

Bob's Card Models

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Grumman F7F-3 Tigercat (1:72)

The Grumman F7F Tigercat was the first twin-engined fighter aircraft design to enter service with the United States Navy. Designed for the new Midway-class aircraft carriers, the aircraft were too large to operate from earlier decks. Although delivered to United States Marine Corps (USMC) combat units before the end of World War II, the Tigercat did not see combat service in that war. Most F7Fs ended up in land-based service, as attack aircraft or night fighters; only the later F7F-4N was certified for carrier service. They saw service in the Korean War and were withdrawn from service in 1954. (wikipedia).

This aircraft is one of several operated by TBM, Inc. in California during the 1980s.

General characteristics

Crew: 2 (pilot, radar operator)

Length: 45 ft 4 in (13.8 m)

Wingspan: 51 ft 6 in (15.7 m)

Height: 16 ft 7 in (5.1 m)

Wing area: 455 ft² (42.3 m²)

Empty weight: 16,270 lb (7,380 kg)

Max takeoff weight: 25,720 lb (11,670 kg)

Powerplant: 2× Pratt & Whitney R-2800-34W "Double Wasp" radial engines, 2,100 hp (1,600 kW) each

Performance

Maximum speed: 400 knots (460 mph, 740 km/h)

Range: 1,200 mi (1,000 nm, 1,900 km)

Service ceiling 40,400 ft (12,300 m)

Important sources for this model:

1. http://hsfeatures.com/features04/f7f3dwa_1.htm : decals from David W. Aungst
2. http://en.wikipedia.org/wiki/F7F_Tigercat
3. <http://www.airbornegrafix.com/HistoricAircraft/GrummanTigercat.htm>
4. <http://richard.ferriere.free.fr/3vues/3vues.html>
5. <http://www.globalsecurity.org/military/systems/aircraft/f7f-pics.htm>

..... but many others.

Building Instructions

Print all sheets on between 160 and 230g card, except Sheet 6 which is on paper.

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 or plastic.

NOTE: Insert the bulkheads using a cocktail stick or tooth-pick (or even better, I use a long screw) pushed into a tight hole in the centre of each bulkhead. The fit of the bulkhead must be flush, not tight, otherwise ugly "ribbing" will be visible on the fuselage. NEVER force the bulkheads into position, rather snip a bit of card off the outline.

Green areas must be cut out, BUT usually after gluing any folds.

Although the model is relatively small, bulkheads have been used to keep the correct cross-sectional form of the fuselage.

Fuselage

1. Cut out bulkheads **A** to **F**, make 3x thick by gluing on waste card.
2. Cut out parts **[1]** to **[5]** (Note: do not yet cut out the spaces between the gores of part **[1]**!), round each of the 5 portions to approximately the final form with a 10-20mm rod. Note the positions of the b'heads (arrowed on sheet).
2. Close/glue parts **[2]** and **[3]**, add serrated tab and glue together, add a mass of at least 5 g inside **[2]** and glue.
3. Insert/glue bulkhead **B**.
4. Add tab to **[1]**.
5. Part **[4]**: Glue rear tab to close form, add the 2 side tabs, then glue front tab to close form. Glue cockpit **[4A]** onto single serrated tab.
6. Close/glue part **[6]**.
7. Close/glue part **[5]**, push **[6]** (put glue on tab) through **[5]** and glue in place
8. Part **[5]**: insert/glue b'head **E**, then b'head **D** from the front.
9. Push part **[5]** (with glue on tab) through **[4]** and manipulate into place.
10. Into the front of **[4]**, insert/glue b'head **C** to a depth of 4mm. To aid this, first push a pin through the front of the 2 green slits; the bulkhead is then pushed in up to the pin, and then held in place until the glue is dry. (**C** has a space at the bottom so that the Water Tank has room).
11. Glue **[2-3]** to **[4]**, holding in place until glue is dry.
12. Clap down cockpit **[4A]** and glue in place.
13. Cut out, form and glue nose **[1]**. Only now cut the spaces between the gores. Insert b'head **A**. Glue onto **[2-3]**.
14. Cut out the green areas on **[2]** - front undercarriage wheel compartment.

