An Argument for the Keyhole Template for Close Air Support on the Urban Battlefield

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Among military men it is a commonplace that interallied and interservice operations inescapably pose grave difficulties in execution. Differences in equipment, in doctrine, in attitude and outlook stemming from contrasting past experience all inhibit and complicate harmonious interaction. Past successes, however, have shown that these difficulties can be overcome where determination is present and effective procedures have been applied by properly trained troops. Experience also shows that armed forces... have been slow to hammer out the necessary procedures. Often corrective steps have been achieved only after many failures in battle. In no area of interservice operations has this phenomenon been more pronounced than in the matter of close air support.

Professor I. B. Holley, Jr.,
Case Studies in the Development of Close Air Support

Background:

Capt Adam Blanton was serving with 5th Air/Naval Gun Liaison Company in Anbar province under the call-sign Lightning 62. A US Army Forward Operating Base (FOB) that he was supporting began taking small arms fire and rocket propelled grenades from a two story cement building in Ramadi. A call went out for air support. The Air Force Joint Terminal Attack Controller (JTAC) in the Army Fire Support Center sent a message to the Marine Direct Air Support Center (DASC) requesting air support via an immediate Joint Tactical Air Request. The DASC contacted Torment 14/15, two Marine Corps Harriers operating nearby and passed them off to Lightning 62.

Lightning 62 talked the Torment flight onto the target using a gridded reference graphic (GRG). Using the target building as the keyhole, or center of the engagement area, Lightning 62 requested a laser guided Maverick to destroy the target building. From five miles out Torment 15 began its attack run on a final attack heading (FAH) of 090 degrees. Torment 14 designated the target with a laser while Torment 15 lined the target up on his targeting system. The laser guided Maverick slammed into the target building, exploding inside and killing the insurgents. The Army FOB did not receive any more

fire from the building and Torment 14/15 departed. The entire engagement took only three minutes from the time that Torment 14/15 contacted Lightning 62 until the Maverick ended the fight.[1]

Introduction:

The current doctrine for close air support (CAS) does not delineate between the open battlefield and that of the cluttered and confusing canyons of the urban environment. Current CAS doctrine calls for Pre-spun Initial Points (IP), or a point from which an attack aircraft begins its attack, in all CAS environments. IPs may not always be feasible in an environment where the target area is small and the supporting aircraft are many. The keyhole CAS template is the key to successful execution of targets in urban terrain using air delivered fires. The keyhole CAS template should be doctrine for all urban close air support requirements.

The Keyhole Template

What is the Keyhole (CAS) template?

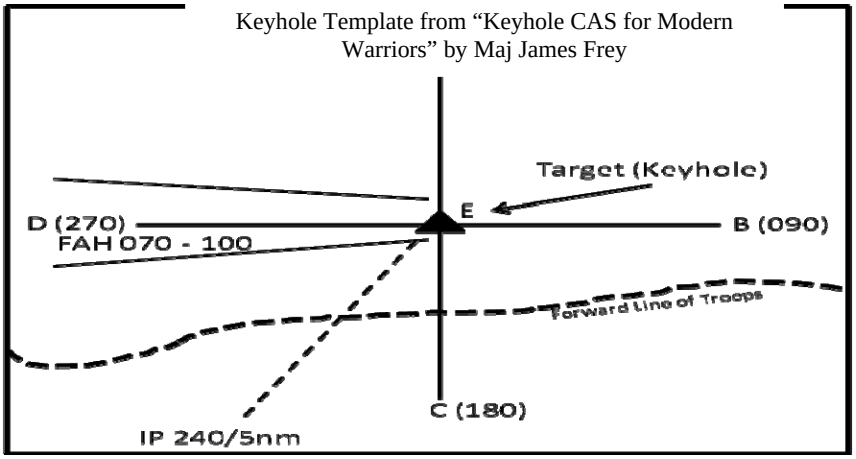
The keyhole CAS template provides a procedural method for delivering air fires while de-conflicting between multiple aircraft and ground delivered fires. Originally used in

