Selling the Fighter Pilot's Dream Machines: The F-15 and F-16 in the Public Eye

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In 1973, McDonnell Douglas released a magazine advertisement featuring the F-15 Eagle. Calling it "The Fighter Pilot's Fighter," the ad copy emphasized that the Eagle was optimized for shooting down enemy aircraft in air-to-air combat. Just a few years later in 1976, another ad featured an image of the F-15 dropping a large number of bombs, proclaiming that the same exact fighter was among the most effective ground attack planes.[1] Another aircraft developed around the same was the F-16 Fighting Falcon. Its promotional material shows a similar transition, from portraying the plane as optimized for air-to-air combat in the sky, to one that is best for bombing ground targets in support of ground troops.

This seeming contradiction in messaging reveals much about the development of both planes and the institutions that produced them. Both the F-15 Eagle and the F-16 Fighting Falcon went through similar trajectories. In both cases, a small group of fighter pilots, analysts, and engineers fought to make both planes the ideal fighter pilot's dream machines, designed to excel exclusively at air-to-air combat by maximizing maneuverability for the close-turning dogfight. These fighter advocates were at odds with other leaders in the Air Force who sought to make the places more versatile, able to handle a variety of missions including bombing.

This internal disagreement, to the point of confusion, carried over into the public marketing materials for both aircraft. Press releases, official statements, company newsletters, industry coverage, marketing pamphlets, and advertisements all demonstrate this tension between presenting the planes as either the optimized ultimate air-to-air fighter aircraft or a versatile jack-of-all-trades that could handle many types of missions. Part of that reason is due to the inherent tension that existed during the design phase, but for the contractors, the profit motive encouraged shifting messages, as aircraft manufacturers

[1] McDonnell Douglas magazine advertisements: "The USAF F-15, the Fighter Pilot's Fighter," 1973; "This is the F-15 ground attack fighter," 1976.

sought to sell more airframes by marketing them as capable of performing more missions, while the military realized it was cheaper to modify existing planes for more mission types rather than designing totally new aircraft for every role.

In the bigger picture, however, the seeming confusion about the true purpose of these aircraft and how to talk about them reveals that this was a unique historical moment. New technologies had rendered the differences between fighter and attack to be not nearly as great as in some previous generations of aircraft. Of course, dedicated bomber and attack aircraft, such as the B-1 Lancer or the A-10 Thunderbolt II, still had important roles to fill, but the F-15 and F-16 proved that an aircraft could excel in air-to-air combat and ground attack. The first large-scale use of these aircraft in a major conventional war—Operation Desert Storm in 1991—blurred the line between tactical and strategic missions so much that the Air Force restructured itself in response.[2] Both the Eagle and the Fighting Falcon showed that being a jack-of-all-trades no longer meant being a master of none.

Aerospace Advertising and the Early Cold War Air Force

The nature of advertising, promotion, and public relations campaigns is often a confusing one. After all, very few readers of aviation-themed magazines would be able to afford to purchase a cutting-edge fighter aircraft, even if they were offered for sale to the public—which they are not. Military aircraft advertisements are not necessarily aimed at direct sales in the way that advertisements for other consumer products often are, but these ads serve several other purposes. The largest and most important goal is fostering general support and awareness for the concept of aerospace power as a key component—if not *the* key component—of a successful national defense. Civilian public support for air power, for the military-industrial complex, for a focus of defense spending on aerospace technologies—all of that is necessary and beneficial for military contractors to be successful. Although individuals might not

[2] See Brian Laslie, *The Air Force Way of War: U.S. Tactics and Training after Vietnam* (Lexington: University Press of Kentucky, 2015).

purchase their airplanes, the actual purchasers are members of Congress, who must approve military budgets. Representatives and Senators are influenced by their staff and by their constituents. In that sense, military aerospace advertising can build broad support for air power, associate certain companies with that support, and in some cases build support for specific weapons platforms.

Many of these promotional materials are made for internal use. They outline the capabilities of aircraft in attractive ways for use by decision makers in the military, government, or for distribution to journalists. These materials are also used for recruitment—both for the contractor companies seeking to attract top engineering talent, and the military, using the allure of working with exiting new aircraft to encourage people to military service. Finally, these advertisements can be used to sell other products or build awareness of a company's non-military efforts. For example, McDonnell Douglas printed ads featuring the F-15 as a way to demonstrate their level of excellence in other programs, from civilian airliners to space stations, to data management software.[3]

The F-15 and F-16 were born of a moment in which the Air Force was in the midst of a cultural and doctrinal shift. Many service leaders thought a large change was needed after the Vietnam War. Planning in the early Cold War was generally preoccupied with the dangers of a nuclear war against the Soviet Union. The Air Force, upon gaining its independence from the Army in 1947, had built its identity upon this scenario. The service's doctrine and equipment, throughout the 1950s, was built on strategic bombing—primarily using large bombers like the B-29 Superfortress, B-36 Peacemaker, B-47 Stratojet, and the most iconic, B-52 Stratofortress.

Most Air Force planners assumed that the Soviets would pursue a similar strategy of dropping nuclear weapons against the US from similar types of large bomber aircraft, such as the Tu-95. This meant that the priority was defending against these Soviet bombers by flying toward them as fast as possible and delivering a guided missile. Designing planes for the role of traditional air-to-air dogfighting

[3] For more on the nature and evolution of aerospace advertising, see Megan Prelinger, *Another Science Fiction: Advertising the Space Race, 1957-1962* (New York: Blast Books, 2010); and Karen Miller, "'Air Power Is Peace Power,' The Aircraft Industry's Campaign for Public and Political Support, 1943-1949," *Business History Review* 70 (Autumn, 1996): 297-327.

was not a major concern. But the even bigger priority, the Air Force thought, was getting US bombers through enemy defenses. Thus, even tactical air forces needed to be capable of delivering nuclear weapons quickly, which meant designing aircraft, even fighters, to be nuclear capable and fast above all else. Agility was an afterthought. War planners and engineers thought that the era of dogfighting was over, and fighter aircraft no longer needed to emphasize "turn and burn" close combat tactics, but instead should focus on going as fast as possible. With the one exception of the F-86 Sabre (whose development began in the last days of World War II), fighters in the early Cold War focused on high speed with little (if any) emphasis on maneuverability and dogfighting.[4]

The Air Force's "Century Series" fighters epitomized this idea. The F-100 Super Sabre, F-101 Voodoo, F-102 Delta Dagger. F-104 Starfighter, F-105 Thunderchief, and F-106 Delta Dagger were all ostensibly fighter aircraft, but they emphasized high-speed interception instead of maneuverability and were not optimized for air-to-air combat. The F-4 Phantom II, which became the premier fighter plane of the Vietnam War, was Navy-designed, but the Air Force (who bought more of them than the Navy did) originally intended the plane to be part of the Century Series as the F-110 Spectre. Although the F-4 was more versatile than many of its predecessors, it also emphasized high-speed interception at the expense of air combat maneuverability.[5]

A new fighter project began development in 1961, directed by then-incoming Secretary of Defense Robert McNamara to be suitable for use by the US Air Force, Navy, and Marine Corps. This "Tactical Fighter Experimental" program, or TFX, eventually resulted in the F-111, which remained a controversial aircraft. With a tandem seat and a large, heavy design that emphasized speed, it did not resemble any of the nimble dogfighters of previous eras. The Navy refused to buy it. General Gabriel

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[4] Craig C. Hannah, *Striving for Air Superiority: The Tactical Air Command in Vietnam* (College Station, TX: Texas A&M University Press, 2002), 23, 46; Earl H. Tilford, Jr., *Crosswinds: the Air Force's Setup in Vietnam* (College Station, TX: Texas A&M University Press, 1993, 24-28; Frederick H. Smith, "Current Practice in Air Defense," *Air University Review*, v. 6, Spring 1953, 31-39; see also Caroline F. Ziemke, "In The Shadow of the Giant: USAF Tactical Air Command in the Era of Strategic Bombing, 1945-1955" (PhD diss., Ohio State University, 1989).
[5] See Glenn E. Bugos, *Engineering the F-4 Phantom II: Parts into Systems* (Annapolis: Naval Institute Press, 1996); and Michael Hankins, "The Phantom Menace: The F-4 In Air Combat in Vietnam," (Thesis, University of North Texas, 2013).

