

# Bob's Card Models

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## **Grumman S-2 Tracker (1:72)**

**Decals: US Navy Sea Control Squadron 22 (VS-22)**

First purpose-built, single airframe anti-submarine warfare (ASW) aircraft to enter service with the US Navy.

### **General characteristics**

Crew: four (two pilots, two detection systems operators)

Length: 43 ft 6 in (13.26 m)

Wingspan: 72 ft 7 in (22.12 m)

Height: 17 ft 6 in (5.33 m)

Wing area: 485 ft<sup>2</sup> (45.06 m<sup>2</sup>)

Empty weight: 18,315 lb (8,310 kg)

Loaded weight: 23,435 lb (10,630 kg)

Max takeoff weight: 26,147 lb (11,860 kg)

Powerplant: 2× Wright R-1820-82WA radial engines, 1,525 hp (kW) each

### Performance

Maximum speed: 280 mph (450 km/h) at sea level

Cruise speed: 150 mph (240 km/h)

Range: 1,350 mi (2,170 km) or 9 hours endurance

Service ceiling 22,000 ft (6,700 m)

### Armament

2× homing torpedoes (Mk. 41, Mk. 43, or Mk. 34), depth charges (Mk. 54), or mines in the bomb bay

6× underwing hardpoints for torpedoes, depth charges, or rockets

## **Building Instructions**

Print all sheets on 160g card, except sheet Paper.

There is quite a bit of white colour on this model; it is advisable to cut the black outline lines on the model side - I have taken this into account in the design.

I have purposely used cocktail sticks where necessary although this goes against the philosophy of CARD modeling - whenever a trade-off occurs between thickness and strength of a part versus scale authenticity.

TIP: When gluing card parts at right-angles to another piece (eg bulkheads to the outer skin), holding together with fingers until dry usually results in the 'skeleton' image of the bulkheads - not nice! Hold together with 2 flat pieces of wood - I use the flat sides of 2 clothes pegs.

NOTE: Insert the bulkheads using a cocktail stick pushed into a tight hole in the centre of each bulkhead. The fit must be flush, not tight, otherwise ugly "ribbing" will be visible on the fuselage. Red areas must be cut out, BUT usually after gluing any folds.

### Fuselage

1. Cut out parts **1** to **8** using standard procedures, and glue together..... First, glue the individual serrated tabs to each of the **pre-rounded** fuselage portions. When dry, glue to a cylinder with the longitudinal tab.
2. Cut out the bulkheads **A** to **C**, glue on waste card twice to make 3x thickness.
3. In the following order, glue ..... part **6** to **7**, add bulkhead **C**, **5** to **6/7**, add b/h **B**, then **4** to **5/6/7**, add b/h **A**. taking care to produce the correct fuselage form by comparing with the pictures.
4. Cut out and round the cockpit **3** to approximately its finished form. Glue the middle starboard window to the rear starboard window with the tiny tab attached.
5. Glue the top tab above the windows in place. To correct the point formed, moisten finger and apply to the point, and gently push back.
6. Glue the main tab of the cockpit, to make the cylindrical form.
7. Glue tabs **b** and **c** onto **4**.
8. Bend down the 2 'a' tabs under the cockpit windows.
9. Cockpit fuselage **2**: cut out and glue main tab to form a cylinder. Cut out the remaining 2 tabs, and glue to form the finished part.
10. Insert **2** through the rear of **1**, and glue in place - don't forget to glue the 2 **a** tabs. Make sure that the markings/colours of the 2 parts match..
11. Cut out nose cone **1**. The part is has 2 tabs which will form the cylinder-like form. Glue **1** onto its serrated tab, carefully making sure the colours/markings coincide with **2**.
12. For the front landing gear compartment, cut out the green areas of **2**, assemble the box **9** (fold, re-cut and glue, form and glue box) and glue in place inside **2** with just the red flaps protruding.
13. Insert 2 x 5g weights, one on each side of the landing gear compartment inside the nose.
14. Join and glue **1** onto **2**. For the tail tip of the fuselage, cut out and form the cone **8** and glue in place.

