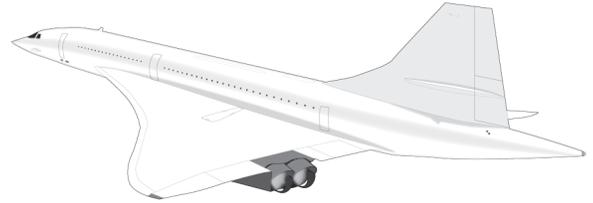

Assembly instructions for Concorde

1:144 scale



The Concorde story

Concorde is among the most attractive and easily recognized aircraft ever built. It is the most successful of the two supersonic transport (SST) types to have entered service, and its graceful shape became a symbol of national pride for the countries that designed and manufactured it.

In the early 1960s both France and Britain were working on SST designs. The cost of development was so great that the two countries agreed to combine their resources and the project was shared by British Aerospace Corporation and Aérospatiale. The resulting aircraft featured a slender, needle-like fuselage with a 'double-delta' shaped wing.

Now named *Concorde*, the plane flew in March 1969 with the first supersonic flight in October. International interest was great and orders for over 100 aircraft were secured. There was no precedent for a supersonic passenger plane, so testing was extensive and scheduled flights did not commence until 1976.

Concorde was small compared to contemporary airliners, carrying only about 100 passengers in its narrow fuselage. These cramped conditions were offset by the reduced flight time (about 3.5 hours for an average transatlantic flight), a high standard of flight service and the thrill of flying at twice the speed of sound. Because of the plane's nose-high attitude at low speeds, the nose forward of the cockpit was designed to tilt downward, allowing better pilot visibility when landing.

During the early 1970s the number of airlines interested in Concorde dropped drastically, largely due to increased fuel costs, concern over engine noise and sonic boom, and the crash in 1973 of a competing Soviet SST. Eventually only British Airways and Air France would purchase the planes (Braniff International also leased two aircraft for a short while) and only 14 ever entered commercial service. After delays due to local protests about the plane's noise, the lucrative transatlantic routes to New York City began in 1977, and Concorde finally became profitable for its operators. In addition to scheduled service it was popular with charter groups and at air shows worldwide.

Concorde's reputation as the world's safest passenger aircraft ended in July 2000 when a tire burst on an Air France flight taking off from Paris. The tire debris punctured a fuel tank, and the resulting fire and engine failure caused a crash which killed all aboard.

The Concorde fleet was grounded for over a year while safety improvements were made, but when service resumed in 2001 it was in the aftermath of the September 11 attack on the United States and passenger numbers were low. With maintenance costs rising, the aircraft was no longer economically viable and in 2003 British Airways and Air France announced the withdrawal of Concorde from service. After a series of farewell flights the surviving aircraft dispersed to museums across Europe and North America for preservation and public display. With the last Concorde landing in November 2003 the age of supersonic passenger flight had ended.

The Model

This model is a 1:144 scale replica of the production version of Concorde. It may be built with landing gear extended or retracted, and with the droop nose in one of four configurations. The model was co-designed by Ralph Currell and Erik te Groen.

Print out the parts document on 8.5"x11" or A4 size white paper card stock suitable to your printer. 67 lb. cover stock (approx. 8.5 thousandths of an inch or 0,2 mm thick) is recommended. The last parts sheet ('G') is only necessary if the landing gear is to be extended.

A word of caution: this model is not suitable for assembly by young children, due to the use of sharp tools and the complexity of some assembly steps. Previous experience with card modeling is strongly recommended. If you have any comments or suggestions regarding this kit, you can contact the designers through their host sites at <http://www.currell.net> (Ralph Currell) or <http://www.ariespapermodels.nl> (Erik te Groen).

Tools

Before beginning, you will need the following tools and materials:

- | | |
|------------------------------|---|
| a) a sharp knife for cutting | e) a scoring tool or blunt knife for creasing the fold lines |
| b) a flat cutting surface | f) a glue applicator such as a small paintbrush |
| c) a ruler or straight edge | (and a small container of water or glue solvent on hand to rinse the brush after use) |
| d) white glue | |

Hints

- a) Select a well-lit, comfortable work area that will remain undisturbed when you are not there.
- b) Keep your hands and tools clean when working, to avoid getting glue on visible parts of the model.
- c) It's easier to stay organized if you only cut out those parts you need for each step.
- d) Make sure your knife is sharp. When cutting straight lines, use a straight-edge.
- e) Study the diagrams carefully, and always test-fit the parts before applying glue.

Assembly

In these instructions, the directional terms are from the pilot's viewpoint facing in the direction of travel. 'Port' and 'starboard' refer to left and right sides respectively. Scoring of parts is indicated by thin black lines outside the part's outline, and by dashed or shaded lines on the part's surface. Score parts *before* cutting them out. In the diagrams, subassemblies are identified by a number within a circle (e.g. ②), corresponding to the step in which it was assembled.

Before beginning, choose whether the landing gear is to be in the raised or lowered position.

The centre and rear fuselage segments are assembled in **steps 1–5**. Each segment comprises an outer surface (the "skin" of the aircraft), a connecting strip and (except for the nose and tail cones) a former to provide strength and maintain the segment's shape. Construct the long centre fuselage segment (**step 1**). If building with landing gear extended, cut away and discard the nose gear doors when cutting out the surface part A2. Glue the connecting strip to the inside of the surface part. It is recommended that these parts be curled in the direction of their final shape before gluing (this will prevent buckling when the combined parts are curved later). The strips have a thin line along the centre, which must be lined up with the respective edges of the surface part. The segment is then rolled so the edges butt together and are held by the connecting strip. For the centre section only, build the two identical former assemblies (**step 2**) and glue the formers inside the fuselage (**step 3**). Note that the formers are not perfectly circular, and the small blue printed arrow on the former must line up with the body seam. Assemble the remaining segments as shown (**steps 4 and 5**), if necessary cutting the tail wheel opening on part C9, and join to the central segment.