Disosway, who became commander of Tactical Air Command in 1965, hated that the airplane had an "F" designation, arguing it should have been called the A-111 or B-111 because it was suited for attack and bomber roles and lacked the capabilities of a true fighter.[6]

Many air power analysts in and out of the service, such as Navy test pilot Lt. Charles "Chuck" E. Myers, Jr., thought this lack of air-to-air fighters was unacceptable. "There were only two fighter airplanes in the United States inventory," he argued. "One was the Navy's F-8 and the other the Air Force's F-104. In the all-weather interceptor category we had F-101's, F-102's, F-106's, F-4B's and F-4C's." He concluded: "DOD was saying, '[the F-4 is] the greatest fighter in the world.' I was saying, 'It's not a fighter at all; it's an all-weather interceptor and there's a hell of a difference.'"[7] Lt. Gen. Arthur C. Agan agreed, arguing that "We *didn't* have fighters in development."[8]

Defining the Eagle

In the fall of 1964, Agan, in the role of Director of Plans, Deputy Chief of Staff (DCS) for Plans and Operations at the Pentagon, commissioned a panel of former fighter pilots (including many famous aces) to study the state of tactical aviation. The study concluded that a new fighter was needed that emphasized maneuverability to defeat Russian fighters in air combat.[9] Agan also worked to convince the incoming Chief of Staff of the Air Force, Gen. John P. McConnell, that an air-to-air fighter was necessary. He agreed, as did Secretary of the Air Force Eugene M. Zuckert and Lt. Gen. James Ferguson, deputy chief of staff for research and development, who convinced Dr. Harold Brown, the director of

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[6] General Gabriel P. Disosway, Oral History Interview, October 4-6, 1977, USAF Historical Research Agency, K239.0512-974 [hereafter cited as Disosway OHI], 271; Earl H. Tilford, *Crosswinds: the Air Force's Setup in Vietnam* (College Station: Texas A&M University Press, 1993), 35; See also Robert Coulam, *Illusions of Choice: The F-111 and the Problem of Weapons Acquisition Reform* (Princeton: Princeton University Press, 1977).
[7] Charles E. Myers Oral History Interview, by Jacob Neufeld, USAF Historical Research Agency, K239.0512-971, 18 July 1973 [Hereafter cited as Myers OHI], 2-11.
[8] Lt. Gen Arthur C. Agan, Oral History Interview, April 19-22, 1976, USAF Historical Research Agency, K239.0512-900 [Hereafter cited as Agan OHI], 398.
[9] Jacob Neufeld, "The F-15 Eagle: Origins and Development, 1964-1972," Office of Air Force History, November 1974, 7; Myers OHI, 31-32; Major General John J. Burns, Oral History Interview, March 22, 1973, USAF Historical Research Agency, K239.0512-961, 1-2.

defense research and engineering. In April 1965 Brown authorized the development of a new fighter, then called the F-X (for "fighter experimental"). These men were convinced that the Air Staff would not support a new aircraft that was optimized only for the air-to-air role, instead preferring multi-role planes that could excel at ground attack as well.[10] Heinrich Weigand, scientific advisor to the Director of Development, disagreed, alleging that the Air Staff preferred an airplane focused on air superiority and that the concession for multi-mission capabilities and ground attack were mean to appease the Office of the Secretary of Defense.[11]

The F-X program thus became mired in a debate about whether it should focus on the air-to-air role, or be a multi-purpose fighter-bomber and interceptor. A number of factors pushed design efforts towards an air-to-air role, including the Air Force's decision to purchase Navy-designed A-7 Corsair IIs (a plane strong in the ground attack role), studies of Soviet fighter capabilities, and the results of air-to-air combat then unfolding over the skies of Vietnam, in which US F-105s and F-4s struggled against smaller, more maneuverable MiG-17s. Despite this, in March 1966, when the Air Force awarded contracts for studies of a potential F-X to three companies (Boeing, Lockheed, and North American, with unfunded participation from Grumman and in-house work from McDonnell), guidance for those studies from the Aeronautical Systems Division (ASD) emphasized range and ground attack capabilities in addition to maneuverability. ASD examined about 500 potential designs and settled on a large variable sweep wing design that resembled the TFX, but did not resemble the small, nimble dogfighter that fighter advocates wanted.[12]

Many leaders in the Air Force were unhappy with this direction, and called for further study, hopefully getting some new people in the mix. One of those people was Major John Boyd, who joined the F-X program in September 1966. Boyd already had a reputation. As an F-86 Sabre pilot in the last months of the Korean War, he had relatively little combat experience and no aerial combat victories, but he had

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[10] Neufeld, "F-15," 8-11.
[11] Mr. Heinrich J. Weigand Oral History Program Interview #862, 27 March 1973, AFHRA, K239.0512-862, 1-6.
[12] Neufeld, "F-15," 17; James Stevenson, *McDonnell Douglas F-15 Eagle* (Fallbrook, CA: Aero Publishers, 1978), 10.

nurtured a reputation (albeit a debated one) as an effective air-to-air pilot during his time as an instructor at the Air Force Fighter Weapons School at Nellis Air Force Base, Nevada. More importantly, while pursuing an engineering degree from Georgia Tech, Boyd came up with an idea he called "energy maneuverability theory" (EMT). This centered around using equations from the field of thermodynamics to describe fighter aircraft maneuvers in terms of potential and kinetic energy. These mathematical constructs allowed fighter pilots to describe the type of agility and maneuverability performance they wanted from their planes in a way that could be understood and calculated by engineers. As historian Jacob Neufeld summarized, EMT "expressed in numbers what fighter pilots had been trying to say for years by moving their hands."[13] It also helped facilitate a move away from the speed and altitude based requirements of interceptors, and towards a maneuverability-based concept that could now be measured.

Boyd did not work alone. He collaborated with defense analyst Pierre Sprey, mathematician Tom Christie, chief of Advanced Tactical Systems in Research and Development Col. Robert Titus, and their efforts added to similar efforts from others further up the chain of command, especially General Glenn A. Kent who was the assistant for concept formulation to the DCS/R&D (deputy chief of staff, research and development) and became DCS for development plans at Air Force Systems Command. All these men, and others working with them, worked to pare down what they thought were excess requirements, making the plane smaller, lighter, more maneuverable, with lower wing-loading, and a focus on air-to-air combat.