### Rear Fin and Wings

15. Cut out the rear fin **10**, fold, bend back tabs and glue.
16. Cut out the rear fin strut **11** and its central slot. Make 3x thick.
17. Cut out the Rear Wing Stabilising Bar **12**, make 4x thickness, bend in the middle so that each strip is about 12.5° upwards from the horizontal. Glue in place in the slots of the rear fin.
18. Cut out the rear fin vertical stabilising bar **13**, glue onto waste card thrice so that it becomes 4x thickness, and glue in place through the strut as far as it will go.
19. Cut the receiving slit on the top of the rearmost part of the fuselage.
20. Glue the rear fin in place on the fuselage.
21. Glue on the 2 rear wings **14L** and **14R** by putting glue on both sides and top and bottom of the Rear Wing Stabilising Bar. When dry, put a bead of glue along all the joints rear wing/rear fin.
22. Cut out Rear Fin Cowling **15**, fold centrally, bend back tabs and glue in place just in front of the rear fin on the fuselage.

### Main Wings

23. Cut out the 2 wing **16L** and **16R** and the Front Wings Stabiliser Bar **17** (make the latter 4x thick). Fold the leading edges of the wings (rounded, not sharp), and fold back the 2 long tabs. Glue.
24. Into the end of the wing, insert the spar **18** which has been cut out as well as the central slot (insert with glue on the edges, using a bar of waste card).
25. After slightly bending in the middle (maximum 5mm at either end) to give the final form of the main wings, insert the bar in the slots provided in the fuselage about 3cm behind the cockpit. Bead of glue on both sides of the exit position from the fuselage, as well as on the 4 small tabs on the end of each wing.
26. Insert the wings onto the wetly glued Stabiliser Bar **17**. When dry, add a bead of glue around the contact wing/fuselage.
27. Cut out, fold and glue Torpedo Carriers in position under wings (3 on each side).
28. Add the Searchlight (position marked on right wing).

### Engines

29. Cut out parts **19 A - C** and bulkheads **X - Y**. Form **19B** with a round bar or pencil, close the form and glue the tabs. Do not cut out the green areas yet. Glue on the 2 end tabs.
30. Close and glue on tabs of parts **19A** and **19C**.
31. Insert/glue **Y** in place, followed by **X**, with the aid of a cocktail stick.
32. Glue **19A** onto **19B**.
33. On the top of each part **19B**, the positions are marked for the Exhaust Pipes. Cut these out. Then cut out the Exhaust Pipes, fold around a cocktail stick so that the black portion is on the cocktail stick side. Glue up the tiny red portion, insert in each of the cut-outs in **19B**.
34. Add on/glue end piece **19C**.
35. Cut out the green areas on **19B**, and slit along the dotted lines (for wings and undercarriage respectively). Bend back the undercarriage flaps (dotted line cut-out).
36. Repeat for the right-hand motor.

#### **Propellers (3-bladed)**

37. Cut out the 2 propeller units **20**, and fold and glue each to form the 3-bladed prop.
38. Cut out the prop cone **21**, glue on the tab, form to a cone and glue. Cut the 3 slits at the bottom of the cone, and insert the propeller. Glue.
39. Push a cocktail stick into the centre of each propeller unit. Glue.
40. Insert the prop cone on the front, so that the blades fit in the slits. Increase the width of the slits with a nail scissors if necessary.
41. On the axle behind the prop, add the Back Disc **22** and glue in place.
42. Push each propeller into the Engine cowling in the holes provided. If necessary, increase the size of the holes in the cowling using a nail scissors and a rotary movement, or push a cocktail stick into the holes. If desired, glue in place.

