

(Cover) Navy F6F-3 #40467 flown by Lt. Alex Vraciu of Fighting Squadron 6 shows 9 kill marks. With part of Task Force 58 seen steaming below, Vraciu is flying C.A.P. (Combat Air Patrol). At war's end in 1945, Vraciu was the Navy's 4th highest ace with 19 confirmed kills.

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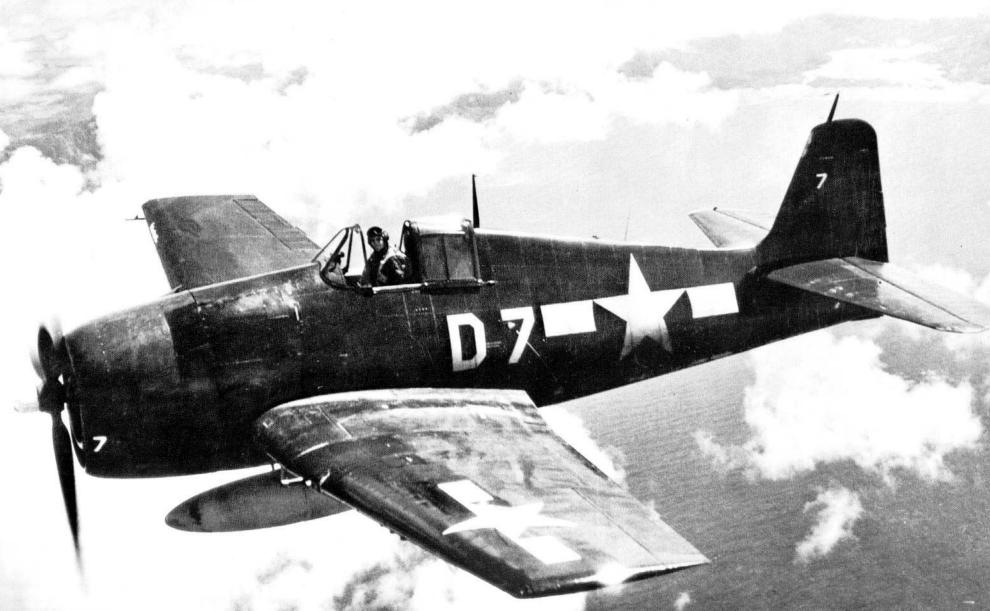
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#### To: DAD and MOM in loving memory

#### Acknowledgements

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F6F-5 of VF-40 flown by Lt. Coleman from the escort carrier USS Suwanee (CVE-27) is seen off the coast of Ishigaki Isle. August 1945. (National Archives)





## XF6F-1

On June 30, 1941 a contract between the United States Navy and Grumman Aircraft Engineering Corporation was signed for two prototype fighters to be built. Soon to be named Hellcat, the XF6F-1 was the beginning of the second line of "Cats" to come out of the Grumman "Iron Works". Some have referred to the Hellcat as the F4F Wildcats big brother. There was an outward family appearance, but that's where the similarity ended. The design of the Hellcat was brand new, strongly influenced by the need for a powerful fighter to counter the Japanese air superiority of the Zero. Grumman loaded their F6F with the ingredients to be a killer. History proved them right as by the end of WWII, Hellcats claimed over 5,000 confirmed kills with a loss ratio of over 19 to 1. The F6F combined the ability to deliver withering firepower with excellent maneuverability and handling characteristics in all flying attitudes. Many a Naval Aviator owed his life to the structural strength Grumman built into the

XF6F-1 (02981) parked on the grass at the Grumman Bethpage Plant. Note the bulky spinner which appeared only on the two prototypes. June 1942. (Grumman)

Hellcat which permitted it to take substantial combat damage from Japanese guns and still return to friendly territory.

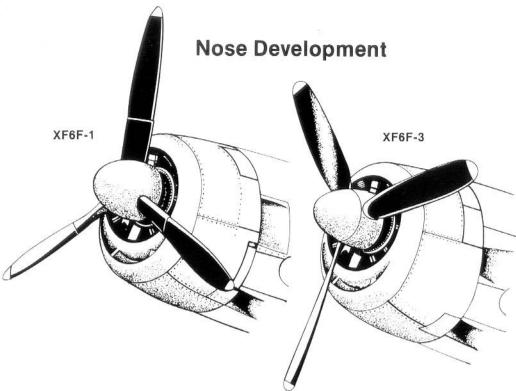
The XF6F-1 (02981) was first flown on June 26, 1942. It was apparent that the Hellcat was a potential winner. Grumman had installed a Wright R 2600-16 engine and a Curtiss electric 3-bladed prop which produced 1,600 HP at 2,400 RPM. It was armed with six 50 cal. Browning machine guns with 400 rounds of ammunition for each. The pilot had good visibility and armor plating for his protection. Although the performance of the XF6F-1 was obviously going to be superior to the F4F Wildcat even before the first flight was made, Grumman decided to make a change in the power plant, installing a Pratt and Whitney R 2800-10 Double Wasp in the second prototype, figuring on a 25% increase in performance.



XF6F-3 (02982) with the large landing gear covers and spinner that were deleted in the production version. June 1942. (Grumman)

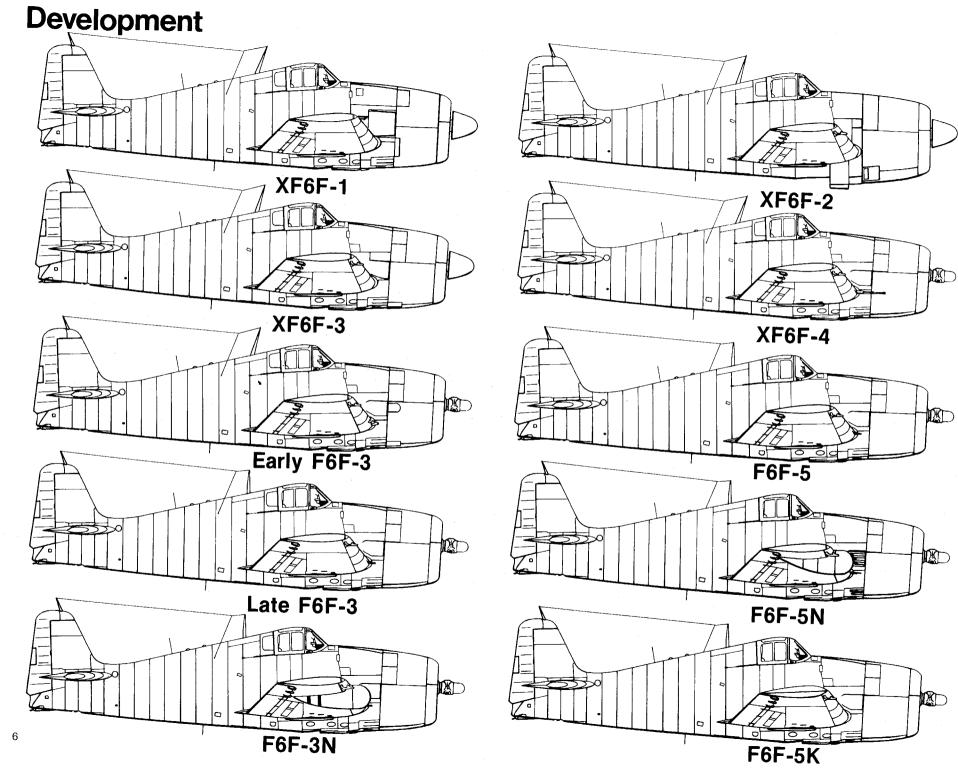
## XF6F-3

The XF6F-3, the second prototype Hellcat (02982), was externally identical to the XF6F-1 in almost every respect. It could be distinguished by the smaller exhaust port opening located just forward of the wing leading edge and by the pitot tube which had been relocated to the bottom of the starboard wing. Grumman installed the Pratt and Whitney R2800-10 engine for maximum performance, the armament remaining six wing mounted .50 cal. Browning machine guns. As with the first prototype Hellcat, the XF6F-3 was unpainted for the flight tests and sparkled in its natural aluminum finish. Grumman first flew the XF6F-3 with test pilot R. Hall on July 30, 1942. There were two XF6F-3s after Grumman uprated the XF6F-1 (02981) with the Pratt and Whitney engine and continued the testing with both aircraft. They were the first of the 4,400 various F6F-3 Hellcats to follow.



