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Nicole Malachowski became the first woman pilot of a U.S. military demonstration team when she flew #3 right wing for the U.S. Air Force Thunderbirds.

NICOLE MALACHOWSKI

FIRST WOMAN U.S. MILITARY DEMONSTRATION TEAM PILOT

OBJECTIVES

- Describe Nicole Malachowski's early love for aviation.
- List some of her USAF accomplishments.
- Discuss some of her flying assignments.
- Build the F-100 Thunderbird.

STANDARDS

NGSS

SCIENCE

- MS-ETS1-2
- MS-ETS1-3
- MS-ETS1-4

ELA/LITERACY

- RST.6-8.3
- RST.6-8.9
- WHST.6-8.7
- WHST.6-8.8
- WHST.6-8.9

NCSS

- IV.f.
- X.e.

When 5-year-old Nicole Malachowski attended an air show in California in 1979, she knew what she wanted to be. “The air show was neat, but I fell in love with the F-4 Phantom and decided there and then I wanted to be a fighter pilot,” she said. The planes, she said, were “loud and powerful.”

She would achieve that career goal and much more, having the kind of career that, appropriately enough, made a powerful kind of figurative noise of its own. In addition to becoming one of the first women to fly modern fighter aircraft, in 2005, she became the first woman pilot for the Thunderbirds, the U.S. Air Force's demonstration

team. In fact, she was the first woman pilot for any U.S. military demonstration team.

Malachowski also was a fighter squadron commander, White House Fellow, and a patient advocate. When she began her tour with the Thunderbirds, she had logged more than 200 hours in combat. On Jan. 31, 2005, she was the flight lead providing air cover over the historic Iraqi elections.

Upon her selection for the team, she said “I think I am living proof that ... dreams do come true.” Even, it seems, dreams that start at age 5.

“The women of yesterday and today's Air Force maintain a tradition of excellence, and it is that heritage that has given me this exciting responsibility of being the first female Thunderbird pilot.”

— Nicole Malachowski

HER STORY

Nicole Ellingwood was born in Santa Maria, California, to Cathy and Robert Ellingwood. Her interest in aviation and flying began at an early age when she was 5 years old and went to an air show. At a sixth-grade career day, a teacher told her women weren't allowed to be fighter pilots. And although it was true at the time, women were allowed in 1993.

"I never wanted to prove anything to anyone but myself," Malachowski said in a 2006 Civil Air Patrol *Volunteer* magazine article. "Someone saying something when I was 12 years old doesn't change the fact that I am a Thunderbird today."

So, at age 12, she joined the Civil Air Patrol, the volunteer auxiliary of the Air Force, as a cadet. Malachowski credits her six years in CAP with helping her achieve that goal. First, she was a cadet in Upland, California, and then in Las Vegas, Nevada, when her family moved. "The North Las Vegas Airport is a special place for me because the Nevada Wing gave me a scholarship to pay for flying lessons, and I soloed at 16 at the North Las Vegas Airport."

In high school, she also participated in Air Force Junior ROTC. After high school graduation, she attended the U.S. Air Force Academy and received her commission in May 1996.

She earned a bachelor of science degree in management, with a minor in French. Later degrees included a master of arts in national security policy from American Military University and a second master of arts in national security and strategic studies from the U.S. Naval War College.

After getting her undergraduate degree from the Air Force Academy, she attended Undergraduate Pilot Training (UPT) at Columbus AFB, Mississippi. It

was here that she began her career as an Air Force pilot. She competed and was selected to fly the F-15E Strike Eagle. This selection placed her among the first group of women to fly modern fighter aircraft. She served as a mission-ready fighter pilot in three operational F-15E squadrons as an instructor pilot and flight commander. She tallied more than 2,300 flight hours including more than 188 in combat. During her third assignment to Seymour Johnson Air Force Base in North Carolina, she trained the next generation of combat aviators. She calls this on her website "the greatest honor and the most important highlight, of her entire career."

Malachowski credits her husband, Paul Malachowski, who was an F-15 Eagle pilot at the time, for encouraging her to apply for the Thunderbirds.

