**Part III** Aviation Combat

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# A Different Air War: Marine Air Control in Operation Iraqi Freedom

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From the opening attacks of Operation Iraqi Freedom, it was clear the air war was going to be very different than the 1990-1991 Gulf War. Unlike the 1990 deployment, where many U.S. Marines and civilians alike could not find Kuwait on a map, many of the 3d Marine Aircraft Wing (3dMAW) Marines, commanded by Major General James F. Amos in Miramar, California, had either been operating in the U.S. Central Command area of responsibility or studying and refining the plan for the invasion of Iraq for months.<sup>1</sup> Unlike the conflict 12 years prior where television sets around the world saw sortie after sortie take off to attack targets in Iraq and Kuwait, this time the news focus would be on the infantry. Marine Aviation would find itself following the more doctrinal role of supporting the Marine on the ground. In many aspects, Marine aviation was better prepared for operations in Iraq, however it faced different challenges that did not arise in the 1990-1991 Gulf War.

The 3d Marine Aircraft Wing consists of four aircraft groups whose subordinate squadrons operate fixedor rotary-wing aircraft; Marine Aircraft Group 11 commanded by Colonel Randolph D. Alles; Marine Aircraft Group 13 commanded by Colonel Mark R. Savarese; Marine Aircraft Group 16 commanded by Colonel Stuart L. Knoll; and Marine Aircraft Group 39 commanded by Colonel Richard W. Spencer. The wing has two additional non-aircraft groups; Marine Air Control Group 38 commanded by Colonel Ronnell R. McFarland, which provides air command and control assets and personnel; and Marine Wing Support Group 37 commanded by Colonel Michael C. Anderson, whose subordinate squadrons provide aviation ground support. During the conflict, 3d MAW was augmented by other units, detachments, or personnel from the other two active wings, the reserve wing, and various commands throughout the Marine Corps and from the U.S. Army. At its peak, 3d MAW had 15,451 personnel in theater. Initially, the wing established itself at two primary bases in Kuwait, Al Jaber and Al Salem air Bases.<sup>2</sup>

#### **Planning Phase**

It was common knowledge throughout 3d MAW that they would have to deploy to the Middle East for a potential conflict. As with any potential hot spot, when events heat up the military reviews the operational plan associated with that area. Marines involve in planning were working the details as early as the summer 2002.<sup>3</sup> Unlike the surprise attack on Kuwait by Iraq in 1990, which caught most of the world and the U.S. military by surprise, this conflict was planned, reviewed, and modified over and over. Most in the military knew or believed they knew, that they would be called on to enforce the United Nations resolutions against Iraq especially during 2002, therefore they wanted to be as ready as possible this time. One of the problems that developed for aviation planners was that various units that were designated to deploy if called on were also participating in the unit deployment plan (UDP).

So as time progressed with no deployment order, planners had to keep track of which units were rotating in or out and adjust the time-phased force and deployment data (TPFDD) accordingly.<sup>4</sup> Of course during this time units were also looking at what "holes" in the table of organization needed to be filled prior to deploying. The manpower planners up and down the chain were ready to identify and "cut" orders, but again with no deployment order in hand, they had to wait and adjust the lists as time went by.<sup>5</sup> In addition, during the past 12 years, Marine fixed-wing aircrews and aircraft were rotated in and out of the theater as part of Operation Southern Watch (OSW), enforcing the southern no-fly zone. These pilots gained invaluable experience supporting OSW, not only knowledge of the enemy but also of the procedures and control methods used by U.S. Central Command.

To reduce the number of unaccompanied tours and improve unit continuity, the Commandant of the

Marine Corps established unit deployment plan to provide for the deployment of units to the Western Pacific for periods of approximately six months. The initial program was a six-phased evolution that sequenced infantry battalions and aircraft squadrons/detachments into Westpac deployments, thus eliminating the 12-month permanent change of station assignments for personnel assigned to these units. The program began in October 1977 and has gone through six phases. In August 1985, tank companies began phasing into the program but following Gulf War, were discontinued. In Fiscal Years 1987 and 1988, assault amphibian vehicle companies and direct support artillery batteries were phased in and later, light armored reconnaissance companies were also included in the program. The Marine Corps' objective is to adhere as closely as possible to a six-month period of deployment away from a unit's home base. In the case of Hawaii-based infantry battalions, which employ a three-battalion rotation base, a seven-month period of deployment is executed to support the unit cohesion program and efficient staffing of first term Marines.

The joint operation planning and execution system database also called TPFDD portion of an operation plan contains time-phased force data, non-unit-related cargo and personnel data, and movement data for the operation plan, including: in-place units; units to be deployed to support the operation plan with a priority indicating the desired sequence for their arrival at the port of debarkation; routing of forces to be deployed; movement data associated with deploying forces; estimates of non-unit-related cargo and personnel movements to be conducted concurrently with the deployment of forces; and estimate of transportation requirements that must be fulfilled by common-user lift resources as well as those requirements that can be fulfilled by assigned or attached transportation resources.

Operation Southern Watch followed in the wake of the Gulf War when the United Nations imposed restrictions on the government of Iraq in response to Iraqi efforts to suppress the Kurds in northern Iraq and Marsh Arabs in the south. Iraqi brigade-sized ground and air forces, using combined arms tactics, carried out search and destroy operations on these refugees and their villages. In addition, Iraqi government began large-scale engineering efforts to divert waters away from the marshlands in these regions to facilitate their genocidal operations. To allow monitoring, an Iraqi no-fly zone south of the 32d parallel was established. Named Operation Southern Watch, the coalition effort to enforce the no-fly zone, as well as banning any surface-to-air weapons presenting a threat to aircraft conducting the monitoring mission, was begun August 1992.

# JFACC and Marine Aviation

The Goldwaters-Nichols Defense Department Reorganization Act of 1986 together with the omnibus agreement began to codify who task, Marine Corps air assets, the Marine air ground task force (MAGTF) commander or the joint force commander (JFC). Also it allowed the joint force commander to establish and designate a joint forces air component commander (JFACC), who would be responsible for supporting the joint force with air assets from the entire theater. In essence, the omnibus agreement allowed the MAGTF commander to retain his tactical air to support ground operations while making sorties available for tasking by the JFACC in support of the JFC's overall objective. This relationship was later incorporated into Joint Pub 0-2 Unified Action Armed Forces. The first practical operational use of this new command relationship was during the 1990-1991 Gulf War. Many Marines looked at the JFACC concept with suspicion and as the possible loss of Marine tactical air. Although there were growing pains during the 1990-1991 Gulf War, the Marine Corps did not "lose" its tactical air as some had predicted. Many years, exercises, and operations later, Major General James F. Amos, Commanding General 3d MAW, would work the aviation tasking issues with U.S. Central Command's combined forces air component commander, Lieutenant General Michael T. 'Buzz' Mosley, U.S. Air Force. In August 2002, Major General Amos noted that, Lieutenant General Mosley said he was going to let "Marine aviation fight over the MAGTF." Major General Amos went on to say "we got to fight the Marine aviation part of the MAGTF, in a major regional contingency, for the very fist time in the history of Marine aviation the way we always said we wanted to be able to do it."<sup>6</sup> In fact the relationship between the CFACC and the MAGTF proved to be more beneficial to the Marines. Although Marine sorties were provided to the combined force through the air component commander during the course of the war, Lieutenant General James T. Conway, Commanding General, Marine Expeditionary Force, had days when there were multiple U.S. Air Force B-52, B-1, or B-2's carrying 30, 40 or 60 joint direct attack munitions (JDAMs) in support of the MAGTF. There were also days when more than one hundred U.S. Air Force A-10 Thunderbolt attack aircraft flew in the Marine sector supporting the Marines on the ground.<sup>7</sup>

The Goldwater-Nicholas Department of Defense Reorganization Act of 1986, sponsored by Senator Barry Goldwater and Representative Bill Nichols, initiated a major defense reorganization, the most significant since the National Security Act of 1947. Operational authority was centralized through the Chairman of the Joint Chiefs as opposed to the Service chiefs. The chairman was designated as the principal military advisor to the President, National Security Council, and Secretary of Defense. The act established the position of vice chairman and streamlined the operational chain-of-command from the President to the Secretary of Defense to the unified commanders. "The Secretaries of the Military Departments shall assign all forces under their jurisdiction to unified and specified combatant commands to perform missions assigned to those commands."

There are many possible reasons why the relationship between the MAGTF and the CFACC worked so well during this conflict and may be debated and written about for years to come. The reasons could be due to any of the following factors or a combination thereof:

• Liaison officers the MEF had at the CAOC. The MEF staffed the liaison billets at U.S. Central Command Air Forces' (CENTAF) combined air operations center (CAOC) at Prince Sultan Air Base in Saudi Arabia, which provided the MEF with a presence and a voice within the CAOC as well as feedback to the MEF. These liaison officers were critical as they articulated the U.S. Marine Corps position to the air component commander and his staff.

• Proximity of aircraft to Marine units. Since the Marines were closer to most of the airbases and aircraft carriers and were in contact with enemy forces more often, aircraft could be diverted to support the Marine ground forces without additional support assets.

• Marine air control doctrine and agencies. There was a fundamental difference in doctrine between the U.S. Air Force and the U.S. Marine Corps when it dealt with controlling aircraft within a kill box. The difference arose from whether aircraft can drop ordnance in a closed kill box. The U.S. Marine Corps doctrine during OIF was that ordnance could be dropped in a closed kill box if there was someone (strike coordination and reconnaissance, forward air controller, forward air controller (airborne) or flight lead) with eyes on target and they had situational awareness of where friendly forces were. There were times when the E-3 Sentry airborne warning and control system (AWACS) was in control of kill boxes within the MEF's sector. The E-3 would not allow aircraft to drop ordnance in a closed kill box. Later during the war, attack aircraft that were turned away from a closed kill box by the U.S. Air Force controlling agencies would work with Marine controlled closed kill boxes and be able to expend their ordnance.<sup>8</sup>

Unlike the 1990-1991 Gulf War, U.S. forces used an additional control measure, the battlefield coordination line (BCL), which was between the fire support coordination line (FSCL) and the forward line of troops (FLOT). The U.S. Marine Corps position was that kill boxes short of the FSCL could be open whereas the U.S. Air Force would consider them closed. In these open kill boxes short of the FSCL, aircraft could drop ordnance as long as there was a controlling agency such as the DASC, DASC(A), FAC(A), TAC(A), which knew there are no troops located within the kill box and cleared the attack aircraft "hot." However, if aircraft moved into V Corps area, they would have to call a U.S. Air Force controlling agency and get a portion of the kill box open in order to attack a target.

A kill box is a square area within a larger grid to provide for an easy way to deconflict air interdiction (AI) type missions, ones in which coordination with controlling agencies is not required. Aircraft could be assigned to a kill box for a specified time and would not have to worry that other aircraft would engage targets within the kill box. A closed kill box was one that has friendly troops. This "closed" concept was created to ensure aircraft conducting AI missions would not attack friendly forces.

• Emphasis on ground operations instead of strategic or interdiction air operations. During the Gulf War, aviation was the focus of effort instead of aviation in support of the ground forces. Most aircraft were scheduled for strategic bombing or air interdiction type targets. These type of targets are nominated through the formal targeting process and required numerous airframes due to the number of targets nominated. Since the

ground forces were not actively involved in combat operations, the JFACC could and did task U.S. Marine Corps aircraft to fly in support of joint force requirements. This is in stark contrast to Operation Iraqi Freedom where the emphasis almost from day one was to support the ground forces.

• Years of joint exercises and training. The 1990-1991 Gulf War was too soon after the 1986 Reorganization Act to be put into practical use. The DOD designated system for distributing the air tasking order (AT0) was the contingency theater air planning system (CTAPS). However it was a U.S. Air Force system in its infancy and was not fully utilized by the U.S. Marine Corps or U.S. Navy. Paper copies of the ATO still had to be flown or driven to units. During the 12 years after the war, the Services joint doctrine and equipment in all joint exercises or operations. As units operated further under the new doctrine, the more proficient they became and more acceptive of the new way of doing business.

• Personality of the commanders involved. Lieutenant General, U.S. Air Force, and Major General Amos had a positive working relationship that in turn may have influenced Lieutenant General Mosley to allow the U.S. Marine Corps to use its air as a supporting arm for its ground forces as Marine Corps doctrine states. The bottom line is that it worked and to quote Major General Amos "[he] and the Marine Corps will be forever grateful to Lieutenant General Mosley for making it happen the way it did."<sup>10</sup>

#### **Opening Moves**

The old adage that operations go only to plan until the operation begins was true of air operations for I MEF. As indicators began to alert the coalition forces of possible attacks/sabotage to southern Iraqi oil fields and refineries, Marines with other coalition forces were ordered to seize the oil fields in order to prevent the Iraqi's from destroying them as they had done to the oil fields in Kuwait 12 years earlier. Major General Amos was forced to become reactive instead of use of air power against the enemy. His desire early on was to hit the enemy hard, especially those units that could hinder the division's movement, in order to destroy them or cause them to see the futility of resistance and lay down their arms.<sup>11</sup> According to Colonel Jeffrey A. White, a battle captain in 3d MAW's tactical air command center (TACC): "the Marine Corps was operating on the enemy's timeline since we were reacting to movement of his forces rather than on our timeline." It would take until about D+4 before Marine aviation was able to get back on their timeline and become proactive.<sup>12</sup>

Once the southern oil fields were secure, 3d MAW was able to execute the battle plan they developed; attacking enemy, tanks, and the 11th and 6th Iraqi Divisions that cold hinder Major General James N. Mattis' 1st Marine Division as it moved north.<sup>8</sup> During the fast paced drive north by the ground forces, it soon became clear to the wing that the speed of advance would tax many aspects of their command and control  $(C^2)$  and logistics.

## **Herculean Logistics**

It is hard to imagine the amount of material and manpower that was moved into theater in such a relatively short period by the Marines of I MEF. They off loaded 11 maritime prepositioning ships (MPS) 24 hours a day for 45 straight days. Following behind the MPS off load, four fast sealift ships pulled in with aviation related equipment ranging from helicopters to Marine wing support squadron (MWSS) specific equipment. Again these sealift ships had personnel unloading them around-the-clock. To round out the seaborne logistical effort, three ammunition ships arrived carrying 4.5 million pounds of aviation ordnance, which also was unloaded. To the credit of all involved, not one Marine was injured or killed during this monumental effort.<sup>13</sup>

The Marine Corps' maritime prepositioning force [MPF] mission is to support the rapid deployment of Marine forces by providing mobile, long-term storage of equipment and supplies near areas of potential trouble. When conflict arises-such as Operation Desert Storm or Restore Hope in Somalia-these ships can respond immediately to provide rapid deployment forces with critical sustaining support. The MPF concept calls for Marines and sailors to fly into a secured airfield to link up with the MPF ships. More than 17,000 Marines and sailors can be flown in on fewer than 250 aircraft sorties. If the equipment on the ships had to be flown in with the Marines and sailors, it would take more than 3,000 sorties. The 16 Maritime Prepositioning Ships are part of Military Sealift Command's Prepositioning Program. They preposition U.S.

