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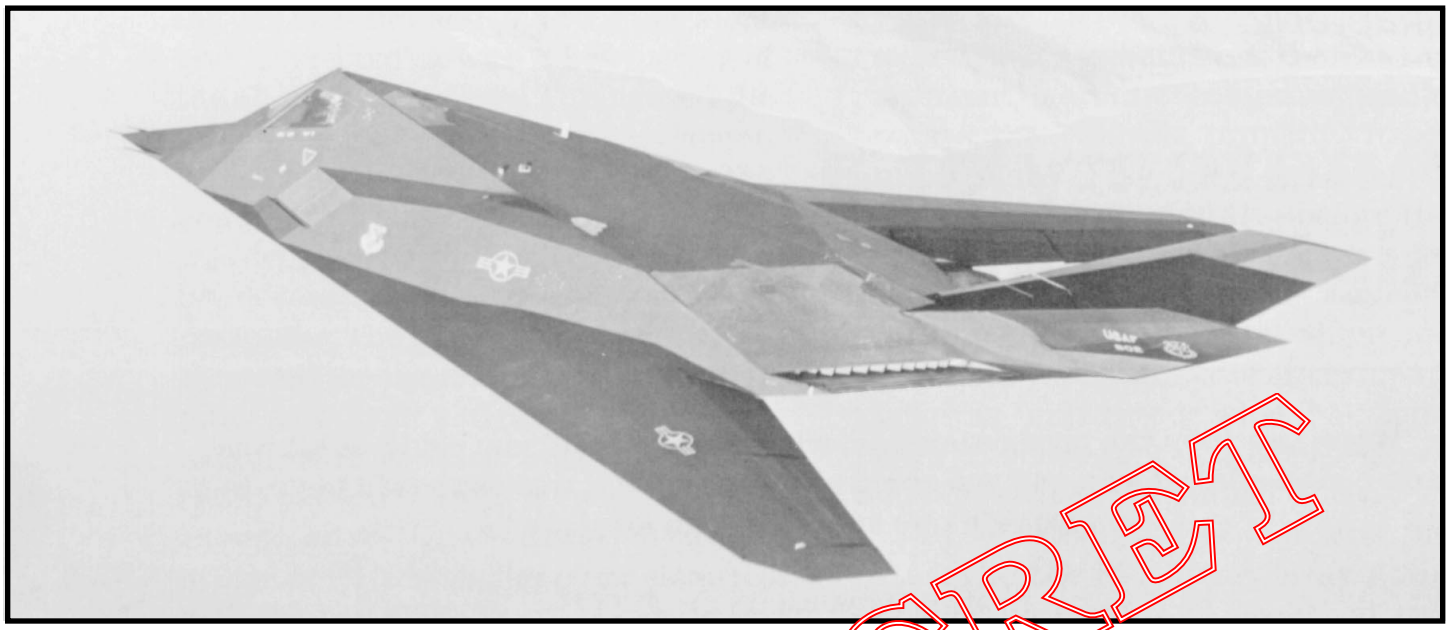
Heir to the author:
Philip Koopman, Sr.

Lockheed's F117A Stealth Fighter

PAPER CARD MODEL



Official USAF Photograph

TOP SECRET

Once shrouded in secrecy, the F117A Stealth Fighter was officially unveiled by the United States Air Force in early 1990. This public display at Nellis Air Force Base, on April 21, 1990, showed a most-unusual aircraft. Instead of smooth, flowing curves, the F117A was dead black and all flat-plate angles – even its airfoil had the flat-plate construction. Definitely ugly, and certainly not aerodynamic like the sleek jet fighters one is used to seeing.

Lockheed created the F117A at its famous Skunk Works. Long known for special aircraft, like the U-2 and SR-71 spy planes, the talents of the Skunk Works designers turned to producing an aircraft invisible to Radar. This design has all flat surfaces, with all set at carefully calculated angles to each other. Each surface is designed to bounce off Radar beams at angles, much like one can reflect the sun with a mirror. Other parts of the plane's surface absorb the Radar signal. This makes the F117A invisible to Radar — if no signal is bounced back to the enemy Radar system's antenna, no detection is possible. Other *Stealth* tricks included shrouding the exhaust system to prevent Infra-Red (IR) detection of engine exhaust. And, the F117A doesn't carry Radar. The Radar signal would be picked up as it approaches. Instead, flight-path data are from an inertial-navigation system (INS) and IR detectors.

