

# PENNY-WEIGHT FLYING PAPER AIRPLANES

Cut, Fold & Fly – WWII Pacific, Volume 2 (alternate color schemes)

Phil Koopman, Sr.

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- Building Instructions
- How to Fly
- P40 (US red ball; v2)
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- Zero (Vector Blue; v4)
- Zero (Blue/red; v5)
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- Val (Gray; v2)
- Hellcat (Vector 1943; v2)
- Hellcat (v3)
- Hellcat (Vector; v4)
- Dauntless (Gray, v2)
- **BONUS:** FW 190 (Vector)



## Notes:

- These are alternate color schemes for some of the same designs as in volume 1. Some models are vector graphics rather than scans.
- Print models one sided, “actual size” – do not “fit to paper” or scale when printing!
- You’ll need to put a weight in the nose for level flight:
  - Recommended: if printing on 65 lb. cover stock, use a pre-1982 US penny (3.11 grams) or a 2 cent Euro coin (3.06 grams)
  - If printing on office printer paper, use a post-1982 US Penny (2.5 grams) or 1 cent Euro coin (2.3 grams)
- This is a scan of the only surviving copy of a printed draft manuscript. The original appears to have been printed on an ink jet printer, so there are various patterns in the colors associated with that process. You can touch up your plane with a felt tip marker if you like. (Typos have not been fixed.)
- I have built and flown some of these planes, but not all of them.
- I am unable to provide support, and in general not able to answer queries.
- No warranties of any kind are made. Please build and fly responsibly.
- I hope you enjoy these airplanes as much as I have!

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**FLY'N THINGS™**

## **Introducing The World War II Penny-Weight Flying Models**

Paper models of all types are popular in many countries. This form of modeling takes many forms. Called Paper-Card Modeling in Europe, it spans the range from simple folded-paper darts, to complex three-dimensional models of airplanes, ships and buildings.

Paper models were popular in the United States during WWII. Material shortages made it difficult, if not impossible, to make models from balsa wood. Toy makers, too, were effected. With metal in short supply, many makers turned to paper substitutes. Even Lionel trains were put out as paper models in the 1940's. After WWII, paper models declined in the US. with the availability of metal and balsa wood.

The style of paper-plane construction used in this book was developed by Wallis Rigby, an Englishman. He was internationally know for his paper models of airplanes and trains. In addition to Rigby's many books of paper-model WWII airplanes, he developed models similar to those in our book as cereal premiums for General Mills. Mail in two box tops from Wheaties cereal and you received a pair of paper airplanes. In all, this type of model gave thousands of kids and adults their first try at model building.

Rigby's WWII models were simple in design and easy to build for kids of all ages. The planes were good flyers, if a bit fast, and very popular. The models were small and lacked detail. Colors were a bit on the garish side, like a blue P-40 Warhawk or a bright-yellow Nakajima fighter. Scale, too, wasn't so accurate.

We've attempted to retain the simplicity and flavor of the original models. Improvements in layouts and a larger size make the models easy to build and great flyers. And, there are new models that weren't in the Rigby series, like the Douglas Dauntless dive bomber and the US. Navy and Marines Wildcat. All models carry scale outlines and details of the real airplane. Colors, too, give an over all scale appearance. Detailed picture instructions make it easy for even young modelers to build a successful flying model.

These penny-weight planes are new models. We made the artwork with the latest in computer technology. For some of the models, custom computer programs allowed us to generate three-dimensional models from aircraft drawings. Other special programs projected these 3D images into flat surfaces used as patterns for the fuselage artwork.

### **The Simple Tools Needed**

Most of what you'll need is already on hand -- just scissors, a single-edge razor blade and some glue will do. However, we do have some suggestions to make it easy. Please follow the step-by-step instructions. There are two basic types of construction -- airplanes with radial engines and in-line engines.

Rather than repeating dozens of steps for each model, there is a single, combined, set of illustrated instructions. Start by Building a Japanese Zerd. This shows you all of the construction steps needed for any of the radial-engine models. Next, build the Flying Tigers' P-40. The P-40's in-line engine fuselage construction, and special features like the standard canopy are shared by other models, too. And, extra instructions are given for custom details, like the landing gear for the Aichi "Val" dive bomber.

Use a model knife, or even a small disposable type, with a triangular blade for cutting out slots and the parts. Small scissors are useful for cutting curves, like wing tips. A straight edge as a cutting guide makes it easy to trim parts to shape. For easy building, please follow our instructions: Cut slots, score on the dashed lines, then cut out the part.

One can just bend the parts on the dashed lines, but accurate assembly will suffer. It's best to score along each dashed line. We use a dried out fine-line ballpoint pen, but any blunt blade, like a butter knife, will do. **HINT!** An empty ballpoint pen will still have a bit of ink. Some ink may come out from the heat of your hand. To be sure the pen is completely dry, close the air-vent hole with a drop of cement (the plastic "pencil-type" pens usually have the vent hole at the top end or under the eraser).

The best method of gluing the wing and tail parts together is with an ordinary glue stick -- Dennison's brand works well. Remember, that paper absorbs water and warps; **DO NOT LAMINATE THE WINGS AND TAIL WITH WATER-BASED GLUE!** In all cases, weight down the laminated parts and let dry. The wing and tail parts must be perfectly flat.

You can use a very light coat of water-based "White" glue for assembly. However, we've found that a household cement, like the Duco brand, works best. It dries fast, but slow enough so you can make minor adjustments in part alignment before it sets. For difficult parts, like a nose cone, put a very thin layer of cement on both parts. Let dry, then apply a second coat and assemble.

For a more realistic model, color the cut edges of all parts *before* assembly. Use a colored marker pen around the edges. During Assembly, after cutting off the tabs on the fuselage, color the cut edges of the tab with marker pens or colored pencils of the same color as the fuselage.

Our last suggestion is the penny weight. Our models were designed to use the early copper pennies for nose weight. Starting in 1983 the US. penny was lightened. Check the date and use pennies dated 1982 or earlier. Or if you have to use the light pennies, and the model stalls, add a tiny piece of modeling clay to the nose. Or, better yet, cement a small paper clip inside of the cowl (in addition to the penny) during assembly. **HINT!** Experiment with a radial-engine model. Complete the nose cowling but don't cement in place until after your flight test.

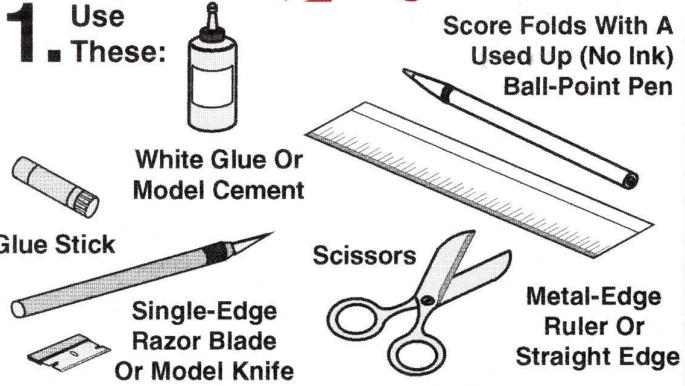
Build, Fly and above all, HAVE FUN!



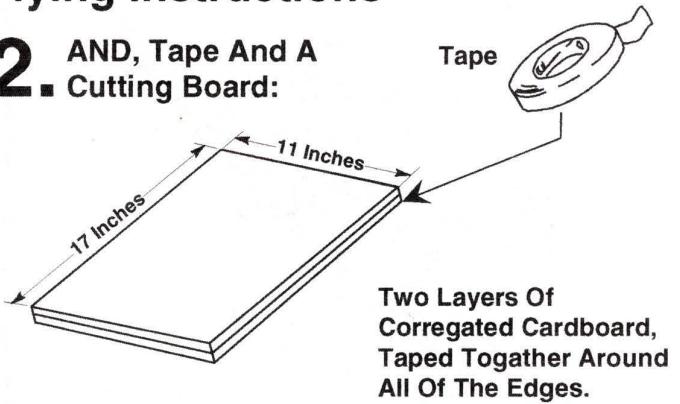
# FLY'N THINGS™

## Penny Weight Paper Models Building & Flying Instructions

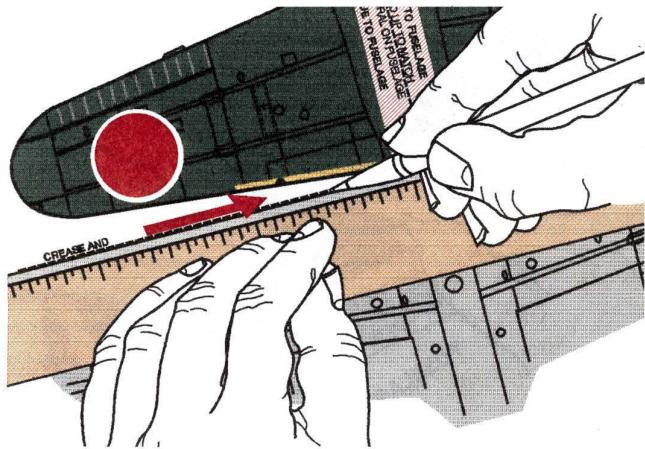
### 1. Use These:



### 2. AND, Tape And A Cutting Board:



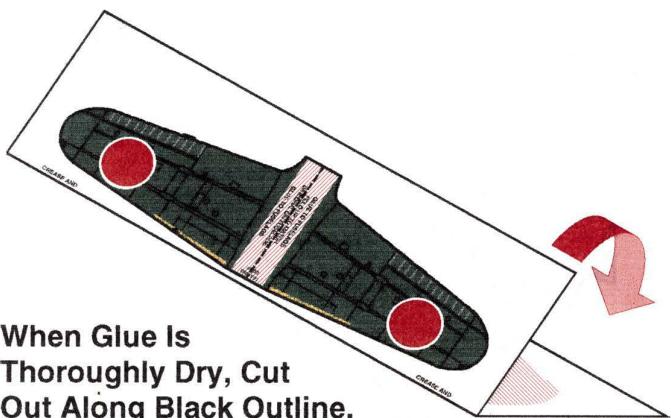
### 3. Score Along Dotted Line Of Wing With The Used Ball-Point Pen Or A Smooth-Edge Butter Knife And Fold Down.