Marine Corps vehicles, equipment, and ammunition throughout the world. The MPS ships are assigned to three Maritime Prepositioning Ship squadrons located in the Mediterranean, the Indian Ocean the Western Pacific. The MPS ships in each squadron have sufficient equipment, supplies, and ammunition to support a Marine expeditionary brigade of about 17,000 personnel for 30 days.

In order to provide the ground forces with timely air support during the drive to Baghdad, the wing had planned to establish forward arming and refueling points (FARPs) and forward operating bases (FOBs). These FARPs and FOBs would greatly reduce the distance required to be flown, allowing both fix- and rotarywing aircraft to respond more timely to requests from ground forces. However, the timetable for establishing these facilities was radically adjusted once the drive north began. One of the FOBs in northern Iraq (at Al Amarah) was scheduled, according to the Oplan to be setup on the 78th day of the war, but due to the lightning speed at which the ground forces moved, it was established 17 days into the war.<sup>14</sup> Major General Amos was surprised at how quickly the MWSSs were able to move with the ground maneuver elements in order to set up the FARPs and clear the runways so the wing could operate closer, and thereby respond more rapidly to the requests from the ground forces.<sup>15</sup>

#### **C2** Flexibility

"Stove-piped and rigid" is one way the Marine Air Command and Control System (MACCS) has been described over the years. Whether this connotation was well deserved or given out of ignorance, the MACCS would adapt itself in order to meet the needs of the wing. The Marines of the Marine Air Control Group 38 (MACG-38), commanded by Colonel Ronnell R. McFarland, augmented by Marines of MACGs'-28 and -48, would demonstrate just how flexible air command and control could be.

Early in the preparations for Operation Iraqi Freedom, Major General Amos would change the way his tactical air command center (TACC) would operate. As the TACC is unable to be fully utilized during peacetime since there are few wing/MEF level" exercises for them to train with the full breadth of command and integration, not to mention having the full wing staff participating, the TACC seldom gets the required training of all personnel who would be assigned to the TACC. Major General Amos knew he wanted a more senior as well as "seasoned" Marine in charge of the current operations section of the TACC. (The senior watch officer (SWO), who is usually a lieutenant colonel, heads the current operations section.) Major General Amos established a more senior billet to the senior watch officer in what was to be known as "battle captain." The battle captain was to be a colonel who had a previous successful command. There were to be a total of four battle captains in the TACC; this would allow for each twelve-hour-crew watch and a day off, which in reality was a day of working in future operations which built the ATO that they would work the next day. P/N7 One of the side benefits of battle captains being a colonel, was that it placed the commanding general's representative on equal footing with various group commanders and thus ended rank becoming an issue when a group commander was involved in a dispute. The battle captain concept, although not doctrinal, served the needs of 3d MAW and Major General Amos well during OIF and shows the adaptability within the Marine air command and control. Major General Amos looked back on this concept and stated that this was one of his greatest satisfactions in turning them loose to run the current operation thereby giving him and his assistant wing commander, Brigadier General Terry G. Robling, the latitude to look at future plans coordinate with the MEF and division commanders, as well as sit back and watch the current battle and next day's ATO unfold. 16

The ATO is used to task and disseminate to components, subordinate units, and command and control agencies the targets and specific missions of projected sorties, capabilities, and forces. It normally provides both general instructions and specific instructions, including call signs, targets, and controlling agencies. It also includes special instructions that provide amplifying notes, important details, and changes.

The tactical air operation center (TAOC) and its smaller subordinate, the, early warning control (EW/C) detachment are normally concerned with air defense and providing navigational assistance to friendly aircraft within their assigned air sector. When the TAOC and EW/C detachment controlled aircraft within "kill boxes," this marked a small but important change. Usually the direct air support center (DASC) is the most likely candidate for this type of operation. However, the DASC and the smaller air support elements (ASEs)

were busy coordinating assault support and close air support (CAS) for the ground combat element. In addition to coordinating requests for assault support close air support, they had to ensure that each component in this air support system was kept abreast of the whole scheme of maneuver. This was no easy task since there were ASEs with each of the three regimental combat teams (RCTs), the artillery regiment, and the British division. Also there was the DASC (main) with the division headquarters main, and the DASC (forward) with the division headquarters forward. Since the air support Marines were busy coordinating the air for the ground forces, the TAOC and EW/C assumed mission of coordinating air attacks within the kill boxes. As noted earlier, the Marines would routinely allow the delivery of air ordnance inside a closed kill box as long as it was coordinated. Using the TAOC and EW/C, air defense agencies, to coordinate air support missions is another example of the flexibility of Marine air command and control.

The speed of advance by the ground forces and subsequently the aviation assets tasked the ability of the wing to communicate throughout the theater. One way the wing was able to bridge the communication gap was to have the DASC airborne, (DASC(A)), aloft on a 24-hour basis. The DASC(A) was flown out of Sheikh Isa air base, Bahrain, as the Marine KC-130s were based there. At times the DASC(A) was the only reliable way Marines could request air or the wing could communicate with its rotary-wing assets.<sup>17</sup> The wing was also able to setup some tactical satellite (TACSAT) radios at some FARPs in order for the TACC to relay new missions to aircraft refueling or rearming. Without these TACSAT radios it would have been nearly impossible to re-task aviation assets for follow-on missions, hence defeating the whole principle of the FARP.<sup>18</sup>

# Targeting

For the Marines of 3d MAW involved in targeting, there was a new challenge and new ally during this war. As with most battles the utmost care is taken to ensure that no civilian causalities occur. During this conflict, 3d MAW was following that course as well as trying only to target the "regime" or forces loyal to the regime. Major General Amos was clear in his guidance that he wanted as little damage as possible to the Iraqi people and their country's infrastructure. He was determined to make it clear that this conflict not with the civilian populace, but with their leaders and those who supported them.<sup>19</sup> This precise targeting always makes it just a little harder on the Marines involved with intelligence and targeteering.

For AV-8B Harrier II pilots, locating and identifying targets became a little easier with the use of the Litening II targeting and navigation pod. The pod provided the pilot with both forward looking infra-red (FLIR) and charged coupled device (CCD) camera. The pod also had the ability to laser designate a target, either for itself or for another delivery system. The FLIR and CCD camera give the Harrier II pilots the ability to identify a target at greater distances and at higher level of confidence than other Marine Corps airframes. An additional benefit of the Litening pod was the video that was taken during the flight. This video allowed targets to be identified and located by aircrews and intelligence personnel after the flight. **Conclusion** 

Although this conflict entailed many new challenges for Marine aviation to the 1990-1991 Gulf War, in the end it allowed Marine aviation to be used more in line with Marine Corps doctrine?using aviation as a combat arm to support the ground forces. Flying more than 9,800 sorties of fixed-and rotary-wing aircraft, the wing adeptly execute its mission; Major General Amos' Marines mercilessly attacked the Iraqi forces while trying to minimize the loss of civilian lives and property. From the opening day to the end of major conflict, 3d MAW drop more than 3.8 million pounds of ordnance, decimating numerous Iraqi units, the 11th, 14th, 18th, and 51st Infantry Divisions; the 6th and 10th Armored Divisions; the Baghdad Republican Guard Division, and the Al Nida Republican Guard Division. These units were rendered combat ineffective through the focused and intense application of aerial firepower that most offered no resistance above the small-unit level once contact was made with Marine ground forces. The actions of 3d MAW were clearly instrumental in diminishing the enemy's will to fight significantly shortened the ground campaign.<sup>20</sup>

<sup>&#</sup>x27; Col Jonathan G. Mic1ot, 3d MAW G-3 intvw 20Mar03

<sup>&</sup>lt;sup>2</sup> 3d MAW ComdC Jan-Jun03.

- <sup>3</sup> Col Michael L. Sawyers, 3d MAW G-5 intvw 3Mar03.
- <sup>4</sup> Col Chad W. Hocking, 3d MAW G-1 intvw 9Mar03, hereafter Hocking intvw.
- <sup>5</sup> Ibid.
- <sup>6</sup> MajGen James F. Amos, 3d MAW CG intvw 16May03, hereafter Amos intvw 16May03.
- 7 Ibid.
- \* Col Jeffery A. White intvw 23Mar03, hereafter White intvw

<sup>9</sup> Ibid.

- <sup>10</sup> Amos intvw 16May03.
- " MajGen Amos, 3d MAW CG intvw 17Mar03, hereafter Amos intvw 17Mar03.
- <sup>12</sup> White intvw.
- <sup>13</sup> MajGen Amos address to 3d MAW staff 19Mar03.
- 14 BGen Terry G. Robling, 3d MAW AWC intvw 28Mar03
- <sup>15</sup> Amos intvw 16May03.
- <sup>16</sup> Ibid.
- 17 Ibid.
- <sup>18</sup> MACG-38 ComdC Jan-Jun03.
- <sup>19</sup> Amos intvw 17Mar03.
- <sup>20</sup> 3d MAW ComdC Jan-Jun03.





# 4th MAW JFACC Liaison in OIF

by Colonels Thomas C. Byron and William Kane

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## 4th MAW personnel played a key role in OIF air operations.

An integral part of the Marine Corps' successful aviation effort in Operation IRAQ FREEDOM (OIF) was the little-known Marine liaison element to the Coalition Force Air Component Commander (CFACC). Based with the CFACC at Prince Sultan Airbase (PSAB), Kingdom of Saudi Arabia, the majority of this team came from the Reserve Component, specifically the 4th Marine Aircraft Wing (4th MAW) Joint Force Air Component Command (JFACC) liaison cell. This article will discuss the history, development, training, and deployment of the 4th MAW's JFACC liaison cell.

# History

The current Marine air-ground task force (MAGTF) concept was formalized by the Commandant of the Marine Corps in 1983 and the current joint force command concept in 1986. However, it was not until 1991 during Operation DESERT STORM (ODS) that these two concepts met and were required to function together as an effective warfighting team. By MAGTF design, the Marines brought a potent mix of fixed-and rotary-wing aviation assets to the fight. The Marines expected autonomy to task these assets as they saw fit to support the MAGTF commander, his battle plan, and his scheme of maneuver. However, the commander, JFACC wanted to incorporate Marine fixed-wing assets into the centralized air battle planning, a function tasked to his command. The compromise reached was not particularly satisfactory to either commander. The Marine Corps gave up control of assets they expected to use, and the JFACC commander did not receive all of the assets he would have liked. This has been well-documented in numerous books and articles. (The Generals' War by Michael R. Gordon and LtGen Bernard E. Trainor or, USMC (Ret) (Little, Brown, and Co., NY, 1995); Every Man a Tiger by Tom Clancy and Gen Chuck Horner, USAF (Ret), (Penguin Putnam, NY, 1999); and "Marine Air in the Mainstream" by Rebecca Grant, Air Force Magazine, June 2004.)

A lesson learned during ODS was that there exists a significant need within the Corps for experienced and senior aviators who are intimately familiar with the ways of the JFACC commander, his staff, and his joint air operations center (AOC). The implementation of this lesson learned by both the Active and Reserve Components has proven invaluable to the Marine Corps' warfighting efforts. By having Marine officers embedded in the JFACC staff for both joint exercises and real-world operations, the Marine Corps is better able to support both the MAGTF and CFACC missions. This applies to coalition (CFACC, combined AOC (CAOC)) and U.S./Korea combined (CFACC, hardened theater air control center) commands, exercises, and operations as well.

# Development

The Reserve Component recognized that the JFACC function could be performed using Reserve personnel and that it could be highly relevant to the total force concept. Not only could a Reserve JFACC liaison team provide experienced post-command aviators, it could afford to make appropriate training and exercise support its primary mission. In addition, the continuity of personnel would allow for the development of relationships with the numbered Air Forces that would most likely man, equip, and operate an AOC for training or real-world operations.

Early in the JFACC liaison development, cells with varied levels of formality were formed in the Reserve Component at the Marine aircraft groups, Marine expeditionary force (MEF) augmentation command elements, and 4th MAW headquarters. Ultimately, the 4th MAW commanding general directed the wing staff to organize, train, and man the JFACC liaison team within his G-3 (operations).

This team consists primarily of senior officers and is led by a Reserve colonel. To highlight the experience level in the staff, the group mobilized in support of 3d MAW for OIF included six postcommand individuals (two Hornet squadrons, a CH-46 squadron, a Cobra detachment, a Marine air control squadron, and an air/naval gunfire liaison company (ANGLICO)). This is consistent with normal personnel experience within the team. JFACC-trained individuals throughout 4th MAW are also tracked to allow efficient augmentation of active duty MAWs should the JFACC liaison team be called for support in large numbers for exercises or real-world operations. This was the case for OIF.

#### **Training and Deployment**

The appropriate base-level schoolhouse training is the Joint Air Tasking Order Processing Course/Initial Qualification Training (previously known as Joint Air and Space Command and Control Course). This course generally runs 28 training days and provides the basics of joint operations, the JFACC's role in those operations, air tasking order (ATO) production, "standard" AOC operations and, depending on an individual's training track, AOC functional area instruction. Training is centered around the UNIX (uniplexed information and computing system)-based theater battle management core system that is used to plan, publish, distribute, and monitor the execution of the ATO. From the JFACC liaison team's perspective, emphasis is placed on combat plans and combat operations for this training. The 28-day course length is an issue with Reserve personnel, but the team has been successful in getting its personnel to this fundamental course.

To develop classroom training into a practical, working knowledge of joint operations and specifically CFACC/CAOC operations, the team has regularly participated in BLUE FLAGS, RED FLAGS, and other exercises that man a fully operational AOC. This is usually in support of one of the active MAWs.

As hostilities in Iraq became more likely, the 4th MAW JFACC team honed its skills by participating in Exercise INTERNAL LOOK. This was in support of 3d MAW and was a trial run to exercise 1003V plans and possibilities. Since the 9th Air Force (9th AF) (U.S. Central Command Air Force or CentAF) area of responsibility (AOR) includes Iraq and they are tasked to execute the CFACC fight in that AOR, the CAOC portion of the exercise was conducted primarily in their home CAOC at Shaw Air Force Base, Sumter, SC. A small portion of the liaison for the exercise was conducted from their warfighting CAOC at PSAB. At the time, the PSAB CAOC was entrenched in Operation SOUTHERN WATCH (OSW) and Operation ENDURING FREEDOM (OEF). The 4th MAW JFACC liaison team paralleled this by sending the vast majority of the team to Shaw to fully integrate with the 9th AF CAOC team.

