

Guide for

Avenger/Stinger

Platoons/Squads/Sections and Teams

Not an official document.

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Battle Roster

Platoon Leader
Driver

Platoon Sergeant
Driver

1st Squad/Section

2nd Squad/Section

Section/ Squad
Leader
Gunner/Driver

Section/ Squad
Leader
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

Team Chief
Gunner/Driver

5 Ton Driver
Ammo Handler

General Information

Miscellaneous Weapon Data

Weapon	Max Effective range	
M16A2	580 meters (point)	800 meters (area)
M9	50 meters	N/A
M136 (AT-4)	300 meters	N/A
M203	150 meters (point)	350 meters (area)
M249 (SAW)	1000 meters (area)	

Avenger M3P .50 Caliber Machinegun Capabilities

Max Range	6,500 meters
Max Effective Range	1,850 meters

Stinger Technical Data

Max Effective Range	4,000 + meters
Weight (without Gripstock)	28.1 pounds
Length	56.6 inches
Backblast Clearance - Personnel	50 meters
Equipment	5 meters

M1097 Differences:

The M1097 is the Heavy variant of the M998 series family. The M1097 is equipped with a 200 amp alternator with an umbilical cable to power equipment. Due to the added weight of the Avenger weapon system it also has a reinforced frame, cross members, lifting shackles, heavy-duty rear springs, heavy duty tires and rims, and a transfer case with a modified gear ratio.

Performance

Maximum grade	60% (31)
Side slope	40% (22)
Fording depth	30 inches

Fluid Capacities And Types

M998/M-1097	Capacities	Type
Cooling systems	26 qt	Anti-freeze water mix
Crankcase	7 qt	Grade 15/40 (normal conditions)
Differential	2 qt	GO 80/90
Transmission	6 qt	DEXRON II
Transfer case	3.5 qt	DEXRON II
Steering system w/cooler	1.25 qt	DEXRON II
Brake system	1.63 pt	Brake fluid, Silicone BFS
Fuel Capacity	25 gal	JP-8 (diesel)

Fuel consumption

Avenger	Static defense	All others (mobile)
Fuel Burn rate (24 hour cycle)	15 gal (approximately)	30 gal/275 miles/560 kilometers (approximately)

OPORDER

Classification: _____

OPERATION PLAN/ORDER

References: _____

Time Zone Used Throughout the OPLAN/OPORD: _____

Task Organization					
Team/Section etc.	TF/Unit	Location	CMD SPT Relationship	Effective Time	Maintenance SPT?

1. Situation

Enemy forces

(Identification, location, activity, strength, level of training, and suspected enemy tactics).

- Enemy Ground Forces

	Location	Confirmed?	
	vic	Yes	No

OPORDER (cont)

Friendly Forces (Identification, location).

- Friendly Ground Forces

- Friendly ADA Forces

- Terrain information

Light Data				
Day	BMNT	EENT	Moonrise and moonset times.	Percent illumination

Weather for the next 24 hours or period of OPORD			
Precipitation	Wind	Visibility	Temperature
Additional Information			

2. Mission

OPORDER (cont)

- Command and Support Relationship
-
-

3. Execution

- CDR's/PLT LDR's Intent
-
-

- Supported unit CDR's intent (if applicable)
-
-

- Concept of operation
-
-
-
-
-

- Scheme of maneuver relevant to the supported force.
-
-
-

- Actions on the Objective
-
-
-

Actions on Contact:

- Visual:
-

- Direct Fire:
-

- Red Air:
-

- Indirect Fire:
-

OPORDER (cont)

- NBC:

- Electronic:

- Mine Field:

Fire Support TRPs, Target List

Enemy Obstacles			
Type FASCAM, Wire etc.	Location	Confirmed?	Notes:
	vic		

Friendly Obstacles			
Type FASCAM, Wire etc.	Location	Effective times, closure time(s)	Notes:
	vic		

Additional Information

- Coordinates of priority asset, if applicable.

OPORDER (cont)

- Coordinating instructions.

Platoon Time-Line (Rehearsals, LDR's Recon etc.)		
Task	Time	Location (grids)
Additional Information		

Weapon Control Status (WCS)			
Airframe	WCS	Effective Time(s) if applicable	
		Start	End
RW			
FW			
CM			
UAV			
Additional Information			

OPORDER (cont)

Current Air Defense Warning (ADW): _____ as of: _____

Current Local Air Defense Warning (LADW): _____ as of: _____

Platoon WAD:							
Team States of Readiness							
Team	SOR	Effective Time		Team	SOR	Effective Time	
		From	To			From	To
1				6			
2				7			
3				8			
4				9			
5				10			
Additional Information							

Crew Endurance Plan

Rally Points And Actions At Rally Points		
	Coordinates	Actions
1	vic	
2	vic	
3	vic	
4	vic	

ROE

OPORDER (cont)

Hostile Criteria

4. Service and Support

Classes I, III, and water.

Class V, ASP Location Or Resupply Point And Resupply Plan.	
1	
2	
3	
4	
5	

Class V / Missile Resupply Plan

Maintenance; motors, ADA systems and communications (contact teams).

- Uniform and equipment.
-
-

- CAS EVAC plan and EPW handling.
-
-

OPORDER (cont)

Casualty Evacuation Information			
	Coordinates	Effective Time	Type (AXP, CCPs etc, and other notes)
1	vic		
2	vic		
3	vic		
4	vic		
5	vic		
6	vic		

5. Command and Signal

Command

Chain of command and locations

Locations of Headquarters CPs and Alternate CPs (Battalion, Battery, Platoon, and Supported Unit Headquarters)			
Unit	Freq	Location	Notes
		vic	
Supported Unit(s)			
		vic	

OPORDER (cont)

Challenge And Password, Signals And Code Words				
	Sign	Countersign	DEW Frequency	
Day 1			Day 1	
Day 2			Day 2	
Day 3			Day 3	
Day 4			Day 4	

FAAD Information			
Radar Locations			
	Initial Location and time	Follow-On Location and time	Follow-On Location and time
Sentinal 1	vic	vic	vic
Sentinal 2	vic	vic	vic
Sentinal 3	vic	vic	vic
Additional Information			

Specific HTU settings				
	Selected	Default Value	Azimuth Orientation Accuracy <small>(30 mils HTU Default)</small>	
			Selected	Default
Alert Threshold	KM	20.0-25.0 KM		
Cue Minimum	KM	10.0 KM	mils	60 mils
Cue Maximum	KM	01.0 KM	ID Authority?	

Additional FAAD Information			
Team	FAAD ID	Unit ID	Additional Information
1 st Sec Sgt			
TM 1			
TM 2			
TM 3			
TM 4			
TM 5			
2 nd Sec Sgt			
TM 6			
TM 7			
TM 8			
TM 9			
TM 10			

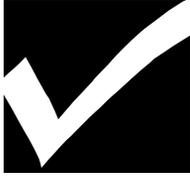
OPORDER (cont)

Team	FAAD ID	Unit ID	Additional Information
PLT LDR			
PLT SGT			
Btry			
Additional Notes			

Sector Sketch (label grid lines)

A large grid for sketching a sector, consisting of 12 columns and 12 rows of squares. The grid is used for drawing and labeling a sector.

Precombat checks



Individual Soldier Readiness

1. **TA-50 inventory**
2. **Weapon cleaned and zeroed**
3. **Received briefings on:**
 - a. Safety
 - b. Cold and hot weather injuries
 - c. Mission
4. **LCE complete w/magazines**
5. **Protective mask w/M291 kits**
6. **Flashlights w/batteries**
7. **ID cards**
8. **ID tags**
9. **SF 46**

Equipment Readiness

1. **Pubs for equipment**
2. **Logbooks and dispatches**
3. **Wheeled vehicles:**
 - a. Oil levels
 - b. Coolant -20
 - c. Battery fluid levels and terminals
 - d. Air filter in place
4. **General**
 - a. Package products
 - b. Fuel filters drained
 - c. Check for oil leaks
 - d. Fire extinguishers
 - e. Tire pressure and serviceability
 - f. All lights operational
 - g. All gauges operational
 - h. Air filters clean
5. **NBC**
 - a. VDR-2
 - b. IM-93
 - c. M-8 alarm system
 - d. M-8 paper
 - e. M-9 paper on vehicles and MOPP suits
 - f. DECON unit
 - g. NBC suit (complete)

6. Other

- a. BII present and serviceable
- b. First aid kit (complete)
- c. Water cans filled
- d. Fuel cans filled

7. Communications equipment

- a. Radios operational
- b. All connections clean and serviceable
- c. Grounding straps secure
- d. Antennas complete
- e. PLGR batteries (BA-5800U)
- f. TA-312 w/batteries
- g. RL-39's and SINCGARS RCU
- h. Radios filled with COMSEC

System Equipment

1. Fire control system

- a. Firing circuits operational*
- b. Optics clean and operational
 - (1) Gunner sights (combining glass)*
 - (2) Binoculars
 - (3) NVGs
 - (4) FLIR*
 - (5) LRF*
 - (6) SVML*
 - (7) Compass

2. Weapons

- a. Machine gun accessory bag*
- b. M3P/.50 cal headspace and timed*
- c. Individual weapons cleaning kits on-hand
- d. Argon at max PSI in both SVMLs

Operational Readiness

1. Platoon alert roster

2. Squad leaders ensure :

- a. Vehicles loaded per load plan
- b. Vehicles dispatched
- c. Current PMCS on hand
- d. SOIs current and have dummy cord
- e. Vehicles topped off
- f. Maps on hand
- g. Compasses on hand
- h. Squad briefed on operations
- i. Alcohol pens and alcohol

*Avenger peculiar items

Supply and Reference Listing

Miscellaneous Supplies
Flashlight
Chemlites, blue
Chemlites, red
Chemlites, IR
Chemlites, green
Engineer tape
100 mph tape
550 cord
Toilet paper
Foot powder
Insect repellent
Trash bags
Notebooks
Protractors
Permanent markers (blue)
Permanent markers (assorted)
Non-permanent markers (blue)
Non-permanent markers (assorted)
Pens
Alcohol
White paper towels
Combat acetate
Acetate
NVG batteries
PLGR batteries
BA 3030s "D" batteries
C batteries
AA batteries
AAA batteries
Hub batteries
M-8 Alarm batteries
NBC
M9 paper
M8 paper
M256 kits
DAP 13 filled

Doctrinal and Technical References	Avenger	MANPADS
Technical Manuals		
TM 9-1425-429-12 (Stinger)	X	X
TM 9-2320-280-10 (M998)	X	X
TM 9-1425-433-10 (Avenger)	X	
TM 3-6665-312-12&P (M8 Alarm)	X	X
TM 11-6665-251-10 (AN/VDR-2)	X	X
NVG -10	X	X
M16 -10	X	X
M9 -10	X	X
ARTEP Manuals		
ARTEP 44-117-11-MTP (MANPADS)		X
ARTEP 44-117-22-MTP (Avenger)	X	
ARTEP 44-117-11-Drill (MANPADS)		X
ARTEP 44-117-21-Drill (Avenger)	X	
Common Task Manuals	X	X
STP 21-1-SMCT (Skill level 1)	X	X
STP 21-24-SMCT (Skill level 2-4)		
Field Manuals		
FM 44-44	X	
FM 44-18-1		X
FM 44-80	X	X
FM 21-11 (First Aid)	X	X
1156 Casualty Feeder Reports	X	X
1155 Witness Statements	X	X

Occupying the Position

How you occupy the position depends on the tactical situation at that time, some of the questions you must answer to effectively deploy to position are:

- Enemy activity.
- What is the mission time?
- Terrain.
- Is the enemy conducting NBC operations?
- What are the WCS, ADW, and LADW.
- Summary: METT-T

Occupying in a possible NBC environment

If there has been NBC used in your area of operation or if it is unknown, every precaution should be taken when moving to the new location. Common sense must be used. Do not assume MOPP 4 200-300 meters from your new location, the only known clean area is the location you departed from, therefore MOPP 4 should in most cases be assumed at the start point.

Review the following:

- a. Move in MOPP 4.
- b. *Once at the location check equipment and the area using known techniques (*CAM, M256, M-9/M-8 paper*).
- c. If area is clean unmask and continue with the priorities of work.
- d. If location has chemical contaminates request to move to a new location.
- e. If personnel are contaminated, move and do an Immediate DECON. Contact higher for further instructions.

***NOTE:**

If the ADW is **RED**, mission takes priority, occupy the position and become mission ready immediately. Once you have met the mission requirement move on with checking yourself and equipment for contamination.

Priorities of Work and March Order

Priorities of work (*Deliberate Emplacement*)

The following is a guide, all attempts should be made to adhere to the sequence listed. Understandably certain situations may dictate different (METT-T). **The SHTU/HTU will be monitored at all times (no exceptions) it is up to the team to develop a plan. If in a dug-in position or at the MANPADS firing position it will be on-hand. Avengers will have it at the deliberate and hasty configuration.**

1. Establish local security
2. Emplace the weapon system
3. Ensure good communications with higher, lower, and supported units
4. Report ready for action to the Plt Ldr or supported unit
5. Send closure reports (sensitive items, etc.)
6. If in MOPP 4 insure area is free of chemical hazards, unmask and continue the mission
7. *Camouflage using natural and man made materials (nets) to include remote site
8. *Emplace M-8 alarm system (within 15 minutes)
9. Select and send grid of the ALTERNATE (Supplementary is optional) position to the Plt Ldr
10. Identify ground avenues of approach
11. Ensure squad map has the appropriate information (see page 22)
12. Prepare range card for the .50 Cal/M3P or SAW
13. Continue to improve positions (fighting positions)

NOTE:

Steps 6 & 7 may be interchanged IAW the threat. Remember it is unlikely that an enemy would target a single FU/team with NBC weapons, In most cases avoiding visual detection by aircraft and ground observers will have priority over protecting against an NBC attack.

AD Position Equipment

There is equipment that must be used to Detect, Acquire, Identify, Engage and Destroy aircraft. This does not include additional survivability equipment or position improvement.

The equipment listed below is essential to the completion of the AD mission and will be at the MANPADS position or the Avenger position.

Avenger

Equipment	Purpose
1. SHTU/HTU	EW/messaging
2. Map	EW Plot/estimate A/C range
3. Binoculars	Identify A/C
4. Compass	PTL
5. SINGGARS MANPACK	EW/supported unit

MANPADS

Equipment	Purpose
1. Two Weapon rounds	Engage A/C
2. SHTU/HTU	EW/messaging
3. IFF	Identify A/C
4. GRA-39/SINGGARS RCU	EW/supported unit
5. SINGGARS MANPACK	EW/supported unit
6. Map	EW/estimate A/C range
7. Binoculars	Identify A/C
8. Compass	PTL

How Receiving a Change of Mission Will Effect Equipment

Upon receiving the command of:

Prepare to march order:

- Pack nets.
- Restore RCU to the storage position.
- If an NBC threat is present, M-8 alarm will remain deployed.
- Maintain mission capability from the hasty configuration.
- Install bustle box (Avenger).

March order:

- Pack-up M-8 alarm if applicable.
- Restore SHTU/HTU to storage position
- Report status of sensitive items.
- Move to new location or mission.

Squad/Team Map Layout

Squad Map

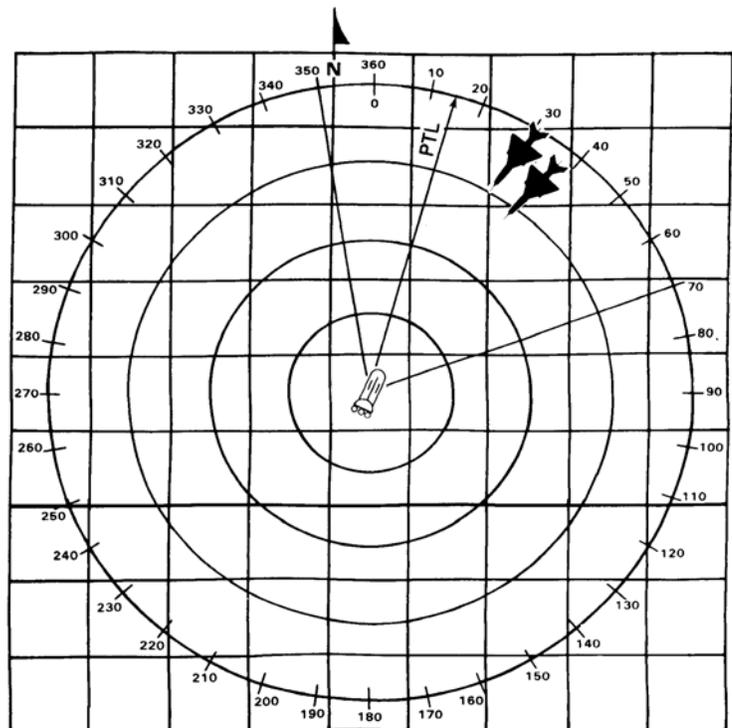
The following is mandatory for

- Current position
- PTL
- L/R limits
- 4-5 km range ring or fan connecting left and right limits (or IAW other unit SOPs)
- *Alternate position
- Supplementary position
- Operational graphics
- Defended asset
- Information from the IPB
- Adjacent teams/FUs, and L/R limits
- Platoon CP
- ADA radar (if known)
- Areas of NBC contamination

NOTE:

The alternate position is 200 to 300m from primary position

NOTE:
Figure shows PTL, left and right limits



Rules of Engagement Definition

Rules of Engagement (ROE)

ROE specifies the circumstances and limitations under which you can fire at an aircraft. These rules include hostile criteria, WCS, and autonomous operations.

