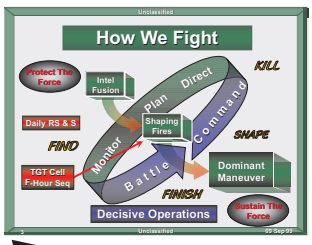
MANEUVER COMMANDER'S HANDBOOK

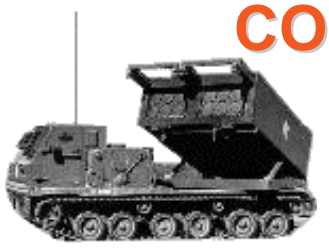


FOR FIRE SUPPORT

Table of Contents

THE MISSION OF THE FIELD ARTILLERY

TO DESTROY, NEUTRALIZE, OR SUPPRESS THE ENEMY BY CANNON, ROCKET AND MISSLE FIRES, AND TO HELP INTEGRATE ALL FIRE SUPPORT ASSETS INTO COMBINED ARMS OPERATIONS.



Notes

ZONE MANAGEMENT RESPONSIBILITY

FSCOORD

- Translates CDR's intent for force protection.
- Recommends zones to the Cdr. during planning process.

FSO/Targeting Officer

- Ensure priorities and triggers are developed for activation of zones.
- Allocate, verify and update zones to ensure CDR's intent is met.
- Integrates triggers into DST/Sync Matrixes
- Incorporate planned zones into Combined Arms and FS Rehearsals.

S3

- Ensures TA TAB to FASP includes coordination measures for zone development.
- Determine attack guidance and firing unit assignment to support the responsive engagement of counter fire acquisitions.

Task Force FSO

- Develop Priority zones to support Task Force Plan (CFZs).
- Nominates zones to Bde
- Establishes ownership and responsibilities for zones.
- ***Activates and refines zones during execution.***

DS Battalion S2

- Develop CFFZs based on templated enemy artillery positions.
- Nominate zones to targeting team for approval and inclusion into collection plan.

ENEMY PHASES OF FIRE (OFFENSE)

PHASE I: Fire Support for the Movement Forward

- **Supports movement from the AA to the LD; DIV RECON calls & DAG fires**
- **Ends when maneuver units ready to deploy into BN column**
- **May include chemical (persistent or non-persistent) or FASCAM on CO/TM BPs**
- **CAS is used on units in main avenue of approach as well as reserves**

PHASE II: Fire Preparation For the Attack

- **Begins 20-30 minutes prior to attacking forces reaching FEBA; as Regt hits LD**
- **DAG fires & should suppress &/or destroy defending enemy**
- **Last until assault is no farther than 10 minutes from FEBA; can be repeated**
- **CAS is used on units in the main avenue of approach as well as reserves**
- **Non-persistent chemicals used on units in the main avenue of approach**

PHASE III: Fire Support of the Attack

- **Begins when the maneuver units begin assaults, immediately after phase II**
- **RAG & DAG support calls for fire**
- **Continues with maneuver units advance through enemy defensive positions**
- **2-4 minute intervals between shifting of fires & attack by forward troops**

PHASE IV: Fire Accompaniment

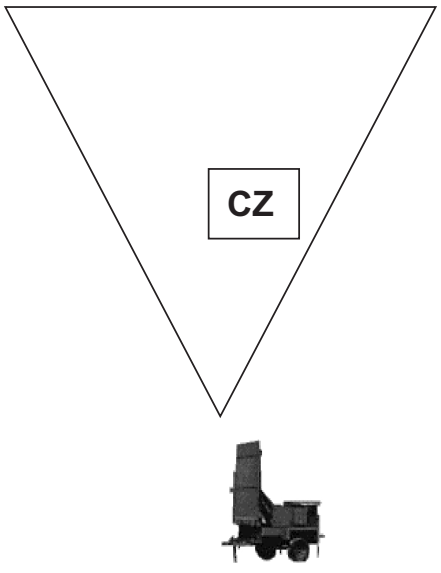
- **Fired as forces move through the defense; RAG & DAG support on-call fires, includes coordinated air strikes, lasts until mission complete**

OFFENSE PLANNING CONSIDERATIONS

- Who are the primary and alternate observers to support the breach?
- Are all target acquisition assets included in the recon/observation plan? (radar, strikers, COLTs , BRT, UAV, ETAC, etc) Are they out of the surface danger of the available munitions?
- What fire support coordination measures are in place to ensure rapid fire support coordination?
- Have all available fire support assets been integrated and focused at the critical point of the battlefield?
- Does the land management plan include field artillery position areas? Are the artillery and radar positioned to effect the battle at the critical time?
- Have we clearly designated priority of fires?
- What is the trigger to shift priority of fires?
- Does the communication plan support fire support assets throughout the battlespace (deep/ close)?
- What is the purpose for CAS?
- What is your priority for force protection
- How will IEW effect the battle, what are my assets and where are they positioned?
- What fires are in place to prevent enemy reconsolidating on the objective?
- How will I use smoke in the operation and what is the trigger?

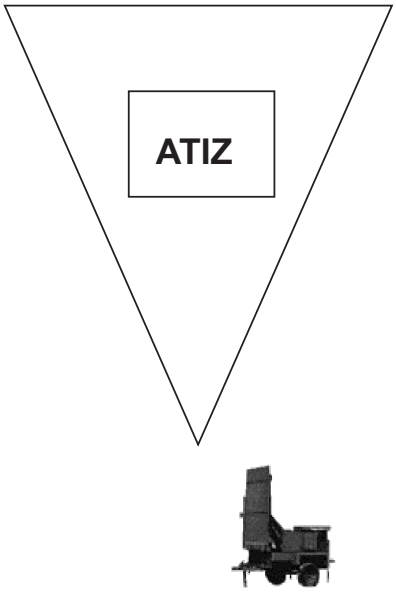
CENSOR ZONE (CZ)

- Essentially builds in a “blind-spot” for the Q-36/Q-37 in order to ignore fires from that zone.
- Weapons that fire from this zone are not processed by the radar so the size of the zone needs to be precise so that we don’t allow a hostile system to set up in our blind-spot.
- Zone must be located inside the radar’s search sector.
- This zone can be used for force protection to avoid acquiring friendly mortars or artillery forward on a raid.
- *It is often more appropriate to put in an NFA or RFA for a friendly force rather than putting a large ”blind spot” on the radar.



ARTILLERY TARGET INTELLIGENCE ZONE (ATIZ)

- **A weapon acquired in this zone will result in an ATI:CDR being sent to the FDC as a suspect target in AFATADS. <u>It will not trigger an alert for the operator.</u>**
- **<u>Default message format for the Q-36/Q-37.</u> Any area of the radar's search sector that does not have a zone specified is an ATI zone.**
- **Zone must be located inside the radar's search sector.**
- **<u>Will not trigger a call for fire in AFATDS</u>.**
- **There is no need to add this type of zone because it may conflict with something more critical.**



OFFENSE PLANNING CONSIDERATIONS

TASKS

- ❑Responsive fires to maneuver
- ❑Attack deep targets with massed indirect/CAS
- ❑Use all available FS assets, and all available TA assets
- ❑Before the attack, soften the target by attacking:
  - ❑Enemy Engineer assets
  - ❑CL III, IV, V points
  - ❑Enemy ADA
  - ❑Enemy FS systems
  - ❑Suspected OP locations
  - ❑Reserves and C2
  - ❑Assembly Areas
  - ❑Communication Centers
  - ❑Front Line Troops
- ❑During the attack, use all FS assets to destroy, neutralize, or suppress HPTs that could slow or react to the attack
- ❑Observation plan must support scheme of maneuver
- ❑Priorities of force protection
- ❑Fire support assets compliment risk taken with maneuver forces
- ❑During consolidation:
  - ❑Protect units as they reorganize
  - ❑Breakup counter-attacks
  - ❑Prevent Enemy reinforcement

MTC

- ❑Facilitate responsive fires
  - ❑Assign POF/Allocate PRI TGTs
  - ❑Quick Fire Channel (if appropriate)
  - ❑Responsive positioning of artillery by the artillery BN S3
  - ❑Effective OBS Plan with PRI/ALT observers identified
- ❑Build hasty fire plan to support a Hasty Attack or a Hasty Defense
- ❑Place CFL well forward of friendly forces, with o/o CFLs based on PLs to facilitate rapid shifting of the CFL

