

# Bob's Card Models

[www.bobscardmodels.altervista.org](http://www.bobscardmodels.altervista.org) and [www.zealot.com](http://www.zealot.com) [Resources]

## De Haviland Dash-8 water-bomber (1:72)



A Canada de Haviland Dash-8 fitted with a large water tank, complements the French aerial fire-fighters' fleet of Canadairs and Trackers at their home-base at the airport of Marignane near Marseilles.

I designed and constructed the model on the basis of photographs on the homepage of the friends of Marignane at <http://canadairs.marignane.free.fr> in their gallery, as well as others I found surfing the internet.

I hope the model does these brave pilots justice. Have fun.

### **Building Instructions**

Print all sheets on 160g card, except sheet Paper (Horizontal Stabilising Rod).

The alternating black/white lines framing each sheet; are each 10mm in length. Make sure of this before printing so that the scale of 1:72 is retained.

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.

4. - 6. Concerning the water tank: this is probably the most critical phase of the project - a slight error in the geometry of cutting and gluing can result in the red and black stripes of the fuselage not meeting those on the water tank or not 'flowing' nicely. The red colour denotes fire, the wavy stripe denotes water (that is my interpretation).

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.

### **Fuselage with water-tank**

1. Cut out main fuselage [1] including tabs. Glue on the long tab, form to a cylinder and glue. Tip: It's a long fuselage and long tab - use a broomstick or rod to wrap the fuselage around, otherwise you will have problems in forming the perfect cylinder. Cut out and glue on the 2 end tabs.
2. Cut out Horizontal stabiliser rod [2], roll but do not glue around a thin rod or pencil, and "string on" the bulkheads [3] to the marked positions. Glue in place. Insert the assembled unit into the fuselage, and add a bead of glue around the 2 end bulkheads.
3. Cut out water tank struts [4], glue on Struts Cross-member [5] at right-angles to the struts.
4. Glue the struts module on to the base of the fuselage where marked.
5. Cut out Water Tank [6], central square portion, bend fully back the 6 tabs, and form the profile as shown - to fit the wing struts module. The rounded sides can be formed using a round pencil, or a rod 5-10mm diameter. Glue in place to cover the struts.
6. Cut out the water tank nose [8], bend back the large tabs left and right of the nose. Cut out and glue the 3 small tabs, bending where necessary. Glue in place on the tabs of the main portion [6]. NOTE: Make sure the coloured stripes of the fuselage match those on the water tank - if necessary cut back/trim the water tank struts to achieve this.
7. Likewise with the water tank tail portion [9].
8. Cut out water tank hinge [7], bend down the 2 tabs, round longitudinally on a 3-4mm diameter rod, glue in place. Round the front and rear 'tabs' and glue.
9. Glue and connect fuselage tail [11], the latter after carefully rounding to a cone and inserting bulkhead [10].
10. Cut out nose [12] and carefully round to final form. Do not cut out the landing gear compartment; this will be carried out at end of construction. Close the cone by gluing the long tab. Bend up the 4 small tops, which will later glue to the cockpit. Cut slots in the front, form a rounded finish with glue and fingers.
11. Glue the nose cone to the main fuselage.

### Rear Wings

12. Cut out fin [14], and close both halves by gluing the 2 tabs. Cut out the slit near the top of the fin. This will accommodate the horizontal rear wing stabiliser.
13. Cut out the 2 struts [15] and [16], as well as the vertical strut bar [17].
14. Glue the smaller strut about 1.5-2cm down the top of the vertical strut bar, and push all the way home into the fin. Before the glue is quite dry, add the lower strut to fit flush with the fin (you will have to manipulate the correct angle for this).
15. Cut out the wings [18L] and [18R], bend to form with rounded and not sharp leading edges. Cut out the 2 wing slits, glue form, and finally cut the rear fin slit.
16. Cut out part [33], fold, glue and position on top of fin as per photo on the cut-out sheet.
17. Glue wings in place.

### Front Wings

18. Cut out both wings [19L] and [19R], bend all tabs, close each wing and glue.
19. Cut out the Wing Stabilising Bar [20], make 4x thickness, glue and insert into the first wing, about 1/3 of the way from the leading edge. Glue and insert into the second wing.
20. Cut out Wing Cradle [21], fold and glue in place.
21. Glue on the wings.
22. Cut out Wing Cover [34], bend 90° the 2 flaps, and attach over/under the wings. Trim excess card.
23. Cut out, bend/fold strip [22] and glue in place on top of fuselage between rear fin and front wings

### Engine Cowlings

24. Cut out cowling [23], bend 2 main folds (rounded, not sharp - to fit bulkheads). **Do not yet cut out either the wing slits or the well for the landing-gear.** Bend all tabs 90°, glue front and rear portions together using the small tabs. Insert the bulkheads A through E in position.
25. Cut out cowling top [24], round by pressing gently around a 5-10mm tube or pencil, and glue in place. Trim excess card.
26. Pierce the wing slits with a fine pin, insert a pointed scissors and cut out the strut-shaped outline.
27. Gently push onto wing in position, cutting a little more card if necessary. Must be a tight, but not too tight fit. Glue around the joints.
28. Cut out 2 exhaust pipes [26], roll around a 5mm rod (black on inside), glue, insert in rear of engine cowling and glue in place. When glue is dry, cut off the excess exhaust pipe (see photo on cut-out sheet).

### Landing Gear

29. Cut out nose landing gear compartment [27] , and bend as according to instructions. Glue, to form a box without a lid, and insert in nose so that the front and rear are flush, the sides protrude about 3mm. protrudes. Glue to the 2 tabs as well as all around the box.
30. Cut out the main landing gear parts [28] , and again form to boxes as previously.
31. Carefully cut out the wells marked on the underside of the Engine Cowlings, and bend the tabs inwards.
32. Insert the 'boxes' into the respective wells, and glue in place as before.
33. Cut out , roll all wheels/tyres.
34. Using a pin, pierce a hole as far forward as possible in the floor of the nose landing gear well. This will accommodate the cocktail pin which is pushed as far in the hole as possible. At the wheel end of the cocktail stick, the 2 nose wheels are glued. The cocktail stick is cut to get a length **visible** equal to about ½ the diameter of the wheels. The angle of the stick is about 80°.
35. Likewise the 2 main landing gear wells, but in this case 2 cocktail sticks are used in each well (see Photo). The length should be chosen so that the plane sits with fuselage parallel to the ground, using the nose wheels as a yardstick. NOTE: the visible portions of all the cocktail sticks are made more authentic by rolling around the sticks and gluing the grey paper [29] provided.
36. Add a weight of 5 - 10g to the nose cone and glue in place.
37. **FINALLY, AND ONLY NOW:** Cut out cockpit [13], round to the final form. Slit between the windows to form tiny tabs, overlap, and glue. Glue cockpit to the nose cone and fuselage.