Hostile Criteria

The following gives an **EXAMPLE** of what could be expected when receiving hostile criteria information in a operations order.

ALSO: UNDERSTAND DROPPING OF FLARES DOES NOT AUTOMATICALLY CONSTITUTE A HOSTILE ACT!

Hostile criteria are means by which an aircraft is identified or designated hostile. Before identifying a target as hostile, the squad must understand what the hostile criteria are. The criteria in use will vary with the tactical situation. A partial list of hostile criteria follows:

- Aircraft altitude
- Aircraft speed
- Heading
- Flight size
- Improper IFF response (see IFF response illustration)

Additional hostile criteria that the squad must understand is as follows:

- Attacking friendly elements. Identify aircraft actively attacking FU or friendly troop areas or installations as hostile. Exercise care in applying this criteria to avoid engaging friendly aircraft on a mission to strike targets close to the defended asset(s).
- Performing unfriendly acts. This includes aircraft performing any of the following acts over friendly troops or territory without prior coordination:
 - ◇ Discharging smoke or spray
 - ◇ Engaging in mine-laying operations
 - ◇ Discharging parachutists or unloading equipment

- Using ECM devices. Threat aircraft releasing ECM such as chaff, reflectors, sensors, or other devices are considered hostile.
- Unauthorized or improper entry. This criteria refers to unauthorized or improper entry into an area designated as restricted or prohibited. Exercise care in applying this criterion to prevent identifying friendly aircraft as hostile. Friendly aircraft that violate this criteria have malfunctions or battle damage.
- Operating at prohibited speeds, altitudes, or directions. Determination of aircraft speeds and altitude by ground observers is difficult. Exercise extreme care in applying this criterion.
- Military marking and configuration.
- Commanders may allow use of FLIR for target identification. The FLIR is essential for aircraft engagement procedures at night.

REMEMBER,

This is a definition of ROE and hostile criteria. The ROE and hostile criteria will be defined in the OPORD!

AD Control Measures and Definitions (cont)

Procedural Control Measures

These measures must be defined and passed to all supported units.

Air Defense Warning (ADW)

Red: Attack immanent or in progress

Yellow: Attack is probable.

White: Attack is improbable.

Weapon Control Status (WCS)

Tight: Fire at anything positively identified as hostile.

Hold: Fire in self defense only.

Free: Fire at anything not positively identified as friendly.

Local Air Defense Warnings (LADW)

Dynamite- Attack is in progress. Enemy aircraft/missiles are **within 50 km** of the boundaries of a unit AO or upon identification of predicted impact point for tactical ballistic missiles within the boundaries of a unit's AO.

Lookout- Attack possible based on location and flight profile of a detected air platform. Enemy aircraft and/or missiles are **within 100 km** of the boundaries of a unit AO or ballistic missile launch is detected.

Snowman- Attack is not likely. Enemy aircraft and/or missiles are **more than 100 km** from the boundaries of a unit AO and no tactical ballistic missile launch are detected.

States of Readiness

SOR		HTU
SOR 1-	The team is prepared to engage targets.	BSTA
SOR 2-	The team is capable of engaging targets within 5 minutes.	STBY
SOR 3-	The team is capable of engaging targets within 15 minutes.	
SOR 4-	The team is capable of engaging targets within 30 minutes.	MAINT
SOR 5-	The team is capable of engaging targets within 1 hour or more.	RLD

AD Control Measures and Definitions (cont)

Fire control Orders

Fire control orders are commands used to control engagements on an individual basis regardless of the prevailing WCS. The leader initiates orders for fire control purposes and for ensuring safety.

Fire control orders are-

Cease Fire-	Gunner does not fire-continues to track
Hold Fire-	Gunner ceases all tactical action, to include tracking (resume search of assigned sector)
Engage-	Gunner Fires
Cease Engagement-	Gunner changes an ongoing engagement from one target to another of higher priority. This order accompanies direction to engage new target

Autonomous Operations:

Autonomous operations are conducted when you lose communications with higher echelons. The ROE will define specific actions and procedures to follow for autonomous operations. Actions that are taken are similar to the following if, at anytime of the communications loss, the stated WCS is in effect. They are>

WEAPONS FREE: If a time limit was established, the same rule applies as in WEAPONS HOLD.
If no time limit was established, you will immediately revert to WEAPONS TIGHT.

WEAPONS TIGHT: You will remain in WEAPONS TIGHT.

WEAPONS HOLD: If a time limit was placed on the WEAPONS HOLD restriction, you will maintain WEAPONS HOLD for this time limit and then revert to WEAPONS TIGHT.

If no time limit was established, you will maintain WEAPONS HOLD for 30 minutes and then revert to WEAPONS TIGHT.

SHORAD Employment

AD EMPLOYMENT PRINCIPALS

There are **four** principals which commanders apply when planing active air defense operations.

Mass

Concentration of AD combat power

Mix

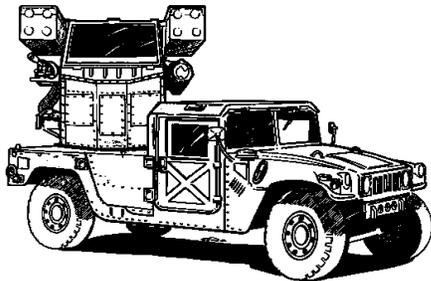
Employment of a combination of weapon and sensor systems to protect the force

Mobility

Capability to move from place to place while retaining the ability to perform the AD mission

Integration

Close coordination of effort and unity of action, which maximizes operational effectiveness



EMPLOYMENT GUIDELINES

Six employment guidelines apply when planning and positioning ADA resources. Which guidelines apply to a given situation depend on METT-T

Mutual Support

One weapon can engage targets in dead zone of adjacent weapon
Avenger 3000 meters /Stinger 2000 meters

Overlapping Fires

Engagement envelopes of both weapons overlap (Avenger/Stinger 4,000 meters)

Balanced Fires

Weapons positioned to provide equal volumes of fires in all directions

Weighted Coverage

Concentrate fires on most likely enemy avenues of approach

Early Engagement

Position weapons and sensors so they engage before ordnance release

Defense in Depth

Position weapons so threat comes under increasing volume of fire

Considerations For AD Priorities

ADA commander develops and recommends air defense priorities to the supported commander. Considers METT-T, IPB, and the supported commander's intent.

- **Criticality-** The degree that an asset or force is essential to mission accomplishment.
- **Vulnerability-** The degree to which an asset or force is susceptible to surveillance and attack or to damage if attacked.
- **Recuperability-** The degree to which an asset or force can recover from inflicted damage to continue its mission.
- **Threat-** The probability an asset or force will be targeted by enemy air.

Support & Command Relationships

Support Relationships:

The four support relationships are direct support (DS), general support (GS), reinforcing (R), and general support reinforcing (GSR). Support relationships alone may not be sufficient enough to ensure properly resourced and maintained units. Prior coordination between commanders and supported unit staffs is necessary to ensure subordinate units can operate independent of the parent unit when necessary.

Direct Support

An ADA unit with a DS mission provides dedicated air defense for a specific element of the force which has no organic air defense. An ADA unit with a DS mission provides close and continuous support and coordinates its movement and positioning with the element it supports. Because of the limited availability of organic support vehicles to the ADA unit, logistical support must be coordinated through the supported unit.

General Support

An ADA unit with a GS mission provides air defense for the force as a whole. It is not committed to any specific element of the force. This is the case when an ADA unit defends priority assets as specified by the force commander. The GS ADA unit remains under the close control of the ADA battalion commander. An ADA unit with a GS mission can rapidly respond to changes in either the scheme of maneuver or the air threat. This relationship is commonly used when the ADA unit is to protect corps- or division-level control and support elements in brigade, division and corps rear areas.

Reinforcing

An ADA unit with an R mission augments the coverage of another ADA unit or strengthens the air defense of the force. This mission differs from GS-R in that an ADA unit assigned this mission is positioned to protect one or more of the reinforced unit's priorities as specified by the supported unit commander.

General Support-Reinforcing

An ADA unit with a GS-R mission augments the coverage of another ADA unit. GS-R units are not committed to any specific element of the force. A GS-R mission could be assigned to a corps ADA unit to provide additional air defense for a division, which has its own organic ADA battalion.

Support & Command Relationships (cont)

Command Relationships:

Organic

A unit is organic when it forms an integral part of a larger Army unit and is listed in that unit's TOE.

Assigned

Those units placed in an organization on a permanent basis. Assigned units are controlled and administered by the organization to which they are assigned.

Attached

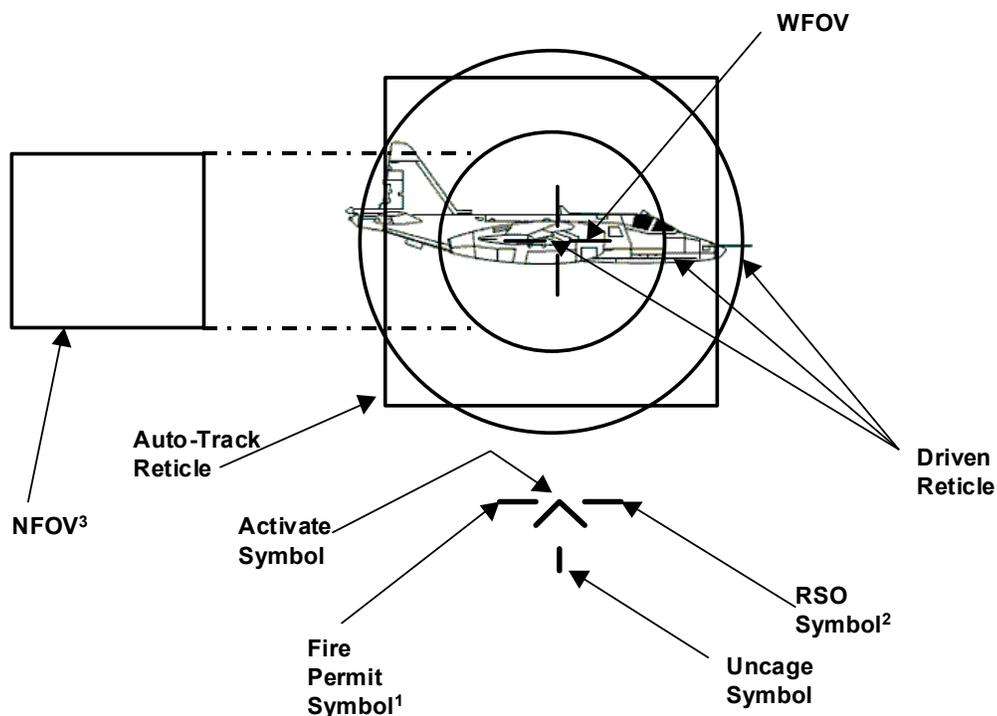
Attachment places a unit in an organization on a temporary basis. When an ADA unit is attached, the supported force provides administrative and logistical support to the attached ADA unit.

Operational Control (OPCON)

Is a relationship in which a unit is provided to the commander of another unit to accomplish a specific missions or tasks which are usually limited by function, time, or location. Should only be maintained for brief periods of time. Should never be assigned when the parent unit has the ability to exercise effective control. OPCON does not itself include administrative or logistical control. Control of administrative and logistical support must be specified in the order for OPCON.

Task Organization

A temporary grouping of forces designed to accomplish a particular mission. Task Organization involves the distribution of available assets to subordinate control headquarters by attachment or by placing assets in direct support or under the operational control of the subordinate.



Support & Command Relationships (cont)

ADA Support Relationship Table (ref. FM 44-44)				
	Direct Support	General Support	Reinforcing	General Support Reinforcing
Who establishes ADA priorities?	The supported commander.	The ADA commander assigning the support relationship based on the supported commander's priorities.	The supported commander through the reinforced ADA commander.	(1) The supported unit commander. (2) The supported commander through the reinforced ADA commander.
Who positions ADA fire units?	ADA fire unit commanders with approval from the ground commander.	ADA fire unit commanders in coordination with the local ground commander.	ADA fire unit commanders with the approval of the reinforced ADA commander and local ground commander.	The fire unit commanders in coordination with the local ground commander and reinforced ADA commander.
Who coordinates terrain on which ADA units will position fire units?	The DS ADA commander (approved by the supported unit commander).	The commander assigning the support relationship.	The reinforced ADA commander with the supported commander.	The commander assigning the mission with the supported the supported commander and the reinforced ADA commander.
With whom should liaison be established?	Supported unit.	Supported unit.	With supported unit including reinforced ADA commander.	With supported unit including reinforced ADA commander.
With whom should communications be established?	Supported unit.	Supported unit.	With supported unit including reinforced ADA commander	With supported unit including reinforced ADA commander.
Note: 1. The term "position(s)" specifies the selection of the exact placement of the individual fire units within the operating area. 2. A unit supporting another unit is responsible for establishing communications with the supported unit.				

Supported Unit Coordination

Staff Coordination

It is imperative that the platoon leader coordinate with the protected unit's staff throughout the planning process. Examples of information coordinated with the unit are listed below in the following text and the ADA Platoon Leader Responsibilities table.

Commander

The platoon leader provides the commander with their status of air defense combat power. The platoon leader must understand the commander's intent, the amount of risk they are willing to accept, guidance, and the commander's concept of the operation. The commander will determine priorities, based on the platoon leader's recommendation. The commander is the final approval authority for the ADA plan.

S1 Section

The platoon leader will give the S1 a battle roster of authorized and on-hand personnel by military occupational specialty (MOS) and grade. When assigned an AD mission to protect another unit the PLT LDR and PSG must coordinate and establish an evacuation plan to integrate platoon casualty evacuation into the protected unit's plan.

S2 Section

The platoon leader assists the unit's S2 in the development of the IPB and pays particular attention to enemy air avenues that can influence the protected unit's area of operations. Enemy air avenues and corresponding aerial named areas of interest (NAIs) must be depicted on the protected unit's intelligence overlay. The platoon leader seeks the commander's guidance, intent and concept of the operation.

S3 Section

The platoon leader recommends AD priorities to the commander and coordinates with the S3 for integration of teams into the protected unit's concept of operation/OPORD. During the planning process, the platoon leader will assist in developing any graphics required for the platoon's scheme of maneuver. The platoon leader must ensure that the platoon is provided a copy of the protected unit's final operational graphics with the OPORD. The platoon leader should also request an update of enemy activity, security, and possible minefields in the area. These graphics must be disseminated to the platoon sergeant and section chiefs for further distribution down to Stinger team level.

Supported Unit Coordination (cont)

S4 Section

While the platoon sergeant executes logistics for the platoon, the platoon leader must conduct initial coordination with the AD protected unit. The PSG will conduct additional coordination with the protected unit's S4 or support BN leader, as well as the ADA battery first sergeant. The platoon sergeant should be able to contact the support personnel on his ADMIN/LOG radio net. This will allow for conducting routine logistics functions and submit reports required by the unit's SOPs.

Engineer

Once the protected unit's engineer support priorities have been specified the platoon leader coordinates with the supporting engineer unit for integrated AD protection for combined arms breaching, river crossing, obstacle integration, survivability, along with Class IV and V supply points and mine dumps. For the platoon to receive engineer survivability support for the mission the platoon leader must coordinate directly with engineer support for specific team equipment locations and other requirements

Fire Support Officer

The platoon leader's coordination with the fire support officer (FSO) should include the following: type and location of targets and target reference points (TRPs), A²C² information, and current fire support information.

Air Liaison Officer

The air liaison officer (ALO) is a critical staff member with whom to coordinate with. The ALO can assist in the air portion of the IPB process by giving a pilot's perspective to possible air avenues of approach (AAAs). He is also key to A²C² synchronization. The Platoon Leader can reduce the risk of fratricide by coordinating with the ALO concerning the friendly air and ADA plan. The Platoon Leader should obtain a copy of the Airspace Control Order (ACO), Air Tasking Orders (ATO), and procedures for notification of Close Air Support (CAS) missions, from the ALO prior to deployment.

Nuclear, Biological, and Chemical Officer

The platoon leader must include decontamination sites, MOPP level, and emergency procedures for downwind message during platoon briefing. The platoon sergeant must ensure that each squad member has the necessary equipment to accomplish the mission.

Communications-Electronics Staff Officer

The platoon leader coordinates with the communications-electronics staff officer to ensure the platoon is given the current frequency and call signs, so that resupply, maintenance, and communications can be maintained at all times. See Platoon Leader Responsibilities Table.