It's called a fighter, but the F117A is really a bomber. It is unarmed. The plane relies on it's Stealth capability to approach and acquire a target, drop its ordnance and sneak away without detection. Its weapons system relies on Video/IR image data to guide smart bombs to their target. Target acquisition is from the nose-mounted Forward Looking Infra-Red (FLIR) system that projects a TV-like image for the pilot. A second system is mounted on the bottom of the F117A. This is the Downward-Looking Infra-Red (DLIR) system. Both systems are steerable, adjustable for wide- or narrow-angle view and can be used for flight or weapons guidance.

The F117A Stealth Fighter is rather large and carries just the pilot. The aircraft design required a computer-controlled flight system for stability. And, it's a true fly-by-wire system — pilot inputs are to a computer, not directly to the control surfaces. Generally accepted specifications are:

Wingspan	43 Feet 4 Inches
Length	65 Feet 11 Inches
Height	12 Feet 5 Inches
Power	Two GE 10,600-lb Trust F404-F1D2 Jet Engines
Speed	646 MPH
Range	1000 Miles - Extended Range With In-Flight Refueling

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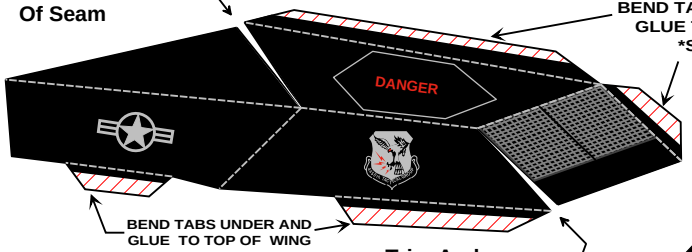
Trim And Glue Strip To Back Of Seam

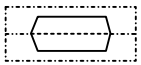
Cut Apart

*NOTE: Experienced Builders Can Remove The Top Tabs Of The Jet Inlets

BEND TABS UNDER AND GLUE TO FUSELAGE *SEE NOTE



RIGHT SIDE JET INLET

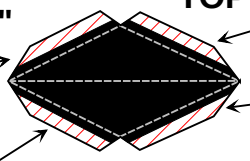


Trim And Glue Strip To Back Of Seam

Cut Apart

NOSE "CONE"

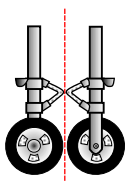
TOP

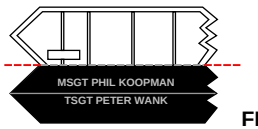


BEND TABS UNDER AND GLUE TO FRONT OF FUSELAGE

BEND TABS UNDER AND GLUE TO FRONT OF CENTER SECTION

NOSE GEAR & DOOR



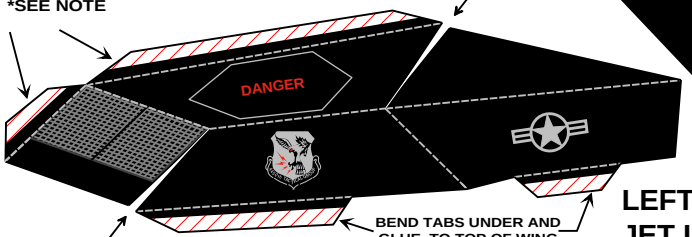


MAKE FOUR PITOT TUBES FROM TOOTHPICKS

BEND TABS UNDER AND GLUE TO FUSELAGE *SEE NOTE

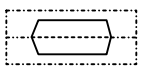
Trim And Glue Strip To Back Of Seam

Cut Apart



LEFT SIDE JET INLET

Cut Apart



Trim And Glue Strip To Back Of Seam

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Lockheed F-117A Stealth Fighter

From The FLY'N THINGS™

Computer Skunk Works

FINS

BEND TAB UNDER AND GLUE

BEND TAB UNDER AND GLUE

BEND TAB UNDER AND GLUE TO FUSELAGE

BEND TAB UNDER AND GLUE TO FUSELAGE

BEND TAB UNDER AND GLUE

BEND TAB UNDER AND GLUE

BEND TAB UNDER AND GLUE

Fold Up

FOLD DOWN GLUE TABS

WING SUPPORT

DO NOT GLUE !

