in either direction.
(4) Press down on the sear housing assembly and rotate the assembly until it stops (90 degrees from its original position).
(5) Press the receiver sear and safety together while you put safe/fire switch on safe (S). This locks the sear in the down position and keeps you from accidentally losing the sear spring.
(6) Lift out the sear housing assembly.

3. Clean the parts of the MK 19.

NOTE: Do not reverse the direction of the bore brush while it is in the bore.

a. Clean the receiver assembly (Figure 15).

Performance Steps

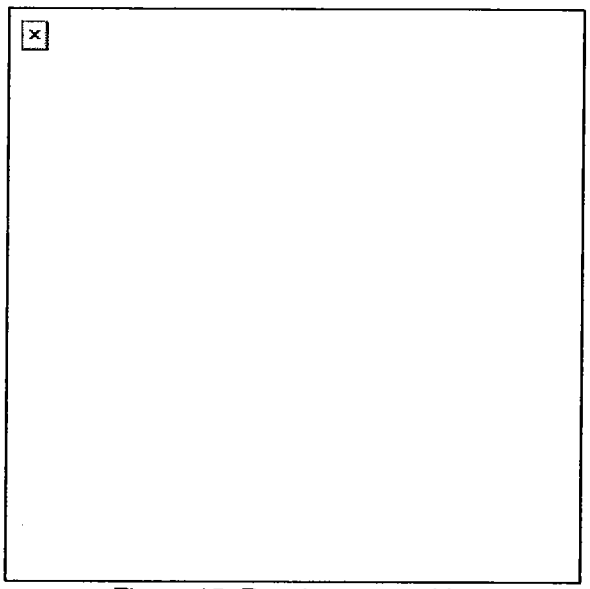

Figure 15. Receiver assembly.

(1) Apply solvent to a rag or brush. Wipe or brush dirt away from all parts, especially the interior of the receiver housing, receiver rails, and feeder.
(2) Swab out the bore and chamber, using a bore brush and RBC.
(3) Wipe all parts dry.

b. Clean the receiver sear assembly (Figure 14).
(1) Use only cleaning solvent on a rag or brush.
(2) Wipe or brush away dirt.
(3) Wipe dry.

WARNING
Never immerse the sear housing assembly in solvent. Solvent may dilute the lubricant inside the sear housing.

c. Clean the alignment guide assembly, ogive plunger, round positioning block, and secondary drive lever: Wipe or brush off dirt and dry.

WARNING
Never immerse the ogive plunger assembly in solvent.

d. Clean the charger assemblies.
(1) Apply cleaning solvent to a rag or brush, and wipe or brush off any dirt.
(2) Wipe dry.

e. Clean the vertical cam assembly, primary drive lever, feed slide assembly, and feed tray.
(1) Soak in cleaning solvent.
(2) Wipe or brush off dirt.
(3) Wipe dry.

f. Clean the top cover assembly.
(1) Apply cleaning solvent to a rag or brush and wipe or brush off dirt from all parts.
(2) Wipe all surfaces dry.

g. Clean the bolt and back plate assembly.
(1) Apply cleaning solvent to rag or brush and wipe or brush off dirt from all parts.
(2) Wipe all surfaces dry.

4. Clean the components.
a. Clean the T&E mechanism.
(1) Remove foreign matter with a clean, dry wiping rag.
(2) Use small arms cleaning brush to clean the numbers on the scale.

Performance Steps

b. Clean the M3 tripod, MK64 gun cradle mount, and pintle.
   (1) Use a cleaning swab saturated with carbon removing compound to remove dirt.
   (2) Wipe all parts dry with clean wiping rags.

5. Clean ammunition: Remove foreign matter with a clean, dry wiping rag.

6. Inspect all MK 19 parts for serviceability.
   a. Receiver assembly.
      (1) Check the receiver housing for cracks and rust.
      (2) Check the receiver rails for burrs and cracked welds.
      (3) Check the feeder pawls for burrs and lack of spring action. Check the pins for retention.
      (4) Check the barrel for carbon buildup and pitting in the bore and chamber.
      (5) Check the flash suppressor for dents, cracks, and erosion. Make sure minimal movement is maintained.
      (6) Check the rear sight for rust, binding, and broken or bent parts.
   b. Receiver sear assembly.
      (1) Check for burrs on all parts.
      (2) Closely inspect the rear shoulder for burrs.
   c. Alignment guide assembly.
      (1) Check the alignment guide spring for deformity, cracks, and looseness.
      (2) Check the pin for breaks and cracks.
   d. Ogive plunger assembly and round positioning block.
      (1) Check the ogive plunger head for burrs and broken parts.
      (2) Check the round positioning block for weak spring action and loose or broken parts.
   e. Charger assembly (left and right).
      (1) Check the grooved edges for burrs and bends.
      (2) Check the latches for spring action on detects.
      (3) Check the entire charger assembly for cracks, burrs, bends, and chips.
   f. Vertical cam assembly and primary drive lever.
      (1) Check the vertical cam assembly for bends, burrs, pits, scratches, and aluminum buildup on chromed surface (mirrorlike surface).
      (2) Check the drive lever lock for looseness or binding.
      (3) Check the primary drive lever for burrs, especially around the pivot posts.
   g. Secondary drive lever.
      (1) Check for missing retaining ring from the pivot post.
      (2) Check the pivot post and forked end for burrs.
   h. Feed slide assembly and feed tray.
      (1) Check the feed pawls and feed tray for burrs and binding.
      (2) Check the guide rails for burrs.
   i. Top cover assembly.
      (1) Check the top cover housing for cracks and rust.
      (2) Check the latch for binding, looseness, and breaks.
   j. Bolt and back plate assembly.
      (1) Check the cocking lever for chips, burrs, and breaks.
      (2) Check the guide rods for binding and bends.
      (3) Check the recoil spring for weak action: Position the bolt end against a hard, flat surface and push up and down on back plate assembly.
      (4) Check the back plate pin for missing retaining spring.
      (5) Check the safety wire for looseness and breaks, or if missing.
   k. Report any deficiencies to your supervisor.

7. Inspect all components for serviceability.
   a. T&E mechanism.
      (1) Inspect the handwheels for smooth operation and rust. Check the threads for burrs and rust.

Performance Steps

(2) Check the traversing slide lock for spring action. Make sure the elevating mechanism sleeve fits on the traversing bar and clamps firmly.
(3) Check the traversing and elevating scales for legibility.
(4) Insect the quick release pin and chain for burrs and rust; check for missing spring-loaded balls.

b. M3 Tripod.
(1) Check for completeness of tripod; make sure all nuts and bolts are tightly secured.
(2) Check for cracks on the legs and tripod head.
(3) Check for missing, broken, or inoperative lock latch.
(4) Check the pintle lock release cam for correct operation.
(5) Check the locking action of the front leg clamping assembly.
(6) Make sure the rear legs lock in the open position, the sleeve latch notch and the right leg slide notch engage completely, and the latch spring has good tension.
(7) Check the telescoping, indexing, and locking actions of rear legs and front leg locking assembly.

c. MK 64 gun cradle mount.
(1) Check for missing or damaged parts.
(2) Check for rust, cracks, and burrs.
(3) Inspect pintle lock assembly for nut, bolt, and cotter pin. Check the pintle surface for burrs and rust.

d. Report any deficiencies to supervisor.

8. Inspect ammunition for damage and corrosion. Turn in any unserviceable ammunition.

9. Lubricate the MK 19 and components. Do not use cleaner, lubricant, preservative (CLP), and do not mix lubricants.

CAUTION

1. Never immerse the sear housing, ogive plunger, or bolt assemblies in cleaning solvent. Solvent could dilute the lubricant or grease inside.
2. Never lubricate the MK 19 with CLP.
3. Avoid mixing lubricants.
4. Completely wipe off all excess lubricant.

a. Lubricate lightly to moderately with LSAT, LSA, or GMD (never CLP). In cold weather (0 to -25 degrees Fahrenheit), use LSAT, LSA, GMD, or LAW. In extra cold weather (-25 degrees Fahrenheit and below), use LAW.
b. Apply lubricant to all weapon parts and surfaces except charger handles. Work in the lubricant by moving the parts.
c. Lubricate all components and wipe them with an oily rag to remove excess oil.

10. Assemble the MK 19 machine gun.
a. Attach the charger assemblies (both sides) (Figure 16).

Performance Steps

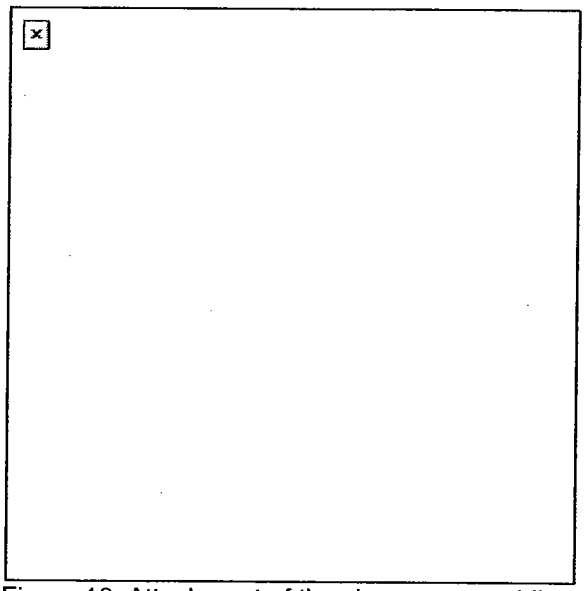

Figure 16. Attachment of the charger assemblies.

(1) Turn the receiver upright.
(2) Rotate the charger handles to the straight-up position.
(3) Line up the lugs on the charger with the slots in the receiver rail. Insert the charger lugs into the slots.
(4) Hold the charger tightly against the rail. Slide the charger forward until it locks into place.

b. Attach the round positioning block (Figure 17).

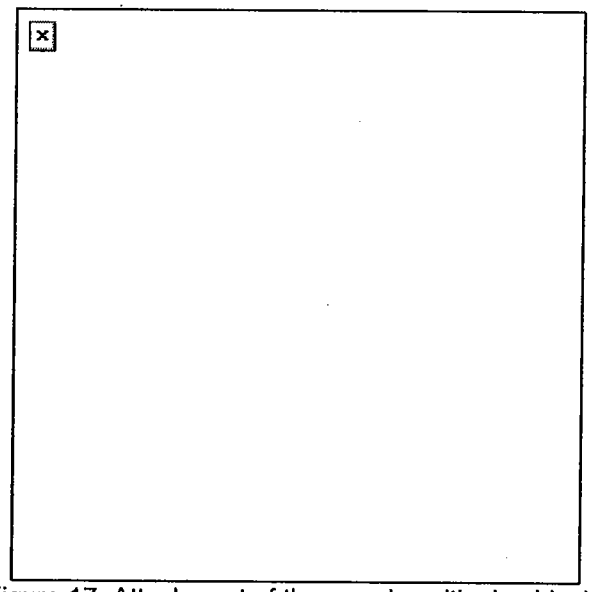

Figure 17. Attachment of the round positioning block.

(1) Insert the blocks into the slots with the tang end forward.
(2) Push against the block and slide it toward the rear until the block locks into place.

c. Insert the ogive plunger assembly into the opening.
d. Insert the alignment guide assembly (Figure 18).

Performance Steps

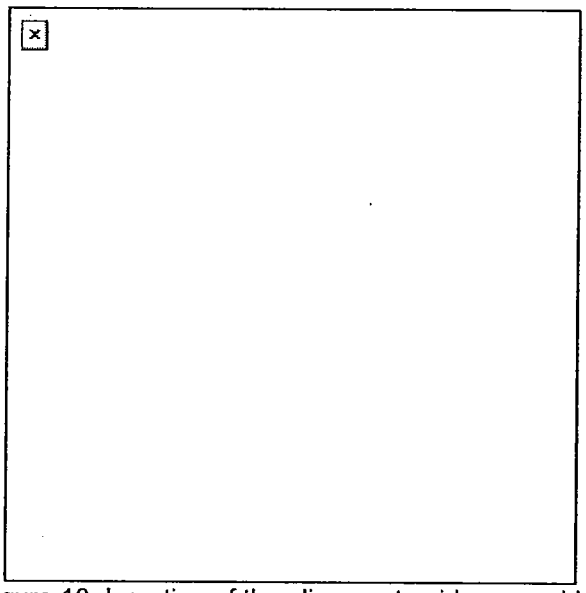

Figure 18. Insertion of the alignment guide assembly.

(1) Position the alignment guide assembly so that the pin is lined up with the slot in the feeder wall.
(2) Hold the alignment guide against the front wall and slide the alignment guide into the receiver until it clicks.

e. Attach the feed tray and feed slide assembly (Figure 19).

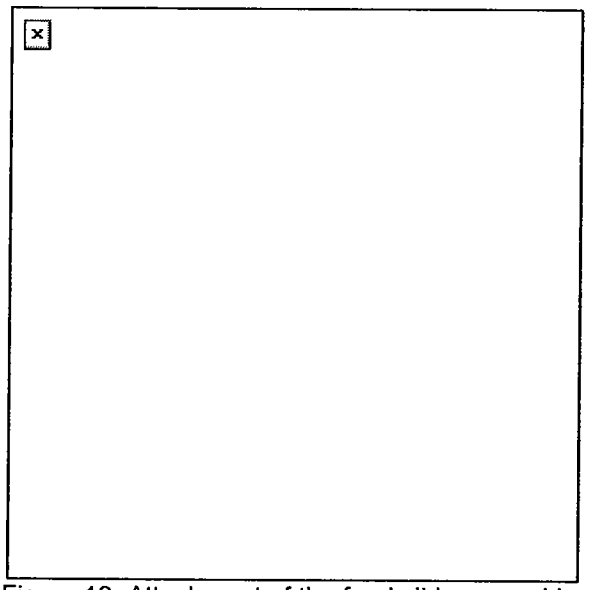

Figure 19. Attachment of the feed slide assembly.

(1) Place the tray in the top of the feeder, recessed side up.
(2) The pinholes on the tray should line up with the lugs on the receiver.
(3) Position the feed slide assembly by lining up the tabs with the slots on the tray.
(4) Insert the tabs into the slots. Drop the feed slide assembly into the tray and move it slightly to ensure engagement.

f. Attach the top cover assembly (Figure 20).

Performance Steps

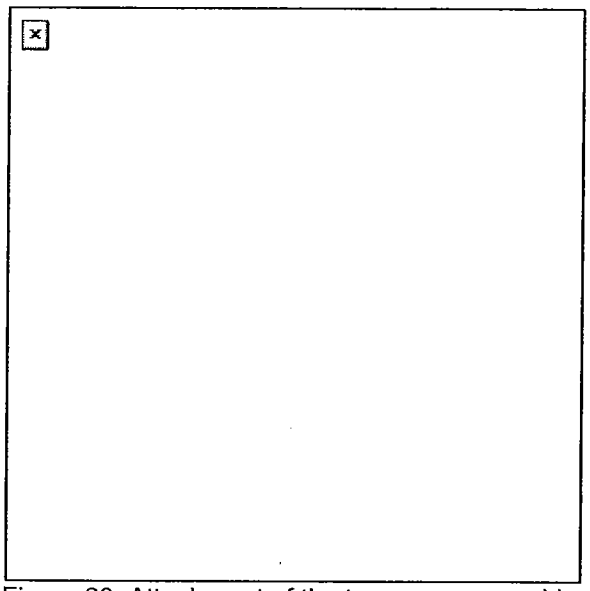

Figure 20. Attachment of the top cover assembly.

(1) Ensure the feed tray is in the proper place in the receiver.
(2) Place the top cover on the receiver. Line up the pinholes on the cover with the receiver's lug end and the pinholes on the feed tray.
(3) Hold the top cover straight up. Insert the top cover pins on both sides. Fully insert the cross pin. Rotate the top cover so that it is fully open.

WARNING
To avoid breaking the cross pin, be sure to insert it fully into the receiver before you close the top cover.

g. Engage the secondary drive lever (Figure 21).

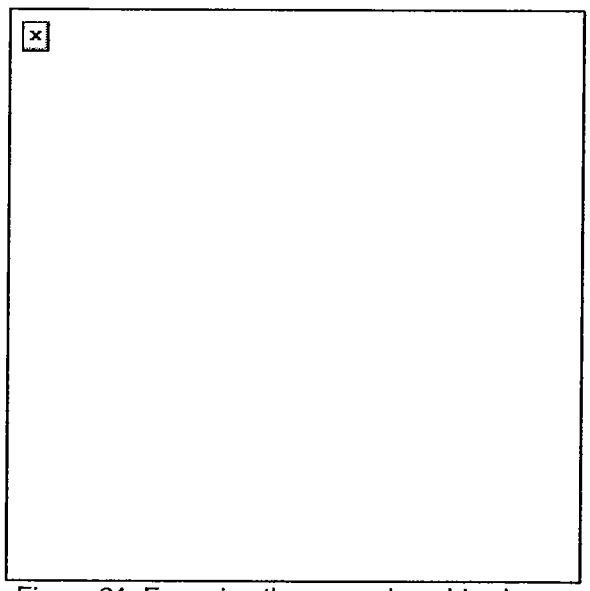

Figure 21. Engaging the secondary drive lever.

(1) Rotate the feed slide assembly and tray upward.
(2) Engage the forked end of the secondary drive lever with the feed slide pin.

Performance Steps

(3) Press the raised pivot post through the hole in the stop cover.

(4) Press the secondary drive lever against the top cover until it locks into place.

CAUTION

Be sure to engage the secondary drive lever with the feed slide pin, or the gun will not fire.

h. Engage the vertical cam assembly (Figure 22).

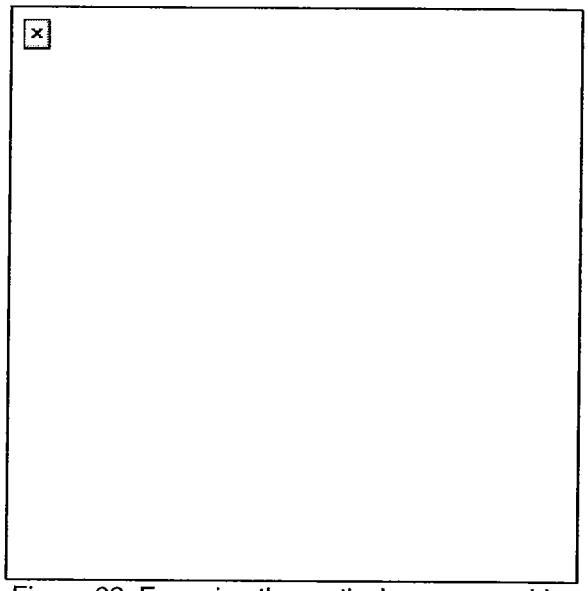

Figure 22. Engaging the vertical cam assembly.

(1) Slide the vertical cam assembly through the rear of the receiver. The raised portion should slide over the top of the receiver. The drive lever lock should be underneath.

(2) Engage the forked end in the notch.

i. Engage the primary lever (Figure 23).

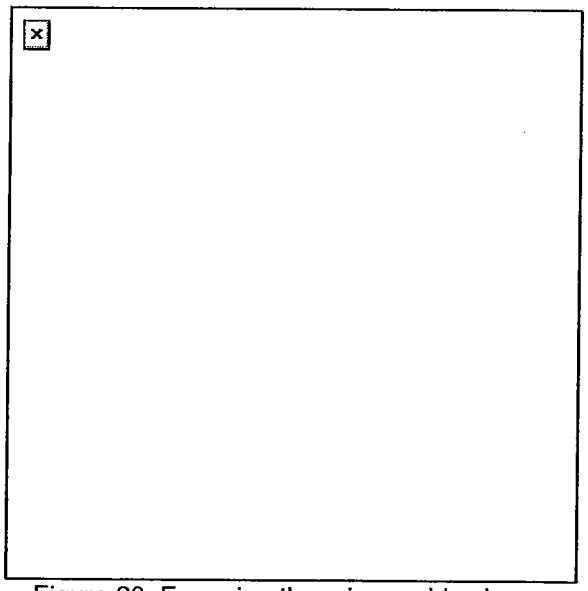

Figure 23. Engaging the primary drive lever.

(1) Hold the vertical cam assembly in place and slide the primary drive lever into the receiver.

Performance Steps

(2) Slide the primary drive lever lock to the rear and engage the pivot post lever through the holes in the receiver and vertical cam.

(3) Slide the primary drive lever lock forward. (The primary drive lever lock is located on the vertical cam just beneath the top of the receiver).

j. Insert the bolt and backplate assembly (Figure 24).

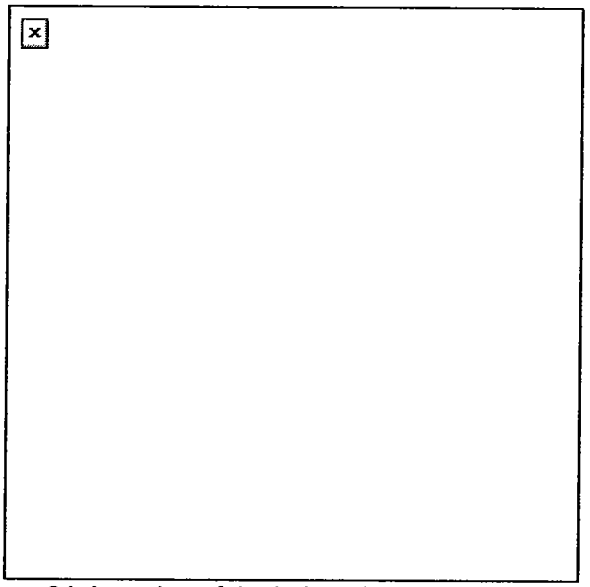

Figure 24. Insertion of the bolt and backplate assembly.

(1) Place the safe/fire switch in the fire (F) position.

(2) Press the receiver sear using your thumbs or the rim of a cartridge case.

(3) Make sure the cocking lever is cocked and forward.

(4) Slide the bolt and back plate assembly all the way forward.

(5) Insert the back plate pin to lock the assembly in place.

(6) Close the cover.

WARNING

Before inserting the bolt and back plate assembly, put the cocking lever in the forward position.

CAUTION

Before closing the top cover, always make sure the secondary drive lever engages the feed slide pin, the feed slide assembly is to the left, and the bolt is forward. Never try to force the top cover closed. Doing so could damage the weapon.

k. Attach the receiver sear assembly (Figure 25).

Performance Steps

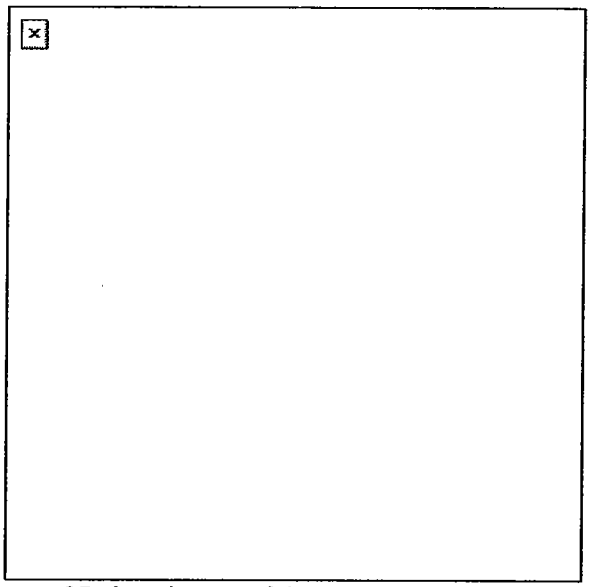

Figure 25. Attachment of the receiver sear assembly.

(1) Turn the receiver over on its top.
(2) Place the sear housing on the receiver and line up the sear housing assembly at a right angle to the barrel center line.
(3) Put the safe/fire switch on fire (F) position.
(4) Press down and rotate the housing assembly until it stops.
(5) Press up on the sear and rotate it until it locks in position.

l. Attach the feed throat assembly.
(1) Squeeze the grip pins and align them with the holes in the receiver.
(2) Release the grip pins to attach the feed throat.

11. Perform a function check to make sure you have assembled the weapon correctly (see Task 071-030-0007, Perform a Function Check on a MK 19 Machine Gun).

Evaluation Preparation: Setup: At the test site, provide the soldier with the equipment listed in the task conditions statement. Use the performance steps in the training outline to evaluate the soldier's performance of the task.

Brief Soldier: Tell the soldier to perform operator level maintenance on the MK 19 and to perform a function check to ensure the weapon functions correctly.

Performance Measures	**GO**	**NO GO**
1. Clear the weapon.	___	___
2. Disassemble the weapon without damaging any parts.	___	___
3. Clean the weapon parts.	___	___
4. Clean the components.	___	___
5. Clean the ammunition.	___	___
6. Inspect all parts, components, and ammunition for serviceability.	___	___
7. Report all deficiencies to your supervisor.	___	___

Performance Measures	GO	NO GO
8. Lubricate the weapon parts and components using the correct lubricant and lubrication techniques.	___	___
9. Assemble the weapon in the correct sequence without damaging any parts.	___	___
10. Perform a function check.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 23-27
	TM 9-1010-230-10

Prepare a Range Card for an MK19 Machine Gun
071-030-0002

Conditions: Given a MK 19 machine gun mounted on an M3 tripod with traversing and elevating (T&E) mechanism, a primary and secondary sector of fire, a principal direction of fire (PDF), lensatic compass, 1:50,000 military map of the area, blank range card, pencil, and a requirement to prepare a range card for the MK 19.

Standards: Prepare a range card. Sketch terrain, primary and secondary sectors of fire, and all appropriate military symbols. Include data for all predetermined targets.

Performance Steps

1. Position the MK 19 with the muzzle pointing in the direction of the PDF.
2. Record the gun number, squad or unit designation (no higher than company for security reasons), and date in the data section. In a mechanized unit, include the squad designation.
3. Sketch in the basic military symbol for the MK 19 in the lower center of the range card pointing in the direction of the PDF.

NOTE: Until a military symbol is adopted for the MK 19, use the basic machine gun symbol with 40-mm in parentheses.

4. Orient the range card so that the MK 19 symbol on the range card and the muzzle of the MK 19 are pointing in the same direction. Use the lensatic compass to determine magnetic north, and in the magnetic north block, sketch the magnetic north symbol with the arrow pointing in the direction indicated by the compass.
5. Identify and record the gun position.
   a. Orient the gun position with a prominent terrain feature (one that is recognizable on the map).
   b. Sketch in the terrain feature on the range card in the lower left or right hand corner.
   c. Determine the magnetic azimuth in mils or degrees to or from the terrain feature and the MK 19 position. Draw a line between the two. Add arrow barbs along the line, pointing in the direction the magnetic azimuth was taken.
   d. Record the distance in meters above the barbed line. Record the magnetic azimuth in mils or degrees below the line.
   e. If a prominent terrain feature is not available within 1,000 meters, identify the gun position by writing in its eight-digit grid coordinate in the position-identification block.
6. Sketch in the left and right limits of the primary sector of fire (PDF should be in the center of this sector).
7. Draw a sketch of the terrain to the front of the gun position. Include prominent and manmade features that could be likely targets.
8. Label the targets in the primary sector in order of priority. Label the PDF as 1.
9. Sketch in secondary sector of fire using a broken line.
10. Record the direction and elevation to each target in the primary sector.
    a. Center the traversing handwheel.
    b. Lock the left edge of the traversing slide on the zero (0) graduation on the traversing bar.
    c. Shift the tripod by moving the trailing legs until the muzzle of the gun is laid on the center of the target.
    d. Dig in or sandbag the tripod legs.
    e. Adjust the T&E mechanism until the MK 19 lays on the center base of a point target or on either flank of a linear target.

Performance Steps

f. Record the direction and elevation readings to each target in the appropriate column in the data section.

NOTES:

Direction: A direction reading is determined by the direction of the muzzle. When the left edge of the traversing slide is on the left side of the "0" graduation on the traversing bar, the direction reading is recorded as RIGHT (number of mils) (the muzzle of the MK 19 is to the right). When the left edge of the traversing slide is to the right of the "0" graduation, the direction reading is recorded as LEFT (number of mils) (the muzzle of the MK 19 is to the left). If the left edge of the traversing slide does not fall exactly on a 5-mil graduation, use the nearest graduation as the direction reading.

Elevation: The elevation reading is obtained from two scales. The first portion (major reading) is taken from the engraved scale on the upper elevating screw plate. The second portion (minor reading) is taken from the engraved scale on the top of the elevating handwheel, using the indicator as the index. The two portions of the elevation reading are separated by a slash (/) when they are recorded (for example, +50/3).

11. Measure and record the width of linear targets and the PDF for predetermined fire.
    a. Measure the width of the target by traversing from flank to flank across the target and counting the number of clicks.
    b. Record the number of clicks as the target width; for example, if it took 15 clicks to traverse the width of the target, then record this as TW-15 (target width 15).
    c. Lay the gun on a point where you will engage the target with the initial burst of fire and traverse to one edge of the target while counting the clicks.
    d. Record the number of clicks traversed and the direction of the muzzle; for example, if you counted seven clicks and the direction of the muzzle moved to the right, then record this as right 7 (R7). Record the data for the target as TW-20/R7. This indicates that you did not lay the MK 19 on the center of the target initially. Furthermore, after the initial burst, you must traverse the gun right seven clicks (R7) to reach the right edge of the target, then traverse it back left 20 clicks to cover the entire target area. If you lay the gun so that the initial burst will be on the left edge of the target, the remarks in the data section would be TW-20/R20. If you lay the gun so that the initial burst will be on the right edge of the target, the remarks in the data section would be TW-20/L20.

12. Always center the traversing mechanism before moving from one target to another.

13. Enter the range to and the description of each target under the appropriate column in the data section.

14. Sketch in preselected targets in the secondary sector on the range card and record the ranges to these targets below the sketches.

Evaluation Preparation: Setup: At the test site, in an outside field environment, provide all the equipment and materials listed in the task conditions statement.

Brief Soldier: Tell the soldier to prepare a range card for the MK 19 machine gun, recording all necessary data.

Performance Measures	**GO**	**NO GO**
1. Position the MK 19 with the muzzle pointing in the direction of the PDF.	___	___
2. Record the gun number, squad unit designation (no higher than company for security reasons), and date in the data section. In a mechanized unit, include the squad designation.	___	___

Performance Measures	GO	NO GO
3. Sketch in the basic military symbol for the MK 19 in the lower center of the range card, pointing in the direction of the PDF.	___	___
4. Orient the range card.	___	___
5. Identify and record the gun position.	___	___
6. Sketch in the left and right limits of the primary sector of fire (PDF should be in the center of this sector).	___	___
7. Draw a sketch of the terrain to the front of the gun position. Include prominent and manmade features that could be likely targets.	___	___
8. Label targets in the primary sector in order of priority. Label the PDF as 1.	___	___
9. Sketch in secondary sector of fire.	___	___
10. Record the direction and elevation to each target in the primary sector.	___	___
11. Measure and record the width of linear targets and the PDF for predetermined fire.	___	___
12. Center the traversing mechanism before moving from one target to another.	___	___
13. Enter the range to and the description of each target under the appropriate column in the data section.	___	___
14. Sketch in preselected targets in the secondary sector on the range card and record the ranges to these targets below the sketches.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier scores NO-GO, show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 23-27
	FM 3-22.68

Zero an MK19 Machine Gun
071-030-0003

Conditions: Given a MK 19 machine gun, a MK 64 gun cradle, a zeroed traversing and elevating (T&E) assembly mounted on a vehicle or M3 tripod, a stationary target located at a known range (400 meters) from the firing position, and linked 40-millimeter (mm) grenade ammunition.

Standards: Adjust the sights on a MK 19 machine gun so that a correct sight picture will cause a fired round to impact the target at the point of aim.

Performance Steps

1. Prepare the sights for zeroing (Figure 1).
   a. Press the plunger to release the sight frame. Raise the sight frame until it locks into the "up" position.
   b. Loosen the retainer lock nut. Push in on the lock nut. Move the rear sight slide to the meter mark that corresponds to the distance to the target (400 meters).
   c. Tighten the retainer lock nut.
   d. Set the windage knob at the zero index line.

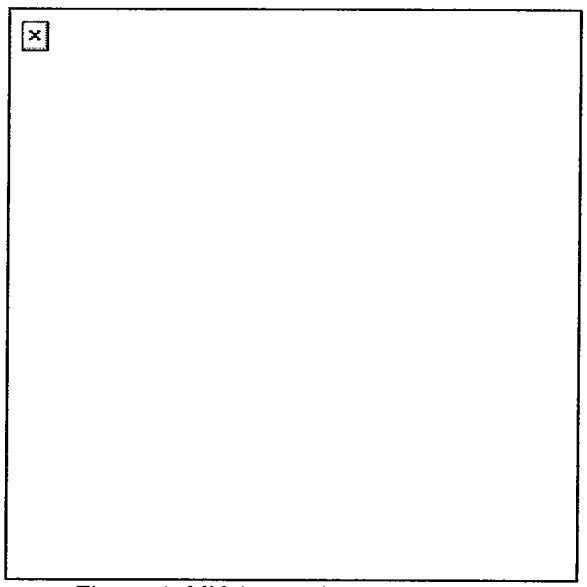

Figure 1. MK 19 machine gun sights.

2. Assume a firing position.
3. Align the sights on the base of the target using the T&E mechanism.
4. Fire a single round. Spot the impact of the round. If the round is on target, fire another short burst to confirm the zero. If the round is not on target, go to Step 5.
5. Adjust for a round that is not on target.
   a. Elevation.
      (1) If the round is short, turn the knob of the elevating wheel clockwise to move the impact of the round up onto the target.
      (2) If the round is long, turn the knob of the elevating wheel counterclockwise to move the impact of the round down onto the target.
   b. Windage.

Performance Steps

(1) If the round is to the right, adjust the sight to the left by turning the windage knob counterclockwise to move the impact of the round onto the target.

(2) IF the round is to the left, adjust the sight to the right by turning the windage knob clockwise to move the impact of the round onto the target.

NOTE: Loosen the traversing slide lock lever to adjust the gun back onto the target. Before you fire the next round, retighten the traversing slide lock lever.

6. Once you have zeroed the gun, align the range plate scale at the exact range of the zero and tighten it.

Evaluation Preparation: Setup: Evaluate this task during live firing of Table 1, Task 3, in accordance with (IAW) FM 23-27. Provide the soldier with equipment required to fire Table 1.

Brief Soldier: Tell the soldier that he will be evaluated on his ability to fire Table 1, Task 3. Brief him on the task conditions, standards, and ammunition.

Performance Measures	**GO**	**NO GO**
1. Prepare sights for zeroing IAW Step 1.	___	___
2. Assume a firing position.	___	___
3. Align sights on the base of the target.	___	___
4. Fire a single round and observe the impact of the round.	___	___
5. Adjust elevation and windage to zero weapon.	___	___
6. Align and tighten the range plate scale after zeroing.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any steps, show what was done wrong and how to do it correctly.

References

Required	**Related**
	FM 23-27
	FM 3-22.68
	TM 9-1005-201-10

Engage Targets with an MK19 Machine Gun
071-030-0004

Performance Steps

1. Assume a suitable firing position. Based on your situation, select a firing position that will allow you to observe and engage targets yet minimize your exposure to enemy fire.
   a. Seated firing positions. Sit directly behind the weapon between the trail legs of the tripod.
      (1) Legs extended. Extend your legs under the tripod (Figure 1).

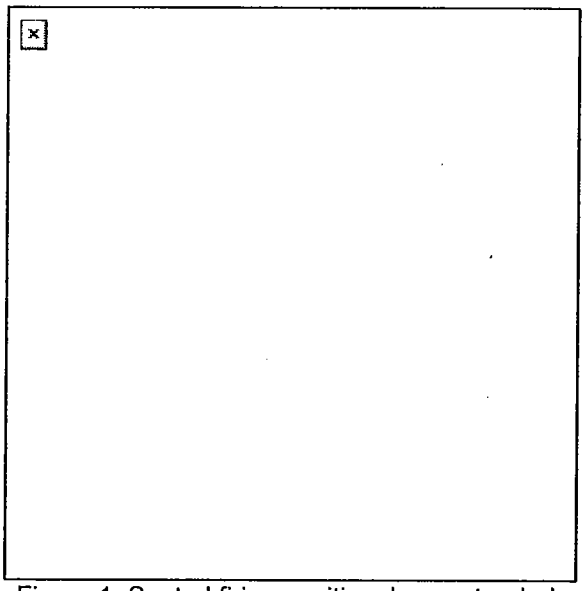

Figure 1. Seated firing position, legs extended.

      (2) Legs crossed. Cross your legs and place your elbows on the inside of your thighs for support when firing the weapon (Figure 2).

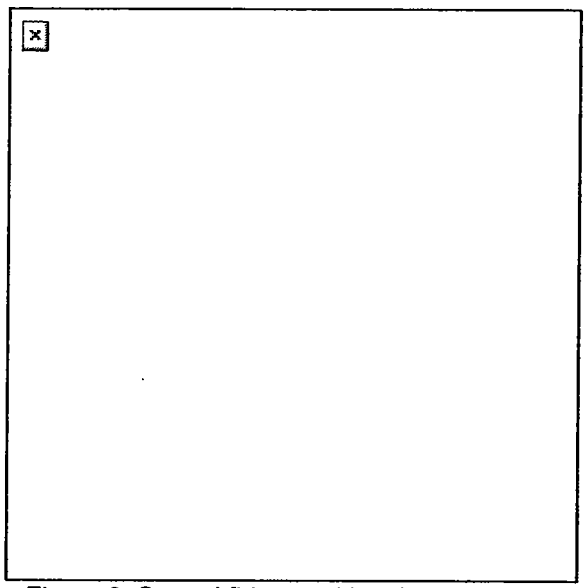

Figure 2. Seated firing position, legs crossed.

Performance Steps

(3) Legs braced. Extend your legs, brace them on the trail legs of the tripod, and place your elbows on the inside of your thighs for support (Figure 1, Figure 2, and Figure 3).

Figure 3. Seated firing position, legs braced.

b. Kneeling position. Kneel and grasp the control grips with your thumbs on the trigger (Figure 4).

Figure 4. Kneeling position.

c. Standing position for gun mounted on a vehicle pedestal (Figure 5).

Performance Steps

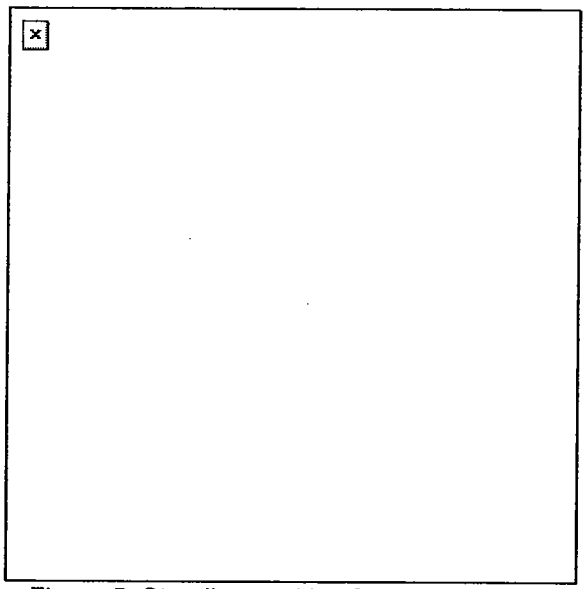

Figure 5. Standing position for mounted gun.

2. Acquire the target using correct sight alignment.

3. Apply correct engagement technique based on target types.
   a. Use correct gun manipulation technique (Figure 6).
      (1) Fixed fire. This is fire delivered against a point target. Only one aiming point is necessary with little or no manipulation of the gun.
      (2) Traversing fire. This is fire distributed against a wide target requiring successive changes in direction of gun. This means using the traversing and elevating (T&E) mechanism to traverse the gun left or right to distribute fire laterally.
      (3) Searching fire. This is fire delivered against a deep target or a linear target with depth in width by successive changes in elevation. This means using the T&E mechanism to move the muzzle of the weapon up or down to distribute fire in depth.
      (4) Traversing and searching fire. This is fire delivered in width and depth by successive changes in direction and elevation. It is employed against a target whose long axis is oblique to the direction of fire.
      (5) Swinging traverse. This is fire delivered against targets that require major changes in direction but little or no change in elevation. Loosen the traversing slide lock enough to swing the gun laterally.
      (6) Free gun. This is fire delivered against moving targets that must be rapidly engaged with fast changes in direction and elevation. To fire free gun, remove the T&E mechanism.

Performance Steps

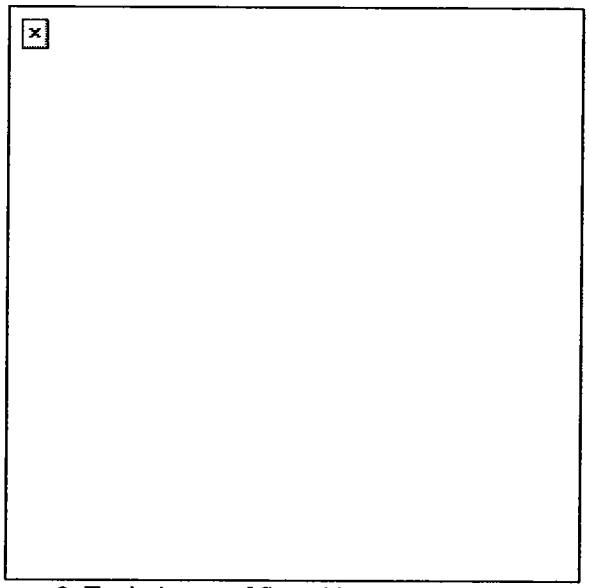

Figure 6. Techniques of fire with respect to the MK 19.

b. Use correct application of fire to engage specific targets.
   (1) Point target. Engage point targets with fixed fire using a single aiming point (Figure 7).