Supported Unit Coordination (cont)

Staff Coordination Table

STAFF AGENCY	SUPPORTED UNIT DETERMINES....	ADA PLATOON LEADER ASSISTS AND COORDINATES WITH....
S1	Casualty Evacuation Plan	Providing Battle Roster Integrating Into Evacuation Plan
S2	Ground Operations Enemy Regiments Main Objective Enemy Follow-On Forces Enemy Artillery Locations Avenues of Approach	Input to Air IPB Input on Enemy Air Capabilities, Operations, and Objectives
S3	Intent Scheme of Maneuver Terrain Management Army Aviation Plan TOC/TAC LOC/Operations Mission Changes Dissemination of EW TF/TM Graphics Combined Arms AD Operations ADA Priorities Approval Passive Air Defense	ID Priorities Over Time A ² C ² PLAN With Other ADA assets Redundant EW Plan ADA Execution Matrix Command/Support Relationship ADA Force Allocation ADA Movement Plan Synchronization of ADA with Maneuver's Force Scheme of Maneuver Advice to Commander on Passive AD
S4	Combat/Field Train LOC MSRs/Movement Priorities LOGPAC/Plan Availability of Resources	ADA Logistical Plan Recovery ADA Peculiar Items
ENGR	Obstacle Plan Routes Survivability Priorities	Survivability Mobility Obstacle Plan
FSO	Fire Support Plan\FASCAM	Attack on Enemy FAAS/FACS FA Call for Fire/TRPs Input to Fire Support Plan
ALO		Type of Aerial Platforms IFF Codes Frequencies Area of Operations Time of Operations
NBCO	MOPP level Decontamination Sites Contaminated Areas Downwind Messages	
CESO	Frequencies/Call Signs Radio Maintenance Plan Sensor Connection	

Airspace Control Measures/Definitions

Air Defense Area

An aerial defense area is a specially defined airspace for which AD must be planned and provided.

Air Defense Identification Zone (ADIZ)

An ADIZ consists of airspace of defined dimensions that require ready identification, location, and control of airborne vehicles. This is normally the transition procedure that takes place between procedural control (outside) and positive control (inside) in an area of operations.

Air Defense Operations Area

An AD operations area is an area and the airspace above it within which procedures are established to minimize mutual interference between AD and other operations. It may include one or more AD action areas, ADIZs, or firepower umbrellas.

Weapons Free Zone (WFZ)

A WFZ is an AD zone established for the protection of key assets where weapons systems may be fired at any target not positively identified as friendly.

Weapons Engagement Zone (WEZ)

A WEZ consists of defined dimensions of airspace--such as a FEZ, a high-altitude missile engagement zone (HIMEZ), a low-altitude missile engagement zone (LOMEZ), a joint engagement zone (JEZ), and a short-range AD engagement zone (SHORADEZ)--in which the responsibility for engagement normally rests with a particular weapon system.

- **Fighter Engagement Zone (FEZ).** In AD, a FEZ is the airspace of defined dimensions within which the responsibility for engagement normally rests with fighter aerial platform.
- **High-Altitude Missile Engagement Zone (HIMEZ).** In AD, a HIMEZ is that airspace of defined dimensions within which responsibility for engagement normally rests with high-altitude AD surface-to-air missiles
- **Low Altitude Missile Engagement Zone (LOMEZ).** In AD, a LOMEZ is that airspace of defined dimensions within which the responsibility for engagement normally rests with low to medium altitude, surface-to-air missiles.
- **Joint Engagement Zone (JEZ).** A JEZ is airspace of specific dimensions in which friendly surface-to-air missiles and fighters are simultaneously employed and operated.

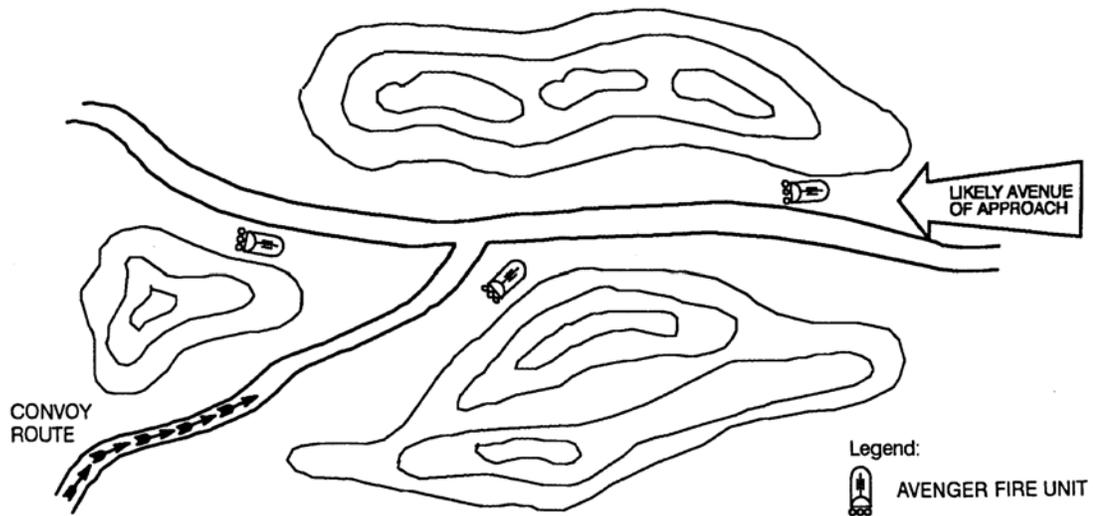
Short Range Air Defense Engagement Zone (SHORADEZ). In AD, a SHORADEZ is that airspace of defined dimensions within which the responsibility for engagement normally rests with FAAD AD weapons. A SHORADEZ may be within a LOMEZ or HIMEZ.

Convoy Defense

Pre-Positioning Technique:

Convoy protection may be accomplished by positioning teams along the route at key points. The following must be considered:

- Pre-positioning technique is not recommended unless the route is relatively secure from ground attack.
- Vulnerable areas such as bridges, valley passes, higher elevations, open areas, major intersections and choke points must be examined.
- Avengers should be deployed up to 300 meters from the convoy flanks or as terrain dictates, along the convoy route.
- The decision to do a hasty or deliberate emplacement will be determined by METT-T.



Pre-Positioning Technique

Integrated Employment Technique:

- The team will be positioned within the convoy at different intervals. These intervals will be determined by the platoon leader/sergeant if on site. It is possible that the ranking squad/team leader will make these decisions.
- Primary Sectors of Fire (PSF) or a PTL must be assigned when multiple teams/elements are integrated.
- Convoy commanders may issue specific defensive maneuvers for the different types of terrain to be crossed during the march. The senior Avenger representative must understand these maneuvers and also must ensure the convoy commander understands the capabilities of the Avenger weapon system.

Common Attack Techniques

Fixed Wing Aircraft Attack Techniques:

High-performance aircraft rely on speed for surprise and survival. Because of their high speed, they will strike along the longest axis of the target this gives them more time on the target. They will attempt to attack out of the sun to provide the element of surprise and place ground gunners at a disadvantage. Threat aircraft may attack from the rear, but may find this technique difficult due to transiting of the battlefield areas.

To avoid medium-and high-altitude AD system radar detection, threat aircraft operating in the ground attack role will likely approach the target area by flying as low as practical. Most attacks on ground targets near the forward edge of the battle area (FEBA) will be at altitudes less than 5,000 feet and at speeds of less than 550 knots.

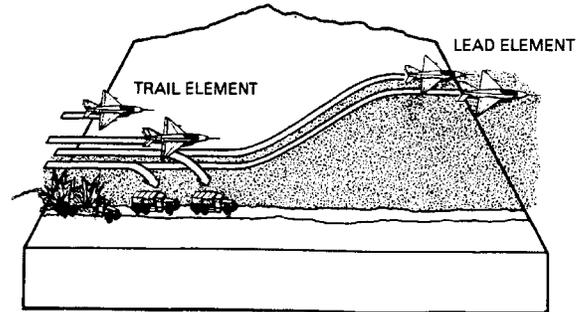
The SHORAD gunner may expect an enemy pilot to do the unexpected. This includes using several ordnance delivery attack techniques. The attack techniques of most interest to Avenger personnel include lay-down, pop-up, pop-up / lay-down and standoff. (*standoff not shown*)

The SHORAD squad/section must understand these techniques to-

- ◆ Anticipate threat aircraft action and flight profiles.
- ◆ Permit better searching and tracking.
- ◆ Permit rapid engagement before ordnance release.
- ◆ Permit early engagement

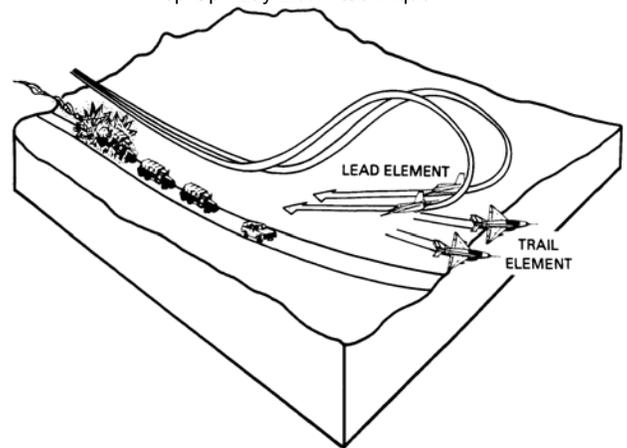
Refer FM 44-31 p. 2-9

Pop-Up / Lay-Down

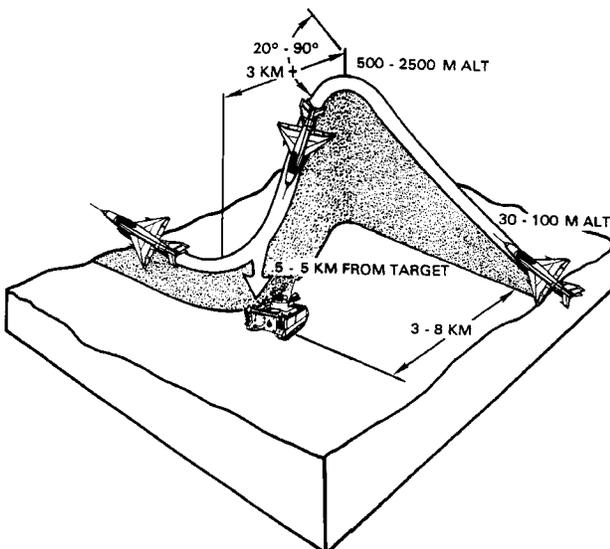


Reverse Maneuver

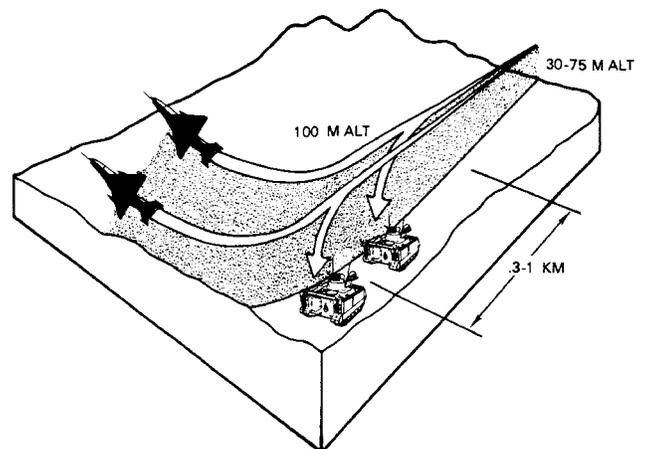
The Reeves Maneuver is an add on to the Pop-Up / Lay-Down technique



Pop-Up



Lay-Down



Defense Of A Rally Point And DECON Site

Rally Point (RP):

The primary responsibility to recon and occupy the RP initially is the platoon leaders/platoon sergeant. Due to time and distance, occupation of the RP may be the responsibility of a team. Status of the RP security must be addressed immediately to ensure the safety of the elements moving to the RP. Therefore the first element to occupy will alert the remaining elements to the status of security over the platoon net.

The RP must:

- Be reconnoitered.
 - Be easy to find.
 - Have cover and concealment.
 - Sufficient area for dispersion.
 - Have alternate entry and exit routes that are easily accessed.
 - Be easily defended for short periods of time against air and ground attacks.
-

Team responsibilities at the RP:

- **1st Team** Security of the avenue of approach. Placement of incoming vehicles.
- **2nd Team** Security (air)
- **3rd Team** M-8 alarm emplacement
- **4th Team** Security (ground)
- **5th Team** Security (ground)
- **6th Team** Security (air)

(Numbered In accordance with arrival at the RP)

Decontamination Site Security

Refer to the DeconLevel/Techniques table on page 40 for applicability and responsibility.

Site security will be provided by the platoon being decontaminated:

- 1st squad/section moves to the site for decontamination.
- 2nd squad/section will provide security outside the DECON site perimeter.
- Once the 1st squad is decontaminated, they will move to the security positions held by the 2nd squad.

NOTE:

The exact positions of the 2nd squad should be avoided due to possible contamination

NBC Procedures



NBC Alarm/Warning Sounds:

Metal on Metal
 Several short horn blasts
 Verbal alarm: **GAS - GAS - GAS**
 Yell **“TEST”** when testing alarm systems

MOPP Equipment	MOPP Ready	MOPP Zero	MOPP 1	MOPP 2	MOPP 3	MOPP 4	Mask Only
Mask	Carried	Carried	Carried	Carried	Worn ¹	Worn	Worn
Overgarment	Ready ³	Available ⁴	Worn ¹	Worn ¹	Worn ¹	Worn	
Vinyl Boots	Ready ³	Available ⁴	Available ⁴	Worn	Worn	Worn	
Gloves	Ready ³	Available ⁴	Available ⁴	Available ⁴	Available ⁴	Worn	
Helmet Protective Cover	Ready ³	Available ⁴	Available ⁴	Worn	Worn	Worn	
Chemical Protective Undergarment	Ready ³	Available ⁴	Worn ²	Worn ²	Worn ²	Worn ²	

¹ In hot weather coat or hood can be left open for ventilation.
² The CPU is worn under the BDU (primarily applies to SOF, armor vehicle crewman).
³ Must be available to the soldier within two hours. Second set available in six hours.
⁴ Within arms reach.

MOPP suit life

The Battle Dress Overgarment (BDO) when removed from its vapor-barrier bag has a recommended life of 30 days. BDOs worn for a longer period presents a slightly increased risk. If the BDO is resealed in a vapor-barrier bag or in a similar bag during the 30 day period, time stops and begins once again when the BDO is taken out of its protective bag. EXAMPLE: If after ten days the BDO is resealed in a vapor-barrier bag, the BDO still has 20 days of life once reopened. The BDO provides a minimum of **24 hours protection** against exposure to liquid or vapor chemical agent.

NBC Procedures (cont)

Unmasking procedures

With M-256 kit

Time required (15 min)

When negative results have been obtained with the M-256 kit>

Senior person selects 1 or 2 soldiers Have them>

1. Move to shady area
2. Unmask for 5 min
3. Clear and reseal their mask
4. Observe for 10 min
5. If no symptoms give the all clear.
6. Watch for delayed symptoms
7. Have first aid available

Without the M-256 kit

Time required (35 min)

Senior person selects 1 or 2 soldiers Have them>

1. Move to a shady area
2. Take a deep breath hold it, and break the seal.
 1. Keep eyes open for 15 seconds
 2. Clear and reseal their mask
 3. Observe for 10 min,

If there are no symptoms >

1. Break the seal on the mask and take
2. Take 2 to 3 deep breaths.
3. Reseal and clear their masks.
4. Observe for 10 min.

If there are no symptoms>

1. Unmask for 5 min and then remask

If no symptoms appear after 10 min>

1. Give the all clear
2. Watch for delayed symptoms
3. Have first aid available

Attack Preparation

Nuclear

Prepare for the attack

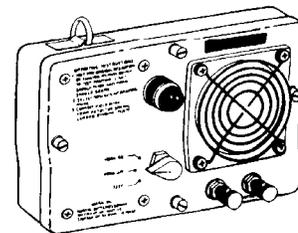
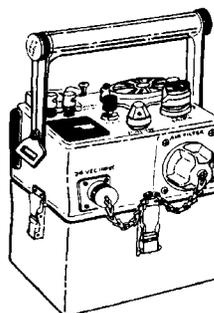
If mission permits:

1. Attempt to shield vehicles and equipment from blast and thermal radiation using terrain.
2. Turn off and disconnect all non-essential electronic equipment and shield from EMP.
3. Tie down or remove antennas
4. Secure loose flammable, or explosive items and Shield food and water containers
5. Zero dosimeters.

NBC

Prepare for the attack

1. Assume MOPP 4 within 8 minutes.
2. Ensure M-9 paper is attached to NBC suits.
3. Position M-8 alarms.
4. Prepare fighting positions and shelters with overhead cover.
5. Take cover.
6. Begin periodic monitoring.



Fallout

Mask or cover mouth and nose w / scarf or rag.

Take shelter in tents or in defensive fighting positions w / overhead cover

At the end of fallout brush contamination from shelters and equipment.

NBC Procedures (cont)

Crossing A Chemically Contaminated Area:

Before crossing-

- ◆ Select the shortest possible route that would cause the least contamination and allow the fastest travel based on METT-T.
- ◆ Close all vehicle doors, windows, hatches and vents.
- ◆ Assume MOPP 4.
- ◆ Attach M-9 paper to clothing and equipment.

