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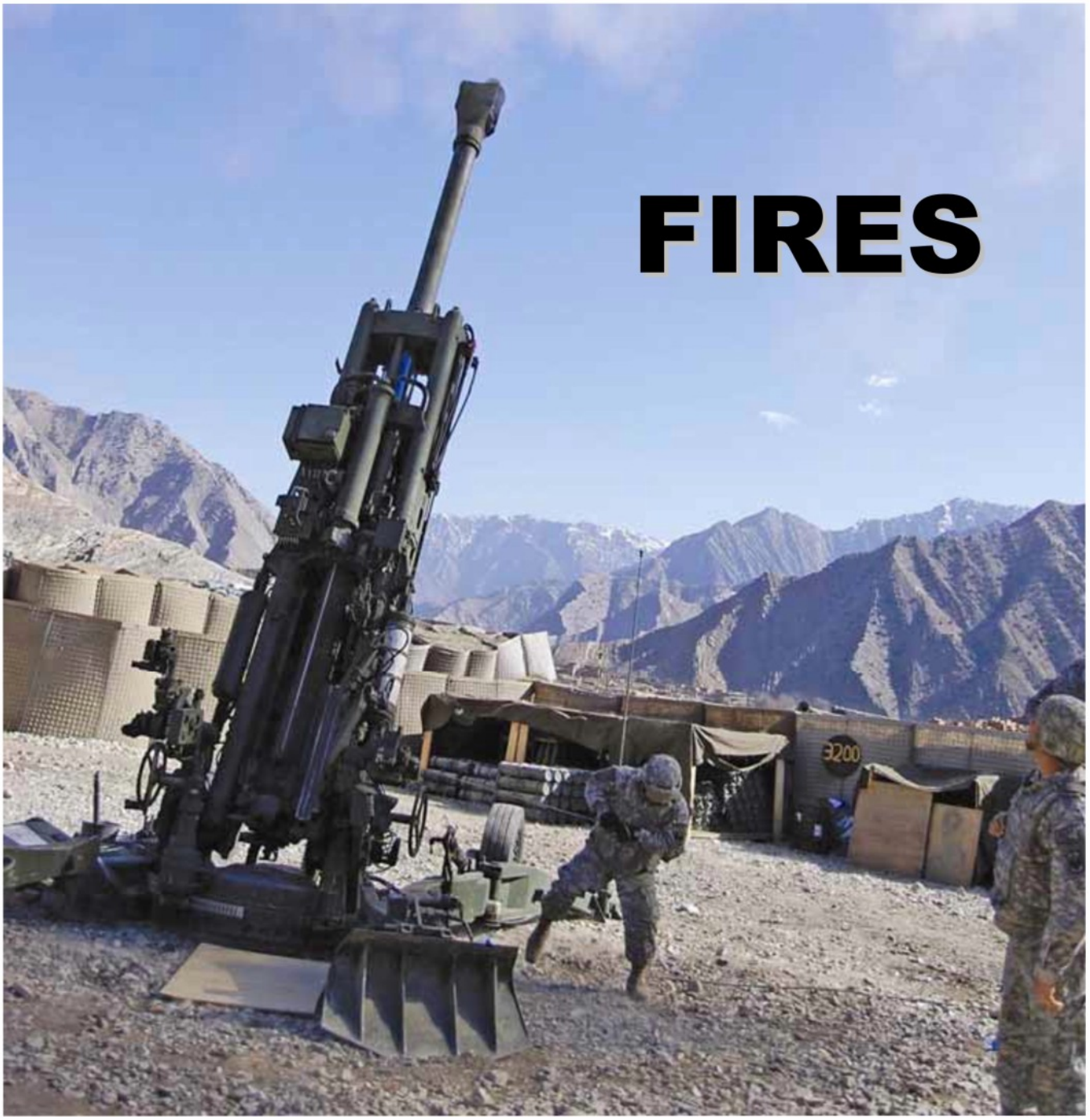

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Purpose: ALSA Center publishes the *ALSB* three times a year. ALSA is a multi-Service DOD field agency sponsored by the U.S. Army Training and Doctrine Command (TRADOC), Marine Corps Combat Development Command (MCCDC), Navy Warfare Development Command (NWDC), and Curtis E. LeMay Center for Doctrine Development and Education. This periodical is governed by Army Regulation 25-30, Chapter 10. The ALSB is a vehicle to "spread the word" on recent developments in warfighting concepts, issues, and Service interoperability. The intent is to provide a cross-Service flow of information among readers around the globe. **Disclaimer: Since the ALSB is an open forum, the articles, letters, and opinions expressed or implied herein should not be construed to be the official position of TRADOC, MCCDC, NWDC, Lemay Center, or ALSA Center.**

Submissions: We solicit articles and reader's comments. Contributions of 1,500 words or less are ideal. Submit contributions, double-spaced in MS Word. Include name, title, complete unit address, telephone numbers, and e-mail address. Graphics can appear in an article, but you must also provide a separate computer file for each graphic and photograph (photos must be 300 dpi). **Send e-mail submissions to alsadirector@langley.af.mil.** ALSA Center reserves the right to edit content to meet space limitations and conform to the *ALSB* style and format. **Next issue: January 2009. Submission DEADLINE: COB 1 November 2008.** Theme of this issue is Maneuver.

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CONTENTS

IN HOUSE

FEATURE ARTICLES

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Cover photo— PFC Corey Rodriguez pulls the lanyard on the M-777A2 during the first firing of the Army's new GPS-guided Excalibur Round, 25 Feb 2008, at Camp Blessing, Afghanistan. (Photo by SGT Henry Selzer, USA)

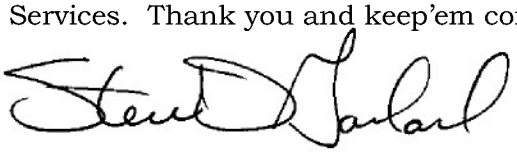
Director's Comments

The mission of the Air Land Sea Application (ALSA) Center is to rapidly develop multi-Service tactics, techniques, and procedures (MTTP) to meet the immediate needs of the Warfighter. We are committed to solving interoperability problems for the Soldiers, Sailors, Airmen, Marines, and Coast Guardsmen who live and fight at the tactical level of war and the purpose of the Air Land Sea Bulletin (ALSB) is to provide a forum for Warfighters to discuss "what worked" and "what needs to get fixed." Currently, we have 12 active projects in various phases of development with 6 additional publications going into research for revision later this year. Right now, look for the newly developed MTTP publications on *Strike Coordination and Reconnaissance (SCAR)* and *Air Operations in Maritime Surface Warfare (AOMSW).* As always, you can download all of our pubs from the ALSA website or order them through your Service's publication distribution system. The theme for our January 2009 ALSB is "maneuver" with article submissions due 1 November 2008, and the theme for our May 2009 ALSB is "unmanned aircraft systems" with 1 March 2009 as the suspense for articles.

The theme of this ALSB is "fires", starting with individual assets and working up to asset integration, coordination measures, controlling organizations, and ending with thoughts on shifting our mind set to integration vice deconfliction of fires. We begin with MAJ Fullerton and LTC Ledford who discuss the problems inherent with US style artillery training methods applied to Afghan units using Russian equipment. They offer a series of tips to better prepare US trainers for the artillery advisor mission. Capt Rickard provides his insight into how close air support (CAS) aircraft can be more effective with ground units and joint terminal attack controllers (JTACs) to fully integrate fires on the battlefield. Expanding to coordination, Col (Ret) Neuenswander, Mr. Bielinski, and Col Smith provide a historical backdrop on the development of kill box as a fire support coordination measure (FSCM) followed by a way ahead for the kill box MTTP revision to include discussion on the joint fires area (JFA) concept. Maj Habas offers up a think piece on the creation of an airspace management authority at the tactical level to rapidly coordinate fires. Building up to control, Lt Col Teister advocates strengthening air liaison officer (ALO) networks to improve Air Force and Army integration. Next, Lt Col Ott gives us a history of air support operation centers (ASOC), discussing the difficulties of measuring airpower effectiveness and presenting his thoughts on integration vice deconfliction of airpower. Finally, for Warfighters from the tactical to strategic level, Lt Col Putney lays out the necessity of modern military professionals needing to be well schooled in the joint targeting process. He advocates attendance at the joint operational fires and effects course (JOFEC) at Fort Sill, a 2 week SECRET-level course designed around the six steps of the joint targeting cycle found in JP 3-60, *Joint Targeting*.

The summer turnover allows the ALSA Center to welcome our newest JASC member, RADM Wendi Carpenter, Commander of NWDC, replacing recently retired RADM Carlton Jewett. We also welcome USAF Lt Col Michael Woltman; USAF Maj Brent "Raygun" Brockinton; Army Reserve LTC Aaron Polston; Army CPT(P) Joseph Leach; and Ms. Sonya Robinson, our resource advisor. We bid farewell to the Murphy family, but look forward to some direct Warfighter feedback from former ALSA Director Colonel Tom Murphy as the new Deputy G3/C3 at USARCENT.

General Patton observed, "A good plan executed violently now is better than a perfect plan next week." Good plans rely on solid tactics, techniques, and procedures for execution. As always, we rely on the warfighting community for ideas and expertise in identifying and solving interoperability problems or doctrinal voids between the Services. Thank you and keep'em coming.



STEVEN D. GARLAND
Colonel, USAF
Director

Back to the Basics: Training Army Artillerymen to Grow Afghan National Army Artillerymen

ANA section preparing for live fire. (Photo by author)

By
MAJ Daryl L. Fullerton, USA
Edited by LTC
Edward C. Ledford, USA

Train the trainer—a basic notion critical to preparing our artillery mentors to serve on embedded training teams (ETTs) in Afghanistan. Before deployment, we immerse mentors in the Afghan social culture, but we fail to immerse them in the Afghan artillery doctrine we expect them to train and fight.

...we immerse mentors in the Afghan social culture, but we fail to immerse them in the Afghan artillery doctrine....

The weapons and techniques the Afghan National Army (ANA) uses are unfamiliar relics of the Soviet occupation. Because the Soviets trained many senior Afghan leaders, Soviet methods are prevalent. The language barrier is already difficult, but made more so because of artillery jargon associated with the art. Once deployed, ETTs are necessarily spread across Afghanistan's 34 provinces to meet our broad requirements, impeding the sharing of lessons learned in any sort of effective, unified, standardized fashion. Most US Army artillery mentors have experienced little to prepare them for these challenges.

Nonetheless, Afghanistan-bound, US Army artillerymen currently receive no formal or standardized instruction.

Why? The apparent assumption is that standard US artillery training prepares Soldiers for assignment on a 2-man team that will train and direct an Afghan Artillery Battery in combat. Simply put, it does not.

So we implicitly disregard a most basic US Army tenet and fail to equip artillerymen with the most fundamental tools for success—training on the capabilities and limits of Afghan artillery; on the special tactics, techniques, and procedures (TTPs) the ANA employs, and on the Soviet D30 howitzer—the ANA artillery's bread and butter. So,

embarrassingly enough, we force Soldiers to reinvent the proverbial wheel every rotation and re-learn old lessons. Further, these constant variations in training understandably wear on Afghan confidence.

To be sure, our shared neglect in preparing mentors has delayed ANA artillery progress. After 3 long years, ANA artillery can still only conduct direct fire: they engage only what they can see at the gun. With some significant assistance from mentors, units can attempt indirect fire. Bottom line, we can do better.

OLD EQUIPMENT, OLD PHILOSOPHIES—NEW CHALLENGES

To begin to succeed, Army mentors must know how to employ the Russian D30 122mm towed howitzer in a counterinsurgency role. The D30 is a simple, rugged, capable, and accurate Cold War weapon system designed for a vastly different fire support philosophy: multiple batteries massed on pre-planned targets to create rolling barrages ahead of troops on a linear battlefield, often without observation. The Soviet Battery Commander served as both the observer and the Fire Direction Center (FDC), personally calculating firing data and sending it to the guns.

