

DeathWish Engineering DIY Wing Design

Use at own risk, survival not guaranteed.

DESIGNS

Mk1/Mk2:

Overall width: 380 mm
Overall Length: 530 mm
Corner radius: 130 mm
Center Panel width: 70 mm
Center Panel Length: 230 mm
Side Panel Width: 120 mm

Center panel centered on main panel

Mk3:

Overall width: 320 mm
Overall Length: 550 mm
Lower corner radius: 130 mm
Upper corner radius: Freehand to an apex
Center panel width: 55 mm
Center panel length: 320 mm
Side panel width: 120 mm

Bottom of center panel is 130 mm up from bottom of main panel

Mk4:

Overall width: 390 mm
Overall Length: 620 mm
Lower corner radius: 130 mm
Upper corner radius: Freehand to an apex
Center panel width: 60 mm
Center panel length: 320 mm
Side panel width: 120 mm

Center panel is 180 mm up from bottom of main panel

BILL OF MATERIALS

Bladder flanges (2 ea) 3d printed or DiveGearExpress \$9.00 ea

[DGX Bladder Flange Assembly | Dive Gear Express®](#)

Over Pressure/Dump Valve (1 ea) 3d printed or DGX \$5.00

[DGX BC Overpressure Relief and Dump Valve | Dive Gear Express®](#)

Plain Elbow assembly (1 ea) DGX \$10.00

[Dive Rite Plain \(Non-Exhaust\) Elbow w/Nut | Dive Gear Express®](#)

LP Inflator assembly (1 ea) DGX \$16.95

[45-degree Oral Power Inflator | Dive Gear Express®](#)

600d Polyester Canvas (1 yd.) Amazon \$6.99

https://www.amazon.com/dp/B071WN2Y3D/ref=twister_B07LB85V9R?_encoding=UTF8&th=1

Bulk Zipper (5 yd.) Amazon \$15.99

¼ inch Grommets (4 ea) Amazon \$10.99 (kit)

<https://www.amazon.com/Bememo-Gromm...crafts&sprefix=grommet,arts-crafts,159&sr=1-5>

Upholstery thread (1 spool) Amazon \$4.39

<https://www.amazon.com/COATS-Strong...ts-crafts&sprefix=upho,arts-crafts,159&sr=1-5>

Intex 24 inch swim ring (1 ea) Amazon \$11.13 (3 pack)

<https://www.amazon.com/Intex-Transp...nch+swim+ring&qid=1568153549&s=gateway&sr=8-1>

Not listed: the 1 inch power inflator hose (I used 1 inch pond tubing, stiffer but works well and is cheap), Larger grommets if desired for the wing to backplate connection (I have some with and some without, cam bands hold it together fine).

I've also used salvaged parts from old BC's (flanges, inflator, 1 inch hose).

ASSEMBLY

I cut 2 pieces from the pattern, one full panel and one with the cutout for the center. I also cut a long strip 120mm wide for the side panel. Then from the scrap, cut a rectangle 20mm wider and longer than the center panel.

Sew the rectangle to the full panel, "inside" together. The full panel is the piece that will be towards your back when it is finished. Mark your cam band slots to match your plate, and use a zigzag stitch to sew around them like giant button holes.

