

1-Q & Tandem Solar Car Body Shell Construction Guide

Materials

- 1-Q or Tandem model solar car kit
- Top & base body shell templates (downloaded and printed on A4 sheets)
- Coated board (Use an old cereal box)
- Spray adhesive or stick-type glue (liquid glue distorts the cardboard)



Design Reg. No. 3019063, 3019064, 3019065
COMPLETE BODY

A. Printing Instructions

- I. Download the car body shell templates from the website.
 - a. Click **Downloads** on the home page of www.pluggingintothesun.org.uk
 - b. A pop up box will appear. Enter the password **bodyshop** and press **GO**.
 - c. Select and save the templates to your computer.
- II. Open the files in Adobe Reader.
- III. In the **File** menu, choose **Print**
 - a. Ensure **Page Scaling** is set to **None**
 - b. Choose the correct printer
 - c. Press **OK**

B. Check Measurements of Body Shell Templates

- I. **Top** Template
 - a. From **front edge** to **back edge** – 20.3 cm
 - b. Across **front edge** – 5.1 cm
 - c. Across **back edge** – 5.6 cm
- II. **Base** Template
 - a. From **front** to **back** – 9.4 cm
 - b. Across the **outer points** of the **front edges** – 9.7 cm

C. Preparation

- I. Build the car before starting to build & design the body shell.
- II. Before designing the body shell (step D), we suggest you construct one blank body shell (steps E – G) to check how your design will fit on the finished body shell & how the body shell will fit on the car.

D. Design

- I. Use your two printed blank templates to design graphics either using graphic design software e.g. Photoshop, Corel Draw, MS Paint (download the Photoshop guide from our website as described above) or by hand.
- II. After constructing the entire body shell from the top and base templates, notice how the templates fold into each other. Make sure any text or numbers are visible when the body shell is folded, and what parts of the body shell will be covered by the PV cell and wheels (remember, most of the top will be hidden!) Be aware of which direction the panels will face. Make your design symmetrical.

E. Glueing & Cutting

- I. Carefully cut along the dotted lines of the top and base templates.
- II. Cut out **hole 1** only of the top template.
- III. Place the cut out templates on the GREY/ROUGH side of the cereal box and draw an outline of the templates.
- IV. Place glue in the outlined areas (read the note first----->)
- V. Carefully stick the cut-out templates onto the glued area.
- VI. Cut out the top & base body shells along the outline of the templates.

IMPORTANT!!!
 The wing consists of an inner and an outer part. The outer part folds under the inner part. In step VI, cut the cardboard along the centre line of the wing, then glue the outer part to the underside of the inner part.

F. Scoring & Folding

SCORING
 Scoring makes the card easier to fold. To score, first place a ruler along the line. Run a dull blade or scissor blade end once along the line without cutting through. **Take care to not tear the sheet.**

I. TOP

- a. The top template has seven solid lines labelled **score & fold**. Score the four lines of the wing on the coloured underside side of the cardboard, and score the other three lines on the paper side.
- b. On the inner line of the wing (between the short wing folds) is a dotted line marked **cut slot**. Cut through the slot only on the dotted line, making sure you stop at the solid lines. Ideally, use a Stanley type knife for this cut. **FOR**

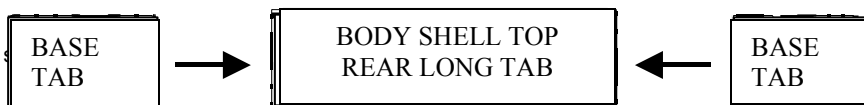
SAFETY REASONS YOU MUST HAVE SUPPORT FROM YOUR TEACHER OR ANOTHER ADULT.

II. BASE

- a. The base template has six solid lines labelled **score & fold**. Score these on the paper side and fold.
- b. Score & fold the locking flaps.

G. Body Shell Construction

- I. Join together the top & base body shell sections by placing the rounded locking flaps A & B on the base through the slots marked A & B on the top.
- II. Slide the top & base until the rear right and left tabs of the base are aligned with the rear long tab of the top.
- III. Using glue and tape, secure the base locking flaps to the body shell top and the rear left and right base tabs to the rear long tab of the top section.



H. Car & Body Shell Assembly

- I. Remove the front and rear wheel assemblies from the PV cell. Place the PV cell **on top of** the body shell, lining up the velcro tabs with the holes in the top body shell section.
- II. Re-attach the front and rear wheel assemblies to the PV cell.
- III. Ensure there is no friction between the wheels and the body shell. It may be necessary to adjust the wheels.