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Research Product 87-23

Combat Leaders' Guide:
Rifle Platoon and Squad

ARI Field Unit at Fort Benning, GA
Training Research Laboratory

July 1987

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Litton Systems, Inc.

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Research Product 87-23

Combat Leaders' Guide: Rifle Platoon and Squad

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) <table border="0"> <tr> <td>Job aids</td> <td>Secure</td> <td>Infantry</td> </tr> <tr> <td>Job performance aids</td> <td>Move</td> <td>Mechanized infantry</td> </tr> <tr> <td>Combat job aids</td> <td>Shoot</td> <td></td> </tr> <tr> <td>Leading in combat</td> <td>Communicate</td> <td></td> </tr> <tr> <td>Basic rules of combat</td> <td>Sustain</td> <td></td> </tr> </table>			Job aids	Secure	Infantry	Job performance aids	Move	Mechanized infantry	Combat job aids	Shoot		Leading in combat	Communicate		Basic rules of combat	Sustain	
Job aids	Secure	Infantry															
Job performance aids	Move	Mechanized infantry															
Combat job aids	Shoot																
Leading in combat	Communicate																
Basic rules of combat	Sustain																
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The modern combat leader must make many complex decisions under conditions of great stress. However, while the leader's job has increased in level of difficulty, there are no effective, standardized job performance aids to assist the leader in accomplishing his job. The Combat Leaders' Guide project was initiated to produce a modular job performance aid system for combat leaders to use during periods of high stress in continuous combat. The Combat Leaders' Guide is designed to (1) be fully (Continued)																	

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20. Abstract (Continued)

usable under combat conditions; (2) have a standardized format; (3) be a modular, highly flexible system; (4) provide fast information retrieval; (5) be easily personalized to individual need, job assignment, mission requirements, equipment availability, and area of operations by adding or removing modules; (6) be easily supplemented by higher commanders; (7) be fully usable under conditions of adverse weather and low light; and (8) utilize as many government standard components as possible.

The Combat Leaders' Guide, of which this is the original edition, will have as complementary material an authoring guide, a final report detailing the history of the project and user reaction to the Guide, and an updated version, the Combat Leaders' Guide: Platoon Leader, Platoon Sergeant, and Squad Leader.

FOREWORD

The modern combat leader is faced with many complex decisions that must be made under conditions of great stress. However, while the combat leader's job has increased in level of difficulty, no standardized effective job aids are available to assist him in accomplishing his combat mission. The purpose of this project is to design a job aid system, in modular or chapter form, to assist the leaders' combat performance. Each module or chapter page is camera ready; a Combat Leaders' Guide would be issued in pocket-size format on water-proof paper.

This product was produced by Litton Computer Services under contract to the Army Research Institute's Fort Benning Field Unit. The research task that supports this mission is 3.4.2, Advanced Methods and Systems of Combat Vehicle Training, and the work was sponsored by Training and Doctrine Command (TRADOC) Training Technology Agency, Fort Monroe, Virginia. This product has received favorable comment from personnel throughout the U.S. Army Infantry School, other divisions of TRADOC, and U.S. Army Forces Command (FORSCOM) units.



EDGAR M. JOHNSON
Technical Director

	INTRODUCTION The Combat Leaders' Guide (CLG) is a job aid designed to help leaders perform their COMBAT MISSION. The CLG-- • Provides job aids for leaders of both rifle platoons and squads. • Reminds leaders of specific steps/items within each critical combat task. • Assists leaders in checking off/filling in each step/item in the proper order. • Aids leaders in command, control, and communication by using the same standard format for each task. • Provides leaders with the flexibility to adjust it to their own situation and mission.	0 0.1.1 0
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0 0.2.1 0	HOW TO USE THIS MODULE P 1/2 Module 1 – BASIC COMBAT TASKS – is one of a series of job aid modules produced to assist combat leaders in performing critical combat tasks of their combat mission. HOW TO FIND A TASK-- • Go to the TABLE OF CONTENTS (0.3). • Find the task you want. • Find the page number of your task. • Turn to the page number of your task. HOW TASK PAGES ARE NUMBERED-- • The large number in the left and right corners is the number of the module. • The center of each page has 3 sets of numbers separated by periods (Ex: 1.1.2). • The 1st number(s) is the module. • The 2nd number(s) is the task. • The 3rd number is the page you are on in that task.
--	--

P 2/2

HOW TO USE A JOB AID FOR A TASK-

- Follow each STEP or ITEM in the order listed.
- Check off and/or fill in each STEP or ITEM as you do it.
- ONLY use a soft lead (2B) pencil.
- Erase marks/words with an eraser.
- Use a calculator for all your math problems.
- Look up abbreviations in the GLOSSARY (0.4).
- Use grid scales or a protractor as needed.
- Add or remove pages to suit your mission and situation.
- Keep book in waterproof bag.

BASIC COMBAT RULES	PAGE
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[illegible]

ABBREVIATIONS		P 1/6
A		
AA	Assembly Area Or Avenue Of Approach	
ADA	Air Defense Artillery	
Ammo	Ammunition	
AO	Area Of Operations	
AP	Antipersonnel	
ASAP	As Soon As Possible	
Assn	Association	
Assy	Assembly	
AT	Antitank	
ATGM	Antitank Guided Missile	
AWOL	Absent Without Leave	
B		
BFV	Bradley Fighting Vehicle (M2/M3)	
Bio	Biological	
BP	Battle Position	
C		
CA	Course Of Action	
Calc	Counterattack	
Cbt	Combat	
Cdr	Commander	
C-E	Communications-Electronics	
Civ	Civilian	
Chem	Chemical	
CO	Commanding Officer	
Co	Company	

0

0.4.1

0

ABBREVIATIONS		P 2/6
C		
Coax	Coaxial Machinegun	
Commo	Communications(s)	
COMSEC	Communications Security	
CONOPS	Continuous Operations	
Coord	Coordinate(s)	
CP	Command Post	
CVC	Combat Vehicle Crewman	
D		
DA	Department Of The Army	
Demo	Demolition(s)	
DTG	Date-Time Group	
E		
EA	Engagement Area	
Ea	Each	
EEENT	End Of Evening Nautical Twilight	
Emerg	Emergency	
EMP	Electromagnetic Pulse	
En	Enemy	
Equip	Equipment	
Evac	Evacuate	
F		
FCL	Fire Coordination Line	
FDC	Fire Direction Center	
Freq	Frequency	

0

0.4.2

0

ABBREVIATIONS		P 3/6
G		
Gen	General	
G-M	Grid-Magnetic	
GSR	Ground Surveillance Radar	
H		
HE	High Explosive	
HEP	High Explosive Plastic	
Hr	Hour	
HQ	Headquarters	
I		
ID	Identification	
IG	Inspector General	
Info	Information	
ITV	Improved TOW Vehicle	
J		
JAG	Judge Advocate General	
K		
Km	Kilometer(s)	
Kph	Kilometers Per Hour	
L		
LAW	Light Antitank Weapon	
LBE	Load Bearing Equipment	
LD	Line Of Departure	
Ldr	Leader	

ABBREVIATIONS		P 4/6
L		
Loc	Location	
LP	Listening Post	
M		
M	Meter(s)	
Maint	Maintenance	
MEDEVAC	Medical Evacuation	
METT-T	Mission, Enemy, Terrain, Troops And Time Available	
MG	Machinegun	
MOPP	Mission Oriented Protection Posture	
MPG	Miles Per Gallon	
MPH	Miles Per Hour	
Msn	Mission	
N		
NATO	North Atlantic Treaty Organization	
NBC	Nuclear, Biological, Chemical	
NFL	No Fire Line	
NCO	Noncommissioned Officer	
NCOIC	Noncommissioned Officer In Charge	
NOD	Night Observation Device(s)	
O		
OP	Observation Post	
OPORD	Operation Order	
OPSEC	Operations Security	

ABBREVIATIONS		P 5/6
O		
Org	Organization	
ORP	Objective Rally Point	
P		
PEWS	Platoon Early Warning System	
Pit	Platoon	
PM	Provost Marshal	
PMCS	Preventive Maintenance Checks And Services	
POL	Petroleum, Oils, And Lubricants	
Psnl	Personnel	
Psn	Position(s)	
Pts	Points	
PW	Prisoner(s) Of War	
R		
Rad Hr	Rads Per Hour	
RATELO	Radio-Telephone Operator	
Recon	Reconnaissance	
Reps	Representatives	
RF	Radio Frequency	
RP	Release Point Or Rally Point	
R&S	Reconnaissance And Security	
R-T	Receiver-Transmitter	
S		
SAW	Squad Automatic Weapon	

ABBREVIATIONS		P 6/6
S		
Scly	Security	
Sgt	Sergeant	
SOP	Standing Operating Procedure	
Spt	Support	
SP	Start Point	
Sqd	Squad	
STANO	Surveillance, Target Acquisition, And Night Observation	
Supl	Supplementary	
Svc	Service	
T		
Tm	Team	
TOW	Tube-Launched, Optically-Tracked, Wire-Guided	
TRP	Target Reference Point	
U		
UCMJ	Uniform Code Of Military Justice	
US	United States	
US Mil	United States Military	
UTM	Universal Transverse Mercator	
W-X		
W/	With	
W/O	Without	
Wpns	Weapons	
XO	Executive Officer	

1

THE PRINCIPLES OF WAR		
ITEM	PRINCIPLE	
1	OBJECTIVE	☒
2	OFFENSIVE	
3	MASS	
4	ECONOMY OF FORCE	
5	MANEUVER	
6	UNITY OF COMMAND	
7	SECURITY	
8	SURPRISE	
9	SIMPLICITY	
NOTES:		

1.1.1

1

1

1.2.1

THE PROFESSION OF ARMS		
THE PROFESSIONAL ARMY ETHIC		
ITEM	ETHIC	
1	Loyalty To The Institution	☒
2	Loyalty To The Unit	
3	Personal Responsibility	
4	Selfless Service	
PROFESSIONAL SOLDIERLY QUALITIES		
ITEM	QUALITY	
1	Commitment	☒
2	Competence	
3	Candor	
4	Courage	

1		1.3.1		1
LEADING IN COMBAT		ITEM	ACTION	
1	Set The Example			✓
2	Lead From As Far Forward As You Can			
3	Lead From A Position Where Your Men Can See You			
4	Lead From Where You Can Control All Elements Physically Or By Radio			
5	Move To Critical Locations To Influence The Action			
6	Make Sound, But Quick Decisions			
7	Forcefully Execute Decisions			

1		1.4.1		1
TACTICS FOR ALL ECHELONS		ITEM	TACTIC	
1	FIND The Enemy--AVOID SURPRISE			✓
2	COORDINATE ALL Firepower And Electronics			
3	MANEUVER To Gain The Initiative			
4	PROTECT The Force			
5	PLAN To SUSTAIN Operations			
6	KEEP Lower, Higher, And Adjacent INFORMED			
7	REPORT-REPORT-REPORT			

1		1.5.1		1
BASIC RULES OF COMBAT			P 1/2	
ITEM	RULE			
1	SECURE			✓
1A	Use Cover And Concealment			
1B	Establish Local Security			
1C	Conduct The Recon			
1D	Protect The Unit			
2	MOVE			
2A	Establish Moving Element			
2B	Get In Best Position To Shoot			
2C	Gain And Maintain Initiative			
2D	Move Fast			
2E	Strike Hard			

1		1.5.2		1
BASIC RULES OF COMBAT			P 2/2	
ITEM	RULE			
2F	Finish Quick			✓
3	SHOOT			
3A	Establish Base Of Fire			
3B	Maintain Mutual Support			
3C	Kill Or Suppress Enemy			
4	COMMUNICATE			
4A	Keep Everybody Informed			
4B	Tell Soldiers What Is Expected			
5	SUSTAIN			
5A	Keep Fight Going			
5B	Take Care Of Soldiers			

TROOP LEADING PROCEDURES		
STEP	ACTION	✓
1	Receive Mission	
2	Issue Warning Order	
3	Make Tentative Plan	
4	Start Needed Movement	
5	Recon	
6	Complete Plan	
7	Issue Orders	
8	Supervise And Refine	

STEP	ACTION	
1	Receive Mission	
2	Issue Warning Order	
3	Make Tentative Plan	
4	Start Needed Movement	
5	Recon	
6	Complete Plan	
7	Issue Orders	
8	Supervise And Refine	

2.1.1

2.1.1

2

2.2.1

2

WARNING ORDER

P 1/2

1. Mission

2. Who Is In Operation?

3. Time Of Operation

4. Special Instructions

2
2.2.2
2

WARNING ORDER	P 2/2
5. Time To Issue Complete Order _____	
6. Place To Issue Complete Order _____	
7. Other _____	
8. Other _____	
9. Other _____	

2
2.3.1
2

FACTORS OF METT-T		P 1/4
ITEM	FACTOR	
1	MISSION	
1A	Specified Tasks	
1B	Implied Tasks	
1C	Essential Tasks	
1D	Restated Mission	
1E	Constraints	
2	ENEMY	
2A	Type	
2B	Composition	
2C	Organization	
2D	Identification	
2E	Strength	
2F	Morale	

2

2.3.2

2

FACTORS OF METT-T			P 2/4
ITEM	FACTOR		✓
2G	Capabilities		
2H	Likely Courses Of Action		
2I	Intentions		
3	TERRAIN		
3A	Observation		
3B	Fields Of Fire		
3C	Key Terrain		
3D	Obstacles		
3E	Cover		
3F	Concealment		
3G	Avenues Of Approach		
4	WEATHER		
4A	Trafficability		

2

2.3.3

2

FACTORS OF METT-T			P 3/4
ITEM	FACTOR		✓
4B	Visibility		
4C	Forecast		
4D	Effect On Soldiers		
4E	Effect On Equipment		
5	TROOPS AVAILABLE		
5A	Number And Type		
5B	Task Organization		
5C	State Of Training		
5D	State Of Discipline		
5E	Strength-Men		
5F	Strength-Materiel		
5G	Morale		
5H	Past Performance		

2

2.3.4

2

FACTORS OF METT-T		P 4/4
ITEM	FACTOR	
5I	Location And Disposition	
5J	State Of Maint And Supply	
5K	Cbt Spt Available	
5L	Cbt Svc Spt Available	
5M	Effect Of Leadership	
6	TIME	
6A	Planning And Preparation	
6B	Delay	
6C	Line Of Departure	
6D	Movement	
6E	Start, Critical, Release Pts	
6F	Hold Or Seize Key Terrain	
6G	Enemy Reaction	

2

2.4.1

2

MILITARY ASPECTS OF TERRAIN	
Key Word: OCOKA	
NOTE: Analyze EACH Item from BOTH Your Own AND the Enemy's Point of View	
ITEM	ASPECT
1	Observation And Fire
2	Concealment And Cover
3	Obstacles
4	Key Terrain
5	Avenues Of Approach

ESTIMATE OF SITUATION P 2/6

(2) What Enemy Forces are Against Us and Where?

(3) What Friendly Forces are Available?

(4) What Conclusions Can You Draw About Relative Combat Power?

ESTIMATE OF SITUATION P 1/6

1. MISSION

a. What Must be Done and When?

b. State Essential Tasks and Purpose.

2. SITUATION AND COURSES OF ACTION

a. What is the Situation?

(1) What is the Effect of Terrain and Weather?

2		2.5.3	2
ESTIMATE OF SITUATION		P 3/6	
b. What are the Enemy Capabilities? _____			

c. What are Feasible Courses of Action to Accomplish the Mission? _____			

3. ANALYSIS OF COURSES OF ACTION			
a. Select Enemy Capability(ies) for War Gaming. _____			

2	2.5.4	2
ESTIMATE OF SITUATION		
P 4/6		
b. War Game Courses of Action Against Enemy Capability(ies).		
(1) What are Critical Events and Times? _____		

(2) What Actions are Required? _____		

(3) What are Major Advantages and Disadvantages of Each Course of Action? _____		

2

ESTIMATE OF SITUATION P 6/6

ESTIMATE OF SITUATION | P 6/6

b. Announce the Decision and Concept of the Operation.

ESTIMATE OF SITUATION | P 5/6

ESTIMATE OF SITUATION | P 5/6

4. COMPARISON OF COURSES OF ACTION

What is the Best Course of Action?

5. DECISION

a. Refine the Best Course of Action into a Clear Decision - Include Who, What, When, Where, How, and Why.

2

2.5.5

2

ANALYSIS AND COMPARISON OF COURSES OF ACTION					P 1/4	
DOES		ITEM	DOESN'T			
CA1	CA2 CA3		CA1	CA2 CA3		
		Supports Scheme Of Maneuver				
		Helps Command And Control				
		Concentrates Combat Power At Critical Points				
		Forces Mutually Support				
		Responsive Maneuver Element(s) And Reserve				

2

2.6.1

2

2

2.6.2

2

ANALYSIS AND COMPARISON OF COURSES OF ACTION					P 2/4
DOES		ITEM	DOESN'T		
CA1	CA2 CA3		CA1	CA2 CA3	
		Exploits Enemy Weakness			
		Expected Weather Conditions			
		Uses Best Avenue Of Approach			
		Provides Enough Maneuver Space			
		Provides Fields Of Observation & Fire			
		Provides Cover & Concealment			

[illegible]

ANALYSIS AND COMPARISON OF COURSES OF ACTION			P 3/4
DOES		ITEM	DOESN'T
CA1	CA2	CA3	CA1 CA2 CA3
		Obstacles	
		Controls Key Terrain	
		Helps Speed Of Execution	
		Adjustment Of Unit Positions Not Required	
		Uses All Headquarters	
		Normal Combat Support Requirements	

2		2.8.1	2
FRAGMENTARY ORDER P 1/2			
Reference _____			

Task Organization _____			

1. Situation _____			

2. Mission _____			

2	2.8.2	2
FRAGMENTARY ORDER P 2/2		
3. Execution _____		

4. Service Support _____		

5. Command And Signal _____		

6. Other _____		

2

2.9.1

2

AMERICAN TO METRIC CONVERSION FACTORS		
MULTIPLY	TIMES	TO GET
Inches	2.540	Centimeters
Feet	0.305	Meters
Yards	0.914	Meters
Miles	1.609	Kilometers
Pints	0.473	Liters
Quarts	0.946	Liters
Gallons	3.785	Liters
Ounces	28.349	Grams
Pounds	0.454	Kilograms
MPG	0.425	Km Per Liter
MPH	1.609	Km Per Hour

2

2.10.1

2

METRIC TO AMERICAN CONVERSION FACTORS		
MULTIPLY	TIMES	TO GET
Centimeters	0.394	Inches
Meters	3.280	Feet
Meters	1.094	Yards
Kilometers	0.621	Miles
Liters	2.113	Pints
Liters	1.057	Quarts
Liters	0.264	Gallons
Grams	0.035	Ounces
Kilograms	2.205	Pounds
Km Per Liter	2.354	MPG
Km Per Hour	0.621	MPH

ACTIONS BEFORE MARCH		
STEP	ACTION	☒
1	Give Warning Order	
2	Select Quarters Party NCO And Send Him To Team CP	
3	Recon Route From AA To SP	
4	Record Time From AA To SP	
5	Adjust Departing Time From AA To Arrive At SP On Time	
6	Have Crews Perform Pre- Combat Checks	
7	Have Vehicle Commanders Report Their Status	
8	Give March Order To Vehicle Commanders	

33.1.13

3

3.2.1

3

DUTIES OF QUARTERING PARTY		P 1/2
ITEM	ACTION	
1	Inspect Intended Assembly Area For NBC/Mines	
2	Secure Platoon Area Until Platoon Arrives	
3	Clear Or Mark Obstacles	
4	Select General Location Of Each Vehicle's Hull-Down Concealed Position	
5	Mark Each Vehicle's Place	
6	Select Covered/Concealed Route Back To RP	

3

3.2.2

3

DUTIES OF QUARTERING PARTY		P 2/2
ITEM	ACTION	
7	Meet Platoon At RP	☒
8	Guide Platoon Into Area	
9	Brief Platoon Leader	
10	Other:	
11	Other:	
12	Other:	
13	Other:	
14	Other:	
15	Other:	

3

3.3.1

3

MARCH ORDERS
1. Destination (Map) _____
2. Route Of March (Map) _____
3. Location Of SP, Critical Points, RP (Map) _____

4. SP Time _____
5. March Interval (Meters) _____
6. March Speed (Mph/Kph) _____
7. Catch Up Speed (Mph/Kph) _____
8. Time And Location Of Scheduled Halts _____

9. Time Unit Leaves Present Position _____
10. Order Of March _____

ACTIONS DURING MARCH		
ITEM	ACTION	✓
1	Arrive At SP On Time At March Speed With Proper March Interval	
2	Maintain Ground And Air Security	
3	Observe Vehicle Sectors Of Responsibility	
4	Report SP, Critical Points, RP (Unless Under Radio Listening Silence)	
5	If Under Radio Listening Silence—Use Hand And Arm Signals, Flags Signals, Or Flashlight Signals	

33.4.13

3

3.5.1

3

ACTIONS AT SCHEDULED HALTS		
ITEM	ACTION	
1	Pull To Side Of Route At Designated Location	✓
2	Maintain March Order On Dispersion	
3	Maintain Security—Dismount Personnel, If Necessary	
4	Perform Maintenance, Resupply, Refueling, Feeding, Etc	

ACTIONS AT UNSCHEDULED HALTS		
ITEM	ACTION	✓
1	Establish Security Off Road, If Possible	
2	Establish Security On Road, If Necessary	
3	Maintain Security— Dismount Personnel, If Necessary	
4	Report Status, If Permitted	
5	Take Other Appropriate Action(s)	
6	Resume March When Possible	

33.6.13

3

3.7.1

3

ACTIONS FOR DISABLED VEHICLE HALTS		
ITEM	ACTION	
1	Do Not Allow Vehicle To Obstruct Traffic	
2	Have Disabled Vehicle Move Off Road	
3	Have Disabled Vehicle Report Status Immediately	
4	Have Crew Establish Security	
5	Have Crew Post Guides To Direct Traffic	
6	If Crew Repairs Vehicle, Have It Rejoin The Rear Of The Column	
7	If Crew Cannot Repair Vehicle, Have Maintenance Element Pick It Up	

3

3.8.1

3

ACTIONS AT ASSEMBLY AREA		P 1/2
ITEM	ACTION	
1	Follow Guides Into Area	☒
2	Clear RP Fast - Do Not Stop	
3	Occupy Pre-Selected Psns	
4	Place Out Security	
5	Maintain Security	
6	Check Positions	
7	Adjust Positions As Needed	
8	Camouflage Positions	
9	Start Maintenance	

3

3.8.2

3

ACTIONS AT ASSEMBLY AREA		P 2/2
ITEM	ACTION	
10	Start Resupply	
11	Start Rearm	
12	Establish Wire Commo Net	
13	Coordinate With Other Units	
14	Prepare Reaction Plan	
15	Rehearse Reaction Plan	
16	Other:	
17	Other:	
18	Other:	

TERRAIN DRIVING		
ITEM	ACTION	✓
1	Use Terrain Driving When Contact With Enemy Is Possible Or Expected	
2	Use All Available Cover And Concealment	
3	Avoid Skylining	
4	Do Not Move Directly Forward From A Hull-Down Firing Position	
5	Cross Open Areas Quickly	
6	Always Look For Nearest Cover For Protection If Fired Upon	

33.9.13

3

3.10.1

3

TRAVELING		
ITEM	ACTION	
1	Use Traveling Technique When Speed Is Important And Contact With Enemy Is Unlikely	✓
2	Platoon Moves On Column Axis, Staggered Laterally With Intervals Of 50-100 Meters Between Vehicles, Terrain Permitting	
3	Platoon Leader Rides In Lead Vehicle To Control Movement	
4	Platoon Sergeant Rides In Third Vehicle To Observe Platoon Leader, Trailing Squads, And Last Vehicle	

TRAVELING OVERWATCH		
ITEM	ACTION	
1	Use Traveling Overwatch When Enemy Contact Is Possible	✓
2	Distance Between Lead Vehicle And Platoon Leader Is 100-400 Meters	
3	Distance Between Other Vehicles Is 50-100 Meters, But May Vary With Terrain	
4	Movement Is Continuous With Maximum Use Of Cover And Concealment	
5	Movement Keyed On Lead Squad To Maintain Proper Distance And Intervals	

33.11.13

3

3.12.1

3

BOUNDING OVERWATCH		P 1/2
ITEM	ACTION	
1	Use Bounding Overwatch When You Expect Enemy Contact	
2	Cover Movement Of Bounding Squad From Covered And Concealed Overwatch Position	
3	If Bounding Squad Makes Contact, Overwatch Supports By Fire And Maneuvers	
4	Bounding Squad Moves To Secure New Positions While Covered By Overwatch	

3

3

3.12.2

3

BOUNDING OVERWATCH		P 2/2
ITEM	ACTION	
5	Is New Position Open? If YES, Go To STEP 6. If NO, Go To STEP 7.	☒
6	Bounding Squad Stays Mounted With Each Man Given Sector To Observe	
7	Bounding Squad Dismounts To Man Weapons And To Provide Security	
8	When Bounding Squad Secures New Position, Overwatch Can Move Forward	
9	Repeat STEPS 2-8 For Each Bound Until Completed	

3

3

3.13.1

3

TASKS OF OVERWATCH FORCE		
ITEM	ACTION	
1	Support Bounding Force With Direct Fire Using Prescribed Weapons-Ready Posture	☒
2	Maneuver In Support Of Bounding Force	
3	Have Capability Of Calling For Indirect Fire	
4	Cover Flanks, Rear, And Front Of Bounding Force	
5	Have Concealed And Protected Positions	

ACTIONS ON AN OVERWATCH POSITION		
STEP	ACTION	
1	Visually Check Security Of Position	
2	Occupy Hull-Down, Concealed Firing Position	
3	Plt Sqd Leaders Assign Areas For Observation/Fire	
4	Search For Targets	
5	Be Alert For Enemy Activity	
6	Don't Concentrate On Moves Of Bounding Element	
7	React Immediately To Any Threat	

33.14.13

3

3.15.1

3

MOVEMENT CONSIDERATIONS		P 1/3
BEFORE BOUNDING TO YOUR NEXT POSITION, YOU MUST CONSIDER:		
ITEM	QUESTION	
1	Where Is My Next Psn?	☒
1A	Where Will I Take Up My Psn On The Next Bound?	
1B	Where Is My Alternate Psn?	
1C	If My Psn Is Unsuitable When I Arrive, Where Will I Go Next?	
2	What Is My Best Route?	
2A	What Is My Exact Route From Here To My Next Psn?	
2B	How Will I Use Low Ground?	
2C	How Will I Take Advantage Of Hedges, Trees, And Shrubs?	

3

3.15.2

3

MOVEMENT CONSIDERATIONS		P 2/3
ITEM	QUESTION	☒
2D	What Is My Alternate Route From Here To My Next Psn?	
3	Where Is The Enemy?	
3A	If I Were The Enemy, Where Would I Hide To Observe, Fire, And Escape?	
3B	What Likely Enemy Psn(s) Should I Give Special Attention To During My Move?	
3C	What Is The Enemy's Most Likely Withdrawal Route?	
4	What Do I Do If Fired Upon?	
4A	What Cover Is On My Route?	

