



MCDONNELL

FH-1 PHANTOM

BY **WALT FINK**

WITH SPECIAL THANKS OF ASSISTANCE TO:
**HARRY HANEY
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The first aircraft with a now-famous name, the McDonnell Phantom (or Phantom I, if you will) was the grandfather of an entire line of "Spooks" to be built by the company which today, as McDonnell-Douglas Corporation, is one of the most successful of all American aircraft manufacturers. Others to follow included the Banshee, Goblin, Voodoo, Demon, and the brilliant Phantom II, which is the front line of Defense of several countries today. While produced in numerically very small numbers, the FH-1 provided the necessary stepping stone to modern aircraft design. As announced at the 1973 IPMS/USA Convention, Micro-Scale Corporation is releasing a kit of the FH-1 in the (hopefully) near future; as some of the information in this article has been around the Quarterly files for some time now, we felt that this would be an appropriate time to present it. We wish Micro-Scale well in their venture and hope that the current raw materials shortages will not too adversely affect production of this kit. Along with Harry Haney and Dick Hill, I wish to express my appreciation to Mr. N. Gordon LeBert of McDonnell-Douglas for his help in the compilation of this article.....Ed.

The first United States jet aircraft to be designed "from the ground up" for carrier-based operations, the McDonnell Phantom must surely rate as one of the most successful aviation experiments in history. McDonnell received a letter of intent for the development of two experimental jet fighter aircraft on 7 Jan 43, and two years later received a production contract; a design study presented to the Westinghouse Electric Corporation was the Navy's first step toward manufacture of an American jet engine. Westinghouse was one of three turbine-manufacturing companies invited to join the Durand committee (set up jointly by the U.S. Army Air Force and the Navy, and which included representatives of Allis-Chalmers, Westinghouse, and General Electric) and their first engine, the Model 19A, was started following a Navy contract awarded on 12/8/41, the day following America's entrance into World War Two. The engine actually at that time had the inhouse designation of X19A assigned, and was an axial-flow design with six stages and a single-stage turbine. It first ran on 19 Mar 43, giving 1200 lbs. static thrust, successfully completing its 100-hour endurance test on 5 Jul 43. The second prototype engine was test-flown beneath a Chance-Vought F4U Corsair on 21 Jan 44.

Of course, American development of the jet engine followed by some four or five years the initial solid progress made by Britain and Germany. It is of interest to note that in both these countries, two quite distinct lines of development were being followed independently up until the time governmental interest was aroused and a coordinating policy formulated. Although the work in Germany started somewhat later than that in Britain, the world's first successful jet flight using a gas-turbine engine was made in Germany almost two years before the first British jet aircraft took to the skies, and a German rocket-propelled aircraft was flown (with some success) even earlier. Apart from the work in these two countries, it is interesting to look back in retrospect at certain other events. In Sweden, an engineer by the name of A.J. Lysholm had patented gas turbine engines of his own design in 1933, and a small turbojet engine was actually tested as early as 1934. In France, M. Rene Leduc (who had started work on his ramjet propulsion units for aircraft in 1929) was in the process of constructing such an aircraft in 1940. In Hungary, Jendrassik built and successfully ran an aircraft turboprop engine in 1941. The jet powerplant is not such recent history as a great many aviation history buffs will lead one to believe!

McDonnell began preliminary design studies on its new fighter in 1942; as the jet engine was a relatively new concept at that time the general consensus in the industry was that since jet powerplants were so much simpler than reciprocating ones, having in essence only one moving part, their size could be scaled up or down as desired to match the requirements of the airframe. Thus, McDonnell considered several arrangements---eight 9.5 inch diameter engines, six 11 inch ones, four 13.5 inch ones, and two 19.5 inch ones. In actual practice, it was soon discovered by a learning engine industry that the mechanics of designing rotors, combustion chambers, etc., was not as easy as had been originally supposed. The two-engine arrangement was the eventual winner of the design competition and was adopted for two reasons: first, McDonnell could realize a great weight saving (on the order of some 300 pounds), and second, the simplification of the aircraft was desirable. (Structurally, as well as being much easier to engineer from an instrumentation standpoint.) The basic design of the aircraft had undergone some changes while still on the drawing board; as mentioned, a multiple powerplant layout was considered, and the six-jet configuration had been one of the prime contenders for final design; the engineers felt that the fighter should be as small as possible, but soon found that with the projected weight, the wing loading would be unacceptably high. Consequently, the wing area was increased from 187 to 230 sq. ft., and was left this way even when the twin-engine configuration was decided upon. It was subsequently increased to approximately 270 sq. ft..

The Westinghouse jet engine, now designated the 19XB-2B, was progressing well when the Phantom design team began designing it into their fighter. In order to keep the intake and exhaust ducts to a minimum length, and to simplify and streamline the design, the twin powerplants were buried in smoothly-faired wing roots, close to the fuselage; this arrangement also resulted in a much higher aerodynamic efficiency than the use of underwing nacelles. The Phantom took shape steadily and when rolled out for the first time at the E. St. Louis plant, had only one of the Westinghouse engines installed. The McDonnell and Westinghouse teams had such a great deal of confidence in this new aircraft, tho, that taxi trials were commenced using only the single engine. Due to the delay in receipt of the other powerplant, the Phantom prototype took to the air on its first test flight on 26 Jan 45, with one engine! So flawless was its performance that other engineering tests were begun even before arrival and installation of the second engine. The a/c, BuNo 48235, was designated as the XFD-1 at this time; Douglas, normally thought of as being assigned the "D" designator for Naval aircraft, had been removed from the list as a supplier of aircraft to the Navy, and the letter "D" allotted to McDonnell in 1943. To avoid the obvious confusion when Douglas again became a supplier, McDonnell was given the letter "H" as its manufacturer's designation. Thus, the XFD-1 became the XFH-1, and its production variant, the FD-1, similarly became the FH-1. At this time, the Westinghouse jet engine was assigned the designation of J30, and the WE-19XB-2B engines installed in the Phantom became the J30-P20. Matt's United States Navy and Marine Corps Fighters 1918-1962 states that this first prototype was destroyed in a crash in November 44 and that the second machine, BuNo 48236, was turned over to the Navy at Patuxent River following McDonnell's initial tests. While I must take issue with the dates involved, the remainder of the information appears relatively correct.

The new fighter proved to be a winner; stability about all axes was excellent, and on 21 Jul 46, LCDR James Davidson, flying XFD-1 BuNo 48236, accomplished an important first for the aircraft by making several takeoffs and landings aboard the USS Franklin D. Roosevelt (CVA-42). From this day on, it was apparent that the day of the jet carrier aircraft was established; the Phantom's excel-

lent performance aboard the Roosevelt demonstrated without a doubt that the fundamental concept of carrier-based jet operations was sound. Thus, the first Navy jet came into being, McDonnell and Westinghouse having combined to produce the first in a series of successful Navy fighters; even before the sea trials, an order was placed with McDonnell on 7 Mar 45, for 130 FH-1s. Due to engineering and other delays, however, the engines were slow to reach production and shortly after V-J Day the order was reduced to 60.

Initial shipments of the production Phantoms went to two Fleet Squadrons and saw front-line service with them until 1950. The first Unit to receive the new jet was Navy Fighter Squadron VF-17A, who took delivery of their first aircraft on 23 Jul 47; VF-17A was subsequently re-designated VF-171 on 1 Sep 48. The second unit to be equipped with the Phantom was Marine Fighter Squadron VMF-122, which operated the last FH-1 in front-line service, retiring that particular aircraft on 1 Jul 50.

