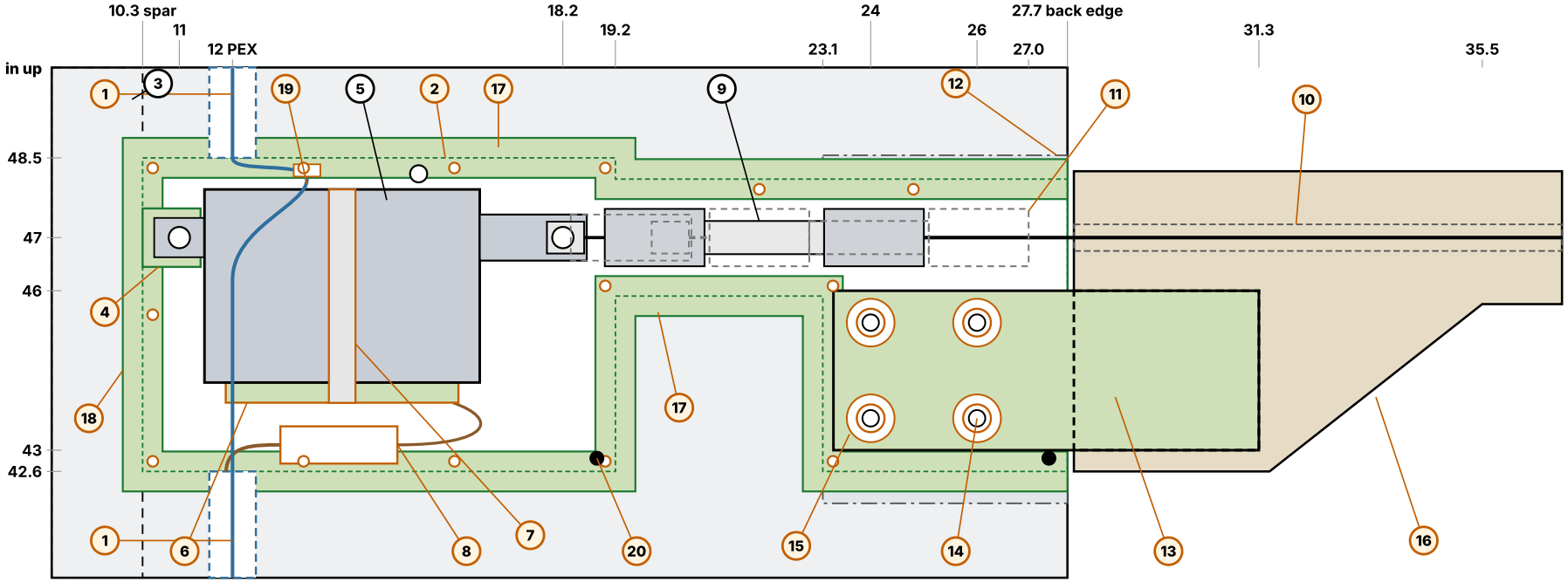
BOOM-ROOT POCKET · SIDE VIEW, LID OFF

third version · boom face of the wing, about 1 : 2.9 · across the top: inches back of the nose · down the side: inches up from the wing root



wing cable · actuator cable · G10 and glass built into the wing · parts that come out · fully out (2 in of stroke) · hidden: inside the wing or the boom · build-out edge

1 **Two PEX tubes,** 12 in back of the nose, one up from the root, one on to the tip. They end at the pocket's bottom and top walls.

2 **Pocket walls:** the foam left in place, glassed with 2 layers of biax, lapped onto the far skin. No G10 walls.

3 **Box spar.** Its back face is the pocket's front wall.

4 **Rear lug,** G10, glued and bolted to the spar's back face. Rear pin 11 in back.

5 **Actuator,** Thomson Electrak MD, hanging (motor below the rod), on the centerline. Rod line 47 in up. Drawn pulled in.

6 **Cradle,** G10 shelf under the motor housing, so it cannot swing down round its rear pin.

7 **Strap,** stainless, round the housing and cradle.

8 **Plug** on the actuator's lead, so it comes out without cutting.

9 **Spring link** (Trim Guide sec 6): 3-1/2 in tube, 5/8-18 coupling-nut caps, about 6 in end to end and 1.08 in across the caps' corners. Front: an eye for the actuator's 10 mm pin on cap A's stud.

10 **One rod, no joint:** the link's own 1/4 in 316 rod runs on aft as the pushrod, in a 3/8 PEX liner in the boom, to the tail flap.

11 **Fully out** (gray dashed): everything on the rod line 2 in aft. The link's back cap reaches 27 in, inside the build-out.