At higher levels of leadership, Disosway championed the air-to-air cause against others in the service who disagreed. "There were pressures from everybody you could think of to mess that airplane up," he said, "but we wanted to keep it pure air-to-air, knowing full well after awhile that they would use it air-to-ground, but at least we didn't want it designed for that. It had to be designed for just air-to-air."[14]

What brought everyone together was competition with the Navy, whose new fighter program was further along in development and had a clearer vision than the F-X. McConnell won many multi-role advocates to his side by arguing that unity against the Navy was necessary, or else USAF might be forced

[13] Neufeld, "F-15," 19.
[14] Disosway OHI, 295-296.

to buy another Navy aircraft. “We had a very difficult time in satisfying all the people who had to be satisfied as to what the F-X was going to be,” McConnell testified to the Senate Armed Services Committee on May 28, 1968. “We finally decided—and I hope there is no one who still disagrees—that this aircraft is going to be an air superiority fighter.” When asked if the plane would be used for ground attack missions, he retorted: “It would be over my dead body.”[15]

In March 27, 1969, the DCS/R&D, Lt. Gen. Marvin L. McNickle testified to the House of Representatives Committee on Armed Services that the F-15 was “an air superiority fighter to combat the Migs,” and that the goal of the program was “to design the best possible single-seat, twin-engine fighter for air-to-air combat.” Testifying to the same committee on May 20, General Roger Rhodarmer (Assistant DCS/R&D) made it even more clear: “This aircraft will be designed as a single-purpose fighter-fighter. By that I mean, it is not a fighter-bomber, it is not designed to carry bombs. It is not a fighter-interceptor. It is an airplane designed to fight aircraft in air-to-air combat.” He added: “We know what we want. . . . This aircraft is not saddled with a multipurpose role.”[16]

Yet, some disagreement seeped through. As Stuart Levin, writing in *Space/Aeronautics* magazine noted, “There’s a superconsciousness (you can taste it in every conversation) that the plane must be optimized for the air-to-air dogfight,” but noted some ambiguity in that USAF “also asks (in muted tones) for air-to-ground strike capability.” That added ground capability, Levin noted “touches a raw nerve underlying USAF’s loudly proclaimed identification of the F-15 as a pure dogfighter.”[17]

Boyd and Sprey thought that the Air Force had not gone far enough in optimizing the F-15 for the air-to-air-mission, that it was too heavy and not maneuverable enough. They wrote scathing memos asking the Air Force to strip the plane down further, but these went unheeded. Boyd and his associates thus began work on an idea for a new aircraft that bore fruit years later.

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[15] Quoted in Neufeld, “F-15,” 26.
[16] “Hearings on Military Posture and Legislation to Authorize Appropriations During the Fiscal Year 1970,” House of Representatives Committee on Armed Services, H.A.S.C. No. 91-14, March 27, 1969 and May 20, 1969, 2633, 3273-3274.
[17] Stuart Levin, “F-15: The Teething of a Dogfighter,” *Space/Aeronautics* 52 (December 1969), 36.

Fairchild-Hiller, McDonnell, and North American turned in their proposals for the F-15 by July 1, 1969. The Air Force evaluated them according to 87 different factors split into five categories: technical, operational, management, logistics, and cost. Each area had a different team of evaluators who scored the proposals separately. Thus, there was not any single overriding reason why one design was chosen over another, but McDonnell's entry scored highest in each individual category and had the lowest cost. SECAF Robert Seamans announced McDonnell as the winner on December 23, 1969.[18]

Selling the F-15

Once the Air Force selected McDonnell Douglas as the winner of the F-15 contract, the first of twelve prototypes were ready to fly by summer of 1972. The rollout of the airplane was met with significant press, much of it touting the same single-minded focus on air-to-air combat that McConnell had expressed.

In January 1972, *Air Force Magazine*, although worried about the rising costs of the F-15 program, hailed the aircraft as "unencumbered by the constraints of commonality and dual-role requirements," and focused on evaluating whether or not the F-15 could defeat Soviet MiG fighters, especially the new MiG-25 Foxbat. Gen. John Meyer, Air Force Vice Chief of Staff and one of the leading fighter aces of World War II, was not concerned. He said the F-15 "will outclimb, outmaneuver, and out-accelerate a MiG-21, a MiG-23, or any kind of MiG you might find in the next decade." At the time, some outlets reported that the MiG-25 could operate at speeds as high as Mach 3.8—significantly faster than the SR-71 Blackbird. The Air Force did not believe that at the time (the service thought the new MiG fighter's top speed was just slightly above Mach 3. In reality, the MiG's operational top speed was Mach 2.8, although it could perform a dash up to Mach 3.2 which potentially damaged the engines). In the article, the director of the F-15 System Project Office, Brig. Gen. Benjamin Bellis argued that such

[18] Press Conference, Air Force Secretary Seamans, 12 December 1969, 7-8, Smithsonian National Air and Space Museum (NASM) Archives, Fairchild Collection, Box 396 Folder 6; This date must be an error, as other sources in this folder confirm the 23rd, as well as Abercrombie, "F-15 Aircraft," 1.

speeds were only useful if the MiGs wanted to run away, which they were welcome to do. Any actual air combat, he said, would happen at much slower speeds, and that "In the real air-superiority battle environment, no known aircraft is more viable than the F-15."[19]

The rollout ceremony revealing the first F-15 prototype in June 1972 was also a chance for the press and the Air Force to publicly praise the F-15, again heralding its single-minded focus on air-to-air combat. *Flight International* magazine emphasized how different the Eagle was from the century series and Vietnam-era fighters that preceded it, calling to the iconic aerial duels of the Korean War by calling the F-15 "the first United States combat aircraft designed specifically for the air-superiority role since the F-86 Sabre.... a throwback to an earlier age." It's advanced systems, the piece noted, were designed for "'eyeball-to-eyeball' combat," emphasizing its ability to defeat anything the Soviets could put in the air.[20] *Aviation Week and Space Technology* focused on the details of the flight tests, but emphasized the air superiority role and the F-15's focus on maneuverability, noting "the prototype has been able to consistently outmaneuver the F-4 chase aircraft in turns."[21]

Early concept art for the aircraft tended to focus on the air-to-air role as well, showing the F-15 armed with air-to-air guided missiles, although not always. Some of the early art did point towards a ground attack role for the aircraft. Some of these pieces were used in magazine advertisements that repeated the messaging, calling the Eagle "The Fighter Pilot's Fighter," with accompanying copy that sold the plane as able to defeat any aerial adversary in air combat.[22]

Airman Magazine drove the point home in October 1972 when covering the test flights of the F-15 prototypes, saying that when the Eagle becomes operational, "the Air Force will have an air superiority

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[19] Edgar Ulsamer, "The Coming Cost Crunch of the F-15," *Air Force Magazine*, January 1972, 38-43. The article mistakenly refers to the Foxbat as the MiG-23. For information on the MiG-25's capabilities, see "Intelligence: Big-Mouth Belenko," *Time*, October 11, 1976.

[20] "F-15 Rolls Out at St. Louis," *FLIGHT International*, July 6, 1972.

