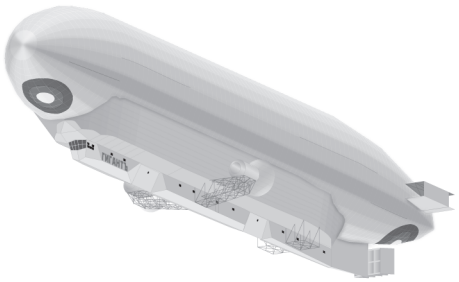
CURRELL GRAPHICS

Assembly Instructions for *Giant*



The *Giant* Airship and early Russian aviation

by Sergey Vlasenko

At the end of 19th century Russia had no airship industry. The main reasons for this were the technical backwardness of the country and the lack government interest in the work of Russian specialists in this field. During these times Lieutenant-General A.M. Kovanko played great role in the organization of Russian aeronautics. In 1885 he was appointed as Chief of Military Aviation and in 1889 he went to learn air navigation in France and Belgium, and also to order a hot air balloon for trials.

During the Russian-Japanese war (1904-1905) Kovanko made requests for the construction and use of airships. The Central Engineering Command reported to the Secretary of War about their importance during military operations, but the government was slow to realize how far behind Russia was compared with other European countries. In 1907 the first aerostat named *Uchebniy* was built by Captain A.I. Shabskiy, and the first Russian airship design centre was formed. Their work progressed and by 1916 Russia had built or purchased 20 airships of the non-rigid and semi-rigid type.

The biggest was a semi-rigid design called *Giant*. It was begun in 1912 by the Baltiysky works (which also constructed battleships for the Navy) under the direction of General Kovanko and Captain Shabskiy, assisted by engineer P.N. Syromyatnikov. The proposed airship had a length of 114 m, diameter of 17 m, and four engines of 215 horsepower each, which could provide speed of 58 km/h. The planned operating ceiling was 2500 m, with a 9000 kg payload and an endurance of 20 hours. The ship was assembled in a large shed in Salizi near Petrograd (St. Petersburg). The intended completion date of spring 1914 was delayed for almost a year. The number of engines was reduced to two which were placed in the middle of the airship, a change which was to have serious consequences.

The first (and as it transpired, last) flight of *Giant* took place on February 10, 1915. After half an hour aloft the airship sagged in the centre, weighed down by the engines. One of the propellers hit a wire brace and the airship, having split asunder, gently dropped into the forest. There were no injuries.

By the end of 1915 the ship had been rebuilt, but flight was continually postponed due to the reluctance of the military authorities in supplying hydrogen for refilling the envelope. By now *Giant* had been surpassed by lighter-than-air craft from other countries, and the success of Sikorsky's *Ilya Muromets* four-engined aeroplane made airships largely obsolete. The *Giant* was scrapped in 1916.

The Model

This model builds into a 1:350 scale replica of *Giant*. 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 recommended. If you have any comments or suggestions regarding this kit, I can be reached by e-mail at models@currell.net . I wish to thank Sergey Vlasenko for his assistance with the history and reference drawings.

Model parts are contained in the document **giant_parts.pdf**. Print out the parts document on 8.5"x11" or A4 size white card stock suitable to your printer. 67 lb. cover stock (approximately 8.5 thousandths of an inch or 0,2 mm thick) is recommended.

Tools

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

a) white glue
b) a glue applicator such as wooden toothpicks or a small paintbrush
c) scissors (optional)
d) a sharp knife for cutting
e) a flat cutting surface
f) a ruler or straight edge
g) a scoring tool or blunt knife for creasing the fold lines

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. Scissors, if used carefully, can be used for large curved parts.
e) Study the diagrams carefully, and always test-fit the parts before applying glue.
f) You may wish to colour the edges of the parts to make seams less visible. Pencil crayon or paint applied with a fine brush can be used (experiment on scrap pieces to see what works best).

Assembly

In these instructions, the directional terms are given assuming the model is horizontal (fins at back). 'Port' and 'starboard' refer to left and right sides respectively of the airship when upright. Scoring of parts is indicated by thin black lines outside the part's outline or by dashed or coloured 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.