Main Wings

15. Cut out the wings **[7]**, fold, glue. Note that the bottom portion of the wing is only 98% the width of the top portion. This gives the necessary cross-sectional profile.
16. Cut the slit in the centre of the top of the wing (to release tension when angling each of the wings to 7°).
17. Cut out the 2 slits in the fuselage part **[4]**, insert the wing. Do not glue yet.

Water Tank

18. Cut out the 3 parts: **[8A]**, **[8B]** and **[8C]**.
19. **[8A]**: Cut out the spaces between the gores, round the form, then glue the gores together using the small tabs on each gore. Finally, glue the main tab. Snip the point, glue/round.
20. Add 2 not too sharp folds to **[8B]**.
21. Close/glue the 3 forms. Add b'heads in positions marked.
22. Glue 3 parts together. Snip off any overlap where necessary.
23. Cut out the green areas (leaving the tabs) under the fuselage, to contain the water tank, but first tab/glue the wings **inside** the fuselage, which is now visible, not forgetting the 7° angle of the wings.
24. Glue on the Templates **[7A]** under the centre of the wings within the fuselage.
25. Bend back the tabs, then place the water tank in position, if necessary snipping away to give a good fit.

26. If a good fit, glue the tank on the 4 tabs.

Tail/Rear Wings

27. Cut out and assemble the rear wing [9] and fin [10].
28. Cut the 2 green slits in the top of the rear wing, insert/glue the fin.
29. Cut the corresponding slits on the tail of the fuselage, and glue the fin/rear wing assembly in place.

Engines

30. Cut out parts [11] to [15]. Close/glue the forms, glue [14] to [13], [15] to [14].
31. Cut out the bulkheads [16] and [17]. Pierce their centres so that a tooth-pick has a tight fit.
32. Insert/glue the bulkhead [16] 6 mm inside [13] - black side to the rear (Aid: a pin can be inserted to act as a stop for the bulkhead prior to gluing. The bulkhead acts as a wall inside the landing gear compartment).
33. Insert/glue the bulkhead [17].
34. Glue [12] to [13]. Glue on serrated tab to [12]. Finally, glue on [11].
35. Cut out the green mark for the exhaust pipe on both engines.
36. Form the exhaust pipes [18] and glue/insert.
37. Where the engines are fixed to the wing, cut out the green area marked, leaving the tabs (do not bend).
38. Glue in place.

Front Undercarriage

39. Cut out the Front Wheel [19], roll/glue. Glue on the wheel hubs [19A]. With a needle, pointed scissors blade or fine drill, make a hole in the tyre.
40. Cut out Front Wheel Cover [20], fold the 2 folds each 90°, pierce green dot.
41. Cut a tooth-pick to a total length of 13mm, press tapering point through [19], and press into tyre hole with glue. When dry, push down the 2 flaps of [19] and glue to the middle of the wheel on each side.
42. Cut out the Wheel Compartment Flap [21], bend tab up, glue in place in the compartment.
43. Place a sleeve [23] cut to about 1cm length, over the tooth-pick, glue wheel and shaft in place as per sketch. When well dry, add the Diagonal [22] as per sketch. This is a tooth-pick cut to a length of 31mm, and also covered with a Sleeve. Glue both ends of the tooth-pick well, lean it on the main shaft, and glue in position.