One of two prototype Hellcats (02981) is shown here in its original configuration in natural aluminum and 6-position roundel national insignia. June 1942. (Grumman)



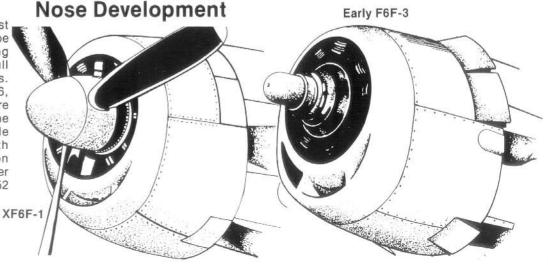




# F6F-3

In October 1942, just five months after the flight of the XF6F-3 (02982), the first production F6F-3 (04775) took to the air. The F6F-3 differed from the prototype externally by streamlining the bulky landing gear fairing assembly, replacing the Curtiss electric propeller and large spinner with a Hamilton Standard full feathering prop and minor changes to the engine cowling and exhaust ports. Several minor bugs were quickly eliminated in the design and by January 16, 1943 Grumman was delivering Hellcats to the Navy. By the end of 1943 more than 2,500 were delivered. Provisions were made for the use of a centerline 150 gallon drop tank. Early F6F-3s were powered by the P&W R2800-10 while later F6F-3s had the more powerful R2800-10W with water injection. As with the prototypes, armament consisted of six .50 cal. machine guns. Production of the F6F-3 terminated in April 1944 with 4,402 aircraft delivered. Under Lend-Lease, the United States provided the British Fleet Air Arm with 252 F6F-3s.

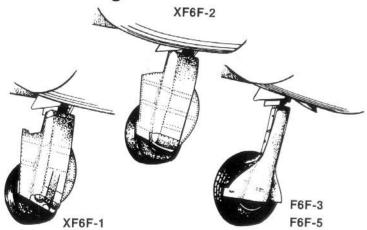
The fourth production F6F-3 (04778), seen at Grumman in late 1942, still retains the bulky landing gear fairings and exhaust pattern of the prototype This Hellcat later served with VF-9. (USN-Hal Andrews)





F6F-3 (25816) aircraft #11 of VF-8 has just made an arrested landing onboard the USS Charger during carrier qualifications off the Virginia coast. The port landing gear has failed causing only minor damage. Note the underwing bands applied on both sides. August 10, 1943. (National Archives)

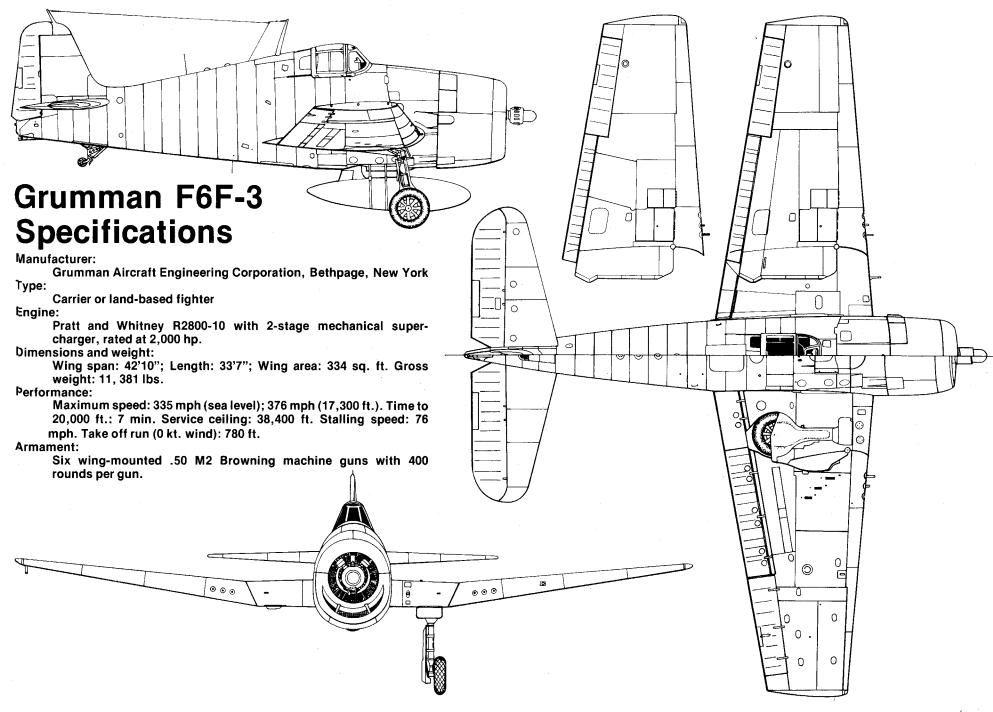
#### **Landing Gear**

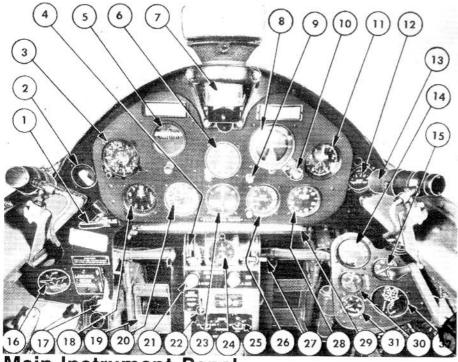


(Above Right and Right) F6F-3s of VF-9 went onboard the USS Essex during her shakedown cruise and remained onboard through their first combat tour until March 1944. VF-9 along with VF-5 had the distinction of flying the first combat operations with the Hellcat. F6F-3 #7 is shown during training flight operations just prior to deck launch. This is one of the very early F6F-3s. It has the production-type landing gear covers, but retains the prototype-style exhausts. #30 is seen stretching the wire to a full stop onboard CV-9. March 16 and April 5, 1943. (National Archives).

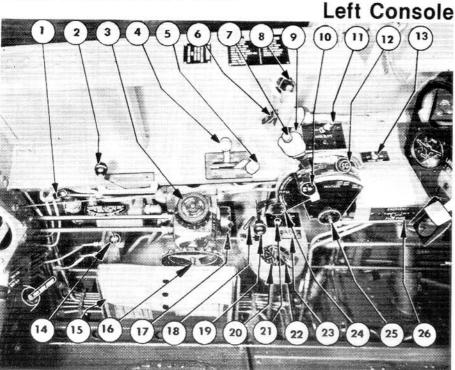


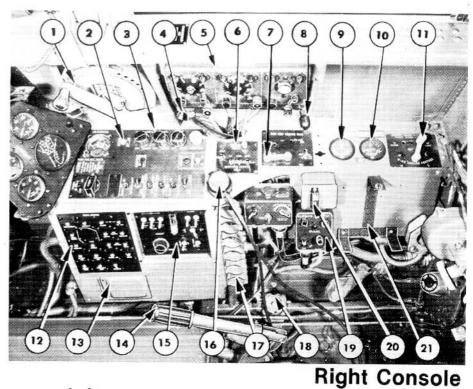






Main Instrument Panel





#### Left

- Lower Left Cockpit Light Tail Wheel Lock Control
- Rudder Trim Tab Control
- Cowl Flaps Control
- Oil Cooler-Intercooler Shutters Control
- Droppable Fuel Tank Release Switch
- Mask Microphone Switch
- Upper Left Cockpit Light
- 9. Throttle Control
- 10. Mixture Control
- 11. Wing Flap Electrical Switch
- Supercharger Control
- Water Injection Control 13. Switch
- Wing Flap Manual Control
- 15. Map Case
- Elevator Trim Tab Control
- Aileron Trim Tab Control
- Fuel Tank Pressurizing Control
- Propeller Pitch Control
- Fuel Selector Valve Dialface
- Reserve Fuel Tank Pres-
- surizing Control Fuel Tank Selector Valve Control
- Oil Dilution Switch
- Propeller Pitch Vernier Control
- Engine Control Quadrant Friction Knob
- Auxiliary Electric Fuel Pump