[21] Donald E. Fink, "USAF to Evaluate F-15 This Week," *Aviation Week and Space Technology*, September 18, 1972.

[22] Image series from Greater St. Louis Air and Space Museum (SLASM) Collections, D4C 63454 Jun-69, D4C 63455 June-69, D4C 75792, D4E 511033 Jul-3-69, D4E 511035 Jul-3-69, D4E 511036 Jul-3-69, D4E 511037 Jul-3-69, D4C-109737 Dec-27-73. McDonnell Douglas magazine advertisements: "The USAF F-15, the Fighter Pilot's Fighter," 1971; "Our F-15 is the big news in fighter planes," 1972; "The USAF F-15 Eagle: the Fighter Pilot's Fighter," 1973.

fighter geared to handle the entire spectrum of Soviet fighters. For the Eagle has remained what its supporters prayed it would be—a single purpose fighter dedicated to the air superiority mission."[23] Surrounded with lavish sketches from aviation artist Keith Ferris, the article repeated the familiar talking points that the F-15 was made for one purpose only: to defeat enemy aircraft in close-maneuvering dogfights by emphasizing maneuverability and agility. This was in sharp contrast to the F-4 Phantom, which, as the piece repeatedly noted, was not designed for air combat. The article painted the F-15 as almost the opposite of the F-4 in its attempt to convince readers of its efficacy in air-to-air combat.

It may have come as a surprise then, when only a few months later in February 1973, the *Wall Street Journal* reported: "Air Force officials are calling the F15 [sic], designed primarily as a close-in dogfighter to best new Russian aircraft, 'another F4.'"[24] The contradiction can likely be explained by the different intended audiences of *Airman* Magazine compared to the *Wall Street Journal*, as the latter's reference to the F-4 was intended as a compliment, explaining to its readers that the F-4 was the "current front-line fighter of both the Navy and the Air Force, and one of the most successful planes ever built." Other coverage in the rest of 1973 continued to emphasize the air-to-air focus. For example, the Washington DC *Evening Star and Daily News* noted that the F-15 was "the first new dogfighter in nearly two decades," and In March 1974, *Aviation Week and Space Technology* argued that the F-15 "represents for the Air Force a return to the doctrine that emphasizes close-in aerial combat using short-range weapons, a result of lessons learned in the skies over North Vietnam," and that its best weapon was its maneuverability.[25]

The sequel to that article in April 1974 hinted at a coming shift. Although the piece focused on the F-15 as a dogfighter and discussed maintenance in detail, it also noted the Eagle was designed to also

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[23] John F. Gulick, "The Eagle Makes the Scene," *Airman*, October 1972, 25-30.
[24] Richard J. Levine, "McDonnell Douglas's F15 Fighter Appears Headed for Big Air Force Production Run," *Wall Street Journal*, February 12, 1973.
[25] "F15 Gets Hedged Okay After Engine Trouble," *The Evening Star and Daily News*, Washington, D.C., March 1, 1973; Clark Martin, "F-15 Offers Superior Maneuverability," *Aviation Week and Space Technology*, March 25, 1974, 40.

have effective, simple, automated air-to-ground weapons delivery.[26] From this point on, the discussion of the Eagle changed. The journal *NATO's Fifteen Nations* published a piece examining the possibility of NATO countries adopting the F-15 (which did not happen), and noted that the plane was "primarily conceived and designed as an Air Superiority Fighter… also capable to have a significant air-to-ground weapon load and delivery potential without bringing degradation to its basic Air Superiority mission."[27]

McDonnell Douglas confirmed this position in a November 1974 press release, which argued that "Although designed specifically as an air superiority aircraft, the F-15 has proven to be equally suitable for air-to-ground missions without degradation of its primary role. It is able to carry a variety of air-to-air and air-to-ground weapons."[28]

However, shortly before this, the company began a newsletter titled "Eagle Flight Leader" designed to promote the F-15. The majority of these issues made little mention of ground attack, but instead focused on the air-to-air role, including associating the aircraft with the colorful history of air-to-air combat pilots and planes. For example, famous aces such as Brig. Gen. Chuck Yeager and Lt. Gen. Michael Rogers flew the F-15 to report on its effectiveness, while another F-15 was painted with the nickname "Maloney's Pony" to honor World War II ace Lt. Tom Maloney. Other stories in the newsletters emphasized the F-15's performance in air-to-air simulations and its participation in air combat exercises such as Red Flag. It noted that F-15s were ordered to enter service with the 555th Tactical Fighter Squadron, famous for high-scoring aerial victories during the Vietnam War, when it earned the moniker "world's largest distributor of MiG parts." The photo of the announcement featured a background arrayed by the stars of MiG-kill markings, implying the Eagle was the inheritor of that role.[29] It was clearly important for the company to tie the F-15 to the long tradition of air-to-air combat history, although that did not remain the case.

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[26] Clark Martin, "Simplicity is Stressed in F-15 Operations," *Aviation Week and Space Technology*, April 1, 1974, 50-53.
[27] G. M. Bailly-Cowell, "NATO Central Europe Gets the F-15 Eagle," *NATO's Fifteen Nations*, April-May 1975.
[28] "F-15 Eagle Air Superiority Fighter, Background Information," News from McDonnell Douglas Corporation, November 1974, NASM Archives, AM-251120-03.
[29] "Eagle Flight Leader" series, McDonnell Aircraft Company, 1974-1977, NASM Archives, AM-251120-03.

Advertisements in 1976 began to shift, emphasizing versatility and its effectiveness at ground attack bombing missions. One 1976 ad showed an image of an F-15 parked in front of a huge array of bombs, inset against a large photograph reminiscent of the iconic images of massive strategic bombers, showing an F-15 dropping a large payload of bombs. Counter to almost every depiction of the Eagle up to that point, the copy proclaimed: "This is the F-15 ground attack fighter. It doesn't look any different from the F-15 air superiority fighter because it isn't. Every F-15 ever made has built-in ground-attack capabilities that don't have to be added on later…. Air-to-air or air-to-ground, it's the same fighter."[30]

By 1977, the British paper Aviation News wrote that the US Air Force's F-15 were all intended to be air superiority fighters, "Yet the manufacturers, McDonnell Douglas have built into this machine every possible potential to make it one of the most versatile aircraft yet built. Its predecessor, the F-4 Phantom has been adapted as a fighter, reconnaissance, ground attack, and naval aircraft… so should the Eagle."[31]

Around this time, McDonnell Douglas began heavily promoting the F-15 as a multi-mission plane with significant ground attack capability. One pamphlet, "F-15A: Air-to-Surface," claimed that "from its inception, the USAF F-15A was designed to provide both Air-to-Air superiority and Air-to-Surface capability."[32] Another, "USAF F-15A Eagle: The Versatile Fighter," claimed that "without compromise to air superiority, the F-15 was to have a secondary role of air-to-ground attack." This pamphlet explained that the Eagle was adaptable for roles of interdiction, close air support, and tactical reconnaissance. It also introduced the idea of adapting the fighter to carry heavier bomb loads and potentially add a second crew member.[33]

In 1978, two other brochures, "Eagles for Tomorrow" and "The Free World's New Standard" both used similar language to describe the F-15s capability s an air-to-ground and multi-mission plane,