#### **6-bladed Propellers [31]**

38. Bend and glue as described in the Propeller sheet.
39. Cut out, round and glue nose cones [30].
40. Fit propeller unit with each of the 6 blades slotting into the nose cone. Glue well.
41. Fit a cocktail stick into the centre of each of the propeller units. Glue in position after piercing the bulkheads in the Engine Cowling with a pin. The hole can be increased in size by carefully rotating and pushing a cocktail stick into the pin-pierced holes, or using one blade of a nail scissors.

#### **Other Accessories**

36. Cut out both parts [32] , fold each, glue, glue in place underneath fuselage.
37. Cut out part [33], fold as per sketch, and fix on top of rear fin [14].

---oooOooo---

Undercarriage well - cut out at end of construction

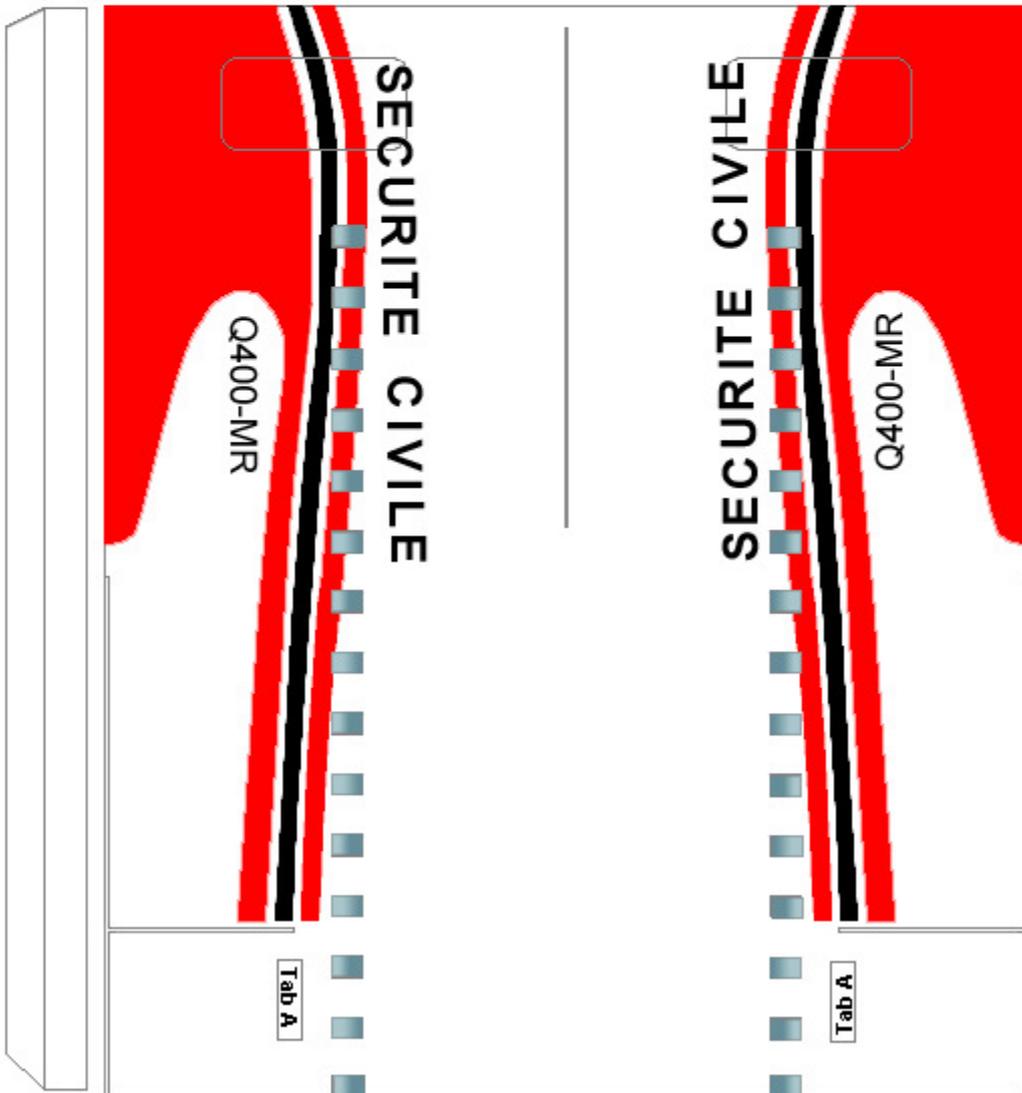
slits



**Cowling Trim [25]**

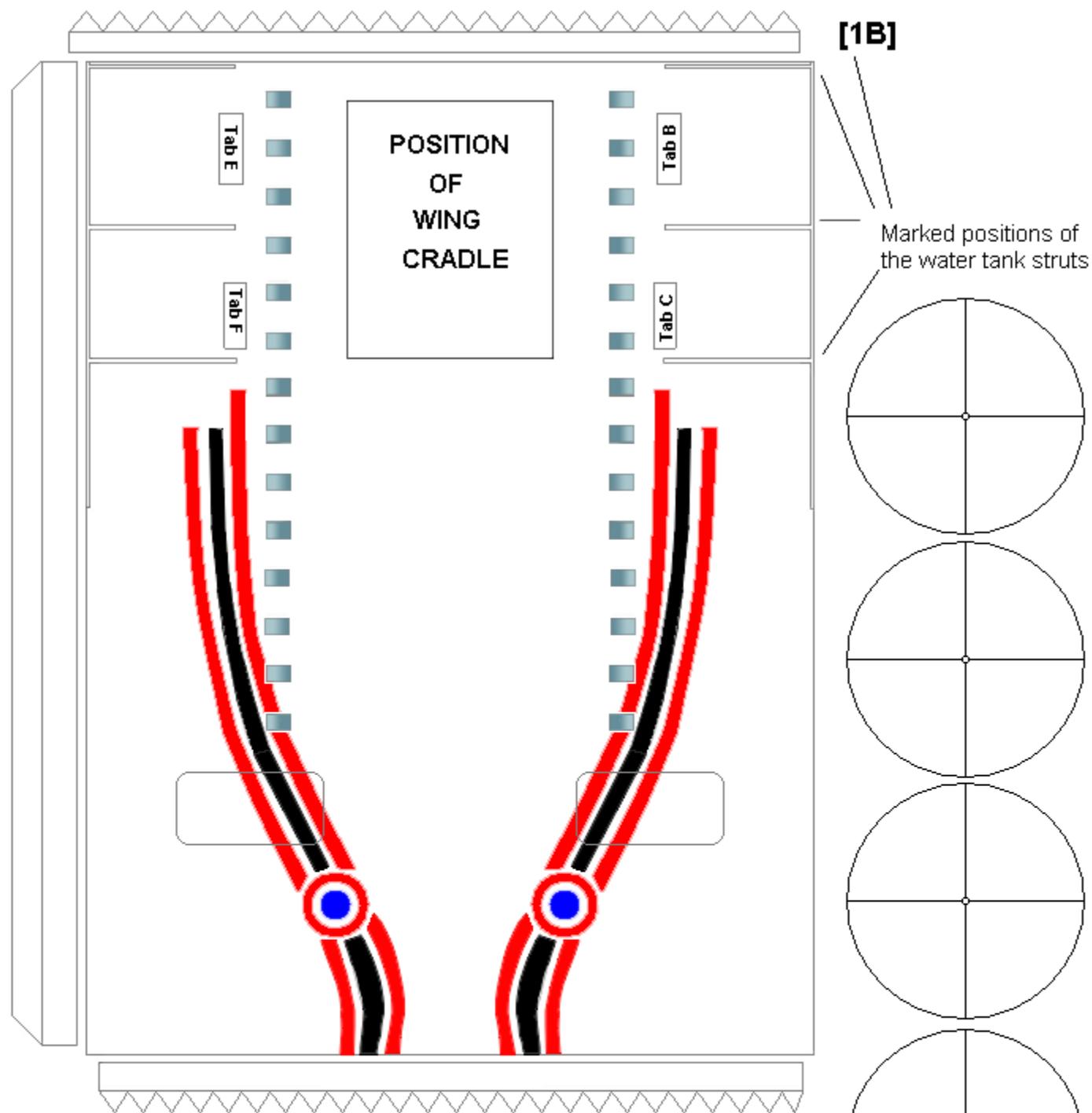
Cut out, fold lengthwise, re-open, cut out 4 slots, re-open, bend 90° at each slot to give a rectangle.