It is important to note that the 4th MAW team at Shaw performed not only in the table of organization Marine/Marine liaison officer (MarLO) (green) billets but also filled joint (purple) billets in strategy, plans, and operations. Of further interest, the CFACC tasked Reserve Marine aviators to head both shifts of the close air support cell and the interdiction cell on the combat operations floor. In other words, Reserve Marine officers were tasked with the execution of the CFACC's offensive air war from the close fight all the way out through battlefield shaping with kill-box interdiction. This carried over into OIF CAOC manning as well.

Exercise INTERNAL LOOK allowed the team to develop familiarity with CentAF's tactics, techniques, procedures and, perhaps most importantly, allowed working relationships and professional trust to be developed.

Shortly after INTERNAL LOOK, the 4th MAW JFACC liaison team was mobilized and deployed to PSAB. Not only did the team fill billets in support of both OSW and OEF, they assumed leadership roles in the planning and training efforts that enhanced warfighting capability and efficiency of the CAOC. The CFACC recognized this as a critical effort since 1003V sortie flow was expected to be orders of magnitude greater than what it previously had been for OSW and OEF.

When OIF kicked off, the 4th MAW JFACC liaison team represented about three-quarters of the MarLO team (both green and purple billets) at PSAB. The remainder of the team were primarily Marine Aviation Weapons and Tactics Squadron 1 officers who filled the combat plans and combat operations billets that required the most current type/series/model and weapons systems knowledge.

Having Marine aviators staff the purple CAOC billets, coupled with the phenomenal ability of the direct air support center to dynamically process and utilize air, led to a very flexible and efficient use of coalition sorties. The various bomber and attack duty officers soon learned to come to the Marines on the operations floor with excess, rerolled, or unscheduled sorties because, as one stated, "The Marines will use anything."

As a result of the liaison effort, reports indicate that the CFACC and MEF/MAW command structures, unlike with ODS, appear very pleased with the air integration, coordination, and cooperation between commands. Building on the success of the JFACC liaison function at OIF, 4th MAW aviators have manned the senior MarLO billet in the CAOC (now at Al Udeid Airbase) for all follow-on OIF and OEF versions. Stateside, the team continues to support the active MAWs in exercises such as ULCHI FOCUS LENS and JOINT RED FLAG. In addition, 4th MAW continues to develop and build the JFACC capabilities within the Reserve Component.

In summary, the 4th MAW JFACC liaison team has proven its relevance and value to the Active Component by supporting MEF/MAW needs and continuing to contribute to the OIF and OEF fight. This team, built primarily with senior postcommand officers, brings a broad range of depth and experience to any fight. Though senior, this level of manning is critical to maximizing value to both the CFACC and MEF/MAW commanders' efforts. Training and continuity requirements make this critical capability inherently well-suited to the Reserve Component, and 4th MAW intends to continue to develop and man the JFACC liaison cell with the most experienced and trained personnel available.



# Airborne Recon Supported Marines' Advances in Iraq

by Lieutenant Colonel Lawrence R. Roberts and Major John P. Farnam

U.S. Naval Institute Proceeding, June 2004.

Close coordination among Marine air controllers, strike and reconnaissance aircrews, and their joint and coalition partners enabled decisive realization of Marine Air Group 11's objectives in Operation Iraqi Freedom–which included knocking out Iraqi artillery batteries capable of firing at long ranges.

For decades, Marines jealously have guarded Marine fixed-wing aviation for the near-exclusive use of the Marine airground task force commander. Operation Iraqi Freedom (OIF) was no exception. As the war progressed from planning to execution, the maneuver commander had an impressive and at times overwhelming amount of coalition air supporting his scheme of maneuver. It was the coordination and employment of this "unbriefed" coalition air by Marine airborne forward air controllers (FAC[A]s) that helped speed the advance of the 1st Marine Division (1stMarDiv) toward its objective.

1stMarDiv's movement to Baghdad during OIF leveraged the abundance of coalition fixed-wing aircraft by capitalizing on the capabilities of the F/A-18D and its two-man crew. Improving on the lessons of Operation Desert Storm, a flexible and high-initiative air plan was used throughout the I Marine Expeditionary Force (I MEF) battle space. Experienced Marine F/A-18D aircrews, each composed of a pilot and a weapons and sensors officer armed with in-depth knowledge of the ground scheme of maneuver, controlled land- and sea-based joint and coalition tactical aircraft (TacAir) to establish and maintain the condition required by 1stMarDiv to achieve its objective. (The average flight experience of the pilot and weapons and sensors officer of a FAC(A)-qualified crew in Marine Fighter Attack Squadron [All-Weather] 533 was 1,560 hours.) F/A-18D FAC(A) and strike coordination and reconnaissance aircrews (SCARs), representing the most seasoned and capable aircrew of Marine Air Group 11 (MAG-11), were a crucial element in ensuring the Marine command-and-control system supported rapid and decisive maneuver.

The drawdown of the U.S. armed services since Desert Storm made it more important for TacAir to support ground maneuver efficiently. Planning for OIF centered on this fact and limited the maneuver force to a two-division force supported by 50% fewer TacAir squadrons than in Desert Storm. A highly maneuver-dependent ground force, lack of a significant air shaping campaign (which establishes battlefield objectives, such as reducing air defenses to an acceptable level or destroying or damaging enemy forces to a certain percentage of effectiveness), and enemy disposition and structure demanded a high-initiative air plan. Built around flexible employment of joint and coalition air and extensive use of armed helicopters, the air plan needed to ensure sufficient aircraft in the battle space at any given time to fulfill close air support (CAS), air control, and reconnaissance in support of maneuver units.

The 3d Marine Aircraft Wing (3d MAW) fixed-wing planner initially focused on maximizing fixed-wing sorties from the five MAG-11 squadrons based at Al Jaber, Kuwait, and the five Harrier squadrons based ashore and on board ship. While this is an important part of determining the sortie capability of fixed-wing aircraft operating from land and sea bases, it is only one aspect. Planners did not consider the effectiveness of the sortie or the desired effects of the airframe. In addition, planners did not account for the large number of coalition sorties that would be available to the maneuver commander along with the 3d MAW fixed-wing sorties.

The flaw in this planning is the assumption that all fixed-wing sorties are equivalent. For example, in addition to its own weapons, an F/A-18D operating as a FAC(A) or SCAR has the potential to control many other sections of coalition aircraft performing close air support. Therefore, as OIF progressed, it became apparent that keeping air controllers airborne longer affected directly the ability of 3d MAW to manage coalition sorties in support of 1stMarDiv.

#### **Preconflict Aviation and Ground Coordination**

The threat of most concern to the division commander was Iraq's indirect fire capability. Relying heavily on former Soviet Union doctrine, the Iraqi military possessed a large number of artillery systems capable of firing chemical and conventional ordnance at ranges much greater than those of Marine artillery batteries. To offset this enemy advantage, Major General James N. Mattis charged 3d MAW and MAG-11 with finding and destroying enemy artillery units that could range friendly forces, while simultaneously screening the eastern flank of the division as it moved northwest toward Baghdad. To facilitate this mis-

sion and to provide high-initiative aviation fires, MAG-11 established relationships between Marine regimental combat teams and Marine F/A-18D squadrons. This put each of the three F/A-18D squadrons in direct support of a regiment during the first 36 hours of the conflict.

These relationship led to two of the most basic but crucial requirements for aviation support of a highly maneuverable and aggressive ground force: understanding the unit's scheme of maneuver and developing personal relationships among key leaders of the air and ground units. To ensure this, the F/A-18D aircrews met frequently with their respective combat team air officers, and less frequently with other key personnel (regimental commanders, intelligence and operations officers, and battalion commanders). These relationships naturally led to sharing of expertise between aviators and ground officers. In addition, regimental intelligence officers worked with squadron intelligence personnel and imagery interpreters to template enemy positions according to Iraqi doctrine using current advanced targeting and reconnaissance system (ATARS) imagery. This practice identified large numbers of Iraqi defenses along the regiment's route of advance that previously were overlooked by MAG-11 photo interpreters.

Another benefit of this relationship culminated in the weeks leading to the commencement of OIF as MAG-11 supported Operation Southern Watch. Armed with the ground commander's concerns, objectives, and scheme of maneuver, F/A-18D squadrons heavily imaged each of the combat teams' areas of responsibility with ATARS and became visually familiar with regimental and division objectives. Aircrews identified and code-named geographic references that could be used by the regiment and squadron to facilitate rapid engagement of enemy forces. This relationship, established weeks in advance of OIF, proved vital during the chaos of the first day of the conflict.

#### MAG-11 Employment Plan

A number of conditions had to be met for Marine aviation to dominate the battle space in front of the division and set the conditions for a rapid ground offensive. First, squadrons had to understand thoroughly the ground scheme of maneuver. Then, MAG-11 squadrons had to adopt a 24-hour sortie flow. Finally, relationship between squadrons and supported regiment had to be strong enough that voice recognition and clear understanding of each other's requirement s capabilities, and goals were the norm. These three themes led to the formation of a trusted-agent relationship between (FAC(A) aircrews and 1stMarDiv officers.

Twenty-four hour sortie flow allowed squadrons-most important, FAC(A)/SCAR aircrews-to build situational awareness on the battlefield that was passed from crew to crew as they relieved each other. A 24-hour flow distributed the individual squadrons' and Marine Air Group's daily sortie count over a longer period, requiring fewer aircraft (six instead of eight) to be in a flying status per squadron to meet air tasking order (ATO) requirements. This also gave individual squadrons the ability to provide spare aircraft for their ATO events, yielding higher completion rates.

An example of the effectiveness of this kind of relationship occurred on 20 March 2003, the day OIF commenced, as elements of 1stMarDiv were poised to cross the line of departure. Division intelligence sources reported 70-90- T-72 tanks moving toward Marine positions in Kuwait from Basra. Eager to confirm this information, the 1stMarDiv air officer and Regimental Combat Team 7 air officers used route code names and common geographic references developed during the planning process to focus the F/A-18D FAC(A)s' search of key avenues of approach for the reported armor. In return, FAC(A) used these same names and references to confirm or deny enemy activity along 1stMarDiv's routes of advance, to communicate rapidly where enemy activity was detected, and then promptly receive clearance to engage them with both aviation and indirect fire assets.

#### Recon Pull

Reconnaissance pull (recon pull) calls for reconnaissance forces to identify enemy weaknesses to be exploited by the main effort. To implement it—which calls for decentralized, integrated execution—the commander must ensure all subordinates understand his intent.

Once air superiority and supremacy are established, fixed-wing TacAir is a major contributor to recon pull. Fixed-wing TacAir is scheduled into the battle space forward of ground forces to confirm or deny enemy locations, and then to engage enemy units and capabilities before they become a threat to the ground forces. When required, fixed-wing assets can be pulled back or diverted by the airborne tactical air coordinator (TAC[A]), tactical air operations center (TAOC), or direct air support center (DASC) to meet close air support requirements that exceed the capability of attack helicopters. In effect, fixed-wing air-craft required for immediate close air support are "pulled" from the battle space rather than from a close air support stack. This concept maximizes the inherent capabilities of fixed- and rotary-wing assets, allowing attack helicopters to engage the enemy

within close proximity of friendly forces and satisfying most CAS requirements, while fixed-wing aircraft are engaging the enemy deeper in the battle space.

Marine TacAir's greatest contribution to recon pull in the joint/combined environment is the maximization of F/A-18D FAC(A)/SCAR aircrews and their battle management expertise. Joint and coalition aircraft often originate from locations that prohibit their crews from conducting the type of detailed integration described above. The combined effect is TacAir populating the battle space, each aircraft and crew acting as a sensor, to either engage or report on the plethora of mobile targets arrayed along 1stMarDiv's avenue of advance. Flowing aircraft forward, in particular FAC(A)/SCAR aircraft, instead of holding them in CAS stacks allows aircrew time to detect and engage enemy forces under complex and restrictive rules of engagement and collateral damage requirements. This tactic facilitated 1stMarDiv's bypass-and-insolate strategy and allowed aviation to reduce isolated enemy forces.

Perhaps the most beneficial outcome of a continuous presence by FAC(A)/SCAR aircraft was realized after the first week of OIF. F/A-18D FAC(A)/SCAR aircrew became natural extensions of the 3d MAW's tactical air operations officer and lstMarDiv's direct air support center in providing control and coordination for coalition air in I MEF's area of operations. Once Iraqi air defenses were dismantled completely, large numbers of coalition TacAir and strategic bombers were available to support the MEF's area of operations and often were sent by the tactical air operations officer to Marine FAC(A)/SCAR aircrew for employment. However, coalition TacAir possessed little or no knowledge of friendly positions or ground commanders' intent, and were very hesitant to employ ordnance within the MEF's area of operations. When Iraqi formations were found in I MEF's area of operations by FAC(A)/SCAR aircrew, or by sensors, such as unmanned aerial vehicles and the joint surveillance targeting and reconnaissance system (JSTARS), FAC(A)/SCAR aircrew coordinated and controlled joint and coalition TacAir in destroying Iraqi forces.

The framework of the preconflict training enabled F/A-18D aircrew operating as FAC(A)/SCAR to employ rapidly and effectively large volumes of coalition air to support 1stMarDiv's scheme of maneuver. In effect, the Marine FAC(A)/SCAR aircrews became the hunters, finding and prioritizing targets; coalition air were the killers, employing ordnance under the control of Marine FAC(A)/SCAR aircrews. The resulting air presence afforded by multiple FAC(A)/SCAR aircrews allowed coalition TacAir to be leveraged, most often with first-pass success. During the 25 OIF FAC(A)/SCAR missions we flew, we controlled the delivery of 72 sorties of coalition TacAir in support of 1stMarDiv.

Examples of recon pull can be seen in aviation units' fixing and destruction of the sixth and tenth Iraqi divisions south of Al Amara, as well as the Baghdad and Al Nida Republican Guard divisions in Al Kut and east of Baghdad, respectively. In all cases, Marine FAC(A)/SCAR aircrews in F/A-18Ds controlled a multitude of Marine and coalition aircraft, ensuring their weapons most effectively engaged enemy targets.