Main Undercarriage

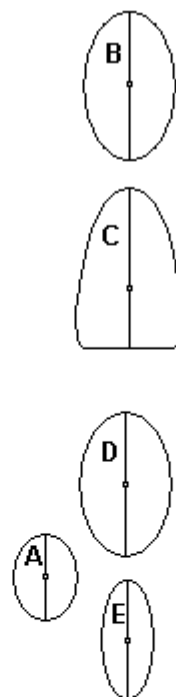
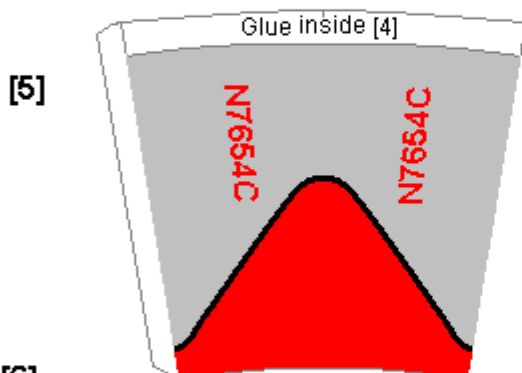
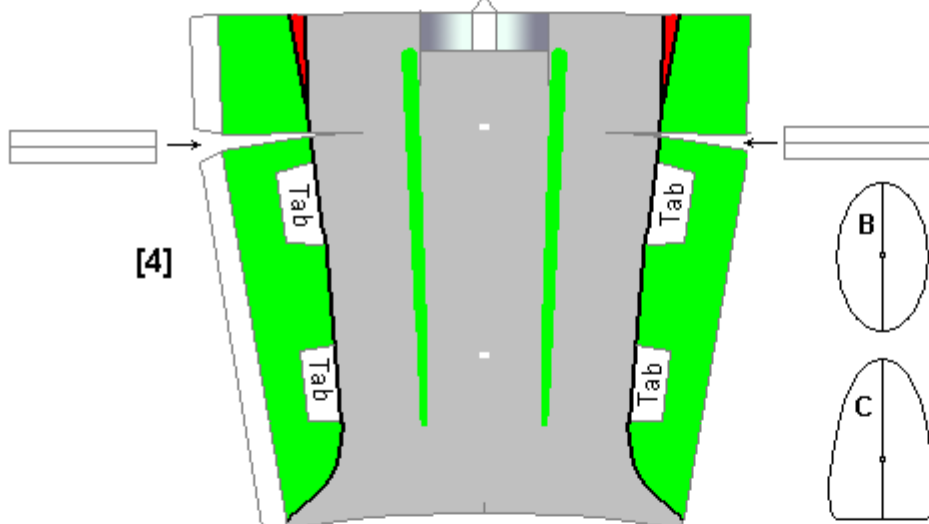
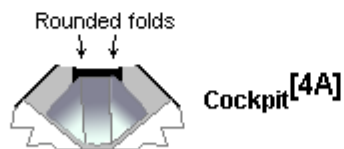
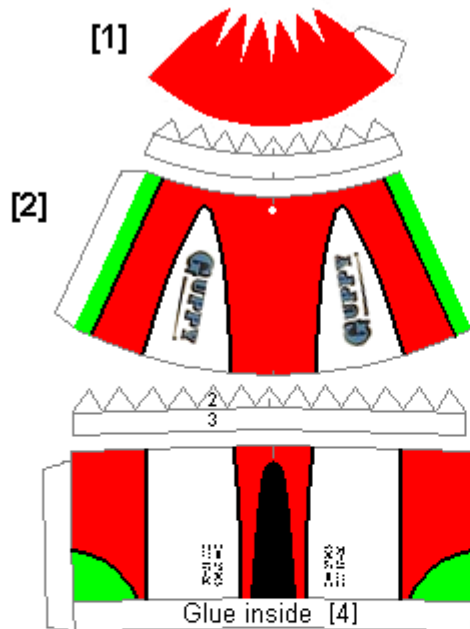
44. Cut out and roll/glue the 2 main wheels [24], and finally the wheel hubs [24A]. Bend the tip of a tooth-pick 90° (if it breaks, repeat after wetting the tip for a few minutes).
45. Push the tip into the centre of the wheel and glue well.
46. Cut tooth-pick to length (base of wheel to top of tooth-pick = 37mm).
47. Add sleeve to visible portion of shaft.
48. Cut out Wheel Shaft Support Bulkhead [25], glue on card to make 3x thick, glue on wheel shaft, insert in Engine undercarriage compartment and glue in place 1cm from the front of the compartment.
49. Add diagonal tooth-pick (with sleeve) to shaft, as for the front shaft.