VF-17A/171 was the first Phantom Squadron---and the first Navy jet squadron---to be carrier-qualified; despite the demonstration by NATC on 21 Jul 46, the real crucial test of the Phantom and the concept of Carrier jet operations would come when an entire Squadron of the aircraft proved that they were able to carry out operational tasks while embarked. The Navy ended all doubt that not only one but several squadrons of jets could indeed operate from these floating airfields by staging a demonstration aboard the USS Saipan (CVL-48) on 6 May 48. The Saipan arrived in New York on 18 April, relieving the USS Mindoro (CVE-120) as the Flagship of Carrier Division Seventeen; the next day, she steamed for Quonset Point, arriving on 3 May and embarking VF-17A for carrier qualification trials. Following these trials, she steamed back to Norfolk and the Commander of CarDiv Seventeen transferred his flag back to the Mindoro.) Naval Aviation News for July 1948 carried an account of the trials aboard the Saipan and paraphrased is in this article.

Four Phantoms put on the first "show" aboard the carrier, being catapulted off in rapid succession, making one landing circuit, and then making arrested landings back aboard. The third aircraft in line caught a wire just as the first plane was catapulted for the second time. Eight aircraft flew the next phase of the operation, launching in succession, then making firing runs on a dye marker close aboard the carrier. Following the firepower demonstration, the eight Phantoms made a 500-knot high speed pass by the carrier, and following them came Lt. William Shawcross in the "Angel" (plane guard helicopter) who made a "speed run" past the ship at a sizzling 70 knots, just as a means of comparison. [The helicopter, incidentally, was from the then newly-created Helicopter Utility Squadron Two, formerly VX-3, at Lakehurst, New Jersey; Copilot of the H03S-1 was Ens. R.H. Moseley. It was at this time that the Navy first discovered the true value of rotorcraft for plane guard and other utility duties; at that time comparatively new with the Fleet, the helicopter has become an indispensable element in carrier operations.]

Climax of the jet demonstration was the catapulting of eight Phantoms and the deck launching of eight more in rapid succession; the latter ones used the majority of the Saipan's 600-foot flight deck, but the test aboard the Roosevelt had shown that they could get off in nearly half that length if required (the XFD-1 had completed its takeoff runs in approximately 360 feet). In tight formation, led by VF-17A's Commanding Officer, Cdr. Ralph A. Fuoss, the sixteen Phantoms made a close pass on the carrier and then headed toward Quonset Point. Therein followed a tragic accident which marred the otherwise successful first test of the Navy's first jet squadron; during approach to the Naval Air Station and carrier-style break, Cdr. Fuoss' Phantom was involved in a mid-air collision which severed the tail section of his aircraft. It dived vertically into the bay from an altitude of about 700 ft; too low for successful bailout, Cdr. Fuoss was killed instantly and his death became the first Navy fatality in jet aircraft.

The trials aboard the Saipan proved conclusively that carrier propeller and jet aircraft were wedded with little strain. The ship's narrow flight deck, which was only two feet wider than a 105-class Escort carrier's, was no problem to the jet pilots. In fact the Saipan had only two incidents; the first, a barrier arrestment the day before the show, resulted in no damage to the aircraft, and during the day of the show, an F6F Hellcat lost its hook, caught a barrier, and bent the prop. VF-17A had operated off the Saipan for two days preceding the show to accustom itself to carrier landings, since this was the first time its pilots had been checked out with a jet aboard ship. In all, the squadron made 176 takeoffs and made a number of waveoffs to simulate actual combat conditions. The Phantom had met every Navy requirement and its success in these trials marked a milestone in the history of Naval Aviation.

As for maintenance of the Phantom, the engineering officer aboard the Saipan, LCDR William Kelly, and his assistant Ens. John Brems, stated that the aircraft was surpassing expectations. The fact that 16 aircraft went aboard the first day and all 16 flew off the last day bore out this testimony. Kelly, who was project engineer on the FH-1 aircraft while it was being perfected by BuAer, was quoted as saying, "I kept telling them that jets would work on carriers just as well as any fighter".

VF-17A squadron pilots had high praise and few criticisms of the Phantoms or the way they could be operated off the carrier; due to the slightly slower engine acceleration, waveoffs were given when the aircraft was farther astern and they cleared the ramp with plenty of room to spare. Some deck crewmen complained that the terrific whine of the Westinghouse engines was bothersome, but tests at that time by Navy medical authorities could reveal no ill effects on the men. Of course, we now know that prolonged exposure to such noise can result in deafness, particularly to some frequencies of sound, and thus protective headgear has become the standard for flight deck crews.

Several predictions were made by certain military and civilian personnel prior to the Saipan trials, most of which smacked of early Glenn Curtiss-era "man was not meant to fly" remarks. These were totally refuted by the overwhelming success of the Phantom squadron, and were also listed in Naval Aviation News for July 1948 as "fiction versus fact":

1. *Jets are slower to accelerate and will have trouble taking waveoffs....* it was expected to be a dangerous maneuver but wasn't at all. Several waveoffs were given, and the jets cleared the ramp with as much leeway as the "torpeckers" and Hellcats that landed aboard the Saipan after the jets had departed. In actuality, fewer mandatory waveoffs were given to the Phantoms, presumably because visibility from the cockpit was so much better than other Navy (prop) fighters.
2. *Jets will have to land fast and will tend to "float" because of residual thrust....* the Phantoms came in only slightly faster than F6Fs. They caught earlier wires than the prop aircraft, as a rule, and apparently floated no worse than the Hellcat.
3. *The jet exhaust will burn crewmen and will be dangerous for following planes on the flight deck....* Saipan deck crews treated the jet exhaust with proper respect---that is, they did not walk directly behind the engines or touch the hot metal after shutdown. They were not timid around them, as they tended to be around a propeller. Some of the catapult crew, chilled by the icy 30-knot wind over the carrier's deck, backed up to the exhaust trail aft of the tail of the aircraft and warmed their hands and backs. Force of the blast appeared no greater than ordinary propwash a short distance behind the FH-1s.
4. *Since auxiliary power is required for starting a jet engine, launching will be slowed down....* two battery jeeps ducked around the jets, energizing their powerplants in rapid succession. Since no warmup of the jet engine is required once it is started rapidly of launching was actually greater with jets than props, from the time the General Quarters gong rang.
5. *Because of the jet exhaust, crewmen will have difficulty in unhooking the jet from the arresting cables....* by using a sort of gaff stick, Saipan's deck men cleared the jets just as fast as any other type plane. Many of the hooks cleared themselves on the rollback following the arrestment.
6. *Jets will require wide intervals between catapulting or deck launches because the exhaust gases will asphyxiate pilots and will burn following planes....* some pilots on the Saipan used oxygen masks when they took off with open canopies, and planes followed closely behind each other without any sign of heat or blast damage.

The FH-1 was also the first jet fighter to be used by the Marine Corps; VMF-122, the second and--as far as records indicate--only other Fleet squadron to operate the Phantom, flew the type until the first part of Fiscal 1951. Again, I must take an exception to the information presented in Matt's book which stated that two Marine units were equipped with the FH-1, the "other" squadron being VMF-311. This squadron, commanded by Lt. Col. Paul J. Fontana, was based at El Toro and did fly jets, but they were T0-1s (the Navy/Marine equivalent of the P-80 Shooting Star) and did not work up with these aircraft until after the FH-1 had been incepted by VMF-122. Later to be commanded by Lt. Col. Marion E. Carl, VMF-122 gained much valuable experience with the Phantoms under their

leader Lt. Col. L.D. Everton, who, along with three other pilots from the squadron, formed a precision acrobatic team using the FH-1s. Known alternately as "The Marine Phantoms" and "The Flying Leathernecks", these four pilots toured the United States in their brilliantly-colored FH-1s for some two years before disbanding. (A personal account of one of these a/c is given later in this article.)