3

3.15.3

3

MOVEMENT CONSIDERATIONS		P 3/3
ITEM	QUESTION	☒
4B	Am I Fully Prepared To Return Fire Immediately?	
4C	Is My Crew Fully Briefed On The Actions Expected Of Them?	
4D	Who Is Covering My Move And How Can They Help Me?	
4E	Will Smoke Help-Who Delivers?	
Notes:		

4		4.1.1		4
PREPARATION FOR ATTACK		P 1/2		
TASK	ACTION			
1	Issue Order			
2	Move To Assembly Area			
3	Check Weapons			
4	Check Key Equipment			
5	Resupply			
6	Refuel			
7	Rearm			
8	Conduct Vehicle PMCS			
9	Check Attachments			

4		4.1.2		4
PREPARATION FOR ATTACK		P 2/2		
TASK	ACTION			
10	Check NBC Situation			
11	Confirm MOPP Status			
12	Inspect Troops			
13	Inspect Vehicles			
14	Feed Troops			
15	Rest Troops			
16	Recon Routes To LD			
17	Time Routes To LD			
18	Move To LD			

CONSOLIDATION		
STEP	ACTION	
1	Eliminate All Remaining Enemy Resistance On Objective	
2	Report Status To Next Higher	
3	Prepare To Continue Attack	
4	Prepare For Enemy Counter-Attack (Heavy Incoming)	
5	Coordinate With Flank Elements	
6	Set Up Perimeter Defense	
7	Position BFV-Tanks-ITV To Cover Armor Avenues Of Approach	
8	Prepare Range Cards If You Do Not Plan To Move Soon	
9	Begin Planning To Continue Attack (Map Recon, Orders)	

4

4.2.1

4

REORGANIZATION		
STEP	ACTION	P 1/2
1	REPORT:	
1A	Personnel Losses	
1B	Ammo Expended	
1C	Fuel Status	
1D	Condition Of Vehicles	
1E	Equipment Status	
1F	Enemy Casualties	
1G	PW	
1H	Enemy Vehicles	
1I	Enemy Weapons	
2	REDISTRIBUTE:	
2A	Ammo	
2B	Personnel	
2C	Vehicles	
2D	Equipment	

4

4.3.1

4

4

4.3.2

4

REORGANIZATION		P 2/2
STEP	ACTION	
3	EVACUATE:	
3A	Casualties	
3B	PW	
3C	Damaged Equipment	
4	RESTORE:	
4A	Communications	
4B	Chain Of Command	
5	PERFORM MAINT CHECKS:	
5A	Vehicles	
5B	Weapons	
5C	Equipment	
6	PERFORM EMERG REPAIRS:	
6A	Vehicles	
6B	Weapons	
6C	Equipment	

4

4.3.3

4

NOTES

5		5.1.1		5
DEFENSIVE PRIORITY OF WORK		P 1/2		
STEP	TASK			
1	Establish Local Security			
2	Position Security Force			
3	Position Primary Weapons			
4	Site Final Protective Fires			
5	Site Other Priority Targets			
6	Take NBC Protective Steps			
7	Clear Fields of Fire			
8	Compute Ranges			
9	Emplace Obstacles			

5		5.1.2		5
DEFENSIVE PRIORITY OF WORK		P 2/2		
STEP	TASK			
10	Prepare Fighting Positions			
11	Set Up Wire Commo Net			
12	Select Supl—Evac Routes			
13	Prepare Supl—Evac Routes			
14	Prepare Alternate Positions			
15	Prepare Suppl Positions			
16	Prepare CATK Plans			
17	Rehearse CATK Plans			
18	Prepare Dummy Positions			

5		5.2.1	5
DEFENSE PLANNING NOTES		P 1/4	
1. Plt/Sqd Mission			
2. Cdr Concept			
3. Psn Of Plt/Sqd In Plt/Co/Tm Defense			
4. Plt/Sqd Sector Of Fire/EA			

5	5.2.2	5
DEFENSE PLANNING NOTES		P 2/4
5. Fire Support Available		
6. Evac/Destroy Procedures For Damaged Vehicles		
7. Evac Procedures For Friendly Casualties		
8. Place To Take Enemy PW		

5		5.2.3	5
DEFENSE PLANNING NOTES		P 3/4	
9. Special Signals To Use _____			

10. On-Order Msn For Plt/Sqd _____			

11. Psn And Msn Of Units On Flanks _____			

5		5.2.4	5
DEFENSE PLANNING NOTES		P 4/4	
12. Psn And Msn Of Units In The Rear _____			

13. _____			

14. _____			

15. _____			

16. _____			

5		5.3.1	5
COORDINATION WITH ADJACENT UNIT(S)		P 1/4	
1. Location Of Primary Psn _____			
2. Location Of Alternate Psn _____			
3. Location Of Supplementary Psn _____			
4. 25mm Sector Of Fire _____			
5. TOW Sector Of Fire _____			
6. Dragon Sector Of Fire _____			
7. Coax Sector Of Fire _____			
8. Machine Gun Sector Of Fire _____			

5		5.3.2	5
COORDINATION WITH ADJACENT UNIT(S)		P 2/4	
9. Location Of Dead Space Between Units _____			
10. How To Cover Dead Space _____			
11. Location Of OP _____			
12. Location/Types Of Obstacles _____			
13. How To Cover Obstacles _____			

5		5.3.3	5
COORDINATION WITH ADJACENT UNIT(S)		P 3/4	
14. Patrols:			
a. Size _____			
b. Type _____			
c. Time Of Departure _____			
d. Time Of Return _____			
e. Location Of Passage Point _____			
f. Routes _____			
g. Emergency Signals _____			

5		5.3.4	5
COORDINATION WITH ADJACENT UNIT(S)		P 4/4	
14. Patrols (Continued):			
h. Fire Support Planned _____			
i. FCL/NFL _____			
j. Call Signs _____			
k. Frequencies _____			
l. Challenge _____			
m. Password _____			
15. _____			
16. _____			
17. _____			

ESTABLISH OBSERVATION POST		P 1/2
ITEM	ACTION	✓
1	Establish OP Along Probable Avenues Of Approach	
2	Select OP To Provide	
2A	Maximum Observation	
2B	Cover And Concealment	
2C	Concealed Routes To And From OP	
3	Best Location Is On Or Near Military Crest Of Hill	
4	OPs And LPs Should Be Within Range Of Small-Arms And Other Supporting Fire	

5.4.1

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5

5

5.4.2

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ESTABLISH OBSERVATION POST		P 2/2
ITEM	ACTION	☒
5	Carefully Camouflage And Position Wire And Radio Antennas	
6	Movement Must Not Reveal Location To Enemy	
7	Operate OP In Reliefs Of 2 Men Each Unless Movement Will Reveal Location	
8	Switch Relief Duties Every 30 Minutes	
9	Limited Visibility May Preclude Movement Of Day OP To Another Position	

PREPARE SQUAD DEFENSIVE POSITION		
STEP	ACTION	✓
1	Set Priority For Work	
2	Assign Work To All Soldiers	
3	Maintain Security	
3A	OP	
3B	Patrols	
3C	STANO Devices	
4	Work As Fast As You Can	
5	Use Natural Cover And Concealment	
6	Construct Fighting Positions	
7	Inspect And Correct Faults	

55.5.15

5

5.6.1

5

SUPERVISE BUILDING A FIGHTING POSITION	
STEP	ACTION
1	Assign Position, Location, And Sector Of Fire
2	Check Sector Of Fire Stakes
3	Check Observation And Fields Of Fire From Firing Position
4	Check Depth Of Hole
5	Check Grenade Sumps
6	Check Overhead Cover
7	Check Camouflage At Position
8	Check Camouflage From 50 Meters Forward Of Position
9	Order Soldier To Correct Faults

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5.7.1

5

RANGE CARD PREPARATION		P 1/3
NOTE: Make 1 Card & 1 Copy For Each Primary, Alternate, Supplementary, & Any Static Position If Contact Expected		
STEP	ACTION	☒
1	Draw Symbol For Weapon/ Position In Lower Center	
2	Place Azimuth (Degrees) And Distance (Meters) From A Terrain Feature To Position (Or 8-Digit Grid)	
3	Draw Sector(s) Of Fire Left And Right Limit Arrows	
4	Label Left #1 And Right #2	
5	Place Range(s) To Far Limits Of Sector(s)	

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5.7.2

5

RANGE CARD PREPARATION		P 2/3
STEP	ACTION	☒
6	Place TRP Where Ordered And Engagement Areas Where Targets May Appear	
7	Number Each TRP And EA	
8	Place Deflection And Range From Weapon/Position To Each TRP And EA	
9	Draw Maximum Engagement Line(s) Across Sector(s) Of Fire For Each Weapon And Different Type Of Ammo	
10	Show Dead Space Area(s)	
11	Write "Dead Space" On Each	

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5.7.3
5

RANGE CARD PREPARATION		P 3/3
STEP	ACTION	☒
12	Sketch In Terrain Features That Are Easy To See	
13	Tie In With Weapon/Position On The Right	
14	Draw Magnetic North Arrow To Orient Card To Terrain	
15	Place Unit Designation (No Higher Than Company) In Data Section	
16	Place Time And Date Prepared In Data Section	
17	Place Type Of Firing Position In Data Section	

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5.8.1
5

SECTOR SKETCH PREPARATION		P 1/3
NOTE: Make 1 Sketch + Copy For Each Primary, Alternate, Supplementary, & Any Static Position If Contact Expected		
ITEM	ACTION	☒
1	Draw Your Unit Sector(s) Or Engagement Area(s)	
2	Draw Main Terrain Features In Sector(s) And Range To Each	
3	Draw Sub Unit Positions	
4	Draw Sub Unit Primary And Secondary Sectors Of Fire	
5	Draw Weapon Positions With Primary Sectors Of Fire For Each	

5		5.8.2		5
SECTOR SKETCH PREPARATION		P 2/3		
ITEM	ACTION			
6	Draw Maximum Engagement Ranges For Each Weapon/ Different Type Of Ammo			
7	Draw Machine Gun/Cannon Final Protective Lines Or Principal Direction Of Fire			
8	Draw OP/ LP			
9	Draw Leader Positions			
10	Draw TRP And EA In Sector			
11	Draw Mines/Obstacles			
12	Draw Indirect Fire Target Locations			

5		5.8.3		5
SECTOR SKETCH PREPARATION		P 3/3		
ITEM	ACTION			
13	Draw Indirect Fire Final Protective Fire Locations			
14	Draw And Label Dead Space			
15	Draw Patrol Routes			
16	Draw Location Of Your CP/OP			
17	Draw Locations, Sector(s) Of Fire/EA Of Other Weapons Attached Or Operating In Your Sector			
18	Place Your Unit ID, DTG Prepared, And Magnetic North Arrow On Sketch			

5		5.9.1		5
OCCUPATION OF A BATTLE POSITION (BP)		P 1/2		
STEP	ACTION			
1	Move To Turret-Down Psn On BP			
2	Keep Rest Of Plt In Hide Psn(s)			
3	Reccn The Psn			
4	Designate Gen Loc Of Primary Psn(s) For Plt			
5	Move Rest Of Plt To Their Primary Psn(s)			
6	Designate Primary Sectors Of Fire EA TRP			
7	Designate Gen Loc Of Supplementary Psn(s)			
8	Designate Supplementary Sectors Of Fire EA/TRP			

5		5.9.2		5
OCCUPATION OF A BATTLE POSITION (BP)		P 2/2		
STEP	ACTION			
9	Coordinate With Flank/Adjacent Units			
9A	Observation: Fields Of Fire			
9B	Routes Of Withdrawal			
9C	OP/LP			
9D	Patrols			
9E	Flank Psn(s)			
9F	Plt Hot Loop			
10	Report Situation To Co/Tm Cdr			
11	Check Plt Improving Psn(s)			
12	Plan Routes To Next BP			

5		5.10.1		5
FIGHTING FROM A BATTLE POSITION (BP)				
STEP	ACTION			✓
1	Determine Targets To Engage			
2	Determine Methods Of Target Engagement			
3	Send Contact Spot Report			
4	Issue Platoon Fire Commands			
5	Call For Indirect Fire, As Needed			
6	Send Spot Reports			
7	Move To Subsequent BP, When ORDERED			
8	Keep Co Tm Cdr Informed Of Your Situation And Location			
9	Organize To Fight From BPs			

5

5.11.1

5

FIRE DISTRIBUTION AND CONTROL		
ITEM	PRINCIPLE	
1	Avoid Target Overkill	✓
2	Use Each Weapon In Its Best Role	
3	Concentrate On Long-Range Targets	
4	Engage Only Targets That Offer A High Probability Of Hit	
5	Take The Best Shots Possible	
6	Expose Only Weapons/Vehicles That Must Fire	
7	Destroy The Most Dangerous Targets First	
8	Maintain Combat Loads As Long As Possible-Plan Resupply	

5		5.12.1		5
DEFENDING DURING LIMITED VISIBILITY		P 1/3		
ITEM	ACTION			
1	Employ Long Range STANO Equipment (GSR, Sensors, NOD)			
2	Coordinate ANY Movement Outside Battle Position Boundaries With Higher And Adjacent Units			
3	Redeploy Some Units And Weapons To Concentrate Along Limited Visibility Avenues Of Approach			
4	Employ More Scouts, OP, Patrols, Ambushes, And Armor Killer Teams Forward On Secondary Avenues Of Approach AND Between Positions			

5		5.12.2		5
DEFENDING DURING LIMITED VISIBILITY		P 2/3		
ITEM	ACTION			
5	Employ Nuisance Obstacles And Early Warning Devices Along Likely Night Approaches			
6	Plan Required Movement Of Weapons, Units AND Massing Of Fires On Enemy Approaches			
7	Rehearse Movement Of Weapons, Units And Massing Of Fires On Enemy Approaches			
8	Reposition Weapons, As Needed, To Take Advantage Of The Differences Between Enemy And Friendly STANO Devices			
9	Plan Illumination On Or Behind Engagement Areas To Silhouette Enemy			

DEFENDING DURING LIMITED VISIBILITY		P 3/3
ITEM	ACTION	
10	Move TRPs And/Or Engagement Areas Closer To Defensive Positions OR Move Weapons Closer To Them. Use METT-T	✓
11	Commence Adjustments To Defensive Organization Before Dark	
12	Complete Return To Daylight Positions Before Dawn	
13	Move Closer To Avenue(s) Of Approach You Guard During Bad Weather	
14	Sensors And Radar May Still Penetrate Bad Weather	
15	Other:	

5

5.12.3

5

CAMOUFLAGE		5
STEP	ACTION	
1	Prepare Individual Equipment	✓
1A	Helmet - Break Form	
1B	Face and Hands - Disrupt	
1C	Weapons - Disrupt	
1D	Shine - Darken/Conceal	
1E	LBE - Darken	
2	Consider Position Carefully	
3	Consider Enemy Viewpoint	
4	Use Natural Concealment	
5	Blend With Background	
6	Expose Nothing That Shines	
7	Avoid Unneeded Movement	
8	Maintain Camouflage Discipline	
9	Observe From Prone Position	
10	Don't Skyline During Movement	

5

5.13.1

5

VEHICLE CAMOUFLAGE	
STEP	ACTION
1	Break Up The Silhouette
2	Use Camouflage Nets To Hide Vehicles In Positions
3	Reduce Glare Of Mirrors, Headlights, Vision Blocks, Windshields, And Optics
4	Reduce Vehicle Signatures
5	Reduce Noise
5A	Do NOT Slam Hatches Or Doors
5B	Only Start And Move Vehicles As Part Of A Plan Or Operation
5C	Start All Vehicles At The Same Time

5

5.14.1

5

5.15.1	
PHYSICAL SECURITY	
ITEM	ACTION
1	Conduct Patrols
2	Conduct Stand-To (General)
2A	All Troops Awake, Dressed, And Ready For Combat
2B	Vehicle(s) Topped Off
2C	Basic Load Of Ammo/Missiles
2D	Weapons Cleaned, Serviced, Assembled, And Ready
2E	Radios On And Briefly Tested
2F	Vehicle(s) Loaded As Full As Possible
2G	Vehicle(s) Ready For Short-Notice Moves

5

P 1/4

✓

PHYSICAL SECURITY		P 2/4
ITEM	ACTION	
3	Conduct Stand-To (Evening)	✓
3A	Place All Vision Block Covers In Position	
3B	Place Driver's Night Vision Viewer Into Operation	
3C	Test All Panel Control Lights	
3D	Prepare Night Vision Goggles For Operation	
3E	Turn Off All Internal Lights	
3F	Fully Upload All Weapons And Ammo Boxes	
3G	Test Turret Drive Stabilization	
3H	Test Thermal Sights	

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5.15.2

5

PHYSICAL SECURITY		P 3/4
ITEM	ACTION	
3I	Charge Vehicle(s) Battery	✓
3J	Load Main Gun With Vehicle Running	
3K	When Dark, Dismount One To Inspect Each Vehicle To Insure No Visible Light Shows	
4	Silent Mounted Watch	
4A	Assign Personnel Areas To Use Vehicle Sights For Surveillance	
4B	Raise Launcher/Ramp Before Turning Engine Off	
4C	Use Manual Power To Traverse/Elevate: Depress Turret W/pns	
4D	Use Radio Listening Silence	

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5.15.3

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6		6.1.1		6
FUNDAMENTALS OF DELAY		P 1/3		
ITEM	ACTION			
1	Centralized Control And Decentralized Action			
1A	Maintain Enemy Contact			
1B	Coordinate Flank Security			
2	Make Maximum Use Of Terrain			
2A	Observation/Fields Of Fire			
2B	Cover And Concealment			
2C	Obstacles			
2D	Key Terrain			
2E	Avenues Of Approach			
3	Force En To Deploy/Maneuver			

6		6.1.2		6
FUNDAMENTALS OF DELAY		P 2/3		
ITEM	ACTION			
3A	Slow Enemy's Progress			
3B	Trade Space For Time			
4	Make Maximum Use Of Obstacles			
4A	Natural And Reinforcing			
4B	Cover By Observation/Fire			
5	Maintain Enemy Contact			
5A	Keep Enemy In Sight			
5B	Observe And Adjust Fires			
5C	Keep Free To Maneuver			
6	Avoid Decisive Engagement			

FUNDAMENTALS OF DELAY		P 3/3
ITEM	ACTION	
6A	Make Enemy Deploy, Develop Situation, And Maneuver To Attack Each Position	✓
6B	Displace To Next Position Before Decisive Engagement	
7	Forms Of Delay Missions	
7A	Delay In Sector	
7B	Delay Forward Of A Line Or Position For A Specified Time	
8	Assign Definite Sectors	
8A	To Each Committed Unit	
8B	For Each Avenue Of Approach	
9	Each Unit Sets Up Own Security	

6

6.1.3

6

FUNDAMENTALS OF A SCREENING MISSION		6.2.1
ITEM	FUNDAMENTAL	
1	Assign When Main Body CO Has Few Troops Available And Wants To Keep An Area Under Surveillance	✓
2	CO Expects Only Early Warning/Counter Enemy Recon	
3	Provide Early Warning Of Enemy Approach	
4	Gain/Maintain Enemy Contact	
5	Report Enemy Activity	
6	Destroy/Repel Enemy Recon	
7	Impede And Harass Enemy With Indirect Fires	
8	Guide Reaction Forces	

6

6		6.3.1		6
PLANNING A		SCREENING MISSION		P 1/3
ITEM	ACTION			
1	CO Specifies			
1A	Unit To Perform Mission			
1B	General Trace Of Initial Screen Within Range Of Main Body's Artillery			
1C	Time Screen Must Be In Place			
1D	Passage Points And Routes Thru Stationary Units			
1E	Units Screened			
1F	Phase Line For Rear Boundary Of Screening Unit Between Main Body And Screening Unit			

6		6.3.2		6
PLANNING A		SCREENING MISSION		P 2/3
ITEM	ACTION			
1G	Responsibility For Area Between Screening/Screened Unit(s)			
1H	Width Of Assigned Area			
2	Screened Unit(s) May Have To			
2A	Establish OP Near Position(s)			
2B	Patrol Near Position(s)			
3	Screening Unit Must Carefully Plan And Coordinate			
3A	Rearward Move			
3B	Passage Of Lines			
4	Screening Unit CO Specifies			
4A	PL Setting Up Initial Screen			

PLANNING A SCREENING MISSION		P 3/3
ITEM	ACTION	
4B	Sectors To Subordinate Units With Overlapping Fields Of Fire And Observation	
4C	OP Forward Of Initial Screen Line In Range Of Supporting Fires If PL is NOT CFL/FSCL	
4D	Msn As Unit Moves To Screen Line	
4E	Time Needed For Operation	
4F	Specific Location(s) Of OP	
4G	Indirect Fire Planning, Routes And Or Sectors For Rearward Displacement	
4H	Logistics Plans	

ITEM	ACTION
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4B Sectors To Subordinate Units With Overlapping Fields Of Fire And Observation

4C	OP Forward Of Initial Screen Line In Range Of Supporting Fires If PL is NOT CFL/FSCL
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4D	Msn As Unit Moves To Screen Line

4E Time Needed For Operation

4F	Specific Location(s) Of OP

4G Indirect Fire Planning, Routes And Or Sectors For Rearward Displacement

4H	Logistics Plans	
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6.3.3

6

[illegible]

NOTES

6. Size And Composition Of Overwatch Forces

7. Location Of Overwatch Forces

8. Combat Service Support

1. Scheme Of Maneuver

2. Time Of Disengagement

3. Priority Of Disengagement

4. Location Of New Positions

7		7.2.1		7
DISENGAGEMENT ACTIONS			P 1/2	
ITEM	ACTION			
1	Deceive The Enemy			✓
1A	Smoke			
1B	Patrols			
1C	Fires			
1D	Radio Transmissions			
2	Use Overwatch Elements To Keep Enemy Pressure Off Disengaging Forces			
3	Maintain OPSEC			
4	Maintain COMSEC			
5	Recon Routes			
6	Prepare Routes			

7		7.2.2		7
DISENGAGEMENT ACTIONS			P 2/2	
ITEM	ACTION			
7	Recon New Positions			✓
8	Prepare New Positions			
9	Plan To Move Wounded			
10	Plan For Movement Of Recoverable Combat Equipment			
11	Move Combat Service Support Early			
12	Move During Limited Visibility			
13	Use Obstacles To Slow Or Stop Enemy			

7

7.3.1

7

PASSAGE OF LINES COORDINATION		P 1/2
STEP	ACTION	
1	Disposition Of The Stationary Force	✓
2	Contact Points	
3	Passage Lanes	
4	Attack Position (Forward Move)	
5	Assembly Area (Rearward Move)	
6	Initial Location	
7	Time Of Transfer Of Responsibility For Area	

7

7.3.2

7

PASSAGE OF LINES COORDINATION		P 2/2
STEP	ACTION	
8	Traffic Control	✓
9	Communications	
10	Supporting Fires	
11	Combat Service Support	
12	Execution	
13	Other	
14	Other	

WITHDRAWAL UNDER ENEMY PRESSURE		P 1/4
STEP	ACTION	
1	Withdrawal Principles	✓
1A	Co CO Controls Sequence Of Plt Withdrawals	
1B	Plt Ldr Controls Sequence Of Sqd Withdrawals	
1C	Fire And Movement To Rear Is Basic Tactic	
1D	Employ All Available Fires To Stop Enemy	
1E	Use Smoke To Confuse Enemy And Conceal Movement	
1F	One Unit Forms A Base Of Fire To Cover Movement Of Other Unit(s) Away From Enemy-- Then They Change Roles	

7

7.4.1

WITHDRAWAL UNDER ENEMY PRESSURE		P 2/4
STEP	ACTION	
2	Methods Of Disengaging	✓
2A	Simultaneous	
2B	By Teams	
2C	By Thinning The Lines	
2D	Based On Enemy Situation, Terrain, Base Of Fire	
3	Base Of Fire	
3A	AT Weapons Best Against Enemy Mounted Attack-- Move Them Back First	
3B	Infantry Best In Close Terrain/ Limited Visibility Against Dismounted Enemy--Move AT Weapons Tanks Back First	

7

7.4.2

7

WITHDRAWAL UNDER ENEMY PRESSURE		P 3/4
STEP	ACTION	✓
4	Plan For AND Specify	
4A	Scheme Of Maneuver	
4B	Time Of Withdrawal	
4C	Location Of New Positions	
4D	Size Make Up Of Advance Party	
4E	Size Make Up Of Overwatch Forces	
4F	Battle Overwatch Positions	
4G	Routes	
4H	Checkpoints	
4I	Remount Point(s)	

7

7.4.3

WITHDRAWAL UNDER ENEMY PRESSURE		P 4/4
STEP	ACTION	✓
4J	Evacuation Of Wounded	
4K	Evacuation Of Equipment	
4L	Priorities	
4M	Obstacles	
4N	Items To Destroy	
4O	Other	
4P	Other	
4Q	Other	
4R	Other	
4S	Other	
4T	Other	

7

7.4.4

7

WITHDRAWAL NOT UNDER PRESSURE		P 1/6
STEP	ACTION	
1	Withdrawal Principles	
1A	Speed Secrecy Deception	
1B	At Night Under Periods Of Reduced Visibility	
1C	As Part Of Larger Force To Perform Another Mission	
2	Does Plt Act As Co Scty Force? If YES, Go To STEP 3. If NO, Go To STEP 4.	
3	Cover Entire Co Area	
3A	Plan To Reposition Sqds Wpns To Cover Co Withdrawal	
3B	Place 1 Sqd in Each Plt Psn To Cover Most Dangerous AA	

7

7.5.1

WITHDRAWAL NOT UNDER PRESSURE		P 2/6
STEP	ACTION	
3C	Place Key Wpns In Ea Plt Psn To Cover Most Dangerous AA	
3D	Co XO Or Plt Ldr Will Be Scty Force Cdr	
4	Force Made Up Of 1 Sqd, 1 MG Tm, And 2 Dragons	
4A	Sqd Ldr Left In Psn Is Plt Scty Force Ldr	
4B	Reposition Sqd To Cover Plt Withdrawal And Plt Area	
4C	Co Scty Force Cdr Controls Plt Scty Force During Withdrawal	
5	Security Force	
5A	Conceals Withdrawal	

7

7.5.2

WITHDRAWAL NOT UNDER PRESSURE		P 3/6
STEP	ACTION	
5B	Deceives Enemy—Keeps Up Normal Co Operating Patterns	
5C	Provides Covering Fire If En Attacks During Withdrawal	
5D	Withdraws When Co Is At Next Psn Or As Ordered	
5E	Gets Withdrawal Order By Land Line Or Radio Codeword	
5F	Uses Same Basic Plan As Co To Withdraw	
5G	Reassembles To Move To Rear	
5H	If Under Attack, Conducts Fire And Maneuver To Rear Until They Break Contact	

WITHDRAWAL NOT UNDER PRESSURE		P 4/6
STEP	ACTION	
6	Quartering Party	
6A	Send To Next Psn Before Withdrawal Starts	
6B	Send Plt Sgt And 1 Guide For Ea Sqd As Plt Reps	
6C	Recons And Selects Psns/ Sectors/Routes/OP For Plt	
6D	Meets Plt And Guides Into Psn	
6E	Plt Sgt Meets/Briefs Plt Ldr On Psn/Situation	
7	Company OPORD Contains	
7A	Time Withdrawal Will Start	
7B	Location Of Plt Assy Area(s)	

7

7.5.5

7

WITHDRAWAL NOT UNDER PRESSURE		P 5/6
STEP	ACTION	☒
7C	Location Of Co Assy Area	
7D	Plt Misson(s) Upon Arrival	
7E	Route From Plt To Co Assy Area	
7F	Size/Org Cdr Of Scty Force	
7G	Next Co Mission	
7H	Next Plt Mission	
8	Plt Ldr Plans	
8A	When His Withdrawal Starts	
8B	Location Of Sqd Assy Areas	
8C	Location Of Plt Assy Area	
8D	What Sqds Do At Assy Area(s)	

7

7.5.6

7

WITHDRAWAL NOT UNDER PRESSURE		P 6/6
STEP	ACTION	☒
8E	Routes From Sqd Assy Areas To Plt Assy Area	
8F	Size/Org Cdr Of Scty Force	
8G	Next Plt Mission	
8H	Next Sqd Mission(s)	
9	Other	
10	Other	
11	Other	
12	Other	

7		7.6.1		7
RELIEF IN PLACE			P 1/2	
STEP	ACTION			
1	Incoming Leader Recons Area			✓
2	Incoming And Outgoing Leaders Coordinate			
3	Exchange Liaison Personnel			
4	Coordinate Positions Of Weapons And Vehicles			
5	Exchange Range Cards And Fire Plans			
6	Exchange Relief Or Organic Fire Support Elements			
7	Coordinate Locations Of Obstacles			
8	Transfer Responsibility For Minefields			

7		7.6.2		7
RELIEF IN PLACE			P 2/2	
STEP	ACTION			
9	Coordinate Routes Into And Out Of Positions			✓
10	Coordinate Guides For Each Vehicle			
11	Transfer Excess Ammo, Wire Lines, POL, And Other Material To Incoming Unit			
12	Coordinate Communications For One Net During Relief			
13	Coordinate Enemy Situation And Intelligence			
14	Coordinate Sequence Of Relief			
15	Coordinate Time Of Change Of Responsibility For The Area			
16	Other			

PATROL PLANNING STEPS		P 1/2
STEP	ACTION	✓
1	Study Mission	
2	Backward Plan Use Of Time	
3	Study Terrain And Situation	
4	Organize Patrol	
5	Select Men/Wpns/Equip	
6	Issue Warning Order	

8

8.1.1

8

PATROL PLANNING STEPS		P 2/2
STEP	ACTION	✓
7	Coordinate	
8	Make Recon	
9	Complete Detailed Plans	
10	Issue Order	
11	Supervise/Inspect/Rehearse	
12	Execute Mission	

8

8.1.2

8

8

8.2.1

8

PATROL WARNING ORDER		P 1/3
PARA	ITEM	
1	Statement Of Situation	✓
2	Mission Of The Patrol	
3	General Instructions	
3A	Gen And Spec Situation	
3B	Common Uniform/Equip	
3C	Wpns/Ammo/Equip	

8

8.2.2

8

PATROL WARNING ORDER		P 2/3
PARA	ITEM	
3D	Chain Of Command	✓
3E	Time Schedule	
3F	Time/Place Uniform And Equip For Order	
3G	Times And Places For Inspections/Rehearsals	

PATROL WARNING ORDER		P 3/3
PARA	ITEM	☒
4	Specific Instructions	
4A	To Subordinate Leaders	
4B	To Special Purpose Teams Or Key Men	

8

8.2.3

8

PATROL ORDER		P 1/6
1. SITUATION		
a. Enemy Forces		
(1) Identification		
(2) Location		
(3) Activity		
(4) Weather		
(5) Terrain		
b. Friendly Forces		
(1) Mission Of Next Higher Unit		
(2) Location: Planned Actions Units On Right And Left		

8

8.3.1

8

PATROL ORDER		P 2/6
(3) Mission And Routes Of Other Patrols		
(4) Fire Support Available		
c. Attachment And Detachments		
2. MISSION		
3. EXECUTION		
a. Concept Of Operation		
(1) Scheme Of Maneuver		

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PATROL ORDER		P 3 6
(2) Fire Support Plan		
b. Subunit Tasks (Element/Teams Men)		
c. Coordinating Instructions		
(1) Time Of Departure And Return		
(2) Techniques And Order Of Movement		
(3) Route (Primary Alternate)		

PATROL ORDER		P 4/6
(4) Departure And Reentry Of Lines		
(5) Rally Points And Actions At Them		
(6) Action At Danger Areas		
(7) Action On Enemy Contact		
(8) Action At The Objective		
(9) Fire Support		

8

8.3.4

8

PATROL ORDER		P 5/6
(10) Intelligence Requirements		
(11) Other Tasks		
4. SERVICE SUPPORT		
a. Rations And Water		
b. Arms And Ammunition		
c. Uniform And Equipment		
d. Handling Wounded/PW/Captured Equip		

8

8.3.5

8

8
8.3.6
8

PATROL ORDER		P 6/6
e.	Transportation	
5. COMMAND AND SIGNAL		
a.	Command	
	(1) Chain Of Command	
	(2) Location Of Patrol Leader During Move At Objective	
	b. Signal	
	(1) Arm-And-Hand/Other Signals/Codes/Callsigns Freqs To Use W/In Patrol	
	(2) Reports/Codes/Callsigns/Freqs To Use W/Higher HQ	
	(3) Challenge And Password	

8
8.4.1
8

PATROL REPORT		P 1/2
LINE	ITEM	✓
A	Patrol Size And Composition	
B	Task	
C	Time Of Departure	
D	Time Of Return	
E	Routes Out And Back	
F	Terrain Description	

8

8.4.2

8

PATROL REPORT		P 2/2
LINE	ITEM	
G	Enemy	✓
H	Map Corrections	
J	Miscellaneous Information	
K	Results Of En Encounters	
L	Condition Of Patrol	
M	Conclude Recommend	