Continuous presence-and therefore enhanced aircrew situational awareness-affords many benefits. During OIF there were no blue-on-blue engagements by aircraft under the control of Marine FAC(A)s. In one case, U.S. Army M-1 Abrams tanks inadvertently crossed a bridge over the Tigris River into the Marine sector in Baghdad. Ground terminal controllers in both sectors requested the Marine F/A-18D FAC(A) engage what they believed to be an enemy force. Before complying with this request, the FAC(A) applied his understanding of U.S. and Iraqi military tactics as well as his grasp of the ground situation developed by previous missions and decided to verify the position of U.S. forces through Marine, Air Force, and Army command-and-control agencies. His efforts identified the "enemy forces" as U.S. Army. In another instance, JSTARS cued a Marine FAC(A) to the location of a possible enemy armored column. The Marine FAC(A) was able to identify the possible enemy column as friendly because he recognized a difference in the tactical formation of the vehicles in comparison to Iraqi columns he previously had encountered. On hearing aircraft overhead, the column turned on their infrared identification aids and confirmed the FAC(A)'s suspicions.

During the planning for Operation Iraqi Freedom, General Mattis made his intent for aviation clear when he said 1stMarDiv would be the most air-centric division in the history of the Marine Corps. His success, to a large extent, depended on rotary- and fixed-wing aviation finding and fixing Iraqi units to speed 1stMarDiv's advance. The 3d MAW, in particular MAG-11, developed an aviation employment plan that met the division's needs. Recon pull and pull CAS were effective techniques and, more important, enabled 3d MAW to use the core capabilities of F/A-18D aircrew to leverage a large volume of coalition air to support 1stMarDiv's scheme of maneuver. F/A-18D FAC(A)/SCAR aircrews provided the critical element to enhance Marine command and control's ability to assimilate rapidly joint and coalition TacAir into the MEF. This method of employment allowed 3d MAW to attack, destroy, and influence the Iraqi military throughout the depth of the battle space. Recon pull enhanced the rapid advance of 1stMarDiv that led to the collapse of the Iraqi military.





# Harrier Carriers Perform in Iraqi Freedom

by Lieutenant Commander Cindy Rodriguez, USN, Major Michael Manzer Jr., and Commanders Shawn Lobree and Jon Dachos, USN

## U.S. Naval Proceedings, February 2004.

War is a catalyst for innovation. During Operation Iraqi Freedom, large-deck amphibious ships adapted to a new mission for which they had never trained-acting in an aircraft carrier role by conducting expeditionary strike warfare. These "Harrier carriers" increased the Navy's warfighting options. Their mission modification capitalized on the ships' multifaceted capabilities and recognized that naval expertise on board large-deck amphibious platforms, combined with Marine air assets, is a powerful force multiplier.

The Harrier carrier concept proved quite successful during Iraqi Freedom despite numerous operational challenges. Because this mission was never part of the interdeployment training cycle, amphibious airspace, ordnance sustainment, intelligence, and meteorologic and oceanographic issues all had to be addressed. How the Navy overcame these operational realities can point the way for future Harrier carrier operations.

## Genesis of the Concept

The Harrier carrier concept was conceived in December 1990, as U.S. forces were preparing for the first war in Iraq. Twenty AV-8 Harriers embarked on the *Nassau* (LHA-4) and six on the *Tarawa* (LHA-1) deployed to the Persian Gulf for Operation Desert Shield. Lieutenant General Walter Boomer, Commander, U.S. Marine Forces Central Command, agreed to offload the *Tarawa's* Harriers in Saudi Arabia, but opposed offloading the *Nassau's*, arguing they would have better maintenance support and flexibility if left on board. The general understood the Harrier carrier at sea would be a force multiplier for the Marine air-ground task force.<sup>1</sup>

Some were reluctant to rely on this unorthodox concept, and more traditional, proven strike assets-the carrier air wings' A-6s and F/A-18s-were chosen to provide close air support. As a result, the *Nassau*'s Harriers did not participate until an amphibious raid was planned for Faylakah Island. On 20 February 1991, the *Nassau* finally launched her Harriers, and Marine Attack Squadron 331 flew 240 combat missions and dropped more than 900 bombs in support of battle area interdiction and close air support. During the final week of Desert Storm, the *Nassau* became the first LHA used as a Harrier carrier, with up to 60 sorties per day.<sup>2</sup> Twelve years later, with war in Iraq again on the horizon, Amphibious Task Forces (ATF) East and West were stood up for deployment to the northern Arabian Gulf. Two amphibious assault ships were designated as Harrier carriers and equipped with 24 Harriers-the *Bataan* (LHD-5) and the *Bonhomme Richard* (LHD-6). In March 2003, the two task forces, which included seven amphibious big decks, unified under Rear Admiral W. Clyde Marsh, Commander, Task Force 51, in the Arabian Gulf.

This time the Harrier carrier met with more enthusiasm, and technological improvements made the LHD more versatile. On 19 March 2003, after receiving President George W. Bush's execute order, the *Bataan* launched her first AV-8 mission in support of Iraqi Freedom.

#### **Operational Realities**

The *Bataan* had to overcome several key challenges while operating as a Harrier carrier. Coupled with the chaos of a short-notice surge deployment, her crew had never trained for this mission. The only historical information came from a 1991 Center for Naval Analyses report on the *Nassau's* short stint as a Harrier carrier during Desert Storm. The report provided bomb stats and advocated increasing the number of Harriers on the flight deck from 20 to 24, but little else was applicable. In particular, there were few standard operating procedures for handling amphibious air space, ordnance sustainment, and intelligence and meteorological and oceano-graphic needs.

• Overcoming Amphibious Air Space Constraints. During war, maritime air space often is at a premium, and flight safety is paramount when ships are operating in a confined space such as the Arabian Gulf. When all the East Coast large decks were on station in their assigned operating areas near Kuwait, the air boss and air traffic controllers discovered they had to expand the amphibious carrier's air space when she is operating in close proximity to other amphibious ships flying Harriers. ATF East's three large decks (the Bataan, Kearsarge [LHD-3], and Saipan [LHA-2] were operating within ten nautical miles of each other during the transit. Both the Bataan and Kearsarge carried a complement of Harriers, often resulting in overlapping traffic patterns. To alleviate this problem, all ATF East Harriers were consolidated on board the Bataan. When more than one amphib must conduct joint Harrier flight operations, a physical separation of at least 20 nautical miles must be established for air space deconfliction. In addition, a coordination frequency between all helicopter direction centers and air operations coordination centers is necessary to maintain safety of flight.

• Sustaining Ordnance Resupply. The Bataan's personnel understood the criticality of ensuring sufficient ordnance to sustain the Harrier carrier mission. Based on expected continuous heavy bombing, the ship's goal was to maintain a week's worth of aviation ordnance on board. By late February 2003, there were two fast combat support ships and one ammunition ship in theater, but they were tied to carrier battle groups and their ordnance was earmarked for air wing use.

Logistical staff officers explored several alternatives for resupply, including using stockpiled ammunition from ashore sources and resupply using Military Sealift Command break-bulk ships. Although connected replenishment from an ammunition ship was an option, the cramped deck space configuration at the single station available on an LHD is not conducive to rapid ammunition delivery. Another option tried was delivery using a dock landing ship (LSD) shuttle and air-cushion landing craft (LCACs), and this became the preferred means of resupply.

Acting as shuttle ship, the *Pearl Harbor* (LSD-52) received several ordnance replenishments from both the *Cape John* (T-AK 5022) and the *Cape Gibson* (T-AK 5051). The *Bataan* used an embarked MH-60 helo to support the vertical replenishment from the T-AK to the *Pearl Harbor*.

The ordnance typically then was moved from the shuttle ship's flight deck to her well deck, and loaded on an LCAC from there. LCACs carried up to 50 pallets of aviation ordnance, and tarps were used to keep the ordnance dry. Bringing two aviation ordnancemen and two fork trucks with them to expedite loading, the LCACs then shuttled the ordnance to the *Bataan*. Because delivery through the well deck did not affect flight operations, ordnance supplied by LCACs gave the Harrier carrier the greatest operational flexibility.

• Solving Intelligence Issues. Because they were designed to facilitate amphibious ready groups, LHA/LHD joint intelligence centers (JICs) are not concerned with strike operations. However, in choosing the *Bataan* to embark the AV-8s, the Navy serendipitously chose the JIC best suited to support a Harrier carrier.

Prior to reporting to the *Bataan*, the ship's intelligence officer had completed a tour at the Naval Strike and Warfare Center was head of its Strike Cell Division. She already was advocating strike warfare on board amphibs and had obtained a Tactical Operational Scene 400 unit specifically for the JIC. She also had portable flight planning software installed on computers in the JIC and trained the majority of her intelligence specialists (ISs) on its use. Quite coincidentally, the *Bataan's* JIC already had a plan in place to stand up an expeditionary strike intelligence cell (ESIC) approved by the commanding officer. This plan, Tactical Operational Scene, and portable flight planning software were critical to quickly establishing an ESIC capable of meeting the needs of Marine AV-8s. Most important, the *Bataan* was able to rapidly establish an ESIC because of the federation of intelligence among the JICs of ATF East.

The federation among the JICs proved vital to successful Navy/Marine intelligence support of the war. To mitigate information overload and duplication of effort, collection and reporting taskings were shared among all seven of Task Force 51's JICs. This solidified the team concept, reduced Fifth Fleet overhead, and eased the burden of daily intelligence requirements for undermanned JICs (such as those on board the *Bataan* and *Saipan*, which were not yet plussed up to 24 ISs). Imagery requirements also were federated to distribute the exploitation workload. Briefs, complete with notes, were pushed to the *Bataan's* JIC throughout the day. In addition, any significant threat information was passed via e-mail and chat. These processes ensured timely and pertinent information was briefed during the commanding officer's daily operations/intelligence brief. They significantly lessened the *Bataan* JIC's workload and ensured it could monitor threats to the ship instead of committing hours to research and building PowerPoint briefs.

To establish a strike cell, 6 of 15 intelligence specialists were carved out of the JIC and integrated with 6 Marines, their captain, and the ship's intelligence officer to man the ESIC. Cooperation was key since no one had worked together before, and hardly anyone had conducted real-world targeting. Because of time constraints, it was not possible to send personnel to schools prior to deployment. Personnel received on-the-job training on writing mission reports, debriefing pilots, and reading ground order of battle from imagery and Lightning Pod video. There was a steep learning curve, but effectiveness improved over time. One of the advantages the JIC had was that the majority of its ISs had completed a combat deployment just eight months earlier during Operation Enduring Freedom. They were seasoned veterans, which made them more flexible in dealing with both new mission requirements and the extra workload brought on by the ESIC and war. The Imagery Processing Intelligence Center became the heart of the ESIC. Its analysts became adept at providing imagery, selecting targets, and mensurating them via the Joint Service Imagery Processing System–Navy. They also analyzed AV-8 Lightning Pod video and provided bomb hit assessment, which was critical to battlefield commanders.

• *Minumizing the Effects of Wind and Visibility Problems*. Accurate forecasting was vital to getting aircraft safely on and of the night deck, and technology and experienced weather forecasters on board the *Bataan* greatly mitigated the effects of weather flight operations. The most critical meteorological parameter for the *Bataan* during Iraqi Freedom was visibility: 103 combat missions on five days were canceled because of reduced visibility. On these occasions, the *Bataan* was engulfed in dust storms so dense it was impossible to see beyond a few feet. While operating in the northern Arabian Gulf, weather forecasters discerned two patterns: frontal passage from February through April produced 11 dust storms; and southwesterly winds and remnants of afternoon thunderstorms over central Saudi Arabia advecting dust over the northern Gulf. Dust storms were accurately forecasted and briefed, resulting in zero weather-related mishaps and no aircraft being stranded at divert fields.

Another parameter for launching AV-8s was wind. To launch, combat-loaded Harriers require up to 30 knots of relative wind down the deck. Accurate microscale wind forecasts were critical to timely launches and enabled the officer of the deck to set up launch and recovery patterns in advance, to anticipate and account for changing wind conditions and thereby optimize the finite sea room assigned. Distractions in the assigned operations area, including heavy vessel traffic, anchorage areas, shoal water, and oil platforms, made it vital for the ship to get the required winds to launch the aircraft on the straightaway. In April, thermal heating of land had more of an effect on winds, as sea breeze and land breeze circulations developed. When the sea breeze condi-

tions set up, the winds on the western side of the operational area were different from the eastern side. This forced a change in course and/or speed, reducing the already small 12 nautical mile leg even further.

# Striking Power of the Harrier Carrier

The Harrier carrier concept is intriguing, but is it an option for providing more fire power for the Navy? The numbers speak for themselves. The *Bataan's* Harrier squadrons dropped more than 122 tons of ordnance, most of which was laser guided. More than 470 targets were eliminated, helping to defeat three Republican Guard divisions. Together, the *Bataan* and the *Bonhomme Richard's* squadrons expended more than 250 tons of ordnance, damaging, destroying, or removing from the fight some 1,200 targets.

Another advantage of the LHD is her inherent flexibility and adaptability to meet evolving missions. Before launching Harriers into battle, the *Bataan* carried major combat elements of Regimental Combat Team II from the East Coast to the fight, including 1,900 Marines, 175 vehicles, 270 tons of cargo and equipment, and hundreds of pallets of ground ammunition. She proved an LHD can deliver a Marine expeditionary unit, then rapidly reconfigure into a Harrier carrier for added strike capability. Both missions were done successfully in a wartime environment without loss of life, aircraft, or equipment.

## Recommendations

• Harrier Carrier Relevance to the Expeditionary Strike Group. Combat proven in two major conflicts, the Harrier carrier is vital and relevant to the expeditionary strike group (ESG). Although the Navy and Marine Corps likely will continue to have a mission to maintain a traditional Marine expeditionary unit (special operations capable) capability, the Harrier carrier concept should become a mission-essential training task and a required operational capability for all ESGs.

Amphibious ready groups have been required to practice certain contingency operational capabilities during predeployment training (such as emergency landing of a Harrier on an amphibious transport dock or dock landing ship; amphibious assault ship refueling alongside; LCAC safe haven in amphibs, etc.). In addition, each ESG amphibious assault ship should practice loading out and operating as a Harrier carrier so she can be an option for forward-deployed expeditionary forces, should the need arise. A pack-up kit to support a Harrier carrier also should be developed for deployed ESGs.

• Future Weapon Development. To ensure the Harrier carrier capability is executable while new technologies are being developed, it should become a practiced mission for both the Amphibious Assault Ship (Replacement) and the Joint Strike Fighter. By making it an objective requirement, inserted into the operational requirements document for both platforms, the concept will not fade away and both programs will include it as is a serious possibility for future conflicts and plan accordingly.