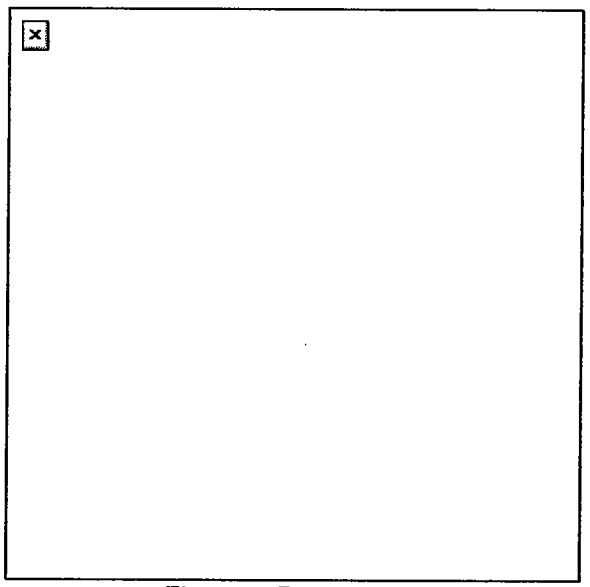

Figure 7. Point target.

   (2) Linear target. Initially aim just outside of either flank and fire. Traverse fire back and forth from flank to flank, covering the entire target area (Figure 8).

Performance Steps

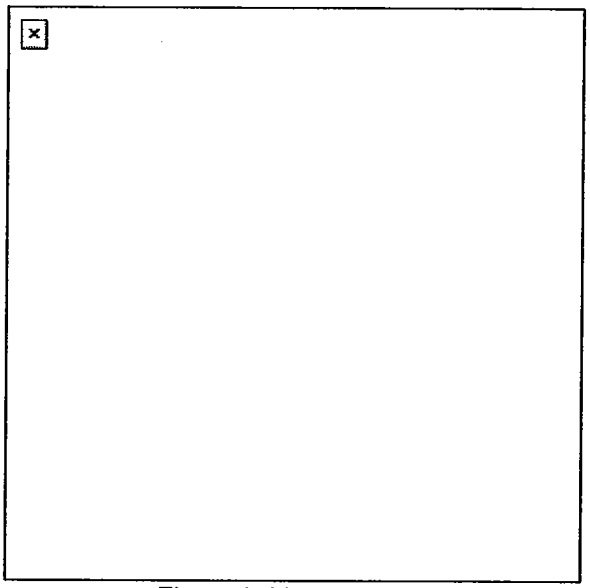

Figure 8. Linear target.

(3) Linear target with depth. Initially aim at the near flank with range set to the midpoint of the target unless another portion of the target is more critical or presents a greater threat. Fire on the near flank, then traverse and search back and forth, covering the entire target (Figure 9).

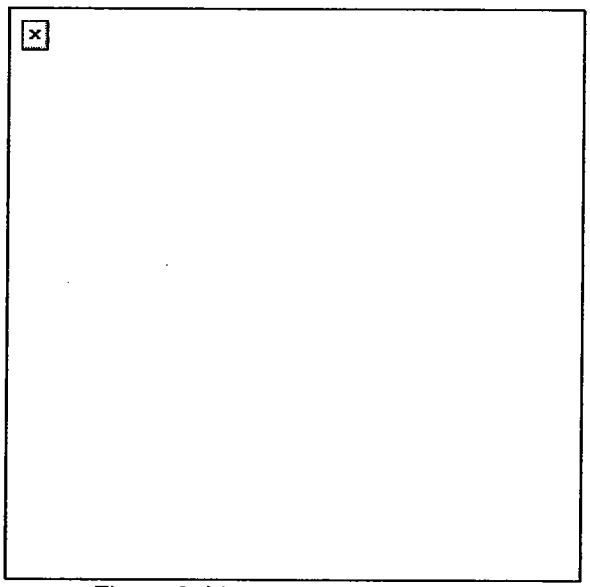

Figure 9. Linear target with depth.

(4) Deep target. Initially aim at the end of the target closest to the gun, unless another portion of the target is more critical or presents a greater threat (auto rifleman). Fire and search up the far end and back again repeatedly (Figure 10).

Performance Steps

Figure 10. Deep target.

(5) Area target. Initially aim at the midpoint of the target area. Traverse and search to either flank, then traverse and search to the opposite flank (Figure 11).

Figure 11. Engagement of area targets, single gun.

4. Use observation of fire and adjusted aiming point to place effective fire on the target.
   a. Observation of fire. Observe the strike of the rounds in relation to the target; adjust elevation and direction needed to move the center of impact onto the target.

NOTE: This does not call for use of the sights.

EXAMPLE: Suppose you fire at a target 500 meters away. The rounds impact 20 meters short and 50 meters right. To manipulate the gun onto the target, use the traversing and elevating mechanism hand wheels to move the nuzzle left and up the proper number of clicks.

Performance Steps

b. Adjusted aiming point. Use this method to quickly adjust fires without making a sight or T&E adjustment (Figure 12).
   (1) If the initial burst misses the target, rapidly select a new aiming point the same distance from the center of impact of the initial burst but in the opposite direction.
   (2) Lay the gun on that aiming point and fire.

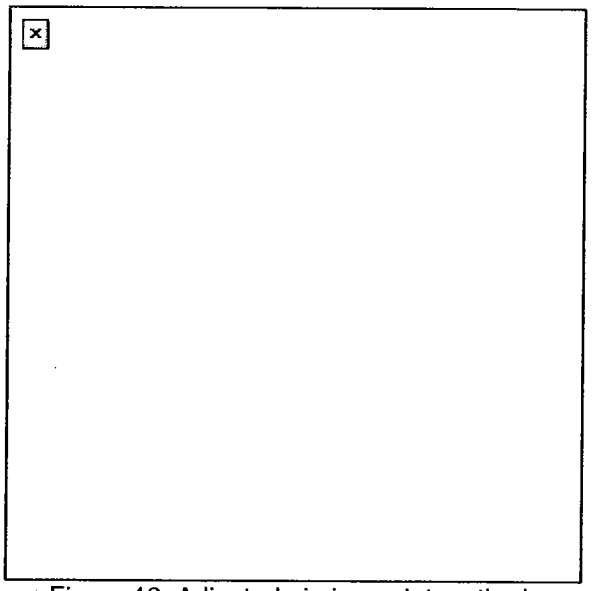

Figure 12. Adjusted aiming point method.

5. Fire on the targets until they are destroyed or until you receive an order to cease fire.

Evaluation Preparation: Setup: Evaluate this task on a live-fire range designed for 40-mm machine gun firing. For a tripod mounted MK 19, tell the soldier to fire Table 2, Tasks 4 through 8, Field Manual (FM) 23-27, Appendix C. For a vehicle-mounted MK 19, tell the soldier to fire Table 3, Tasks 2 through 5, FM 23-27, Appendix C.

Brief Soldier: Tell the soldier to perform the tasks outlined in Appendix C, FM 23-27. Brief him on the task conditions, standards, and ammunitions. Tell him he will be evaluated on his ability to apply correct target engagement techniques and place effective fire on targets.

Performance Measures	**GO**	**NO GO**
1. Assume a suitable firing position.	___	___
2. Apply correct engagement technique based on target type. a. Use correct gun manipulation technique. b. Use correct application of fire to engage specific targets.	___	___
3. Place effective fire on targets (score a minimum of 84 points).	___	___
4. Use correct application of fire to engage specific targets.	___	___
5. Use observation of fire and adjust aiming point to place effective fire on the target.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required

Related

FM 23-27

Load an MK19 Machine Gun
071-030-0005

Conditions: Given a can of linked 40-millimeter (mm) grenade ammunition and a cleared MK 19 machine gun mounted on an M3 tripod or on a vehicle. (If firing form a vehicle, ammunition can bracket will be attached to the gun mount.)

Standards: Load linked ammunition through feed throat into feeder so that when cover is closed, the round is straight and firmly seated against the bolt and the ammunition will feed correctly.

Performance Steps

1. Make sure the chamber is empty, the bolt is in the forward position, and the charger handles are in the up (lock) position.

2. Make sure the safety switch is in the safe (S) position.

WARNING: Do not let the top cover slam shut from the open position. Injury to personnel or damage to equipment could result.

3. Insert the first round.
   a. Open the top cover and insert the first round through the feed throat into the feeder, link opening first (Figure 1).

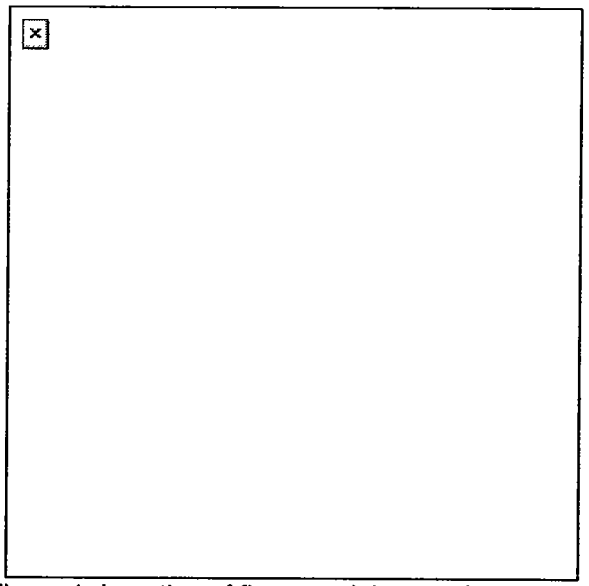

Figure 1. Insertion of first round through feed throat.

   b. Push or slide the round across the first set of feeder pawls, making sure the round is straight and firmly seated against the bolt (Figure 2).

Performance Steps

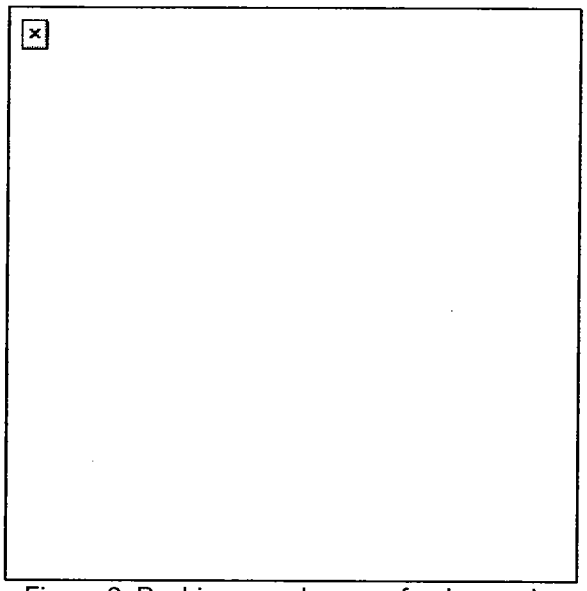

Figure 2. Pushing round across feeder pawls.

c. Index the feed slide assembly to the left and close the top cover (Figure 3).

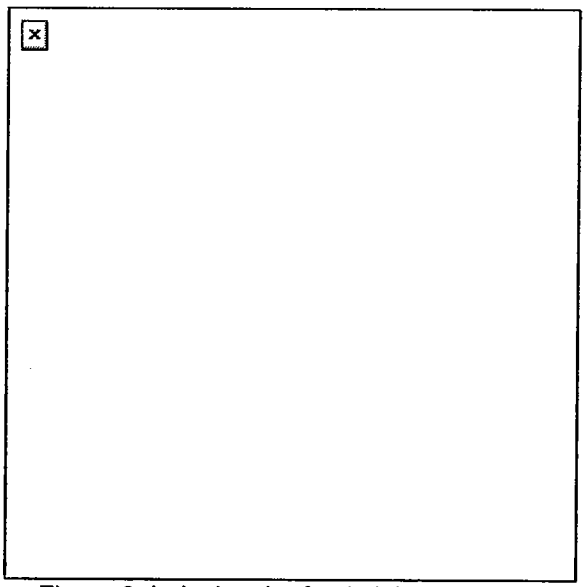

Figure 3. Indexing the feed slide assembly.

4. Charge the weapon (Figure 4).
   a. Grasp charger handles palms down.
   b. Press charger handle locks and rotate charger handles down.
   c. Pull charger handles sharply to the rear until the bolt sears.
   d. Push charger handles forward and rotate them up into the lock position.

Performance Steps

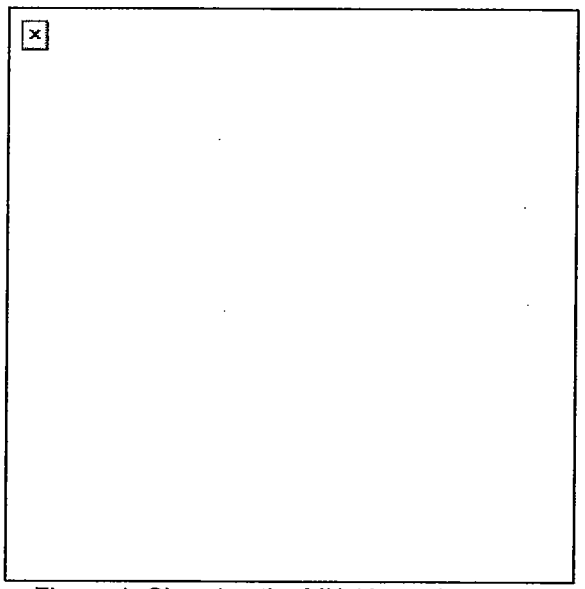

Figure 4. Charging the MK 19 machine gun.

5. Load the first round.
   a. Place safety switch in fire (F) position and press trigger.

NOTE: Bolt will move forward and load the first round on the bolt-face (half load).

   b. Rotate charger handles down and pull them sharply to the rear until the bolt sears. This pulls the bolt with the loaded round into position for firing (Full load).
   c. Place safety switch in safe (S) position.
   d. Push the chargers forward and rotate the charger handles up into the lock position. The weapon is fully loaded.
   e. Leave safety switch on safe (S) position until ready to fire.

WARNING: For firing, charger handles must be FORWARD and UP. Keep your weapon pointed downrange and the line of fire clear of objects.

Evaluation Preparation: Setup: Provide the soldier with the equipment listed in conditions.

Brief Soldier: Tell the soldier to load the MK 19 according to proper procedures.

Performance Measures	**GO**	**NO GO**
1. Make sure the chamber is empty, the bolt is forward, and the charger handles are in the lock position.	___	___
2. Make sure the safety switch is in the safe (S) position.	___	___
3. Insert the first round. a. Open the top cover and insert the first round through the feed throat and into the feeder, link opening first. b. Push or slide the round across the first set of feeder pawls, making sure the round is straight and firmly seated against the bolt. c. Index the feed slide assembly to the left and close the top cover.	___	___
4. Charge the weapon. a. Grasp the charger handles palms down. b. Press the charger handle locks and rotate charger handles down. c. Pull charger handles sharply to the rear until the bolt sears.	___	___

Performance Measures	GO	NO GO
d. Push charger handles forward and rotate them up into the lock position.		
5. Load the first round. a. Place safety switch on the fire (F) position and press the trigger. b. Rotate charger handles down and pull them sharply to the rear until the bolt sears. c. Place safety switch on the safe (S) position. d. Push charger forward and rotate the charger handles up into the locked position. e. Leave safety switch in the safe (S) position until ready to fire.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 23-27 TM 9-1010-230-10

Unload an MK19 Machine Gun

071-030-0006

Conditions: Given an MK19 machine gun mounted on an M3 tripod or vehicle loaded with linked 40-millimeter (mm) grenade ammunition.

Standards: Unload the MK 19 machine gun, removing ammunition and empty casings. Clear the weapon, making sure the chamber is empty and the safety switch is in the safe (S) position.

Performance Steps

1. Place the safety switch on the safe (S) position.
2. Charge the weapon.
3. Return the charger handles to the forward position and rotate only one charger handle up.
4. Remove the live round or spent case from bolt.
   a. Insert the tip of a cleaning rod through the right hand rail as close to the bolt face as possible (Figure 1).
   b. Lift up on the cleaning rod to force the live round or case off the bolt face and out the bottom of the gun. Catch the live round or the spent case as it falls out.

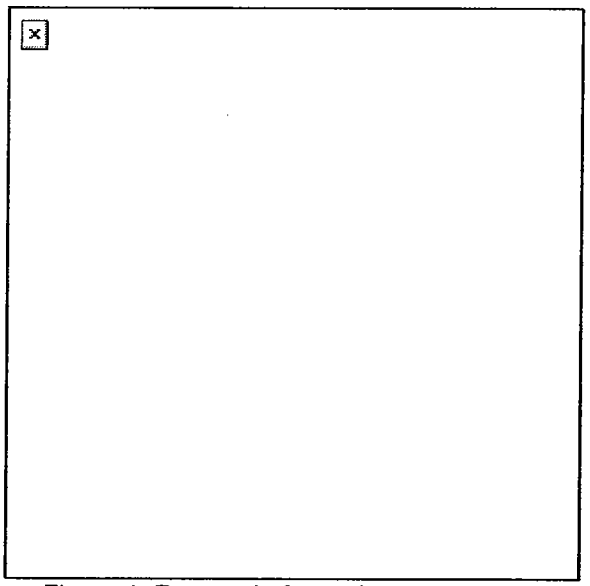

Figure 1. Removal of round or spent case.

5. Remove linked rounds from the feeder.
   a. Open the top cover. Check for rounds in the feeder. If you find any rounds in the feeder, perform the following actions (Figure 2).
      (1) with one hand, reach beneath the feeder. Press the primary and secondary positioning pawls at the same time.
      (2) At the same time, slide the linked rounds out of the feeder and feed throat.
   b. Place linked rounds in the ammunition can.

Performance Steps

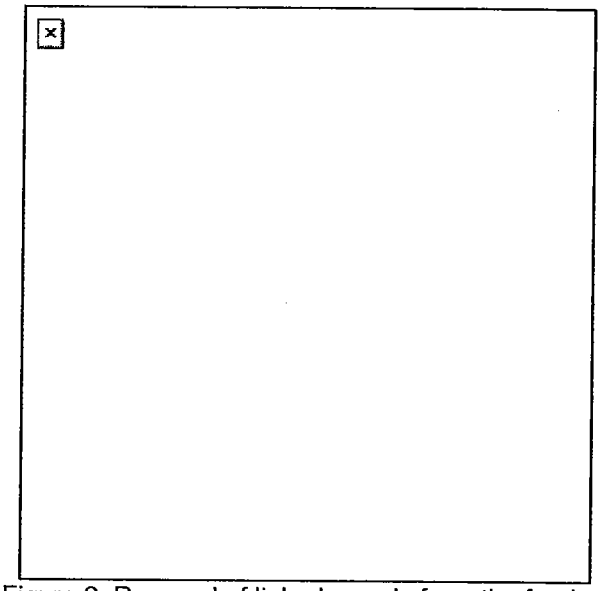

Figure 2. Removal of linked rounds from the feeder.

6. Place the safety switch in the fire (F) position.
7. Ride the bolt forward.
   a. Hold one charger handle to the rear.
   b. Press the trigger to release the bolt; ride the bolt forward.
   c. Make sure both charging handles are forward and in the up position.
8. Place the safety switch in the safe (S) position.
9. Index the feed slide assembly to the left.
10. Close and latch the top cover.

Evaluation Preparation: Setup: Provide the soldier with the equipment listed in the task conditions statement.

Brief Soldier: Tell the soldier to load the MK 19 according to the task steps.

Performance Measures	**GO**	**NO GO**
1. Place the safety switch on safe (S) position.	___	___
2. Charge the weapon.	___	___
3. Return the charger handles to the forward position, and rotate only one charger handle up.	___	___
4. Remove the live round or spent case from bolt. a. Insert the tip of a cleaning rod through the right-hand rail as close to the bolt face as possible. b. Raise up on the cleaning rod to force the live round or case off the bolt face and out the bottom of the gun. Catch the live round or the spent case as it falls out.	___	___
5. Remove any linked rounds from the feeder.	___	___

Performance Measures	GO	NO GO
a. Open the top cover. Check for rounds in the feeder. If you find rounds in the feeder, then perform the following actions: (1) With one hand, reach beneath the feeder, and press the primary and secondary positioning pawls at the same time. (2) At the same time, slide the linked rounds out of the feeder and feed throat. b. Place linked rounds in the ammunition can.		
6. Place the safety switch on fire (F) position.	___	___
7. Ride the bolt forward. a. Hold one charger handle to the rear. b. Press the trigger to release the bolt, and ride the bolt forward. c. Make sure both charging handles are forward and in the up position.	___	___
8. Place the safety switch on safe (S) position.	___	___
9. Index the feed slide assembly to the left.	___	___
10. Close and latch the top cover.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO then show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 23-27
	TM 9-1010-230-10

Perform a Function Check on an MK19 Machine Gun
071-030-0007

Conditions: Given a cleared MK19 machine gun mounted on an M3 tripod or vehicle carrier.

Standards: Conduct an operational check of the MK 19 machine gun to make sure it is correctly assembled and functions properly.

Performance Steps
WARNING: Before performing any procedure, make sure the weapon is clear of ammunition.

1. Check the functioning of the safety switch.
   a. With the cover closed, place safety switch on safe (S).
   b. Pull the bolt to rear, push charger handles to forward position, and rotate handles up.
   c. Press the trigger. Bolt should not go forward.
   d. Place the safety switch on fire (F) position.
   e. Press the trigger. Bolt should spring forward.
   f. Place the safety switch on safe (S) and leave the bolt in forward position.

2. Open top cover assembly and inspect the feed tray assembly and the chamber to ensure the gun is clear.
   a. Open the top cover.
   b. Touch the firing pin. If it is not protruding, recharge and release the bolt spring under pressure.
   c. Inspect the bolt face to make sure it is not worn, dirty, pitted, corroded, or in need of lubrication.

WARNING: Do not allow the top cover to slam shut from the raised position. Doing so could injure your hand or damage the equipment.

3. Check the feed slide assembly and feeder.
   a. Move the secondary drive lever back and forth. The feed slide assembly should move freely.
   b. Press the feed pawls to check for spring pressure.
   c. Inspect the link guide for roughness and galling.

NOTE: Before closing the top cover, always make sure that-
- The secondary drive lever is engaged with the feed slide pin.
- The feed slide assembly is to the left.
- The bolt is forward.
- Never try to force the top cover closed. Doing so could damage the equipment.

   d. Close and latch the top cover.

4. If you find any deficiencies that you cannot correct, the MK 19 is unserviceable. Report the deficiencies to your supervisor.

Evaluation Preparation: Setup: At the test site, provide the soldier with the equipment listed in task conditions.

Brief Soldier: Tell the soldier to perform a function check to determine if the MK 19 machine gun functions properly.

Performance Measures	**GO**	**NO GO**
1. Check functioning of safety switch.	___	___
2. Inspect interior of receiver assembly for missing or damaged parts.	___	___
3. Check feed slide assembly and feeder.	___	___
4. Report deficiencies to supervisor.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	TM 9-1010-230-10

Correct Malfunctions of an MK19 Machine Gun

071-030-0008

Conditions: Given a loaded MK 19 machine gun mounted on an M3 tripod or vehicle, linked 40-mm grenade ammunition, a caliber .50 cleaning rod, a bore obstruction device (BOD), an assistant gunner, rifle bore cleaner (RBC), lubricating oils (LSA and either LSAT or LAW), grease (GMD), cleaning solvent (PD680), wiping rags, cloth (abrasive crocus), cleaning rod assembly, small arms cleaning brushes, and one of the following situations: the weapon has failed to fire; the weapon is firing sluggishly; or the weapon has uncontrolled fire (continuous to fire after the trigger is released).

Standards: Take immediate action on a MK 19 machine gun that has failed to fire without identifying the cause of the malfunction. If immediate action is unsuccessful, perform remedial action to identify the cause of the malfunction. Take immediate action to secure a runaway MK 19 machine gun; then take remedial action to eliminate the malfunction. Take corrective action for a MK 19 machine gun that is firing sluggishly.

Performance Steps

1. Apply immediate action when the weapon fails to fire (during peacetime and during training).

NOTE: Clear all nonessential personnel away from the gun position.

DANGER:
1. If anything unusual occurs during firing (including short recoil, out of battery, excess smoke, flash, loud or muffled report, malfunction, or stoppage) immediately inspect the weapon. Clear the weapon. Check the barrel for obstruction. Check the feeder, bolt face, and receiver for damage or unusual debris. DO NOT try to clear an obstructed bore. To get assistance, follow the instructions in the local or unit SOP. Continued firing may cause death or injury.
2. DO NOT relink or fire ammunition that has been cycled through the weapon.

WARNING:
1. Clear all nonessential personnel away from the gun position.
2. If, when you fire a round, you--
- Hear a muffled sound
- See excess smoke coming out of the chamber area
- See excess debris, gas, or both coming from below the gun
DO NOT perform immediate action.
DO notify your supervisor.

a. Keep the weapon pointed at the target.
b. Pull the bolt to the rear to charge the weapon and have the assistant gunner catch the live round as it is ejected.
c. If the weapon will not charge, stop immediate action and apply remedial action to clear a jammed bolt (Step 2b).
d. Push the charging handles forward and up.
e. Place the safety switch in the safe (S) position.
f. Check for bore obstruction.
(1) Make sure the safety switch is on safe (S).

WARNING:
1. DO NOT let the bolt go forward--this could cause a round to fire accidentally.
2. DO NOT insert your hands into the receiver with the bolt locked to the rear on sear. If you do so, you could suffer a severe injury.
3. DO make sure the safe/fire switch is in the safe (S) position.

(2) Lower the charging handles, maintain your grip, and apply back pressure to the bolt.
(3) Have the assistant gunner open the top cover and check the bolt face for a live round.
(4) If a live round, spent case, or debris is present--

Performance Steps

(a) Have the assistant gunner remove the catch bag and be prepared to catch live any live ammunition that falls from the bottom of the weapon.
(b) Charge the bolt completely until the bolt clicks (locks) to the rear. Return the handles to the forward position, handles down.
(c) If a round is still present, have the assistant gunner clear it from the bolt face by inserting a cleaning rod through the slot in the charger handle assembly and catching the round.
(d) Have the assistant gunner place the bore obstruction device (BOD) into the chamber end of the barrel (weighted end first).
(e) Snake the BOD into the barrel.
(f) IF the cable stops feeding, pull it back and push it forward again.
(g) If you cannot push the cable forward any farther the bore is obstructed. STOP. Notify your supervisor at once.

WARNING:
If you find that the bore of the weapon is obstructed, notify your supervisor and follow your unit SOP.
Never try to remove an obstructing round from the bore. Only trained and qualified personnel should do so.
DO NOT transport a weapon with a projectile lodged in the bore.

(5) If you are able to insert the BOD cable through the barrel so that you see the weighted end of the cable protruding from the flash suppressor, then the barrel is clear.
(6) Move the safety switch to the fire (F) position and try to fire.
(7) If the weapon does not fire, put the safety switch on safe (S) and wait 10 seconds.
(8) Pull the bolt to the rear. Have the assistant gunner catch the live round as it ejects.
(9) Notify your supervisor.

2. Apply immediate action during combat.
   a. Press the charger handle locks, and rotate the charger handles down.
   b. Pull the charger handles to the rear until the bolt sears.
   c. Push the charger handles forward and rotate them up.
   d. Relay the gun and fire.
   e. If the gun fails to fire, apply remedial action.

WARNING:
Do not use combat misfire procedures during peacetime or training. Serious injury can result if you do not observe precautions.

NOTE: Both charger handles must be forward and up for firing. If either handle is down, the gun will not fire.

3. Apply remedial action to correct malfunctions.
   a. Correct sluggish operation of a MK 19 machine gun.
      (1) Clean weapon and perform operator-level maintenance. Refer to task 071-030-0001, Maintain a MK 19 Machine Gun.
      (2) Check recoil springs for weakness and bent guide rods.
      (3) If you find defects that are not correctable, notify your supervisor.

WARNING:
Be sure bolt is forward before removing back plate pin assembly. Otherwise, serious injury could result!

   b. Clear a jammed bolt (weapon will not charge).

DANGER:
Perform these procedures in sequence. Otherwise, the bolt could spring forward suddenly and fire a round, causing injury or death.

NOTE: Clear all nonessential personnel away from the gun position.

(1) Place the safety switch on the safe (S) position.

Performance Steps

(2) Press the charger handle locks, and rotate the charger handles down.
(3) Pull the charger handles to the rear as far as possible. Maintain rearward pressure on them, and have the assistant gunner lift the top cover.

DANGER:
Do not allow the bolt to slam forward while you are opening the top cover.

If the bolt were to slam forward while you are opening the top cover, the weapon could fire a live round, causing injury or death.

(4) Pull the charger handles to the rear until the bolt clicks (locks); make sure the bolt stays to the rear when you release the charger handles.
(5) Insert the cleaning rod section through the slot in the side of the receiver. Prepare to catch the ejected round.
(6) Raise the cleaning rod to force the live round down. Catch the live round as it ejects.
(7) Remove the ammunition belt from feeder.
(8) Reposition the ammunition belt in the feeder.
(9) Place the safety switch on fire (F) position.
(10) Ride the bolt forward by grasping one charging handle and depressing the trigger.
(11) Make sure the feed slide assembly is to the left.
(12) Make sure the secondary drive lever is engaged with the feed slide pin. If not, engage the forked end with the feed slide pin.
(13) Close the top cover gently.
(14) Charge the weapon and try to fire.
(15) If the bolt jams again, repeat (1) through (7). Then place the safety switch on the safe (S) position, and notify your supervisor.

c. Apply corrective action for uncontrolled fire (runaway gun).

WARNING:
Never try to twist the belt with your hands. This could result in serious injury to personnel.

(1) Keep the gun pointed on target.
(2) Lower one charging handle to make the gun stop firing.
(3) Place the safety switch on safe (S) position.
(4) Clear the weapon and report its condition to your supervisor.

Evaluation Preparation: Setup: Provide soldier with the equipment and personnel listed in conditions.

Brief Soldier: Tell the soldier to take the correct action for each situation listed in standards, one situation at the time. If it is unclear what actions the soldier is performing, have the soldier describe the action.

Performance Measures	**GO**	**NO GO**
1. Apply immediate action when the weapon fails to fire. a. Peacetime and training. b. Combat only.	___	___
2. Apply remedial action to correct malfunction. a. Correct the sluggish operation of a MK 19 machine gun. b. Clear a jammed bolt (weapon will not charge). c. Apply corrective action for uncontrolled fire (runaway gun).	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	FM 23-27
	TM 9-1010-230-10

Mount an MK19 Machine Gun on a Vehicle
071-030-0009

Conditions: Given a cleared MK 19 machine gun; an assistant gunner; an MK64 gun mount; a pintle adapter assembly; a traversing and elevation (T&E) assembly installed in the pivot arm assembly; a feed throat assembly; a mounting assembly for an ammunition can bracket; two 9/16-inch open-ended wrenches; one 3/8-inch open-ended wrench; and a vehicle equipped with either an M4 pedestal mount, an M66 ring mount, or a high mobility multipurpose wheeled vehicle (HMMWV) armament carrier ring pedestal.

Standards: Mount the MK 19 on a vehicle carrier correctly and without damage to equipment or injury to personnel.

Performance Steps

1. Install the pintle adapter.
   a. HMMWV armament carrier ring pedestal (Figure 1).

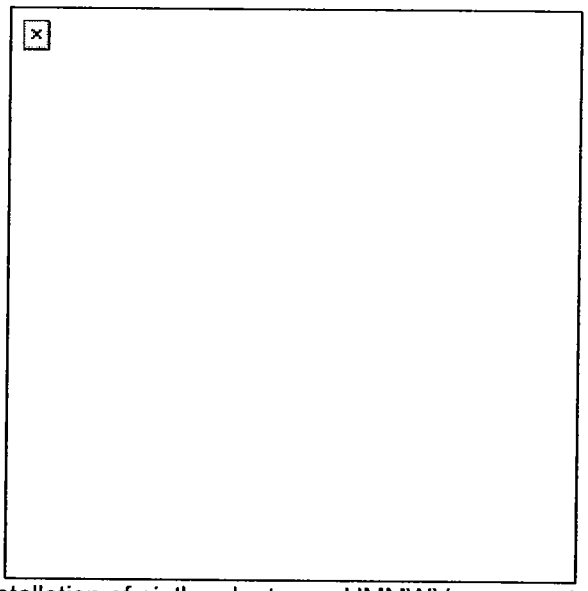

Figure 1. Installation of pintle adapter on HMMWV armament carrier ring.

   (1) Using a 3/8-inch, open-ended wrench, loosen the HMMWV pedestal and the pintle adapter lock screws. Turn all four screws counterclockwise until the threaded ends are flush with the pedestal's inner wall.
   (2) Insert the pintle adapter assembly into the HMMWV pedestal. Tighten the lock screws. Using a 3/8-inch, open-ended wrench, turn the screws clockwise to tighten them. Pull upward on the pintle adapter to make sure it is secure.
   (3) Remove the pintle adapter quick release pin. Press in on the pin's quick release button, and pull the pin from the pintle adapter.

   b. M4 pedestal (Figure 2).

Performance Steps

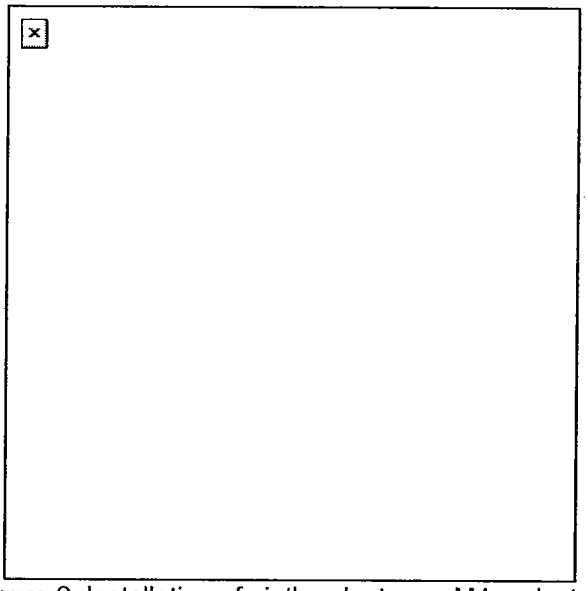

Figure 2. Installation of pintle adapter on M4 pedestal.

(1) Loosen the lower pedestal-locking lever. Turn the upper pedestal until the upper locking lever is on same side as the lower pedestal-locking lever. Tighten the lower pedestal-locking lever.
(2) Loosen the upper pedestal locking lever.
(3) Insert the pintle adapter assembly into pedestal mount.
(4) Tighten the upper pedestal locking lever. Pull up on the pintle adapter assembly to make sure it is secure.
(5) Remove the pintle adapter quick release pin.

c. M66 ring amount (A, Figure 3).
(1) Stand inside the M66 ring facing the pintle adapter hole; rotate the pintle lock handle upward.
(2) Insert the pintle adapter assembly into the pedestal (B, Figure 3).
(3) Rotate the pintle lock handle downward to secure the pintle adapter. Pull up on the pintle adapter to make sure it is locked in place.
(4) Remove the pintle adapter quick release pin.

Performance Steps

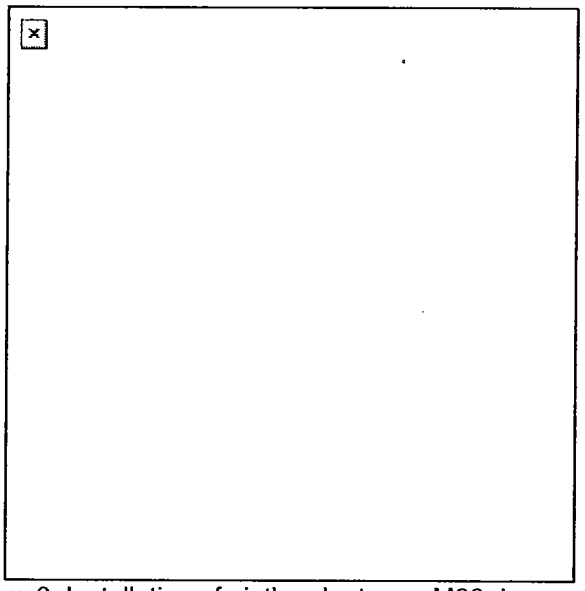

Figure 3. Installation of pintle adapter on M66 ring mount.

d. HMMWV Interchangeable Mount System (HIMS). Follow same procedures as for HMMWV armament carrier ring pedestal (Task Step 1a).

2. Mount the MK64 gun mount (Figure 4).
   a. Insert the front stow pin.
   b. Insert the gun mount pintle into the top of the pintle adapter assembly.
   c. Press in on the pintle adapter quick release pin button, and insert the pin. Pull upward and twist the gun mount. It should be locked into the pintle adapter, but at the same time it should also traverse freely left and right.

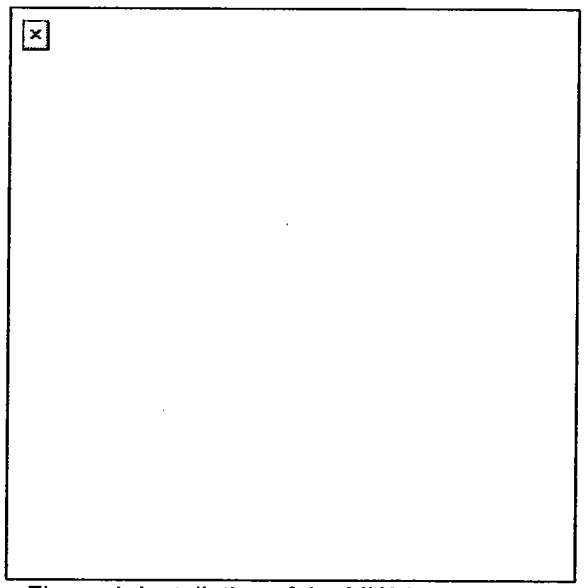

Figure 4. Installation of the MK64 gun mount.

3. Attach the T&E assembly (A, Figure 5).

Performance Steps

a. Separate the middle clamp on the T&E assembly. Remove the train lock handle by turning it counterclockwise. Use a 9/16-inch, open-ended wrench to remove the hex head screw on the other side of the clamp.

b. Attach the middle clamp to the HMMWV pedestal post.

(1) Assemble the middle clamp around the base of the pedestal, about 2 inches below the welded pin (B, Figure 5). Tighten the clamp by turning the train lock clockwise. Using a 9/16-inch wrench, tighten the screw on other side of clamp the same amount that you tightened the first screw.

(2) Attach two support clamps. Using two 9/16 wrenches, attach one support clamp above and one below the already installed middle clamp. Tighten each screw two turns until snug.

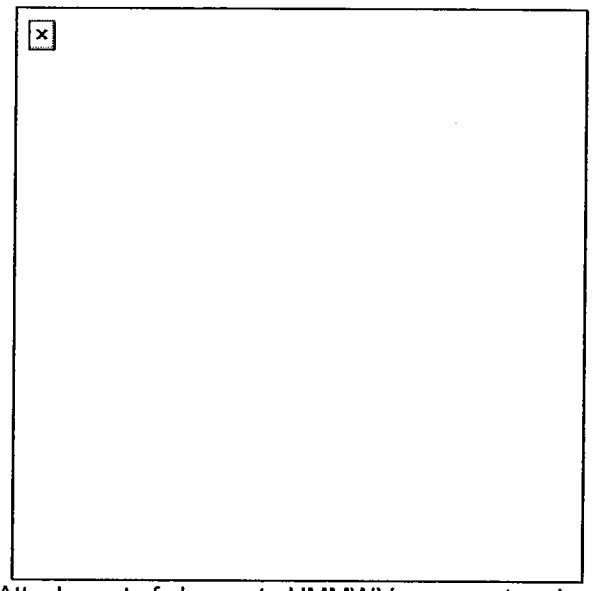

Figure 5. Attachment of clamps to HMMWV amament pedestal carrier.

c. Attach the middle clamp to the M4 pedestal (A, Figure 6).

(1) Assemble the middle clamp around the pedestal, about 2 inches below the welded pin (B, Figure 6). Tighten the clamp by turning the train lock clockwise. Using 9/16 wrench, equally tighten the hex head screw on other side of clamp.

(2) Attach two support clamps. Using two 9/16 wrenches, attach one support clamp above and below the already installed middle clamp. Tighten each screw two turns until snug.