Assemble the body segments (**steps 1–5**). Each segment comprises an outer surface (the 'skin' of the airship), a connecting strip and (except for the nose and tail segments) a circular former to provide strength and maintain the segment's shape. To construct a typical segment (as shown in **step 1**) 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. The internal former is made of two pieces which are glued back-to-back. The former is glued inside the assembly, as close to the narrow end as necessary to achieve a snug fit. When joining the completed sections to each other, ensure the longitudinal seams line up. Note that the centre section has three slots along the bottom seam that must be opened.

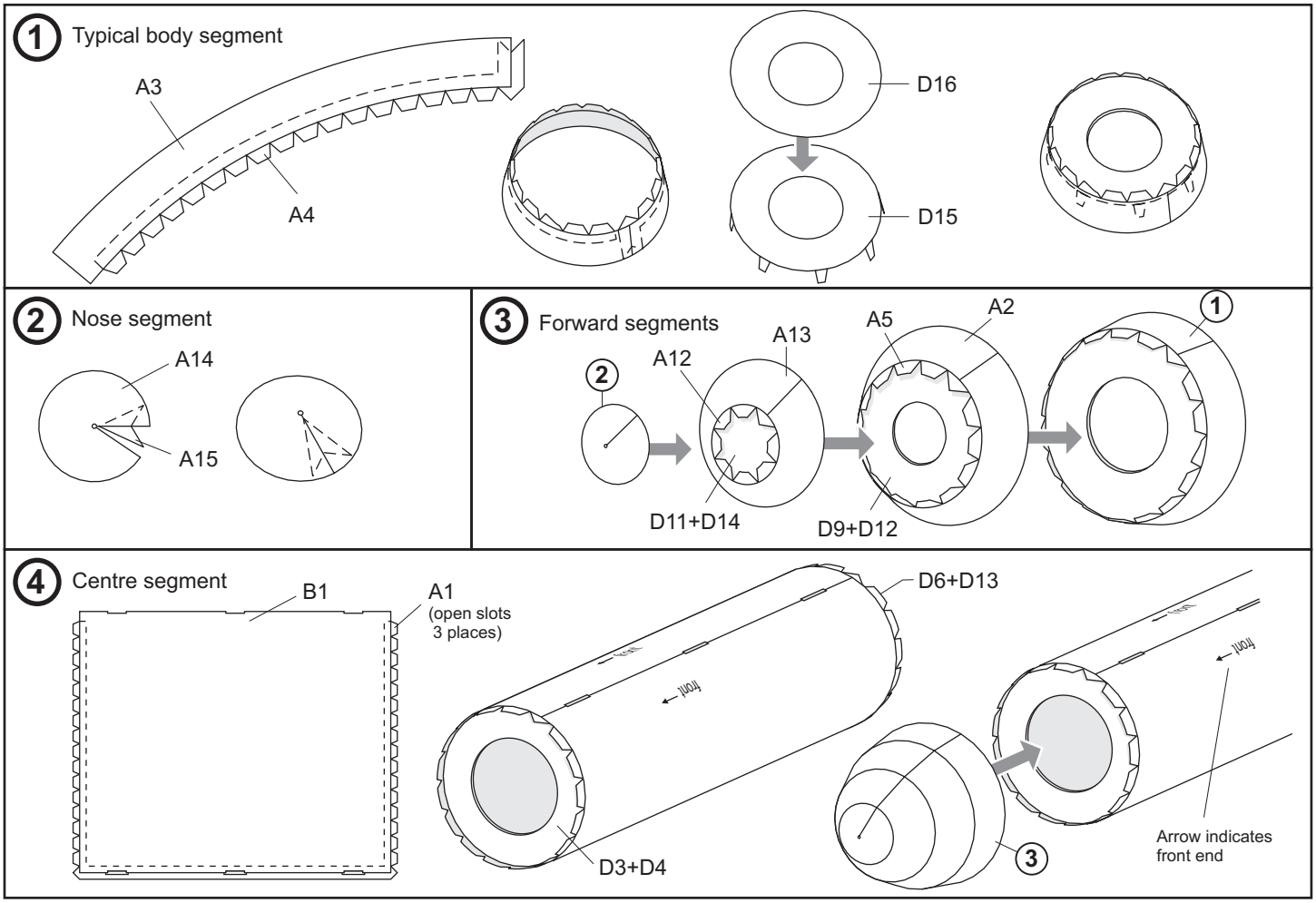
Fold the keel support C3 to shape (**step 6)** and glue into the three slots in the bottom of the airship body. Construct the bottom structure as shown (**step 7**), joining the seams using the internal connecting strips. The final shape of this assembly should correspond to the shaded area on the bottom of the airship body. Attach to the bottom of the airship (**step 8**).