OFFENSE PLANNING CONSIDERATIONS (CONT)

HASTY ATK
- ❑Concentrate fires on forward enemy elements. Should be continuous until directed by the commander
- ❑Provide screening/obscuration smoke
- ❑Isolate from reinforcements with deep fires (FASCAM/DPICM)

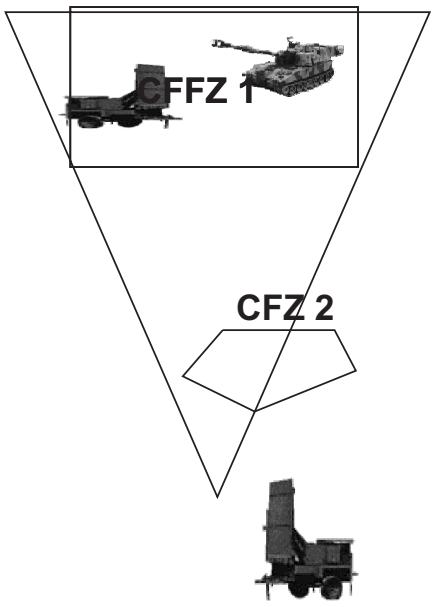
DELIBERATE ATK
- ❑Provide Priority of Fires to lead element
- ❑Place Strikers deep for early engagement/acquisition
- ❑Target to disrupt the reserves/reinforcement
- ❑Prep
- ❑SOSR
- ❑Deception SMK/PREP
- ❑Mass fires at POP to create holes
- ❑CAS at POP

- ❑Heavy suppressive fires on far side of POP
- ❑CFL past FLOT at least 5-10KM
- ❑ Build fire plan to support o/o mission

EXPLOITATION
- ❑BPT reposition COLTs
- ❑Plan fires on the flanks
- ❑Disrupt retreating formations
- ❑Disrupt enemy escape routes (FASCAM, DPICM)
- ❑CFL past FLOT at least 5-10KM
- ❑BPT build hasty attack fire plan

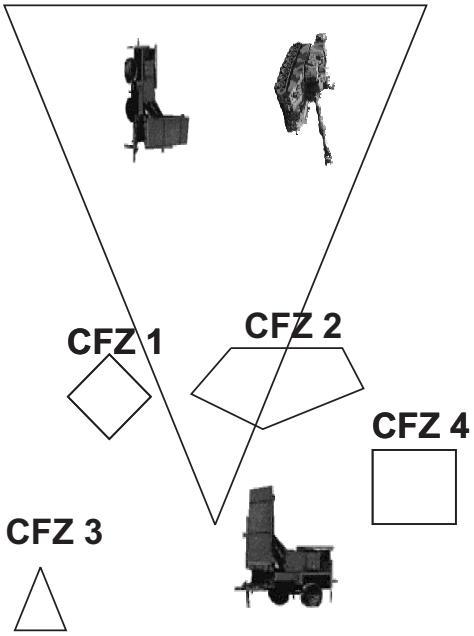
CALL FOR FIRE ZONE (CFFZ)

- **S-2 nominates CFFZ based on his read of the enemy set.**
- **A weapon acquired in this zone will result in a FM:CFF, being sent to the FDC.**
- **<u>Only point of origin is contained in the FM:CFF</u>**
- **Zone must be located inside the radar's search sector**
- **A large CFFZ will ensure that all RAG elements firing within Q-36 range will be acquired and an FM:CFF will be sent to the FDC.**



CRITICAL FRIENDLY ZONE (CFZ)

- **A friendly unit or location which the maneuver commander designates as critical to achieving the mission.**
- **A round impacting in this zone will result in a FM:Call For Fire, being sent to the FDC.**
- **Hostile artillery must be firing from within the radar's search sector.**
- **Zone MAY be located outside the radar's search sector, but the projectile must originate from within the radar's search sector.**



ENEMY PHASES OF FIRE (DEFENSE)

PHASE I: Counter-Preparation
- Surprise! DIV RECON calls; DAG (combo w/ air) fires prior to our prep fires
- Purpose is to annihilate or neutralize our combat power prior to our attack

PHASE II: Fire Interdiction of Advancing & Deploying Troops
- Begins when we deploy into BN column & continues to LD
- Purpose is to force us to deploy early; may include FASCAM & chemical
- DAG begins fires; RAG fire as called by REGT RECON & CSOPS
- Arty fires from temporary positions or roving battery to deny the BLUEFOR intel
- If a defense in contact; this phase concentrates on 2nd echelon

PHASE III: Fire to Repel BLUEFOR Attack
- Most important phase! Coordinated w/ AT fires; RAG & DAG fires
- Missions last 15-20 minutes, then guns displace to alternate positions
- Begins when we LD, ends when we enter first defensive positions
- Creates zones of continuous fires in front of the defense

CAS will always be included during all phases

PHASE IV: Fire Support of Defending Troops
- Begins when we breach the defense; RAG, DAG, & MTR fire
- Creates fire sacks to destroy us & prevent further development of our attack
- Selected 2S1 batteries go into direct fire mode from prepared direct fire positions

PHASE V: Fire Destruction of BLUEFOR During Counterattack
- To recover lost terrain; destroy us; establish a front line to launch an offensive
- Supports commitment of the CAR; sub-phases:
  - Support to forward movement of troops
  - Preparation of the counterattack
  - Support of the counterattack

DEFENSE PLANNING CONSIDERATIONS

- Is the CFL as close as possible to the FLOT? Are NFAs around friendly forces forward of the CFL?
- What fires are planned to strip engineer and recon forces, disrupt and separate echelons?
- What observers/fires are covering obstacles?
- Are all fire support assets incorporated in the planned engagement areas?
- What fires are planned to help disengage or reposition forces and cover withdrawal?
- What is the trigger to shift fires from deep to close then back to deep?
- Do NAIs/ TAIs cover likely avenues of approach?
- Have FPFs been allocated? Is adjustment required?
- Are any special FSCMs required?
- Have all available fire support systems been planned, employed and allocated?
- Who gets priority of fire and how will it be shifted?
- Is the observation plan in depth and redundant?
- Are fires/ CAS planned where you take risk with maneuver forces
- What are my priorities for force protection?

RADAR ZONES

There are four types :

1. CALL FOR FIRE ZONE (CFFZ)
2. CRITICAL FRIENDLY ZONE (CFZ)
3. CENSOR ZONE (CZ)
4. *ARTILLERY TARGET INTELLIGENCE ZONE (ATIZ)

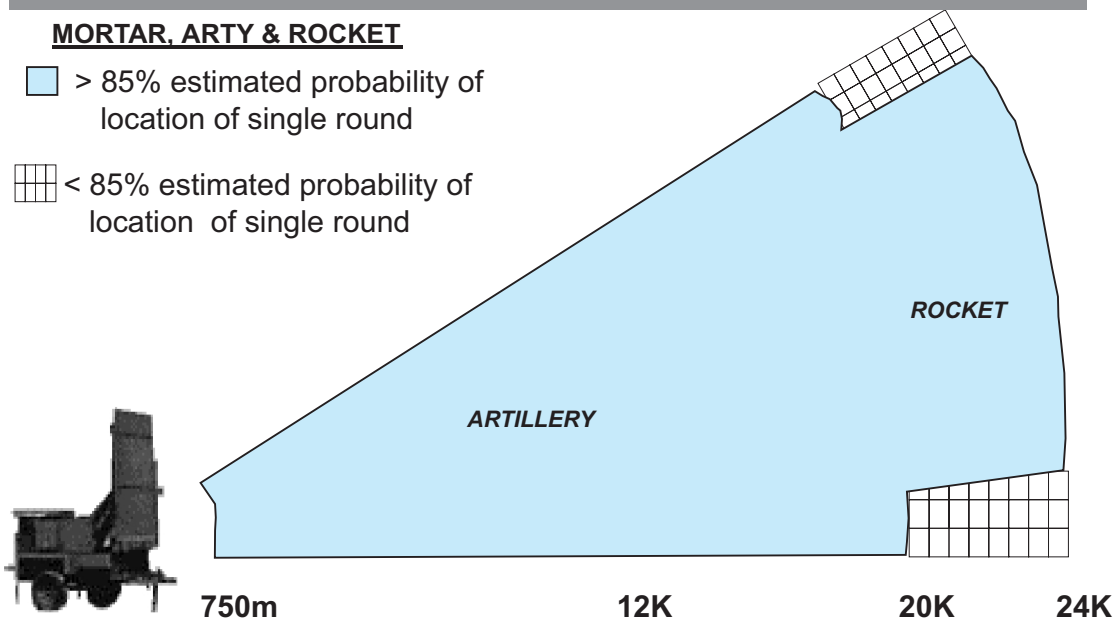
ATIZ IS THE DEFAULT MESSAGE FOR THE Q -36/Q-37 RADARS. IF THE RADAR ACQUIRES A PROJECTILE IN FLIGHT AND IT DOES NOT VIOLATE A ZONE THEN IT WILL BE REPORTED IN AN ATI FORMAT. THIS IS IMPORTANT TO NOTE BEC AUSE THE ATI FORMAT IS NOT EASILY RECOGNIZED BY AFATDS. THE Q -36/Q-37 WAS DESIGNED TO BE COMPATIBLE WITH AN OLDER SYSTEM KNOWN AS IFSAS. T HIS REQUIRES US TO BE MUCH MORE DILIGENT IN OUR ZONE MANAGEMENT AND TO ENSURE THAT ALL ACQUISITIONS WILL VIOLATE A ZONE.