During the crossing-

- ◆ Space vehicles far enough apart to minimize dust. Consider the tactical situation and command and control (C²).
- ◆ Move through the area as quickly as possible continuously monitor soldier for symptoms of contamination, give first aid as required.
- ◆ Avoid contact with anything in the area of contamination.
- ◆ Watch personnel for symptoms of heat stress.

After crossing-

- ◆ Continue to monitor personnel for chemical agent symptoms.
- ◆ Check personnel and equipment for contamination.
- ◆ Decontaminate any contaminated skin or personnel equipment.
- ◆ Decontaminate vehicles with M11/DAP13/M13 as required.

M-8 Alarm

Detects: Nerve agent.

150 m max. from parameter up wind

400 m max. from the alarm itself

45 degree angle when using more than 1

300 m between detectors when using more than 1

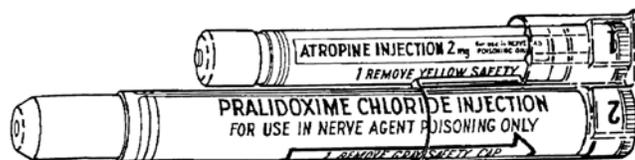
M-9 Paper

Not effective under 32°F

Detects liquid agents but will not identify them.

Personnel will have M-9 paper attached as follows:

L/wrist, R/biceps and R/ankle.



M-8 Paper

Detects and identifies:

Liquid V- or G-type nerve agents and H-type blister.

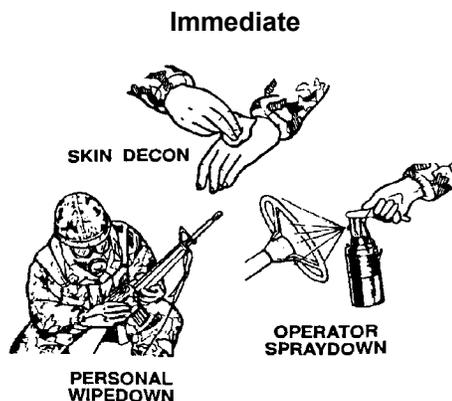
First Aid for Nerve agent (buddy aid)

- Using the casualties injectors, inject the casualty with 3 MK I kits simultaneously in the fleshy part of the hip / buttocks.
- Place expended kits on casualty's chest. Seek medical aid

Decontamination

Immediate

When chemical and toxic agents get on the bare skin you have an emergency. The best technique for removing these agents is to use the M258 or the new M291 DECON kits. Spray down vehicles with either the DAP13/M13 or M11 Decontaminating Apparatus. The CAM or M8/M9 paper may be used to identify contaminated areas.



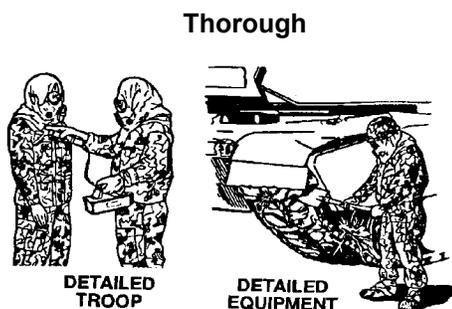
Operational

Allows a force to fight longer and sustain its mission while contaminated. Operational DECON limits the transfer hazard of the gross contamination on soldiers. This speeds the weathering process and allows clean areas to stay clean.



Thorough

Restores combat power by removing nearly all contamination from unit and individual equipment so troops can operate equipment safely for extended periods at reduced MOPP levels. Thorough DECON occurs after combat operations, during reconstitution and after passage of lines.



Refer to FM 3-5 for detailed instructions.

DECON Levels/Techniques

Level	Technique	Best start time	Done by	Gains
Immediate	Skin DECON	Before 1 Minute*	Individual	Stops Agent From Penetrating
	Personal Wipe Down		Individual Or Crew	
	Operator Spray Down	Within 15 Minutes	Crew	
Operational	MOPP Gear Exchange**	Within 6 Hours	Unit	Possible Temporary Relief From MOPP 4.
	Vehicle Wash Down***		Battalion Crew Or DECON PLT(-)	Limit Liquid Agent Spread.
Thorough	Detailed Equipment/DECON	When Mission Allows Reconstitution	DECON PLT	Probable Long Term MOPP Reduction With Minimum Risk
	Detailed Troop DECON		Unit	

*The techniques become increasingly less effective the longer they are delayed.

**Performance degradation and risk assessment need to be considered when exceeding 6 hours. See FM 3-4, BDO risk assessment.

***Vehicle wash-down is most effective if started within 1 hour, but will often be delayed for logistical reasons.

MOPP Gear Exchange (buddy method)

Preparation:

Insure the following is on-hand prior to MOPP gear exchange.

- Poncho or some other item to lay decontaminated equipment.
- Enough M-9 paper to place on new MOPP suit.
- Trash bags for contaminated residue.

* Indicates buddy will perform this step.

⇒ Indicates contaminated soldier will perform this step.

STEP 1. DECON gear.

- ⇒ DECON gear/equipment
- ⇒ Discard Kevlar protective cover if worn
- * DECON mask (and hose on the M42)



STEP 2. Prepare for DECON.

- * Unfasten shoulder straps on hood, reattach to buckle in front.
- * Remove M-9 Paper
- * Untie drawcords on trouser legs, unzip trouser legs and roll a cuff that goes to the top of the overboot but not above them.
- ⇒ Undue or cut fasteners on the overboots .

STEP 3. DECON hood.

- * DECON hood
- * Using the M258 or M295 skin DECON kit decontaminate exposed parts of the mask.
- * Start at the mask eye lens outsert, wiping from the top of the head to the bottom of the hood.
- * Buddy decons his gloves.
- ⇒ Soldier holds his own mask firmly in place to prevent the mask from breaking its seal.
- * Grab the straps from where they connect to the back of the hood, pull up and over the top of the head until it reaches the eye lens outserts.
- * Check for contamination on the underside of the mask hood and DECON if necessary.
- * Put a tuck about 2 inches wide at the top of the head to prepare the hood to be rolled.
- * Begin rolling tightly at both temples simultaneously by tucking in with the thumbs as you roll.
- * Make the rolls from each side of the hood come to a point at the bottom of the mask forming a V.
- * Put a half twist in the V and tuck it behind the canister

STEP 4. Remove overgarments/overshoes.

- * Unfasten 3 snaps that hold the trousers to the jacket.
- * Untie drawcord at the bottom of the jacket.
- * Unfasten and loosen Velcro on wrist cuffs and refasten.
- * Unfasten Velcro cover jacket zipper.
- * Unzip jacket.
- * Grab jacket at the shoulders and instruct soldier to make fists and then pulls jacket off without touching black liner.

MOPP Gear Exchange (buddy method)

* Indicates buddy will perform this step.

⇒ Indicates contaminated soldier will perform this step.

- * Lay jacket on the ground with the black liner facing up.
- * Carefully unfasten and unzip trousers, **DO NOT LOOSEN WAIST TABS!**
- * Grasp the trousers and pull them down to his knees.
- ⇒ Instruct the soldier to walk out of his trousers
- ⇒ Instruct the soldier to break the seals on his boots by stepping on the heels until the boots are removed and place the uncovered foot onto the black side of the jacket laying on the ground.

STEP 5. Remove gloves.

- ⇒ Pull tips of fingers until both gloves are loosened and let gloves drop off onto the unprotected ground.

STEP 6. Put on overgarment.

- * Opens package without touching new overgarment.
- ⇒ Soldier pulls out overgarments without touching the outside of the package.
- ⇒ Soldier puts on trousers.
- ⇒ Soldier puts on jacket.
- ⇒ Soldier fastens overgarments and leaves trouser legs open.

STEP 7. Put on overboots and gloves.

- * Opens package containing new overboots
- ⇒ Soldier pulls out overboots without touching the outside of the package and puts them on.
- ⇒ Fastens trouser legs.
- * Opens package containing new gloves.
- ⇒ Soldier pulls out gloves without touching the outside of the package and puts them on.
- ⇒ Soldier places M-9 Paper on MOPP suit.

STEP 8. Secure hood.

- * Secure hood
- * DECON gloves.
- * Unrolls hood.
- * Attach straps to hood.
- * Check all snaps, zippers for security.

**MOPP gear exchange complete.
REVERSE ROLLS AND CONTINUE!**

IFF Programming

Loading Procedures:

1. Setup.

a. Press pressure equalizer valve on programmer and remove cover. Ensure that the POWER ON/OFF switch is set to OFF.

b. Connect the power cable W2 to 115V, 1 PH, 50-400 Hz POWER connector J1 on programmer. Connect other end to power source.

c. Connect computer cable W3 to connector J2 on programmer. Connect other end to the rear of the computer, removing dust cover, if necessary.

d. Connect the program cable W1 between connector J3 on programmer and connector J2 on IFF interrogator.

e. Connect IFF interrogator cable to programmer INTERROGATOR TEST connector J4.

2. Initial Checks.

a. Set POWER ON/OFF switch to ON.

b. Press to test each lamp on programmer to check that lamps light.

c. Push forward and hold INTERROGATOR TEST switch until a test tone is heard from speaker. Tone indicates interrogator is operational. If no tone is heard, replace interrogator battery with a charged battery. If tone is still not heard, replace with another interrogator.

d. The POWER DC and MODE 4 ALARM lights on programmer are on.

3. Selecting the Correct Keytape.

The AKAT-3662 is a tape canister containing 68 individual tapes. There are 34 consecutive segments numbered from 1-27. The remaining segments are numbered F28, 28, F29, 29, F30, 30 and 31. Within each edition of AKAT-3662, the effective tape segment number corresponds to the date of the month. For example, the seventh day of the month would begin with tape segment 7. Each segment is further divided into sections A and B. These two sections are good for a period of two days.

Therefore, to get four consecutive days of IFF codes loaded, use alternate keys from the AKAT-3662. Use the chart below as a reference.

EXAMPLE

Assume today is 14 January 1995

<u>DATE</u>	<u>SEGMENT/SECTION</u>
14 Jan 95	14A
15 Jan 95	14B
16 Jan 95	16A
17 Jan 95	16B

4. Loading Computer.

a. Connect fill cable to computer and KOI-18/TSEC tape reader. Open cover on tape reader.

b. Expose AKAT-3662 keytape segments necessary for four days of operation as described in paragraph 3.

NOTE:

By exposing the following segments, the COMSEC user is exposing future key. This is extremely sensitive and must be afforded the proper security.

Separate all segments into individual sections A and B by tearing along perforation. Segments not being used should be stored in the bag with the canister.

c. Insert Day 1's section into the tape reader, ensuring that guide holes are aligned and writing is facing up. Pull tape through with one continuous motion, at a moderate rate. Disconnect the fill cable from the computer and reattach. Perform the same steps with Day 2's keytape section. The green parity light on the computer should blink, and the MODE 4 ALARM indicator on the programmer should go out. Disconnect the fill cable and tape reader from the computer and properly store them.

d. The computer will only hold two days of code, so do not load Day's 3 and 4 at this time.

(continued)

IFF Programming (cont)

5. Loading the Interrogator.

NOTE:

If battery is removed from interrogator, all codes will be erased and it must be replaced

a. Set CODE ENTRY SELECT switch to desired M4/M3 or M4 position.

NOTE:

The time is only set when loading in code for Day 1 and 2. Time should not be re-entered when loading Day 3 and 4 as it invalidates all previous codes

b. Set TIME ENTRY HOURS and MINUTES push-button switches to the upcoming minute of ZULU time.

c. At ZULU time set into TIME ENTRY switches, push forward and hold ENTER CODE/TIME switch until CODE/TIME ACCEPTED indicator lights, this updates the automatic 4-day clock in IFF interrogator.

d. Set CODE ENTRY SELECT switch to DAY 1.

e. Push forward and hold ENTER CODE/TIME switch until CODE/TIME ACCEPTED indicator lights.

f. Set CODE ENTRY SELECT switch to DAY 2.

g. Push forward and hold ENTER CODE/TIME switch until CODE/TIME ACCEPTED indicator lights.

h. If additional IFF interrogators are to be programmed for days 1 and 2, perform steps a through g after connecting new IFF interrogator; then proceed to step i.

i. To load IFF interrogators with code for Day 3 and 4, first zeroize the computer by pressing the initiate button on front of the computer. The MODE 4 ALARM indicator on the programmer should come on.

j. Load the keytape section for Day 3 and 4 following instructions in paragraph 4c.

k. Set CODE ENTRY SELECT switch to DAY 3.

l. Push forward and hold ENTER TIME/CODE switch until CODE/TIME ACCEPTED indicator lights.

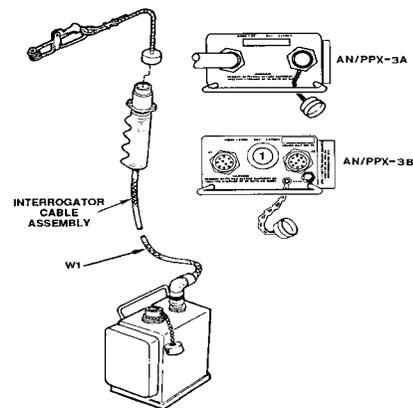
m. Set CODE ENTRY SELECT switch to DAY 4.

n. Push forward and hold ENTER TIME/CODE switch until CODE/TIME ACCEPTED indicator lights.

o. If additional IFF interrogators are to be programmed for days 3 and 4, connect new IFF interrogator and repeat steps k through n.

p. Zeroize the computer, disconnect all cables, and store all items in their proper place.

q. On all interrogators, use a china-marking pencil to write (in Zulu time) the time expiration date (hours, day, month) in area on top of IFF interrogator. Place a strip of transparent tape over expiration date



IFF Responses

Mode 4 *BEEP---pause---BEEP*
Positive friend

Mode 3 *BBBBBBBBBBBBBBBB*
Possible friend

Unknown *BEEP---BEEP---BEEP*

IFF system *no tone*
non-operational

Night Defensive Position (NDP)

NDP Site

- ◆ Vehicles will be ground guided into the NDP parameter.
- ◆ Vehicles will be toned down and camouflaged ASAP.
- ◆ M-8 Alarms emplaced (METT-TC dependent).
- ◆ Communications established at the entrance control point using land line.
- ◆ Entrance blocked by natural obstacles (if possible).
- ◆ Use munitions and crew served weapons, AT-4s and Claymores to cover avenues of approach.
- ◆ Noise and light discipline will be maintained.
- ◆ Blue lens flashlights only.
- ◆ Guards will be posted throughout occupation of NDP.
- ◆ Litter will be kept policed.
- ◆ Soldiers will stay in uniform, and have their weapon in their possession when outside of tents or vehicles.
- ◆ Sensitive items will be secured at all times.
- ◆ **An RTO(s) will monitor supported unit, battery net.**

NOTE:

A plan to occupy AD positions must be in place if the ADW and LADW is raised.
The DEW net or SHTU/HTU must be monitored at all times for status changes.

Guard Duty

The Sergeant of the Guard will be rotated daily.

The SOG will develop the shift roster and ensure all guards understand their responsibilities.

- ◆ Guards will be responsible for the security of the NDP entrance.
- ◆ Guards will halt vehicles as early as possible (do not let the vehicles approach the entrance if at all possible).
- ◆ Guards if necessary will call over the TA-312 or other means to the CP if there are any questions.
- ◆ Guards will challenge all incoming vehicles at port arms and ensure that they assert themselves in a manner that shows force and confidence.

Platoon Reactionary Force

All soldiers will react:

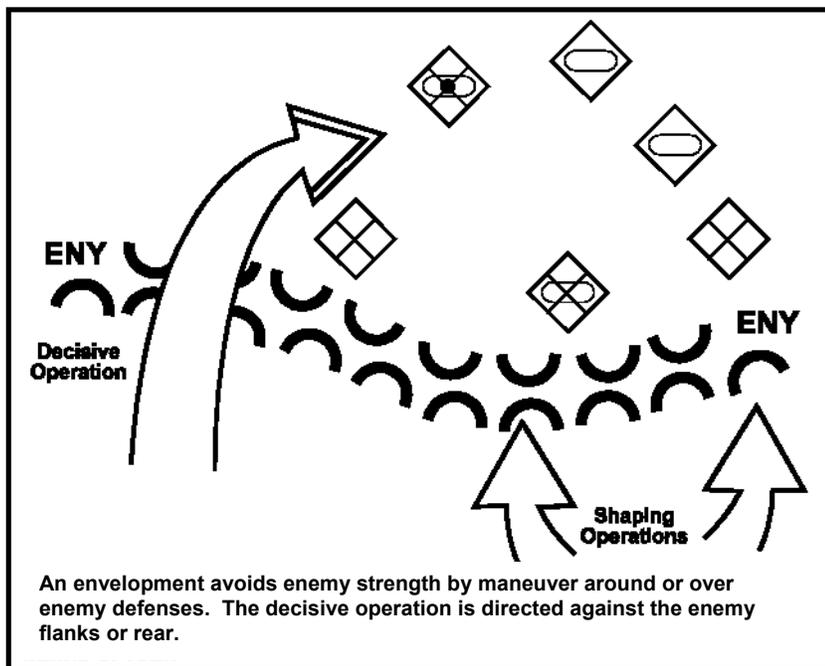
The ranking NCO at the time of attack (ground or air) will coordinate the movement of the 1st and 2nd squads to defend the NDP site/CP.

