

# Bob's Card Models

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## Northrop F-89 'Scorpion' 1:72

The Northrop F-89 Scorpion was an early American jet-powered all-weather interceptor. It has the distinction of being the first aircraft armed with nuclear weapons (the Genie rocket) for air-to-air use.

### General characteristics

Crew: 2  
Length: 53 ft 10 in (16.4 m)  
Wingspan: 60 ft 5 in (18.4 m)  
Height: 17 ft 6 in (5.3 m)  
Wing area: 606 ft<sup>2</sup> (56.3 m<sup>2</sup>)  
Empty weight: 24,200 lb (11,000 kg)  
Loaded weight: 42,250 lb (19,200 kg)  
Max takeoff weight: 46,800 lb (21,200 kg)  
Powerplant: 2× Allison J35-A-35A afterburning turbojets  
Dry thrust: 5,600 lbf (24.9 kN) each  
Thrust with afterburner: 7,400 lbf (32.9 kN) each

### Performance

Maximum speed: 636 mph (553 knots, 1,020 km/h)  
Range: 1,367 mi (1,188 nm, 2,200 km)  
Service ceiling 49,200 ft (15,000 m)  
Rate of climb: 8,360 ft/min (42.5 m/s)  
Wing loading: 69.7 lb/ft<sup>2</sup> (340.4 kg/m<sup>2</sup>)  
Thrust/weight: 0.35 (3.4 N/kg)

### Armament

Rockets:

104× 70 mm (2.75 in) "Mighty Mouse" folding-fin aerial rockets

16× 127 mm (5 in) aerial rockets on underwing racks or

Bombs: 3,200 lb (1,500 kg)

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## **Building Instructions**

Print all sheets on between 160 and 230g card. Always carefully fit parts together before gluing, and make minor adjustments if necessary.

**Green areas must be cut out, BUT only after gluing any folds. The Instructions will tell you when!**

### **Fuselage**

1. Cut out parts **1** to **12**.
2. Form each fuselage part **1** to **7** to give a cylinder, close/glue each individual part, and then glue together, making sure that a 5g weight (small bolt, for example) is glued in the fuselage-nose section.
3. Add the cockpit (parts **9** to **12**).
4. Cut out the green area marked for the wing.

### **Tailplane/Fins**

5. Cut out the Fin **15**, cut out the slot for the Spar **14**, fold, glue (top and front only, not the bottom), . For authenticity, press the front and rear ends together, to give the fin a slightly elliptical and not flat cross-section.
6. Cut out Tailplane **13** fold, glue. Insert the Spar **14** in the fin and glue in place.
7. On the left- and right-hand portion of the glued Spar, slip on each wing.
8. Glue the assembly in place on the fuselage, in the green slit provided..

### **Main Wings**

9. Cut out the Tailplane [**13**], fold, glue the trailing edge only.
10. Insert through the slit in the rear fuselage and glue in place.

### **Armament** Add to the wing.

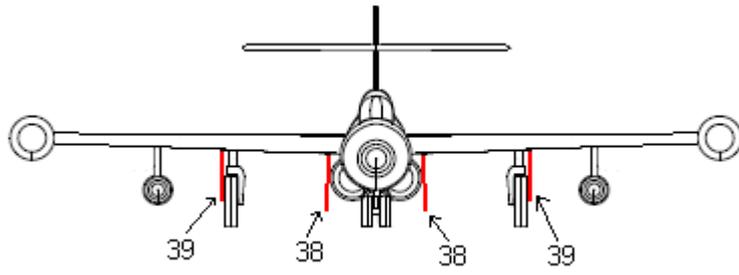
11. Fit together parts **16-22** and add one rocket to each wing tip.
12. Fit together parts **23-29** and fix one under each wing in the positions marked (cut out green slits).

**2. Jet Engines** Although these are half-cylinders, for ease of construction and accuracy, they are first built as full cylinders which are finally cut longitudinally in half.

13. Cut out all parts **30** to **34**, round, construct the cylinder. NOTE: The outer tabs on the front are glued to aid in giving the nacelle its final form. They will be cut away in 14. below. Therefore, the inner small tabs must be well-glued, as otherwise the sides will flip up!
14. When dry, cut out all the area marked green, and sharply fold the 2 tabs.
15. Roll and glue **33**, but with the dark grey-coloured side on the INSIDE, then glue in position at rear of engine. Glue **32A** inside the "half-tube" motor, directly behind **33**.
16. Glue **30A** inside the "half-tube" motor, about 5mm from the front.
17. Add the Heat Shields **34** between the engine exhaust and fuselage.