### 4. With Printed Side Down, Coat ONE Inside Surface With The Glue Stick.



### 5. Place Wing On A Flat Surface, Fold Down And Smooth Out Glue. Weight Down So The Glued Wing Dries Flat.

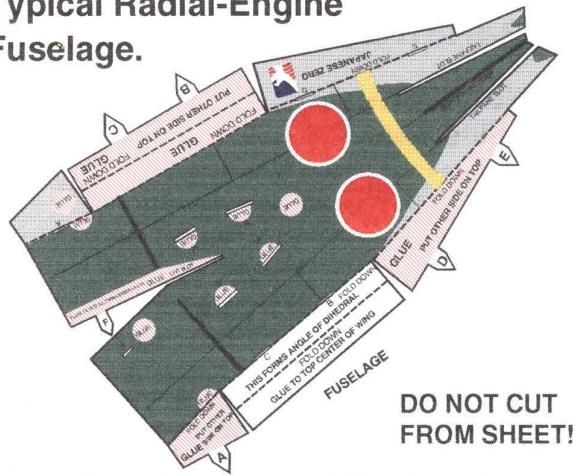


### 6. Score, Fold And Glue The TAILPLANE And RUDDER The Same Way You Did The WING.

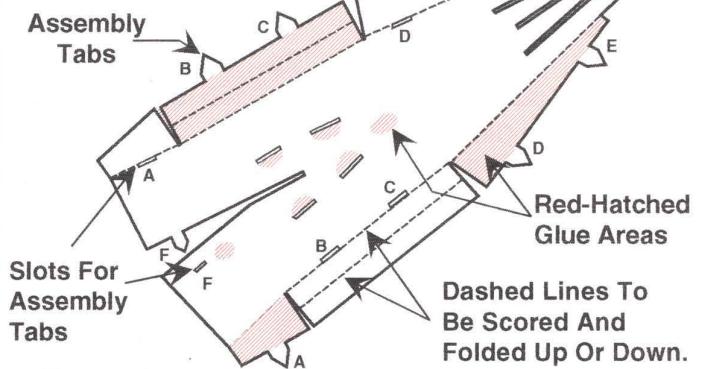


# RADIAL-ENGINE FUSELAGE ASSEMBLY

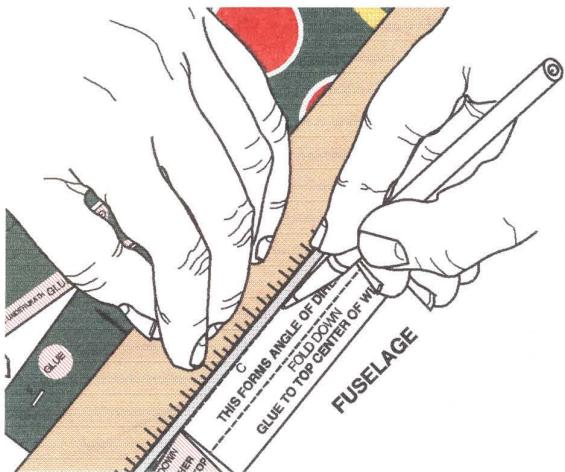
## 7. Typical Radial-Engine Fuselage.



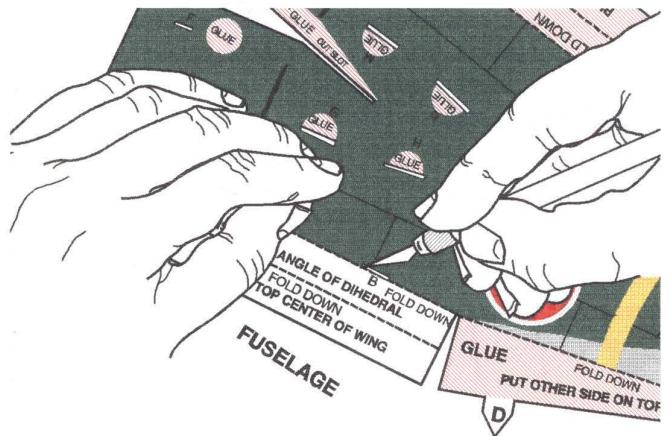
## 8. Follow Steps 9 Thru 11 To Score, Cut Slots And Cut Out Fuselage.



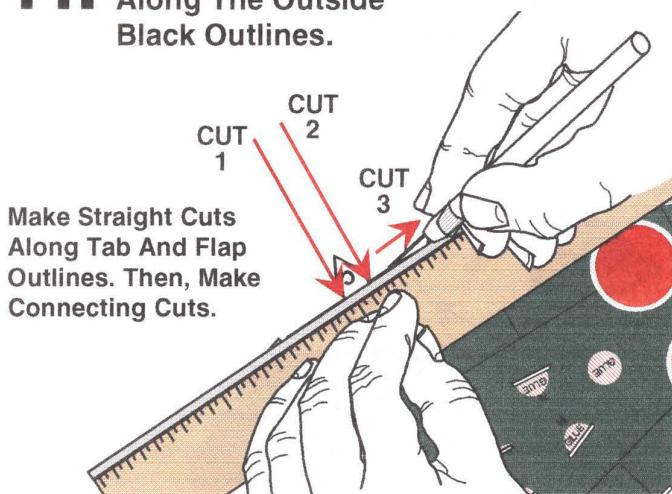
## 9. FIRST, Score Along All Dashed Lines.



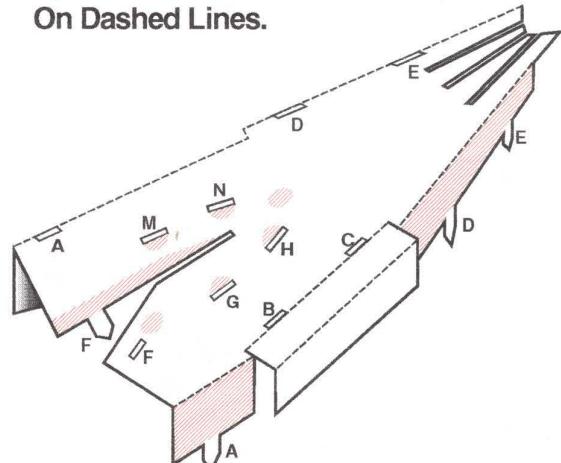
## 10. NEXT, Cut Out Slots For Assembly Tabs With Model Knife.



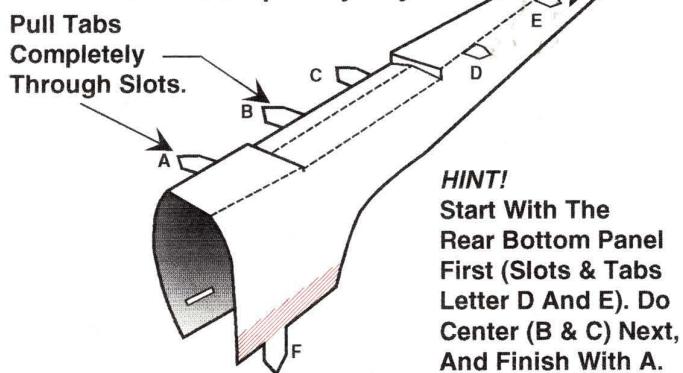
## 11. THEN, Cut Out Fuselage Along The Outside Black Outlines.



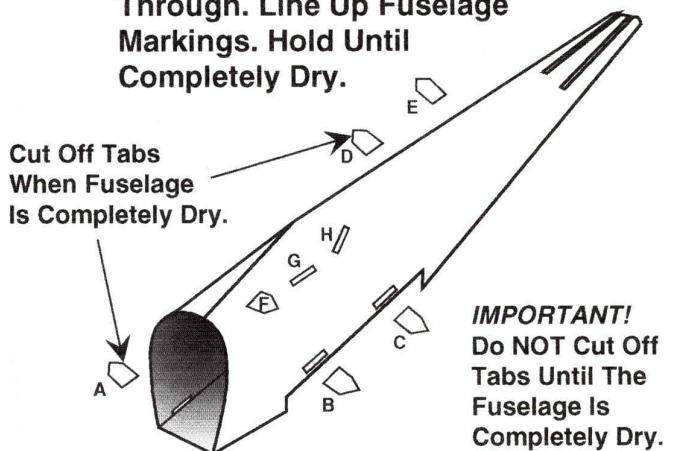
## 12. Fold Scored Creases Up Or Down As Marked On Dashed Lines.



**13.** Push All Bottom Tabs Through The Matching Slots. Apply A Light Coat Of Glue To The Hatched Area. Pull Tabs Tight, Hold Until Completely Dry.