Because we cannot always predict the time and place of enemy contact, we cannot have a commander in position to observe and direct fires: every Afghan soldier must be capable of observing and adjusting artillery fire.

And of course, the counterinsurgency fight demands accurate and restrained artillery fire available any time and in any direction—not rolling barrages.

A FEW THINGS YOU'VE NEVER SEEN

Here are a few examples of significant issues unfamiliar to US artillerymen and dangerous for mentors to learn through trial and error in combat.

—The Soviet fire control system uses 6,000 mils in a circle, not the standard North Atlantic Treaty Organization (NATO) 6,400 mils, so US-style range deflection protractors (RDP), plotting boards, and target grids are not compatible with the D30. Complicated Soviet plotting equipment and charts cannot be used to adjust fire in the NATO fashion. And those tools cannot be used in 360-degree operations typical of counterinsurgency fires support.

—The ANA does not have any of the Soviet slide rules that are similar to our graphic firing tables (GFTs), which would allow them to quickly apply non-standard conditions to their firing calculations. As a result, every mission must be calculated manually, which can take even an average FDC up to 40 minutes to compute.

Complicated Soviet plotting equipment and charts cannot be used to adjust fire in the NATO fashion.

US artillery mentor establishing an aiming reference during occupation training–ETT Artillery Conference at KMTC. (Photo by author)

—Easting follows Northing. The Russian method of determining map coordinates is exactly opposite NATO's. And for easier reference, the Russians use *X* when referring to Northing and *Y* for Easting.

—Powder charges are defined opposite from the NATO standard. For the D30, the number of powder

bags *removed from* (not inserted into) the canister identifies the charge. So, for the D30, Charge 4—the *removal* of four bags—is the smallest charge, not the largest.

—Unlike the US, the Soviets did not rely on just one tabular firing table (TFT) for the high explosive (HE) projectile. They used both normal and mountain terrain TFTs. The normal terrain TFT uses as standard the conditions at sea level. The mountain terrain TFT uses conditions based on an altitude of 1,500 meters. When computing data without accounting for non-standard conditions using the normal terrain TFT (sometimes referred to as "cold-stick"), lower air pressure and temperature alone can cause errors of up to 900 meters.

...because so many artillery terms are jargon anyway, civilian-trained interpreters have difficulty communicating concepts.

—The D30 sight can use either a range drum in combination with a site dial or it can use a quadrant elevation only. When using the range drum, a function of range-to-target is applied to the drum, and site[1] is applied to the site dial. This method is good for speed, but it lacks accuracy because there are generally no non-standard conditions applied to the range and the drum. To complicate matters, the drum is based on the normal terrain TFT, so erroneous computations result in large and dangerous errors.

—Unlike any US howitzer, the deflection index on the D30 sight increases to the right—not the left—and uses a fixed deflection, not a common deflection. The deflection increasing to the right does not create much difficulty; however, the absence of a common deflection requires special computations for each gun: each howitzer has its own distinct deflection when oriented on the same target.

TACTICS, TECHNIQUES, AND PROCEDURES

Failure to understand these fundamental differences and apply fixes quickly leads to deadly situations and undermines effective training. We spin our wheels.

Combined Joint Task Force–82 (CJTF-82) developed a few TTPs that mentors can employ to respond to the radical differences between US and Soviet style artillery and the other challenges the ANA must overcome to move from direct fire to responsive indirect fires in their counterinsurgency environment.

British and French mentors emplace the D30 Howitzer–ETT Artillery Conference at KMTC (Photo by author)

TTP #1—Train the Trainer: For ANA artillery to improve, artillery mentors must know and teach consistently from year-to-year the same skills and crew drills across the entire ANA. Until we standardize artillery mentor training, mentors will have to prepare themselves. At a recent artillery conference at the Kabul Military Training Center (KMTC) that included artillery mentors attending from all coalition partners across Afghanistan, we discussed the necessity for standardization. All of the information from this Kabul conference is available to future artillery mentors at the AKO Knowledge Center "Afghan National Army Field Artillery," https://www.us.army.mil/suite/kc/11235523.

TTP #2—Standardize Terminology: Few artillery units in Afghanistan use the same terms. And because so many artillery terms are jargon anyway, civilian-trained interpreters have difficulty communicating concepts. At the Kabul conference,

experienced interpreters established Dari words that best communicate the concepts mentors are training. We codified the terms on these artillery forms that are also available on the AKO Knowledge Center: a Call for Fire Card, Record of Fire, Rapid Fire Table, Gunner Reference Card, Weapon Record Data Card, and a Record of Missions Fired. In addition, the TFTs are translated into Dari. These forms and tables all use the same words for the same concept from observer down to the gunline. The words on these documents are written in Dari, English, and transliterated phonetically so mentors can use the proper words themselves and cut reliance on interpreters.

TTP #3—Establish an Artillery School: Because there is little formal training in the ANA artillery, the 4th Brigade Combat Team of the 82nd Airborne Division created a small artillery school near Gardez, sequestering from distraction a platoon at a time for 28 days. This initiative proved the best method for changing the culture of ANA artillery and inculcating new standards. At Gardez, platoons conducted daily classroom and hands-on training. At the conclusion of the training, they conducted a day-long live fire exercise. Key personnel from the platoon were required to pass written tests, and the entire section had to demonstrate its competence in occupation and live fire crew drills. For the first time ever, platoons were certified against an established, written standard.

TTP #4—Leverage Automation: To overcome equipment shortages and the shortfalls of Soviet firing charts, CJTF-82 created a Microsoft Access program for computing firing data. We named it the "Afghan - Field Artillery Computer (A-FAC)." A-FAC accounts for all non-standard conditions and computes the data in 5-10 seconds, allowing the ANA to use the D30 to conduct adjust fire missions. And A-FAC is simple to use.[2] Of course, you can find this program on the AKO Knowledge Center site. It will work on any computer loaded with Microsoft Access 2003 or later.

MAJ Fullerton with interpreter training ANA battery commander on the A-FAC. (Photo by author)

A WAY AHEAD

It is unreasonable to expect our ETTs to arrive in Afghanistan and begin coaching, teaching, and mentoring without first understanding both the most fundamental issues and the complexity of the problems. Self-preparation with the information on Army Knowledge Online is a good start. We owe our Soldiers a formal plan to train the trainers to make a consistent and effective effort to build ANA artillery capacity.

In short, our professional, collective responsibility is to better prepare American artillerymen to assume the complex role of growing Afghan National Army soldiers into artillerymen and leaders who can operate in a NATO, counter-insurgency environment—effectively.

For the first time ever, platoons were certified against an established, written standard.

END NOTE

[1] Site is a correction for the difference in altitudes of the gun and target.

[2] ANA soldiers, many of whom had never before used a computer, could compute firing data on A-FAC after just 4 hours of training.

Artillery Integration for CAS Fighters

F-16 in Iraq (USAF Photo)

By
Capt Jayson J. Rickard, USAF

Do not wait until check in to get situational awareness (SA). Get all the information you can prior to planning your mission.

Close air support (CAS) by definition requires detailed integration between CAS aircraft and friendly ground forces. This integration must begin on the ground before you takeoff. The first source of information is the ground liaison officer (GLO) assigned to your base. The GLO works in the wing operations center (WOC) and will brief the current ground situation for your mission. The GLO is the subject matter expert for ground force operations at the wing level. Another source of information is the air liaison officer (ALO). ALOs work at every Army echelon down to the battalion, but can also be "boots on the ground" with a fielded Army unit. The ALO is the senior member of a tactical air control party (TACP). The ALO at the tactical operations center (TOC) usually will provide inputs to the ground commander about how to utilize air and probably will submit the air strike request you will support. The joint terminal attack controller (JTAC) is your direct liaison to the ground commander and will have the most current information on the ground scheme of maneuver at check in. The JTAC will provide talk-ons and final control unless the JTAC delegates these duties to a forward air controller (airborne) [FAC(A)][1]. Prior to your mission, you should make an attempt to contact the JTAC or FAC(A) by phone, mIRC (Mardon Bay Internet Relay Chat), or email. Do not wait until check in to get situational awareness (SA). Get all the information you can prior to planning your mission.

A CAS flight lead can also find good data in the operations order (OPORD) which is a great source of information on the ground situation. In an OPORD you can find the ground commander's intent for airpower, target priorities and engagement areas, essential tasks that airpower needs to accomplish to ensure operational success, artillery engagement areas and priorities, objective areas (OAs), and position areas for artillery (PAAs). All of this information will give you a baseline idea about where you will be able to operate. The OPORD will also discuss the general scheme of maneuver and the desired end state of the operation. The airspace control order (ACO) defines airspace coordination areas (ACAs). The air tasking order (ATO) includes pertinent information for your sortie along with other aircraft which are fragged to the same area of operations (AO). The special instructions (SPINS) include specific rules of engagement (ROE) and other information which is useful to the employment of CAS.

THE TACTICAL OPERATIONS CENTER (TOC) AND COMMUNICATIONS FLOW

The TOC is the "belly button" of the battlefield. This "in between" agency is often left out of the cross check as fighters typically get an update from the air support operations center (ASOC) and then flow immediately to the JTAC. At the TOC you can find the ground commander and usually the ALO and the fire support coordinator (FSCOORD)/fire support officer (FSO) sitting next to each other. The TOC has the most up-to-date information for the operation you are supporting short of talking to the JTAC at check in. To build maximum SA do not bypass the TOC on your way to your AO. You can find the TOC's frequency in the theater SPINS or via the ASOC.

AIRSPACE CONTROL AREA (ACA) DEVELOPMENT / EXECUTION

An ACA is a way to integrate artillery support and air support. ACA is defined as: "a three dimensional block of airspace in a target area, established by the appropriate ground commander, in which friendly aircraft are reasonably safe from friendly surface fires".[2] An ACA integrates fires by providing a safety measure for friendly aircraft that allows the other supporting arms to continue to fire in support of the maneuver force. Although ACAs are listed as restrictive for artillery, they are permissive for fighters. If you hear an ACA is active when you check in, that is good as there is already a deconfliction plan built. There are two types of ACAs: formal and informal. The method selected depends on time available and established standard operating procedures.[3] Ultimately, the goal is to integrate fires to the maximum extent possible. Therefore CAS fighters, JTACs and FAC(A)s, through the ground commander, must exhaust all possible airspace deconfliction methods before making a decision to shut down air support in favor of artillery or vice versa.

In an OPORD you can find the ground commander's intent for airpower....

A formal ACA requires detailed planning. When delegated, the joint force air component commander (JFACC) establishes all ACAs but other component commanders may request control of specific ones. OPORDs and ACOs contain the description and dimensions of formal ACAs. The maneuver commander requesting CAS makes the decision to employ an ACA based on the recommendation of his FSCOORD / FSO and ALO. Only use ACAs when risk to friendly aircraft is great enough to justify the loss of surface delivered fires. Factors that determine the actual size and shape of the ACA are the type of aircraft, type of ordnance, and the air defense threat. The four elements of a formal

F-18 in OEF (USAF photo by TSgt Scott Reed)

Ultimately, the goal is to integrate fires to the maximum extent possible.

ACA include minimum and maximum altitudes, a baseline defined by grids at each end, width, and time. Planners design ACAs so that aircraft can operate within the established confines while surface fires and their effects can safely employ above, below, and/or laterally displaced from the confines.

JTACs and FAC(A)s can also establish informal ACAs for deconfliction which is the basis of this article's discussion of artillery deconfliction. These ACAs can use time, lateral distance, altitude, or a combination of all three for separation. These are usually established at the lowest level (JTAC, fire support team (FIST), etc.) and approved at the battalion level or above. The utility of informal ACAs lies in the minimal time required for coordination, the inherent flexibility they offer, and their ease of understanding.