THE PHANTOM DESCRIBED

The FH-1 was of all-metal (aluminum alloy) construction, with flush-riveted skin. The fuselage was of monocoque construction, with the roomy cockpit forward of the wing leading edge; the cockpit had a fixed windshield with a bulletproof front panel and a rearward sliding plexiglass bubble canopy. Some variances will be noted here with respect to the XFD-1, the windscreen being slightly different than on the production Phantoms. The wing consisted of three main sections, the two outer ones being folded upward by means of electrically-actuated cockpit controls, thus permitting storage on carrier decks. Wing flaps were of the split, trailing-edge variety and were likewise electrically-operated. These flaps were actually in four sections, and except for a relatively small area beneath the fuselage, spanned very nearly the entire aileron-to-aileron distance. The inner sections formed a fairing beneath the twin jet engine exhausts, and when lowered, gave the Phantom the characteristic slow landing speed which the Navy required. The empennage of the Phantom incorporated a cantilever vertical fin and a dihedral tailplane. Certain variances will also be noted here between the XFD-1 and the production FH-1, the FH-1 having a more squared-off fin and tailplane, with an inset rudder. Early prototypes had rudders which were slightly broader in chord and which extended from the tip of the fin to the bottom of the fuselage; correspondingly, the elevators were notched at their inboard ends to allow full rudder throw. The XFD-1 was approximately 18 inches longer than the production FH-1. The two Westinghouse J30-WE-20 engines installed in the FH-1 possessed approximately 1600 lbs static thrust each, and their installation also featured a slight outward cant of the jet exhausts (approximately one and a half degrees) to ensure that the exhaust gases did not impinge on the sides of the fuselage aft of the powerplants. The landing gear was of an electrically-operated, tricycle type, and a retractable arresting hook was located beneath the aft fuselage. Provisions for the use of JATO were featured; a droppable Aerojet 14AS-1000 D5 or 8AS-1000E unit having a 1000 lb thrust rating for 14 seconds (or 350 equivalent horsepower at 100 mph for the same period of time) could be fitted to boost the Phantom's takeoff performance, though by today's standards, the FH-1 hardly needed assistance. As mentioned, provisions were also made for catapult launching.

With a normal weight of 10,035 lbs (max. wt. 12,035), the Phantom possessed a top speed in excess of 500 mph at 30,000 feet, and could slow to a landing speed of approximately 80 mph. Its range was on the order of 700 miles, but could be extended to approximately 1,000 miles by the use of an external fuel tank. Internally, the FH-1 held 375 gallons of fuel with provisions for a 295-gal belly tank to be fitted, which was a tear-drop shaped, closely-faired attachment loaded beneath the wing center section. The service ceiling of the plane is listed as being between 41,100 feet and 43,000 feet, dependent upon which reference one relies upon. For armament, the FH-1 featured four .50-caliber machine guns mounted in the upper forward nose, the barrel fairings being a prominent identification feature of the FH-1. Additionally, eight zero-length rocket launchers could be fitted beneath the wings.

The original XFD-1 prototype which carried out carrier suitability trials aboard the USS Roosevelt had a barrier engagement protector which was mounted forward of the windscreen, and was a metal post approximately a foot or so in length, and inclined forward some 30 or 40 degrees from the vertical, with supporting rods. Purpose of this arrangement was in the event of a barrier engagement of the Phantom; the upper support webbing of the barrier would have slid smoothly up and over the relatively low and streamlined nose of the aircraft, thence up the windscreen and down into the open cockpit, which could have resulted in serious injury to the pilot. In some later aircraft a barricade engagement protector was a standard fixture; in the case of the F9F Panther, this spring-loaded device, normally flush with the skin forward of the windscreen, would extend upward when the arresting hook was lowered by the pilot.

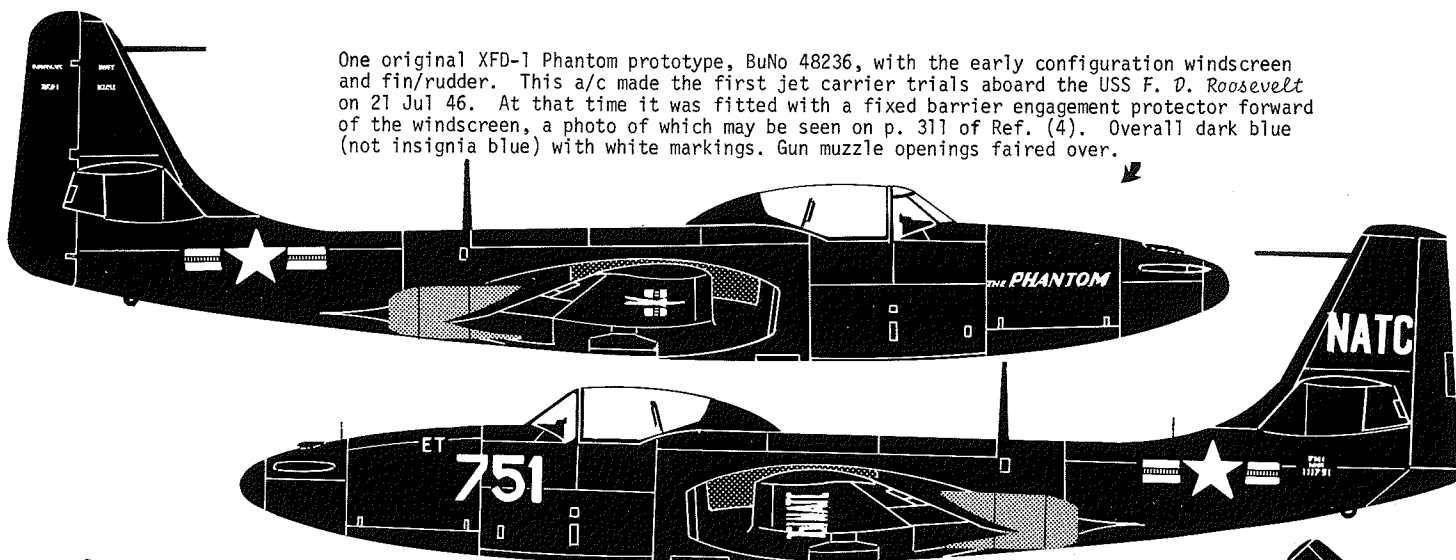
SPECIFICATIONS

Weight: Empty 6,683 lbs	Wing area: 273.74 square feet	Wing section: NACA 66.2-21B (A-6) at root
Normal 10,035 lbs	Wing chord: 13 feet at root	NACA 66(215)-414(A-6) at tip
Max 12,035 lbs	7'6" at wingfold joint	First flight: 26 Jan 45 XFD-1; 28 Oct 46 FH-1
Height: 14'2" overall	4'8" at tip	Production
16'10" with wings folded	Wing incidence: +4°	order placed: 2 Mar 45
Length: 38'9"	Wing sweepback: None. Wing trailing	No. produced: 2 XFD-1; 60 FH-1
Span: 40'9"	edge sweeps forward 13°	BuNos: XFD-1 48235 - 48236
16'3" with wings folded	Wing dihedral: +8°	FH-1 111749 - 111808