Q-36 PROBABILITY DETECTION

MORTAR, ARTY & ROCKET

> 85% estimated probability of location of single round

< 85% estimated probability of location of single round



Q-36/Q-37 SEARCH FENCE IS 1600 MILS (90 DEGREES)

DEFENSE PLANNING CONSIDERATIONS

TASKS
- ❑DISRUPT/DELAY/ATTRIT ENEMY BEFORE ATTACK BEGINS
- ❑STRIP ENEMY ADA & RECON ELEMENTS
- ❑STRIKE ENEMY AS HE ATTACKS
- ❑DISRUPT ENEMY AVENUE OF APPROACH
- ❑CANALIZE ENEMY
- ❑SUPPRESS ENEMY FS SYSTEMS

SECURITY AREA CONSIDERATIONS
- ❑FORCE ENEMY TO DEPLOY
- ❑STRIP AWAY RECON
- ❑ISOLATE ECHELONS
- ❑DECEIVE ENEMY OF MBA
- ❑SUPPORT WITHDRAW

PASSAGE OF LINES CONSIDERATIONS
- ❑SCREEN PASSAGE POINTS W/SMK
- ❑DECEPTION FIRES
- ❑STATIONARY FORCE SUPPORTS CLOSE FIGHT & CALLS FOR FIRE
- ❑PLAN FIRES TO DISENGAGE
- ❑PLAN FIRES TO BE EXECUTED BY MOVING FORCE

OVERALL CONSIDERATIONS
- ❑ATTACK ENEMY DEEP
- ❑PLAN FIRES TO SPT STRIKERS/BRT
  - ❑SMOKE
  - ❑SUPPRESSION
- ❑SEPARATE ENEMY INF FROM AR
- ❑SUPPORT THE OBSTACLE PLAN
  - ❑FIRES FWD TO DISRUPT/ATTRIT
  - ❑FIRES ON TO HINDER BREACHING
  - ❑FIRES TO SIDES TO HINDER BYPASS
  - ❑SMK TO OBSCURE OBSTACLE FROM EN
  - ❑SUPPORT DISENGAGEMENTS
    - ❑FPF
    - ❑ON CALL SUPPRESSIVE FIRES
    - ❑SMOKE
- ❑CFL SHOULD BE CLOSE (3-5KM) FROM THE FLOT
- ❑RFA/NFA ON FORWARD TROOPS
- ❑USE CAS EARLY ON DEEP FORMATIONS
- ❑FIRE SUPPORT ASSETS COMPLIMENT RISK

DEFINITIONS

Destroy: Destruction physically renders an enemy force permanently combat-ineffective (30% casualties) unless it is reconstituted or so damaged that it cannot function as intended nor be restored to a usable condition without being entirely rebuilt.

Neutralize: Neutralization fires are delivered to render the target ineffective or unusable for a temporary period (10% casualties). Neutralization fire results in enemy personnel or materiel incapable of interfering with a particular operation or the accomplishment of a particular course of action (COA).

Suppress: Suppression fires are fires on/or about a weapon system to degrade its performance below the level needed to fulfill its mission objectives. The effect of suppressive fires usually lasts only as long as the fires are continued. Suppression is used to prevent effective fire on friendly forces.

Harass: Harassing fires may be used to disturb the rest of enemy troops, curtail their movement and, by the threat of losses, lower their morale. The decision to employ harassing fires needs careful consideration based on what the enemy counter battery threat is.

AN/TPQ-36 RADAR

The primary mission of the AN/TPQ-36 is to locate high-trajectory indirect fire weapons such as mortars. It can be used to locate cannon artillery and rockets.

Prime Mover:	HMMWV (M1098)
Planning Ranges:	
Artillery & Mortars:	18,000 meters
Rockets:	24,000 meters
Azimuth Search Sector	1,600 mils (6,400 in extended azimuth mode)
Accuracy	100 meters CEP
Traverse	6,400 mils
Elevation	15 to 30 mils screening crest
Emplacement Time	15 minutes
Displacement Time	10 minutes
Fording Capability	16 inches
Air Transport	
Internal	C130, C141
External	CH-47D, UH-60
Type of Targets	Mortars, Artillery, Rockets
Distance from FLOT	3 to 6 kilometers
Weight	
Trailer	4,440 pounds
Shelter	2,780 pounds
W/Prime Mover	19,640 lbs.
Length	170.75 in

FIST-V

M981

MAX RANGE: 300 MILES
CREW: 4
NBC: OVER PRESSURIZATION PROTECTION
DAY & NIGHT CAPABILITIES

SMART WEAPONS GUIDANCE PLATFORM
•AN/TVQ-2 G/VLLD:GROUND/VEHICULAR LASER LOCATER DESIGNATOR

MAX RANGE:	9,999 METERS
MOVING TGT:	3,000 METERS
STATIONARY:	5,000 METERS
ACCURACY TO:	DIS. 1 METER
	DIR. 1 MIL
	V/A. 1 MIL

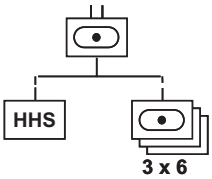
• MOUNTED & DISMOUNTED LASING CAPABILITY

COMMUNICATIONS:
2 VRC-92 D RADIO SETS (REMOTE CAPABILITY
1 AN/PSG-9 HTU (HANDHELD TERMINAL UNIT)
(HTUs FOR DISMOUNT USE)

M109A6 PALADIN

CAPABILITIES

•155MM SP Howitzer
•Range: 22 km conventional, 28.1km BB DPICM, and 30km RAP
•Rate of Fire: 1 rpm sustained, 4 rpm for 3 minutes maximum
•Response time: 60 sec from road march configuration to 1st rd fired
•Ammunition capacity: 39 (37 conventional + 2 Copperhead)
•Pos Nav & Plgr, Ballistic Computer
•Gun Drive Servos, Voice & Dig Comm's
•Automatic Self-Laying



TOTAL
18 X M109A6
18 X M992 FASV
18 X PLS

EMPLOYMENT

•Maneuver by platoon with Btry FDC
•One terrain feature behind maneuver
•Terrain management ..... from position areas to battle position, axis, or attack by fire position

PALADIN RANGES

PROJECTILES	CHARGE GB MAX RG	CHARGE WB MAX RG	CHARGE RB MAX RG
DPICM	9000	14200	17700
DPICM-BB	N/A	17100	28100
HE	9800	14700	22300
RAP	N/A	19500	30000
FASCAM	8850	14100	17700
ILLUM	9200	14200	17500
SMK-HC	9800	14700	18100
SMK-WP	9800	14700	18100
M825	9300	14400	21700
CPHD	5400	13000	15500
SMART MUNITION	**MAX RG**		
SADARM	22500		

STRIKER EMPLOYMENT

PART 2 OF 2

•ATTACK:

• The purpose of the attack is to defeat, destroy, or neutralize the enemy.
• The attack is easier to prepare Strikers for than the MTC.
• This is because template enemy locations are already known, which provides a basis for an observation plan as well as targeting.
• In preparing for the attack, Strikers can be sent out in the hours of darkness to occupy Ops overlooking the objective area to confirm or deny enemy strength and to refine the current fire plan.