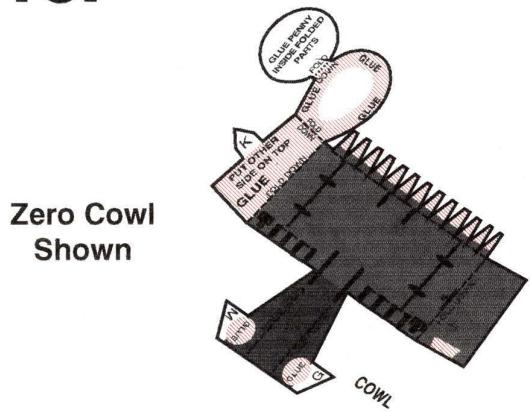


**14.** Glue Hatched Area At the Top, Front Of Fuselage. Pull Tab (F) Completely Through. Line Up Fuselage Markings. Hold Until Completely Dry.

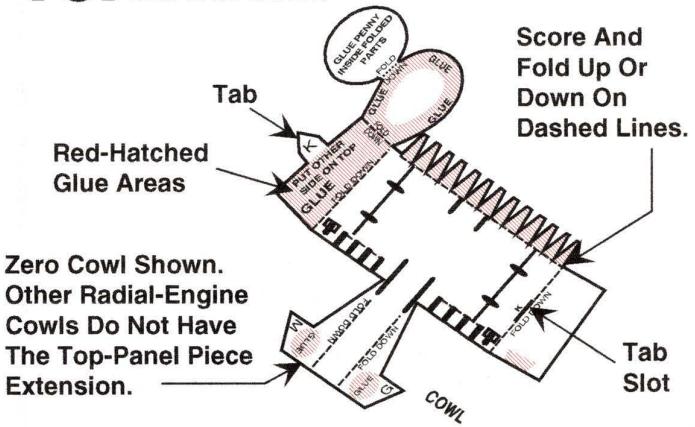


## RADIAL-ENGINE COWL ASSEMBLY

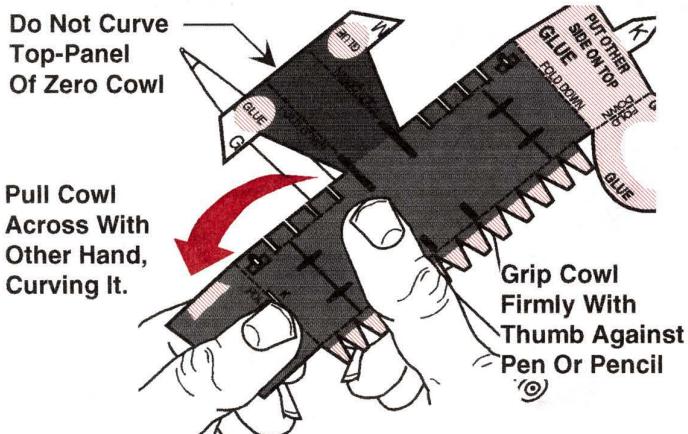
**15.** As You Did For The Fuselage...



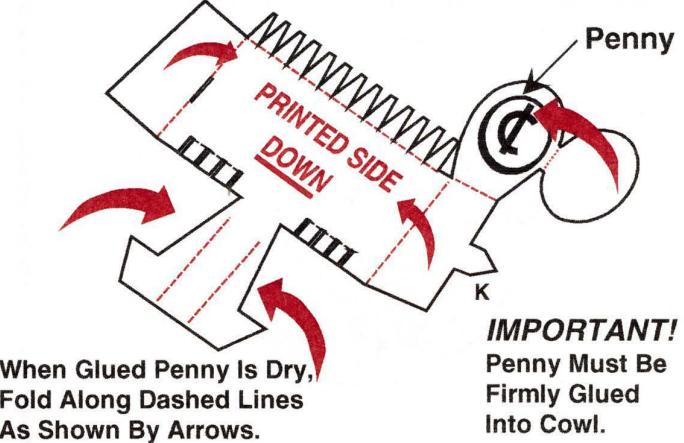
**16.** Score, Cut Slot And Cut Out Cowl.



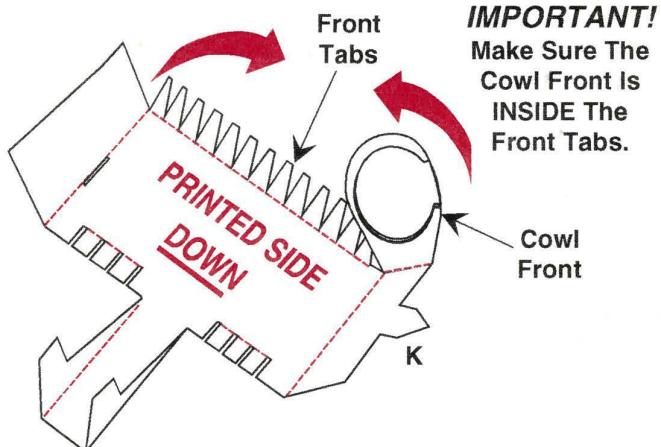
**17.** Before Folding Cowl, Curve The Center Section By Pulling It Across A Round Pen Or Pencil.



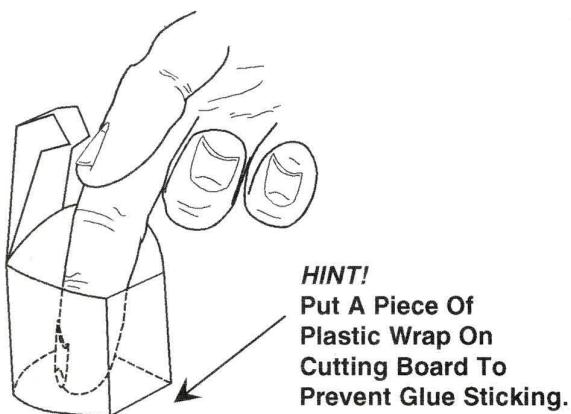
**18.** Glue Penny To Cowl, And Fold Over Big Tab. Use Plenty Of Glue. Hold Until Dry. Then Fold As Shown.



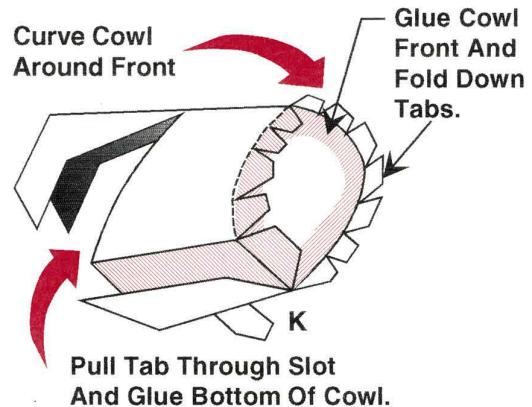
**19.** After Cowl Is Curved And Folded, Shape Around Cowl Front.



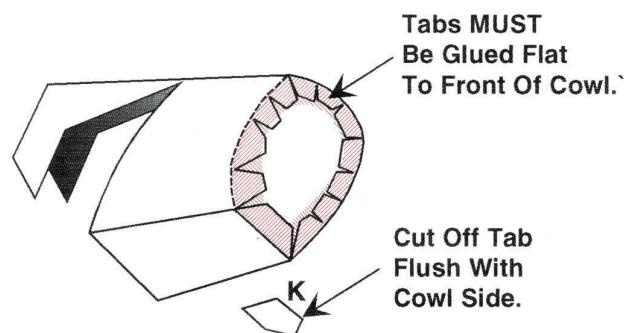
**21.** When Tabs At Front Of Cowl Are  
In Place, Turn The Cowl As Shown  
And Hold Firmly Until Dry.



**20.** Pull Tab Through Slot, And Glue  
Bottom Of Cowl. Align And Hold  
Until Dry. Glue Front Of Cowl And  
Fold Down Tabs.

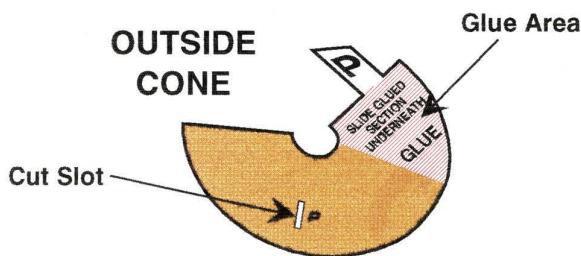


**22.** Check To Make Sure All Tabs Are  
Glued Flat To The Front Of Cowl.  
Reglue If Needed. Then, Trim The  
Bottom Tab Flush With Side.

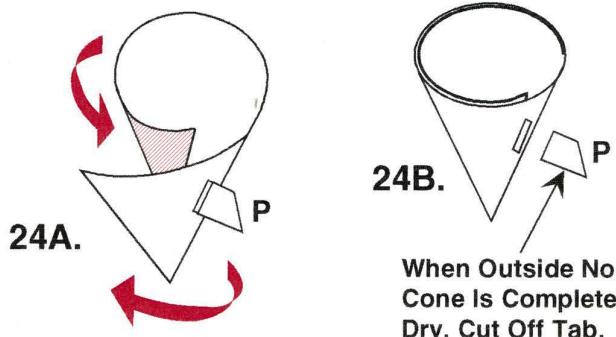


## NOSE CONE ASSEMBLY

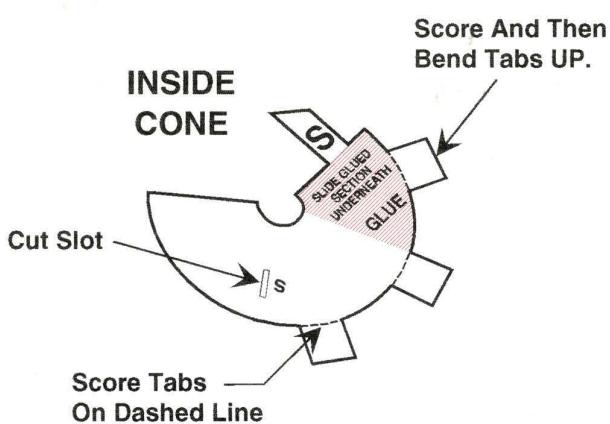
**23.** Cut Slot In Outside Nose Cone.  
Cut To Outline And Curve Over  
A Pen As You Did The Cowl.