Form the front and rear wing spars (**step 6**) and glue into the fuselage holes so that they protrude the same length on each side. Add antenna housings at top of fuselage.

Assemble the port wing internal frame (**step 7**). Slide the frame on and off the fuselage wing spars to ensure it fits without difficulty, then attach to the top wing surface (**step 8**). Note that the outer (small) rib is aligned with the score line on the wing surface. If building with landing gear extended, open the main wheel well in the lower wing surface (**step 9**) and glue the wheel well detail to the inside of the wing. Attach the lower wing to the wing assembly (**step 10**) beginning at the inboard rear edge and working around the outer edges toward the front. Note that the outer end of the wing droops downward somewhat. Use the printed profile as a rough guide to the wing shape.

Assemble the port engine splitter assembly and glue into the housing (**step 11**). Attach the two rear housing formers and bend the rear sides to shape (**step 12**). Note that the bottom corners where the sides bend up have a sharp edge at the front, gradually changing to a round shape at the back. Attach the top surface D20 and the thrust reversers D15.

Attach the engine to the wing (**step 13**) using the printed shape on the wing bottom as a guide. The top rear of the engine should fit snugly in the engine cutout at the rear of the wing. Form the flap actuators and glue to wing bottom using the printed shapes for location.

Build the starboard wing and engine as a mirror image of the port (**step 14**). Glue the wings to the fuselage (**step 15**). Assemble the wheel well fairing as shown (**step 16**) and carefully attach using the gray printed shapes on the wing and fuselage underside as a locating guide.

Assemble the vertical stabilizer internal frame (**step 17**) and glue to the inside of the stabilizer surface (**step 18**). Fold the stabilizer surface over and glue the top and side edges together. Form the rudder actuators and glue to the stabilizer. Add the small vanes D7 to the assembly. Fold the locating piece D13 and attach to the top of the rear fuselage, using the gray printed area as a locating guide. Attach the stabilizer to the fuselage by sliding it onto the locating piece, ensuring the bottom edges touch the fuselage and the stabilizer is vertical.

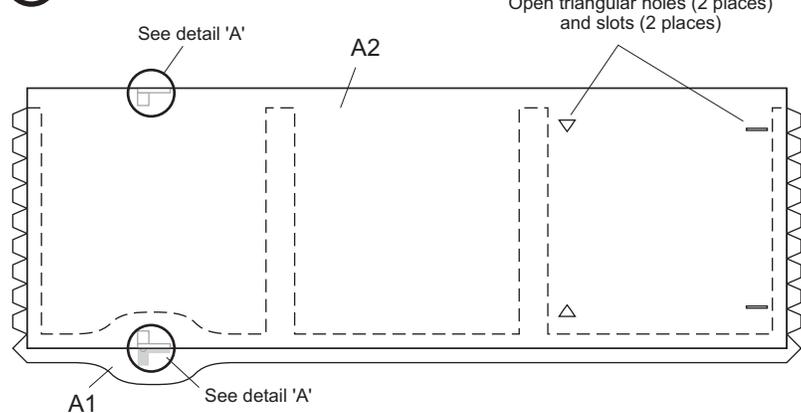
At this stage, decide whether the cockpit visor will be in the 'up' position (typical for parked aircraft or in supersonic flight) or 'down' (used for taxiing, takeoff, landing, and low speed flight). Note that sufficient parts are provided to build one cockpit assembly in each configuration.

Step 19 details the cockpit assembly with visor up. **Steps 20–22** show the assembly with visor down. **Step 22** shows the optional positions for the droop nose.

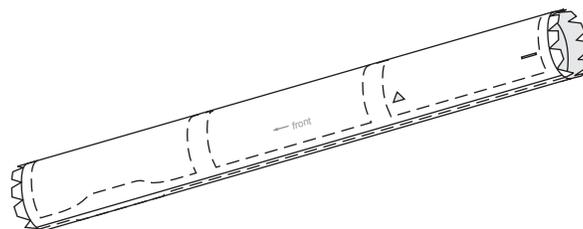
Steps 23–25 are only necessary if you have chosen to build the landing gear extended. It will be helpful to create a temporary cradle for the model so that it rests upside down without damaging the vertical stabilizer (for example two small boxes to support the wings). Assemble the tail wheel as shown in **step 23**. Build the main and nose wheels (**step 24**). Depending on your skill level and preference, you may choose a simple or a more complex nose and main gear. These are shown in **step 25**.

Finally, attach the miscellaneous surface details to the fuselage (**step 24**), using the printed blue marks on the fuselage as locating guides.