She was accepted as the first woman pilot on any Department of Defense demonstration team and flew as #3 Right Wing with the Thunderbird Team, based at Nellis AFB, Nevada, from November 2005 until November 2007.

From Nellis, her next stop was Washington, D.C, to become a White House Fellow, class of 2008-2009, as a member of the Presidential Transitional Support Team.

Malachowski was instrumental in the passage of the 2009 law which awarded the Congressional Gold Medal to Women Air Force Service Pilots (WASP). She was at the White House ceremony at which the Congressional Gold Medal was awarded to former WASP.

She realized she had broken barriers because many women before her had also broken through glass ceilings.



USAF

Achievements include

- Flew in support of more than 25 combat missions, including air cover for Baghdad during the historic Iraqi elections (2005)
- Became the first female pilot of a Department of Defense demonstration team, USAF Thunderbirds (2005)
- Inducted into the Women in Aviation International Pioneer Hall of Fame (2008)
- Participated in the White House Fellows Program (2008-2009)
- Was instrumental in the passage of the 2009 law awarding a Congressional Gold Medal to Women Airforce Service Pilots (2009)
- Was commander of the 333rd Fighter Squadron, one of only two F15-E Strike Eagle training squadrons (2011-2013)
- Served as Executive Director, the first woman to hold the position, of the White House's Joining Forces initiative supporting service members, veterans, and their families (2015)
- Inducted into the National Women's Hall of Fame (2019)

Continued on PAGE 129

HER STORY (continued from Page 128)

“After all, it is because of the WASP that I was able to fulfill my dream. I was in a unique position with a unique opportunity to champion the cause, so that finally a rich chapter of American history will be added into the books. The message to all young Americans is that it’s great to have a dream, it’s great to have goals,” Malachowski said at the time. “Pursue something that you are passionate about and then pursue excellence in

that. And surround yourself with a positive team.”

In 2015, as Executive Director of the White House’s National “Joining Forces” initiative, Malachowski directly advised First Lady Michelle Obama and Dr. Jill Biden, wife of Vice President Joe Biden, on topics relating to service members, veterans, and military families.

In 2017, after 21 years of service, Malachowski medically retired as

a Colonel from the Air Force due to tick-borne neurological disease. After four years of seeking treatment since she first began to have symptoms in 2012, she was accurately diagnosed with the disease. She regained the abilities to stand, read, and speak, but she continues to need medical treatment. Malachowski also serves as an advocate for patients suffering from tick-borne disease.

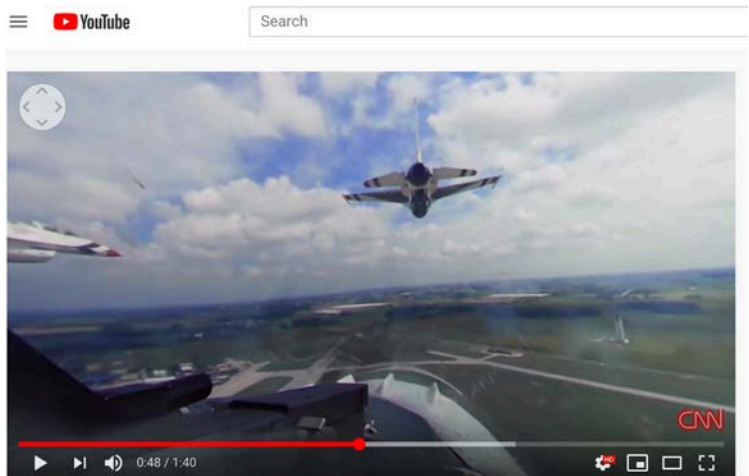
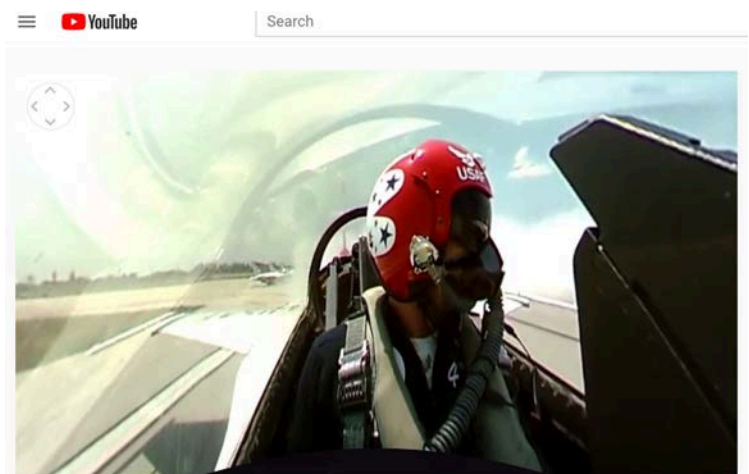
EXTENSION RESEARCH & WRITING