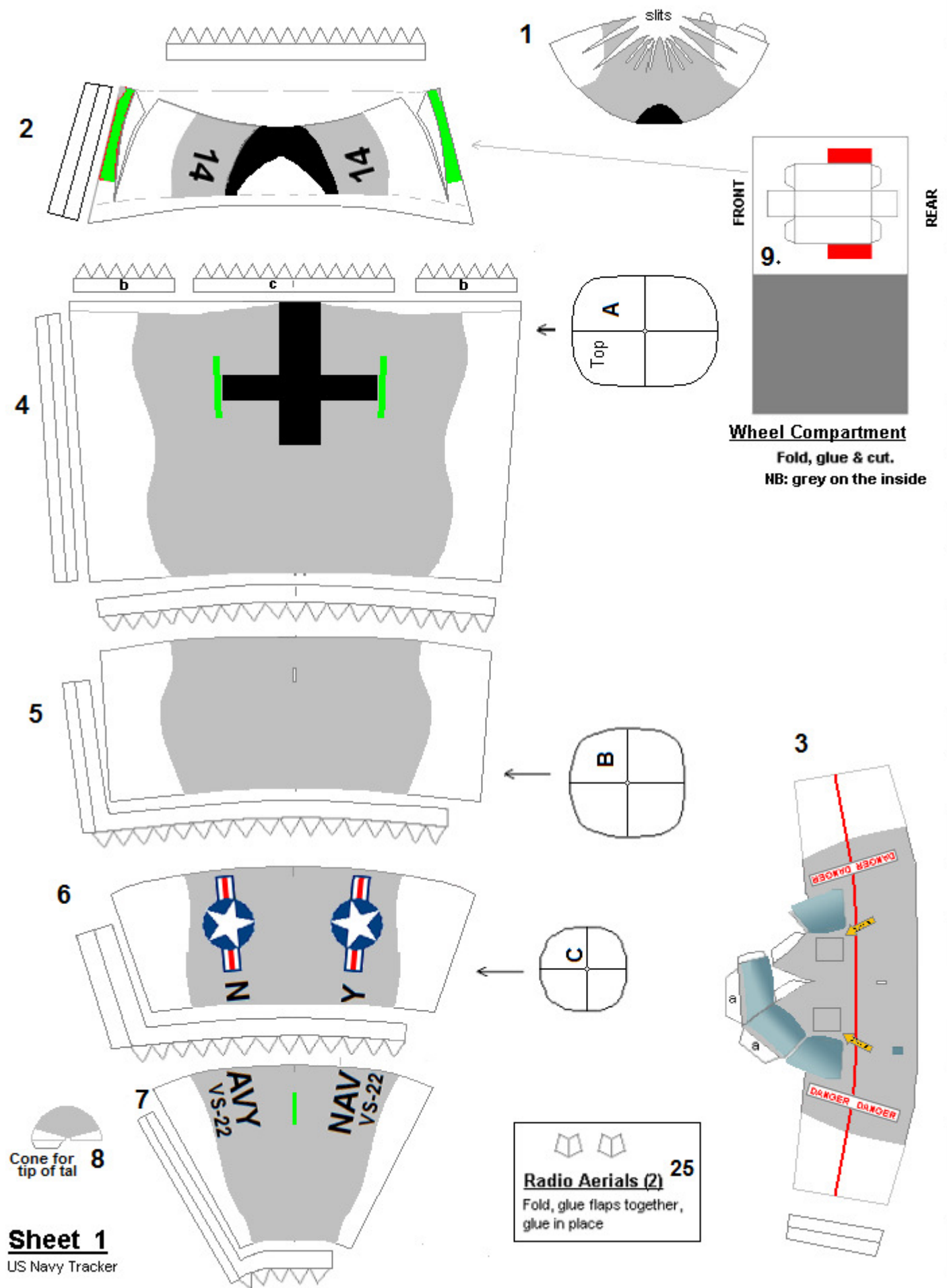
#### **Landing Gear**

43. Cut out and roll all tyres with glue. Dry.
44. **Front wheels:** Liberally glue the 2 front wheels [**19**] on each side of the tip of a cocktail stick, the latter which has been rolled into an adequately long and wide piece of the grey paper for authenticity.
45. Insert into the fuselage according to the plan, and glue liberally in place.
46. Add the shield **23** in front of (and glued to) the cocktail stick and attach to the fuselage.
47. **Main wheels :** Take a cocktail stick, roll into a piece of the grey paper so that the bottom 5mm is free of the grey paper. Bend and crack (but do not break off) the 5mm tip to 90°, glue liberally the crack and add the wheel onto the 90° bent "axle". Let dry well. Add some more glue to the wheel/cocktail stick contact for added strength.
48. Assemble as per sketch.

#### **Accessories**

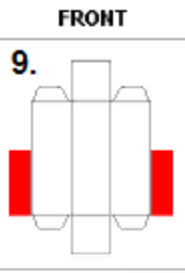
49. Cut out, fold and glue the Tail Wheel **24**.
  