One easily executed option is the use of lateral separation to allow for coordinated/simultaneous attack against two adjacent targets. With the knowledge of the GTLs the JTAC/FAC(A) or the CAS fighter can use one of three methods of lateral separation: latitude/longitude, grid, or geographic reference (georef). Examples:

Lat/Long:"Remain north of IP (Initial Point) Chevy."

Grid: "You have all altitudes east of the 24 grid line and south of the 50 grid line."

Georef: "Remain west of Fairview Peak."

Utilizing grid lines is a highly effective method provided the CAS fighter is flying with a map of the AO which has a military grid reference system (MGRS) overlay. This method is also easier if you can tie the grid line to an obvious georef like a dry lake or a mountain range.

Using altitude as a deconfliction tool is another viable option. This method allows aircraft to cross the gun-target line (GTL) provided they stay above or below the maximum ordinate altitude. To establish an altitude, the ACA, the JTAC/FAC(A), and the FSCOORD/FSO will determine the max ord and use tabular data to provide a margin of safety. This altitude *should* be converted to feet MSL before being passed to the aircraft. If there is any doubt, query the JTAC/FAC(A). Altitude and lateral separation can

also be combined in an informal ACA: "Stay above 10,000 feet MSL west of the 24 grid line. You have all altitudes east of the line."

Time separation is the last informal ACA method and involves the most detailed coordination. This method may be required when CAS fighters must fly near the indirect fire trajectories or their ordnance effects. This technique is appropriate when aircraft and artillery must engage the same or nearby targets, when indirect fire is providing suppression of enemy air defense in coordination with the aircraft attack, or when artillery is marking the target. The time on target (TOT) or time to target (TTT), with TOT being preferred, will be the basis for the timing. The JTAC/FAC(A) in coordination with the FSCOORD /FSO will determine the amount of time required for deconfliction based on the factors discussed above.

TYING IT ALL TOGETHER

By tying all of this information together you can now look at a battlefield map and develop several tactical assumptions. You will know from the OPORD the general scheme of maneuver and overall objective of the operation. You will know which targets artillery will engage (and which systems they possess) versus CAS and can plot some likely GTLs. You know what other assets will be assigned to the AO from the ATO. You can determine how many tubes will be on the battlefield (and rounds in the air) based on the echelon size and you can determine their approximate maximum ranges based on the one-third/two-thirds rule of thumb or the max range table. Beyond the artillery max ranges, you can also assume that the ground commander will utilize CAS. If, for example, you are supporting a battalion you can expect about sixteen tubes. Therefore you can assume a maximum of 64 rounds per minute (16 tubes multiplied by four rounds per minute) with 32 rounds per minute sustained. If the battalion is shooting 20km (155mm red bag), the maximum ordnance will be about 20,000 ft AGL. All this information will help you "chair-fly" an effective integration plan so you check in to the AO with great SA and can help the ground commander maximize his joint fires against battlefield targets.

END NOTE

[1] "Joint Force CAS Connectivity" (PowerPoint presentation, USAF Air to Ground Operations School, Nellis AFB, NV, 12 July 2006).

[2] Joint Publication (JP) 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 12 April 2001, as Amended through 30 May 2008.

[3] "Fire Support Coordination" (PowerPoint presentation, USAF Air to Ground Operations School, Nellis AFB, NV, 14 October 2005).

Kill Box Update

By
Col (Ret) David Neuenswander, USAF,
Mr. Bo Bielinski,
Col Russ Smith, USAF

Kill boxes should only be employed for interdiction and not as an area reference system....

Although kill boxes have been employed using various procedures since Desert Storm, recent attempts to refine kill box tactics, techniques, and procedures (TTP) may have generated confusion within the Services and the joint community. At the July 2008 Air Land Sea Application (ALSA) Center Joint Working Group (JWG) conducted to revise *Multi-Service Tactics, Techniques, and Procedures (MTTP) for Kill Box Employment*, senior US Army and US Air Force doctrine representatives agreed to write this article to clarify the way ahead for this publication. This discussion outlines a brief history of kill boxes, an explanation of the Joint Fires Area (JFA) concept, and the way forward for the kill box MTTP publication revision.

During Desert Storm the air component employed kill boxes as a way to conduct air interdiction against enemy ground forces and mobile targets beyond the fire support coordination line (FSCL). Kill boxes were defined as 30 degree by 30 degree grids on the map, which translated to 30 NM in length and something slightly less in width depending on how far North or South of the equator the kill box was located. Kill boxes primarily served as airspace coordinating measures (ACMs) to deconflict and control aircraft conducting air interdiction. US Air Force killer scouts provided target information and deconflicted aircraft assigned to specific kill boxes. In the absence of a theater-wide area reference system, kill boxes were often employed to expedite aircraft from one area to another beyond the FSCL.

Kill boxes remained 30 by 30 grids during operations in Kosovo and during the initial operations in Afghanistan. In 2002, United States Central Command Air Forces (USCENTAF) created Kill Box Interdiction-Close Air Support (KICAS) procedures prior to Operation IRAQI FREEDOM (OIF). KICAS procedures labeled all 30 by 30 grids in the joint operations area (JOA) as kill boxes. For the first time, these kill boxes could be further subdivided into nine 10 NM by 10 NM keypads. In the KICAS TTP, air interdiction was conducted in an "open" kill box. When a kill box was "open" the land component would not allow surface-to-surface indirect fires into the area above a previously coordinated altitude. If a kill box was not open, it could be used for any type of activity. Since all 30 by 30 grids were called kill boxes, a kill box became a defacto area reference system.

During numerous post-OIF after-action conferences and reports, the joint community developed a number of recommendations for the future employment of kill boxes. Some of the major recommendations were:

1. A kill box should be defined as a fire support coordination measure (FSCM) rather than an ACM.

2. Kill boxes should only be employed for interdiction and not as an area reference system (e.g., don't send an aircraft to a kill box unless they are supposed to kill something).

3. A separate area reference system should be developed to assist the joint force with FSCMs and ACMs and the reference system should allow areas with smaller divisions than 10 NM by 10 NM.

4. There should be two types of kill boxes: one which integrates air-

to-surface fires with surface-to-surface indirect fires and one which only allows air-to-surface fires.

5. There was discussion that the term "kill box" was too barbaric and that the Department of Defense should develop another term. Ultimately, the subject matter experts attending the kill box JWGs pressed on with kill box as the accepted term.

ALSA sponsored the kill box TTP development process resulting in the initial publication of the kill box MTTP in June 2005. This new publication included the following major concepts:

1. For the first time kill boxes were identified as FSCMs.

2. Kill boxes are established and adjusted by component commanders in consultation with superior, subordinate, supporting, and affected commanders, and they are an extension of existing support relationships established by the joint force commander.

3. There were two types of kill boxes, blue and purple.

a. Blue kill boxes permitted air-to-surface fires in the kill box without further coordination with the establishing headquarters.

b. Purple kill boxes integrated air-to-surface fires in the kill box (usually with an altitude restriction) with surface-to-surface indirect fires (usually with a maximum ordnance defined) without further coordination with the establishing headquarters.

4. For the first time, kill boxes were separated from the area reference system.

a. Kill boxes would no longer be used as an area reference system.

b. Kill box boundaries normally would be defined using an area reference system (e.g., Appendix E, Common Geographic Reference System [CGRS]), but could follow well-defined terrain features or may be located by grid coordinates or by a radius from a center point.

c. The only time aircraft would be sent to a kill box was to perform air interdiction.

d. Air battle management functions that previously used kill boxes as a reference system (e.g., "Lancer 1, proceed to kill box 18I for refueling") would now use CGRS for ACM functions not involving air interdiction (e.g., "Lancer 1, proceed to cell 18I for air refueling").

In February 2005, while the kill box MTTP publication entered the final stages of development, the Director, Operational Test and Evaluation initiated the Joint Fires Coordination Measures (JFCM) Joint Test & Evaluation (JT&E) with the task to investigate, evaluate, and make recommendations to improve the effectiveness of kill boxes by standardizing TTP at the operational level. The JFCM JT&E research effort focus eventually shifted to creating and developing the JFA concept.

Purple kill boxes integrated air-to-surface fires in the kill box....

(USA Photo)

After several years of testing, the JFCM JT&E published a draft JFA TTP document. This TTP manual contained approximately 85% of the information from the 2005 kill box MTTP publication and it amplified details on coordinator duties, establishing authority, control of assets, and deconfliction requirements relative to each joint force component's command and control

responsibilities. In addition, the JFA TTP updated the reference system to include the new Global Area Reference System (GARS). One major point of departure for the JFA TTP involved the absence of colorized containers; JFAs represented only the intended effects area and the airspace needed for deconfliction vice blue and purple designations. Furthermore, the area reference system choice was delineated as a separate ACM function not tied to the establishment of a JFA FSCM.

The JFCM JT&E recommended that JFA TTP be incorporated (in its entirety) into the next revision of the ALSA kill box MTTP publication and into joint doctrine as appropriate. However, full implementation of the JFA TTP requires the development and fielding of a new software program entitled the JFA Manager (JFAM). This software is a specific tool which is planned to reside within the Joint Automated Deep Operations Control System command and control software program. Unfortunately, the JFAM software is not scheduled for release until CY 2009.

Recommend GARS rather than CGRS as the reference system of choice.

Concurrent with the JFCM joint test, US Forces Korea (USFK) modified the draft JFA TTP into the JFA-K (JFA-Korea TTP). The JFA-K was a significant modification of the original JFA TTP, though it worked well for the specific challenges on the Korean Peninsula. JFA-K TTP involves multiple layers of different colored JFAs, with each color corresponding to a specific altitude deconfliction level vice integration.

When the first ALSA kill box JWG met in May 2008 to revise the publication, they reviewed the JFA TTP for inclusion. Subject matter experts at the JWG contemplated replacing the term kill box with JFA; however, the JFA TTP could not be fully implemented as designed without the JFAM, and the JFAM would not be ready for implementation until well after the kill box MTTP revision's release date. Additionally, it was decided to not base the revised TTP on an untried and untested future software version (the JFAM) which may or may not meet the needs of the warfighter. Lastly, it was decided to maintain the original kill box color delineations.

With respect to the JFA TTP concept, the Service subject matter experts attending the May 2008 JWG chose the following courses of action:

1. Implement best practices from the JFA TTP but not use the name JFA until the JFAM software is available (potentially during a future ALSA kill box MTTP revision).

2. Retain the purple and blue kill boxes.

3. Recommend GARS rather than CGRS as the reference system of choice.

NOTE: USFK representatives advised the working group that Korea will retain the JFA-K TTP rather than use the term kill box.

To date, ALSA has conducted two kill box JWGs to revise the publication and it will be released early in CY 2009. Thanks to the efforts of the JFCM JT&E and their work on the JFA TTP, the new kill box MTTP publication will be much improved over the original.

Effective Airspace Management to Facilitate Fires - Establishing an Airspace Management Authority (AMA)

(USMC photo)

By
Maj Victoria T. Habas, ANG

It used to be enough to establish a coordinating altitude and communicate jointly only on those rare occasions when United States Army (USA) or United States Marine Corps (USMC) operations required venturing to higher altitudes. However, while the United States Air Force (USAF) still maintains the preponderance of air assets, the airspace has become saturated with much more than USAF aircraft. Ground fires, close air support (CAS) stacks, and a multitude of unmanned platforms occupying the same airspace will require a steady-state coordination mechanism for continuously servicing joint and coalition dynamic requests for airspace.

The term "mechanism" may imply new cutting edge command and control (C2) systems such as the Tactical Airspace Integration System (TAIS) for the USA and Battle Control Center-Central Command Air Forces (BC3) for the USAF. After years of mere lateral, vertical, or time deconfliction, they do provide an opportunity for integration using situational awareness (SA) from onboard and offboard sensors and datalink information. Unfortunately, all of this new capability has seemingly made C2 crews more adept at airspace control for their respective Services' needs, while joint airspace management is truly where joint fires integration becomes difficult.