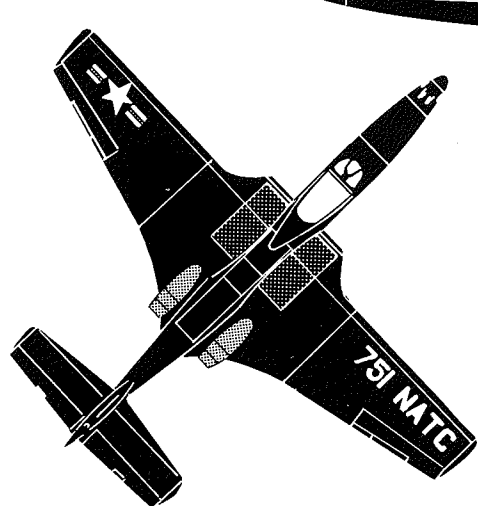
COLORS AND MARKINGS

The Phantom series of aircraft, from the early XFD-1 up to the last production FH-1, was delivered and retained in the now-familiar glossy dark blue finish, with white markings being standard. The fact that only sixty-one machines were actually delivered from the McDonnell plant would lead one to believe that there were very few, if any, variances in markings schemes. Actually, there were several, though in many instances the differences were minor. We have tried to present, on the following pages, a rather comprehensive selection of schemes for the FH-1, which should give the average markings buff something to embellish his talents upon, once the Micro-Scale kit is released. When VF-171 converted to the F2H Banshee in March 1949, her FH-1s went to Reserve Units. During the active role with VF-17A/VF-171, the Navy FH-1s were marked with a large white letter "R" on the vertical tail, with few exceptions---one being the trials aboard the USS Saipan, in which only the large white Modex number appeared on the forward fuselage and the outboard main landing gear strut door. Though the "R" changed shape and style, and the Modex likewise fluctuated in position and size, the Navy markings were pretty much standard. VMF-122 aircraft were initially marked with the assigned letters "BC" on the tail with underscoring; an official change was promulgated by ACL 69-48, dated 4 Aug 48, which changed the assigned codes to "LC" and deleted the requirement for the underscoring on Marine Aircraft. However, based on photographic evidence (a photo from NANA July 1948), the change was made prior to August 1948, and the underscoring was actually used with "LC" as well, at least for a time. With few exceptions, the tail code and modex was repeated on the upper right and lower left wings of the FH-1s of both services. The nose art of the Marine aircraft was varied and reference to the profile drawings will be in order here. The Phantoms were relegated to certain Reserve squadrons during their twilight tours and were instrumental in transitional training for jet pilots; unfortunately, no photos are available at this time showing the standard Reserve markings, including the Orange-Red Reserve Belly Band, on FH-1s. A few vague areas exist in this period of time as far as tail codes and they will be explained on the plate pages following. Usually, the interiors of the cockpits were the familiar zinc chromate color, but later on in the service life of the Phantom were alternately painted grey and/or black as well. Wheel hubs and landing gear could be either white or silver, and the interiors of all retractable panels (flaps, wheel well doors) were painted gloss insignia red. While it has been said that the standard dark Navy blue finish was standard, some photos of the Phantom show that the exterior color was actually lighter than insignia blue. On certain machines, the dark insignia blue background of the star and bar could plainly be seen on the slightly lighter aircraft color. However, on other aircraft, no blue was used in the National Insignia at all. Wing walks were located atop each wing root area, and appear to have been black, textured non-skid material.

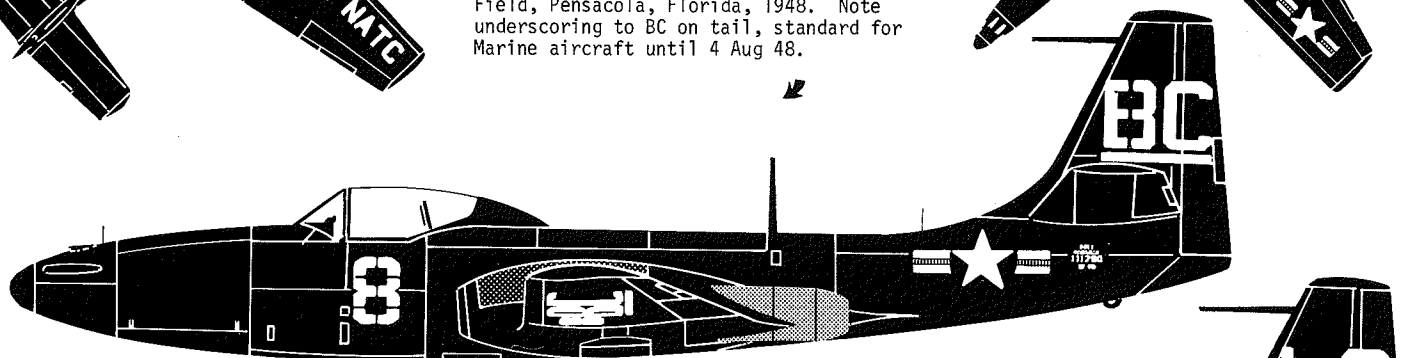
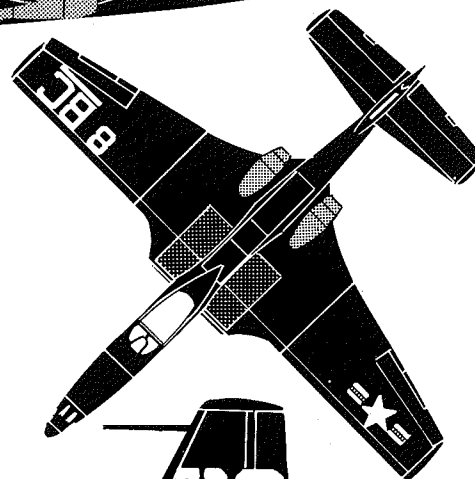
One original XFD-1 Phantom prototype, BuNo 48236, with the early configuration windscreen and fin/rudder. This a/c made the first jet carrier trials aboard the USS F. D. Roosevelt on 21 Jul 46. At that time it was fitted with a fixed barrier engagement protector forward of the windscreen, a photo of which may be seen on p. 311 of Ref. (4). Overall dark blue (not insignia blue) with white markings. Gun muzzle openings faired over.



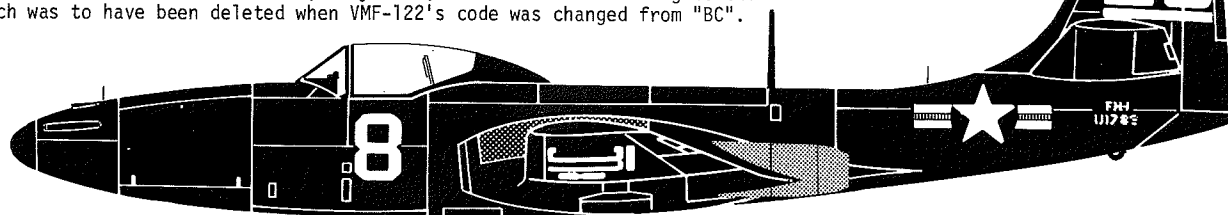
(Left and above): FH-1 BuNo 111751 from Naval Air Test Center. Note that numerals and tail lettering are not standard military "block" style. This was common practice at NATC during these years. All markings white, national insignia white and red only. "ET" on both sides of nose



