

# Put Out The Fire: Countering Mortars in Operations Other Than War

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“Cancel, ‘Do not load,’” yells the FDO—  
“Cancel ‘Do not load.’”

Fire support has been aptly described as a system of systems. No where is that system more stringently tested than when trying to protect the force from mortar fire in operations other than war (OOTW). All systems within the system must work smoothly and be synchronized with the combined arms effort to succeed in this environment.

Clearly, fire supporters must continue to prepare to fight on the mid- to high-intensity battlefield. However, they also must be able to solve problems intrinsic to counterfire in OOTW. Lessons learned by units at the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, can be the basis for this education.

To defeat guerrilla mortars, a unit must locate and destroy the mortar logistics bases and (or) find and capture or destroy the mortar, executing a battle drill that allows for the rapid attack of the weapons platform within two minutes of acquisition. But first, the unit must understand what it’s up against.

## The Threat

The indirect fire threat in OOTW includes all types of weapons and formations. Mortars are especially notable as they are the fire support weapon of choice for unconventional forces. There are thousands of mortars in insurgent groups worldwide. In the former Yugoslavia, for example, at least 9,000 mortars were part of the Yugoslavian Army before the country broke up.

In OOTW, guerrillas fire mortars from prepared positions and mount them in the beds of pickup trucks. They use them independently or in support of combined arms operations. They even use them simply to rain terror on civilian populations.

The Field Artillery S2 looks principally at fire support systems as he goes through the intelligence preparation of the battlefield (IPB) process. During the threat integration step, he templates likely mor-

tar firing positions and cache sites. A cache normally will support two or more firing positions, each within a relatively short distance. For mortars, they usually are within one kilometer because the crew must carry its ammunition to the firing point. By finding and capturing or destroying these caches, a unit can put the mortars out of action.

Equally important is finding the logistics bases and transportation routes the enemy uses to resupply the caches. A brigade may destroy or capture the original caches, but if the guerrillas can continue to resupply, it’s easy for them to establish new ones. The larger logistics bases often have command posts (CPs) with radios near them, thus having an electronic signature. Finding these CPs often provides clues to where the mortar logistics bases are located.

Ultimately, units must find and destroy or capture the weapons to defeat the mortar threat. Sometimes a maneuver force may get the weapons with the logistics bases; however, when they don’t, the unit must attack the mortars when they fire.

## Firefinder Radar

The Q-36 Firefinder radar is the most important target acquisition asset a brigade has for countermortar operations. It’s crucial that units use it effectively.

A critical consideration for the Q-36 is site selection. The primary factors for determining where to position the radar(s) are mask angle, sector of search and radar security.

A unit must consider mask angle closely when selecting a radar position. The goal is to get the mask angle as low as possible (a maximum of 15 to 20 mils); this greatly improves the probability of acquiring hostile weapons. Even though mortars are high-angle weapons, they can fire with very low maximum ordinates at short ranges. If the radar mask angle is too high or if the radar is too far from the weapon, the trajectory likely will fall below the radar’s beam.

“Counterfire, counterfire, counterfire!” blares out across the tactical operations center (TOC) as the light tactical fire direction system (LTACFIRE) printer begins to hum. In an instant, the nerve center of the Field Artillery battalion is a blur of well-rehearsed actions.

“Target grid—Whiskey Echo zero-two-three-four, zero-one-zero-five,” barks the fire direction NCO as the fire direction officer (FDO) springs to his situation map.

“Impact predict—Whiskey Echo zero-three-eight-one, zero-two-niner-two.”

“Range two-point-three,” calls the FDO. “Looks like a mortar.”

“Same spot as last night,” adds the S2 from his post.

“Mission is down to all three batteries, Sir. I sent it ‘Do not load’ with the standard fire order,” says the fire direction NCO.

“All clear for the batteries and mortars. It’s not one of ours,” states the Assistant S3 from his position at the operations map.

“Twenty-one seconds,” growls the FDO. “Come on FSE [fire support element], let’s get ‘em this time.”

A tense silence settles over the TOC as the clock ticks. Time seems to drag on forever as they wait for the clearance to fire from the brigade FSE. “Forty-five seconds...Come on, let’s go, let’s go.”

“They’ll get it. We just rehearsed this two hours ago,” the S3 says confidently.