8

8.5.1

8

SELECTION OF A PATROL BASE		P 1/3
STEP	ACTION	
1	Pick Site Of Patrol Base From Map Or Aerial Recon During Planning	✓
2	Base Is Tentative	
3	Plan For Alternate Base Site	
3A	Use If Initial Site Is Unsuitable	
3B	Recon Alternate Site And Keep Under Observation Until You Occupy Or No Longer Need It	
4	Select Base So Patrol Can Accomplish Mission And Consider	
4A	Terrain Of Little Tactical Value To Enemy	

8		8.5.2		8
SELECTION OF A PATROL BASE			P 2/3	
STEP	ACTION			
4B	Difficult Terrain Which Makes Foot Movement Hard			✓
4C	Area Of Thick Vegetation			
4D	Area Near Source Of Water			
5	Plan For			
5A	OPs			
5B	Commo With OPs			
5C	Defense Of Base			
5D	Withdrawal From Base (Routes Rally Rendezvous Point Alternate Base)			
5E	Security System To Ensure All Needed Troops Are Awake			

8		8.5.3		8
SELECTION OF A PATROL BASE			P 3/3	
STEP	ACTION			
5F	Enforcement Of Camouflage, Noise, And Light Discipline			✓
5G	Conducting Needed Activities With Minimum Movement/ Noise			
6	Avoid The Following			
6A	Known/Suspected En Psns			
6B	Built-Up Areas			
6C	Ridges And Hilltops, Except If Needed To Keep Commo			
6D	Roads/Trails/Wet Areas Slopes			
6E	Small Valleys			

8			8.6.1			8		
OCCUPATION OF A PATROL BASE			P 1/4					
STEP	ACTION							
1	Approach							
1A	Halt Patrol 200-400M From Tentative Patrol Base Site							
1B	Post Security							
1C	Element Leaders, RATELO, And Security Team Join Patrol Leader And Move Forward To Recon Patrol Site							
2	Recon							
2A	Patrol Leader Designates Entry Point As 6 O'Clock							
2B	Patrol Leader Moves To And Designates Center Of Base As Patrol CP							

8			8.6.2			8		
OCCUPATION OF A PATROL BASE			P 2/4					
STEP	ACTION							
2C	Element Leaders Recon Their Assigned Sectors And Then Return To CP							
2D	Patrol Leader Sends 2 Men Back To Bring Remainder Of Patrol Forward							
3	Occupation							
3A	Patrol Enters Base In Single File							
3B	Camouflage Signs Of Patrol's Entry Into Area							
4	Leader Checks Perimeter By Meeting Each Element Leader At Left Flank Of Each Sector							

OCCUPATION OF A PATROL BASE		P 3/4
STEP	ACTION	✓
4A	Both Move Clockwise To End Of Sector	
4B	Check Each Sector Until Entire Perimeter Checked	
5	All Element Leaders Send Out R&S Team To Recon Forward Of Element's Sector	
5A	Team Moves Out From Left Flank And Moves Clockwise To Right Limit Of Sector	
5B	Team Reenters At Right Flank	
6	Each R&S Team Reports	
6A	Signs Of Enemy Activity	

8

8.6.3

8

OCCUPATION OF A PATROL BASE		P 4/4
STEP	ACTION	✓
6B	Suitable OP Locations	
6C	Possible Rally Points	
6D	Withdrawal Routes	
7	Patrol Leader Designates	
7A	Withdrawal Routes	
7B	Rally Point Outside Base	
8	Each Element	
8A	Puts Out OP	
8B	Establishes Commo With Patrol OP	

8

8.6.4

8

8		8.7.1		8
OPERATION OF A PATROL BASE			P 1/4	
STEP	ACTION			
1	Security			✓
1A	Only One Point Of Entry Exit			
1B	Camouflage And Guard Entry Exit Point			
1C	Permit Only Needed Movement Inside And Outside Base			
1D	Keep Fires Small Smokeless And Build In Pit			
1E	Only Permit Noisy Work When Other Noise Will Cover It			
2	Stand-To			
2A	Hold Both Morning Evening			
2B	Vary Times To Prevent Pattern			

8		8.7.2		8
OPERATION OF A PATROL BASE			P 2/4	
STEP	ACTION			
2C	Must Last Long Enough To Accomplish Purpose			✓
3	Plan Defensive Measures			
3A	Defend Base When You Cannot Evacuate			
3B	Do Not Build Complete Fighting Positions			
3C	Stress Camouflage And Concealment			
4	Make Fire Plan			
4A	Put Early Warning Devices On Avenues Of Approach			
4B	Put Mines Triplares In Places That Fire Cannot Cover			

OPERATION OF A PATROL BASE		P 3/4
STEP	ACTION	✓
5	Make Withdrawal Plan To Rally At Rally Point Rendezvous Point/Alternate Patrol Base	
6	Commo	
6A	Establish With Higher HQ/OPs/ Within Patrol	
6B	Control Radios To Not Alert En	
6C	Use Wire Within Base	
6D	Use Tug Pull Wires To Signal	
7	Maintain Weapons Equipment	
8	Sanitation Personal Hygiene	
8A	Catholes Outside Perimeter In Day, Inside At Night	

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8

8.7.4

8

OPERATION OF A PATROL BASE		P 4/4
STEP	ACTION	
8B	Wash, Shave, And Brush Teeth On Regular Basis	✓
8C	Conceal Trash Or Carry With Patrol	
9	Establish Eating/Sleeping Shifts And Maintain Security	
10	Water	
10A	Guard Water Details	
10B	No More Than 2 Trips Per 24-Hour Period	
11	Continue To Plan And Prepare For Mission	
12	When Departing, Remove And Conceal All Signs Of Patrol	

8			8.8.1			8		
PRINCIPLES OF A RAID			P 1/2					
ITEM	PRINCIPLE							
1	Conduct Raid With Combat Patrol							
2	Mission Is To Attack A Position Or Installation							
2A	Destroy Position Or Installation							
2B	Destroy Or Capture Troops Or Equipment							
2C	Liberate Personnel							
3	Attack							
3A	When Enemy Least Expects An Attack							

8			8.8.2			8		
PRINCIPLES OF A RAID			P 2/2					
ITEM	PRINCIPLE							
2B	When Visibility Is Poor							
2C	From An Unexpected Direction, Such As Approaching From The Rear Or Through Impassable Terrain							
3	Concentrate Fire At Critical Points To Suppress Enemy							
4	Achieve Violence By							
4A	Gaining Surprise							
4B	Using Massed Fire							
4C	Attacking Aggressively							

CONDUCT A RAID			P 1/4
STEP	ACTION		
1	Patrol Moves To ORP For Recon Patrol		
1A	Secure ORP		
1B	Conduct Recon With Leaders		
1C	Confirm Plans		
1D	Coordinate Movements Of Elements So All Reach Their Positions At Same Time		
2	Security Element		
2A	Move To Positions To Secure ORP		
2B	Give Warning Of Enemy Approach		

8

8.9.1

8

CONDUCT A RAID			P 2/4
STEP	ACTION		
2C	Block Avenues Of Approach Into Objective Area		
2D	Prevent Enemy Escape From Objective Area		
2E	Inform Patrol Leader Of All Enemy Action		
2F	Shoot Only If You Are Detected Or On Patrol Leader's Order		
2G	During An Assault, Prevent Enemy From Entering Into, Or Escaping From, Objective Area		
2H	At End Of Assault, Cover Withdrawal Of Assault And Support Elements To ORP		

8

8.9.2

8

CONDUCT A RAID		P 3/4
STEP	ACTION	
3	Support Element	
3A	Move Into Position Prior To Assault Element Moving Into Position	
3B	Cover Withdrawal Of Assault Element From Immediate Area Of Objective	
3C	Withdraw On Oral Order/Signal	
4	Assault Element	
4A	Deploy Close To Objective To Permit Immediate Assault If Enemy Detects You	
4B	Assault, Seize, And Secure Objective When Supporting Fire Lifts Or Shifts	

CONDUCT A RAID		P 4/4
STEP	ACTION	
4C	Protect Demolition/Search Teams While They Work	
4D	Withdraw To ORP On Oral Order/Signal	
5	Reorganize Patrol At ORP	
5A	Move About 1000M Or 1 Terrain Feature Away From ORP	
5B	Disseminate Information	
5C	Redistribute Ammunition	
5D	Treat Casualties	
5E	Give Status Reports	

AMBUSH PRINCIPLES		P1/4
ITEM	PRINCIPLE	✓
1	Ambushes	
1A	Place Effective Fires On Site From All Positions	
1B	Well-Trained Teams	
1C	Simple, Effective Plan	
1D	Soldiers Aware Of Their Duties	
1E	Recon Area Beforehand	
1F	Do Not Let Enemy Find Out What You Plan To Do	
1G	Security In All Phases Of Operation, ESPECIALLY WHEN RETURNING To Friendly Lines Or Base Camp	

88.10.18

8

8.10.2

8

AMBUSH PRINCIPLES		P2/4
ITEM	PRINCIPLE	✓
1H	Placement Of Men And Siting Of Weapons	
1I	First Priority To Concealment And Fields Of Fire	
1J	Simple And Clear Signal To Open/Shift/Cease Firing	
2	Area Ambush	
2A	Cover All Approaches And Lay Out In Width Or Depth	
2B	Self-Contained Teams	
2C	One Team Springs Ambush	
3	Linear Ambush	
3A	One Avenue Of Approach	

8		8.10.3		8
AMBUSH PRINCIPLES		P3/4		
ITEM	PRINCIPLE			
3B	Place Elements Along Road/ Trail To Give Width And All- Round Defense			
3C	Use All Concealment			
4	Linear Ambush Organization			
4A	Security Element/Teams On Flank			
4B	Assault Element With Support And Search Teams			
4C	Mines/Footspikes On Far Side Of Kill Zone			
5	Vehicular Ambush			
5A	Stop Lead And Trail Vehicles In Kill Zone			

8		8.10.4		8
AMBUSH PRINCIPLES		P 4/4		
ITEM	PRINCIPLE			
5B	Kill Armor First			
5C	Organize Like Linear Ambush			
6	Night Ambush			
6A	Similar To Day Ambushes			
6B	Use Claymore, Grenades, And Automatic Weapons			
6C	Control Of Soldiers Is Vital			
6D	Issue Clear Orders/Signals			
6E	Fix Sectors Of Fire With Stakes			
6F	Move Into Positions After EENT			
6G	Plan For Illumination			

8		8.11.1		8
ORGANIZE AN AMBUSH		P1/5		
STEP	ACTION			
1	Types Of Ambush			✓
1A	Point Ambush (Single Kill Zone)			
1B	Area Ambush (Multiple Related Point Ambushes)			
2	Surprise			
2A	Allows Patrol To Seize Control Of The Situation			
2B	Stops Target From Effectively Reacting			
2C	Comes From Good Planning/Preparation/Execution			
3	Coordinate All Fires			

8		8.11.2		8
ORGANIZE AN AMBUSH		P 2/5		
STEP	ACTION			
3A	Position All Weapons, Mines, And Demolitions			✓
3B	Isolate Kill Zone To Prevent Escape/Reinforcement			
3C	Deliver Large Volume Of Highly Concentrated Fire Into Kill Zone			
3D	Inflict Maximum Damage So You Can Quickly Assault And Destroy Target			
4	Control Movement To/ Occupation Of/Withdrawal From Ambush Site			
5	Control Measures Provide			

ORGANIZE AN AMBUSH		P 3/5	8	8.11.3	8
STEP	ACTION				
5A	Early Warning Of Target Approach	☒			
5B	Holding Fire Until Target Moves Into Kill Zone				
5C	Opening Fire At Proper Time				
5D	Initiation Of Proper Action If Enemy Detects Ambush				
5E	Lifting/Shifting Of Supporting Fire				
5F	Timely And Orderly Withdrawal Of Patrol To ORP				
5G	A Signal To Open Fire				
6	Change Signals To Prevent Pattern				

ORGANIZE AN AMBUSH		P 4/5	8	8.11.4	8
STEP	ACTION				
6A	Using Arm And Hand/Radio/Field Phone	☒			
6B	For Security Team To Signal Target's Approach				
6C	To Start Ambush (Casualty-Producing)				
6D	To Shift Fire When You Assault Target (Voice/Whistles/Flares)				
6E	To Withdraw (Voice/Whistles/Flares)				
7	Fire Discipline				
7A	Withhold Fire Until Signal				
7B	Deliver Immediately				

ORGANIZE AN AMBUSH		P 5/5
STEP	ACTION	
7C	Well Timed And Well Aimed	✓
7D	Precise Lifting And Shifting	
8	Withdrawal To ORP	
8A	Recon Withdrawal Routes	
8B	On Signal, Patrol Withdraws To ORP, Reorganizes, And Starts Return March	
8C	Halt 1000M From Objective And Disseminate Information	
8D	Bound If Ambush Fails	
8E	Conceal Withdrawal	
8F	Use Mines Along Withdrawal Routes To Stop Pursuit	

8

8.11.5

8

CONDUCT AN AMBUSH		P1/4
STEP	ACTION	
1	Formation For Ambush Based On	✓
1A	METT-T	
1B	Ease Of Control	
1C	Target You Are Attacking	
1D	Overall Combat Situation	
2	Patrol Halts At ORP	
2A	Establish Security	
2B	Confirm Patrol's Location	
2C	Conduct Recon Of Objective Area To Confirm Plan	
2D	Leaders Return To ORP	

8

8.12.1

8

8		8.12.2		8
CONDUCT AN AMBUSH		P 2/4		
STEP	ACTION			
3	Security Element			
3A	Moves To Positions To Secure ORP			
3B	Moves To Flank Ambush Site			
4	Support\Assault Elements Leaves ORP When Security Team Is In Position			
4A	Occupy Ambush Positions			
4B	Is There A Suitable Position For Support Element To Watch Assault Element's Move? If YES, Go To STEP 4D. If NO, Go To STEP 4C.			
4C	Both Elements Leave ORP At Same Time			

8		8.12.3		8
CONDUCT AN AMBUSH		P 3/4		
STEP	ACTION			
4D	Support Element Overwatches Assault Element's Move To Ambush Site			
5	Patrol Waits For Target When All Elements Are In Position			
6	Security Team Alerts Patrol When Target Approaches			
7	Security Team Leader Reports			
7A	Direction Of Movement			
7B	Target Size			
7C	Special Weapons Equipment			
8	Patrol Leader Alerts Other Elements			

CONDUCT AN AMBUSH		P 4/4	8
STEP	ACTION		
9	Patrol Leader Gives Signal To Start Ambush When Majority Of Target Is In Kill Zone		
10	Is Assault Element Required To Assault Kill Zone? If YES, Go To STEP 11. If NO, Go To STEP 12.		
11	Give Signal To Lift Or Shift Fire		
12	Signal Withdrawal To ORP Upon Mission Completion		
12A	Account For Equipment/ Personnel		
12B	Move To Suitable Location And Disseminate Information		
12C	Patrol Returns To Friendly Lines		
		8.12.4	8

8.13.1		8
PLAN A RECON MISSION		P 1/2
STEP	ACTION	
1	Make Estimate Of The Situation	✓
1A	Current Intelligence	
1B	Capabilities Of Unit	
1C	Tailor Unit To Support Mission	
2	Plan	
2A	Intelligence	
2B	Deceptive Measures	
2C	Use Of Smallest Unit Possible To Accomplish Mission	
2D	Remain Undetected	
2E	Use Of STANO Devices	

8

8.13.2

8

PLAN A RECON MISSION		P 2/2
STEP	ACTION	
2F	Rehearse Plan	✓
2G	Minimize Audio And Electronic Commo	
2H	Inspect Recon Force And Equipment	
3	Subordinate Missions	
3A	Command And Control	
3B	Recon Of Objective	
3C	Security Of Force	
Notes:		

8

8.14.1

8

LEADING A RECON PATROL		P 1/4
ITEM	PRINCIPLE	
1	Can You Clearly Define And Locate Your Recon Objective? If YES, Go To STEP 2. If NO, Go To STEP 3.	✓
2	Security Elements Perform Their Function From 1 Location With Mission Including	
2A	Recon Element	
2B	Security Element	
3	Move Into Objective Area By Bounds With R&S Teams	
4	For Small Recon Patrol, Patrol HQ Forms Part Of Recon Element Or Part Of R&S Teams	

8		8.14.2		8
LEADING A		P 2/4		
RECON PATROL				
ITEM	PRINCIPLE			
5	Determine Number And Strength Of Recon/Security/R&S Teams According To Mission			✓
6	Techniques Of Recon Patrol			
6A	Observe/Collect/Record Information About Enemy			
6B	Well-Rehearsed Plan			
6C	Use Battlefield Noises To Cover Movement			
6D	Use Binoculars			
6E	Establish Control Measures, Alternate Withdrawal Routes, Coordinated Fire Support			
6F	Move By Bounds			

8		8.14.3		8
LEADING A		P 3/4		
RECON PATROL				
ITEM	PRINCIPLE			
7	Recon Using R&S Teams			✓
7A	Use When Unable To Have Separate Security And Recon Teams			
7B	Allows Patrol To Perform Recon Mission And Provide Security			
8	Employing R&S Teams			
8A	Any Size Recon Patrol			
8B	Use For Leaders' Recon			
9	Organizing R&S Teams			
9A	Use 1 Team With Remainder Of Unit At ORP To Act As Reaction Force			

8		8.14.4		8
LEADING A RECON PATROL		P 4/4		
ITEM	PRINCIPLE			
9B	Multiple Teams With Each To Recon Portion Of ORP			✓
9C	2 Teams Link Up At Point On Far Side Of Objective			
9D	1 Team With Security Team Acting As Reaction Force			
10	Security			
10A	Use 1 Or 2 Soldiers To Bound			
10B	Remainder Of Team Provides Security			
10C	Vary Formation According To Terrain			
10D	Each Member Is Responsible For His Specific Sector			

8		8.15.1		8
CONDUCT AN AREA RECON MISSION		P 1/3		
STEP	ACTION			
1	Use Surveillance/Vantage Points Around Objective To Observe It And Surrounding Area			✓
2	Patrol Leader Halts In ORP			
2A	Establish Security			
2B	Confirm Patrol's Location			
3	Patrol And Element Leaders Recon Objective			
3A	Confirm Plan			
3B	Return To ORP			
4	Will Terrain Allow A Patrol To Secure Objective Area? If YES, Go To STEP 5. If NO, Go To STEP 7.			

CONDUCT AN AREA RECON MISSION

STEP	ACTION	✓
7	Patrol Leader Leaves Security Team In ORP	
7A	Use R&S Teams To Recon Objective	
7B	Move To Different Surveillance/ Vantage Points To Recon Objective	
7C	Recon Objective	
7D	R&S Teams Return To ORP	
7E	Disseminate Information	
7F	Patrol Returns To Friendly Lines	

CONDUCT AN AREA RECON MISSION

STEP	ACTION	
5	Security Element Departs ORP	
5A	Position Security Teams At ORP	
5B	Position Security Teams On Likely Enemy Avenues Of Approach Into Objective	
	Security Element Departs ORP	
	Move To Several Surveillance/Targeting Points Around Area	
	Move To ORP	
		1, Lines

8		8.16.3		8
CONDUCT A ROUTE RECON MISSION		P 3/5		
STEP	ACTION			
4D	Use When Time Is Critical And Loss Of Surprise Is Not Essential			
4E	Does Enemy Return Fire? If YES, Go To STEP 4F. If NO, Go To STEP 4G.			
4F	Develop Situation			
4G	Continue Recon			
5	Recon At Night			
5A	Recon Is Slower And Less Effective			
5B	Limited To STANO Devices, Patrolling, Observation Of Routes, And Use Of LPs			

8		8.16.4		8
CONDUCT A ROUTE RECON MISSION		P 4/5		
STEP	ACTION			
6	Route Recon Planning Details			
6A	Enemy/Friendly Troops And AO Information			
6B	Plans Of Higher Commands			
6C	When, Where, And How To Report Information			
6D	Departure Time			
6E	Appropriate Control Measures			
6F	Action To Take When You Complete Mission			
6G	Special Equipment Requirements			

8		8.16.5		8
CONDUCT A ROUTE RECON MISSION		P 5/5		
STEP	ACTION			
7	Terrain Considerations			
7A	Existing Routes And Their Physical Characteristics			
7B	Slope Gradients And Radius Curves			
7C	Bridges			
7D	Vehicle Fording, Ferrying, And Swimming Sites			
7E	Obstructions To Traffic Flow			
7F	Artificial Obstacles And Man- Made Features			
7G	Rockfalls And Slide Areas			
7H	Drainage			

8		8.17.1		8
CONDUCT A ZONE RECON MISSION		P 1/4		
STEP	ACTION			
1	Fan Method			
1A	Select Series Of ORPs In Zone			
1B	Go To First ORP			
1C	Establish Security			
1D	Confirm Location			
1E	Select Recon Routes Out From And Back To ORP			
1F	Routes Must Overlap And Form Fan-Shape Around ORP			
1G	Send Out Recon Elements Along Routes			
1H	Keep 1 Element In ORP			

8		8.17.2		8
CONDUCT A ZONE RECON MISSION		P 2/4		
STEP	ACTION			
1I	Send Elements Out On Adjacent Routes			
1J	Disseminate Information After You Recon Fan Area			
1K	Move To Next ORP			
1L	Repeat STEPS 1C - 1K At Each Successive ORP			
2	Covering Routes Method			
2A	Select ORP			
2B	Select Recon Routes Through Zone/Rendezvous Point For Patrol To Link Up After Recon			
2C	Establish Security			

8		8.17.3		8
CONDUCT A ZONE RECON MISSION		P 3/4		
STEP	ACTION			
2D	Confirm Patrol's Location			
2E	Assign Recon Route To Each Element			
2F	Determine Location For Rendezvous Point			
2G	Designate Linkup Time At Rendezvous Point			
2H	Send Recon Elements On Their Assigned Routes			
2I	Move With Center Element			
2J	Recon Routes With Fan Method			
2K	Link Up Entire Patrol At Rendezvous Point At The Designated Time			

9		9.1.1		9
BUILT-UP AREA FIGHTING PRINCIPLES			P 1/3	
ITEM	PRINCIPLE			
1	Develop Careful, But Simple Plan			
2	Attack In Depth			
3	Move In Short Bounds			
4	Dominate Killing Areas (Streets And Crossroads)			
5	Clear Each House Thoroughly			
6	Consolidate Each House Taken			
7	Keep Ammo/Grenades Readily Available			
8	Keep Equipment Light			
9	Plan For Casualty/PW Evacuation			
10	Plan To Replace Casualties			

9		9.1.2		9
BUILT-UP AREA FIGHTING PRINCIPLES			P 2/3	
ITEM	PRINCIPLE			
11	Street Clearing			
11A	Move With One Element On Each Side Of Street			
11B	Avoid Main Streets			
11C	Use Side Streets/Alleys			
11D	All Personnel Must Know Killing Areas			
11E	Have A Reserve Available, However Small			
12	House Clearing			
12A	Enter From Roof If Possible			
12B	Stay Away From Doors And Windows			

BUILT-UP AREA FIGHTING PRINCIPLES			P 3/3
ITEM	PRINCIPLE		✓
12C	Breach Walls With Demo, Tank HEP, 25mm HE, Claymores		
12D	Guard Wall Breach(s)		
12E	If Entering Ground Floor, Never Rush To Top To Clear Down		
12F	Guard And Leave Cellars Last		
13	Basement Clearing		
13A	Fire Through Door		
13B	Toss In Grenade(s)		
13C	Enter Firing		
13D	Search Carefully		
13E	Guard Underground Routes		

9

9.1.3

9

ORGANIZING FOR AN ATTACK ON A BUILDING			P 1/2
STEP	ACTION		✓
1	Organize Unit Into Assault Force and Support Force		
2	Designate Added Or Special Weapons/Teams		
3	Senior Man Commands Assault Force, Next Senior Support Force		
4	Assign Duties To Assault Force		
4A	Enter Building At Highest Level		
4B	Secure Breach/Entry Point		
4C	Clear Building Room-By-Room		
4D	Mark Each Room When Clear		
4E	Mark Building When Clear		

9

9.2.1

9

9			9.2.2			9		
ORGANIZING FOR AN ATTACK ON A BUILDING			P 2/2					
STEP	ACTION							
5	Assign Duties To Support Force							
5A	Occupy Overwatch Position							
5B	Isolate Building With Direct/ Indirect Fires/Smoke							
5C	Adjust Indirect Fires							
5D	Suppress Building And Nearby Buildings							
5E	Cover Assault Force's Move And Building Entry With Fire							
5F	Resupply Ammo/Replace Psnl							
5G	Evacuate Wounded/PW							
6	Issue Attack Order							

9			9.3.1			9		
ATTACK AND CLEAR A BUILDING								
STEP	ACTION							
1	Support Force Isolates Building From Overwatch Position With Direct Fires, Indirect Fires, And Smoke							
2	Support Force Suppresses Enemy In Building And Nearby Buildings To Cover Assault Force's Move							
3	Assault Force Enters Building At Highest Level Possible To Gain Foothold							
4	Assault Force Clears Building Room-By-Room, From Top Down							
5	Assault Force Marks Each Room When Cleared							
6	Assault Force Marks Each Building When Cleared							

9		9.4.1		9
ORGANIZING A		P 1/4		
BUILDING DEFENSE				
STEP	ACTION			
1	Select Building(s) To Defend By Considering			
1A	Protection			
1B	Dispersion			
1C	Concealment			
1D	Fields Of Fire			
1E	Observation			
1F	Covered Routes			
1G	Fire Hazard			
1H	Time Available			
1I	Building Strength			

9		9.4.2		9
ORGANIZING A		P 2/4		
BUILDING DEFENSE				
STEP	ACTION			
2	Position Teams/Vehicles			
3	Select Primary Positions For Key Dismounted Weapons			
3A	Select Alternate Positions			
3B	Select Supplementary Positions			
4	Prepare Positions For Key Dismounted Weapons			
4A	Place Machine Guns Low For Grazing Fire			
4B	Place Anti-Tank Weapons High For Long Range Coverage			
4C	Consider Moving To Alternate Positions During Darkness For Deception			

9		9.4.3		9
ORGANIZING A		BUILDING DEFENSE		P 3/4
STEP	ACTION			
5	Prepare Rooms In Building(s)			
5A	Establish Command Post			
5B	Establish Observation Posts			
5C	Set Up Wire Commo Lines			
5D	Stockpile Ammo, Grenades, Water, and Food			
5E	Stockpile Fire Fighting Tools, Sand/Dirt, And Water			
5F	Cover Floors With Sand/Dirt (Not In Anti-Tank Positions)			
5G	Reinforce Firing Positions			
5H	Camouflage Firing Positions			

9		9.4.4		9
ORGANIZING A		BUILDING DEFENSE		P 4/4
STEP	ACTION			
6	Prepare Outside Of Building(s)			
6A	Emplace Mines To Cover Deadspace/Approaches			
6B	Emplace Obstacles To Cover Deadspace/Approaches			
6C	Place Claymores On Roofs, In Alleys, And In Any Other Passages You Want To Deny			
6D	Cover All Mines/Obstacles By Observation And Fire			
7	Plan For/Register Indirect Fires			
8	Inspect Preparations			
9	Correct Deficiencies			

10

10.1.1

10

SPOT REPORT	
Key Word: SALUTE	
NOTE: Submit Immediately Following Contact Or When Reporting Anything Else Of INTELLIGENCE Value. Must Have: Who—What—When—Where!	
LINE	ITEM
1	Size
2	Activity
3	Location
4	Unit
5	Time Observed
6	Equipment
7	Source Of Info

10

10.2.1

10

TARGET SIGNATURES		P 1/4
ITEM	SIGNATURE	
1	SOLDIERS	✓
1A	Foxholes	
1B	Trash	
1C	Damaged Vegetation	
1D	Fires	
1E	Noise	
2	TRACKED VEHICLES	
2A	Tracks On Ground	
2B	Fuel Spills	
2C	Track/Engine Noise	
2D	Dust Clouds	

10		10.2.2		10
TARGET SIGNATURES			P 2/4	
ITEM	SIGNATURE			
2E	Diesel Smoke			✓
2F	Bright, White Flash At Night			
2G	Loud, Sharp Sound--Then White Smoke			
3	ANTITANK			
3A	ATGM Launch "Swish"			
3B	Long, Thin Wires			
3C	Vapor Trails--Slow ATGM			
3D	Sharp Crack--AT Gun			
3E	Dismounted Gunner Up To 80M Away From Launcher			
3F	Bright, White Flash At Night			

10		10.2.3		10
TARGET SIGNATURES			P 3/4	
ITEM	SIGNATURE			
4	ARTILLERY			✓
4A	Loud, Dull Sound			
4B	Grayish--White Smoke			
4C	Bright, Orange Flash And Black Smoke--Airburst			
4D	Rushing Noise Just Before Round Impacts			
5	AIRCRAFT			
5A	Aircraft Noise			
5B	Glare On Aircraft Canopies And Rotor Blades			
5C	Vapor Trails From Fired Missiles Or Aircraft			

10		10.2.4		10
TARGET SIGNATURES		P 4/4		
ITEM	SIGNATURE			
5E	Dust Or Moving Foliage From Hovering Helicopters			
6	MINES AND OBSTACLES			
6A	Road Repairs/Holes Filled			
6B	Signs Placed On Posts, Trees, Or Stakes			
6C	Wilted Plants Or Brush			
6D	Strange Material On Roads			
6E	Tripwires Near AT Mines			
6F	Areas Where Locals Do Not Go			
6G	Loose/Disturbed Dirt In Pattern			
6H	In Or Near Tactical Barbed Wire/Other Obstacles			

10		10.3.1		10
SOUND RANGES AT NIGHT		P 1/2		
SOURCE OF SOUND		RANGE IN KM		
Cannon Shot		Up To 15		
Single Shot From Rifle		2-3		
Automatic Weapons Fire		3-4		
Armored Vehicle Movement:				
• On A Dirt Road		1-2		
• On A Highway		3-4		
Motor Vehicle Movement:				
• On A Dirt Road		Up To .5		
• On A Highway		Up To 1		
Movement Of Foot Troops:				
• On A Dirt Road		Up To .3		
• On A Highway		Up To .6		

SOUND RANGES AT NIGHT		P 2/2
SOURCE OF SOUND	RANGE IN KM	
Small Arms Loading	Up To .5	
Metal On Metal	Up To .3	
A Few Men Talking	Up To .3	
Steps Of A Single Man	Up To .04	
Ax Blow, Sound Of A Saw	Up To .5	
Blows Of Shovels, Pickaxes	Up To 1	
Screams	Up To 1.5	
Oars On Water	Up To 2	
Other		
Other		
Other		

10

10.3.2

10

OBSERVATION DISTANCES WITH NAKED EYE		10.4.1	10
SOURCE OF LIGHT	RANGE IN KM		
Vehicle/Tank Headlights	4-8		
Muzzle Flashes-Single Gun	4-5		
Muzzle Flashes-Small Arms	1.5-2		
Bonfire	6-8		
Flashlight	1.5-2		
Lighted Match	1.5		
Lighted Cigarette	0.5-0.8		
NOTE: For Observation From The Air, The Above Distances Increase 2-3 Times!			