• Future JIC Support. Because of the many missions a JIC must support, an expeditionary strike intelligence cell is not a viable permanent element. It is more a capability among other competing capabilities that JICs must be able to perform whenever the need arises. Unfortunately, it is also a perishable capability that must be constantly trained and honed. Doctrine and operating procedures for JICs must be developed and implemented. West Coast JICs already have done this, and the East Coast must follow suit. Because platforms and forces from both coasts may one day operate together again, doctrine and procedures should be standardized.

Iraqi Freedom was a sneak preview of a mission that is fast becoming a requirement for JICs-supporting strike operations. JIC must continue to train and equip their personnel with the latest strike technology. Early training and integration with their Marine air counterparts is paramount for further success. If they follow thee recommendations, JICs will be ready to establish and support another strike cell on short notice in defense of U.S. interests.

## **Final Thoughts**

Transformation recognizes the need for a meaner, leaner military to respond to emerging threats. Using large-deck amphibious carriers as strike platforms undoubtedly adds flexibility to a Navy hard-pressed to face a larger number of volatile threats in the post-Cold War era. Harrier carrier also can reduce the load borne by today's heavily tasked aircraft carriers. To capitalize on this capability and ensure its flawless execution, doctrine should recognize and incorporate the Harrier carrier concept. Training should be modified to reflect this

new capability, and it should become standard procedure for future operations. This will ensure amphibious carriers are prepared to carry out this vital new mission the next time it is needed.

<sup>&</sup>lt;sup>1</sup> Marvin Pokrant, Desert Shield at Sea (Westport. CT: Greenwood Press, 1999), pp 207-8.

<sup>&</sup>lt;sup>2</sup> William F. Morgan, "USS *Nassau* (LHA 4) and VMA 331 Strike Operations during Operation Desert Storm," CRM 91-140 (Alexandria, VA: Center for Naval Analyses, June 1992), p 1. Document is now declassified.



# Close Air Support in the U.S. Marine Corps: A FAC's Perspective

by Major Donald S. Hawkins

#### Marine Corps Gazette, September 2003.

The close air support (CAS) battle at An Nasiriyah started at approximately 0500Z on 23 March when Company A, 8th Tanks, as the lead element for 1st Battalion, 2d Marines, 2d Marine Expeditionary Brigade (Task Force Tarawa), executed an opposed rescue of Army personnel in a convoy ambushed south of the city. Marine air continued to provide heroic and uninterrupted CAS to the battalion for over 36 hours during our succeeding assault through 'Ambush Alley,' the capture of the two bridges, and the consolidation north of the city.

In the middle of the engagement the Iraqi T-55 tank exposed itself to the Cobra working with the ground forward air controller (FAC). Smoothly shifting targets from the dismounts firing on the ground elements, the Cobra engaged the tank with a Hellfire missile. Shortly after the missile left the rail it went "stupid" and missed the target. Still unaware of the Cobra's presence the enemy tank continued its advance toward the Marines on the ground. Immediately the FAC directed the Cobra to designate the target and instructed the Hornet orbiting overhead to drop a laser-guided bomb. The Cobra pulled hard right, stabilized, and painted the tank for the Hornet pilot who immediately called inbound with the spot. Just as the Hornet rolled "wings level" out of the west an urgent call from the command track came over the radio, "ABORT! ABORT! ABORT!" The FAC relayed the order, and the Hornet pulled off the target without dropping. Now aware of the threat, the T-55 pulled back into the tree line near the industrial complex where the Cobra pilot lost visual contact.

When asked why the decision was made to abort the aircraft the FAC was informed that there were counterbattery fires (that the FAC knew about through the fire support team (FiST) leader) being shot approximately 6 kilometers east and 12 kilometers north of the tank's location. Because there was confusion over where the gun target line was located the fire support coordinator (FSC) called for the abort. With the threat of an enemy tank still on the battlefield trying to kill Marines on the ground, the FAC immediately instructed the Cobra to coordinate the drop of the Harrier's ordnance along the tree line in an attempt to kill the tank and address the fires coming from that area.

As I am sure you realize, this scenario, unfortunately, is not a page from a poorly written war novel. It is a factual accounting of the events I experienced as the FAC attached to 1st Battalion, 2d Marines, Alpha Company, 8th Tanks. We were attempting to kill an enemy tank that was trying to kill us on 23 March south of An Nasiriyah, Iraq during a rescue of ambushed Army personnel.

At this point, to those of you who are shaking your heads in disbelief, let me point something out. The officers in the command track did nothing wrong. In fact, they did exactly what they were trained to do. They had even practiced their trade at a Combined Arms Exercise (CAX) less then 6 months prior to the war. Prior to departing the assembly area it was made clear that we would conduct fire support coordination exactly as it is conducted at CAX. The fire support coordination techniques that they used were in strict compliance with the current policies and procedures with which we train.

For those of you who wonder why I raise this as an issue, realize that while the concepts of "silence is consent"<sup>1</sup> and "the FiST controls the indirect fires and CAS" may still be contained in our formal doctrine, they have been effectively "washed" out of our training. In practice, indirect fires and CAS must be verbally approved by the FSC prior to execution.

It is also quite right to point out that the Marine Corps does not presently subscribe to the "big sky, little bullet" theory. However, does the actual threat of shooting down one of our own aircraft really require us to obtain the FSC's overt approval for every engagement?

So, for the sake of discussion let me pose these questions and offer up some personal observations: (1)

What about the threat to the lives of the Marines on the ground? That was an enemy tank (not a tire stack), and its mission was to kill us. Where does protecting the lives of the Marines on the ground weigh in on the risk analysis? (2) Unlike a stack of tires, enemy tanks and dismounted infantry do not expose themselves and then cooperate by sitting still in one place for 30 minutes while everyone pulls out their high-speed plotting boards to put together a "quick fire plan." (Quick fire plan plotting boards don't work well in military operations on urbanized terrain or when operating from a tank or in an assault amphibious vehicle (AAV) or when being shot at in general.) (3) Unlike a stack of tires, enemy tanks and dismounted infantry do not expose themselves and then cooperate by sitting still while the FAC puts together a pristine nine-line brief and reads it to the air officer over the tactical air control party (TACP) local net for approval before he reads it to the pilot over the tactical air direction net. (4) I never used a nine-line brief in Iraq. In each engagement we used the "team building approach" whereby all of the "players" (FAC, rotary-wing pilot, fixed-wing pilot) quickly worked together to build each other's situational awareness, develop a plan, and execute the plan as soon as possible. (5) Suppression of enemy air defenses (SEAD) sounds good in the manuals, but let's face facts. Just doing the basics in a combat environment can be challenging enough for artillery. Furthermore, if the artillery can suppress the target, why not just fire for effect and kill it. (6) The AH-1, UH-1, and the A-10 are invaluable tools for the ground FAC to use to increase situational awareness, coordinate CAS, and engage close-in targets. (What I would have given for an OV-10 overhead!) (7) The formalization of the FiST with a designated leader is one of the best things to have happened since 1990. Now the question is, who is in the best position to coordinate the placement of integrated fires-the FiST, with eyes on the target, or the FSC buttoned up in an AAV without eyes on the target?

Fellow Marines of the CAS jury, I submit that procedurally how we as a Marine Corps execute CAS at the infantry or tank battalion level needs a serious examination. I submit to you that we now have two recent, albeit short, wars under our belts, and both suggest that it is time for a change.

Now this is the part of the dissertation whereby, after identifying the issues, I am supposed to offer up some profound guidance as to what the solution(s) should be. Well, why not? This is my account, and I am already in deep so here goes.

Here are my suggestions. (1) We need to embrace silence is consent and let the FAC and the forward observer (FO) fight the close air and indirect fires battle at the company level in accordance with the directions provided by the FiST leader or the company commander. In all honesty, how many times have we seen the FSC effectively control fires in a timely manner in the air conditioned combined arms staff trainer at Camp Lejeune? What logic says that the FSC magically becomes more efficient in the fog of combat? I submit to you that the company commander, the FiST leader, the FO, and the FAC know how to kill the enemy in their sights better than someone buttoned up kilometers away from lead trace. Even if you have communications with the FSC (not guaranteed in combat), the less chatter on the radio the better. (2) Let's remember that the mission is to "locate, close with, and kill the enemy by fire and maneuver" not locate, close with, and plead for approval to kill the enemy. This becomes much more important when the enemy is actively pursuing its mission, which is to locate, close with, and kill Marines. (3) Retire the nine-line brief. Establish procedures for using the team building approach to conducting CAS. Emphasis should be placed on knowing and understanding the various weapons systems and their capabilities to support target acquisition and designation.<sup> $^{2}$ </sup> (4) Cease pouring money into the target location designation handoff system (TLDHS) program. That system is based on the obsolete nine-line brief, initial points, control points, etc. I used the TLDHS system to control Harriers in a demonstration at Quantico prior to departing to join my unit in Kuwait. I was not impressed. Put the money into building a system that simply identifies and transmits the FAC location and identifies and transmits the target's 10digit grid coordinates to the aircraft without all the flimsy wires and multiple components. Package the unit in something as small and portable as a pair of binoculars.

The rationale for wasting any further time and money on the current TLDHS system can't be because it is "better than anything we already have in the fleet," because it is not. A trained Marine FAC with a radio and a map is better than the TLDHS hodgepodge of electrical components and software represented in the *Marine Corps Concepts and Programs 2003* publication. (5) Increase training in the use of global positioning system

guided munitions in the close-in fight. Refer to item (4). (6) Retire the concept of SEAD-front door, back door, red, blue, dislocated, collocated, etc.-just let the artillery go out there and engage and kill targets. They have enough going on with shooting, moving, communicating, and responding to radar guided counterbattery fires (which they thankfully do very well by the way). Let the FAC and the FO decide how to work the air around, over, or under the artillery if necessary. (7) While I am at it, let's just give up on thinking that the high-frequency (HF) radio will reliably talk to the direct air support center (DASC) located miles away on the ground. The unsecured HF does not reliably work at CAX. Why should we fool ourselves and think that HF will reliably work in combat? Let's adopt a doctrine whereby the DASC (or a reliable repeater) is always airborne where very high-frequency and ultra high-frequency (UHF) communications work. Better yet, let's just adopt secure satellite communications for this purpose. We have endured this Achilles' heel long enough. It is time that current technology comes to this function.

By now I am certain that it's obvious I don't write for a living, nor am I a graduate of any of our advanced warfighting institutions. I am simply a FAC who went to TACP school in 1990 and has seen us conduct CAS in a much more effective manner. Thirteen years later I find out the hard way that the practical application of our doctrine has evolved in a direction that is not the most efficient way of doing business when the tire stacks start shooting back.

Fortunately, it is still abundantly clear that we remain the premier Service when it comes to CAS directly integrated with our indirect fires and ground maneuver. From the aviation perspective, the heroics of the AH-1, UH-1, H-46, AV-8, F-18, and A-10 pilots I controlled on 23 March and subsequent days prove that argument. The purpose of writing this article is to promote a serious review of our systems, policies, doctrine, and procedures as it relates to CAS in the Marine Corps so that we keep our edge.

<sup>&</sup>lt;sup>1</sup> Silence is consent was once a practiced coordinating technique in which the FSC and the supporting staff (air officer and artillery liaison officer) monitored the radio circuits and *only* came on the net if necessary to avoid fires into known friendly positions or to provide assistance to the FiST. All fires called for by the FO and the FAC were considered approved unless the FSC or one of the supporting staff interceded.

<sup>&</sup>lt;sup>2</sup> There were no control or initial points designated in Iraq suitable for use in a nine-line brief that were ever made available to this FAC. <sup>3</sup> In the battle at An Nasiriyah, the FACs were reduced to calling for CAS using the UHF "guard" frequency because HF once again was

not working when we needed it.





# MLC: Sustaining Tempo on the 21st Century Battlefield

by Brigadier General Michael R. Lehnert and Colonel John E. Wissler

Marine Corps Gazette, August 2003.

The Marine Logistics Command came of age during Operation IRAQI FREEDOM putting velocity and endurance into the logistics support operations for I MEF.

The Marine Logistics Command (MLC) concept was born in the sands of Saudi Arabia during Operations DESERT SHIELD and DESERT STORM when 1st and 2d Force Service Support Groups (FSSGs) provided general support and direct support (DS) logistics support to I Marine Expeditionary Force (I MEF). As the Marine Corps began innovative thinking regarding operational logistics, it became apparent we needed an organization that could function at the operational level of war and provide both the interface with theater logistics organizations and a tactical linkage to Marine Corps forces in theater. Thus, the MLC manages the resources necessary to sustain the operational tempo of the modern campaign and extend Marine Forces' operational reach to distances more in keeping with the tenets of expeditionary maneuver warfare and advanced seabasing. Coming of age in the sands of Kuwait and Iraq, the MLC allows the warfighter to focus on the near battle.

In December 2002, elements of 2d FSSG assumed the operational logistics mission of the MLC and deployed to the U.S. Central Command area of operations-operational control to Marine Forces Central Command (MarCent)-in support of Operations ENDURING FREEDOM and IRAQI FREEDOM (OIF). 2d FSSG task organized a lean, functionally aligned 4,500-Marine and sailor organization that became the MLC. Maintaining its function of wholesale support, asset control was centralized and highly directive in order to fulfill specific sustainment requirements. After mission analysis reflected that 8th Engineer Support Battalion and 2d Medical Battalion were more likely to be used in a tactical role, they were chopped to I MEF to enhance their functional depth. Functions that could be accomplished by reachback, like disbursing and personnel administration, were not deployed.

MLC had one customer (I MEF) and one boss (MarCent). As the operational logistics organization, the MLC supported all Marine forces in Kuwait and Iraq and became the flexible link between strategic and tactical logistics. The role of the operational logistician is fluid and demands continuous operational assessment and thorough mission analysis. It means expanding the limits of the possible by employing initiative, creativity, and adaptability in the design and execution of logistics activities.

The MLC executed the following specified tasks in support of Marine forces in theater:

• Provided landing force support party for multiple maritime prepositioning ship squadron (MPSRon) offload.

• Provided operational logistics support.

• Coordinated combat service support (CSS)/common item support (CIS) and common user land transportation assets with the theater logistics command.

• Planned and executed regeneration, reconstitution, and redeployment operations to include port operations supporting follow-on shipping.

Initially, MLC focused on setting conditions for battlefield success through early arrival and executing reception, staging, onward movement, and integration (RSO&I) so that the DS CSS organization (1st FSSG) could occupy their tactical positions and support other elements of I MEF.

Simultaneously, MLC established Logistics Support Area (LSA) Fox, carving a 50-square-mile, 5,000-man camp complete with hardstand, warehouses, improved roads, seven self-contained subordinate camps, and the largest field ammunition supply point in the history of the Marine Corps from a patch of desert defined by a single, untrafficable dirt track.