“Foxtrot six-four, this is Golf four-eight. Target Alpha Echo seven-zero-one-zero is cleared to fire,” sings out over the fire support coordination net.

When selecting a search sector, a unit should refer to the S2's IPB products. It should orient the radar(s) to cover the templated firing positions based on predictions made in war-gaming. The artillery S2 works closely with the maneuver S2 to select sectors of search.

The targeting team (S2, S3 and fire support coordinator, or FSCOORD) synchronizes the radar's search sectors with maneuver operations. If an infantry company is moving-to-contact against a suspected large supply point, it's reasonable to assume that the company may come under mortar attack. Therefore, the brigade orients the radar to provide protection for the operation.

The place to synchronize counterfire is in the brigade targeting meeting when the intelligence, operations and fire support personnel decide how and where to focus assets. It simply doesn't work to hand counterfire to the artillery and tell the artillery to fight it as a separate battle.

Radar security is crucial in the OOTW environment. The enemy is everywhere, and the radar is a threat to his survival. A unit should consider siting the radar inside the perimeter of another unit. Positioning the radar with a firing battery, TOC or logistics support area for security reasons is a good idea if the radar can accomplish its mission from one of these locations. Most units at the JRTC attach at least one squad of infantry per radar section to provide additional protection.

## Other Targeting Assets

Although the Firefinder radar is the most effective collection asset a brigade has for counterfire, it's by no means the only asset. Intelligence officers should use every asset available to develop targets (see Figure 1).

As the targeting team decides how to detect and attack targets, it must consider target selection standards (TSS). For example, a Q-36 acquisition may be considered a target for indirect fire for only two or three minutes after detection. However, that same acquisition may be a target for infantry attack for two or three hours after detection. The team spells out these criteria in the form of TSS during the daily targeting meetings.

The S2 keeps a detailed event log and template. Every 12 hours, he starts a new set but saves the old ones for later review. The old overlays give him the means to identify patterns and predict target locations.

At the JRTC, one Field Artillery S2 was extraordinarily adept at pattern analysis.

Sensor (Find/Assess)	Mortar (Firing)	Cache	Logistics Base	Forward Observer
Q-36 Firefinder Radar	T*-A	TI		TI
Scouts	T-A	T-A	T-A	T-A
Infantry	T-A	T-A	T-A	T-A
COLTS	T-A	T-A	T-A	T-A
FISTS	T-A	T-A	T-A	T-A
Helicopters	T-TI-A	T-TI-A	T-TI-A	T-TI-A
AFAC (OA-10 Warthog)	T-TI-A	TI	T-TI-A	
CAS through TACP/GLO	T-TI-A	TI	T-TI-A	
AC-130	T-TI-A	T-TI-A	T-TI-A	T-TI-A
Firepower Control Team (FCT)	T-A	T-A	T-A	T-A
Low-Level Voice Intercept (LLVI)	TI	TI	TI	TI
REMBASS	TI	TI	TI	TI
Ground Surveillance Radar (GSR)	TI	TI	TI	TI
Radio Direction Finding (RDF)	TI		TI	TI
Quick Fix	TI		TI	TI
Military Police	T-TI-A	T-TI-A	T-TI-A	T-TI-A
Special Ops/PSYOP/CA	TI	TI	TI	TI
Host Nation Forces	TI	TI	TI	TI

\*A Target versus Target Indicator depends on the target selection standards (TSS) and attack system.

Legend:	
T = Target	CAS = Close Air Support
TI = Target Indicator	TACP = Tactical Air Control Party
A = Assess	GLO = Ground Liaison Officer
COLTS = Combat Observation Lasing Teams	REMBASS = Remotely Monitored Battlefield Sensor System
FISTS = Fire Support Teams	PSYOP = Psychological Operations
AFAC = Air Force Air Controller	CA = Civil Affairs

Figure 1: Counterfire Sensors. Although the Firefinder radar is the most important counterfire target acquisition asset available to the brigade, intelligence officers should use all means available to develop targets.



A Q-36 Firefinder radar inside a fortified battery position.

Using nothing but radar acquisitions, he was able to template the entire opposing force (OPFOR) cache system. The brigade then tasked other sensors to confirm or deny the templated targets and was extremely successful in finding and attacking the insurgents.