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[30] McDonnell Douglas magazine advertisement: "This is the F-15 ground attack fighter," 1976.
[31] "F-15A Eagle in Production," *Aviation News* 5 (April 29 – May 12, 1977), 2.
[32] "F-15A Eagle: Air to Surface," McDonnell Douglas, undated, NASM Archives, AM-251128-01.
[33] "USAF F-15A Eagle: The Versatile Fighter," McDonnell Aircraft Company, no date, NASM Archives, AM-251120-02.

but went into significant detail about how the plane could perform in such roles and how the plane might be easily adapted for a wide variety of missions.[34]

A Pure Fighter

Long before the F-15 had entered service, by the start of 1969, Boyd and Sprey were frustrated with the Eagle. To them, the F-15 was a missed opportunity at best: the Air Force bureaucracy had destroyed their vision for a true fighter—a simple, lightweight plane designed for close quarters air-to-air combat. Myers recalled: "When I say, 'We're not happy with the F-15,' I wouldn't want people to think that I helped spawn *that* airplane, all I helped do was create the need for a new fighter airplane which we haven't yet procured."[35] He said that the F-15 "should have been smaller and better. . . . That's what drove us to try again."[36]

Sprey led the effort to try again. He gave a series of briefings at NASA and "all over the Pentagon… on behalf of an airplane that I called the F-X2 [or F-XX]."[37] Sprey's goal was to take Boyd's Energy Maneuverability Theory (EMT) approach and design a "smaller, much more austere, and vastly higher performance airplane." … "A pure air-to-air fighter as opposed to the F-15 which by now is really a fighter-bomber in classical Air Force tradition."[38]

Maximizing maneuverability was key, he thought: "It is impossible to identify a level of maneuvering performance that is 'good enough.'" Achieving the necessary agility "can be accomplished *only* by rigorously eliminating every pound of weight associated with equipments and airframe

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[34] "Eagles for Tomorrow," McDonnell Aircraft Company, January 1978, NASM Archives, AM-251120-02; and "The Free World's New Standard," McDonnell Aircraft Company, September 1978, NASM Archives, AM-251120-02.
[35] Myers OHI, 38, emphasis in original.
[36] Email from Charles Myers forwarded to Robert Coram, November 11, 2000, US Marine Corps Archives and Records Division, Robert Coram Papers [hereafter cited as Coram Papers], Box 9 Folder 3.
[37] Pierre Sprey, Oral History Interview, June 12, 1973, USAF Historical Research Agency, K239.0512-969 [hereafter cited as Sprey OHI], 39; Memo, Pierre Sprey to James Ferguson, July 18, 1968, Coram Papers, Box 10, Folder 4.
[38] Sprey OHI, 39-40; Neufeld, "The F-15," 64.

specifications that are not absolutely essential to the mission of shooting down enemy aircraft—*then replacing that weight with more engine and more wing*."[39]

Calling themselves an underground group, Boyd, Sprey, Myers, and Christie, soon found more allies. One key member was already present: Harry Hillaker, the chief of General Dynamics' preliminary design division in Fort Worth, Texas, who had met Boyd years earlier and had similar opinions about fighter design. By the late 1960s, the group had regular secret weekend meetings. Hillaker flew from Ft. Worth to Washington, D.C. on Friday nights, where he met with Boyd and Sprey in hotel rooms and worked on LWF designs through the weekend. He then took the first Monday morning flight back to his job in Ft. Worth.[40]

The other new key member of the underground was test pilot Col. Everest Riccioni. He had flown fighters in World War II, and held similar views as Boyd regarding the need for a small, lightweight dogfighter for air-to-air combat superiority.[41] Working closely with Boyd, Sprey, and Christie, Riccioni floated the idea of the group calling themselves "The Fighter Mafia," with himself as their "Godfather." However, Boyd still considered himself the leader. [42]

The group managed to get approval for $149,000 in funding for an EMT study, which they instead funneled to Northrop and General Dynamics to work on potential lightweight fighter designs while having secret hotel meetings. One of Boyd's associates who worked with the group recalled, "We just didn't want anyone knowing what we were doing…. This was totally illegal since we didn't provide the same opportunity to the other airframe manufacturers." Interviewed in 1987, Hillaker said of their process: "Under today's standards, I would probably be indicted."[43]

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[39] Pierre M. Sprey, "F-XX and VF-XX – Feasible High Performance, Low Cost Fighter Alternatives," Staff Study, Office of the Assistant Secretary of Defense (Systems Analysis), June 9, 1969, Coram Papers Box 7 Folder 4, 1, 8, emphasis in original.
[40] Bill Minutaglio, "Tales of the Fighter Mafia," *Dallas Life Magazine*, May 3, 1987, 12-13.
[41] Everest E. Riccioni, FR 39919 "The Air Superiority Fighter, A Modern Analysis," Research Report, Air War College, Air University, Maxwell AFB, Alabama, April 1968, 53-56, 43, 104, 124-125, 150-155.
[42] Robert Coram, Boyd: The Fighter Pilot Who Changed the Art of War (New York: Little, Brown, and Company, 2002), 240; see also, Grant T. Hammond, *The Mind of War: John Boyd and American Security* (Washington, D.C.: Smithsonian Books, 2001), 83-88.
[43] Email, Robert Drabrant to Robert Coram, November 8, 2000, Coram Papers, Box 9 Folder 3; Minutaglio, "Tales," 10.

The General Dynamics Model 401 became the basis for the YF-16, and the Northrop 600 evolved into the YF-17. As Hillaker described, "The design objective of the original YF-16 was to maximize the usable maneuverability and agility of the aircraft," and to do so, "emphasis was placed on small size and low weight/cost, on advanced technologies, and on design/aerodynamic innovation."[44]

Early promotional material from General Dynamics confirms this emphasis, including a pamphlet from September 1973, before the prototype was completed. The company declared that the YF-16 was "a fighter plane in the classic sense of that term. It has been designed to achieve air superiority—to engage and then triumph over other aircraft in air-to-air combat. The man who commands such an aircraft has one primary mission—to fight, to maneuver the enemy into his sights and shoot him down."[45]

The YF-16 prototype was revealed publicly for the first time on December 13, 1973 at a rollout ceremony in Ft. Worth, Texas, home of the plane's manufacturer, General Dynamics, before being shipped to Edwards, AFB, California for flight testing.[46] *Air Force Magazine*'s coverage of the rollout focused almost entirely on the technical details of the technologies demonstrated in the prototype while emphasizing the advantages of the low cost of the lightweight fighter. However, General Dynamics' YF-16 Program Director Lyman Josephs was quoted about the purpose of the aircraft, saying "In a dogfight, we believe, we will be able to handle anything that exists today or is on the drawing board." The article made no mention of multi-role missions or ground attack capability.[47]

However, Aviation Week and Space Technology did, even before the first flight of the airplane. That publication's coverage of the rollout described, "Although the prime design aim was to suit the airplane for the air-superiority role, company studies have also considered that it could handle a ground support mission and the capability exists for carrying a variety of bombs and rockets for this task."