DEFENSIVE:

• The primary forms of defensive operations are mobile and area defense.
• Considerations for the Strikers are not much different between the two defensive patterns.
• Strikers can engage brigade high pay-off targets with indirect fire and CAS to help set the conditions for success in the task force fight. This may often involve the addition of an ETAC into the planning considerations.
• Strikers can provide early warning to the Brigade which will help in the identification of the enemy attack formation as well as main attack route.
• Planning for the defense is easier than for offensive operations because the terrain is owned by friendly forces.
• This allows for detailed terrain analysis and reconnaissance by the Strikers which can not be done in the offense. This allows target refinement, the placement of triggers, and position improvement on the OP.

Whether in offensive or defensive operations, it is especially important that the Striker understands the enemy; to include how he fights, the composition and disposition of his combat power, what formations he will doctrinally use, and the time/space separation of forces.
• Thorough understanding of the enemy will provide the Strikers and the maneuver Brigade much better success on the battlefield.

STRIKER EMPLOYMENT

PART 1 OF 2

•STRIKERS ARE FULLY INTEGRATED WITH BRT
• PART OF THE RECON TEAM
• LOCATION/PROXIMITY TO TARGET

A map recon and Terrabase products should be used to develop the Strikers observation plan. In both instances, it is important that the Strikers receive a final Intel dump before deploying teams into enemy territory.

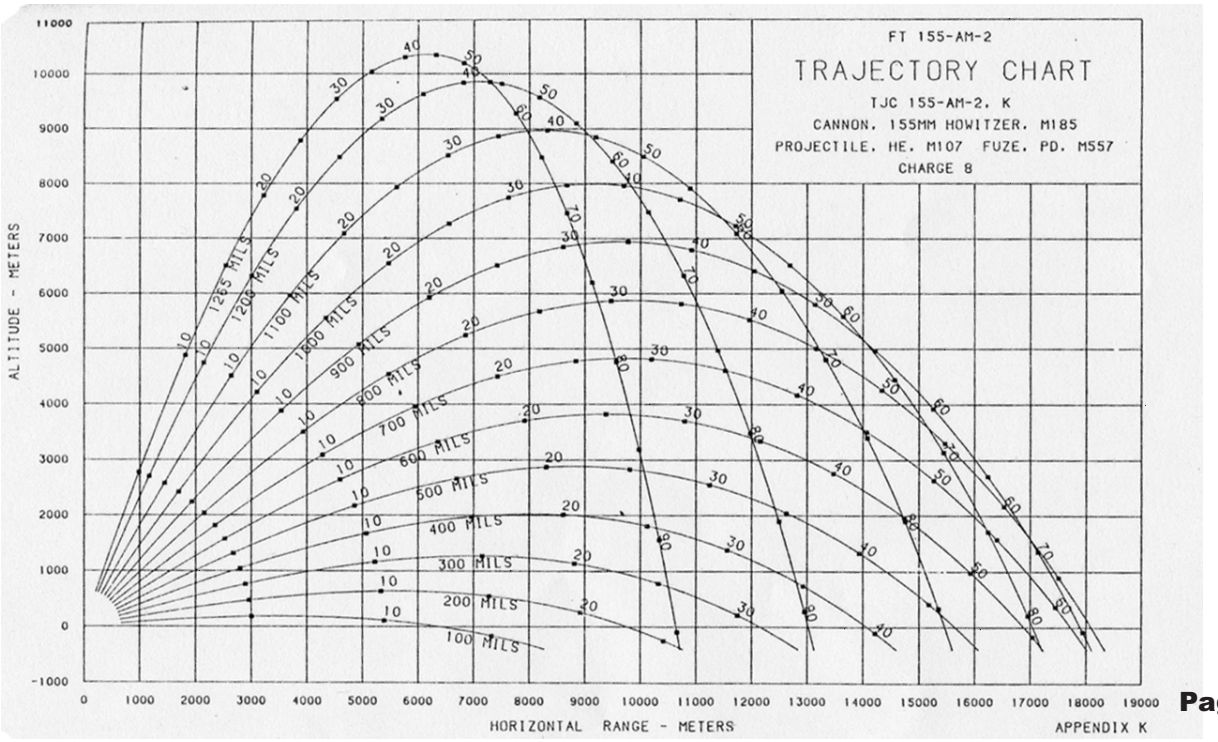
OFFENSIVE:
• Strikers must be familiar with the intent and concept of an offensive operation to apply initiative in the execution of their Mission.
• They must understand not only fire support plan but how that plan is synchronized with the scheme of maneuver.

MOVEMENT TO CONTACT:

• The movement to contact is the offensive operation conducted to develop the situation and to establish or regain contact with the enemy. It is the most difficult offensive mission to plan and execute with Strikers.
• The reason for this is because we are not sure when we will meet the enemy.
• Thus, it is difficult to plan NAIs, Ops, and targets with such uncertainly.
• The commander must visualize where the most likely, or dangerous, points are along the axis of advance.
• Strikers can be sent forward of the main body to place eyes on these areas.
• It is also difficult to position strikers in this operation due to the fluidity of the battle and the inability for detailed reconnaissance.
• A map recon and Terrabase products should be used to develop the Striker observation plan.

M109A6 PALADIN MAX TRAJECTORIES

REFERENCE: FT 155-AM-2



MUNITIONS EFFECTS TABLE

HIGH EXPLOSIVE CASUALTIES FOR 155mm ARTILLERY
NTC CASUALTY ASSESSMENT
TYPE TARGET
HIGH EXPLOSIVE

ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
PYRO AIR	1	2	2	2	2	2	2	2	3	4	4	4	5	5	5	6	6	6
GROUND	1	1	2	2	2	3	3	3	3	3	3	4	4	4	5	5	5	6

TRPS IN OPEN (PLT)	2	4	6	7	8	9	10	11	11	12	12	12	13	13	13	16	13	14
TRPS IN OPEN (CO)	6	12	18	21	24	27	30	33	33	34	35	36	37	38	39	40	41	42
TRPS DUG-IN no overhead (plt)	-	1	2	3	3	3	4	4	4	4	5	5	5	6	6	6	7	7
TRPS DUG-IN no overhead (co)	1	3	6	7	8	9	10	11	12	13	13	14	15	16	17	18	19	20
TRPS DUG-IN w/overhead (plt)	-	-	-	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4
TRPS DUG-IN w/overhead (co)	-	1	2	3	3	3	4	4	4	5	5	6	6	7	7	8	8	8
WHEELED VEH	-	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4	5	5
ARTILLERY	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	2
ARMORED PSNL CARRIER	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	2
TANKS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

(PLT =20 per, CO= 80 per)

STRIKER

M1025

MAX RANGE: 300 MILES

CREW: 3

DAY & NIGHT CAPABILITIES

SMART WEAPONS GUIDANCE PLATFORM
•AN/TVQ-2 G/VLLD:

MAX RANGE:	9,999 METERS
MOVING TGT:	3,000 METERS
STATIONARY:	5,000 METERS
ACCURACY TO:	DIS. 1 METER
	DIR. 1 MIL
	V/A. 1 MIL

• FBCB2/MELIOS/VIPER/SCAMP

• MOUNTED & DISMOUNTED LASING CAPABILITY

COMMUNICATIONS:
1 VRC-92 D RADIO SETS (REMOTE CAPABILITY)
1 AN/PSG-9 HTU (HANDHELD TERMINAL UNIT)

FIELD ARTILLERY OBSERVERS

MUNITIONS EFFECTS TABLE

DPICM CASUALTIES FOR 155mm ARTILLERY
NTC CASUALTY ASSESSMENT
TYPE TARGET

ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
PYRO AIR	1	2	2	2	2	2	2	2	3	4	4	4	5	5	5	6	6	6
GROUND	1	1	2	2	2	3	3	3	3	3	3	4	4	4	5	5	5	6

