

# The Art of SEAD: Lessons from Libya

By Maj Jeff Kassebaum, USAF

*"Run for it Marty...it's the Libyans!"* Twenty-six years after Doc Brown's warning in the movie, *Back to the Future*, the US and its allies were back in Libya for the first time since Operation El Dorado Canyon. The aftermath of the 2011 Libyan revolution and Operations Odyssey Dawn and Unified Protector (OUP) gives Suppression of Enemy Air Defenses (SEAD) and EW players an excellent opportunity to debrief.

For the first two months of OUP, I ran NATO's SEAD Cell and the Electronic Warfare Coordination Cell (EWCC). The short nature of OUP offers the luxury to debrief an entire campaign from start to finish, unlike ongoing operations in CENTCOM. The three SEAD/EW debrief themes of OUP are:

1. Why hasn't Joint SEAD doctrine effectively taught how to rollback and suppress an Integrated Air Defense System (IADS)?
2. Non-traditional IADS requires non-traditional analysis!
3. How do we break the trend of Lessons Identified instead of Lessons Learned?

## THE DOCTRINE GAP

After 10 years of working in the Joint Suppression of Enemy Air Defenses (J-

SEAD) world flying the EA-6B Prowler and EC-130H Compass Call, and working in five Combined Air and Space Operations Centers (CAOC) and five EWCCs, the first time I ever read the J-SEAD pub was this past July. I had accepted an invitation from the LeMay Center for Doctrine to be a part of the J-SEAD working group after returning from CAOC-5 for OUP. When the working group convened, it turned out I was not alone in never having used the J-SEAD doctrine publication. The primary reason is the substantial gap between doctrine and combat reality.

The doctrine gap is a direct result of ineffective communication. As J-SEAD players, we've failed to effectively articulate how to suppress an IADS. In lieu of staffing adequately trained, tactical SEAD-experienced personnel at the strategic and operational levels of warfare, we turned the J-SEAD pub into an unwieldy, catchall encyclopedia of any possible weapon system that can enact any level of suppression of an IADS. For example, during the Yom Kippur War, Maj Gen Ariel Sharon destructively suppressed his enemy's air defenses in October 1973 when he took his armor

division across the Suez Canal. He destroyed newly operational SA-6s and enabled the Israeli Air Force (IAF) a permissive environment. However, armor division tactics do not belong in the J-SEAD just because a suppression effect was achieved. The goal of effective doctrine should be specific enough at the operational level to guide effects-driven decision-making for apportionment and allocation, yet generic enough to avoid tactical specifics that will trample the flexibility of tactical assets. Based on this premise, the J-SEAD publication was streamlined back to what it was designed for: a reference pub that cross-references tactical publications. In all,