Assemble the display stand (**step 9**). This will allow you to set the airship down without damaging the smaller assemblies added in the following steps. Assemble the three keel sections (**step 10**) and attach to the shaded areas on the bottom structure (**step 11**). Insert pieces C10 and C14 between the keel sections, trimming if necessary to achieve a snug fit.

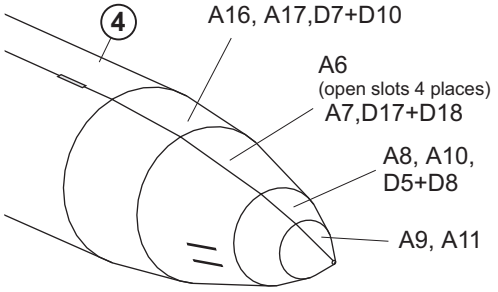
Assemble the rudder support and attach to the bottom rear of the ship (**step 12**). Because the body seams can become slightly distorted during assembly it may be necessary to trim the top edge of this support to obtain a close fit. Fold the horizontal stabilizers to shape (**step 13**) and glue into the locating slots at the rear of the airship.

Assemble the engine truss (**step 14**) and attach to the printed marks on the centre keel section, with the printed arrows facing the front. Assemble the starboard engine (**step 15**) and attach to the top of the engine truss with the propellers at the rear. Assemble and attach the port engine.

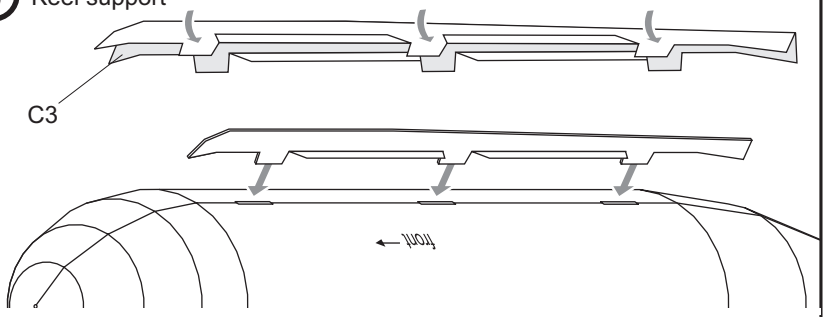
Fold the rudder pieces to shape (**step 16**) and glue the narrow piece into the wide one. Slide the assembly over the slot in the rudder support, such that all five rudders are side-by-side and parallel.