Nicole Malachowski became the first woman pilot in a U.S. military demonstration team when she was named to the U.S. Air Force Thunderbirds team.

- Research more about the history and mission of this demonstration team. Visit the team’s website (<http://afthunderbirds.com/site/>) and social media pages. Explore videos of their performances and maneuvers. Use these videos to write a description of a Thunderbird pilot’s or passenger’s experience in the aircraft. What do you hear and see? What do you imagine the pilots feel? A selection of videos is available at <http://afthunderbirds.com/site/category/videos/>
- If access to virtual reality equipment is available, check out a 360 video. Examples include:
 1. <https://www.youtube.com/watch?v=yPJt9AJ461I&fbclid=IwAR318yvz2dUA4Gs6-wBRD1oqjon4ooDtRrQfUr3d9coZdXULG6zPWY9zsPU>
 2. <https://www.youtube.com/watch?v=Z9nePXG6YG8>

VIDEO LINKS:

- Nicole Malachowski Profile Video (D’Amelio Network)
<https://www.damelionetwork.com/nicole-malachowski/>
- Succeeding in a Male-Dominated Career Field (D’Amelio Network)
<https://www.damelionetwork.com/nicole-malachowski/>



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Nicole Malachowski was inducted into the National Women's Hall of Fame in 2019.

BUILD THE F-100 SUPER SABRE

Students and cadets will build a highly detailed paper model of an important aircraft as it was the first supersonic jet aircraft in the U.S. Air Force. For several years, beginning in 1956, the F-100 was the USAF Thunderbird's aerial demonstration team's aircraft of choice. In 2005, Nicole Malachowski became the first woman pilot for any U.S. military demonstration team as a Thunderbirds pilot.



Ken Chandler/for use by military organizations only

BACKGROUND

The North American F-100 Super Sabre was a post Korean War era fighter and ground attack aircraft that served in the United States Air Force from 1954-1979. The YF-100A was the first American military jet capable of going supersonic and did this in 1953 using a derated XJ57-P-7 engine.

As the Korean War was winding down, the F-100 was looked at as both a replacement for the F-86 jet fighter, as well as a platform for delivering bombs, to include nuclear munitions. The F-100 did not see combat in Korea, but when tasked in the Vietnam conflict, it was able to take on both MiG-15 and MiG-17 fighters and score easily on them.

From 1968 through 1969, the F-100 was the prime close air support aircraft in the war in Southeast Asia. During this conflict the F-100 maintained a 98.5% reliability rate. By 1973, the F-100 was ready to be replaced by the F-4 Phantom, A-7 Corsair II, and A-10

Thunderbolt II jets that were coming into the USAF inventory. As the F-100 was retired, it was replaced by the F-16 Fighting Falcon.

The F-100D was first delivered in January 1956 and was modified to be a primarily ground attack aircraft. A two-seat trainer version (F-100F) was introduced in 1958 and it had all the weapons capabilities as the F-100D. Four different countries flew the F-100 series aircraft: Denmark, France, Taiwan, and Turkey. They flew well into the mid-1980s.

In 1956, the F-100C was selected to be the USAF demonstration team's aircraft. This gave them a supersonic aircraft, and for a short time, the Thunderbirds were allowed to create a "sonic boom" at their air shows until the FAA banned sonic booms over the continental United States. What the F-100 gave the Thunderbirds was a fast airplane; so the air shows could be more exciting and fast paced.