Propellers

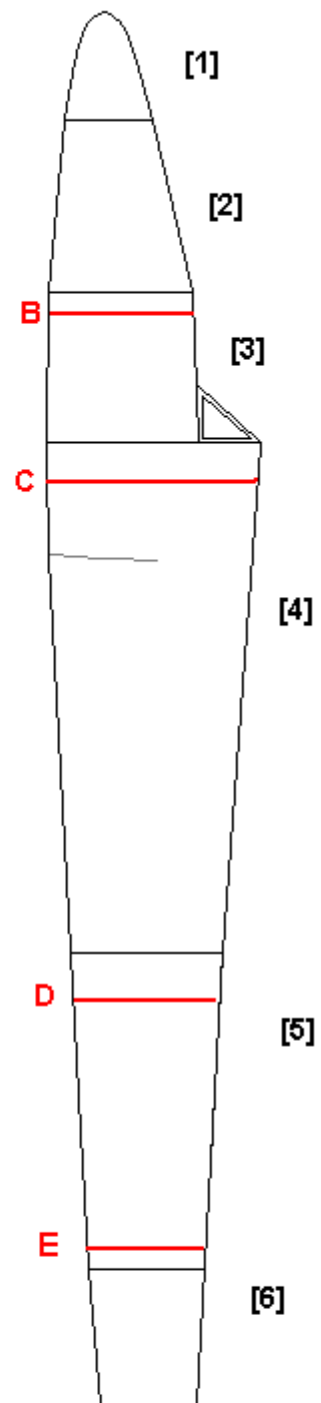
49. Cut out the 3-bladed propellers [26], fold, glue. Glue on the tip of a tooth-pick, cut the latter to 30mm length, add/glue caps [27], push through engine bulkheads.

Aerials

50. Cut out/fold/glue the 2 aerials ([28] and [29]) in position 1 cm resp. 4cm behind the cockpit on top of the fuselage in the positions marked.



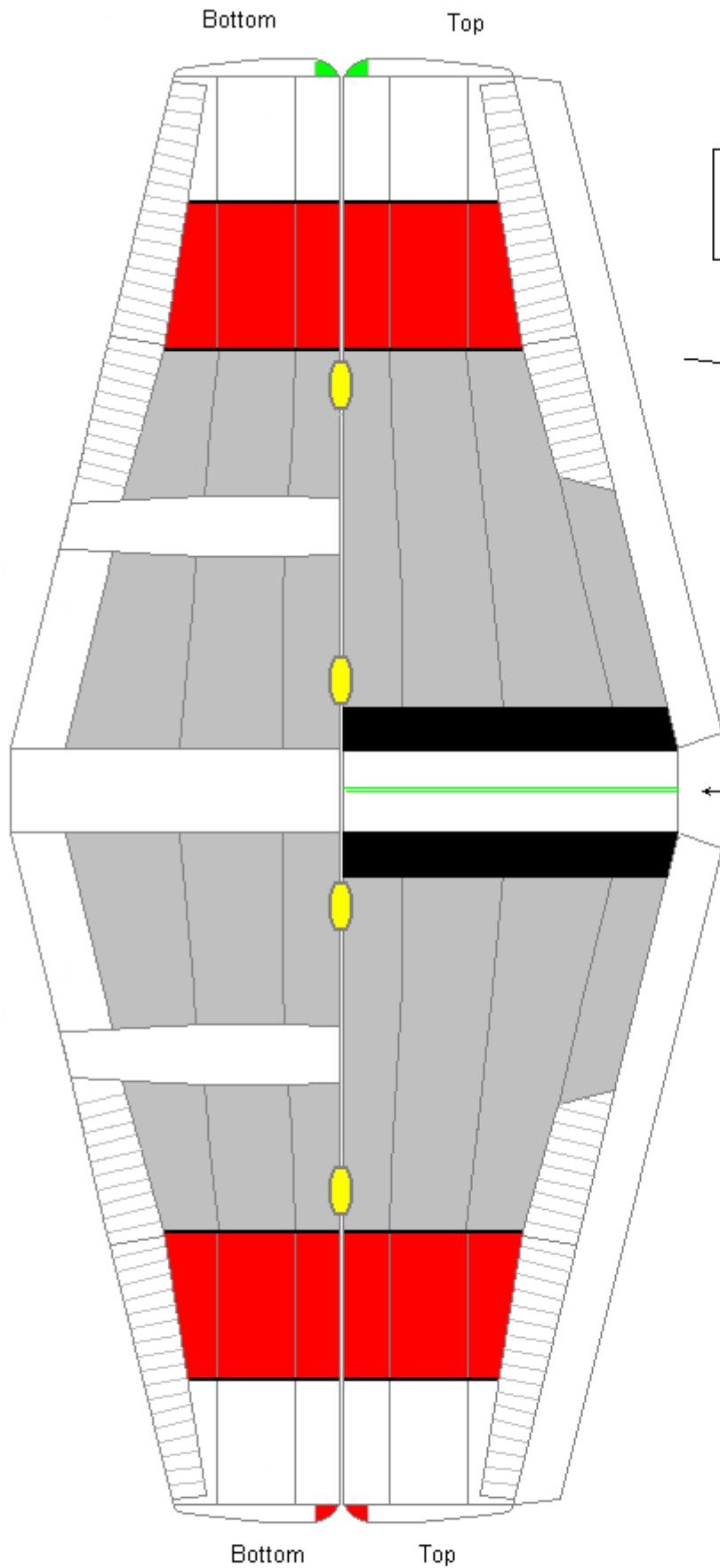
Bulkheads
Make 3x thick.