HISTORICAL PRECEDENCE

But, why? After all, it's not as if our Services have never operated as a joint force in the past. In fact, it's worth examining how fires have historically been integrated. The World War II Battle of Iwo Jima is a poignant example of persistent, coordinated naval, air, and land fires

delivered in an extremely timely manner. All air strikes were broadcast over the Corps Artillery Fire Direction Control net with time, area, axis, number and type of aircraft, and minimum altitude.[1] Each battery of artillery could then control its fires accordingly. An Air Support Coordination Unit was also established to service close troop support missions and warn aircraft of conflicting fire missions overhead on the broadcast.[2]

Although successful, several aspects of this battle simplified fires integration. First, the fight axis and general location of friendly forces was fairly straight forward—good guys in the south, bad guys in the north. Second, the entire area of operations (AOR) was very small—only about one third the size of Manhattan. Also, targets and target areas were fixed, heavily entrenched bunkers and tunnel systems incapable of rapid redeployment. Finally, every military asset present at that island was in support of the same operation with the same objectives.

The USMC is evidence of the effectiveness of integrated fires....

In fact, the USMC integrates fires as their baseline concept of operations: a Marine air-ground task force (MAGTF). Coordinated air, land, and naval fires are orchestrated by a central command element for a specific mission. This system, although highly effective, still has significant disparities from the joint Service concept because of many of the same reasons we identified at Iwo Jima as well as the very important advantage of having organic air support—the USMC does not require coordination with the joint force air component commander (JFACC) to be apportioned air missions. The USMC is evidence of the effectiveness of integrated fires if a fighting force can eliminate the tug-of-war between ownership of mission sets and priority for airspace by establishing a centralized authority with big-picture battlespace SA.

Sgt Addison C. Hall, Marine Light-Attack Helicopter Squadron 167 crew chief, shoots an M240 D machine gun mounted to a UH-1N Huey during a close air support mission involving 18 aircraft. (USMC Photo)

THE CHALLENGES

Integrating fires is difficult because it couples vital effects with lethal consequences—we've got to do it, but we've got to do it right. Second, targets are often dynamic and fleeting—they require nothing less than real-time information to service them in a rapid manner. Today's battlefields are asymmetric. Populated, urbanized terrain creates multiple, overlapping fight axes. These scenarios do not lend themselves to the use of traditional airspace coordinating measures (ACMs) and fire support coordination measures (FSCMs). As a result, the use of the airspace control plan (ACP)/airspace control order (ACO) to structure such a dynamic battlespace is difficult. Finally, over a large area, or with a multi-faceted enemy, and especially in a joint or coalition operation, there will likely be several missions and objectives being serviced simultaneously.

When there exists several operational commanders with separate objectives, or various air missions other than those in direct support of the ground forces, or when there is otherwise potential for conflict between the ACA and the operational commander—there will be a need for prioritization and resolution.

OWNERSHIP AND RESPONSIBILITY

Operators are left wondering who can prioritize and resolve missions at the tactical level—who "owns" the airspace. Ownership of airspace, in regards to prioritizing missions, taking responsibility for safety of flight, and deconfliction, is unclear among the supported ground element, the pilots—tactical air coordinator (airborne) [TAC(A)], forward air controller (airborne) [FAC(A)]—the tasking C2 agency, and the executing C2 agency. In fact, the only true owner of airspace is the airspace control authority (ACA), commonly triple-hatted as the JFACC and area air defense commander (AADC). The ACA's responsibilities include:

"…planning, coordinating, and developing airspace control procedures and operating an [Air Control System]… The ACA establishes an ACS that is responsive to the needs of the JFC… and coordinates and deconflicts user requirements." (JP 3-52 Joint Doctrine for Airspace Control in the Combat Zone, II-1, II-2)

This would seemingly put the JFACC, acting as ACA, in the awkward position of planning procedures for the joint force land component commander's (JFLCC) fires. However, JP 3-52 goes on to clarify,

"The ACA does not have the authority to approve, disapprove, or deny combat operations. That authority is only vested in operational commanders. Matters on which the ACA is unable to obtain agreement will be referred to the JFC [joint force commander] for resolution."

The need for an AMA has grown exponentially as the number of airspace users, especially those working above the coordinating altitude, has increased.

The result is a ground commander who owns the air medium above him in order to support his combat operations, but an airspace system overhead, to include air defense assets, tankers, air mobility, the intelligence, surveillance, and reconnaissance (ISR) constellation, unmanned aerial vehicles (UAVs), and civilian air traffic, being mostly managed and executed by the JFACC and the theater air control system. The ground commander is forced to coordinate within that system to establish adequate freedom of maneuver, but oftentimes it is not clear which tactical level agency (Army A2C2, ASOC, CRC, AWACS, JSTARS, TAC-A, FAC-A) has the information or vested authority to orchestrate a plan that will meet the needs of all dynamic airspace users.

In the absence of such an agency, individual users and lateral agencies

make use of airspace without adequate coordination or their coordination is centralized at the combined air operations center (CAOC) airspace cell where the decision loop often moves more slowly than the pace of the ongoing fight.

NEED FOR AN AIRSPACE MANAGEMENT AUTHORITY

The goal of this article is to propose developing the functions, responsibilities, and authorities of an Airspace Management Authority (AMA). The need for an AMA has grown exponentially as the number of airspace users, especially those working above the coordinating altitude, has increased. The stovepipe effect among lateral agencies servicing separate objectives leaves warfighters having to coordinate up the chain of command, lengthening the kill chain. The AMA would serve as the single, decentralized control agency for real-time airspace management in an effort to align command and control responsibilities and authorities for joint use of airspace.

...a testament to the importance of decentralized authority from the operational level to the tactical level....

DEFINITION

An AMA should be activated as soon as more than one agency has established separate Battle Management Areas (BMA), and no later than the point at which there is more than one Service making use of the same airspace—with fires or aircraft. The AMA will reside at a tactical command and control (Tac-C2) agency and will track and manage all active ACMs, FSCMs, airspace assignments, and allocations through the use of organic tools, techniques, and/or procedures specific to that platform. Secondly, the AMA would be delegated the authority from the ACA to authorize deviations from governing documents (retroactively coordinating with operational commanders), and to build and execute real-time airspace management plans to service dynamic needs. These plans may include releasing airspace to lateral or subordinate airspace management agencies and delegating responsibility for safety and deconfliction along with that ownership.

INTEGRATION–HIERARCHY–COORDINATION

The AMA is not meant to be a lengthy chain of command amongst lateral agencies. Nor is it meant to establish yet another Tac-C2 agency since the skill set and systems required already exist. It is only meant to be a clarification among Tac-C2 over whom is fusing together the big picture for airspace. Much like the signals intelligence (SIGINT) identification (ID) authority or the command and control intelligence, surveillance, and reconnaissance (C2ISR) package commander concepts, the AMA would be the central point of contact across lateral agencies to take responsibility for overall airspace management.

During Operation DESERT STORM (ODS), after establishing air superiority, the campaign to liberate Kuwait required close coordination between the massive ground component and the air assets servicing their requests. The Air Force control and reporting center (CRC) was responsible for ferrying A-10s safely into and out of kill boxes and managing their airspace needs procedurally with airborne killer scouts. Additionally, CRCs served their traditional role of sector and regional air defense commander (SADC, RADC). The presence of the air defense mission meant that at least two Services required use of the same airspace: the Air Force fighters and the Army PATRIOT. Here was an example of the Air Force and the Army sharing and coordinating the full air medium from low to high altitude. A USA air defense artillery fire control officer (ADAFCO) was embedded onsite at the CRC for rapid coordination regarding decon-

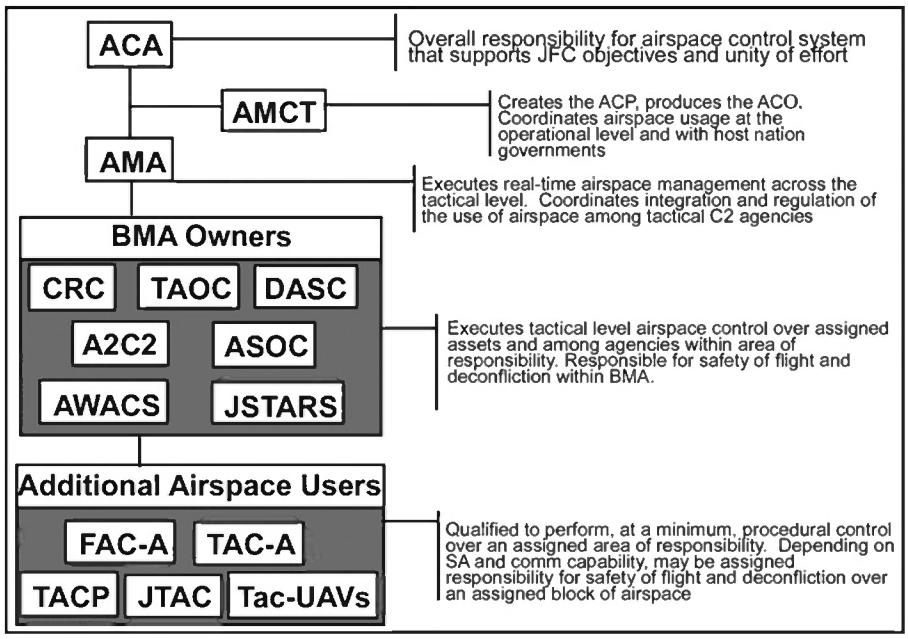


Figure 1 Hierarchy of Responsibilities

fliction of fires and aircraft. This successful TTP continues today and serves as an example of one proven solution to joint airspace management.

It is also a testament to the importance of decentralized authority from the operational level to the tactical level, "The AADC may also designate [RADC] and [SADC] to allow for ease of command and control (C2) of airspace based on the size and scope of the mission /operation." (JP 3-52, II-2) The AMA would be largely equivalent to a RADC, but for airspace management. It is the execution arm of the JFACC's role as ACA at the tactical level with whom lateral and subordinate agencies must coordinate.

In its simplest form, the hierarchy of airspace control would be from the ACA to the AMA. Then, the AMA would work with lateral C2 agencies to establish their respective BMAs. Finally, the BMA owners would have the additional option to "release" airspace to qualified agencies or operators within their BMA. The possibilities are many, but the concept is universal: formal allocation of airspace to agencies that then become responsible for safety and deconfliction. (See figure 1.) If the agency is either unwilling or incapable of accepting the responsibility, the airspace will remain with the AMA for control.

SUMMARY

In conflicts where active kill boxes overlap active restricted operations zones (ROZs) underneath Air Mobility Command (AMC) corridors within air traffic control rings straddling BMA lines, so too are entangled the responsibilities for airspace management among tactical level players. Yet despite the complexity of the battlespace, airspace allocations remain largely stovepiped among lateral agencies. Simultaneous operations servicing separate mission objectives over large areas with incongruent fight axes are new challenges that call for new solutions to joint fires integration. Inarguably, our next war will see this challenge further exacerbated by the growth in airspace users, both aircraft and fires. The argument for an AMA will be even more compelling because of the growth in airspace users. Joint users of airspace require one agency to prioritize and rationalize all the dynamic moving pieces of the AOR. They require a safe, simple, and

Yet despite the complexity of the battlespace, airspace allocations remain largely stovepiped among lateral agencies.

flexible airspace plan that does not hinder operations. To achieve the success that has already been proven for the air defense mission, the ACA should devolve authority for dynamic airspace management decisions to a single, capable agency. That agency must be at the tactical level, or mission execution could be delayed and mission success jeopardized. On the road to integration, the AMA is the simplest, most effective mechanism to counter the challenges of joint fires.

END NOTE

[1] Department of the Navy, *Amphibious Operations-Capture of Iwo Jima-16 February to 16 March 1945*, 3-3.
[2] Ibid, 3-3.