ABOUT THE PLANE

GENERAL CHARACTERISTICS

- **Crew:** 1
- **Length:** 50 ft. (15.2 m)
- **Wingspan:** 38 ft. 9 in (11.81 m)
- **Height:** 16 ft. 2.75 in (4.95 m)
- **Wing area:** 400 ft.² (37 m²)
- **Empty weight:** 21,000 lb. (9,500 kg)
- **Max takeoff weight:** 34,832 lb. (15,800 kg)
- **Power plant:** 1 x Pratt & Whitney J-57-P21/21A
- **Dry Thrust:** 10,200 lbf (45 kN)
- **Thrust with Afterburner:** 16,000 lbf (71 kN)

PERFORMANCE

- **Maximum speed:** 864 mph (1,390 km/h)
- **Range:** 1,733 miles (3,210 km)
- **Service ceiling:** 50,000 ft. (15,000 m)

ARMAMENT

GUNS

- 4 x 20 mm (0.787 in) Pontiac revolver cannon
- 4 x AIM-9 Sidewinder or
- 2 x AGM-12 Bullpup or
- 2 x or 4 x LAU-3/A 2.75" unguided rocket dispensers

BOMBS

7,040 lb (3,190 kg) of weapons, including:

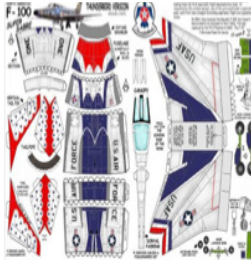
- Conventional iron bombs
- Special stores
- Mark 7 nuclear bomb
- Mk 28 nuclear bomb
- Mk 38 nuclear bomb

PROCEDURE — Building the F-100 Super Sabre aircraft

MATERIALS

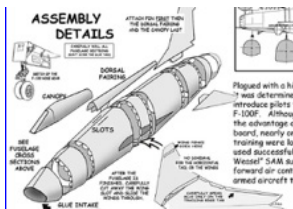
- Cardstock for templates
- Flat, level, stable, and easily cleaned surface to work on
- Sharp-pointed (“X-acto”-type) hobby knife; ALWAYS cap when not in use
- Sharp, precision sewing-type scissors
- A ruler or any other (truly) straight edge
- Toothpicks, round (and flat, if available)
- Aleene’s Fast Grab Tacky Glue, Elmer’s glue, or super glue
- Eyebrow-type tweezers, having a straight edge of comfortable angle
- Stylus of some kind, to make indented lines for folds
- Some old books or similar object to act as a weight/press to keep the airplane parts completely flat while drying
- A trash can nearby to be neat

- 1** Print the F-100 plans on the next page.



- 2** Set up work area with materials and tools.

- 3** Look over the instructions on the plan. Fiddlers Green shows where to glue, cut, and fold/bend.



- 4** Cut out all parts. Score and fold the tabs carefully; bend tabs with a straight-edge ruler. Create sub-assemblies to combine later.



- 5** Roll and glue the parts for the fuselage. They are labeled on the plans and are in order. Use the Assembly Details page as a reference of how to glue the pieces together. Note that the Intake Doubler goes inside the front of the fuselage.



- 6** Fold and glue the main wing. Place it under a weight or heavy book as the glue sets in order to keep it flat.



- 7** Carefully cut out all the wing slots and slide the wings through. See the Assembly Details to find where to cut the slot

- 8** Fold and glue the fins.

- 9** Fold the tabs on the Vertical Tail Fin and glue to its other half. Attach all three fins to the fuselage (cut a slit as indicated on the plans to insert each fin using the remaining tab).

- 10** Add the Dorsal Fairing by inserting it into the fuselage. There are two bold, black lines to cut with an X-acto knife atop the fuselage.



- 11** Attach the canopy.



- 12** Fold and glue the Main Landing Gear Doors and Nose Landing Gear.

- 13** Glue the Nose Landing Gear and Main Landing Gears along the fold to the assembly in the appropriate places.

- 14** Attach the Nose Landing Gear Door on front of the Nose Landing Gear.

- 15** Fold and glue the Landing Gears.

- 16** Glue the Landing Gears along the fold to the appropriate places on the main assembly.