Performance Steps

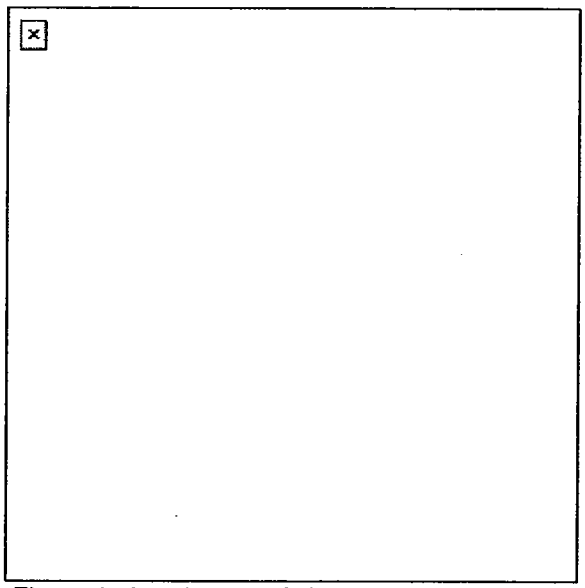

Figure 6. Attachment of clamps to M4 pedestal.

4. Attach the T&E assembly to the gun mount (Figure 7).
   a. Remove the front stow pin from the gun mount.
   b. Pull out the T&E assembly retaining pin.
   c. Make sure the T&E elevating handwheel is set at 250 mils. Position the lock lever to the rear, and make sure the traversing handwheel is to the left.
   d. To align the T&E elevating assembly holes with the lower rear holes in gun mount cradle, turn the elevating handwheel.
   e. Insert the T&E retaining pin through the holes from the right side only. Rotate the locking pin to locked position.

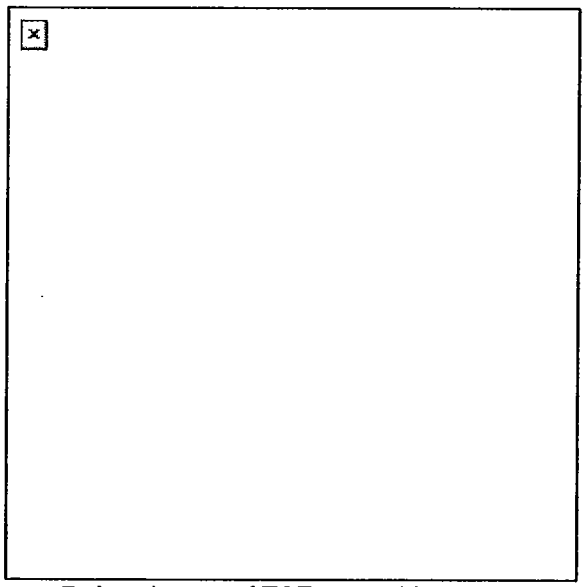

Figure 7. Attachment of T&E assembly to gun mount.

5. Attach the ammunition can mounting bracket assembly (Figure 8).

Performance Steps

a. Partially unscrew the wing nut on the bracket threaded stud. Align the wing nut on the threaded stud with the forward groove in the side plate of the gun mount. Slide the threaded stud upward into the forward groove, until the two welded pins seat in the two forward keyholes.

b. Slide the bracket downward in the slots. Reach behind the gun mount side plate, and tighten the wing nut. Check to make sure the assembly is securely locked into the side plate of the gun.

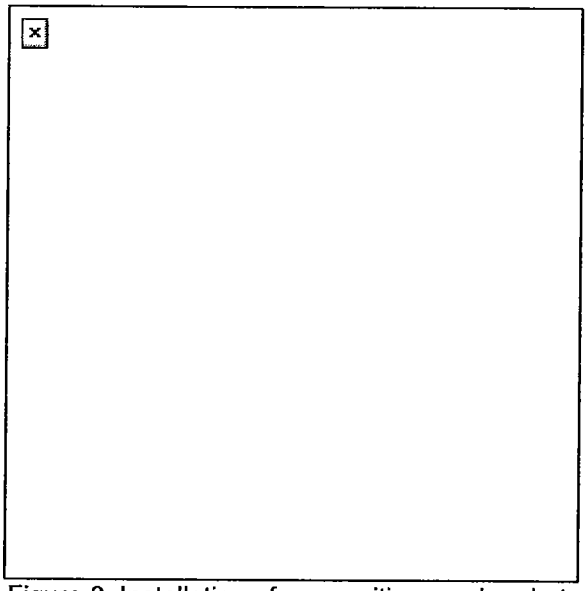

Figure 8. Installation of ammunition can bracket.

6. Install the MK 19 machine gun (Figure 9).
   a. Remove the rear retaining pin from the gun mount.
   b. With the help of the assistant gunner, lift the weapon onto the gun mount cradle, with the barrel pointing towards the forward end of the gun mount assembly.
   c. Lock the front portion of the weapon into the gun mount cradle.
      (1) Lower the muzzle slightly. Align the receiver locking channels with the two forward mounting pins on the gun mount cradle.
      (2) To seat the mounting pins into the locking channels, push the weapon forward.
   d. Lock the rear of the weapon to the gun mount cradle. Align the holes in the weapon sear assembly with the upper rear holes in the gun mount cradle. Insert the gun mount cradle rear retaining pin, and rotate the handle downward to the locked position.

Performance Steps

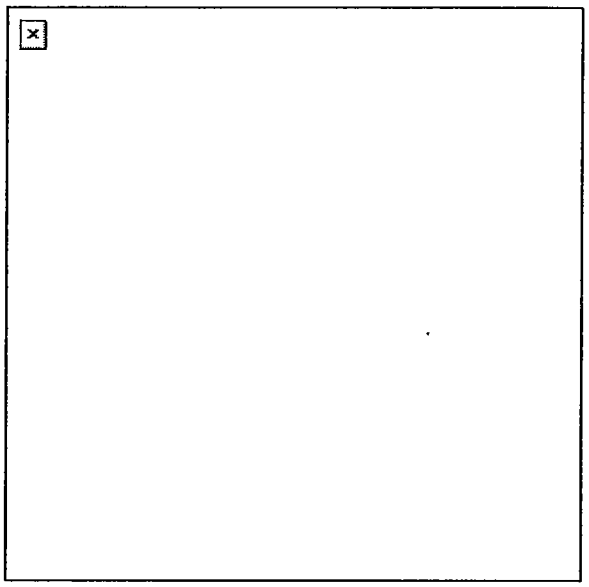

Figure 9. Installation of MK 19 on gun mount.

WARNING: A two-man lift is required for the MK 19 machine gun and for each fully loaded M548 ammunition container.
DO NOT try to lift EITHER alone.

7. Attach the feed throat assembly (Figure 10).
   a. Squeeze together the spring-loaded grip pins on the feed throat assembly.
   b. Insert the feed throat into the forward left-hand slots of the receiver. Release the pins. Check to make sure the assembly is secure.

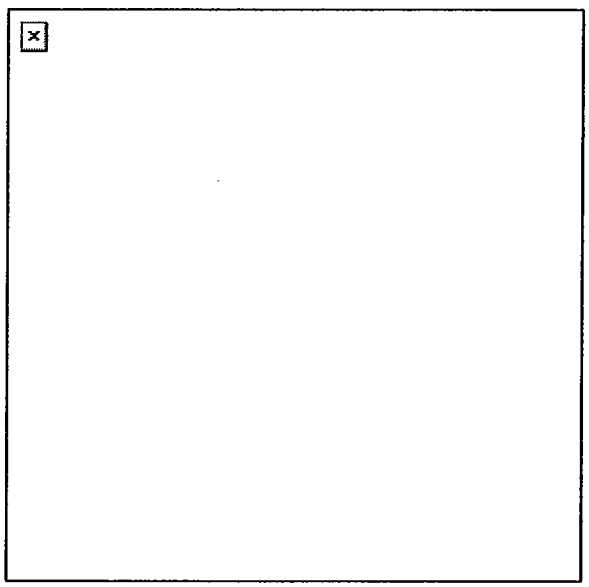

Figure 10. Attachment of the feed throat assembly.

Evaluation Preparation: Setup: Provide the soldier with equipment listed in conditions (if the soldier is to mount the MK 19 on a HMMWV equipped with armament carrier ring, provide only one support clamp).

Brief Soldier: Tell the soldier to mount the MK 19 on the vehicle.

Performance Measures	GO	NO GO
1. Install the pintle adapter.	___	___
2. Install the MK64 gun mount.	___	___
3. Attach the T&E assembly.	___	___
4. Attach the T&E assembly to the gun mount.	___	___
5. Attach the ammunition can mounting bracket assembly.	___	___
6. Install the MK 19 machine gun.	___	___
7. Attach the feed throat assembly.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
FM 23-27	TM 9-1010-230-10

Dismount an MK19 Machine Gun from a Vehicle

071-030-0010

Conditions: Given an MK19 machine gun and MK64 gun cradle mounted on a high mobility multipurpose wheeled vehicle (HMMWV) with weapon platform or a vehicle with the M36A2 ring mount with M66 ring, and the requirement to dismount the MK19 with the help of an assistant gunner.

Standards: The MK19 is removed from the vehicle carrier in sequence without damage to equipment or injury to personnel.

Performance Steps
WARNING:
A two-man lift is required for the MK 19 machine gun and each fully loaded M548 ammunition container.
DO NOT try to carry either the weapon or a fully loaded ammunition container by yourself.

1. Remove the MK 19 from a vehicle equipped with the M4 pedestal.
   a. Remove the feed throat assembly.
   b. Remove the rear retaining pin from the gun mount cradle.
   c. Remove the front stow pin from the gun mount cradle.
   d. Lift the MK 19 from the M4 pedestal.
   e. Remove the ammunition container bracket.
   f. Remove the support clamps from the M4 pedestal.
   g. Remove the quick release pin from the pintle adapter.
   h. Remove the gun mount from the M4 pedestal.
   i. Loosen the upper locking lever on the M4 pedestal.
   j. Lift the pintle adapter from the M4 pedestal.
   k. Tighten the upper locking lever on the M4 pedestal.

2. Remove the MK 19 from the HMMWV armament carrier ring and pedestal.
   a. Perform Steps 1a through 1h for the M4 pedestal.
   b. Loosen the pedestal bolts, and remove the pintle adapter.
   c. Tighten the pedestal bolts.

3. Remove the MK19 from a vehicle equipped with an M66 ring mount.
   a. Perform Steps 1a through 1h for the M4 pedestal.
   b. Rotate the pintle lock handle to the unlocked position.
   c. Pull the gun rearward until free of the forward mounting lugs on the cradle, and remove the gun from the cradle mount.

Evaluation Preparation: Setup: Provide the soldier with equipment and personnel listed in conditions.

Brief Soldier: Tell the soldier to correctly dismount the MK 19 from the vehicle without damage to equipment or injury to personnel.

Performance Measures	**GO**	**NO GO**
1. Remove MK 19 from vehicle equipped with M4 pedestal.	___	___
2. Remove MK 19 from the HMMWV armament carrier ring and pedestal.	___	___
3. Remove the MK 19 from vehicle equipped with M66 ring mount.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO then show him what he did wrong and how to do it correctly.

References

Required

Related

FM 23-27

Mount an MK19 Machine Gun on an M3 Tripod
071-030-0011

Conditions: Given a sector of fire, an assistant gunner, and a MK 19 machine gun with feed throat assembly, MK64 gun mount, M3 tripod, and transversing and elevating (T&E) mechanism.

Standards: Ground mount the MK 19 machine gun on the M3 tripod without damage to equipment or injury to personnel.

Performance Steps
WARNING: A two-man lift is required for the MK 19 machine gun and each fully loaded M548 ammunition container.
DO NOT try to lift either by yourself.

1. Set up the M3 tripod.
   a. Select a level and stable location and position the tripod so that the gun will be oriented toward the assigned sector of fire.
   b. Open and lock the rear legs of the tripod in the open position (Figure 1).

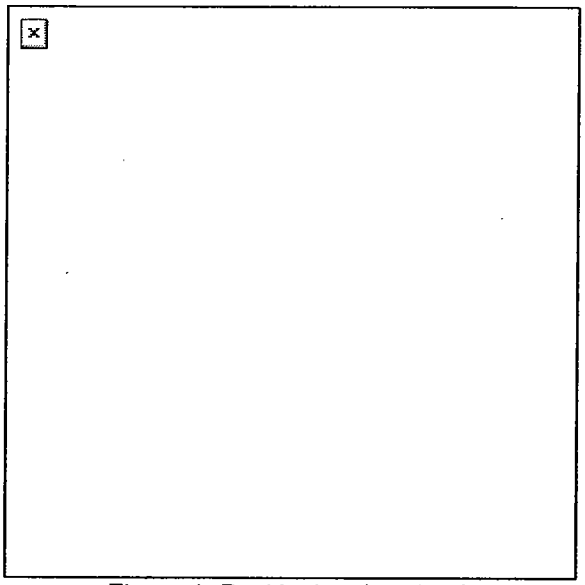

Figure 1. Positioning the tripod.

   c. Open and adjust the front leg of the tripod so that it forms an angle of about 60 degrees to the ground. Stabilize the legs of the tripod by pushing the metal shoe of each leg into the ground, or sandbag each leg.

2. Attach the T&E mechanism.
   a. Lock the T&E mechanism in the center of traversing bar (Figure 2).

Performance Steps

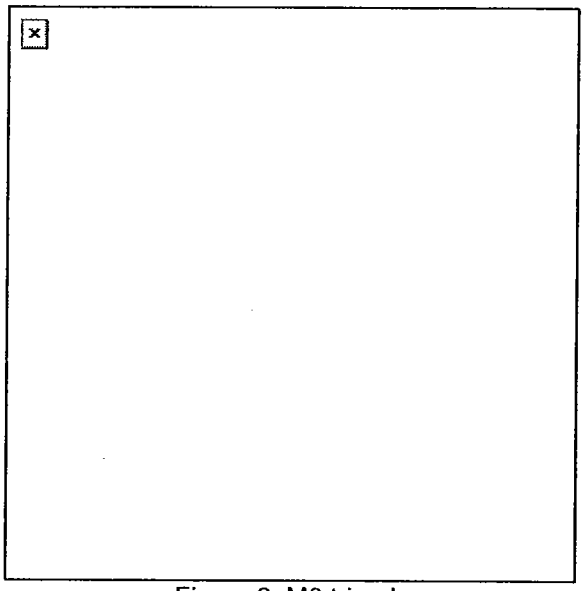

Figure 2. M3 tripod.

b. Rotate the elevation handwheel to the middle of the threaded shaft and position the traversing handwheel on the left side.

3. Attach MK64 gun mount.
   a. Lift the pintle lock release cam until it locks open.
   b. Place the MK64 gun mount pintle into the tripod (Figure 3) until it sits flush on the tripod head. Flip down the pintle lock on the tripod.

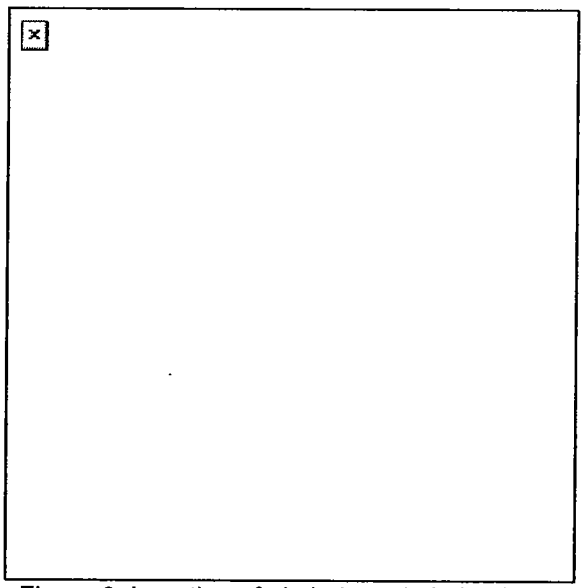

Figure 3. Insertion of pintle into pintle bushing.

   c. Make sure the gun mount is locked into the tripod by lifting slightly on the gun mount.
   d. Disengage the stow pin (Figure 4) from the gun mount.

Performance Steps

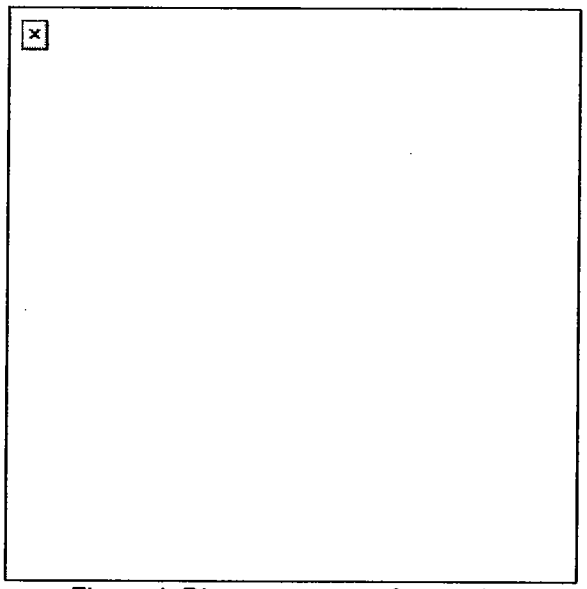

Figure 4. Disengagement of stow pin.

e. Remove the quick release pin from the T&E mechanism. Align the holes in the T&E mechanism with the rear holes of the gun mount. Insert the quick release pin from the right side, and rotate the pin downward to the locked position (Figure 5 and Figure 6).

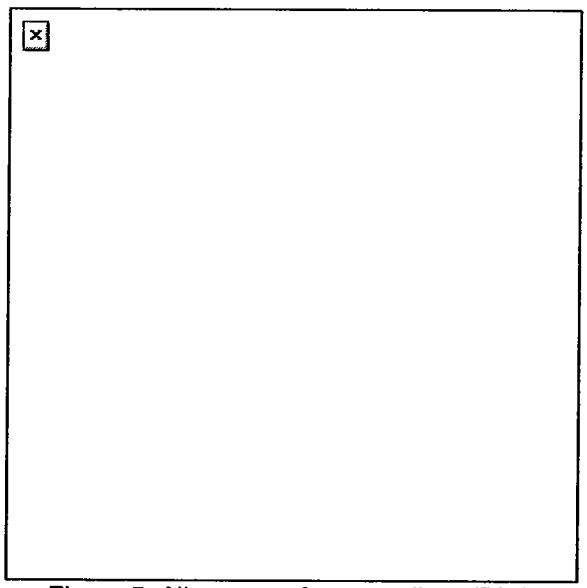

Figure 5. Alignment of gun cradle to T&E.

Performance Steps

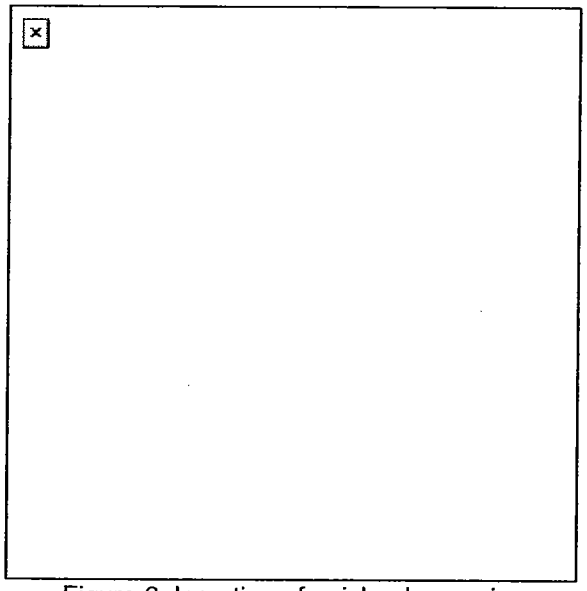

Figure 6. Insertion of quick release pin.

4. Install the MK 19 on the gun mount.
   a. Lower the gun into the mount. Slide the gun's front grooves onto the mounting lugs (Figure 7).

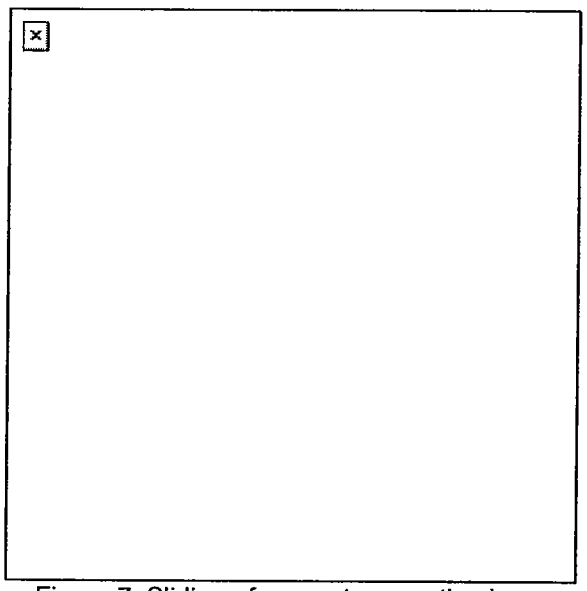

Figure 7. Sliding of gun onto mounting lugs.

   b. Align the rear mounting holes of the gun with the rear holes of the gun mount (Figure 8 and Figure 9). Insert the gun mount pin from the right side and rotate it downward to locked position.

Performance Steps

Figure 8. Alignment of sear assembly, pin holes.

Figure 9. Insertion of cradle retaining pin.

5. Attach the feed throat assembly (Figure 10 and Figure 11).

Performance Steps

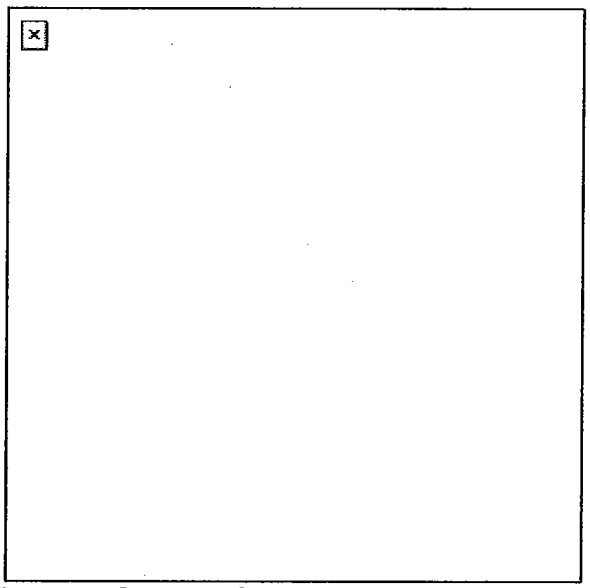

Figure 10. Gripping of pins on feed throat assembly.

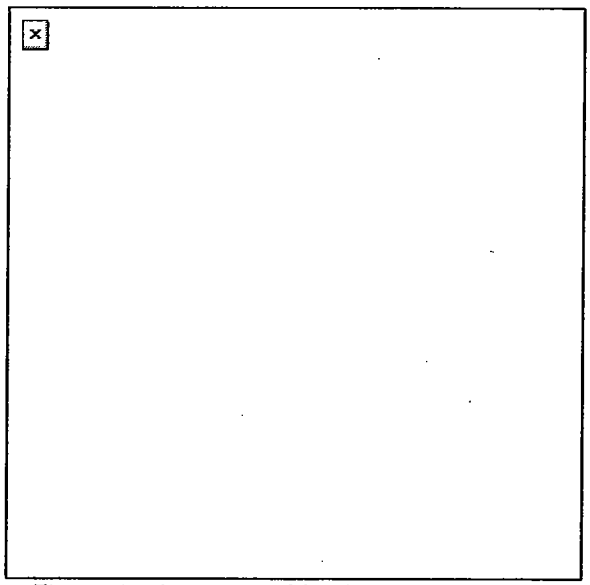

Figure 11. Insertion of feed throat assembly.

a. Squeeze the spring-loaded pins on the geed throat assembly.
b. Insert the feed throat into the forward left-hand slots of the receiver, and release the feed throat assembly pins.

Evaluation Preparation: Setup: At the test site, provide the soldier with equipment listed in task conditions.

Brief Soldier: Tell the soldier to mount the MK 19 onto the M3 tripod.

Performance Measures	**GO**	**NO GO**
1. Set up the M3 tripod.	___	___

Performance Measures	GO	NO GO
2. Attach the T&E mechanism on the left side.	___	___
3. Attach MK64 gun mount.	___	___
4. Install MK 19 on gun mount.	___	___
5. Attach feed throat assembly.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required

Related
FM 23-27
TM 9-1010-230-10

Dismount an MK 19 Machine from an M3 Tripod
071-030-0012

Conditions: Given a cleared MK 19 machine gun mounted on an M3 tripod, and an assistant gunner.

Standards: Remove the MK 19 from the M3 tripod without damage to equipment or injury to personnel.

Performance Steps
WARNING:
1. A two-man lift is required for the MK 19 machine gun and each fully loaded M548 ammunition container. DO NOT try to lift either by yourself.
2. Before performing any procedure, make sure the weapon is clear of all ammunition.

1. Check to make sure the weapon is clear.
2. Squeeze the spring-loaded pins on the feed throat assembly, and remove the feed throat assembly.
3. Remove the gun mount retaining pin.
4. Lift up and pull the gun rearward until it is free of the mounting lugs. Then, with the help of the assistant gunner, lift the gun from the gun mount.
5. Remove the transversing and elevating (T&E) mechanism.
6. Reach under the tripod head (right side) and lift the pintle lock. Remove the gun mount from the tripod.

WARNING:
When extending or collapsing the M3 tripod, grasp the feet on the rear legs. The sliding sleeve on the right rear leg can cause injury to personnel.

7. Adjust the tripod legs to their shortest length. Collapse the tripod for carrying or stowing.

Evaluation Preparation: Setup: At the test site, provide the soldier with the equipment listed in the task conditions statement.

Brief Soldier: Tell the soldier that he must dismount the MK 19 from the M3 tripod.

Performance Measures	GO	NO GO
1. Check to make sure weapon is clear.	___	___
2. Remove feed throat assembly.	___	___
3. Remove gun from gun mount.	___	___
4. Remove T&E mechanism.	___	___
5. Remove the gun mount from the tripod.	___	___
6. Prepare the tripod for carrying or stowing.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 23-27
	TM 9-1010-230-10

Mount a Night Vision Sight AN/TVS-5 on an MK19 Machine Gun
071-030-0016

Conditions: Given an MK19 machine gun, MK64 gun cradle, traverse and elevation (T&E) mechanism, mounted on a vehicle or the M3 tripod, M2 mounting bracket, and night vision sight AN/TVS-5.

Standards: The night vision sight AN/TVS-5 is securely mounted on the MK19 without damage to equipment.

Performance Steps

1. Mount the M2 mounting bracket on the MK19.
   a. Slide the M2 mounting bracket over the rear sight housing from the muzzle end of the gun.

Note: You must lock the locking cams in sequence.

   b. Lock the M2 mounting bracket locking cams by swinging them to the rear.
      (1) Lock the side cam.
      (2) Lock the left top cam.
      (3) Lock the right top cam.

2. Mount the AN/TVS-5 on the M2 mounting bracket.
   a. Position the AN/TVS-5 on the mounting bracket in the groove at the top rear of the mounting bracket so that the scribe line on the bracket is aligned with the scribe line on the sight mounting adapter.
   b. Insert the lever screw from the bottom of the bracket into the sight mounting bracket.
   c. Tighten the lever screw.

Evaluation Preparation: Setup: A mounted MK19, an AN/TVS-5, and an M2 mounting bracket is required at each test site. Brief Soldier: Tell the soldier that he must mount the AN/TVS-5 on the MK19.

Performance Measures	GO	NO GO
1. Mount the M2 mounting bracket on the MK19.	____	____
2. Mount the AN/TVS-5 on the M2 mounting bracket.	____	____

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show him what was done wrong and how to do it correctly.

References

Required	Related
	FM 23-27

Dismount a Night Vision Sight AN/TVS-5 From an MK19 Machine Gun
071-030-0017

Conditions: Given an MK19 machine gun with a mounted night vision sight AN/TVS-5.

Standards: The night vision sight AN/TVS-5 and mounting bracket are removed from the MK19 without damage to equipment.

Performance Steps

1. Remove the lever screw.
2. Remove the AN/TVS-5 from mounting bracket assembly.
3. Unlock the locking cams in sequence.
   a. Unlock the right top cam.
   b. Unlock the left top cam.
   c. Unlock the side cam.

Evaluation Preparation: Setup: An MK19 with a mounted night vision sight AN/TVS-5 is required at each test site. Brief Soldier: Tell the soldier that he must dismount the AN/TVS-5 from the MK19.

Performance Measures	GO	NO GO
1. Remove the lever screw.	___	___
2. Remove the AN/TVS-5 from the mounting bracket.	___	___
3. Unlock the mounting bracket locking cams in sequence. a. Unlock the right top cam. b. Unlock the left top cam. c. Unlock the side cam.	___	___
4. Remove the mounting bracket from the MK19.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show him what was done wrong and how to do it correctly.

References

Required	Related
	FM 23-27

Zero a Night Vision Sight AN/TVS-5 to an MK19 Machine Gun

071-030-0018

Conditions: Given an MK19 machine gun mounted on an M3 tripod with traverse and elevation (T&E) mechanism, night vision sight AN/TVS-5, optical boresight, stationary targets at known distances (1,000 inches and 500 to 700 meters) from the firing position, linked 40-mm grenade ammunition, and a requirement to zero the AN/TVS-5 to the MK19 machine gun.

Standards: The AN/TVS-5 is adjusted so that correct sight alignment, using the range mark on the AN/TVS-5 sight reticle to aim at a selected target, will cause a round to impact on or within 3 to 5 meters of the target.

Performance Steps

1. Use the optical boresight to zero an AN/TVS-5 to an MK19.
   a. Place a target in front of the weapon at 1,000 inches.
   b. Remove the flash suppressor and install the optical boresight in the muzzle of the barrel.
   c. Mount the AN/TVS-5 and place it into operation.
   d. Align the weapon so that the optical boresight is oriented on the aim point of the target.
   e. Sight through the AN/TVS-5 and adjust the azimuth and elevation adjustment actuators on the AN/TVS-5 so that the 100-meter range mark and the optical boresight are aligned on the same point of aim.
   f. Remove the optical boresight and install the flash suppressor.
   g. To verify the zero, select a target of known range past 400 meters. Fire several rounds and tighten the mounting bracket and lever screw, then fire on the target and make adjustments to the sight until the target can be hit.

2. Use the weapon daylight sights to zero an AN/TVS-5 to an MK19.
   a. Select a target of known range (500 to 700 meters).
   b. Set the known range on the weapon sight range scale, and set the windage scale at zero.
   c. Align the weapon on the target.
   d. Without disturbing weapon alignment, lower the daylight sights.
   e. Mount the AN/TVS-5 and place it into operation.
   f. To verify the zero, fire several rounds and tighten the mounting bracket and lever screw, then fire on the target and make adjustments to the sight until the target can be hit.
   f. Sight through the AN/TVS-5 and adjust the azimuth and elevation adjustment actuators so that the correct range mark (known range to target) on the sight is aligned on the target.

Evaluation Preparation:

Performance Measures	**GO**	**NO GO**
1. Use the optical boresight to zero an AN/TVS-5 to an MK19.	___	___
2. Use the weapon daylight sights to zero an AN/TVS-5 to an MK19.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show him what was done wrong and how to do it correctly.

References

Required	**Related**
	FM 23-27

Subject Area 6: Weapons - M249

Engage Targets with an M249 Machine Gun
071-010-0006

Conditions: Given a zeroed M249 machine gun, linked 5.56-mm ammunition, and engageable targets.

Standards: All targets engaged are hit.

Performance Steps
NOTE: This task is designed to familiarize the soldier with firing the M249 machine gun, commonly referred to as the squad automatic weapon (SAW). This task does not describe the standards by which an assigned gunner should be measured.

1. Assume a suitable firing position. Based on your situation, assume the position that will allow you to observe and engage targets, yet minimize your exposure to enemy fire.
   a. Bipod-supported prone. The bipod-supported prone position (Figure 1) and the bipod-supported fighting position (Figure 2) are the best positions for delivering effective fire on targets. Assume these positions when possible.
   b. Shoulder. The shoulder firing position (Figure 3) is used to engage targets at ranges less than 100 meters when no other position can be assumed or when the situation dictates its use, for example, in the final stages of the assault.
   c. Underarm. The underarm firing position is used when moving in and around the objective during the assault (Figure 4).
   d. Hip. The hip firing position is used when closing with the enemy, when a heavy volume of fire in the target area is required, and when rapid movement is not necessary (Figure 5).

2. Fire the weapon using the correct sight picture (Figure 6).
   a. Sight alignment. Center the front sight post in the peep sight (A, Figure 6).
   b. Focus of the eye. Place the eye directly on line with the center of the rear sight. Focus on the tip of the front sight post. The natural ability of the eye to center objects in a circle and to seek the point of greatest light (center of the peep sight) aids in providing correct sight alignment.
   c. Sight picture. Center the target over the front sight post (B, Figure 6). If firing on a 10-meter range target, use the sight picture in C, Figure 6.

3. Fire the weapon in three-round bursts at the rate of fire appropriate for target size. Use correct trigger manipulation: Pull straight to the rear and release.

4. Apply correct engagement technique based on target types (Figure 7).
   a. Fixed fire. This type of fire is delivered against a point target when the depth and width of the beaten zone will cover the target. Only one aiming point is necessary to cover the target with fire.
   a. Traversing means moving the muzzle of the weapon to the left or right to distribute fire laterally. With the bipod-mounted gun, select successive aiming points in the target area (Figure 4). Shift the shoulders slightly to the right or left for minor direction changes. For major changes, move the elbows and align the body to remain directly behind the gun.
   b. Searching means moving the muzzle of the weapon up or down to distribute fire in depth. Select successive aiming points in the target area (Figure 4). To make changes in elevation, move elbows closer together or farther apart.
   b. Traversing fire. This type of fire is distributed in width by successive changes in direction. This means moving the muzzle of the weapon to the left or right to distribute fire laterally. To make minor changes in direction, shift the shoulders to the right or left to select successive aiming points throughout the width of the target area. For major changes, move the elbows and align the body to remain directly behind the gun.

Performance Steps

c. Searching fire. This type of fire is distributed in depth by successive changes in elevation. This means moving the muzzle of the weapon up or down to distribute fire in depth. Select successive aiming points in depth throughout the target area. To make changes in elevation, move elbows closer together to lower the muzzle or farther apart to raise the muzzle.

d. Traversing and searching fire. This type of fire is distributed in width and depth by successive changes in direction and elevation. Combining traversing and searching fire provides good coverage of the target. Adjustments are made in the same manner as described for traversing and searching fire. This means moving the muzzle of the weapon to the left or right to distribute fire laterally. To make minor changes in direction, shift the shoulders to the right or left to select successive aiming points throughout the width of the target area. For major changes, move the elbows and align the body to remain directly behind the gun.

5. Use observation of fire and adjustment of fire to place effective fire on the target.
   a. Observation of fire. Observe the burst of fire by noting the strike of the rounds in the target area, the tracers in flight, or, in the case of the 10-meter range, the holes made in the target.
   b. Adjustment of fire. Use the adjusted aiming point method to quickly adjust fires without making a sight adjustment. If the initial burst misses the target, rapidly select a new aiming point the same distance from the center of impact of the initial burst but in the opposite direction. Fire a second burst (Figure 8).

6. Use correct application of fire to engage specific targets.
   a. The adjusted aiming point method is a means of rapidly and accurately adjusting fires without making a sight adjustment.
   a. Point target. Engage point targets with fixed fire (Figure 9).
   b. Area target. Initially, aim at the midpoint of the target area. Traverse and search to either flank, then back to the opposite flank (Figure 10).
   b. If the initial burst misses the target, select a new aiming point on the ground. The new aiming point should be the same distance from the target as the initial burst's center of impact, but in the opposite direction. Fire a second burst (Figure 5).
   c. Linear target. Initially, aim at the midpoint of the target. Traverse fire to one flank and then to the other to cover the entire target (Figure 11).
   d. Deep target. Initially, aim at the midpoint of the target unless another portion of the target is more critical or presents a greater threat. Search down to one aiming point in front of the near end and back up to one aiming point beyond the far end (Figure 12).
   e. Linear target with depth. Initially, aim at the midpoint of the target unless another portion of the target is more critical or presents a greater threat. Traverse and search to the flank closest to your position then back to the other flank to cover the entire target (Figure 13).
   f. Moving target. To hit a moving target, estimate the speed of the target and the lead required to fire and hit it, fire and track the target as it moves, and adjust the lead by observing tracers and the strike of the bullets (Figure 14 and Figure 15).

7. Engage three types of battlefield targets--area, point, and moving.
   a. To engage an area target (Figure 6):
   b. To engage a point target (Figure 7)--
      (1) Select a distinct aiming point.
      (2) Estimate range.
      (3) Fire five- to seven-round bursts to obtain accurate range and deflection.
      (4) Place the beaten zone on target. The beaten zone is the pattern formed by the rounds of each burst striking the ground or target.
      (5) If the target moves, follow it.
      (1) Estimate the speed of the target and the required lead.
      (2) Fire and track as the target moves.
      (3) Adjust the lead by observing the tracers and the strike of the bullets.

Evaluation Preparation: Setup: Evaluate this task on a live-fire range by having the soldier fire Table IV in FM 23-14. Evaluate the soldier's ability to use correct engagement techniques to engage specific types

of targets. Provide the soldier with equipment and materials required to fire the course.

Brief Soldier: Brief soldier on range safety per installation regulations. Tell the soldier to assume the bipod-supported prone position or bipod-supported fighting position. Tell the soldier you are evaluating both his ability to adjust fire and his ability to hit the target.

Performance Measures	**GO**	**NO GO**
1. Assume correct bipod-supported prone position or bipod-supported fighting position.	___	___
2. Field zero on a 300-meter target with no more than 12 rounds.	___	___
2. Applies traversing technique while firing.	___	___
NOTE: Tell the soldier, "Traverse for minor change in point."		
a. Shifts shoulders slightly to the right or left.		
NOTE: Tell the soldier, "Traverse for major changes in direction."		
b. Moves elbows and realigns body to remain directly behind the gun.		
3. Applies search technique while firing.	___	___
3. Engage single E-type silhouettes (point targets) at various ranges.	___	___
NOTE: Tell the soldier, "Search down."		
a. Moves elbows closer together.		
NOTE: Tell the soldier, "Search up."		
b. Moves elbows farther apart.		
4. Applies observation and adjustment of fire.	___	___
4. Engage double E-type silhouettes (automatic weapon positions) at various ranges.	___	___
NOTE: With the soldier aiming straight ahead, tell the soldier, "Aim and fire higher to the right."		
5. Applies adjusted aiming point instead of sight adjustment.	___	___
5. Engage linear E-type silhouettes (troops on line) at various ranges.	___	___
6. Moves to select a higher aiming point to the right.	___	___
7. Fires five- to seven-round bursts until the center of mass of the target area is hit, then uses traversing and searching fire to cover the target area.	___	___
8. Fires five- to seven-round bursts to obtain accurate range and deflection and places the beaten zone on target.	___	___
NOTE: Tell the soldier, "Engage a moving target."		
9. Fires and tracks as the target moves. Adjusts lead by observing tracers and bullet strikes.	___	___
NOTE: If a moving target is not available, the soldier simulates firing at a moving target and states what is done to keep hitting the target.		

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	FM 23-14

Lay an M249 Machine Gun Using Field Expedients

071-312-4004

Conditions: As an M249 machine gun gunner in a defensive situation, given a completed fighting position; an M249 machine gun; bipod; primary and secondary sectors of fire that include either an area of graze or recognizable targets; an axe; and tree limbs, rocks or boards.

Standards: In the designated sector of fire with bipod extended, use one of the following: --1. The aiming and elevation stake method to engage preselected targets within the sector. --2. The notched-stake or tree-crotch method to engage preselected target areas within the sector. --3. The log or board method to fire grazing fire.

Performance Steps

1. Fabricate notched stakes or tree crotches if needed (Figure 1).

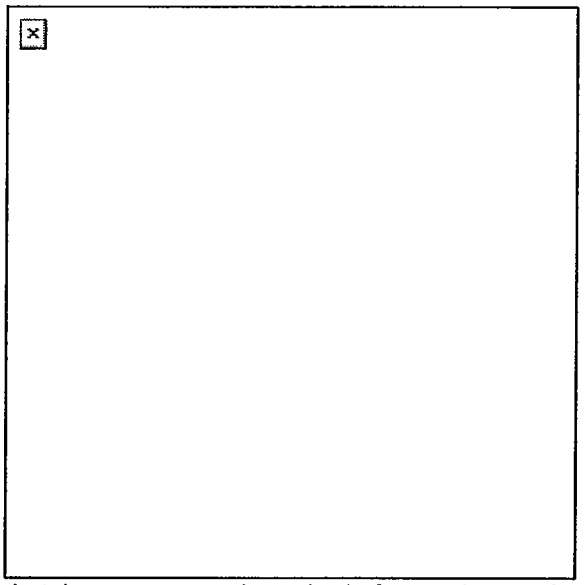

Figure 1. Notched-stake or tree-crotch method of engaging predetermined targets.

2. Aim the weapon at the preselected target(s).
3. Mark a spot on the ground under the buttstock assembly.
4. Move the weapon aside. Solidly drive a notched stake or tree crotch into the spot marked on the ground.
5. Place the stock of the weapon in the rests notched into the stakes or into the tree crotches. Make final adjustments to hit the desired target area and to define sector limits.

NOTE: If you do not have any notched stakes or tree crotches, you can use tent poles or strong sticks. You will need four poles or sticks for the left and right limits, and more for the target areas. Drive two poles or sticks in the ground in the shape of an "X." Place the buttstock in the "X."