Forms of Maneuver

Operations FM 3-0

Envelopment

The envelopment is a form of maneuver in which an attacking force seeks to avoid the principal enemy defenses by seizing objectives to the enemy rear to destroy the enemy in his current positions. At the tactical level, envelopments focus on seizing terrain, destroying specific enemy forces, and interdicting enemy withdrawal routes.



Envelopment

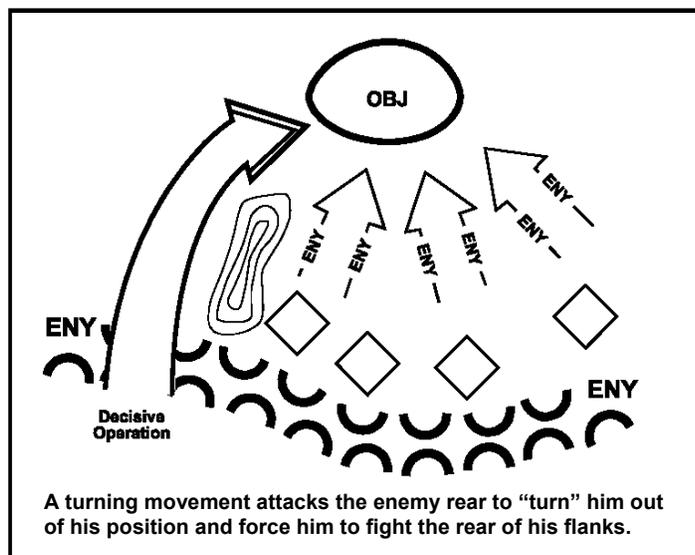
Envelopments avoid the enemy front, where he is protected and can easily concentrate fires. Single envelopments maneuver against one enemy flank; double envelopments maneuver against both. Either variant can develop into an encirclement.

Envelopments avoid the enemy front, where he is protected and can easily concentrate fires. Single envelopments maneuver against one enemy flank; double envelopments maneuver against both. Either variant can develop into an encirclement.

Turning Movement

A turning movement is a form of maneuver in which the attacking force seeks to avoid the enemy's principal defensive positions by seizing objectives to the enemy rear and causing the enemy to move out of his current positions or divert major forces to meet the threat. A major threat to his rear forces the enemy to attack or withdraw rearward, thus "turning" him out of his defensive positions.

Turning movements typically require greater depth than other forms of maneuver. Deep fires take on added importance. They protect the enveloping force and attack the enemy.

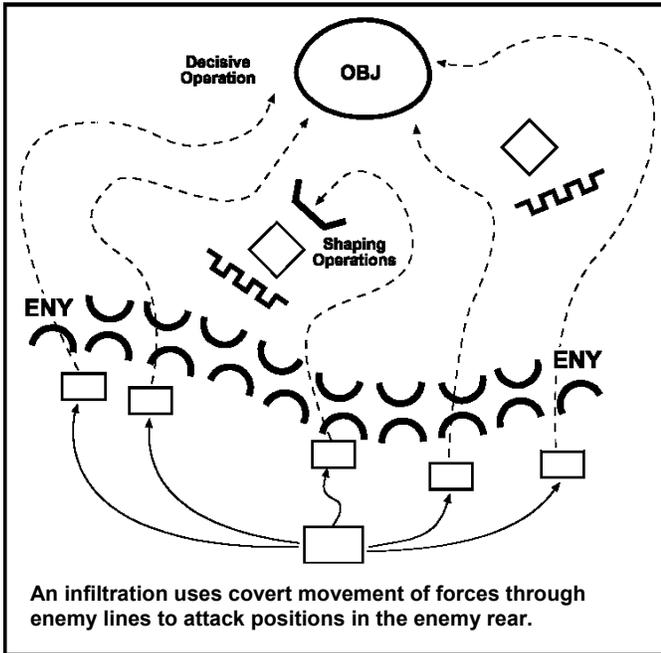


Turning Movement

Forms of Maneuver (cont)

Infiltration

An infiltration is a form of maneuver in which an attacking force conducts undetected movement through or into an area occupied by enemy forces to occupy a position of advantage in the enemy rear while exposing only small elements to enemy defensive fires. The need to avoid being detected and engaged may limit the size and strength of infiltrating forces. Infiltration rarely defeats a defense by itself.



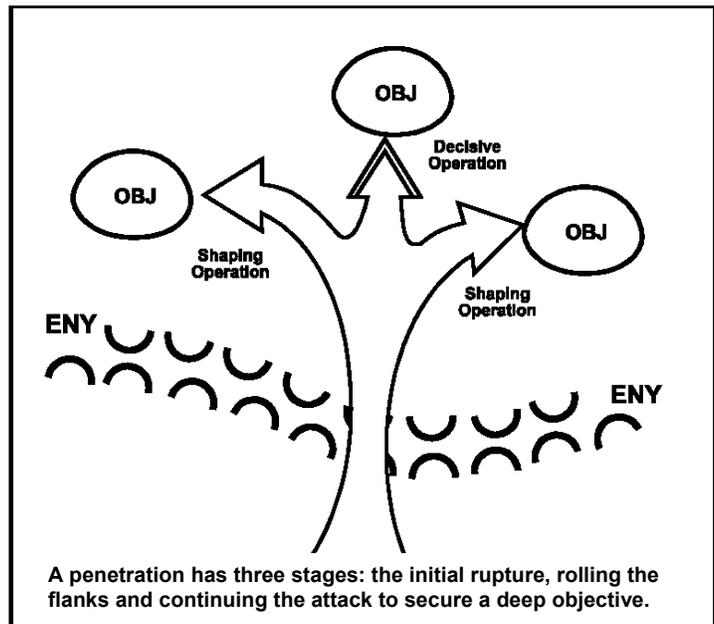
Infiltration

Commanders direct infiltrations to attack lightly defended positions or stronger positions from the flank and rear, to secure key terrain to support the decisive operation, or to disrupt enemy sustaining operations. Typically, forces infiltrate in small groups and reassemble to continue their mission.

Penetration

A penetration is a form of maneuver in which an attacking force seeks to rupture enemy defenses on a narrow front to disrupt the defensive system. Commanders direct penetrations when enemy flanks are not assailable or time does not permit another form of maneuver.

Successful penetrations create assailable flanks and provide access to enemy rear areas. Because penetrations frequently are directed into the front of the enemy defense, they risk significantly more friendly casualties than envelopments, turning movements, and infiltrations.

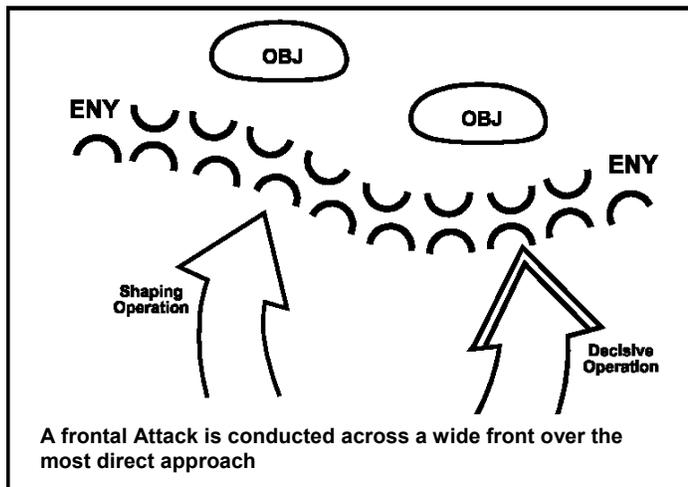


Penetration

Forms of Maneuver (cont)

Frontal Attack

A frontal attack is a form of maneuver in which an attacking force seeks to destroy a weaker enemy force or fix a larger enemy force in place over a broad front. At the tactical level, an attacking force can use a frontal attack to rapidly overrun a weaker enemy force.



Frontal Attack

A frontal attack strikes the enemy across a wide front and over the most direct approaches. Commanders normally use it when they possess overwhelming combat power and the enemy is at a clear disadvantage.

Commanders mass the effects of direct and indirect fires, shifting indirect and aerial fires just before the assault. Success depends on achieving an advantage in combat power throughout the attack.

Offensive Operations

Operations FM 3-0

Movement to Contact

The movement to contact is a type of offensive operation designed to develop the situation and establish or regain contact. Forces conducting a movement to contact seek to make contact with the smallest force feasible. On contact, the commander has five options: attack, defend, bypass, delay, or withdraw. A successful movement to contact requires units with sufficient mobility, agility, and combat power to gain enemy contact and rapidly develop the situation.

Search and Attack

Search and attack is a technique for conducting a movement to contact that shares many of the characteristics of an area security mission. Light and medium maneuver units, attack aviation, air cavalry, and air assault units normally conduct them. The purpose of a search and attack operation is to destroy enemy forces, protect the friendly force, deny an area to the enemy, or collect information. Commanders direct search and attack when the enemy disperses in close terrain unsuited for heavy forces, when they cannot find enemy weaknesses, or when they want to deny the enemy movement in an area. They also direct search and attack against enemy infiltrators or SOF operating in a given area. Search and attack is useful in area security missions, such as clearing AOs.

Meeting Engagement

A meeting engagement is a combat action that occurs when a moving force engages an enemy at an unexpected time and place.

Such encounters normally occur by chance in small unit operations, typically when two moving forces collide. They may result in brigade or larger unit operations when intelligence, surveillance, and reconnaissance (ISR) operations have been ineffective. Meeting engagements can also occur when opposing forces are aware of the general presence but not the exact location of each other and both decide to attack immediately. On contact, commanders quickly act to gain the advantage. Speed of action and movement, coupled with both direct and indirect fires, are essential. To maintain momentum, lead elements quickly bypass or fight through light resistance. Freedom to maneuver is always advantageous; however, commanders may choose to establish a hasty defense if the enemy force is larger or the terrain offers a significant benefit.

Attack

An attack is an offensive operation that destroys or defeats enemy forces, seizes and secures terrain, or both. Attacks incorporate coordinated movement supported by direct and indirect fires. They may be either decisive or shaping operations. Attacks may be hasty or deliberate, depending on the time available for assessing the situation, planning, and preparing. Commanders execute hasty attacks when the situation calls for Offensive Operations immediate action with available forces and minimal preparation. They conduct deliberate attacks when there is time to develop plans and coordinate preparations. The same fundamentals of the offense apply to each type of attack. Success depends on skillfully massing the effects of combat power.

Offensive Operations (cont)

Hasty Attack

Commanders direct hasty attacks to seize opportunities to destroy the enemy or seize the initiative. These opportunities are fleeting. They usually occur during movements to contact and defensive operations. In a hasty attack, commanders intentionally trade the advantages of thorough preparation and full synchronization for those of immediate execution. In a movement to contact, commanders launch hasty attacks to destroy enemy forces before they concentrate or establish a defense. In the defense, commanders direct hasty attacks to destroy an exposed or overextended attacker. On-order and be-prepared missions allow units to respond quickly in uncertain situations.

Deliberate Attack

In contrast to hasty attacks, deliberate attacks are highly synchronized operations characterized by detailed planning and preparation. Deliberate attacks use simultaneous operations throughout the AO, planned fires, shaping operations, and forward positioning of resources needed to sustain momentum. Commanders take the time necessary to position forces and develop sufficient intelligence to strike the enemy with bold maneuver and accurate, annihilating fires. Because of the time required to plan and prepare deliberate attacks, commanders often begin them from a defensive posture. However, an uncommitted force may conduct a deliberate attack as a sequel to an ongoing offensive operation.

Exploitation

An exploitation is a type of offensive operation that usually follows a successful attack and is designed to disorganize the enemy in depth. Exploitations seek to disintegrate enemy forces to the point where they have no alternative but surrender or flight. Commanders of exploiting forces receive the greatest possible latitude to accomplish their missions. They act with great aggressiveness, initiative, and boldness. Exploitations may be local or major. Local exploitations take advantage of tactical opportunities, foreseen or unforeseen. Division and higher headquarters normally plan major exploitations as branches or sequels.

Pursuit

A pursuit is a type of offensive operation designed to catch or cut off a hostile force attempting to escape with the aim of destroying it. Pursuits are decisive operations that follow successful attacks or exploitations. They occur when the enemy fails to organize a defense and attempts to disengage. If it becomes apparent that enemy resistance has broken down entirely and the enemy is fleeing, a force can transition to a pursuit from any type of offensive operation. Pursuits encompass rapid movement and decentralized control. Unlike exploitations, commanders can rarely anticipate pursuits, so they normally do not hold forces in reserve for them.

Offensive Operations (cont)

Special Purpose Attacks

Spoiling Attack

A spoiling attack is a form of attack that preempts or seriously impairs an enemy attack while the enemy is in the process of planning or preparing to attack. Normally conducted from a defensive posture, spoiling attacks strike where and when the enemy is most vulnerable—during preparations for attack in assembly areas and attack positions or while he is moving toward his line of departure. Therefore, proper timing and coordinating with higher headquarters are critical requirements for them. Spoiling attacks are highly dependent on accurate information on enemy dispositions. Commanders are alert for opportunities to exploit advantages created by a spoiling attack.

Counterattack

A counterattack is a form of attack by part or all of a defending force against an enemy attacking force with the general objective of denying the enemy his goal in attacking. Commanders normally conduct counterattacks from a defensive posture; they direct them to defeat or destroy enemy forces or to regain control of terrain and facilities after enemy successes. Commanders direct counterattacks with reserves, lightly committed forward elements, or specifically assigned forces. They counterattack after the enemy launches an attack, reveals his main effort, or offers an assailable flank.

Raid

A raid is a form of attack, usually small scale, involving a swift entry into hostile territory to secure information, confuse the enemy, or Offensive Operations destroy installations. It usually ends with a planned withdrawal from the objective area upon mission completion. Raids have narrowly defined purposes. They require both detailed intelligence and deliberate planning. Raids may destroy key enemy installations and facilities, capture or free prisoners, or disrupt enemy C2 or other important systems.

Ambush

An ambush is a form of attack by fire or other destructive means from concealed positions on a moving or temporarily halted enemy. An ambush destroys enemy forces by maximizing the element of surprise. Ambushes can employ direct fire systems or other destructive means, such as command-detonated mines, non-lethal fires, and indirect fires. Ambushes can disrupt enemy cohesion, sense of security, and confidence. They are particularly effective against enemy sustaining operations.

Offensive Operations (cont)

Feint

A feint is a form of attack used to deceive the enemy as to the location or time of the actual decisive operation. Forces conducting a feint seek direct fire contact with the enemy but avoid decisive engagement. Feints divert attention from the decisive operation and prevent the enemy from focusing combat power against it. They are usually shallow, limited-objective attacks conducted before or during the decisive operation.

Demonstration

A demonstration is a form of attack designed to deceive the enemy as to the location or time of the decisive operation by a display of force. Forces conducting a demonstration do not seek contact with the enemy. Demonstrations are also shaping operations. They seek to mislead the enemy concerning the attacker's true intentions. They facilitate decisive operations by fixing the enemy or diverting his attention from the decisive operation. Commanders allow the enemy to detect a demonstration. However, doing this without revealing the demonstration's true purpose requires skill. If a demonstration reveals an enemy weakness, commanders may follow it with another form of attack.

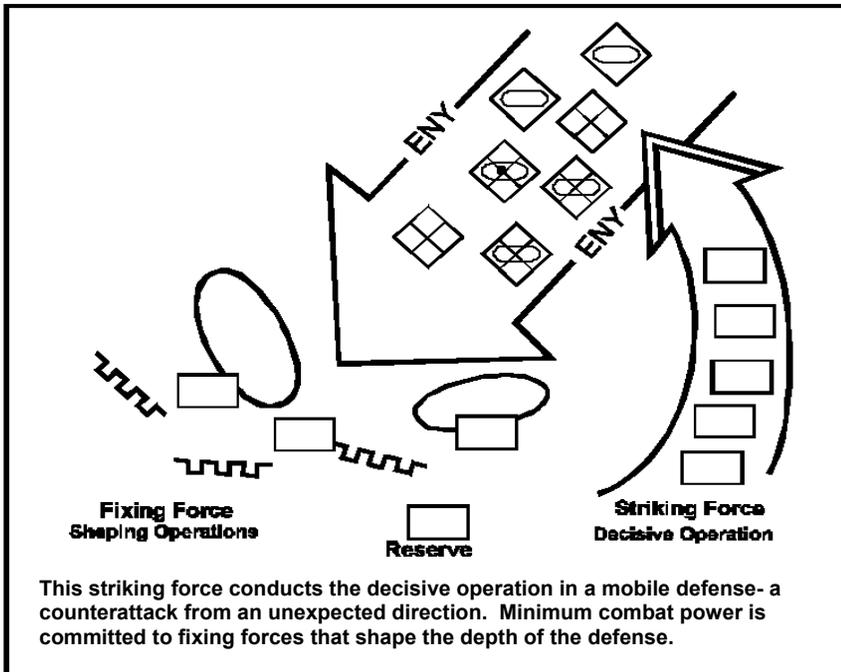
Defensive Operations

Operations FM 3.0

Mobile Defense

The mobile defense is a type of defensive operation that concentrates on the destruction or

defeat of the enemy through a decisive attack by a striking force. A mobile defense requires defenders to have greater mobility than attackers. Defenders combine offensive, defensive, and delaying actions to lure attackers into positions where they are vulnerable to counterattack. Commanders take advantage of terrain in depth, military deception, obstacles, and mines while employing fires and maneuver to wrest the initiative from the attacker.