Developing More Capable ALO Networks

(USAF photo)

By
Lt Col Keith Teister, USAF

In order to build this network the Air Force must invest in human capital....

The Air Force needs to leverage existing doctrine and joint command structure to fully develop a sensor network of experienced and highly trained officers who can both assist the ground commander and shape the air component's direction and command and control (C2) of full-spectrum operations. Air liaison officers (ALOs), and the tactical air control party (TACP) they belong to, are uniquely positioned to serve as this network, but are not being used to their full potential. In order to build this network the Air Force must invest human capital in officers with broad Air Force experience, and develop a more integrated, fully manned air liaison network that advocates more effective use of all air component assets while championing the needs of ground commanders.

The Air Force needs qualified officers able to address all capabilities the air component can contribute in full-spectrum conflict. These Airmen must have broad operational campaign planning expertise, not just how to plan and package air assets. They need holistic, multi-spectrum, campaign and operational planning skills capable of linking strategic goals/end states to tactical actions. TACP squadrons (air support operations squadrons—ASOSs) don't necessarily need weapon school graduate air planners, who are at the zenith of tactical and technical expertise. These skills are generally best used on packaging airpower capabilities for missions to realize desired effects. It helps if the Airman has a "patch," but the joint, coalition, and interagency community has a need for broader skills.

Airmen with global perspective who are comfortable in chaos, looking for out-of-the-box answers, which may or may not include using airpower, are the ultimate full-spectrum ALOs. Just because airpower can be used, doesn't mean airpower should be used. We need Airmen who know what is feasible, suitable, acceptable, and possible in a time-constrained environment. They need to be formally plugged into both air and ground components and, knowing the strength or weakness of both, ALOs are perfectly poised based on current doctrine. These officers, and their squadrons, are where the rubber meets the road. They see first-hand the land combatants' needs and communicate them to the air component. Additionally, because they see the situation through the lens of an Airman, they may find new opportunities for the air component unrelated to the needs of the land forces but with overall relevance to the fight. Unfortunately, broad airpower expertise and campaign planning skills are not all that is required when working with other Services.

In addition to depth of knowledge and experience, ALOs require rank. Rank commensurate to the aligned sister Service command structure is required to facilitate communications. Sister Services are rank conscious. In Air Force culture we have never been unduly encumbered by rank. It is not uncommon for a captain to be flight lead with field grade officers under his direct control—this is normal within the Air Force. Rank enables negotiation from a position of authority and stature—i.e., colonels, lieutenant colonels, and majors are needed for 2-star Army Commands and Staff. As in most military organizations, the perspectives of more senior officers are generally not squelched. Rank has its privilege and this element of persuasion is needed in the joint environment.

The sensor network is not effectively covering the problem set....

Without Airmen formally plugged into the sister land component, the air component doesn't know what opportunity is passing it by because the Airmen capable of finding opportunity are not in position. The sensor network is not effectively covering the problem set—the bloodhounds are on the porch.

Years ago, the Air Force substituted enlisted joint terminal attack controllers (JTACs) for more senior officer ALOs and transitioned many of the liaising and integration duties to enlisted JTACs. This construct was a practical compromise when the fight focused on mass-on-mass major combat operations (MCO). JTACs, and experienced enlisted-battalion ALOs (E-BALOs), adapted well to the calling, freeing up fighter pilots allowing them to get back in the cockpit. However, the nature of the fight has changed. We now look to the E-BALO to perform throughout the full spectrum of warfare from

MCO to small wars/irregular warfare (IW).

Extremely professional and highly capable, the enlisted JTAC/E-BALO has performed heroically and is well versed in the application of close air support (CAS); unfortunately, the contemporary operating environment may be outpacing what is asked of these junior enlisted personnel. Until recently, IW was seen mostly as a domain of special operations forces (SOF)—that is not the case now. Much of the contemporary environments "conventional" forces operate in are highly-dynamic IW. JTACs are selected for duty with SOF, but normally have served several years, gained essential tactical and operational experience, and then received additional specialized training prior to being thrust into SOF IW operations.

The JTAC is a high-demand, low-density asset in an already stressed career field....

Conventional JTACs, on the other hand, are extremely handicapped by a lack of Air Force experience, no formal irregular warfare education, and rank parity needed to influence and liaise in most multi-Service planning environments. It is not unusual to find a Senior Airman serving as the sole representative to a lieutenant colonel, conventional land maneuver battalion commander, with a mere 3 years total service. Lack of rank may be a hindrance again with the junior Airman recommending to the field grade Army officer how to use airpower. Additionally, although a highly trained CAS expert, 3 years service hardly provides time for the JTAC to learn broader capabilities from across the Air Force. As in most career fields, the first 3 to 4 years are spent learning specific career field technical expertise. It seems amazing we expect someone with such focused expertise to speak and advocate the entirety of the air component to the supported land unit. Trying to diversify a fledging Airman and introduce him to broad concepts and capabilities at this early phase in his career could negatively impact his duties as a JTAC.

Just as a Weapons School expert from the F-16 community needs to maintain focus on developing innovative F-16 tactics, techniques, and procedures, a JTAC needs to maintain focus on joint terminal attack controlling. Their technical /tactical skills may be diluted by heaping additional expectations on their already heavily tasked enlisted shoulders. The ability to go kinetic and deliver precise fires is demanding and has very little room for error. The JTAC is a high-demand, low-density asset in an already stressed career field due to the demands of current conflicts.

The air component does need more JTACs. Limiting the number of JTACs hampers operations and inhibits flexibility, similar to a lack of fighter pilots. When future situations and problem sets dictate the need for JTAC skills, we need to have them available to call upon. Just like most aircrew, JTACs take years to grow. Today's investment enables tomorrow's utilization.

Unfortunately, more JTACs alone will not solve the problem set in small wars/IW. In IW the kinetic-kill is utilized on a limited, judicious basis. The IW focus may simultaneously encompass nation-building; intelligence, surveillance, and reconnaissance (ISR); electronic warfare (EW); airspace infrastructure reconstitution; and even civil aviation economic development, in addition to the traditional CAS/air interdiction (AI) capabilities JTACs typically integrate into a conflict. These IW operations may have a tendency to be more concentrated on non-kinetic as well as very sensitive capabilities. These capabilities may require elevated security clearances for access. Currently, JTACs do not generally have this kind of access. They could be granted it with time and considerable effort. However,

even with access, JTACs generally lack the breadth of experience on air component full-spectrum capabilities which is developed over several years of Air Force service.

Another strength the experienced ALO brings to the fight is seasoned experience. Most field grade officers already have or are able to easily gain access to highly classified information and programs. They also have well over a decade of practical experience within the Air Force and have seen firsthand much more of what the Air Force brings to the fight. Access to information and programs may not be directly leveraged by the JTAC, but can be leveraged thru the ALO and used to queue JTACs to opportunity. Additionally, ALOs fused into the land forces' intelligence and planning processes may help alert the air component to other aspects of full-spectrum IW operations (i.e., engagement opportunities, specific areas ripe for the development of aviation, etc.).

Current doctrine places ALOs and TACPs throughout the land component. Opening and maintaining two-way dialog between the disparate ALOs, TACP, and the upper echelons of the air component's strategy and campaign planning elements, whether that component is a functional joint /combined or Service component of a joint task force or sub-unified command, is critical. A collaborative environment involving these key players helps the air component not only anticipate land component support requirements, but also helps feed the decision making process and strategic direction of the air component.

In closing, the air component has incredible opportunity to develop a network of sensors to help shape its direction and aid its overall C2 for full-spectrum operations. The following extract from Lieutenant Colonel Gary Griffin's US Army Command and General Staff College paper helps capture the time-tested effectiveness of this network of sensors in what is called "directed telescopes":

The directed telescope, or more specifically, the use of specially selected, highly qualified, and trusted young officers as special agents or observers for the commander has been a fundamental method of responding to this persistent challenge. These young officers have been popularly referred to as the "eyes" of the commander. Throughout military history, the use of officers in this capacity has been critical in obtaining battlefield command information for the commander. The utility of these special agents, whether they are aides, liaison personnel, or special staff officers, has been proven in war after war for thousands of years. The directed telescope has survived despite successive waves of information-gathering communications technology. From the loyal aides-de-camp of the Napoleonic era to the British command liaison officers of World War II, command and staff liaison systems, an often overlooked technique of command, have played an extremely important role in the successful command and control at the tactical, operational, and strategic levels of warfare.[1]

...the air component has incredible opportunity to develop a network of sensors to help shape its direction....

Fortunately, the Air Force already has these directed telescopes identified and layered into our doctrinal footprint. The theater air control system (TACS), specifically the TACP, has the C2 organizational construct documented. The ability to enable these directed telescopes at full power and utility already exists. The Air Force only needs to develop well-rounded ALOs who are prepared for full-spectrum oper-ations and educated to accomplish more than just CAS. They will increase our ability to advocate, plan, and leverage airpower with the land

forces. We need to develop and integrate these highly trained directed telescopes down to the lower tactical levels (battalion-level). The Air Force needs seasoned, well-educated, well-rounded ALOs to help it provide opportunities for the ground commander and better integrate air into the joint, full-spectrum fight.

END NOTE

[1] Griffin, Gary B., LTC, USA. "The Directed Telescope: A Traditional Element of Effective Command." US Army Command and General Staff College, 1985. Accessed online on 7 Jun 08 at: http://www-cgsc.army.mil/carl/resources/csi/Griffin/GRIFFIN.asp.

CAS Assessments and Fire Support Mentalities in Iraq

By
Lt Col William J. Ott, USAF

This article stems from interface between corps fires and the Iraq air support operations center (ASOC) from Sep 07 to Apr 08. I begin with an abbreviated history of the ASOC for context, discuss the difficulty in conducting airpower effectiveness assessments, discuss the integration-vice-deconfliction mindset, and finally offer a way ahead. Hard solutions are not offered for the situations described; instead, the general conclusion is that the best measure of merit remains supported commander's satisfaction with airpower and that at all times there needs to exist an integration mindset rather than one of deconfliction.

...at all times there needs to exist an integration mindset rather than one of deconfliction.

Per the Air Force / Marine Corps Tiger Team (AFMTT) trip report published in March 2008 findings:

"The AF TACS [Air Force Tactical Air Control System] was designed for major combat operations and is balanced to support centralized control of [combined force air component commander] CFACC missions. The current TACS is not organized or equipped to support the highly decentralized nature of irregular warfare, where the majority of air missions are flown in direct support of ground operations. Specifically, the TACS does not adequately support planning and execution occurring at the lower levels of the TACS."

The report goes on to enumerate fixes, most of which involve greater capacity at lower echelons, but one should not confuse the robustness of a system with the reason for the system. The ASOC was built for the purpose of improving airpower response to ground force needs in irregular warfare.

Prior to the Vietnam War there existed no entity like the ASOC.[1] Rather, the ASOC evolved from a recognized need to provide air liaison officers with specialists for fighters, reconnaissance, airlift, and intelligence with the understanding that "responsibility for the employment of air sorties allocated to the corps had to occur at a level below the air operations center if USAF airpower was to maximize responsiveness."[2] As General Momyer stated when commanding the USAF forces in Vietnam:

"The establishing of the ASOC, or DASC, was a direct response to the fluidity of the ground battle within a corps area which often made it necessary for the ASOC to divert strike aircraft from preplanned targets in support of ground units. This gave the corps commander some flexibility to change the importance of the targets at any given time or to support the ground unit, which needed direct air support the most."[3]

Thus a continued understanding by Airmen that in the words of the renowned strategist Colin Gray "land

matters most but more importantly, the object is to influence the behavior of an enemy who needs to be controlled where he lives, on land."[4] That is accomplished by influencing amassed adversaries quickly because as Colin Gray reminds us, "The enemy who stands and fights is the enemy who can be found and bombarded."[5] The ASOC is an answer to utilizing asset capability to its utmost utility in a dynamic situation where the adversary can remove predictability. The flexibility, responsiveness, and precision of airpower offers valuable options to the ground commander. It is because of these airpower attributes that airpower—and not just fixed-wing airpower—will remain at the forefront of debates. While all may not agree to its best use, all do agree that airpower is an indispensable asymmetric advantage in war. From the ASOC Director perspective, this oxymoronic commonality of interest led to the following observation regarding assessments.