10

10

10.5.1

10

FIND UNKNOWN RANGE	
STEP	ACTION
1	R = Range W = Width H = Height r_h = Mils
2	List W Or H Of Target In Meters
3	List r_h
4	To Compute R, Divide STEP 2 By STEP 3 $\div$ =
5	To Compute Meters, Multiply STEP 4 By 1000 $\times$ =
6	List R From STEP 5

10

10.6.1

10

FIND UNKNOWN WIDTH	
STEP	ACTION
1	R = Range W = Width r_h = Mils
2	List R (Example 1000M=1 Or 1500M=1.5)
3	List r_h
4	To Compute W, Multiply STEP 2 By STEP 3 $\times$ =
5	List W From STEP 4

Note: For Shift From A Known Point, Round UP To The Next HIGHER 10 (Example 54 = 60).

10

10

10.7.1

10

FIND UNKNOWN MIL ANGLE

STEP	ACTION
1	R = Range H = Height W = Width Known Point η = Mils W Or H Of Target
2	List R (Example 1000M=1 Or 1500M=1.5)
3	List W Or H In Meters
4	To Compute η , Divide STEP 3 By Step 2
5	List η From STEP 4

Note: Round Off The Number In STEP 5
To One Decimal Point Only.

10

10

10.8.1

10

WARSAW PACT ADA AND AT VEHICLES

P 1/2

ZSU 23-4

BRDM (SAGGER)

BRDM-2 (SAGGER)

BRDM-2 SA9

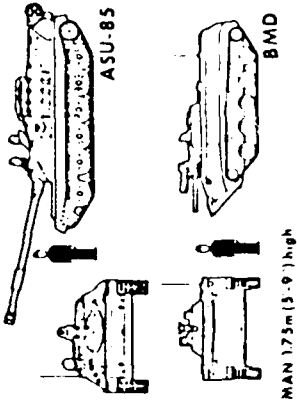
MAN 175m (5.9) high

WARSAW PACT ADA AND AT VEHICLES	P 2/2	
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10

10.8.2

10

10 10.9.1	WARSAW PACT AIRBORNE VEHICLES  ASU-85 BMD MAN 175m (5.9') high
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10

10

10.10.1

10

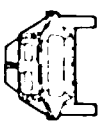
**WARSAW PACT MOTORIZED
RIFLE FIGHTING VEHICLES**



BTR-60PB



BMP-A




MAN 175m (5'-9") high

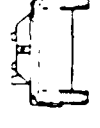
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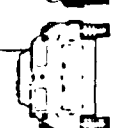
10.11.1

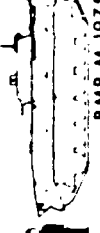
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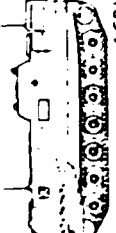
**WARSAW PACT
ARTILLERY VEHICLES**

P 1/2





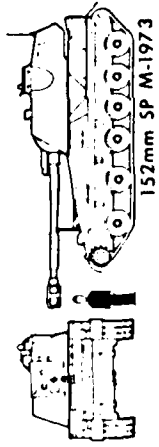



MAN 175m (5'-9") high

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10.11.2

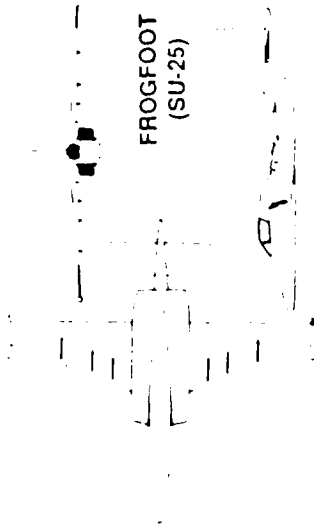
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WARSAW PACT ARTILLERY VEHICLES  152mm SP M-1973	P 2/2
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10.12.1

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WARSAW PACT FIGHTERS/BOMBERS  FROGFOOT (SU-25)	P 1/2
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FENCER
(SU-27)

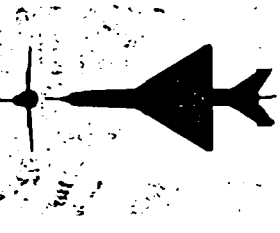


FLOGGER-D
(MiG-27)

10

10.12.2

10

WARSAW PACT FIGHTERS/BOMBERS	P 2/2
  FITTER-C (SU-17, 20, & 22) FISHBED (MIG-21)	

10

10.13.1

10

WARSAW PACT HELICOPTERS	P 1/2
     HARE HOUND HOPLITE HIND HIP	

10

WARSAW PACT
HELICOPTERS

P 2/2



HOOK



10.13.2
10

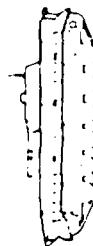
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10.14.1
WARSAW PACT
RECON VEHICLES

P 1/2




BMP-A

BMP M-1976




BRDM




BRDM rkh

MAN 17.5m (5' 9") high

10

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**WARSAW PACT
RECON VEHICLES**

P 2/2




BRDM-2




BRDM-2 rkh



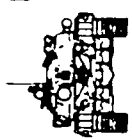
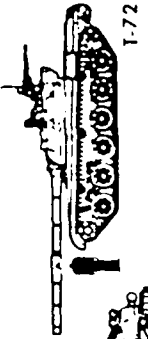

BRDM-2U

10.14.2
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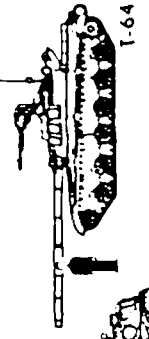
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WARSAW PACT TANKS

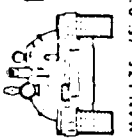
P 1/2

T-72

T-64




T-62A

MAN 175m (5'9") high

10.15.1
10

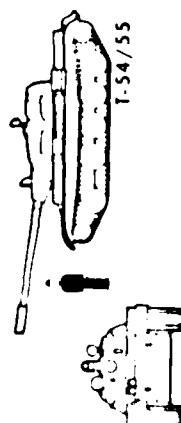
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10.15.2

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WARSAW PACT TANKS

P 2/2



10

10.16.1

10

MAINTENANCE ON AN/PVS-5 GOGGLES

P 1/4

STEP	ACTION	
1	Inspect Goggles And Carrier By Removing Goggles From Carrier To Ensure All Parts Are Present	✓
2	Inform Your Commander If Any Of Following Parts Are Missing	
2A	Binocular Assembly	
2B	Headstrap	
2C	Lens Tissue	
2D	Key Socket Head	
2E	Instruction Sheet	
2F	Demisting Shield Assembly	
2G	Carrying Case	

MAINTENANCE ON AN/PVS-5 GOGGLES		P 2/4
STEP	ACTION	
2H	Cap Lens, Eyepiece	✓
2I	Cap Lens, Objective	
3	Inspect Eyepiece And Objective Lenses	
3A	Insure Eyepiece, Objective Lens Cover, And Demisting Shields Are Present	
3B	Inspect Lens For Dirt And Damage	
3C	Clean And Dry Lens Using Water And Lens Paper, If Needed	
3D	Report Lens Damage To Organizational Maintenance	

1010.16.210

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10.16.3

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MAINTENANCE ON AN/PVS-5 GOGGLES		P 3/4
STEP	ACTION	✓
4	Inspect Exterior Surfaces	
4A	Inspect Face Mask Assy And Aluminum Housing For Damage	
4B	Inspect Mask Cushion Assy And Strap Assy For Damage	
4C	Wipe Exterior With Clean Cloth, Dampen To Remove Dirt And Grease	
4D	Report Damage To Maint	
5	Check Clamp Knobs So Binocular Assy Moves Freely	
6	Check Lever Clamps So Monoculars Move Freely	

MAINTENANCE ON AN/PVS-5 GOGGLES		P 4/4
STEP	ACTION	
7	Check Diopter Adjustment So Diopter Rings Move Freely	✓
8	Rotate Focus Knobs So They Rotate Freely	
9	Check Rotary Switch	
10	Clean Carrying Case	
10A	Remove All Accessories	
10B	Turn Case Over And Shake Dirt Out	
10C	Clean Exterior And Interior With Dry, Clean, Lint-Free Cloth	
10D	Dampen Cloth With Clean Water To Remove Any Grease And Dirt, If Needed	

10

10.16.4

10

MAINTENANCE ON AN AN/PAS-7		P 1/3
STEP	ACTION	
1	Check Parts Of Viewer For Cleanliness And Damage	✓
1A	Check Exterior Surface	
1B	Check Infrared Window And Eyepiece Lens	
1C	Check Rubber Eyeshield And Operation Of Security Shutter	
1D	Check Connector For Bent Or Damaged Pins	
1E	Check Neck And Hand Sling Fabric	
2	Check Rechargeable Battery And Battery Charger For Cleanliness And Damage	

10

10.17.1

10

MAINTENANCE ON AN AN/PAS-7		P 2/3
STEP	ACTION	
2A	Check Exterior Surfaces	✓
2B	Check Cable For Cracks And Breaks	
3	Check Interconnecting Cable For Cleanliness And Damage	
3A	Check Connectors And Cable For Damaged Pins	
3B	Check Cable For Damaged Pins	
4	Check Carrying Bag For Cleanliness And Damage	
4A	Open Bag And Shake Out Dirt	
4B	Remove Lint From Interior And Exterior Of Bag	

10

10.17.2

10

MAINTENANCE ON AN AN/PAS-7		P 3/3
STEP	ACTION	
4C	Check Fabric For Damage	✓
4D	Check Zipper For Proper Operation	
5	Check Transit Case For Cleanliness And Damage	
5A	Remove Cover, Empty Case, And Clean Case	
5B	Check Interior And Exterior Of Case For Cleanliness And Damage	
5C	Check Hold Down Hatches For Proper Operation And For Damage	

10

10.17.3

10

10		10.18.1		10
CLEANING METHODS FOR AN AN/PAS-7		P 1/3		
STEP	ACTION			
1	Lens And Window Surfaces			
1A	Remove Rubber Eyeshield By Pulling It Off			
1B	Remove Dust And Dirt From Lens With Clean Camel's Hair Brush			
1C	Use Lens Tissue Dampened With Lens Cleaner For Stubborn Dirt			
1D	Clean Lens By Starting At Center And Working Out Toward Edge In Circular Motion			
1E	Dry Lens With Dry Tissue Using Circular Motion			

10		10.18.2		10
CLEANING METHODS FOR AN AN/PAS-7		P 2/3		
STEP	ACTION			
2	Exterior Surfaces			
2A	Brush Exterior Surface With Camel's Hair Brush			
2B	Wipe Surface With Clean, Lint-Free Cloth			
2C	Use Cloth Dampened With Mild Detergent And Water For Stubborn Dirt			
2D	Dry Thoroughly With Clean, Lint-Free Cloth			
3	Rubber Eyeshield			
3A	Wipe With Clean, Lint-Free Cloth			

10			10.18.3	10
CLEANING METHODS FOR AN AN/PAS-7			P 3/3	
STEP	ACTION			
3B	Use Cloth Dampened With Water For Stubborn Dirt			
3C	Air Dry, Or Dry With A Clean, Lint-Free Cloth			
4	Connectors And Cables			
4A	Remove Dirt With A Camel's Hair Brush			
4B	Use A Lint-Free Cloth Dampened With Water For Stubborn Dirt			
4C	Air Dry Or Dry With A Clean, Lint-Free Cloth			

10			10.19.1	10
PLANNING PEWS INSTALLATION			P 1/3	
STEP	ACTION			
1	Size Of Area			
1A	Consider Size Of Area To Determine How Many Detectors You Need			
1B	Detector's Maximum Range Is 10M			
1C	Maximum Distance From Receiver Is 1500M			
1D	Use PEWS To Cover Areas Which Other Devices Cannot Cover			
1E	When Covering A Large Area, You Can Place Detectors Using Hot-Loop Method			

10

10.19.2

10

PLANNING PEWS INSTALLATION		P 2/3
STEP	ACTION	
2	Type Of Terrain	☒
2A	Trees And Heavy Vegetation Will Decrease Operating Range In "RF" Mode	
2B	Hills Or Buildings Will Block Signal In "RF" Mode	
2C	Use Wire Mode For Detectors When You Cannot Accomplish Line-Of-Sight Emplacement	
2D	You Must Place Detectors In Bottom Of Ditch Or Gully	
2E	Do Not Place Detectors Near Streams Or Rivers	

10

10.19.3

10

PLANNING PEWS INSTALLATION		P 3/3
STEP	ACTION	
3	Type Of Soil In Area	☒
3A	For 10M-Radius Detection, Place Detectors In Hard- Packed Soil, Grassy Or Weedy Areas, Or Wet Soil	
3B	Avoid Sand, Loose Soil, Or Rock Formations Because They Will Greatly Reduce Detection Range	
Notes:		

10		10.20.1		10
PREPARING PEWS FOR OPERATION			P 1/4	
STEP	ACTION			
1	Prepare Receiver ("RF" Mode)			
2	Install Batteries			
2A	Set "DSPL-TONE-OFF" Switch To "OFF"			
2B	Release Latches On Battery Compartment At Base Of Receiver			
2C	Snap 2 Batteries Into Position In Battery Compartment With Connectors Against Rubber Pad			
2D	Replace Cover And Secure Latches			
3	Install Antenna/Headset			

10		10.20.2		10
PREPARING PEWS FOR OPERATION			P 2/4	
STEP	ACTION			
3A	Install Antenna Adapter Into "ANT" Socket On Front Panel			
3B	Connect Antenna To Any Of The 3 Sockets On Adapter			
4	Prepare Detector ("RF" Mode)			
5	Installing Batteries			
5A	Set "RF-OFF-W" Switch To "OFF"			
5B	Loosen Screws To Release Battery Cover			
5C	Snap Battery Into Clip And Place In Compartment With Connector Against Pad			

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10.20.3

10

PREPARING PEWS FOR OPERATION		P 3/4
STEP	ACTION	
5D	Check Area Code And Detector ID Number On Inside Of Battery Compartment Cover	✓
5E	Close Battery Compartment And Tighten Screws	
6	Install Antenna By Screwing Detector Onto Threaded Post On Top Of Detector	
7	Install Ground Stakes By Screwing 2 Ground Stakes Into The Bottom Of Detector	
8	Prepare Receiver (Wire Mode)	
8A	Repeat STEPS 2A - 2D	

10

10.20.4

10

PREPARING PEWS FOR OPERATION		P 4/4
STEP	ACTION	
8C	Remove Battery Compartment Cover And Snap It Onto Holding Bracket On Wire Link	✓
8D	Secure Wire Link To Bottom Of Receiver Using Wire Link Connector	
8E	Secure Latches To Wire Link	
9	Receiver And Detectors Are Now Prepared For Operation	
Notes:		

10			10.21.1		10
INSTALLATION OF PEWS			P 1/5		
STEP	ACTION				
1	Install Detectors				
1A	Dig A Shallow Hole About 1 1/2-Inches Deep And Slightly Larger Than Detector				
1B	Push Detector Into Hole So You Firmly Implant Holding Stakes Into The Ground				
1C	Emplace Detector In Hole With Arrow On Top Of Detector Parallel To Road Or Trail				
1D	Pack Soil Firmly Against Sides Of Detector Case				
1E	Do Not Cover Top Of Detector With Soil				

10			10.21.2		10
INSTALLATION OF PEWS			P 2/5		
STEP	ACTION				
1F	If You Are Using The Wire Mode For Detectors, Strip 1/2-Inch Of Insulation From The End Of Each Wire				
1G	Insert Each Wire Into Terminal Posts On The Detector By Pressing Down On Top Of The Post And Inserting Wire Into The Post				
1H	Run Wire To The Receiver Location				
1I	Camouflage Detector And Wire				
1J	Turn Detector On And Set The "RF-OFF-W" Switch To "RF" For Radio Mode Or To "W" For Wire Mode				

10		10.21.3		10
INSTALLATION OF PEWS		P 3/5		
STEP	ACTION			
2	Record Detector Locations			
2A	Draw Rough Sketch			
2B	Include Easily Identifiable Natural And Man-Made Features			
2C	Label Features In STEP 2B That Can Be Used To Identify Area Of Emplacement Of Detectors			
2D	Identify Start Point Of The Emplacement Of Detectors			
3	Include The Following Items On The Sketch			
3A	Direction Of Likely Enemy Approach			

10		10.21.4		10
INSTALLATION OF PEWS		P 4/5		
STEP	ACTION			
3B	Direction Indicator (North Arrow)			
3C	Unit Designation (No Higher Than Company)			
3D	Area Code Of Detectors			
3E	Date Detectors Are Installed			
3F	Whether Detectors Are In "RF" Or Wire Mode			
3G	Pace Count Per 100M Of Soldier Recording Pace Count			
4	Record Detectors On Sketch			
4A	Record Detectors As They Are Being Laid			

10

10.21.5

10

INSTALLATION OF PEWS		P 5/5
STEP	ACTION	☒
4B	Lay Detectors Out In Sequence	
4C	Determine Direction From Start Point To First Detector	
4D	Count Paces To Emplacement Site	
4E	Record Direction, Pace Count, And Location Of Detector On Sketch	
Notes:		

10

10.22.1

10

PERFORM PRE-MISSION CHECKS ON PEWS		P 1/6
STEP	ACTION	☒
1	Perform Receiver Checks ("RF" Mode)	
1A	Set "DSPL-TONE-OFF" Switch To "TONE" Position	
1B	Listen For Tone In Headset	
1C	Set "DSPL-TONE-OFF" Switch To "DSPL" Position	
1D	Observe Display Window	
1E	"L" Will Appear Followed By ".8.8.8." And Then Will Clear	
1F	Does "L" Appear In Display Window? If YES, Go To STEP 1G. If NO, Go To STEP 1H.	

10		10.22.2		10
PERFORM PRE-MISSION CHECKS ON PEWS		P 2/6		
STEP	ACTION			
1G	Replace Batteries			
1H	Batteries Are Starting To Get Low And Should Be Replaced			
2	After Display Has Cleared, Press The "TEST-RESET" Button And Look For ".8.8.8" Display			
3	Perform Detector Checks ("RF" Mode)			
3A	Set Receiver To "DSPL"			
3B	Set Receiver "AREA" Switch To Area Number Of Detector You Are Testing			
4	Check All Detectors For "RF" Mode Of Operation			

10		10.22.3		10
PERFORM PRE-MISSION CHECKS ON PEWS		P 3/6		
STEP	ACTION			
4A	Place Detector Power Switch To "RF"			
4B	Press Detector "TEST" Button And Hold Button Down For 4 Seconds			
4C	Observe Display Window Of Receiver For Response			
4D	Receiver Display Must Indicate Detector's ID Number In First 2 Frames Of Display Window And A "C" Or "P" In Last Frame			
5	Perform Receiver Detector Checks (Wire Mode)			
5A	Connect Wire Link To An Operational Receiver			

10		10.22.4	10
PERFORM PRE-MISSION CHECKS ON PEWS		P 4/6	
STEP	ACTION		
5B	Connect Working Detector To Wire Link Using Short Length Of Field Wire		✓
5C	Set "TEST" Switch To Each Position On Wire Link		
5D	At Each Position, Observe Test Indicator Light On Wire Link Which Must Light Up At Each Position		
5E	Is Test Indicator Light Blinking? If YES, Go To STEP 5G. If NO, Go To STEP 5F.		
5F	Indicates That Field Wire Is Not Broken Or Shorted		
5G	Indicates That Wire Is Broken Or Shorted		

10		10.22.5	10
PERFORM PRE-MISSION CHECKS ON PEWS		P 5/6	
STEP	ACTION		
6	Set Test Switch On Wire Link To "REC" Position		✓
7	Set Detector Mode Switch To "W"		
7A	Press And Release Test Button For 4 Seconds On Detector		
7B	At The Same Time Observe Display Window Of Receiver		
7C	Receiver Must Indicate ID Number Of Detector And "C" Or "P"		
8	Perform Receiver Memory Check		
8A	Connect 2 Working Detectors To Receiver By "RF" Mode, Wire Link Mode, Or Both		

NOTES

[illegible]

11		11.1.1		11
INSTALL HASTY PROTECTIVE MINEFIELD		P 1/2		
STEP	ACTION			
1	Report Intention To Lay Field			
2	Get Authorization To Lay Field			
3	Recon To Find Best Mine Sites			
3A	On En Avenues Of Approach			
3B	Under Unit Observation/Fire			
4	Report Initiation Of Field			
5	Place Mines On Avenues Of Approach			
5A	Do NOT Arm Mines Yet			
5B	Use ONLY Metallic Mines			
5C	Do NOT Boobytrap Mines			

11		11.1.2		11
INSTALL HASTY PROTECTIVE MINEFIELD		P 2/2		
STEP	ACTION			
6	Record Field On DA 1355-1-R			
7	Arm Mines-Work From En Side To Friendly Side			
8	Report Completion Of Field			
9	Warn Adjacent Units			
10	Always Integrate Mines With Other Defense Plans			
11	Retain DA 1355-1-R As Long As Unit And Field Stay In Place			
12	If Transferred To Another Unit, Gaining Unit CO Signs And Dates DA 1355-1-R			
13	If Field Abandoned, Forward DA 1355-1-R To Co CO			

11		11.2.1		11
REMOVE HASTY PROTECTIVE MINEFIELD		P 1/2		
STEP	ACTION			
1	Do You Have The DA 1355-1-R For The Field? If YES, Go To STEP 2. If NO, Treat As ENEMY Field-- Use Breaching Techniques			
2	Try To Have The Same Man Who Emplaced Each Mine Remove The Same Mine			
3	Move To Reference Point			
4	Move From Reference Point To Stake B-1			
5	Is Stake B-1 In Position? If YES, Go To STEP 6. If NO, Go To STEP 9.			
6	Move From Stake B-1 To First Mine Row B			

11		11.2.2		11
REMOVE HASTY PROTECTIVE MINEFIELD		P 2/2		
STEP	ACTION			
7	Remove Each Mine In Row B In Order Using The Azimuth And Distance On DA 1355-1-R			
8	Go To STEP 12			
9	Move From Reference Point To Stake B-2			
10	Shoot BACK Azimuth From Stake B-2 To Last Mine In Row B			
11	Remove Each Mine In Row B-- Use BACK Azimuths			
12	Move To Stake A-1 (Or A-2)			
13	Remove Mines In Row A The Same Way As In Row B			
14	Destroy The DA 1355-1-R			

11

11.3.2

11

LOCATING MINE SITES BY TERRAIN ANALYSIS		P 2/3
STEP	ACTION	
2A	Helicopter Landing Sites	✓
2B	Signs Of Road Repairs	
2C	Mud Smears, Grass, Sticks, Loose Dirt, Dung, Or Other Material On Roads	
2D	On Shoulders Of Road At Likely Ambush Sites	
2E	Tripwires Near Known Or Suspected Antitank Mines	
2F	Signs Placed In Trees, Posts, Or Stakes	
2G	Holes Filled With Asphalt Or Other Material	
2H	Tunnels	

LOCATING MINE SITES BY TERRAIN ANALYSIS		P 1/3
STEP	ACTION	
1	Use A Map To Determine Locations For Mines By Considering The Following	✓
1A	Avenues Of Approach To Enemy Positions	
1B	Intersections And Turnouts	
1C	Wooded Areas	
1D	Bridges And Fords	
1E	Hilltops	
1F	Depressions And Ditches	
2	While Viewing Terrain From The Ground For Possible Mines And Tripwires, Consider STEPS 1A- 1F Plus The Following	

11

11.3.1

11

LOCATING MINE SITES BY TERRAIN ANALYSIS		P 3/3
STEP	ACTION	
2I	Unusual Or Out-Of-Place Material	✓
2J	Wilted Plants Or Brush	
2K	Flags, Equipment, Or Supplies	
2L	Areas Where Local Civilians Are Not Found	
3	Locate Possible Mined And Tripped Areas From The Air By Considering Features In STEPS 1A-1F And Features In STEPS 2A-2L	
4	Report All Suspected Locations To Your Commander	

11

11.3.3

11

11

11.4.1

11

BREACHING AND CLEARING MINEFIELDS	
STEP	ACTION
1	Suppress Enemy Covering Obstacle
2	Obscure Area With Smoke
3	Secure Near Side
4	Reduce Obstacle—Blow Or Probe Lane Through
5	Secure The Far Side
6	Blow Marked Mines In Place (Time Permitting)
7	Mark Cleared Lane
8	Move Unit Through Obstacle

11		11.5.1		11
INSTALLING M16A2 ANTIPERSONNEL MINE		P 1/3		
STEP	ACTION			
1	Inspect Mine			
1A	Look For Cracks, Dents, Swells, And Any Other Damage			
1B	Unscrew Shipping Plug From Fuze Well With M25 Wrench			
1C	Inspect Fuze Well For Debris			
1D	Turn Mine Upside Down And Tap Gently To Remove Debris			
1E	Inspect M605 Fuze For Damage			
1F	Safety Pins Must Move Freely			
1G	Rubber Gasket Around Fuze			
1H	Bushing Adapter On Fuze Well Must Be Tight			

11		11.5.2		11
INSTALLING M16A2 ANTIPERSONNEL MINE		P 2/3		
STEP	ACTION			
2	Screw Fuze Into Fuze Well And Tighten With M25 Wrench			
3	Dig Hole To Proper Depth For Either Tripwire Or Pressure Installation			
4	Emplace Mine			
4A	Place Mine In Hole			
4B	Cover And Pack Dirt Around Mine To Proper Fuze Level			
		NOTE: For Pressure Installation, Go To STEP 6		
5	Tripwire Installation			
5A	Attach Tripwires To 2 Anchor Stakes, THEN To Release Pin			

11		11.5.3		11
INSTALLING M16A2 ANTIPERSONNEL MINE		P 3/3		
STEP	ACTION			
5B	Wire Should Form Wide "V"			
5C	Allow Enough Slack In Wires For Fuze Top To Rotate			
6	Arming Mine Fuze			
6A	Remove Locking Safety Pin First (Stop If You Hear A Click)			
6B	Remove Interlocking Safety Pin (Squeeze Legs Together)			
6C	Camouflage Mine With Care, Leave Positive Safety Pin Cord Exposed			
6D	Remove The Positive Safety Pin Last To Arm Mine			
6E	Give All Pins To NCOIC			

11		11.6.1		11
DISARMING M16A2 ANTIPERSONNEL MINE				
STEP	ACTION			
1	Replace Positive Safety Pin			
2	Replace Interlocking Safety Pin			
3	Replace Locking Safety Pin			
4	Cut Slack Tripwires At Release Pull Ring			
5	Remove Mine From Hole			
6	Clean Off Top Of Mine			
7	Remove Fuze Assembly			
8	Replace Shipping Plug			

INSTALLING M18A1 ANTIPERSONNEL MINE		P 1/3
STEP	ACTION	☒
1	Inventory Mine And Accessories	
2	Inspect Mine For Cracks, Dents, Swells, Or Any Other Damage	
3	Test Electrical Circuit	
3A	Mate Firing Device, Test Set, And Firing Wire Connector	
3B	Depress Handle	
3C	Light Must Show In Window	
3D	Return Bail To Safety Position	
4	Aiming The Mine	
4A	With Slit-Type Peep Sight, Aim Mine At A Man's Head Standing 45M From Mine	

11

11

11.7.2

11

INSTALLING M18A1 ANTIPERSONNEL MINE		P 2/3
STEP	ACTION	
4B	With Knife Edge-Type Sight, Aim Mine At A Man's Feet Standing 50M From Mine	
5	Priming Mine	
5A	Remove Shipping Plug-Priming Adapter From Mine	
5B	Insert Blasting Cap Into Priming Adapter	
5C	Screw Into Either Cap Well	
6	Connect Firing Wire Plug Directly To Firing Device With Safety On	
7	Firing Position Is A Minimum Of Of 16M From Rear Of Mine To Your Fighting Position—100M For Others Under Cover	

11

INSTALLING M18A1 ANTIPERSONNEL MINE		P 3/3
STEP	ACTION	✓
8	Recheck Aim Of Mine	
9	Camouflage Mine	
10	Move To Covered Position	
11	Retest Firing Circuit	
12	Firing The Mine	
12A	Mate Firing Device And Firing Wire Connector	
12B	Drop Safety Bail	
12C	Take Cover	
12D	Depress Handle	
NOTE: Anytime You Move Forward To Check Mine, TAKE FIRING DEVICE WITH YOU!		