50. Add the 2 aerials [**25**] on top of the fuselage, 1 just in front of the rear fin, 1 over cockpit.





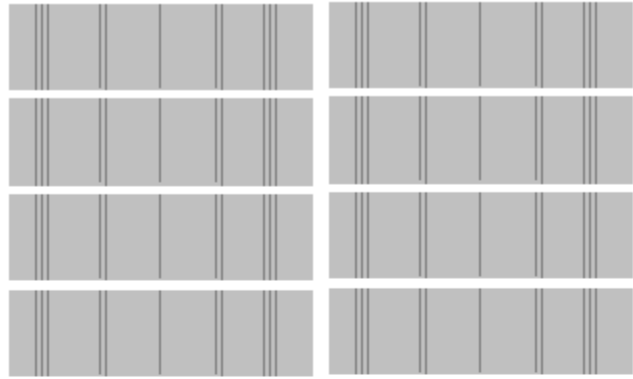


Fold, glue & cut.



FRONT

REAR



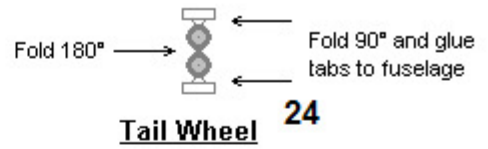
Grey sleeves for rolling around & gluing to cocktail sticks

Print on 80-90g paper

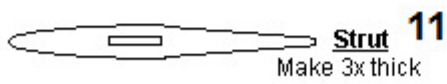
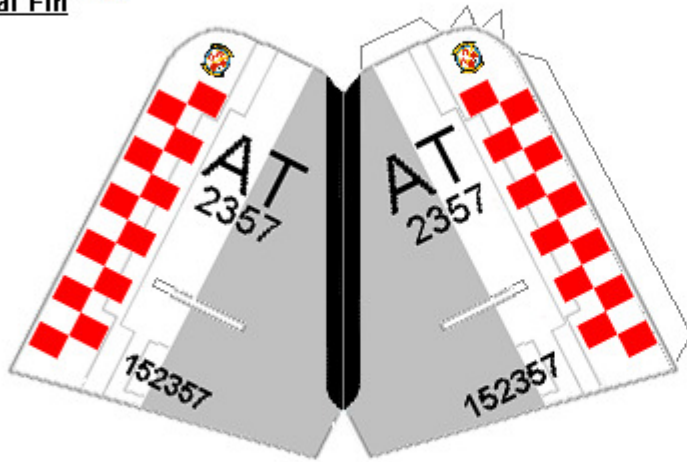
**Sheet 2**