Activity Credit: Credit and Permission to Reprint –The late Chip Fyn, of the Fiddlers Green Company graciously gave the Civil Air Patrol permission to reprint many of the paper model plans at his website. One such plan is presented here. Over 200 airplane plans can be viewed and purchased very inexpensively at Chip’s Fiddlers Green web site, www.fiddlersgreen.net.

NORTH AMERICAN F-100

SUPER SABRE

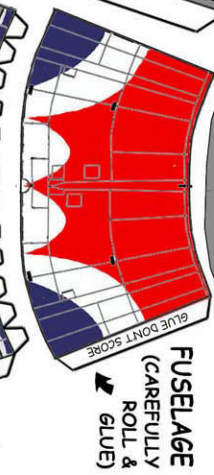
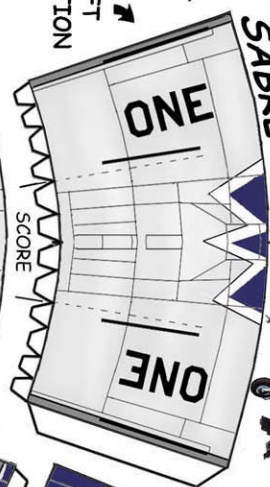


THUNDERBIRD VERSION

WSAM=146%



AFT SECTION

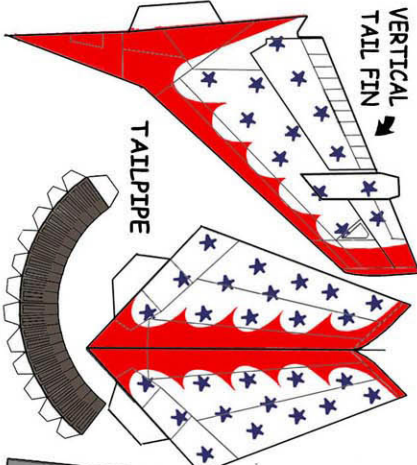


INTAKE DOUBLER

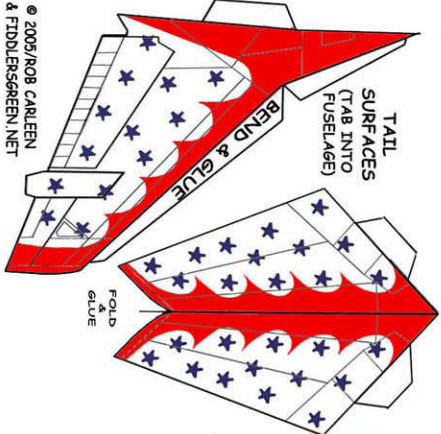
FUSELAGE (CAREFULLY ROLL & GLUE)



VERTICAL TAIL FIN

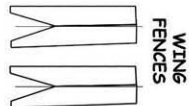
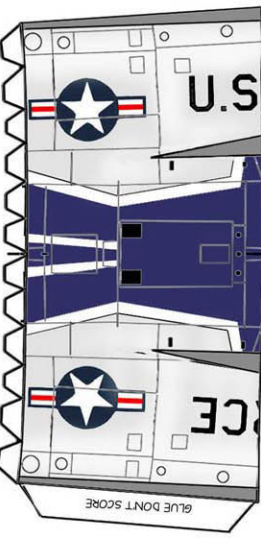
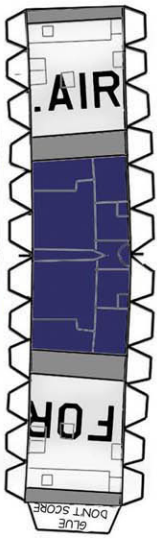
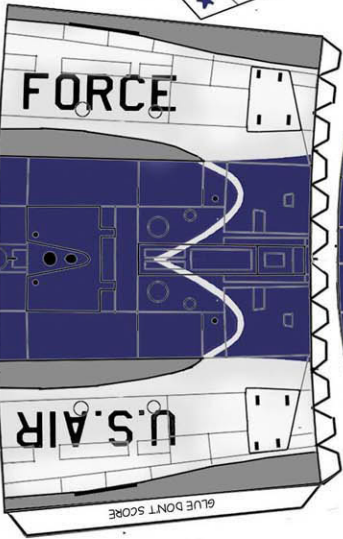