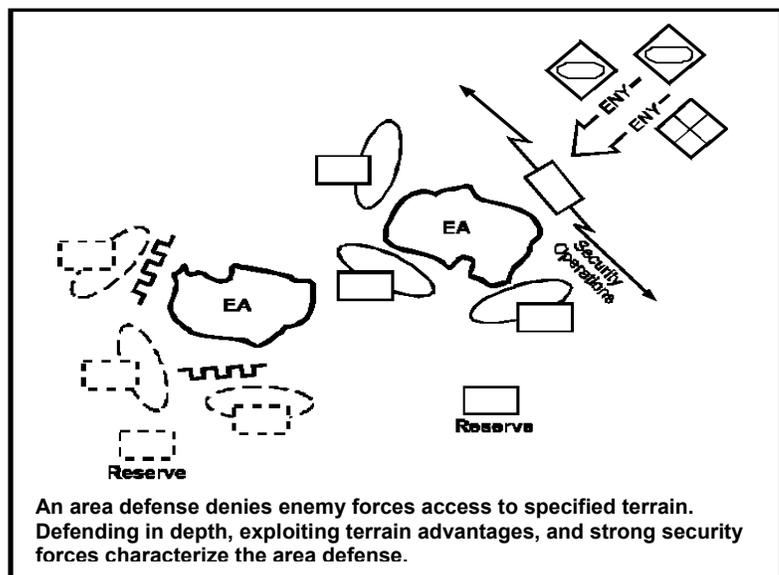


Mobile Defense

Area Defense

The area defense is a type of defensive operation that concentrates on denying enemy forces access to designated terrain for a specific time rather than destroying the enemy outright (see

Figure 8-2, page 8-6). The bulk of defending forces combine static defensive positions, engagement areas, and small, mobile reserves to retain ground. Keys to successful area defenses include effective and flexible control, synchronization, and distribution of fires. Area defenses employ security forces on likely enemy avenues of approach. Commanders employ a reserve with priority to the counterattack. Other potential reserve missions include blocking enemy penetrations and reinforcing other portions of the defense. Area defenses can also be part of a larger mobile defense.



Area Defense

Defensive Operations (cont)

Retrograde

A retrograde is a type of defensive operation that involves organized movement away from the enemy. The three forms of retrograde operations are withdrawals, delays, and retirements. Commanders use retrogrades as part of a larger scheme of maneuver to create conditions to regain the initiative and defeat the enemy. Retrogrades improve the current situation or prevent a worse situation from occurring. Operational-level commanders may execute retrogrades to shorten lines of communications (LOCs).

Withdrawal

A withdrawal, a form of retrograde, is a planned operation in which a force in contact disengages from an enemy force. Withdrawals may involve all or part of a committed force. Commanders conduct withdrawals to preserve the force, release it for a new mission, avoid combat under undesirable conditions, or reposition forces. Enemy pressure may or may not be present during withdrawals. At tactical echelons, withdrawing forces may be unassisted or assisted by another friendly force.

Delay

A delay is a form of retrograde in which a force under pressure trades space for time by slowing the enemy's momentum and inflicting maximum damage on the enemy without, in principle, becoming decisively engaged. Delays gain time for friendly forces to $\frac{3}{4}$

- Establish defenses.
- Cover defending or withdrawing units.
- Protect friendly unit flanks.
- Contribute to economy of force.
- Draw the enemy into unfavorable positions.
- Determine the enemy main effort.

Retirement

A retirement is a form of retrograde in which a force not in contact with the enemy moves away from the enemy. Typically, forces move away from the enemy by executing a tactical road march. Retiring units organize to fight but do so only in self-defense. Retirements are usually not as risky as delays and withdrawals.

Resupply

Classes (CL) Of Resupply:

I	Subsistence (food)	VI	Personal demand and morale items
II	Clothing and individual equipment	VII	Major End items
III	POL	VIII	Repair parts
IV	Construction and barrier material	IX	Nonmilitary programs and materials
V	Ammunition		<i>LOGPAC: I, III, V, IX</i>

Three Types of Resupply:

Routine:

Arrives as the daily LOGPAC with water, CL I, III, V, IX mail and replacement personnel. LOGPACs should sustain the battery for 24 hours.

Emergency:

Is in addition to the LOGPAC of CL III, V, and VIII.

Pre-stock:

Is a cache of prepositioned CL V for use during a tactical mission, usually defensive operations.

Two Resupply Techniques:

- 1. Service station:** You go to them.
- 2. Tailgate:** Comes to you.

Ammunition DODICs And NSNs For Stinger Resupply

DODIC	NSN	Noun
Post		
PJ03	1425-01-213-3261	GM, Stinger, Post, MSL RND
PL91	1427-01-212-4998	GM, Stinger, Post, WPN RND
PL92	1427-01-219-2902	GM, Stinger, Post, Partial
RMP		
PJ04	1425-01-230-8785	GM, Stinger, RMP, MSL RND
PL94	1427-01-230-8783	GM, Stinger, RMP, WPN RND
PL95	1427-01-230-8784	GM, Stinger, RMP, Partial
Misc.		
Z587	1440-01-024-6931	Gripstock, Unitized
	1440-01-170-8618	Clamshell
	1440-01-233-1494	RMP

Common Report Formats

When to use report formats

The unit TSOP/FSOP should contain the necessary reports to conduct day to day operations.

- It is not required to send information within a platoon in a report format as long as all information is understood by the receiving element.
- Information must be prepared in the directed TSOP/FSOP format when the platoon leader sends the report higher.

UXO Spot Report

Unexploded Ordnance

Lines

1. _____ Date/time group
2. _____ Location
3. _____ Type of munitions
(*dropped, placed, projected, thrown*)
4. _____ NBC contamination
5. _____ Resources threatened
6. _____ Impact on the mission
7. _____ Protective measures taken
8. _____ Recommend priority
(*immediate, indirect, minor, no threat*)

Spot Report

SALUTE Report

Lines

1. _____ **Size**
2. _____ **Activity**
3. _____ **Location**
4. _____ **Unit**
5. _____ **Time**
6. _____ **Equipment**
7. _____ **Other**

Common Report Formats (cont)

NBC 1 Observer's Report

NOTE: Lines B, D, H, and either C or F must always be reported

The first time a Chemical/Biological (CB) weapon is used against U.S. Forces, the precedence is **FLASH**, and subsequent reports will be **IMMEDIATE**. (ref. FM 3-3 page.2-2)

Nuclear

Lines

B _____ Loc of observer
C _____ Dir of attack
D _____ DTG of detonation
E _____ N/A
F _____ N/A
G _____ Means of delivery
H _____ Type of burst
J _____ Flash to bang
L _____ Cloud width at H+5 min

Chemical

Lines

B _____ Loc of observer
C _____ N/A
D _____ DTG of attack
E _____ DTG end of attack
F _____ Loc of attacked area
G _____ Kind of attack
H _____ Type of agent
J _____ N/A
L _____ N/A

MEDEVAC Request

Frequency ____:____

Categories:

URGENT:

Emergency to save life or limb.

PRIORITY:

Medical care required is not available, patient may deteriorate to **URGENT** unless evacuated within 4 hours.

ROUTINE:

Patient is not serious and is not expected to become worse.

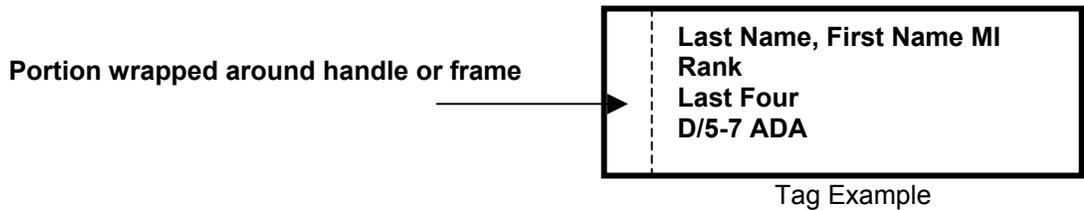
Lines

1. _____ Location of pickup site (*grid*)
2. _____ Radio freq. and call sign
3. _____ Patient category (*see left*)
4. _____ Special equipment required
5. _____ Security of site (*is the site secure?*)
6. _____ Method used to mark site
7. _____ Number of patients
8. _____ Weather at pickup site (*winds, rain etc.*)
9. _____ Patients nationality
10. _____ Terrain description
11. _____ NBC contamination

A & B Bag Packing List

1. "A" and "B" Bags will be packed at all times. Changes to the packing list will be dictated by the type and length of the mission.

2. The "A" Bag is the Rucksack (large) and the "B" Bag is the duffel bag. All equipment will be packed for inclement weather and marked clearly with a piece of OD green tape (100 mph tape) on the handle of the duffel bag and on the center of the Rucksack frame (see example below) between the anchor points for the shoulder straps.



"A" Bag		"B" Bag	
Item	Quantity	Item	Quantity
MOPP suit (training	1 ea	MOPP suit	ICE pack
Sleeping mat(on top of ruck sack)	1 ea	Laundry bag	1 ea
Sleeping bag	1 ea	Poncho	1 ea
Laundry bag	1 ea	Water proof bag	1 ea
W/W boots	1 ea	Shelter half	complete
W/W gear	1 set	Field Jacket	w/liner
Water proof bag	1 ea	Brown sweater	
Entrenching tool (left side of ruck sack)	1 ea	Pile cap	1 ea
Personal hygiene items	1 set	Scarf	1 ea
Socks	2 pair	GORTEX Parka	1 ea
Underwear	2 pair	GORTEX Trousers	1 ea
T-shirts	2 pair	Polly Trousers	2 pair
BDUs	1 pair	Polly Pro top	2 pair
Brown towels	1 ea	Socks	3 pair
Brown washcloths	1 ea	Underwear	3 pair
		BDUs	2 pair
		Brown towels	2 ea
		Brown washcloths	2 ea
		Long underwear	2 sets
		Combat boots	1 pair
		PT uniform	1 set
		Lock	1 ea

Field Standards

The basic field uniform for this platoon is as follows:

a. For soldiers assigned the M16, the Load Bearing Vest (LBV) will be worn with:

(1) Canteen on the right hip. First aid pouch on the left shoulder suspender strap with the flap facing up, ear plugs attached to the "D" ring under the first aid pouch

b. For soldiers assigned the M-9 Pistol, the LBV will be worn with:

(1) Hip holster placed on the right hip, one M-9 magazine pouch on the immediate left side of the pistol belt buckle with the canteen on the right hip. First aid pouch on the left shoulder suspender strap with the flap facing up, ear plugs attached to the "D" ring under the first aid pouch.

c. For soldiers assigned the SAW, the LBV will be worn with:

(1) Two SAW ammunition pouches placed to the front on both sides of the pistol belt buckle with the canteen on the right hip. First aid pouch on the left shoulder suspender strap with the flap facing up, ear plugs attached to the "D" ring under the first aid pouch.

d. The Kevlar helmet will be worn with the camouflage cover and the soldier's last name stenciled/printed or embroidered on the front of the helmet camouflage band with 1/4-inch letters. Subdued rank insignia will be worn on all helmets and chinstraps will always be snapped. The Kevlar will not be removed in the open, when eating slide the chin strap down under the chin or seek concealment and remove the Kevlar (never remove the Kevlar in the open).

e. Flashlights will be worn on the right side of the LBE suspenders and will have a blue filtered lens installed. Subdued civilian flashlights may be worn.

f. All soldiers will wear subdued pin on rank insignia on their left jacket pocket of the training NBC Suit. M9 paper when sufficient training supplies are available will be worn as follows: L / wrist, R / biceps and R / ankle

g. The protective mask will be worn on the left hip or the soldier carry position IAW the TM. The protective mask may be worn in one of many ways IAW with the TM. It is up to the individual to decide on the best carry position, however safety is a factor in the manor it is worn.

h. Survival knives will not be worn on the LBE.

i. Soft caps or black PT caps will not be worn or carried to field training exercises under any circumstances. Only the pile cap, brown neck gator and the black Balaclava are authorized with the Kevlar helmet in the field.

j. Identification tags will be worn at all times.

k. When emplacing equipment soldiers may remove their LBE, but their weapon (and MOPP Suit if directed) will be within arms reach. The Kevlar helmet and protective mask will always be worn.

l. Casualty Feeder reports and Witness Statements will be carried by all personnel in the webbing of the Kevlar. The Casualty Feeder will be filled out with the basic information.

Equipment Serial Numbers (Squad/Team)

-Serial Numbers-

Major components:		Serial Numbers	
			Weapon type
Rack number	(GNR)		
Serial number	(GNR)		
Rack number	(TC)		
Serial number	(TC)		
			Mask Type
Protective Mask	(GNR)		
Protective Mask	(TC)		
M1097/M998			
System			
M3P			
SINGARS			
SINGARS			
SINGARS RCU			
EPLRS			
SHTU/HTU			
PLGR			
TA-312/TA-1			
M-43			
M-42			
IM93			
Charger			
VDR-2			
IFF #1			
IFF #2			
Night vision #1			
Night vision #2			
O t h e r I t e m s :			

SINGGARS Julian Date Calendars

(REGULAR YEAR)

DAY/MO	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	01	32	60	91	21	52	82	13	44	74	05	35
2	02	33	61	92	22	53	83	14	45	75	06	36
3	03	34	62	93	23	54	84	15	46	76	07	37
4	04	35	63	94	24	55	85	16	47	77	08	38
5	05	36	64	95	25	56	86	17	48	78	09	39
6	06	37	65	96	26	57	87	18	49	79	10	40
7	07	38	66	97	27	58	88	19	50	80	11	41
8	08	39	67	98	28	59	89	20	51	81	12	42
9	09	40	68	99	29	60	90	21	52	82	13	43
10	10	41	69	00	30	61	91	22	53	83	14	44
11	11	42	70	01	31	62	92	23	54	84	15	45
12	12	43	71	02	32	63	93	24	55	85	16	46
13	13	44	72	03	33	64	94	25	56	86	17	47
14	14	45	73	04	34	65	95	26	57	87	18	48
15	15	46	74	05	35	66	96	27	58	88	19	49
16	16	47	75	06	36	67	97	28	59	89	20	50
17	17	48	76	07	37	68	98	29	60	90	21	51
18	18	49	77	08	38	69	99	30	61	91	22	52
19	19	50	78	09	39	70	00	31	62	92	23	53
20	20	51	79	10	40	71	01	32	63	93	24	54
21	21	52	80	11	41	72	02	33	64	94	25	55
22	22	53	81	12	42	73	03	34	65	95	26	56
23	23	54	82	13	43	74	04	35	66	96	27	57
24	24	55	83	14	44	75	05	36	67	97	28	58
25	25	56	84	15	45	76	06	37	68	98	29	59
26	26	57	85	16	46	77	07	38	69	99	30	60
27	27	58	86	17	47	78	08	39	70	00	31	61
28	28	59	87	18	48	79	09	40	71	01	32	62
29	29		88	19	49	80	10	41	72	02	33	63
30	30		89	20	50	81	11	42	73	03	34	64
31	31		90		51		12	43		04		65

SINGGARS JULIAN DATE CALANDER (LEAP YEAR)

DAY/MO	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	01	32	61	92	22	53	83	14	45	75	06	36
2	02	33	62	93	23	54	84	15	46	76	07	37
3	03	34	63	94	24	55	85	16	47	77	08	38
4	04	35	64	95	25	56	86	17	48	78	09	39
5	05	36	65	96	26	57	87	18	49	79	10	40
6	06	37	66	97	27	58	88	19	50	80	11	41
7	07	38	67	98	28	59	89	20	51	81	12	42
8	08	39	68	99	29	60	90	21	52	82	13	43
9	09	40	69	00	30	61	91	22	53	83	14	44
10	10	41	70	01	31	62	92	23	54	84	15	45
11	11	42	71	02	32	63	93	24	55	85	16	46
12	12	43	72	03	33	64	94	25	56	86	17	47
13	13	44	73	04	34	65	95	26	57	87	18	48
14	14	45	74	05	35	66	96	27	58	88	19	49
15	15	46	75	06	36	67	97	28	59	89	20	50
16	16	47	76	07	37	68	98	29	60	90	21	51
17	17	48	77	08	38	69	99	30	61	91	22	52
18	18	49	78	09	39	70	00	31	62	92	23	53
19	19	50	79	10	40	71	01	32	63	93	24	54
20	20	51	80	11	41	72	02	33	64	94	25	55
21	21	52	81	12	42	73	03	34	65	95	26	56
22	22	53	82	13	43	74	04	35	66	96	27	57
23	23	54	83	14	44	75	05	36	67	97	28	58
24	24	55	84	15	45	76	06	37	68	98	29	59
25	25	56	85	16	46	77	07	38	69	99	30	60
26	26	57	86	17	47	78	08	39	70	00	31	61
27	27	58	87	18	48	79	09	40	71	01	32	62
28	28	58	88	19	49	80	10	41	72	02	33	63
29	29	60	89	20	50	81	11	42	73	03	34	64
30	30		90	21	51	82	12	43	74	04	35	65
31	31		91		52		13	44		05		66

SINGARS

SINGARS Range Data MANPACK Radio Performance Data

TYPE COMMUNICATIONS	RF POWER	RANGE **
VOICE	LOW (LO)	200 M TO 400M
VOICE	MEDIUM (M)	400 M TO 5 KM
VOICE	HIGH (HI)	5 KM TO 10 KM
DATA (600-4800 BPS)	HIGH (HI)	3 KM TO 5 KM
DATA (16,000 BPS)	HIGH (HI)	1 KM TO 3 KM

* Above data apply equally to dismount radios and SINGARS RCUs.