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**Rear Fin 10**



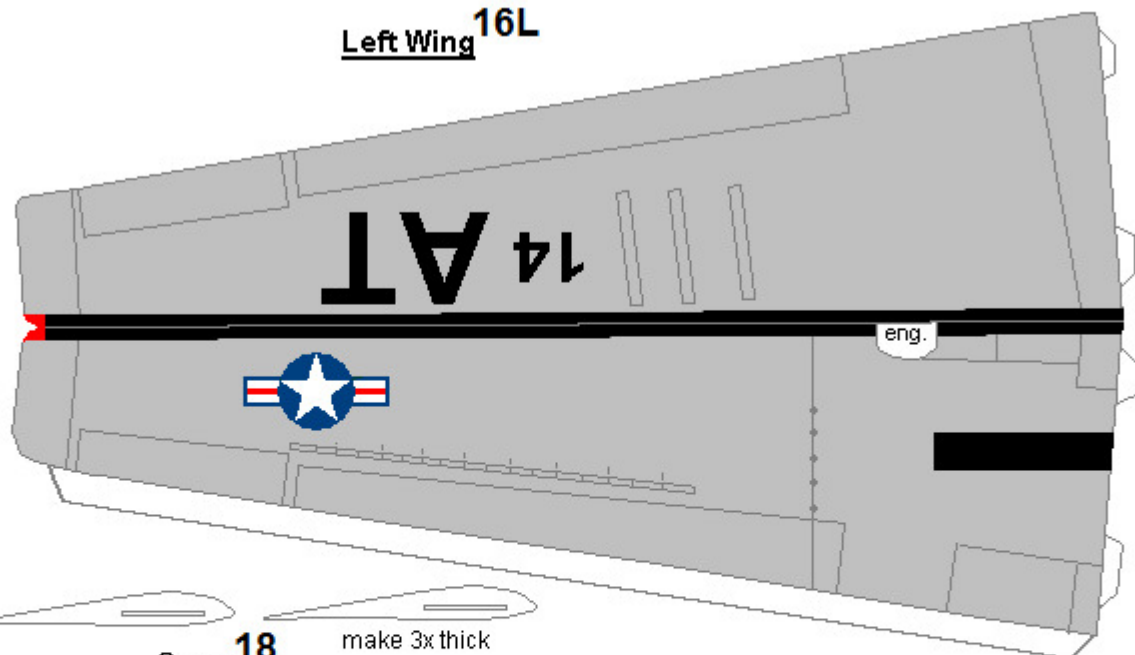
**Sheet 3**

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**Left Wing 16L**

BOTTOM

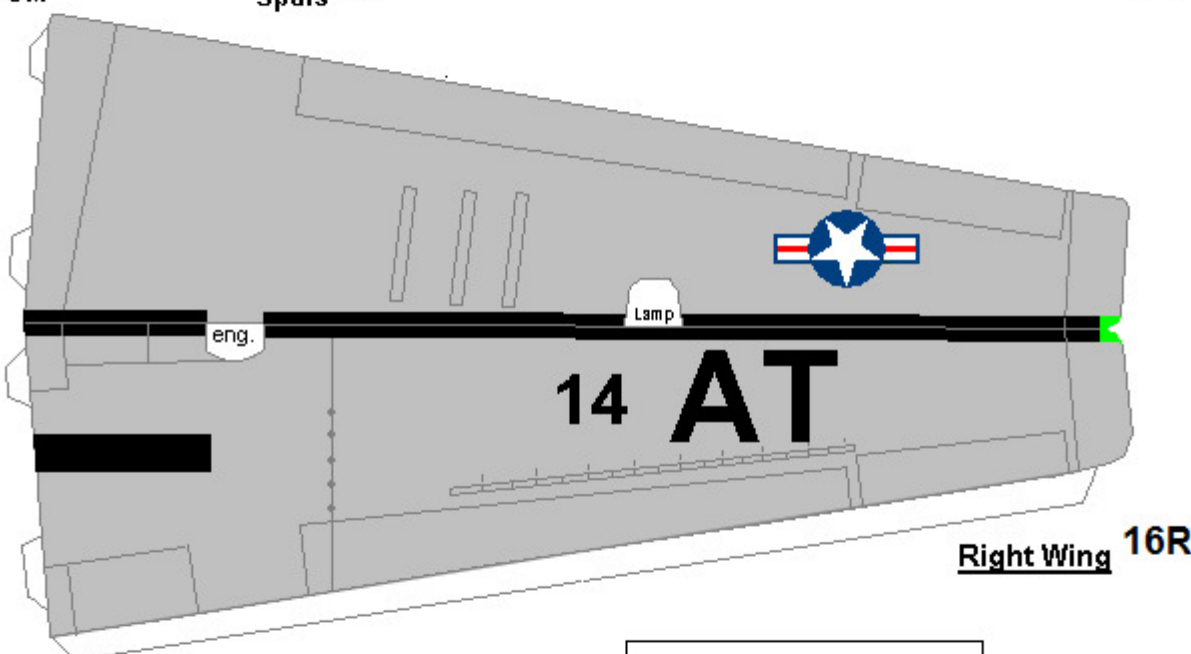
TOP



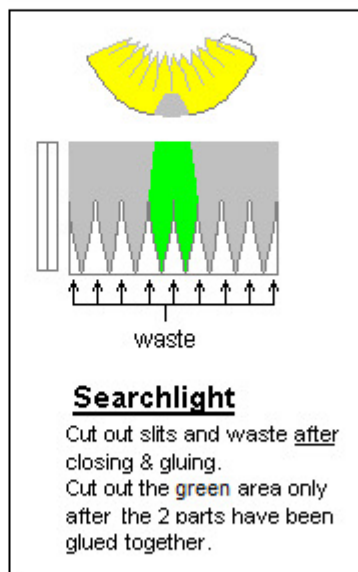
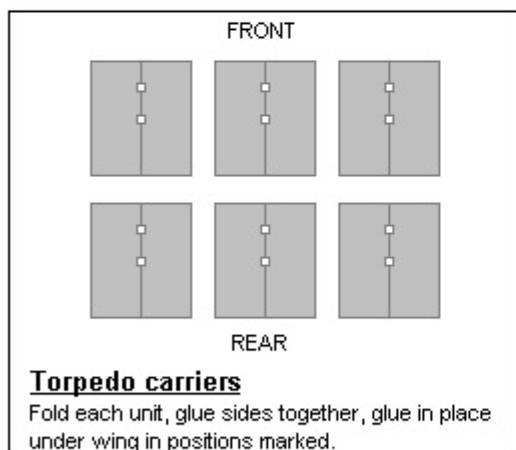
BOTTOM