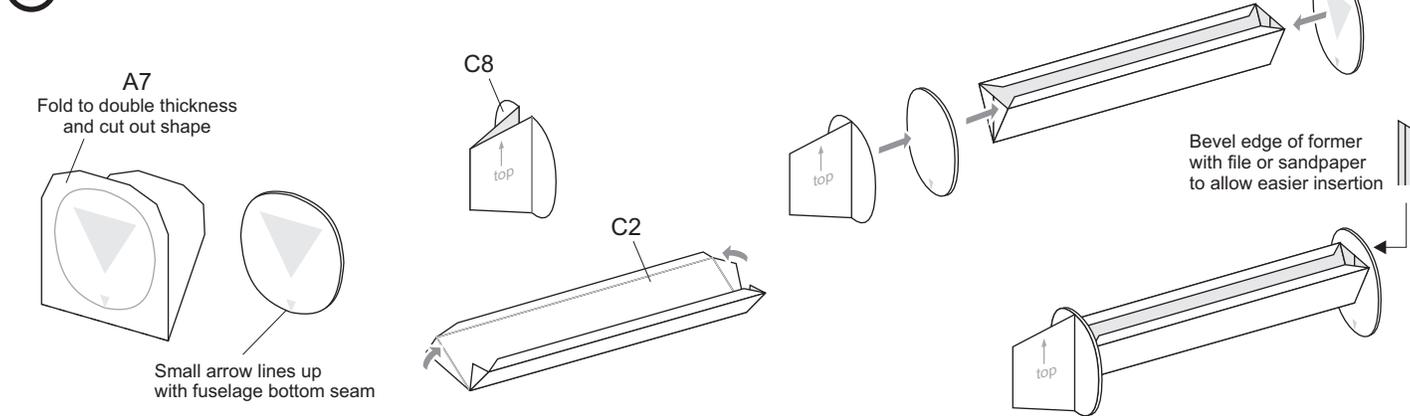
1 Fuselage centre segment



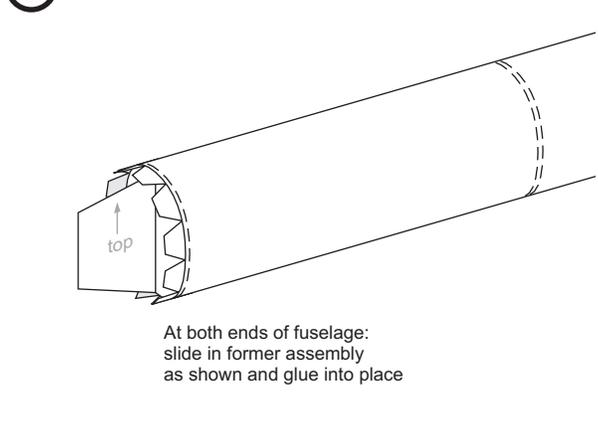
Detail 'A'
If building model with landing gear extended, cut away doors on A2 as shown before gluing to A1.



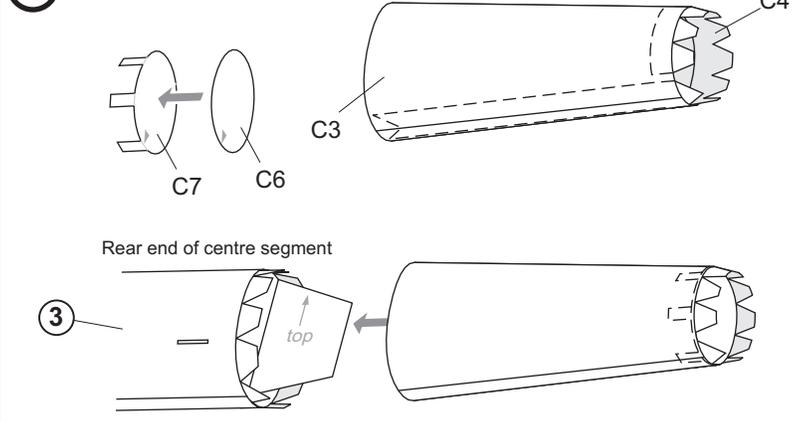
2 Fuselage internal formers (2 assemblies)