TRPS IN OPEN (plt)	3	6	9	11	12	13	14	14	15	15	15	16	16	16	16	17	17	17
TRPS IN OPEN (C0)	9	18	27	32	36	39	41	43	45	46	47	48	49	50	51	52	53	54
TRPS DUG-IN no overhead plt	1	2	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9
TRPS DUG-IN no overhead co	3	6	9	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
TRPS DUG-IN w/overhead plt	-	-	-	-	-	-	1	1	1	1	2	2	2	2	2	2	3	3
TRPS DUG-IN w/overhead (co)	-	1	1	2	2	2	3	3	4	4	5	5	6	6	6	7	7	7
WHEELED VEH	-	-	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4
ARTILLERY	1	2	2	2	3	3	3	4	4	4	4	5	5	5	6	6	6	7
APC	-	-	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4
TANKS	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	2	2

(PLT =20 per, CO= 80 per)

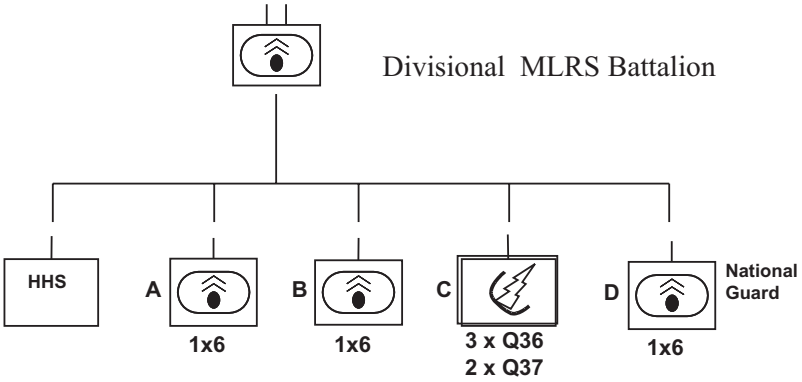
M270 MLRS

CAPABILITIES & FEATURES

- **Range:** 32 Km, 45 Km Extended Range, 165 Km ATACMS (Block 1)
- **Rate of Fire:** 12 Rockets within 1min
- **Response time:** 60 sec from road march configuration to 1st rocket fired
- **Ammunition capacity:** 2 Launch Pods, 6 Rockets per Pod; ATACMS 2 Launch Pods, 1 Missile per Pod

EMPLOYMENT

- Cannon-like responsiveness
- On-board Fire Direction System
- Cannon-like ammo re-supply complexity (MLRS-ICM, ER-MLRS, ATACMS I)
- Shoot-and-Scoot Tactics



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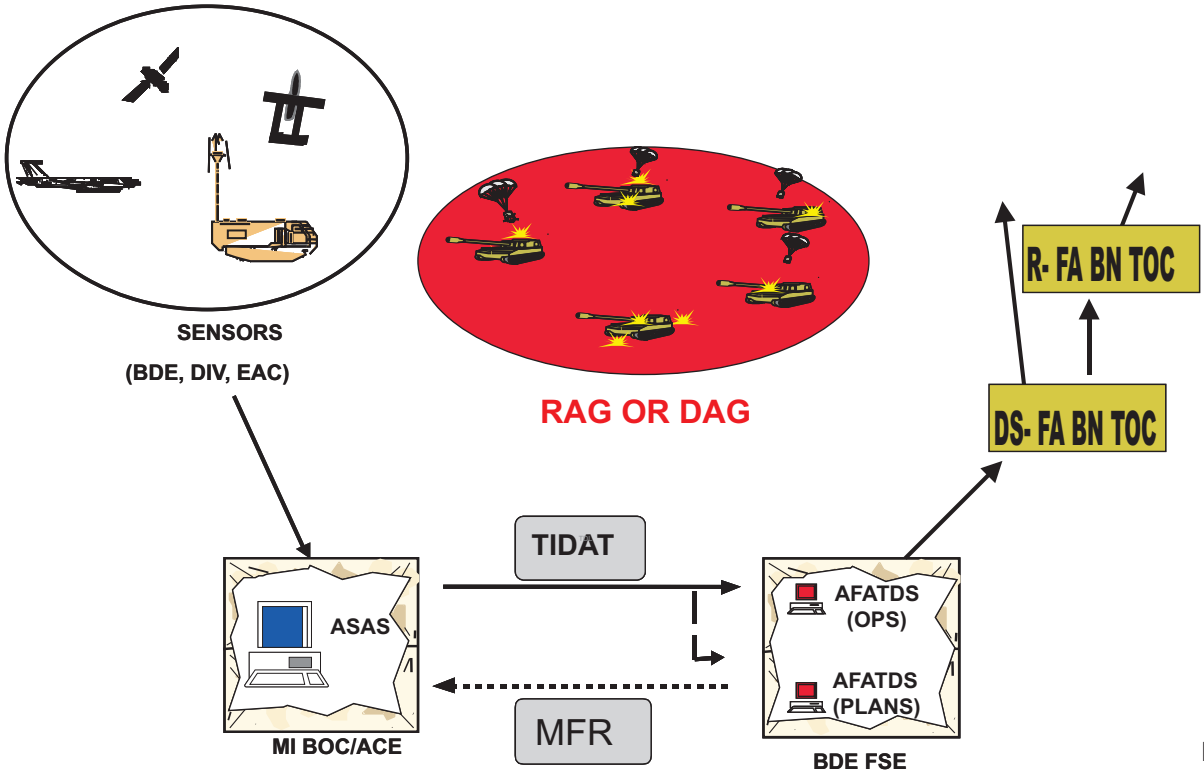
Proactive Brigade Fires



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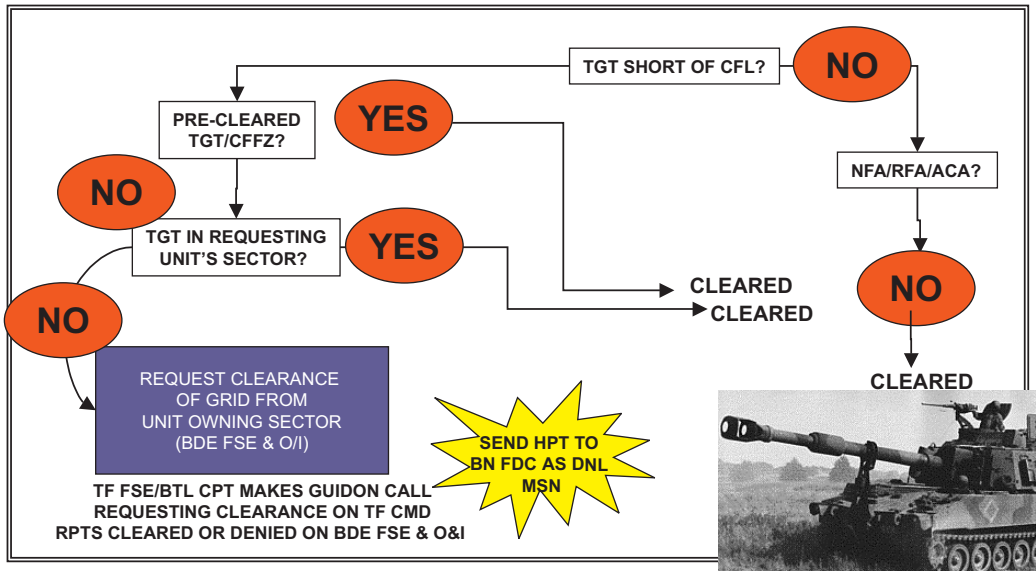
FIRES CLEARANCE DRILL

PRE-BATTLE

- BOUNDARIES, FSCMs and AFATDS ZORs
- PRE-CLEAR CFFZ
- PRE-CLEAR CRITICAL TGTs
- AUTH DIRECT CLEARANCE BETWEEN TF FSEs



MLRS MUNITIONS

Reference: FM 6-60

PROJECTILES	MIN RG	MAX RG	MUNITIONS
M26	10K	32,500	644 (M77) DPICM SUBMUNITIONS
M26A1 ER-MLRS	13K	45K	518 (M77) DPICM SUB MUNITIONS
M39 ATACMS BLOCK I	25K	165K	950 (M74) APAM (*) SUB MUNITIONS
M39A1 ATACMS BLOCK IA	70K	300K	300 (M74) APAM SUBMUNITIONS

•ANTI-PERSONNEL/ ANTI-MATERIAL
•** Note: DPICM is a dud producing munition and based on soil composition and vegetation.
If the soil is soft or there a lot of trees the bomblets can get hung up in the trees.
This poses a serious threat to our forces as they pass through areas we have fired upon.

