

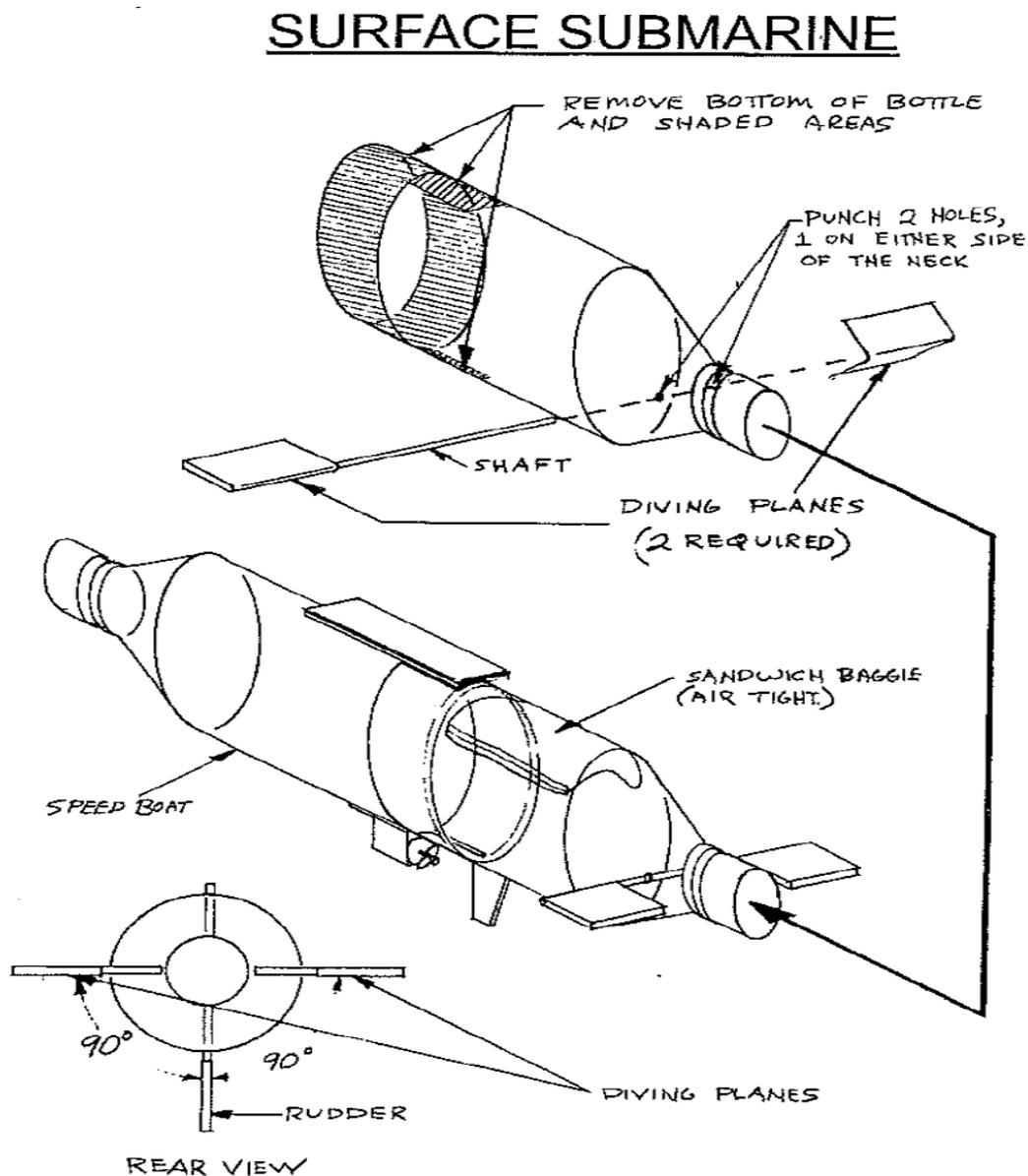
## Surface Submarine Assembly

### Material List:

- Assembled speed boat
- Bottle #3 (1 same size & shape bottle as the speed boat) is used attach to rear end of speed boat and hold diving plane.

**Notes: To avoid troubleshooting later...** Try different bottles to see which will slide onto each other the best. Some bottles will slide on with ease.

**Assembly Instructions:** Refer to diagram below



## **Assembly Instructions of Surface Submarine:**

1. Take Bottle #3 and cut the bottom off.
2. Place the remaining bottle onto the rear of the speed boat to determine where the slots will need to be cut to accommodate the rudder shaft and solar array.
3. These areas need to be removed so that this bottle will slide partially onto the rear of the speed. (See the SHADED areas of the diagram)
4. Using the second shaft provided in the kit and material from Bottle #2 of the speed boat or another bottle if no material is left, make the 2 horizontal diving planes as shown. These planes are constructed in the same manner as the rudder of the speed boat. (cut a 2" x 2" square and fold in half).
5. Punch 2 holes, one on either side of the neck of the bottle. Make sure these are perpendicular to the rudder shaft.
6. Run the shaft through these 2 holes.
7. Fasten the diving planes onto both ends of the shaft. It is important to keep the diving planes square to the rudder as illustrated in the rear view.
8. Slide the entire assembly onto the rear of Bottle #1 until it touches the motor mount or comes close to it. If it is too loose, secure with electrical tape.

### **With Submarine Assembled:**

1. Place into water and remove the cap from Bottle #1 to partially fill with water and submerge the vessel.
2. Secure the cap onto the Bottle #1 making sure some air remains to maintain buoyancy.
3. The zipper seal baggie should be used to give the rear section of the sub some buoyancy. (Experiment with different volumes of air and water to achieve the proper balance of the vessel.
4. You are now ready to be a submariner!

Reference: [www.SolarMade.com](http://www.SolarMade.com)

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