

F/A-18F: A Viable Supplement to the JSF  
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## Introduction

The United States Marine Corps' lethality has been its ability to operate and fight as a task organized MAGTF. As new threats have emerged, the Marines have adjusted and remained a step ahead of their enemies. A key constituent of their ability is the aviation combat element(ACE). In order for the ground combat element(GCE), which always has been the backbone of the USMC's combat power, to impose its will on the enemy, the ACE must be able to integrate itself into the fight as a supporting force. Unfortunately, the TACAIR community, specifically the AV-8B "Harrier" and F/A-18 "Hornet," is aging and its ability to remain ahead of threat technology is waning. The Marine Corps' solution is the Joint Strike Fighter (JSF). While the JSF will revolutionize the battlefield and bring a capability to the GCE like no other platform has to date, an issue remains: how does one stretch the capabilities of aging AV-8Bs and F/A-18s to last throughout the JSF procurement? The USMC cannot maintain its current capability without an interim solution. To bridge this gap the Marine Corps should purchase the F/A-18F "Super Hornet" to supplement the JSF because the F/A-18F would maintain a two-seat forward air controller airborne (FAC(A)) capability, provide a carrier-based platform, and minimize the training and operational limitations imposed on aging platforms.

## Background

The JSF will begin replacing legacy platforms in 2012 and continue through 2023 when all AV-8Bs and F/A-18s will be replaced.<sup>1</sup> Currently, the F/A-18 (Hornet) community is already experiencing the effects of aging equipment. The fatigue life extended (FLE) program has imposed limitations on aircraft in an effort to make them last longer.<sup>2</sup> These limitations have restricted the types of missions that can be conducted during training. Examples of affected missions include basic fighter maneuvering (BFM), low altitude training (LAT), and dive bombing. The mathematical computations that go into FLE are complex, but simply stated any high g-loading and high engine output missions have the greatest wear on airframes. However, each airframe has a limited number of flight hours, and in the current operational environment the long duration of each mission takes its toll. With limitations already in effect on current operational aircraft, the Marine Corps cannot afford to simply wait out the JSF procurement.

## FAC(A) Capability

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<sup>1</sup> Department of the Navy, USMC HQ, *USMC Concepts & Programs 2007*, Washington D.C. GPO, 2007, 58.

<sup>2</sup> Department of the Navy, OPNAV INST 5442.8 *Management of the Naval Aircraft Inventory*, 1995 (Chief of Naval Operations), 6.

As previously stated, the strength of the ACE is its ability to integrate with the GCE. In no other mission is this better exemplified than in CAS (close air support). While all USMC tactical aircraft execute this mission, the two-seat variant of the F/A-18, the D model, brings a unique ability with its weapons systems officer (WSO) crew station. Additionally, the F/A-18D community, with WSOs, has trained for years to execute the FAC(A) mission. The WSO allows the pilot to share the responsibilities required to control closely coordinated fires. The Marine Corps traditionally made this mission exclusive to the two-seat community but has recently made the controversial decision to open this mission to single-seat F/A-18s and AV-8Bs.<sup>3</sup> The JSF will provide significantly greater survivability than the current single-seat community has, however, the human aspects of this mission will remain largely unchanged. At some point the men in the aircraft will make a difference in the fight; at that point the two-seat capability will always have the advantage.<sup>4</sup> The F/A-18F, an already operational platform, would allow the USMC to retain a two-seat FAC(A) capable aircraft. While the F/A-18F is not a fifth generation aircraft like the JSF, it has significant upgrades over the current Hornet, to include AESA radar and an advanced

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<sup>3</sup> Department of the Navy, NAVMC DIRECTIVE 3500.107 *FA-18 Training and Readiness Manual*, 2006 (Commandant of the Marine Corps), 12.

<sup>4</sup>Thomas D. Smolenski, Capt, *JSF: Demise of the Marine Corps WSO*, 2006 (EWS Student Papers 2006).

crew station (ACS) for the WSO. Additionally, its capacity for future upgrades is significant.<sup>5</sup> The F/A-18F would ease the limitations on the current F/A-18Ds and continue to give the TACAIR community a two-seat FAC(A) platform.

### Carrier Based Operations

Currently, the USMC has three to four F/A-18C squadrons in US Navy's aircraft carrier deployment cycles. These squadrons are OPCON to the Navy during their deployments. These Marine squadrons are all single-seat versions of the Hornet. Because the USMC is not buying the carrier variant of the JSF, as F/A-18s are replaced, USMC aircraft will no longer operate as part of the Navy Carrier Air Wings. Initially, the idea of relieving the Marine Corps of having to OPCON pieces of its force to another service may sound appealing. Carrier Air Wings are generally external to the MAGTF; however, in many cases they fly in support of GCE operations. While Marine air is not required to be a part of a supporting Carrier Air Wing, being part of a Carrier Air Wing can be advantageous to the GCE because of the influence and perspective a Marine squadron can bring to the wing. Marines have always preferred to have fellow Marines

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<sup>5</sup> Christopher Bolcom, *Military Aircraft, the F/A-18 E/F Super Hornet Program: Background and Issues for Congress*, July 13, 2005, (Congressional Research Service Report for Congress 2005), CRS-3.

flying the airplanes supporting them. A Marine squadron as part of the Carrier Air Wing can provide that reassurance; in addition, the insight into Marine operations that Navy service members may not have (regardless of rank). This influence may seem intangible or over-stated, however, when one considers that in 2006 Navy Carrier Air Wing Nine was commanded by a Marine Colonel, its significance becomes clear.