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[44] Harry J. Hillaker, "YF-16 Design Concept and Philosophy," Presentation to 23rd Israel Annual Conference on Aviation and Astronautics, 11-12 February 1981, 1, Coram Papers, Box 9 Folder 4, 2.
[45] "YF-16: Lightweight Fighter Prototype Aircraft," General Dynamics, September 1973, NASM Archives, AG-033110-01.
[46] Wade A. Scrogham, *Combat Relevant Task: The Test & Evaluation of the Lightweight Fighter Prototypes* (Edwards Air Force Base: Air Force Test Center History Office, 2014), 10-13.
[47] Edgar Ulsamer, "YF-16: On Time, On Track, On Budget," *Air Force Magazine*, January 1974.

Josephs did clarify that "We didn't make any compromises, and when we're designing an airplane for one mission, and its small and simple, you can really understand the whole program." Yet the magazine also cited an unnamed source "close to the program" who stated "It'll end up being a helluva good air-to-ground airplane and we're adding a few goodies so that we can demonstrate that sometime in the flight program. But that was all fallout."[48]

The YF-16 was not the only lightweight fighter prototype. Northrop had produced the YF-17. Both planes were intended to be "technology demonstrators" to evaluate specific new technologies. Beginning in January 1974, to evaluate the prototypes, the Air Force Flight Test Center created a Joint Test Force led by Lt. Col. James R. Rider. Rider and his team coordinated the test plan with General Dynamics and Northrup, focusing broadly on maneuverability and acceleration as well as some specific performance tasks.[49] As of spring 1974, Air Force leaders still viewed the prototype program as a "technology demonstrator," not as a basis for procuring another new airplane. That soon changed.

James Schlesinger, who became the Secretary of Defense in July 1973, worked to convince the new Air Force Chief of Staff, Gen. George Brown, of procuring a lightweight fighter. In March 1974, Brown created a Study Group for the issue, which concluded that the Air Force should buy an operational version of the LWF as a complement for the F-15. However, the study also recommended that although this potential LWF should be "optimized for close-in air-to-air combat with a gun and close-in IR [heat-seeking] missiles," it should also have "ground attack capability… greater than the F-4," and be capable of delivering nuclear weapons.[50] With this show of support, on April 29, 1974, Schlesinger ordered that the prototype program was no longer a technology demonstrator, but a competitive flyoff, and that the winner would go into production.[51]

Both aircraft performed well in test flights, although the YF-17 did not meet all of Northrup's predictions. Some of the pilots thought the YF-17 was easier to fly, as Rider recalled: "You had to fly the

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[48] Erwin Bulban, "YF-16 Stresses Advanced Technology" *Aviation Week and Space Technology*, January 7, 1974,
[49] Scrogham, *Combat Relevant Task,* 13-19.
[50] Gillespie, "Mission Emphasis," 263-268.
[51] Scrogham, *Combat Relevant Task,* 24.

YF-16 all the time," but regarding the YF-17: "You could put your daughter in it and it would go fast. It was a piece of cake!"[52]

On January 13, 1975, the Air Force announced that they had selected the YF-16. McLucas insisted that the key factor deciding in favor of the YF-16 was performance. McLucas argued that the YF-16 "had advantages in agility, in acceleration, in turn rate and endurance over the YF-17. . . . better visibility and better deceleration. . . . The YF-16 had lower drag and was a cleaner design."[53] Clearly, the performance characteristics that the Fighter Mafia valued, especially maneuverability, were the deciding factors.

However, despite these early efforts and the intentions of the fighter mafia to make the ultimate air-to-air-only fighter plane, the Air Force and General Dynamics never truly saw the F-16 Fighting Falcon in quite that way, and were instead preaching its versatility as a multi-role plane capable of bombing missions even before the F-16 had been selected as the winner. Promotional material from the manufacturer in 1974, during the competition, presented the F-16 as an "air combat fighter" that used advanced technologies and techniques to maximize its ability as a maneuvering dogfighter. Yet the pamphlet also emphasized the versatility of the F-16, and that it possessed a large ground strike capability that could be tailored for a variety of missions. The avionics systems also emphasized this versatility and ground attack capability.[54]

A Mutilation of Character

The F-16 Fighting Falcon prototype was the physical manifestation of the Fighter Mafia's ideal. However, after winning the competition in January 1975, the F-16 design went to the Air Force

[52] Scrogham, *Combat Relevant Task,* 33-34.
[53] News Briefing by Secretary of the Air Force, John L. McLucas At the Pentagon,", Jan 13, 1975, Box 21, folder "Lightweight Fighters (Navy & Air Force), 1974-75 (4)" of the Martin R. Hoffmann Papers, Gerald R. Ford Presidential Library [hereafter cited as Hoffmann Papers].
[54] "F-16: Air Combat Fighter," General Dynamics, c. 1974, NASM Documents Collection, AG-033100-01.

Configuration Control Committee, headed by former fighter pilot Gen. Alton Slay, to produce an operational version of the plane.[55]

The production version of the F-16 added almost 1,000 pounds in structural and equipment changes and additional fuel storage. This included more pylons for ground-attack ordnance, with the existing pylons increased for heavier weight. The loading capacity almost doubled, from 7,700 pounds to 15,200 in the production model.[56]

Despite the Fighter Mafia's objections, the Air Force added a ground-looking, all-weather, night-capable, medium-range radar to the F-16, the Westinghouse AN/APG-66. The company maintained that this system was "The Fighter Pilot's Radar," that would "allow the pilot to keep his head up and his hands on the throttle and stick throughout a dogfight engagement." With the flick of a switch, the radar provided ground mapping, improved with a Doppler beam, for both navigation and weapons delivery.[57]

Slay thought that the nature of the F-16 as a complement to the F-15 dictated that it should be a multi-role aircraft. Describing the new plane to the Senate in 1976, he argued, "The F-16 has a capability that the F-15 does not have, deliberately so. We did not choose to burden the F-15 radar with a significant air-to-ground capability. We have engineered the F-16 radar to have very good ground mapping [...and] to do an extremely good job of air-to-ground missions." He argued that the plane's excellent maneuverability was useful in roles beyond dogfighting: "we also found that the things that made [the F-16] good in an air-to-air role... were extremely good in [an] air-to-ground context." He concluded, "we got more than we paid for in having a multipurpose capable airplane."[58]

The move from a dedicated air superiority fighter to a multi-role aircraft played out in the press as well. In the weeks after the F-16 was selected in January 1975, many reporters, officials, politicians, and

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[55] Fallows, *National Defense*, 105; Hammond, *Mind of War*, 97.
[56] General Dynamics, "F-16 Program Summary," August 15, 1977, ASD 771456, NASM Archives, General Dynamics F-16 Fighting Falcon Series, Briefing Packets, AG-033100-03.
[57] Westinghouse Pamphlet, "AN/APG-68, The New Standard for Fighter Radar," no date, NASM Archives; Westinghouse Public Relations Release, "Westinghouse Starts Full-Scale Development of the F-16 Radar," no date, NASM Archives both in General Dynamics F-16 Fighting Falcon Series, Avionics Systems, AG-033100-02.
[58] Hearings before the Committee on Armed Services, United States Senate, 94th Congress, 2nd Session, S.2965, Part 9: Tactical Airpower, March 8-12, 1976, 4896.