MUNITIONS EFFECTS TABLE

DPICM CASUALTIES FOR 227mm ROCKETS
NTC CASUALTY ASSESSMENT
TYPE TARGET

ROUNDS	1	2	3	4	5	6	7	8	9	10	11	12
PYRO AIR	1	2	2	3	3	3	4	4	5	5	6	6
GROUND	1	1	2	2	2	3	3	4	4	5	5	6

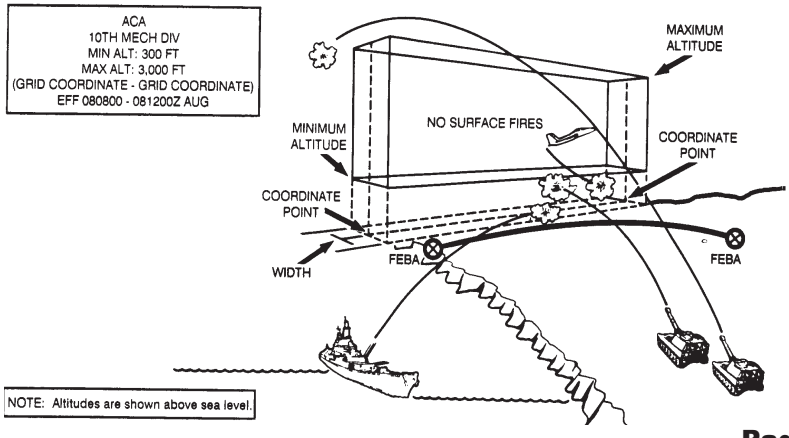
TRPS IN OPEN (plt)	4	8	9	11	12	13	13	14	15	15	16	16
TRPS IN OPEN (C0)	12	24	27	33	36	44	45	46	47	48	49	50
TRPS DUG-IN no overhead (plt)	2	3	3	3	4	4	4	5	5	5	6	6
TRPS DUG-IN no overhead (co)	6	8	9	10	11	12	13	14	15	16	17	18
TRPS DUG-IN w/overhead (plt)	1	2	2	2	2	2	3	3	3	3	4	4
TRPS DUG-IN w/overhead (co)	2	3	3	3	4	4	4	5	5	5	6	6
WHEELED VEH	1	2	2	2	3	3	3	5	5	5	5	6
ARTILLERY	-	-	1	1	2	2	3	3	4	4	5	5
ARMORED PSNL CARRIER	-	-	1	1	2	2	3	3	4	4	5	5
TANKS	-	-	-	-	-	1	1	1	1	1	2	2

(PLT =20 per, CO= 80 per)

FIRE SUPPORT COORDINATION MEASURES (CONT)

Airspace Coordination Area (ACA): Is primarily a coordination effort of air support and indirect fires; therefore, FS personnel are the focal planning points. The ACA is a block of airspace in the target area in which friendly aircraft are reasonably safe from surface fires.

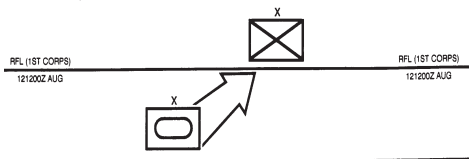
Vital information defining the formal ACA includes minimum and maximum altitudes (alt), a baseline designated by grid coordinates at each end, the width (either side of the baseline), and the effective times. Information concerning the area is disseminated in the same way that it is for the coordinated fire line.



FIRE SUPPORT COORDINATION MEASURES (CONT)

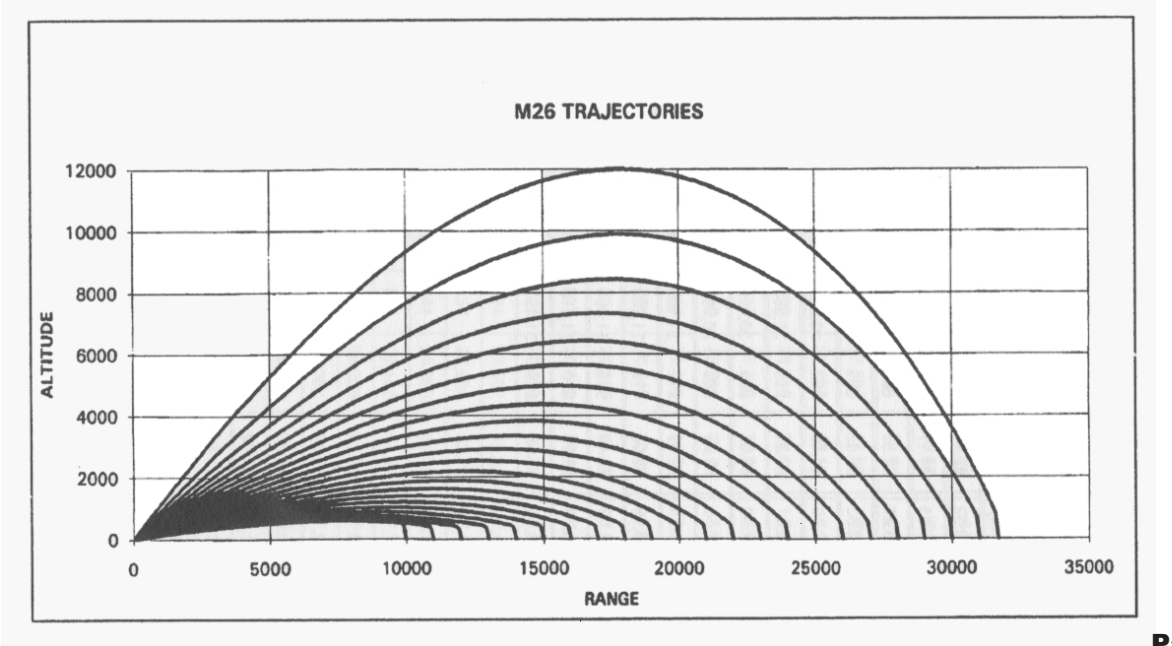
Restrictive Fire Area (RFA): An area in which specific restrictions are imposed and in which fires that exceed those restrictions will not be delivered without coordination with the establishing headquarters.

Restrictive Fire Line (RFL): A line established between converging friendly forces (one or both may be moving) that prohibits fires or the effects of fires across the line without coordination with the affected force.



M270 MLRS Trajectories

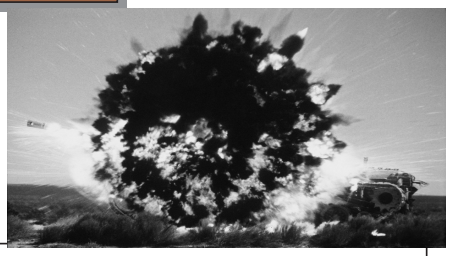
Reference: FM 6-60



*Range and Altitude in meters

COPPERHEAD

CALL FOR FIRE



CFF
Standard Call For Fire with the following exceptions:

TGT DESCRIPTION _____, COPPERHEAD 2 ROUNDS, BY ROUND AT MY COMMAND, over.

MTO
UNIT TO FIRE, PRF CODE, TOF, ANGLE T, # ROUNDS,
and confirms target fits within CPHD template

OBSERVER: “FIRE COPPERHEAD”

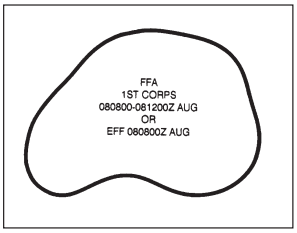
20 seconds before impact… FDC announces: “LASER ON”

At a minimum the observer must laze the target during the last 13 seconds of flight (at a minimum).
Once the observer receives shot, he should begin his countdown using TOF given in the MTO.

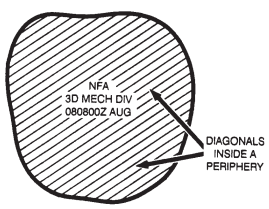
If the target is destroyed with the first round the mission can be ended by sending “CEASE LOADING, END OF MISSION, over”

FIRE SUPPORT COORDINATION MEASURES (CONT)

Free-Fire Area (FFA): A specific area into which any weapon system may fire without additional coordination with the establishing headquarters.