** Ranges shown are for planning purposes only. They are based upon line of sight and are average for normal conditions. Ranges depend upon location, sighting, weather, and surrounding noise level, among other factors. Use of the OE-254 antenna will increase ranges for both voice and data transmissions.

Vehicular Radio Performance Data

TYPE COMMUNICATIONS	RF POWER	RANGE*
VOICE (SR OR LR RADIO)	LOW (LO)	200 M TO 400 M
VOICE (SR OR LR RADIO)	MEDIUM (MED)	400 M TO 5 KM
VOICE (SR OR LR RADIO)	HIGH (HI)	5 KM TO 10 KM
VOICE (LR RADIO)	POWER AMPLIFIER (PA)	10 KM TO 40 KM
DATA (SR RADIO) 600-4800 BPS 16000 BPS	HIGH (HI)	3 KM TO 5 KM 1 KM TO 3 KM
DATA (LR RADIO) 600-2400 BPS 4800 BPS 16000 BPS	POWER AMPLIFIER (PA)	5 KM TO 25 KM 5 KM TO 22 KM 3 KM TO 10 KM

* Ranges shown are for planning purposes only. They are based upon line of sight and are average for normal conditions. Ranges depend upon location, sighting, weather, and surrounding noise level, among other factors. Use of the OE-0254 antenna will increase ranges for both voice and data transmissions.

Avenger Fighting Positions

METT-T will determine the necessity to dig survivability positions. Examples when to dig are the following: defense in sector, defense of a static asset, entry operations, airbase defense etc..

The battery will normally coordinate for engineer assets for general support (GS) elements while direct support (DS) platoons will coordinate through the supported TF/unit. The efficient use of scarce engineer assets is critical to the overall mission. Therefore the platoon leader must perform mission analysis, ensuring he understands the supported units concept and ADA priorities. The Avenger platoon must clearly understand how Avengers will contribute to the force's air defense coverage prior to digging. The Avenger platoon may it be a team chief, section sergeant etc. is responsible for giving specific instructions to engineer equipment operators concerning the type and dimensions of the intended position.

Digging should start from the enemy side of the position so the spoil can be moved to the rear of the position. The spoil should not be formed into a berm or be placed in front, or to the side of the position.

A berm is difficult to camouflage and does not provide protection, spoil should be camouflaged, hauled out of the area or spread in such a manner as to avoid visual detection. Excellent vehicle fighting positions allow a vehicle to occupy full hide, turret defilade (see Figure 1), and hull defilade positions (see Figure 2). The best fighting positions also permit unobserved occupation or departure from the hide position that should be away from the actual dug position. Such positions occasionally occur naturally, but usually must be developed with engineer assistance.

One-Tier Fighting Position

When time is limited the one-tier position will provide a lowered silhouette for the Avenger and limited protection against direct and indirect fires. In this fighting position the gunner and TC would in most cases be located at the RCU fighting position for crew survivability.

Two-Tier Fighting Position

The two-tier position provides the best survivability of the two types of positions for the Avenger and greatly reduces visual detection. The Avenger when at turret defilade is not capable of engaging or detecting targets (if equipped with HTU/SHTU detection will not be hindered).

Positions should be dug as wide as the vehicle with two to three feet on each side for access to the vehicle for maintenance, equipment and missile upload and download. Figure 2 and 3 gives the dimensions for the Avenger one-tier position and Figure 1 for an Avenger two-tier position. Using a blade team consisting of two earthmovers (bulldozer and an M9 ACE or two dozers or two ACEs) a two-tier fighting position will take approximately 1.3 hours. A one-tier fighting position takes approximately .6 hours. Optimum use of the terrain will reduce construction times and allow maximum use of available engineer effort.

Units must develop SOPs on triggers to occupy at hull or turret defilade, this may be accomplished by using Air Defense Warnings (ADW), Local Air Defense Warnings (LADW) and States of Readiness (SOR). The table 1 below provides an example of vehicle positioning and should be developed using the unit's SOP and SOR standards. Avengers should also be remoted leaving enough excess cable to allow the Avenger to move forward to the hull defilade position.

Example of Vehicle Positioning Using ADWs, LADWs as Triggers

ADW	LADWs		
	Dynamite	Lookout	Snowman
	Vehicle Position	Vehicle Position	Vehicle Position
Red	Hull Defilade	Hull Defilade	Turret Defilade
Yellow	Hull Defilade	Hull Defilade	Turret Defilade
White	Hull Defilade	Turret Defilade	Turret Defilade