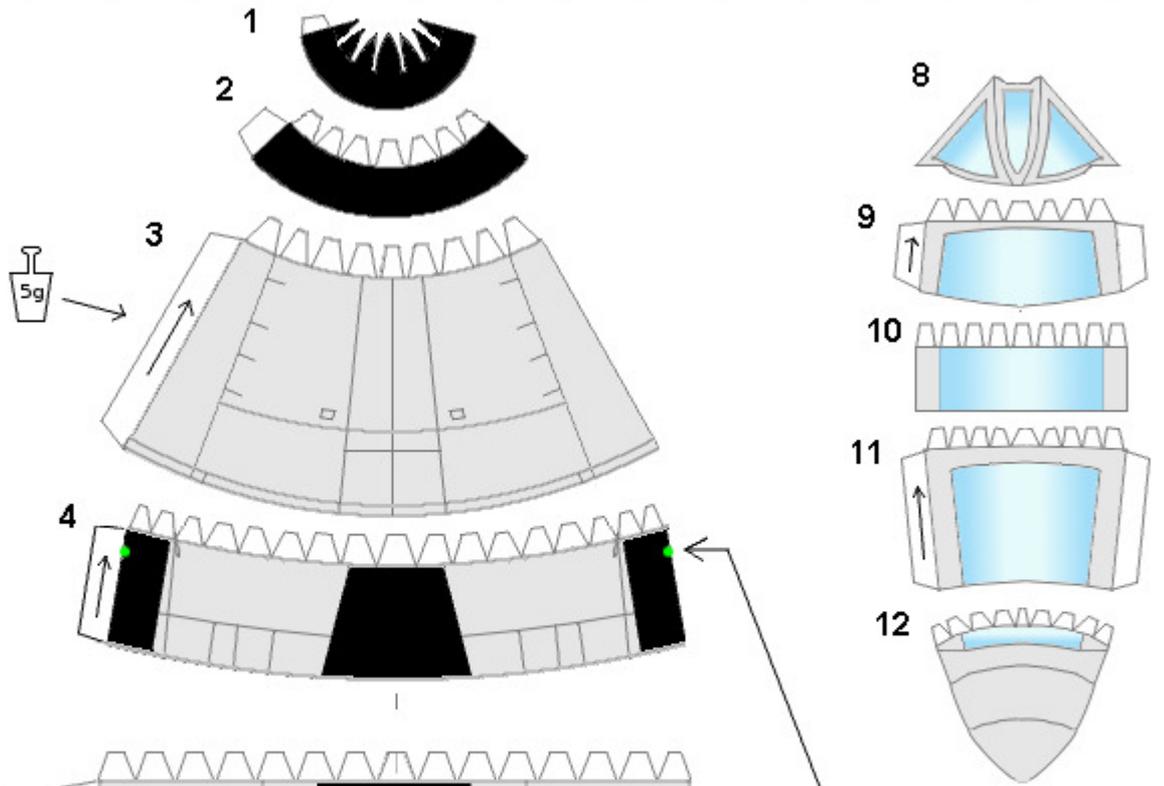
### **Undercarriage**

38. Front Wheel (double wheel) **35** : cut out, fold, roll and glue. Cut off the tapering of a tooth-pick, glue between the 2 wheels, and cut the top end of the tooth-pick so that the total length top of tooth-pick to base of the wheels is 37mm. Insert/glue in the green dot marked just in front of the cockpit on the underside of the fuselage. Glue on both sides of the wheel, the front undercarriage compartment flaps **35A**.
39. Main Wheels (2) **36** : cut out, fold, roll and glue. Around each wheel circumference, glue on the Profile **37**.
40. Add the Large Main Wheel Covers **38** by gluing in place touching the engine, and over the wheel compartment, and the Small Main Wheel Covers **39** by gluing onto the wheel axles.