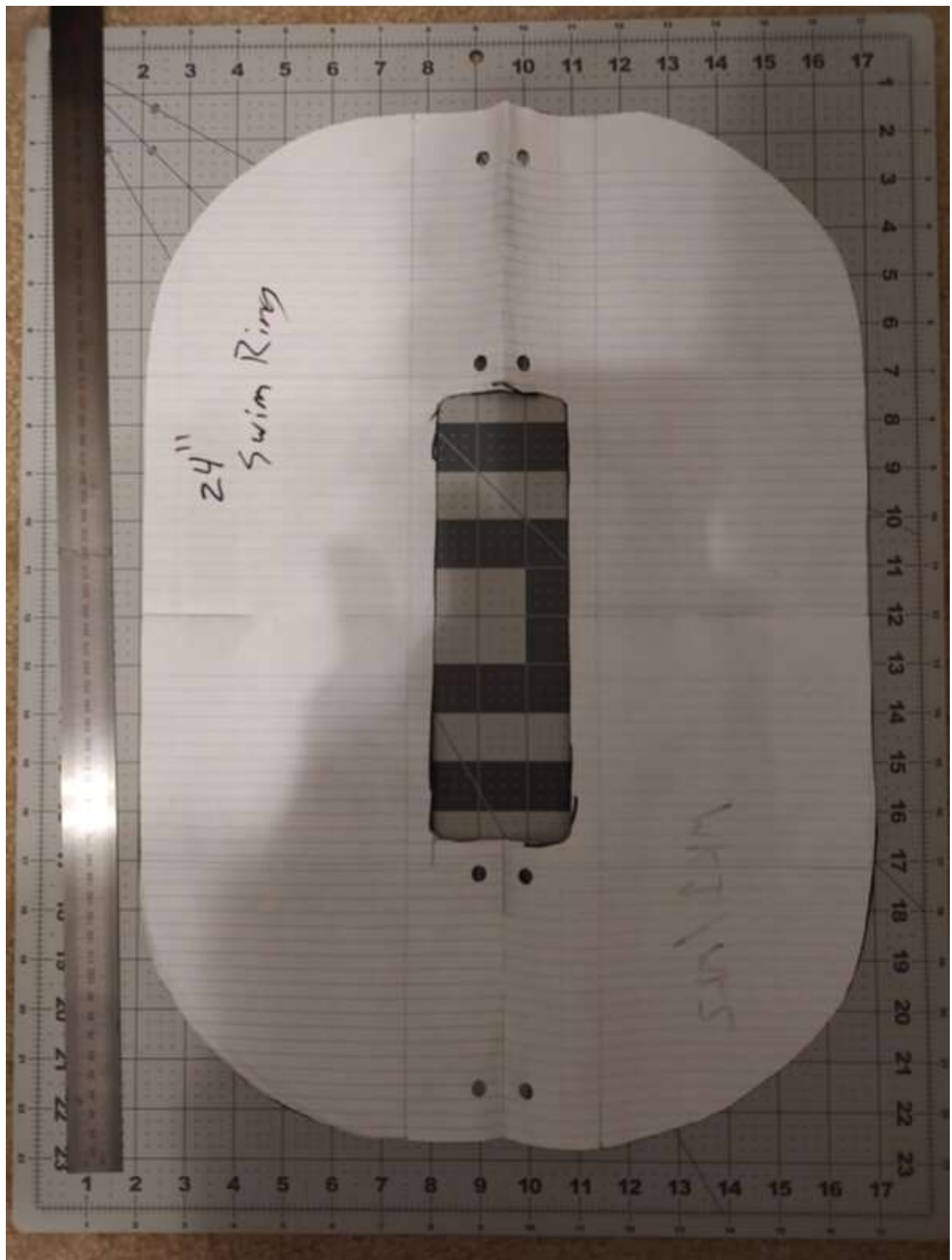
Measure out the side panel length, and sew it together as a loop. Set a small grommet about 25 mm to each side of the seam, and 2 more opposite around the loop (these will let air/water out of the space between the bladder and the shell).

Sew the side panel to the main panel, and then to the outer panel (keeping it inside out).