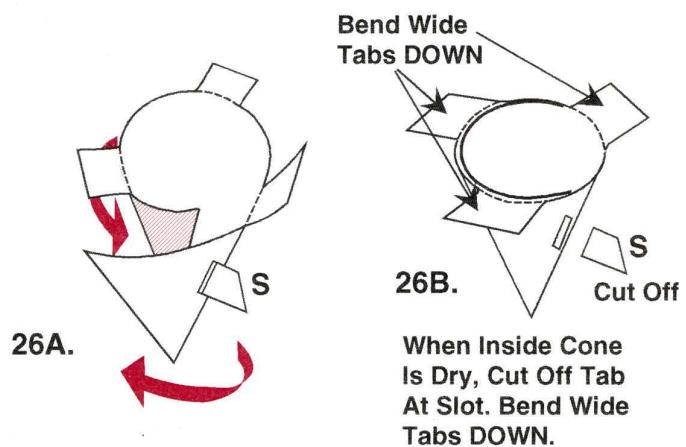
**24.** Apply Glue To Red-Hatched Area.  
Pull Tab Through Slot. Curve The  
Outside Around. Hold Until Dry.



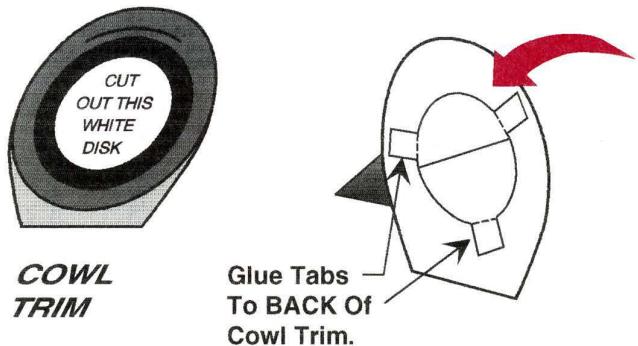
**25.** As You Did With The Outside Cone, Cut Slot And Curve Inside Cone. Then, Bend Tabs Up.



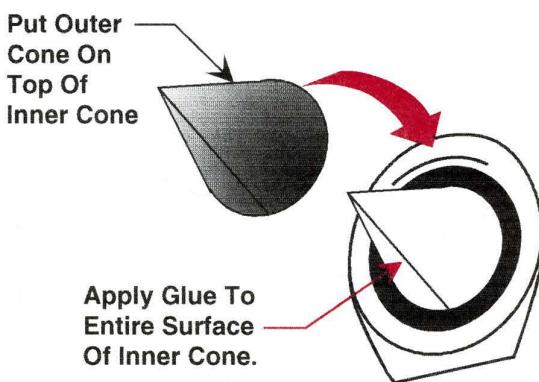
**26.** Apply Glue To Red-Hatched Area. Pull Tab Through Slot. Curve The Outside Around. Hold Until Dry.



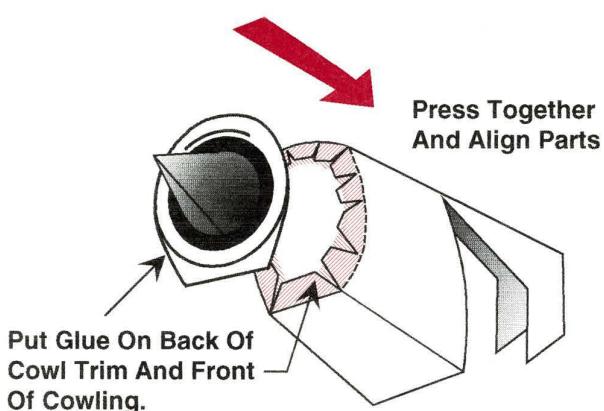
**27.** Cut Out White Center Disk Of Cowl Trim. Then, Cut Out Cowl Trim On Outline. Insert INSIDE Cone From Back . Glue In Place.



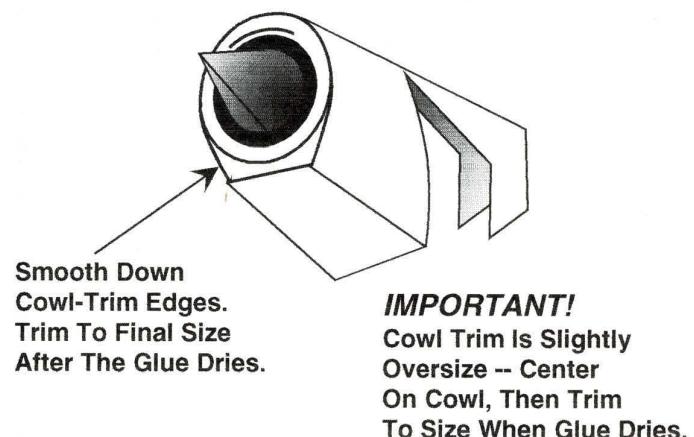
**28.** Apply Plenty Of Glue To The Inside Cone. Slip The Outside Cone On Top. Hold Until Dry.



**29.** Apply A Coat Of Glue To The Back Of The Cowl Trim And The Front Of The Cowling. Press Parts Together.

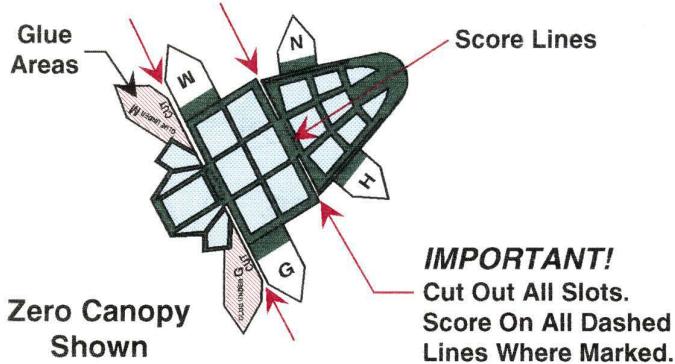


**30.** Check Alignment, and Smooth Cowl-Trim Edges Down. Hold Parts Together Until Dry.

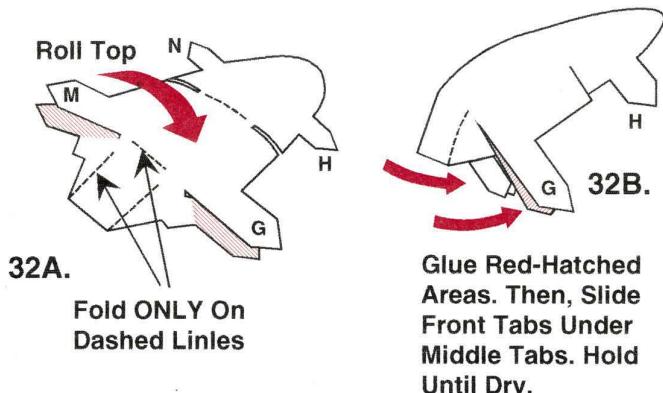


## BUBBLE CANOPY ASSEMBLY

- 31.** Cut Out The Canopy Along The Outlines. Make Sure All Slots Are Cut Out As Indicated On Part.

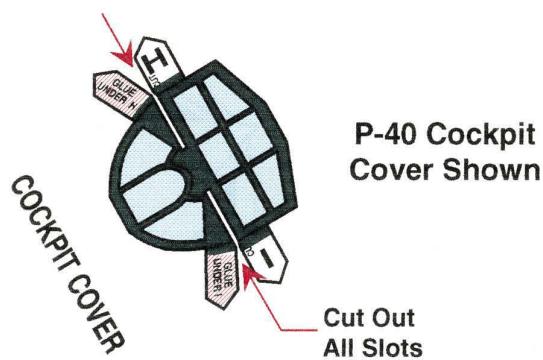


- 32.** ROLL... Do Not Fold Top Of Canopy. Fold Only On The Dashed Lines.

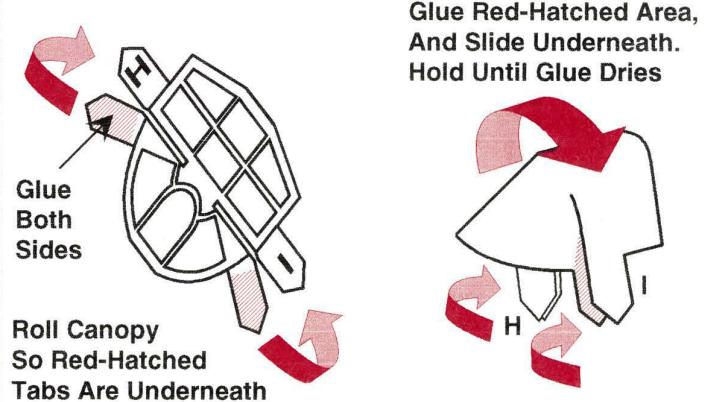


## STANDARD CANOPY ASSEMBLY

- 33.** Like The Bubble Canopy, Cut Along Outline, Making Sure That All Slots Are Cut Out.