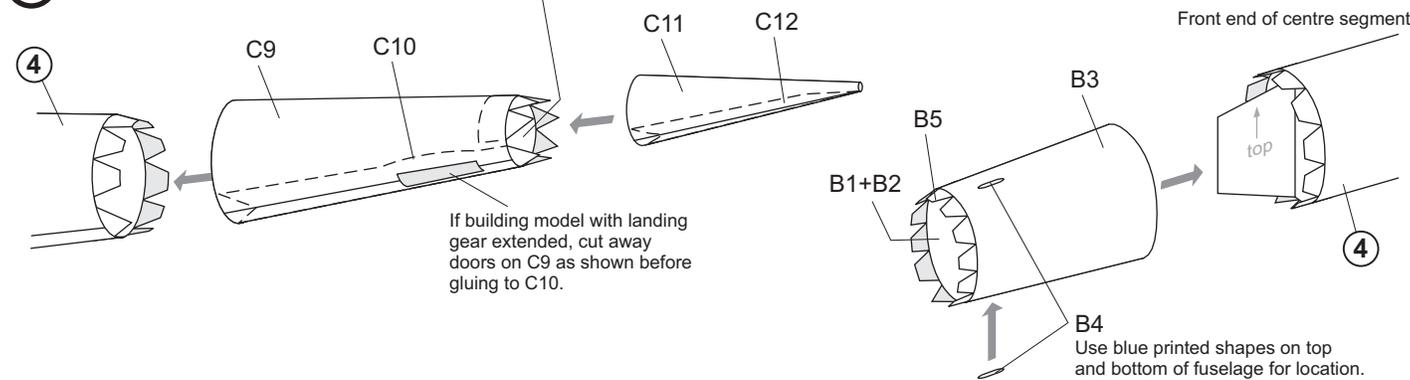
3 Insert fuselage formers



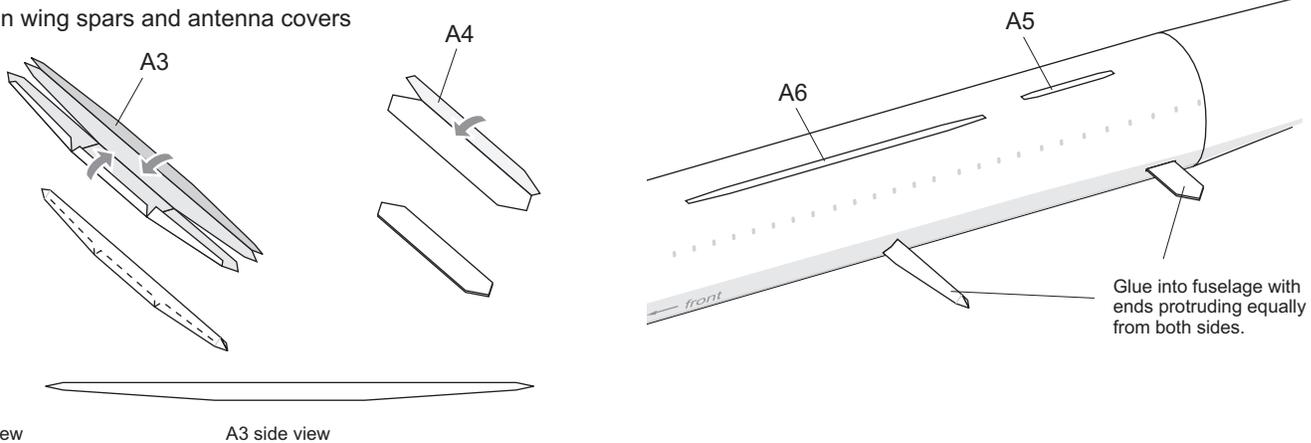
4 Typical fuselage segment



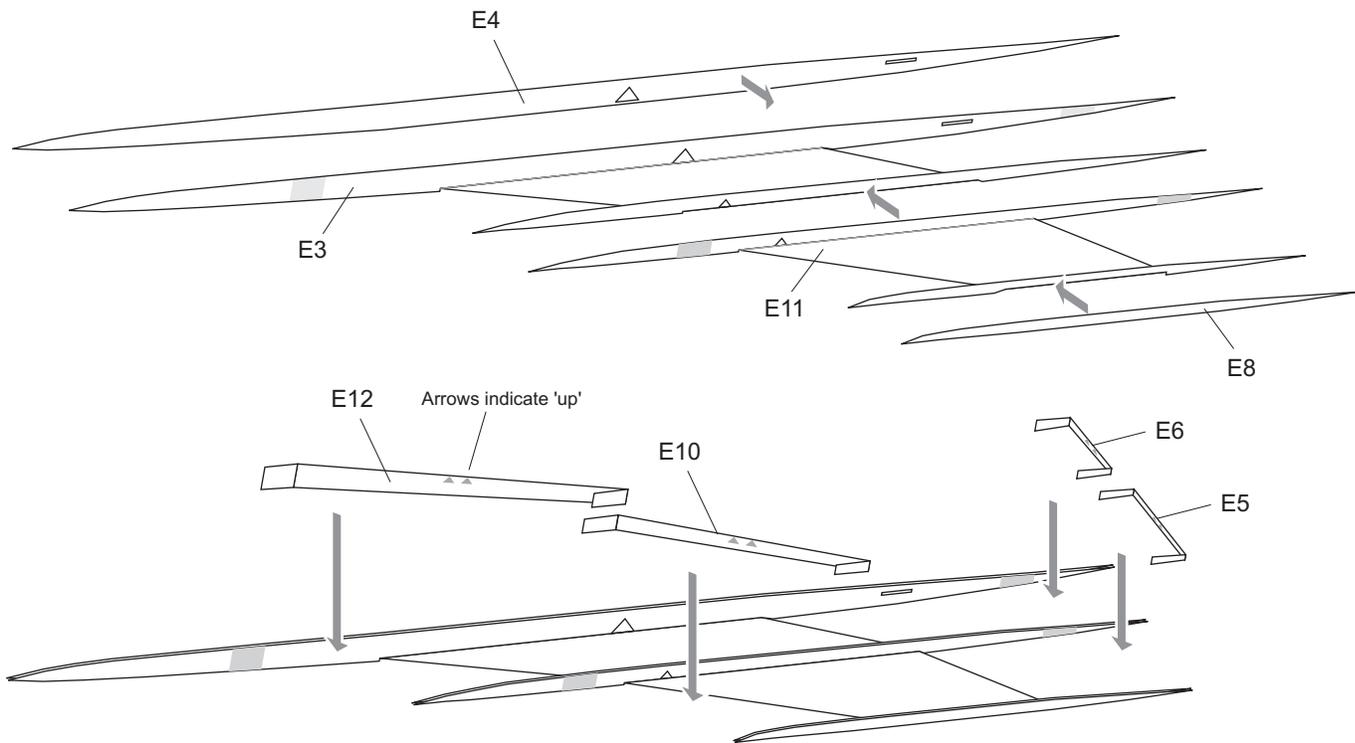
5 Fuselage segments



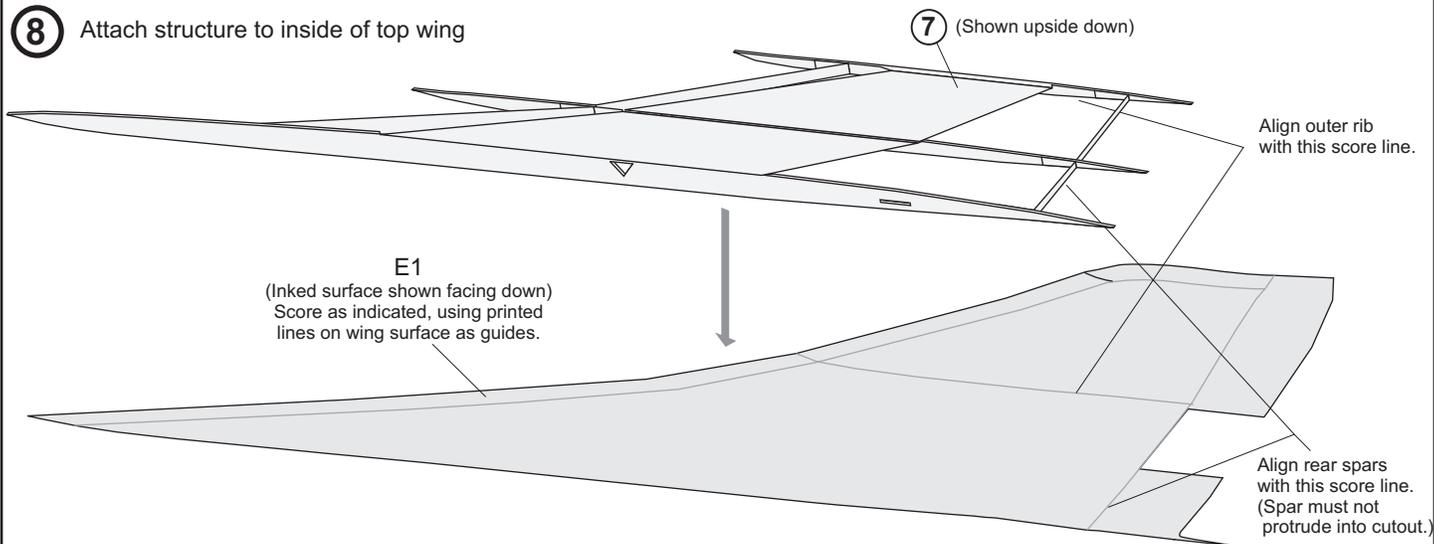
6 Main wing spars and antenna covers



7 Port wing internal structure



8 Attach structure to inside of top wing



9 Optional (landing gear down)
Port wheel well

E2
If building model with landing gear extended, cut open door as shown.

G12
Line up printed image with opening E2.

Score as indicated, using printed lines on wing surface as guides.

10 Attach lower wing surface

E2

8

Begin gluing at inboard rear edge and work around outer edge toward front.

Front view of completed assembly.
Outer wing curves downward as shown.