6. Drive tent pegs in the ground slightly in front and behind the feet of the bipod legs. This will help you keep the weapon aligned in the sector of fire. Dig shallow trenches or grooves to allow the bipod feet to rotate when you move the stock from one stake or tree crotch to another.

Evaluation Preparation: Setup: Provide equipment and materials listed in the task conditions statement.

NOTE: During training, comply with unit standing operating procedure (SOP) and any local regulations regarding the cutting of live vegetation, the digging of holes, and the prevention of erosion.

Brief Soldier: Tell the soldier which target(s) to lay the gun on. Point out the sector that the soldier must cover by fire.

Performance Measures	**GO**	**NO GO**
1. Aim the weapon at preselected targets.	___	___
2. Place the notched stakes or tree crotches to align weapon on preselected targets.	___	___
3. Drive tent pegs in the ground slightly in front and behind the feet of the bipod legs to help keep the weapon aligned on the sector of fire.	___	___
4. Dig shallow trenches or grooves to permit the bipod feet to rotate as the soldier moves the stock of the weapon from one stake or tree crotch to another.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	**Related**
	FM 3-22.68

Maintain an M249 Machine Gun

071-312-4025

Conditions: Given an M249 machine gun during daylight; a 200-round box (filled) of ammunition; cleaning kit; scraper tool; cleaner, lubricant, preservative (CLP); rags; swabs; and TM 9-1005-201-10.

Standards: Clear and disassemble the machine gun. Clean, inspect, and lubricate the machine gun. Assemble the machine gun and perform a function check. Inspect the machine gun ammunition and box.

Performance Steps

NOTE: The M249 is available with old and new style barrels. Diagrams used here show the new-style barrel.

1. Clear the M249 machine gun.

WARNING: Before the SAW is disassembled, make sure it is clear. WARNING: Be sure the bolt is in the forward position before disassembly. The guide rod can cause death or injury if the guide spring is retracted with the bolt pulled to the rear.

a. Move the safety to the fire position.
b. With your right hand, palm up, pull the cocking handle to the rear and lock the bolt to the rear.
c. Hold the cocking handle to the rear and move the safety to the safe position. Push the cocking handle forward to the locked position. Place weapon on safe.
d. Push the cocking handle forward to its lock position (you should hear a click).
e. Raise the cover and feed mechanism assembly. To check for brass, links, or ammunition--
   (1) Check the feed pawl assembly under the feed cover.
   (2) Check the feed tray assembly.
   (3) Lift the feed tray assembly and inspect the chamber.
   (4) Check the space between the bolt assembly and chamber.
   (5) Insert two fingers in the magazine well and feel for brass or ammunition.
f. Close the cover and feed mechanism assembly. Move the safety to the fire position.
g. Pull the cocking handle to the rear, press the trigger, and ease the bolt forward.

2. Disassemble the M249 machine gun.

WARNING

Ensure bolt is in forward position before removing drive spring, return rod, and transfer mechanism assembly.

a. Remove the drive spring, return rod, and transfer mechanism assembly.
   (1) Raise the cover assembly. Pull the upper retaining pin at the rear of the receiver to the left. Let the butt pivot downward so the rear opening of the receiver is clear (Figure 1).

NOTE: The upper and lower retaining pins in the rear of the receiver are captured pins. Do not try to remove them completely during disassembly.

   (2) Hold the weapon with one hand on the buttstock. At the same time, push in and upward on the rear end of return rod and transfer mechanism assembly with thumb of other hand to release it from positioning groove. Withdraw return rod and transfer mechanism assembly and spring (Figure 2).
   (3) Separate the spring from the return rod and transfer mechanism assembly (Figure 3).
   (4) While steadying the weapon with the left hand, with the right hand pull the cocking handle to the rear to lock the bolt. Return the cocking handle to the forward position.
   (5) Place a finger on the face of the bolt and push until your finger makes contact with the bridge at the end of the receiver. This leaves the piston, slide, and bolt assemblies exposed.
   (6) Hold the slide assembly and pull the moving parts out the rear of the receiver (figure 3).
   (7) Rotate the bolt to disengage the bolt from the drive assembly. Remove the bolt from the slide assembly (figure 4).

CAUTION: When the bolt is removed, the firing pin spring is free. Be sure it is not lost or misplaced.

Performance Steps

(8) Remove the firing pin spring from the firing pin, being careful not to break the spring. If the spring sticks, rotate it clockwise to free it. The weapon will function without the spring; however, this weakens the firing pin action.

(9) To separate the slide assembly from the piston, press the rearmost retaining pin to the left. Lift the slide assembly (figure 5).

b. Remove the operating rod, slide assembly, and bolt assembly.

(1) Pull the cocking handle to the rear to move operating rod, slide assembly, and bolt assembly out the rear of the receiver (Figure 4).

(2) Rotate the bolt clockwise to disengage the lug. Remove the bolt from the slide assembly. Separate the piston from the slide assembly by pressing the rearmost retaining pin to the left and lifting the piston off the slide assembly (Figure 5).

(2) To remove the heat shield (figure 7), place the barrel with the muzzle end on a hard, flat surface with the heat shield facing away from your body. Place the index fingers of each hand inside the chamber. Use your thumbs to push up on the top clip.

(3) Raise the feed cover.

(4) To remove the gas regulator and collar, rotate the gas collar pin out of the notch. Place the tip of the scraper with the concave side facing the collar pin inside the notch (figure 8). Be careful not to use too much pressure so as not to break the tip of the scraper. Rotate the collar counterclockwise over the concave portion of the tip of the scraper and past the notch until the collar slides off (figure 9). Separate the gas regulator from the gas block (figure 10).

Note: Position hand to prevent gas regulator from falling out.

c. Remove the heat shield. Hold the weapon with one hand. With the other hand, grasp the heat shield just forward of the barrel handle, and lift it off the barrel (Figure 6).

d. Remove the barrel (Figure 7).

d. Remove the buttstock and buffer group assembly. Use a cartridge or the spring guide rod to push the lowermost retaining pin to the left. It is a captured pin; it is not removed. Remove the buttstock and shoulder assembly by pulling it rearward while supporting the trigger mechanism (figure 12).

CAUTION: The upper and lower retaining pins in the rear of the receiver are captured pins. Do not attempt to remove them completely during disassembly.

(1) Ensure the folding handle on the new style barrel is in carrying (up) position.

(2) Depress the barrel locking lever with your left hand. Grasp and lift the carrying handle with your right hand. Push the barrel forward.

e. Remove the handguard (Figure 8)

WARNING: Never remove the trigger mechanism before the weapon is cleared. Removal of the trigger mechanism from a loaded weapon will cause a runaway gun.

(1) Push the handguard retaining pin to the left using a section of the cleaning rod.

(2) Pull downward and remove the handguard.

f. Remove the gas regulator.

(1) Position the gas collar to so you can insert the scraper assembly into the notch in the front left of the gas block.

(2) Insert the tip of the scraper assembly in the notch; hold the scraper firmly in position (Figure 9).

(3) Turn the collar counterclockwise and remove it (Figure 10).

(4) Remove the gas regulator from the gas block (Figure 10).

g. Remove the buttstock and buffer assembly.

NOTE: The upper and lower retaining pins in the rear of the receiver are captured pins. Do not try to remove them completely during disassembly.

(1) Using a section of the cleaning rod, push the lowermost retaining pin to the left.

(2) While supporting the trigger mechanism with one hand, use the other to pull the buttstock and buffer assembly rearward and remove it (Figure 11).

h. Remove the trigger mechanism by pulling rearward and down (Figure 12).

h. The part remaining when the bipod group is removed is the receiver group. Disassembly is complete.

Performance Steps

i. Remove the gas cylinder.
   (1) Turn the gas cylinder to the left or right to release the locking spring.
   (2) Pull the gas cylinder forward to remove it (Figure 13).

j. Remove the bipod. The bipod should slip off the receiver easily. If it does not, turn the bipod left or right to loosen any dirt or corrosion (Figure 14).

3. Clean the M249.

WARNING

Do not use gasoline, kerosene, hydraulic oil, benzene, benzol, high-pressure water, steam, or compressed air for cleaning.

NOTE: Do not use abrasives to clean the bore, piston, gas cylinder, or gas regulator.

a. Clean the bore and chamber using a bore brush, a chamber brush, CLP, and fresh swabs..
   (1) Clear and disassemble the weapon.
   (2) Clean the bore and chamber using CLP and fresh swabs.
   (3) Clean the gas regulator.

Note: The gas regulator must be cleaned with the special tool (scraper). Remove all carbon dust. CLP will not be used on the collar, gas block, or body.

   (a) Clean the gas vent hole (figure 16).
   (b) Clean the central hole with the appropriate part of the scraper by turning it clockwise and pushing it in toward the bottom of the housing (figure 17).
   (c) Use the protruding tip of the scraper to clean the two grooves of the body (figure 18).

   (4) Clean the gas cylinder and piston.

Note: The gas cylinder and piston must be cleaned with the special tool (scraper). CLP will not be used on the gas cylinder or piston.

   (a) Clean the front interior of the gas cylinder (repositioned in receiver with bipod in place) by inserting and turning the flat side of the scraper in a full 360-degree circular motion (figure 19).
   (b) Clean the internal grooves of the front side of the gas cylinder the same as in paragraph 3a(4)(a) above, only insert the scraper farther into the gas cylinder (figure 19).
   (c) Clean the three grooves of the piston using a 360-degree circular motion (figure 20). Remove all carbon dust from the piston, inside and out.
   (d) Clean the hole in the front of the piston by inserting and turning the flat side of the scraper in a full 360-degree circular motion (figure 21).

   (5) Remove carbon and dirt from all other parts of the weapon.

Note: A cloth saturated with CLP is used on exterior surfaces to prevent corrosion.

b. Clean the gas regulator using the scraper. Do not use CLP on the collar, gas block, or body.
   (1) Clean the gas vent hole (Figure 15).
   (a) Check the operating rod for bends, cracks, or breaks.
   (b) Check the buffer spring for breaks.
   (c) Check that the lug pins protrude equally on both sides of the buffer spacer.
   (d) Check the operating rod spring for kinks, separated strands, or broken strands. It can have a maximum of one break on any one strand.
   (e) Check the bolt assembly for visible damage and the cartridge extractor for cracks or chips.
   (f) Check the slide assembly for visible damage.
   (g) Check the feed roller for spring tension when compressed.
   (h) Check that the pivot slide is locked into the slide assembly.
   (i) Check the firing pin for straightness and cracks and that the tip is completely rounded.
   (j) Check that the firing pin spring is not crushed or bent and that the beveled end is not stretched.
   (k) Check the sear notch on the piston assembly for signs of excessive wear or burring. Slight rotation of the piston on its housing is normal.

Performance Steps

(2) Clean the central hole of the gas regulator with the appropriate part of the scraper by turning the scraper clockwise and pushing it inward toward the bottom of the housing (Figure 16).
  (a) Check the flash suppressor for cracks, and that it is fastened securely.
  (b) Check the front sight post and front sight base for bends, cracks, or breaks.
  (c) Check the heat shield assembly for damage, cracks, or broken retaining clamps.
  (d) Check the gas regulator and collar for cracks or burrs.
  (e) Check the barrel for bulges, cracks, bends, obstructions, or pits in the chamber or bore.
  (f) Check the gas plug for obstructions, cracks, and bulges.
  (g) Check that the carrying handle is not cracked, broken, or missing, that it can be folded under spring pressure to the right and left, and that it remains locked in an upright position.

(3) Clean the two grooves of the regulator body using the protruding tips of the scraper (Figure 17).
  (a) Check the handguard for cracks or breaks.
  (b) Check that the retaining clip is attached to the handguard retaining pin.

(4) Check the buttstock and buffer assembly group.
  (a) Check the buttstock for cracks, bends, or breaks, and for missing components.
  (b) Check the linkage and tension on the buffer rod.
  (c) Check the shoulder rest for bends or breaks and that it locks in both positions.

(5) Check the trigger mechanism group.
  (a) Check the sear for excessive wear.
  (b) Check that the sear pin does not protrude from the trigger mechanism.
  (c) Check that the safety functions properly.

(6) Check the gas cylinder group for cracks, bends, or breaks.

(7) Check the bipod group for cracks, bends, or breaks; and check that the bipod legs extend and collapse easily.

(8) Check the receiver group.
  (a) Check the cover latch for proper operation.
  (b) Check that all parts inside the cover assembly move under spring tension and that the cover assembly remains open without support.
  (c) Check all spotwelds for cracks.
  (d) Check belt-holding pawl for spring tension.
  (e) Check the receiver for bends or cracks.
  (f) Check that the cocking handle slides fully within its guide and locks in its forward position.
  (g) Check that the windage and elevation knobs on the rear sight are moveable and legible and that the windage scale screws are not worn or burred.

Note: Deficiencies the operator cannot correct must be reported to the squad leader or NCOIC.

c. Clean the gas cylinder and piston using the scraper. Do not use CLP on the gas cylinder or on the piston.
  (1) Clean the front interior of the gas cylinder (repositioned in receiver with bipod in place) by inserting and turning the flat side of the scraper in a full 360-degree circular motion (Figure 18).
  (2) Clean the internal grooves on the front side of the gas cylinder as previously described (using the protruding tips of the scraper), but insert the scraper farther into the gas cylinder (Figure 19).
  (3) Clean the three grooves of the piston using a full, 360-degree circular motion (Figure 20).
  (4) Clean the hole in the front of the piston by inserting and turning the flat side of the scraper in a full 360-degree circular motion (Figure 21).

d. Remove carbon and dirt from all other parts of the weapon using CLP and a wiping rag.

e. Clean ammunition boxes with a brush and clean dry wiping rag.

f. Clean ammunition with a clean dry wiping rag.

Performance Steps

4. Inspect the M249 machine gun.
   a. Inspect the bore and chamber for chips and pitting.
   b. Check the front sight for looseness.
      (1) Push the gas cylinder through the bipod yoke into the receiver.
      (2) Push the cylinder to the rear while countering the pressure of the locking spring and guiding the end of the cylinder into the receiver with the other hand by applying downward pressure.
      (3) Position the recess in the cylinder near the spring.
      (4) Turn the cylinder until the spring clicks into the recess at the rear of the gas cylinder.
   c. Inspect the flash suppressor (old style barrel) or compensator (new style barrel), the barrel extension, and the barrel release for cracks, dents, burrs, or other damage.
      (1) Align the trigger mechanism with the slot on the bottom of the receiver.
      (2) Hold the trigger mechanism in position while replacing the buttstock and buffer assembly group.
   d. Check the cover assembly for smooth operation, spring tension, bent parts, and excessive wear.
      (1) Align the lower hole in the rear hole in the trigger mechanism.
      (2) Push the retaining pin to the right.

Note: Before beginning this step, be sure the cleaning equipment is properly placed in the handguard.

   e. Check the cocking assembly for free movement and for bent or cracked parts.
      (1) Place the handguard onto the receiver from the bottom and slide it backward until it stops.
      (2) Using a cartridge or the spring guide rod, push the handguard retaining pin to the right. This locks the handguard into position (figure 23).
      (3) Pull downward on the handguard to ensure it is locked into position.
   f. Check the rails for excessive wear, burrs, and chips.

CAUTION: Old style collar cannot be used in a new style barrel because it may cause an underpowered weapon. New style collar cannot be used in old style barrel because it may cause an overpowered weapon.

      (1) Insert the gas regulator into the gas block and align the notch on the gas regulator with the notch in the gas block (A, figure 24).
      (2) Insert the gas regulator collar. Push downward and rotate the gas regulator collar onto the protruding end of the body and align the spring with the stud.
      (3) Push the gas regulator collar downward firmly and rotate it until it slips into place, then press it in and rotate it to lock it in place (B, figure 24).

WARNING: Do not interchange the barrel assembly or bolt assembly from one machine gun to another without having the headspace checked. Doing so may result in injury to personnel or damage to the gun.

      (4) Depress the barrel locking lever to the rear with your left hand and hold the carrying handle in your right hand. Insert the barrel into the receiver (C, figure 24).
      (5) Pull the barrel rearward and push downward; align the gas cylinder with the gas regulator and lock it by releasing the barrel locking lever (C, figure 24).
      (6) Make sure the barrel is locked into the receiver by pulling or lifting the carrying handle.
      (7) Replace the heat shield by placing the hook end of the heat shield under the front sight post and press down until the clamps lock on the barrel.
   g. Check the barrel locking latch and cover detect springs for spring tension.
   g. Replace the operating rod group (figure 25). Hold the piston in one hand with the face of the piston facing outward and the sear notches downward. With the other hand, place the slide assembly onto the rear of the piston with the firing pin toward the front of the piston. Check the slide assembly retaining pin to make sure it is out.
      (1) Push the slide assembly retaining pin to the right. This locks the piston assembly and the slide assembly together (A, figure 25).
      (2) Put the firing pin spring on the firing pin of the slide assembly. Place the bolt on the slide assembly, aligning the driving lug of the bolt with the slot of the slide assembly. Apply pressure to the face of the bolt to compress the firing pin spring. Then, rotate the bolt to hook the driving lug into the slide assembly (B, figure 25).

Performance Steps

(3) Open the cover assembly on the receiver. Insert the face of the piston into the receiver, aligning the bolt lugs onto the receiver rails. Pull the trigger, and push the moving parts forward until the bolt is seated into the chamber (C, figure 25).
(4) Place the operating rod tip into the operating rod spring. Then, insert the free end of the operating rod and spring into the rear of the piston (D, figure 25).
(5) Depress the rear of the operating rod assembly until the two lugs on the buffer are positioned in the receiver grooves (E, figure 25).
(6) Pivot the buttstock upward into position and push the upper retaining pin to the right, locking the buttstock to the receiver (F, figure 25).
(7) Close the cover assembly.

Note: The function check must be performed to ensure that the SAW has been correctly assembled.

h. Check for broken pistol grip and chipped or cracked trigger housing holding lug.
i. Check the tripping lever and the seat for burrs, cracks, chips, or wear.
j. Check the cocking action by pushing back on the tripping lever; the sear should rise. Pull the trigger; the sear should lower.
k. Check the safety function. Push the safety to the right (RED BAND NOT VISIBLE). Pull the trigger; the sear will not lower. Push the safety to the left (RED BAND VISIBLE). Pull the trigger again; the sear will lower.
l. Check the slide assembly, bolt assembly, piston assembly, and return rod and transfer mechanism assembly for burrs, cracks, and broken pins. Push down on roller of slide assembly to ensure it retracts. Check the driving spring for broken strands.
m. Check bipod legs for correct operation.
n. Check the rear sight assembly for serviceability.
o. Check the ammunition box for damage. Make sure the box latch will engage the receiver dovetail.
p. Inspect ammunition.
(1) Check for damaged, corroded, or loose bullets.
(2) Check for damaged links.
(3) Report to your squad leader or NCOIC any deficiencies you cannot correct.

5. Lubricate the M249.

NOTE: Use only CLP on the M249.

a. Lubricate exposed metal parts and all moving parts with a light coat of CLP.
b. Do not lubricate the gas regulator hole in the barrel or the gas regulator itself.

6. Assemble the M249.

a. Replace the bipod and gas cylinder.
(1) Place the bipod on the receiver.
(2) Push the gas cylinder through the bipod yoke into the receiver.
(3) Push the cylinder to the rear while countering the pressure of the locking spring and guiding the end of the cylinder into the receiver with the other hand applying downward pressure. When you have fully inserted the gas cylinder, rotate it until the spring clicks into place in the recess at the rear of cylinder (Figure 22).
(4) Seriously corroded cartridges or links.
(5) Cartridges with pushed in (short) bullets.
b. Replace the handguard.
(1) Stow the cleaning equipment in the handguard.
(2) Place the handguard onto the receiver and slide it backward until it stops.
(3) Using a cleaning rod section, push the handguard retaining pin to the right. This locks the handguard into position (Figure 23).
(4) Pull downward on the handguard to ensure it locks into position.
c. Replace the gas regulator.
(1) Insert the gas regulator into the lower end of the hole in the gas block. Align the notch on the gas regulator body with the notch in the gas block (Figure 24).

Performance Steps

(2) With the gas regulator installed and supported on a firm surface, place the gas collar on the protruding end of the gas regulator. Rotate the gas collar until it slips in place. To lock the gas regulator in place, press it in and rotate it (Figure 25).

d. Replace the barrel.
   (1) Depress the barrel locking lever with your left hand (Figure 26).
   (2) Hold the carrying handle with your right hand; pull the barrel rearward into the receiver. Push the carrying handle downward and release the barrel locking lever. Check to ensure the barrel locks into position.

e. Replace the trigger mechanism (Figure 27).
   (1) Pull the retaining pin to the left side of the receiver.
   (2) Align the trigger mechanism with the slot on the bottom of the receiver. To hold the trigger mechanism in place, push the lower retaining pin into the right side hole on the rear of the trigger mechanism assembly.

f. Replace the buttstock and shoulder assembly (Figure 28). Support the trigger mechanism with your left hand. Align the lower hole in buttstock and buffer assembly with the rear hole in the trigger mechanism. Push the lower retaining pin to the right.

g. Replace the operating rod, slide assembly, and bolt assembly.
   (1) Secure the slide assembly to the piston by pushing the retaining pin from the left to the right. Place the firing pin spring on the firing pin (Figure 29).
   (2) Put the bolt assembly into the slide assembly. Press in to compress the firing pin spring. Rotate the bolt and hook its driving lug into the slide assembly (Figure 30).
   (3) Put the assembled parts into the receiver with the feed cover open. Align and place the bolt lugs; slide the cutouts carefully onto the receiver rails. Press the trigger and at the same time, push the parts all the way forward (Figure 31).

h. Replace the spring, return rod, and transfer mechanism assembly.
   (1) Put the slide spring on the return rod and transfer mechanism assembly (Figure 32).
   (2) Ensure that the headed end of the vertical pin in the transfer mechanism assembly points upward (on top of the transfer mechanism assembly) (Figure 33).
   (3) Hold the pistol grip with one hand. With the other hand, push the return rod and transfer mechanism assembly into its housing in the piston. Press inward and downward on the rear of the assembly until its two lugs move into the receiver grooves.

i. Pivot the buttstock and buffer assembly upward into position. Push the retaining pin to the right, and close the cover assembly (Figure 34).

j. Replace the heat shield assembly (Figure 35).
   (1) Hook the metal extensions of the heat shield assembly under the front sight pins (new style barrel) with the spring clips down on top of the barrel

NOTE: Although old style barrels do not have protruding front sight pins, you can still install heat shield assemblies on them.

   (2) Apply downward pressure and snap the heat shield onto the barrel. Be careful not to pinch yourself.

7. Perform a function check to ensure you have assembled the weapon correctly.

Evaluation Preparation: Setup: At the test site, provide all the equipment and materials listed in task conditions statement. Use only dummy ammunition for training purposes.

Brief Soldier: Tell the soldier to perform maintenance on the M249, ammunition box, and linked 5.56-mm ammunition.

Performance Measures Note: Performance measure 1 must be done first; otherwise, sequence is not scoreable.	**GO**	**NO GO**
1. Clear the weapon.	___	___
2. Disassemble the machine gun.	___	___

Performance Measures	GO	NO GO
2. Disassemble the weapon without damaging any parts. a. Remove the operating rod group. b. Remove the barrel group. c. Remove the handguard group. d. Remove the buttstock and buffer group assembly. e. Remove the trigger mechanism group. f. Remove the gas cylinder group. g. Remove the bipod group.	___	___
3. Clean the weapon, ammunition box, and ammunition.	___	___
4. Identify any damaged, worn, or malfunctioning part.	___	___
5. Assemble the machine gun.	___	___
5. Identify any damaged ammunition. a. Replace the bipod group. b. Replace the gas cylinder group. c. Replace the trigger mechanism group. d. Replace the buttstock and buffer group assembly. e. Replace the handguard group. f. Replace the barrel group. g. Replace the operating rod group.	___	___
6. Lubricate the weapon using the correct lubrication technique.	___	___
7. Assemble the weapon in correct sequence without damaging any parts.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
TM 9-1005-201-10	FM 23-14

Perform a Function Check on an M249 Machine Gun
071-312-4026

Conditions: Given an M249 machine gun and a requirement to perform a function check.

Standards: Perform a function check to determine whether or not the M249 machine gun is operational.

Evaluation Preparation: Setup: At the test site, provide the equipment listed in the task conditions statement.

Brief Soldier: Tell the soldier to perform a function check to determine if the M249 machine gun functions properly.

Performance Measures	GO	NO GO
1. Grasp cocking handle with the right hand, palm up, and pull the bolt back, locking it to the rear.	___	___
2. Push the cocking handle forward to the lock position.	___	___
3. Place weapon on SAFE.	___	___
4. Pull the trigger. The weapon should not fire.	___	___
5. With the right hand, palm up, pull cocking handle to rear and hold it.	___	___
6. Move the safety to fire position.	___	___
7. While continuing to hold the cocking handle to the rear, use your left hand to pull the trigger and ease the bolt forward to prevent damage to the bolt.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 3-22.68
	TM 9-1005-201-10

Load an M249 Machine Gun
071-312-4027

Conditions: Given an M249 machine gun, small arms ammunition box, and linked 5.56-mm ammunition.

Standards: Attached the ammunition box to the receiver correctly. Placed linked 5.56-mm ammunition in the feed tray groove so that, when the cover was closed, a round remained in the tray groove and the ammunition was fed correctly.

Performance Steps

1. With the palm facing up, pull the cocking handle to the rear. This locks the bolt in the rear position.
2. Push the cocking handle forward until you hear it click into the locked position (Figure 1).

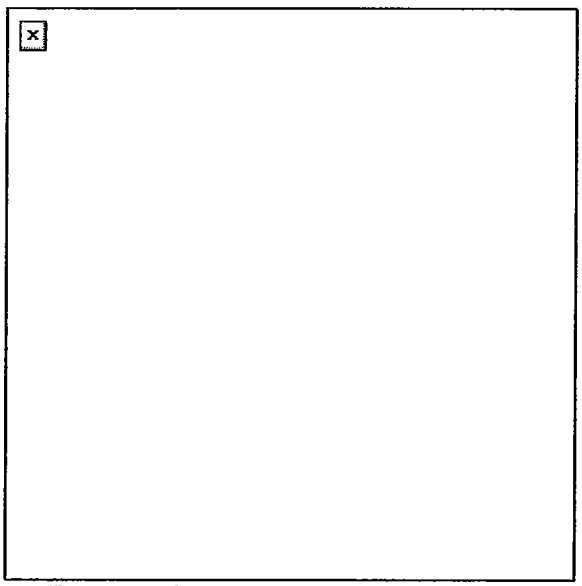

Figure 1. M249 locking handle and safety

3. Push the safety from left to right for safe mode (the red band will not show) (Figure 1).
4. Open the cover, raise the feed tray assembly, and make sure the feed tray, receiver, and chamber area are clear (Figure 2).

Performance Steps

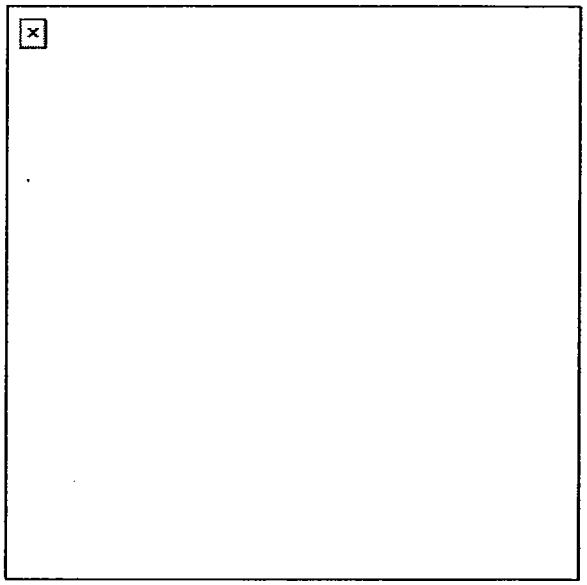

Figure 2. Checking the feed tray, receiver, and chamber area.

5. Attach the ammunition box with linked 5.56-mm ammunition to the underside of the receiver. To do so, align the box latch with the dovetail on the receiver (Figure 3). Pull outward on the ammunition box to make sure the aligning box latch engages.

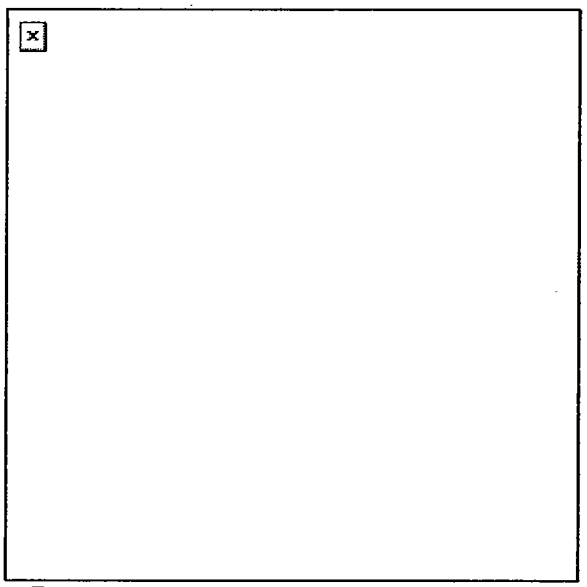

Figure 3. Attachment of the ammunition box.

6. Place the link belt in the feed tray with the first round against the cartridge stop and hold the belt in place. Close the cover assembly (Figure 4).

Performance Steps

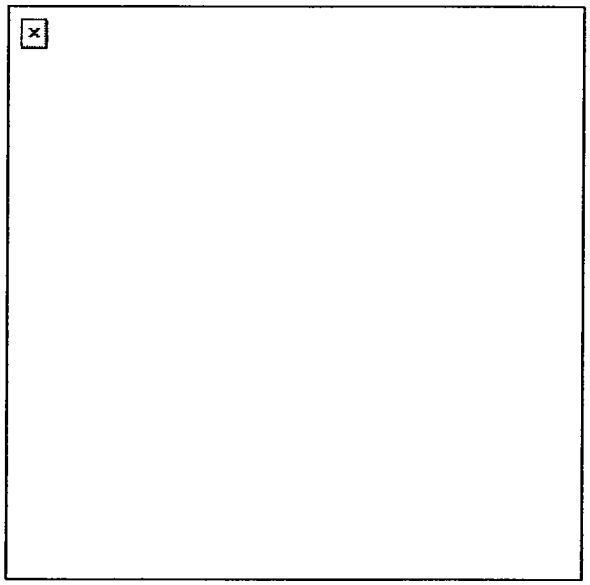

Figure 4. Link belt in feed tray.

WARNING: The weapon is now loaded.

Evaluation Preparation: SETUP: Use dummy ammunition to test this task. At the test position, provide an M249 and a belt of linked, dummy 5.56-mm ammunition. For standardization, always make sure to place the bolt and cocking handle forward and the safety on safe. Make sure the ammunition is clean and linked properly. Have an assistant relink and wipe the ammunition clean before the next test.

BRIEF SOLDIER: Tell the soldier to load the M249 machine gun.

Performance Measures	**GO**	**NO GO**
1. Locked the bolt in the rear position.	___	___
2. Pushed the cocking handle forward to the locked position.	___	___
3. Pushed the safety to safe position.	___	___
4. Checked to make sure the feed tray, receiver, and chamber were clear.	___	___
5. Attached ammunition box with linked ammunition to the receiver.	___	___
6. Placed link belt in feed tray with first round against cartridge.	___	___
7. Closed the cover.	___	___

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

References

Required

Related
FM 3-22.68
TM 9-1005-201-10

Unload an M249 Machine Gun
071-312-4028

Conditions: Given an M249 machine gun loaded with 5.56-mm ammunition (linked or in an M16 magazine) and a requirement to unload the M249.

Standards: Removed all ammunition, expanded brass, links, and magazine from the weapon.

Performance Steps

1. Pull the cocking handle to the rear, locking the bolt in the rear position.
2. Place the safety on the safe mode (the red band will not show) and return the cocking handle to its forward position.
3. Remove ammunition and links.
   a. Belt-fed. Raise the cover and remove any ammunition or links from the feed tray.
   b. Magazine-fed. Push down on the magazine release tab and pull the magazine out. Then raise the cover.
4. Raise the feed tray and inspect the chamber to ensure that it contains no ammunition. If it contains ammunition, remove it.
5. Close the cover.
6. Place the safety in the fire mode (the red band will show).
7. Pull the cocking handle to the rear, and pull the trigger while manually easing the bolt forward to the closed position.

Evaluation Preparation: SETUP: At the test site, provide the soldier with all the equipment given in the task condition statement. Evaluate this task using dummy 5.56-mm linked rounds or dummy 5.56-mm ammunition loaded in 30-round M16 magazines.

BRIEF SOLDIER: Tell the soldier to unload the M249 in the correct manner.

Performance Measures	GO	NO GO
1. Pulled the cocking handle to the rear, locking the bolt in the rear position.	___	___
2. Placed the safety on safe mode (the red band will not show) and returned the cocking handle to its forward position.	___	___
3. Removed ammunition and links. a. Belt-fed. Raised the cover and removed any ammunition or links from the feed tray. b. Magazine-fed. Pushed down on the magazine release tab and pulled the magazine out. Then raised the cover.	___	___
4. Raised the feed tray and inspected the chamber to ensure that it contained no ammunition. If it contained ammunition, removed it.	___	___
5. Closed the cover.	___	___
6. Placed the safety in the fire mode (the red band will show).	___	___
7. Pulled the cocking handle to the rear, and pulled the trigger while manually easing the bolt forward to the closed position.	___	___

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

References

Required	**Related**
	FM 3-22.68

Correct Malfunctions of an M249 Machine Gun

071-312-4029

Conditions: Given a loaded M249 machine gun and 5.56-mm ammunition linked or loaded in an M16 magazine. The M249 machine gun has been firing and one of the following situations has developed. The weapon fails to fire; the weapon continues to fire after the trigger is released (in which case, the weapon is referred to as "runaway weapon" and the fire is called "uncontrolled fire"); or the weapon fires sluggishly.

Standards: If an M249 failed to fire, took immediate action within 10 seconds, returned the weapon to service without identifying the cause. If immediate action did not work, performed remedial action on either a hot or cold M249 and identified the cause of the malfunction. If an M249 continued to fire after the trigger was released--a "runaway" M249 firing "uncontrolled fire"--took immediate action, secured the weapon, and identified the cause of the malfunction. If an M249 fired sluggishly, took corrective action.

Performance Steps

1. Take immediate action to correct a failure to fire.
   a. Grasp the cocking handle (palm up) and pull it to the rear.
   b. Look at the ejection port to see if a cartridge case, belt link, or round ejects.
      (1) If nothing ejects--
         (a) Lock the bolt to the rear.
         (b) Return the cocking handle forward.
         (c) Proceed to Step 2 or 3 to take remedial action.
      (2) If a cartridge, belt link, or round ejects--
         (a) Return the cocking handle to the forward position.
         (b) Aim and fire the weapon at the target.
         (c) If the weapon does not fire, place it in safe mode, and proceed to Step 2 or 3 to take remedial action.

2. Take remedial action on a cold weapon (one that has fired less than 200 rounds in two minutes).
   a. Ensure the cocking handle is forward and the weapon is in the safe mode.
   b. Keep the weapon oriented on the target area. Ensure your face is not directly over the feed cover.
   c. Raise the feed cover.
   d. If the weapon still does not fire, remove the ammunition belt or magazine.
      (1) If no rounds are in the chamber--
         (a) Reload and try to fire at the target. If the weapon fires, the stoppage has been corrected.
         (b) If the weapon fails to fire, take immediate action (Step 1). If the weapon still fails to fire, continue to the next step.
         (c) Clear the weapon.
         (d) Disassemble and inspect the weapon.
         (e) Clean, lubricate, and replace damaged or missing parts, as needed.
      (2) If a cartridge is in the chamber--
         (a) Remove all ammunition from the feed tray and close the cover.
         (b) Try to fire. If the weapon fires, the stoppage has been corrected. Reload and continue the mission.
         (c) If the weapon does not fire, continue to the next step.
         (d) Lock the bolt to the rear.
         (e) With the cover closed, remove the round from the chamber using a cleaning rod.
         (f) Clear the weapon.
         (g) Disassemble and inspect the weapon.
         (h) Clean, lubricate, and replace damaged or missing parts, as needed.

3. Take remedial action on a hot weapon (one that has fired more than 200 rounds in two minutes).

Performance Steps

a. Ensure the cocking handle is forward and the weapon is in the safe mode.
b. Keep the weapon oriented on the target area. Place the safety in the safe mode.

WARNING: During training, wait fifteen minutes before applying remedial action. During combat, wait five seconds before applying remedial action due to the possibility that a "hangfire" or "cookoff" may occur.

c. Raise the cover.
d. Remove the ammunition belt or magazine.
e. Raise the feed tray.
f. Inspect the chamber.
   (1) If no round is in the chamber--
      (a) Reload and try to fire.
      (b) If the gun fires, the stoppage has been corrected.
      (c) If the weapon fails to fire, apply immediate action for a second time.
      (d) If immediate action does not work, continue to the next step.
      (e) Disassemble and inspect the weapon.
      (f) Clean, lubricate, and replace damaged or missing parts, as needed.
   (2) If a round is in the chamber--
      (a) Close the cover and try to fire.
      (b) If the weapon fires, the stoppage has been corrected.
      (c) If the weapon does not fire, ensure the cocking handle is forward and the weapon is in the safe mode.
      (d) Disassemble and inspect the weapon.
      (e) Clean, lubricate, and replace damaged or missing parts, as needed.

4. Take immediate action to secure a runaway weapon.
   a. If after the trigger is released, the weapon continues to fire, take one of the following actions:
      (1) Hold the weapon on the target until the weapon stops firing.
      (2) Break the ammunition belt by twisting it in either direction.
      (3) Allow the weapon to fire the remaining ammunition at the target.
   b. Clear the weapon.
   c. Disassemble the weapon and check for the following deficiencies:
      (1) Broken, worn, or burred sear.
      (2) Worn sear notch on the piston assembly.
      (3) Sear stuck in the trigger housing.
      (4) Carbon buildup in the gas system.
   d. Clean, lubricate, and replace damaged or missing parts, as required.
   e. Turn weapon in to maintenance before firing again.

5. Correct sluggish operation of the M249 machine gun.
   a. Clear the weapon.
   b. Disassemble and inspect the weapon.
   c. Clean, lubricate, and replace damaged or missing parts, as required.

Evaluation Preparation: SETUP: At the test site or live-fire range, provide all the equipment given in the task condition statement. Set up the weapon so that it is loaded and in the safe mode. Insert an expended round in the belt to cause a stoppage. You can evaluate this task using dummy 5.56-mm ammunition either in links or in M16 magazines.

BRIEF SOLDIER: Tell the soldier to assume a firing position behind the M249 and apply any required immediate action. Ask the soldier to describe the actions performed for remedial action on a cold and hot weapon, a sluggishly operating weapon, and a runaway weapon.

Performance Measures	**GO**	**NO GO**
1. Took immediate action to correct a failure to fire.	___	___
2. Took remedial action on a cold weapon.	___	___

Performance Measures	GO	NO GO
3. Took remedial action on a hot weapon.	___	___
4. Took immediate action to secure a runaway weapon.	___	___
5. Corrected a sluggishly operating M249.	___	___

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

Zero an M249 Machine Gun

071-312-4030

Conditions: On a live-fire range, given an M249 machine gun, an E-type silhouette target at a known range between 300 and 700 meters, and a 30-round belt of ammunition. You have been ordered to field zero your M249 machine gun.

Standards: The soldier will zero the machine gun using three-round bursts. Zeroing will be accomplished without exceeding 30 rounds. The weapon will be considered zeroed when the rounds impact in the target area. Zero will be determined and recorded.

Performance Steps

1. Set sights for initial firing.
   a. Elevation: Using the elevation know, index the known range (300 meters) to the target. Center the peep sight by rotating it clockwise (right) as far as it will go, then rotate it counterclockwise (left) 5 clicks (Figures 1 and 2).

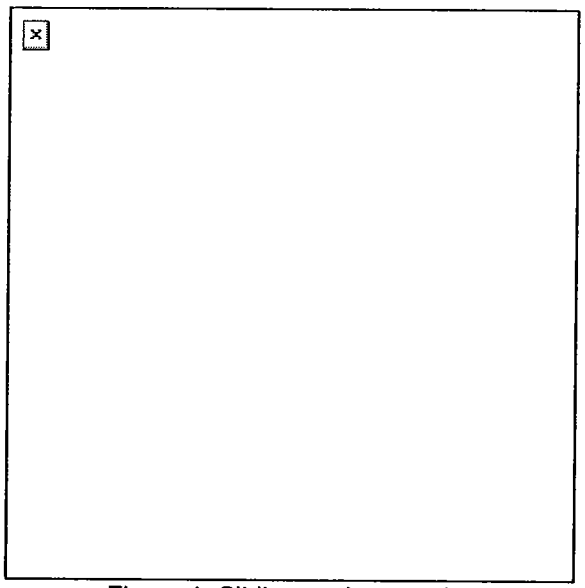

Figure 1. Sliding scale on sight.