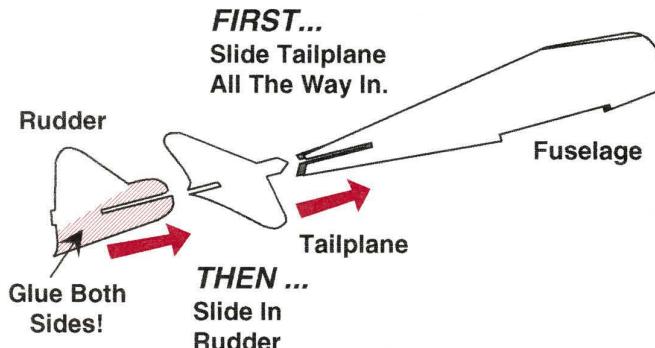


- 34.** Roll Canopy. Fold ONLY On Dashed Lines.

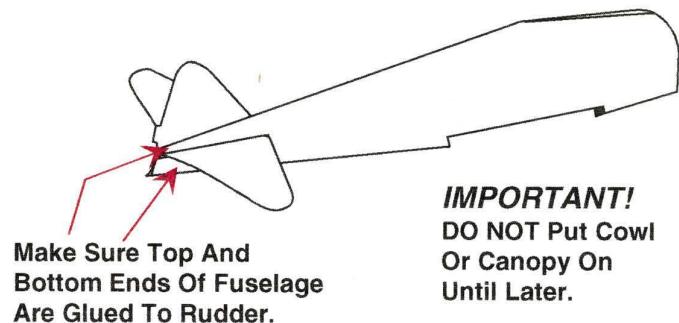


## FINAL ASSEMBLY RADIAL-ENGINE PLANES

- 35.** Coat Red-Hatched Area Of Rudder With Glue. Slide Tailplane All Of The Way In. Then, Slide Rudder In.



- 36.** Glue Ends Of Fuselage To Rudder. Check Vertical And Horizontal Alignment Of Rudder And Tailplane. Hold Until Glue Dries.

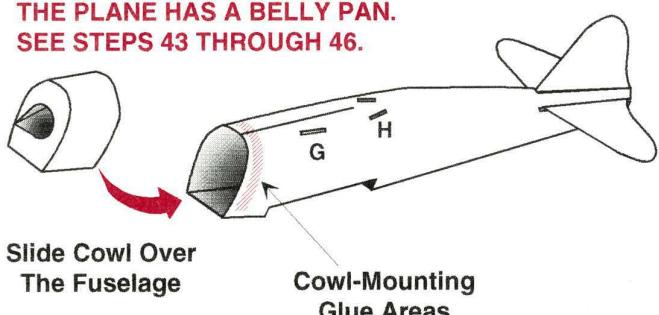


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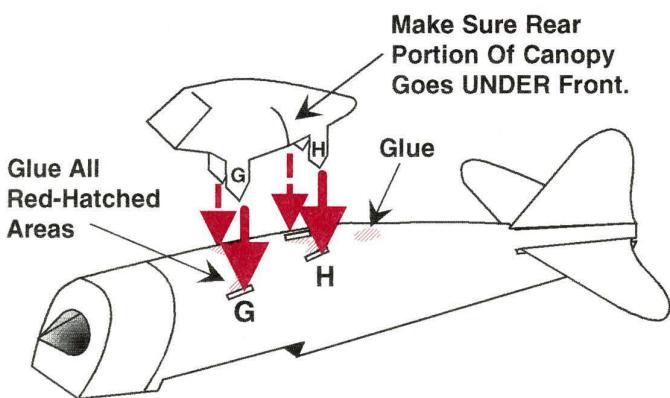
**37.** Apply Glue To The Red-Hatched Cowl-Mounting Areas. Then, Slide The Cowl All The Way On Over The Fuselage.

**IMPORTANT!**

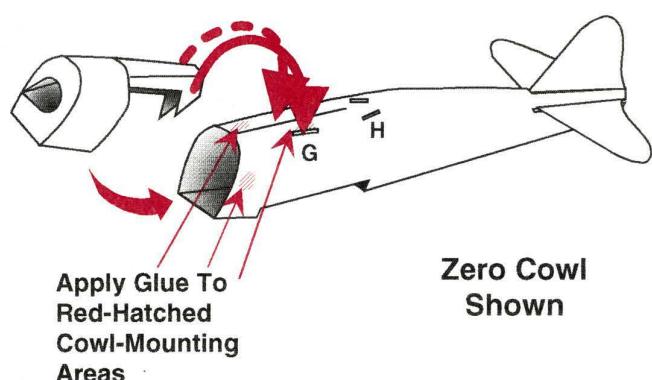
DO NOT ATTACH COWL IF THE PLANE HAS A BELLY PAN.  
SEE STEPS 43 THROUGH 46.



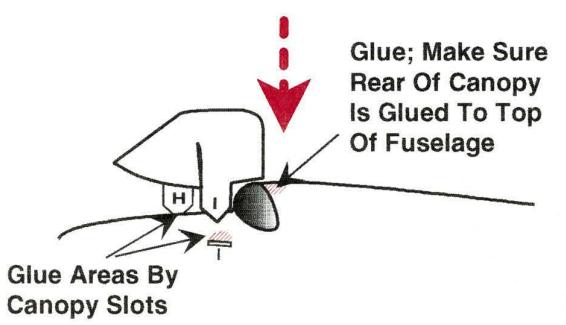
**39.** Cement Glue Spots Next To Canopy Slots. Slide Canopy In Place. Hold Until Dry.



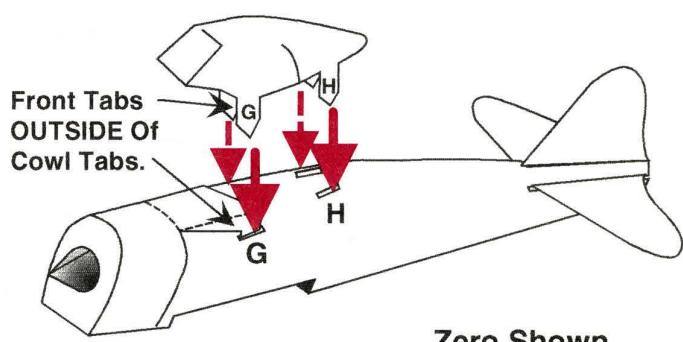
**38.** For Planes With A Top-Panel Extension On The Cowl, Hook Tabs Into Fuselage Slots As You Slide The Cowl On.



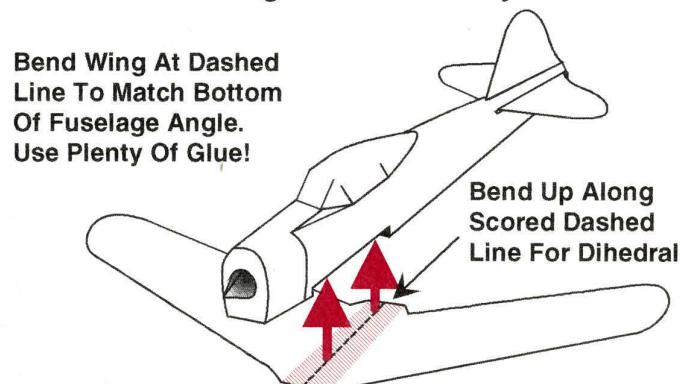
**41.** Standard Canopies Mount In The Same Way. Make Sure Rear Part Of Canopy Overlaps The Front.