[1] Captain Adam Blanton, Telephone conversation with the author, December 17, 2008

Afghanistan by Special Tactics Squadrons airmen, the keyhole CAS template proved its usefulness during Fallujah in November 2004.[2]

The keyhole is a target coordinate that is passed from the forward air controller (FAC) or the JTAC to the aircraft that are on station to provide air support. See figure 1. Once the target is identified by all aircraft listening in on the tactical air direction net, the FAC directs them to hold on a cardinal heading or bearing at a certain distance and altitude for de-confliction. The FAH is selected based on current joint tactics and targets are prosecuted in a timely manner using time, altitude, and airspace for deconfliction.[3]

Keyhole Template from "Keyhole CAS for Modern Warriors" by Maj James Frey



(Fig. 1)

[2] Maj Allison, Fred H. USMC, "Close Air Support: A Core Contributor to Successful Integrated Operations in Fallujah." Marine Corps Gazzette, October 2008, http://www.marinecorpsleatherneck.org/gazette/oct08-allison.asp (accessed December 14, 2008)

[3] Maj Frey, James W. USMC, "Keyhole CAS for Modern Warriors." Marine Corps Gazzette, May 2008

Current Close Air Support Doctrine

The current close air support doctrine states that initial points (IP) should be an identifiable point on the ground which is chosen based on the disposition of the enemy, position of friendly troops, weather, and fire support coordination requirements. Several IPs can be chosen to adapt to a change in the weather or a change on the battlefield. The current CAS doctrine was created before Global Positioning Satellites and advanced targeting systems in aircraft.[4]

Arguments against the Keyhole CAS template

Capt Mike Allen, an F/A-18 pilot, explained that the Keyhole CAS template is not applicable in every situation. For instance, if the target city is bounded on one or more sides by political boundaries that US aircraft do not have authorization to cross, the traditional CAS template may be more applicable. He also argued that terrain could limit attack heading options.[5]

His point is valid, but it does not negate the use of the Keyhole CAS template. The Keyhole CAS template could still be used on a limited basis, since it does not require all 360

[4] Joint Tactics, Techniques, and Procedures for Close Air Support (CAS) page V-8

[5] Capt Mike Allen, interview with the author on 19 December, 2008

degrees of the compass rose. For instance, if only 60 degrees of the 360 degree compass rose were available for use due to terrain, political boundaries, or enemy disposition, all 60 degrees could still be used to separate attack aircraft by time, distance, heading, and altitude while providing procedural control for execution of targets.

Capt Allen also argued that the threat could significantly reduce flexibility especially when combined with the above mentioned factors. A tall stack of aircraft directly over the target, as was used over Fallujah in November 2004, could be picked off one by one given a robust anti-air defense system.[6] The keyhole CAS template still provides the flexibility to adjust to the enemy situation and does not tie pilots and JTACs to easily identifiable points on the ground. Flexibility is the key.

Capt Brian Davis, an Expeditionary Warfare School Student and AV-8B pilot, argues that if there is a significant anti-air threat in an objective area, there can be no CAS. CAS requires that air superiority must be maintained, and if an enemy insurgent can shoot an aircraft down with a man portable anti-

[6] Capt Mike Allen, interview with the author on 19 December, 2008

air defense weapon, there is no method of CAS that will work, keyhole template or otherwise.[7]

Capt Davis also said that in order for the keyhole template to work, all aircraft involved must have the same GRG, map, and references, since the keyhole constantly changes as targets are destroyed. If an urgent situation should arise and TACAIR platforms are diverted to provide CAS, they will not be able to use the keyhole template unless they have all the same information that the FAC or JTAC on the ground has. This will require that the traditional method of CAS be employed.[8]