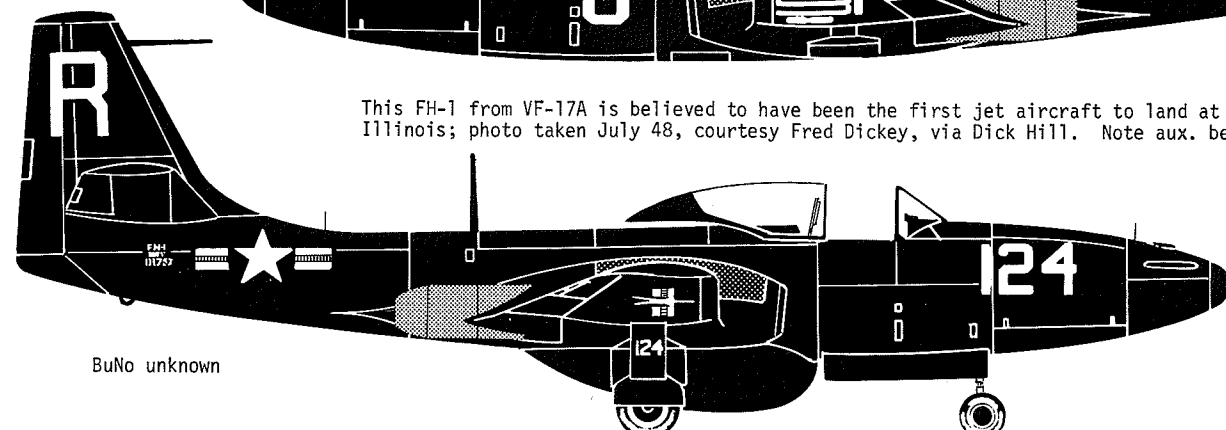
(Right and below): FH-1 BuNo 111780, from VMF-122. Photographed at NAAS Saufley Field, Pensacola, Florida, 1948. Note underscoring to BC on tail, standard for Marine aircraft until 4 Aug 48.



This VMF-122 Phantom, seen in *Naval Aviation News*, July 1948, shows the underscoring to the tail codes "LC", which was to have been deleted when VMF-122's code was changed from "BC".



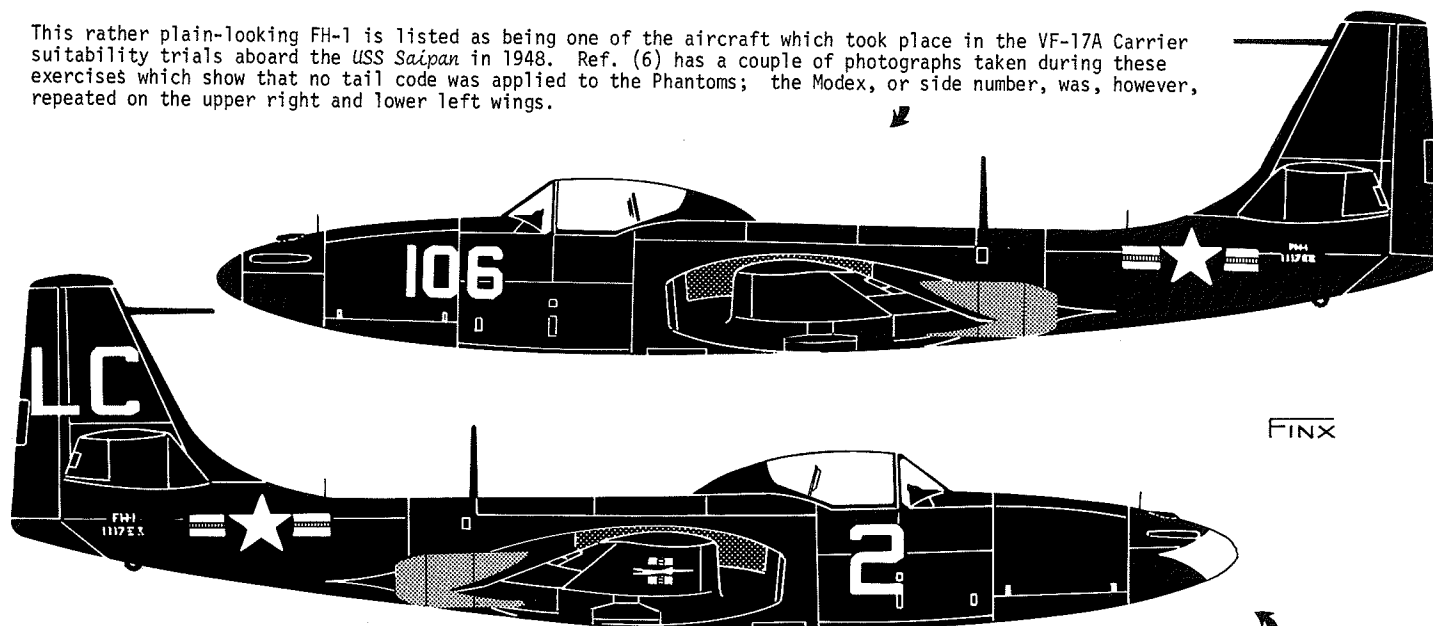
This FH-1 from VF-17A is believed to have been the first jet aircraft to land at NAS Glenview, Illinois; photo taken July 48, courtesy Fred Dickey, via Dick Hill. Note aux. belly tank.



BuNo unknown

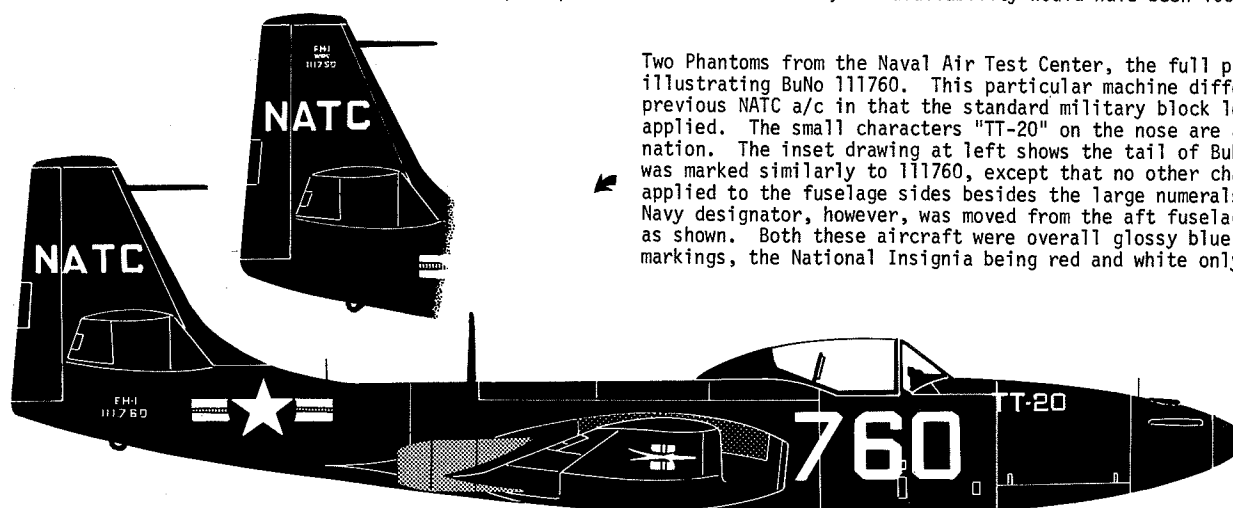
FINX

This rather plain-looking FH-1 is listed as being one of the aircraft which took place in the VF-17A Carrier suitability trials aboard the USS Saipan in 1948. Ref. (6) has a couple of photographs taken during these exercises which show that no tail code was applied to the Phantoms; the Modex, or side number, was, however, repeated on the upper right and lower left wings.