11 Port engine splitter and housing

D16

D17

D14

Score here only

Fold end tabs to double thickness.

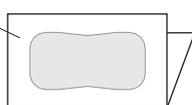
D21

Front of splitter protrudes through slot in bottom of housing. Notch on splitter rests against rear end of the slot.

Fold sides to vertical.

12 Port engine final assembly

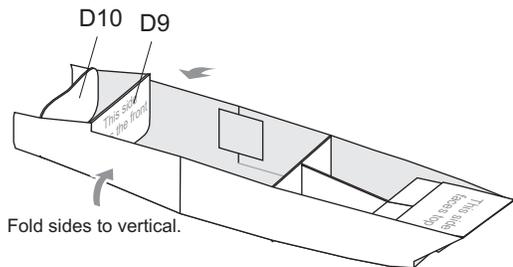
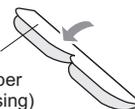
D10
Fold to double thickness then cut out shape



D9
Fold to double thickness then cut out shape

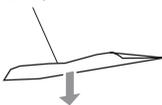


D15
(2 pieces per engine housing)



Fold sides to vertical.

D20

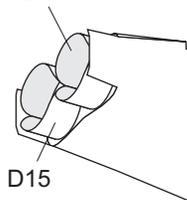


Curve rear housing surfaces to conform to shape of rear bulkhead D10.

Note that bottom rear corners progress from rounded shape to sharp edge.

