

Instructions

1. **Upper hull.** Score along black lines. Assemble top half first, gluing sides to fore and aft portions. Allow to dry. Fold up tabs on bottom portion. Fold over top half and glue to bottom (like closing a clamshell). Make sure bottom portion does not warp by maintaining pressure until glue is dry.
2. **Lower hull.** Score along black lines. Fold over all tabs. It is easiest to begin gluing at the forward section. Wrap the bottom around the windows, allowing it to dry before continuing. The bottom hull has a rectangular cross-section, and is essentially a glorified box.
3. **Upper hatch.** Score tabs and fold lines. The long spiral piece wraps around the outside edge, forming a six-sided cone. It is easiest to glue the tabs to the upper part of the hatch, then fold the bottom of the hatch in. Allow to dry.
4. **Fins** (optional). Select either a large or small fin for the aft section. Carefully score the tabs on the reverse side. The tab for the aft of the submarine may be omitted, as the fin is intended to represent a rudder. The fin may not be as strong, however.
5. **Light mount.** Score tabs. Fold and glue into a box shape with two slanting sides.
6. **Lights.** Score, fold and glue lights into a box shape with one sloping side.
7. **MHD drives.** The port and starboard MHD drives are mirror images of one another. Assemble by folding the sides together to form a tube, then fold the front and aft sections to complete the shape.
8. **Thruster mount.** This piece folds into a wedge shaped box. As with the **MHD drives**, it is easiest to form a tube, then fit the smaller end pieces in to form the correct shape.
9. **Thruster units.** There are 3 separate thruster units. Score and fold each of the tabs. Begin by folding up one end and slowly gluing the tabs to form a cylinder. Glue on long edge, then fold over remaining end to complete. Set aside to dry.
10. **Base.** The base is assembled in the same manner as the upper hatch.
11. **Shaft.** The shaft folds together to form a box with one sloping side. As with the MHD drives, fold together to form a tube, then fold the end pieces over to complete the shape.
12. Glue the lower hull to the upper hull, making sure that the forward sections are aligned and that the lower hull is correctly centred.
13. Glue port and starboard MHD drives to both the lower and upper hulls, using the hull marks as a reference.
14. Glue thruster mount to aft section of upper hull. The mount does not need to be flush -- the mount acts as a backup dive plane.
15. Glue the three assembled thrusters to the thruster mount. The silver/grey section points aft, but that's purely an aesthetic choice. The thrusters may be pointed in any direction desired, as they control the XY coordinates of the submersible.
16. Cement the lights to the light bar using the sloped edge of the light. Each light may be rotated to any desired angle.
17. Glue the completed light bar to the forward section of the lower hull.
18. Attach the fin to the aft section of the upper hull, making sure it is centred.
19. Glue the shaft to the centre of the base. Use lots of glue and set aside until completely dry, or the model will fall off the base.
20. Glue the completed model to the base, using lots of glue. The sloped top of the shaft allows the model to be rotated to display the top or bottom, as desired.

Assembly Tips

If you have printed this file directly onto cardstock, spray the paper with Testor's Dullcote or an artist's fixative, as most inkjet glue is water soluble.

If you plan to make multiple submarines, print out one copy and colour photocopy it. Glue the colour copies to cardstock with 3M Photomount spray glue.

Score along the fold lines before cutting out the model. It will save time and be more accurate.

Test fit all the parts before gluing. Even though this model has been thoroughly tested, various paper types may cause slight discrepancies.

If you don't want the model to be permanently attached to the base, use a fabric snap on the top of the shaft. Glue the other half of the shaft to the bottom of the sub. This will allow you to rotate the model on the base and remove it completely if desired. Make sure the glue is completely dry on both halves before snapping and unsnapping the model.



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Upper hull