Performance Steps

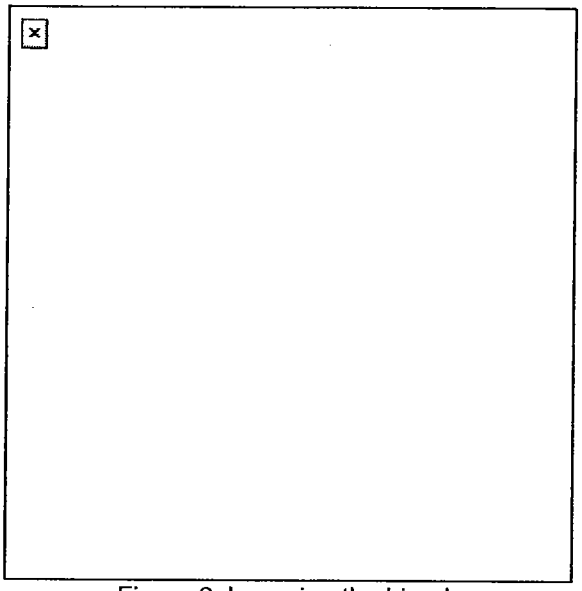

Figure 2. Lowering the bipod.

NOTE: The elevation range scale wheel has range settings from 300 to 1,000 meters. The even numbered range settings are on the left side of the scale wheel and the odd numbered range settings are on the right (Figure 1 and Figure 2).

b. Windage. Rotate the windage knob toward the muzzle until the peep sight is completely to the right, then rotate the windage knob toward the buttstock 12 clicks to the left. This will place the peep sight in the approximate center of the sight (Figures 1 and 2).

2. Assume a good stable firing position (Figure 3 and Figure 4).

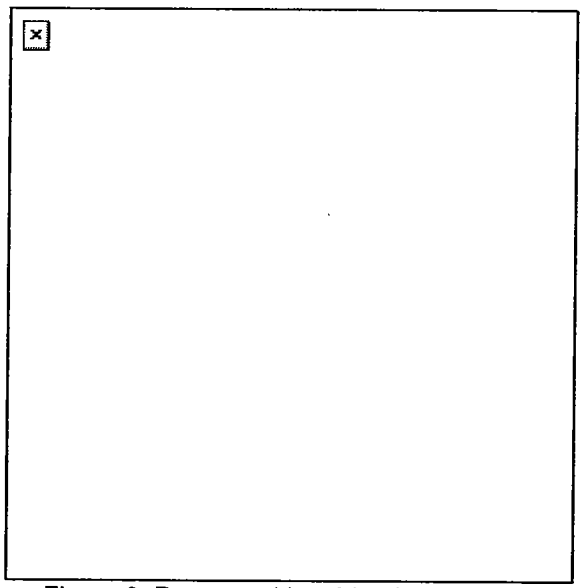

Figure 3. Prone position, bipod-supported.

Performance Steps

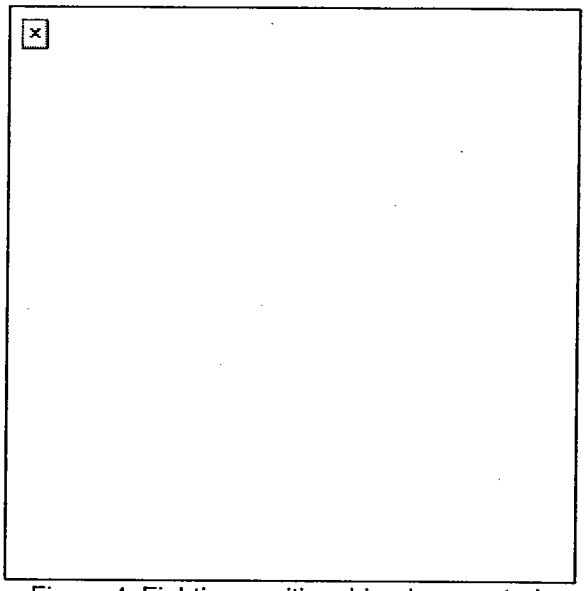

Figure 4. Fighting position, bipod-supported.

3. Fire a three-round burst at the center base of the target. Note where the burst strikes.
4. Adjust sights so that rounds impact target area.
   a. Adjust the sights for deflection. Determine if the center of the beaten zone is left or right of the target. Adjust the windage knob forward to move it to the right, or adjust it rearward to move it to the left (Figure 5).
   b. Adjust the sights for elevation. Determine if the center of the beaten zone is above (high) or below (low) the point of aim. Rotate the peep sight clockwise to lower it, or counterclockwise to raise it (Figure 5).

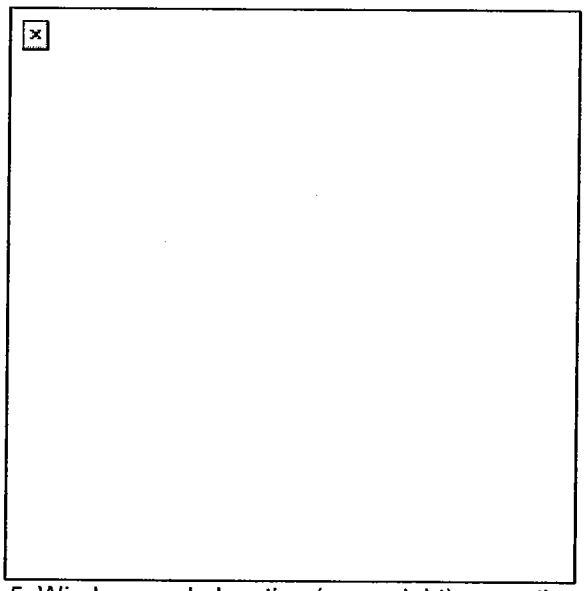

Figure 5. Windage and elevation (peep sight) correction chart.

5. Fire a confirming burst. (If you do not hit the target, repeat Steps 3 and 4 until you do so).

Performance Steps

6. Adjust the elevation scale to reflect the range to the target.

7. Record the zero. Once you have zeroed the weapon, record the elevation setting.
   a. Deflection. Do not record the adjustments for windage scale. Instead, loosen the windage sliding scale screws, and align the scale so that the large index line is under the windage mark on the sight. Tighten the screws.
   b. Elevation. Count the number of clicks (half turns) you have moved the peep sight away from the initial setting. For example, with a 300-meter zero, if you moved the peep sight two clicks (half turns) up, record ZERO 300 UP 2. If you moved the peep sight two clicks (half turns) down, record ZERO 300 DOWN 2.

Evaluation Preparation: Setup: At the test site, provide all equipment and materials in the task conditions statement.

Brief Soldier: Indicate the target and the range to the target. Tell the soldier he has 30 rounds to zero the M249.

Performance Measures	**GO**	**NO GO**
1. Set the sights for initial firing.	___	___
2. Assume a good stable firing position.	___	___
3. Fire a three-round burst at the center base of the target, and note where the burst strikes.	___	___
4. Adjust the sights so that rounds impact target area..	___	___
5. Fire a confirming burst.	___	___
6. Adjust the elevation scale to reflect the range to the target.	___	___
7. Record the zero. Once you complete the zero, record the elevation setting.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required

Related
FM 3-22.68
TM 9-1005-201-10

Subject Area 7: Weapons - 12 Gauge

Perform Operator's Maintenance on a 12-Gauge Shotgun
191-381-1252

Conditions: You are given a requirement to perform maintenance on a 12-gauge shotgun. You are given a 12-gauge shotgun, carbon-removing compound, rifle bore cleaning compound, linseed oil, lubricating oil, general-purpose lubricating oil, weapon lubricating oil, cotton rags and patches, a toothbrush, and a cleaning rod.

Standards: Clean and lubricate the shotgun while observing all safety precautions. Inspect the shotgun to ensure that it had not been altered or damaged, and turn in the weapon, if required.

Performance Steps
NOTE: The operator is not authorized to field-strip the weapon into major groups and assemblies (see Technical Manual [TM] 9-1005-303-14).

1. Clean the 12-gauge shotgun.
   a. Clean the bore and locking lug area of the barrel assembly and other powder-fouled surfaces with rifle bore cleaning compound and a toothbrush. Remove all foreign matter.
   b. Thoroughly dry the bore and chamber, including the locking lug area, with a clean cotton rag.
   c. Lightly oil the bore, barrel extension, and external surfaces of the weapon using general-purpose lubricating oil.
   d. Clean the powder-fouled parts with carbon-removing compound, wipe with a clean cotton rag, and oil. From then on, clean and oil the parts as required.

WARNING: AVOID SKIN CONTACT WITH THE CARBON-REMOVING COMPOUND. THE COMPOUND SHOULD BE WASHED OFF THOROUGHLY WITH RUNNING WATER IF IT COMES IN CONTACT WITH THE SKIN. A GOOD LANOLIN BASE CREAM AFTER EXPOSURE TO THE COMPOUND IS HELPFUL. IT IS BEST TO USE GLOVES AND PROTECTIVE EQUIPMENT.

   e. Wipe wooden components with a slightly oiled rag. Remove any surplus oil with a dry cloth. Apply a light coat of linseed oil, and rub it into the wood with the heel of your hand.
   f. Insert a patch into the barrel by pushing it with a cleaning rod to remove excess oil before firing.

2. Lubricate the 12-gauge shotgun under unusual conditions, such as the following:

NOTE: Lubricate more often than once a day if an inspection shows rust or corrosion.

   a. During extremely cold temperatures (below 0°F.).
      (1) Make sure all parts are dry and free of condensation before lubricating.
      (2) Lubricate with weapon lubricating oil. Keep the weapon protected as much as possible.
   b. When temperatures are hot and humidity is high.
      (1) Inspect the shotgun frequently for rust.
      (2) Lightly oil the weapon with general-purpose lubricating oil.
      (3) Clean and oil the weapon more often if the weapon is exposed to salty air, high humidity, or moisture.

NOTE: Apply a film of general-purpose lubricating oil to the internal and external groups immediately after inspection and cleaning for weapons that are intended for infrequent firing or placed in arms rooms for safekeeping for prolonged periods. Give special attention to the bore, chamber, and locking lug areas.

   c. When temperatures are hot and the air is dry.
      (1) Clean the shotgun daily or as required.
      (2) Wipe the weapon free of oil to prevent sand and dust from collecting on the outside and working parts in sandy or dusty areas.
   d. When the weapon has been immersed in water.
      (1) Eject the round from the chamber to allow water to run from the bore if the weapon was submerged during deep fording. (See Task 191-381-1253.)

Performance Steps

NOTE: Normally, if the round is left in the chamber, it will form a vacuum and will not allow the water to drain freely.

(2) Wipe the weapon dry as soon as possible.

(3) Turn the weapon in to organizational maintenance for complete cleaning and lubrication of all parts if the inspection reveals rust or if corrosion is evident.

3. Inspect the weapon before firing.
   a. Ensure that the sling is secured to the gun shoulder stock group and bayonet band assembly.
   b. Ensure that the stock is not cracked or loose.
   c. Check the magazine cap for burrs and stripped threads to ensure that the cap is properly secured to the magazine tube.
   d. Check the bayonet band assembly to ensure that it is secured to the barrel assembly. Check for unusual pits or damage to the bore or the barrel assembly. Ensure that the bore is dry and free of obstruction before firing.
   e. Check the hammer, safety, and trigger to see if they operate. Activate the disconnector assembly to see if it functions (Figure 191-381-1252-1).
   f. Check the carrier assembly for freedom of movement.
   g. Check the ejector for burrs and to see if it is bent. Test the weapon with a dummy round or a once-fired, empty round to be sure the cartridge will eject. (See Task 191-381-1253.)
   h. Check the magazine to be sure it is secured to the receiver. Check the tube for dents, burrs, or damage that will restrict the cartridge.

4. Turn the weapon in to the armorer if it has been altered or damaged or if the maintenance requires disassembly.

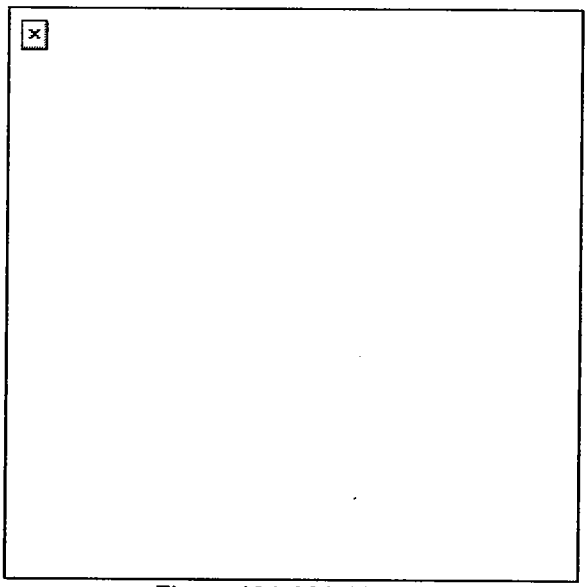

Figure 191-381-1252-1
Firing Control on a 12-Gauge Shotgun

Evaluation Preparation: Setup: Provide a 12-gauge shotgun, carbon-removing compound, rifle bore cleaning compound, linseed oil, lubricating oil, general-purpose lubricating oil, weapon lubricating oil, cotton rags and patches, a toothbrush, and a cleaning rod.

Brief soldier: Brief the soldier to clean and lubricate the shotgun while observing all safety precautions. Tell the soldier to inspect the shotgun to ensure that it has not been altered or damaged, and turn in the weapon, if required.

Performance Measures	GO	NO GO
1. Cleaned the 12-gauge shotgun.	___	___
2. Lubricated the 12-gauge shotgun under unusual conditions.	___	___
3. Inspected weapon before firing.	___	___
4. Turned the weapon in to the armorer if it has been altered or damaged or if maintenance requires disassembly.	___	___

Evaluation Guidance: Score the soldier GO if all measures are passed (P). Score the soldier NO-GO if any measure is failed (F). If the soldier fails any measure, show him how to do it correctly.

References

Required	Related
	TM 9-1005-303-14

Operate a 12-Gauge Shotgun
191-381-1253

Conditions: You are given a requirement to fire a 12-gauge shotgun. You are given a 12-gauge shotgun and ammunition.

Standards: Load, demonstrate how to reduce a stoppage, unload, and clear the shotgun, in sequence, while observing all safety precautions.

Performance Steps

1. Load blank cartridges and chamber one round (Figure 191-381-1253-1).
   a. Place the safety in the "on" position (A). Push the safety switch to the right (located under the trigger guard). Button will show black when it is in the "on" position.
   b. Turn the weapon over, the bead sight down (the small bead on top of the barrel).
   c. Push the slide arm extension (the wood part under the barrel) forward to open the breach.
   d. Depress the carrier assembly.
   e. Insert four rounds of ammunition by inserting the red end of the cartridge into the assembly and pushing the brass end of the cartridge with your thumb (B).

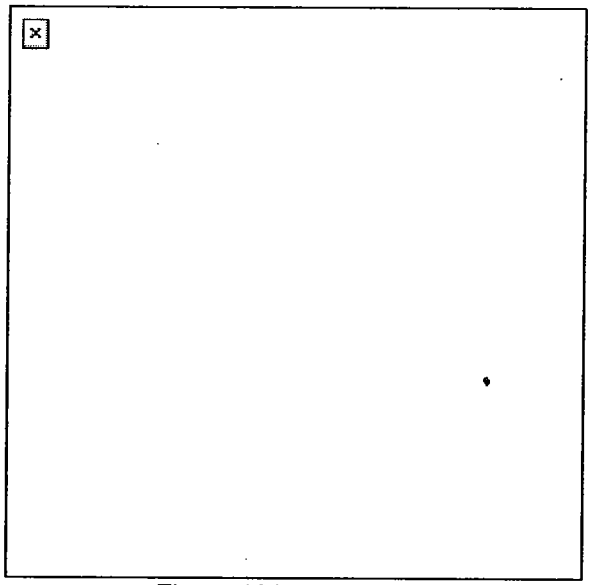

Figure 191-381-1253-1
Loading the Shotgun

NOTE: Make sure that each cartridge clicks into the well. Each cartridge inserted pushes the previous cartridge forward.

   f. Turn the weapon over so that the trigger is toward the ground.
   g. Chamber one round (C).
      (1) Release the disconnector assembly located at the left rear of the trigger guard by pushing the button with your strong hand.
      (2) Pull the fore-end assembly to the rear (while holding the disconnector assembly in and vigorously pushing forward with your weak hand) to chamber one round.

2. Reduce a stoppage on a 12-gauge shotgun.
   a. Check for the following probable causes (and perform corrective actions) if the shotgun fails to fire:
      (1) Failure to chamber a round. (See step 1g.)
      (2) Failure to load an empty magazine. (Go to step 1.)

Performance Steps

(3) Faulty ammunition. Pump out the defective shell by pulling the fore-end assembly to the rear and pushing forward again to eject the shell and chamber another round or pump out all four rounds and use other ammunition.

b. Check for the following probable causes (and perform corrective actions) if the shotgun fails to load or feed:

(1) Obstructions in the chamber. Clean the receiver. (See Task 191-381-1252.)
(2) Defective carrier assembly. (Notify direct support maintenance.)
(3) Failure to function correctly. (This may be due to foreign matter in the bolt slide or the safety well of the trigger guard. Go to Task 191-381-1252.)

3. Unload a 12-gauge shotgun (Figure 191-381-1253-2).

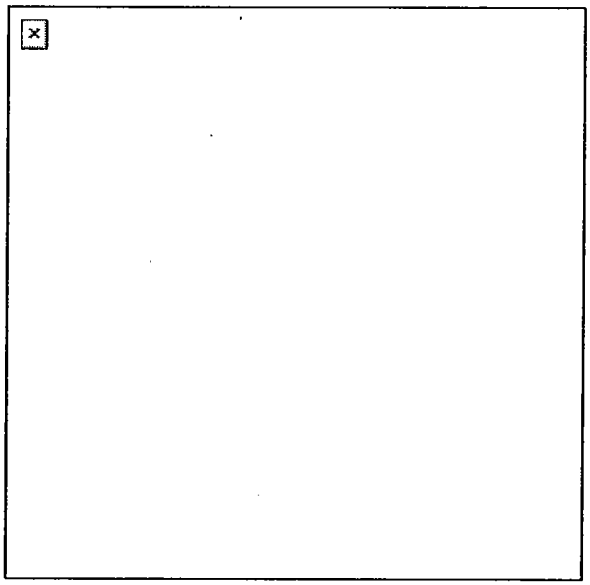

Figure 191-381-1253-2
Unloading the Shotgun

a. Place the shotgun under the left arm and rotate the weapon so that the front sight bead is pointing left.
b. Place the safety in the "on" position (A). (See Step 1a.)
c. Push down on the carrier assembly with a forefinger.
d. Depress the cartridge cutoff (inside the carrier assembly) with the forefinger of the right hand.
e. Use the right hand to lift slightly on the base of the cartridge. The round will automatically pull back slightly.
f. Remove the cartridge from the magazine by pulling it to the rear and lifting it out (B).
g. Eject a live round from chamber by releasing the disconnector assembly and retracting (pulling back) on the fore-end assembly (C).

CAUTION: MAKE CERTAIN THAT THE MAGAZINE FOLLOWER, LOCATED INSIDE THE CARTRIDGE ASSEMBLY, IS VISIBLE TO BE SURE THAT NO SHELLS REMAIN IN THE MAGAZINE. WITH THE BREACH OPEN, CHECK THE CHAMBER TO MAKE SURE THAT IT IS EMPTY.

Evaluation Preparation: Setup: Provide a 12-gauge shotgun and four blank cartridges for each soldier.

Brief soldier: Tell the soldier to demonstrate how to load, unload, reduce a stoppage, and clear the shotgun, in sequence, while observing all safety precautions.

Performance Measures	**GO**	**NO GO**
1. Loaded blank cartridges and chambered one round.	___	___

Performance Measures	GO	NO GO
2. Reduced a stoppage on a 12-gauge shotgun.	___	___
3. Unloaded a 12-gauge shotgun.	___	___

Evaluation Guidance: Score the soldier GO if all measures are passed (P). Score the soldier NO-GO if any measure is failed (F). If the soldier fails any measure, show him how to do it correctly.

References

Required

Related
SF0746
TM 9-1005-303-14

Engage Targets With a 12-Gauge Shotgun.
191-381-1254

Conditions: You are given a requirement to engage targets using a 12-gauge shotgun. You are given a shotgun, 10 rounds of #00 buckshot, Type E silhouette targets, and a firing barricade.

Standards: Engaged targets with the 12-gauge shotgun, scoring a minimum of two pellets per round in the targets.

Performance Steps

1. Load four rounds of ammunition. (See Task 191-381-1253.)

2. Fire two rounds at the target from a standing position.

NOTE: Use the fundamentals of marksmanship when firing the shotgun.

a. Stand facing the target. Place your feet a comfortable distance apart, and turn your nonfiring shoulder slightly toward the target.
b. Step back with your firing foot, keeping your feet spread approximately the same distance as in the previous step, with the toes of the firing foot pointing at a 45-degree angle.
c. Keep your nonfiring foot in place with your toes pointing at the target.
d. Place the butt of the stock into your firing shoulder, keeping the firing arm parallel to the ground.
e. Grip the fore-end assembly with the nonfiring hand, keeping the elbow of the nonfiring arm below the slide.
f. Fire two rounds of ammunition.
   (1) Aim for the center mass of the target.
   (2) Push the safety to "off" and pull the trigger to fire.
   (3) Eject the spent round.

When the round is fired, the slide is automatically released and moves to the rear.

   (a) Continue the movement by pulling the slide to the rear with a sharp precise movement.
   (b) Push the slide forward with sharp movement until it locks with a snapping sound, chambering the next round, after the spent round is ejected.

   (4) Engage the safety.

Performance Steps

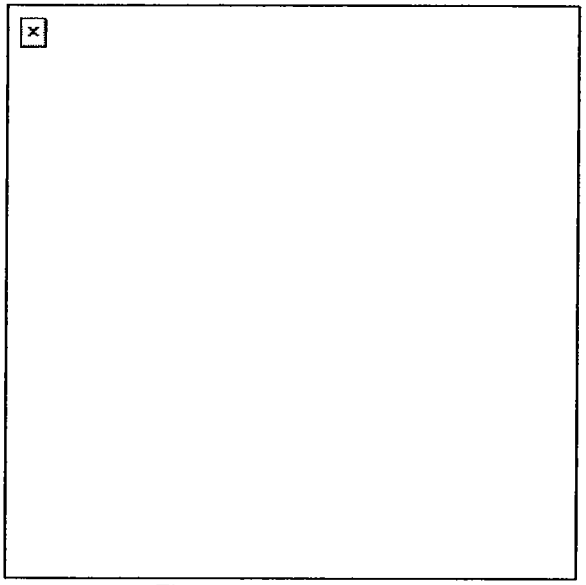

Figure 191-381-1254-1
Military Police 12-Gauge Shotgun Qualifications Course

3. Fire two rounds at the target from a kneeling position.
   a. Face the target. Place your nonfiring foot forward, kneel on your firing knee, and rest your buttock on the heel of your firing foot.
   b. Turn your nonfiring shoulder slightly toward the target.
   c. Place the butt of the stock into your firing shoulder keeping you firing arm parallel with the ground.
   d. Lean slightly forward. Place the elbow of firing arm slightly beyond the knee of you nonfiring leg.
   e. Repeat step 2f.

4. Load four rounds of ammunition. (See Task 191-381-1253.)

5. Fire two rounds at the target from a crouched position.
   a. Stand facing the target with feet spread a comfortable distance apart.
   b. Step back with your firing foot, keeping your feet spread a comfortable distance apart and the toes of your firing foot pointing at a 45-degree angle.
   c. Keep your nonfiring foot in place and your toes pointing at the target.
   d. Place the weapon stock under your armpit, and pull your firing elbow in close to your body to secure the stock in place.
   e. Place your nonfiring hand on the fore-end assembly with your nonfiring forearm parallel to the weapon.
   f. Lean forward bending the nonfiring leg while keeping the firing leg and back straight and the weapon barrel parallel to the ground at chest height.
   g. Adjust the position of your feet for comfort and stability.
   h. Repeat step 2f.

6. Fire two rounds at the target from a strong-side position around a barricade.
   a. Stand behind the barricade and face the target. Spread your feet a comfortable distance apart.
   b. Place your nonfiring foot against the base of the barricade with your toes pointing toward the target.

Performance Steps

c. Place your firing foot a comfortable distance to the rear and slightly to the left or right until your heel is in line with your nonfiring foot.

NOTE: Your feet should form a 45-degree angle but may be adjusted for comfort and stability.

d. Place your nonfiring hand on the fore-end assembly and place the butt of the stock against your firing shoulder.
e. Place your nonfiring forearm against the barricade and your firing arm close to your body for concealment.
f. Lean forward and slightly bend your nonfiring leg while keeping your firing leg and your back straight. Use the barricade for additional support, but do not allow the weapon to touch the barricade.
g. Repeat step 2f.

7. Load two rounds of ammunition. (See Task 191-381-1253.)

8. Fire two rounds over a barricade at the target from a standing position.
   a. Stand behind the barricade and place your nonfiring foot behind and touching the barricade.
   b. Place your firing foot a comfortable distance to the rear, parallel to the barricade.
   c. Bend your nonfiring leg to adjust to the height of the barricade, keeping your firing leg and our back straight.
   d. Adjust your feet for height, stability, and comfort.
   e. Place your nonfiring hand on the fore-end assembly with the back of your nonfiring hand resting on the barricade. Do not allow the weapon to make contact with the barricade.
   f. Place the butt of the stock against your firing shoulder, ensuring that your firing elbow is no higher than the top of the barricade.
   g. Repeat step 2f.

9. Clear the weapon. (See Task 191-381-1253.)

Evaluation Preparation: Setup: At the test site, provide a barricade that is approximately the same height as the target. The barricade should measure about 72 inches x 22 inches with an opening (window) cut 36 inches to 42 inches from the bottom of the barricade. The opening should be 18 inches wide and approximately 36 inches high. You must also provide a Type-E silhouette target and ten rounds of #00 buckshot for each person being evaluated.

Brief soldier: Tell the soldier to fire the correct number of rounds from each firing position. Tell the soldier that he must correctly clear the weapon according to Task 191-381-1253.

Performance Measures	**GO**	**NO GO**
1. Loaded four rounds of ammunition.	___	___
2. Fired two rounds at the target while in the standing position.	___	___
3. Fired two rounds at the target while in the kneeling position.	___	___
4. Loaded four rounds of ammunition.	___	___
5. Fired two rounds at the target while in a crouching position.	___	___
6. Fired two rounds at the target from the strong side position around a barricade.	___	___
7. Loaded two rounds of ammunition.	___	___
8. Fired two rounds over a barricade at the target from a standing position.	___	___
9. Cleared the weapon.	___	___

Evaluation Guidance: Score the soldier GO if all measures are passed (P). Score the soldier NO-GO if any measure is failed (F). If the soldier fails any measure, show him how to do it correctly.

References

Required

Related

TM 9-1005-303-14

Subject Area 8: Urban Operations

Perform Movement Techniques During MOUT

071-326-0541

Conditions: You are a member of an assault element in urban terrain. The enemy location and strength are uncertain. You are given an individual weapon with ammunition and loadbearing equipment.

Standards: You will perform a visual reconnaissance to determine the next position. Using proper movement techniques, you will then move rapidly to the next covered or concealed position with minimum exposure to enemy fire.

Performance Steps

NOTE: 1. Individual, fire team, and squad movement techniques within urban terrain differ slightly from the basic movements used in normal field operations. Several movement techniques take on added importance during combat in urban terrain because of the special nature of the battle area. 2. In an urban terrain, the individual soldier and leaders are confronted with different types of obstacles that must be negotiated to eliminate or capture an enemy position. Street-to-street and house-to-house fighting give rise to many surprising situations, so alertness and all-round security are mandatory. The enemy may appear not only from the front, flanks, and rear, but also from above and below as well.

1. Follow general rules of movement:
   a. Take care not to be silhouetted in doors or windows, or on rooftops.
   b. Avoid open areas (streets, alleys, parks).
   c. Make a visual reconnaissance of the next position before moving.
   d. Conceal movement with smoke or covering fires, and by using buildings, rubble, and vegetation.
   e. Always move rapidly from one position to another.
   f. Be alert and expect the unexpected.

2. Observe around corners.

NOTE: Corner are hazardous to untrained soldiers who are not alert. The most common mistakes untrained soldiers make are: first, not recognizing the danger area; second, extending their weapons beyond the corner, which exposes their presence; and third, showing their heads at a height that enemy soldiers would expect to see them.

   a. Lie flat on the ground, weapon at the side, then move forward slowly, ensuring that the weapon is not forward of the corner.
   b. Expose the head slowly at ground level so that it appears to be a shadow. Expose the head only enough to observe around the corner (Figure 1).

Performance Steps

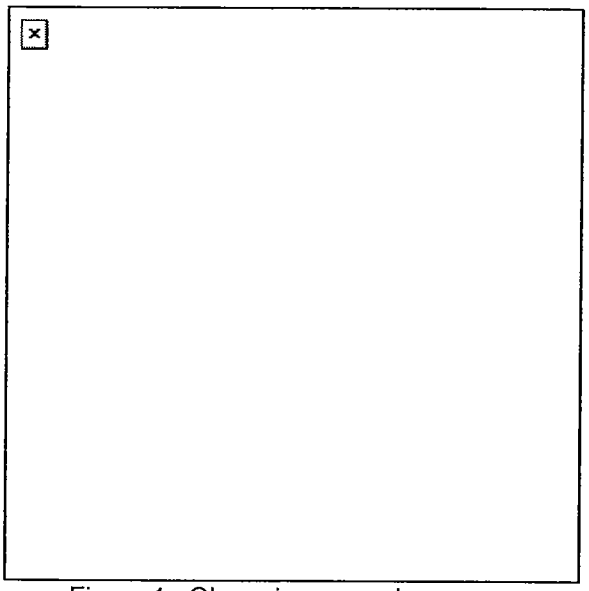

Figure 1. Observing around a corner.

3. Move across open areas.

NOTE: Open areas, such as streets, alleys, and parks, are to be avoided when possible. They are natural kill zones for enemy crew-served weapons. They can be crossed with less risk if basic cautions are applied.

a. Make a visual reconnaissance of the area and position.
b. Select a route that has some cover or concealment. If no cover or concealment is available, use smoke or covering fire provided by the rest of the element.
c. Move in the most direct route to the selected position. Using the most direct route will reduce the time of exposure to enemy fire. Also, moving rapidly will deny the enemy the opportunity to place well-aimed shots.
d. Move from position to position without masking covering fires. When the next position is reached, be prepared to cover the movement of other members of the fire team or squad (Figure 2).

Performance Steps

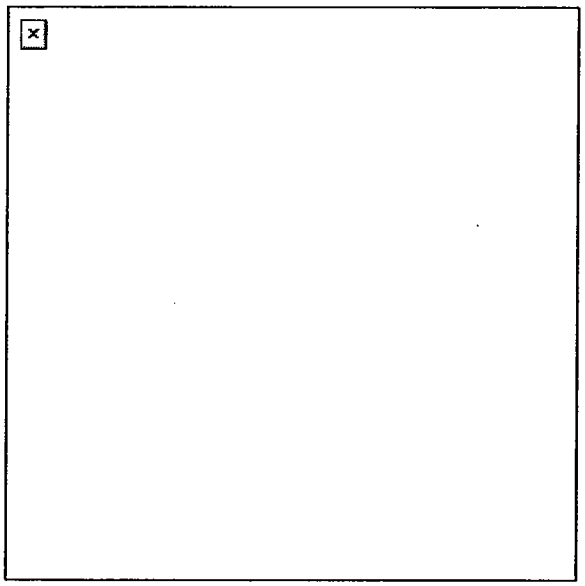

Figure 2. Moving from cover to cover.

e. When two or more soldiers must move at the same time to another position--
   (1) The group must first position themselves so they are prepared to move to their next position.
   (2) The group, on a planned signal, moves across the open area at the same time to the next position. When moving, they should stay about 5 meters apart (Figure 3).

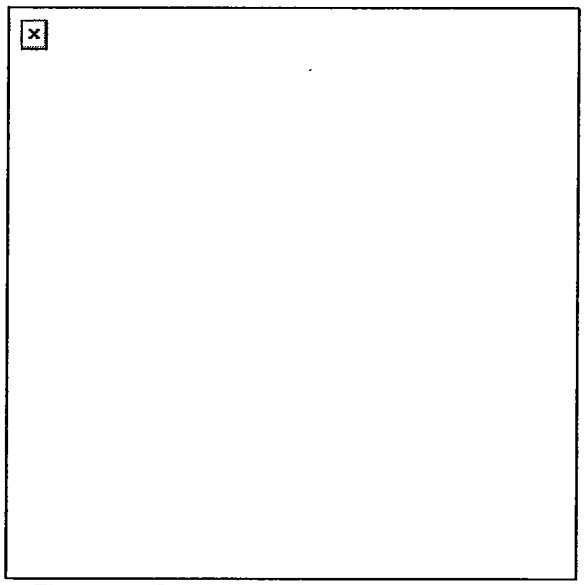

Figure 3. Group moving to the next postion.

4. Move parallel to buildings.
   a. Move along the walls. When moving parallel to a building, move along the wall as closely as possible. That will deny an enemy soldier inside the building the chance to fire without exposing himself to fire from the covering force.
      (1) Use all available cover and concealment, move with a low silhouette and advance rapidly from position to position. If smoke is available, use it.

Performance Steps

(2) When possible, move in the shadows, which helps to conceal movement.

b. Move past the first floor windows.

NOTE: Windows are danger points. Most first-floor windows are head high, and an unsuspecting soldier will expose his head, giving the enemy an excellent shot from cover.

(1) The right way to pass first-floor windows is to stay as close to the building as possible. When the window is reached, duck the head well below the window.

(2) Always take care not to be silhouetted in a window (Figure 4).

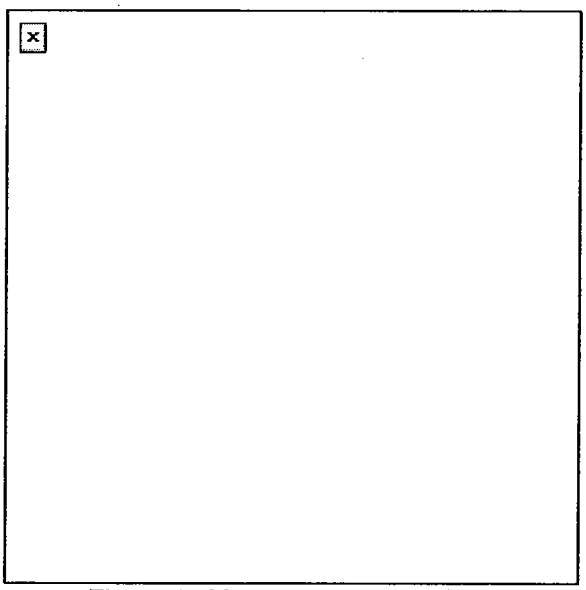

Figure 4. Movement past window.

c. Move past the basement windows.

(1) Do not merely walk or run past a basement window; your legs will present a good target to an enemy gunner inside the building.

(2) The right way to pass a basement window is to keep as close to the building as possible and, when you reach the window, step or jump above and pass the window without exposing your legs (Figures 5 and 6).

Performance Steps

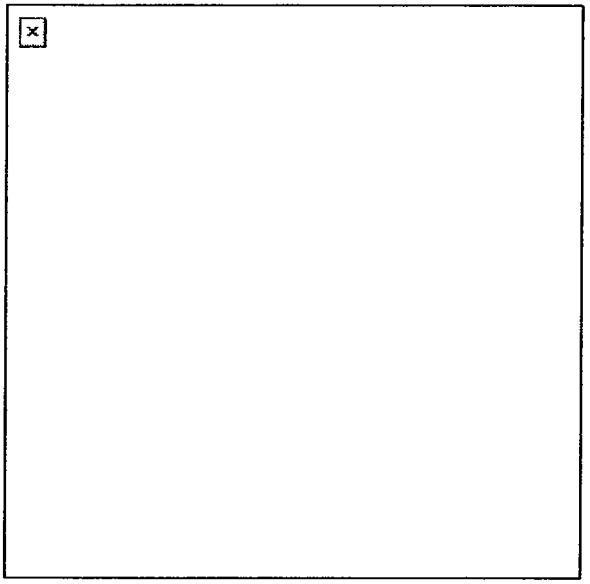

Figure 5. Start of movement past basement window.

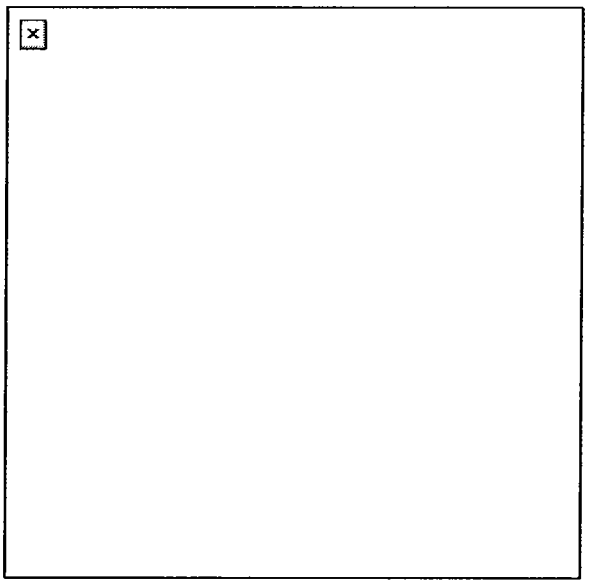

Figure 6. Completion of movement past basement.

5. Cross obstacles (walls, fences, rooftops).
   a. Move over walls and fences.
      (1) Before crossing a wall or fence, look at and beyond it for booby traps, enemy positions, and covered or concealed positions.
      (2) Move rapidly to the obstacle and roll quickly over it, keeping the lowest silhouette possible. Speed and a low silhouette deny the enemy a well-aimed shot.
      (3) Move rapidly to the nearest position while maintaining a low silhouette with the weapon at the ready position (Figure 7).

Performance Steps

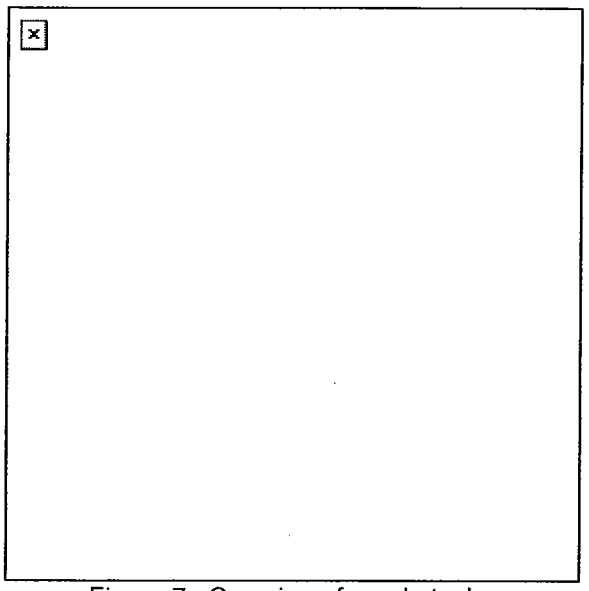

Figure 7. Crossing of an obstacle.

b. Move over rooftops.
   (1) Make a visual reconnaissance of the area and of the route to the next position.
   (2) Move rapidly across the area, maintaining a low silhouette and using all available cover and concealment.

Evaluation Preparation: Setup: At the test site, provide all materials and equipment given in the task conditions statement.

Brief Soldier: Tell the soldier that he will be moving as a designated member of an assault element in urban terrain. The enemy strength and location are unknown.

Performance Measures	**GO**	**NO GO**
1. Follows the general rules of movement. a. Does not silhouette self. b. Avoids open areas. c. Makes visual reconnaissance of the next position before moving. d. Conceals movement. e. Moves rapidly. f. Is alert.	___	___
2. Observes around corners. a. Lies flat, weapon at side; moves forward slowly. b. Exposes head slowly, at ground level, only long enough to observe around the corner.	___	___
3. Moves across open areas. a. Makes visual reconnaissance of area and position. b. Selects route with cover and concealment. c. Moves in the most direct route. d. Moves from position to position without masking covering fires. e. When two (or more) soldiers must move to the same position at the same time: (1) Position themselves to prepare to move together.	___	___

Performance Measures	GO	NO GO
(2) Move together at a planned signal.		
(3) Stay about 5 meters apart.		
4. Moves parallel to the buildings.	___	___
a. Moves along the walls.		
(1) Moves parallel to the wall as closely as possible.		
(2) Moves rapidly with a low silhouette.		
(3) Moves in shadows when possible.		
b. Moves past the first floor windows.		
(1) Stays close to the building; keeps head below window.		
(2) Does not silhouette self in window.		
c. Moves past the basement windows.		
d. Steps or jumps over windows.		
5. Crosses obstacles.	___	___
a. Moves over walls or fences.		
(1) Checks the obstacle for booby traps, enemy positions, and covered and concealed positions.		
(2) Moves rapidly to the obstacle and quickly rolls over it; maintains a low silhouette.		
(3) Moves rapidly to the nearest position; maintains a low silhouette.		
b. Moves over rooftops.		
(1) Makes a visual reconnaissance of the area and route.		
(2) Moves rapidly across the area, maintains a low silhouette, and uses all available cover.		