FRONT

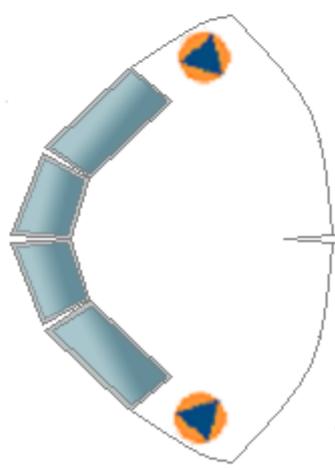


**Sheet 1**

Dash8

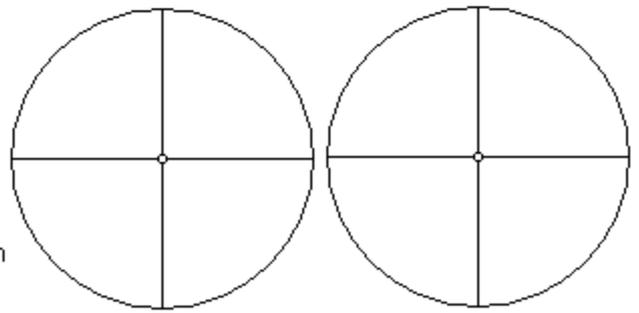


**Cockpit [13]**

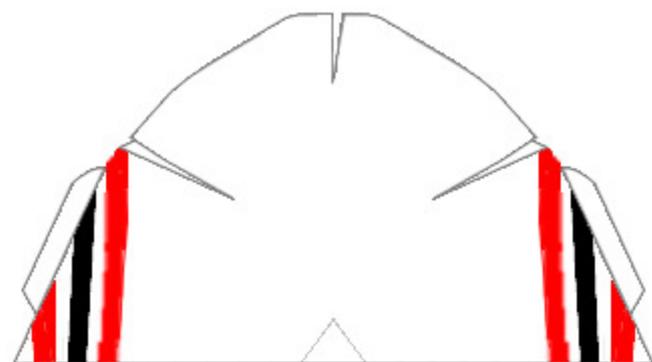


Cut & tab with waste card

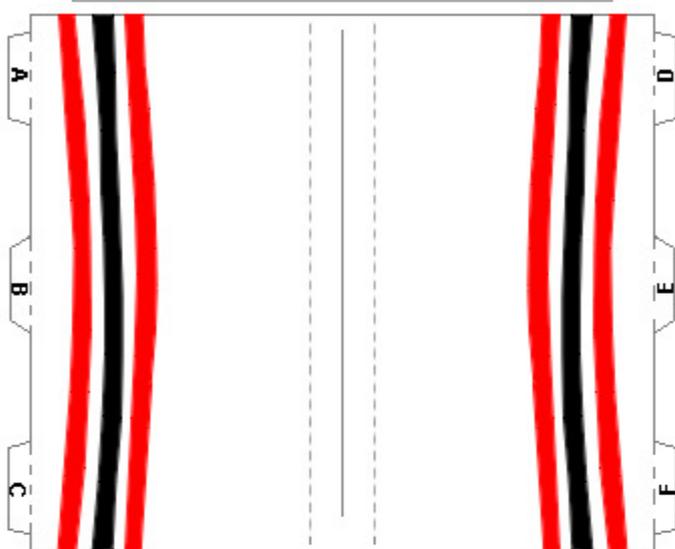
**Bulkheads [3]**  
Make 3x thick



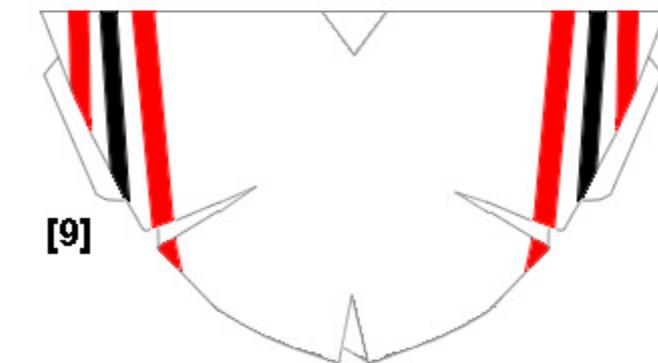
FRONT



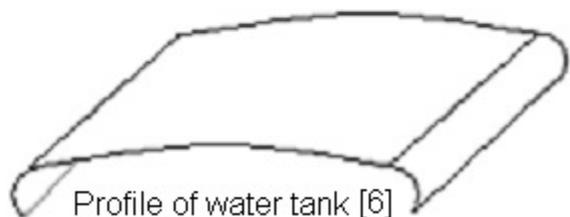
[8]



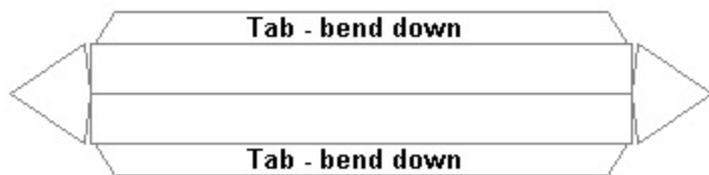
[6]



[9]



Profile of water tank [6]  
bent to fit struts.