11

11.7.3

11

11		11.8.1		11
DISARMING M18A1				
ANTIPERSONNEL MINE				
STEP	ACTION			
1	Disconnect Firing Wire From Firing Device-Replace Covers			✓
2	Put Firing Device In Pocket			
3	Remove Priming Adapter And Blasting Cap From Cap Well			
4	Remove Blasting Cap From Priming Adapter			
5	Reverse Priming Adapter And Screw Into Cap Well			
6	Remove Mine			
7	Reroll Blasting Cap And Wire			
8	Clean And Repack Mine And Accessories In Bandolier			

11		11.9.1		11
INSTALLING M18A1		P 1/3		
MINE WITH TRIPWIRES				
STEP	ACTION			
1	Arming M18A1 (Claymore) With Tripwires			
1A	Emplace And Aim Mine To Cover Target Area			
1B	Emplace 2 Tripwire Stakes 20M In Front Of Mine And Space Them 10 - 20M Apart			
1C	Emplace 1 Stake 1M To The Side Of Mine			
2	Installing Firing Device			
2A	Remove Protective Cap			
2B	Attach Blasting Cap To Base With Crimpers			

11		11.9.2		11
INSTALLING M18A1		P 2/3		
MINE WITH TRIPWIRES				
STEP	ACTION			
2B	Tape Detonating Cord To Blasting Cap On Firing Device			
2C	Attach Firing Device Securely To 1 Of Forward Stakes			
2D	Attach Tripwire To Opposite Forward Stake			
3	Attach Tripwire To Firing Device			
3A	When Using M1 Firing Device, Attach Tripwire to Pull Ring			
3B	When Using M3 Firing Device, Insert Wire Into Hole In Winch			
3C	Take Up Slack By Turning Knurled Knob Until You Pull Locking Safety Pin Into Wide Portion of Safety Pin Hole			

11		11.9.3		11
INSTALLING M18A1		P 3/3		
MINE WITH TRIPWIRES				
STEP	ACTION			
4	Secure Detonating Cord To Stake Near Mine			
5	Insert Loose End Of Detonating Cord Through Priming Adapter Into Blasting Cap And Crimp			
6	Insert Cap Into Well			
7	Secure Cap In Well By Screwing Priming Adapter Into Well			
8	Recheck Mine For Proper Aim			
9	Remove Safety Pin From Firing Device			
10	Remove Positive Safety Pin			

11		11.10.1		11
DISARMING M18A1		P 1/3		
MINE WITH TRIPWIRES				
STEP	ACTION			
1	Inspect Mine, Tripwire, Firing Device, And Detonating Cord			
2	To Disarm Mine			
2A	Cut Detonating Cord With M2 Crimpers 6 Inches From Mine			
2B	Unscrew And Remove Shipping Plug Priming Adapter			
2C	Remove Blasting Cap And Detonating Cord			
2D	Reverse Shipping Plug Priming Adapter And Screw It Back Into Detonator Well			
2E	Put Mine Back In Carrying Case			

11

11.10.2

11

DISARMING M18A1 MINE WITH TRIPWIRES		P2/3
STEP	ACTION	
2F	Cut Detonating Cord With M2 Crimpers 6 Inches From Blasting Caps On Firing Device	✓
3	To Disarm The M1 Firing Device Use "DISARMING M1 PULL FIRING DEVICE" Job Aid	
4	Will You Disarm The M3 Firing Device? If YES, Go To STEP 5. If NO, Go To STEP 6.	
5	To Disarm The M3 Firing Device Use "DISARMING M3 PULL-RELEASE FIRING DEVICE" Job Aid	
6	To Blow M3 Firing Device In Place	

11

11.10.3

11

DISARMING M18A1 MINE WITH TRIPWIRES		P3/3
STEP	ACTION	
6A	Cut And Remove Detonating Cord	✓
6B	Lay Out 10M of Commo String, Wire, Or Twine To Tripwire	
6C	Attach To Tripwire	
6D	Move Back To Other End Of String Or Wire And Pull	
7	To Dispose Of Crimped Blasting Caps, Either Attach Them To Other Demolitions Or Give Them To Your Commander	
Notes:		

11			11.11.1	11
INSTALLING M21 ANTITANK MINE			P 1/3	
STEP	ACTION			
1	Inspect Mine For Cracks, Swells, Dents, And Any Other Damage			
2	Inspect M607 Fuze			
3	Ensure The Cotter Pin Of Fuze Pull Ring Assembly Is Securely In Place			
4	Dig Hole 6 Inches Deep, And 10 - 12 Inches In Diameter			
5	Remove Closing Plug Assembly From Bottom Of Mine Using M26 Wrench			
6	Remove Any Debris By Turning Mine Upside Down			
7	Insert M120 Booster (Washer Side Toward The Fuze)			

11			11.11.2	11
INSTALLING M21 ANTITANK MINE			P 2/3	
STEP	ACTION			
8	Replace Closing Plug And Tighten With M26 Arming Wrench			
9	Remove Shipping Plug From Top Of Mine			
10	Check Black Powder Bag In Fuze Cavity To Ensure Bag Is Not Split Open			
11	Remove Closure Assembly From The Fuze			
11A	Match Fuze Thread To Fuze Cavity In Mine			
11B	Screw In Fuze Hand Tight			
12	Emplace Mine And Cover With Earth, Leaving Fuze Uncovered			

INSTALLING M21 ANTITANK MINE		P 3/3
STEP	ACTION	
13	Screw Extension Rod Into Threaded Fuze Well	✓
14	Arming The Mine Fuze	
14A	Squeeze Cotter Pins Together	
14B	Use One Hand On Pull Ring Assembly	
14C	Hold Fuze Firmly With Other Hand	
14D	Remove Cotter Pin	
14E	Carefully Remove Band And Stop From Neck Of Fuze	
Notes:		

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11		11.12.1		11
DISARMING M21 ANTITANK MINE				
STEP	ACTION			
1	Carefully Attach Band, Stop, And Pull Ring Onto The Fuze			
2	Insert Cotter Pin And Spread Back The Ends			
3	Remove Extension Rod From Fuze			
4	Remove Fuze From Mine			
5	Install Closure Assembly On Fuze			
6	Install Shipping Plug Into Fuze Well			
7	Remove Closing Plug From Bottom Of Mine			
8	Remove Booster And Reinstall The Closing Plug			

11		11.13.1		11
INSTALLING M49A1 TRIPFLARE		P 1/2		
STEP	ACTION			
1	Chose Location For Flare And Tripwire Where You Think Enemy Will Try To Infiltrate			
2	Position Flare So It Illuminates The Enemy And Keeps Friendly Positions In The Dark			
3	Use Pullpin Method To Install Flare With Tripwire			
4	Mount Bracket With 2 Nails			
5	Bracket Must Be Vertical And 15-18 Inches Above Ground			

11		11.13.2		11
INSTALLING M49A1 TRIPFLARE		P 2/2		
STEP	ACTION			
6	Mount Flare By Aligning Lever With Trigger Pivot			
7	Carefully Slide Flare Down Into Bracket Until Bottom Lever Is 1/16-Inch Above Bracket			
8	Flare Base Must Be 1/2-Inch Below Upper Carriage Bolt			
9	Bottom End Of Lever Must Be 3/8-Inch Below Bracket Prongs And Centered Between Bracket Prongs			
10	Clamp Flare In Bracket By Tightening Upper Wingnut			

ARMING M49A1 TRIPFLARE		P 1/2
STEP	ACTION	
1	Arming With Pullpin Method	✓
1A	Fasten 1 End Of Tripwire To Post, Stake, Or Other Rigid Object 15M From Flare	
1B	When You Are Facing Flare Trigger, Tripwire Must Be To Right Or Left Of Flare	
1C	Press Lever Down With One Hand (DO NOT RELEASE LEVER WHEN PRESSING OR FLARE WILL FUNCTION)	
1D	Remove Safety Clip Assembly	
1E	While Holding Lever Down, Insert Pullpin Through 2 Safety Clip Holes Of Cover Loading Assembly	

11

11.14.1

11

ARMING M49A1 TRIPFLARE		P 2/2
STEP	ACTION	
1F	Before Releasing Lever, Ensure That Pullpin Will Hold In Safety Clip Holes	✓
1G	Carefully Release Lever	
1H	Ensure Lever Retains Pullpin In Safety Clip Holes	
1I	Pull Loose End Of Tripwire Tight	
1J	Fasten It To Loop In Pullpin	
1K	Check That Tripwire Is Tight And Tightened At Both Ends	
2	Flare Is Prepared For Firing	

11

11.14.2

11

11

11.15.1

11

DISARMING M49A1 TRIPFLARE		P 1/2
STEP	ACTION	
1	Misfiring Of M49A1	✓
1A	Do Not Approach Flare For 5 Minutes	
1B	Remove Flare Carefully And Forward To Authorized Personnel For Disposal	
1C	If Cover Loading Assembly Is Loose, Do Not Reassemble Or Tighten, Repeat STEP 1B	
2	Disarming M49A1	
2A	Carefully Depress Lever Against Flare Body	
2B	If You Used Pullpin As The Arming Method, Remove The Pullpin	

11

11.15.2

11

DISARMING M49A1 TRIPFLARE		P 2/2
STEP	ACTION	
2C	Secure Lever By Inserting 1 End Of Safety Clip Through 1 Of Safety Clip Holes Of Cover Loading Assembly	✓
2D	Use Only Safety Clip Holes In Cover Loading Assembly	
2E	Snap Other End Of Safety Clip Into Other Safety Clip Hole	
3	Detach Wire From Pullpin	
4	Return Flare To Its Original Packaging	
5	Inspect Flare Before You Return It To Storage	

11

11.18.1

11

INSTALLING M1A1 PRESSURE FIRING DEVICE	
STEP	ACTION
1	Remove Protective Cap From Base And Crimp On Nonelectric Blasting Cap
2	Assemble 3-Pronged Pressure Head And Extension Rod, If Needed
3	Screw In Top Of Pressure Cap
4	Attach Firing Device Assembly To Demolition Charge
5	Remove Safety Clip First Positive Safety Pin Last

11

11.19.1

11

DISARMING M1A1 PRESSURE FIRING DEVICE	
STEP	ACTION
1	Insert Original Pin, Nail, Or Length Of Wire Into Positive Safety Pin Hole
2	Replace Safety Clip, If Available
3	Unscrew Base Assembly From Firing Device

Notes:

11		11.20.1	11
INSTALLING M3 PULL- RELEASE FIRING DEVICE			
STEP	ACTION		✓
1	Remove Protective Cap		
2	Using Crimpers, Attach Nonelectric Blasting Cap To A Standard Base		
3	Attach Firing Device To Anchored Charge		
4	Attach One End Of Pullwire To An Anchor, And Place Other End In Hole In The Winch		
5	Using Knurled Knob, Draw Up Tripwire Until Locking Safety Pin Is Pulled Into Wide Portion Of Safety Pin Hole		
6	Remove Locking Safety Pin First And Positive Pin Last		

11		11.21.1	11
DISARMING M3 PULL- RELEASE FIRING DEVICE			
STEP	ACTION		✓
1	M3 Is Dangerous To Disarm, It Should Be Blown In Place		
2	If Device Must Be Disarmed, Follow STEPS 3-5		
3	Insert Original Pin, Nail, Or Length Of Wire In Positive Safety Pin Hole		
4	Insert Original Locking Pin, Or Nail In Locking Pin Hole		
5	Disassemble Tripwire, Firing Device, And Explosive		

11

11.22.1

11

INSTALLING M5 FIRING DEVICE		P 1/2
STEP	ACTION	
1	Insert A Length Of 10-Gage Wire Into Interceptor Hole	✓
2	Bend 10-Gage Wire Slightly To Prevent It From Dropping Out	
3	Remove Small Cotter Pin From Safety Pin	
4	Holding Release Plate Down, Replace Locking Safety Pin With A Length Of 16-Or-18 Gage Wire, Bent Slightly To Prevent It From Dropping Out	
5	Remove Protective Cap From Base	
6	Use Crimpers To Attach Nonelectric Blasting Cap To Base	

11

11.22.2

11

INSTALLING M5 FIRING DEVICE		P 2/2
STEP	ACTION	
7	Secure Firing Device To Explosive Device	✓
8	Emplace Charge And Firing Assembly	
9	Place At Least 5 Pounds Of Weight On The Firing Device Release Plate	
10	Remove Wire From Safety Pin Hole	
11	Remove Wire From The Interceptor Hole	
Notes:		

11

11.23.1

11

DISARMING M5 FIRING DEVICE		ACTION	✓
1		Insert Length Of Heavy Gage Wire Into Interceptor Hole	
2		Bend Wire To Prevent It From Dropping Out	
3		Proceed Carefully, As The Slightest Disturbance Of Restraining Weight May Detonate Mine	
4		Disassemble Firing Device And Mine	
Notes:			

11

11.24.1

11

NONELECTRIC FIRING SYSTEM		ACTION	P 1/3
1		Determine Length Of Time Fuse You Need	✓
1A		Cut A 6-Inch Length From End Of Fuse And Discard	
1B		Cut Off A 3-Foot Length To Check Burning Rate	
1C		Light Fuse End And List Time (Seconds) It Takes To Burn 	
1D		Compute Burning Rate Per Foot By Dividing 1C By 1B ÷ = 	
2		Determine Amount Of Explosive You Need	

11		11.24.2	11
NONELECTRIC FIRING SYSTEM		P 2/3	
STEP	ACTION		
3	Cut Fuse Long Enough To Proper Length		✓
4	Pass End Of Fuse Through Priming Adapter		
5	Attaching Blasting Cap To Fuse		
5A	Inspect Open End Of Cap		
5B	Remove Debris From Cap By Shaking Gently Or By Tapping Hand With Cap Against Other Hand		
5C	Hold Fuse Vertically With Square Cut End Up		
5D	Slip Cap Down Over Fuse		

11		11.24.3	11
NONELECTRIC FIRING SYSTEM		P 3/3	
STEP	ACTION		
5E	Cap And Fuse Must Be In Contact Or They May Misfire		✓
5F	Turn Cap Out And Away From Body And Crimp Cap At Point 1/8-To-1/4 Inch From Open End		
6	Attach M60 Fuse Igniter		
6A	Unscrew Fuse Holder Cap		
6B	Press Shipping Plug Into Igniter		
6C	Rotate And Remove Plug		
6D	Insert Fuse In Hole		
6E	Tighten Cap		
7	Pull Pin To Detonate Charge		

11		11.25.1		11
NONELECTRIC PRIMING OF DEMO BLOCK		P 1/2		
STEP	ACTION			
1	Prime Demo Block With A Threaded Cap Well And Priming Adapter			
1A	Inspect Cap Well For Debris			
1B	Insert Cap With Fuse Attached Into Cap Well			
1C	Screw Adapter Into Cap Well			
2	Prime Demo Block With A Threaded Cap Well And No Priming Adapter			
2A	Inspect Cap Well For Debris			
2B	Wrap And Tie String Tightly Around Block, Leave 6 Inches On Each End			

11		11.25.2		11
NONELECTRIC PRIMING OF DEMO BLOCK		P 2/2		
STEP	ACTION			
2C	Insert Blasting Cap With Fuse Attached Into Cap Well			
2D	Tie Loose String Around Fuse To Prevent Cap From Separating From Block			
3	Prime Demo Block Without Threaded Cap Well And Without Priming Adapter			
3A	Make Hole With M2 Crimpers			
3B	Inspect Hole For Debris			
3C	Wrap And Tie String Tightly Around Block, Leave 6 Inches Of Loose String On Each End			

CLEAR NONELECTRIC MISFIRES		
STEP	ACTION	
1	If Possible, Misfire Should Be Cleared By Soldier(s) Who Place The Charge	✓
2	Wait 30 Minutes After Misfire Before Moving To The Charge	
3	Detonate 1-Pound Charge At Side Of An Untamped Misfired Charge Without Moving Or Disturbing It	
4	Dig To Within 1 Foot Of A Tamped Misfired Charge	
5	Detonate 2-Pound Charge On Top Of A Tamped Misfired Charge	

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11.26.1

11

ELECTRIC FIRING SYSTEM		
STEP	ACTION	
1	Test Firing Wire With M51 Test Set Or Galvanometer	✓
1A	Check Test Set	
1B	Separate Firing Wire Conductors At Both Ends	
1C	Touch Posts With Both Wires From One End	
1D	Twist Wires Together At Open End And Retest Wires	
2	Lay Out Firing Wire From Charges To FIRING Position	
3	Test Electric Blasting Cap With M51 Blasting Cap Test Set Or Galvanometer	

11

11.27.1

11

P 1/2

ELECTRIC FIRING SYSTEM		P 2/2
STEP	ACTION	
3A	Remove Shunt From Lead Wires Of Electric Blasting Cap	✓
3B	Touch Cap Lead Wires To Posts	
4	After Testing Cap, Twist Free Wire Ends Together	
5	Move To Firing Point And Test Entire Circuit With M51 Test Set Or Galvanometer	
6	Test Blasting Machine By Depressing Handle	
7	On Order, Connect Lead Wires To 2 Blasting Machine Posts	
8	Detonate Charge By Depressing Handle Of Blasting Machine	

11 11.27.2 11

ELECTRIC PRIMING OF DEMO BLOCK		P 1/3
STEP	ACTION	
1	Priming Demo Block With A Threaded Cap Well And Priming Adapter	✓
1A	Inspect Cap Well For Debris	
1B	Untwist Free Ends Of Cap Lead Wire	
1C	Fasten Free Ends To Firing Wire With Western Union Pigtail Splice	
1D	Test Blasting Cap And Firing Wire With Galvanometer Or M51 Tester	
1E	Pass Cap Lead Wires Through Slot Of Adapter	
1F	Pull Cap Into Place In Adapter	

11 11.28.1 11

ELECTRIC PRIMING OF DEMO BLOCK		P 2/3
STEP	ACTION	✓
1F	Insert Cap Into Cap Well Of Block And Screw Adapter Into Place	
2	Priming Demo Block With A Threaded Cap Well With No Priming Adapter	
2A	Inspect Cap Well For Debris	
2B	Repeat STEPS 1B-1D	
2C	Insert Electric Cap Into Cap Well	
2D	Tie Lead Wires Around Block With Two Half Hitches	
2E	Allow Some Slack In Wires Between Cap And Tie	

ELECTRIC PRIMING OF DEMO BLOCK		P 3/3
STEP	ACTION	✓
3	Priming Demo Block Without Threaded Cap Well	
3A	Make A Hole In End Of Demo Block With M2 Cap Crimper	
3B	Untwist Free Ends Of Cap Lead Wire	
3C	Fasten Them To Firing Wire With Western Union Pigtail Splice	
3D	Test Blasting Cap And Firing Wire With Galvanometer Or M51 Test Set	
3E	Repeat STEPS 2C, 2D, And 2E	

11

CLEAR ELECTRIC MISFIRES		P 1/2
STEP	ACTION	✓
1	Is The System Below Ground? If YES, Go To STEP 2. If NO, Go To STEP 3.	
2	Wait 30 Minutes Before Checking To See If Firing System Is Dual Primed	
3	If System Is Above Ground And Not Dual Primed, Check Immediately	
4	Check Firing Wire Connections To Blasting Machine	
5	Make 2-3 More Attempts To Fire The System	
6	Disconnect Firing Wire From Blasting Machine And Shunt (Twist Together) The Wires	

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11.29.1

11

11	11.29.2	11
CLEAR ELECTRIC MISFIRES		P 2/2
STEP	ACTION	✓
7	Check Entire System For Breaks And Short Circuits	
8	If Fault Is Below Ground, Remove Tamp Material (Soil) Carefully From The Borehole To Within 1 Foot Of Misfired Charge	
9	Disconnect The Blasting Cap Wire From The Circuit	
10	Dig To Within 1 Foot Of Misfired Charge	
11	Place a 2-Pound Primed Charge Next To The Misfired Charge	
12	Connect New Charge To Firing System	
13	Initiate Detonation	

11		11.30.1		11
DETONATING CORD FIRING SYSTEMS		P 1/6		
STEP	ACTION			
1	Priming Demolition Blocks			
1A	Place Loop Of Detonating Cord On Explosive With 4 Wraps Around Block And Loop			
1B	Pull Running End Through Eye Of Loop And Tighten			
2	Priming Plastic Explosives With Detonating Cord			
2A	Form Either Overhand Knot, Uli Knot, Or Triple Roll Knot			
2B	Insert Knot Into Plastic Explosives Or Molded Piece Of Explosive			

11		11.30.2		11
DETONATING CORD FIRING SYSTEMS		P 2/6		
STEP	ACTION			
2C	Ensure That There Is At Least 1/2 Inch Of Explosive On All Sides Of The Knot And A Minimum of 1 Inch Of Explosive On End Of Knot			
3	Priming Dynamite			
3A	Attach Nonelectric Blasting Cap To End Of Detonating Cord			
3B	Follow Any Of The Methods For Nonelectric Priming			
4	Priming Dynamite By Lacing Detonating Cord Through It			
4A	Punch Four Equally Spaced Holes Through Dynamite Cartridge			

11		11.30.3		11
DETONATING CORD FIRING SYSTEMS		P 3/6		
STEP	ACTION			
4B	Lace Detonating Cord Through The Dynamite			
5	Priming A 40-Pound Cratering Charge			
5A	Pass End Of Detonating Cord Through The Long Tunnel On Side Of Can			
5B	Tie An Overhand Knot On The Portion Passed Through, At Least 6-Inches From The End			
6	Priming Shaped Charges			
6A	Attach Nonelectric Blasting Cap To End Of Detonating Cord			
6B	Follow Standard Nonelectric Or Electric Priming Methods			

11		11.30.4		11
DETONATING CORD FIRING SYSTEMS		P 4/6		
STEP	ACTION			
7	Attaching Nonelectric Or Electric Firing System To Detonating Cord			
7A	Construct Nonelectric Or Electric Firing System			
7B	Splice Assembly To Detonating Cord With String, M1 Clip, Or Adhesive Tape			
8	Construct Ring Main			
8A	Use When Making Detonating Cord Firing Systems With More Than One Block Of Explosive			
8B	Form A Ring Main			

11		11.30.5	11
DETONATING CORD FIRING SYSTEMS		P 5/6	
STEP	ACTION		
8C	Close Ring Main By Tying A Girth Hitch With An Extra Turn Tail To Inside, Or Use A Detonating Cord Clip		✓
8D	Run Branch Lines From Explosives To Ring Main Using Girth Hitch With One Extra Turn		
8E	Leave A Minimum of 6 Inches On Running End		
8F	Branch Line Must Run 90 Degrees From Direction From Which Blast Is Coming		
8G	Attach Electric Or Nonelectric Firing System To Ring Main At Running End Of Detonating Cord		

11		11.30.6	11
DETONATING CORD FIRING SYSTEMS		P 6/6	
STEP	ACTION		
8H	Leave A 6-Inch Length Of Ring Main Free Beyond The Splice		✓
9	In Actual Combat Systems, Use Detonating Cord Firing System		
9A	Tape A 3-Foot Section Of Detonating Cord To Blasting Cap		
9B	Splice Other End To Ring Main With A Square Knot Or An M1 Detonating Cord		
10	Detonate The Charge		
Notes:			

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12.1.1

12

NBC-1 REPORT	
LINE	ITEM (* = CHEM)
B	Position Of Observer (UTM Coord)
C	Direction Of Attack From Observer (Degrees) (Mils)
D	Date/Time Of Detonation/* Attack (DTG)
F	Location Of Attack/* Area Attacked (Actual) (Estimated) (UTM Coord)
H	Type Of Burst/* Agent (Air) (Surface) (Unknown)

12

12.2.1

12

NBC-4 REPORT	
LINE	ITEM
Q	Location of Reading (UTM Coord) 1. _____ 2. _____ 3. _____ 4. _____
R	Dose-Rate (Rad/Hr) 1. _____ 2. _____ 3. _____ 4. _____
S	Date/Time of Reading (DTG) 1. _____ 2. _____ 3. _____ 4. _____

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12.3.1

12

SUPERVISE RADIATION MONITORING		P 1/2
STEP	ACTION	
1	List Grid Coordinates Of Central Point In Area	☒
2	Tell IM-174 Operator To Take Readings From Central Point Every Hour	
3	Check That Operator Uses IM-174 Correctly	
4	Tell Operator To Report Radiation Readings To You Immediately	
5	Report Radiation Readings Using NBC-4 Report	
6	Take Readings Continuously When You	
6A	Read 1 Or More Rad/Hour	

12

12.3.2

12

SUPERVISE RADIATION MONITORING		P 2/2
STEP	ACTION	
6B	Receive Fallout Warning	☒
6C	See Nuclear Burst	
6D	Are Moving To A Different Location	
6E	Receive Orders	
7	Check Every Hour When	
7A	Reading Drops Below 1 Rad/Hour	
7B	Receive Orders	
Readings/DTG		

12
 12.4.1

12

USING A DOSIMETER		ACTION	✓
1	Take Dosimeter Out Of Your Pocket		
2	Hold Viewing End Of Dosimeter Up To Your Eye		
3	Point It Toward A Light Or The Sky, But Not Directly At The Sun		
4	The Point Where The Vertical Hairline Crosses The Scale Is The Total Amount Of Radiation You Received		
5	List Total Amount Of Radiation You Received 		
6	Report The Number Of Rads Or Millirads In STEP 5 To Your Commander		

12
 12.5.1

12

COLLECT/REPORT TOTAL RADIATION DOSE		ACTION	P 1/2
1	Do All Dosimeters You Will Use Read 0? If YES, Go To STEP 3. If NO, Go To STEP 2.		✓
2	Turn It In For Recharging		
3	Select Soldiers To Wear Dosimeters Who Perform Duties Within Unit's Area		
4	Insure That Soldiers Report Readings To You Accurately		
5	Collect Readings From Soldiers At The Same Time, At Least Once Daily		

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12.5.2

12

COLLECT/REPORT TOTAL RADIATION DOSE		P 2/2
STEP	ACTION	
6	Add Together Readings By All Soldiers Wearing Dosimeters	☒
7	List Number Of Readings You Receive	
8	Divide STEP 6 By STEP 7 ÷ =	
9	Round Off STEP 8 To The Nearest 10	
10	Report Reading In STEP 9 To Your Commander	

12

12.6.1

12

PREPARATION FOR AN NBC ATTACK		P 1/2
STEP	ACTION	
1	Cover Equipment And Supplies With Plastic Sheets	☒
2	Cover Exposed Weapons And Ammunition	
3	Keep Instruments In Containers When Not In Use	
4	Park All Vehicles So Air Conditioners Are Away From Prevailing Winds	
5	Cover Unsheltered Communications Equipment	
6	Put Overhead Cover On Field Latrines	
7	Only Open Food When Eating It	

12

**PREPARATION FOR
AN NBC ATTACK**

STEP	ACTION	P 2/2
8	Store Unpackaged Food In Iceboxes	✓
9	Keep Water In Sealed Containers	
10	Dig In Supplies And Equipment	
11	Secure Loose Items	
12	Turn Off All Electronic Equipment And Keep Inside Bunkers Or Armored Vehicles To Protect Against Electromagnetic Pulse (EMP)	

Notes:

12

12.6.2

12

**EMP PROTECTIVE
MEASURES**

ITEM	ACTION	P 1/2
1	Disconnect Antenna(s)	✓
2	Use Highest Freq Possible	
3	Disconnect Everything From Spare Equipment	
4	Keep Cable And Wire Lengths Short	
5	Remote Sets Only When Needed	
6	Bury Cables And Wires At Least 18 Inches	
7	Never Leave Connected Cable Or Wire On A Reel	

12

12.7.1

12		12.7.2		12
EMP PROTECTIVE MEASURES				
ITEM	ACTION	P 2/2		
8	Use A Common Ground For Ali Equipment	☒		
9	Properly Insulate Antenna Guy Lines			
10	Never Use Commercial Sources Of Power			
11	Shield All C-E Equipment With Iron, Steel, Any Metal			
12	Close All Hatches, Doors, Vents, Access Panels, And Ducts			
13	Other:			

12		12.8.1		12
MARK RADIOLOGICALLY CONTAMINATED AREA				
STEP	ACTION	P 1/2		
1	Locate/Identify Contaminated Area	☒		
2	Select Marker Labeled "ATOM"			
3	Print Information So Word "ATOM" Faces Towards You In An Upright Position			
4	Print Dose Rate In Centigrays Per Hour (Rads Per Hour)			
5	Print Date And Time (State If Local Or Zulu Time) Of Detonation			
6	If You Do Not Know The Date And Time Of Detonation, Print "UNKNOWN"			

12		12.8.2		12
MARK RADIOLOGICALLY CONTAMINATED AREA				
P 2/2				
STEP	ACTION			
7	Position Markers So That Information Faces Away From Contaminated Area			
8	Place Markers At Locations Where Dose Rate Measures 1 Centigray Per Hour (Rad Per Hour) Or More			
9	Attach Markers To Objects So Others Can Easily See Them From All Routes Through The Contaminated Area			
10	Place Each Marker So That Others Can See It From The Previous Marker			

12		12.9.1		12
BIOLOGICAL/CHEMICAL CONTAMINATED AREA				
P 1/2				
STEP	ACTION			
1	Locate/Identify Contaminated Area			✓
2	Is Contamination Biological? If YES, Go To STEP 3. If NO, Go To STEP 4.			
3	Select Marker Labeled "BIO" For Biological Contamination			
4	Select Marker Labeled "GAS" For Chemical Contamination			
5	Print Information On Marker So That Word On Marker Faces Towards You In An Upright Position			
6	Print Type Of Agent Detected, If You Do Not Know, Print "UNKNOWN"			

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12.9.2

12

BIOLOGICAL/CHEMICAL CONTAMINATED AREA		P 2/2
STEP	ACTION	
8	Print Date Of Detection Beneath Type Of Agent	✓
9	Print Time (State If Local Or Zulu Time) Of Detection Beneath Date	
10	Position Markers So That Information Faces Away From Contaminated Area	
11	Attach Markers To Objects So Others Can Easily See Them From All Routes Through Contaminated Area	
12	Place Each Marker So That It Can Be Seen From The Previous Marker	

12

12.10.1

12

UNMASKING W/CHEMICAL AGENT DETECTOR KIT		
STEP	ACTION	
1	Is Chemical Agent Detected? If YES, Do Not Unmask If NO, Go To STEP 2.	✓
2	In The Shade, Have 2-3 Soldiers Unmask For 5 Minutes, Then Remask For 10 Minutes	
3	Check Soldiers For Chemical Symptoms	
4	If No Symptoms, Tell Other Soldiers To Unmask	
5	Be Alert For Chemical Symptoms	

12

12.11.1

12

UNMASKING W/O CHEM AGENT DETECT KIT		P 1/2
STEP	ACTION	
1	With Eyes Open, Have 2-3 Soldiers Hold Their Breath And Break Seal Of Mask For 15 Seconds	✓
2	In Shade, Have Soldiers Reseal, Clear, And Check Masks For 10 Minutes	
3	Check Soldiers For Chemical Symptoms	
4	If No Symptoms, Have Soldiers Break Seal Of Mask, Take 2-3 Breaths	
5	Repeat STEPS 2-3	

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12.11.2

12

UNMASKING W/O CHEM AGENT DETECT KIT		P 2/2
STEP	ACTION	
6	If No Symptoms, Have Soldiers Unmask For 5 Minutes And Remask For 10 Minutes In Shade	✓
7	Check Soldiers For Chemical Symptoms	
8	If No Symptoms, Tell All Soldiers To Unmask	
9	Be Alert For Chemical Symptoms	
Notes:		

12		12.12.1	12
OPERATING A 174/PD RADIACMETER		P 1/3	
STEP	ACTION		✓
1	Open Snaps And Snap Top Of Carrying Case On Fastener		
2	Turn "SET" Control Clockwise And Let Radiacmeter Warmup For 2 - 20 Minutes		
3	Hold Function Switch To "ZERO"		
4	Adjust "SET" Control Until Meter Shows "0"		
5	Release Switch So Pointer Falls Back To "0"		
6	Set Function Switch To "ELEC CAL"		
7	Does Pointer Show "500"? If YES, Go To STEP 9. If NO, Go To STEP 8.		