AIRPOWER MEASURES OF EFFECTIVENESS

There existed no consensus regarding a commonly accepted airpower measure of effectiveness between the senior Air Force commander at the corps level; the Expeditionary Air Support Operations Group (EASOG) Commander, and the Multi National Corps-Iraq (MNC-I) commander. This dynamic inhibited discussion regarding the determination of the right capacity of Combined Forces Air Component Command (CFACC)-owned assets in the Iraq theater. Airmen felt the capacity was appropriate; the Army felt the capacity was inadequate. This difference stemmed from what was being measured. Airmen had one perspective of metrics deemed important— response time to troops-in-contact situations, flight hours provided to the Iraq theater at the force level, and mission effectiveness as determined by the joint terminal attack controller controlling the mission. MNC-I had another—valid requests left unfilled by fixed wing assets and flight hours provided to the Iraq AOR at the corps level, vice force level. (Note: MNC-I tracked troops-in-contact response times but to my knowledge it was not presented as a primary metric in relation to the correct theater capacity question discussion.) Without an agreed upon measure of merit trust becomes a commodity difficult to attain. This difficulty has been seen before. In the close air support (CAS) war of South Vietnam, an overall measure of effectiveness for CAS operations in the war was difficult to formulate due to guerrilla warfare, which impeded the evaluation of CAS operations. Previously, progress could be measured in gains along a recognized front, similar to Iraq now.[6] As highlighted by Franklin Cooling, "Traditional standards to measure air power, including the number of sorties flown, the amount of ordnance delivered, and battle damage assessments, proved unreliable guidelines in this [Vietnam] war."[7] The only true metric in Vietnam ended up being "whether the planes struck when the ground commanders needed them."[8] and "…in the final analysis the true test of close air-support operations is how well they satisfied the requirements of the ground force commander. Judging from the favorable reactions of the ground commanders…"[9] this same conclusion was acceded to as well between the MNC-I commander and CFACC with the agreed conclusion that at that moment, the MNC-I commander was satisfied with the airpower provided in theater.

…irregular warfare requires a long sustained effort….

(USMC Photo)

An interesting side note, highlighted by the AFMTT, is that the results of assessments in an IW conflict are another challenge in constructing air strategy. In IW, the air operation centers strategy division does not assess effects and pass this information along to guide follow-on air tasking orders as they would during major combat operations. The results of these "assessments" seem to have little influence on future strategy, planning, or operations.[10] This adds to the frustration of assessing contributions. Having noted that, most agree that irregular warfare requires a long sustained effort which intimates a consistent strategy over a long period of time. In turn, this naturally limits ATO changes to better contribute to the next day's fight. The report also notes that "in Multi National Division-West (MND-W), the Marines appeared less concerned about assessing the effectiveness of CAS accepting the notion that presence alone may be the valuable metric to the ground commander." An interesting point, but it appears that the measure being considered is the satisfaction of the overall ground commander, in this case the MND-W commander.

At the tactical level, a deconfliction mindset is detrimental....

INTEGRATION VERSUS DECONFLICTION

Assessments are linked to the overall mindset of coordinating fires and invariably the discussion arises as to whether fires are being integrated to accomplish the same objective or deconflicted to accomplish disparate objectives. Integration is about getting assets close to each other while deconfliction is about keeping assets apart from each other. Certainly airspace control measures are put in place that keep assets apart for very good reason, but these airspace control measures are integrated at the higher level of command to pursue an overall larger operational, and eventually, strategic objective. At the tactical level, a deconfliction mindset is detrimental because it intimates two separate objectives are being pursued and it tacitly implies that pursuing these disparate objectives is in opposition to the ground commander's intent. This should never be the case. The discussion should not be whether assets are deconflicted or integrated; instead, the discussion should be how well were assets integrated. At times it could be that integration was

so poor it bordered on deconfliction, but the overall goal, the mindset, is to recognize that occurrence and redirect efforts towards better integration.

THE WAY AHEAD

Assessments will remain difficult. The future will require continued discussion amongst senior leaders regarding the appropriate level of capacity and utilization of airpower, and the sine qua non measure of merit will remain the ground commander's level of satisfaction in relation to the theater of war encountered. Linking to that measure of merit is a required mindset of integration, not deconfliction. General Bernard Montgomery's observation is as cogent today as it was in 1942, that for air and ground power to successfully work together "All that is required is that the two staffs, army and air, should work together at the same H.Q. in complete harmony, and with complete mutual understanding and confidence." [11] A simplistic statement, but one that directly correlates to the need for the Air Force and Army to reach agreement on a method to evaluate airpower effectiveness in the current fight in order to improve integration.

END NOTE

[1] William W. Momyer, *Airpower in Three Wars* (Alabama: Air University Press, 2003), 293.
[2]Ibid.
[3] Ibid, 294.
[4] Colin S. Gray, *Modern Strategy* (New York: Oxford University Press Oxford, 1999), 208.
[5] Ibid, 239.
[6] Benjamin Franklin Cooling, ed. *Case Studies in the Development of Close Air Support* (Washington D.C.: Office of Air Force History, 1990), 450.
[7] Ibid, 471.
[8] John Schlight, *Help From Above: Air Force close Air support of the Army 1946-1973* (Washington D.C.: Air Force History and Museums Program, 2003), 285.
[9] Cooling, 473.
[10] Air Force Marine Corps Warfighter Tiger Team Trip Report, 13.
[11] Eighth Army, Some Notes on High Command in War, January 1943, 2.

Joint Operational Fires and Effects Course (JOFEC)

By
Lt Col Douglas R. Putney, USAFR

A JOINT FIRES TRAINING SHORTFALL

It should be evident even to the most casual observer that modern military operations can be described by one word, JOINT. When talking about fires and effects, both lethal and nonlethal, the term joint cannot be avoided. We fight jointly from the tactical to operational to the strategic level of warfare. What have traditionally been tactical level organizations can now be tasked to act as a joint task force (JTF) headquarters. Operations including the employment of fires at the tactical level can easily have operational and strategic effects. Conventional and special operations forces (SOF) are employed in missions traditionally associated with the other. The modern military professional needs to be well schooled in the joint targeting process as well as the capabilities of their own and other Services to plan, employ, and assess joint fires and effects.

We must be prepared to employ lethal and nonlethal fires across the full spectrum of military operations....

Along with the blurring of lines between the tactical, operational, and strategic levels of war the complexity of fires has increased exponentially. Precision weapons delivered from land, air, and sea have changed an already complex operational environment requiring us to now be more precise and accurate

in our targeting. Airspace management is similarly becoming more complex. We rely heavily on the space domain for navigation, communication, geospatial intelligence, and intelligence, surveillance, and reconnaissance (ISR). This increases both the importance and difficulty of joint intelligence preparation of the operational environment (JIPOE) and target system analysis. The "three block war" and the hybrid war force us to integrate traditional combat operations and information operations with all its subsets including electronic warfare. We must coordinate and integrate systems, plans, and operations with Services, nations, other government agencies (OGA) and nongovernmental organizations (NGO). We must be prepared to employ lethal and nonlethal fires across the full spectrum of military operations (offense, defense, and stability operations).

The requirement for education and training in operational-level joint fires is very real.

JOFEC Class (USA Photo)

We are most comfortable at the tactical level. We are experts in employing our weapons system whether it is an F/A-18 fighter, B-1B bomber, EA-6B electronic attack fighter, AH-64 attack helicopter, MQ-9 unmanned aerial vehicle, M1A2 main battle tank, M-198 howitzer, DDG guided missile destroyer, or an M-4 rifle. To maintain our advantage over potential adversaries in today's world, our military professionals must understand and effectively operate within a joint/combined fight at both the tactical and operational levels. Most of us have learned in our professional military education (PME) courses that we need to understand the mission two echelons up and one echelon down. Given this standard guidance, it follows that even when working at the tactical level, we are expected to understand and support the operational commander's mission, vision, and intent. If we are to train as we fight, we as military professionals must seek out military training and education opportunities to develop the required knowledge base and skill sets.

A JOINT FIRES SOLUTION

The Joint Operational Fires and Effects Course (JOFEC) at Fort Sill, OK, is a SECRET-level, 2-week course designed for the field grade officer, warrant officer, and senior noncommissioned officer (NCO) working at the operational level. The first iterations of the JOFEC were targeted specifically to those military personnel serving in positions at the Corps and Echelons Above Corps (EAC) level. However, ongoing operations have shown that tactical actions often impact the operational fight. Therefore, we now draw our student population from those serving in Army fires brigades and aviation brigades, or other Service equivalents, right up to the combatant command level in order to better populate the force with effective joint capable warfighters. As of 1 Aug 08 JOFEC has trained 28 Air Force personnel, 36 Marine Corps personnel, 14 Navy personnel, 15 civilians, and 4 allied personnel in addition to 306 Army personnel, making it a truly joint course. The JOFEC instructor cadre includes over 300 years of war fighting experience from all four Services at the tactical, operational, and strategic levels of warfare.

The JOFEC curriculum is built around the six steps of the joint targeting cycle as described in JP 3-60: End State and Commanders Objectives; Target Development and Prioritization; Capabilities Analysis; Commander's Decision and Force

Assignment; Mission Planning and Force Execution; and Assessment. Deliberate and dynamic targeting with lethal and nonlethal means is addressed to include high value individual (HVI) targeting.

JOFEC does not produce targeteers or air tasking order (ATO) builders. There are formal schools like the Joint Targeting School and Joint Air Tasking Order Process Course that do an excellent job at teaching those types of "nuts and bolts" skill sets. Rather, JOFEC is designed to provide leaders with an understanding of the processes and procedures they must manage and integrate. JOFEC students learn joint processes like the joint targeting cycle and the air tasking order cycle; organizations and liaisons in the theater air control system; resources like federated targeting support; and the functionality of automations systems such as Global Command and Control System (GCCS), Joint Automated Deep Operations Coordination System (JADOCS), Army Battle Command System (ABCS), and Theater Battle Management Core System (TBMCS) that will assist them in the planning and execution of lethal and nonlethal effects. Without an understanding of the processes, organizations, and systems that facilitate the integration of resources and capabilities, the warfighter will never be able to optimize performance at any level of warfare.

JOFEC culminates with a video teleconferencing (VTC) from the Multi National Corps-Iraq (MNC-I) Fires and Effects Cell. This VTC provides students with the opportunity to discuss real world application of the doctrinal processes they have learned in the classroom with military professionals engaged in the current fight. Additionally, the MNC-I Fires and Effects staff can use this forum to update JOFEC students on the most current operational tactics, techniques, and procedures. Use of this VTC as a culminating event for the JOFEC has proven to be very useful for those preparing to deploy to Operation IRAQI FREEDOM (OIF). The JOFEC end of course critiques often contain comments like, "I wish I had this stuff before I deployed to OIF / Operation ENDURING FREEDOM (OEF) the first time."

The requirement for education and training in operational-level joint fires is very real. JOFEC is part of the answer and complements training opportunities offered at other venues. The Joint and Combined Integration Directorate welcomes and encourages personnel from all Services, OGAs, and military forces of other nations to attend JOFEC. The varied operational backgrounds and perspectives of the JOFEC students enhance the quality of training. If you wish to learn more about JOFEC, you can visit the JOFEC web site at. https://www.us.army.mil/suite/page/409389 or contact the Joint and Combined Integration Director-ate at DSN 639-1701/8671. JOFEC is listed in the United States Joint Forces Command (USJFCOM) and Army Training Requirements and Resources System (ATRRS) school catalogs.