Carrier based operations also bring a quick reaction time to emerging threats throughout the world. An aircraft carrier may be the first US military force to respond to a developing conflict. This initial force, if integrated appropriately can help shape the battlefield for follow-on Marine ground force involvement. The F/A-18F has been proven operationally to be an effective carrier-based platform. In reference to the comparison of the JSF to the super hornet, the US Navy has argued, "The F/A-18E/F is a bird in the hand... and its rapid and continued procurement is essential to executing the Navy's current and evolving military strategy."<sup>6</sup> The Marine Corps should adopt this line of thinking and maintain membership in the Carrier Air Wing flying super hornets.

#### Training & Readiness Limitations

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<sup>6</sup> Bolkcom, 9.

As stated before, aging legacy platforms are forcing a reduction in aircrews' training scopes. The biggest hurdle for Marine aviation to overcome is the time it will take to test and field the JSF. Even if the program is implemented as scheduled, the limitations on current platforms replaced later in the procurement will remain significant. The F/A-18F can help to ease this burden. By supplementing the JSF procurement with super hornets, the USMC can keep its "youngest" F/A-18s and shed its most limited ones. By replacing the most severely limited aircraft (due to age or flight hours) now, the TACAIR community can avoid training and readiness shortcomings. If training restrictions continue to occur, major deficiencies in pilot abilities will be significant. As future generations of pilots become subject to a limited environment, a natural decline in the combat effectiveness of TACAIR will occur. Aviation missions require constant training in every realm that may be required in combat. Replacing three to four squadrons with the F/A-18F can assist in relieving aircrews of this constraint.

Despite FLE restrictions, much of the Marine TACAIR's ability to continue current operations in the GWOT environment can be attributed to the low threat environment of the OIF/OEF AOs. The aforementioned gaps in training may carry much more adverse consequences in more threatening environments. In order

to maintain the flexibility to change to new theatres, the entire span of Marine aviation operations must be continuously trained to.

### Counter Arguments

While the JSF is unquestionably necessary to the USMC's future, one must address the issues currently facing the ACE to maintain the operational capacity of the Marine Corps until the JSF is in place. Opponents argue that the F/A-18F is not a full solution. Certainly this is true, and in no way will it replace the need for the JSF. However, it can alleviate some of the stresses currently endured by the TACAIR community and bring some capabilities the JSF will not.

Furthermore, the F/A-18F must be considered as a backup if all does not go as planned. In its report to Congressional Committees, the GAO (Government Accountability Office) expressed similar concerns: "...the current acquisition strategy still reflects very significant risk that both development and procurement costs will increase and aircraft will take longer to deliver to the warfighter than currently planned."<sup>7</sup> These

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<sup>7</sup> Michael J Sullivan, *JOINT STRIKE FIGHTER Progress Made and Challenges Remain*, March 2007.(GAO-07-360 Report to Congressional Committees), 22.

concerns and risks have the capacity to amplify the previously highlighted issues.

Perhaps the largest hurdle to the suggested supplementation of F/A-18Fs has yet to be mentioned: the funding. The politics of military funding is delicate and frankly beyond the scope of this article. The idea that the purchase of F/A-18Fs now would preclude the acquisition of JSFs in the future is a valid concern.<sup>8</sup> The acquisition of Super Hornets would require a significant diversion of already strained funds. In addition to the unit cost of \$57 million per copy, the USMC would also incur some restructuring of maintenance programs and additional training of a large number of personnel if it acquired Super Hornets. Funding concerns cannot be understated. However, the cost to the JSF program must be weighed against the cost of the gaps the procurement of the JSF will create as legacy platforms await replacement.

### Conclusion

As aging TACAIR platforms continue to have restrictions put in place to extend their lives until the JSF can replace them, the operational capabilities will continue to decline. The

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<sup>8</sup> Thomas, Fries, LtCol, JSF Requirements AO, "RE: JSF vs. F/A-18F," 14 December 2007, personal email (14 December 2007).

Marine Corps has chosen to invest in the fifth generation capability the JSF will bring.<sup>9</sup> Unfortunately, the timeline of the JSF procurement is problematic. With its two-seat FAC(A) capability, carrier integration, and the fact that it is a new airframe, the supplemental purchase of the F/A-18F is the answer to these problems.

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<sup>9</sup>Thomas, Fries, LtCol, JSF Requirement AO, "RE: JSF vs. F/A-18F," 14 December 2007, personal email (14 December 2007).

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