Trim And Glue Strip To Back Of Seams

FUSELAGE CENTER SECTION

ASSEMBLY SEQUENCE:

1. Glue Front Tabs To Bottom Of Fuselage. Make Sure The Center Section Is Centered. Hold Until Dry..
2. DO NOT GLUE UNDERSIDE Of Wing Supports.
3. Glue Rear Tabs Of Center Section. Pull Sides Of Fuselage Bottom Inward. Hold Wings And Center Section In Alignment Until Glue Is Dry -- Make Sure It Is Centered.
4. Glue Rear Tabs Of Fuselage Bottom. Slide Into Alignment With Back Of Center Section. Hold Until Dry.
5. Glue Trailing-Edge Wing Tabs. Align, Hold Until dry. Then, Glue Wing Tip Tabs.
6. NOTE: The Complex Geometry Of The F117A Is Computer Generated. Apparant Accuracy Can Be Off By Minor Errors In Scoring And Cutting. Trim To Fit At Wing Tips And Trailing Edge And At Back Of Fuselage Center Section.

FOLD DOWN AND GLUE

FOLD DOWN AND GLUE

FOLD DOWN GLUE TABS

DO NOT GLUE!

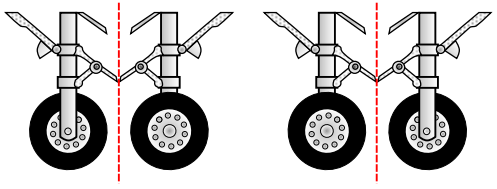
WING SUPPORT

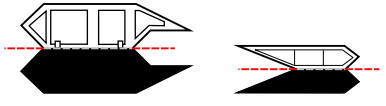
Lockheed F-117A Stealth Fighter
From The FLY'N THINGS™
Computer Skunk Works

FOLD ALL TABS UNDER AND GLUE

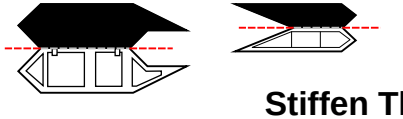
Trim And Glue Strip To Back Of Seams

MAIN LANDING GEAR





MAIN GEAR DOORS



FOLD UNDER AND GLUE

COL TONY TOLIN

FOLD UNDER AND GLUE

DANGER

DANGER

GLUE

COL TONY TOLIN

GLUE

FOLD UNDER AND GLUE

NO STEP

DANGER

GLUE

NO STEP

DANGER

GLUE

Fold, Trim and Glue Strip To Back Of Seam

Cut Apart

Z-FOLD TABS

SIDE VIEW OF Z-FOLD

TOP OF FUSELAGE

Stiffen Three Top Seams To Prevent "Oil Can" Bending

FOLD TABS UNDER AND GLUE

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Lockheed F-117A Stealth Building Instructions

1. You Will Need:

White Glue Or Household Cement

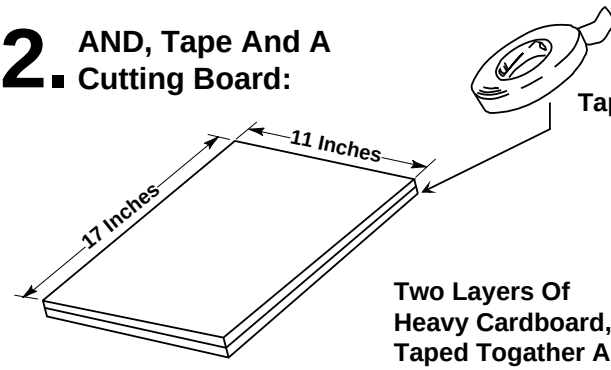
Score Folds With A Fine-Line Black Ball-Point Pen