Table 1

Two Tier Position

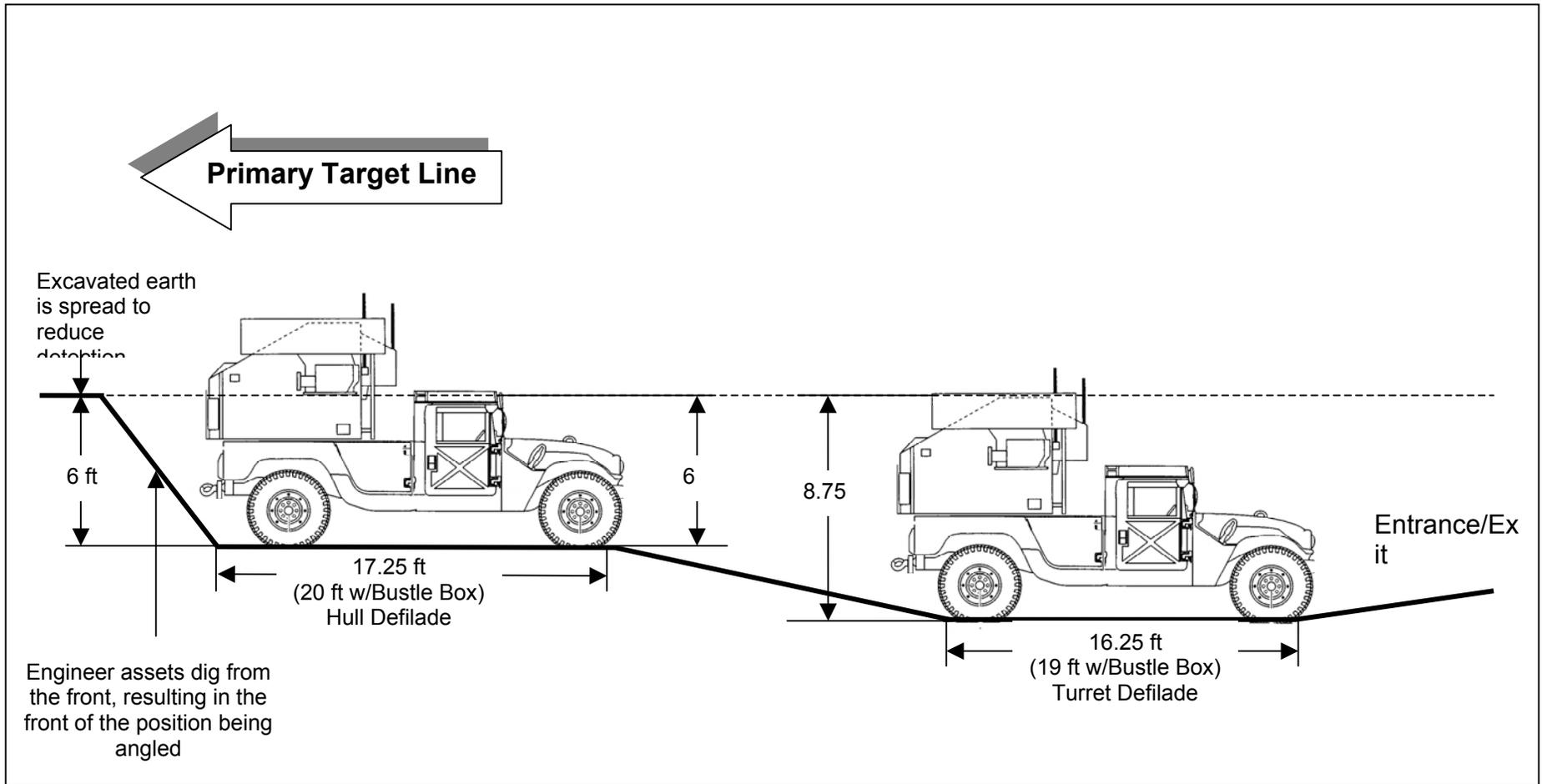


Figure 1. Two Tier, Turret and Hull Defilade

Single Tier Position

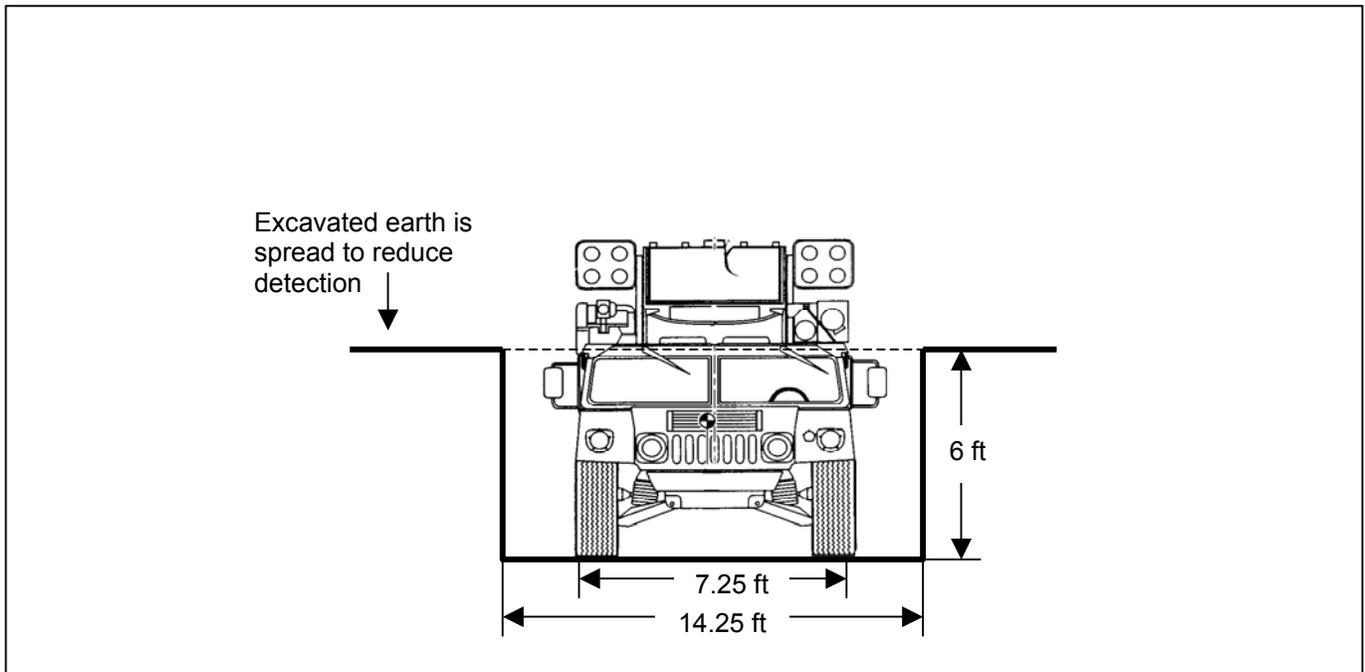


Figure 2. Hull Defilade, Front View

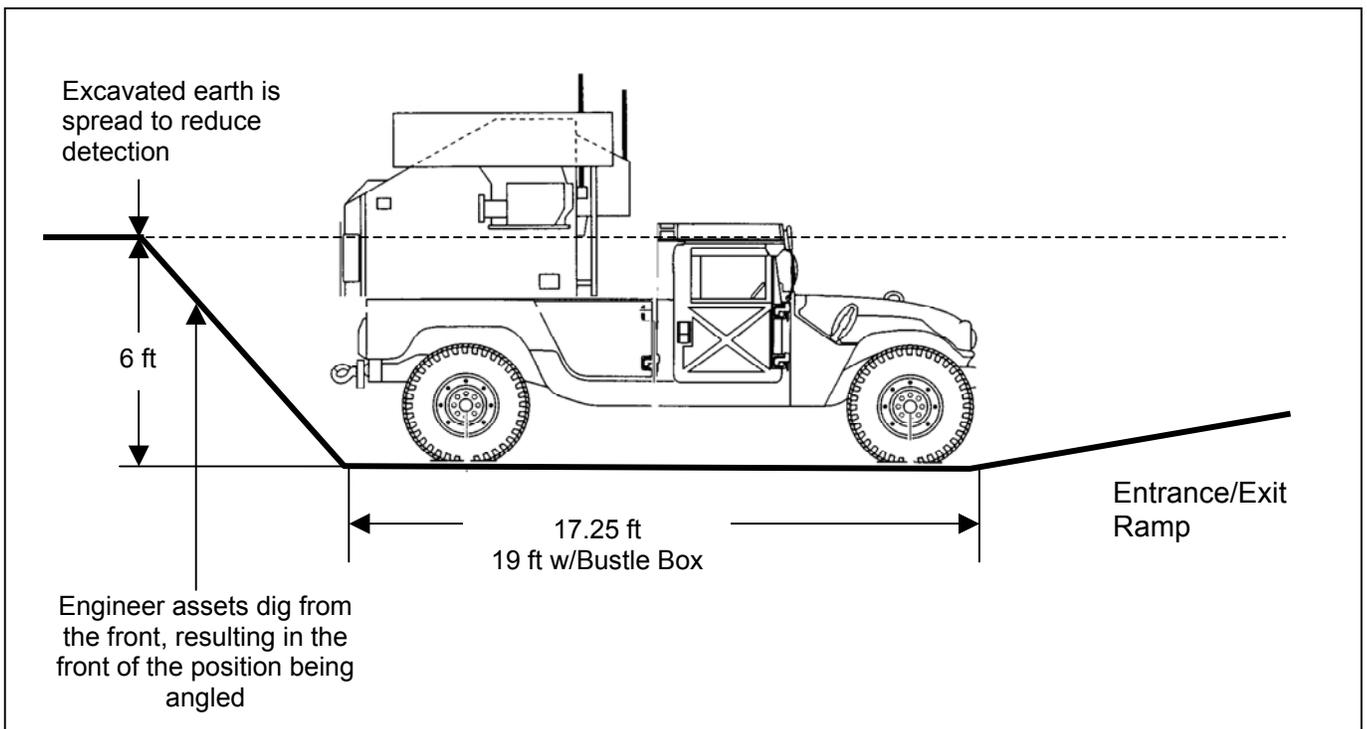


Figure 3. Hull Defilade, Side View

Overhead View of a Avenger Fighting Position

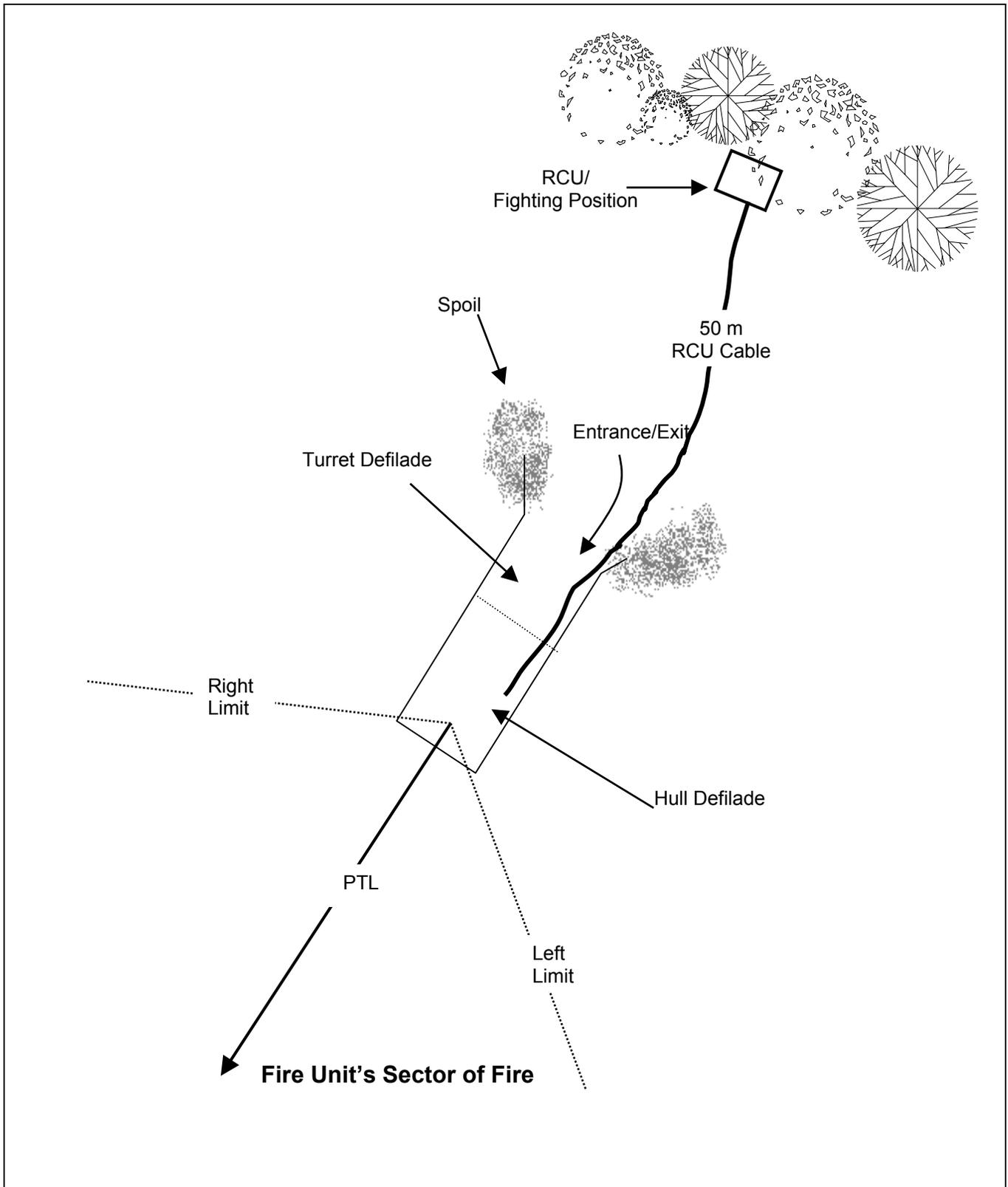


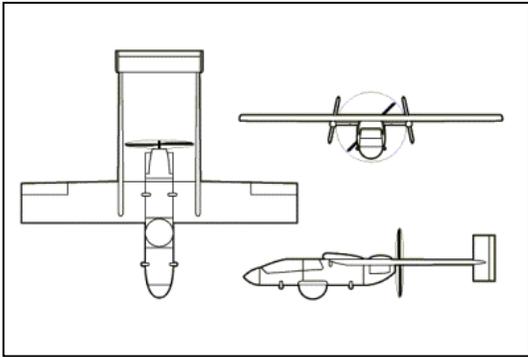
Figure 4. Top View of Avenger Fighting Position and Placement of RCU Fighting Position

CIS Helicopter Table

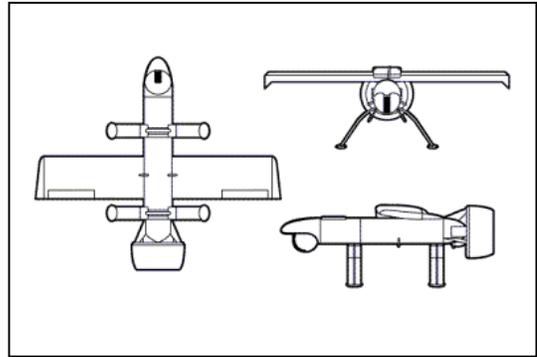
	Troops	Normal Payload Hovering Takeoff (kg)	Normal Take-off Weight (kg)	Service Ceiling (m)	Speed (km/hr) max at sea level	Cruising	Range (km)
MI-1 HOPLITE	8-10	700/800 Internal and sling	3,300	4,000	210	190	340
MI-4 HOUND	12-16	1,200	7,500	5,400	210	170	250
MI-6 HOOK	65	8,000 sling	39,000	3,000	300	250	200
MI-8 HIP	24	4,000/3,000 Internal and sling	11,100	3,500/4,500 Depending on role	250	225	160
MI-10 HARKE	28	5,000/8,000	39,000	3,000	250	202	795
MI-10 HARKE B	28	14,000 Sling	39,000	3,000	200	180	INA
MI-24 HIND A/D/E	8-10	3,600	10,000	2,100	320	310	490
MI-26 HALO A	100	20,000	50,000	4,500	300	250	800
HOKUM	2 Man Crew	INA	5,450	INA	350	INA	250
MI-1 HARE	2-3	1880	2,550	3,000	170	145	600
MI-28 HAVOC	2 Man Crew	7,000	10,400	INA	300	INA	240
KA-25 HORMONE	INA	INA	INA	6,000	220	192	400
KA-27 HELIX	16	11,000	12,600	3,500	245	222	800
KA-50 WEREWOLF	1 Man Crew	9,800	10,800	INA	310	INA	INA

Note: Commonwealth of Independent States (CIS) is the former Soviet Union.

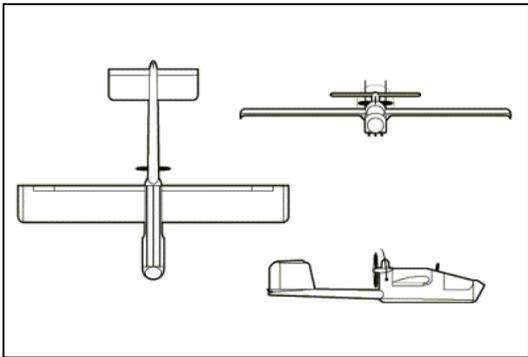
UAV Recognition



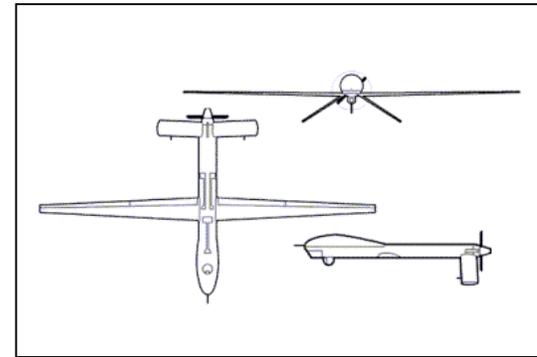
Scout
-US-



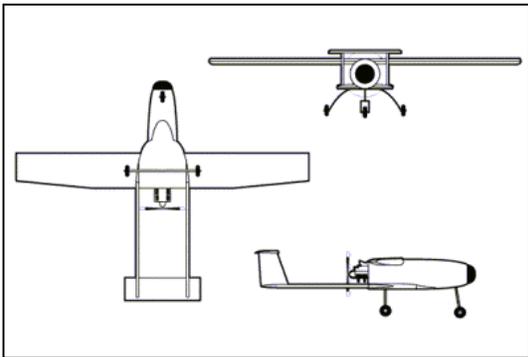
Shmel-1
-CIS-



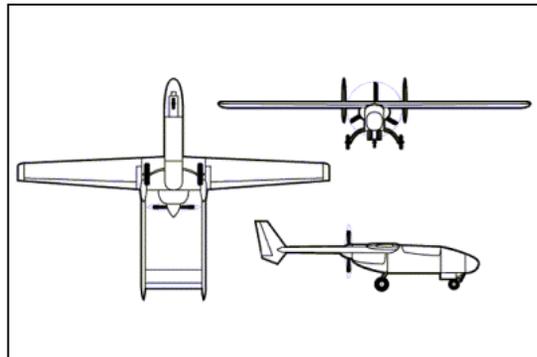
Raven
-UK-



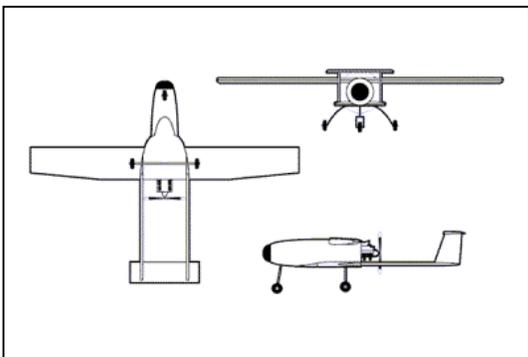
Predator
-US-



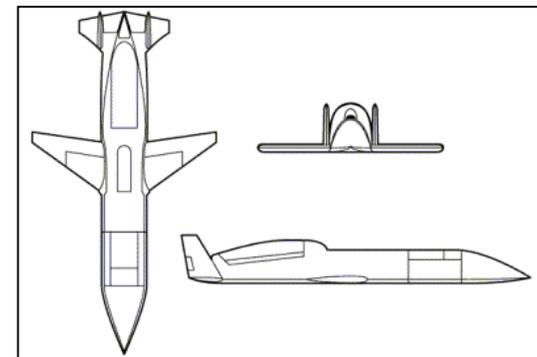
MK 106
-FR, GE, US, UK-



Model 410
-US-

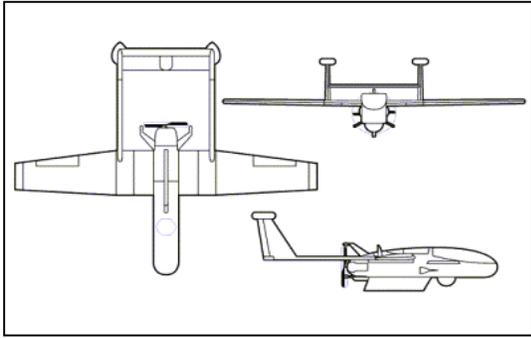


MK 105
-FR, GE, US, UK-

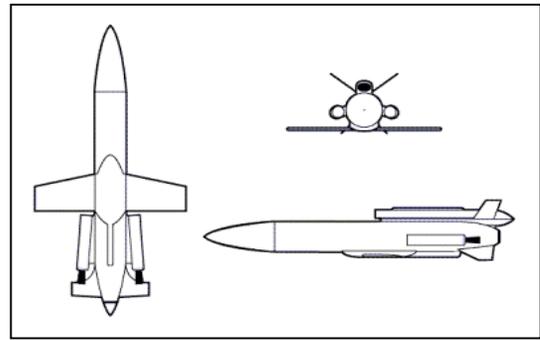


Model 324
-US-

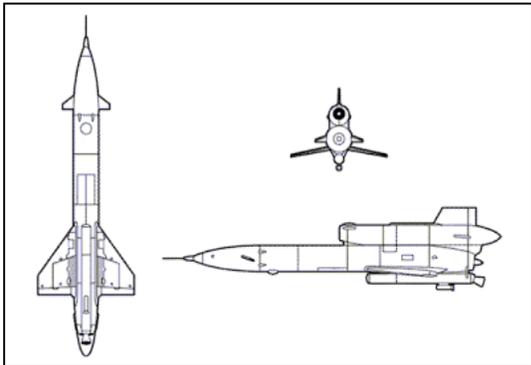
UAV Recognition



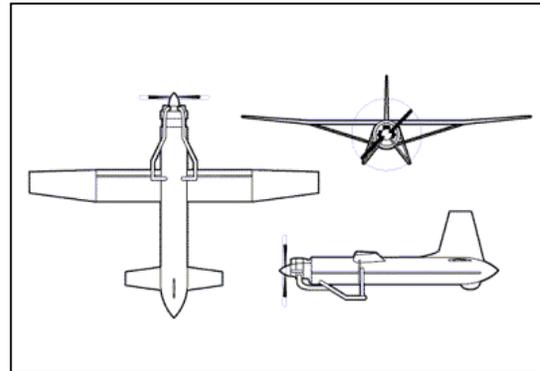
Mirach 26
-Italy-



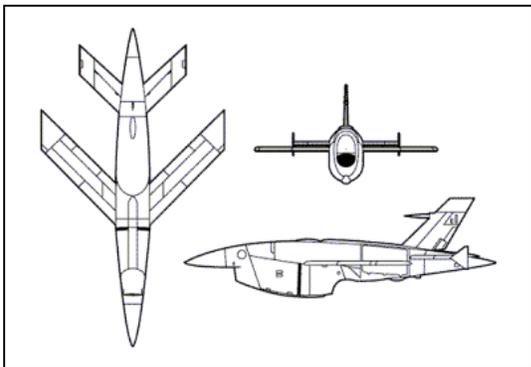
Mirach
-Italy, Iraq, Libya-



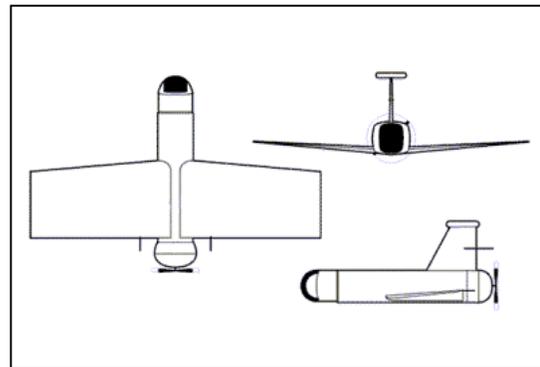
DR-3
-CIS-



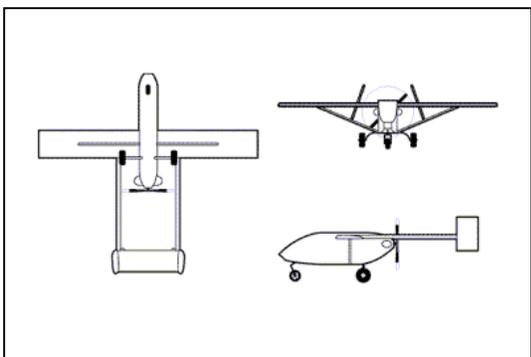
D-4
-China-



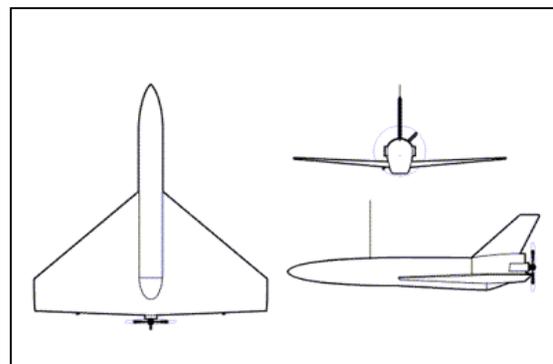
BQM-34
-US-



Brevel
-FR, GE-



Pioneer
-US-



Banshee
-UK-

Air Speed Distance Conversion Table

Km	300 Knots	360 Knots	390 Knots	420 Knots	450 Knots	480 Knots	540 Knots
	Time to Target						
1.9	0:12	0:10	0:09	0:09	0:08	0:08	0:07
3.7	0:24	0:20	0:18	0:17	0:16	0:15	0:13
5.6	0:36	0:30	0:28	0:26	0:24	0:23	0:20
7.4	0:48	0:40	0:37	0:34	0:32	0:30	0:27
9.3	1:00	0:50	0:46	0:43	0:40	0:38	0:33
11.1	1:12	1:00	0:55	0:51	0:48	0:45	0:40
13.0	1:24	1:10	1:04	1:00	0:56	0:53	0:46
14.8	1:36	1:20	1:13	1:09	1:04	1:00	0:53
16.7	1:48	1:30	1:23	1:17	1:12	1:08	1:00
18.5	2:00	1:40	1:32	1:26	1:20	1:15	1:07
20.4	2:12	1:50	1:41	1:34	1:28	1:23	1:13
22.2	2:24	2:00	1:50	1:43	1:36	1:30	1:20
24.1	2:36	2:10	2:00	1:51	1:44	1:38	1:27
25.9	2:48	2:20	2:09	2:00	1:52	1:45	1:33
27.8	3:00	2:30	2:18	2:09	2:00	1:53	1:40
29.6	3:12	2:40	2:28	2:17	2:08	2:00	1:48
31.5	3:24	2:50	2:37	2:26	2:16	2:08	1:53
33.4	3:36	3:00	2:46	2:34	2:24	2:15	2:00
35.2	3:48	3:10	2:55	2:43	2:32	2:23	2:07
37.1	4:00	3:20	3:04	2:51	2:40	2:30	2:13
Ground Speed	Feet/Sec		Sec/1NM		NM/Min		
330	557		10.7		5.5		
420	710		8.60		7.0		
450	750		8.00		7.5		
480	810		7.50		8.0		
540	913		6.60		9.0		
Kilometers x .539 = Nautical Miles Kilometers x .621 = Statute Miles Meters x 3.28 = Feet Kilograms x 2.2 = Pounds			Nautical Miles x 1.85 = Kilometers Statute Miles x 1.61 = Kilometers Feet x .304 = Meters Pounds x .454 = Kilograms				