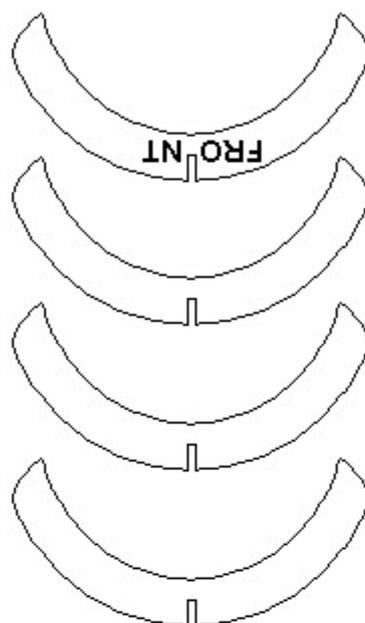
Tab - bend down

Tab - bend down

**Water Tank Hinge [7]**

Fold to a semi-circle on a 5mm rod

FRONT



**Water Tank Struts [4]**

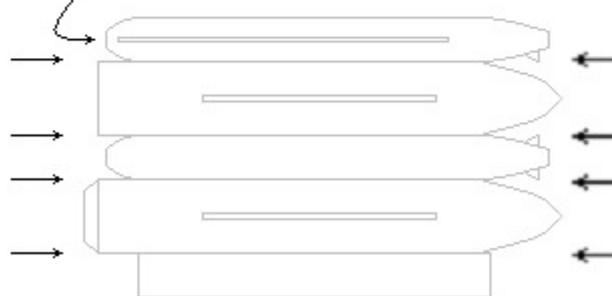
make 3x thick

**Struts Cross-member [5]**

make 3x thick



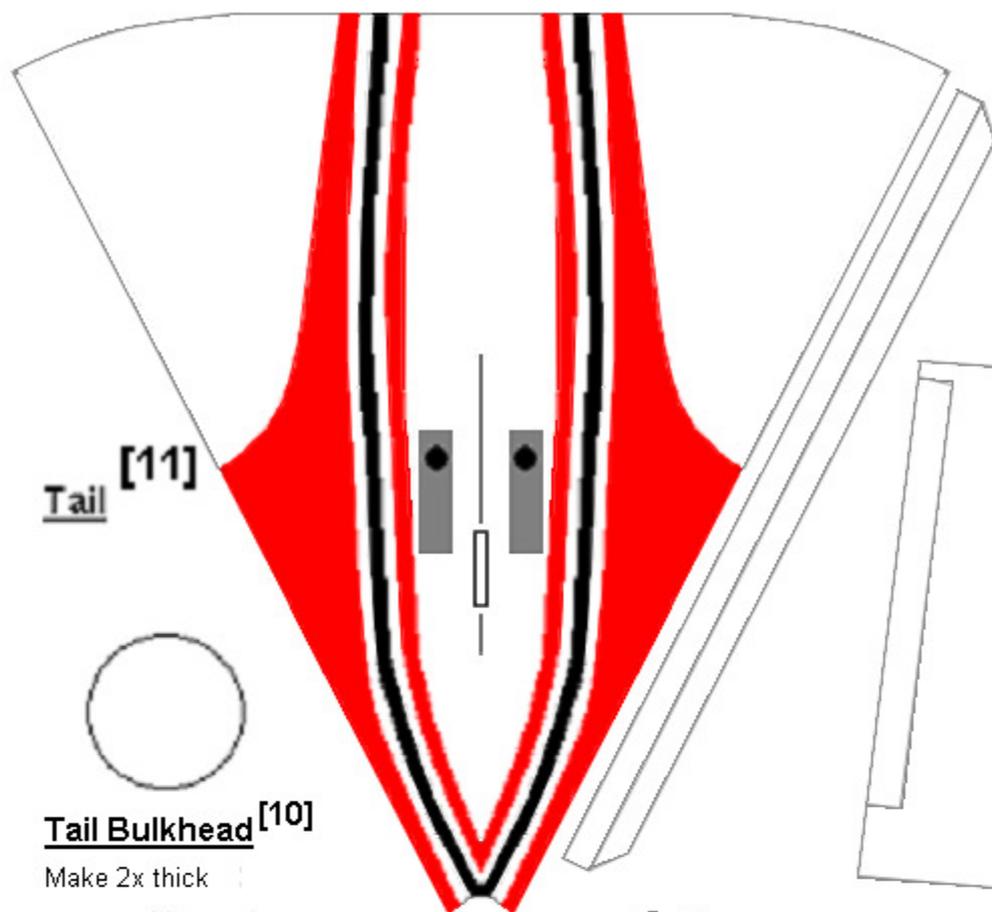
Fin Slit [33]



Bend along arrows, but not too sharply.  
Cut 2 wing slits - the Fin slit should be  
only after gluing the part.

**Sheet 3**

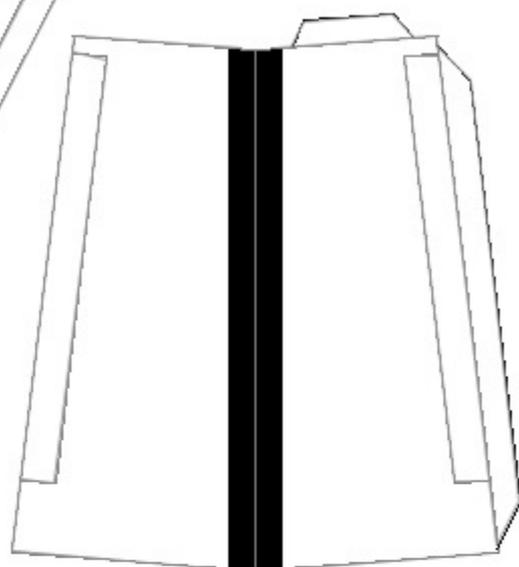
Dash8



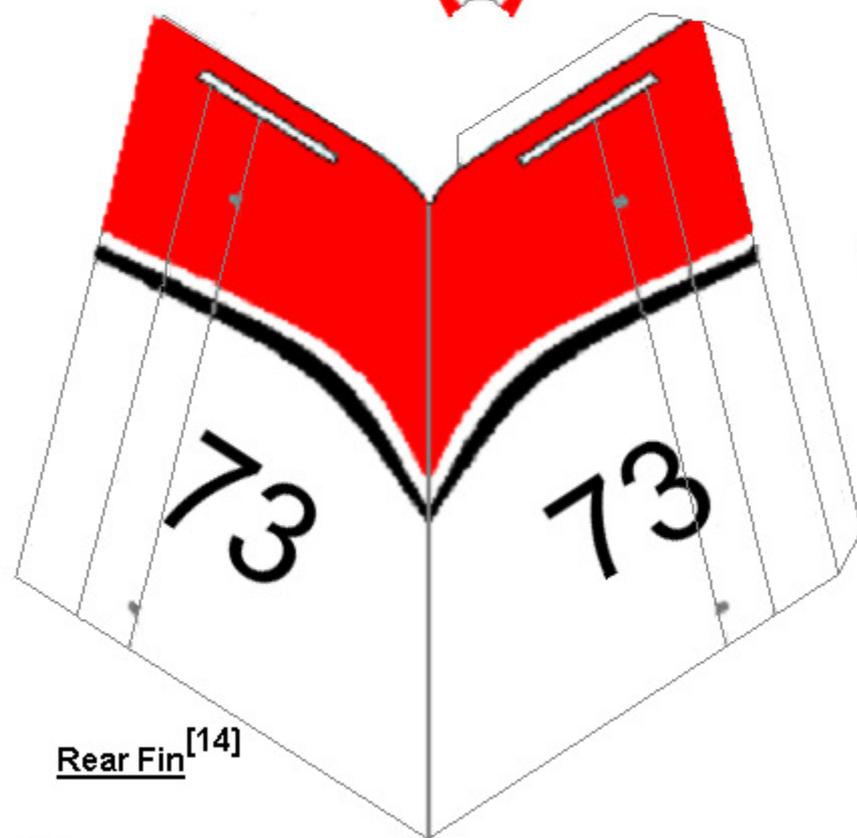
Tail [11]