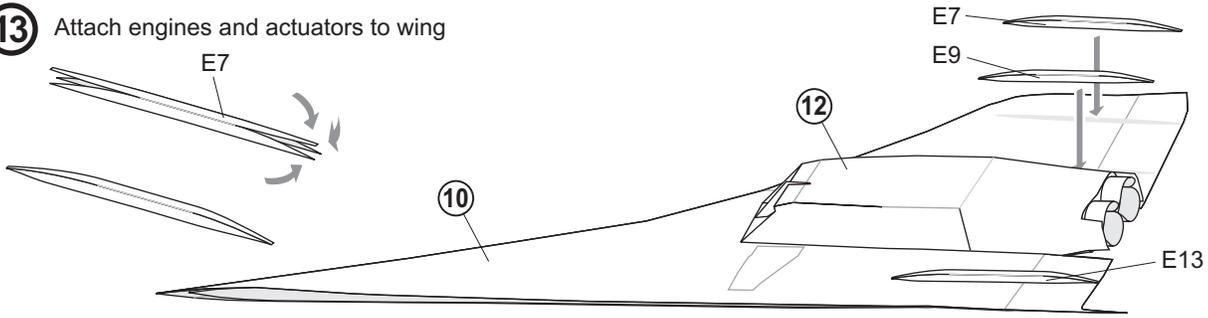
Bend D15 into this shape

D15



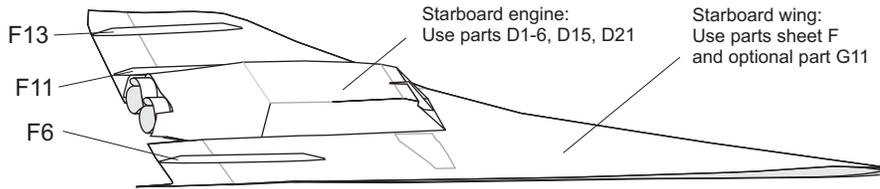
D15

13 Attach engines and actuators to wing

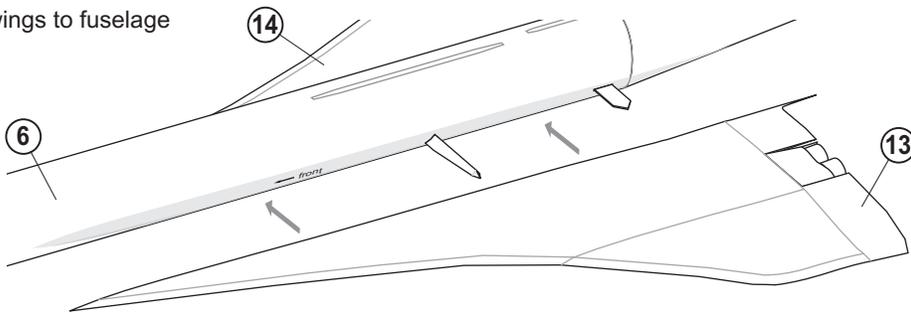


14 Starboard wing assembly

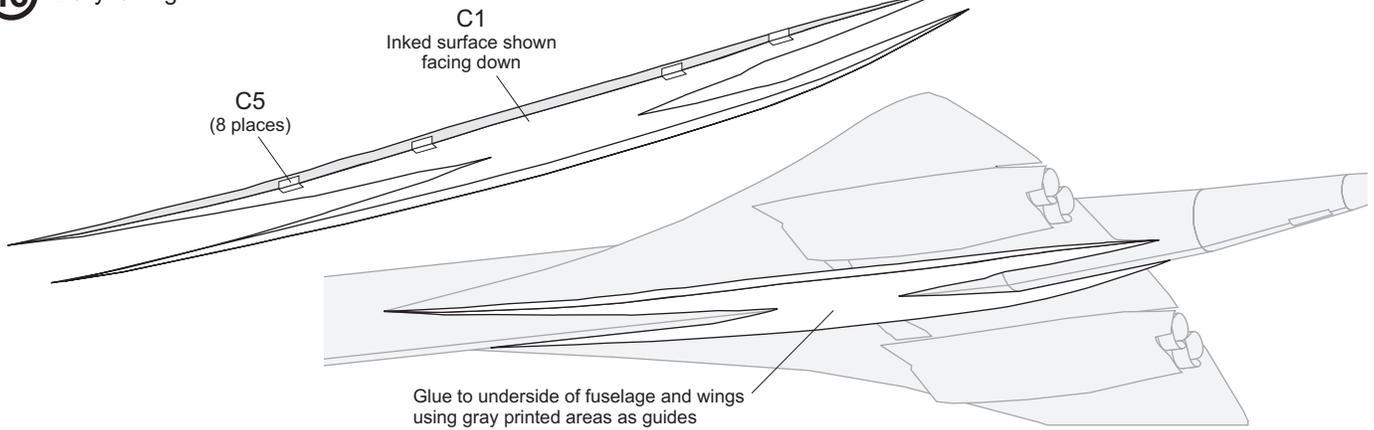
Build as mirror image of port wing as shown in steps 7 through 13.