Once patterns start to emerge, the brigade S2 focuses other assets to confirm or deny the presence of firing points and caches. The artillery S2 and targeting officer work closely with the maneuver S2 in this process. After each daily targeting meeting, the brigade should publish a fragmentary order and update its collection plan and fire support execution matrix (FSEM) and target list. These actions focus the brigade on the templated enemy.

Pilots and aircrews can provide valuable targeting information. A fire support cell in the aviation CP is a great resource. Pilots often see target indicators while performing their missions but don't know they are important, so they don't report them. By briefing crews before their missions and debriefing them after, fire supporters can gain essential information. The ground liaison officer (GLO) at a tactical fighter wing can do the same with Air Force pilots and crews.

The AC-130 aircraft is an excellent platform for target acquisition and attack. With its sophisticated systems, the AC-130 can detect and attack targets at night when other systems won't work. Targeting teams should work closely with the brigade tactical air control party (TACP) to maximize the use of AC-130 aircraft for countermortar operations.

The Marine Corps' air naval gunfire liaison company (ANGLICO) platoon that supports a brigade is also a great targeting tool. The ANGLICO's firepower control teams (FCTs) can find targets and immediately attack them with mortars, artillery, naval gunfire or close air support (CAS).

Electronic warfare (EW) systems are also valuable sensors. Several of these assets, such as the AN/TLQ-17A (Traffic Jam), can attack as well as detect an enemy fire support system. Several units have used electronic direction finding and jamming very effectively against the OPFOR fire support system at the JRTC.

on the FSCOORD. In OOTW, however, Field Artillery isn't always the best attack system to use. Successful units consider all attack means and select the best one to meet the commander's intent. Maneuver



An AH-64 Apache helicopter (top) and an AH-1 Cobra (bottom) search for enemy mortars at the JRTC.

forces, mortars, attack helicopters, naval gunfire, CAS and EW are all attack methods to consider. Based on the commander's intent, the targeting team decides whether to destroy, neutralize, suppress or capture enemy mortars and (or) their caches. Then the team chooses the best attack method based on the current situation (see Figure 2).

Maneuver forces or attack helicopters are often the best choice. By moving-to-contact against a Q-36 acquisition, infantry often will destroy or capture the mortar as well as several caches. The brigade S2 can then use the additional intelligence information gained in the operation to develop new targets. Maneuver forces and helicopters also provide immediate battle damage assessment (BDA) and allow the targeting team to refocus assets on other templated targets.

If the attack method is indirect fire, the system must respond very quickly. History has shown that to be effective with indirect fire against guerrilla mortars, the unit must attack the mortar within two minutes of the time the radar acquires it. Successful units at the JRTC use a counterfire battle drill to speed response and eliminate fratricide (see Figure 3).

Attack System	Mortar (Firing)	Cache	Logistics Base	Forward Observer
Infantry (Movement-to-Contact)	S-N-D-C	D-C	D-C	S-N-D-C
Air Assault Raid	D-C	D-C	D-C	D-C
Armor/Mechanized Infantry	S-N-D-C	D-C	D-C	S-N-D-C
Field Artillery	S-N-D		N-D	S-N-D
Attack Helicopters	S-N-D		N-D	S-N-D
Naval Gunfire	S-N-D		N-D	S-N-D
Mortars	S-N-D			S-N-D
CAS	S-N-D		N-D	S-N-D
AC-130	S-N-D	N-D	N-D	S-N-D
Electronic Jamming	S			S
Psychological Operations	S		S	S
Host Nation Forces	S-N-D-C	D-C	D-C	S-N-D-C

**Legend of Effects:**

S = Suppress  
N = Neutralize

D = Destroy  
C = Capture

## Attacking the Target

Traditionally, commanders have considered counterfire a Field Artillery mission and placed responsibility for the fight

Figure 2: Counterfire Attack Assets. In OOTW, Field Artillery may not be the best attack system available. The attack system employed depends on the effects the commander wants on the target and the best system available to achieve those effects.