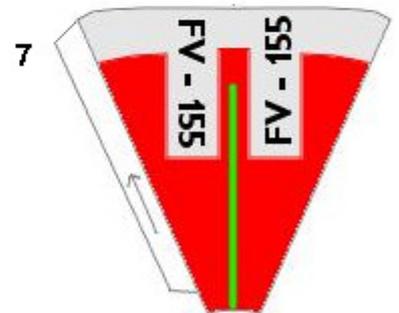
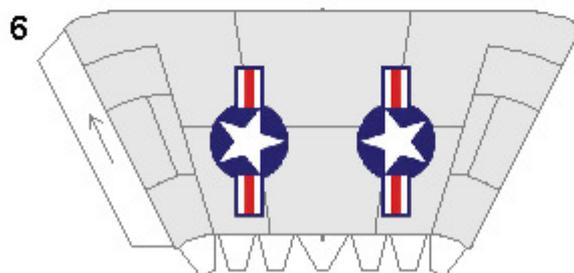
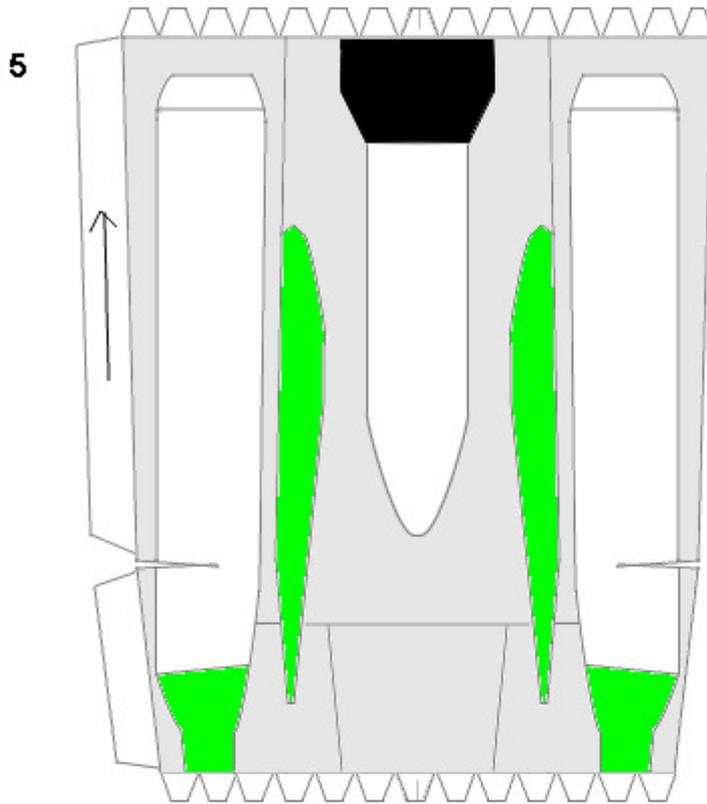


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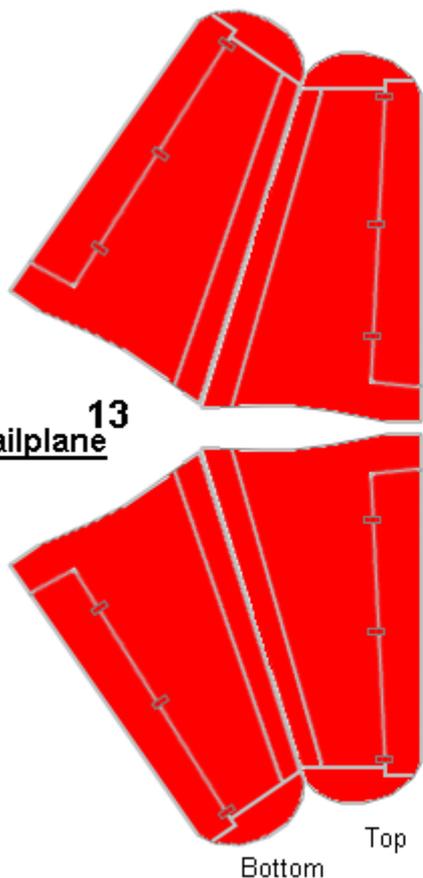
Hole for Wheel Strut



**SHEET 1**

F-89 Scorpion

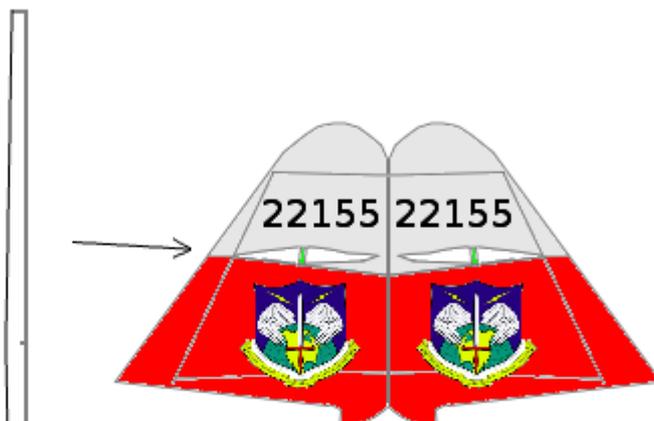
**Tailplane** 13



Bottom  
Top

**Spar** 14

Make 3x thick, by gluing on waste card.