Upon arrival in theater, MLC focused on RSO&I while Marines from both MLC and I MEF completed the MPSRon offload of 2 squadrons, 13 black bottom ships, and 18 amphibious vessels, shortening doctrinal timelines by almost 4 days. This once more confirmed that the maritime prepositioning force concept is flexible and provides rapid expeditionary combat capability to the geographic combatant commander.

Early planning inaccurately assumed the Army would provide for CSS/CIS requirements. Often, Army and Marine combat units arrived before their organic logistics support, and although not planned, the lack of Army line haul and other logistics units required the Theater Support Command (TSC) to become the alternate, vice primary, means of line haul and theater-level transportation support. MLC became the primary source for Marine Corps battlefield distribution and CIS. Theater common user land transportation assets were available only after MLC assets were completely committed. This process left the MLC no reserve for emergent requirements or distribution targets of opportunity. Bridging the requirements gap, MLC contracted over 300 cargo and fuel tanker trucks including drivers from 14 different countries. Heavy-lift requirements were sourced from the TSC; however, without coalition forces land component command priority of effort, Marine forces received only a small allocation of Army heavy lift during combat operations.

The extended battlespace and limited theater line haul support demanded MLC contract host-nation support to provide services and support functions unavailable via Service or joint channels. Expeditionary contracting provided operational flexibility, freeing contractable occupational specialties to serve in other capacities. For example, every MLC cook became a rifleman as we contracted all meals, freeing most cooks to serve as ridealong security for contracted drivers crossing into Iraq.

During decisive combat operations, the MLC ground lines of communications extended over 400 miles. MLC provided DS logistics support to I MEF units in Kuwait and pushed logistics forward to 1st FSSG using every transportation means available including Marine Corps tactical trucks, Army line haul, contracted Third Country National (TCN) driven vehicles, C-130 (Marine Corps, British (UK), and U.S. Air Force) air delivery, and rotary-wing aircraft (Marine Corps, Army, and UK). Most supplies were distributed on the "push" system; however, critical supplies and emergent "pull" requirements were invariably flown due to extensive distances and compressed time frames involved.

Fuel resupply became critical to maintaining battlefield tempo. Both I MEF and MLC used every Marine Corps tactical refueler in theater. MLC alone leased an additional 39 8,400-gallon commercial refuelers to meet the voracious fuel appetite of a mechanized force on the move. Average daily fuel usage in the MEF was 450,000 gallons. Supplying this monumental requirement was accomplished through a well-developed fuel plan and around-the-clock line haul of fuel from both 1st FSSG and MLC refuelers. As part of the plan, 1st FSSG established a hose reel system moving fuel over 130 miles into southern Iraq. This hose reel system supplied the

northernmost fixed fuel site for both the MEF and the U.S. Army early in the war. In all, MLC delivered over 4 million gallons of fuel in Kuwait and Iraq, and more than 2.6 million gallons to LSAs in Iraq.

Battlefield distribution of sustainment demanded full use of every air and ground delivery platform available. Often 100 percent of MLC vehicle assets were in use on any given day with an average convoy size of 60 vehicles. Large convoys and the need to execute around-the-clock operations placed drivers at a premium. Despite deploying with every available organic driver, the driver to vehicle ratio was far below the 1.2 to 1 required for sustained 24-hour operations. Headquarters Marine Corps globally sourced over 200 additional drivers to meet this need, and the use of reservists who were professional truck drivers, incidental drivers, and TCNs filled the critical driver shortfall.

Air transportation, both fixed-and rotary-wing, was used to move critical repair parts and supplies. The value of Marine aviation and its expeditionary capability to add velocity to logistics can't be overstated.

With the constant movement of large convoys through lightly secured areas, force protection was a challenge. Most logistics nodes could only be reached by passing through nonpermissive areas inhabited by bypassed enemy units of up to company size. Organic, hard skill CSS military occupational specialties and 2d Military Police Battalion Marines provided convoy security to include force protection for Army assets assigned to MLC missions. Without both, MLC would have had significant problems defeating the threat and completing the battlefield distribution mission.

Communications over nondoctrinal distances were challenging. FSSGs are not organically equipped to provide command and control over the long distances experienced on the OIF battlefield. The best means of communicating with–and locating–logistics forces was the blue force tracker (BFT), but MLC possessed only three systems. In addition to the BFT, Iridium modem trackers provided an alternate means for convoy tracking when more than three convoys were deployed. Iridium cell phones provided the most immediate means of long-distance communications, yet they experienced only a 75 percent to 80 percent success rate due to climatic conditions and other impediments. Tactical satellite with ViaSat software proved exceptionally valuable, but required about 10 minutes in a stationary position before communications could be established.

Salvage operations became vital to the continued flow of sustainment in both the near and long term. With several hundred combat destroyed principal end items (PEIs), movement to collection points became critical to supporting the regeneration of major end items for all Marine units. Recovery operations became a true task force operation with security, lift, and explosive ordnance demolition support all required for safe recovery. Immediate recovery was essential as abandoned vehicles were stripped and burned in less than 20 minutes. Employment of trail maintenance in every MLC convoy prevented the loss of vehicles to this most immediate destruction.

Rolling stock was at a premium as many I MEF battlefield distribution assets were often detained at the delivery point, reducing the available pool of assets for tactical delivery. As I MEF units pushed to Baghdad, an MLC convoy commander could expect to be on the road for 2 to 5 days before returning to LSA Viper, the hub of MLC battlefield distribution in Iraq.

MLC used integrated logistics capability (ILC) maintenance concepts throughout OIF and task organized core capabilities among the various MLC nodes to maximize timely response and full-spectrum repair capability. Task Force Pegasus, (2d Transportation Support Battalion (Minus) (Reinforced)) (2d TSB) is perhaps one of the great success stories of ILC maintenance. Vehicles inducted into maintenance received bumper-to-bumper attention, but perhaps more important, returning convoys were serviced by line mechanics while drivers slept in preparation for the next convoy. Mechanics swarmed on vehicles, performing preventive and corrective main-tenance, registering continued MLC readiness rates over 90 percent throughout the war. The close relationship developed with line mechanics attached to 2d TSB, combined with the expertise developed through a single, centralized maintenance capability, resulted in superior readiness.

Further testimony to ILC's success was resident in MLC's maintenance battalion repairing over twice the number of PEIs with approximately one-half of the personnel during OIF compared to average peacetime statistics. Additionally, maintenance battalion owned secondary reparables and maintained an unheard of 86 percent fill rate through aggressive use of their deployed general support maintenance company. The ILC concept

for maintenance works well in garrison and works even better in the field, and the refinements in CSS migration initiated before OIF proved invaluable in combat operations.

During OIF, MEF sustainment was critical, and the volume of support provided was staggering. MLC supply filled nearly 65 percent of over 108,000 demands, issuing over 143 million pounds of ground and aviation ammunition and over 9.7 million meals, ready-to-eat. 2d Supply Battalion ran a combined map facility with British coalition forces and issued over 330,000 maps. Perhaps most vital to the entire effort, contingency contracting executed over 600 contracts for services and material totaling over \$115 million. Contingency contracting was a huge success, and this capability was often the difference between failure and victory when organic resources could not bridge existing requirements.

In-transit visibility of repair parts, both inter- and intra-theater, was not acceptable during OIF. Visibility of material was only feasible when stopped at a distribution node. The MLC could not track in-transit repair parts, and it was particularly tough to identify lost or frustrated items. We desperately need a decent logistics command and control architecture and the bandwidth to support it.

#### So What Is Needed?

Good situational awareness of the logistics status of forward deployed units is critical. For the MLC, because of the length of supply lines, the problem was not what was required at the moment but what would be required 4 to 6 days in the future. Combining experience and a clear understanding of the scheme of maneuver is critical. The current and future requirement is for predictive operational logistics to anticipate the warfighter's needs. The MLC must drive this future focus because the near battle is well-handled by fellow Marine Corps logisticians in the DS FSSG.

We need one logistics information technology system for the entire Marine Corps and an end to Balkanization of different systems on different coasts and legacy systems that can't talk to one another. We need a commitment to test systems in the field first instead of developing optimized garrison systems and suboptimized battlefield systems.

We need one supply chain manager for distribution who controls the traffic management office functions currently firewalled in the Supporting Establishment. Processes for support of forces must be the same in garrison and on the battlefield.

We need to create one system for all classes of supply. The argument that any particular class of supply is fundamentally different reflects protectionism not progress. Medical supply support planning and doctrine requires a major overhaul. It must be integrated into the rest of the supply system and not managed as a standalone facet of sustainment.

We need the same command and control capability as any other element of the Marine air-ground task force, to include position tracking and long-haul communications.

#### Equipment

We need an institutional decision on how much line haul the Marine Corps should own. The logistics vehicle system must be replaced. It has been a great system, but it has reached the end of its service life. The medium tactical vehicle replacement, as good as it is, *cannot* sustain a MEF. Centralizing distribution assets provided most efficient use of resources, and the multifunctional transportation support company proved invaluable in battlefield distribution across all means-air, land, and sea.

# Organization

If the Marine Corps is going to continue to fight inland, we need to organize for the fight. Total force line haul capability that can flow into the theater with ease and be reinforced by the activation of Reserves is vital to maintaining line haul distances in the ranges employed during OIF. We cannot institutionally rely on host-nation assets to meet our warfighting requirements, if for no other reason than they will not always be available.

The contribution of expeditionary contracting was well out of proportion to the number of personnel involved. Increasing the structure must be considered.

Reachback works. The need for consolidated administration and disbursing in the Operating Forces must be evaluated. Use of "civilian Marines" to perform this function in the Supporting Establishment should be considered.

## Conclusion

The Marine Corps' ability to extend its logistics culminating point up to eight times the doctrinal distances is a success story for all Marine forces in OIF. The operational reach of the Corps is better than ever. Moreover, we can sustain the force over those distances, provided we are able to anticipate operational requirements. The key to future successes will be investing in the intellectual development of Marines, and accompanying organizations and equipment to create logistics organizations that can maintain velocity on the modern battlefield.





# Brute Force Combat Service Support: 1st Force Service Support Group in Operation IRAQI FREEDOM

by the Commanders and Staff of 1st FSSG

Marine Corps Gazette, August 2003.

"Recently, GEN [Tommy] Franks (Combatant Commander, Central Command) visited with the staff of the I Marine Expeditionary Force (I MEF). After the standard brief and discussions, GEN Franks asked the MEF staff what the biggest success for the MEF was during OIF [Operation IRAQI FREEDOM]. Much praise was given to the successful use of combined arms, close air support, and those warfighting functions that one would assume are the ingredients for success on the battlefield. When it was LtGen [James T.] Conway's (Commanding General (CG), I MEF) turn to provide his insight, he said one word ... 'LOGIS-TICS'!"

-BGen Edward G. Usher, CG, 1st FSSG

The logistics that the I MEF CG identified is the delivery of combat service support (CSS) over some of the longest lines of communication (LOCs) and main supply routes (MSRs) ever traveled by Marine units. Upon the seizure of Tikrit, those LOCs and MSRs stretched nearly 600 miles. I MEF moved farther north than any other major subordinate command (MSC) in the Coalition Force Land Component Command (CFLCC). Without the right-sized, organized, and equipped CSS force, this would have been difficult. For the 1st Force Service Support Group (1st FSSG), it was all part of the plan.

# Planning

Early in the planning for OIF, 1st FSSG recognized that its functional battalion structure was not suited for the mission of moving inland over long distances and supporting ground and air combat forces in Iraq. A more task organized type structure was needed. In particular, the need to provide direct support CSS to the 1st Marine Division (1st MarDiv), Task Force (TF) Tarawa (aka 2d Marine Expeditionary Brigade), and 3d Marine Aircraft Wing (3d MAW) was a necessity. Additionally, a general support CSS capability was required to support the MEF, as a whole, with the ability to echelon sustainment forward as the forces rapidly moved farther north. This was a break from the somewhat traditional practice of creating large and somewhat immovable supply dumps. Further planning brought to light the need for additional engineer, motor transport, and military police (MP) capabilities. This all required a great deal of integration, both in planning and deployment.

The final result was 1st FSSG composed of elements of 4th FSSG and 2d FSSG, as well as echelon above corps (EAC) Army capability from the CFLCC. (See Figure 1.) From 4th FSSG in particular, 6th Engineer Support Battalion (6th ESB) and 6th Motor Transport (MT) Battalion in their entirety, as well as significant portions of Headquarters & Service (H&S) Battalion, 4th Landing Support Battalion (4th LSB), 4th Supply Battalion, and 4th Medical Battalion were attached to 1st FSSG. 2d FSSG provided most of 8th ESB and 2d Medical Battalion. U.S. Army units provided to 1st FSSG included the 716th MP Battalion, 319th Truck Company (petroleum distribution), the 727th Medium Truck Company (pallet load system), the 459th Multirole Bridge Company, and a variety of nuclear, biological, and chemical units. With the attachment of Fleet Hospital Three in the days just prior to the start of the war, 1st FSSG's total strength was over 14,000 Marines, sailors, and soldiers, truly emulating what the 1st FSSG Chief of Staff (Col Darrell M. Moore) liked to call the "largest FSSG ever assembled in wartime." In particular, the deployment of 6th ESB marked the first time in its history that the entire battalion had assembled for one operation.