**40.** For Planes With Cowl Extension, Make Sure The Front Tabs Of The Canopy Go On The Outside.

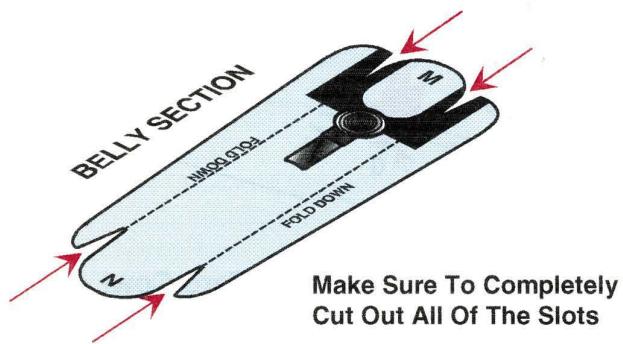


**42.** Fold Wing Up EXACTLY Along The Dashed Line In Glue Area. Glue Wing FIRMLY To Bottom Of Fuselage. Hold Until Dry.

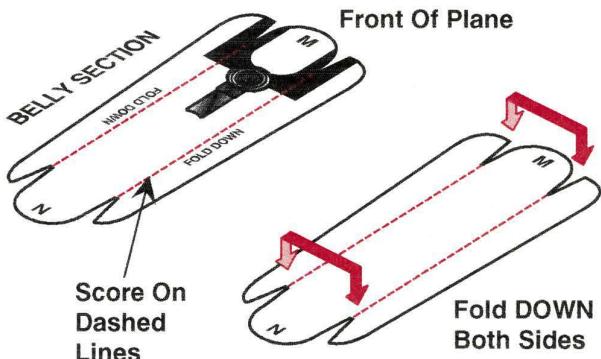


# BELLY PAN ASSEMBLY

**43.** Score Along Dashed Lines.  
Cut Out Belly Pan On Outline.

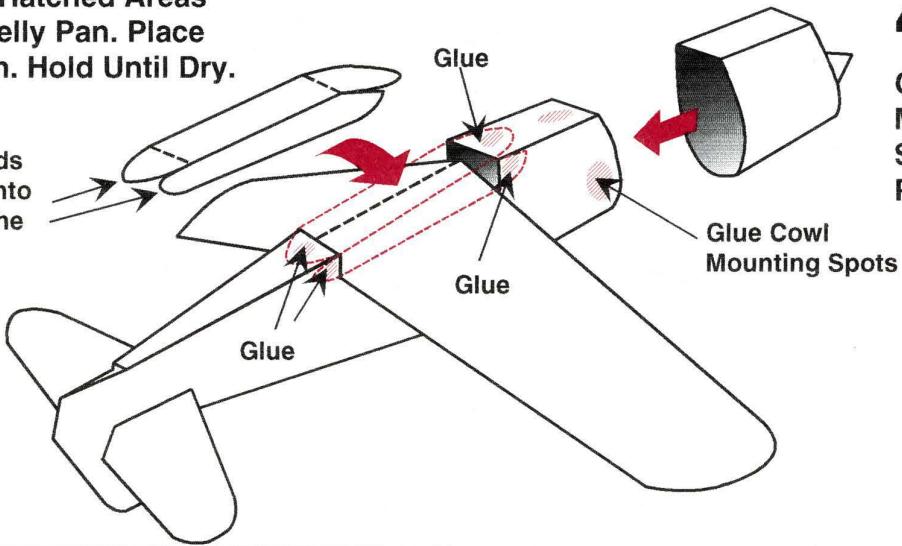


**44.** Fold DOWN On Both Of The Dashed Lines



**45.** Glue Red-Hatched Areas For The Belly Pan. Place In Position. Hold Until Dry.

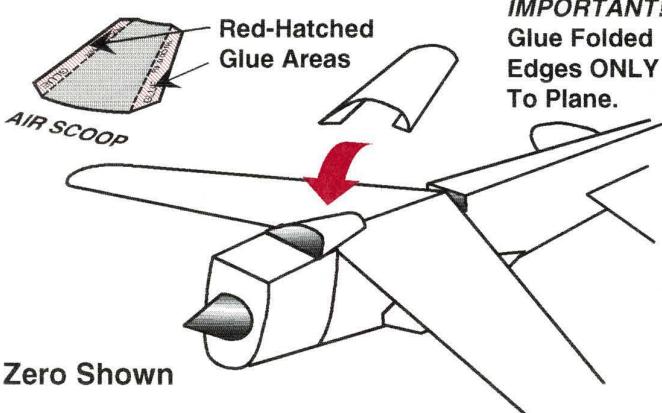
Press ALL Ends Of Belly Pan Into Position On The Fuselage.



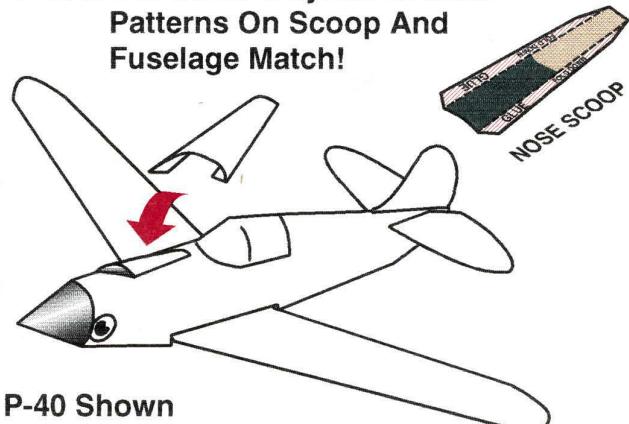
**46.** Glue Cowl Mounting Areas. Slide Cowl Into Position.

## ADDING FINAL DETAILS

**47.** Roll Air Scoop And Fold Down On Scored, Dashed Lines.

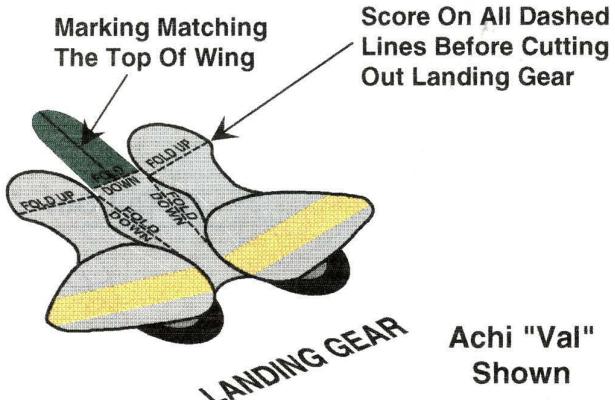


**48.** Top Scoops Are Installed The Same Way. Make Sure Patterns On Scoop And Fuselage Match!

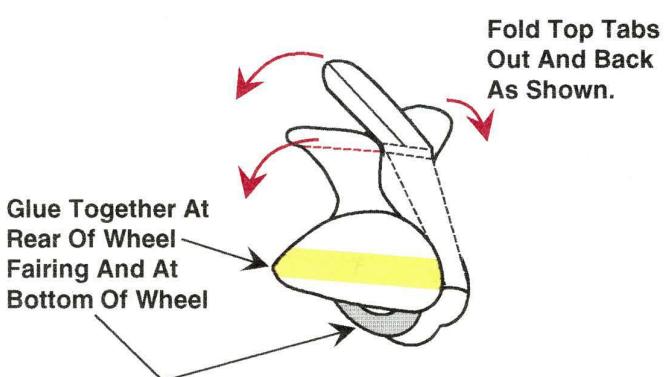


# **FIXED LANDING GEAR**

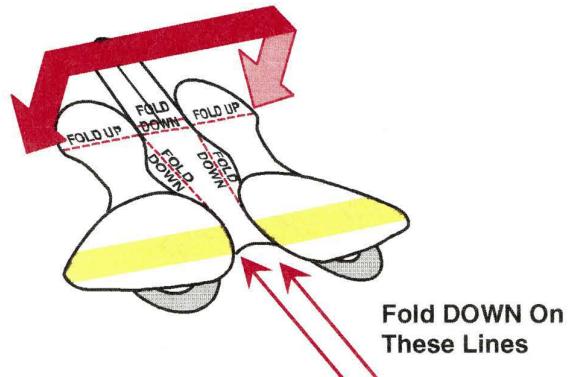
**49.** Score Along All Dashed Lines.  
Cut Out Landing Gear On Outline.



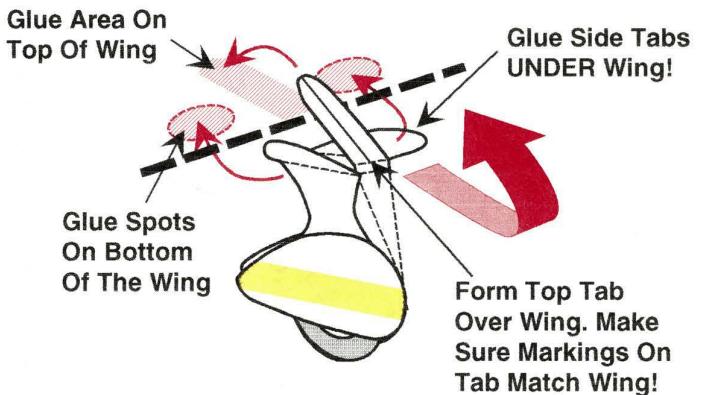
**51.** Fold Down Top Tabs As Shown.  
Glue INNER Surfaces At Back Of  
Fairing And At Bottom Of Wheel.