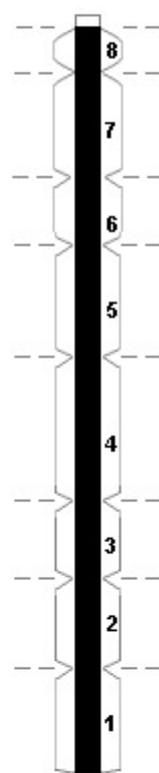
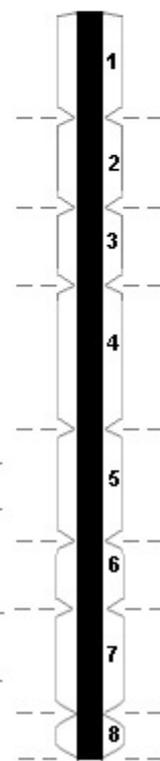
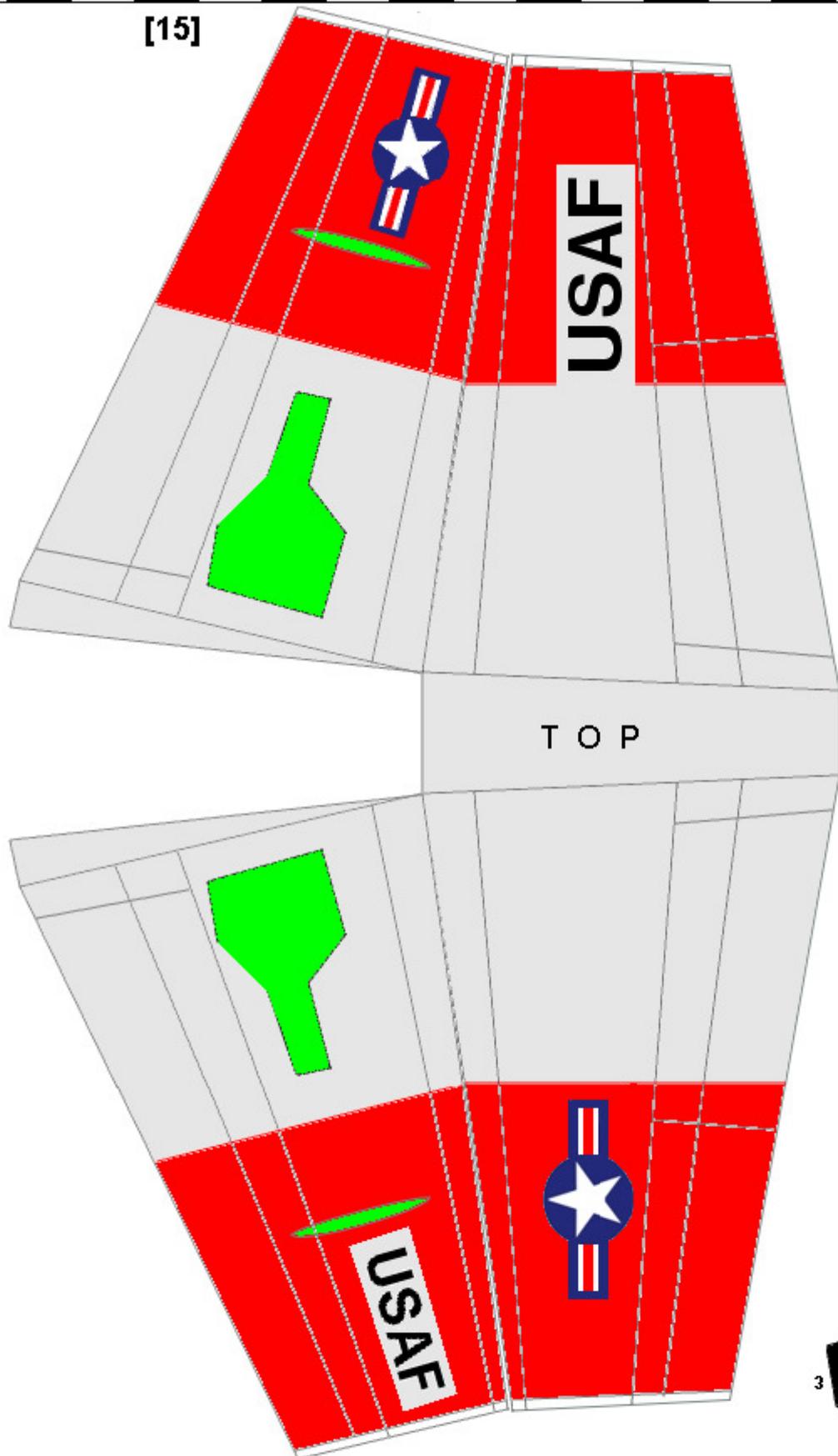


