Single-Seat FAC(A): The Future of the Marine Corps?

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Single-Seat FAC(A):
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Are U.S. Air Force pilots more capable than their Marine Corps brethren? Currently, the Marine Corps uses two-seat F/A-18Ds to provide its fixed-wing Forward Air Controller (Airborne) FAC(A) platform while the Air Force uses single-seat F-16s and A-10s. However, the Marine Corps is currently evaluating the feasibility of executing the FAC(A) mission with single-seat F/A-18s in response to increased demand for FAC(A) capabilities in combat areas and because of the future introduction of the single-seat V/STOL version of the Joint Strike Fighter (JSF). The Marine Corps plans to exclusively purchase the V/STOL version of the JSF which, due to weight restrictions, will only be single-seat. This next generation of single-seat aircraft could result in the end of the two-seat fixed-wing FAC(A) platform. While the use of single-seat FAC(A)s will be beneficial to ground elements, the Marine Corps must maintain its two-seat capability or risk losing true, high-workload FAC(A) capabilities entirely..

Current single-seat FAC(A) issues.

Unlike the Marine Corps, the Air Force relies on single-seat F-16s and A-10s to fulfill the FAC(A) role. Not surprisingly, the Air Force's implementation of the FAC(A) role is very different from that of the Marine Corps. Despite Joint Publication 3-09.3, Joint Tactics, Techniques, and Procedures for Close Air Support Manual's guidance that "a FAC(A) must be

able to coordinate supporting arms missions in conjunction with CAS mission, without assistance from the TACP,"[1] most Air Force FAC(A)s focus solely on the CAS missions and do not conduct surface fires simultaneously with their CAS missions. By contrast, Marine Corps places an emphasis on using the combined effects of direct fire weapons, aviation fires, and indirect fires to put the enemy in a dilemma. Handling the duties of controlling CAS aircraft while conducting a suppression mission can overwhelm a single-seat FAC(A) pilot. To facilitate the use of supporting arms such as artillery and naval gunfire single-seat FAC(A)s can push those responsibilities back down to the ground element's Fire Support Team (FiST). While this would not meet the definition established by the JCAS Manual, it is an acceptable alternative that would help prevent single-seat FAC(A)s from becoming over-tasked.

Additionally, the Marine Corps currently expects its FAC(A) platforms to be capable of performing the mission under high threat conditions. A common scenario would involve an enemy that has an integrated air defense system that severely limits the FAC(A)'s freedom of maneuver. In this situation, the FAC(A) would be forced to operate at the extremes of altitude (either high or low) and will have minimal time in the target area to

[1] Joint Chiefs of Staff, Joint Publication 3-09.3, *Joint Tactics, Techniques, and Procedures for Close Air Support (CAS) (*N.p., 3 Sep 2003), III-30.

perform the mission. Under such conditions, this demanding mission becomes extremely difficult for even two crewmembers to perform, much less one person acting alone. However, the U.S. Armed Forces current ability to neutralize or destroy enemy air defense assets allows friendly forces to avoid this scenario. The majority of current operations allow friendly aircraft the ability to operate unimpeded over target areas. As such, tasking is much lower in these situations and a single-seat FAC(A) crewmember would be capable of performing the mission.

Although the single-seat FAC(A) will provide adequate support for many situations, the Marine Corps should still maintain its current capabilities, because of the uncertainty about what a future conflict will require. The Marine Corps needs to continue to focus its FAC(A) training within its two-seat F/A-18D squadrons. These squadrons have the experience and aircrew to successfully perform FAC(A) in all threat levels and conditions. Maintaining this capability should not preclude the Marine Corps from training single-seat FAC(A)s for less demanding missions. Having single-seat platforms capable of performing limited FAC(A) can only increase the responsiveness of aviation in support of ground forces while helping to reduce the possibility of fratricide or civilian casualties. Aircrew that currently serve within the Tactical Air Control Party (TACP) will understand the limitations and benefits of the

single-seat FAC(A)s and employ them according to their abilities.

JSF and the future for FAC(A).