**Spars 18**

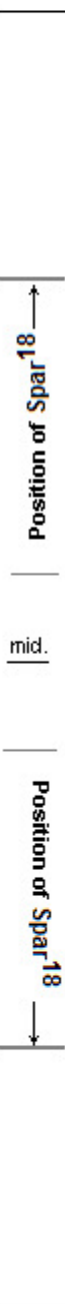
make 3x thick



TOP



**Front Wings 17**  
**Stabiliser Bar**  
Make 4x thick



**Sheet 4**

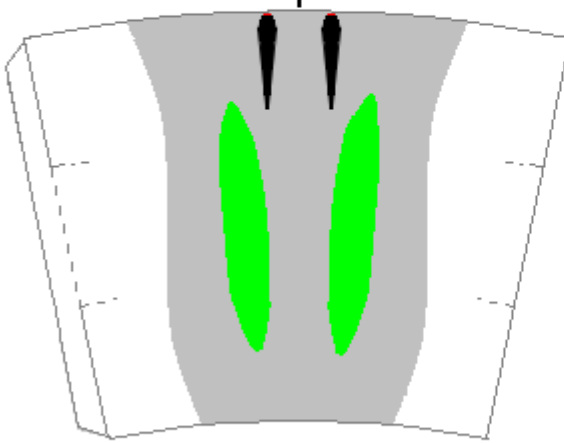


**LEFT**

**RIGHT**

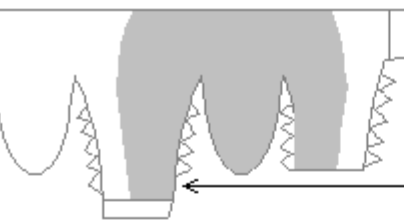
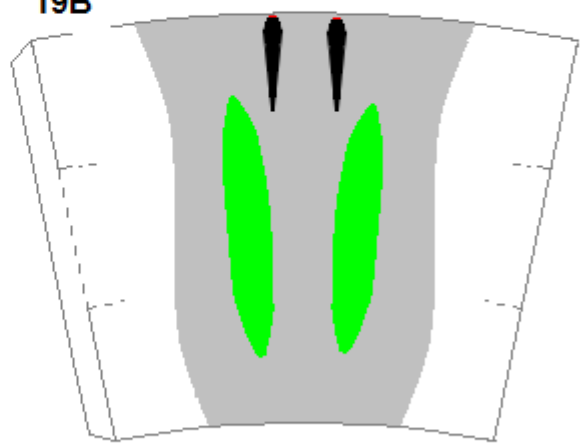