**Fin** 15

**SHEET 2**

F-89 Scorpion

[15]

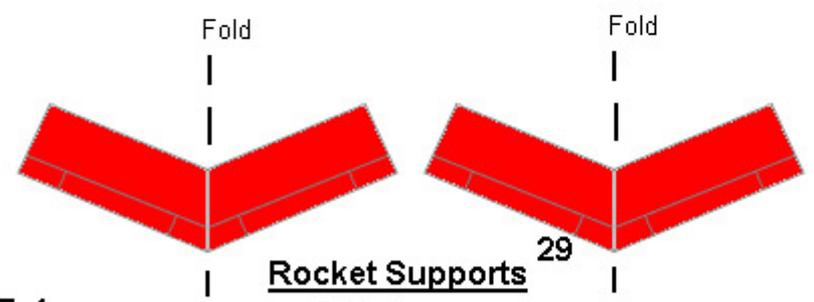
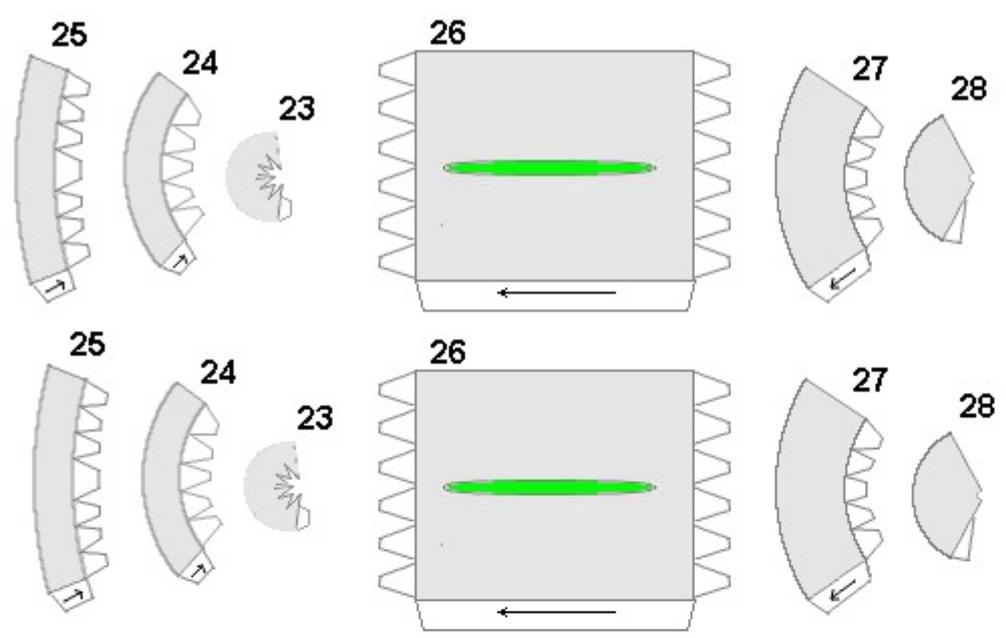
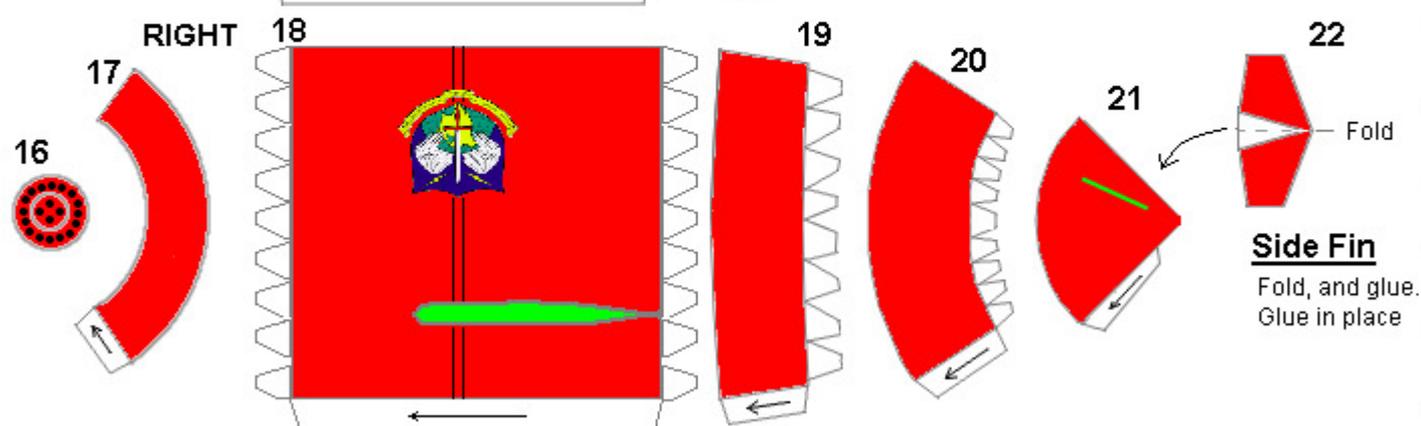
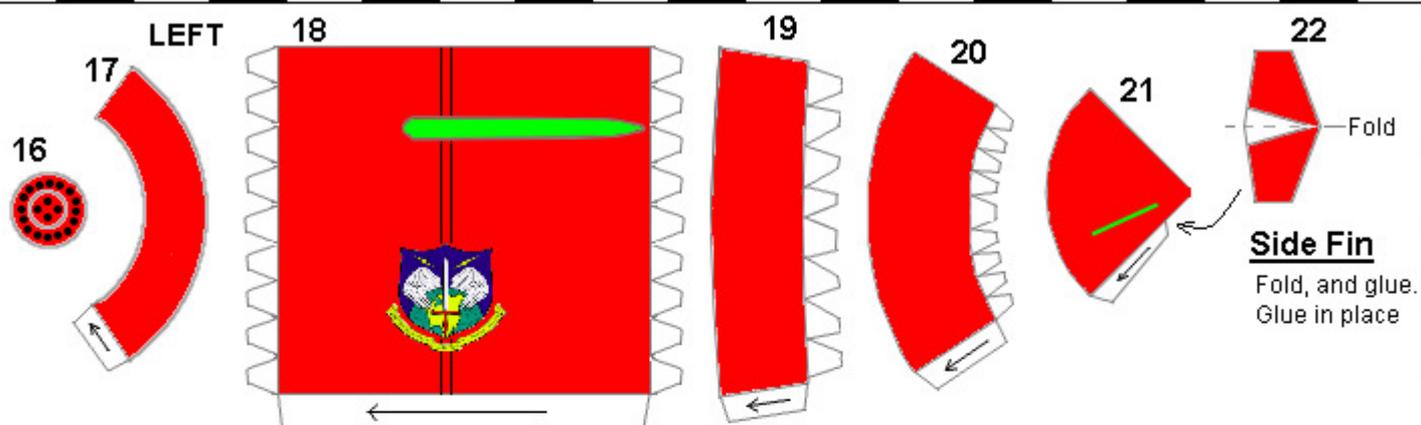