test evaluators emphasized that the Fighting Falcon was supposed to be a dedicated air combat fighter. One reporter covering the announcement emphasized that "[t]he stress in design of the lightweight fighter has been for maximum maneuverability and handling in aerial dogfights."[59] Seven months later, this line had shifted. David Lewis, the chairman and CEO of General Dynamics, still emphasized the dogfighting aspect of the F-16, but added: "The versatile F-16 proved to have an exceptional air-to-ground capability with weapons delivery ranges far better than current operational aircraft."[60]

The Fighter Mafia and their allies fought against Slay's modifications. In 1975, Christie wrote a memo arguing that the changes made to the F-16 were "unacceptable." He said: "Extensive air-to-ground capability of [the] proposed configuration compromises air-to-air capability."[61] Chuck Myers was infuriated. He sent a memo to Schlesinger's special assistant, Martin Hoffman, arguing that the changes made to the plane made it "a far cry from the austere FIGHTER" that the Fighter Mafia had envisioned.[62] He included a paper titled "F-16 (LWF/ACF) PROGRAM RESTORATION." It complained about the inclusion of ground attack and radar capability, then charged: "The expansion of mission spectrum is accomplished with an associated increases in weight, complexity, support burden and a loss of air combat maneuvering capability, the one mission for which the original design had been optimized." The paper concludes: "This mutilation of the character of the LWF through the ACF missionization process is a management travesty which cannot go unchallenged."[63]

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[59] "General Dynamics' F-16 Selected as Air Force's New Jet Fighter," *St. Louis Post-Dispatch* (St. Louis, Missouri), January 14, 1975.
[60] Clyde H. Farnsworth, "Gen. Dynamics' 'Contract of the Century," insert, "David S. Lewis Comments on Winning F-16 Contract," *St. Louis Post-Dispatch* (St. Louis, Missouri), July 29, 1975.
[61] Memo, Robert J. Croteau, to Mr. Sullivan, through Mr. Christie, "F-16 DSARC II Position Recommendation," February 4, 1975, Box 21, folder "Lightweight Fighters (Navy & Air Force), 1974-75 (5)," Hoffmann Papers, 1, 3.
[62] Chuck Myers, Memo to Hoffman, 21 February 1975, Box 21, folder "Lightweight Fighters (Navy & Air Force), 1974-75 (4)" Hoffman Papers.
[63] "F-16 (LWF/ACF) PROGRAM RESTORATION," Myers Memo to Hoffman, 2-3.

Selling the F-16

To promote the missionized production model of the F-16A, General Dynamics produced an updated version of their earlier pamphlet to explain some of the changes made. It made clear that maneuverability for the air superiority role was the primary design consideration, but that "A natural fallout of this concept… is an outstanding strike mission capability" that enabled "delivery of a wide variety of guided and freefall bombs, dispensers, and air-to-ground guided missiles."[64] A press release from the company around this time called the F-16 "a replacement aircraft for the aging F-4 Phantom II fighters," and added that the Navy was considering the aircraft for both its fighter and attack capabilities.[65]

General Dynamics clearly thought of the plane as multi-role even before full scale production began, and other press outlets continued reporting the same. *Aviation Week and Space Technology* noted that the prototype was not as focused on air-to-air only, as some of its advocates may have wanted, because of "the company's decision early in the program to provide the prototype with a tactical ground support capability, although it was ostensibly for a fighter technology program."[66]

One of the major reasons for such an early attempt to extol the ground attack capabilities of the F-16 was the desire for foreign sales. In July 1975, the *New York Times* noted skepticism from some that the F-16 was not suited for a potential war against the Soviets in Europe. The plane was "a superb toy," one British fighter pilot told the paper, who explained that the Fighting Falcon's purpose was to "win dogfights and insure air superiority." Some unnamed specialists told the paper that NATO countries that decided to buy the F-16 "glossed over deficiencies as a ground attack aircraft, and debate continues over what the proper role should be, especially in light of the kind of planes the Soviets are starting to put into service." General John Vogt, commander of Allied Air Forces Central Europe and of US Air Forces in Europe, agreed, telling the press "one major, if not the major role is to provide a mass of fire power in

[64] "F-16 Air Combat Fighter," General Dynamics, September 1, 1975, NASM Archives, 033100-01
[65] "General Dynamics F-16 Air Combat Fighter Program," c. 1975, NASM archives, AG-033100-01.
[66] "F-16 Gains Advantage in Market," *Aviation Week and Space Technology*, January 20, 1975.

support of the ground armies to turn off heavy Soviet armor in great quantities." The *Times* added that the newest Soviet aircraft like the MiG-25, MiG-23, and Su-19 (the initial reporting name for the Su-24), all had significant ground attack capability, implying that US and NATO forces should pursue the same.[67]

In March of 1976, the Royal Aeronautical Society's *Aerospace* magazine published their report of the YF-16 flight tests. They emphasized the air-to-air role, comparing the plane to the beloved air combat fighter of World War II, the P-51 Mustang. They also compared it to the MiG-21, which had been more effective than expected in air-to-air combat against F-4s and F-105s in the Vietnam War. Despite this initial focus on air combat, the publication also noted that the production model greatly increased its ground attack capability to make the plane more multi-role capable, concluding, "We have found the YF-16 to be an excellent load carrier with the required flexibility in types of argument."[68]

Air Force Magazine's flight test report was written by the director of the F-16 joint test force, Lt. Col. James Rider. He emphasized the air-to-air aspect of the fighter and its superior maneuverability but did acknowledge that "The production F-16 is designed for air-to-air and air-to-surface roles. The air-to-air capability will not be compromised in developing the air-to-surface capability." Rider noted that one of the important features of the F-16 was a lesson learned from Vietnam: the ability to quickly switch from air-to-air mode to air-to-ground mode and back, quickly, without looking down into the cockpit. The complicated array of radar controls and weapons control systems could all be automated to the flip of a single switch on the throttle.[69]

In December of 1976, The *New York Times* covered the F-16 in a very different way, emphasizing its role as a tank-killer. According to the paper, Brig. Gen. James Abrahamson, director of the F-16 program, saw the F-16 "as an answer to both the more sophisticated Soviet fighters now deployed in central Europe and to Soviet tank superiority." The paper continued summarizing Abrahamson: "Tactically [the F-16's] role is between that of the F-15, designed to engage and defeat the

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[67] "A 'Superb Toy' Made for Air Superiority," *New York Times*, July 27, 1975.
[68] Neil R. Anderson, "Flying the YF-16—A Flight Test Report on the USAF Air Combat Fighter," *Aerospace*, March 1976.
[69] James Rider, "YF-16 Pilot Report," *Air Force Magazine*, October 1976, 37.

most sophisticated Soviet fighters, and that of the A-10, a heavy, slower ground support aircraft of great fire power. The F-16 is also intended to supplement the F-111 and the F-4 in air-to-surface operations against hostile armor."[70]

This emphasis on air-to-ground and versatility was anathema to the wishes of the Fighter Mafia and their desire for a "pure" air-to-air fighter. To counter these arguments, General Dynamics released a presentation in January 1977 to argue that the idea that the F-16 prototype had been ruined or compromised by the changes to the production model was just a myth. The production model was actually quite close to the prototype and in some ways superior.[71] By this point, the company and the Air Force had fully embraced the idea of the F-16 as a multi-role aircraft, and plowed ahead with that as the main communications strategy in future promotional material.