**50.** Fold DOWN On Dashed Lines AS Shown.

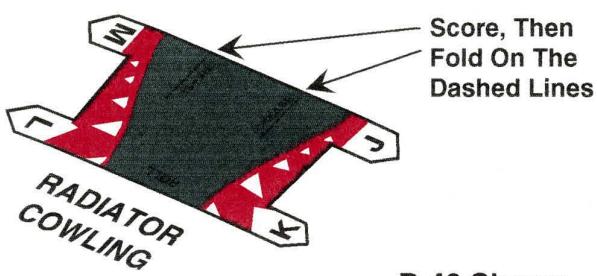


**52.** Glue Red-Hatched Areas On Top And Bottom Of the Wing. Slide Landing Gear Over Wing. Press Down Tabs.



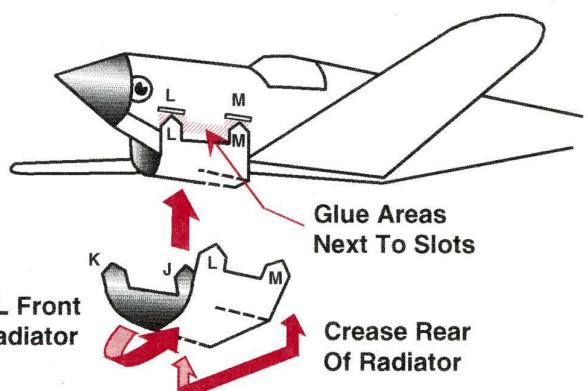
# RADIATOR AND COWLING

**53.** Typical Nose Radiator And Bottom Cowling. Score On Dashed Lines. Then, Cut Out On Outlines.



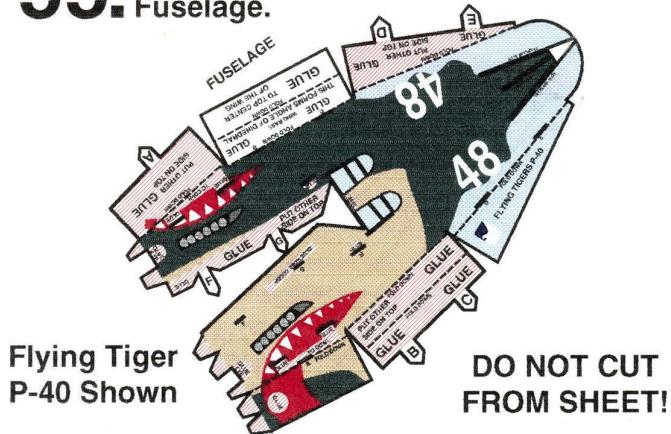
P-40 Shown

**54.** Glue Red-Hatched Mouting Areas.  
Slide Tabs Into Slots. Hold Until Dry.

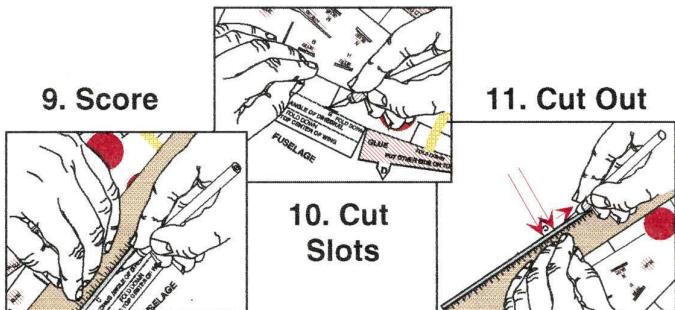


# INLINE-ENGINE FUSELAGE

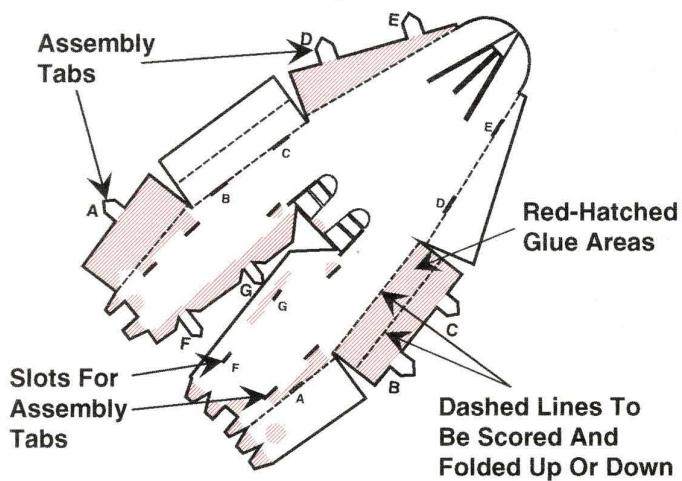
## 55. Typical Inline-Engine Fuselage.



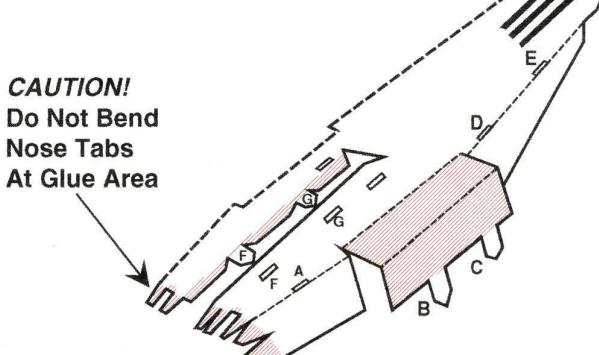
## 56. Referring To Step 57, Follow The Instructions of Steps 9 Through 11 To Score, Cut Slots And Cut Out The Fuselage.



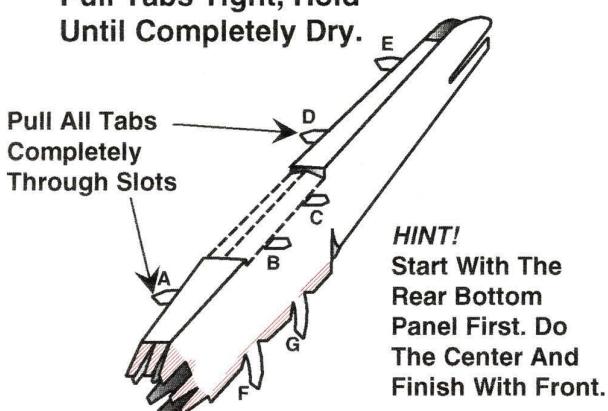
## 57. Refer To Building Steps 9 Through 11.



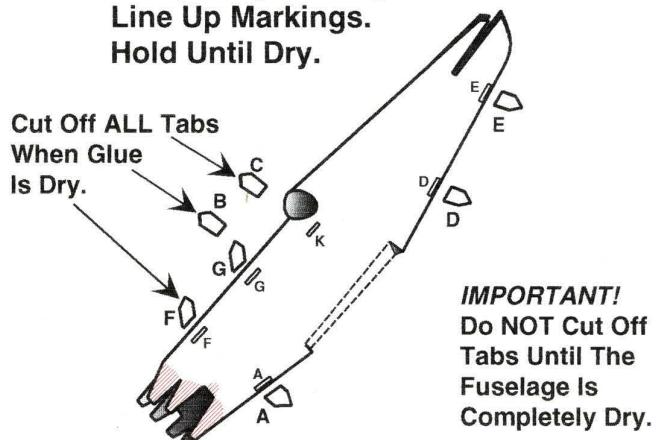
## 58. Fold Scored Creases Up Or Down As Marked On The Dashed Lines.



## 59. Push All Bottom Tabs Through The Matching Slots. Apply A Light Coat Of Glue To The Red-Hatched Areas. Pull Tabs Tight, Hold Until Completely Dry.

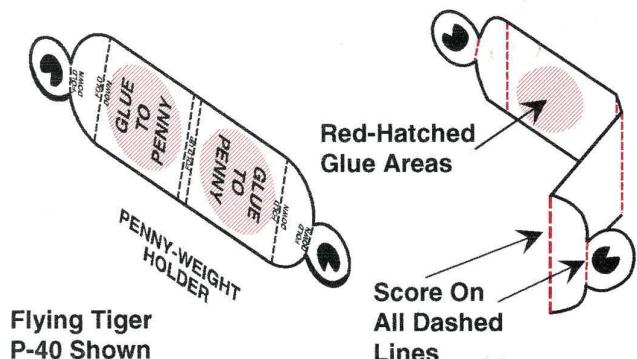


## 60. Glue Hatched Area At The Top, Front Of Fuselage. Pull Top Tabs ( F And G ) Completely Through. Line Up Markings. Hold Until Dry.



# PENNY-WEIGHT HOLDER

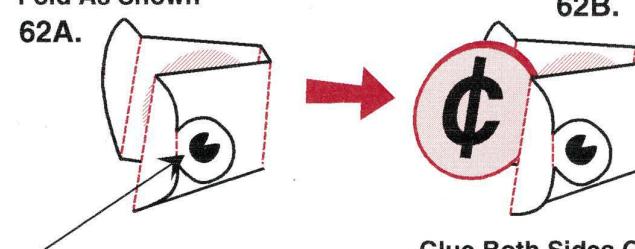
- 61.** Score On Dashed Lines.  
Cut Out On Outlines And  
Fold Up Or Down On Lines.



Flying Tiger  
P-40 Shown

- 62.** Fold As Shown. Apply Plenty  
Of Glue To Both Glue Areas.  
Slide In Penny, Hold Until Dry.

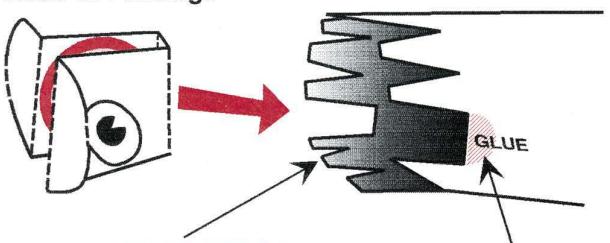
Fold As Shown  
62A.



Glue Both Sides Of  
Penny. It MUST Be  
Firmly Held In Place

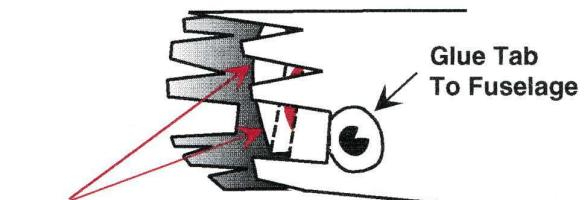
- 63.** Slide Penny-Weight Holder  
Into Fuselage. Line Up The  
Tabs With Fuselage Slots.

Slide Penny Holder  
Into Nose Of Fuselage



**WARNING!**  
DO NOT BEND The  
Fuselage Nose Tabs.

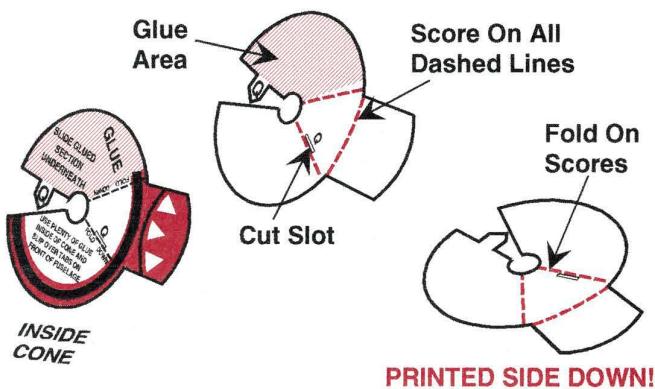
- 64.** Glue Penny-Weight Holder  
Tabs In Place. Hold Until Dry.  
Weight Holder Must Be Secure!



