THE HISTORY BEHIND THE MODELS

MACH ONE HUN: THE F-100 SUPER SABRE

By E. L. Motley

In early 1949, North American Aviation was the free world's most successful builder of fighter aircraft. North American's P-51 Mustang had been a war-winner. With the jet age now dawning, their F-86 Sabre provided the new U.S. Air Force with arguably the world's best fighter plane. No one knew that the F-86 would soon become a legend in the bitterly contested skies over Korea. Pleased as he was over his company's success, NAA's president, Lee Atwood, knew the time was right to develop a fully supersonic version of the F-86.

It was a very lofty goal. Chuck Yeager broke the sound barrier less than two years before. Although a wealth of German research and engineering information was captured in 1945, the aerodynamics of supersonic flight was a new frontier with so much yet to be discovered. Despite the challenges, Atwood was confident that a supersonic jet fighter plane was feasible…and that North American would build it. On February 3, 1949, North American's chief engineer, Raymond H. Rice, began the company's supersonic fighter project, using the F-86 Sabre as a starting point.

The project took on the name of "Sabre 45," based upon a new version of the Sabre with wings swept at 45 degrees. This configuration was deemed capable of Mach 1.03 flight—just above the speed of sound. Early in the project, it became obvious that the F-86 couldn't be remade into a fully supersonic fighter. A completely new design was necessary. Rice and his engineers worked through 1950 on the new aircraft. Influencing the design process was the Air Force's request for a supersonic daytime fighter. Ironically, the outbreak of the Korean War slowed the F-100's development as North American diverted resources back to the F-86.

Rice knew that designing the right airframe was only part of the equation. The key to the entire project was the powerplant. A very powerful axial flow turbojet engine was needed to reach and to maintain supersonic speed. The centrifugal jet engines already available from Rolls-Royce, General Electric and Pratt & Whitney were all unacceptable. Westinghouse was

working on their new J40 turbojet for the Navy, but was having many problems. Fortunately, Pratt & Whitney's JT3 turbojet had undergone a complete redesign and showed much promise. The JT3 became the reliable J57 engine—and the clear choice to power North American's supersonic fighter.

By 1951, North American's Sabre 45 project yielded the NA-180. Though retaining a number of its F-86 Sabre roots, the new fighter featured low swept wings and stabilizers, a long nearly flat-bottomed fuselage, an oval plain nose jet intake, swept wings with leading edge slats but no flaps, and a large ventral "barn door" speed brake. The armament was four 20 mm Pontiac M-39 cannons. The Air Force designated the NA-180 the F-100 and ordered two YF-100 prototypes and 110 F-100A production aircraft, the contract being signed on November 1, 1951. The F-100 became the first of the USAF's classic "Century Fighters."

Test flights began at Edwards Air Force Base on May 25, 1953. The big new fighter (now dubbed the Super Sabre) was fast and impressive. The F-86D flying as a chase plane had to stay in afterburner just to keep up with the YF-100. At 35,000 feet, test pilot George Welch went to afterburner and felt a blast "like a kick from a well-fed mule." The Super Sabre left the F-86D as if it were standing still. Successful testing continued at Edwards. On October 29, 1953, Welch flew the first production F-100A to a new world speed record of over 755 mph. Delivery of F-100A's commenced; the USAF's 479th Fighter-Day Wing became the world's first supersonic military unit. The initial F-100A was followed by 202 more, with the final 36 having a more powerful version of the J57 engine. North American had indeed produced the first fully supersonic fighter.

Not all of the news about the Super Sabre was good. The plane was a fast beast to land, needing a tail chute to slow down hot landings. Even a carrier-style arrestor hook would later be added. Pilots described landing the F-100 as a "controlled crash." More troubling were several early high speed accidents, one of which killed a prominent RAF senior officer testing the plane. Against the advice of F-100 test pilot Lt. Col. Pete Everest, NAA shortened the rear vertical fin and trimmed weight to reduce drag. Everest also expressed major concerns about yaw problems he encountered, particularly at high speed.

Disaster struck at Edwards on October 12, 1954, when George Welch pulled an F-100A out of a high-speed dive. The plane disintegrated, killing Welch. All Super Sabres were immediately grounded and production stopped while an investigation took place. It was determined that Welch's plane broke apart from pitch/yaw coupling, what we today call "inertia coupling." The solution was to heighten and enlarge the rear vertical (rudder) fin, slightly increase the wingspan at the tips, and to strengthen the airframe at certain stress points. These improvements were retrofitted to 76 F-100A's already in service and to 90 more still under construction or awaiting delivery at North American. Pitch and yaw dampers were included on later Super Sabres, starting with the F-100C.