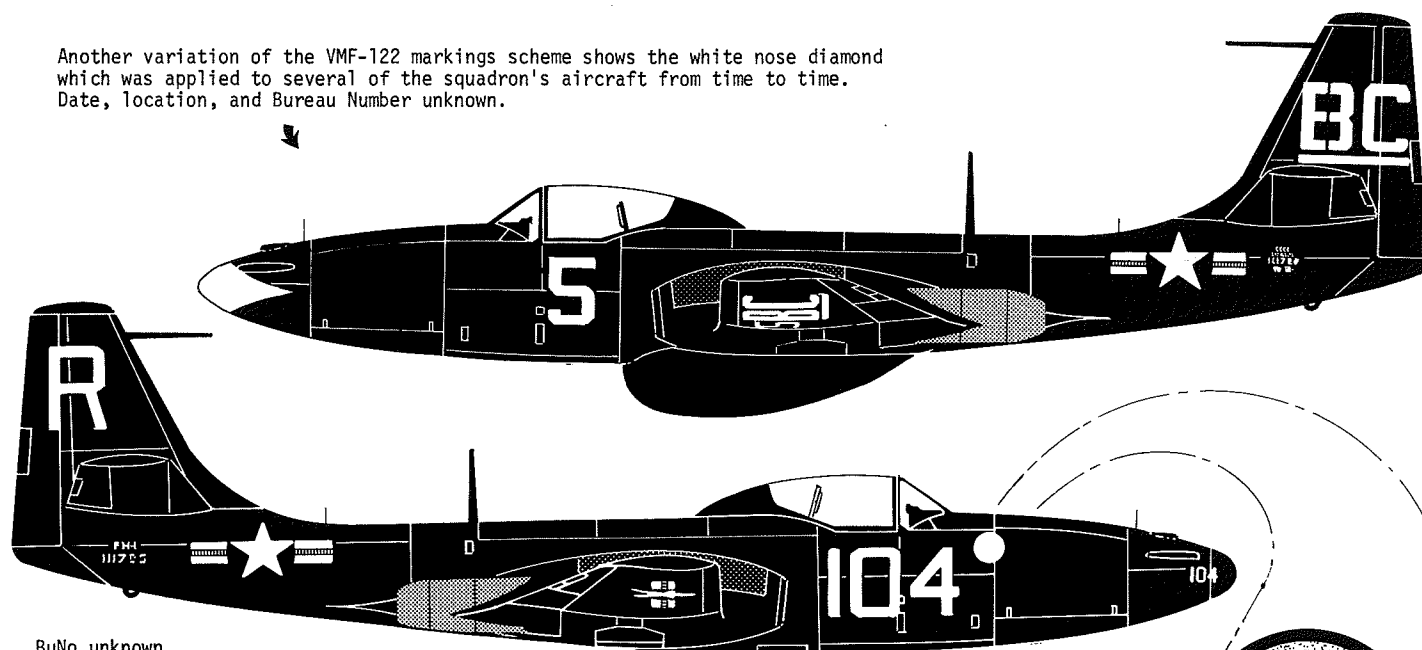
The profile drawing above is of a VMF-122 Phantom flown by M/Sgt Lytton Blass, USMC. There's quite a story behind it, and the following is quoted from "JATO Saves Downed Jet", *Naval Aviation News*, Jun 49:

Salvaging a jet plane after a forced landing may require a good bit of ingenuity, but it can be accomplished successfully and sometimes more quickly than recovery operations for conventional aircraft. A case in point is the recovery of a downed FH-1 Phantom jet which made a forced landing in an isolated area of the Dominican Republic during the Atlantic Command Exercises in the Caribbean. Two Marine Phantoms, which had just refueled in Guantanamo Bay, Cuba, were en route to Roosevelt Roads when, within short intervals of each other, they experienced complete failure of both engines. The first plane, after gliding some 20 miles, made a "wheels down" dead stick landing on a dirt strip at La Romana, Dominican Republic. The Number Two plane, however, had to glide some 60 miles (from 20,000 feet) before its Marine pilot, Master Sergeant Lytton Blass, discovered a soft, sandy beach. He chose a "wheels up" landing to prevent a disastrous somersault from the wheels catching in the soft sand at 70 mi/hour. Engine failures in both cases were caused by excessive water in the gasoline. The first plane, piloted by 1st Lt. Shirley W. Reese, was able to proceed without further trouble, after overhaul of fuel system and fuel cells. Blass' Phantom was also able to fly again in short order, thanks to the use of JATO and "know how." A conventional type of aircraft would have bent its propeller in a belly landing, which would have required elaborate overhauling on the beach or removal to special service facilities. Not so with the jet. The Marines lacked equipment to jack up the plane, so they dug holes in the sand under it, permitting the wheels to be lowered to a taxiing position. Then they cleared short runways from the holes to level ground, making it possible to pull the craft off its belly. Two items had to be taken care of before the plane was ready to fly---an overhaul of the fuel system and changing the inboard flaps. Both jobs could be accomplished in the field. Engine damage was negligible. After scouting around, with the aid of officials of the Dominican Republic, the Marines located the most suitable area for a take off, but it was too soft for a normal procedure. It was decided that the Phantom would need JATO to assist it in becoming airborne. Information on the use of JATO for jet type aircraft up to that time, was non-existent and JATO information generally as well as equipment was meager. The proper type bottles were not obtainable, requiring modification of the only available type, as substitutes. The JATO units weighed approximately 200 pounds each. The modifications called for (1) cutting off half of the base used as a stand, and (2) adding a two-inch extension of the forward release lug. The combination of the two allowed the JATO units to fit and made a positive release possible. The plane was now ready to take off, with Sgt. Blass again at the controls. The two heavy JATO units had moved the center of gravity considerably to the rear, especially since the plane carried a light fuel load (900 pounds) with nothing in the nose compartment except the guns (ammunition cans having been previously removed). Blass had difficulty keeping the nose down for the take off. The main gear left the ground after about 100 feet, but the tail skid continue to drag. The plane was completely airborne after 320 feet, with sufficient speed to remain in the air. It took a total of 12 seconds to launch the plane. The JATO bottles were dropped after they were expended and the plane proceeded to Ciudad Trujillo where it refueled. A thorough check at Guantanamo Bay revealed that excessive water in one of the refueling trucks was responsible for the near-disasters of the two jets. The cause of the forced landings was not nearly so puzzling to the Dominican natives as the take offs. Obviously, they said, the planes could not remain airborne---they had lost their propellers. The two Phantoms were assigned to Marine Fighter Squadron 122, MAG-14, Cherry Point, N.C. Out of 12 FH-1 planes which flew at Roosevelt Roads, the average availability was 11. If spare parts had been obtainable, the availability would have been 100 per cent.

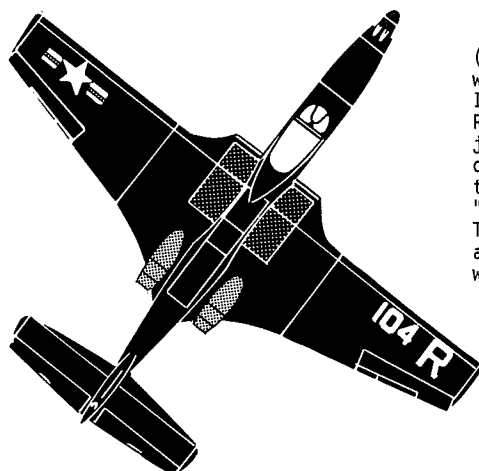


Two Phantoms from the Naval Air Test Center, the full profile drawing illustrating BuNo 111760. This particular machine differed from the previous NATC a/c in that the standard military block lettering was applied. The small characters "TT-20" on the nose are a test designation. The inset drawing at left shows the tail of BuNo 111750, which was marked similarly to 111760, except that no other characters were applied to the fuselage sides besides the large numerals "750". The Navy designator, however, was moved from the aft fuselage to the fin as shown. Both these aircraft were overall glossy blue with white markings, the National Insignia being red and white only.