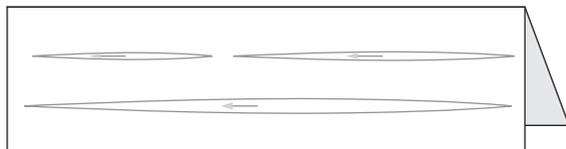
15 Attach wings to fuselage



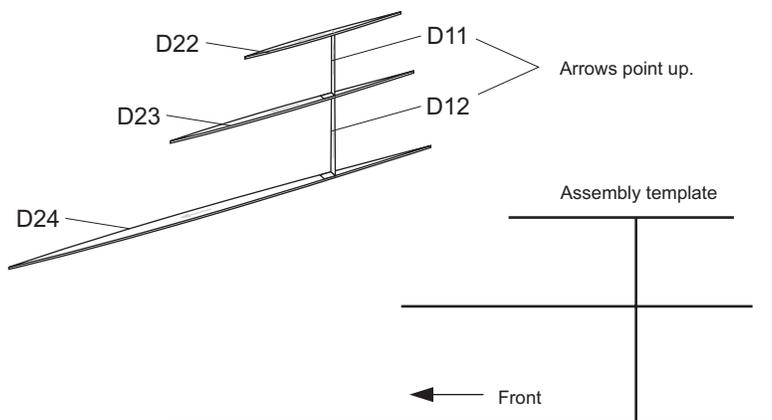
16 Belly fairing



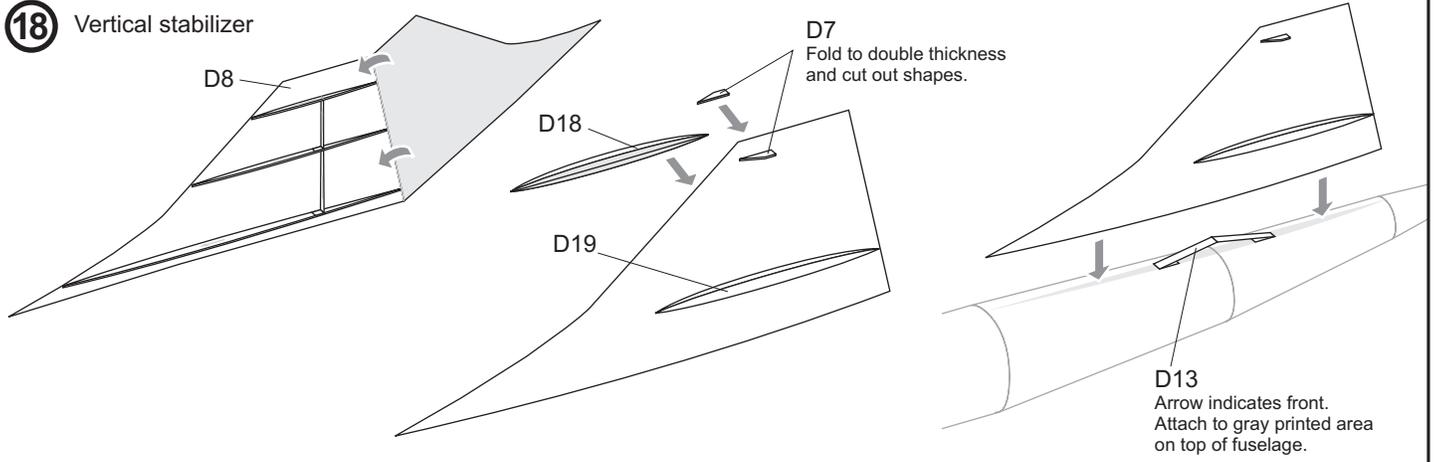
17 Vertical stabilizer internal structure



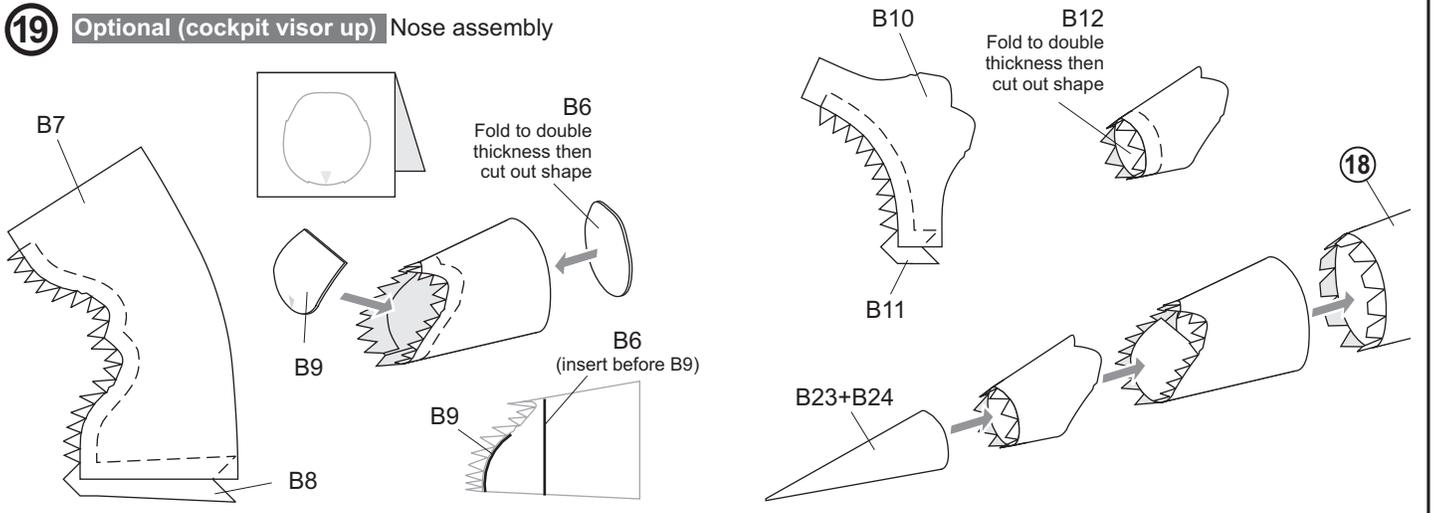
Fold to double thickness and cut out shapes. Arrows indicate front.