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
	FM 3-06.11

Enter a Building

071-326-0542

Conditions: As a member of an assault force in an urban area, given a two-story building, a grappling hook attached to 50 feet of scaling rope knotted every 1 foot, a steel helmet, an M16A1 rifle, hand grenades, and a requirement to enter a building.

Standards: Enter the building with minimal exposure to enemy fire.

Performance Steps

NOTE: When entering to clear a building, enter the top or at the highest possible level whenever possible. Clearing a building is easier from the top down; gravity and building construction make it easier to move from floor to floor. Also, an enemy who is forced to retreat to the top may be cornered and fight more desperately, while an enemy who is forced down to the ground level may withdraw from the building and expose itself to fires of the support force. By entering at the top of the building, the assault force is also less likely to encounter booby traps.

1. Select a point to enter a building prior to moving. There are several ways to enter a building above the first floor. Ladders, drainpipes, vines, helicopters, or roofs and windows of an adjoining building may help you reach the top floor or roof of a building. In some cases, one member of the assault force can climb onto the shoulders of another and reach high enough to pull up. A scaling rope and grappling hook enable soldiers to scale the wall or to swing from one building to another to gain entrance through an upper-story window or opening in the building.

NOTE: Depending upon the tactical situation, the use of direct fire weapons (M16, M203, M60) or hand grenades may be required to clear the entry point.

2. Prepare a grappling hook with a rope and enter a building.
   a. The grappling hook is easily thrown, and it is made with hooks strong enough to hold a rifleman with equipment. The scaling rope attached to the grappling hook should be long enough to reach the entrance point and knotted above every foot. The knots will aid the rifleman in climbing.
   b. When throwing the grappling hook, stand as close to the building as possible. (This prevents exposure to enemy fire and shortens the throwing distance to the target.) Grasp a few coils of rope and the grappling hook in the throwing hand and the remainder of the rope in the nonthrowing hand. The throw should be a gentle, even, upward lob of the hook and coiled rope from the throwing hand (Figure 2-1). The nonthrowing hand should release the rope, allowing it to play out.
   c. Once the grappling hook is inside the target area (or on the roof), pull on the rope until the grappling hook is solidly hooked before beginning the climb (Figure 2-2).
   d. When climbing, avoid crossing windows of uncleared rooms.
   e. Once the point of entry has been reached, enter with the lowest silhouette possible. There are two methods of entry that may be used. The preferred method of entry is to hook a leg over a window sill and enter sideways, straddling the ledge (Figure 2-3A). A second method of entry is to enter head first (Figure 2-3B).

3. Use the buddy system to enter a building.
   a. One-soldier lift support. The first soldier branches his or her back or side against the building. The soldier then cups his or her hands together to assist the second soldier.
      (1) The second soldier moves forward and places his or her foot inside the first soldier's cupped hands.
      (2) The first soldier then lifts the second soldier up to the opening.
      (3) Once the point of entry has been reached, the first soldier enters with the lowest silhouette possible (Figure 2-3B).
   b. Two-soldier lift support.
      (1) Two soldiers face one another, holding a support of some sort (board, tree limb) (Figure 2-4).

Performance Steps

(2) A third soldier climbs onto the support (Figure 2-5).
(3) Once both feet of the climber are on the support, the two base soldiers raise the support, pushing the third soldier upward and into the entrance (Figure 2-5).

c. Two-soldier hand lift.
(1) The climber stands facing the wall, with palms flat against the building, feet out from the building approximately 2 feet with heels raised.
(2) Two soldiers, one on each side of the climber, face each other and bend forward, cupping their hands.
(3) The two soldiers with cupped hands each grasp a heel of the climber. With a quick move, they lift the climber up and into the entrance (Figure 2-6).

4. Select use of hand grenades.
a. Before entering a building, whether through a doorway, ground-level window, or breach, throw a hand grenade inside to disable enemy occupants and to detonate booby traps.
(1) When there is a breach in the exterior walls and this breach is to be used to enter the building, first throw a hand grenade through the breach, using all available cover. Allow the grenade to cook off approximately two seconds (Figure 2-7) before it is thrown.

WARNING COOKING OFF HAND GRENADES CAN BE DANGEROUS UNLESS PROPERLY DONE. TO COOK OFF A HAND GRENADE, PULL THE PIN, COCK THE ARM INTO THE THROWING POSITION, REMOVE THE THUMB FROM THE SAFETY LEVER AND ALLOW IT TO RELEASE FROM THE GRENADE. AS SOON AS THE SAFETY LEVER IS RELEASED FROM THE GRENADE, COUNT: "ONE THOUSAND ONE, ONE THOUSAND TWO" AND THROW THE GRENADE.

(2) When entering through a ground-level window, use caution in throwing hand grenade in; be sure that it goes through the opening and does not bounce back toward you. In throwing the hand grenade, stand as close to the building as possible and pull the safety. Allow the grenade to cook off no more than two seconds, then move out far enough to throw the grenade inside (Figure 2-8).
(3) The most undesirable method of entering a building is through a doorway. The enemy will expect it to be an entry point. Before entering a door, check for booby traps. Then, allow a hand grenade to cook off no more than two seconds, and throw it inside.

5. Clear the entry point. Upon entering the building, the first member of the assault team must secure the room or area of entry while the remainder of the team enters. The team will then proceed to clear and secure the building.

Evaluation Preparation: Setup: Provide a test site with the material and equipment indicated in the Conditions statement. Brief Soldier. Tell the soldier that he or she will be moving as a designated member of an assault force that will be entering and clearing a building.

Performance Measures	**GO**	**NO GO**
1. Selected point(s) to enter building.	___	___
2. Prepared grappling hook.	___	___
3. Entered building. a. One-soldier lift support. b. Two-soldier lift support. c. Two-soldier hand lift.	___	___
4. Cleared the entry point.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show what was done wrong and how to do it correctly.

References

Required

FM 7-8

Related

Prepare Positions for Individual and Crew-Served Weapons During MOUT
071-326-0550

Conditions: As a firer or crew member of a crew-served weapon, given a firing position with a building, sector of fire, and material to reinforce the position.

Standards: Prepare the position to allow accurate fire to be placed on the enemy within the given sector of fire, with the least possible exposure and maximum protection from return fire.

Performance Steps
NOTE: When a unit is defending in urban terrain, its success depends on the ability of soldiers within the unit to place accurate fire upon the enemy with the least possible exposure to return fire. Therefore, soldiers must constantly seek and improve firing positions and use them properly.

1. Prepare individual rifle positions.
   a. Barricade windows. Window-firing positions can be improved by barricading around the window (Figure 1). The window may be completely covered, leaving only a small hole for the firer's use. When barricading windows:

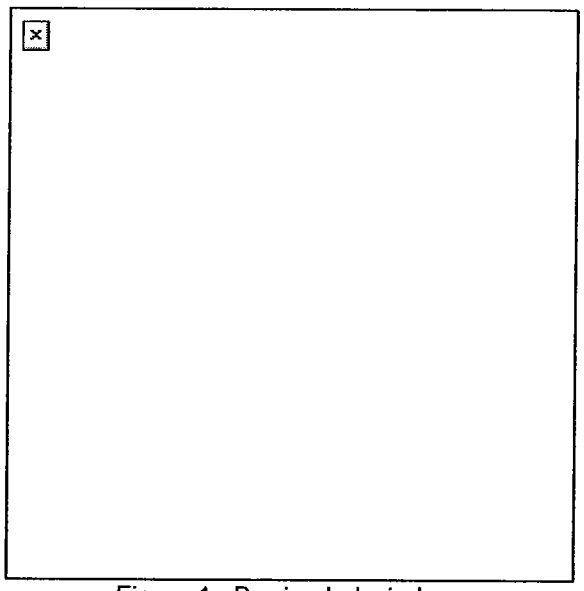

Figure 1. Barricaded window.

(1) DO NOT barricade only the windows that will be used as firing positions (the enemy will soon determine what they are).
(2) DO NOT form neat, square, or rectangular holes; the enemy will easily spot them.
(3) Prepare barricades with sandbags, materials in the room or torn from the interior walls of the building, or other available material (Figure 2).

Performance Steps

Figure 2. Barricaded firing position.

NOTE: Do not remove so much material from the interior wall that the building is weakened.

(4) Remove all glass from the window to prevent injury from flying glass.

(5) Leave curtains in place--they will permit the firer to see out and prevent the enemy from seeing in.

(6) Prevent revealing the position caused by dust from the muzzle blast of the weapon. Place a wet blanket over dusty surfaces in front of the weapon's muzzle or wet down those surfaces (Figure 3).

Figure 3. Prepared automatic weapon position.

b. Prepare loopholes. Windows usually are good firing positions, but they may not allow the firer to cover his full sector. Prepared loopholes allow alternate firing positions.

Performance Steps

(1) Break or blow several small holes in the wall (Figure 4) to allow the firer to observe and engage targets in his sector. Making several holes allows the firer to move from one to another to deceive the enemy about his location.

Figure 4. Loophole position.

(2) Camouflage the loopholes by knocking other holes in the wall to make it difficult for the enemy to know which hole the fire is coming from (Figure 5).

Figure 5. Camouflage of loopholes.

(3) Use sandbags or other material to reinforce the walls around loopholes (Figure 6).

Performance Steps

Figure 6. Reinforced loopholes.

(4) When reinforcing windows or loopholes, the firer places two layers of sandbags on the floor under him. This protects him from an explosion on a lower floor when the position is on the second floor or higher. He can use tables, bedsteads, or other available material to provide overhead cover from falling debris or from explosions above the position. A blast wall can be built to the rear of the position to protect the firer from explosions in the room (Figure 7).

Figure 7. Reinforced position.

c. Prepare sniper positions.

(1) Sniper positions should be on or near the top of the building being defended to allow greater fields of fire (Figure 8).

Performance Steps

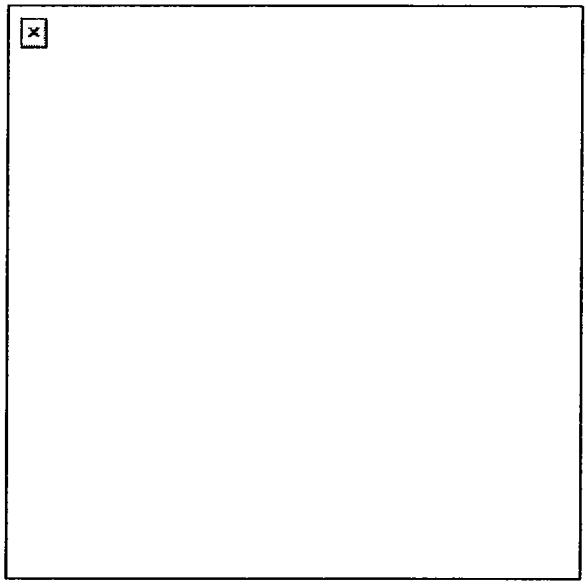

Figure 8. Sniper positions.

(2) A chimney or other structure protruding through the roof of a building provides a base from which a sniper position can be prepared. Part of the roofing material is removed to allow the sniper to fire around the chimney while standing below roof level on a constructed platform with only his head and shoulders above the roof.
(3) Sandbags may be used on the sides of the position to protect the sniper's flanks.

2. Prepare machine gun positions.
   a. The machine gun can be emplaced in the same type of position as the individual firer, except that windows or doors should be avoided. Those openings are where the enemy will expect them to be emplaced, thus drawing the most fire. Since machine guns are not as mobile as rifles, they will be less able to move to avoid heavy fires.
   b. Machine guns should be emplaced as low as possible, using loopholes behind shrubbery or under doorjambs. Basement windows can also be used. By placing the machine gun at a lower level, grazing fire is obtained (Figure 9).

Performance Steps

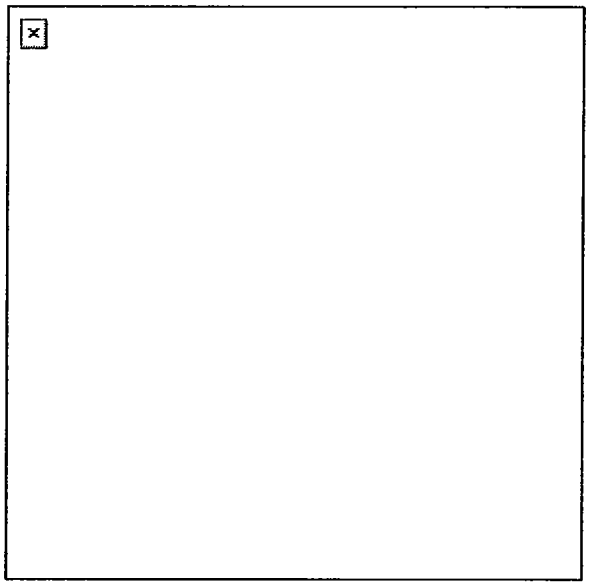

Figure 9. Low machine gun position.

c. Although grazing fire is desirable when employing the machine gun, it will be impractical or impossible where destroyed vehicles, rubble, and other obstructions restrict the field of grazing fire. In such cases, emplacing the machine gun at a higher location, firing from loopholes on the second or third floor, or firing through a loophole in the roof is advised (Figure 10).

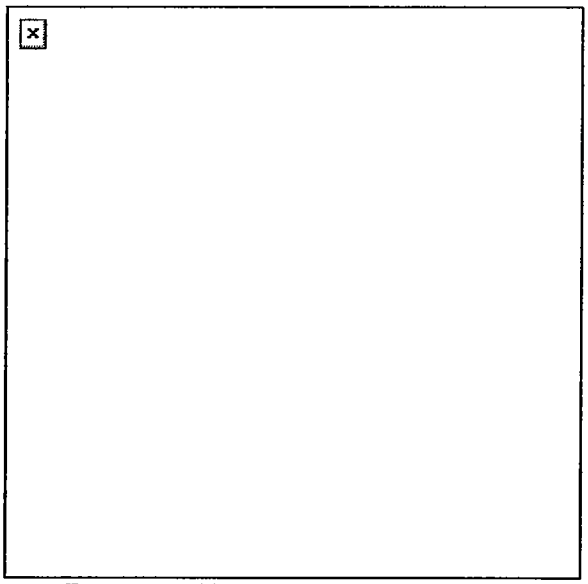

Figure 10. High machine gun position.

3. Prepare antitank weapons position.
   a. The antitank weapons (tube-launched, optically tracked, wire-guided, heavy antitank missile system [TOW], Dragon, 90-millimeter [mm], light antitank weapon [LAW]) should be positioned on upper stories for long-range coverage (Figure 11).

Performance Steps

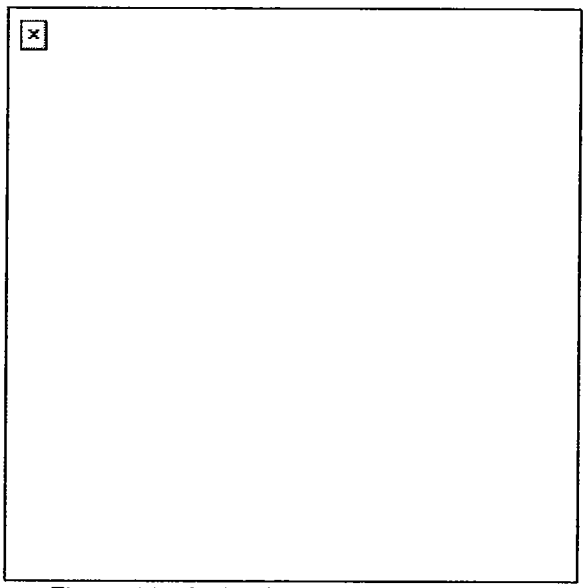

Figure 11. Antitank weapons placement.

NOTE: The maximum depression and elevation limits of the TOW mount plus the minimum firing distance (65 meters) may result in dead space and preclude the engagement of close-in targets.

b. Backblast must be considered in choosing and preparing an antitank weapon location. None of the antitank weapons can be fired from an unvented or enclosed room.

c. Fire from inside a building should be avoided. When it is impossible to avoid firing from inside a building, the following conditions must be met before firing.
   (1) The building must be sturdy.
   (2) The ceiling must be at least 7 feet high.
   (3) The floor size of the room must be at least 17 by 24 feet for a TOW, 15 by 12 feet for a Dragon, and 4 feet to the back wall for a LAW backblast area.
   (4) There must be an opening at least 20 feet square at the rear of the weapon for backblast. An open 7- by 3-foot door would be adequate.
   (5) All glass must be removed from windows and all loose objects removed from the room.
   (6) All soldiers within the room must be forward of the rear of the weapon.
   (7) All soldiers in the room must protect their ears when the weapon is fired.
   (8) The clearance between the muzzle of the weapon and the opening it is fired from should be 9 inches for a TOW and 6 inches for a Dragon (Figures 12, 13, and 14).

Performance Steps

Figure 12. TOW position.

Figure 13. Dragon postion.

Performance Steps

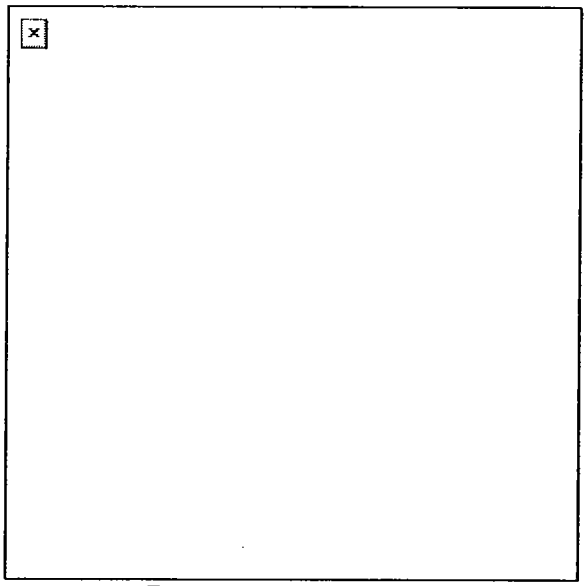

Figure 14. LAW postion.

d. When emplacing the TOW and Dragon, the 65-meter minimum firing distance (arming distance) must be considered.
e. Antitank weapon positions should be reinforced the same as described in this task for the individual rifle position, except that no blast wall will be erected.

Evaluation Preparation: Setup. At the test site, provide all the materials and equipment given in the task conditions statement.

Brief Soldier. Tell the soldier to prepare an individual or crew-served weapon position.

Performance Measures	**GO**	**NO GO**
1. Prepares individual rifle positions. a. Barricades the windows. b. Prepares and camouflages the loopholes. c. Prepares sniper positions.	___	___
2. Prepares the machine gun positions. a. Avoids doors and windows. b. Emplaces as low as possible for grazing fire. c. If field of grazing fire is obstructed, emplaces higher.	___	___
3. Prepares the antitank weapon positions. a. Positions the weapons on the upper stories. b. Identifies the backblast area. c. Ensures that the building is structurally sound and can withstand firing. d. Identifies minimum firing distance for the TOW and Dragon. e. Reinforces the position.	___	___

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required

FM 3-06.11

Related

Clear a Building

071-326-0556

Conditions: As a member of an assault force, given load-bearing equipment, individual weapons with ammunition, extra hand grenades, and a requirement to clear a building.

Standards: Search and clear a building so that: 1. The building is clear. 2. The building is secured. 3. The assault force is reorganized and prepared for a counterattack. NOTE: Organization of the assault force and priorities are established before entering the building.

Performance Steps

1. Clear a room.
   a. Once inside the building, the assault force is divided into support teams and assault teams. Each assault team normally will consist of two soldiers. The assault teams' mission is to clear one or more rooms. The support teams' mission is to provide security and firepower for the protection of the assault team.
   b. Establish priorities. First, cover the staircases. Next, clear all rooms with windows overlooking the friendly approach route. Those actions are necessary to isolate the enemy force within the building and to prevent reinforcement from the outside. The ground floor windows and doors will be covered by the support force.
   c. The enemy will often booby trap doors, so before entering a room through a doorway, shoot off the lock and handle and then kick the door open. Always remember to stand at a 45-degree angle to the door before you begin to shoot. This prevents you from being silhouetted in the doorway when the door is opened (Figure 2-1).
   d. Once the door has been opened, throw in a grenade that has been allowed to cook off approximately 2 seconds (Figure 2-2a).
   e. After the grenade detonates, one soldier quickly enters through the doorway, to one side or the other, spraying the entire room with automatic fire. He or she positions self so that he or she can observe the entire room and act as overwatch for the second soldier as he or she enters (Figure 2-2b). At this time, the assault team must be prepared to react instinctively to any situation in the room, from the flight of an enemy soldier to the resistance of a sandbag-reinforced weapon position.
   f. The second soldier shouts, "Coming in! He or she enters the room in the same way as the first soldier, except he or she will not spray the room with automatic fire. The soldier will systematically search the room, avoiding silhouetting self in windows.
      (1) In the same manner as entering, the team should exit with one soldier covering the departure of others. The last soldier out should shout Coming out!
      (2) All soldiers must be aware of each other's whereabouts at all times.

NOTE: The use of voice alerts is very important. Each member of the assault team must always let others in the assault force know where he or she is and what he or she is doing. The assault team must also let the support team know what they are doing.

2. Vary clearing techniques.
   a. The team should vary its techniques in clearing a floor so the enemy cannot prepare for its assault.
   b. As an example, in Figure 2-3, rooms 1, 4, 5, and 7 were cleared by the method previously described.
   c. Rooms 2 and 3 were cleared by blasting a hole through an interior wall with a grenade, and then entering and conducting a search as previously described.
   d. In room 7, an enemy mousehole between rooms 6 and 7 was discovered. A grenade was thrown in the mousehole, and then room 6 was entered through the door and searched.
   e. As rooms are cleared, leave doors open and make a predetermined mark (chalk, tape, spray paint) on the door frame to indicate the room has been cleared and searched.

Performance Steps

3. Move along hallways. Hallways are very dangerous and should be avoided when possible. However, when you cannot avoid the use of a hall, avoid presenting a target to the enemy. Hugging the wall, get out of the hallway as soon as possible (Figure 2-4).

4. Move between floors.
   a. After searching and clearing one floor, move to another floor. Frequently, stairways will be blocked with barbed wire and boobytraps and covered by enemy fire to prevent their use. You must then use the following method of reaching other floors.
   b. Select a room and place explosive charges (shaped charge or C-4) in place on the floor or ceiling. Detonation of the explosives should provide an access to the next floor. After securing an initial foothold, search and clear the remainder of the floor as described in performance measures 1 through 3.

5. Clear a basement. Search and clear a basement. Do so as soon as possible, preferably while you clear the ground floor. The procedures for clearing a basement are much the same as for clearing any other room or floor of a building. Basements may be connecting points for sewers and tunnels that the enemy will use for escaping and infiltrating troops back into a cleared building. For that reason, a basement must be thoroughly cleared and secured.

6. Reorganize.
   a. Reorganization of the assault force in a cleared building must be rapid to repel counterattacks. After securing the building, selected members of the assault teams and the support teams will be assigned to cover potential counterattack routes to the building.
   b. If the building is to be occupied for more than a few minutes, defensive positions must be developed.

Evaluation Preparation: Setup: Provide a test site with the materials and equipment indicated in the Conditions statement. Brief Soldier: Tell the soldier that he or she will be moving as a designated member of an assault force that will be searching and clearing a building.

Performance Measures	**GO**	**NO GO**
1. Cleared a room. a. Established and implemented teams. b. Established priorities. c. Entered through doorway as a team. d. Used grenades and voice alerts.	___	___
2. Varied clearing techniques. a. Used different techniques in clearing floor. b. Left doors open and marked.	___	___
3. Moved along hallways.	___	___
4. Moved between floors. a. Avoided stairway, if possible. b. Established initial foothold.	___	___
5. Cleared basement.	___	___
6. Reorganized. Developed defensive positions, if needed.	___	___

Evaluation Guidance: Score soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier scores NO-GO, show what was done wrong and how to do it correctly.

Select Hasty Firing Positions During MOUT
071-326-0557

Conditions: As a member of an attacking or defending unit in urban terrain.

Standards: Select positions from which to place fire on the enemy while using available cover.

Performance Steps
NOTE: The success of the mission depends on the ability to place accurate fire on the enemy with the least possible exposure to return fire. Therefore, constantly seek covered firing positions and use them properly.

1. Fire around a building or wall.
   a. Fire around the left corner of the building or wall using the left-handed firing technique (Figure 1).

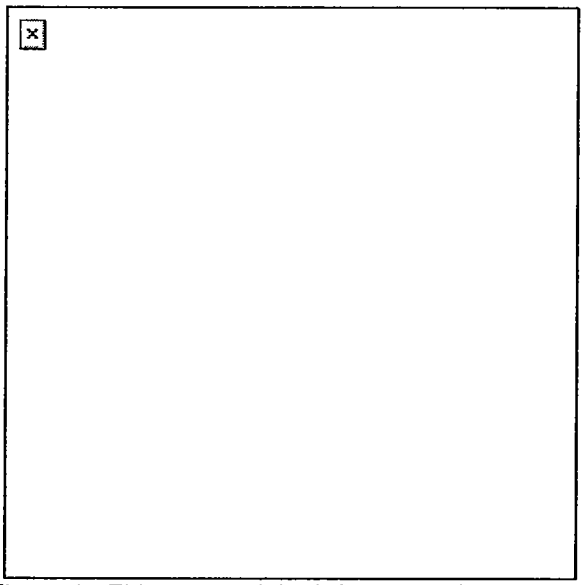

Figure 1. Firing around the left corner of a building.

   b. Fire around the right corner of the building or wall using the right-handed firing technique (Figure 2).

Performance Steps

Figure 2. Firing around the right corner of a building.

c. Use the prone firing technique, where possible.
d. Fire around the wall, not over it, where possible (Figure 3).

Figure 3. Firing around a wall.

2. Fire from a window.
   a. Select firing positions that are well back from the window. They will help conceal the body and the rifle's muzzle (Figure 4).

Performance Steps

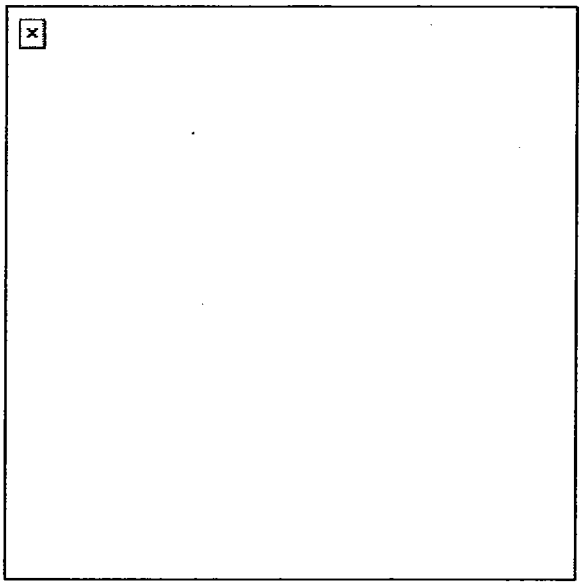

Figure 4. Firing from a window.

b. Select a kneeling firing position. It will minimize exposure and prevent silhouetting (Figure 4).

3. Fire from unprepared loopholes. Select firing positions that are well back from the loophole to conceal the muzzle flash (Figure 5).

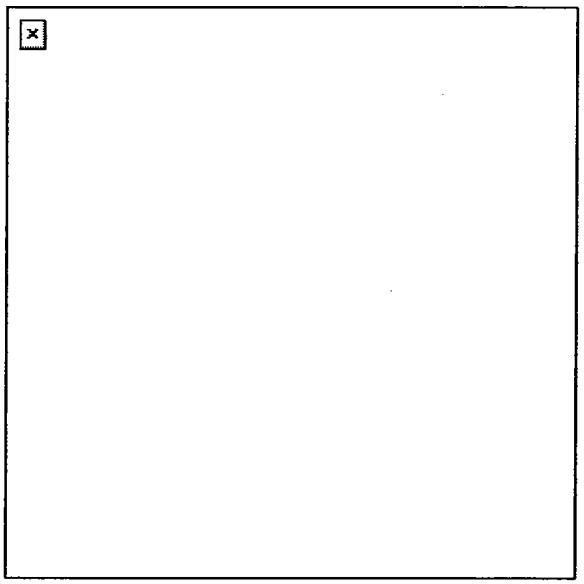

Figure 5. Firing from loophole.

Evaluation Preparation: Setup: At the test site, provide all the materials and equipment given in the task conditions statement.

Brief Soldier: Tell the soldier to select positions from which he can place fire on the enemy while using available cover.

Performance Measures	GO	NO GO
1. Fires around a building or wall. a. Uses the left corner. b. Use the right corner. c. Uses the prone firing technique, when possible. d. Fires around (not over) a wall, when possible.	____	____
2. Fires from a window. a. Selects a position well back from the window. b. Uses a kneeling firing position.	____	____
3. Fires from unprepared loopholes. Selects a position well back from the window.	____	____

Evaluation Guidance: If the soldier passes all steps, score him GO. If he fails any steps, score him NO-GO, then show him what he did wrong and how to do it correctly.

References

Required	Related
FM 3-06.11	

Search a Building
191-376-5121

Conditions: You are directed to search a building.

Standards: Ensure that no one (other than search team) enters or leaves the building. Search the building and all occupants and collect everything that could be used as evidence, including prohibited items and weapons.

Performance Steps

1. Perform as a member of a perimeter security team.
   a. Provide protection for the entry team.
   b. Guard doors and observe windows where posted.
   c. Seal off all avenues of escape and ensure that no one enters or leaves the building.
   d. Detain anyone, other than the search team, who attempts to enter or leave the building and call for assistance.
   e. Prevent the removal of evidence.

2. Perform as a member of the search team.
   a. Search all occupants and guard them in one room, if possible, but keep them separated from each other until directed to release them.
   b. Search each floor, starting at the top of the building and working down to the basement. While one military police (MP) conducts the search, another MP observes and points out areas that may have been overlooked. Observe the following during the search:
      (1) Search each room systematically.
      (2) Start the search of each room in one corner and work systematically around the room. Ensure that the search is thorough because there may not be an opportunity to search again.
      (3) Collect everything that could be used as evidence, including prohibited items or weapons.

Evaluation Preparation: Setup: Provide a building and personnel to act as occupants. Have additional personnel attempt to gain entrance to the building.

Brief soldier: Explain that the soldier may be evaluated as a member of a perimeter security team or a search team or both.

Performance Measures	**GO**	**NO GO**
1. Performed as a member of a perimeter security team.	____	____
2. Performed as a member of the search team.	____	____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show him how to do it correctly.

References

Required	**Related**
	FM 19-10

Subject Area 9: Vehicle Operations

Use Visual Signaling Techniques
071-326-0608

Conditions: Given a requirement to use visual signals while mounted.

Standards: Given a requirement to use visual signals while mounted.

Performance Steps

1. Visual signals are any means of communication that require sight and can be used to quickly transmit planned messages over short distances. This includes the devices and means used for the recognition and identification of friendly forces.

2. The most common types of visual signals are arm-and-hand, flag, pyrotechnic, and ground-to-air signals. However, soldiers are not limited to the types of signals discussed and may use what is available. Chemical light sticks, flashlights, and other items can be used provided their use is standardized within a unit and understood by soldiers and units working in the area. The only limit is the soldier's initiative and imagination.

3. Visual signals have certain limitations:
   a. The range and reliability of visual communications are significantly reduced during poor visibility and when terrain restricts observation.
   b. They may be misunderstood.
   c. They are vulnerable to enemy interception and may be used for deception purposes.

4. Signals illustrated with a single arrowhead indicate that the signal is not continually repeated. However, it may be repeated at intervals until acknowledged or the desired action is executed. Signals illustrated with double arrowheads are repeated continually until acknowledged or until the desired action is taken. Signals are illustrated as normally seen by the viewer. Some signals are illustrated in oblique, right-angle, or overhead views for clarity.
   a. Leaders of mounted units use arm-and-hand signals to control individual vehicle and platoon movements. When distances between vehicles increase, flags can be used as extensions of the arms to give the signals. From some vehicles, such as the M2 Bradley, the arm-and-hand signals are partly hidden. Signals in task 071-326-0600, Use Visual Signaling Techniques While Dismounted, are also used by mounted troops when dismounted.
   b. The following illustration depict signals for combat formations, battle drills, and movement techniques:
      (1) Formation signals (Figures 1 and 2).

Performance Steps

Figure 1. Coil.

Figure 2. Herringbone.

(2) Drill signals (Figures 3 through 9). Drills are a rapid, reflexive response executed by a small unit. These signals are used to initiate drills. They are used mounted or dismounted.

Performance Steps

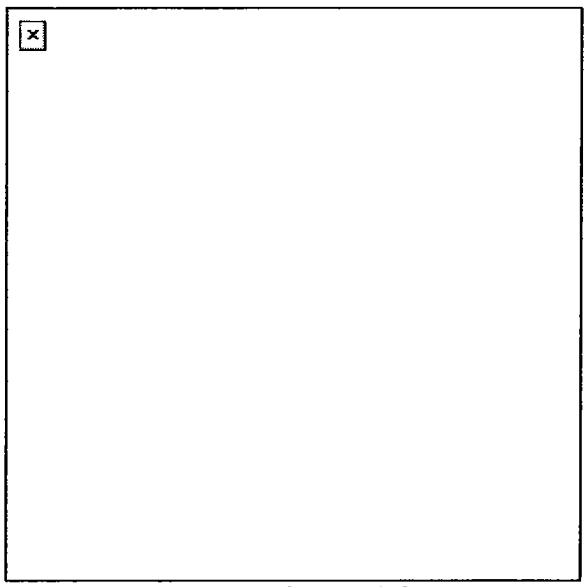

Figure 3. Contact left.

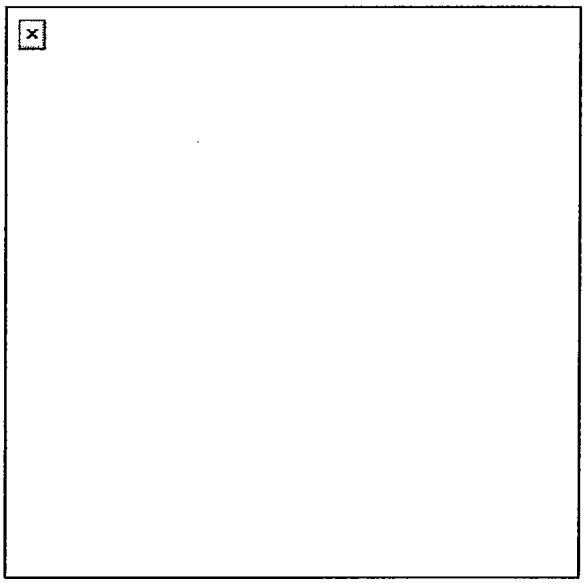

Figure 4. Contact right.

Performance Steps

Figure 5. Action left.

Figure 6. Action right.

Performance Steps

Figure 7. Action front (right, left, or rear), fight on foot, or assault fire (dismounted troops).

Figure 8. Air attack.

Performance Steps

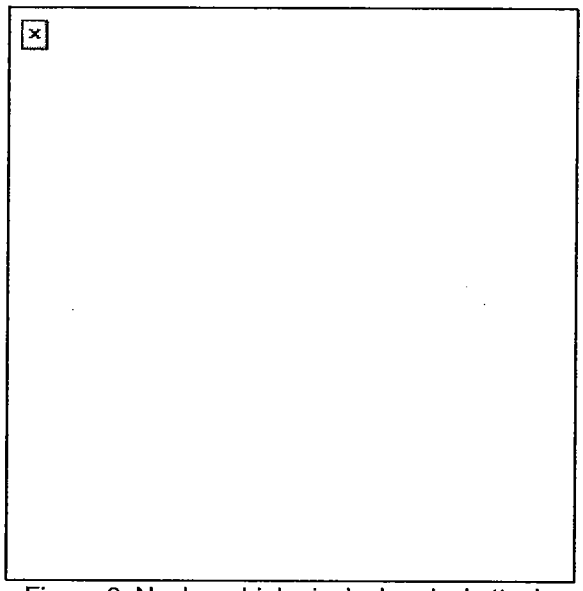

Figure 9. Nuclear, biological, chemical attack.

(3) Movement technique signals (Figures 10 through 14).

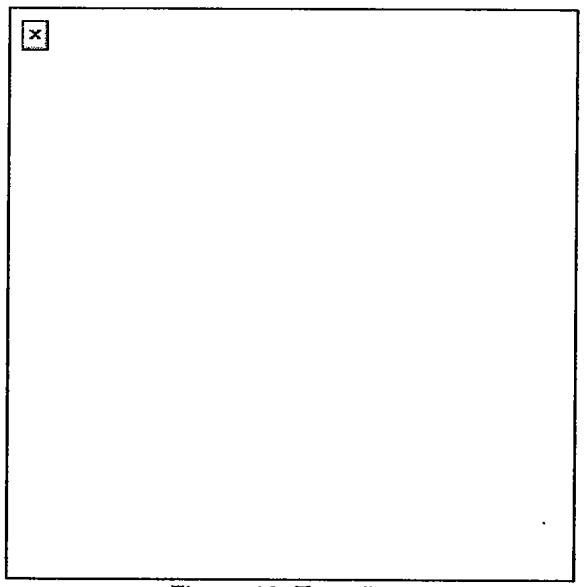

Figure 10. Traveling.

Performance Steps

Figure 11. Traveling overwatch.

Figure 12. Bounding overwatch, cover my move.

Performance Steps

Figure 13. Move to left.

Figure 14. Move to right.

(4) Signals to control vehicle drivers and crews. (Figures 15 through 36). These are the arm-and-hand and light signals used to guide and direct vehicles. Flashlights are used at night. Blue filters are used with flashlights to help prevent detection by light- and heat-detecting devices. Red filters are used when preserving the driver's night vision is important. Chemical lights can also be used and have less effect on the driver's night vision.

Performance Steps

Figure 15. Attention.

Figure 16. I am ready, or ready to move, are you ready?

Performance Steps

Figure 17. Mount.

Figure 18. Disregard previous comman, or as you were.

Performance Steps

Figure 19. I do not understand.

Figure 20. Start engine, or prepare to move.

Performance Steps

Figure 21. Halt, or stop.

Figure 22. Increase speed.

Performance Steps

Figure 23. Advance or move out.

Figure 24. Open up.

Performance Steps

Figure 25. Close up.

Figure 26. Right or left turn.

Performance Steps

Figure 27. Slow down.

Figure 28. Move forward.

Performance Steps

Figure 29. Move in reverse (for stationary vehicles).

Figure 30. Close distance between vehicles and stop.

Performance Steps

Figure 31. Stop engines.

Figure 32. Dismount.

Performance Steps

Figure 33. Neutral steer (track vehicles).

Figure 34. Stop (alternate signal to stop track vehicle).

Performance Steps

Figure 35. Button up or unbutton.

Figure 36. Message acknowledged.

c. Flags (Figures 37 through 43) are used to mark vehicle positions (for example, a quartering party member uses colored flags in an assembly area to mark positions), identify disabled vehicles, warn friendly elements of an advancing enemy (for example, an observation post uses a flag to signal a platoon to move to its fighting position), and control movement (flags serve as an extension of arm-and-hand signals when distances between vehicles become too great).

Performance Steps

Figure 37. Use a single signal flag.

Figure 38. Mount.

Performance Steps

Figure 39. Dismount.

Figure 40. Dismount and assault.

Performance Steps

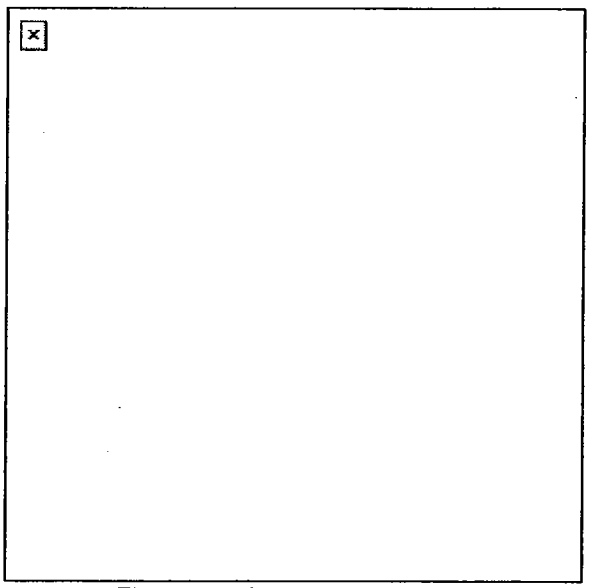

Figure 41. Assemble or close.