CURRENT ALSA PUBLICATIONS

AIR BRANCH – POC alsaa@langley.af.mil

TITLE	DATE	PUB #	DESCRIPTION / STATUS
AVIATION URBAN OPERATIONS *Multi-Service Tactics, Techniques, and Procedures for Aviation Urban Operations* **Distribution Restricted**	9 JUL 05	FM 3-06.1 MCRP 3-35.3A NTTP 3-01.04 AFTTP(I) 3-2.29	Description: Provides MTTP for tactical-level planning and execution of fixed- and rotary-wing aviation urban operations. Status: **Assessment**
JFIRE *Multi-Service Procedures for the Joint Application of Firepower* **Distribution Restricted**	17 DEC 07	FM 3-09.32 MCRP 3-16.6A NTTP 3-09.2 AFTTP(I) 3-2.6	Description: Pocket size guide of procedures for calls for fire, CAS, and naval gunfire. Provides tactics for joint operations between attack helicopters and fixed-wing aircraft performing integrated battlefield operations. Status: **Current**
JSEAD / ARM-J *Multi-Service Tactics, Techniques, and Procedures for the Suppression of Enemy Air Defenses in a Joint Environment* **Classified SECRET**	28 MAY 04	FM 3-01.4 MCRP 3-22.2A NTTP 3-01.42 AFTTP(I) 3-2.28	Description: Contributes to Service interoperability by providing the JTF and subordinate commanders, their staffs, and SEAD operators a single, consolidated reference. Status: **Assessment**
JSTARS *Multi-Service Tactics, Techniques, and Procedures for the Joint Surveillance Target Attack Radar System* **Distribution Restricted**	16 NOV 06	FM 3-55.6 MCRP 2-1E NTTP 3-55.13 AFTTP(I) 3-2.2	Description: Provides procedures for the employment of JSTARS in dedicated support to the JFC. Describes multi-Service TTP for consideration and use during planning and employment of JSTARS. Status: **Current**
KILL BOX *Multi-Service Tactics, Techniques, and Procedures for Kill Box Employment* **Distribution Restricted**	13 JUN 05	FM 3-09.34 MCRP 3-25H NTTP 3-09.2.1 AFTTP(I) 3-2.59	Description: Assists the Services and JFCs in developing, establishing, and executing Kill Box procedures to allow rapid target engagement. Describes timely, effective multi-Service solutions to FSCMs, ACMs, and maneuver control measures with respect to Kill Box operations. Status: **Revision**
IADS *Multi-Service Tactics, Techniques, and Procedures for an Integrated Air Defense System* **Distribution Restricted**	12 OCT 04	FM 3-01.15 MCRP 3-25E NTTP 3-01.8 AFTTP(I) 3-2.31	Description: Provides joint planners with a consolidated reference on Service air defense systems, processes, and structures to include integration procedures. Status: **Revision**
SURVIVAL, EVASION, AND RECOVERY *Multi-Service Procedures for Survival, Evasion, and Recovery* **Distribution Restricted**	20 MAR 07	FM 3-50.3 NTTP 3-50.3 AFTTP(I) 3-2.26	Description: Provides a weather-proof, pocket-sized, quick reference guide of basic survival information to assist Service members in a survival situation regardless of geographic location. Status: **Current**
TAGS *Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System* **Distribution Restricted/ REL ABCA**	10 APR 07	FM 3-52.2 NTTP 3-56.2 AFTTP(I) 3-2.17	Description: Promotes inter-Service awareness regarding the role of airpower in support of the JFC's campaign plan, increases understanding of the air-ground system, and provides planning considerations for the conduct of air-ground ops. Status: **Current**
TST *Multi-Service Tactics, Techniques, and Procedures for Targeting Time-Sensitive Targets* **Distribution Restricted**	20 APR 04	FM 3-60.1 MCRP 3-16D NTTP 3-60.1 AFTTP(I) 3-2.3	Description: Provides the JFC, the operational staff, and components MTTP to coordinate, de-conflict, synchronize, and prosecute TSTs within any AOR. Includes lessons learned, multinational and other government agency considerations. Status: **Revision**
UAS *Multi-Service Tactics, Techniques, and Procedures for Tactical Employment of Unmanned Aircraft Systems* **Distribution Restricted**	3 AUG 06	FM 3-04.15 NTTP 3-55.14 AFTTP (I) 3-2.64	Description: Establishes MTTP for UAS addressing tactical and operational considerations, system capabilities, payloads, mission planning, logistics, and most importantly, multi-Service execution. Status: **Current**

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TITLE	DATE	PUB #	DESCRIPTION / STATUS
AIRFIELD OPENING *Multi-Service Tactics, Techniques, and Procedures for Airfield Opening* **Distribution Restricted**	15 May 07	FM 3-17.2 NTTP 3-02.18 AFTTP(I) 3-2.68	Description: A quick-reference guide to opening an airfield in accordance with MTTP. Contains planning considerations, airfield layout, and logistical requirements for opening an airfield. Status: **Current**
CORDON AND SEARCH *Multi-Service Tactics, Techniques, and Procedures for Cordon and Search Operations* **Distribution Restricted**	25 APR 06	FM 3-06.20 MCRP 3-31.4B NTTP 3-05.8 AFTTP (I) 3-2.62	Description: Consolidates the Services' best TTP used in cordon and search operations. Provides MTTP for the planning and execution of cordon and search operations at the tactical level of war. Status: **Current**
EOD *Multi-Service Tactics, Techniques, and Procedures for Explosive Ordnance Disposal in a Joint Environment* **Approved for Public Release**	27 OCT 05	FM 4-30.16 MCRP 3-17.2C NTTP 3-02.5 AFTTP(I) 3-2.32	Description: Provides guidance and procedures for the employment of a joint EOD force. It assists commanders and planners in understanding the EOD capabilities of each Service. Status: **Current**
MILITARY DECEPTION *Multi-Service Tactics, Techniques, and Procedures for Military Deception* **Classified SECRET**	12 APR 07	MCRP 3-40.4A NNTP 3-58.1 AFTTP(I) 3-2.66	Description: Facilitate the integration, synchronization, planning, and execution of MILDEC operations. Servce as a "one stop" reference for service MILDEC planners to plan and execute multi-service MILDEC operations. Status: **Current**
NLW *Multi-Service Service Tactics, Techniques, and Procedures for the Tactical Employment of Nonlethal Weapons* **Approved for Public Release**	16 AUG 07	FM 3-22.40 MCWP 3-15.8 NTTP 3-07.3.2 AFTTP(I) 3-2.45	Description: Supplements established doctrine and TTP providing reference material to assist commanders and staffs in planning/coordinating tactical operations. It incorporates the latest lessons learned from real world and training operations and examples of TTP from various sources. Status: **Current**
PEACE OPS *Multi-Service Tactics, Techniques, and Procedures for Conducting Peace Operations* **Approved for Public Release**	26 OCT 03	FM 3-07.31 MCWP 3-33.8 AFTTP(I) 3-2.40	Description: Provides tactical-level guidance to the warfighter for conducting peace operations. Status: **Change 1 Final Coordination Draft**
TACTICAL CONVOY OPERATIONS *Multi-Service Tactics, Techniques, and Procedures for Tactical Convoy Operations* **Distribution Restricted**	24 MAR 05	FM 4-01.45 MCRP 4-11.3H NTTP 4-01.3 AFTTP(I) 3-2.58	Description: Consolidates the Services' best TTP used in convoy operations into a single multi-Service TTP. Provides a quick reference guide for convoy commanders and subordinates on how to plan, train, and conduct tactical convoy operations in the contemporary operating environment. Status: **Signature Draft**
TECHINT *Multi-Service Tactics, Techniques, and Procedures for Technical Intelligence Operations* **Approved for Public Release**	9 JUN 06	FM 2-22.401 NTTP 2-01.4 AFTTP (I) 3-2.63	Description: Provides a common set of MTTP for technical intelligence operations. Serves as a reference for Service technical intelligence planners and operators. Status: **Current**
UXO *Multi-Service Tactics, Techniques, and Procedures for Unexploded Explosive Ordnance Operations* **Approved for Public Release**	16 AUG 05	FM 3-100.38 MCRP 3-17.2B NTTP 3-02.4.1 AFTTP(I) 3-2.12	Description: Describes hazards of UXO submunitions to land operations, addresses UXO planning considerations, and describes the architecture for reporting and tracking UXO during combat and post conflict. Status: **Current**

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TITLE	DATE	PUB #	DESCRIPTION / STATUS
BREVITY *Multi-Service Brevity Codes* **Distribution Restricted**	30 OCT 07	FM 1-02.1 MCRP 3-25B NTTP 6-02.1 AFTTP(I) 3-2.5	Description: Defines multi-Service brevity which standardizes air-to-air, air-to-surface, surface-to-air, and surface-to-surface brevity code words in multi-Service operations. Status: **Current**
CIVIL SUPPORT *Multi-Service Tactics, Techniques, and Procedures for Civil Support Operations* **Distribution Restricted**	3 DEC 07	FM 3-28.1 NTTP 3-57.2 AFTTP(I) 3-2.67	Description: Fills the Civil Support Operations MTTP void and assists JTF commanders in organizing and employing Multi-Service Task Force support to civil authorities in response to domestic crisis. Status: **Current**
COMCAM *Multi-Service Tactics, Techniques, and Procedures for Joint Combat Camera Operations* **Approved for Public Release**	15 MAY 07	FM 3-55.12 MCRP 3-33.7A NTTP 3-13.12 AFTTP(I) 3-2.41	Description: Fills the void that exists regarding combat camera doctrine and assists JTF commanders in structuring and employing combat camera assets as an effective operational planning tool. Status: **Current**
HAVE QUICK *Multi-Service Tactics, Techniques, and Procedures for HAVE QUICK Radios* **Distribution Restricted**	7 MAY 04	FM 6-02.771 MCRP 3-40.3F NTTP 6-02.7 AFTTP(I) 3-2.49	Description: Simplifies planning and coordination of HAVE QUICK radio procedures. Provides operators information on multi-Service HAVE QUICK communication systems while conducting home station training or in preparation for interoperability training. Status: **Assessment**
HF-ALE *Multi-Service Tactics, Techniques, and Procedures for the High Frequency-Automatic Link Establishment (HF-ALE) Radios* **Distribution Restricted**	20 Nov 07	FM 6-02.74 MCRP 3-40.3E NTTP 6-02.6 AFTTP(I) 3-2.48	Description: Standardizes high power and low power HF-ALE operations across the Services and enables joint forces to use HF radio as a supplement / alternative to overburdened SATCOM systems for over-the-horizon communications. Status: **Current**
IDM *Multi-Service Tactics, Techniques, and Procedures for the Improved Data Modem Integration* **Distribution Restricted**	30 MAY 03	FM 6-02.76 MCRP 3-25G NTTP 6-02.3 AFTTP(I) 3-2.38	Description: Provides digital connectivity to a variety of attack and reconnaissance aircraft, facilitates exchange of near-real-time targeting data, and improves tactical situational awareness by providing a concise picture of the multi-dimensional battlefield. Status: **Assessment**
IFF *MTTP for Mark XII IFF* *Mode 4 Security Issues in a Joint Integrated Air Defense System* **Classified SECRET**	11 DEC 03	FM 3-01.61 MCWP 3-25.11 NTTP 6-02.2 AFTTP(I) 3-2.39	Description: Educates the warfighter to security issues associated with using the Mark XII IFF Mode 4 Combat Identification System in a joint integrated air defense environment. Captures TTP that addresses those security issues. Status: **Merged with revision of IADS. Will rescind when IADS revision is complete.**
JATC *Multi-Service Procedures for Joint Air Traffic Control* **Distribution Restricted**	17 JUL 03	FM 3-52.3 MCRP 3-25A NTTP 3-56.3 AFTTP(I) 3-2.23	Description: Provides guidance on ATC responsibilities, procedures, and employment in a joint environment. Discusses JATC employment and Service relationships for initial, transition, and sustained ATC operations across the spectrum of joint operations within the theater or AOR. Status: **Revision**
JTF IM *Multi-Service Tactics, Techniques, and Procedures for Joint Task Force Information Management* **Distribution Restricted**	10 SEP 03	FM 6-02.85 (FM 101-4) MCRP 3-40.2A NTTP 3-13.1.16 AFTTP(I) 3-2.22	Description: Describes how to manage, control, and protect information in a JTF headquarters conducting continuous operations. Status: **Assessment**
JTF LNO Integration *Multi-Service Tactics, Techniques, and Procedures for Joint Task Force (JTF) Liaison Officer Integration* **Distribution Restricted**	27 JAN 03 Retained in March 06	FM 5-01.12 (FM 90-41) MCRP 5-1.B NTTP 5-02 AFTTP(I) 3-2.21	Description: Defines liaison functions and responsibilities associated with operating a JTF. Status: **Assessment**