The advent of the JSF will radically change aviation tactics. The JSF's ability to survive on tomorrow's battlefield is the single greatest capability that will allow it to function as a single-seat FAC(A) platform. The JSF's stealthy design will shrink enemy engagement envelopes, thereby allowing greater freedom of maneuver. Environments that would have been considered high-threat for today's aircraft will be medium or low-threat for the JSF, allowing the JSF to work at more favorable altitudes and in closer proximity to the target. The JSF pilot will not have to concentrate on terrain avoidance tasks or reacting to enemy weapon systems, providing more time to concentrate on the mission.

Additionally, the use of Link-16 and helmet mounted sights will allow the JSF pilot to have cueing to CAS aircraft, increasing the probability of acquiring the aircraft in the terminal phase, resulting in fewer aborted runs. Improved coordinates obtained from a variety of sensors, as well as the ability to send the coordinates via tactical data links will help to ensure that the CAS and FAC(A) aircraft are looking at the same tactical picture, thereby reducing FAC(A) workload.

The JSF will have many features that will ease pilot workload and allow them to focus on the FAC(A) mission. For example, the JSF will reduce pilot workload by performing many of the flying tasks with a highly automated automatic pilot. The level of capability in this autopilot will be a critical factor. If the aircraft is not capable of positioning itself to prevent obstruction of sensors caused by tall buildings in an urban environment, then the pilot will have to spend valuable time placing the aircraft in position to accomplish the mission.

The JSF will also have next generation sensors to provide exceptional clarity and accuracy in all weather conditions. The computers on board will be able to classify targets and present most likely targets to the pilot. In normal battlefield conditions, this will result in the pilot spending less time running and fine tuning the aircraft's sensors. But when the enemy begins to employ asymmetric methods of warfare, such as using civilian vehicles for mobility, the targeting process becomes complicated and the pilot must spend more time being a sensor operator and less time being a tactician. Spending more time on one of these tasks will not in themselves prevent the execution of FAC(A), but every time the pilot has to concentrate on these tasks, he or she risks overlooking an important mission critical task.

JSF and Information Overload

The greatest obstacle to the JSF will be the large amounts of data available to the pilot. Tactical data links will provide situational awareness to friendly and known enemy locations. The JSF will also have multiple radios as well as voice communications over its tactical data link. Informational text will be displayed regarding weather, wingman aircraft status, CAS 9-lines, and more. Infrared sensors will provide a 360-degree view, allowing the pilot to look through his or her own aircraft. The advanced radar and electronic protection capabilities of the aircraft will provide data on both air and surface targets and threats.

This large amount of data will be processed by on-board computers and presented to the aircrew as a refined product. Proper presentation of this data to the aircrew will be critical in order to prevent information overload. In essence, the aircraft computers will take on the role of a second aircrew. However, computers do not operate and function like people nor do they alleviate the pilot from listening to and understanding the radios, reading text messages, and determining the appropriate tactical response to each situation. The pilot may be doing less flying or sensor operation, but the increase in information can still cause task overload. Adding just a few

seconds of flying duties to refine the position of the aircraft could result in the breakdown of the mission.

Solutions

For current aircraft, the Marine Corps needs to maintain its two-seat FAC(A) capability. The two-seat FAC(A) currently offers the capability to perform FAC(A) in all threat levels and situations. In the event that JSF is further delayed, the Marine Corps can use the F/A-18F Super Hornet to fill any gap. The Navy is currently receiving delivery of the F/A-18F Super Hornet that it will use as its FAC(A) platform. While it lacks the stealthy capability of the JSF, it is already in production and has greater weapons carriage and on-station time than current two-seat hornets. The single-seat FAC(A) program will bring a great capability to ground combat forces, but it most not be done at the expense of maintaining a true FAC(A) capability.

For the JSF, the Marine Corps must take a hard look at the JSF's ability to perform the FAC(A) mission and whether it negates the need for a second crewmember. While a two-seat V/STOL JSF is out of the question, a two-seat conventional or carrier version is not outside the realm of possibility. The two crewmembers would be better capable of handling information overload and could provide a quality platform for TAC(A) and other future command and control missions.

Conclusion

The Marine Corps will have to deal with the FAC(A) issue now if plans on maintaining a credible FAC(A) capability for the future. The Marine Corps single-seat FAC(A) program will benefit the ground troops who need aviation fires, but it must not be done at the expense of losing a true FAC(A) capability. If a true FAC(A) capability disappears, the Marine Corps will have lost an aviation capability critical to its ground forces.

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