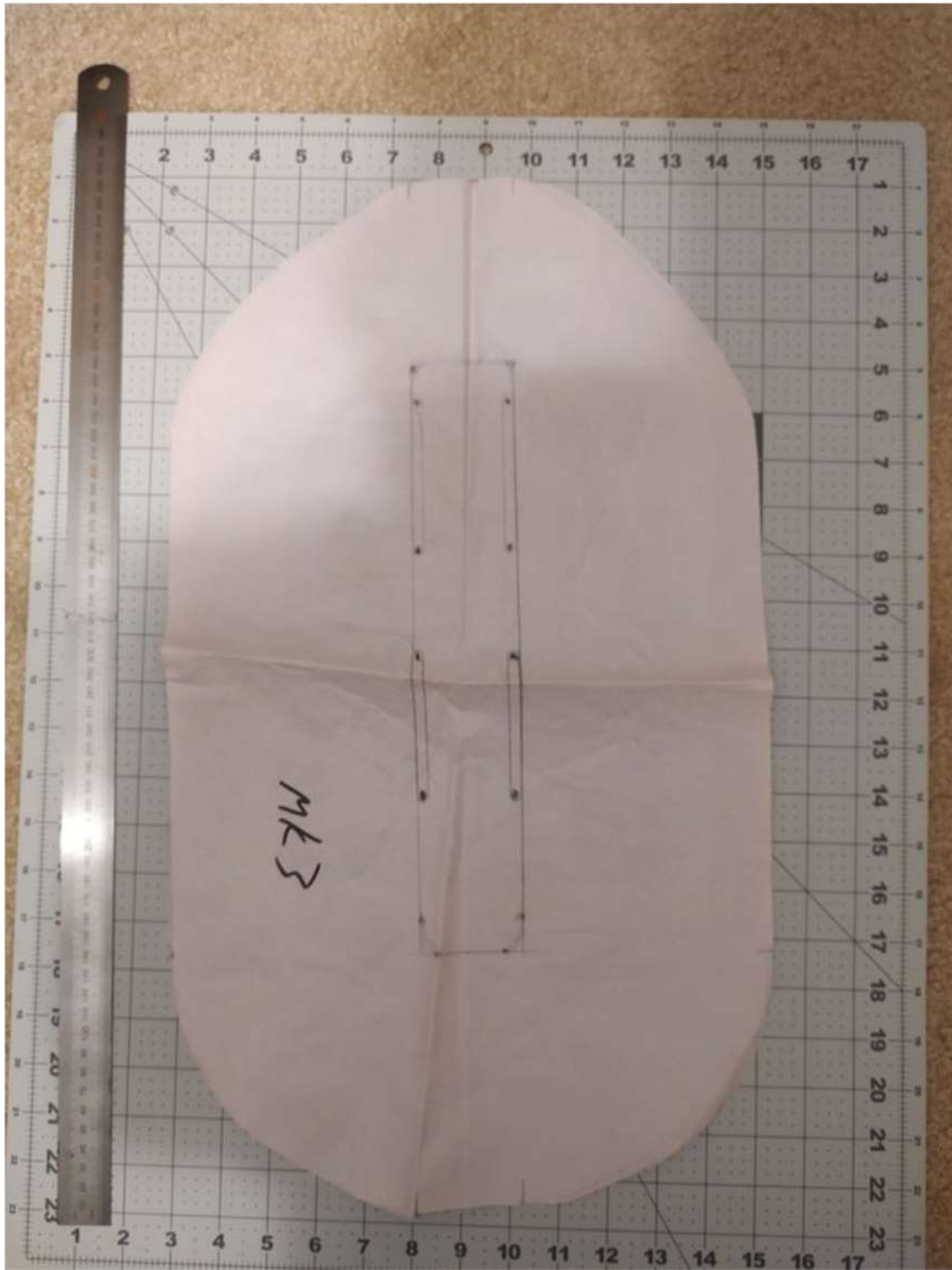
Measure out your zipper, allowing at least a 140 mm overlap (the first 140 mm will be covered by the last 140 mm). Sew the zipper to the outer panel with the zipper zipped up (take care to sew some form of stop to the end of it). Then, with the overlap pinned together, separate the zipper and sew the free portion to the main panel (be careful that you pin it correctly... I've had to redo this step multiple times! I turn it right side out to verify that I have it pinned right).

Mark the 25 mm holes for the flanges, cut, and melt the edges of the holes. Mark the swim ring in corresponding positions, and cut carefully. Place inner flanges and seals in their positions in the swim ring, insert swim ring in shell, work outer portion of seal and inner flange through the shell openings and install outer flange. Then zip up the shell. Add OPV and elbow/hose/power inflater, and pressure test. Add large grommets in center panel if desired.