Single-Edge Razor Blade Or Model Knife

Scissors

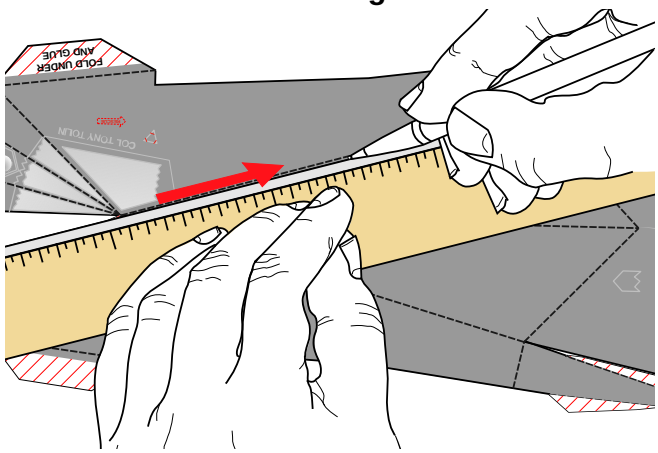
Metal-Edge Ruler Or Straight Edge

2. AND, Tape And A Cutting Board:

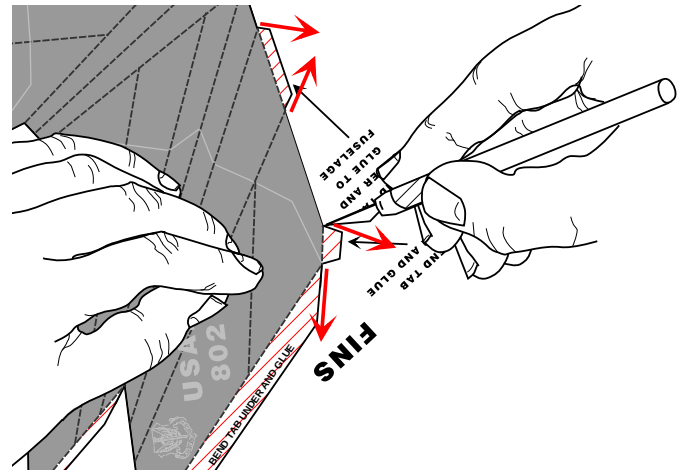


Two Layers Of Heavy Cardboard, Taped Togather Around All Of The Edges.

3. Score Along All Dashed Lines Of Both Sheets With A Fine-Line Black Ball-Point Pen Or A Smooth-Edge Butter Knife.

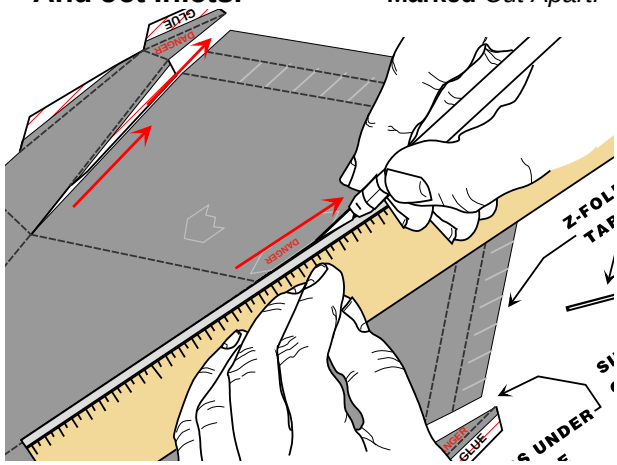


4. NEXT, Cut Along The Ends Of The Assembly Tabs With A Model Knife.



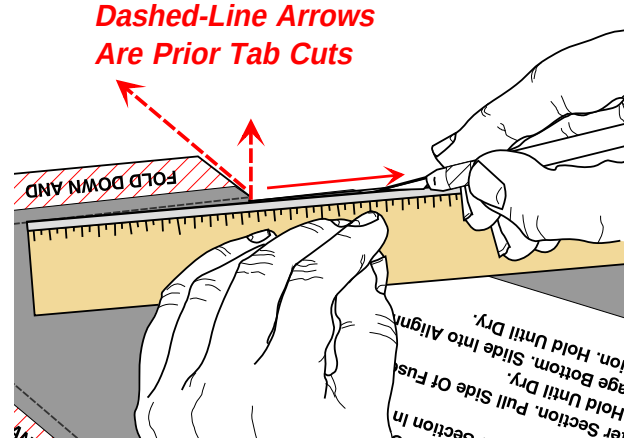
5. AND, Cut Open All V-Slits On Fuselage And Jet Inlets.