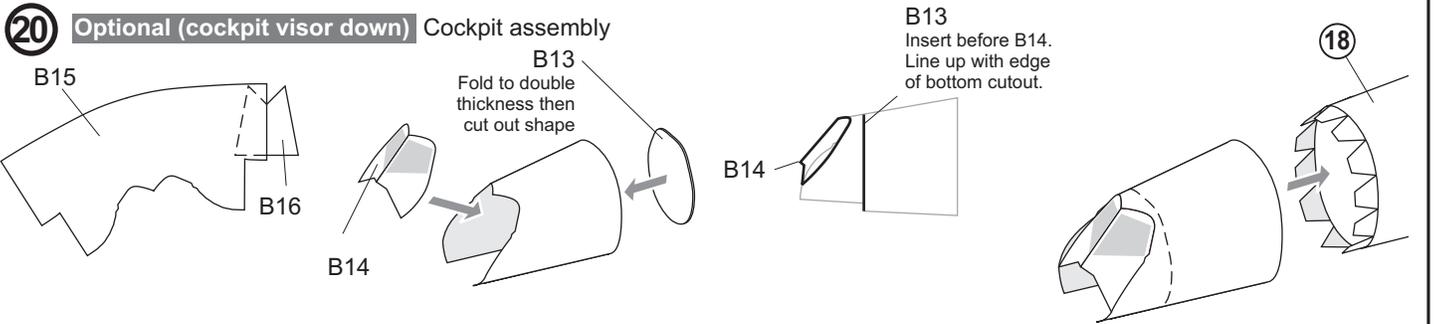
18 Vertical stabilizer



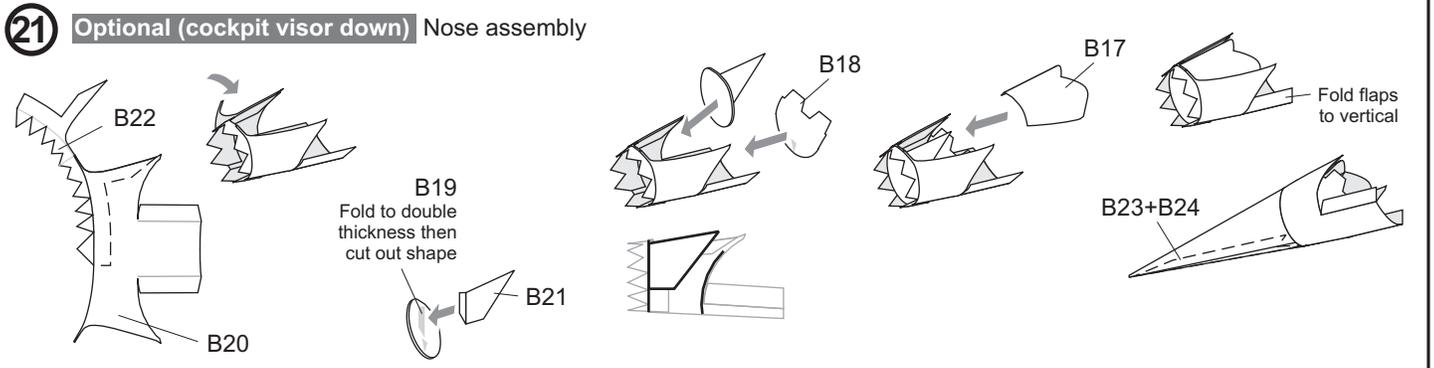
19 Optional (cockpit visor up) Nose assembly



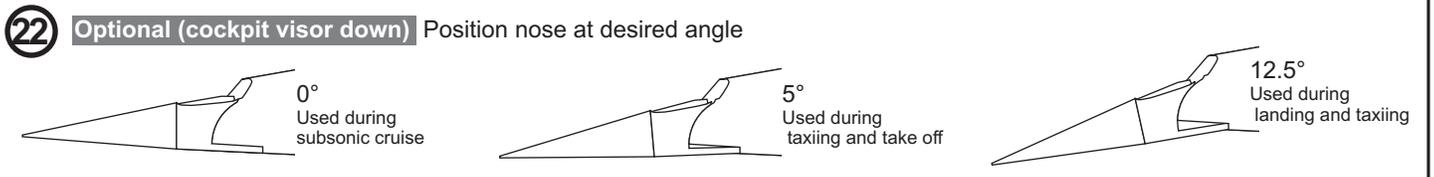
20 Optional (cockpit visor down) Cockpit assembly



21 Optional (cockpit visor down) Nose assembly



22 Optional (cockpit visor down) Position nose at desired angle



23 **Optional** Tail bumper

G18
Fold and glue together at rear, spreading front leaves apart as shown.

G19
Fold to double thickness then cut out shape

G15
Inked side shown facing up

G17
Rear fuselage

G16

24 **Optional** Main wheel (8 assemblies)
Nose wheel (2 assemblies)

G5+G6
Assemble in the same manner as main wheels.

G1
Fold to double thickness then cut out shape.

G2
Wrap around G1. Trim length to fit.

25 **Optional** Landing gear

Simple undercarriage

G4
Fold to double thickness then cut out shape

G20
Fold to shape as shown.

G8
Fold as shown

Nose wheels from step 24.

G20

G13

G14

Front fuselage

G3
Fold to double thickness then cut out shape

Main wheels from step 24.

G7

G9

Underside of starboard wing

G7
Fold to double thickness then cut out shape

Starboard landing gear shown. Assemble port as mirror image of starboard (parts are identical except for starboard landing gear door G10).

Complex undercarriage

G24
Overlap and glue to blue printed strip.

Fold to shape as shown.

G21

Nose wheels from step 24.

G26

G25*

Front fuselage

G20

G13

G14

G22

G27
Overlap and glue to blue printed strip.

G30*

G27

G31

G29*

Underside of starboard wing

G23
Fold to shape as shown.

Main wheels from step 24.

G33

Assemble port landing gear as mirror image of starboard. Parts are identical except where indicated.

G28

G32

G10

* For struts G25, G29 and G30 it may be helpful to print onto thinner paper before rolling into shape. Alternately, delaminate (reduce the paper thickness) using a hobby knife.

26 **Surface details**
(attach to blue marks printed on fuselage)

A10
Top of fuselage

A8 + A9

A11
Protrude from fuselage

A8

A9
Forms 'T' shape with A8

B25

B26

C15
Protrude from fuselage