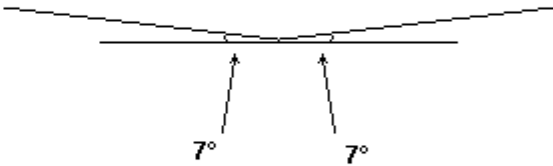
General form & position of bulkheads

Sheet 1

Tigercat

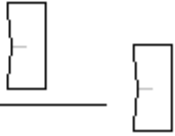


NOTE: The bottom portion of the wing is only 98% the width of the top portion. This results in the correct cross-sectional profile of the wing.



Wing angles

[7]



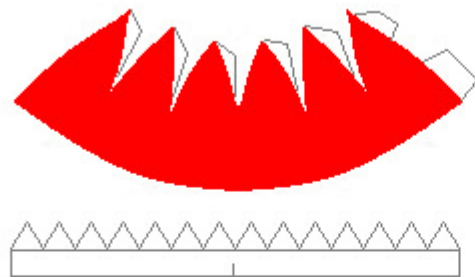
Templates [7A]

After insertion of the finished wing in position, these are glued under the centre, to give the correct angles of the wings. Make 3x thick.

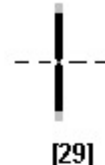
Sheet 2

Tigercat

Nose [8A]



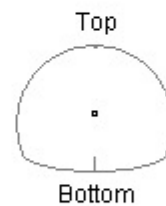
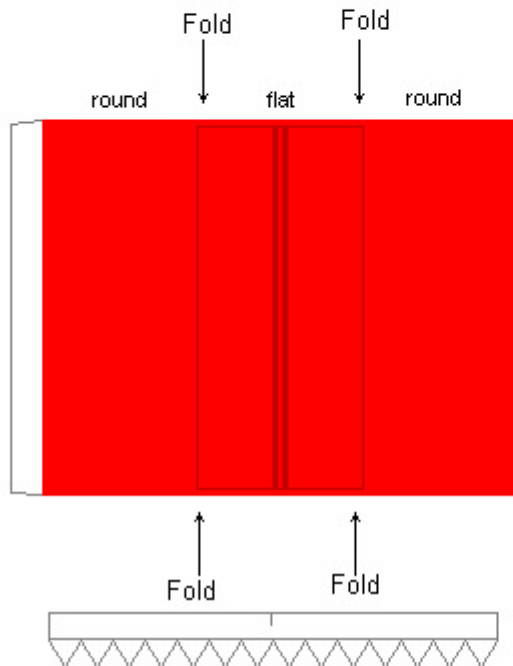
[28]



[29]

Aerials

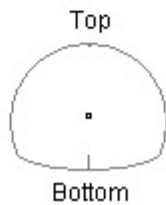
Water Tank [8B]