Another variation of the VMF-122 markings scheme shows the white nose diamond which was applied to several of the squadron's aircraft from time to time. Date, location, and Bureau Number unknown.



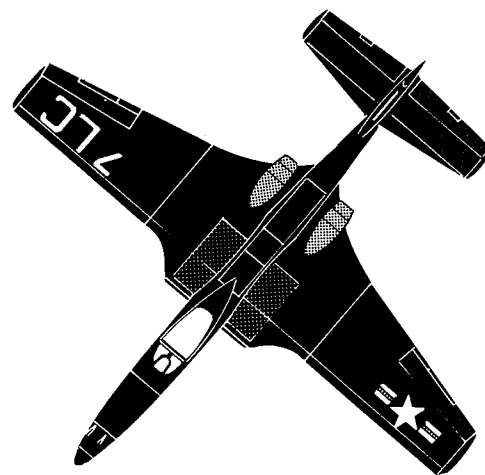
BuNo unknown



(Left and Above): flown by LT. Bob Gould, this FH-1 was used in his transition from recip a/c to jets. It is possible that this plane was assigned to the Reserve squadron at Floyd Bennett Field, New York, judging by the small insignia on the nose. The "R" on the tail was the Reserve designator for New York, though it would appear that when assigned, the code "RF" (New York, Fighter) should have been applied. This is a vague area of our research at this time and knowledgeable readers are asked to write us with any further information.

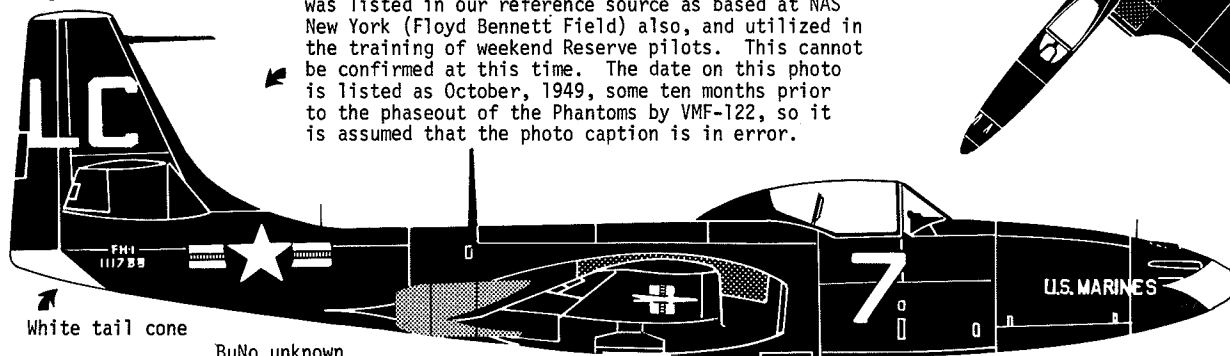


FINX



White fin tip

(Right and below:) this FH-1, in VMF-122 markings, was listed in our reference source as based at NAS New York (Floyd Bennett Field) also, and utilized in the training of weekend Reserve pilots. This cannot be confirmed at this time. The date on this photo is listed as October, 1949, some ten months prior to the phaseout of the Phantoms by VMF-122, so it is assumed that the photo caption is in error.



White tail cone

BuNo unknown

REFERENCES

- (1) Aircraft Recognition Manual, May 1949, FM 30-30 OPNAV-32P-1200-AFM 50-40
- (2) *American Combat Planes*, Ray Wagner, pages 409 - 410
- (3) Article, "I Switched from Props to Jets", Lt. Robert Gould, July, 1951 (thought to be from *Popular Science*)
- (4) *Flat-tops and Fledglings*, Gareth L. Pawlowski
- (5) *Naval Aviation News*, October, 1947
- (6) " " " July, 1948
- (7) " " " June, 1949
- (8) " " " August, 1949
- (9) " " " November, 1949
- (10) *The Jet Aircraft of the World*, William Green & Roy Cross, pages 11, 25, 54
- (11) *United States Navy and Marine Corps Fighters 1918-1962*, Paul Matt & Bruce Robertson, pages 98 - 99
- (12) *War Planes of the Second World War, Volume Four*, William Green, pages 132 - 133.

FH-1 PHANTOM OF THE FLYING LEATHERNECKS

ED WILLIAMS

Most history buffs know that this small but snappy little plane was the Navy's first operational jet fighter and also holds the distinguished fame of being the first jet aircraft to actually take off and land on an aircraft carrier. Many of the first production batches went to Marine Squadron VMF-122 at MCAS Cherry Point, N.C. The chicken farmers, as well as aviation buffs in eastern N.C. began for the first time to get accustomed to the new era of jet aircraft, to the delight of the buffs and to the chagrin of the farmers. It was new to me then, and the Phantom, along with a few P-80R's from Langley AFB, Virginia, were to become the first jets I ever saw. At that time I lived in Rocky Mount, N.C., which is only about 100 miles from Cherry Point, and some two or three times a week I was treated with the thrill of seeing these Phantoms screaming in low just above the rooftops as they "beat up" the town. Screaming is an apt description for it too, because that's exactly what they sounded like; the Phantom had a characteristic howling sound in any attitude other than a flat out climb. The later Banshee also had this characteristic howl, and I suspect it had a lot to do with its name.

Since so few were produced, finding an interesting variation in the drab post-war solid gloss-Navy blue color scheme presents a problem, because nearly all FH-1's were alike. However, an interesting example is that of the one presented here. It is BuAer No. 111753, one of four FH-1's used by the U.S. Marine Demonstration Team "The Flying Leathernecks." It is a little-known fact, but the "Flying Leathernecks," though short-lived, were to my knowledge the first Exhibition Flying Team to use jet aircraft, even prior to the "Acrojets" of Air Force P-80 fame. They were showing off their proficiency in jets while the Blue Angels were still flying their F8F Bearcats and before the Thunderbirds were even thought of.