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TITLE	DATE	PUB #	DESCRIPTION / STATUS
REPROGRAMMING *Multi-Service Tactics, Techniques, and Procedures for the Reprogramming of Electronic Warfare and Target Sensing Systems* **Distribution Restricted**	22 JAN 07	FM 3-13.10 (FM 3-51.1) NTTP 3-51.2 AFTTP(I) 3-2.7	Description: Supports the JTF staff in planning, coordinating, and executing reprogramming of electronic warfare and target sensing systems as part of joint force command and control warfare operations. Status: **Current**
TACTICAL RADIOS *Multi-Service Communications Procedures for Tactical Radios in a Joint Environment* Approved for Public Release	14 JUN 02	FM 6-02.72 MCRP 3-40.3A NTTP 6-02.2 AFTTP(I) 3-2.18	Description: Standardizes joint operational procedures for SINCGARS and provides an overview of the multi-Service applications of EPLRS. Status: **Assessment**
UHF TACSAT/DAMA *Multi- Service Tactics, Techniques, and Procedures Package for Ultra High Frequency Tactical Satellite and Demand Assigned Multiple Access Operations* **Approved for Public Release**	31 AUG 04	FM 6-02.90 MCRP 3-40.3G NTTP 6-02.9 AFTTP(I) 3-2.53	Description: Documents TTP that will improve efficiency at the planner and user levels. (Recent operations at JTF level have demonstrated difficulties in managing limited number of UHF TACSAT frequencies.) Status: **Assessment**

RESCINDED ALSA PUBLICATIONS

RESCINDED PUBS

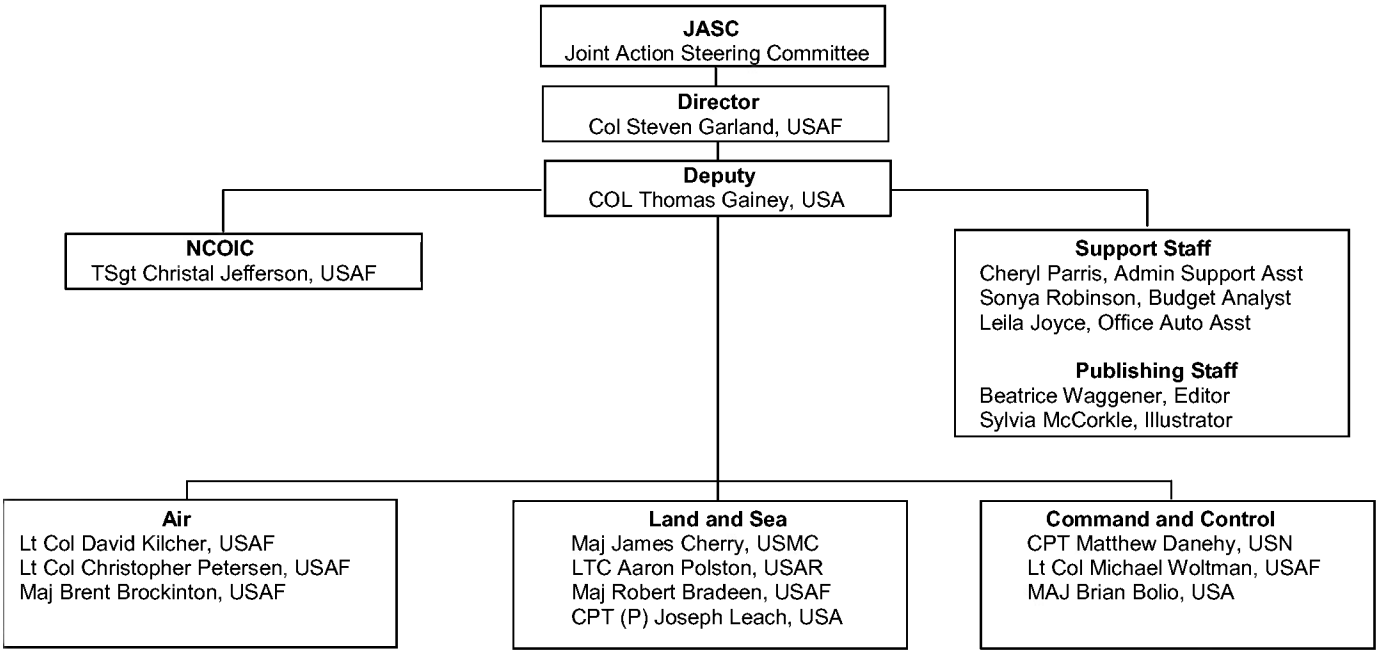
TITLE	DATE	PUB #	DESCRIPTION / STATUS
ADUS *Multi-Service Tactics, Techniques, and Procedures for Air Defense of the United States* **Classified SECRET/ REL CAN**	22 MAR 04	FM 3-01.1 NTTP 3-26.1.1 AFTTP(I) 3-2.50	Description: Supports planners, warfighters, and interagency personnel participating in air defense of the US by providing planning, coordination, and execution information. Pub is primarily focused at the tactical level. Status: **Rescinded 5 May 2008**
JAOC / AAMDC *Multi-Service Tactics, Techniques, and Procedures for Joint Air Operations Center and Army Air and Missile Defense Command Coordination* **Distribution Restricted**	22 MAR 04	FM 3-01.20 AFTTP(I) 3-2.30	Description: Addresses coordination requirements between the JAOC and the AAMDC. Assists the JFC, JFACC, and their staffs in developing a coherent approach to planning and execution of AMD operations. Status: **Rescinded 10 April 2008**
JTMTD *Multi-Service Procedures for Joint Theater Missile Target Development* **Distribution Restricted**	11 NOV 03	FM 3-01.51 (FM 90-43) NTTP 3-01.13 AFTTP(I) 3-2.24	Description: Documents TTP for threat missile target development in early entry and mature theater operations. It provides a common understanding of the threat missile target set and information on the component elements involved in target development and attack operations. Status: **Rescinded 16 January 2008**
RISK MANAGEMENT *Multi-Service Tactics, Techniques, and Procedures for Risk Management* **Approved for Public Release**	15 FEB 01	FM 3-100.12 MCRP 5-12.1C NTTP 5-03.5 AFTTP(I) 3-2.34	Description: Provides a consolidated multi-Service reference, addressing risk management background, principles, and application procedures. Identifies and explains the risk management process and its differences and similarities as it is applied by each Service. Status: **Rescinded 18 August 2008**

Details concerning reasons for rescinding are located at https://wwwmil.alsa.mil/rescinded.html.

NEW PROJECTS

TITLE	SERVICE	DESCRIPTION / STATUS
AIR BRANCH – POC alsaa@langley.af.mil		
SCAR *Multi-Service Tactics, Techniques, and Procedures for Strike Coordination and Reconnaissance* **Distribution Restricted**	USA USMC USN USAF	Description: This publication provides strike coordination and reconnaissance (SCAR) MTTP to the military Services for the conduct of air interdiction against targets of opportunity. Status: **Signature Draft**
AOMSW *Multi-Service Tactics, Techniques, and Procedures for Air Operations in Maritime Surface Warfare* **Distribution Restricted**	USN USAF	Description: This publication consolidates Service doctrine, TTP, and lessons-learned from current operations and exercises to maximize the effectiveness of "air attacks on enemy surface vessels". Status: **Signature Draft**
LAND AND SEA BRANCH – POC alsab@langley.af.mil		
CFSOF I&I *Multi-Service Tactics, Techniques, and Procedures for Conventional Forces and Special Operations Forces Integration and Interoperability* **Distribution Restricted**	USA USMC USN USAF	Description: This publication assists in planning and executing operations where conventional forces and special operations forces (CF/SOF) occupy the same operational environment. Status: **Final Coordination Draft Edit**
TSFAT *Multi-Service Tactics, Techniques, and Procedures for Training Security Force Advisor Teams* **Distribution Restricted**	USA USMC USN USAF	Description: This publication will assist in the training of security force advisor teams. It serves as a reference to ensure coordinated multi-Service operations for planners and operators preparing for, and conducting, advisor team missions. Status: **Signature Draft Edit**
MDO *Multi-Service Service Tactics, Techniques, and Procedures for Military Diving Operations* **Distribution Restricted**	USA USMC USN USAF	Description: This MTTP publication describes US Military dive mission areas (DMA) as well as the force structure, equipment, and primary missions that each Service could provide to a JTF Commander. Status: **Program Development**
COMMAND AND CONTROL (C2) BRANCH – POC alsc2@langley.af.mil		
IRC *Multi-Service Tactics, Techniques, and Procedures for Internet Relay Chat for Command and Control* **Distribution Restricted**	USA USMC USN USAF	Description: This publication provides multi-Service tactics, techniques, and procedures (MTTP) to standardize and regulate the use of IRC for command and control (C2). Thus, it provides commanders and their units with guidelines to facilitate coordination and integration of IRC C2 when directing multi-Service and joint force operations. Status: **World Wide Review**
AIRSPACE CONTROL *Multi-Service Tactics, Techniques, and Procedures for Airspace Control* **Distribution Restricted**	USA USAF	Description: This MTTP publication is a tactical level document, which will synchronize and integrate airspace command and control functions and serve as a single source reference for planners and commanders at all levels Status: **Program Development**

ALSA ORGANIZATION



- Air Defense of the US (ADUS)
- Aviation Urban Operations
- Integrated Air Defense System (IADS)
- Joint Application of Firepower (JFIRE)
- Joint Surveillance Target Attack Radar System (JSTARS)
- Kill Box Employment
- Suppression of Enemy Air Defenses (JSEAD)
- Survival, Evasion, and Recovery
- Tactical Employment of Unmanned Aircraft Systems (UAS)
- Targeting Time-Sensitive Targets (TST)
- Theater Air-Ground System (TAGS)

- Airfield Opening
- Conducting Peace Operations (PEACE OPS)
- Cordon and Search Operations
- Explosive Ordnance Disposal (EOD)
- Military Deception (MILDEC)
- Nonlethal Weapons (NLW)
- Tactical Convoy Operations (TCO)
- Technical Intelligence (TECHINT)
- Unexploded Explosive Ordnance Operations (UXO)

- Brevity Codes
- Civil Support Operations
- Combat Camera Operations (COMCAM)
- Have Quick Radios
- High Frequency-Automatic Link Establishment Radios (HF-ALE)
- Improved Data Modem Integration (IDM)
- Joint Air Traffic Control (JATC)
- Joint Task Force Information Management (JTF-IM)
- Joint Task Force Liaison Officer Integration (JTF LNO)
- Mark XII IFF Mode 4 Security Issues (IFF)
- Reprogramming of Electronic Warfare and Target Sensing (Reprogramming)
- Tactical Radios
- Ultra High Frequency Tactical Satellite and Demand Assigned Multiple Access Operations (UHF TACSAT/DAMA)

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