Make Straight Cuts Along Both Lines Marked *Cut Apart.*



6. THEN, Cut Along The Black Outlines Between Tab Cuts. Finish By Cutting Parts Free Along Remaining Outlines.

Dashed-Line Arrows Are Prior Tab Cuts



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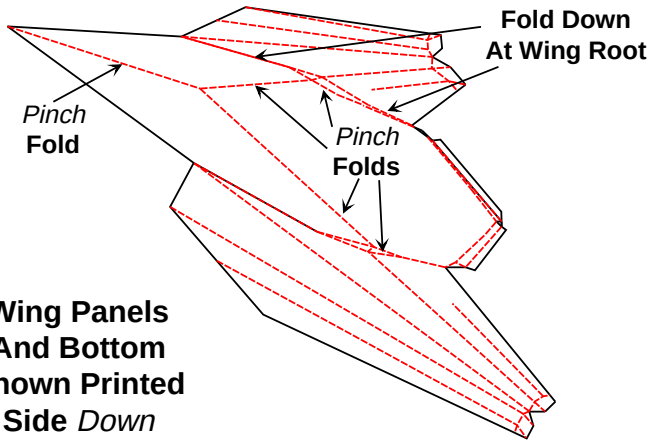
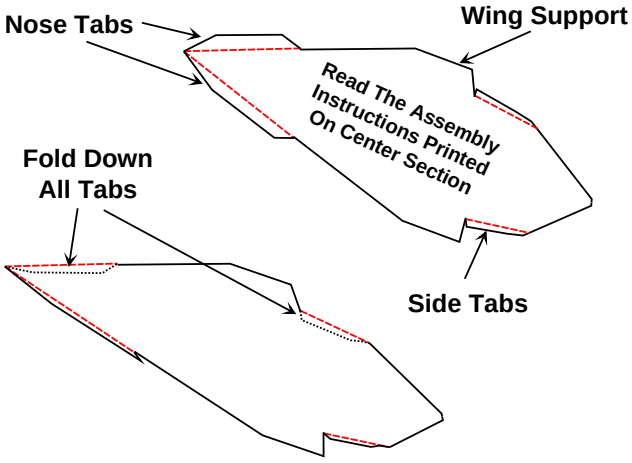
7. From The Printed Side, Fold Down On All Dashed Lines You Scored. Turn Over, Then ...