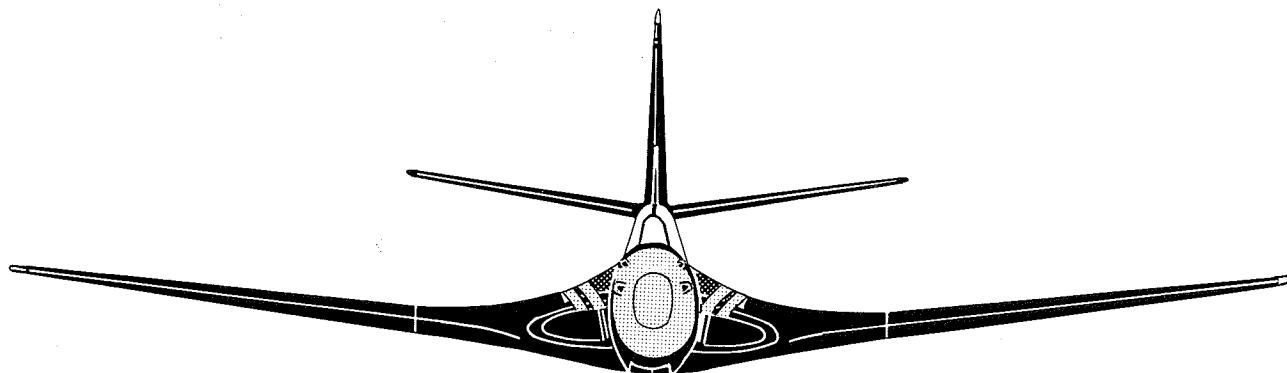
Very little, if any, has been written about them and no information is available that I can find, other than what I present here. They were attached to or part of Marine Squadron VMF-122 and flew their own squadron's aircraft, specially-marked for the occasion. "The Flying Leathernecks" were organized at MCAS Cherry Point, N.C. soon after receiving their new FH-1's in the summer of 1947, to compete for publicity with the famous NARTU Hellcats, Corsairs, and Avengers of Hanger No. 1 at NAS Norfolk, Virginia, who were spending their weekends putting on air shows throughout the middle eastern states. I was privileged to see the "Flying Leathernecks" perform at Raleigh-Durham, Wilson, and Elizabeth City, N.C. during 1948 and 1949. The information presented here is based on the best of my memory and from several photographs which I took during the summer of 1948. The "Flying Leathernecks" were a team of four stock FH-1 aircraft, which were painted in standard gloss dark Navy blue, but due to weathering, the glossy sheen was all but gone. The nose was painted bright chrome yellow from just aft of the gun fairings, both wing tips were yellow, and the rudder was "pinked" in yellow as shown in the accompanying drawings. In addition, two 5" or 6" wide stripes were painted on the upper surface of the wings, Chevron-style, with a 4" separation between stripes. These stripes extended from the inside junction of the wing roots at the air intakes to the trailing edge of the wings at the point where the wings folded, appearing to strike an angle of about 30 degrees from the fuselage line.

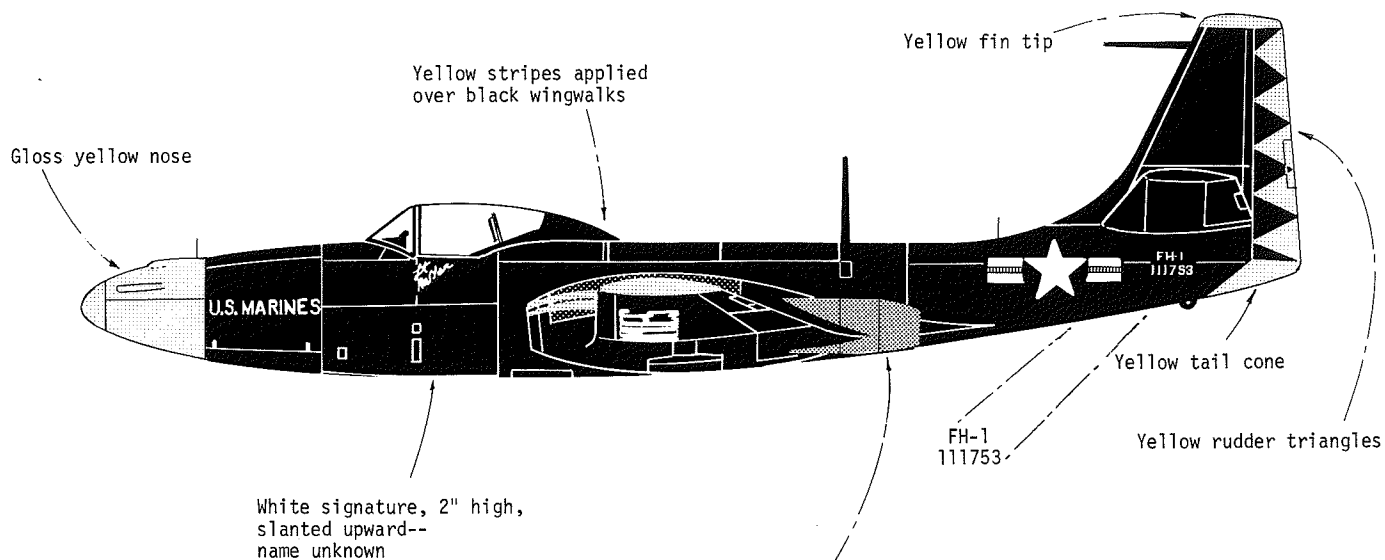
The words U.S. MARINES were applied in 6" or 8" high white block lettering on both sides of the forward fuselage immediately aft of the yellow nose line, and extended about half way between the nose and windscreen. Standard-size national insignia, with red bars, were applied in the usual regulation positions on each side of the aft fuselage and on the upper port and lower starboard wing. The insignias appear to have been completely overpainted on the gloss Navy-blue in a darker shade of blue. The word MARINES appeared in 24" high white block lettering on the under surface of the port wing. (It is possible that this lettering was in yellow, but it most probably was white. To the best of my memory, no markings other than the yellow chevrons appeared on the upper starboard wing.) The pilot's name and rank was applied in rather large handwritten-style, just below the cockpit on both sides. Unfortunately, the names are not legible in my photos, but these signatures seem to be white and are about 2" high in size, slanted upwards as shown.

The aircraft identification letters FH-1 and the BuAer No 111753 appeared aft of the national insignia on both sides of the aft fuselage about midway up. These letters were white, in block form, and were somewhat larger than those seen on other FH-1 aircraft. FH-1 appears to be in 1 1/2" high letters while 111753 appears to be about 3" or 4" high. The nose gear wheel hub was painted flat white while the main gear hubs were metal. All interior painting, including the inside area of the wheel well doors, landing and speed brake flaps, etc., were bright red as on most McDonnell-built aircraft. Cockpit interior was Chromate green.

During this period of jet aircraft development, the Metalast, or oxidized silvering of the flying surface leading edges had not yet been applied and the paint rounding the flying surface leading edges was giving problems in chipping and peeling due to high speed wind resistance; such was the case with BuAer 111753. Later Banshees had the silvering applied to the flying surface leading edges which eliminated this problem. Some scuffing and paint scratching occurred on the upper wings where the deep rounded wing fairings were, but the extra-wide and quite heavily textured wing walks prevented excessive scuffing in this area. To the best of my memory, there were no painted outlines for wing walk areas on the wings.

Although the "Flying Leathernecks" never gained national prominence and their heyday spanned only two or three years, here is at least one person who will never forget their superb aerobatics and howling low level passes.

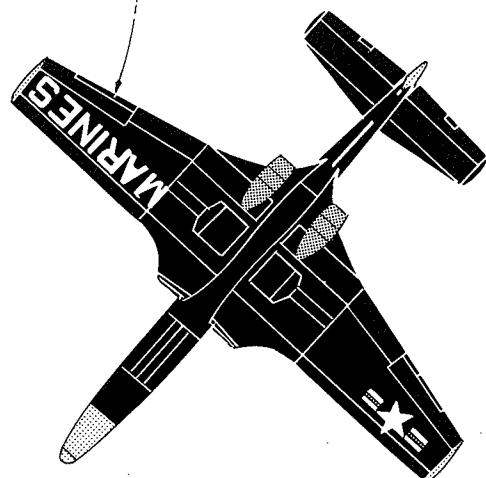




FINX

Exhaust nozzles
light grey-rust
colored appearance

24" high block letters



UNDERSIDE VIEW

Gloss yellow nose

Yellow stripes applied over black wingwalks

Yellow wingtips