#### Above Left

- 1. Carburetor Protected Air Control (Aux. Stage Only)
- Ignition Switch
- Clock
- Landing Gear Emergency Lowering Control
- Directional Gyro
- Compass
- Gunsight
- Attitude Gyro
- Chartboard Light
- Attitude Gyro Caging Knob 10.
- Tachometer
- 12. Water Quantity Gage-A.D.I.
- Instrument Panel Fluorescent 13. 14.
- Cylinder Head Temp. Gage
- Oil Pressure Gage 15.
- Landing Gear & Wing Flap Position Indicator
- Landing Gear Control
- 18. Altimeter 19. Rudder Pedals
- 20.
  - Airspeed Indicator
- 21. Gun Charging Controls
- 22. Cockpit Heater Control
- 23. Turn and Bank Indicator
- Ammunition Rounds Counter
- 25. Fluorescent Lights Control
- 26. Rate of Climb Indicator
- 27. Wing Lock Safety Control Handle
- Manifold Pressure Gage
- 29. Chartboard Oil-In Temperature Gage
- Fuel Pressure Gage 32. Fuel Quantity Gages

#### Above

- Cabin Sliding Hood Control
- Battery Switch
- Main Électrical Distribution Panel
- Electrical Panel Light
- Radio Controls
- Recognition Lights
- Hand Pump Selector Valve
- Aft Right Cockpit Shelf Light
- Hydraulic System Pressure
- Gage
- Landing Gear Emergency Dump Pressure Gage
- Wing Locking Hydraulic Control
- 12. Manual Reset Circuit Breaker Panel
- Access to Reverse Current 13. Relay
  - Hydraulic Hand Pump
  - Armament Panel
  - Hand Microphone
  - Pyrotechnic Cartridge Clips

  - Pyrotechnic Pistol Retainer
  - Radio Controls
  - IFF Destruction Switch
- 21. IFF Equipment Support



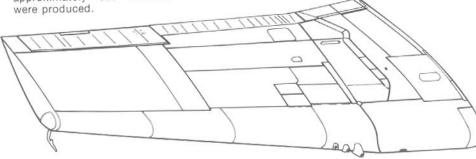
F6F-3 #36 of VF-4 in flight near NAS Alameda, California shows to good advantage the markings of the day: Non-Specular Blue Gray on the top and Light Gray on the bottom. Cocades, the white star on a blue circular field, were used in six positions. Note the faired gun covers seen on early F6F-3s. May 15, 1943. (National Archives)

(Above Right) F6F-3s of a stateside training unit, possibly VF-18, fly near the San Diego area. Six of the seven Hellcats sport the new two-tone Blue and White camouflage and four-position cocades. "E" markings are in white. September 9, 1943. (National Archives)

F6F-3 with the name "Deathwind" on cowl flies high over the mountains near San Diego. A number of training units were based on the west coast as San Diego was one of the main departure points for the combat zone. August 6, 1943. (National Archives)

#### **Armament Development**

Early models of the F6F-3 were equipped with streamlined gun covers but the use of these was discontinued after approximately 900 Hellcats were produced.

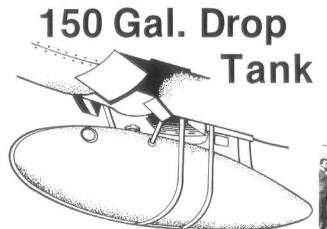














This F6F-3 seen during its final acceptance flight shows to good advantage the factory applied three color finish. A few months of salt spray and sunshine caused fading and corrosion. Note the ferry #606 on the rudder. Late 1943. (USN-Hal Andrews)

F6F-3 Hellcat #11 of VF-11 stands by to launch from the USS Hornet's starboard catapult. Note the smoke stains from the well-used .50 cal. machine guns. 1944. (National Archives)









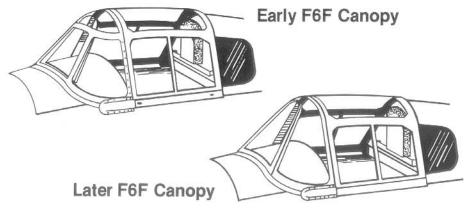
F6F-3 #20 of VF-80 just off the deck of the USS Ticonderoga with wheels retracting and rotating 90 degrees to lie flat in the wheel well. June 8, 1944. (National Archives)

(Above Left) The F6F-3 made its combat debut on August 31, 1943 by VF-5 and VF-9. "00" was flown by Cdr. James Flatley, CAG5, and is seen here heading for the Japanese held Marcus Island. (National Archives)

(Left) This F6F-3 marked RR-25 has picked up a wire but dragged a wing, resulting in the visible damage. The pilot is standing on the brakes causing the port tire to blow. At this time the USS Matanikau was off the San Diego coast conducting carrier qualifications for units heading for combat. November 11, 1944. (National Archives)

(Below Left) An F6F-3 of VF-39 prepares to launch from the USS Gambier Bay to head for its base in the Marshall Islands. February 18, 1944. (National Archives)

#### **Canopy Development**





This F6F-3 #10 of VF-2 is pushed to the hanger deck catapult of USS Hornet. February 25, 1944. (National Archives)



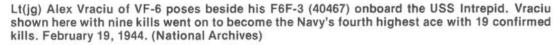


F6F-3 #21 of VF-2 is seen just airborne from a hanger deck catapult launch. USS Hornet, February 25, 1944. (National Archives)

A little publicized addition to the standard flight deck catapult installation on a small number of carriers was the unique hanger deck catapult. CV-5, 6, 7 and 8 (Yorktown, Enterprise, Wasp and Hornet) each carried an H-2 catapult approximately 72 ft. in length with a two-way track that permitted launching to either port or starboard. Plans also called for six Essex class carriers to be so equipped but the installations were never carried to completion and the concept was dropped.

F6F-3 #27 of VF-5 on the hanger deck catapult of USS Yorktown. June 1943. (National Archives)





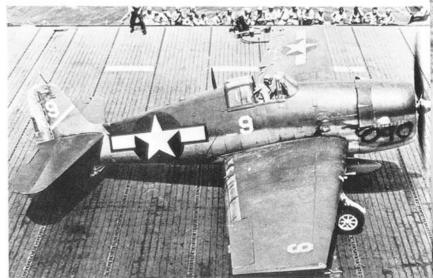
(Above Right) F6F-3 #31 of VF-5 is pushed onto the port elevator onboard the USS Yorktown after returning from a Wake Island strike. October 1943. (National Archives)

(Right) This F6F-3 #91 of VF-10's Grim Reapers takes a wave-off from the LSO. USS Enterprise, January, 1944. (National Archives)

(Below Right) F6F-3 (41090) #9 of VF-1 lands onboard the USS Yorktown in June 1944. Note the repetition of the aircraft number in three places and the last three digits of the serial sprayed rather crudely on the cowling. (National Archives)





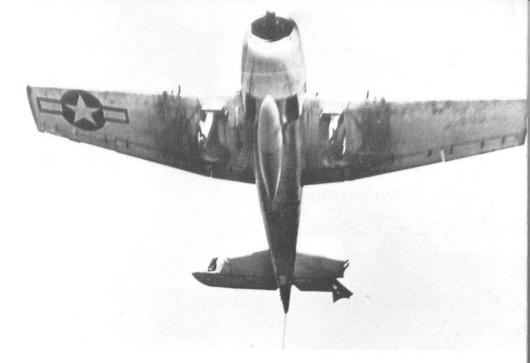




F6F-3 #11 of VF-9 leaving a trail of smoke prepares to ditch alongside the USS Essex. Note the open cockpit preparatory to a hasty exit. Three more months were to pass before VF-9 would make its first combat tour. May 20, 1943. (National Archives)