**IMPORTANT!**  
Weight Holder MUST Be Secure  
In The Fuselage. Add Glue Spots  
Around Edges If Needed.

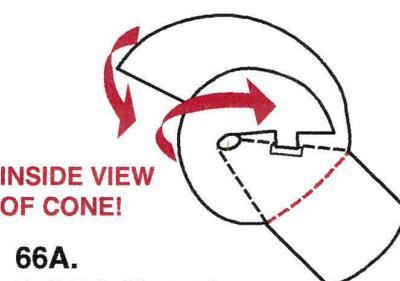
## NOSE-CONE ASSEMBLY

- 65.** Cut slot In Inside Nose Cone.  
Score On Dashed Lines. Cut To  
Outline And Curve Over A Pen.

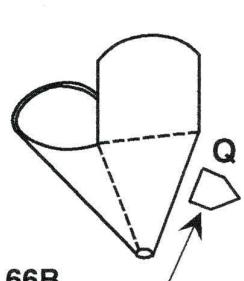


INSIDE CONE

- 66.** Apply Glue To Red-Hatched Area.  
Pull Tab Through Slot. Curve The  
Outside Around. Hold Until Dry.

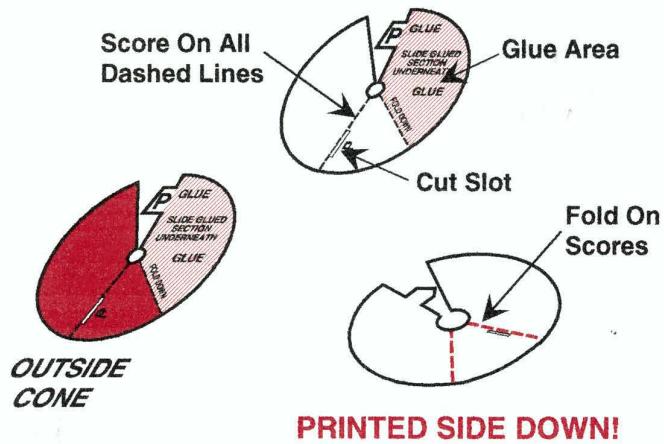


- 66A.**  
Pull Tab Through  
Slot And Curve Outside  
Over Glue Area. Bottom  
Of Cone Has STRAIGHT Sides.

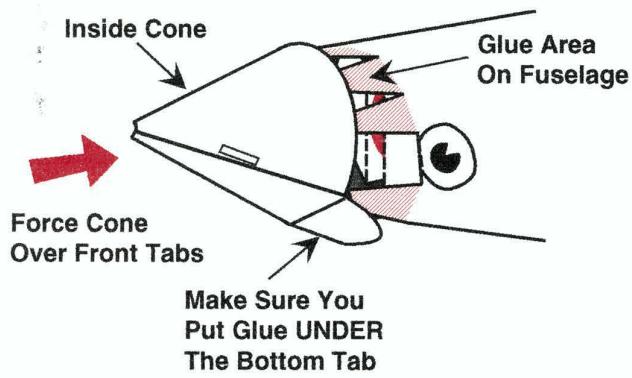


- 66B.**  
When Inside Nose  
Cone Is Completely  
Dry, Cut Off Tab.

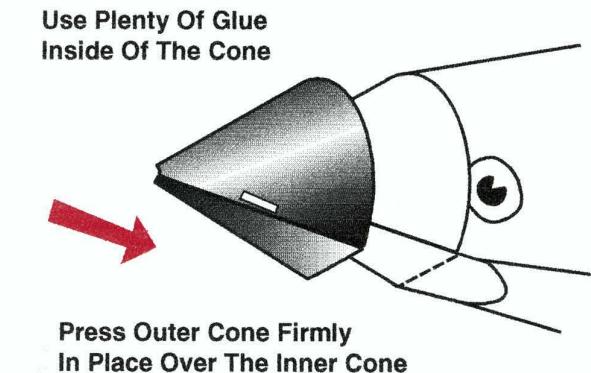
**67.** As You Did With The Inside Cone, Score Dashed Lines, Cut Out Slot, Cut To Outline And Curve The Cone .



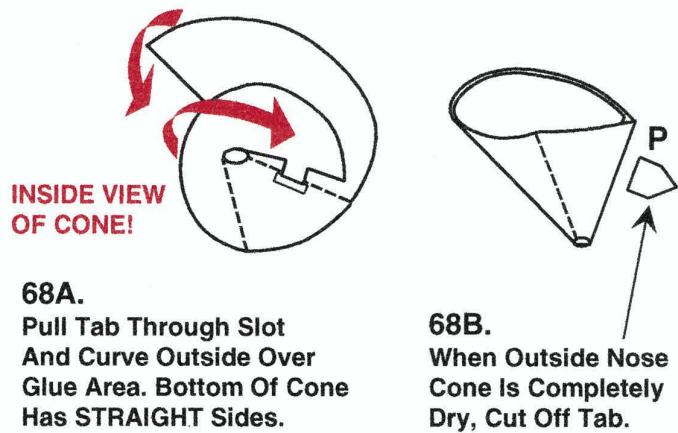
**69.** Apply Plenty Of Glue To The **INSIDE** Of The Cone. Force The Nose Tabs Into The Cone.



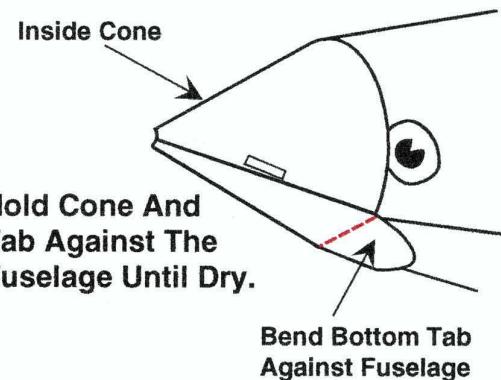
**71.** Apply Plenty Of Glue To The Inside Nose Cone. Firmly Press The Outside Cone On Top.



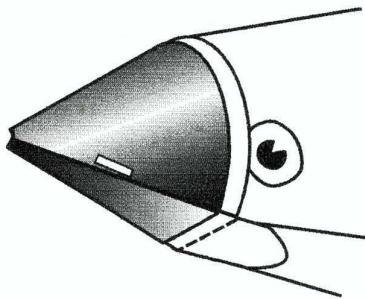
**68.** Apply Glue To Red-Hatched Area. Pull Tab Through Slot, Curve The Outside Around. Hold Until Dry.



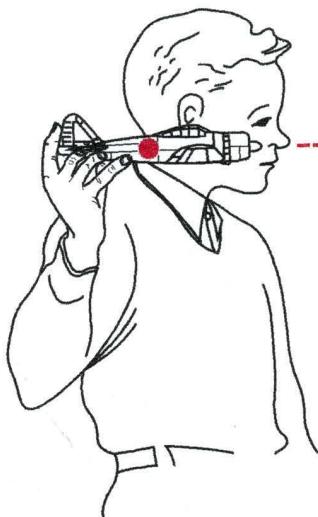
**70.** Hold Inside Nose Cone Against Fuselage. Bend The Bottom Tab Against Fuselage. Hold Cone And Tab Until Glue Dries.



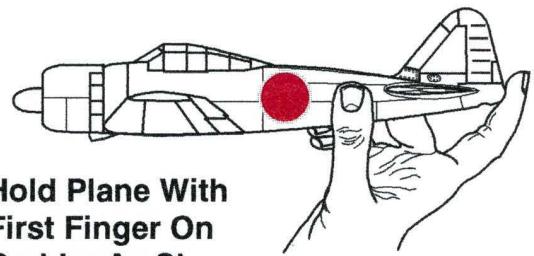
**72.** Hold Cone Until Dry. Finish Construction By Adding Tail, Wings, Canopy And Details As You Did For The Radial-Engine Planes.



# FLY PLANE LIKE YOU THROW A DART!



Throw Your Plane With A Smooth, Steady LEVEL Motion. After You Get Used To How Your Model Flies, You'll Be Able To Do "Stunts," Too. A Hard Throw, With The Nose Pointing UP, Gives A Loop! Or, Try Tilting Your Plane For A Hard Banking Turn.



Hold Plane With First Finger On Rudder As Shown

## ADJUSTING YOUR PLANE FOR FLIGHT

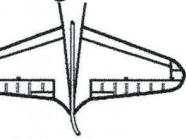
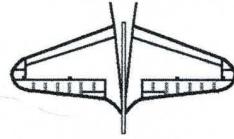


When Properly Made, Your Model Should Look Like This: Proper Dihedral And Correct Position Of The Rudder And Tailplane

If Your Plane Hits Something And Dents The Wing, Smooth Out Dent With Your Fingers. Keep Wings FLAT - DO NOT Curve Or Bend.



The Rudder Must Be Straight - NOT Curved Or Twisted. It Must Be Vertical And In Line With The Fuselage.



RIGHT

WRONG!

## FLY WITH G-LINE INDOORS OR OUT!

For Great Fun Indoors Or Out! Any Of Your Models Fly With G-Line Control. You'll Soon Learn To Make Them Loop And Even Have "Dog Fights" With A Friend. This Picture Shows All That's Needed.

Tie A Thin String Or Thread To A Short Stick. Thread The Other End Of The Line Into The Wing As Shown Below. Start With 6 To 8 Feet Of Line. Swing The Stick Around Your Head From Right To Left.

Your Plane Will Rise And Fly At the End Of The G-Line. It Obeys Your Every Move For Speed And Control. You Will Soon Be Able To Perform Loops, Dives And Landings.



Tie A Light Line To The Leading Edge Of The Wing Near The Tip. Thread Line Through The Wing With A Needle. Tie A Large Knot.