After production resumed, improved versions of the F-100 started rolling out of North American's plants in Los Angeles and Columbus. The more powerful F-100C soon followed. The C model focused on the ground attack mission, could carry 6,000 lbs. of stores on eight pylons and mounted an in-flight refueling probe. In 1956, production of the F-100D began with improved aerodynamics, a 7,500 lb. ordnance load, additional electronics and flaps. These improvements, including a LABS (Low Altitude Bombing System) and autopilot, enabled the F-100D to carry a nuclear weapon. Sidewinder and Bullpup missiles could also be carried. Internal fuel capacity was also increased. The F-100D was the most produced and penultimate version of the Super Sabre. The last new-build version of the Super Sabre was the two-seat F-100F in 1957. Although intended to be a combat proficiency trainer, the F model could still carry two guns, 6,000 lbs. of ordnance and perform a variety of missions.

Although originally envisioned to be a daylight air superiority fighter, the Super Sabre instead evolved into a versatile fighter-bomber. By 1958, F-100's equipped 16 USAF wings and were the backbone of the tactical fighter force. From 1954 until the arrival of the F-4C Phantom in 1963, the F-100 was the Air Force's principal fighter-bomber. The Super Sabre was the first American fighter to utilize in-flight refueling extensively. Curiously, the F-100's probe and drogue refueling did not become the Air Force's preferred system. "Huns," as their pilots and ground crew called the F-100, deployed globally to many places where a display of American force was required. After extensive duty in front-line USAF squadrons, many F-100's soldiered on with the Air National Guard. Following retirement, many Super Sabres were converted into QF-100 drones.

But the Super Sabre first saw combat while wearing the French cockade roundel instead of American stars and bars. In 1958, France received 85 F-100D's and 15 F-100F's from the U.S. Two wings of the ***Armee de l'Air*** operated Super Sabres in the ground attack and tactical nuclear strike role from 1958 until replacement by Jaguars in 1978. Some of these F-100's flew bombing missions from bases in France during the Algerian War.

Eighty F-100A's were rebuilt to D equivalence and supplied to Taiwan. Ultimately, Taiwan flew 122 Super Sabres. Turkey received 260 F-100C's and D's. A few of the Turkish "Huns" fought Greeks in 1974. Nearly all were withdrawn by 1982. Denmark flew 55 F-100D's and handful of F-100F's until their replacement with F-16's began in 1983.

For American Super Sabres, combat came following deployment to South Vietnam in 1964. Ultimately, four USAF wings would fly C, D and F versions of the "Hun" in Vietnam, performing close air support, interdiction, top air cover and forward air control. Specially modified F-100F's pioneered the USAF's "Wild Weasel" capability, pinpointing and attacking

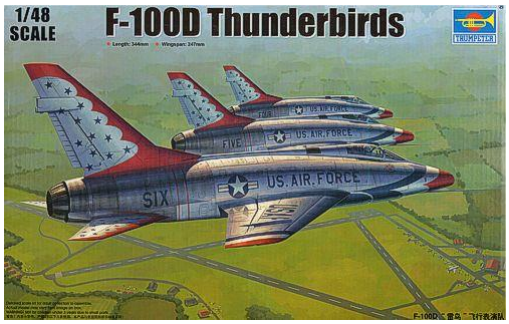
North Vietnamese radar installations. Once F-105 Thunderchiefs and F-4 Phantoms arrived in force, the "Huns" stayed south of the DMZ and flew the majority of "fast jet" missions over South Vietnam.

Super Sabres provided outstanding service during the Vietnam conflict until being withdrawn in 1971. "Huns" flew more sorties than 15,000 P-51 Mustangs totaled in World War II. During 1969 alone, F-100's flew 52,699 combat sorties, more than all other USAF types combined. In June, 1972, the final front-line USAF "Hun" unit, the 524th Tactical Fighter Wing, finished its conversion to the F-111F. F-100's in Air National Guard service lingered until 1979. Rebuilds and modifications kept the Super Sabre in service for over 25 years—far longer than anyone originally expected.

The last new-build Super Sabre was delivered in October, 1959. Production for all versions totaled 2,294. With the cancellations of the "Hun's" planned replacement, the F-107 Ultra Sabre, and the futuristic F-108 Rapier interceptor, the F-100 was North American's last hurrah as a fighter builder. As for North American Aviation, it has been a nameless part of Boeing since 1996. Like Curtiss, Supermarine, Hawker, Republic and Focke-Wulf, North American became yet another builder of legendary fighters to pass into history.