Tail Bulkhead [10]

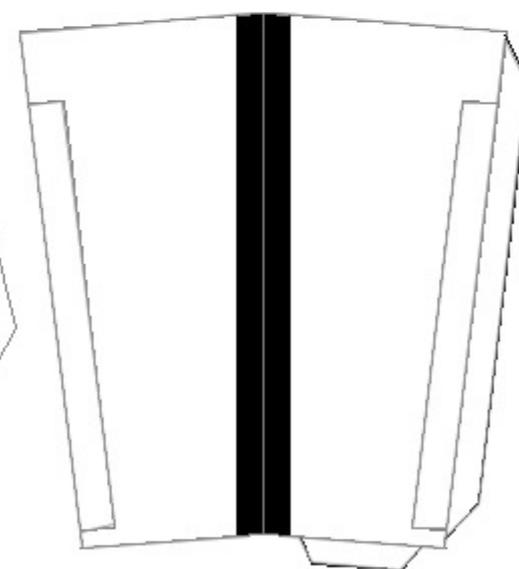
Make 2x thick



Right Rear Wing [18R]



Rear Fin [14]



Left Rear Wing [18L]



Rear Fin Struts

Make 3x thick.



Vertical strut bar [17]

Make 3x thick

**Sheet 4**

Dash8

PRINT THIS SHEET ON PAPER

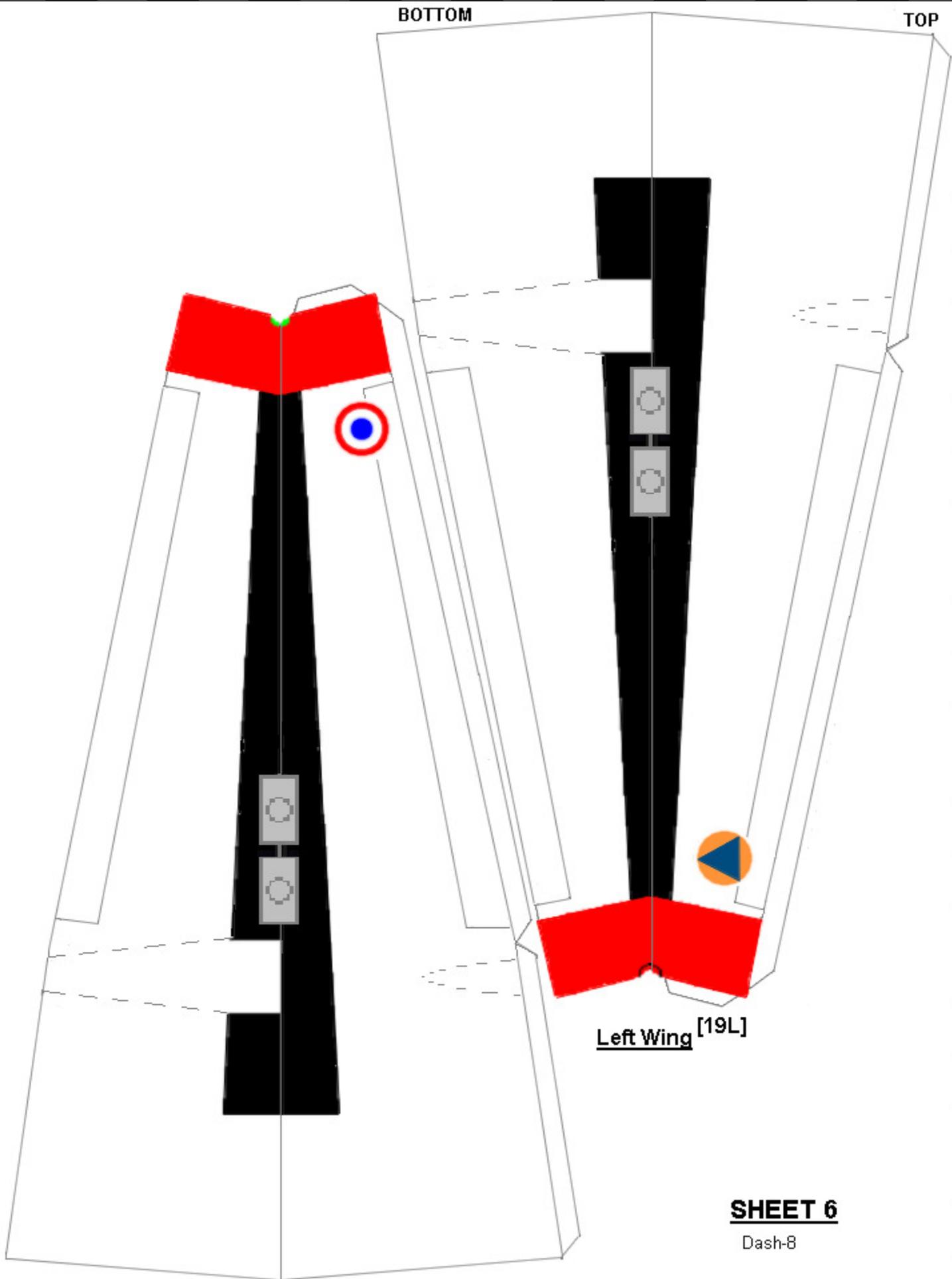


**Cocktail Stick Sleeves** [29]

Roll around and glue to cocktail sticks.