In this organization, CSS Group 11 (CSSG-11), with three CSS companies (CSSCs) built around the transportation support companies of 1st Transportation Support Battalion (1st TSB), provided mobile direct support CSS to each regimental combat team (RCT) in the 1st MarDiv, as well as providing a general support CSS capability via CSS Battalion 10 (CSSB-10). CSSB-22, built around Marine Expeditionary Unit Service Support Group 22 (MSSG-22), provided similar mobile CSS to TF Tarawa. CSSB-13, whose headquarters was composed totally of the headquarters of 4th LSB, provided direct support to the 3d MAW. Their CSSCs provided direct support to both the rotary-wing (RW) and fixed-wing (FW) assets based in Kuwait, and general support



Figure 1. Expeditionary FSSG for OIF.

to both RW and FW assets operating from forward operating bases (FOBs) in Iraq. CSSG-15, whose staff was largely comprised of the staff of 1st Supply Battalion, provided the capability to echelon CSS forward to CSS areas (CSSAs) established in the vicinity of 3d MAW FOBs. The organizations conducting these CSSA operations were CSSB-12 (centered on 1st Maintenance Battalion) and CSSB-18 (centered on H&S Battalion). Health Services Battalion (HSB), composed of 1st Medical Battalion with the addition of two surgical companies each from 2d and 4th Medical Battalions, provided critical level two (surgical) medical capability by means of the surgical companies and forward resuscitative surgical systems (FRSSs) and shock trauma platoons (STPs) strategically placed across the battlefield. Transportation Support Group (TSG), with the headquarters of 1st TSB, provided general support transportation to I MEF via 6th Motor Transport Battalion and the EAC Army transportation assets mentioned previously, as well as the landing support capability found in the TSB. The three ESBs were "functionalized" along specific engineer missions based upon the critical engineer requirements of I MEF. 6th ESB conducted all bulk liquids missions (both fuel and water). 7th ESB was assigned the mobility, countermobility, and survivability mission. 8th ESB, possessing the only active duty bridge company in the Marine Corps, was assigned initially in direct support of TF Tarawa, then 1st MarDiv, to conduct the bridging mission. This functionalization also required cross attachment of engineer companies, bridge companies, and bulk fuel companies from all three ESBs. The 716th MP Battalion, consisting of four organic MP companies and MP Companies Alpha and Bravo of H&S Battalion, 4th FSSG, provided convoy security, maneuver and movement support operations along MSRs, and enemy prisoner of war (EPW) operations. With the use of H&S Battalion as an operational unit, a headquarters capability was still required to provide support to the FSSG staff. CSSB-16 was formed just prior to the commencement of hostilities. Along with the standard H&S functions, CSSB-16 also possessed a security company that provided area security at established CSSAs and a mortuary affairs company that provided rapid and respectful personnel recovery and processing operations of remains. The lack of an FSSG reserve was filled by CSSB-19, using the existing personnel and equipment from MSSG-11 to conduct convoy security missions and support to EPW operations.

In addition to the internal planning and reorganization mentioned above, close coordination was required with the Marine Logistics Command (MLC) formed by 2d FSSG. Serving as the component logistics support element for U.S. Marine Forces Central Command (USMarCent), the MLC coordinated theater-level Marine logistics operations; coordinated and monitored the reception, staging, onward movement, and integration of Marine forces at the joint movement control center; coordinated port operations; and served as US MarCent representative for coordination with all Marine Corps service logistics providers. Teamwork with the MLC was the vital link to all external logistics support for I MEF.

As the main effort, CSSG-11 orchestrated the movement of CSS in direct support of 1st MarDiv via preplanned repair and replenishment points (RRPs). CSSG-15, by virtue of CSSB-12 and CSSB-18, established CSSAs at Tactical Assembly Area (TAA) Coyote in Kuwait (CSSA Coyote), Jalibah Airfield (Logistics Support Area (LSA) Viper), in the vicinity of Ad Diwaniyah (Support Area (SA) Anderson), Qalat Sikar Airfield (SA Basilone), and An Numaniyah Airfield (SA Chesty) in order to echelon general support CSS capability forward in the areas of supply, maintenance, services, and medical services. At the end of hostilities, SAs were also established in the vicinity of Ad Diwaniyah (SA Edson) and Al Kut (SA Geiger) to continue support to I MEF forces. CSSG-15 also provided direct support to the I MEF command element and headquarters group through CSSC-151. Major engineer planning centered around the potential for five separate river crossings, using the improved ribbon bridge, of between 100 and 300 meters, and the construction of the longest fuel "pipeline" ever built in combat, stretching 60 miles from the initial breach point on the Iraq-Kuwait border to Jalibah Airfield. The last bit of planning just prior to execution involved determining shortfalls and requirements for transportation support over and above the assets attached to TSG. As a result, I MEF contracted for host-nation support in the form of commercial trucks to be used throughout the conflict.

#### Execution

After receiving and integrating nearly all of the required components of 1st FSSG, and equipping units with both maritime prepositioning force assets and organic assets delivered via strategic airlift and military sealift, 1st FSSG assembled, trained, and prepared itself to cross the line of departure in support of I MEF. CSSA Coyote was set up and operational nearly 1 month before combat forces crossed into Iraq, with CSSB-12 maintaining 6 days of all classes of supply and a field ammunition supply point that continued operations well after combat had ended. HSB also established a surgical company at Coyote, providing the first in a series of level two medical capabilities well-positioned throughout the war. In an effort to have equipment and supplies properly staged for rapid movement into Iraq, CSSB-18, 6th ESB, 8th ESB, and TSG moved to the vicinity of the Iraq-Kuwait border in the northwest of Kuwait in order to quickly establish LSA Viper and construct the 60mile tactical fuel system (TFS). Upon the order for 1st MarDiv and TF Tarawa to move to their attack positions, CSSG-11 and CSSB-22 moved into position to move with their respective supported units into Iraq.

On 20 March, with breaching support from 7th ESB, RCT-5 crossed into Iraq to conduct the initial seizure of the Ar Rumaylah oil fields, and CSSC-115 became the first unit in 1st FSSG to enter Iraq. TF Tarawa soon followed with CSSB-22, 8th ESB, and CSSB-18 moving forward to conduct a relief in place elements of the 3d Infantry Division in the vicinity of Jalibah. By the morning of 21 March, elements of CSSB-18 began establishing LSA Viper at Jalibah Airfield, and 6th ESB began construction of the TFS.

In establishing the direct support relationship between CSSG-11 and the 1st MarDiv, 1st FSSG played a major role in the rapid movement of combat forces. Each CSSC was able to carry 1 to 2 days of supply of Classes I (rations/water), III (B) (fuel), and V (W) (ground ammunition) in support of each RCT. Additionally, CSSB-10 provided the flexibility to surge support to the CSSCs and establish RRPs. The establishment of RRPs was critical to the FSSG's support plan. The 23 RRPs established by CSSB-10 allowed the division to resupply themselves quickly and were responsible for preparing sites for the quick establishment of 1st FSSG SAs. SAs were set in areas already secured and prepared by CSSG-11/CSSB-10 as RRPs. A major measure of 1st FSSG's support of the 1st MarDiv via rapid establishment of RRPs.

6th ESB's work on the TFS consisted of using the hose reel system in concert with assemblies of the amphibious assault fuel system (AAFS) to move fuel nearly 60 miles to a complete AAFS fuel farm at LSA Viper. Of particular note was the use of the hose reel system that was originally designed to pump fuel no farther than the 5-mile segments of which it was composed. Training at Camp Pendleton never extended farther than 15 miles of hose, so in essence, the first time the TFS was put to test at the required distance was when it was employed. The system was constructed in 5 days, nearly 3 days ahead of schedule, and in total pumped over 9 million gallons of fuel from the Army's terminal fuel farm in Kuwait to AAFS fuel farm at LSA Viper. The system was eventually extended past LSA Viper to the theater support area in the vicinity of Tallil Airbase, essentially becoming the means of conducting fuel resupply for the entire theater.

As LSA Viper continued to build to its required 4 days of supply and become the forward command post for 1st FSSG, it quickly became the first forward base of operations for 1st FSSG, and the first line of resupply for I MEF as it continued to maneuver north. Nearly immediately upon CSSB-18's arrival, support was required to all forces in the area and in particular to TF Tarawa during intensive combat operations in the vicinity of An Nasiriyah. Capitalizing on the basing of TSG assets and 3d MAW RW assets and C-130 aircraft, CSSB-18 was able to sustain combat operations from their position to as far north as the An Numaniyah area, just south of the Tigris River and west of Al Kut. As the war continued, Viper transitioned to the entry point for all sustainment into Iraq. Convoys from the MLC bringing Classes I, V (W), and IX (repair parts and secondary reparables) made their initial deliveries to Viper, and assault support missions flying in and out of the Jalibah Airfield and TSG convoys carried supplies forward.

Along with being the entry point into Iraq for sustainment, LSA Viper also provided significant medical support, specifically in the form of Expeditionary Medical Facility 3 (EMF-3). EMF-3, the 116-bed "slice" of the 500-bed Fleet Hospital 3, became the first fleet hospital unit to move inland from a port or beach to conduct operations. The ability to provide level three medical care this far forward on the battlefield clearly benefited the lifesaving capability of the medical services of 1st FSSG. The hospital treated U.S. servicemen from all units in Iraq as well as EPWs and Iraqi civilians. In all, EMF-3 treated nearly 600 patients in the 2 months it was operational.

In addition to the EMF, HSB effectively echeloned level two medical care forward by virtue of surgical companies positioned at each SA and the FRSS/STP teams at smaller SAs and RRPs. A new concept, the FRSS

was a small (two surgeons, eight personnel total), mobile (two vehicles), limited surgical capability designed to provide emergent lifesaving surgery and stabilization prior to evacuation to the appropriate level of care. Teamed with an STP this capability quickly became a force multiplier, adding a ward and battalion aid station. These single operating room units also moved across the battlefield with the mobile CSS units, shortening the "golden hour" of care for combat casualties. Of note was the work of FRSS-2 and FRSS-4, at LSA Viper as an initial surgical capability prior to the establishment of Surgical Company Charlie, during TF Tarawa's attack on the 11th Infantry Division in the vicinity of An Nasiriyah. Although the loss of life here was greater than any other battle during the war, without this quick initial capability being established, the totals would have been much greater.

As the fight continued, the actions of both CSSG-11 and CSSB-22 ensured that ground forces received required sustainment. With an emphasis on transportation and distribution, both units kept up with their supported forces during the fastest moving portions of the war. The 1st MarDiv's sprint to the Tigris River and their sustained combat operations as they defeated in succession the Baghdad and Al Nida Republican Guard Divisions and then closed in on the outskirts of Baghdad required "brute force push logistics." This was accomplished by the integrated, rapid distribution of fuel, water, rations, and ammunition to the nearest SA or RRP to the fight, moved by assets from CSSG-11, CSSB-22, TSG, and in some cases the MLC, at distances farther than anyone had imagined prior to the beginning of the war. At the height of action, more than 250,000 gallons of fuel were moved on a daily basis from as far south as SA Coyote to as far north as SA Chesty at the An Numaniyah Airfield, stretching more than 300 miles over improved and unimproved highways. Due to the I MEF battlespace and the unconventional threat along the LOCs and MSRs, 1st FSSG was restricted almost solely to one LOC, Highway 1, stretching from just west of An Nasiriyah to just east of Ad Diwaniyah, the majority of which was unimproved surface still under construction by the Iraqis when the war began. The tireless efforts of 7th ESB ensured that this critical artery was as well-maintained as both the weather and the traffic allowed. The journey was more than a day one way, taxing distribution assets availability at all levels of support.

Much of the rapid movement across Iraq can be attributed to the fact that prior to the attack to seize the An Numaniyah Airfield, no significant bridges were destroyed. This did not mean, however, that 8th ESB was not significantly employed emplacing standard bridges. Numerous medium girder bridges were constructed on the small gaps and culverts along both Highway 1 and Highway 7 (heading north from An Nasiriyah to Al Kut). The first assault float bridge was constructed on 1 April across the Saddam Canal moving toward An Numaniyah. Subsequent bridges were constructed across the Tigris (three total) and the Diyala Rivers along the approaches to Baghdad.

On 2 April, 1st MarDiv crossed the Tigris River, dealing a substantial blow to enemy forces and hastening the push to Baghdad. As this occurred, 1st FSSG continued its echelonment of CSS with the establishment of SA Chesty at the An Numaniyah Airfield. In much the same way that CSSB-18 sustained the force initially from LSA Viper, CSSB-12 reestablished itself some 300 miles from its original position in Kuwait. This farthest forward of support areas for the MEF enabled that brute force push to be shortened substantially. At this point of the war, with much of the maneuver stabilizing close to Baghdad, the 1st MarDiv's artillery assets were taxed harder than at any point during the war. Artillery rounds (155mm) were literally taken off of the trucks of the supporting CSSCs and immediately loaded into M198s for fire support as ground forces closed in on Baghdad. Due to this immediate need, CSSB-12 became as much of a direct support CSS organization as did CSSG-11 to the 1st MarDiv.

Once it appeared that Baghdad had fallen, I MEF was given one final combat mission, the seizure of the city of Tikrit, home of Iraqi President Saddam Hussein. To maneuver some 130 miles from both Baghdad and the closest RRP, 1st MarDiv built TF Tripoli around the majority of their three light armored, reconnaissance battalions. CSSG-11, in turn, built CSSC Tripoli with a heavy reliance on fuel and distribution assets. Once again, the maneuverability of a mobile CSSC paid dividends in allowing combat forces to move without the need for an operational pause. In total, I MEF had traveled in excess of 600 miles from the initial breaches in Kuwait to Tikrit.

In the days following the end of hostilities and movement of I MEF forces to positions in southwest Iraq in order to perform stability and security operations, 1st FSSG also consolidated forces to continue to provide support. SA Chesty was transitioned to SA Geiger in the vicinity of Al Kut as 3d MAW moved its FOB from An Numaniyah. SA Edson, on the campus of the Al Qadisiyah University in Ad Diwaniyah, served as the new central location of CSS functions as well as the new location for the 1st FSSG (Forward) command post. 7th ESB took on the mission of collecting captured enemy material putting a heavy reliance on explosive ordnance disposal and combat engineer functions. Upon retrograde of forces no longer required for continued operations and their subsequent redployment to the continental United States, 1st FSSG moved back to its original positions in TAA Coyote, with CSSG-11 and reinforcement from 7th ESB and HSB remaining in Iraq.

#### Challenges

No operation can be conducted without challenges and areas identified for improvement. While there were many successes, work remains to ensure that future expeditionary operations are better supported by CSS organizations.

Supply support was a major challenge throughout the war. The brute force logistics mentioned in this article primarily worked for Classes I, III (B), and V (W). Demand-based pull logistics, specifically Classes VIII (A) (medical) and IX, was clearly inadequate. A 30-plus-year-old mainframe-based supply system, significant communications shortfalls, lack of in-transit visibility, and the tyranny of distance caused unit supply officers to lose faith in the supply system. Many either continually resubmitted requisitions for the same parts and items, which in turn clogged the distribution system, or bypassed the supply system altogether and reverted to e-mails and spreadsheets, most times with insufficient information to effect timely and responsive action. The lack of in-transit visibility and a low priority for demand-based requisitions in the ground transportation order further exacerbated the problem. This all illustrates the critical need for a tactical logistics command and control (C<sup>2</sup>) system that is institutionalized with requests formatted in much the same way fires or air support is handled.