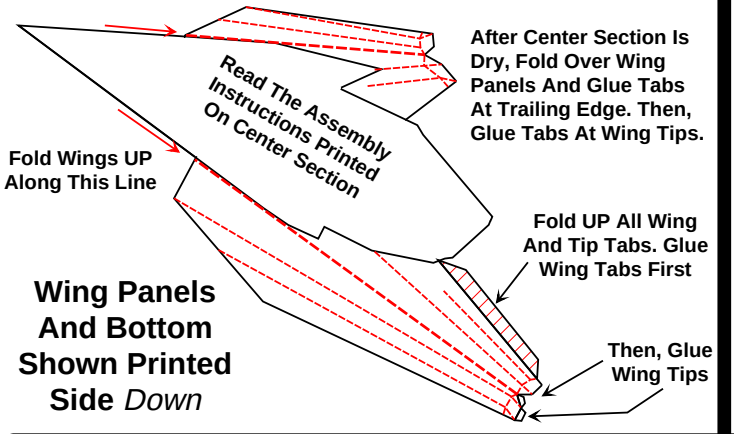


Wing Panels And Bottom Shown Printed Side *Down*

8. Fold Down All Tabs On The Center Section. Read Assembly Instructions!

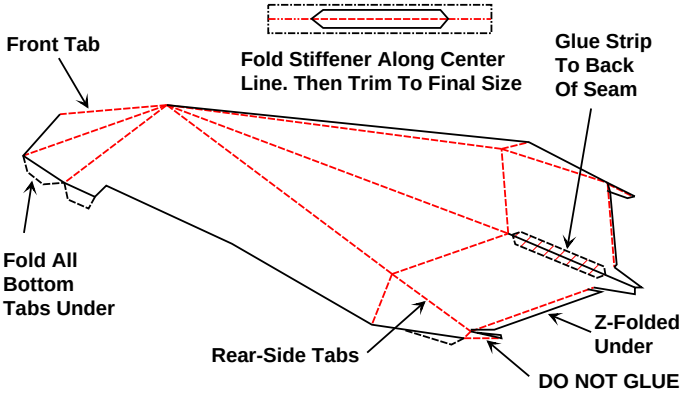


9. Glue The Center Section To The Bottom. Glue Nose, Wing Suppports, Sides And Rear Bottom Tabs.

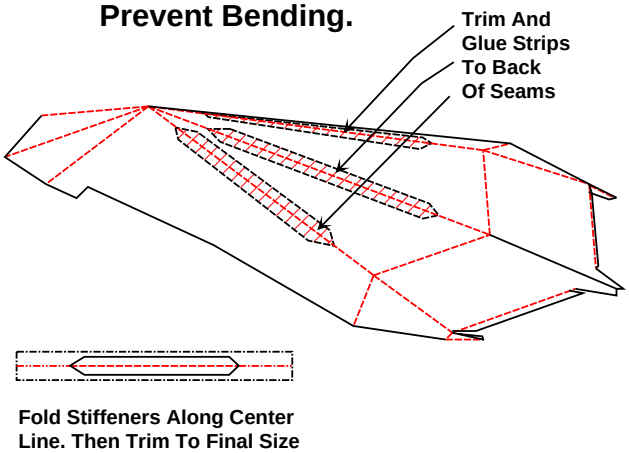


Wing Panels And Bottom Shown Printed Side *Down*

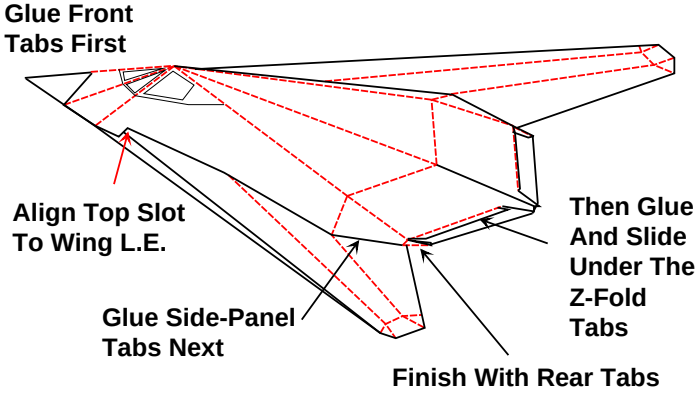
10. Assemble Fuselage Top. Glue Front Tab First. Pull Rear Seam Togather And Glue Stiffener Underneath. Then, Glue Rear-Side Tabs.



11. Next, Stiffen The Three Top Folds Of The Fuselage To Prevent Bending.



12. Glue Completed Fuselage Top To The Bottom/Wing Assembly.



Push Down On Fuselage Top, Slightly Spreading It To Align With Wing Top Surface And Fuselage Bottom

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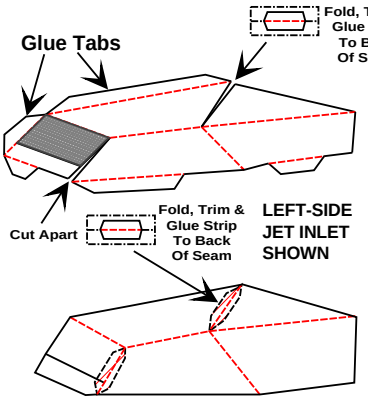
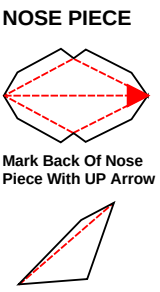
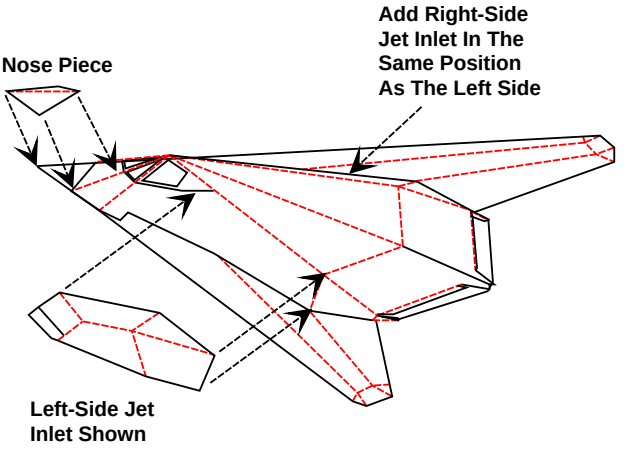
13. Assemble The Side Jet Inlets By Glueing Strips To The Back Of The Cut-Open Slits. Fold The Nose Piece Mark The Top On Back.