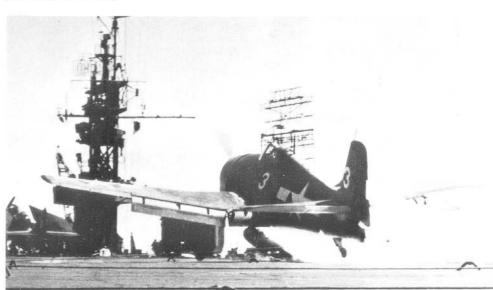
An F6F-3 of VF-16 makes a water landing between swells and skims along the surface near USS Lexington. Note the prop and a portion of the engine thrown clear of the aircraft. January 25, 1944. (National Archives)





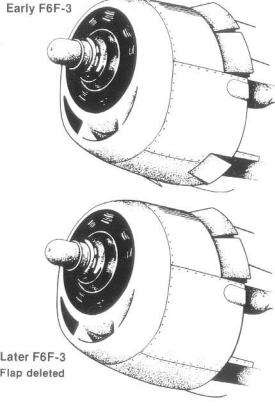
Badly mauled, an F6F-3 of VF-15 made it back to USS Essex with a considerable amount of the stabilizer and elevator shot away. A no-flaps carrier landing separated the men from the boys in a hurry. May 20, 1944. (National Archives)

F6F-3 (66101) #3 of VF-25 piloted by Lt (jg) A.W. Magee makes a fiery landing onboard the USS Cowpens. Magee escaped uninjured but the Hellcat was pushed over the side after the fire was extinguished. November 24, 1943. (National Archives)



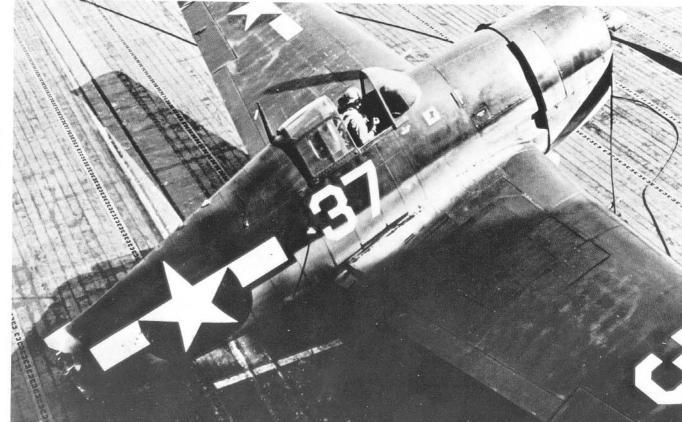
F6F-3 #30 of VF-1 managed to limp back to the USS Yorktown even though most of the hydraulic system was shot away. Making a wheels-up landing, the Hellcat drifted into a 5 in. gun turret, chewing up the starboard wing. This bird has the characteristics of a later F6F-3, notably the revised, simpler cowl and the later windscreen. September 9, 1944. (National Archives)

#### **Nose Development**



This F6F-3 #37 of VF-1 participated in the Marianas Turkey Shoot but encountered problems coming onboard the Yorktown. The entire tail section stayed where the arresting wire stopped it while the rest of the Hellcat continued on down the deck into the barrier. June 1944. (National Archives)







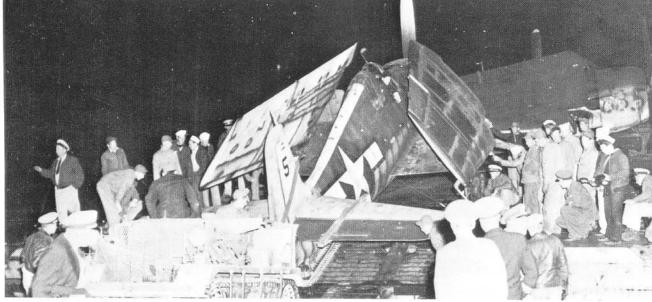
Marine ground crew tows an F6F-3 #8 of VF-9 from the USS Essex down a taxiway to a maintenance area on Espiritu Santo. March 1944. (National Archives)

(Above Right) F6F-3s of VF-6 from the USS Intrepid taxi on Vella Lavella. Few F6F squadrons were land-based but a short stopover for fuel was not uncommon. December 15, 1943. (National Archives)

(Right) An F6F-3 well worn from the war in the Pacific is off-loaded at night from the transport carrier off Muga Beach, California. Many of these aircraft were refurbished and used for training purposes as later versions were rushed to the combat zone. July 24, 1944. (National Archives)

(Below Right) Victim of a student pilot, this F6F-3 (41398) of Operational Training Unit VBF-1 from Melbourne, Florida. Markings ME are for Melbourne, F designates a fighter. Note the name "June" just forward of the cockpit. July 16, 1944. (National Archives)











F6F-3s of VF-1 were assigned the task of troop support from the Betio islet of Tarawa atoll. VF-1 was based on Tarawa for two months arriving just four days after the Marines launched the initial attack on the strongly fortified Japanese base. November 29, 1943. (USMC)

(Above Left) An F6F-3 of VF-1 taxies down Betio islet airstrip on Tarawa. Note the F6F-3 flipped over in the background pushed off to the side of the strip. At forward bases in a combat zone, such as Tarawa, ground crews would ignore all but minor repairs, leaving seriously damaged aircraft to be scrapped or salvaged later. January 1944. (USMC)

Victor and vanquished, an F6F-3 marked H25 taxies past the hulk of its arch-enemy, a Japanese Zero, which has been reduced to so much scrap metal. This Hellcat is thought to belong to VF-1. Tarawa, November 29, 1943. (USMC)





F6F-3N #319 in its final moments of service life heads over the port side of the USS Solomons. For some reason, this particular aircraft has had its landing gear covers removed. November 18, 1944. (National Archives)

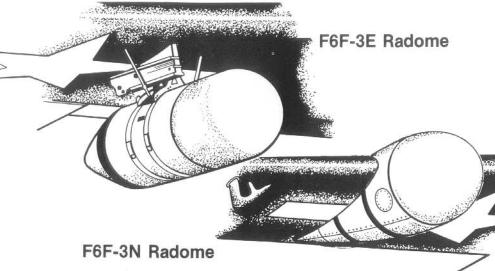
## F6F-3N/E

The night fighter version of the Hellcat was introduced into carrier combat late in November of 1943. Approximately 200 F6F-3Ns and 18 F6F-3Es were produced. Both the -3N and -3E had the radar antenna on the starboard wing, the -3E carried the AN/APS-4 unit in a pod attached under the wing while the -3N carried the AN/APS-6 unit in a faired wing-mounted radome. In both versions, the transmit and receive radio equipment was located in the fuselage with the radar screen centered in the instrument panel. Both versions retained the P&W R2800-10W engine.