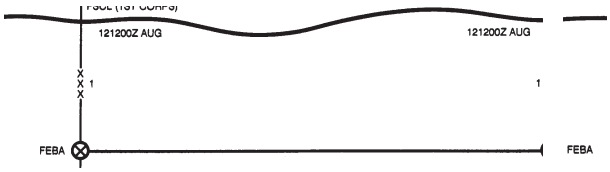


No-Fire Area (NFA): An area into which no fires or effects of fires are allowed. Two exceptions are:
•When establishing headquarters approves fires temporarily within the NFA on a mission-by-mission basis.
•When an enemy force within the NFA engages a friendly force. The commander may engage the enemy to defend his force.



FIRE SUPPORT COORDINATION MEASURES

Fire Support Coordination Line (FSCL): The FSCL is a permissive fire control measure established and adjusted by the ground CDR in consultation with superior, subordinate, supporting, and other affected CDRs. It is not a boundary; synchronization of operations on either side of the FSCL is the responsibility of the establishing CDR out to the limits of the land component forward boundary. It applies to all fires of air, land, and sea weapon systems using any type of ammunition against surface targets. Forces attacking targets beyond the FSCL must inform all affected commanders to allow necessary coordination to avoid fratricide.



Coordinated Fire Line (CFL): A line beyond which conventional or improved conventional indirect-fire means (mortars, field artillery, and NSFS) may fire at any time within the zone of the establishing headquarters without additional coordination.

COPPERHEAD (CONT)

REQUIREMENTS

•Angle T must be < 800 mils •PRF codes on laser and Copperhead must match •Observer to target minimum ranges: •Moving Target = 3 km •Stationary Target = 5 km	•No personnel 4 degrees left or right of gun target line •Mission essential personnel only in the area of additional 6 degrees left or right of gun target line •1.5 km safety zone around the target •No one closer than 4 km beyond the target

	CLOUD HEIGHT	GUN-TARGET RANGE	TEMPLATE
VISIBILITY 1.0 (> 7,500 METERS)	**<= 150 meters**	All ranges	A
	> 150 meters	< 8.8 km 8.8-11 km > 11 km	B C/J D
VISIBILITY 0.5 (4,000 TO 7,500 METERS)	**All cloud heights**	< 8.8 km 8.8-11 km > 8.8 km	E F G
	> 150 meters	< 8.8 km 8.8-11 km > 8.8 km	E K G
VISIBILITY 0.3 (2,000 TO 3,900 METERS)	**All cloud heights**	< 7.7 km > 7.7 km	K I
HIGH ANGLE BALLISTIC	**All cloud heights**	All ranges	L

FASCAM COMPOSITION

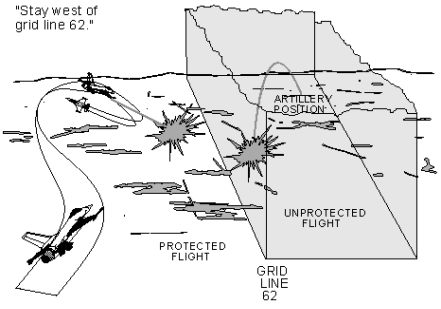
ADAM (AREA DENIAL ARTILLERY MUNITION)	RAAMS (REMOTE ANTIARMOR MINES)
36 MINES PER ROUND M692 (LONG DURATION) M731 (SHORT DURATION) M109 RANGE 17500 M M198 RANGE 17740 M 7X15 FT LONG TRIPWIRE BURST IS 2 FEET HIGH FIRED AS LAST VOLLEY WITH RAAMS	9 MINES PER ROUND M718 (LONG DURATION) M741 (SHORT DURATION) VEHICLE BELLY ATTACK, MAGNETIC INFLUENCE FUSE MUST BE FIRED FIRST
PLANNING FACTORS LOW ANGLE 200M X 200M LOW DENSITY - 6 RAAMS & 3 ADAM MED DENSITY - 12 RAAMS & 6 ADAM HIGH DENSITY - 24 RAAMS & 12 ADAM	 HIGH ANGLE 400M X 400M LOW DENSITY 24 RAAMS & 12 ADAM MED DENSITY - 48 RAAMS & 12 ADAM HIGH DENSITY 96 RAAMS & 12 ADAM

FOR PLANNING – 30-40 MINUTES TO FIRE A 400mX400m minefield with a dedicated battery of six guns.

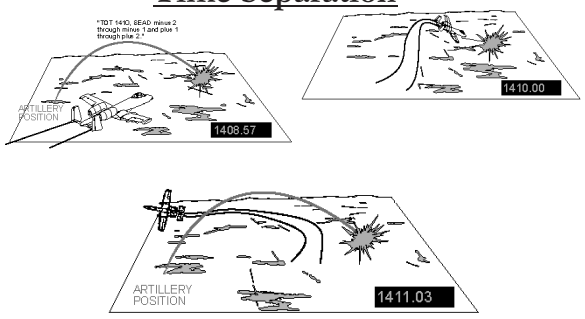
INFORMAL ACAs

- INFORMAL ACAs ARE SEPARATED BY:
- LATERAL
- ALTITUDE
- TIME
- LATERAL AND ALTITUDE

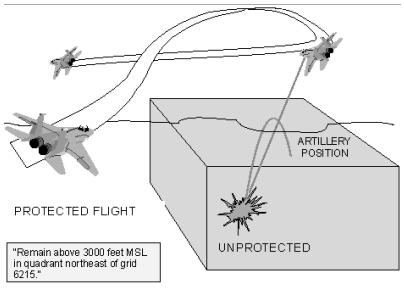
Lateral Separation



Time Separation

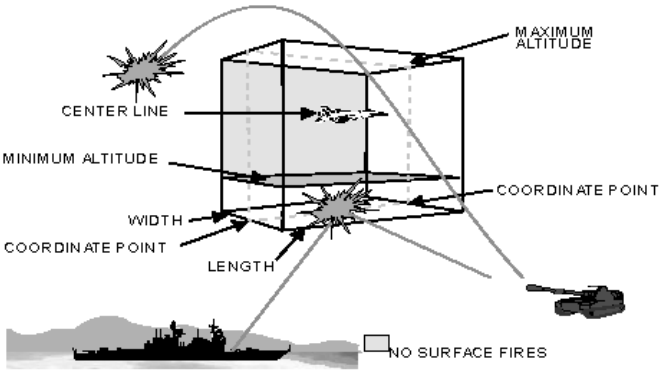


Altitude Separation



FORMAL ACA

- FORMAL ACAs REQUIRE:
  - * VERY DETAILED PLANNING
  - * VERTICAL AND LATERAL LIMITS
  - * FREEDOM OF ACTION FOR AIR AND SURFACE FIRES



STANDARD EFSTs OFFENSE

EFSTs are critical fire support events that if not accomplished could change the commander's scheme of maneuver.

TASK: SUPPRESS CSOP ___ MINUTES
PURPOSE: PROTECT FRIENDLY MANEUVER FROM FIRES BY THE CSOP
METHOD: BN 3 INITIAL VOL, PLT 1 EVERY 30 SEC
ENDSTATE: CSOP INEFFECTIVE AGAINST MVR

TASK: SCREEN FRIENDLY MOVEMENT FOR ___ MINUTES
PURPOSE: PROTECT FRIENDLY FORCES FROM EN DIRECT FIRES AND OBSERVATION
METHOD: MORTAR SMK, ARTY SMK, SMK GENERATORS (IN PRIORITY)
ENDSTATE: FRIENDLY FORCES SCREENED FROM DIRECT FIRE OR INDIRECT FIRE AND RETAINS FREEDOM OF MOVEMENT

TASK: DESTROY AT SYSTEMS
PURPOSE: PROTECT FRIENDLY FORCES FROM FLANKING FIRES
METHOD: BN 3/AT SYSTEM
ENDSTATE: ENEMY AT SYSTEMS DO NOT DISRUPT MVR

TASK: SUPPRESS & OBSCURE EN AT POP
PURPOSE: PROTECT FRIENDLY FORCES FROM DIRECT FIRE AND OBSERVATION DURING THE BREACH
METHOD:
- •BN 3 INITIAL, PLT 1 EVERY 30 SEC FOR 15 MINS ON EN MRP VIC POP
- •1000X50 SMC FOR 30 MINS (2 BTRY INITIATE, 1 SUSTAIN)
- •AVAIL BTRIES SUPPRESS MRPs VIC FOR 45 MINS