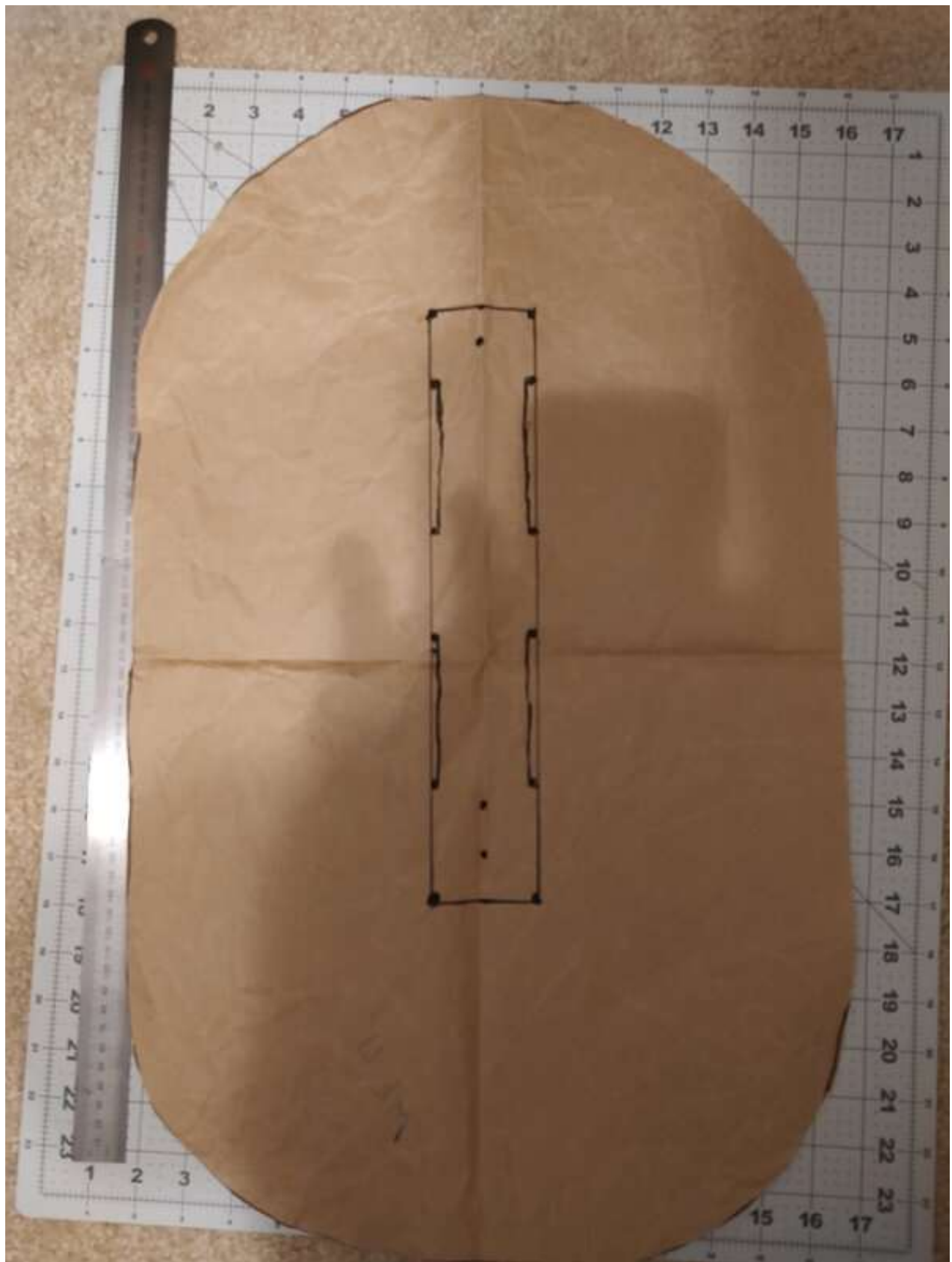
Always use a swim ring larger than the shell. This keeps the fabric bearing the loads.... if the swim ring is even the tiniest bit smaller, the hole for the flanges can stretch and cause a catastrophic failure (I verified this the hard way!).



MK1/MK2 PATTERN



MK3 PATTERN



MK4 PATTERN