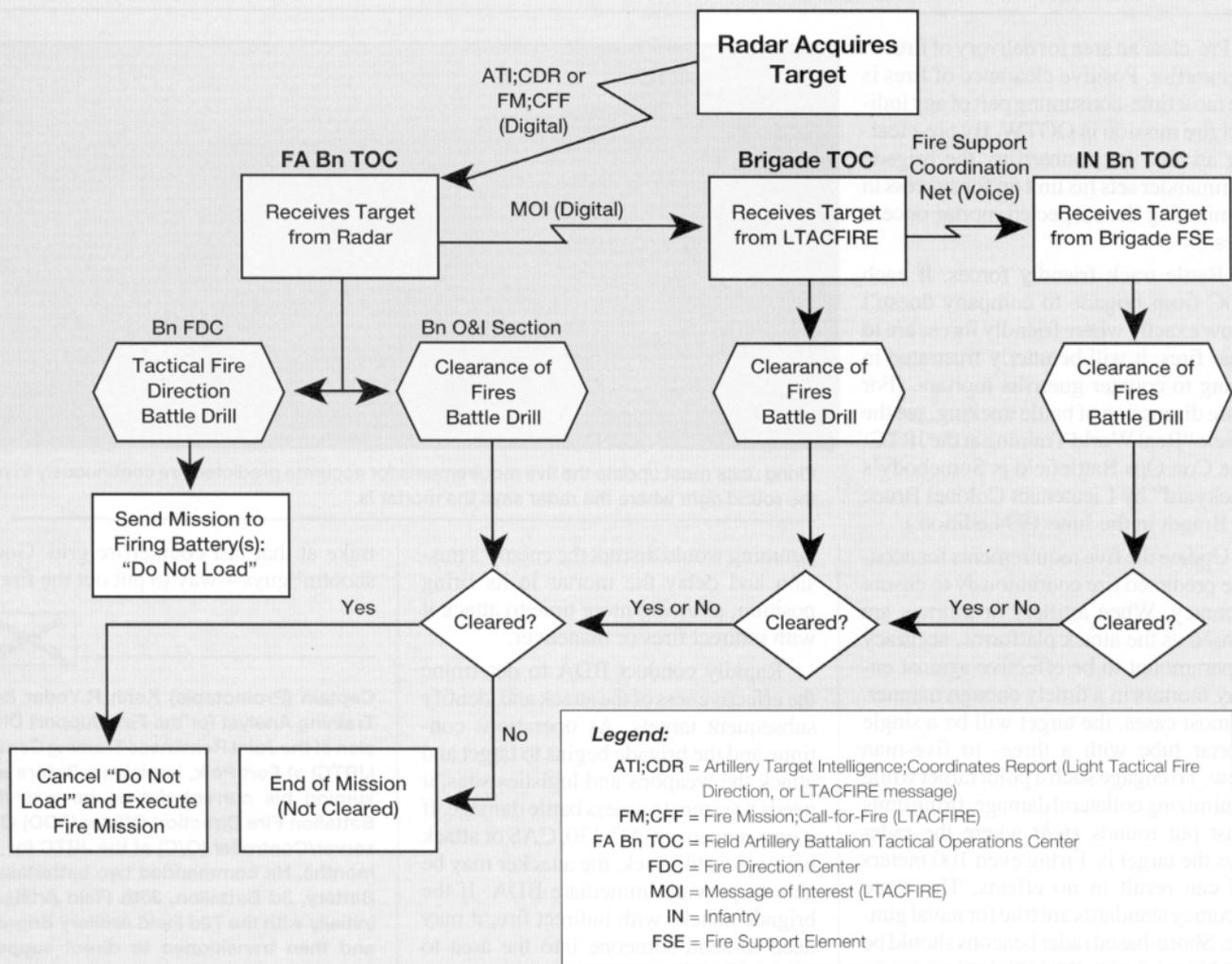


Figure 3: Battle Drill to Rapidly Fire on Mortars. A unit must fire on a mortar within two minutes of the time the Firefinder acquires it. Therefore, the actions depicted in this flow chart by the Field Artillery and maneuver elements must be executed simultaneously.

The drill includes clearance of fires and is part of the brigade tactical standard operating procedures (SOP). In addition to a good counterfire drill, there are several

other steps a unit can take to speed the process.

- Establish a counterfire standard fire order and update it after each targeting

meeting. The FDO may need to have two or more standard fire orders to account for differences in rules of engagement (ROE). For instance, the ROE may preclude some shell/fuze combinations if the target is, say, within a city or populated area.