BOTTOM

TOP



Right Wing [19R]

Left Wing [19L]

BOTTOM

TOP

**SHEET 6**

Dash-8



Cowling top cover [24]



Exhaust black inside [26]

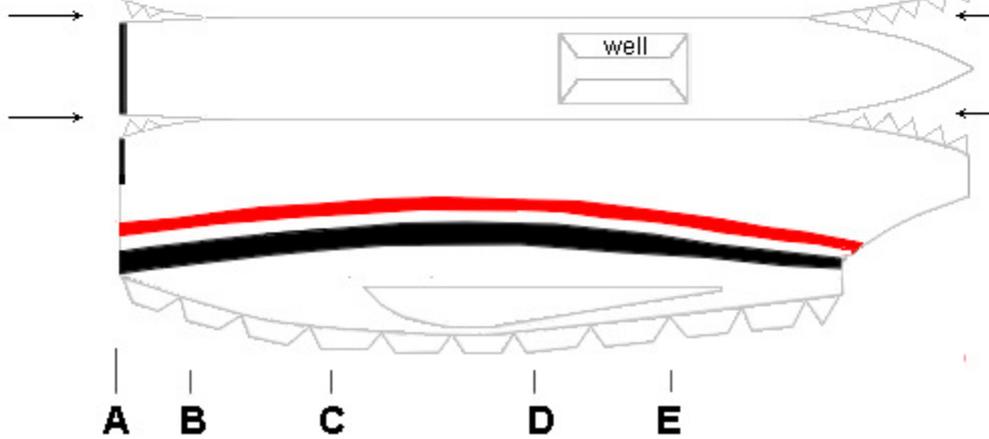


slightly rounded profile

FRONT

[23]

REAR



Rounded bends of 90° (use a cocktail stick for rounding)

Cowling top cover [24]

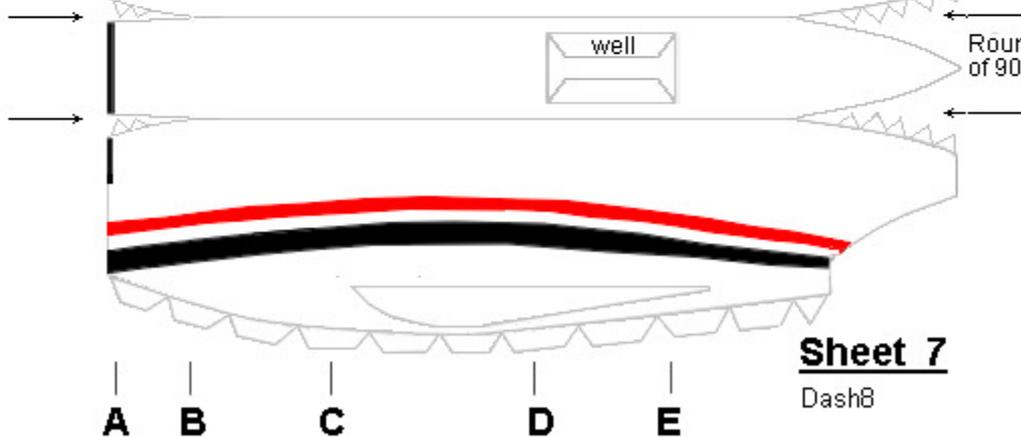


slightly rounded profile

FRONT

[23]

REAR



Rounded bends of 90°



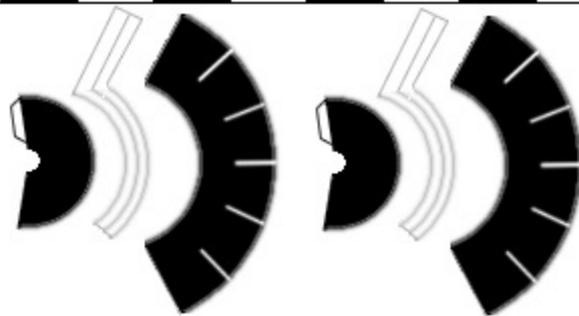
[22]

Rear Wing Stabiliser

Make 3x thick

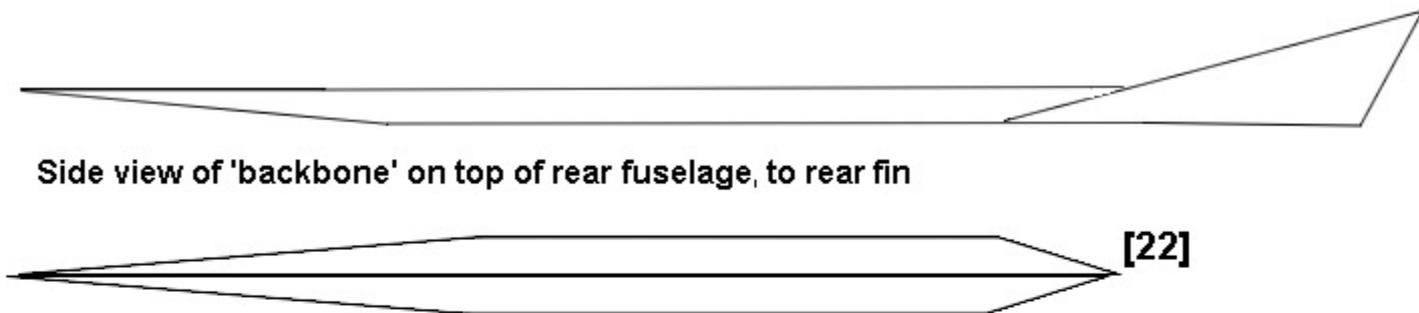
**Sheet 7**

Dash8

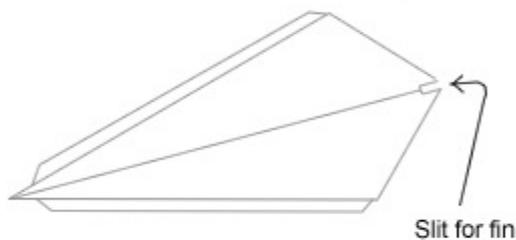


**Nose Cones [30]**

Side view of 'backbone' on top of rear fuselage, to rear fin



**[22]**

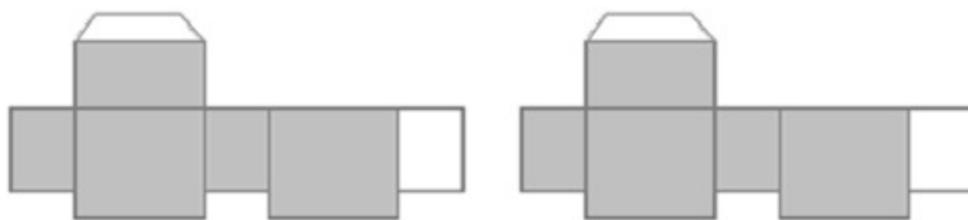


Slit for fin

**[33]**



Bend along arrows, but not too sharply.  
Cut 2 wing slits - the fin slit should be cut only after gluing the part.



**Main Landing Gear Compartments with Flaps [28]**

Fold with grey on inside, white on outside.