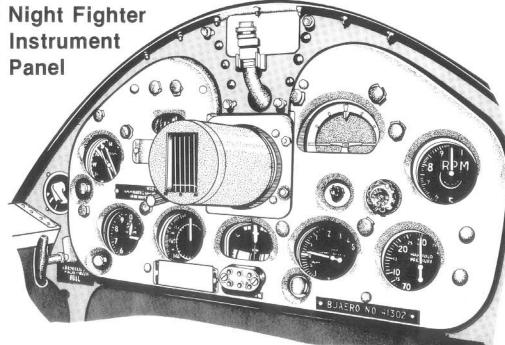
F6F-3N #6 of VF(N)-76 prepares to launch from the USS Charger. Note the elongated bar in the national insignia around the radome and the red surround to the fuselage star and bar. Note also the early war style fuselage codes, squadron number followed by mission letter and aircraft number. October 5, 1943. (National Archives)



F6F-3N #14 of VF(N)-76 spotted onboard the USS Charger. Note the application of Non-Specular Sea Blue to the tip of the radome. October 5, 1943. (National Archives) (Below Left) F6F-3E (41302) during flight tests at Patuxent River, Md. Later this Hellcat served with VF-87 and CASU-25. May 31, 1944. (National Archives)





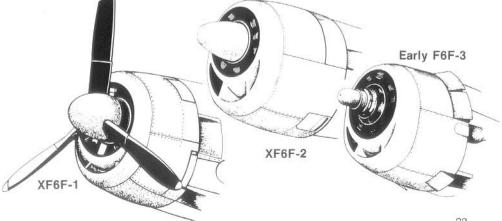


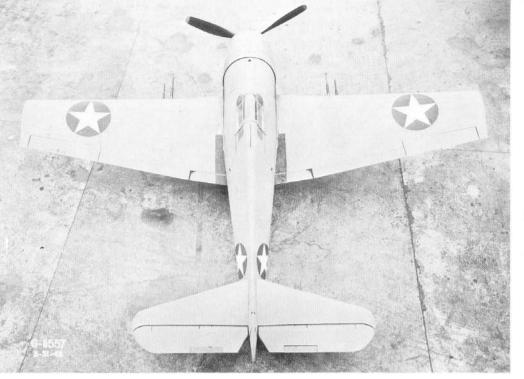


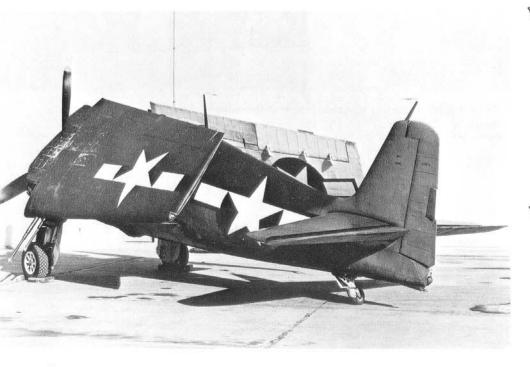
### XF6F-2

Originally proposed at the same time as the first Hellcat prototypes, the XF6F-2 was an attempt to up-power the basic aircraft by the use of a turbo-supercharger. The XF6F-2 was built but testing did not begin until pressure from the fleet began to mount for an improved Hellcat, a pressure that eventually led to the production of the F6F-5. The XF6F-2 (66244) had the same basic airframe as the XF6F-1, the main difference being the installation of a Birmann turbo-supercharger in the bottom of the engine accessory compartment. Only one XF6F-2 was built, however two different powerplants were tried. The first installation was a Wright R2600-15 engine but Grumman felt the performance could be better and went to the Pratt and Whitney R2800-21. Grumman test pilot Carl Alber flew it with the new powerplant for the first time on January 7, 1944. The performance was still not impressive so the program was dropped. The turbo-supercharger installation was removed and the Hellcat was converted to a standard F6F-3 configuration and delivered to the Navy.

XF6F-2 (66244) during test evaluation at Grumman. January 7, 1944. Note the name "FUZZY WUZZY" on the engine cowl. This referred to all the attached tufts on the airframe for purposes of studying airflow.







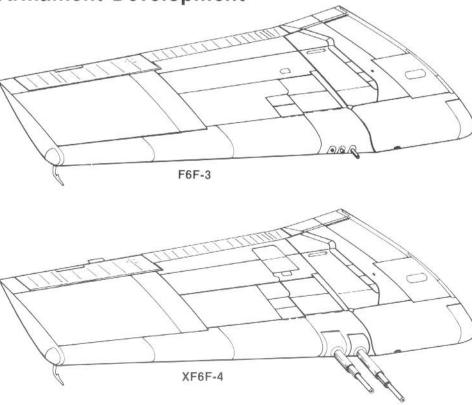
### XF6F-4

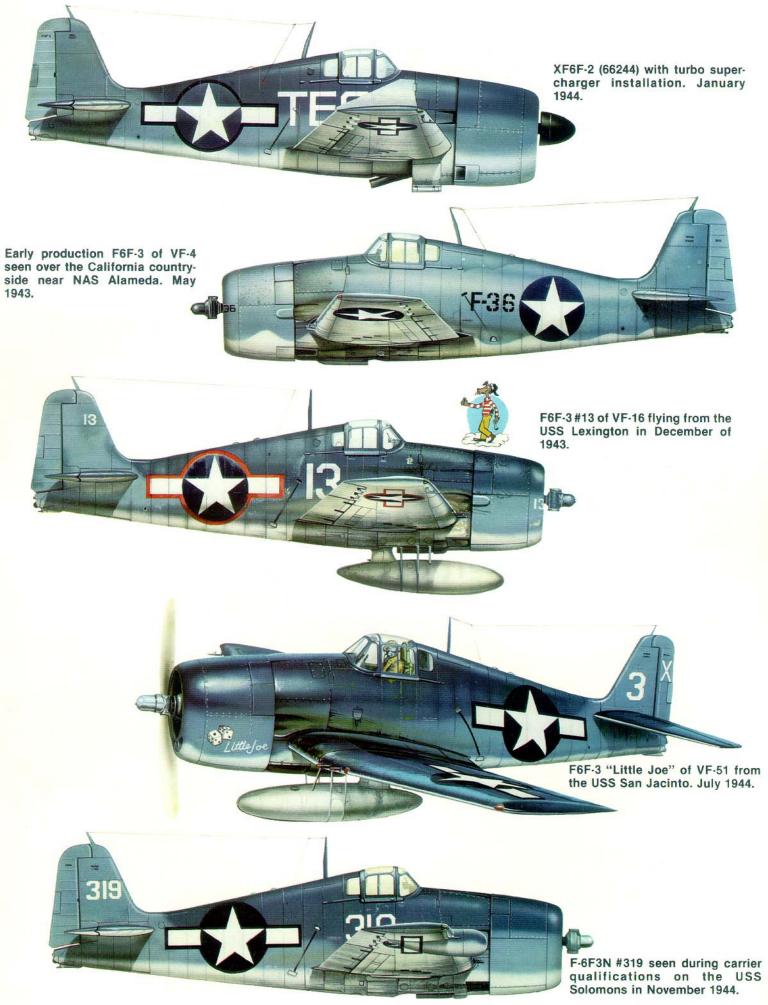
The original XF6F-1 (02981) was converted to the XF6F-3 configuration and then further modified by Grumman to the XF6F-4 version carrying four 20mm cannon with 200 rounds of ammunition per gun. An updated Pratt and Whitney R2800-27 engine was installed. After extensive testing at the Naval Air Test Center at Patuxent River, Md., the decision was made not to produce the cannon-armed version. Thus, the XF6F-4, first flown on October 3, 1942, was reconfigured a fourth time by Grumman and delivered to the Navy as a standard F6F-3.