- Have each firing battery prepare and place on a “ready rack” the ammunition for counterfire. The FSCOORD may establish a priority target on a templated firing position if he strongly suspects the enemy will use that position within the next few hours. This allows at least one battery to respond very quickly to an acquisition in that area.

- Rehearse, rehearse, rehearse. After each shift change, the new shift should rehearse the counterfire drill with all parties involved, including battalion and company fire support officers (FSOs). Successful units make these rehearsals a routine part of doing business.



An Infantry patrol moves out to attack a suspected logistics base.

- Pre-clear an area for delivery of fires in counterfire. Positive clearance of fires is the most time-consuming part of any indirect fire mission in OOTW. By pre-clearing an area for counterfire, the brigade commander sets his unit up for success in eliminating the suspected mortar once it fires.

- Battle track friendly forces. If each TOC from brigade to company doesn't know exactly where friendly forces are to clear fires, it will be utterly frustrated in trying to counter guerrilla mortars. (For more discussion of battle tracking, see the article "Real World Training at the JRTC: The Con Ops Battlefield is Somebody's Backyard" by Lieutenant Colonel Bruce A. Brandt in the June 1994 edition.)

- Update the five requirements for accurate predicted fire continuously to ensure accuracy. When artillery or mortars are chosen as the attack platforms, accuracy is paramount to be effective against enemy mortars in a timely enough manner. In most cases, the target will be a single mortar tube with a three- to five-man crew. To engage such a point target while minimizing collateral damage, firing units must put rounds *right* where the radar says the target is. Firing even 100 meters off can result in no effects. The same accuracy standards are true for naval gunfire. Shore-based radar beacons should be used to minimize the initial salvo error.

- Use EW assets not only to neutralize, but also to set up an attack on the enemy's fire support system. For example, if the S2 determines that mortars are always using adjust fire techniques (the pattern), the attack method may be to jam their nets each time the Q-36 acquires a round. The



Firing units must update the five requirements for accurate predicted fire continuously to put the round *right* where the radar says the mortar is.

jamming would disrupt the enemy's mission and delay the mortar in its firing position, allowing more time to attack it with indirect fires or maneuver.

- Rapidly conduct BDA to determine the effectiveness of the attack and identify subsequent targets. As operations continue and the brigade begins to target and attack the weapons and logistics sites, it needs a system to assess battle damage. If it uses maneuver, AC-130, CAS or attack helicopters to attack, the attacker may be able to provide immediate BDA. If the brigade attacks with indirect fire, it may need to send someone into the area to assess the damage. Regardless of the attack means, the brigade must tenaciously target and attack the fire support system until it meets the commander's intent.

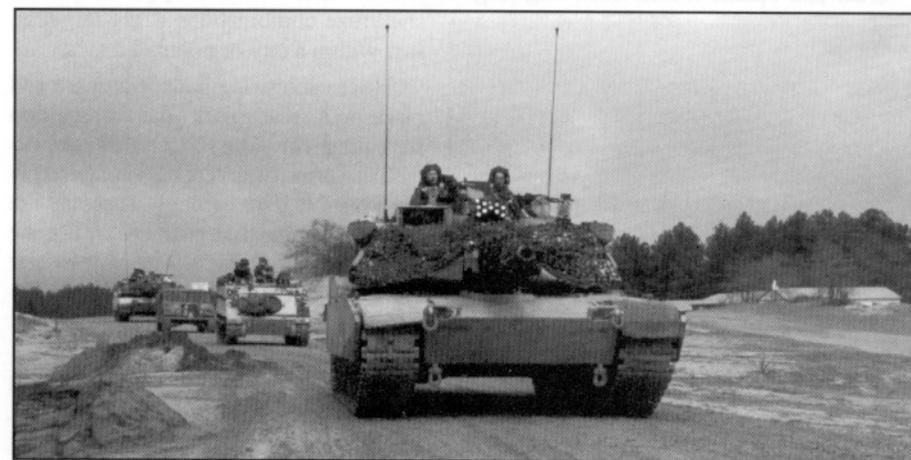
"Foxtrot six-four, this is Golf four-eight. First battalion just reported that one of its platoons found two dead guerrillas, a mortar tube and 25 rounds of 82 mike

mike at that last counterfire grid. Good shootin' guys—way to put out the fire!"



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Armored forces provide a decisive means to suppress, neutralize, destroy or capture enemy assets.