The idea that the F-16 was between the F-15 and the A-10 was emphasized in a General Dynamics Program Summary presentation later in 1977, officially referring to the plane no longer as the "air combat fighter," but as "the multirole fighter." The presentation emphasized the versatility of the F-16, that it was capable as a dogfighter, but also "can deliver a larger air-to-surface payload over a greater distance than any fighter in its class." Infographics positioned the F-16, literally, between the F-15, F-111, and A-10, as capable of performing and complementing all of those aircraft on their missions.[72] A pamphlet from the same year also emphasized this versatility, defining the plane as "capable of establishing superiority in air-to-air combat. In addition, it can carry exceptionally heavy loads of missiles and bombs for air-to-ground attack missions."[73]

General Dynamics published a new booklet in April 1977 branding the F-16 as a multirole fighter, emphasizing versatility and the ability to excel in ground attack as well as air-to-air combat.[74] Almost every press release from the contractor beginning in 1977 referred to the plane as the multirole

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[70] Drew Middleton, "Air Force is Pinning Big Hopes on F-16's," *New York Times*, December 7, 1976.
[71] "F-16 Prototype—Production," General Dynamics, January 28, 1977, NASM Archives AG-033100-03.
[72] "F-16 Program Summary," General Dynamics, August 15, 1977, NASM Archives, AG-033100-03.
[73] "F-16 Multirole Fighter," General Dynamics, 5/77, NASM Archives, AG-033100-04.
[74] "The F-16 Multirole Fighter," General Dynamics, April 1, 1977, NASM Archives, AG-033100-04.

fighter or the “multimission” fighter.[75] Magazine ads began featuring the same. A 1978 ad featured the multirole capabilities of the plane, a trend which lasted into the 1980s, although this was not exclusively the case, as one 1988 ad still emphasized the air-to-air role of the plane.[76]

By fall 1978, the story had shifted further, to the point of insisting that the F-16 had been designed with ground attack in mind, it was “designed as a 'multi-role fighter’”—almost the opposite of the Fighter Mafia’s intentions. H.F. Rogers, the Vice President of General Dynamics and Director of the F-16 program, claimed that “the Air Force was looking for a new jet capable of both air-to-air and air-to-ground combat.”[77]

Dual Role Fighters

By 1978, both the F-15 and F-16 were promoted by their manufacturers as multi-mission planes with significant ground attack capability. This effort was a synergistic development from both the contractors who wanted to sell more planes, and the Air Force who wanted additional reasons to buy more. One element prompting this was the perception that the F-111 was getting old, and in the late 1970s, was seen as incapable of handling advanced air defense threats. Although an improved F-111F model had been procured, in 1978, commander of Tactical Air Command, Gen. Wilbur L. “Bill” Creech, studied alternatives for a “Enhanced Tactical Fighter,” (ETF) to complement or even replace the F-111F.

The goal of the ETF was high-speed, low-altitude deep strike against enemy ground targets without needing to rely on fighter escorts. Because there was a need for ground attack and an air-to-air component, the program became known as the “Dual-Role Fighter.” The Air Force solicited a proposal from McDonnell Douglas to modify the F-15 for this role. Creech met with the president of McDonnell Douglas, and other Air Force leaders took similar steps to collaborate with the company. Creech and

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[75] See collection of “General Dynamics News” releases, NASM Archives, AG-033100-09.
[76] General Dynamics magazine advertisements: "Multirole F-16," 1978; "F-16... Perfect Choice For CAS/BAI," 1988; "Why enemy pilots don't sleep well," 1988.
[77] Stephen Good, “F-16 fighters beginning to roll off production line,” *The Morning News - Sunday News Journal* (Wilmington, Delaware), Originally for the *Dallas Times Herald*, October 15, 1978.

others outlined the exact air-to-ground weapons and avionics capabilities they wanted, and concluded, "It's either go dual-role or get out of the F-15 business."[78]

McDonnell Douglas promoted a modified F-15 for exactly that role, producing new brochures proclaiming: "F-15 Eagle – the World's Best Dual Role Fighter for Today and Tomorrow."[79] This modified F-15 was not alone – General Dynamics, working with others in the Air Force who thought the F-16 was a better fit for the Dual Role Fighter, also sought a modified F-16 for this role. The result was the F-16XL, which used a larger delta wing to carry more air-to-ground weapons.

In 1981, the Air Force announced a comparative flight demonstration to decide between the F-15E and the F-16XL. Now both planes, which had both been planned to be designed exclusively for air-to-air combat, were in a competitive flyoff to essentially determine which was the better bomber. The Air Force announced the F-15E as the winner in 1984. This "Strike Eagle" went on to a large operational career and the F-16XL prototypes went to NASA for a successful career in flight testing.[80]

Conclusion

Examining the design and public relations trajectories for both planes, they have a similar, though slightly inverted trend. The F-15 started as a multi-mission plane, with significant internal debate about its true purpose. Fighter advocates came in, determined to make it an air-to-air only plane. Although they were largely successful (the operational F-15C was used primarily for air-to-air roles and had no air-to-ground capability), they thought their ideas had been compromised and instead worked on the F-16. This Fighter Mafia thought that the F-16 would fulfill their goals of being an air-to-air-only "pure" fighter, but this goal was almost immediately compromised as the plane became advertised and later used as a multi-

[78] Albert Picirillo, *Elegance in Flight: A Comprehensive History of the F-16XL Experimental Prototype and its role in NASA Flight Research* (Washington, DC: NASA, 2014), 149-151.
[79] "F-15 Eagle Air Force Tactical Fighter," McDonnell Douglas, no date, NASM Archives, AM-251120-02.
[80] Kenneth P. Werrell, *Chasing the Silver Bullet: U.S. Air Force Weapons Development from Vietnam to Desert Storm* (Washington: Smithsonian Books, 2003), 74-75; See also, Picirillo, *Elegance*; and Edgar Ulsamer, "In Focus: The Dual-Role Eagle," *Air Force Magazine*, April 1, 1984.

mission ground attack plane. Later, modified versions of both aircraft competed against each other for a contract as a ground attack "Dual Role Fighter."

There are a number of conclusions that can be drawn. First, the internal debates or even confusion about these aircraft carried over into the promotional and public relations campaigns for both aircraft. This blurred messaging was partly due to pure confusion, but also prompted by the desires of contractors to sell more aircraft by justifying their planes as being useful in multiple roles—and the desires of the Air Force to have aircraft that could be versatile. It was more profitable for the companies, and also cheaper for the military, to modify existing aircraft than to pursue developing entirely new planes.

Second, the Air Force has sometimes been criticized for its preference for versatile, multi-role planes instead of specialized aircraft that are optimized for a single mission. Certainly that proved true in this case, as even when internal forces fought hard for single-mission focus, that focus became blurred due to institutional inertia.

However, although this emphasis on versatile, jack-of-all-trades aircraft has a times produced frustrating results, such as the F-4 Phantom and F-111, in the case of the F-15 and F-16, the versatility approach worked. The 1970s was a historical moment in which technology had matured to a point where the Eagle and the Fighting Falcon could, in fact, excel and dominate in both air-to-air and air-to-ground roles in ways that previous generations (and, perhaps future generations) could not. By designing for air-to-air combat effectiveness first, the Air Force had produced, unintentionally or not, planes that proved that being a jack of all trades did not necessarily mean being a master of none.