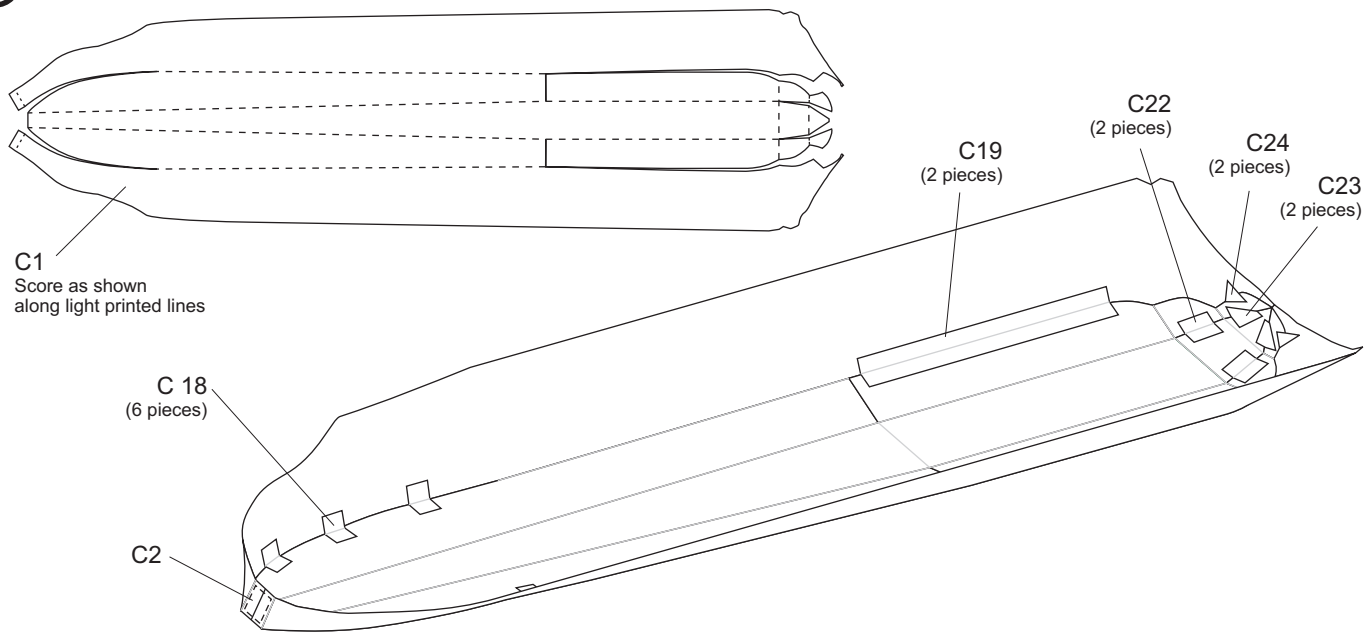
5 Rear segments



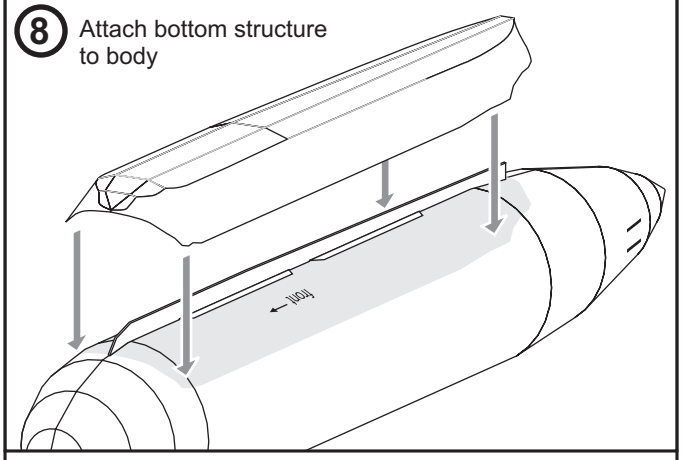
6 Keel support



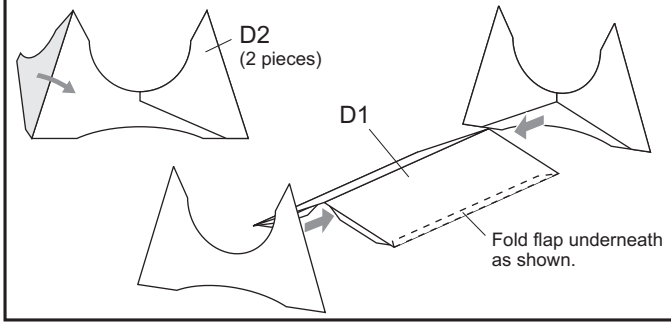
7 Bottom structure



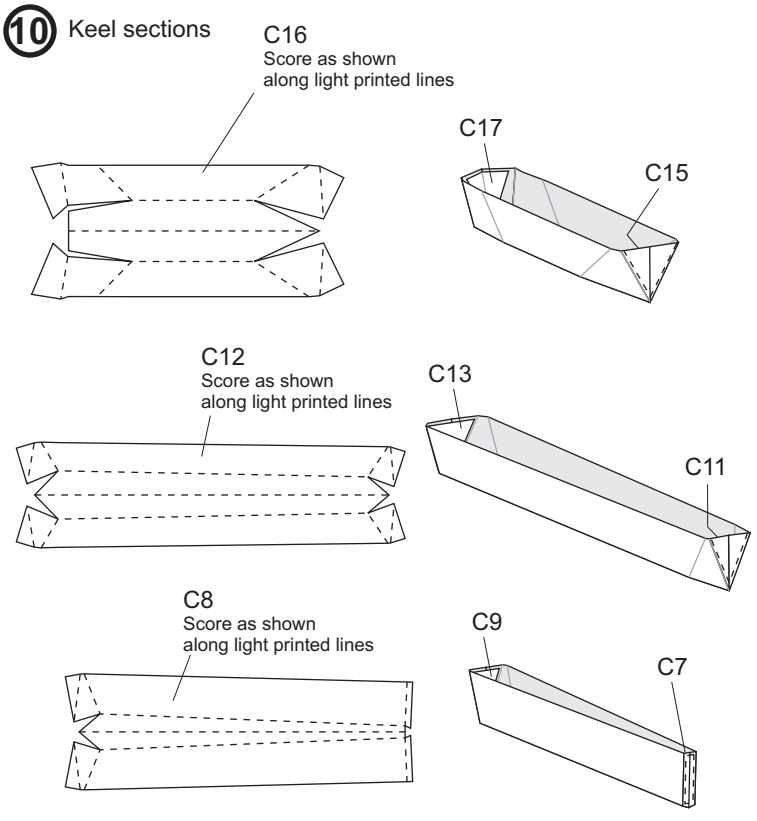
8 Attach bottom structure to body



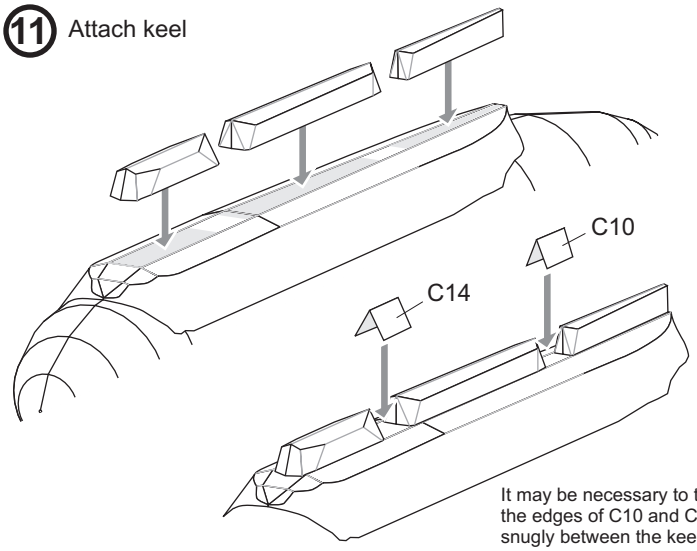
9 Display stand



10 Keel sections

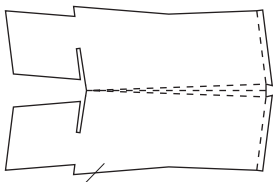