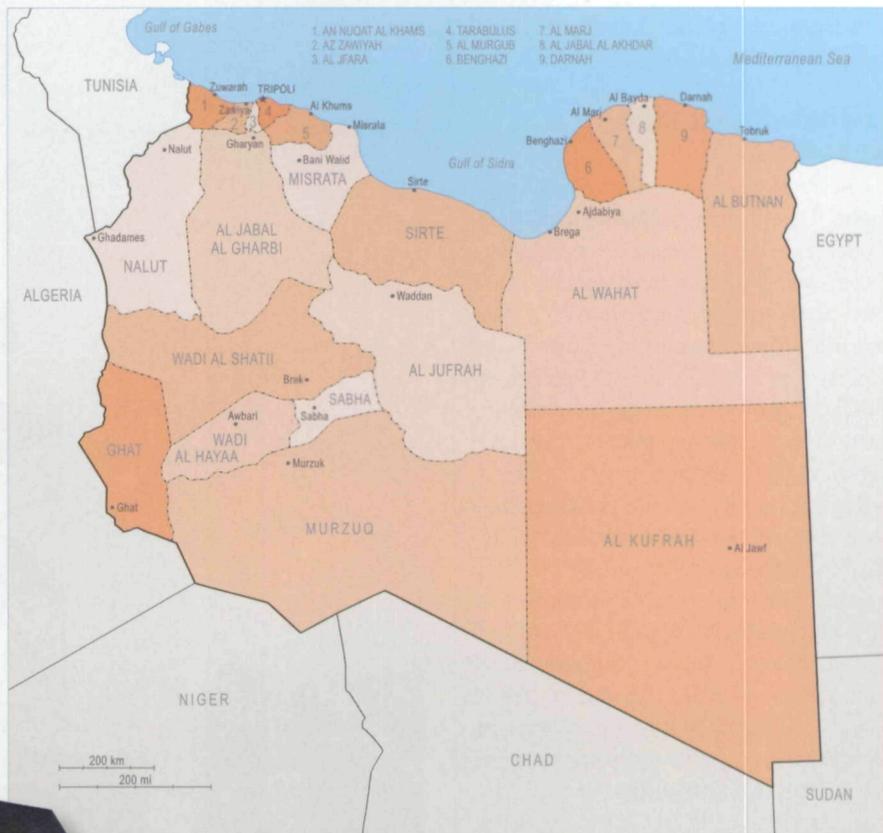
the new J-SEAD pub will be 33 percent of its previous size.

Effective doctrine discusses *what* should be done strategically and operationally, not *how* to do it tactically. This is especially true for doctrine publications like J-SEAD, which are updated only every seven years – too slow to maintain relevancy if tactical employment is addressed. An effective reference pub cross-references tactical pubs and directs readers to the latest, most current information. The new J-SEAD pub will also reflect combat reality based on Lessons Learned from 10 years of CENTCOM operations and the latest conflict in Libya.



The last 10 years of close air support (CAS) and electronic attack (EA) in CENTCOM has resulted in a generation of aviators accustomed to a permissive air environment with a minimal surface-to-air threat at medium and high altitudes. These kinds of permissive environments can dangerously trend toward complacency and lack of respect toward credible surface-to-air threats. This trend became a reality in Libya, when the strategic and operational game plans opposed tactical force packaging from the start of the conflict and lacked a robust plan to locate and suppress the threat IADS.

Force packaging, which combines specialized assets into a single strike and SEAD package, enables integrated



effects – enhancing strengths and mitigating weaknesses. The benefit of SEAD force packaging during OUP was a constant educational process due to the gap between doctrine and combat reality. One of the fixes is a concise J-SEAD pub that outlines broad SEAD concepts and objectives and then directs the reader to consult tactical subject matter experts for specific, up-to-date information on *how* to suppress an IADS. Critically important to suppressing an IADS is starting Day One of the war to *fully* rollback the enemy's IADS, regardless of suppression tactic type (sequential or concurrent) employed and size of geographic area requiring suppression.

Robust planning to fully roll back the enemy's IADS is another key concept often absent as a result of the doctrine gap. Doctrinally, we train to attack and suppress the threat systems employed by the enemy's air defense system. While this is academically accurate, tactical reality requires the doctrinal flexibility to modify J-SEAD to fully prosecute an IADS rollback. For example, consider combat operations

against a dictatorship where the lines between military assets and civilian infrastructure are blurred. In addition to suppressing threat radar, command and control (C2) and military communications, an effective SEAD plan must incorporate the inaccurately-termed "civilian" capabilities (such as air traffic control radar and modern communication devices) into a targeting plan. Without a robust plan to suppress the IADS from the beginning of a conflict, the longer we are engaged in war, the more difficult it becomes to effectively conduct Joint SEAD.

The gap between doctrine and combat reality can be breached, but not without the understanding that effective SEAD cannot be achieved by a wordy, out-of-date publication that gathers dust. Effective SEAD is achieved by the strategic and operational levels of warfare providing executable guidance to the tactical level, while allowing tactical flexibility to achieve strategic objectives. Tactical SEAD players must respect credible surface-to-air threats – while ensuring supported strikers also respect those threats – and execute a

full-scale rollback of the threat's IADS from day one.