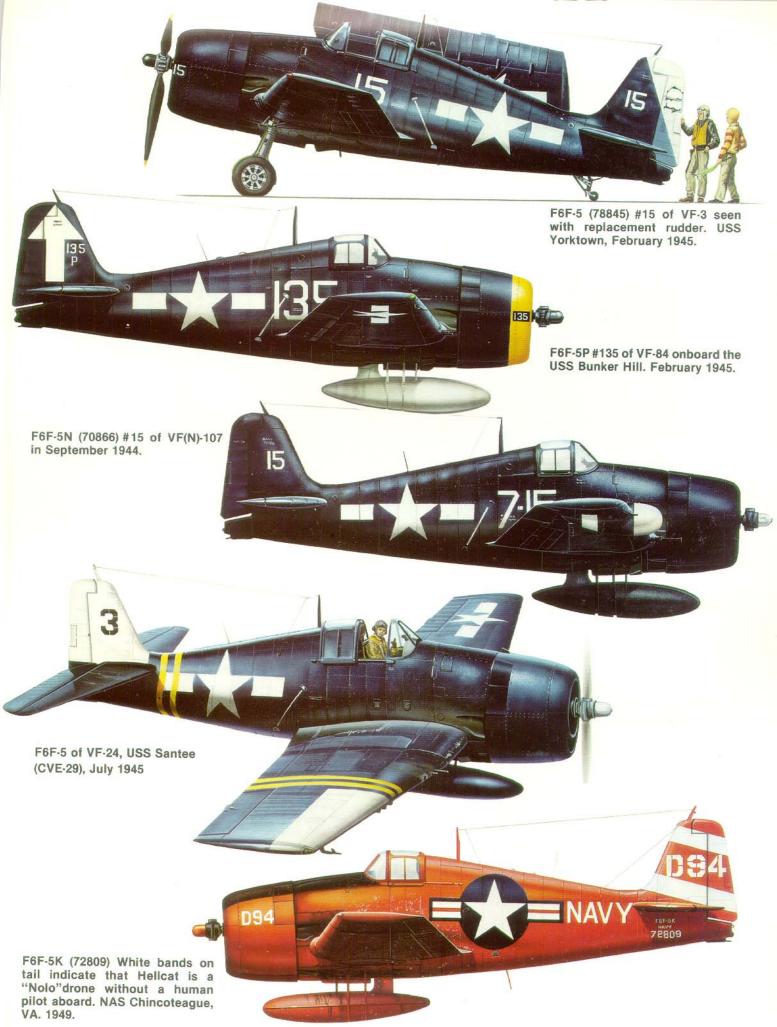
(Above Left) XF6F-4 cannon-armed version is seen at the Grumman plant on Long Island. March 31, 1943. (Grumman)

(Below Left) The XF6F-4 (02981) underwent extensive testing by the Navy at NATC Patuxent River, Md. February 11, 1944. (National Archives)

**Armament Development** 







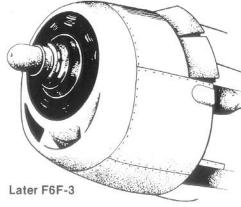
F6F-5 (72714) #12 of VF-40 snags a barrier onboard the USS Suwanee. Note the unusual placement of the numeral 12 under the horizontal stabilizer. About the same time that the -5 was introduced, the Navy adopted a new camouflage scheme, replacing the three colors with overall Glossy Sea Blue. Here it is very heavily streaked with engine exhaust. April 17, 1945. (National Archives)

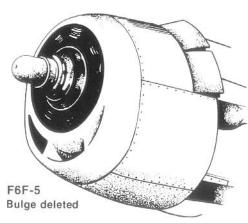


### F6F-5

In the Spring of 1944 the production of the F6F-3 came to a halt and an improved version began rolling down the assembly line. 7,870 models of the F6F-5 were built including the -5E, -5K, -5N and -5P models. Changes in the F6F-5 included provisions for carrying additional external fuel tanks or two 1,000lb. bombs, stubs for launching six HVAR 5in. rockets and an alternate armament arrangement consisting of two 20mm cannon and four 50cal. machine guns or the standard six .50 cal. guns. A smoother closer fitting cowling was installed around the P&W R2800-10W engine. At 23,000 ft. the F6F-5 would fly at 380mph, taking only seven minutes to climb to 20,000ft. The rear window was removed on all but a few of the early F6F-5s. 930 of this model Hellcat were provided to England during WWII and later in smaller quantities to France and Uruguay.

#### Nose Development









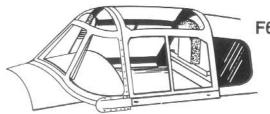


An F6F-5 of VF-89 leaves the port catapult of the USS Antietam during her shakedown cruise. March 14, 1945. (USN-Hal Andrews)

This F6F-5 #31 of VF-80 is seen at the instant of launch from the USS Ticonderoga. Note the pilot under the effects of the catapult acceleration pressed firmly into the seat and headrest. Open canopy was standard procedure during both takeoff and landing to facilitate a hasty exit in case of mishap. June 9, 1944. (National Archives)

(Left) F6F-5 prepares to catapult from the USS Windham Bay. This escort carrier was used to carry aircraft from the West Coast of the U.S. to forward combat areas in the Pacific. Individual squadron and carrier markings were applied to the new aircraft only after they arrived in the combat zone. February 20, 1945. (National Archives)

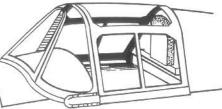
#### **Canopy Development**



F6F-3 Canopy

F6F-5 Canopy







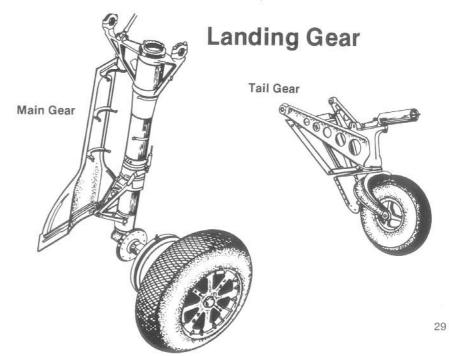




(Above) F6F-5 #49 of VF-6 assigned to USS Hancock ready to catapult from the USS Suwanee. April 20, 1945. (National Archives)

(Above Left) This F6F-5 (78846) #15 of VF-3 shows battle damage which occurred during air strike over Tokyo. Note the replacement rudder from an F6F-3 still in the intermediate blue scheme. Many parts of the -3 and -5 were interchangeable. USS Yorktown, February 17, 1945. (National Archives)

An F6F-5 #23 of VF-9 onboard the USS Lexington has ruptured its belly tank and flames are about to engulf the aircraft. The pilot is hastily unhooking himself and just moments later climbed out on the wing and escaped the inferno. February 25, 1945. (National Archives)





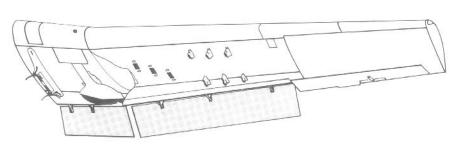
An F6F-5 (71889) #18 of VF-88 has hit the barrier managing to stop just short of going over the port side of the carrier. The large letter-number combination marking was usually seen during carrier qualifications while units were training. March 4, 1945. (National Archives)

F6F-5 #6 of VF-74 is ready to catapult from the USS Kasaan Bay for air support of the invasion of Southern France. This Hellcat is armed with six 5 in. rockets. During the operation several German aircraft were destroyed in air-to-air combat. Note the tapedover gun muzzles to reduce drag. August 15, 1944. (National Archives)





#### **Rocket Rails**



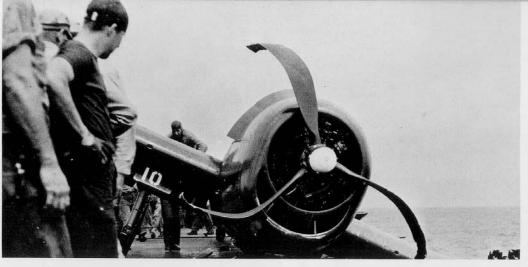


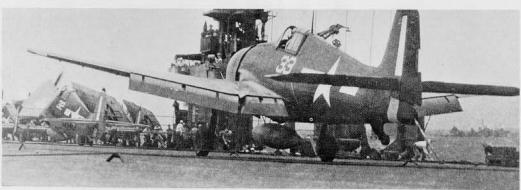


F6F-5 (77593) during flight testing at NATC Patuxent River, Md. loaded with a pair of "Tiny Tim" 11.75in. rockets and the standard 150 gallon drop tank. After testing, the aircraft was later assigned to VF-82 onboard the USS Bennington and then to VF-1 where it was lost in an operational accident. March 26, 1945. (National Archives)

F6F-5 #12 is finished in glossy yellow with a flat black anti-glare panel. This Hellcat was assigned the thrill of being a target-tow aircraft for aerial gunnery practice. November 1944. (USN-Art Schoeni)