Bottom

Top

**SHEET 3**

F-89 Scorpion

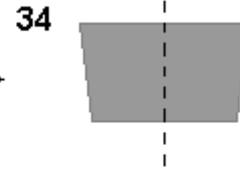
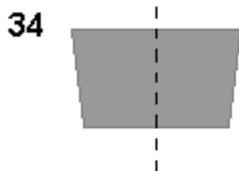
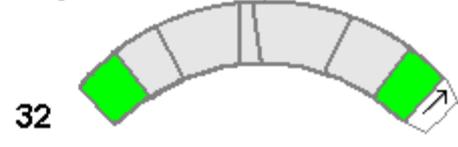
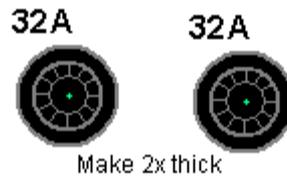
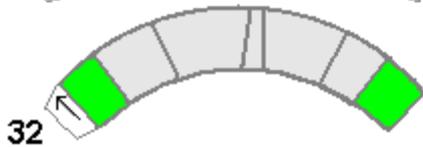
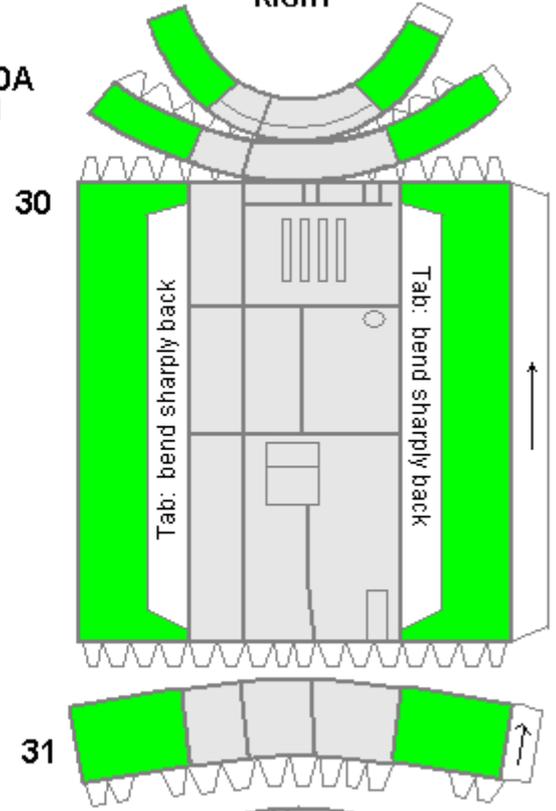
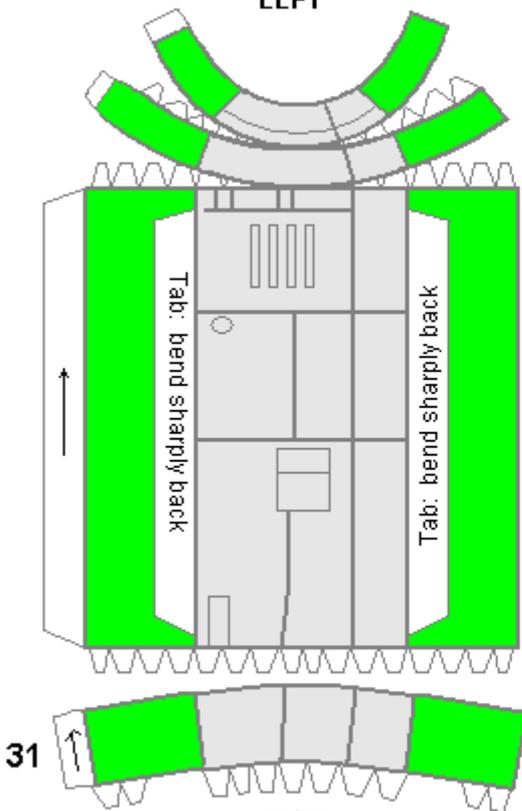