Lack of C<sup>2</sup> across the FSSG can also be attributed to the paucity of communications assets and capabilities. Even with the employment of the communications companies of both 1st and 4th FSSGs, communications was severely lacking. For years the FSSG has been left out of the "information revolution" of the rest of the Marine air-ground task force (MAGTF). Specifically missing is the lack of "long-haul" communications. This capability was not envisioned in the past for CSS operations but was definitely needed for OIF, and will be for future operations as well. The result was twofold. First, placement of 1st FSSG units and support areas required them to be tied into communications architecture of other MSCs. Due to the rapid advances of the 1st MarDiv, communications with CSSG-11 was often nonexistent. Unfortunately, it was also not unusual for CSSG-15 to not have any communications with subordinate units for days at a time, particularly during the early phases of SA establishment. Additionally, 1st FSSG had to temporarily loan such assets as the AN/TRC-170 and AN/TSC-93 in order to pass both data and voice communications within Iraq from fixed site to fixed site. Assets like the AN/TSC-154 secure mobile antijam reliable tactical terminal, that are present at the infantry battalion in the Marine division, are neither in the FSSG inventory nor planned for fielding. With the potential for future MAGTF operations stretching over distances not planned for in the past for CSS organizations, this capability is mandatory in the FSSG.

# Successes

The successes in OIF of 1st FSSG are directly attributable to the hard work in planning that was conducted throughout all levels of the organization.

The task organized concept of CSS companies, battalions, and groups clearly contributed to moving as deep into Iraq as I MEF did. Much is misunderstood as to the organization of the FSSG, mainly because it is organized into functional battalions in peacetime, but reorganized into task organized units for exercises and combat. This causes the FSSG, more times than not, to be a team supporter rather than a team player. Creating multifunctional organizations and habitual relationships with specific units in the MEF established a greater understanding of what the FSSG can do for the MAGTF. Due to this success and greater understanding across I MEF, this new structural framework of 1st FSSG will be carried back to Camp Pendleton and used in garrison upon redeployment.

The success of the FRSS, and its teaming with the STP, greatly enhanced battlefield casualty care for the entire MEF. This lighter, flexible, and more mobile medical capability enabled critical emergency surgical care to be positioned farther forward than ever envisioned in combat. As well as the ability to be positioned forward to shorten the time and distance from casualty to care, this capability also served as the initial medical treatment facility at an SA until the assigned surgical company could displace and establish operations. While not a replacement for the surgical company, the FRSS enabled lifesaving surgeries to be conducted in order to stabilize patients before being transitioned to higher care levels. A review of all patients received by a 1st FSSG FRSS revealed that only one patient received did not survive. OIF clearly validated this concept of medical support for the future. This combat multiplier, and its success, will quickly become the medical capability of choice for expeditionary operations.

Even with the challenges that C<sup>2</sup> presented, one system-the blue force tracker (BFT)-paid multiple dividends. A satellite-based, vehicle-mounted system, BFT provides real-time location of units throughout the battlefield while on the move. Due to the lack of mobile communications assets, BFT became the primary means to determine locations of units, specifically convoys, and their eventual linkup with supported units. Its ability to be used in conjunction with C<sup>2</sup> personal computers (C<sup>2</sup>PCs) enabled unit locations to be displayed on any networked PC. With the additional text messaging capability, BFT enabled convoys to send information back to higher headquarters. Without BFT, 1st FSSG would have been hard-pressed to direct convoys on the move and determine their exact location.

Although somewhat unorthodox in nature and a bit cumbersome in design and preparation, the functionalization of the three ESBs reaped tremendous benefits. Granted, this was a plan totally driven by the peculiarities of the engineer missions required in OIF; the assignment of specific engineer missions to whole battalions created an economy of effort and a massing of forces for these critical functions. Attempting to assign the missions of bulk liquids, standard and assault float bridging, and mobility/countermobility/survivability to all three battalions would have been difficult to control and clearly would not have been as responsive to the overall engineer mission.

#### Conclusion

Throughout the global war on terrorism and Operation ENDURING FREEDOM, the Marine Corps, whether internally or externally, has been pushed to conduct operations not otherwise normally planned for. In Afghanistan it was clearly the move from ship to objective of over 300 miles that extolled the virtues of both our air and land combat mobility systems. In Iraq it was the maneuver from the Kuwait-Iraq border to Tikrit, under fire, spanning over 600 miles. Sustaining the force over this great expanse could not have been accomplished without the careful orchestration and integration of CSS. 1st FSSG took great care in planning and worked closely with the MSCs of I MEF to ensure timely and effective support. The execution, though not perfect, yet again demonstrated the will to succeed of each and every Marine, sailor, and soldier assigned to 1st FSSG during OIF.





# Marine Engineer Group–A Force for the Future

by Kirk Ross

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Around 1300 on 23 March, it was clear and warm outside, but air conditioning made it cool inside the tent. I sat in Navy Rear Admiral Charles Kubic's small, spare office–a map of southern Iraq, small table and laptop computers, three chairs, and dark industrial carpeting on the floor. Outside, in front of the large tent that housed the headquarters of the I Marine Expeditionary Force (MEF) Engineer Group–the MEG–was the main working area, noisy with the buzz of Navy and Marine Corps staff personnel hovering over computers and monitoring communications. They were following the course of coalition forces operating around the Iraqi cities of An Nasiriyah and Umm Qasr.

Foremost in the minds of these men and women was the progress of those elements of the MEG–Task Force Mike and Task Force Charlie–that since the opening gambit had been advancing close in the wake of the assault forces, positioned to provide support critical to the battle plan. Their progress certainly was on the mind of Admiral Kubic when he entered his office and greeted me.

Since crossing the line of departure, coalition forces had experienced what Colonel Michael Howard, the MEG operations officer, characterized as "catastrophic success." The speed of execution of the battle plan has been something between breathtaking and awesome," said the admiral, adding that much of the work he thought engineers would have to perform early in the campaign-construction of assault bridges in support of advancing forces-had not been necessary. So far, bridges over the Euphrates and myriad other canals and small rivers had been left to the coalition undamaged. At about that time, word came that the Euphrates bridge east of An Nasiriyah had fallen intact to the Marines. "Culverts near the bridges had been mined," said the admiral, but the Iraqis failed to set them off. He pointed to An Nasiriyah on the map and explained that Marines were fighting for control of the two Euphrates River bridges west of the city. If the Iraqis destroyed the bridges, the MEG's Task Force Mike was in position to quickly throw an assault bridge across the river. Meanwhile, Task Force Charlie worked on an enemy prisoner of war (EPW) compound just inside Iraq. Task Force Echo had not yet crossed the line of departure.

Colonel Howard said the MEG was an evolutionary rather than revolutionary arrangement. According to him, the idea was generated in 1995 by General Anthony C. Zinni, then Commanding General of I MEF. But the roots of the organizational structure go back to the engineer regiments that were organic to the Marine divisions of World War II.<sup>2</sup> Each of those regiments had an engineer battalion to meet the tactical engineering requirements of divisional assault forces: a pioneer battalion to handle supplies flowing across landing beaches and perform general engineering missions, and a naval mobile construction battalion that came ashore during general unloading to reinforce and expand the Marine engineers' construction and repair work.<sup>3</sup>

Organization of the MEG for Operation Iraqi Freedom closely reflects historical antecedents. Similar to the Marine engineer regiments of World War II, the MEG has three light regimental task forces with shared and unique capabilities: Task Force Mike (for mobility), Task Force Charlie (for construction), and Task Force Echo (for endurance). The task forces are organized around large Seabee detachments, such as those deployed to the Balkans, and kept light so they do not bog down on the roads. Admiral Kubic put Navy captains in charge of each one because he wanted more senior leadership at the front.

Among the MEG's primary missions are main supply route repair, and construction of EPW compounds, expeditionary airfields, and encampments. The primary difference between the task forces is the type of nonstandard bridging each is capable of deploying. According to Colonel Howard, the first MEG unit to respond to a call for bridging is Task Force Mike, which is capable of quickly deploying an armored vehicle-launched bridge in support of advancing ground forces. As the ground combat element advances, so does Task Force Mike, which picks up its bridges and takes them along–but not before Task Force Charlie arrives to construct a medium girder bridge over the same obstacle.<sup>4</sup> When Task Force Charlie moves forward, Task Force Echo (equipped with the excellent Mabey-Johnson bridge) will construct a permanent bridge at the site. Colonel Howard says the three regimental task forces combined can provide bridging across the range of engineer support needed by the MEF.

Like their predecessors, the MEG's task forces have been tailored to meet specific mission requirements. For Iraqi Freedom, the MEG integrated Navy and Marine engineer assets of the First Naval Construction Division (Reinforced), Marine Augment Detachment 88835, and the 4th Marine Combat Engineer Battalion.<sup>5</sup> Planners envisioned that task organization of theater engineer support forces would enable the MEF to better manage its assets, thus enhancing its mobility and lethality. But this doctrinal growth has not come without growing pains.

Throughout the Seabee community at Camp Commando there were complaints from officers and petty officers alike over the MEG's organization plan, which divided Seabee battalions and distributed their component elements to the task forces. Objections centered on ownership of equipment under several tables of allowance, dissolution of unit integrity, and the Seabees' changing role.

One Seabee officer, scheduled to relieve a unit already engaged, tried unsuccessfully to gain authorization to keep his unit's vehicles and equipment (including radios, computers, and weapons), all of which had been fine-tuned by his men to suit their individual peculiarities and those of the equipment. No matter where he went, his practical arguments fell on deaf ears. (One of his men noted that combat was not the place to be searching an unfamiliar hard drive for the right file.) Who owned the equipment, the Seabee battalion or the task force?

The MEG assigned elements of Seabee battalions to task forces in a confusing fashion. Parts of one battalion were mixed with parts of other battalions and assigned to the same task force. To the Seabees, there was not enough of a difference from one battalion to the next to justify dividing assets. I was told Seabee battalions had to parcel out staff personnel to several components and then augment their staffs from within to compensate for headquarters personnel lost to the smaller, separated elements of the battalion. According to Lieutenant Commander Mark Edelson, much of the MEG's strength–perhaps 20-25%–was used to provide security. Some thought these redistributions of personnel in an organization of only 3,200 were not justified by what appeared to be marginal gains.

The pride Seabees take in their traditional duties as builders is evident and may explain why assuming new roles in a tactical force is unpopular. Training is another reason. For example, Seabees remarked bitterly about the condition of Camp Commando's shower and mess facilities, and were equally critical of decisions that left to civilian firms the tasks of delivering the camp's water and fuel. "We're Seabees. We build. That's what we do best," many said, obviously longing for the days when that was their primary job. Finally, a number of them were not convinced they had enough combat and weapons training to cope with the various tactical scenarios.

Admiral Kubic weighed the criticism and opted to press ahead, noting the historical reality-"Seabees have always been task organized." He assumed command of the First Naval Construction Division in August 2002. Soon after being assigned to command the MEG as a collateral duty, he took on the task of forging the MEG into an organiza-

tion that could function as an integral part of "Sea Power 21." As he sees it, "the MEG gives 'Sea Strike' its foothold ashore and bridges the gap between Marines and the seagoing Navy." On the 21st-century battlefield, the Navy's combat engineer forces will have to be light, highly mobile, modular task forces capable of using the latest command, control, and communications equipment to quickly concentrate units where they are needed most. Although task organizing caused friction and highlighted shortcomings that must be corrected, the resulting successes indicate clearly that reorganization was necessary.

The MEG's promise for future wars was exemplified in an innovative action on 21 March, when the MEG launched an operation on the Hawr al Hammar (Hammar Marsh) Bridge a few miles north of the Rumaila oil fields to prevent the Iraqis from using it to attack the flanks of advancing coalition forces. Planners aimed at preventing enemy use of the bridge while allowing friendly forces to repair it easily in case it was needed. Moreover, they had to bear in mind the crucial political imperative of sparing Iraq's infrastructure.

Intelligence was gathered from satellite imagery, low-level reconnaissance flights flown by Marine aircraft, and from data collected by Seabee engineer reconnaissance teams (SERTs). These teams are organic to naval mobile construction battalions and composed of approximately ten Seabees (two engineer officers and eight enlisted personnel with primary engineering specialties). Their mission is to provide tactical reconnaissance in advance of major engineering elements to permit them to react rapidly to changing battlefield conditions. Admiral Kubic developed the SERT concept while deployed to Bosnia in 1995.

Data compiled by the MEG were evaluated and a key discovery was made. One of the images, captured by aircraft during low-level reconnaissance of the bridge, revealed that its center spans had been reinforced since the 1991 Gulf War. Using its "reach-back" capability, the MEG transferred the raw target data and details of the mission to the Pacific Division of Naval Facilities Engineering Command for detailed analysis. A highly skilled team of experts there evaluated the data and provided the correct solutions for striking the end of the bridge closest to friendly forces. The precise bombing caused only the damage necessary to cut the span in a small place. Thus, coalition forces could repair the bridge easily at the end farthest from the enemy, and the structure could be rebuilt quickly in the postwar period.

The Marine Engineer Group's preparations for Iraqi Freedom began in September 2002, when Task Force Mike Seabees began to build hardstands, helicopter pads, munitions storage areas, and encampments at the Ali Al Salem Air Base in preparation for the arrival of the 3rd Marine Aircraft Wing. Engineers were key to all phases of the operation. At the same time, Admiral Kubic hopes to show that the MEG can provide an internal reconstruction capability to assist in initial postwar construction and clear the way for humanitarian aid efforts. In that regard, Task Force Echo is organized to support long-term military operations and provide for transfer of its duties to local civil works authorities. I was briefed on preparations already under way for the Iraqi port city of Umm Qasr, where relief supplies would soon start flowing to Iraqi civilians.

The MEG's multifaceted organization can support efforts ranging from peace-keeping missions to sustained combat operations in the most hostile terrain. Although further refinement is essential, its major contribution to Iraqi Freedom demonstrated that Seabees and Marine engineers are geared up for the difficult tasks facing the United States in the years ahead.

<sup>&</sup>lt;sup>1</sup>I recall being more than a little surprised at the small number of EPWs-fewer than 1,000 at that time, I believe. With the coalition's advance so dramatic, I imagined they would have taken many more. The camp covered 42 acres and could accommodate 14,400 enemy prisoners.

<sup>&</sup>lt;sup>2</sup>Maj. Ed Maguire, USMC, "Complexion of Engineer Support," Marine Corps Command and Staff College paper (1989), executive summary. "Until the latter part of World War II, the Seabees provided the majority of construction support to Marine Aviation. In support of Marine Aviation, the Marine Corps established a third type of engineer battalion called the aviation engineer battalion."

<sup>&</sup>lt;sup>3</sup>In World War II, Marine engineer regiments were subordinate to Marine divisions. The Marine Engineer Group, however, has "equal billing" with I MEF's division, aircraft wing, and combat service support group.

<sup>&</sup>lt;sup>4</sup>According to Colonel Howard, the medium girder bridge can be built more quickly than the Mabey–Johnson; but after approximatley 10,000 crossings, its aluminum begins to fracture. Thus, it cannot be considered permanent.

<sup>&</sup>lt;sup>s</sup>Planned integration of the Georgia Army National Guard's 265th Engineer Group had not been effected by late March.