TAILPIPE



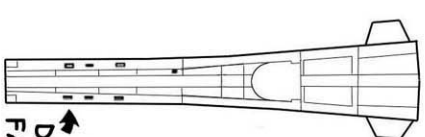
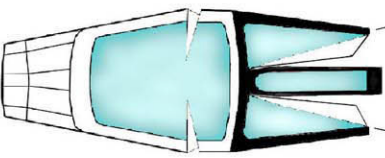
TAIL SURFACES (TAB INTO FUSELAGE)

© 2005/ROB CARLEEN & FIDDLERSGREEN.NET



WING FENCES

CANOPY

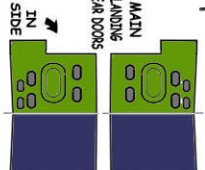
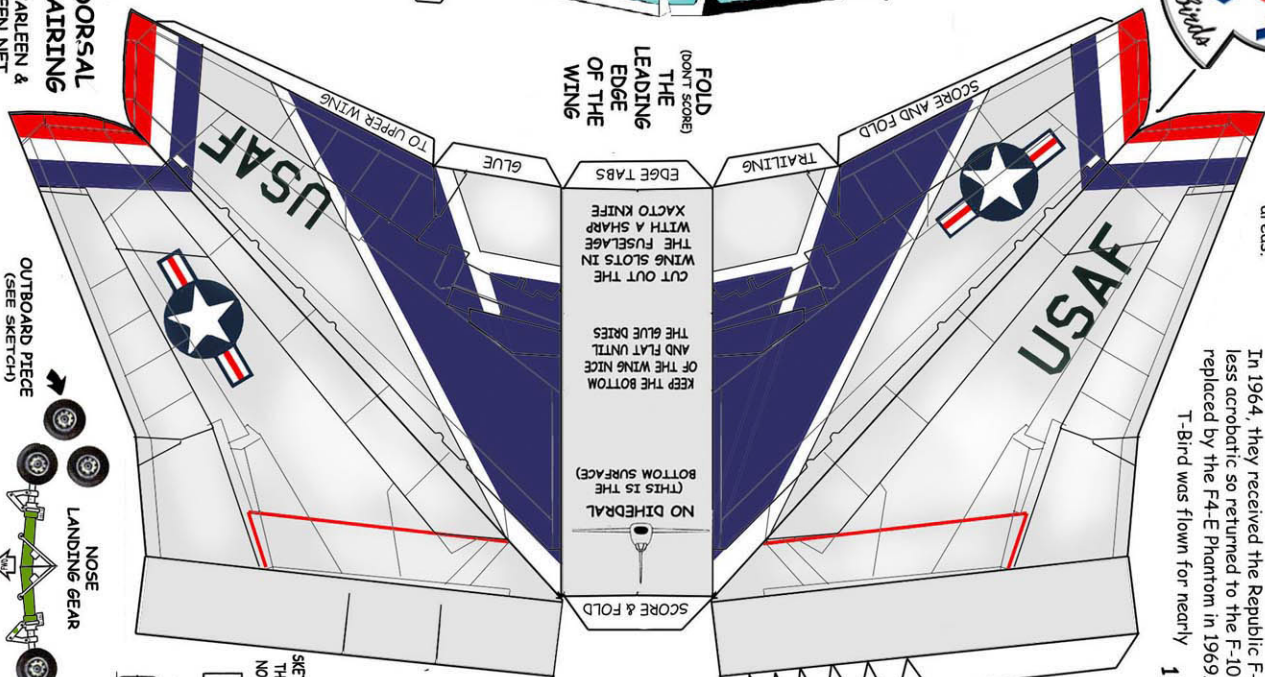


DORSAL FAIRING

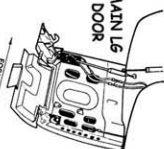
© 2005/ROB CARLEEN & FIDDLERSGREEN.NET

In 1956 the Thunderbirds swapped their F-84Fs for the new F100-C, making them the first supersonic flight demonstration team. If requested by the airshow sponsor, one of the jets would make a supersonic pass--until FAA rules changed forbidding supersonic flight over populated areas.