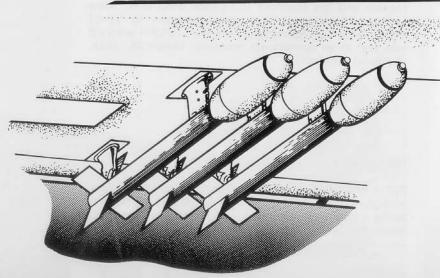
This F6F-5 #C30 of VF-88 came to a grinding halt as the right main gear collapsed on landing NAB Marpi, Saipan on June 19, 1945. (National Archives)

(Above Left) F6F-5 #10 of VF-28 landed wide and ended up in the port catwalk of the USS Monterey. June 1944. (USN -Hank Weimer)

(Left) F6F-5 (58070) #33, the 71st -5 produced lands long onboard the USS Cabot. Assigned to VF-31, a long range strike on Japanese shipping in Coron Bay had just been completed. September 1944. (National Archives)

(Left Below) This F6F-5 #39 of VF-94 entangled in the barrier slams a wing into the island onboard the USS Lexington. August 1, 1945. (National Archives)

#### **Rocket Launchers**

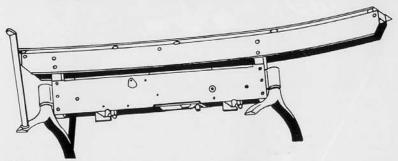




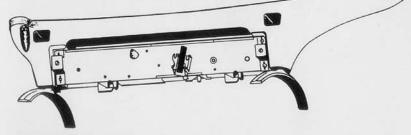
(Above Left) F6F-5 of VF-7 with unusual yellow markings. February 8, 1946. (USN-Hal Andrews)

(Above Right) F6F-5 #1 of VF-5 high over the mountains of the West Coast. When training was over and the units went into combat all squadron markings were removed. Late 1945. (USN-Hal Andrews)

### **Early Bomb Rack**



### **Standard Bomb Rack**



An F6F-5 #6 thought to be from VF-150 at NAS Wildwood, N.J. While this aircraft and one to the right have the underwing stations and canopy of a -5, both have the cowl bulge characteristic of -3s. February 1945. (Roger Besecker Collection)







An NF6F-5 #3 (V94286) from NAS St. Louis, Mo. seen in the markings of Naval Air Reserve Training Unit. The prefix "N" and "V" were used to indicate reserve aircraft. All markings here are international orange. The wings carried the standard white star and bars. 1947. (Gene Sommerich via Roger Besecker)

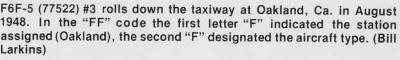
As pretty as they come, this F6F-5 #21 is from a training unit based in Hawaii. Next step for the pilots here is assignment to a combat unit. The high gloss of the Glossy Sea Blue paint, when the plane is kept clean, can be seen. 1945. (USMC)

NF6F-5 (78180) from the Naval Air Reserve Training Unit at Minneapolis, Minn. International orange markings were later dropped except for the fuselage band which was retained until the late '50s. La Crosse, Wisc. March 1, 1948. (Bob Stuckey)





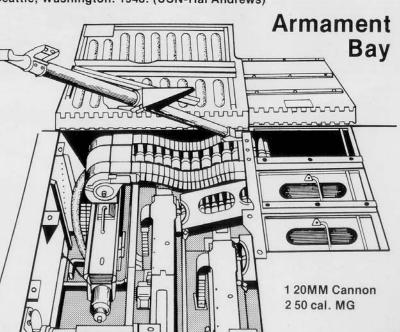




(Above Right) F6F-5 (77478) #9 from the NART unit at Minneapolis, Minn. seen at La Crosse, Wisc. This Hellcat had previously served with VF-92 and VBF-20 before being assigned to the reserves. 1951. (Bob Stuckey)

(Right) An F6F-5 (V79452), #25, from NAS Glenview, III. Reserve. 1947. (Bob Kopitzke)

(Below Right) This F6F-5 (94305), #12, shows markings from NART, Seattle, Washington. 1948. (USN-Hal Andrews)











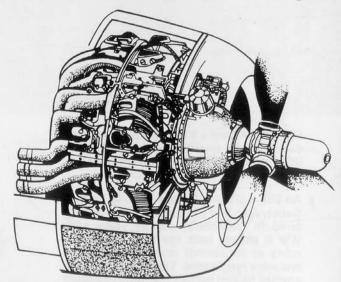




A line-up of F6F-5s of VMA-331 based in Miami, Fla. is seen during a Marine training exercise on the ramp at Wilmington, N.C. In the background are F9Fs. March 28, 1953. (Paul McDaniel)

(Above Left) Four F6F-5s of ATU-102 are seen in flight. White markings including fin and rudder tip are visible. March 26, 1953. (USN-Hal Andrews)

### **Pratt and Whitney R2800 Engine**



An F6F-5 of VX-5 is seen nosed over after leaving runway. The pilot was shaken but survived. 1952. (Author)



F6F-5 #214 from a training squadron seen during carrier qualifications onboard the USS Monterey in the Gulf of Mexico. August 15, 1953. (USN-Bob Lawson)

An F6F-5 (79399) is seen landing on USS Cabot. As a test of how ships and aircraft fared in "Mothballs", three years after WW II ended, both the USS Cabot and many of its aircraft came from storage and were reactivated. The results of these studies helped perfect methods to assure combat equipment would be in useable condition if needed. 1948. (USN-Hal Andrews)



"1 o'clock jump" and the rest of the F6F-5Ns of VMF(N)-541 leave little doubt as to why the Marines wanted to get the war over with and get back home. The "Bateyes" seen here on Falalop Island. May 30, 1945. (National Archives)

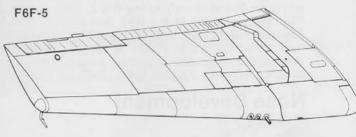


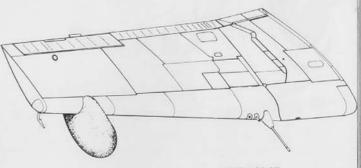
An F6F-5N (94071) #83 of VC-3 is seen in flight. Note the reduced size of both the wing and fuselage insignia. December 15, 1959. (National Archives)

# F6F-5N/E

Grumman produced 1,434 of the F6F-5E/N Hellcats, the -5E having the AN/APS-4 radar installation while the -5N was equipped with the AN/APS-6. Flown by both the Navy and Marines from carriers and land bases, the night fighter was a powerful opponent armed with two 20mm cannon and four. 50 cal. machine guns in many of the aircraft. Other than the radar installation and different armament, the F6F-5E/N was essentially the same as the standard F6F-5.

#### **Armament Development**





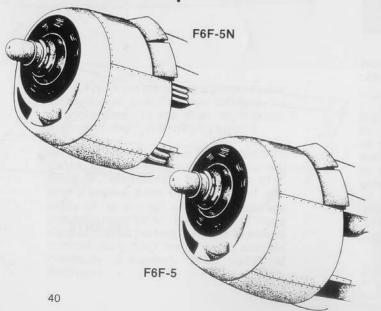
F6F-5N/E



(Above and Above Right) F6F-5Ns of VF(N)-107 are seen flying high over Quonset Point, RI. Note the glossy sea blue finish overall including the radome tip, also the unusual white landing gear doors. Including the drop tank, the F6F-5N was capable of carrying 400 gallons of fuel and had a service ceiling of 37,600ft. August 1945. (National Archives)

This F6F-5N of VF(N)-91 shows the last markings used on carrier-based aircraft during WW II, the letter series. "SS" was assigned to the USS Bon Homme Richard. Loading .50cal. ammo, this Hellcat was shortly heading for targets in Japan. A number of -5Ns had exhaust flame dampers to prevent exhaust flames from blinding the pilot. August 1945. (National Archives)