Benefits of the Keyhole CAS template

The keyhole CAS template allows for flexibility while providing de-confliction between multiple aircraft and ground fire support elements. It is no longer necessary to lay down pre-determined IPs for different target areas in the AO. IPs can now be referenced from the target itself. The primary benefit of the keyhole CAS template is that it provides FACs and JTACs with maximum flexibility when selecting the FAH.[9]

[7] Capt Brian Davis, interview with the author on 3 March, 2009

[8] Capt Brian Davis, interview with the author on 3 March, 2009

[9] Maj Frey, James W. USMC, "Keyhole CAS for Modern Warriors." Marine Corps Gazzette, May 2008

The Importance of the Keyhole CAS template in Urban Warfare

During the first battle of Fallujah The Marine DASC only controlled the airspace up to and ncluding 11,500 feet. All CAS requests for Tactical Aircraft (TACAIR) above this altitude had to be cleared by the U.S. Central Command's combined forces air component commander (CFACC). TACAIR pilots had to wait as much as 20 minutes for permission from higher echelon commanders to drop bombs in support of troops on the ground.[10] During the second battle of Fallujah, in November 2004, the air planners worked hard to develop a plan to process targets rapidly while de-conflicting the multiple layers of support aircraft circling high above, and the ground fires below. The air planners established the keyhole over the center of the city with a five mile radius. Any target within the five mile radius would become the keyhole for that particular attack. A comprehensive GRG was developed and every supporting squadron and FAC was given a copy of the GRG to ensure rapid identification and prosecution of targets in reference to the keyhole.

[10] Maj Allison, Fred H. USMC, "Close Air Support: A Core Contributor to Successful Integrated Operations in Fallujah." Marine Corps Gazzette, October 2008, http://www.marinecorpsleatherneck.org/gazette/oct08-allison.asp (accessed December 14, 2008)

In his article "Close Air Support: A Core Contributor to Successful Integrated Operations in Fallujah," Maj Fred Allison described how aircraft and ground fires were de-conflicted.

> "Rotary-wing aircraft from their battle positions on Fallujah's fringes would operate below 3,000 feet, fixed-wing aircraft would stay above 9,000 feet, and in between would be artillery, mortar fires, and a dense assortment of unmanned aircraft systems (UASs)."[11]

Coordination for close air support was handled between the two regiments, and no aircraft could enter the keyhole without clearance from a FAC. Once in the keyhole, pilots were cleared to use the space as they needed in order to prosecute the target. The aircraft waiting to prosecute targets were assigned holding areas at the cardinal headings from five to fifteen miles from the center of the keyhole at altitudes assigned according to type of aircraft.[12]

Thanks to today's advanced technology, especially GPS and Inertial Navigation Systems, pilots and JTACs no longer have to

[11] Maj Allison, Fred H. USMC, "Close Air Support: A Core Contributor to Successful Integrated Operations in Fallujah." Marine Corps Gazzette, October 2008, http://www.marinecorpsleatherneck.org/gazette/oct08-allison.asp (accessed December 14, 2008)

[12] Maj Allison, Fred H. USMC, "Close Air Support: A Core Contributor to Successful Integrated Operations in Fallujah." Marine Corps Gazzette, October 2008, http://www.marinecorpsleatherneck.org/gazette/oct08-allison.asp (accessed December 14, 2008)

rely on the old close air support doctrine. A solid GRG coupled with GPS, advanced targeting systems, and the superior training of the FACs and JTACs on the ground combine to provide them with all the tools needed to prosecute a target in the jumbled mass of sand colored cement buildings far below.

Conclusion

The Keyhole CAS template is the glue that binds advanced targeting technology, precision guided munitions, and skilled JTACs and pilots together. It provides maximum flexibility, de-confliction of air and surface fires, and ease of control for the FAC and JTAC on the ground. It also contributes to the reduction of collateral damage in conflicts that involve high public scrutiny.

As Third world urban populations and instability increases, Marines will find themselves increasingly engaged on the urban battlefield. The Keyhole CAS template will provide the accuracy and timeliness needed to help the infantry win the fight, while ensuring that collateral damage is kept to a minimum.

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