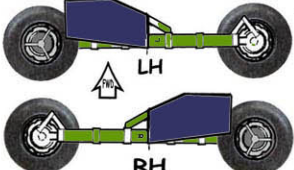
In 1964, they received the Republic F-105, but found it less acrobatic so returned to the F-100D. This was replaced by the F4-E Phantom in 1969. The F-100 T-Bird was flown for nearly 13 years!



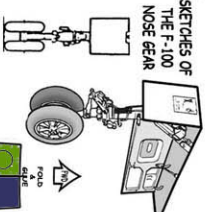
MAIN LANDING GEAR DOORS



MAIN LG DOOR



MAIN LANDING GEAR (STIFFEN WITH TOOTHSTICKS)

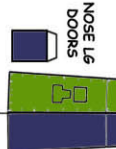


SKETCHES OF THE F-100 NOSE GEAR



NOSE LANDING GEAR

OUTBOARD PIECE (SEE SKETCH)



NOSE LG DOORS



F-100 INSTRUCTIONS

The F-100 Super Sabre was the USAF's first aircraft capable of supersonic speed in level flight. Rushed into production to counter the Soviet Mig-19, the first production models were ordered in early 1952, before flight testing of the prototypes had begun!

Thanks to Rob Carleen for his work on this design!

SPECIFICATIONS

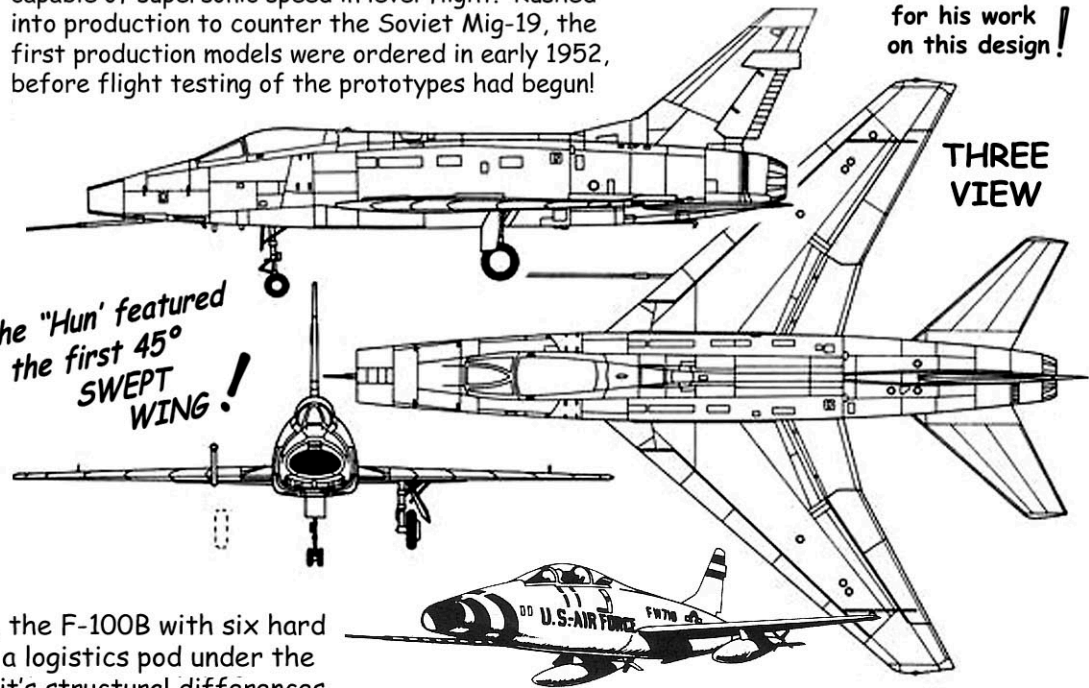
Length: 49ft 4in
 Span: 38ft 9.38in
 Weight: 20,638lb empty
 38,048lb T.O.
 Speed: Mach 1.31 @
 35,000 ft
 Range: 600 mi combat
 Ceiling: 46,900ft

The "Hun" featured the first 45° SWEEP WING!