### NON-TRADITIONAL IADS: AN ANALYSIS

At some point, the term "non-traditional" highlights a fundamental misunderstanding of the *status quo*. Libya's IADS was non-traditional in the sense that they strayed away from Cold War-era rigidity in command, control and communication (C3) and had the capability to incorporate modern technology into their air defense system. Tactically relevant SEAD cannot ignore the technological incorporation of commercially available, seemingly "non-military," additions to the threat's IADS. In 1973, the tactical problem Israel had to tackle was the highly effective SA-6. The IAF did not sufficiently analyze the new threat and update their Six Day War tactics in Egypt and Syria (Operations Tagar and Dougman 5, respectively) to counter the SA-6. The SA-6 accounted for a significant portion of the 102 IAF aircraft lost in 11,000 sorties over 21 days.

NATO's tactical problem in Libya wasn't a new type of SAM, it was the capability to use "civilian" infrastructure in an IADS. Libyan IADS' advantage was the capability to Find, Fix, Track, Target, Engage and Assess in a largely permissive electromagnetic environment. Largely permissive due to:

- Geographic size (1,100 miles of coastline, 350 miles from Tripoli to Ajdabiya)
- Limited number of SEAD assets for a 24hrs/day No Fly Zone
- Amount of radar and communications jamming resources required
- Rules of Engagement initially precluding targeting civilian components of the air defense system

The first three items above were facts of the war; we deal with it and make it work tactically. The last was a strategic/operational impediment to effectively rolling back the IADS. As we prosecuted OUP for the first three and a half months, Tripoli International Airport operated unfettered (for UN humanitarian aid flights) and could build the air picture of NATO strike packages. NATO unintentionally aided the Libyan Regime by squawking in accordance



*NATO did not attack the air traffic control radar at Tripoli Airport until mid-July – four months into the NATO air campaign. (Photo: Mahmud Turkia/Getty Images)*

with ICAO (International Civil Aviation Organization) protocols. These realities highlight ever more clearly that suppressing an IADS must not rely on doctrine focused only on military infrastructure and that suppression is more than employing anti-radiation missiles. In short, SEAD ≠ HARM.

A suppressed IADS is an effectively analyzed and smartly targeted IADS. We make our SEAD jobs more difficult without full analysis of: how the threat operates, where their command and control nodes are, what communication means they use to coordinate, and how they share their common operating picture (COP) to sustain the kill chain. If we fail to discern how the C3 nodes are linked, we will fail to fully suppress the links early in their kill chain, and the threat will eventually seize this avenue for his advantage. Academically, none would disagree. In practice, SEAD and EA advocates must arm decision-mak-

ers with the implications of allowing an IADS access to civilian networks for military command and control. When we allow the threat IADS use of "civilian" networks:

1. The air picture built at a civilian airport could be disseminated to tactical SAM sites via commercially available communications,
2. Tactical SAMs would not need to turn on their radar to gain situational awareness, which
3. Significantly complicates the ability of intelligence, surveillance and reconnaissance (ISR) assets to find, fix and track non-cooperative targets, and
4. Results in a threat IADS with a common operational picture (COP) that can choose whether or not to engage strike aircraft, leaving strike aircraft to "plink" tanks to attrite forces/protect civilians until they are able to find more lucrative C3 nodes – prolonging the war.

## LESSONS IDENTIFIED

Fool us twice. Operation Unified Protector is not NATO's first air campaign against a second-rate, despotic government that relies on military hardware supplied by the former Soviet Union (FSU). It likely won't be the last, either. Therefore, we must codify and disseminate our Lessons Learned from the seven months of OUP so we will avoid the mistakes of previous operations.