ENDSTATE: BREACH SUCCESSFUL

STANDARD EFSTs OFFENSE (CONT)

TASK: DISRUPT MRC
PURPOSE: PREVENT MRC FROM REPOSITIONING. ISOLATE EN @ POP
METHOD:
- •CAS
- •36 RKTS

ENDSTATE: MRC UNABLE TO REPOSITION

TASK: DESTROY MRP
PURPOSE: PROTECT FRIENDLY FORCES FROM DIRECT FIRE
METHOD:
- •36 RKTS
- •BN 3/BMP, BN 4/ T-80
- •CAS
- •CPHD, 1/VEHICLE

ENDSTATE: MRP DESTROYED

TASK: DISRUPT CAR/LOCAL RESERVES
PURPOSE: PREVENT REINFORCING MAIN BATTLE
METHOD:
- •CAS
- •36 RKTS
- •BN 6 (LINEAR SHEAF)

ENDSTATE: MVR COMPLETES DEFEAT/DESTRUCTION OF MAIN BATTLE EN FORCES PRIOR TO EN REINFORCEMENT

AIRSPACE COORDINATION AREAS

FIRE SUPPORT CONSIDERATIONS

•HAVE THE FSO AND S2 HUDDLED TO ESTABLISH CAS KILLBOX?

•IS THE ACA BUILT IN AFATDS?

•WHAT IS THE TRIGGER TO ACTIVATE THE ACA?

• HAVE WE CREATED SEAD TARGETS FOR SUSPECTED ADA THREATS?

•DO WE HAVE THE UAV AND OTHER COLLECTION ASSETS FOCUSED ON THE CAS KILLBOX?

•ALO: WHEN ARE THE AIRCRAFT EXPECTED TO REACH THE IP?

•HAVE WE DECONFLICTED AIR ROUTES WITH HIGHER TO PREVENT EFFECTS ON AVIATION AND UAV IN AREA?

STANDARD EFSTs DEFENSE

TASK: NEUTRALIZE RAG
PURPOSE: PROTECT FRIENDLY FORCES FROM ENEMY PH II & III INDIRECT FIRES
METHOD:
- •12 RKTS/COLT CFF
- •6 RKTS/RDR ACQUISITION
- •CFFZ ON TEMPLATED RAG/DAG
- •Q37 CFZ ON BSA, BDE TOC, TEMPLATED EN SPECIAL MUNITIONS TGTS
- •Q36 CFZ ON CRITICAL TF LOCATIONS

ENDSTATE: EN PH II & III FIRES INEFFECTIVE AGAINST BCT

TASK: EMPLACE ARTY FASCAM OBSTACLE
PURPOSE: DELAY ENEMY AND DISRUPT ENEMY MOVEMENT
METHOD:
- •3 BTRIES/ 400X400 MINEFIELD (PREFERRED)
- •1BTRY/ MINEFIELD (ALT)

ENDSTATE: ENEMY MOVEMENT DELAYED 15 MIN

TASK: DESTROY DISMOUNTS
PURPOSE: DENY THE ENEMY THE ABILITY TO SEIZE/HOLD KEY TERRAIN
METHOD:
- •BN 6
- •MORTARS

ENDSTATE: 30% ENEMY DISMOUNTS DESTROYED

STANDARD EFSTs DEFENSE (CONT)

TASK: DESTROY EN ADA
PURPOSE: PROTECT FRIENDLY AIRCRAFT FROM ENEMY AIR DEFENSE FIRES AND MARK TARGET AREA
METHOD:
- 6 RKTS/ADA TGT
- BN 3/ADA TGT

ENDSTATE: ADA SYSTEM DESTROYED

TASK: DISRUPT EN MRP/MRC @ OBSTACLES
PURPOSE: ATTRIT/DISRUPT EN WHILE SLOWED BY OBSTACLES
METHOD:
- CAS
- MLRS
- BN 4
- MORTARS.
- CONSIDER LINEAR SHEAF ON IV LINE EN SIDE OF OBSTACLE

ENDSTATE: ENEMY ATTRITTED/DISRUPTED AT OBSTACLES

AIRSPACE COORDINATION

FIRE SUPPORT CONSIDERATIONS

- CONSIDER MORTAR SUPPORT TO BREACH FORCE TO ASSIST WITH LOCAL SECURITY
- USE FASCAM, CAS, OR INDIRECT FIRES TO PREVENT REPOSITIONING
- USE FASCAM, CAS, OR INDIRECT FIRES TO DISRUPT/DELAY THE COMMITMENT OF THE RESERVE

BREACH OPERATIONS

AND FIRE SUPPORT

OBSCURATION METHODS

System	*Measures of Effects for 30 Minutes			
	500m	1000m	1500m	2000m
155mm Cannon How many could they provide?	30 rds / 4	60 rds / 2	90 rds / 1	120 rds / 1
M4A2 Smoke Pot 10-15 minute burn time	3	6	9	12
120mm Mortar How many could they provide?	35 rds / 2	70 rds / 1	105 rds / 0	140 rds / 0
Smoke Generator M58 smoke generators	2	4	6	*7

*Under ideal weather conditions
*Smoke is most effective if used within one to two hours after sunrise
*An M58 smoke platoon consists of seven smoke generators

OBSCURATION

•WHEN DO WE OBSCURE?

• WHAT IS THE TRIGGER?
• ie. SUPPORT FORCE MOVE TO SBF POSITION
• CONTINUE SUPPRESSIVE FIRES AND COUNTER FIRE TO ISOLATE OBJECTIVE DURING ASSAULT

•HOW LONG CAN WE SUSTAIN THE SMOKE?

•HOW MUCH SMOKE DO THE GUNS HAVE?
•HOW MUCH SMOKE ARE THE MORTARS CARRYING?
•HOW MANY SMOKE POTS DO WE HAVE?
•DO WE HAVE ANY CHEMICAL SUPPORT?

FIRE SUPPORT CONSIDERATIONS

- **WHAT/WHERE TO OBSCURE**
  - WHAT ARE YOUR RESOURCES?
  - BETWEEN THE OBSTACLE AND ENEMY MAIN DEFENSIVE BELT
  - WHICH ENEMY CAN RANGE THE POINT OF PENETRATION?
  - WHAT ARE YOU SUPPRESSING?
  - TO COVER SUPPORT FORCE BETWEEN FIGHTING POSITIONS DURING THE ASSAULT
  - PLAN FOR VARYING WIND CONDITIONS
  - DECEPTION SMOKE?
- **SUPPRESSION VS. OBSCURATION**
  - KNOW CAPABILITIES OF EACH
  - FM 90-13-1: SUPPRESSION FIRES ARE MORE CRITICAL THAN OBSCURATION. HOWEVER:
  - OBSERVATIONS AT NTC INDICATES OBSCURATION MAY BE MORE EFFECTIVE THAN DOCTRINE INDICATES.
  - WHEN POSSIBLE DO BOTH

SOSR FIRE SUPPORT CONSIDERATIONS

- WHAT RESOURCES ARE AVAILABLE?
- WHAT IS THE TRIGGER TO BEGIN SUPPRESSION?
- WHEN SHOULD CAS BE EMPLOYED AT POP?
- WHICH ENEMY CAN RANGE THE BREACH?
- WHAT TARGETS ARE WE SUPPRESSING WITH INDIRECT FIRES?
- DO WE HAVE ENOUGH ASSETS TO SUPPRESS?
- WHAT IS THE TRIGGER TO ACTIVATE CFZs OVER SUPPORTING FORCE AND BREACHING FORCE?
- CAN WE CONTINUE TO SUPPRESS ENEMY INDIRECT FIRES?
- WHAT IS THE STANDARD TARGET SIZE FOR SUPPRESSION?

FIRE SUPPORT CONSIDERATIONS

- WHAT SMOKE ASSETS DO WE HAVE?

- 155MM FA CANNON DELIVERED HC SMOKE
- 120MM MORTAR DELIVERED WP SMOKE
- M4A2 SMOKE POTS CARRIED WITH MANEUVER
- *M58 WOLF MECHANIZED w/ SMOKE GENERATOR
- *M56 COYOTE WHEELED w/ SMOKE GENERATOR

- *WILL BE ASSIGNED TO BCTs BASED ON WHO IS THE MAIN EFFORT