12		12.12.2	12
OPERATING A 174/PD RADIACMETER		P 2/3	
STEP	ACTION		✓
8	If Pointer Does Not Show "500"		
8A	Take Off Cap From "CALIB" Control On Front Panel		
8B	Turn Control Button Until Pointer Shows "500"		
8C	Replace Cap On Button		
9	Hold Function Switch To "LINEARITY"		
10	Is Pointer Within Red Mark? If YES, Go To STEP 11. If NO, Change Batteries, And Go To STEP 1.		
11	Set Function Switch To "READ"		

12		12.12.3	12
OPERATING A 174/PD RADIACMETER		P 3/3	
STEP	ACTION		
12	Take Readings While Turning In A Circle		✓
13	Read Meter Face Up At Waist Level		
14	List Highest Reading You Obtain		
15	List Grid Coordinates Of Reading Location		
16	Turn "SET" Control To "OFF"		
17	Resnap Carrying Case		
18	Report Your Reading		

12		12.13.1	12
INSTALLING BATTERIES 174/PD RADIACMETER		P 1/2	
STEP	ACTION		
1	Loosen Thumbscrew And Remove Battery Box From Radiacmeter		✓
2	Press Down On Lock Plate, Turn It To Left And Lift It Off		
3	Lift Out Retaining Plate		
4	Put In Batteries Matching Positive (+) And Negative (-) Marks		
5	Replace Retaining Plate Making Sure Locating Pin On Battery Box Goes In Locating Hole On Retaining Plate		

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12.13.2

12

INSTALLING BATTERIES 174/PD RADIACMETER		P 2/2
STEP	ACTION	✓
6	Replace Lock Plate	
7	Press Down On Lock Plate Turning Right Until It Locks	
8	Wrap Cable Around Battery Box	
9	Hand Tighten Thumbscrew	
10	Put Radiacmeter Back Into Carrying Case	
Notes:		

12		12.14.1		12
OPERATING A 174A/PD RADIACMETER		P 1/3		
STEP	ACTION			
1	Open Snaps And Push Back Top Of Carrying Case			
2	Snap Top Of Carrying Case On Fastener At Rear			
3	Let Radiacmeter Warm Up For At Least 2 Minutes (20 Minutes If You Can)			
4	Turn Zero Control Clockwise For Warmup			
5	Hold Function Switch To "ZERO"			
5A	Adjust Zero Control Until Meter Shows "0"			

OPERATING A 174A/PD RADIACMETER		P 2 3
STEP	ACTION	
5B	Release Switch While Watching Pointer, It Must Swing Between "5" And "10", Then To "0"	✓
6	Press And Hold Function Switch To "CHECK"	
7	Does Pointer Fall Within "CHECK" Band On Scale? If YES, Go To STEP 9. If NO, Go To STEP 8.	
8	Replace Batteries And Repeat STEPS 3-5	
9	Release Function Switch, Pointer Must Fall To "0"	

OPERATING A 174A/PD RADIACMETER		P 3/3
STEP	ACTION	
10	Take Readings While Turning In A Circle	✓
11	Read Meter Face Up At Waist Level	
12	List Highest Reading You Obtain	
13	List Grid Coordinates Of Reading Location	
14	Turn Zero Control To "OFF"	
15	Resnap Carrying Case	
16	Report Your Reading	

12

INSTALLING BATTERIES IN 174A/PD RADIACMETER		
STEP	ACTION	✓
1	Unscrew Battery Cover On Bottom Of Radiacmeter	
2	Lift Clips And Slide Batteries Into Place	
3	Match Up Positive (+) And Negative (-) Marks	
4	Put Battery Cover Back Onto Radiacmeter, Do Not Pinch Wires	
5	Tighten Battery Cover	
6	Put Radiacmeter Into Carrying Case	

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12.15.1

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12

12.16.1

12

USING A PP-1578/PD DOSIMETER CHARGER	
STEP	ACTION
1	Check Unit SOP To Determine How Often You Recharge Dosimeter
2	Remove Dust Cover On Your Dosimeter
3	Place Dosimeter In Charger
4	Use A Flashlight To Illuminate Dosimeter Scale
5	Turn Handle On Charger Until Indicator On Dosimeter Is Set To Zero
6	Record Date Of Recharging
7	Record Time Of Recharging

ORIENT A MAP USING A COMPASS

STEP	ACTION
1	Place Map Horizontally
2	Place Compass Parallel To A North-South Line Pointing Toward Top Of Map
3	Point Compass North Arrow Toward Magnetic North Arrow
4	List G-M Angle
5	Is G-M Angle Easterly? If YES, Go To Step 6. If NO, Go To STEP 7.
6	Compass Reading Should Equal 360 Minus STEP 4. $360 - \text{ } = \text{ } $
7	Compass Reading Must Equal G-M Angle (STEP 4)

ORIENT MAP BY MAP- TERRAIN ASSOCIATION

STEP	ACTION	
1	Place Map Horizontally	☒
2	Look At Map And Ground	☐
3	Find Two Features Common To Both Map And Ground	☐
4	Rotate The Map Until Map Features And Ground Features Are in Same Position	☐
5	You Have Oriented Your Map When Map North And South Correspond To North And South On Ground	☐

LOCATING POINTS BY INTERSECTION		P 1/2
STEP	ACTION	
1	Determine G-M Angle	
2	Locate And Mark Your Position On The Map	
3	Measure Magnetic Azimuth To An Unknown Point	
4	Convert Magnetic Azimuth To Grid Azimuth	
5	Is G-M Angle Easterly? If YES, Go To STEP 6. If NO, Go To STEP 7.	
6	Add G-M Angle (STEP 1) To Magnetic Azimuth For Easterly Angle _____ + _____ =	

ORIENT A MAP USING A PROTRACTOR

STEP	ACTION	☒
1	Draw A Magnetic North Line On Map From Any North-South And East-West Grid Line Intersection	
2	Align Compass Straightedge Along STEP 1 Line	
3	Rotate Map And Compass Together Until North Arrow Falls Beneath Fixed Black Index Line On Compass	
4	You Have Now Oriented Your Map To The Ground	

13

13.4.2

13

LOCATING POINTS BY INTERSECTION		P 2/2
STEP	ACTION	
7	Subtract G-M Angle (STEP 1) From Magnetic Azimuth For Westerly Angle _____ - _____ = _____	
8	Place Protractor On Map With 0-Degree Indicator Pointing North And Index Point Placed In Center	
9	Place Tickmark On Number Of Degrees To Plot	
10	Draw A Line From Your Position On Grid Azimuth To Unknown Point	
11	Repeat STEPS 3-10 For 2nd Position Keeping Unknown Point In Sight	
12	Where Lines Cross Is Location Of Unknown Point	

13

13.5.1

13

LOCATING UNKNOWN POINT BY RESECTION		P 1/2
STEP	ACTION	
1	Determine G-M Angle _____	
2	Locate 2 Unknown Positions On Ground And Mark On Map	
3	Measure Magnetic Azimuth To One Of Known Locations	
4	Convert Magnetic Azimuth To Grid Azimuth	
5	Is G-M Angle Easterly? If YES, Go To STEP 6. If NO, Go To STEP 7.	
6	Add G-M Angle (STEP 1) To Magnetic Azimuth For Easterly Angle _____ + _____ = _____	

13

13.6.1

13

LOCATE A POINT BY STRAIGHTEDGE METHOD	
STEP	ACTION
1	Locate Your Position On Map
2	Lay Straightedge On Map With One End At Your Position As Pivot Point
3	Rotate Straightedge Until You Sight Unknown Point Along Straightedge
4	Draw A Line Along Straightedge
5	Repeat STEPS 1-4 For 2 Other Positions Keeping Unknown Point In Sight
6	Where Lines Cross Is Location Of Unknown Point
7	Read Coordinates Of Point Where Lines Cross

LOCATING UNKNOWN POINT BY RESECTION		P 2/2
STEP	ACTION	
7	Subtract G-M Angle (STEP 1) From Magnetic Azimuth For Westerly Angle _____ - _____ = _____	
8	Change Grid Azimuth To Back Azimuth	
9	Place Protractor On Map With 0-Degree Pointing North And Index Point Placed On Center Of Mass	
10	Place Tickmark On Number Of Degrees To Plot	
11	Remove Protractor And Draw A Line From Back Azimuth Position In Direction Of Unknown Position	
12	Repeat STEPS 3-11 For 2nd And 3rd Positions That You Know	

13

13.5.2

13

13

13.7.1

13

FIND TARGET BY GRID COORDINATES	
STEP	ACTION
1	Orient Map
2	Identify Target With Terrain Feature On Ground
3	Locate Terrain Feature On Map
4	Plot Target On Map In Relation To Terrain Feature On Ground
5	Compute Grid Coordinates Of Target Point On Map
6	List Grid Coordinates

13

13.8.1

13

COMPUTING CURRENT G-M ANGLE (DEGREES)		P 1/2
STEP	ACTION	
1	List Current Year	
2	Year Map Was Made	
3	Subtract Step 2 From Step 1 _____ - _____ =	
4	List Annual Magnetic Change In Degrees	
5	Multiply Step 4 By Step 3 _____ X _____ =	
6	List G-M Angle For Year Map Made	
7	Is Annual Change Easterly? If YES, Go To STEP 8 If NO, Go To STEP 9	

13

13.8.2

13

COMPUTING CURRENT G-M ANGLE (MILS)		P 2/2
STEP	ACTION	
8	Subtract STEP 5 From STEP 6 To Compute Easterly G-M Angle _____ - _____ = _____	
9	Add STEP 5 To STEP 6 To Compute Westerly G-M Angle _____ + _____ = _____	
10	Place G-M Angle For Each Map Sheet You Use Below: Edition Series Sheet G-M Angle _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	

13

13.9.1

13

COMPUTING CURRENT G-M ANGLE (MILS)		P 1/2
STEP	ACTION	
1	List Current Year _____	
2	Year Map Was Made _____	
3	Subtract Step 2 From Step 1 _____ - _____ = _____	
4	List Annual Magnetic Change In Mils _____	
5	Multiply Step 4 By Step 3 _____ X _____ = _____	
6	List G-M Angle For Year Map Made _____	
7	Is Annual Change Easterly? If YES, Go To STEP 8. If NO, Go To STEP 9.	

13

13.9.2

13

COMPUTING CURRENT G-M ANGLE (MILS)		P 2/2
STEP	ACTION	
8	Subtract STEP 5 From STEP 6 To Compute Easterly G-M Angle _____ - _____ = _____	
9	Add STEP 5 To STEP 6 To Compute Westerly G-M Angle _____ + _____ = _____	
10	Place G-M Angle For Each Map Sheet You Use Below: Edition Series Sheet G-M Angle _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	

13

13.10.1

13

COMPUTING A BACK AZIMUTH (DEGREES)	
STEP	ACTION
1	List Azimuth
2	Is Azimuth Less Than 180 Degrees? If YES, Go To STEP 3. If NO, Go To STEP 4.
3	Add 180 Degrees To Azimuth In STEP 1. _____ + 180 = _____
4	Subtract 180 Degrees From Azimuth In STEP 1. _____ - 180 = _____
5	List Back Azimuth

COMPUTING AN AZIMUTH WITH A PROTRACTOR

STEP	ACTION	
1	Draw A Straight Line Between The Two Points	✓
2	Place Protractor Center On Point Where STEP 1 Intersects Any North- South Line	
3	Align 0-Degree Or 0-Mil Mark on Same North- South Line As STEP 2	
4	Read Protractor Where Azimuth Line Crosses The Scale	
5	List Degrees/Mils From The Scale	

COMPUTING A BACK AZIMUTH (MILS)

STEP	ACTION	
1	List Azimuth	
2	Is Azimuth Less Than 3200 Mils? If YES, Go To STEP 3. If NO, Go To STEP 4.	
3	Add 3200 Mils To Azimuth In STEP 1. + 3200 =	
4	Subtract 3200 Mils From Azimuth In STEP 1. - 3200 =	
5	List Back Azimuth	

13

13.14.1

13

CONVERTING MAGNETIC TO GRID AZIMUTH	
STEP	ACTION
1	Aim Compass At Target
2	List Compass Reading
3	List G-M Angle
4	Is G-M Angle Easterly? If YES, Go To STEP 5. If NO, Go To STEP 6.
5	Add STEP 3 To STEP 2 To Compute Easterly Azimuth $\text{---} + \text{---} = \text{---}$
6	Subtract STEP 3 To STEP 2 To Compute Westerly Azimuth $\text{---} - \text{---} = \text{---}$

CONVERTING GRID TO MAGNETIC AZIMUTH	
STEP	ACTION
1	List Grid Azimuth Reading
2	Aim Compass At Target
3	List Compass Reading
4	List G-M Angle
5	Is G-M Angle Easterly? If YES, Go To STEP 6. If NO, Go To STEP 7.
6	Subtract STEP 4 From STEP 1 To Compute Easterly Azimuth $\text{---} - \text{---} = \text{---}$
7	Add STEP 4 To STEP 1 To Compute Westerly Azimuth $\text{---} + \text{---} = \text{---}$

13

13.13.1

13

13

13.15.1

13

DISTANCE FACTOR IN DEAD RECKONING	
STEP	ACTION
1	Determine Map Distance To Travel
2	To Compute 20% Of STEP 1, Multiply STEP 1 By .2 X .2 =
3	Add STEP 1 To STEP 2 To Convert Map Distance To Ground Distance + =
4	Use Odometer To Gauge Proper Distance

13

13.16.1

13

NAVIGATING BETWEEN TWO POINTS ON GROUND		
STEP	ACTION	
1	Locate Start And Finish Points On Map	☒
2	Determine Grid Azimuth Between Start And Finish And Any Intermediate Points	
3	Convert Grid Azimuth To Magnetic Azimuth	
4	Determine Distance Between Start And Finish	
5	Make Thorough Map Recon Of Area Between Start And Finish	
6	Select Check Points Along Intended Route	
7	Move From Start Through Each Point Until Finished	

13		13.17.1	13
LAND NAVIGATION DOS AND DON'TS		P 1/2	
DO	DON'T		
Plot Course With Map And Plan Detours	Make Up The Route On The Ground As You Go		
Check Compass Every 30 Paces In Close Terrain	Rely On Your Sense Of Direction		
Check Map At Every Identifiable Feature	Rely On Your Sense Of Direction		
Locate Each Leg Before Going On To The Next	Estimate Position And Proceed On An Assumption		
Count Paces And Estimate Distance	Rely On Instinct To Judge Distance Travelled		

13		13.17.2	13
LAND NAVIGATION DOS AND DON'TS		P 2/2	
DO	DON'T		
If The Ground Does Not Conform To The Map-STOP. Go Back Over The Course In Your Mind And Find Out Where The Error Occurred. Recon To Find A Landmark.	Blame The Map Or Compass And Carry On		
Remember:			
1. The Compass Is Right.			
2. The Map Is Right.			
3. You Are Wrong!			

13

13.19.1

13

NAVIGATING WITHOUT STEERING MARKS		
ITEM	ACTION	✓
1	Dismount And Move Away From Vehicle	
2	Determine Azimuth For Direction Of Travel	
3	Add Or Subtract 180 Degrees To Determine Forward Azimuth For Travel _____ = _____	
4	Line Up Vehicle On Azimuth	
5	Drive Vehicle Along Azimuth	
6	Azimuth Will Vary Slightly From Azimuth Computed In STEP 3	

NAVIGATING WITH STEERING MARKS		
ITEM	ACTION	✓
1	Dismount And Move Away From Vehicle	
2	Set Azimuth On Compass	
3	Pick Steering Mark In Distance On Azimuth	
4	Remount And Proceed To Steering Mark In Straight Line	
5	Repeat STEPS 1-4 If You Reach Steering Mark Or Your Direction Changes	
6	Continue Until End Is Reached	

13

13.18.1

13

MOUNTED NAVIGATION BY TERRAIN ASSOCIATION		
STEP	ACTION	✓
1	Determine Start Point And Destination	
2	Draw A Straight Line Between Start And Destination	
3	Analyze Terrain For Ease Of Movement, Recognizable Terrain Features, And Tactical Considerations	
4	Follow Features In Terrain	
5	Break Route Into Smaller Segments	
6	Determine Distance Between Each Segment And Total Distance Using Odometer	
7	Plan For Any Problems On Route	

1313.20.113

13

13.21.1

13

DIRECTION FINDING WITHOUT A COMPASS		P 1/3
SHADOW-TIP METHOD		
STEP	ACTION	
1	Place Stick Vertically in Ground Facing Sun	✓
2	Mark 1st Stick Shadow Point (West)	
3	Wait 10-15 Minutes	
4	Mark 2nd Shadow Point (East)	
5	Draw East-West Line Through 2 Points	
6	Draw 2nd Line at Right Angle To 1st Line (North-South Line)	
7	Find The Direction You Want Using North-South And East-West Lines	

13

13.21.2

13

DIRECTION FINDING WITHOUT A COMPASS		P 2/3
WATCH METHOD (NORTHERN)		
STEP	ACTION	
1	Point Hour Hand At Sun	
2	South Is Halfway Between Hour Hand and 12 O'Clock	
WATCH METHOD (SOUTHERN)		
STEP	ACTION	
1	Point 12 O'Clock At Sun	
2	North Is Halfway Between Hour Hand And 12 O'Clock	
NOTES:		

13

13.21.3

13

DIRECTION FINDING WITHOUT A COMPASS		P 3/3
NORTH STAR METHOD		
STEP	ACTION	
1	Locate The Big Dipper	
2	Locate The 2 Pointer Stars (In The Cup Farthest From The Handle Of The Big Dipper)	
3	Locate The North Star (5 Times The Distance Between The Pointer Stars Away From The Cup)	
4	Face The North Star	
5	East Is On Your Right	
6	West Is On Your Left	
7	South Is To Your Rear	

14

14.1.1

14

EVALUATE CASUALTY		P 1/3
STEP	ACTION	
1	CHECK RESPONSIVENESS	✓
1A	Ask If Casualty Is Alright	
1B	Shake/Tap On Shoulder	
1C	Watch For Response	
1D	Is Casualty Conscious? If YES, Go To STEP 1E. If NO, Go To STEP 1G.	
1E	If Conscious, Ask Where Casualty Hurts Or Feels Different Than Usual	
1F	Watch For Response	
1G	If Unconscious, Go To STEP 2	
2	CHECK BREATHING AND PULSE	

14

14.1.2

14

EVALUATE CASUALTY		P 2/3
STEP	ACTION	
2A	Is Casualty Breathing? If YES, Go To STEP 2B. If NO, Go To STEP 2D.	✓
2B	Look For Rise/Fall Of Chest	
2C	Look/Listen For Breathing	
2D	If Not Breathing, Begin Treating	
3	CHECK BLEEDING	
3A	Look For Spurting Blood Or Blood-Soaked Clothes	
3B	Look For Entry/Exit Wounds	
3C	If Bleeding, Begin Treating	
4	CHECK FOR SHOCK	
5	CHECK FOR FRACTURES	

14		14.1.3	14
EVALUATE CASUALTY		P 3/3	
STEP	ACTION		
5A	Back/Neck-DO NOT Move If Suspect Neck Or Back Injury	☒	
5B	Arm And Leg/Closed Or Open		
5C	If You Suspect Fracture, Begin Treating		
6	CHECK FOR BURNS		
6A	Look For Reddened/Blackened Skin Or Singed Clothing		
6B	If Burns Found, Begin Treating		
7	CHECK FOR CONCUSSION		
7A	Watch For Symptoms Which Require Medical Aid		
8	SEEK MEDICAL AID ASAP		

14		14.2.1	14
SYMPTOMS OF SHOCK			
ITEM	SYMPTOM		
1	Sweaty, Cool Skin	☒	
2	Paleness Of Skin		
3	Restlessness/Nervousness		
4	Thirst		
5	Loss Of Blood		
6	Confusion		
7	Fast Breathing Rate		
8	Blotchy, Bluish Skin, Especially Around Mouth		
9	Nausea And/Or Vomiting		

14

14.4.1

14

SYMPTOMS OF HEAT CRAMPS OR EXHAUSTION	
ITEM	SYMPTOM
1	HEAT CRAMPS
1A	Muscle Cramps In Abdomen, Legs, Or Arms
1B	Much Sweating And Thirst
2	HEAT EXHAUSTION
2A	Headache And Dizziness
2B	Much Sweating
2C	Cramps
2D	Weak
2E	Loss Of Appetite And Nausea
2F	Skin Is Pale, Moist, And Clammy

PREVENTING SHOCK	
STEP	ACTION
1	Position Casualty By Moving To Covered Area
2	Lay Casualty On Back Unless Sitting Position Allows Easier Breathing
3	Elevate Feet Higher Than Heart Using Stable Object
4	Loosen Tight Clothing At Neck, Waist, And Ankles Unless In Chemical Environment
5	Keep Casualty From Chilling Or Overheating
6	Watch Casualty For Life- Threatening Conditions
7	Seek Medical Aid

14

14.3.1

14

14

14.5.1

14

FIRST AID FOR HEAT CRAMPS OR EXHAUSTION	
STEP	ACTION
1	Move Victim To A Shaded Area
2	Loosen Victim's Clothing
3	Is Victim Conscious? If YES, Go To STEP 4. If NO, Go To STEP 5.
4	If Conscious, Give 3-5 Canteenfuls Of Cool Salt Water In Next 12 Hours
5	If Unconscious, Seek Medical Aid ASAP
6	If No Aid Available, When Conscious, Go To STEP 4

14

14.6.1

14

SYMPTOMS OF HEAT STROKE	
NOTE: THIS IS A MEDICAL EMERGENCY!	
ITEM	SYMPTOM
1	Skin Is Hot And Dry
2	Sweating Stopped
3	Victim May Collapse Or Pass Out Quickly Or After Headache
4	Dizziness
5	Fast Pulse
6	Nausea
7	Vomiting
8	Mental Confusion

FIRST AID FOR HEAT STROKE		
STEP	ACTION	
1	Can Victim Be Immersed In Water? If YES, Go To STEP 2. If NO, Go To STEP 3.	✓
2	Immerse Victim In Cold Water, Add Ice If Possible	
3	If Cannot Immerse, Move To A Shaded Area, Remove Clothing, Sprinkle Victim With Water And Fan	
4	MEDEVAC Victim, Cool All The Way	
5	When Conscious, Give Victim Cool Water	

14

14.7.1

14

SYMPTOMS OF FROSTBITE		
ITEM	SYMPTOM	
1	Numbness In Affected Area	✓
2	Itchy Skin In Affected Area	
3	Redness Of Skin Or Pale, Waxy Skin In Light-Skinned Soldiers	
4	Grayish Coloring Of Skin In Dark-Skinned Soldiers	
5	Swollen Or Tender Areas	
6	Blisters	
7	Areas Of Skin Which Are Firmer Than Surrounding Areas	

14

14.8.1

14

FIRST AID FOR FROSTBITE	
STEP	ACTION
1	Move Victim To Sheltered Area
2	Warm Affected Areas Using Body Heat
2A	Cover And Keep Victim Warm
2B	Place Affected Hands In Clothing
2C	Place Feet Under Clothing Against Another Soldier
3	Cover And Keep Casualty Warm
4	Seek Medical Aid ASAP
5	Do Not Cause Further Injury By Rubbing Or Soaking Frostbitten Part

14

14.9.1

14

SYMPTOMS OF COLD INJURIES	
ITEM	SYMPTOM
1	Unreasonable Behavior
2	Lethargy—Lack Of Response To Orders
3	Stumbling Or Falling
4	Irrational Outbursts Of Energy
5	Slurred Speech
6	Uncontrollable Shivering
7	Dimness Of Vision

14

14.10.1

14

14

14.11.1

14

FIRST AID FOR COLD INJURIES	
STEP	ACTION
1	Move Victim To A Shelter Or Protected Area
2	Cover Victim With Blankets Or A Sleeping Bag Plus A Windproof Plastic Bag, If Possible
3	If Conscious, Give Victim Hot Drinks And Sugar By Mouth
4	Do Not Try To Warm Victim By Rubbing Limbs Or Skin, Giving Alcohol, Or Using Hot Water Bottles
5	Do Not Encourage Victim To Walk Even After He Has Apparently Recovered
6	MEDEVAC Victim ASAP

14

14.12.1

14

REQUEST ARMY AIR MEDEVAC		P 1/2
NOTE: SEND SECURE OR ENCRYPT ALL ITEMS. REPORT ONLY INFO/AMOUNT(S)/BREVITY NUMBER(S) THAT APPLY.		
LINE	ITEM	
1	Location Of Pick-Up Site [UTM Coordinates]	
2	Pick-Up Site Radio Frequency, Call Sign, And Suffix	
3	Number Of Patients By Priority [(#)-1=Urgent, 2=Priority, 3=Routine]	
4	Special Equipment Required [5=None, 6=Hoist, 7=Stokes Litter, 8=Forest/Jungle Penetrate]	
5	Number Of Patients By Type [(#)-9=Litter, 0=Ambulatory (Sitting)]	

REQUEST ARMY AIR MEDEVAC		P 2/2
LINE	ITEM	
6	Security Of Pick-Up Site [1=No Enemy In Area, 2=Possible Enemy In Area, 3=Enemy In Area, 4=Enemy In Area (Armed Escort Required)]	☒
7	Method Of Marking Pick-Up Site [5=Panels, 6=Flare Signal, 7=Smoke Signal, 8=Signalman, 9=Strips Of Fabric/Parachute, 0=Branches/Wood/Stone Put Together, 1=Signal Lamp/Flashlight, 2=Vehicle Lights, 3=Open Flame]	
8	Patient Nationality And Status [4=US Mil, 5=US Civ, 6=Non-US Mil, 7=Non-US Civ, 8=EPW]	
9	CBR Contamination [9=Chem, 0=Bio, 1=Radiation]	

14

14.12.2

14

SET UP A HELICOPTER LANDING SITE		P 1/4
STEP	ACTION	
1	Select Landing Site	☒
2	Size Of Landing Site	
2A	Requires Level Landing Area At Least 30M In Diameter	
2B	Use 10 To 1 Ratio To Lay Out Landing Site When Obstacles Are In Approach/Departure Routes	
3	Ground Slope Of Landing Site	
3A	Must Be No More Than 15 Degrees	
3B	Is Ground Slope Under 7 Degrees? If YES, Go To STEP 3C. If NO, Go To STEP 3D.	