Bottom

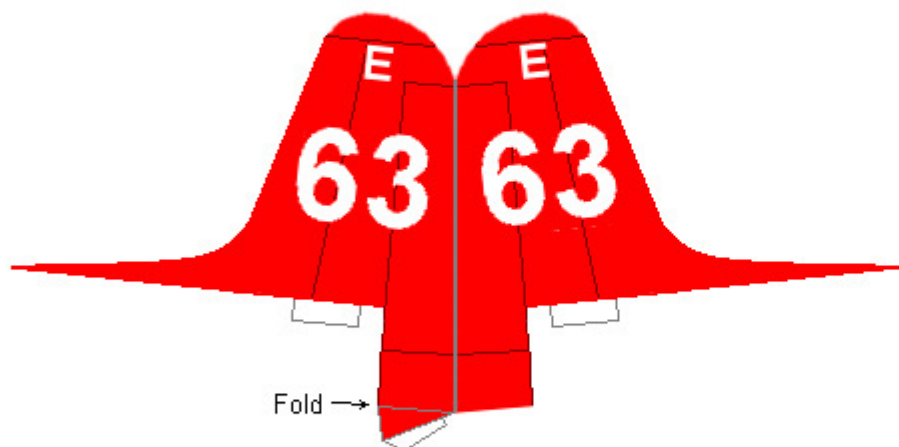
Bulkheads

Make 3x thick

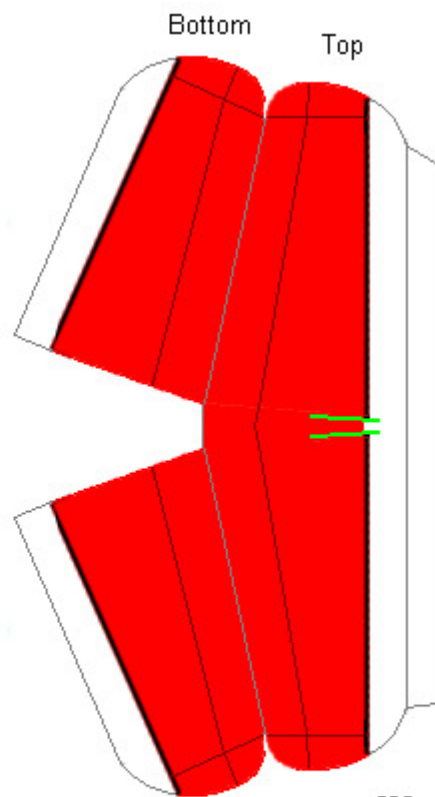


Bottom

Tail [8C]



Fin [10]



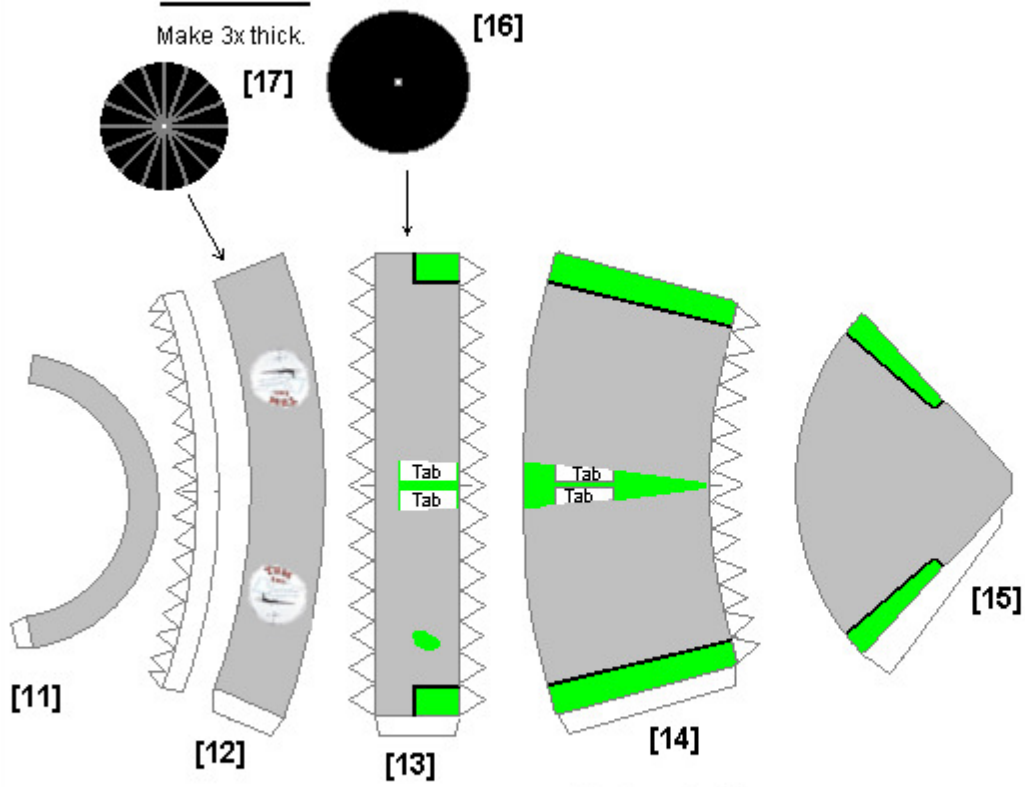
Rear Wing [9]