Rear

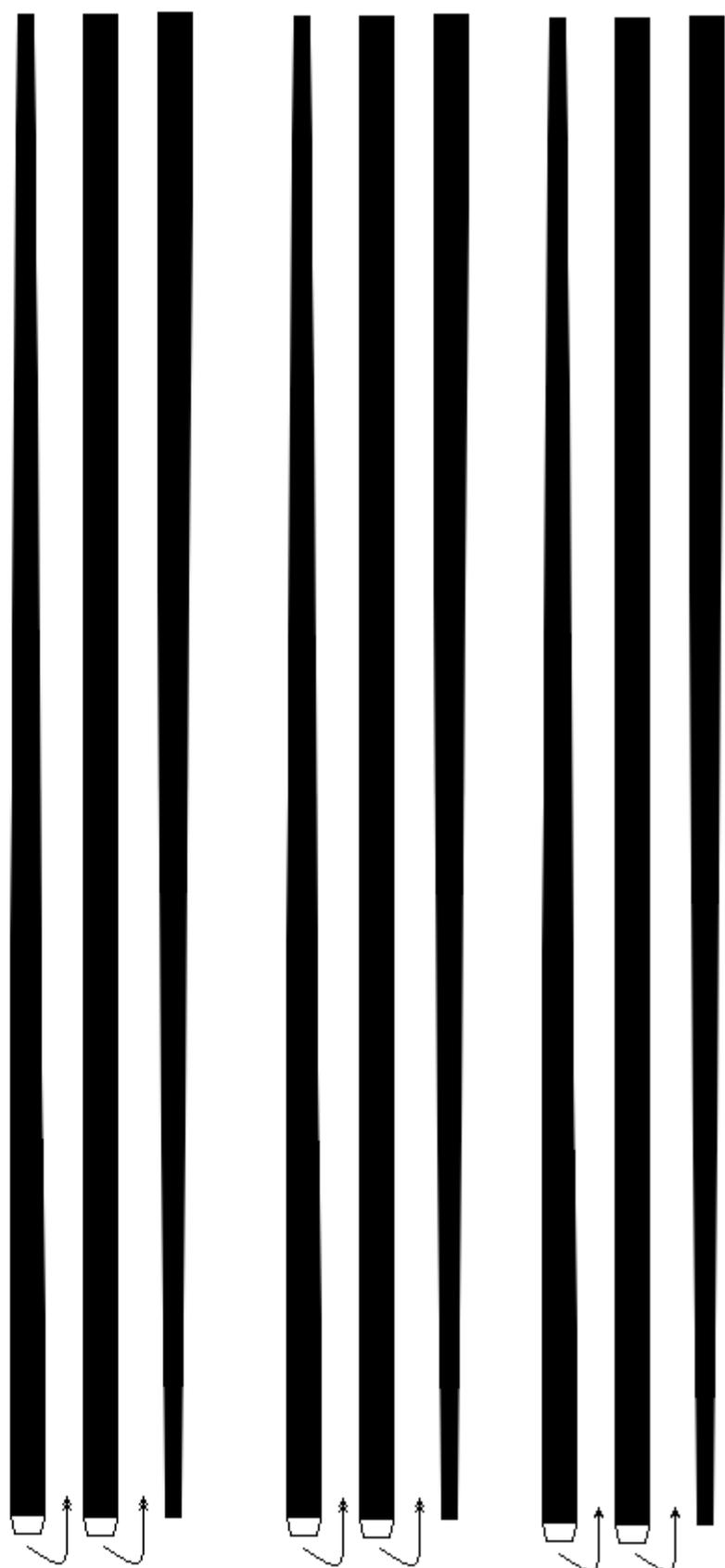
Front



**2 Front wheels**



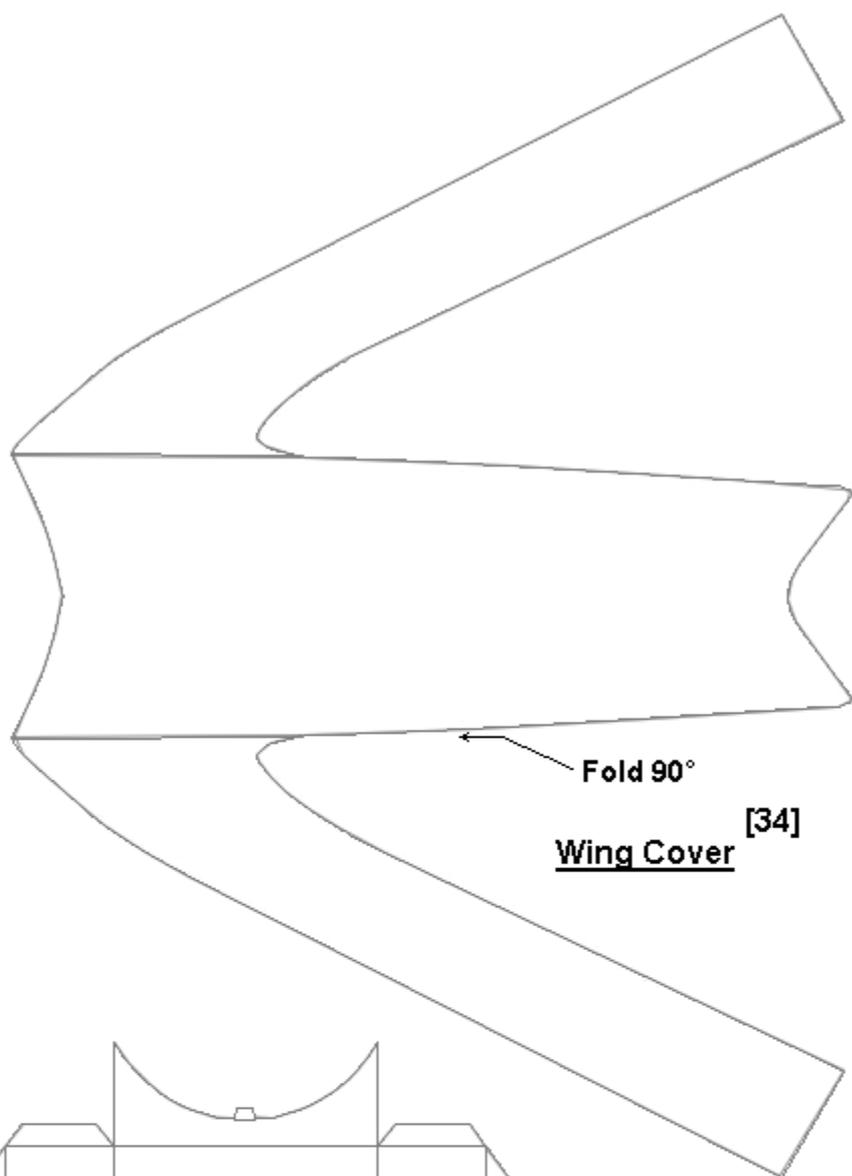
**4 Main Wheels**



**Sheet 9**  
Dash8

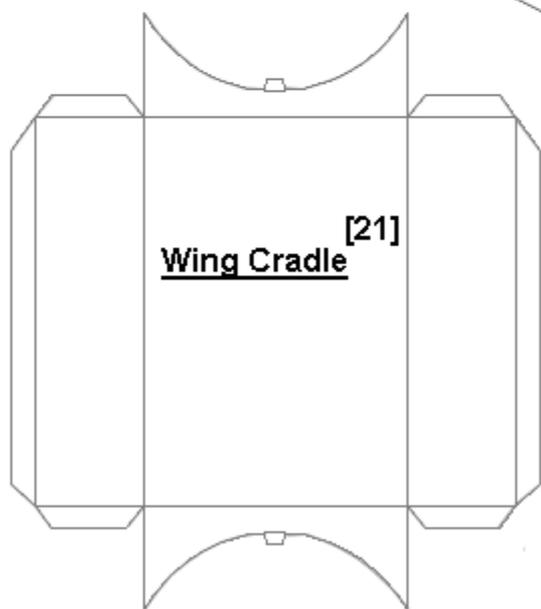
**[32]**

Cut out, fold,  
glue in place

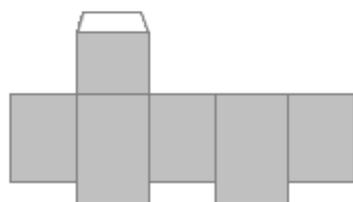


Fold 90°

Wing Cover [34]

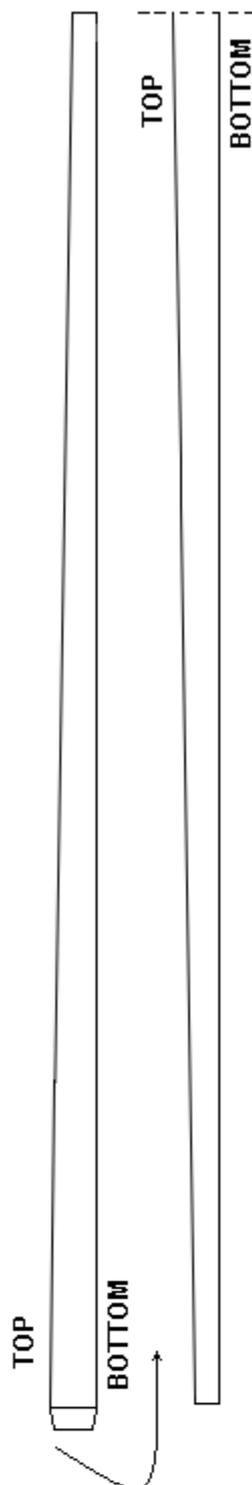


Wing Cradle [21]



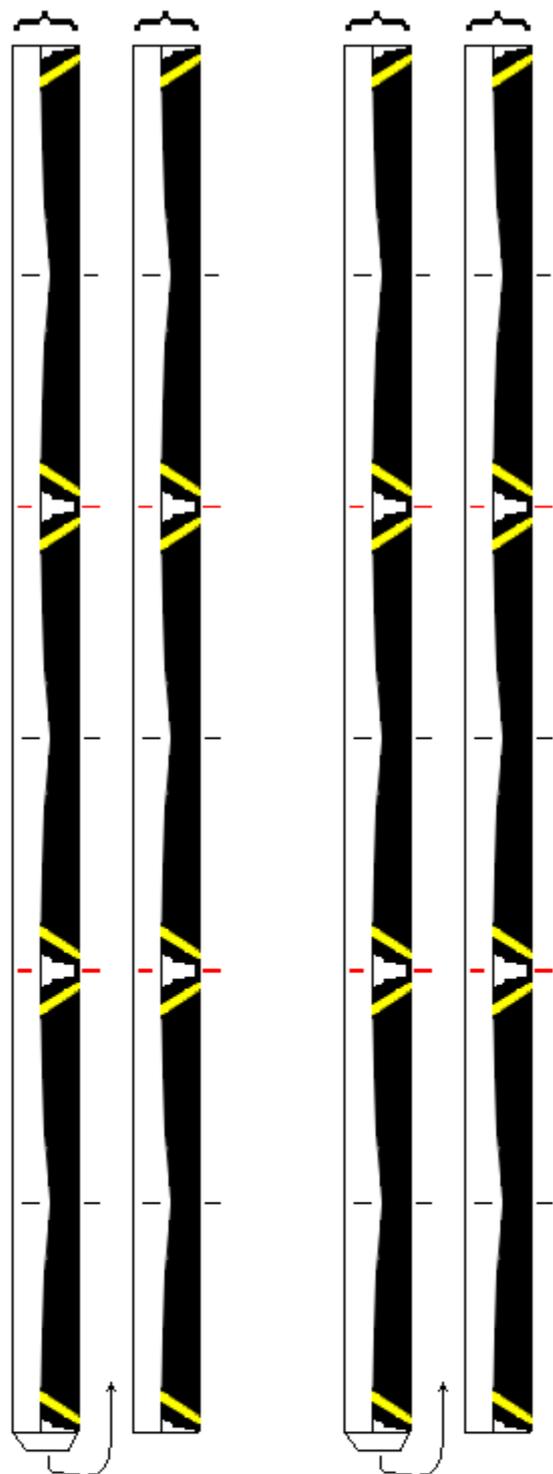
Nose Landing Gear  
Compartment with  
flaps [27]

Fold with grey on inside,  
white on outside.



Wing Stabilising Bar [20]

Cut out and join together.  
To be pushed half-way into each wing  