THREE VIEW



OLD F-100s WERE USED AS DRONE TARGETS



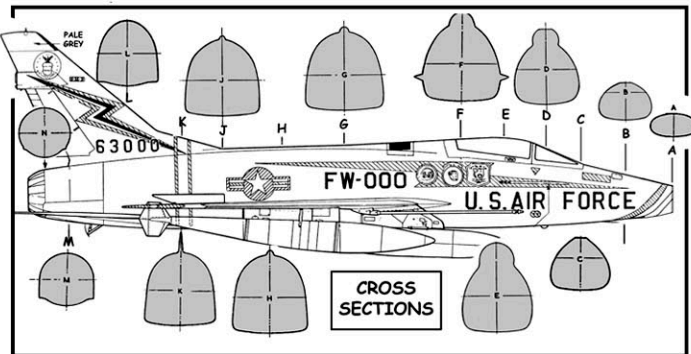
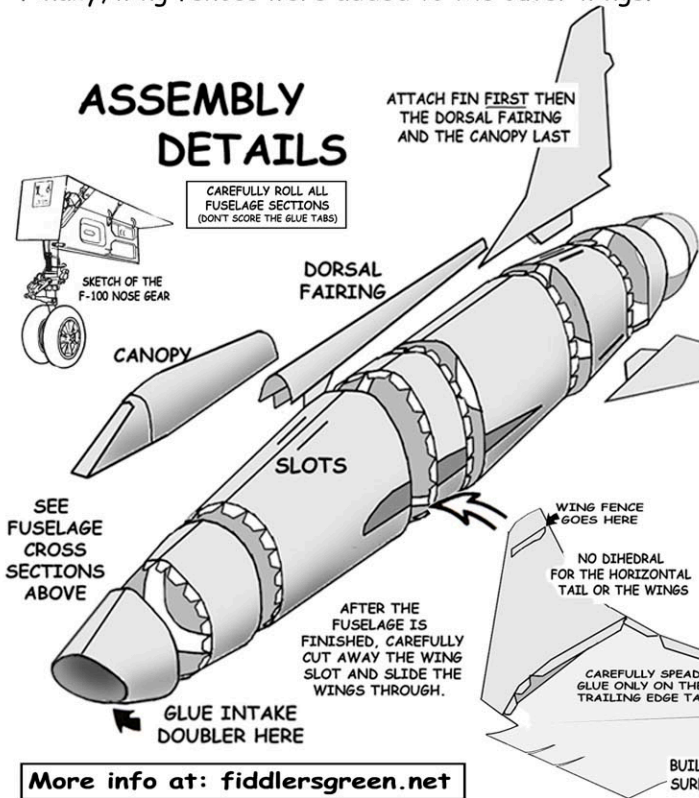
A fighter bomber version, the F-100B with six hard points under the wing and a logistics pod under the belly was offered. Due to its structural differences, it was redesignated the F-107, but was rejected in favor of the F-105.

A secondary role as fighter bomber was added to -A, and the resultant aircraft was designated the F-100C, which had both conventional and nuclear weapons delivery capabilities.

From the outset, the Super Sabre was plagued with yaw problems, which could cause the aircraft to go into an uncontrollable roll. Numerous fixes were applied, starting with an enlarged vertical fin, a stability augmentation system and finally a yaw damper system. Finally, wing fences were added to the outer wings.

The definitive model was the -D. Modifications included trailing edge flaps with increased wing area and the first autopilot designed for supersonic flight. The D could also carry a buddy store inflight refueling pod. The F-100D was one of the first aircraft sent to Southeast Asia in the 1960s. While eventually being replaced by more modern aircraft, during the early years of the conflict it was a workhorse, providing close air support, mostly in the south, but some of its most noteworthy accomplishments occurred north of the DMZ.

ASSEMBLY DETAILS



Plagued with a high accident rate, since its introduction, it was determined that a two seat trainer was needed to introduce pilots to supersonic flight. This became the F-100F. Although it did provide transitioning pilots with the advantage of flying with an experienced pilot on board, nearly one quarter of all F-100Fs involved in training were lost to accidents. However, the -F was used successfully in other roles, notably the "Wild Weasel" SAM suppression mission and the "Misty", fast forward air control role, where it directed more heavily armed aircraft to targets hidden to high flying aircraft.

More info at: fiddlersgreen.net

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