**19A**

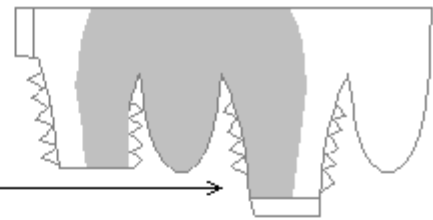


**Y**  
**X**

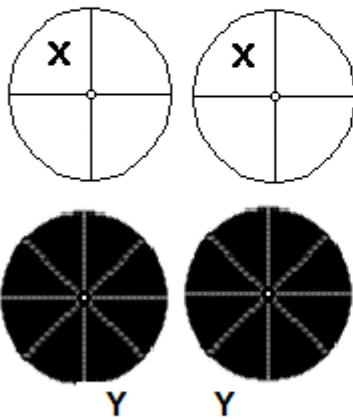
**19B**



**19C**



Rounded folds



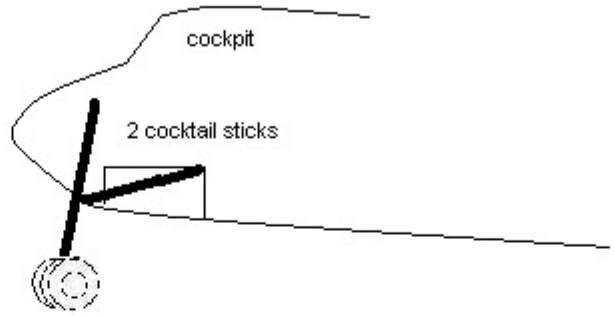
**Bulkheads**

make 3x thick

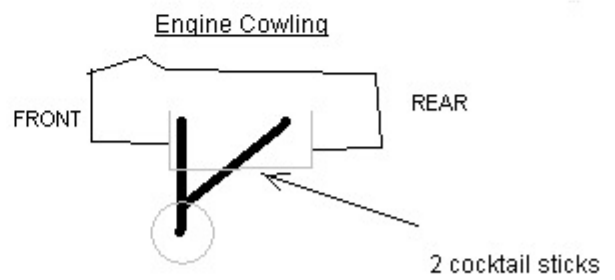
Front Wheels

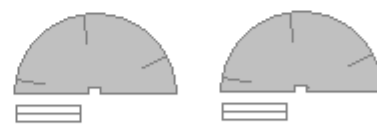
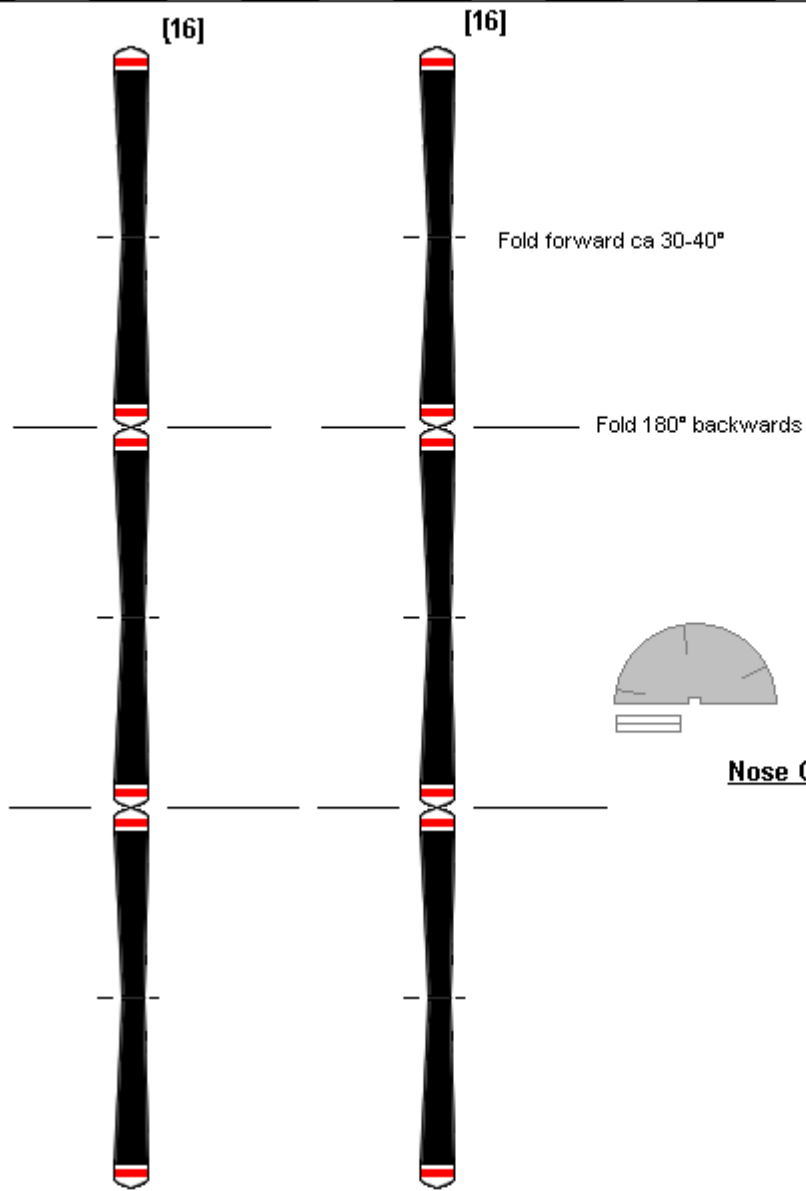
Main wheels

**Front landing gear**



**Main landing gear x 2**





**Nose Cones [17]**



**Back Discs [18]**

**Sheet 7**

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