Sheet 3

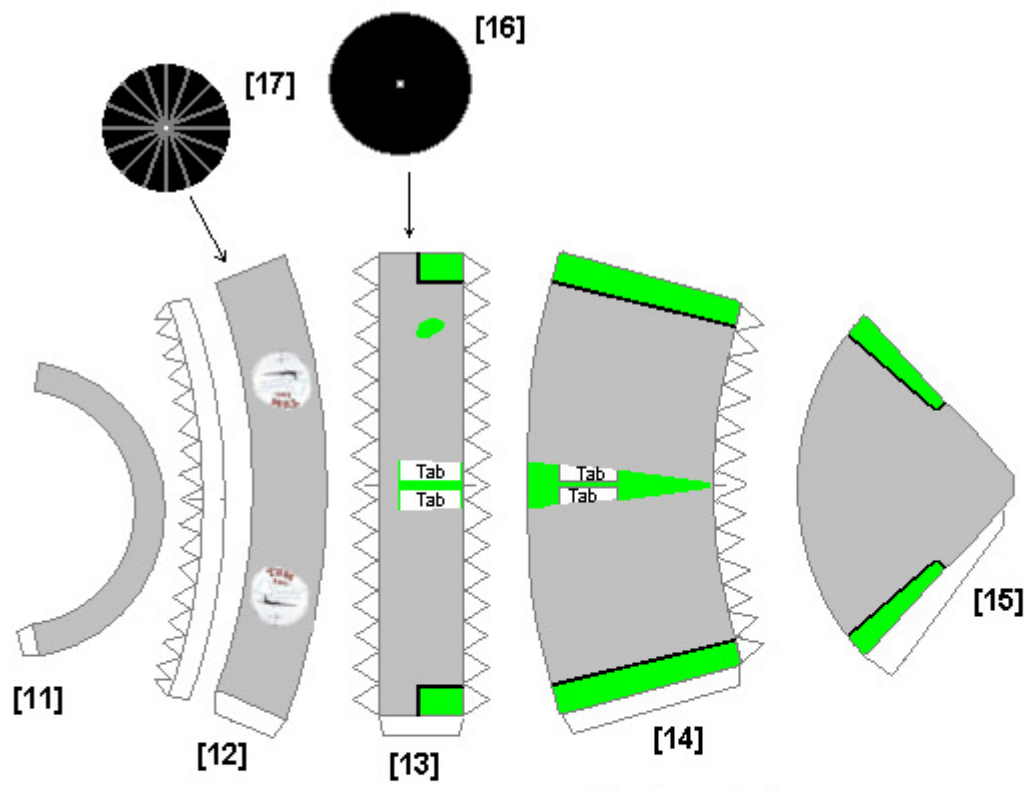
Tigercat

Bulkheads

Make 3x thick.



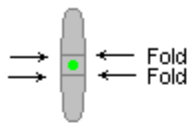
Engine, Left



Engine, Right

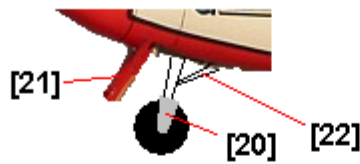
Sheet 4

Tigercat



Front Wheel Cover [20]

Pierce hole before cutting out.