#### **Nose Development**

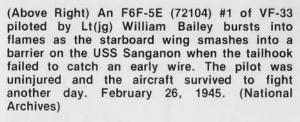








F6F-5N #N3 of VF-9 comes onboard the USS Yorktown with a flat tire. Other than a shredded tire and a lost landing gear door cover, the Hellcat was undamaged. April 1945. (National Archives)



F6F-5N of VMF(N)-513 (WF-3) sits on a hot ramp at MCAS El Toro, CA. Note the flame hiders on the 20mm cannon, designed, like the exhaust dampers, to help the pilot maintain his night vision during combat. By the time the Korean War broke out, the "Flying Nightmares" of VMF(N)-513 were flying F4U-5N and F7F-3N fighters. June 1948. (USMC)







F6F-5E (70678) with AN/APS-4 radar installation during test evaluations at Patuxent River. October 18, 1944. (National Archives)



F6F-5N (79139) #3 with searchlight on port wing was used for test purposes in anti-submarine warfare at Patuxent River. August 29, 1945. (USN-Hal Andrews)



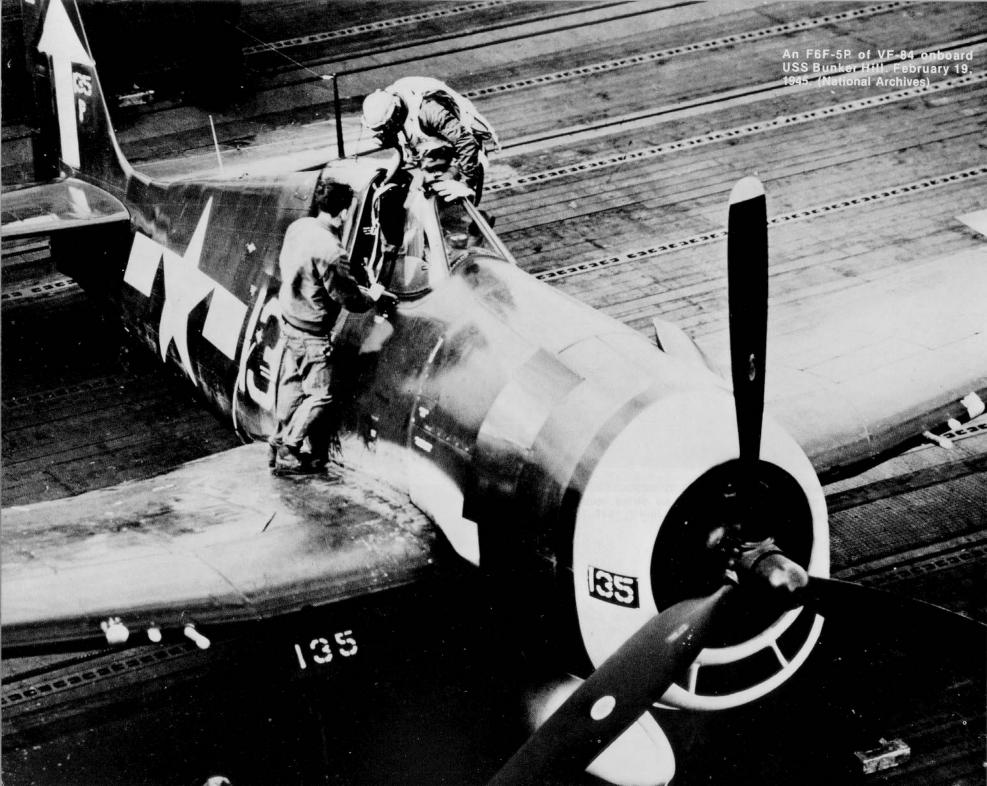
An F6F-5P of CASU-27 (Carrier Aircraft Service Unit) marked "P3". Photofighters enabled the swift return of exposed film so strike results were confirmed almost as quickly as the film was developed. July 2, 1945. (National Archives)

### F6F-5P

The F6F-5P was a standard F6F-5 modified to carry an aerial camera in a compartment in the lower left fuselage just aft of the pilot. Flown by both the Navy and Marines, the -5P was capable of participating in a strike and, at the same time, recording the results. On several missions pilots of the photo-fighters downed Japanese aircraft while completing their assigned photo task.

F6F-5P of VF-11 with K-18 early camera installation onboard USS Hornet. June 13, 1944. (National Archives)







A flight of five F6F-5Ps of Naval Air Technical Training Center from Pensacola, Fla. fly in formation. 1949. (USN-Hal Andrews)

(Above Right) F6F-5P (80084) of VF-75 is seen during pre-flight run-up. Standard armament of six .50 cal. guns and the P&W R2800-10W were retained in the photo-fighter version. Late 1946. (USN-Hal Andrews)

F6F-5P (93835) from the Naval Air Reserve Training Unit at NAS, New York. The Glossy Sea Blue finish all but obscures the rectangular window for the camera directly below the star in the fuselage insignia. Note the Statue of Liberty emblem just under the windscreen. "R" was the code assigned to NAS, New York. 1949. (Roger Besecker Collection)





## XF6F-6

Two F6F-5 airframes 70188 and 70913 were modified to handle the P&W R2800-18W engine with a four-bladed Hamilton Standard propeller. 70188 first flew on July 6, 1944 and 70913 on August 30, 1944, both by the same test pilot, P. Gallo. A top speed of 417 mph was reached making this pair the fastest of all Hellcats. Plans for mass production by Grumman were cancelled by the Navy in August of 1945 when VJ Day arrived.



Three views of XF6F-6 70913 are seen here as the aircraft rested between test flights at the Naval Air Test Center in Patuxent River, Md. This version was the fastest of all Hellcats. December 20, 1944. (National Archives)







F6F-3K #7 with drone control and backup control white-nosed Hellcats during test flight. Similar drones were used for gathering air samples during A-bomb tests. 1946. (USN-Hal Andrews)

#### **Hellcat Drones**

A small number of F6F-3s and -5s were modified to the "K" status (drone) by installing radio control equipment in the aircraft that allowed the flying of the un-piloted drone to be done from a remote source such as a ground station, ship at sea or another aircraft. Except for this radio control equipment and special test instrumentation the "K" version was essentially a standard F6F. Some Ks were fitted with wing tip fuel tanks. Much of the mission known as "Operation Crossroads", the A-Bomb test at Bikini Island where drones were flown through the atomic cloud, was flown by F6F-3K Hellcats. It was used in Korea as a flying bomb guided to bridges in the North by AD-4Q director aircraft. In more peaceful times it served its country as a flying target for Naval and Marine aviators. The designation F6F-5K was authorized by the Chief of Naval Operations on March 11, 1948.

These F6F-3Ks at NAS, Atlantic City, N.J. are marked with different color tails to denote their radio frequencies. March 18, 1946. (USN-Bob Lawson)







(Above) This F6F-5K (78594) has been fitted with experimental wing tip tanks. The aircraft is Red on the rudder, the top of the wings and fuselage. The bottoms of fuselage and wings are yellow. The tip tanks are Yellow and Black. 1951. (Bob Esposito Collection)

(Above Left) F6F-5K (80173) sports Insignia Red finish with White markings. Tip tanks have not been installed. Note the antenna arrangement on the fin. NAS, Johnsville, Pa. 1951. (Roger Besecker Collection)

F6F-5K (79422) Drone taxies out with safety pilot onboard. Note final configuration of wing tip tanks. NAS, Chincoteague, Va., 1949. (USN-Hal Andrews)





An F6F-5K of Guided Missile Unit-90 sits on port catapult of USS Boxer. Slung under the starboard wing was a 2,000 lb. bomb. The target this day was the railroad bridge at Hungnam, Korea. August 1952. (National Archives)

(Above Right) A piloted F6F-5K (78942) of VU-1 is a target-tow aircraft operating off Oahu, Hawaii. Note the fuel line connections in the port wing tip. September 17, 1959. (C.M. Hansen via Bob Lawson)



An F6F-5K (79311) over all Red with Black anti-glare panel and White markings seen at La Crosse, Wisc. 1950. (Bob Stuckey)