**SHEET 4**

F-89 Scorpion

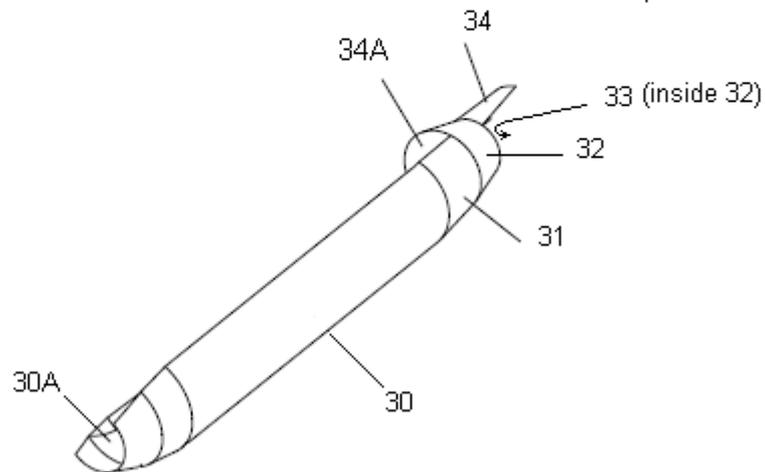
LEFT

RIGHT



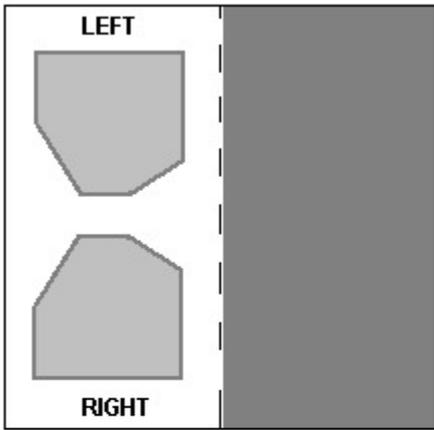
**Heat Shields**

Fold, glue, then glue in place

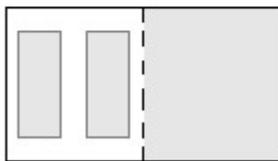


**SHEET 5**

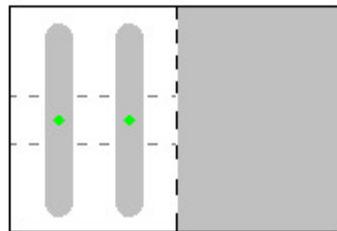
F-89 Scorpion



**Large Main Wheel Covers** <sup>38</sup>

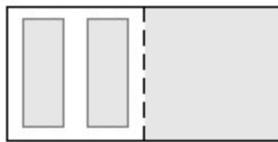


**Small Main Wheel Covers** <sup>39</sup>



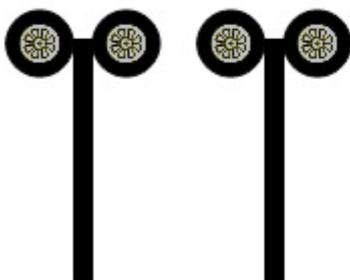
**Wheel Supports** <sup>38</sup>

Fold, glue, cut out the two units  
Slip over tooth-pick and pierce wheel.



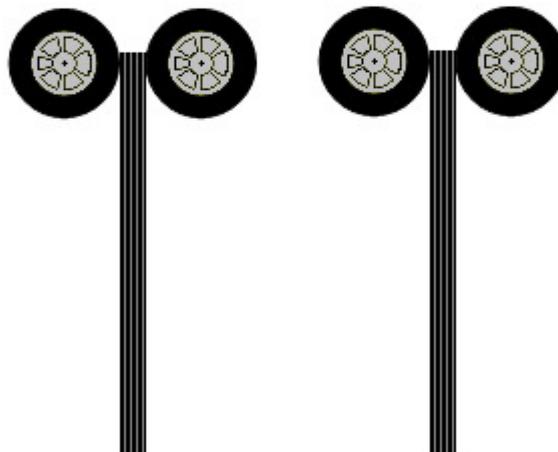
**Front Wheel Compartment Flaps** <sup>35A</sup>

Fold in half and glue. Cut out.

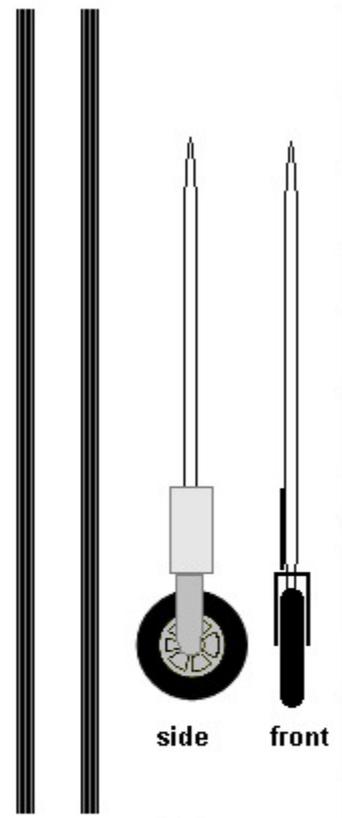


**Front Wheels** <sup>35</sup>

Cut out, bend, roll and glue



**Rear Wheels** <sup>36</sup>



**Tread Profile** <sup>37</sup>

**SHEET 6**

F-89 Scorpion