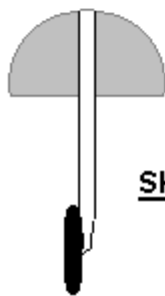
Sketch of Front Wheel

Front Undercarriage



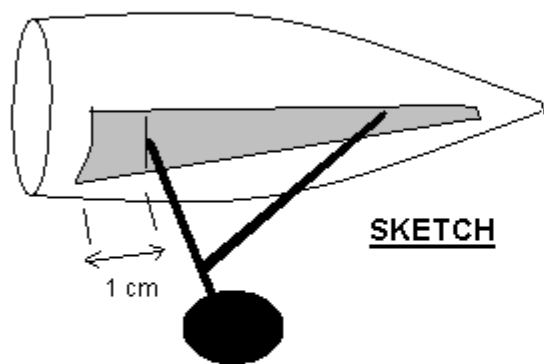
Wheel Shaft Support Bulkhead [25]

Make 3x thick



SKETCH

Main wheel shaft glued to [25].



SKETCH

Main Undercarriage

Sheet 5

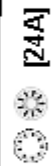
Tigercat



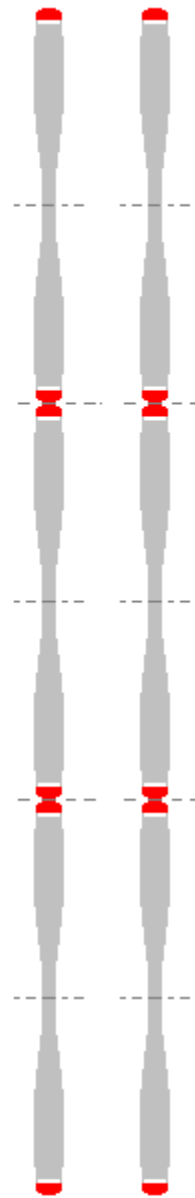
Front Wheel [19]



Main Wheel [24]



Main Wheel [24A]

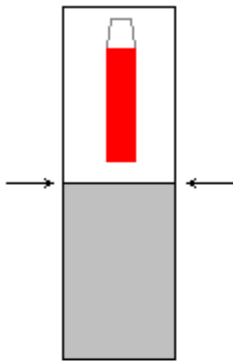


Props [26]

Cut out, close/ glue, cut slits

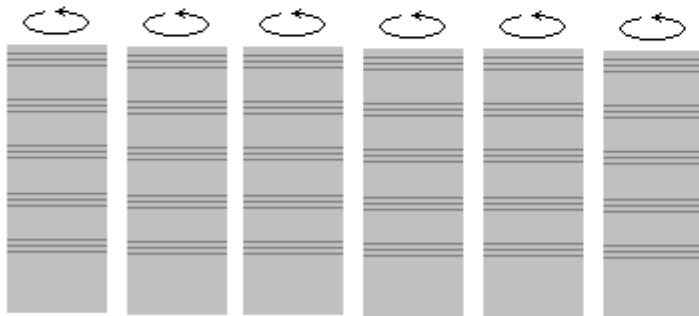


Prop Caps [27]



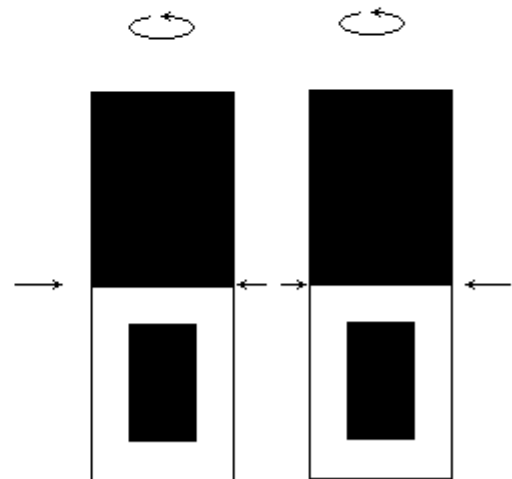
[21]

Wheel Compartment Flap



Sleeves [23]

- for covering tooth-picks.



Exhaust Pipes [18]

Fold, glue, cut out black rectangle, roll around tooth-pick, glue.

Print on Paper