2-Q Solar Car Body Shell Construction Guide

Materials

- 2-Q 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) OR Self-Adhesive A4.

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

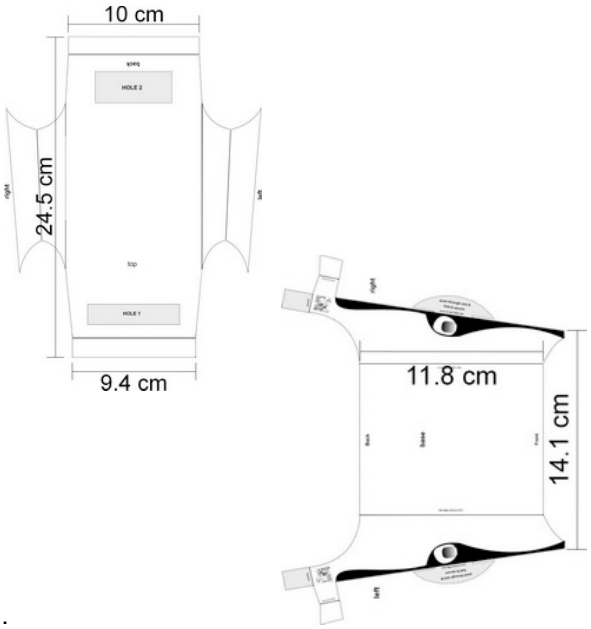
A. Printing Instructions

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** – 24.5 cm
   b. Across **front edge** – 9.4 cm
   c. Across **back edge** – 10 cm

II. **Base** Template
   a. From **front** to **back** – 11.8cm
   b. Across the **outer points** of the **front edges** – 14.1 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. OPITON: print design onto self-adhesive A4 and follow - E. Gluing & Cutting page 2 BUT **omit step IV & V.**

III. 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 PV cell and wheels (most of the top will be hidden!). Ensure your design is symmetrical.

E. Gluing & Cutting

I. Carefully cut along the dotted lines of the top and base templates.

II. Cut out **hole 1** and **hole 2** of the top template. **You may need to increase length and width of hole** depending on where Velcro is placed on PV cell.

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.

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 paper.**

I. TOP

a. The top template has six solid lines labelled **score**. Score on the paper 2 long lines at front and back marked **THIS side** and **FOLD DOWN**. Score the 4 short lines marked **OTHER side** on the coloured side of the cardboard.

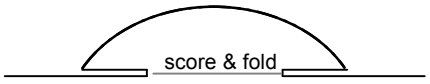
b. On the inner line of the inner wing (between the short wing folds) is a dotted line marked **CUT SLOT**. Cut through the slot on the dotted line, making sure you stop at the solid lines. Ideally, use a Stanley type knife for this cut. **FOR SAFETY REASONS YOU MUST HAVE SUPPORT FROM YOUR TEACHER OR ANOTHER ADULT.**

II. BASE

a. The base template has eight solid lines labelled **score & fold**. Score these on the paper side and fold.

b. NOTE: The body shell is designed to fit the 120mm axle/50mm wheel assembly. You may need to trim the BACK BASE EDGE about 1 cm to accommodate a 40mm axle/40mm wheel assembly.

G. Body Shell Construction

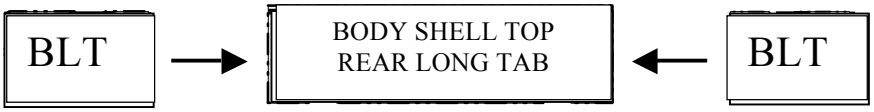


I. Join together the top & base body shell sections by placing the rounded locking flaps A & B of the base through the slots marked A & B on the top.

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 an adhesive or double sided tape, secure the two rear **base locking tabs [BLT]** to the underside on either side of the **rear long tab** of the body shell top.

IV. Score, fold and glue together the right and left wing tabs.



H. Car & Body Shell Assembly

I. Remove the front and rear wheel assemblies from the PV cell.

II. Place the PV cell **ON TOP** of the body shell, lining up the Velcro tabs with the holes in the top body shell section.

III. Slide the back edge of hole 2 under the pinch terminals.

IV. Re-attach the front wheel assembly to the PV cell.

V. Re-attach the rear wheel assembly and wires to the PV cell. You may need to cut off 1cm across the back edge of the base when using the rear assembly with the 40mm axle and two 40mm wheels.

VI. Ensure there is **NO FRICTION** between the wheels and the body shell. It may be necessary to adjust the wheels.