11 Attach keel



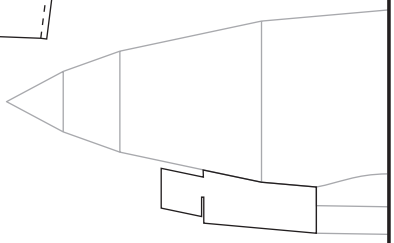
It may be necessary to trim the edges of C10 and C14 to fit snugly between the keel sections.

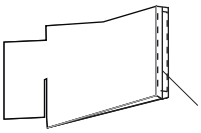
12 Rudder support



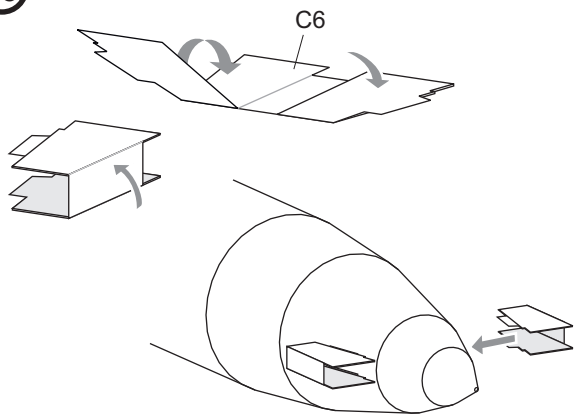
It may be necessary to trim the top edge of C7 to obtain a close fit against the airship envelope.