THE "HUN" IN PLASTIC

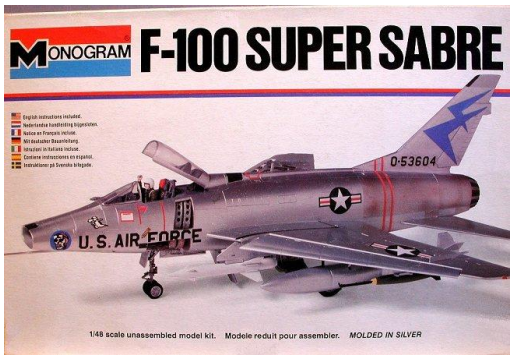
The Super Sabre's sleek and powerful look, coupled with its storied service record, has made it a favorite among jet fighter modelers. Until Southeast Asia camouflage covered much of the F-100 force, bare metal "Huns" adorned with flashy squadron and wing markings were the norm. Both stages of the F-100's career can be modeled thanks to a variety of aftermarket decal sheets and colorful reference materials. Builders planning that extra-special "Hun" or contest entry can still find aftermarket resin and photoetch parts as well. Checking online for what is available (and reasonably priced) is always a good place to start.



Anyone wanting to build a good scale model of the F-100 Super Sabre needs to know only one word: TRUMPETER. Just pick your scale. Trumpeter has released the F-100C, D and F versions in 1/48, including one particular boxing with USAF Thunderbirds decals. In 1/72 scale, Trumpeter also offers F-100C, D and F models. They didn't forget fans of 1/32 scale aircraft either. Two different boxings of a 1/32 F-100D are

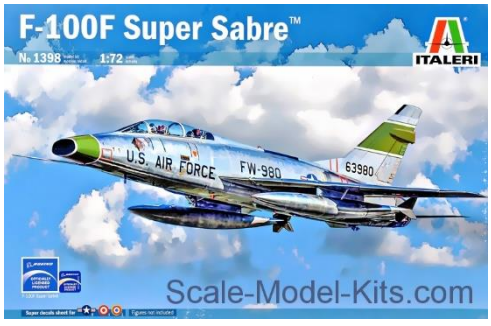
available, one of them also sporting Thunderbirds livery. These are all well-regarded kits that should prove more than satisfactory to both contest builders and weekend hobbyists.

Prior to the excellent line-up of Trumpeter kits, "Hun" modelers were rather limited, particularly in 1/48. For years, the best available Super Sabre kit in any scale was the Monogram (now Revell) 1/48 F-100D kit first released in 1980. Re-released at least six times since the early 1980's, the "Revellogram" 1/48 F-100D has its good and bad sides. Molding is generally accurate and well-detailed, quite acceptable unless one is a "rivet counter" with OCD. The detail of the cockpit and landing gear bays is outstanding. The kit also includes the option of the F-102 style exhaust nozzle fitted to some Air National Guard aircraft and also two different refueling probes. On the negative side, the panel lines are thick and raised. Armament consists of two featureless Bullpup missiles and the "daisy cutter" extended-fuse bombs packed into nearly every Monogram 1/48 U.S. jet kit released in the 1980's. The wing assembly traps between top and bottom fuselage halves, but the fit is poor and tricky with much puttying and sanding required. Spend the extra money and buy a 1/48 Trumpeter kit instead.



ESCI and Lindberg also offered the F-100 in 1/48. ESCI's kits ran the gamut from very good to dreadful. ESCI's 1979 molding of the F-100D in 1/48 is in the dreadful category. Skip it. Lindberg's 1/48 F-100 (C but also marketed as a D) dates back to 1958 and is still repackaged and re-released from time to time. It's a good starter model to build with a youngster, and that's about it.

In 1/72 scale, Hasegawa's F-100D dates back to 1969. The kit has reappeared numerous times over the years in different boxings and with a variety of decals. It's also been sold as an AMT and a Minicraft kit. Although a Hasegawa product, this early Super Sabre lacks the detail and quality of Hasegawa's later kits. Italeri released a 1/72 F-100D in 1998 followed by an F-100F in 1999. As critical as I am of Italeri, these are probably now the best 1/72 F-100 kits not molded by Trumpeter. Both Italeri kits should still be findable. At times, the Italeri F-100D was also released under the Revell and Academy labels.



Although technically not 1/72 scale, in 1956, Revell released an F-100C in 1/70 scale. Amazingly, Revell sold that kit well into the 1980's. ESCI and Lindberg also released 1/72 F-100 kits over the years. Surprisingly, the 1/72 ESCI is apparently much better than their 1/48 F-100D previously discussed. The 1/72 Lindberg kit is a re-box of an old IMC molding. Once

again, enough said. Your best bet is probably to buy one of the 1/72 Trumpeter models or in the alternative, a 1/72 Italeri kit.

So, "Hun" and Century Fighter fans, browse and shop wisely, check reference materials, decide which paint scheme and decals you prefer, and enjoy building this classic USAF jet.

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