2/3 of the way to the leading edge from  
the trailing edge.  
Make 4x thick.



- - Bend up 120°

- - Bend down 180°

### 2 x 6-bladed propellers [31]

Due to lack of space, each propeller is composed of 2 parts, and must be joined.

Cut the 4 long rectangles at left.

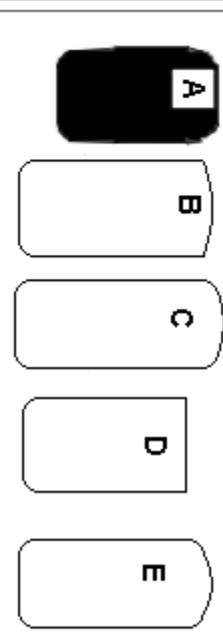
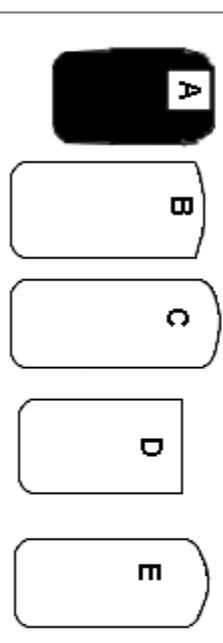
At the centre of each blade, bend the blade up 120°, at the extremities, bend down 180°.

Glue and form the propeller.

Trim all excess white card.

Repeat for the second propeller.

**Bulkheads A - E:**  
Fold, glue, cut



### Engine Cowling Bulkheads A - E

Fold, glue, cut

**Sheet 11**

Dash8