The difference between the air campaigns in OUP and Operation Allied Force (OAF) over Serbia in 1999 had nothing to do with how NATO operated. A significant difference was that the Serbians shot back. Just because the Libyans did not shoot a NATO aircraft does not mean they were unable to do so. As shown above, the Libyan Regime had the ability to build their picture and make decisions based on that picture and then disseminate decisions to the field. We will continue to re-identify lessons if we shrug off OUP because there was no shoot-down to debrief, as in OAF.

This is not the forum for operational and tactical debrief specifics for OUP; but it is the forum to discuss how we break our trend item of Lesson Identification, instead of Lesson Learned. Four actions will prevent us from re-identifying lessons:

1. Rapid, widespread dissemination of debrief items to key players,
2. Build collective memory among warfighting generations,
3. Incorporate realistic, modern IADS into training scenarios for daily unit-level training, and
4. Frequently re-evaluate the status quo.

Key players rotate in and out of a conflict after a few months; therefore debrief items must be disseminated to key players so that we preserve our Lessons Learned. Dissemination must be rapid and widespread to ensure key players share those lessons. Even though OUP only lasted seven months, interim debriefs should be considered to capture lessons as a campaign progresses. If we don't conduct interim debriefs along the way, initial lessons during the hottest points in a war will be forgotten.

We build collective memory among warfighting "generations" by revisiting



Photo: US Air Force

Lessons Learned from previous operations and incorporating those lessons into tactical level training. For example, one of the reasons Operation Desert Storm was a success was because the strategic leadership had fought as tactical leadership in Vietnam and applied their Lessons Learned to the liberation of Kuwait. Today's tactical aviators will be tomorrow's operational planners and strategic thinkers. Lessons Learned that are frequently revisited at the tactical level will prevent re-identification of past Lessons Learned.

We must incorporate realistic IADS representation into training scenarios for daily squadron-level training. We have seen enough of the anticipated Fulda Gap IADS, which effectively prepares us for yesterday's threat. An IADS that incorporates military and commercial/civilian infrastructure provides a realistic training environment. Training against a modern IADS will prepare aviators and intelligence officers to analyze and suppress tomorrow's most likely threat IADS.

Lethal tacticians frequently re-evaluate how we fight and suppress the threat. The *status quo ante* in a campaign must frequently be dissected and evaluated by critical thinkers – inflexible adherence to doctrinal rigidity hinders critical thinking. If we, as tactical and operational-level aviators, do not frequently evaluate the threat's (and our own) decision-making, we guarantee an air campaign that lasts longer than it should.

## THE SEAD WAY FORWARD

Seven months of enforcing a United Nations No Fly Zone to protect civilians during the Libyan civil war offers SEAD and EW players an ideal opportunity to stop our trend of Lesson Identification and ensure Lessons Learned. We deceive ourselves if we assume tomorrow's threat IADS will look anything like past IADS. The skill required of SEAD and EW players to analyze the IADS, however, will apply to any possible type of IADS. When SEAD/EW players effectively use doctrine as a general guideline only, employ critical thinking to accurately analyze the IADS, and truly learn lessons from past campaigns, then we will become skilled tacticians in the Art of SEAD. ✦

*Maj Jeff "Seed" Kassebaum, USAF, is the weapons officer for the US Air Force's 390th Electronic Combat Squadron and is an exchange officer with the US Navy flying EA-6B Prowlers. He is assigned to the Electronic Attack Weapons School at NAS Whidbey Island, WA. Previously, he served as an Electronic Warfare Officer flying on EC-130H Compass Call aircraft for seven years at Davis-Monthan AFB, AZ and has fought in Operations Southern Watch, Iraqi Freedom, Enduring Freedom, New Dawn, Willing Spirit and Unified Protector. Most recently he was the Chief of the SEAD Cell and EWCC for OUP. He can be contacted at jeffery.kassebaum@navy.mil or (360) 257-10578.*

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