14

14.13.1

14

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14.13.2

14

SET UP A HELICOPTER LANDING SITE		P 2/4
STEP	ACTION	
3C	Land Helicopter Upslope	☒
3D	Land Helicopter Sideslope	
4	Surface Conditions	
4A	Is Ground Firm Enough? If YES, Go To STEP 4B. If NO, Go To STEP 4C.	
4B	Will Keep Helicopter From Bogging Down During Loading And Unloading	
4C	Tell Pilot Ground Is Not Firm And To Hover Over Landing Site During Loading And Unloading	
4D	Avoid Dusty, Sandy, Or Snow- Covered Areas	

14

14.13.3

14

SET UP A HELICOPTER LANDING SITE		P 3/4
STEP	ACTION	
4E	Remove Loose Debris From Landing Site	☒
5	Obstacles	
5A	Remove Tall Trees, Telephone Lines, Powerlines Or Poles, And Similar Obstructions On Approach/Departure Ends	
5B	Clearly Mark Obstructions That You Cannot Remove	
6	Establish Security Around Entire Landing Site	
7	Mark Landing Site And Touchdown Point	
7A	Base Markings On Mission, Capabilities, And Situation	

15		15.1.1		15
PLANNING FOR CONOPS		P 1/2		
ITEM	ACTION			
1	Do Not Go Longer Than 24 Hours Without Sleep			
2	Recognize Symptoms Of Stress/Sleep Loss			
3	Share Duties Among Leaders So All Leaders Can Get Sleep			
4	Set Up/Enforce An Eating And Sleeping Schedule			
5	Include Order Issue And Movement Times In Warning Orders So Subordinates Can Schedule Sleep			

15

15.1.2

15

PLANNING FOR CONOPS		P 2/2
ITEM	ACTION	
6	Do Not Let Soldiers Sleep In Vehicles	✓
7	If Mounted, Have Soldiers Dismount And Pitch A Lean-To For Sleeping	
8	When Soldiers Are Tired, Give Simple Orders In A Firm Manner	
9	Make Subordinates Repeat Back All Orders	
Notes:		

15

15.2.1

15

SYMPTOMS OF SLEEP LOSS	
ITEM	SYMPTOM
1	Being Negative
2	Forgetfulness
3	Hallucinations
4	Ignoring Orders
5	Mood Changes
6	Not Alert
7	Not Understanding What Is Said
8	Slow Response Time
9	Very Irritable
10	Very Short Attention Span

15

15.3.1

15

SYMPTOMS OF STRESS	
ITEM	SYMPTOM
1	Changes In Eating Behavior
2	Feeling Angry At Everyone
3	Feeling Anxious, Depressed, Irritable, Or Annoyed
4	Feeling Tense Or Frustrated With No Outlet
5	Feeling Tired Even After Rest
6	Low Self-Confidence And Feeling Lonely
7	Not Caring About Anyone/ Anything

15

15.3.2

15

SYMPTOMS OF STRESS		P 2/2
ITEM	SYMPTOM	
8	Physical Problems	☒
8A	Diarrhea	
8B	Headaches	
8C	Nausea	
8D	Pounding Heart	
9	Recurrent Bad Dreams/ Nightmares	
10	Unable To Concentrate/ Forgetfulness	
Notes:		

15

15.4.1

15

SYMPTOMS OF STRESS IN UNIT		
ITEM	SYMPTOM	
1	Frequent Conflicts Within Unit	☒
2	High AWOL And Sick Call Rates	
3	Increase In Soldiers' Complaints	
4	Insubordination	
5	Poor Productivity And Lack Of Pride In Work	
6	Sensitivity And Resenting Criticism	
7	Soldiers Exhibit Lack Of Unit Pride	
8	Soldiers Ignore Orders, SOPs, And Policies	

AIR DEFENSE WARNING	
WARNING	MEANING
RED	Attack By Hostile Aircraft Or Missiles Is IMMINENT Or IN PROGRESS
YELLOW	Attack By Hostile Aircraft Or Missiles Is PROBABLE
WHITE	Attack By Hostile Aircraft Or Missiles is IMPROBABLE
Notes:	

ENGAGING AIRCRAFT

Note: Specific Rules For Engaging Aircraft Are In Your Unit SOP Or Issued In Your Commander's Order. In The Absence Of Such Guidance, Follow The Steps Below:

STEP	ACTION
1	Immediately Engage All Attacking Aircraft
2	Immediately Engage All Helicopters Positively Identified As Hostile
3	Engage When Friendly ADA Units Are Engaging Enemy Aircraft In Your Area
4	Engage Hostile Jet Aircraft Not Attacking Your Position Only After Ordered To Fire

16
16.3.1
16

WPNS CONTROL STATUS	
STATUS	ACTION
Weapons FREE	You May Fire At Any Aircraft NOT Positively Identified As FRIENDLY
Weapons TIGHT	You Can Fire Only At Aircraft POSITIVELY Identified As HOSTILE According To The Announced Hostile Criteria
Weapons HOLD	DO NOT FIRE Except In Self-Defense
Notes:	

16
16.4.1
16

PASSIVE AIR DEFENSE		P 1/2
ITEM	ACTION	
1	When Stopped, Occupy Positions With Cover And Concealment	☒
2	Place Camouflaged Covering On All Exposed Glass	
3	Camouflage All Vehicles In Open	
4	Do Not Skyline Vehicles	
5	Do Not Outline Vehicles Against An Area Of A Different Color	
6	Use Covered And Concealed Routes	
7	If Unit Attacked, Turn Vehicles 90 Degrees To Attack Direction	
8	Maintain COMSEC While Moving	
9	Disperse Vehicles	

PASSIVE AIR DEFENSE	P 2/2
---------------------	-------

P 2/2

ITEM	ACTION	✓
10	Wipe Out Vehicle Track Marks Around Stationary Positions	
11	Post Air Guards On Vehicles And In Dismounted Positions	
12	Rotate Air Guards Frequently	
13	Specify Air Warning Signals In Unit SOP	
14	Specify Both Visual And Audible Air Warning Signals	
15	Enforce Total Blackout At Night	
16	Enforce Noise Discipline	
17	Enforce Area Police	
18	Camouflage Spoil From All Dismounted Positions	

$$\frac{16}{16.4.2} = 16$$

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16

16.4.3

NOTES

[illegible]

17		17.1.1	17
VEHICLE RECOVERY PROCEDURE		P 1/2	
DANGER—Move ALL Unprotected Troops AT LEAST 2 Cable-Lengths Away BEFORE Applying Resistance			
STEP	PROCEDURE		
1	RECON THE AREA—Check the terrain for an approach to the load, method of rigging, and natural anchorages		✓
2	ESTIMATE SITUATION—Decide the load resistance and the capacity of the effort available		
3	CALCULATE RATIO—Compute an estimated mechanical advantage for the rigging		
4	OBTAIN RESISTANCE—Compute the tackle resistance and the total resistance		

17		17.1.2	17
VEHICLE RECOVERY PROCEDURE		P 2/2	
STEP	PROCEDURE		
5	VERIFY SOLUTION—Compute line forces to compare with the winch and dead line capacities		✓
6	ERECT RIGGING—Orient the crew—Instruct them to assemble the rigging—Move them to a safe location		
7	RECHECK RIGGING—Make sure that the rigging is set up for proper and safe operation		
8	YOU ARE NOW READY—Signal the operator to apply power to the winch and recover the load		
Notes:			

17

17.2.2

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VEHICLE RECOVERY FUNDAMENTALS		P 2/4
ITEM	FUNDAMENTAL	
3	LOAD RESISTANCE: Obtain this by subtracting the reduction factors from the estimated load resistance	
4	MECHANICAL ADVANTAGE: • Estimate—DIVIDE the load resistance by the available effort (the capacity of the winch) • Tackle—EQUAL to the number of winch lines supporting the load (lines which can become shorter)	
5	TACKLE RESISTANCE: 10% of the load resistance TIMES the number of sheaves (grooved wheel(s) in the block(s) of the rigging	
6	TOTAL RESISTANCE: The load resistance PLUS the tackle resistance	

VEHICLE RECOVERY FUNDAMENTALS		P 1/4
ITEM	FUNDAMENTAL	
1	ESTIMATING LOAD RESISTANCES: • Overturned=1/2 Vehicle Weight • Nosed (Grade)= Vehicle Weight • Mired Wheel-Deep=Vehicle Weight • Mired Fender-Deep=DOUBLE Vehicle Weight • Mired Turret-Deep=TRIPLE Vehicle Weight	
2	LOAD RESISTANCE REDUCTION FACTORS (Note: Does NOT apply to wheeled, or nosed/overturned tracked vehicles): • 10 %—Recovery in the OPPOSITE direction from which the mired vehicle was traveling • 40%—Apply POWER to the tracks of the mired vehicle • 50%—COMBINATION of recovery in opposite direction + applying power to the tracks of the mired vehicle	

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17.2.1

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17		17.2.3		17
VEHICLE RECOVERY FUNDAMENTALS		P 3/4		
ITEM	FUNDAMENTAL			
7	TACKLE TERMINOLOGY: • Fall Line--This is the winch line which runs from the source of effort to the first block in the tackle (there is ONLY ONE fall line in a simple tackle system) • Return Lines--These are the winch lines between the blocks or the winch line from the sheave of a block to the point where the end of the line is attached • Dead Lines--These are lines used to attach blocks or other equipment to the load or to an anchor			
8	LINE FORCES: • Fall Line--Total resistance DIVIDED by mechanical advantage • Dead Line--Fall line force TIMES the number of lines that the dead line supports			

17		17.2.4		17
VEHICLE RECOVERY FUNDAMENTALS		P 4/4		
ITEM	FUNDAMENTAL			
9	ATTACHMENT OF RIGGING: • Always attach tow cables to TOW HOOKS, not the lifting eyes or towing pintles • All light tracked vehicles carry one 10-foot tow cable; all main battle tanks carry two 10-foot tow cables • CROSS tow cables to prevent them from tangling and keep the vehicles aligned • Always position a hook with the open part (throat) UPWARD • Never handle cables or wire ropes without heavy leather-palmed gloves • Always place safety keys in hooks/shackles/equipment requiring them • Do NOT apply loads SUDDENLY • Vehicle operators must keep their hatches closed and use periscopes • Allow NO SMOKING or OPEN FLAMES if fuel or oil has spilled			

VEHICLE RECOVERY CAPABILITIES			
VEHICLE TYPE	MAXIMUM CAPACITY (TONS)		
	WINCH	LIFT	TOW
M62/M543 Wrecker Truck	22.5	10	15
M553 GOER Wrecker	22.5	12	23
M578 Recovery Vehicle	30	15	30
M88 Recovery Vehicle	45	25	56
Tracked Vehicles	The average tracked vehicle can pull/tow the equal of its weight on dry, level, hard-stand in reverse gear		

UNIT VEHICLE RECOVERY METHODS AND EQUIPMENT			
UNIT	PSNL	METHODS	EQUIP
Pt	Crew/Operator	Towing Winching Expedients	Similar Vehicles- Trucks w/Winches- Materials On Hand
Co	Repair-men	Winching Lifting Towing	Recovery Vehicles
Bn	Repair-men	Winching Lifting Towing	Wrecker Trucks- Recovery Vehicles
DS and GS	Repair-men	Winching Lifting Towing Transport	Wrecker Trucks- Recovery Vehicles- Transport Vehicles

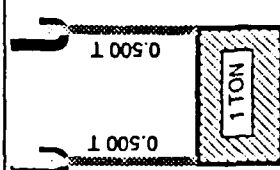
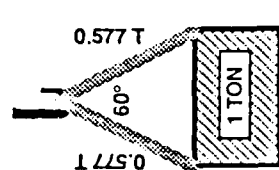
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17.5.1					17				
WINCH VARIABLE CAPACITIES					P 1/2				
WINCH TYPE	CABLE LAYER	CABLE ON DRUM (FT)	CAPACITY (TONS)						
5 TON	1	0 - 39	5.000						
	2	40 - 85	4.225						
	3	86 - 138	3.670						
	4	139 - 199	3.230						
	5	200 - 266	2.890						
10 TON	1	0 - 41	10.000						
	2	42 - 91	8.450						
	3	92 - 148	7.250						
	4	149 - 213	6.400						
	5	214 - 287	5.700						
22.5 TON	1	0 - 42	22.500						
	2	43 - 93	18.850						
	3	94 - 153	16.250						
	4	154 - 220	14.250						
	5	221 - 296	12.650						
	6	297 - 380	11.400						

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17.5.2

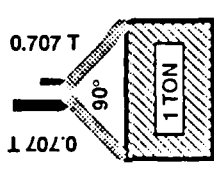
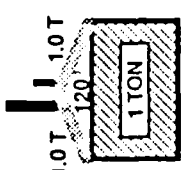
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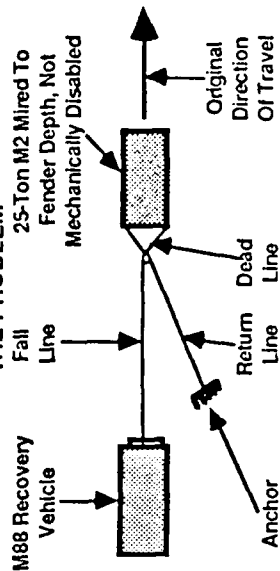
WINCH VARIABLE CAPACITIES				P 2/2
WINCH TYPE	CABLE LAYER	CABLE ON DRUM (FT)	CAPACITY (TONS)	
30 TON (LOW GEAR)	1	0 - 55	30.000	
	2	56 - 128	26.000	
	3	129 - 208	23.000	
	4	209 - 300	20.000	
45 TON (LOW GEAR)	1	0 - 41	45.000	
	2	42 - 91	38.000	
	3	92 - 149	32.000	
	4	150 - 200	28.000	
Notes:				

SLING LEG FORCES		P 1/2
FORCE PER SLING LEG (2-LEG SLINGS) PER TON OF TOTAL RESISTANCE		
INCLUDED ANGLE (DEGREES)	SLING LEG FORCE (TONS)	EXAMPLES
0	0.500	
10	0.502	
20	0.508	
30	0.518	
40	0.532	
50	0.552	
60	0.577	
70	0.610	
80	0.653	

FIBRE/WIRE ROPE AND CHAIN CAPACITIES

DIAMETER (INCHES)	FIBER ROPE (SISAL) T=4D ² (TONS)	WIRE ROPE (IPS) & CHAIN T=40D ² (TONS)
3/8	0.5625	5.625
7/16	0.765625	7.65625
1/2	1.00	10.00
5/8	1.5625	15.625
3/4	2.25	22.50
7/8	3.0625	30.625
1	4.00	40.00
1-1/8	5.0625	50.625
1-1/4	6.25	62.50
1-1/2	9.00	90.00

17		17.7.2		17	
SLING LEG FORCES		P 2/2			
FORCE PER SLING LEG (2-LEG SLINGS) PER TON OF TOTAL RESISTANCE					
INCLUDED ANGLE (DEGREES)	SLING LEG FORCE (TONS)	EXAMPLES			
90	0.707				
100	0.778				
110	0.872				
120	1.000				
130	1.183				
140	1.462				
150	1.932				
160	2.880				
170	5.734				

17		17.8.1		17	
RIGGING EXAMPLE		P 1/2			
THE PROBLEM					
					
STEP		CALCULATION			
1		ESTIMATED LOAD RESISTANCE = 50 Tons (25-ton M2 times 2 for a fender-depth mire)			
2		LOAD RESISTANCE = 25 Tons (50-ton estimated load resistance minus 50%: 10% for recovery in opposite direction of original travel, and 40% for applying power to the tracks)			
3		MECHANICAL ADVANTAGE = 2 to 1 (50-ton load resistance divided by 45-ton winch capacity)			

LAY SAW BY AIMING OR ELEVATION		
STEP	ACTION	
1	Set Rear Sight Slide At Estimated Range To Target	✓
2	Align Sights On Targets	
3	With Gun Laid On Target, Mark A Spot On Ground Under The Handguard Assembly	
4	Drive Stake Into Spot Marked On Ground	
5	Lay Sights Again On Target When Handguard Assembly Is Laid On Top Of Stake With Gun Held For Bipod Firing Properly	
6	Extend Bipod To Provide A Solid Mount For The Gun	

LAY M60 MACHINE GUN BY AIMING OR ELEVATION		
STEP	ACTION	
1	Set Rear Sight Slide At Estimated Range To Target	✓
2	Align Sights On Targets	
3	With Gun Laid On Target, Mark A Spot On Ground Under The Gas Cylinder Extension	
4	Drive Stake Into Spot Marked On Ground	
5	Relay Sights On Target With Gas Cylinder On Top Of Stake Holding Gun In A Proper Bipod Firing Position	
6	Extend Bipod To Provide A Solid Mount For The Gun	

18		18.3.1		18
LAY M60 OR SAW WITH A LOG OR BOARD				
				P 1/2
STEP	ACTION			✓
1	Aim Weapon Toward Desired Sector Of Graze			
2	Place Log Or Board Beneath Stock Of Weapon So That Stock Can Slide Across It			
3	Dig Shallow Trenches Or Grooves For Bipod Feet To Allow Rotation Of Feet As You Move Stock			
4	Adjust Bipod Legs To Elevation Providing The Best Sector Of Graze			

18		18.3.2		18
LAY M60 OR SAW WITH A LOG OR BOARD				
				P 2/2
STEP	ACTION			✓
5	Mark Sectors Of Graze By Notching Or Placing Stops On Horizontal Log Or Board			
6	Use Bipod Firing Position And Grip			
7	Fire Confirming Burst To Ensure That You Have Correctly Laid Weapon On Target			
Notes:				

LAY M60 OR SAW WITH NOTCHED-STAKE		ACTION
1	Aim Weapon Toward Target Area	
2	Place Stock Of Gun In Rests Of Notched Stakes Or Tree Crotches	
3	Make Final Adjustment To Hit Target	
4	Dig Shallow Trenches Or Grooves For Bipod Feet To Allow Rotation Of Feet As You Move Stock	
5	Hold, Sight, And Fire Weapon Using Bipod Firing Position And Grip	
6	Fire Confirming Burst To Ensure That You Have Correctly Laid Weapon On Target	

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19.1.1

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MESSENGER BRIEFING		P 1/2
STEP	INFORMATION	
1	Name And Location Of Hqs Or Person To Get Message	
2	Route To Follow	
3	Danger Points To Avoid	
4	Speed Required	
5	Does Message Require Answer	
6	Where To Report If Message Cannot Be Delivered	

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19.1.2

19

MESSENGER BRIEFING		P 2/2
STEP	INFORMATION	
7	Special Instructions	
8	Message Content (Only If Required)	
9	Report Destination To The Nearest Leader When Passing Each OP/Line	
10	Challenge	
11	Password	

RADIO TROUBLESHOOTING		
STEP	ACTION	
1	Check Frequency Setting	✓
2	Check Battery: Charge-New	
3	Check Antenna Connection	
4	Check Antenna: Upright-Clear	
5	Check ALL Connections From Battery Thru To Antenna: Clean-Dry-Tighten	
6	Check ALL Power/Psn Switches	
7	Replace CVC Or Handset	
8	Check Vehicle Psn For Terrain Mask: Reposition If Needed	
9	Check Antenna Top Section: Repair If Broken-Replace If Lost	

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19.2.1

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19.3.1		
PREPARING TA-312/PT TELEPHONE SET		P 1/3
STEP	ACTION	
1	Prepare Telephone Set For Operation	✓
1A	For Local Battery "LB", Go To STEP 2	
1B	For Common Battery Signaling "CBS", Go To STEP 3	
1C	For Common Battery "CB", Go To STEP 4	
2	Set Selector Switch To "LB", Using Flat-Bed Screwdriver Or Dime	
2A	Install Batteries	

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19		19.3.2	19
PREPARING TA-312/PT TELEPHONE SET		P 2/3	
STEP	ACTION		
2B	Remove Handset From Retaining Cradle, And Open Carrying Case		✓
2C	Rotate Battery Compartment Cover Latch Clockwise Until You Release Cover		
2D	Open Cover Of Battery Compartment		
2E	Insert 2 BA-30 Batteries In Compartment Matching Positive (+) And Negative (-) Marks		
2F	Close And Lock Cover		

19		19.3.3	19
PREPARING TA-312/PT TELEPHONE SET		P 3/3	
STEP	ACTION		
2G	Refasten Carrying Case		✓
3	Set Selector Switch To "CBS" Using Flat-Bed Screwdriver Or Dime		
3A	Install Batteries		
3B	Repeat STEPS 3A - 3F		
4	Set Selector Switch To "CB" Using Flat-Bed Screwdriver Or Dime		
4A	Do Not Install Batteries		
4B	Switchboard Provides Power		

OPERATING TA-312/PT TELEPHONE SET		P 1/6
STEP	ACTION	✓
1	Prepare Telephone Set For Use On Horizontal Surface	
1A	Remove Carrying Case And Keep Strap Out	
1B	Fold Down Top Of Carrying Case Around Sides Of Telephone	
2	Position Telephone Set For Use On A Support	
2A	Unhook Carrying Strap From Ring On Buzzer End Of Case	
2B	Adjust Carrying Strap So It Fits Around Support	
2C	Place Telephone Against Support At Convenient Height	

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19.4.2

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OPERATING TA-312/PT TELEPHONE SET		P 2/6
STEP	ACTION	✓
2D	Wrap Carrying Strap Around Support And Secure Free End To Upper Ring On Case	
2E	Cut Length Of Wire, Pass It Through Lower Loops Of Carrying Case, And Tie It In Place Around The Support	
3	Connect Telephone To Line	
3A	Strip 1-Inch Of Insulation From Ends Of Both Wires You Will Connect	
3B	Scrape Clean And Fold Back Skinned Portion Of Each Wire About 1/2-Inch	
3C	Tie Wire To Upper Ring On Case	

OPERATING TA-312/PT TELEPHONE SET		P 3/6
STEP	ACTION	
3D	Push Down One Of The Binding Posts	
3E	Insert Bare End Of One Wire Into Binding Post Slot	
3F	Release Post To Clamp Wire	
3G	Repeat STEPS 3E And 3F For Other Post	
4	Adjust Volume Of Buzzer	
4A	Do You Want Buzzer To Sound? If YES, Go To STEPS 5-7. If NO, Go To STEP 4B.	
4B	Fully Rotate Buzzer Volume Control Counterclockwise To "LOW" Position.	

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19.4.4

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OPERATING TA-312/PT TELEPHONE SET		P 4/6
STEP	ACTION	
5	For Buzzer Sound On "LB" Operation	✓
5A	Turn Handcrank While Holding Handset In The Cradle	
5B	Remove Handset And Listen For The Called Party	
5C	Push Press-To-Talk Switch To Talk; Release To Listen	
6	For Buzzer Sound On "CBS" Operation	
6A	Remove Handset And Listen For Operator	
6B	Push Press-To-Talk Switch To Talk; Release To Listen	

19		19.4.5		19
OPERATING TA-312/PT TELEPHONE SET		P 5/6		
STEP	ACTION			
7	For Buzzer Sound On "CB" Operation			
7A	Remove Handset And Listen For Operator			
7B	Do Not Operate Press-To-Talk Switch			
8	Ask Distant Party To Call Back			
9	Adjust Buzzer Volume Control To Desired Volume			
10	Connection Of External Handset- Handset For Hands-Free Operation			
10A	Connect Handset-Headset Or Handset Microphone To Connector On Panel Of Phone			

19		19.4.6		19
OPERATING TA-312/PT TELEPHONE SET		P 6/6		
STEP	ACTION			
10B	Leave Handset In Retaining Cradle When You Have Handset-Headset Connected			
10C	Turn "EXT-INT" Switch To "EXT" Position			
11	Install/Remove Deicing Screen			
11A	Place Screen In Position Over Front Of Transmitter Cap			
11B	Line Up Dot On Shield With Notch On Transmitter			
11C	Press Shield Firmly Over Cap			
11D	Remove Deicing Screen By Prying Screen Up With Screw- Driver In Slot Of Transmitter Cap			

INSTALLING HOT LOOP WITH TA-312/PT

P 2/3

STEP	ACTION
3B	Connect One Of Wires From Each End Of Hot Loop To Binding Post Of Telephone
4	Connect Other Telephones To Hot Loop
4A	Go To A Squad Section Position And Pick Up Slack Wire
4B	Cut Insulation On One Conductor Without Cutting Wire Strands
4C	Grasp Insulation On Each Side Of Cut And Pull Insulation Apart To Expose 1/2-Inch Of Wire Strands On Each Conductor

INSTALLING HOT LOOP WITH TA-312/PT

P 1/3

STEP	ACTION	
1	Install Field Wire Loop	
1A	Lay Out Field Wire From Your Commander's Position To Each Squad/Section And Back	
1B	Keep Wire Behind Individual Positions	
1C	Tie Wire To Fixed Object Near Each Position	
2	Connect Each Telephone (TA-312,PT) To The Hot Loop	
3	Connect Hot Loop To Your Commander's Telephone	
3A	Strip 1/2-Inch Of Insulation Off 2 Wires At Each End Of Loop	

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19.6.1

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INSTALLING HOT LOOP WITH TELEPHONES		P 1/2
STEP	ACTION	
1	Install Hot Loop	✓
1A	Lay Out Field Wire From HQ/ FDC To Each Station In Loop	
1B	Keep Wire Behind Positions, Bury It If Necessary	
1C	Secure Wire At Each Position, And Leave Enough Slack In Wire To Make Connections	
2	Connect Each TA-1/PT To Hot Loop	
2A	Connect Telephone At First Position (HQ FDC) And Telephone At Last Position	
2B	Conduct Commo Check Between Positions	

INSTALLING HOT LOOP WITH TA-312/PT		P 3/3
STEP	ACTION	
4D	Repeat STEPS 4A - 4C On The Other Conductor	✓
4E	Get 1 Telephone (TA-312/PT)	
4F	Slide Exposed 1/2-Inch Section Of 1 Conductor Into Slot Of 1 Binding Post	
4G	Slide Exposed 1/2-Inch Section Of Other Conductor Into Slot Of 1 Binding Post	
4H	Repeat STEPS 4A - 4G To Connect Each Telephone To Hot Loop	
5	Make Commo Check On All Telephones Connected To Hot Loop	

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19.5.3

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19

19.7.1

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PREPARING SB-993/GT SWITCHBOARD		P 1/4
STEP	ACTION	
1	Position Switchboard For Operation	✓
1A	Open Cover Of Switchboard	
1B	Place Switchboard And Operator's Telephone Set On Dry Surface	
2	Connect Operator's Telephone Set	
2A	Cut Length Of Field Wire Long Enough To Cover The Entire Switchboard	
2B	Strip 1 1/4-Inches Of Insulation From Each Conductor On One End Of The Field Wire Using TL-13 Pliers	

INSTALLING HOT LOOP WITH TELEPHONES		P 2/2
STEP	ACTION	
2C	To Connect Other Stations In Center Of Loop, Cut One Of The Conductors Of The Wire	✓
2D	Remove 1/2-Inch Of Insulation From Each Of The Cut Strands Of Wire	
2E	Attach One End Of Cut Strand To Each Binding Post Of TA-1 To Connect All Phones In Center Of Loop	
3	Make Communications Check By Calling All Positions From HQ FDC Telephone	
4	If Any Or All Positions Do Not Answer, Check All Connections	

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19.6.2

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19		19.7.2	19
PREPARING SB-993/GT SWITCHBOARD		P 2/4	
STEP	ACTION		✓
2C	Double Over And Flatten The Stripped Sections Of Wire		
2D	Insert One Stripped Section Into Each Line Terminal Of "TEL" Adapter		
2E	Tighten Plugs To Secure Field Wire		
2F	Strip 1/2-Inch Of Insulation From Each Conductor At Other End And Connect To Line Binding Posts Of Operator's Telephone Set		
3	Perform Adapter Tests		
3A	Stand Each Of The Adapters In The Jacks Provided In Holder		

19		19.7.3	19
PREPARING SB-993/GT SWITCHBOARD		P 3/4	
STEP	ACTION		✓
3B	Press Ringing Generator Of Operator's Telephone Set Several Times		
3C	Light In "TEL" Adapter Should Flicker On While You Operate The Generator		
3D	Test Each Of The 6 Adapters By Inserting Plugs Of "TEL" Adapter Into Jacks Of Other Adapters And Ringing		
3E	If Adapter Fails To Light, Discard It		
4	Connect Incoming Wires		
4A	Examine Each Adapter And Identify Side With Painted Designation Strip		

19		19.7.4		19
PREPARING SB-993/GT SWITCHBOARD		P 4/4		
STEP	ACTION			
4B	Tie Each Line To Fixed Object			
4C	Leave Enough Slack To Form A Drip Loop And Permit Free Movement Of Adapter			
4D	Connect Wire Lines To Adapters Using Procedures For "TEL" In STEPS 2A - 2F			
4E	Be Sure Painted Designation Strip Faces You			
4F	Mark Each Line Adapter Designation Strip With Pencil To Identify Party Connected To The Adapter			
4G	Place Operator's Adapter In The Holder "TEL" Jacks			

19		19.8.1		19
OPERATING SB-993/GT SWITCHBOARD		P 1/4		
STEP	ACTION			
1	Establishing A Line-To-Line Call			
1A	The Ringing Signal Lights Neon Lamp In Adapter To Signal An Incoming Call			
1B	When Lamp Flashes, Insert Plugs Of "TEL" Adapter Into Jack Of Flashing Adapter			
1C	Use Operator's Telephone To Determine Number Called			
1D	Remove "TEL" Adapter From Calling Party's Adapter			
1E	Plug "TEL" Adapter Into Jack Of Requested Party's Line Adapter			

19		19.8.2	19
OPERATING SB-993/GT SWITCHBOARD		P 2/4	
STEP	ACTION		✓
1F	Operate Ringing Generator On Operator's Telephone Set To Signal Requested Party		
1G	When Requested Party Answers, Plug Their Adapter Into Jack Of Calling Party		
1H	Report Connection Is Ready		
1I	When Conversation Begins, Remove "TEL" Adapter And Return It To "TEL" Position Of Holder		
1J	When Conversation Ends, Parties Should Ring-Off, Causing Both Adapters To Flash		

19		19.8.3	19
OPERATING SB-993/GT SWITCHBOARD		P 3/4	
STEP	ACTION		✓
1K	Plug "TEL" Adapter Into Connection And Challenge To Determine If It Is A Ring-Off Or Re-Call Before You Disconnect The Adapters		
2	Establishing Conference Calls		
2A	When Calling Party Requests Conference Call, Instruct Party To Stand By While You Establish Conference Call		
2B	Signal Each Requested Party And Direct Them To Standby For Conference Call		
2C	As You Contact Each Party, Plug That Adapter Into The Conference Connection		

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19.8.4

19

OPERATING SB-993/GT SWITCHBOARD		P 4/4
STEP	ACTION	
2D	After Making All Connections, Notify Calling Party That The Conference Call Is Ready	☒
2E	When You Hear Conversation, Restore The "TEL" Adapter To "TEL" Position Of The Holder	
2F	On A Re-Call Or Ring-Off, Challenge The Connection Before Disconnecting All The Adapters	
Notes:		

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19.9.1

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INSTALLING COMMO LINES		P 1/3
STEP	ACTION	
1	Test Field Wire On Reel	☒
1A	Attach Telephone Sets To Payout And Standing Ends Of Wire On Reel	
1B	Ring Through And Speak Through Wire From One Phone To The Other	
1C	If You Have A Clear Commo Check, Install The Wire	
2	Installing A Field Wire	
2A	Tie Field Wire To Fixed Object Where Line Begins And Ends	
2B	Allow Some Slack In Wire To Attach To Telephone And Switchboard	

19		19.9.2		19
INSTALLING COMMO LINES		P 2/3		
STEP	ACTION			
2C	Lay Field Wire Loosely With Plenty Of Slack			
2D	Tie Field Wire At Ground Level To Trees Or Posts At Several Places Along The Line			
3	Attach Wire Tags To Line At			
3A	Both Sides Of Road, Railway, And Trail Crossings			
3P	Telephones, Switchboards, And Test Stations			
3C	Both Sides Of Buried Or Aerial Crossings			
3D	Frequent Intervals Where Several Lines Are Laid Along The Same Route			

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19.9.3

19

INSTALLING COMMO LINES		P3/3
STEP	ACTION	
4	Test Wire Line	
4A	After Every Buried Crossing	
4B	After Every Aerial Crossing	
4C	Before And After You Splice A New Reel Onto The Line	
4D	Before Connecting Line To Telephone Or Switchboard	
Notes:		

CROSSING OBJECTS WITH COMMO LINES		P 1/4
STEP	ACTION	
1	Culvert Crossing	✓
1A	Tie Wire To Fixed Object And Attach Wire Tag On Each Side Of The Road	
1B	Pass Wire Through The Top Of The Culvert	
1C	Tape Wire At Each End Of Culvert	
2	Aerial Crossing	
2A	Wire Must Clear Main Traffic Arteries And Paved Roads By At Least 7M	
2B	Use Buildings, Trees, Or Poles To Raise Wire	

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19.10.1

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CROSSING OBJECTS WITH COMMO LINES		P 2/4
STEP	ACTION	
3	If You Cannot Use Objects In STEP 2B, Use Lance Poles	✓
3A	Lash Poles Together To Provide 7M Clearance For Wire Line	
3B	Tie Wire Line To Top Of Poles With A Clove Hitch	
3C	Tie Guy Wires Near The Top Of Poles	
3D	Raise Poles	
3E	Stake Guy Wires At 45 Degree Angle To Line	
3F	Tie And Tag Wire Line To A Stake At Each End Of The Crossing	