C4
Score as shown along light printed lines

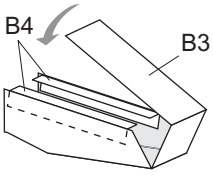


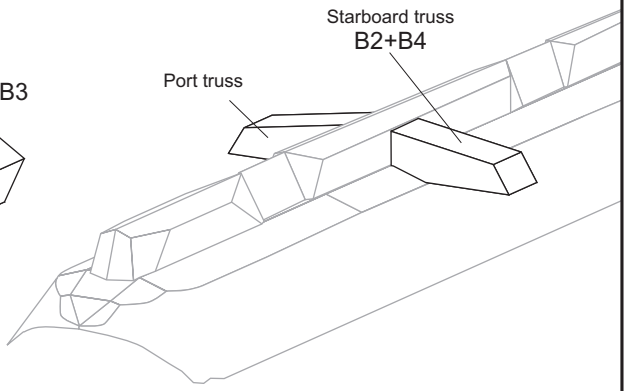


13 Horizontal stabilizer (2 pieces)



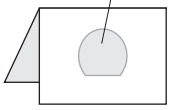
14 Engine trusses

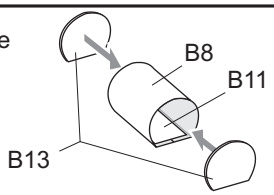


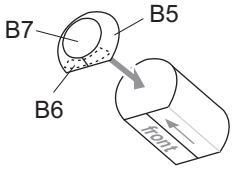


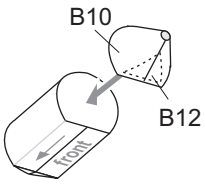
15 Starboard engine

B13
Fold to double thickness.
2 pieces per engine.

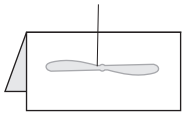




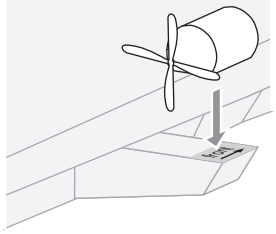




B14
Fold to double thickness.
2 pieces per engine.

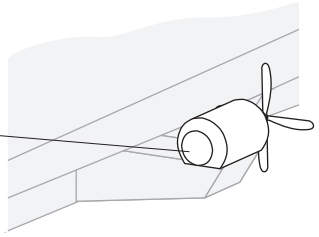




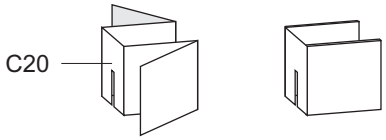


Attach to engine truss with propellers facing rear.

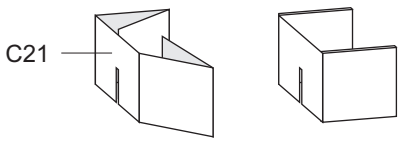
Port engine, identical to starboard except use part B9 instead of B8.

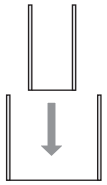


16 Rudder assembly

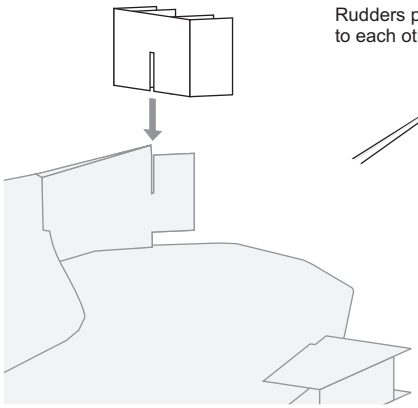


Fold rudders to double thickness as shown.





Glue C20 into C21, lining up cutout slots.



Rudders parallel to each other.