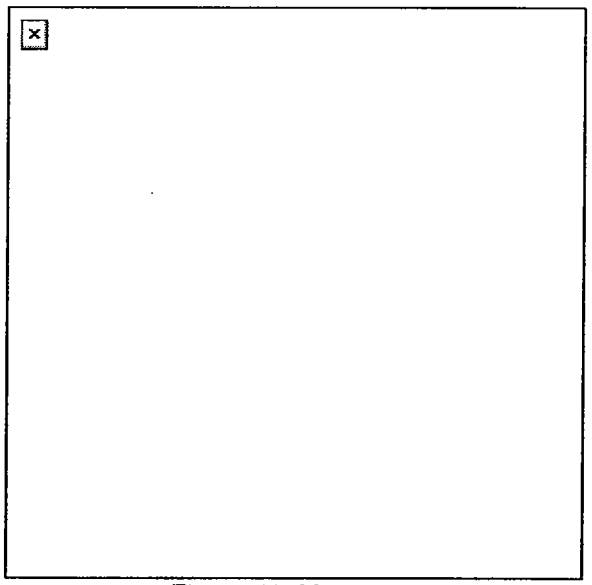

Figure 42. Move out.

Performance Steps

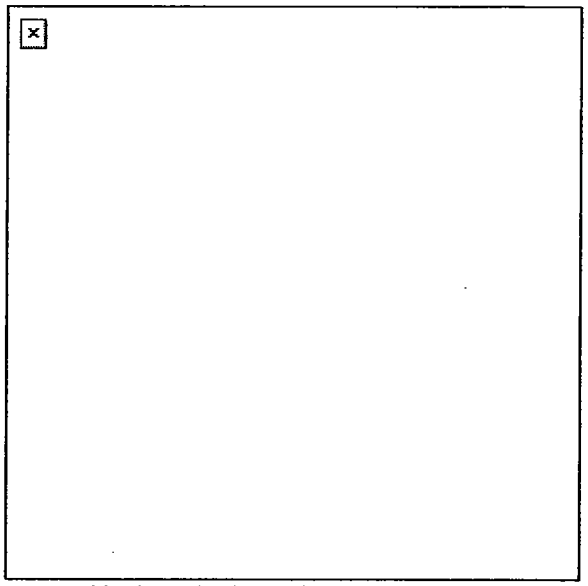

Figure 43. Nuclear, biological, chemical hazard present.

(1) When used alone, flag colors have the following meanings:
 (a) Red--danger, or enemy in sight.
 (b) Green--all clear, ready, or understood.
 (c) Yellow--desregard, or vehicle out of action.
(2) During poor visibility, colored chemical lights or flashlights with colored filters may be substituted for flags.

Evaluation Preparation: Setup: At the test site, provide a set of vehicle signaling flags and flashlight. From the signals shown in the task, pick 10 that will be tested.

Brief Soldier: Tell the soldier that you will give the 10 signals and that he must correctly identify each one.

Performance Measures	**GO**	**NO GO**
1. Performance Measures: Task performance measures are the same as the performance steps for this task.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier fails any steps, show what was done wrong and how to do it correctly.

References

Required	**Related**
	FM 17-95
	FM 21-60
	FM 7-7

Perform Vehicle Preventive Maintenance Checks and Services (PMCS)

551-721-1352

Conditions: Given a vehicle, appropriate vehicle operator's manual (-10 series technical manual [TM]), basic issue items (BII), Department of the Army (DA) Form 2404 (Equipment Inspection and Maintenance Worksheet), a pen or pencil, and replacement parts as required.

Standards: Inspect the vehicle according to the PMCS table in the appropriate vehicle operator's manual (-10 series TM). Perform before-, during-, and after-operation PMCS. Correct all deficiencies within your level of maintenance and record all others on DA Form 2404 completely, accurately, and legibly. Turn in the form to the maintenance supervisor.

Evaluation Preparation: Setup: Inspect the vehicle to identify the deficiencies that the operator must record on DA Form 2404. Ensure that some faults are within the operators level of maintenance which he or she must correct. Designate a route for the operator to use to perform during operator maintenance checks. Brief Soldier: Tell the soldier to perform before-, during-, and after-operation maintenance checks and fill out DA Form 2404 completely, correctly, and legibly. Correct all deficiencies within his or her level of maintenance and record all other deficiencies.

Performance Measures	**GO**	**NO GO**
1. Prepare for inspection. a. Enter the name of the unit to which the vehicle belongs in block 1 of DA Form 2404. b. Enter the noun abbreviation and the model of the equipment in block 2 of DA Form 2404. (Example truck (Trk), Cargo, 5-Ton, 6 X 6, M923). c. Enter the registration number or serial number in block 3 of DA Form 2404. d. Enter the type of inspection service to be done in block 6 of DA Form 2404. e. Enter the number and date of the appropriate TM used in block 7 of DA Form 2404.	____	____
2. Perform before-operation inspection as listed in the appropriate vehicle operator's manual (-10 series TM). If deficiencies are noted: a. Isolate the malfunction by applying the step-by-step troubleshooting procedures as listed in the operator's manual. b. Correct all deficiencies (faults) within the operator's level of maintenance. c. Record, in column c of DA Form 2404, all vehicle deficiencies corrected by replacing parts. d. Record all uncorrectable deficiencies in column c of DA Form 2404. e. Complete blocks 4, 5, 8a, and columns a and b of DA Form 2404 as follows: (1) Enter the meter reading as of the date in block 5 in miles, kilometers, and hours as applicable in block 4. (2) Enter the current calendar date in block 5. (3) Enter your signature and rank in block 8a. (4) Write in the PMCS item number (from the operator/crew PMCS checklist in the appropriate TM) in column a that applies to the fault listed in column d. **Note: If the PMCS has no item number, list the page, paragraph, or sequence number. Circle the fault, if the fault is listed in the "Equipment is not ready/available" column of the PMCS. If the PMCS has no ready/available column, circle the TM item number, page, or paragraph number of any fault that makes the equipment nonmission capable (NMC).** (5) Enter the condition status symbol for all uncorrected faults in column b. f. Enter the date in column c of DA Form 2404 if no deficiencies are noted.	____	____

Performance Measures	GO	NO GO
3. Perform during-operation inspection as listed in the appropriate vehicle operator's manual (-10 series TM). If deficiencies are noted, follow steps 2e (1) through 2e (5).	___	___
4. Perform after-operation inspection as listed in the appropriate vehicle operator's manual (-10 series TM). a. Put your initials in column e of DA Form 2404 if no deficiencies are noted. b. Follow steps 2e (1) through 2e (5) if deficiencies are noted.	___	___
5. Turn in DA Form 2404 to the maintenance supervisor.	___	___

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly. Train by providing the soldier with an example of a completed DA Form 2404, for a vehicle with and without deficiencies, note the entry that will be made for before-, during-, and after- operation maintenance. Make a copy of the maintenance table chart from the vehicle -10 manual to list the item to be inspected on the vehicle.

References

Required
DA PAM 738-750

Related
DA FORM 2404
FM 21-305
OD1009

Drive Vehicle in a Convoy

551-721-1359

Conditions: Given a briefing by the convoy commander, a vehicle with before-operation preventive maintenance checks and services (PMCS) performed, the applicable vehicle -10 series technical manual (TM), and a flashlight (night convoy only). The task must be performed under the supervision of the march unit commander.

Standards: Operate the vehicle in a convoy safely while maintaining the proper speed and interval between vehicles. Correctly react to and relay all hand signals and follow all highway warning device and regulatory signs.

Performance Steps

1. Start the engine upon receiving the signal or the order from the march unit commander (figure 181).
   a. Start the engine.
   b. Apply the parking brake, if appropriate.
   c. Adjust the seats so you can comfortably manipulate the vehicle controls.
   d. Adjust driving mirrors to obtain a clear view on both sides and to the rear of the vehicle.
   e. Fasten your seat belts, if appropriate.
   f. Place the transmission shift lever in neutral (N) or park (P), as appropriate.
   g. Place the differential lock/unlock control to the unlock position, if appropriate.
   h. Turn off all accessories.
   i. Disengage the engine retarder system, if appropriate.
   j. Push in the clutch pedal, if appropriate.
   k. Turn on the engine run switch, if appropriate.
   l. Engage the start button or ignition switch, as appropriate, while depressing the accelerator pedal.
   m. Release the start button or ignition switch, as appropriate.

Note: If the engine fails to start, wait 2 minutes before trying again (diesel engines only).

   n. Press on the accelerator as necessary to maintain idle speed and observe the oil pressure gauge.
   o. Observe all instruments and warning lights for proper indication.

2. Set the vehicle in motion upon receiving the signal or the order to move out.
   a. Check all gauges to make sure the vehicle is ready for operation.
   b. Turn on the light switch at night, as required.
   c. Apply the brake.
   d. Release the parking brake if appropriate.
   e. Place the transmission shift selector lever in drive (D), as appropriate.
   f. Place the transmission shift lever in low/first gear, as appropriate.
   g. Release the clutch pedal until it takes hold, if appropriate.
   h. Check for approaching traffic.
   i. Signal to indicate the direction of movement.
   j. Remove your foot from the brake pedal.
   k. Depress the accelerator while releasing the clutch pedal, as appropriate.
   l. Continue shifting until reaching the desired road speed, as appropriate.

3. Operate the vehicle at the prescribed speed and maintain proper interval between vehicles.
   a. Maintain a minimum of 5 minutes time gap between march units on the open road.
   b. Maintain a minimum of 10 minutes between serials on the road.
   c. Maintain the maximum speed for the segments of the road.
   d. Adjust speed interval and position accordingly to the signals in figures 182, 183, 184, and 185.
   e. Relay either of the above signals received from the march unit commander to the driver behind you.

Performance Steps

4. Stop the vehicle at the rest site.
   a. Place the transmission ratio selector lever in neutral (N) or park (P), as appropriate.
   b. Set the parking brake, if applicable.
   c. Shut down the engine.

5. Perform during-operation PMCS.
   a. Before inspection, study the applicable TM. Pay particular attention to the section on PMCS.
   b. Begin inspection at the first during-operation maintenance check listed on the PMCS chart.
   c. Inspect in an orderly sequence, as described in the applicable TM, to save motion and eliminate the possibility of missing an important item.
   d. Note deficiencies as you find them without trying to remember all of them.
   e. Complete the inspection when you return to the starting point.

6. Resume vehicle operations (steps 1 through 5).

7. Park vehicles in a line at the convoy destination assembly area.
   a. Place the transmission in neutral (N) or park (P), as appropriate.
   b. Set parking brake, if appropriate.
   c. Shut down the engine.

Evaluation Preparation: Setup: Set up the convoy with six vehicles at the starting point. Select a route for the convoy which will not interfere with the regular traffic. Use a Noncommissioned Officer (NCO) trained in convoy procedures to act as the convoy commander. Have the convoy commander brief the soldier on convoy operations. Brief Soldier: Tell the soldier to follow the instructions given in the convoy commander's briefing.

Performance Measures	**GO**	**NO GO**
1. Start the engine.	___	___
2. Set the vehicle in motion.	___	___
3. Operate the vehicle at the prescribed speed and maintain the proper interval between vehicles.	___	___
4. Respond to hand signals given.	___	___
5. Relay the hand signals.	___	___
6. Stop the vehicle at the rest area.	___	___
7. Perform during-operation PMCS.	___	___
8. Resume vehicle operations.	___	___
9. Park in the destination assembly area.	___	___

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly. Train by providing the soldier with a mock-up of six vehicles in a convoy. With the mock-up, the soldiers will be able to identify the intervals between vehicles. Use flash cards as a training aid during unscheduled training time. Use a 3 x 5 inch index card and put the hand signal to be identified on the front side and the answer on the back. The cards are illustrations of the hand signals used by the convoy commander in the convoy.

References

Required	**Related**
AR 55-162	FM 5-170

References

Required

FM 21-10
FM 21-305
FM 4-01.30
FM 55-15
FM 55-30

Related

Drive Cargo Vehicle on Side Roads and Unimproved Roads
551-721-1360

Conditions: You are required to operate a vehicle off road under field conditions through varying terrain. Given a vehicle with before-operation maintenance checks and services performed, basic issue items (BII), and appropriate vehicle operator's manual (-10 series technical manual [TM]).

Standards: You must safely operate a vehicle through varying terrain without injury to personnel or damage to equipment and without getting stuck.

Performance Steps

1. Start engine.

2. Drive vehicle through shallow ditches.
   a. Stop the vehicle.
   b. Check the terrain for obstructions.
   c. Place transmission shift lever into 1st gear.
   d. Steer vehicle toward the ditch so that one wheel on an axle will leave the ditch as the other wheel on the same axle enters it.

3. Drive vehicle through deep ditches.
   a. Stop the vehicle.
   b. Check terrain for obstructions.
   c. Cut away both sides of ditch, if necessary.
   d. Place transfer shift lever into all-wheel drive (if applicable).
   e. Place vehicle into lowest forward gear and four-wheel drive (if applicable).
   f. Approach the ditch at an angle.
   g. Accelerate the vehicle enough to keep it rolling as it goes up the other side.

4. Drive the vehicle through gullies and ravines.
   a. Stop the vehicle.
   b. Check the terrain for obstructions.
   c. Place transmission shift lever into 1st gear.
   d. Ease the front wheel over at a right angle to the edge of the ravine.
   e. Steer a straight course so that both front wheels strike the bottom at the same time.
   f. Accelerate enough so the vehicle can climb up the opposite bank.

5. Drive the vehicle through wooded area.
   a. Stop the vehicle.
   b. Check the terrain for obstructions.
   c. Remove the tarp and bows, as required.
   d. Place transmission shift lever into first gear.
   e. Maneuver around obstructions.

6. Drive the vehicle through rocky terrain.
   a. Stop the vehicle.
   b. Check the terrain for obstructions.
   c. Drive slowly, choosing route while advancing.
   d. Remove stones between dual tires as often as required.

7. Drive the vehicle through streams (fording).
   a. Stop the vehicle.
   b. Check the terrain for obstructions.
   c. Check the stream for depth and firm support.
   d. Place transfer shift lever into low range/all-wheel drive.
   e. Place the transmission shift lever into 1st gear.

Performance Steps

f. Drive through water, without shifting unless absolutely necessary.
g. Dry the brakes.
   (1) Select a dry, level stretch of terrain.
   (2) Apply the brakes a few times with a light steady pressure to obtain normal braking.

8. Drive the vehicle through swamps and mud.
   a. Stop the vehicle.
   b. Check the terrain for obstructions.
   c. Engage low-range/all-wheel drive.
   d. Place transmission shift lever into 1st gear.
   e. Drive through the area maintaining a steady speed.

9. Shut down the engine and perform after-operation preventive-maintenance checks and services (PMCS).

Evaluation Preparation: Setup: Provide the soldier a vehicle with cross-country capability. Brief Soldier: Tell the soldier to operate the vehicle through varying terrain without injury to personnel or damage to equipment and without getting stuck.

Performance Measures	**GO**	**NO GO**
1. Start the engine.	___	___
2. Drive the vehicle through shallow ditches. (2) Check terrain for obstructions. (3) Cut away both sides of ditch, if necessary. (4) Place transfer shift lever into all-wheel drive (if applicable). (5) Place transfer shift lever into low range (if applicable). (6) Approach the ditch at an angle. (7) Accelerate the vehicle enough to keep it rolling as it goes up the other side.	___	___
3. Drive the vehicle through deep ditches.	___	___
3. Drive the vehicle through gullies and ravines. a. Stop the vehicle. b. Check the terrain for obstructions. c. Place transmission shift lever into 1st/low gear. d. Ease the front wheel over the edge and into the ravine. e. Steer a straight course so that both front wheels strike the bottom at the same time. f. Accelerate enough so that the vehicle can climb up the opposite bank.	___	___
4. Drive the vehicle through wooded area.	___	___
4. Drive the vehicle through gullies and ravines. a. Stop the vehicle. b. Check the terrain for obstructions. c. Remove the tarp and bows, as required. d. Place transmission shift lever into 1st/low gear. e. Maneuver around obstructions. f. Center larger saplings on the vehicle bumper.	___	___
5. Drive the vehicle through rocky terrain.	___	___
5. Drive the vehicle through wooded area. a. Stop the vehicle. b. Check the terrain for obstructions.	___	___

Performance Measures	GO	NO GO
c. Drive slowly, choosing route while advancing.		
d. Remove stones between dual tires as often as possible.		
6. Drive the vehicle through rocky terrain.	___	___
6. Drive vehicle through streams (fording).	___	___
a. Stop vehicle.		
b. Check the terrain for obstructions.		
c. Check the stream for depth and firm support.		
d. Place transfer shift lever into low range/all-wheel drive.		
e. Place the transmission shift lever into 1st/low gear.		
f. Drive through water, not shifting unless absolutely necessary.		
g. Dry the brake.		
(1) Select a clear, level stretch of terrain.		
(2) Apply the brakes a few times to obtain normal braking.		
7. Drive the vehicle through streams (fording).	___	___
7. Drive the vehicle through swamps and mud.	___	___
a. Stop the vehicle.		
b. Check the terrain for obstructions.		
c. Engage low-range/all-wheel drive.		
d. Place transmission shift lever into 1st/low gear.		
e. Drive through the area maintaining a steady speed.		
8. Shut down the engine and perform after-operations PMCS.	___	___
8. Drive the vehicle through swamps and mud.	___	___
9. Shut down the engine and performs after-operations PMCS.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
	FM 21-305

Drive Vehicle With or Without Trailer/Semitrailer in Blackout Conditions
551-721-1363

Conditions: Given a vehicle, with or without trailer/semitrailer with before-operation maintenance performed, and a lead vehicle.

Standards: Drive the vehicle safely while maintaining the proper speed and interval between vehicles without causing injury to personnel or damage to the vehicle or property.

Performance Steps

1. Check all blackout lights for operation.
   a. Check blackout marker lights.
      (1) Check both rear blackout marker lights.
      (2) Check both front blackout marker lights.
   b. Check blackout drive lights. Check the blackout driving light mounted to the left of the left headlight. It furnishes a diffused light beam to permit limited illumination when you are driving under blackout conditions.
   c. Check blackout drive stop lights. Normally, the blackout stop light is a separate unit mounted on the right and the left taillights and flashes a white light when the brakes are applied.
   d. Ensure lenses are clean of dust, dirt, mud, and paint.
2. Remove, lower, or leave the windshield in place (as directed) to improve visibility.
3. Drive the vehicle at a low speed (5 to 10 miles per hour [MPH]/8 to 16 kilometers per hour [KMPH]) during blackout operations.
4. Maintain a proper interval (60 to 180 feet) from the vehicle ahead. If you are following the correct distance, each pair of blackout lights appears as one red light.

Note: When practical, post a person in the rear of your vehicle to warn you if another driver follows too closely. If a person is not available, put a white handkerchief or some other white object on your bumper. This white object will warn the driver behind you not to follow too closely.

Evaluation Preparation: Setup: Select a route that the driver will be using. Designate the start point and the release point along the route. Assemble the vehicles in an area near the route selected. Brief Soldier: Brief the soldier of the route of travel, point out the starting point and release point and any major obstacles along the route. Tell the soldier the speed will be 5 MPH/8 KMPH and to maintain the correct interval between vehicles throughout the blackout move.

Performance Measures	GO	NO GO
1. Check all blackout lights for operation.	___	___
2. Remove or lower the windshield.	___	___
3. Drive the vehicle at a speed 5 to 10 MPH/8 to 16 KMPH.	___	___
4. Maintain an interval between 60 to 180 feet.	___	___

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly. Train by providing the soldier with an illustration of vehicles driving under blackout conditions which indicates the correct following distance between vehicles. Use flash cards as a training device and during unscheduled training time to depict how blackout marker lights will appear from the rear, at more than 180 feet, between 180 and 60 feet, and less than 60 feet. Do the same for the front blackout drive lights and blackout marker lights, for more than 60 feet and less than 60 feet.

References

Required
FM 21-305

Related

Subject Area 10: Land Navigation

Determine the Elevation of a Point on the Ground Using a Map

071-329-1004

Performance Steps

1. Contour lines and contour intervals.
   a. The brown lines on the map are called contour lines. Each line shows the height above sea level. Contour lines never cross one another. Printed at the bottom of the map is the contour interval, which is the difference in height (elevation) between one brown line and the one on either side of it. On a map with a scale of 1:50,000, the contour interval is usually 20 meters.
   b. You can easily tell from the brown lines the direction of uphill or downhill because every fifth line is heavier and has a number that gives its elevation. Let's say the contour interval is 20 meters again. Now you can tell that Point B is 100 meters higher than Point A. Also, if you know the distance between A and B, you can get an idea of the steepness of the slope.
   c. Widely spaced contour lines show a gentle slope. When they are close together, the slope is steep.
   d. When the contour lines are close together at the top of the hill, the hilltop is pointed. When the contour lines are widely spaced the hilltop is flat.

2. Determining elevation.
   a. Locate the point on the map. (It may already be plotted on the map, or given as eight digit coordinates).
   b. Determine the contour interval of the map from the marginal information.
   c. Locate the index contour line nearest the point for which the elevation is being sought.
   d. Count the number of contour lines, up or down, that must be crossed to go from the numbered lines to the point, and note the direction to the point. If the point is on a contour line, its elevation is that of the contour line. For points between contour lines:
      (1) Points less than one fourth the distance between lines are considered to be the same as the elevation of the nearest line.
      (2) Points one fourth to three fourths the distance from the lower line are considered to be at an elevation half the contour interval above the lower line.
   e. To estimate the elevation of the top of an unmarked hill, add half the contour interval to the elevation of the highest contour line around the hill.
   f. To estimate the elevation of the bottom of depression, subtract half the contour interval from the elevation of the lowest contour around the depression.
   g. On maps that do not show elevation and relief in as much detail as needed, supplementary contour lines may be used. Marginal information indicates the interval, and the supplementary lines are used exactly like solid contour lines.
   h. Benchmarks and spot elevation also indicate points of known elevation.

Evaluation Preparation: Setup: Provide the soldier with a 1:50,000-scale military map, a designated point on the map labeled "A", and a pencil. Brief soldier: Tell the soldier to determine the elevation of the point that is labeled "A" on the map.

Performance Measures	**GO**	**NO GO**
1. Determines the correct elevation within half the value of the contour interval. Note: If the contour interval of the map is in feet, the answer must be in feet. If the contour interval is in meters, the answer must be in meters.	____	____

Evaluation Guidance: Score the soldier GO if the step is passed. Score the soldier NO-GO if the step is failed. If the soldier scores NO-GO show what was done wrong and how to do it correctly.

References

Required

FM 3-25.26

Related

Navigate from One Point on the Ground to Another Point While Dismounted
071-329-1006

Conditions: Given a standard topographic map of the area, scale 1:50,000, a coordinate scale and protractor, a compass, and writing materials.

Standards: Moved on foot to designated points at a rate of 3,000 meters in an hour.

Performance Steps

1. Determine your pace count.
   a. When you have to go a certain distance on foot, you can measure distance by counting your paces. The average soldier uses 116 paces to travel 100 meters. You should check your pace length by practicing on a known 100-meter distance, like a football field plus one end zone, which is 110 yards (about 100 meters).
   b. When you travel cross-country as you do in the field, you use more paces to travel 100 meters, usually about 148 instead of 116. This is because you are not traveling over level ground, and must use more paces to make up for your movement up and down hills. You should pace yourself over at least 600 meters of crisscrossing terrain to learn how many paces it takes you to travel an average 100 meters over such terrain.
   c. Be sure you know how many paces it takes you to walk 100 meters on both level and crisscrossing terrain.
      (1) The problem in pacing is maintaining a straight line. At night, you will tend to walk in a clockwise circle if you do not use a compass. In daylight, you should use aiming points and a compass. Also, remember to figure only the straight-line distance when you have to walk around an obstacle.
      (2) Another problem is keeping count of paces taken. One way is to use pebbles. For instance, suppose you want to pace off 1 kilometer. (A kilometer is 1,000 meters or the distance between two of the black grid lines on your map.) Put ten pebbles in your right pocket. When you go 100 meters, move one pebble to your left pocket and start your count over. When all ten pebbles had been moved to your left pocket, you have traveled 1 kilometer. Or, you can tie knots in a string, one knot per 100 meters.
   d. Sample problem: You are to move 715 meters, and your pace count for 100 meters is 116 paces.
      (1) Using the pebble methods, you will need seven pebbles. This will take you 700 meters. But what about the other 15 meters?
      (2) To determine how many paces it will take to go the remaining 15 meters, multiply 15 meters by your pace count (116). (15 x 116 = 1,740). Mark out the last two numbers (40). The reminder is how many paces it will take to go 15 meters (17).
      (3) So you would go 715 meters using the pebble method by pacing off 116 pace per 100 meters until all seven pebbles are used, then go an additional 17 paces to arrive at 715 meters.

2. Navigate from one point to another using terrain association.
   a. This technique uses terrain or manmade features to serve as landmarkers or checkpoints for maintaining direction of movement. It can be used anywhere, day or night, as long as there are distinguishable terrain features. You use terrain association when moving from the unit area to the motor pool. You walk down the road or sidewalk using intersections or buildings to steer or turn on (landmarks or checkpoints). In the field, with few roads and buildings, you use terrain features for your axis and checkpoints.
   b. In using association, you first locate your position on the map, then locate your destination or objective. It will seldom be the best way to travel. For example, look at Figure 1. Assume that you are to move from point A to point B. You see that a straight line could cause you to climb several small ridges and valleys (the "X's" on Figure 1).
   c. When adjusting your route, consider the following:

Performance Steps

(1) Tactical aspect. Avoid skylining open areas and danger areas like streams or crossings on roads and hilltops. Your tactical concern is survival. The mission is causing you to move to your objective. You need to be sure you get to that objective. Looking at Figure 2, you decide for tactical reasons to cross the stream where you would not be seen from the road (C) and to cross the road in a small valley (D). You know that valleys offer better cover and concealment, so you will use them (E) (F).

(2) Ease of movement. Always pick the easiest route that the tactical situation will allow. However, you achieve surprise by doing the unexpected. A difficult route increases your chance of getting lost. A difficult route may be noisy and may tire you out before you get to your objective.

(3) Boundaries. It is almost impossible to travel in a straight line, with or without a compass. Pick an axis or corridor to travel along. Pick boundaries you will be able to spot or feel. Hardtop roads, streams, high grounds, and railroads all make good boundaries. If you start to wander too far off course, you will know it.

d. You decide the route shown in Figure 3 offers you easy movement. You check your axis up the valley (1); across the ridge at the saddle (2); cross the stream, turning left and keep the stream on the left, high ground on the right (4); to the third valley (5); to the saddle, then on the objective (6).

e. With boundaries to keep you straight, you need to know where along your corridor you are. You do this with checkpoints. The best checkpoint is a line or linear feature that you cannot miss. A linear feature across your corridor, or axis, is crossed no matter where you are in the axis. Use hardtop roads, railroads, power lines, perennial streams (solid blue lines and the dash blue lines are frequently dry), rivers, ridges, and valleys.

NOTE: Do NOT use light-duty roads and trails, because there is always more on the ground than the map shows. DO NOT use wood lines, which are rarely permanent.

f. Referring to Figure 3, pick your checkpoints.

(1) The saddle, you can use Hill 241 to line on up the right valley, which you will follow to:

(2) The stream, which you will move alongside it until:

(3) The bend in the stream, when you turn right to:

(4) The road in the valley (the ridge crossing on the road on the 12 grid line will serve as a limiting feature), then up to:

(5) The far saddle, and right to your objective (B).

g. If you cannot find linear features, use an elevation change--hill or depressions, small ridge, or a valley. Look for one contour line of change during the day, two at night. Regardless of contour interval, you will spot a contour interval of change on foot.

h. Determine the distance between checkpoints. DISTANCE IS THE CAUSE FOR MOST NAVIGATIONAL MISTAKES. Estimate or measure the distance from one checkpoint to another. Then trust that distance.

i. Referring to Figure 4, check your distances:

(1) 500 meters to the saddle (1).

(2) 800 meters to the stream (2).

(3) 500 meters to the bend in the stream (3).

(4) 300 meters to the road (4).

(5) 1,000 meters to the far saddle (5).

3. Navigate from one point to another using dead reckoning.

a. Dead reckoning is a technique of following a set route or line for a determined distance. This technique is used on flat terrain, like deserts and swamps. It can be used day or night. To use dead reckoning:

(1) Locate the start point and finish point on the map (Figure 5).

(2) Determine the grid azimuth from the start point to the finish point or to the first intermediate point on the map.

(3) Convert the grid azimuth taken from the map to a magnetic azimuth.

(4) Determine the distance between the start point and the finish point or any intermediate points on the map.

Performance Steps

NOTE: If you do not know how many paces you take for each 100 meters, you should move to a 100-meter course and determine your pace count.

(5) Convert the map distance to pace count.

(6) Make a thorough map reconnaissance of the area between the start point and the finish point.

b. Before moving from the start point, shoot an azimuth on a well-defined object on the ground in the direction of travel. These objects, known as steering points, may be lone trees, buildings, rocks, or any easily identifiable point. At night, the most likely steering point will be a star. Because of the rotation of the earth, the positions of the stars continually change. You must check your azimuth frequently. Do this only when halted. Using your compass while moving will cause you to go off-course. Your steering mark may be beyond your objective. Remember to travel the distance you determined.

c. Once you have selected a steering point, you should move toward it, remembering to begin your count. For every 100 meters you travel, you should have some methods devised to keep track of the number of 100 meters you travel.

d. Upon reaching your first steering point, shoot an azimuth to another steering mark, and repeat c, above, until you reach the finish point.

e. If you should encounter an obstacle, you may have to detour around it (Figure 6). To do this, complete a series of 90-degree turns until the obstacle is bypassed and you are back on the original azimuth.

(1) At the edge of the obstacle, make a note of the number of paces taken to this point.

(2) If your detour is to the right, add 90 degrees to your original azimuth.

(3) Using the new azimuth, pick a steering mark and move toward it, making sure you begin a new pace count. Move on this azimuth until reaching the end of the obstacle.

(4) Stop and make a note of the number of paces taken, again as in (2) above, add or subtract 90 degrees from the azimuth just read, and move to the far side of the obstacle.

(5) Upon reaching the far side, stop the count and make note of the number of paces taken; add this pace count to the pace count noted in (1) above.

(6) At this time, again add or subtract 90 degrees from the azimuth used. Using this new azimuth, move the same number of paces taken on the first leg of the offset or detour.

(7) Place the compass on your original azimuth, pick up the pace count you ended with when you cleared the obstacle, and proceed to your finish point.

f. Bypassing the same obstacle at night calls for special considerations:

(1) To make a 90-degree turn, hold the compass as you would to determine a Magnetic Azimuth.

(2) Turn until the center of the luminous letter "E" is under the luminous line (do not change the setting of the luminous line).

NOTE: If you turn to the right, "E" is under the luminous line. If you turn to the left, "W" is under the line.

(3) Proceed in the direction until you have outflanked the obstacle.

(4) Turn until the north arrow is under the luminous line and proceed parallel to your original course until you have bypassed the obstacle.

(5) Turn until the "W" is under the luminous line and move back the same distance you originally moved.

(6) Finally, turn until the north arrow is under the luminous line and proceed on your original course.

(7) You must do the pace count the same as you do for bypassing the obstacle during daylight.

g. After reaching the finish point, conduct a detailed terrain analysis to confirm your location.

4. Navigate from one point to another by combining terrain association with dead reckoning.

a. Frequently, you must consider the advantage and disadvantage of both navigation techniques.

(1) Terrain association is fast and easy, and it allows for mistakes. It also is subject to map accuracy and can only be used with recognizable terrain features.

Performance Steps

(2) Dead reckoning is accurate and works on flat terrain that lacks terrain features; however, all work must be precise, and the technique takes time.

b. There may be times when you combine both techniques. For instance, in the desert, you may need to use dead reckoning to arrive at or near a road, or a ridge, then use terrain association to follow that feature to an objective.

Evaluation Preparation: SETUP: Select an area with varying terrain and vegetation that is large enough to have two points, 1,000 to 2,000 meters apart. Each point is on or near an identifiable terrain feature and is marked on the ground with a sign containing a letter or number. Dummy signs are placed not less than 100 meters nor more than 200 meters to the right and left of the correct point. Clearly mark correct points on the map. Prepare a sheet of paper giving the azimuth and distance for each leg of the course to be covered. Have pencils available for the tested soldier.

BRIEF SOLDIER:
1. Terrain Association.
a. Give the soldier the map and tell him to identify the best route to take between the two points that have been plotted on the map (1,000 to 2,000 meters apart). NOTE: The best route must have been determined by an SME before the test.
b. Give the soldier the map and tell him he must move from point A on the map to point B (1,000 to 2,000 meters apart) using terrain association (no compass is used). Tell the soldier he has _____ time to complete the course.
2. Dead Reckoning. Give the soldier the sheet of paper with the azimuth and the distance for each leg of the course (three to five points, 200 to 500 meters apart), and the compass; no map will be used. Tell the soldier to move over the course shown by the azimuth and the distance on the paper. Tell the soldier to record the letter or number at the end of each leg of the course. Tell the soldier he has _____ time to complete the course.
NOTE: Time standards are based on the average time it takes two SMEs to complete the course plus 50 percent. For example, SME time, 1 hour. 1 hour added to 50 percent = Course Test Time of 1 hour, 30 minutes.
Soldiers being tested are given 10 minutes to study the map and to determine their course of action. At the end of this time, the soldier moves to the start point and begins the test. Time starts when soldiers leave the start point and ends when the finished point is crossed.

Performance Measures	**GO**	**NO GO**
1. Terrain association. a. Identified the best route within 10 minutes and explained reason for picking that route. b. Wrote down the correct letter or number at the end of each leg of the course.	___	___
2. Dead reckoning. a. Wrote down the correct letter or number of each leg of the course. b. Arrived at correct destination within the specified time.	___	___

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

Orient a Map Using a Lensatic Compass
071-329-1011

Conditions: Given a field table, a standard 1:50, 000 scale military map, a protector, a pencil, paper, and a compass in daylight.

Standards: Orient the map to the ground using a compass so that the north-seeking arrow of the compass is within 3 degrees (20 mils) of the angle shown in the grid-magnetic (G-M) angle of the declination diagram shown on the map.

Performance Steps

1. With the map level, place the compass parallel to a north-south grid line with the cover side of the compass pointing towards the top of the map. This will place the black index line on the dial of the compass parallel to grid north. Since the needle on the compass points to magnetic north, we have a declination diagram on the face of the compass formed by the index line and the compass needle.

2. Rotate map and compass until the directions of the declination diagram formed by the black index line and the compass needle match the direction shown the declination diagram printed on the margin of the map. The map is then oriented.

3. If the magnetic north arrow on the map is to the left of the grid north, the compass reading will equal the G-M angle (given the declination diagram). If the magnetic north is the right of the grid north, the compass reading will equal 360 degrees (6400 mils) minus the G-M angle.

4. Remember to point the compass north arrow in the same direction as the magnetic north arrow (2 above), and the compass reading (equal to the G-M angle or the 360 degrees (6400 mils) minus G-M angle) will be quite apparent.

NOTE: If the G-M angle is less then 3 degrees (50 mils), do not line up the north arrow.

5. Some maps have a built-in protractor considering of a pivot point "P" on the south neat line of the map and several degrees of arc along the north neat line of the map. The G-M line is obtained by connecting pivot "P" with the appropriate value of the G-M angle (taken from the declination diagram) on the arc. The map may then be oriented by placing the compass parallel on this line and rotating the map and compass until the needle point is aligned with the continuous line formed by the index line and the sighting wire. The map is then oriented.

6. An alternate method is to draw a magnetic north line on the map from any N-S and E-W grid line intersection using the protractor. Align the straight-edge of the compass along this magnetic north line and rotate the map and compass together until the north arrow falls beneath the fixed black index line on the compass.

Evaluation Preparation: SETUP: Select an area that is free of magnetic interference (parlance, vehicles). Provide a field table, 1:50,000 scale military map, a protractor, a pencil, paper and compass. BRIEF SOLDIER. Tell the soldier that he is to orient the map to the ground using the compass. Tell him he must use the G-M angle shown by the declination diagram if it exceeds 3 degrees (50 mils).

Performance Measures	**GO**	**NO GO**
1. Determine whether G-M angle exceeds 3 degrees (50 mils)	____	____
2. Aligns the side of the compass with one of the north-south grid lines.	____	____
3. Has the cover of the compass toward the top of the map.	____	____
4. Orients the map.	____	____
5. Corrects the orientations of the map when the G-M angle exceeds 3 degrees (50 mils) using one of the following.	____	____

Performance Measures **GO** **NO GO**

a. G-M angle is formed by the compass's black index line and the compass needle.
b. Use the pivot point "P" on the south neat line and the degrees of arc along the north neat line and places the compass along this line.
c. Draws a magnetic north line from any N-S and E-W grid the intersection using a protractor and places the compass along this line.

NOTE: Steps 5 will only be required when G-M angle exceeds 3 degrees or 50 mils. Step 5b will only be tested if the map has the built-in protractor.

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier scores NO-GO, show what was done wrong and how to do it correctly.

Locate an Unknown Point on a Map and on the Ground by Intersection
071-329-1014

Performance Steps

1. Use the map and compass method.

Note: The example map is not to scale, an easterly grid-magnetic (G-M) angle to 10 degrees is used in the examples.

   a. Determine the G-M angle of the map you are using.
   b. Locate and mark your position on the map.
   c. Convert the magnetic azimuth to the unknown point (22 degrees); change it to a grid azimuth. In the example, the G-M angle used was 10 degrees easterly, giving a grid azimuth of 32 degrees.
   d. Place the protractor on the map, ensuring that the zero-degree indication on the protractor is pointing to the top of the map (north) and the index point is placed center of mass on your location. Place a tick mark at the number of degrees you want to plot. Draw a line on the map from your position on this grid azimuth (32 degrees).
   e. Move to or call a second known position from which the unknown point can be seen. Locate this position on the map.
   f. Repeat paragraphs c and d.
   g. Where the lines cross is the location of the unknown point.

2. Use the straightedge method.
   a. See the task Orient a Map to the Ground by Map Terrain Association, task number 071-329-1012, Soldier's Training Publication (STP) 21-1-Soldier's Manual of Common Tasks (SMCT).
   b. Locate and mark your position on the map.
   c. Lay a straightedge on the map with one end at user's position (A) as a pivot point, and rotate the straightedge until the unknown point is sighted along the edge.
   d. Draw a line along the straightedge.
   e. Repeat paragraphs b, c, and d at position (B) and, for check for accuracy, at a third position.
   f. The intersection of the lines is the location of the unknown point (C).

Evaluation Preparation: Setup: In a field location, give the soldier a standard 1:50,000-scale military map of the area, a compass, a straightedge, a coordinate scale and a protractor, a pencil, an unknown point, and two points (at least 400 meters apart) from which to determine azimuths to the unknown point. Brief soldier: Tell the soldier he is to determine the six-digit grid coordinates of the unknown point.

Performance Measures	GO	NO GO
1. Determines the six-digit grid coordinates, to include the 100,000-meter square identifier of the unknown point within 100 meters.	___	___

Evaluation Guidance: Score the soldier GO if the step is passed. Score the soldier NO-GO if the step is failed. If the soldier scores NO-GO show what was done wrong and how to do it correctly.

References

Required	Related
FM 3-25.26	
GTA 05-02-013	
STP 21-1-SMCT	

Locate an Unknown Point on a Map and on the Ground by Resection
071-329-1015

Conditions: Given an unknown location, a standard 1:50,000 scale military map of the area, a compass, a straightedge, a coordinate scale and a protractor (GTA 5-2-12), a pencil, and two terrain features visible from your location and identifiable on the map.

Standards: Determined the 100,000 meter square identification letters and six-digit coordinates of your location to within 100 meters of the actual grid coordinates.

Performance Steps

1. Use the map and compass method (Figure 1).

NOTE: The example map is not scale, and easterly G-M angle of 10 degrees is used in the examples.

   a. Determine the G-M angle of the map you are using.
   b. Locate two known positions on the ground and mark them on your map (A, Figure 1).
   c. Using your compass, measure the magnetic azimuth to one of the known locations; change it to a grid azimuth (B, Figure 1.)
      (1) If it is a westerly G-M angle, subtract the number of degrees in the G-M angle from your magnetic azimuth.
      (2) If it is an easterly G-M angle, add the number of degrees in the G-M angle to your magnetic azimuth.
   d. Change this grid azimuth to a back azimuth.
   e. Place the protractor on the map, ensuring that the zero degree indicator on the protractor is pointing to the top of the map (north), and the index point is placed center mass on this location. Place a tick mark at the number of degrees you want to plot. Remove the protractor from the map and draw a line on the map from this position on the grid back azimuth you found, in the direction of your unknown position.
   f. Repeat paragraphs c through e for a second (C, Figure 1, and third (D), Figure 1) known position.
   g. Where these lines cross is your location.

2. Perform resection without a compass (Figure 2).
   a. Orient your map as closely as you can using one of the ways you've learned about finding direction, compass sun, watch or stars. Then look for some feature, such a water tower (Figure 2, Point A), that you can also find on the map. Put a ruler or straightedge on the map, and place it next to the water tower symbol (Figure 2), Point B) on the map. Then align the straightedge so that it points directly at the real water tower. Draw a line along the straightedge or ruler (the line will cross the symbol for the water tower on your map).

NOTE: Do not move your map once it is properly oriented.

   b. Find another feature, such a road junction (Figure 3, point C), and do the same things. Lay the straightedge on your map and point it at the real road junction, ensuring at the same time that its edge crosses over the road junction. (Figure 3, Point D) on the map. Draw another line along the ruler until it crosses (interest) the first line. The point where the lines cross in your location. (Figure 3, Point X) if you do the same things with a third line, it may help location your position more accurately.