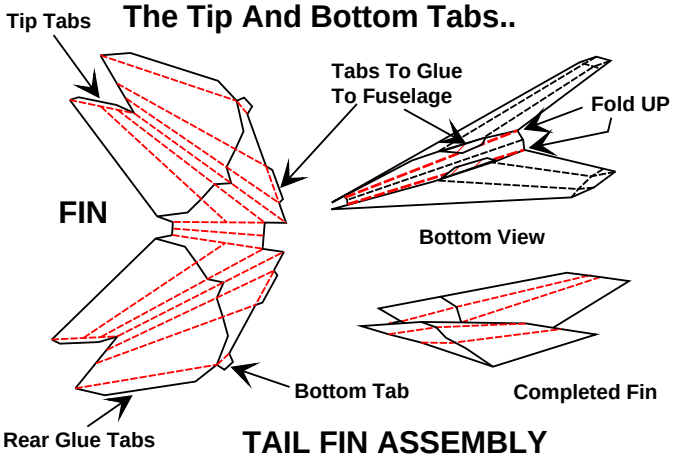




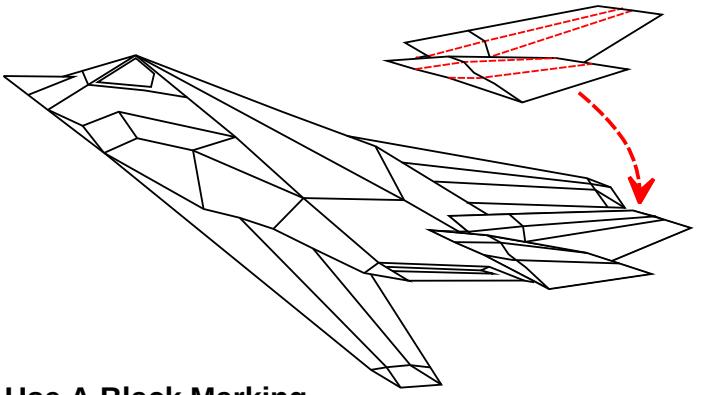
14. Glue The Nose Piece To The Front Of The Fuelage. Add The Left- And Right-Side Jet Air Inlets.



15. Fold Down On All Scored Lines. Fold Under The Glue Tabs. Glue The Rear Tabs First. Then, Glue The Tip And Bottom Tabs..

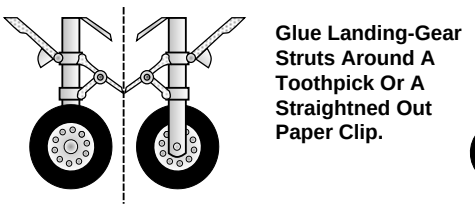


16. Finish By Glueing Fin Assembly In Place.

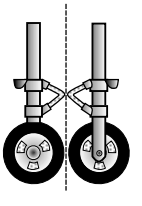


Use A Black Marking Pen To Cover All Exposed Paper Edges. Add Landing Gear If Desired (Steps 17 And 18).

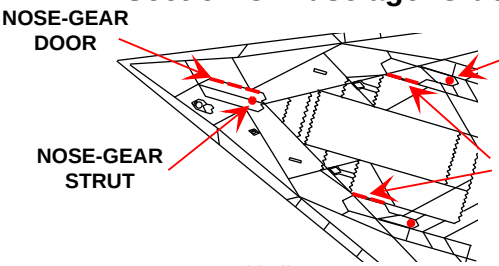
17. Fold Landing-Gear Doors On Scored Line And Glue. Fold Landing Gear Struts Around A Toothpick And Glue.

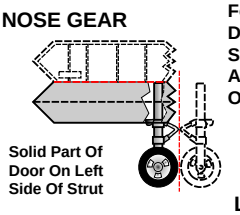


Glue Landing-Gear Struts Around A Toothpick Or A Straightned Out Paper Clip.

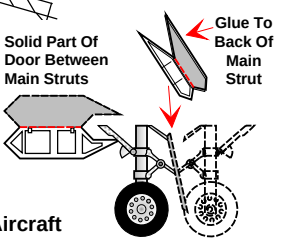


18. Push Toothpick Of Landing-Gear Struts Through Bottom And Center Section Of Fuselage. Glue, Add Doors.





Fold All Parts On Dashed Lines. Glue Struts To Toothpick And Doors To Bottom Of Fuselage (Above).



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