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19.10.2

19

19		19.10.3		19
CROSSING OBJECTS WITH COMMO LINES			P 3/4	
STEP	ACTION			
4	Buried Crossings		☒	
4A	Dig A 6-12 Inch Deep Trench Across A Road, Extending 2 Feet Beyond Each Side Of Road			
4B	Lay Wire Loosely In Trench			
4C	Tie And Tag Wire To A Stake At Each End Of The Trench			
4D	Backfill The Trench			
5	Railroad Crossing			
5A	Pull Enough Slack From The Wire Reel To Reach Across The Railroad Tracks			

19		19.10.4		19
CROSSING OBJECTS WITH COMMO LINES			P 4/4	
STEP	ACTION			
5B	Cut Wire At Wire Reel And Pull End Of Wire Line Under Tracks, Along Side Of The Crossies		☒	
5C	Drive Stakes Beyond Each Shoulder Of The Track And Tie Line To Stakes			
5D	Pull Line Tight			
5E	Bury Wire Line From Rails to Stakes			
5F	Splice Free End Of Line To Wire Reel			
5G	Continue To Lay The Line			

RECOVERING FIELD WIRE LINES		P 1/4
STEP	ACTION	
1	Retrieve Field Wire Line	✓
1A	Disconnect Wire From Terminal Telephone Or Switchboard	
1B	Splice Wire Line To Wire On Reel Used For Pickup	
1C	Operate Reeling Unit To Roll Wire Onto Reel	
1D	Remove And Save Wire Tags	
1E	Release Wire Ties And Dismantle Road Crossings	
1F	If You Cannot Dig Out A Buried Crossing, Cut Out The Crossing And Splice Wire	

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RECOVERING FIELD WIRE LINES		P 2/4
STEP	ACTION	
2	Splice Field Wire	✓
2A	Cut Conductors To Stagger Their Lengths About 6 Inches	
2B	Remove Insulation From Each Of The Four Conductors	
2C	Tie A Square Knot Between The Long Conductor Of One Pair and The Short Conductor Of The Other Pair	
2D	Restore Twist To Line By Wrapping The 2 Remaining Conductors Around The 2 Conductors Already Tied	
2E	Tie A 2nd Square Knot	

19

19.11.2

19

RECOVERING FIELD WIRE LINES		P 3/4
STEP	ACTION	✓
2F	Remove Sections Of Insulation From The Tips Of Conductors, Untwist Strands, And Flex Them	
2G	Separate Steel Strands From Copper Strands	
2H	Cut Steel Strands Flush To The Ends Of Insulation	
2I	Cross Left-Hand End Of Copper Strands Over Crest Of Square Knot	
2J	Wrap Several Tight Turns Over Bare Part Of Right-Hand Conductor	
2K	Cut Extra Wire From Ends Of Copper Strands	

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19.11.4

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RECOVERING FIELD		P 4/4
WIRE LINES		
STEP	ACTION	
2L	Repeat STEPS 2I - 2K For The Right-Hand End Of Copper Strands	✓
3	Tape The Splice	
3A	Start Taping At Center Of Splice And Wrap Tape To Cover 1 1/2 Inches Of Insulation At One End	
3B	Work Tape Back Over Center Knot To Cover 1 1/2 Inches On Opposite Side	
3C	Work Tape Back Again To Center Of Splice	

MOUNTING AN/VRC-46 RADIO SET		P 1/4
STEP	ACTION	✓
1	Mount Receiver-Transmitter (R-T)	
1A	Make Sure Mount Is Clean And Grounding Straps Connect Securely Between Top Strap And Mount Base	
1B	Remove Rubber Receptacle Cover And Make Sure That Chain Is Clear Of Guide Pins And Receptacle	
1C	Make Sure That Vent Port Is Free Of Obstructions	
1D	Lift And Position R-T Mount And Carefully Slide It Back To Seat Plug In Mount Receptacle	

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19	19.12.2	19
MOUNTING AN/VRC-46 RADIO SET		P 2/4
STEP	ACTION	
1E	Raise And Tighten Clamping Screws To Lock R-T On The Mount	✓
1F	Use Safety Wire/Security Chain To Secure Mounting Clamps	
2	Assemble And Connect Antenna	
2A	Screw Top Antenna Fully Into Bottom Section	
2B	Screw Assembled Antenna Sections Onto Top Of Spring Mount Of Matching Unit	

19		19.12.3		19
MOUNTING AN/VRC-46				
RADIO SET				P 3/4
STEP	ACTION			
2C	Connect Antenna Control Cable (CX-4722/VRC) Between "ANT CONT" Connector Of R-T And Control Cable Connector Of Matching Unit			✓
2D	Connect Antenna (RF) Cable (CG-1773A/U) Between "ANT" Connector Of R-T And Small "BNC" Connector Of Matching Unit			
2E	Route Cables Between R-T And Matching Unit So Movement Of Equipment And Personnel Does Not Endanger Them			

19		19.12.4		19
MOUNTING AN/VRC-46				
RADIO SET				P 4/4
STEP	ACTION			
3	Tie Down Antenna			✓
3A	Clip V-Shaped Clamp To Middle Of Upper Antenna Section			
3B	Make Sure Clamp Does Not Cut Into Fiberglass On Antenna Section			
3C	Lift And Position AM-2060(*)/GRC On Mount And Carefully Slide It Back To Seat The Plug In The Mount Receptacle			
4	Update DA Form 2404			
Notes:				

MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO		P 1/5
STEP	ACTION	
1	Mount Amplifier-Power Supply (AM-2060(*)/GRC)	✓
1A	Make Sure Mount Is Clean And Grounding Straps Connect Securely Between Top Tray And Mounting Plate	
1B	Screw Assembled Antenna Sections Onto Top Of Spring Mount Of Matching Unit	
1C	Connect Antenna Control Cable (CX-4722/VRC) Between Amplifier-Power Supply (AM-2060(*)/GRC) Of Antenna Control Connector And Control Cable Connector Of Matching Unit	

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MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO		P 2/5
STEP	ACTION	
1D	Connect Antenna (RF) Cable (CG-1773A/U) Between "ANT" Connector Of Receiver- Transmitter (R-T) And Small "BNC" Connector Of Matching Unit	✓
1E	Route Cables Between R-T And Matching Unit So Movement Of Equipment Or Personnel Do Not Endanger Them	
2	Mount R-T On AM-2060(*)/GRC	
2A	Slide R-T Until Bottom Of Battery Box Contacts Bumper Plate At Rear Of Amplifier-Power Supply (AM-2060(*)/GRC)	

19

19.13.2

19

19		19.13.3	19
MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO		P 3/5	
STEP	ACTION		
2B	Raise Clamps And Tighten Clamping Screws To Lock R-T On Amplifier-Power Supply		✓
2C	Remove Protective Cap From "POWER" Connector On R-T Panel		
2D	Connect Cable Assembly (CX-4655/GRC) Between AM-2060(*)/GRC "SET POWER" Connector And R-T Power Connector		
3	Assemble And Connect Antenna		
3A	Screw Top Antenna Section Fully Into Bottom Section		

19		19.13.4	19
MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO		P 4/5	
STEP	ACTION		
3B	Be Sure Clamp Does Not Cut Into Fiberglass On Antenna Sections		✓
3C	Pull Antenna To Approximately 60 Degrees Above Ground Level And Tie To Vehicle		
4	Tie Down Antenna		
4A	Clip V-Shaped Clamp To Middle Of Upper Antenna Section		
4B	Remove Rubber Receptacle Cover		
4C	Make Sure That Chain Is Clear Of Guide Pins And Receptacle		

19		19.13.5	19
MOUNTING AN/VRC-64 OR AN/GRC-160 RADIO		P5/5	
STEP	ACTION		
4D	Lift And Position AM-2060(*)/ GRC On Mount And Carefully Slide It Back To Seat The Plug in The Mount Receptacle		
4E	Raise Clamps And Tighten Clamping Screws To Lock Amplifier-Power Supply On Mount		
4F	Use Safety Wire Or Security Chain To Secure Mounting Clips		
Notes:			

19		19.14.1	19
INSTALLING AN/PRC-77 OR AN/PRC-25 RADIO		P 1/4	
STEP	ACTION		
1	Installing Batteries		
1A	Release The 2 Clamps And Remove Battery Box		
1B	Inspect Radio Connector, If It Is Damaged, Have It Repaired		
1C	Check Function Of Pressure Relief Valve By Blowing And Sucking Through The Valve For Venting Of Battery Box		
1D	Position Battery Receptacle Over Radio Connector Taking Care Not To Damage Battery Receptacle		
1E	Replace Battery Box And Tighten The 2 Clamps		

19		19.14.2	19
INSTALLING AN/PRC-77 OR AN/PRC-25 RADIO		P 2/4	
STEP	ACTION		
2	Assemble For Manpack Operation		
2A	Mount Receiver-Transmitter (R-T) On Harness		
2B	Place Harness On Level Surface With Metal Braces Facing Up		
2C	Place R-T On Harness With Front Panel Toward Top And Battery Box Resting In Metal Braces		
2D	Strap R-T To Harness With Retaining Straps		
3	Install Correct Antenna And Handset		

19		19.14.3	19
INSTALLING AN/PRC-77 OR AN/PRC-25 RADIO		P 3/4	
STEP	ACTION		
3A	Do You Need Maximum Range? If YES, Go To STEP 3C. If NO, Go To STEP 3B.		
3B	Use Short Antenna (AT-892/PRC-25) When You Do Not Need Maximum Range Or When Operating In Densely Foliated Area		
3C	Use Long Antenna (AT-217A/PRC) For Maximum Range		
3D	Connect Handset To One Of Audio Connectors		
4	Mount Assembled Radio Set On Your Back		

19		19.14.4	19
INSTALLING AN/PRC-77 OR AN/PRC-25 RADIO		P 4/4	
STEP	ACTION		
4A	Place Harness On Your Back With R-T Mounted		
4B	Adjust Shoulder Straps For A Comfortable Fit And Good Balance		
4C	Hook Belt Straps To Combat Belt		
4D	Hook Ammunition Pouch Straps To Shoulder Strap Rings		
Notes:			

19		19.15.1	19
OPERATING SECURITY EQUIPMENT TSEC/KY-8		P 1/6	
STEP	ACTION		
1	Mount And Interconnect Security Equipment		
1A	Slide TSEC/KY-8 Onto Mount, And Make Sure To Firmly Seat Tracks In Mount Grooves		
1B	Pull Locking Levers Outward To Lock TSEC/KY-8 In Mount		
1C	Make Sure "POWER" Switches For Receiver-Transmitter (R-T) And TSEC/KY-8 Are In "OFF" Position		
1D	Connect And Tightly Screw Secure Equipment Power Cable To The "POWER INPUT" Receptacle On TSEC/KY-8		

19		19.15.2	19
OPERATING SECURITY EQUIPMENT TSEC/KY-8		P 2/6	
STEP	ACTION		
1E	Remove Cap From "X-MODE" Connector Receptacle On The R-T		✓
1F	Connect Interconnecting Cable (CS-12920-U) Small Connector To "X-MODE" Receptacle On R-T		
1G	Connect Other End Of Interconnecting Cable To "RADIO" Receptacle On TSEC KY-8		
1H	Coil And Tape Tie Extra Cable So It Is Out Of The Way		
2	Key TSEC KY-8		
2A	Make Sure Power Switch Is In "OFF" Position		

19		19.15.3	19
OPERATING SECURITY EQUIPMENT TSEC/KY-8		P 3/6	
STEP	ACTION		
2B	Release The 2 Twist-Lock Fasteners On Access Door And Swing Door Open		✓
3	Prepare The KYK-12/TSEC (Sandwich)		
3A	Open KYK-12/TSEC Like A Book		
3B	Set Various Slides According To Extract Key List		
3C	Double Check Settings		
3D	Make Sure You Click Each Slider Into Position		
3E	Close KYK-12/TSEC And Swing Handle Around To Hinge End		

OPERATING SECURITY EQUIPMENT TSEC/KY-8			P 4/6
STEP	ACTION		
4	Insert Current-Keyed KYK-12/ TSEC Into Access Opening		✓
4A	Make Sure Handle And Hinge End Face Outward And Data Plate Is Facing Up		
4B	Slide Sandwich Into Place Carefully		
4C	Press Evenly On Both Sides To Fully Seat Sandwich		
4D	Close Access Door And Secure With 2 Twist-Lock Fasteners		
5	Place System Into Operation		
5A	Turn R-T Power Switch To "LOW"		

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19.15.4

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OPERATING SECURITY EQUIPMENT TSEC/KY-8			P 5/6
STEP	ACTION		
5B	Set TSEC/KY-8 "LOCAL- REMOTE" Switch To "LOCAL"		✓
5C	Set "PLAIN-CIPHER" Switch To "PLAIN"		
5D	Set "POWER" Switch To "ON"		
5E	"POWER" Indicator Lamp And "RED" Indicator Lamps Must Light		
5F	Set "PLAIN-CIPHER" Switch To "CIPHER"		
5G	Red "PLAIN" Indicator Must Go Off And "GREEN" Cipher Indicator Light Must Go On		
6	Perform 11-Position Alarm Test		

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19.15.5

19

OPERATING SECURITY EQUIPMENT TSEC/KY-8		P 6/6
STEP	ACTION	✓
6A	Rotate "ALARM TEST" Switch Clockwise To Each Position, Then To "OFF"	
6B	You Will See "RED" Light Blink On And Hear "BEEPS" In Each Position	
7	Operate Secure System	
7A	Press Push-To-Talk Switch On Radio Audio Accessory	
7B	You Should Hear Single "BEEP"	
7C	If No "BEEP", Repeat STEPS 2 - 5	
7D	Begin Secure Transmission And Reception	

19

19.15.6

19

PREPARING TSEC/KY-38 WITH RADIO SET		P 1/6
STEP	ACTION	✓
1	Prepare Radio For Secure Operation	
1A	Disconnect Cable Assembly (CX-4655/GRC) Between AM-2060(*)/GRC "SET POWER" Connector And R-T "POWER" Connector	
1B	Connect Cable From Left Side Of Distribution Box (J-2731/ GRC) To "SET POWER" Connector Of AM-2060(*)/GRC	
1C	Connect Cable From Right Side Of Distribution Box (J-2731 GRC) To "POWER" Connector Of RT-841 PRC-77	

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19.16.1

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19		19.16.2		19
PREPARING TSEC KY-38 WITH RADIO SET		P 2 6		
STEP	ACTION			
1D	Connect Small End Of Interconnecting Cable Assembly (CX-10475 U) To Connector (J1) On Left Rear Of Distribution Box (J-2731 GRC)			
2	Mount And Interconnect Security Equipment			
2A	Balance TSEC KY-38 On Front Of Mount And Remove Power Connector Cover On Bottom Of Z-ACD/TSEC			
2B	Ensure That Z-ACD/TSEC Circuit Breaker Is At "OFF", And "ON-OFF" Switch On Front Of MT-3823(*) GRC Is At "OFF"			

19		19.16.3		19
PREPARING TSEC KY-38 WITH RADIO SET		P 3 6		
STEP	ACTION			
2C	Pass Connector Of Cable Assembly (CX-10476 U) Through Hole In Rear Plate Of MT-3823(*) GRC			
2D	Connect Cable To Connector On Z-ACD/TSEC			
2E	Set Z-ACD/TSEC Circuit Breaker To "ON" And Slide TSEC/KY-38 Into Mount			
2F	Pass Power Connector Cover Through Hole In Rear Plate			
2G	Raise And Tighten 2 Clamps On MT-3823(*) GRC To Secure TSEC/KY-38			

19		19.16.4		19
PREPARING TSEC/KY-38 WITH RADIO SET		P 4/6		
STEP	ACTION			
2H	Connect Large End Of Interconnecting Cable Assembly (CX-10475/U) To "RADIO CONNECTOR" On TSEC KY-38			
2I	Mount Amplifier, Audio Frequency (AM-4979 GR) In Speaker Mounting Bracket			
2J	Connect Power Cable (CX-11761/U) To "POWER" Connector Of AM-4979A GR			
2K	Connect AM-4979A GR Cable To "AUDIO" Connector Of TSEC KY-38			
2L	Connect Radio Handset To "AUDIO" Connector Of The AM-4979A GR			

19		19.16.5		19
PREPARING TSEC/KY-38 WITH RADIO SET		P 5/6		
STEP	ACTION			
3	Prepare KYK-28/TSEC			
3A	Open KYK-28/TSEC Like A Book By Releasing Lock On Right Side With Data Plate Facing Up			
3B	Push 2 Locking Levers On Sides Of KYK-28/TSEC To Rear (Unlock) Position			
3C	Set Various Slides According To Extract Key List			
3D	Recheck Settings			
3E	Pull Locking Levers On Sides Forward To Lock Position			
3F	Close KYK-28/TSEC And Secure The Lock			

19		19.16.6		19
PREPARING TSEC/KY-38 WITH RADIO SET		P 6/6		
STEP	ACTION			
3G	Check Gate Mechanism By Forcing Gate Back To Expose Keying Pins			
4	Key TSEC/KY-38			
4A	Be Sure "OFF-PLAIN-CIPHER" Switch Is At "OFF"			
4B	Open Access Cover And Align 2 Guide Pins Of KYK-28/TSEC With Guide Pin Holes Of TSEC/KY-38			
4C	Press Firmly And Smoothly On KYK-28/TSEC Until It Bottoms Out On TSEC/KY-38			
4D	Remove KYK-28/TSEC And Secure Access Door Of TSEC KY-38			

19		19.17.1		19
OPERATING TSEC/KY-38 WITH RADIO SET		P 1/4		
STEP	ACTION			
1	Place System Into Operation			
2	Set Radio Switches And Controls			
2A	Set AM-2060(*)/GRC "POWER" Switch To "ON" And "SPKR" Switch To "OFF"			
2B	Set Distribution Box (J-2731/ GRC) Circuit Breaker To "ON"			
2C	Turn R-T Function Switch To "ON" Or "SQUELCH", As Authorized In Unit SOP			
2D	Refer To "CEOI" Extract And Set Operating Frequency Of Net			
2E	Set R-T "VOLUME" Control Fully Clockwise			

OPERATING TSEC/KY-38 WITH RADIO SET		P 2/4
STEP	ACTION	
3	Set Secure Equipment Switches And Controls	☒
3A	Set MT-3823(*)/GRC "ON-OFF" Switch To "ON"	
3B	Set AM-4979A/GR Power Switch To "ON"	
3C	Set TSEC/KY-38 Power Switch To "CIPHER" And "VOLUME" Control To Approximately Midrange	
3D	Set "DELAY" Switch To "IN"	
4	Operate Secure System	
4A	Press Push-To-Talk Switch On Handset	

19

19.17.2

19

OPERATING TSEC/KY-38 WITH RADIO SET		P 3/4
STEP	ACTION	
4B	Do You Hear A Multitone Signal Followed By A Final Beep Tone, Then No Tone? If YES, Go To STEP 6. If NO, Go To STEP 5.	☒
5	System Failure Exists	
5A	Zeroize TSEC/KY-38 Using "ZEROIZE" Lever	
5B	Re-Key Using KYK-28/TSEC	
6	Adjust System Volume Controls	
6A	For "CIPHER" Operation, Adjust "VOLUME" Control On The TSEC/KY-38	
6B	For "PLAIN" Operation, Adjust "VOLUME" Control On R-T	

19

19.17.3

19

P 4/4

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STEP	ACTION	
7	Set "DELAY" Switch To "OUT"	
8	Press Push-To-Talk Switch On Handset	
9	Begin Secure Transmission And Reception	
10	Zeroize KYK-28/TSEC	
10A	Unlock And Open KYK-28/TSEC	
10B	Push 2 Locking Levers To Rear	
10C	Move All Slides To The "ZEROIZE" Position	
10D	Pull Locking Levers Forward	
10E	Close And Lock KYK-28/TSEC	

19	19.17.4	19
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19.17.5

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NOTES

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20		20.1.1		20
PRINCIPLES OF THE LAW OF WAR			P 1/6	
ITEM	PRINCIPLE			
1	Weapons And Ammo		✓	
1A	All US/NATO Issued Weapons And Ammo Are Lawful			
1B	Do Not Alter Weapons/Ammo			
2	Tactics			
2A	Do NOT Fake Surrender, Use En Marked Vehicles/Uniforms, Or Boobytrap Dead Or Wounded Personnel			
2B	Only Use Medical Symbols For Medical Activities			
3	Attack ONLY Combat Targets			
3A	Only Use Firepower Your Mission Requires			

20		20.1.2		20
PRINCIPLES OF THE LAW OF WAR			P 2/6	
ITEM	PRINCIPLE			
3B	Avoid Needless Destruction		✓	
4	These Are NOT Combat Targets			
4A	Civilians/Soldiers Who Give Up, You Capture, Or Are Sick And Wounded			
4B	Medical Personnel, Vehicles, And Facilities			
4C	Undefended Civilian Buildings			
4D	Historical Monuments			
4E	Hospitals			
5	Protected Property Marking			
5A	Red Cross/Crescent/Lion/Star Of David On White Backing			

20		20.1.3		20
PRINCIPLES OF THE LAW OF WAR			P 3/6	
ITEM	PRINCIPLE			
5B	Blue And White Shield In Europe			
6	Treat Captives, Civilians, And Property On Battlefield According To Law Of War			
7	Allow En Soldiers To Give Up			
8	Treat All Captives As PW			
8A	Protect From Violence, Sexual Abuse, And Intimidation			
8B	Provide Food, Water, Shelter, And Medical Treatment			
8C	Safeguard From Dangers Of Combat			
8D	Evacuate ASAP			

20		20.1.4		20
PRINCIPLES OF THE LAW OF WAR			P 4/6	
ITEM	PRINCIPLE			
8E	Do NOT Use To Clear Or Plant Mines/Boobytraps, As Shield/ Screen, Or As Hostages			
9	Treat All Civilians Humanely			
9A	Do NOT Use Physical Force/ Mental Confusion			
9B	Protect Women From Forced Prostitution/Rape/Sexual Assault			
9C	Prohibit Collective Punishment/ Reprisals/Taking Hostages			
10	Property On Battlefield			
10A	Tag And Turn In All En Military Property To Chain Of Command For Evacuation			

20		20.1.5		20
PRINCIPLES OF THE LAW OF WAR		P 5/6		
ITEM	PRINCIPLE			
10B	Do NOT Seize, Steal, Or Loot Civilian/PW Needed Military Equipment Or Personal Property			
11	Identify Violations Of Law Of War Or Illegal Orders			
12	Report All Violations By Friendly Or Enemy Troops			
13	Violations Of Law Of War Are Criminal Acts Under UCMJ			
14	If You Believe Law Of War Is Being Violated, Do Your Best To Stop It			
14A	State You Disagree With Act			
14B	Use Moral Judgments			

20		20.1.6		20
PRINCIPLES OF THE LAW OF WAR		P 6/6		
ITEM	PRINCIPLE			
14C	Clarify Unclear Orders			
14D	Threaten To Report The Act			
14E	Ask Senior Soldier To Stop Act			
14F	Refuse To Obey An Order To Commit A Criminal Act			
15	If Act Is Done Or Order Not Withdrawn			
15A	Report Act/Order Thru Chain Of Command Immediately			
15B	If Chain Of Command Does Not Respond, Report It To IG, PM, Chaplain, Or JAG			
16	Report All War Crimes No Matter WHO COMMITS THEM			

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20.2.1

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HANDLING CAPTURED DOCUMENTS/EQUIP		P 1/2
ITEM	ACTION	
1	DOCUMENTS	✓
1A	Official-Maps, Orders, Awards, Records, Passes, Leaves	
1B	Personal-Letters, Diaries, Pay Records	
2	EQUIPMENT-All Nonsurvival Items	
3	TAG OR MARK ALL ITEMS	
3A	Date And Time Of Capture	
3B	Place Of Capture	

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20.3.1

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HANDLING CAPTURED DOCUMENTS/EQUIP		P 2/2
ITEM	ACTION	
3C	Capturing Unit	
3D	Circumstances Of Capture	

NOTE: EVACUATE ALL ITEMS WITH, BUT KEEP SEPARATE FROM, PW. THE INTEL TEAMS MUST BE ABLE TO LINK THE ITEM(S) WITH THE SPECIFIC PW THAT HAD THEM IN HIS/HER POSSESSION!

HANDLING PRISONERS OF WAR		
ITEM	ACTION	✓
1	SEARCH	
1A	Remove All Weapons	
1B	Remove All Documents	
1C	Return Personal Items	
1D	Leave Helmet/NBC Gear	
2	SEGREGATE	
2A	Break Chain Of Command	
2B	Separate By Rank/Sex	
2C	Separate Military/Civilians	
3	SILENCE-Do Not Allow Talking	
4	SPEED-PW From Battle Area	
5	SAFEGUARD	
5A	Prevent Escape	
5B	Prevent Harm	

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21		21.1.1		21
SUPPLIES AND LOGISTICAL SERVICES			P 1/3	
ITEM	PRINCIPLE			
1	Pit Logistics Includes Supply/Transportation Maintenance			✓
2	Chain Of Command Must Be Concerned With Supply Status And Equipment For Fighting			
3	Pit Logistics Requires			
3A	Short-Term Plans To Accomplish Present Mission			
3B	Long-Term Plans To Insure Continuous Operation Of Pit			
4	Co XO Directs Co Logistical Services			
5	Squad Leader Coordinates/Supervises Squad Logistics			

21		21.1.2		21
SUPPLIES AND LOGISTICAL SERVICES			P 2/3	
ITEM	PRINCIPLE			
6	PSG Coordinates/Supervises Pit Logistics By			✓
6A	Getting Requests For Supplies/Equipment From Squad And Pit Leaders			
6B	Reviewing And Consolidating Requests			
6C	Giving Consolidated List To Co XO Or Supply Sergeant			
7	PSG Must			
7A	Maintain Status Of Supplies And Equipment in Pit			
7B	Monitor Status Of Requests Given To XO And Supply Sergeant			

SUPPLIES AND LOGISTICAL SERVICES			P 3/3
ITEM	PRINCIPLE		
7C	Routinely Report Status Of Plt Supplies And Equipment To Plt Leader		
8	Squad Leader Is Responsible For Maintenance Of Squad Equipment		
9	PSC Coordinates/Supervises Plt Maintenance With XO		
10	When Equipment Needs Repair		
10A	Turn Commo Equipment Into Commo Chief		
10B	Turn Weapons Into Co Armorer		
10C	Turn Any Other Equipment Into Co Supply Sergeant		

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21.1.3

21

PRE-COMBAT CHECKS			P 1/2
ITEM	ACTION		
1	Complete Prepare-To-Fire Checks (ATGM, Cannon, MG, SAW, Etc)		
2	Complete Before Operations PMCS And Resolve Problems		
3	Load Vehicles/Rucksacks Per Loading Plans		
4	Clean And Function Check Individual And Crew-Served Weapons		
5	"Top-Off" All Vehicles With Class III		
6	Properly Stow Basic Load Of Classes I and V		
7	Fill Canteens; Water And Oil Cans (If Applicable)		

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21.2.1

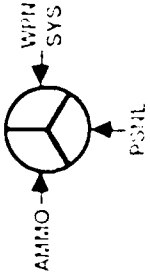
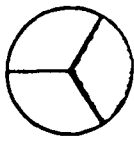
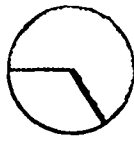
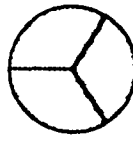
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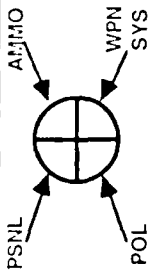
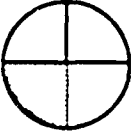
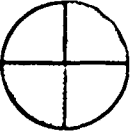
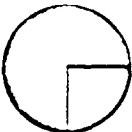
PRE-COMBAT CHECKS			P 2/2
ITEM	ACTION		
8	Index Battlesights		✓
9	Set Radios On Frequency		
10	Check Radios' Operation (Only When Authorized)		
11	Set Speech Security Equipment		
12	Check Speech Security Equipment Operation (Only When Authorized)		
13	Check Unit For Proper Uniform		
14	Brief Unit On Mission		
15	Other:		
16	Other:		

21

21.2.2

21

21	21.3.1	21
COMBAT EFFECTIVENESS		
GRAPHICS		
CDR'S RATING TO PERFORM MISSION	EFFECTIVENESS GRAPHIC	
"NO PROBLEM"		
"SOME DIFFICULTY" (In Psnl)		
"MAJOR PROBLEMS" (In Psnl And Wpn Sys)		
"CAN NOT" (In Psnl, Ammo, And Wpn Sys)		

SELECTED INFORMATION GRAPHICS		21
CDR'S RATING TO PERFORM MISSION	SELECTED INFORMATION GRAPHIC	21.4.1
"NO PROBLEM"		21
"SOME DIFFICULTY" (In Psnl)		
"MAJOR PROBLEMS" (In Psnl And W/pn Sys)		
"CANNOT" (In Psnl, Ammo, And W/pn Sys)		

CLASSES OF SUPPLY AND MAP SYMBOLS		P 1/2	21
CLASS	DESCRIPTION	SYMBOL	21.5.1
I	Substance		
II	Clothing, Individual Equip, Tentage, Org Tool Sets		
III	POL		
IV	Construction		
V	Ammunition		
VI	Personal Demand		
VII	Major End Items		

CLASSES OF SUPPLY AND MAP SYMBOLS			p. 2
CLASS	DESCRIPTION	SYMBOL	
VIII	Medical Materiel		
IX	Repair Parts		
X	Materiel To Support Nonmilitary Programs		
	All Classes Of Supply		
	Multiple Classes Of Supply, But Not All		II, IV, VII
Notes:			

21

21.5.2

21

COLLECTING POINTS AND OTHER SYMBOLS			p. 3
DESCRIPTION	SYMBOL		
Cannibalization			
Civilian			
Decontamination Station (Place personnel (PERS) or equipment (EQUIP) or both below symbol)			
Maintenance			
Prisoners Of War			
Salvage			
Stragglers			

21

21.1.1

21

[illegible][illegible]