3. To perform modified resection you must be located on a linear, feature such as a road, stream bank, railroad or ridge. First orient your map, then find some feature that you can also find on the map, such as the water tower in the previous example. Just as before, put a straightedge through the water tower on the map and align the straightedge through so that it points directly at the real water tower. Draw a line along the ruler or straightedge. The point where the line crosses the linear feature, which you know you are on, is your location.

NOTE: Always orient your map as closely as you can. The compass is the best way to do so. If you don't have a ruler, use your rifle cleaning rod or section of reaction of radio antenna as a

Performance Steps
straightedge.

Evaluation Preparation: SETUP: Give the soldier a standard 1:50,000 scale military map of the local area, a compass, a coordinate scale and a protractor (GTA 5-2-12), a pencil a straightedge, and the location of two known points.

BRIEF SOLDIER: Tell the soldier to determine the six-digit coordinates for his location.

Performance Measures	GO	NO GO
1. Determined the six-digit grid coordinate and the 100,000 meter square identifier of his position (unknown point) within 100 meters.	——	——

Evaluation Guidance: Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

References

Required	Related
FM 3-25.26	

Navigate from One Point on the Ground to Another Point While Mounted
071-329-1030

Conditions: Given a standard 1:50,000-scale topographic map of the area, a coordinate scale, a protractor, and a compass, while mounted in a vehicle with cross-country capability and tasked to move from a known start point to one or more distant points.

Standards: Direct the driver to the designated point(s) at a rate of 9 kilometers per hour using--
1. Terrain association.
2. Dead reckoning.

Performance Steps

1. Determine the effects of terrain on the vehicle when navigating mounted.
   a. Vehicle speed and mobility.
      (1) Great distances may be covered quickly. Develop the ability to estimate the distance traveled. Meanwhile, use the odometer, which shows the distance traveled. Remember that .1 mile is roughly 160 meters, and 1 mile is about 1,600 meters or 1.6 kilometers.
      (2) Mobility is an advantage while navigating. When disoriented, mobility makes it easier to move and reorient.
   b. Vehicle capabilities.
      (1) Most military vehicles can knock down a tree. Larger vehicles can clear more trees but cannot knock down several trees at once. Find paths between trees that are wide enough for the vehicle (Figure 1).

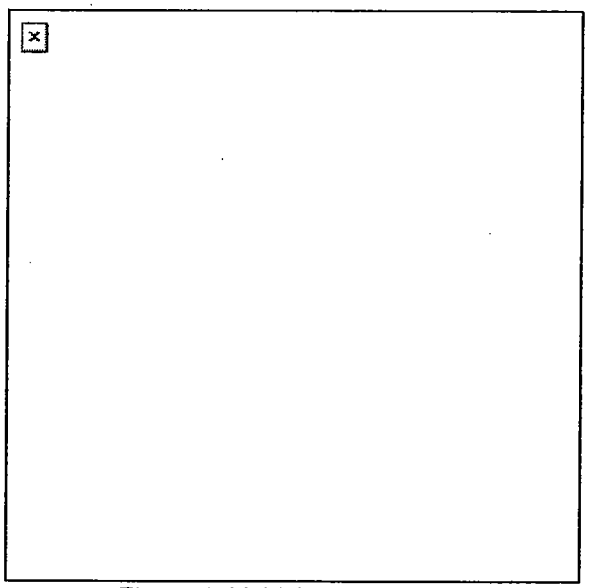

Figure 1. Vehicle capabilities.

CAUTION
During training, follow installation standing operating procedure (SOP) or local guidelines concerning cross-country vehicle travel.

(2) Military vehicles are designed to climb 60-percent (30-degree) slopes if the surface is dry and firm. If gravel, vegetation, or mud is on the slope, the practical slope-climbing capability is about 40 percent (20 degrees) (Figure 2).

Performance Steps

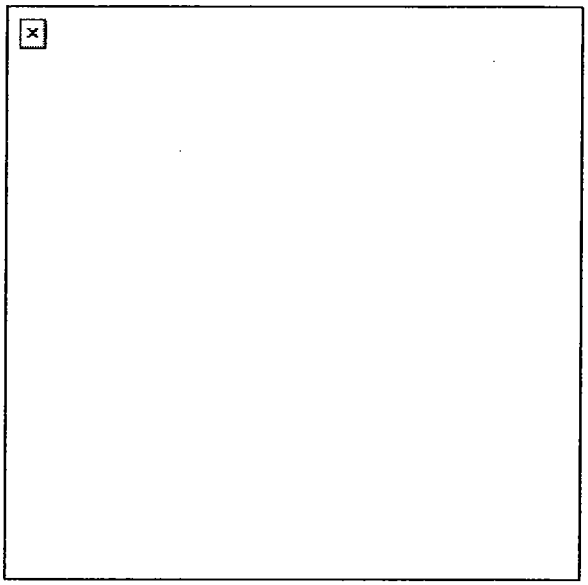

Figure 2. Climbing slope and side slope capabilities.

(a) Determine the approximate slope by looking at the route selected on a map. One contour line in any 100 meters of map distance on that route indicates a 10-percent slope. Two contour lines indicate a 20-percent slope, and so forth. If there are four contour lines in 100 meters, look for another route.

NOTE: The above figures are true for a 10-meter or 20-foot contour interval. If the map has a different contour interval, adjust the arithmetic. For instance, if there is one contour line in 100 meters, a 10-meter interval would give a 10-percent slope.

(b) The side slope is more important than the climbing slope. A 40-percent side slope is the maximum in good weather (Figure 2). Traverse a side slope slowly and without turning. Rocks, stumps, or sharp turns can cause a downhill track to be thrown under the vehicle, which is a major recovery task.

(3) For tactical reasons, movement is often in draws or valleys due to the cover they provide. Side slopes make slow movement necessary.

2. Know the effects of weather on vehicle movement.
   a. Weather can halt mounted movement. Snow and ice are dangerous. Rain and snow affect soil load-bearing ability. Heavy rain may restrict cross-country vehicles to road movement.
   b. Adjust the route to avoid flooded or muddy areas. A stuck vehicle hinders combat capability.

3. Know both methods of navigation.
   a. Terrain association. This is the most used method of navigation. The navigator plans the route for movement from one terrain feature to another. An automobile driver uses the same technique while driving along the streets in a city. He guides himself using intersections or other landmarks. Like a driver, the navigator selects routes, or "streets," between key points, or "intersections." These routes must sustain vehicle travel, and they should be as direct and easy to follow as possible. In a typical move, the navigator determines his location and the location of his objective. He notes the position of each on his map and selects a route between the two.
      (1) Determine the start point and destination.
      (2) Draw or visualize a straight line between the two points on the map.
      (3) Inspect the terrain along that line for ease of movement, for features recognizable under predicted weather conditions, and for tactical considerations.
      (4) After analyzing the terrain, adjust the route by doing the following:

Performance Steps

(a) Consider tactical aspects. Avoid skylining, select key terrain for overwatch positions, and select concealed routes.

(b) Consider ease of movement. Use the easiest possible route. Bypass difficult terrain. A difficult route is hard to follow, noisier, causes more wear to the vehicle (and possibly recovery problems), and takes more time. Tactical surprise is achieved by doing the unexpected. Try to select an axis or corridor and not a specific route. Allow room for vehicles to maneuver.

(c) Use terrain features as checkpoints. They must be easily recognizable under the current light and weather conditions and from a moving vehicle. The best checkpoints are linear features that cross the route. Use perennial streams, rivers, hard-top roads, ridges, valleys, and railroads. The next best are elevation changes; hills, depressions, spurs, and draws. Look for two contour lines of change. Less than two lines of change cannot be spotted while mounted.

(d) Follow terrain features. Movement and navigation along a valley floor or near or on the crest of a ridgeline are easiest.

(e) Determine directions. Break the route down into smaller segments and determine the rough direction that will be followed. The compass is not needed; use the main points of direction (north, northeast, east, for example). Before moving, note the location of the sun and the direction of north. Locate changes of direction, if any, at the checkpoints chosen.

(f) Determine distance. Obtain the total distance to be traveled and the approximate distance between checkpoints. Plan to use the vehicle odometer to keep track of distance traveled.

NOTE: Convert map distance to ground distance by adding 20 percent for cross-country movement.

(g) Make notes. Usually, mental notes are adequate. Imagine what the route will be like and remember it.

(h) Plan. Restudy the route selected. Determine where problems may occur and how they may be avoided.

b. Dead reckoning. Dead reckoning means moving a set distance along a set line. It involves moving so many meters along a set line, usually an azimuth in degrees.

NOTE: There is no accurate method of determining direction in vehicles. A magnetic vehicle-heading reference unit may be available in the future. For now, use a compass.

(1) Dead reckoning with steering marks. This procedure is the same for vehicle travel as it is on foot.

(a) Dismount from the vehicle.

(b) Move away from the vehicle (about 50 meters).

(c) Set the azimuth on the compass and choose a steering mark (rock, tree, hilltop) in the distance on that azimuth.

(d) Remount and have the driver identify the steering mark. Proceed to it in as straight a line as possible.

(e) On arrival at the steering mark or when direction is changed, repeat paragraphs (a) through (c) for the next leg of travel.

(2) Dead reckoning without steering marks. This procedure is used only in flat, featureless terrain.

(a) Dismount from the vehicle, which has been positioned in the direction of travel. Move about 50 meters to the front of the vehicle.

(b) Face the vehicle and read the azimuth to the vehicle.

(c) By adding or subtracting 180 degrees, determine the forward azimuth (direction of travel).

(d) Have the driver drive on a straight line toward you.

(e) Remount the vehicle, hold the compass as it will be held while the vehicle is moving, and read the azimuth to the front.

Performance Steps

(f) The compass swings off the azimuth determined, but it should pick up a constant deviation. For instance, the azimuth to the steering mark was 75 degrees while you were away from the vehicle. When you remounted, and the driver drove straight forward, the compass showed 67 degrees. There is a deviation of minus 8 degrees. All that is needed is to hold the 67-degree heading.

(g) At night, do the same thing without a steering mark. From the map, determine the azimuth of travel. Line the vehicle up on that azimuth, then move well in front of the vehicle. Be sure it is aligned correctly. Mount, have the driver move slowly forward, and note the deviation.

NOTE: If the vehicle has a turret, traversing the turret changes the deviation.

(3) Turret alignment. Another method, if the vehicle has a stabilized turret, is alignment of the turret on the azimuth to be traveled. Switch the turret stabilization system ON. The gun tube remains pointed at the destination no matter which way the vehicle is turned.

CAUTION: If you have to take the turret off-line to engage a target, repeat the entire process.

NOTE: This technique works, and it is not harmful to the stabilization system. The vehicle is subject to stabilization drift, therefore, use this technique for no more than 5,000 meters before resetting.

(4) Distance factor. Computing the distance factor in dead reckoning is usually a simple process. Determine the map distance to travel and add 20 percent to convert to ground distance. Use the vehicle odometer to control the distance of travel.

4. Learn to combine and use both methods.
   a. Terrain association is fast and error-tolerant. It is the best method under most circumstances, and it can be used day or night.
   b. Dead reckoning is accurate if done correctly -- precision is a requirement. Dead reckoning is slow, but works in flat terrain.
   c. Often, dead reckoning and terrain association are combined. Use dead reckoning to travel across a large, flat area to a ridge. Use terrain association for the rest of the move.
   d. The ability to use both methods is required. Probable errors, in order of frequency, are--
      (1) Failure to determine distance(s) to be traveled.
      (2) Failure to travel the proper distance.
      (3) Failure to properly plot or locate the objective.
      (4) Failure to select easily recognized checkpoints or landmarks.
      (5) Failure to consider the ease of movement factor.

Evaluation Preparation: Setup: At the test site, provide the materials and equipment given in the task conditions statement. Select an area that has varying terrain and vegetation. The area must be large enough to have three to five points that are 1,000 to 5,000 meters apart. Each point is on or near an identifiable terrain feature and is marked on the ground with a sign containing a letter or number. Dummy signs are placed not less than 100 meters or more than 200 meters to the right and left of the correct point. Clearly mark all correct points on the map. Prepare a sheet of paper giving the azimuth and distance for each leg of the course. Have pencils available for the soldier.

Brief Soldier:

1. Terrain association. Give the soldier the map and tell him to direct the driver and vehicle over the course recorded on the map. Tell the soldier to record the letter or number at the end of each leg of the course. Tell the soldier the course will be covered using terrain association.

2. Dead reckoning with steering marks. Give the soldier a protractor, a compass, and a sheet of paper with the azimuth and distance for each leg of the course. Maps are not used. Tell the soldier to direct the driver and vehicle over the course recorded on the paper. Tell the soldier to record the letter or number at the end of each leg to the course. Tell him the course will be covered using steering marks.

Performance Measures	GO	NO GO
1. Terrain association. Write the correct letter or number found at the end of each leg of the course.	___	___
2. Dead reckoning. a. Move away from the vehicle. b. Set azimuth on compass and selects steering mark. c. Have the driver identify the steering mark. d. Write the correct letter or number found at the end of each leg of the course. e. Repeat steps in performance measure 2a, b, and c for each leg of the course.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier fails any steps, show what was done wrong and how to do it correctly.

References

Required	Related
	FM 90-3

Compute Back Azimuth
071-510-0002

Conditions: Given azimuths and a requirement to compute back azimuths.

Standards: Determine the back azimuth of a given azimuth to the exact degree or mils.

Performance Steps

1. Determine a back azimuth by using degrees. Suppose you follow a 65-degree azimuth from point A to point B and then want to go back to your original location. To do this, you use a back azimuth. You simply add 180 to the first azimuth. Your back azimuth is 65 + 180 = 245 degrees.

2. Determine a back azimuth by using mils. You move from point A to point B on an azimuth of 1,150 mils. Should you wish to return to point A, you would follow a back azimuth. To determine the back azimuth you simply and 3,200 mils to 1,150. Your back azimuth is 3,200 + 1,150 = 4,350.

Note: The rule to remember to determine a back azimuth is:
1. In degrees: less than 180 degrees, add 180 degrees; more than 180 degrees, subtract 180 degrees.
2. In mils: less than 3,200 mils, add 3,200 mils; more than 3,200 mils, subtract 3,200 mils.

Evaluation Preparation: Setup: Provide the soldier with azimuths, one in degrees and one in mils.
Brief soldier: Tell the soldier to compute the exact back azimuths.

Performance Measures	GO	NO GO
1. Computes the exact back azimuth.	____	____

Evaluation Guidance: Score the soldier GO if the step is passed. Score the soldier NO-GO if the step is failed. If the soldier scores NO-GO, show what was done wrong and how to do it correctly.

References

Required	Related
FM 3-25.26	

Subject Area 11: Communications

Use the KTC 1400(*) Numerical Cipher/Authentication System

113-573-4006

Performance Steps

SECURITY PRECAUTIONS: Use of code sets. Each set of the KTC 1400(*) is effective for 12 hours unless otherwise directed by the signal office. Encrypt no more than 15 characters with a single SET INDICATOR. If an entire message must be encrypted, use the operation code KTC 600(*). Use only random letter combinations as SET INDICATORS. Variant letters are provided for each numeral. These should be used impartially and at random. SECURITY PRECAUTIONS: Each table has plain text numbers and letters after the 6th, 12th, and 18th lines. These are to ease operation. Do not use these as cipher values. In challenge and reply authentication, only the station responding is verified. Do not accept a challenge as an authentication. To verify both stations, both stations should be challenged and should reply. Another challenge should be made if an incorrect reply is received, if a "standby" is requested, or if an unusual delay occurs between challenge and reply. Never give the challenge and reply in the same transmission (self authentication).

1. Find the line for encryption.
   a. Randomly select any two letters for SET INDICATOR (SI), (except Z).
   b. Find the first letter of the SI in the LINE INDICATOR column.
   c. Find the second SI letter.
   d. Find the SET LETTER in the LINE INDICATOR column. This line will be used to encrypt up to 15 characters.

2. Encrypt grid zone letters provided by the supervisor.

NOTE: Grid zone letters will be included in messages when they are necessary to the understanding of such messages. No other letters will be encrypted. If necessary to preclude misunderstanding, a statement may be made that grid zone letters are included in the message.

3. Encrypt numbers provided by the supervisor.

4. Prepare for transmission.

5. Decrypt grid zone letters and numbers.

6. Perform challenge and reply authentication.
   a. Challenge a station using authentication.
   b. Reply to a station using authentication.

7. Perform transmission authentication.

Evaluation Preparation:

Performance Measures	**GO**	**NO GO**
SECURITY PRECAUTIONS: Use of code sets. Each set of the KTC 1400(*) is effective for 12 hours unless otherwise directed by the signal office. Encrypt no more than 15 characters with a single SET INDICATOR. If an entire message must be encrypted, use the operation code KTC 600(*). Use only random letter combinations as SET INDICATORS. Variant letters are provided for each numeral. These should be used impartially and at random. Each table has plain text numbers and letters after the 6th, 12th, and 18th lines. These are to ease operation. Do not use these as cipher values. In challenge and reply authentication, only the station responding is verified. Do not accept a challenge as an authentication. To verify both stations, both stations should be challenged and should reply. Another challenge should be made if an incorrect reply is received, if a "standby" is requested, or if an unusual delay occurs between challenge and reply. Never give the challenge and reply in the same		

Performance Measures	**GO**	**NO GO**
transmission (self authentication).		
1. Find the line for encryption. a. Randomly select any two letters for SET INDICATOR (SI), (except Z). b. Find the first letter of the SI in the LINE INDICATOR column. c. Find the second SI letter. d. Find the SET LETTER in the LINE INDICATOR column. This line will be used to encrypt up to 15 characters.	___	___
2. Encrypt grid zone letters provided by the supervisor. Note: Grid zone letters will be included in messages when they are necessary to the understanding of such messages. No other letters will be encrypted. If necessary to preclude misunderstanding, a statement may be made that grid zone letters are included in the message.	___	___
3. Encrypt numbers provided by the supervisor.	___	___
4. Prepare for transmission.	___	___
5. Decrypt grid zone letters and numbers.	___	___
6. Perform challenge and reply authentication. a. Challenge a station using authentication. b. Reply to a station using authentication.	___	___
7. Perform transmission authentication.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show him what was done wrong and how to do it correctly.

References

Required	**Related**
	CE01
	CEOI
	KTC 1400D
	SS0470

Recognize Electronic Attack (EA) and Implement Electronic Protection (EP)
113-573-6001

Conditions: Given a radio set, applicable operator's technical manual, Field Manual (FM) 24-1, FM 24-33, and unit signal operating instructions (SOI) extract or Data Transfer Device AN/CYZ-10 loaded with appropriate data.

Standards: Standards are met when you have determined that electronic warfare is directed at your station and electronic counter-countermeasures (ECCM) are employed for continued operation.

Performance Steps

1. Introduction. A close relationship exists between ECCM and communications security (COMSEC). Both defensive arts are based on the same principle. An enemy who does not have access to our essential elements of friendly information (EEFI) is a much less effective foe. The major goal of COMSEC is to ensure that friendly use of the electromagnetic spectrum for communications is by the enemy. The major goal of practicing sound ECCM techniques is to ensure the continued use of the electromagnetic spectrum. ECCM techniques are designed to ensure commanders some degree of confidence in the continued use of these techniques. Our objective must be to ensure that all communications equipment can be employed effectively by tactical commanders in spite of the enemy's concerted efforts to degrade such communications to the enemy's tactical advantage. The modification and the development of equipment to make our communications less susceptible to enemy exploitation are expensive processes. Equipment is being developed and fielded which will provide an answer to some of ECCM problems. Commanders, staff, planners, and operators remain responsible for security and continued operation of all communications equipment.
   a. Operators of communications equipment must be taught what jamming and deception can do to communications. They must be made aware that incorrect operating procedures can jeopardize the unit's mission and ultimately increase unit casualties. Preventive and remedial ECCM techniques must be employed instinctively. Maintenance personnel must be made aware that unauthorized or improperly applied modifications may cause equipment to develop peculiar characteristics which can be readily identified by the enemy.
   b. ECCM should be preventive in nature. ECCM should be planned and applied to force the enemy to commit more jamming, interception and deception resources to a target than it is worth, or is available. ECCM techniques must also be applied to force the enemy to doubt the effectiveness of the enemy's jamming and deception efforts.
   c. Before we can begin to prevent electronic countermeasures (ECM), we must first be certain of what we are trying to prevent.
      (1) Jamming is the deliberate radiation, reradiation, or reflection of electromagnetic energy with the object of impairing the use of electronic devices, equipment, or systems. The enemy conducts jamming operations against us to prevent us from effectively employing our radios, radars, navigational aids (NAVAIDS), satellites, and electro-optics. Obvious jamming is normally very simple to detect. The more commonly used jamming signals of this type are described below. Do not try to memorize them; just be aware that these and others exist. When experiencing a jamming incident, it is much more important to recognize it and take action to overcome it than to identify it formally.
         (a) Random noise. It is random in amplitude and frequency. It is similar to normal background noise and can be used to degrade all types of signals.
         (b) Stepped tones. These are tones transmitted in increasing and decreasing pitch. They resemble the sound of bagpipes.
         (c) Spark. The spark is easily produced and is one of the most effective forms of jamming. Bursts are of short duration and high intensity. Sparks are repeated at a rapid rate and are effective in disrupting all types of communications.
         (d) Gulls. The gull signal is generated by a quick rise and a slow fall of a variable radio frequency and is similar to the cry of a sea gull.

Performance Steps

(e) Random pulse. In this type of interference, pulses of varying amplitude, duration, and rate are generated and transmitted. Random pulses are used to disrupt teletypewriter, radar, and all types of data transmission systems.

(f) Wobbler. The wobbler is a single frequency which is modulated by a low and slowly varying tone. The result is a howling sound which causes a nuisance on voice radio communications.

(g) Recorded sounds. Any audible sound, especially of a variable nature, can be used to distract radio operators and disrupt communications. Examples of sounds include: music, screams, applause whistles, machinery noise, and laughter.

(h) Preamble jamming. This type of jamming occurs when the synchronization tone of speech security equipment is broadcast over the operating frequency of secure radio sets. Preamble jamming results in radios being locked in the receive mode. It is especially effective when employed against radio nets using speech security devices.

(i) Subtle jamming. This type of jamming is not obvious at all. With subtle jamming, no sound is heard from our receivers. They cannot receive incoming friendly signals, but everybody appears normal to the radio operator.

(2) Meaconing. This is a system of receiving radio beacon signals from NAVAIDS and rebroadcasting them on the same frequency to confuse navigation. The enemy conducts meaconing operations against us to prevent our ships and aircraft from arriving at their intended targets or destinations.

(3) Intrusion. Intentional insertion of electromagnetic energy into transmission paths with the objective of deceiving equipment operators or causing confusion. The enemy conducts intrusion operations against us by inserting false information into our receiver paths. This false information may consist of voice instructions, ghost targets, coordinates for fire missions, or even rebroadcasting of prerecorded data transmissions.

(4) Interference. Interference is any electrical disturbance which causes undesirable responses in electronic equipment. As a meaconing, interference, jamming, and intrusion (MIJI) term, interference refers to the unintentional disruption of the use of radios, radars, NAVAIDS, satellites, and electro-optics. This interference may be of friendly, enemy, or atmospheric origin. For example, a civilian radio broadcast interrupting military communications is interference.

2. Communications Protective Measures.

a. Considerations. Properly applied ECCM techniques will deny valuable intelligence sources to the enemy and eliminate much of the threat that he poses to our combat operations. The following discussion describes practical ways to protect communications systems.

b. The siting of the transmitting antenna is critical in the ECCM process. Before making a decision about a proposed site for either a single-channel or multichannel antenna, there are two basic questions to answer:

(1) Are communications possible from the proposed site?

(2) Are there enough natural obstacles between the site and the enemy to mask transmission?

c. The final decision on site selection will often be a tradeoff between the answers to these two questions. The communications mission must have first priority in determining the actual antenna sites. There are additional actions that must be taken to limit the enemy's chances of interception and location successes. Transmitters and antennas should be located away from the headquarters. The two locations should be separated by more than 1 kilometer (0.62 mile). Erroneous radio frequency direction (RFD) data used in conjunction with observation data may favor the targeting of a decoy site instead of the actual transmitter site. This ploy depends upon good camouflage at the actual site. Transmitters grouped in one area indicate the relative value of the headquarters. Directional antennas reduce radiation exposure to enemy receivers and enhance the intended signal. (For instruction on directional antennas, refer to TC 24-21.)

d. Use the lowest possible transmitter power output. Lower power means less radiated power reaches the enemy and thus increases his difficulty in applying ECM.

Performance Steps

e. Use only approved code systems. Never use unauthorized (homemade) codes. Use of non-NSA generated codes can provide a false COMSEC sense of security that can be exploited by enemy radio intercept operators. Only when absolutely necessary should traffic be passed in the clear.

f. Rather than assuming equipment is defective, assume that it is operational. Operators must not contact other stations for equipment checks simply because no message has been transmitted in a set time frame.

Evaluation Preparation: Setup: A radio set operating in a radio net with interference applied to the system. Brief soldier. Tell the soldier to ensure that he is applying proper tactics to the jamming system.

Performance Measures	**GO**	**NO GO**
1. Determine if ECM is being employed. a. Check for accidental or unintentional interference. (Refer to FM 24-33.) b. Check for intentional interference. (Refer to FM 24-33.)	____	____
2. Initiate operator's procedures. (Refer to FM 24-1 and FM 24-33.) a. Check the equipment ground to ensure that the interference is not caused by a buildup of static electricity. b. Disconnect the antenna. c. Identify the type of sound. d. Move the receiver or reorient the antenna, if possible, and listen or look for variations in the strength of the disturbance. e. Tune the receiver above or below the normal frequency. If such detuning causes the intensity of the interfering signal to drop sharply, it can be assumed that the interference is the result of spot jamming.	____	____
3. Identify jamming signals. (Refer to FM 24-33.)	____	____
4. Employ antijamming measures. (Refer to FM 24-1.) NOTE: Antijamming measures are designed to allow radio operators to work effectively through intentional interference. Regardless of the nature of the interfering signal, radio operators WILL NOT reveal in the clear the possibility or success of enemy jamming.	____	____

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly. Have the soldier practice until the task can be correctly performed.

References

Required	**Related**
FM 24-1	CEOI
FM 24-33	FM 24-18
UNIT SOI	IS3007
	IT0513
	TC 24-21

Use an Automated Signal Operation Instruction (SOI)
113-573-8006

Conditions: Given an SOI, KTV 1600, a radio, an operational radio net, scratch paper and a pencil.

Standards: This task has been performed correctly when the soldier does the following in 10 minutes. 1. Lists the item number of the SOI extract. 2. Lists a radio station call sign. 3. Lists a radio net frequency. 4. Lists an item number identifier. 5. Enters a radio net in which you do not normally operate. 6. Lists a challenge and reply authentication.

Performance Steps

1. List an SOI Item number.
   a. Get the SOI/extract for your unit.
   b. Find the item number for the unit you want. See Figure 1. look down the left-hand column to find the unit (2ND, BDE, 1-80 IN BN). Then look immediately to the right of the unit to find the Item Number (8C).

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Figure 1

   c. Turn to the Item number page for the time period you are using. See Figure 2. The Item number is located at the upper and lower right of the page. The Time period is located at the top right of the page. Example: Time Period 01, Item number 8C.

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Figure 2

2. List a radio station call sign. See Figure 2.
   a. Look down the left-hand column to find the unit. Example: Weapons platoon of Company C, 1-80 Infantry Battalion (WPNS/C/1-80)).
   b. Then look immediately to the right of the unit to find the call sign (Z4N).
   c. Find the suffix that designated the person or subordinate element of the unit by reading down the list of suffixes on the right side of the page and reading the two-digit suffix for that element. (The suffix for PLT LDR is 44). Add it to the previous call signs your found. You now the five-character call sign for the element/person (Z4N44).

3. List a radio net frequency. See Figure 2. Look to the immediate right of your call sign. You now have the opening frequency of the weapons platoon (34.85MHz).

4. List an item number identifier.
   a. With the item number for your unit (see paragraph 1,) turn to the Item Number Identifiers section of your SOI/extract. See Figure 3.

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Figure 3

   b. Find the column for the period you are in (Time period 01). The time periods 1-10 are the column heading across the top of the sheet.
   c. Read down this time period column unit you find the Item Number for your unit. Example: The Item Number for 1-80/in BN is 8C.
   d. Read the two-letter code in the left column opposite your unit Item Number (CF).

5. Enter a radio net in which you don not normally operate.
   a. Turn to the Quick Ref Maj Subor Elms & CBT BNS items of your SOI/extract. There are two sets, one for call sign (Figure 4) and One for frequencies (Figure 5).

Performance Steps

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Figure 4

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Figure 5

b. Look down the left-hand column of the Call Signs set to find the unit (1-3 AR BN). Then look immediately to the right of the unit to find the call sign under the correct Time Period column. Example: 1-3 AR BN under Time Period 01, the call sign is X3W. See Figure 4.
c. Turn to the Frequencies set and repeat the procedures to find the frequency of the battalion command net (1-3 AR BN, Time Period 01, 46.25MHz). See Figure 5.
d. Set your radio to the frequency for the Net Control Station (NCS).
e. Call the NCS and request permission to enter the net. Example: Call: X-RAY THREE WHISKEY ZERO EIGHT, THIS ZULU FOUR NOVEMBER FOUR, REFER TO CHARLIE FOXTROT. (CF is the Number Identifier for your unit). I HAVE TRAFFIC FOR X-RAY THREE WHISKEY EIGHT NINER. REQUEST PERMISSION TO ENTER YOUR NET. OVER.
f. Give the correct reply when the NCS challenges. Example: (Challenge by the NCS.) ZULU FOUR NOVEMBER FOUR, THIS IS X-RAY THREE WHISKEY ZERO EIGHT. AUTHENTICATE CHARLIE HOTEL. OVER. (Reply by you or the caller). XRAY THREE WHISKY ZERO EIGHT, THIS IS ZULU FOUR NOVEMBER FOUR. I AUTHENTICATE LIMA. OVER.

NOTE: The station being called will make the first challenge. Both stations must find the correct reply so that the station being called can authenticate the reply by the calling station. If the called station does not respond to the challenge within a reasonable time, the station calling will require another authentication using different challenge. Either station can challenge the other if there is a reason to believe that the other station is not a friendly station.

g. When the NCS grants permission to enter the net, find the call sign for the unit you want.
h. Call the unit you want and send your message.
i. After you finish sending your message, call the NCS and ask to leave the net. You should be required to authenticate.

6. List a challenge and reply authentication.
   a. Get the KTC 1400 section of your SOI.
   b. Turn to the Set (page) for the time period you are using (01). See Figure 6.

Multi Media Attached! Click here then press F9 to view.
Figure 6

c. The challenge is any two letters (except Z), selected at random. Example: "C H".
d. Find the first letter of the challenge ("C") in the Line Indicator Column on the left of the page.
e. Read to the right on that line to find the second letter ("H").
f. Road the letter directly under the second letter ("L"). This is the correct reply to the challenge. If the first letter is "Y", go to the top of the sheet in the same column to find the reply. Example: For challenge "YR", the reply is "X".

Evaluation Preparation: Setup: Provide the soldier with an SOI KTV 1600D, KTC 1400 a radio, an operational radio net, scratch paper, and a pencil. Brief Soldier: Tell the soldier to perform each step correctly and to do it within a time limit of 10 minutes.

Performance Measures	**GO**	**NO GO**
1. List the Item Number of the SOI extract.	___	___
2. List a radio net frequency.	___	___

Performance Measures	GO	NO GO
3. List a radio station call sign.	___	___
4. List an item number identifier.	___	___
5. Enter a radio net in which you do not normally operate.	___	___
6. List a challenge and reply authentication.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
FM 24-35	
FM 24-35-1	
UNIT SOI	

Operate SINCGARS Single-Channel (SC)
113-587-2070

Conditions: Given an operational SINCGARS, KYK-13/TSEC with keys or AN/CYZ-10, distant station, TM 11-5820-890-10-8, TM 11-5820-890-10-3, ACP 125 US Suppl-1, DA Pam 738-750, FM 24-19, FM 24-18, and unit SOI or ANCD w/SOI data loaded.

Standards: The standards are met when a secure communications check is conducted in SC mode with a distant station.

Performance Steps

1. Perform starting procedures.
1.
2. Load traffic encryption key (TEK).
3. Enter net.
   a. Use correct procedures.
   b. Conduct secure communications check.
4. Prepare control monitor for operation.
5. Change radio functions using the control monitor.
6. Exit net.
7. Perform stopping procedures.

Performance Measures	GO	NO GO
1. Perform starting procedures.	___	___
2. Load traffic encryption key (TEK).	___	___
3. Enter net.	___	___
a. Use correct procedures.		
b. Conduct secure communications check.		
4. Exit net.	___	___
5. Perform stopping procedures.	___	___
6. Exited the net.	___	___
7. Performed stopping procedures.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly. Have the soldier practice until the task can be performed correctly.

References

Required	**Related**
ACP 125 US SUPPL-1	
DA PAM 738-750	
FM 24-18	
FM 24-19	
TM 11-5820-890-10-1	
TM 11-5820-890-10-3	
TM 11-5820-890-10-8	

Operate SINCGARS Frequency Hopping (FH) (Net Members)
113-587-2071

Conditions: Given an operational SINCGARS radio, ECCM fill device with FH data, KYK-13/TSEC with keys, C-11291 CM, distant net control station (NCS), unit SOI, DA Form 2404, TM 11-5820-890-10-8, TM 11-5820-890-10-3, TM 11-5820-890-10-1, ACP 125 US Suppl-1, DA Pam 738-750, FM 24-19, and FM 24-18.

Standards: The standards are met when FH communications is established using the cold start and CUE late net entry methods, the radio check is successfully completed, and the radio functions are changed using the CM.

Performance Steps

1. Perform starting procedures. (Set radio to PLGR (AN/PSN-11) time)
2. Perform net member cold start procedures.
   a. Use correct call signs.
   b. Use correct procedures.
3. Perform net member CUE late net entry.
   a. Use correct call signs.
   b. Use correct procedures.
4. Prepare control monitor for operation.
5. Change radio functions using the control monitor.
6. Perform stopping procedures.

Evaluation Preparation: Setup: Ensure radio set is complete and operational with CM installed on radio set.

Brief soldier: Tell the soldier all performance measures must be completed correctly within 20 minutes. All performance measures must be done in sequence.

Performance Measures	GO	NO GO
1. Performed starting procedures. (Set Radio to PLGR (PSN-11) time).	___	___
2. Performed net member cold start procedures.	___	___
3. Performed net member CUE late net entry.	___	___
4. Prepared control monitor for operation.	___	___
5. Changed radio functions using the control monitor.	___	___
6. Performed stopping procedures.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly. Have the soldier practice until he can correctly perform the task.

References

Required	Related
ACP 125 US SUPPL-1	
DA FORM 2404	
DA PAM 738-750	

References

Required	**Related**
FM 24-18	
FM 24-19	
TM 11-5820-890-10-1	
TM 11-5820-890-10-3	
TM 11-5820-890-10-8	

Operate SINCGARS Frequency Hopping (FH) Net Control Station (NCS)
113-587-2072

Conditions: Given an operational SINCGARS, ECCM fill device with FH data, KYK-13/TSEC with keys, distant stations, TM 11-5820-890-10-1, TM 11-5820-890-10-3, ACP 125 US Suppl-1, DA Pam 738-750, FM 24-19, FM 24-18, and unit SOI.

Standards: The standards are met when an operational message is sent and received in the FH mode using the cold start and CUE late net entry procedures.

Performance Steps

1. Perform starting procedures. (Set Radio to PLGR (AN/PSN-11) time).
2. Perform NCS permission checks.
3. Perform NCS cold start net opening.
   a. Use correct call signs.
   b. Conduct FH communications.
4. Perform NCS CUE late net entry.
   a. Use correct call signs.
   b. Conduct FH communications.
5. Perform stopping procedures.

Performance Measures	GO	NO GO
1. Performed starting procedures. (Set radio to PLGR (AN/PSN-11) time).	___	___
2. Performed NCS permission checks.	___	___
3. Performed NCS cold start net opening.	___	___
4. Performed NCS CUE late net entry.	___	___
5. Performed stopping procedures.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly. Have the soldier practice until he can correctly perform the task.

References

Required	Related
ACP 125 US SUPPL-1	TM 11-5820-890-10-8
DA PAM 738-750	
FM 24-18	
FM 24-19	
TM 11-5820-890-10-1	
TM 11-5820-890-10-3	

Operate Switchboard, Telephone, Manual SB-22/PT

113-594-2014

Conditions: This task is performed in a tactical or non-tactical situation, in all weather conditions, and may be performed in an nuclear, biological, chemical (NBC) environment. Given a switchboard SB-22/PT, prepared traffic diagram, incoming calls to answer, TM 11-5805-201-12, battery BA-30 (four each). sledgehammer and shovel, ground rod MX-148/G with ground strap, field wire lines (from terminal equipment), tool kit TE-33, cleaning brush, pencil, Department of the Army (DA) Form 2404 (equipment inspection and maintenance worksheet), DA Pamphlet (Pam) 738-750.

Standards: Standard is met when switchboard is installed, local, trunk, and conference calls are processed, and preventive-maintenance checks and services (PMCS) is performed in accordance with (IAW) Technical Manual (TM) 11-5805-262-12, Allied Communications Publication (ACP) 134, chapters 2 and 3, and DA Pam 738-750.

Performance Steps

1. Install switchboard. (Refer to TM 11-5805-262-12, para 2/3 thru 2-9)
2. Perform PMCS. (Refer to TM 11-5805-262-12, para 3-3)

Note: Refer to TM 11-5805-262-12, para 3-5 thru 3-11 for steps 3-9.

3. Perform preliminary operating procedures.
4. Connect local calls.
5. Connect outgoing trunk calls.
6. Connect incoming trunk calls.
7. Perform recall procedures on local calls.
8. Perform recall procedures on trunk calls.
9. Connect conference calls.

Performance Measures	**GO**	**NO GO**
1. Installed switchboard.	___	___
2. Performed PMCS.	___	___
3. Performed preliminary operating procedures.	___	___
4. Connected local calls.	___	___
5. Connected outgoing trunk calls.	___	___
6. Connected incoming trunk calls.	___	___
7. Performed recall procedures on local calls.	___	___
8. Performed recall procedures on trunk calls.	___	___
9. Connected conference calls.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

DA PAM 738-750
TM 11-5805-262-12

Related

Install Antenna Group OE-254/GRC (Team Method)

113-596-1068

Conditions: Given antenna group OE-254/GRC, two persons for erecting the antenna, frequency modulation (FM) radio set (installed), Department of the Army (DA) Pamphlet (Pam) 738-750, and Technical Manual (TM) 11-5985-357-13. This task is performed in a tactical or nontactical situation.

Standards: The standards are met when the OE-254/GRC is installed and connected to the frequency modulated (FM) radio set, and preventive-maintenance checks and services (PMCS) are performed in accordance with (IAW) TM 11-5985-357-13 and DA Pam 738-750 within 25 minutes.

Performance Measures (Refer to TM 11-5985-357-13 for all performance measures.)	**GO**	**NO GO**
1. Perform PMCS.	___	___
2. Plan antenna installation site.	___	___
3. Position baseplate and guy stakes.	___	___
4. Assemble antenna equipment.	___	___
5. Erect antenna using two persons.	___	___
6. Connect the CG-1889B/U connector to the radio.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly. Have the soldier practice until he can correctly perform the task.

References

Required	**Related**
DA PAM 738-750	FM 24-18
TM 11-5985-357-13	GTA 11-03-020
	TB 43-0129

Install Telephone Set TA-312/PT
113-600-1012

Conditions: Given telephone set TA-312/PT; battery BA-30 or BA-3030, two each; tool equipment TE-33; installed telephone cable WD-1( )/TT; tags; grease pencil; Technical Manual (TM) 11-5805-201-12, and Training Circular (TC) 24-20.

Standards: The standards are met when the telephone set is installed and communications is established.

Performance Steps

1. Install the TA-312/PT on a desk, pole, or tree.
2. Set selector switch for proper service.
3. Connect telephone cable to the TA-312/PT.
4. Install power source.
5. Connect external headset when required.
6. Install/remove deicing screen when required.
7. Establish communications.

Evaluation Preparation: Setup: Ensure the telephone cable is laid. Brief soldier: Tell the soldier he must complete an outgoing call.

Performance Measures (Refer to TM 11-5805-201-12 for performance measures (PMs) 1 through 7.)	GO	NO GO
1. Install the TA-312/PT on a desk, pole, or tree.	___	___
2. Set selector switch for proper service.	___	___
3. Connect telephone cable to the TA-312/PT.	___	___
4. Install power source. a. Connect external batteries when required. b. Install batteries in telephone set.	___	___
NOTE: PMs 4a and 5 may be used if the telephone operator must have his hand free during operation.		
5. Connect external headset, when required.	___	___
6. Install/remove deicing screen when required.	___	___
7. Establish communications.	___	___

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if communications is not established. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
TC 24-20	SS0411
TM 11-5805-201-12	