12 **Build-out,** 23.1 in to the back edge, 42 to 48.55 in up: the wing built out on both faces to the boom's 1-1/2 in width, so the link fits at full stroke. Near half is part of the lid.

13 **THE BLADE,** 1/2 in G10, 8 × 3 in, 43 to 46 in up. Front 4.4 in in the pocket; back 3.6 in glued inside the boom's root.

14 **Four 5/16-18 316 bolts through the far skin** (Mike): flat heads countersunk flush in the far face, through the seat and blade; fender washer and thin nylon-insert nut on the lid side. 2 in apart along, 1.8 in up and down.

15 **Seat,** far side (dashed): G10 face plus filled epoxy, from the far skin to the blade, glued in and taped with 2 layers of biax.

16 **Boom root,** deepened to 42.6 in for the blade; back to its normal 2-1/2 in by 35.5 in. Gasket on its front face against the wing.

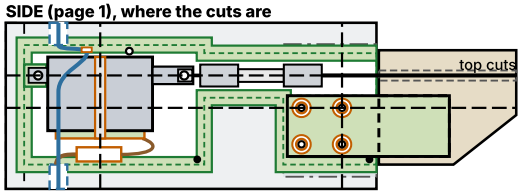
17 **G10 strip under the lid edge** (Mike), 1/8 × 3/4 in, all round but the back edge: outer half glued under the wing skin, inner half sticks out over the pocket and takes the rivet nuts.

18 **Lid,** the pocket's cut-out skin plus one layer; gasket tape; #10-24 316 screws about 3 in apart into the rivet nuts.

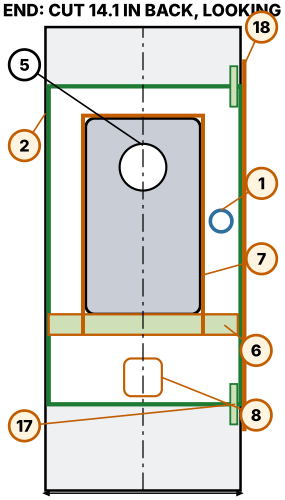
19 **Slack loop** in the wing cable, tied to the top wall, so the actuator lifts out past it.

20 **Two drains** (black) at the two low corners, through the far skin. Breather (open circle) at the top.

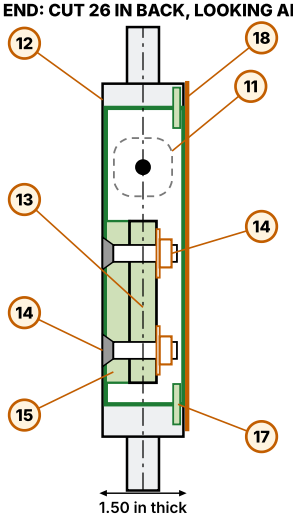
SIDE (page 1), where the cuts are



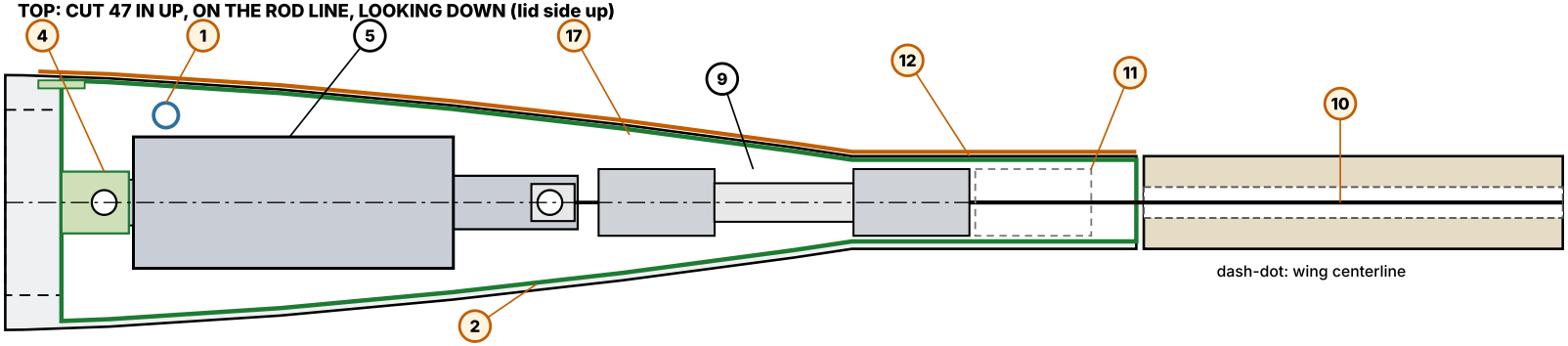
END: CUT 14.1 IN BACK, LOOKING AFT



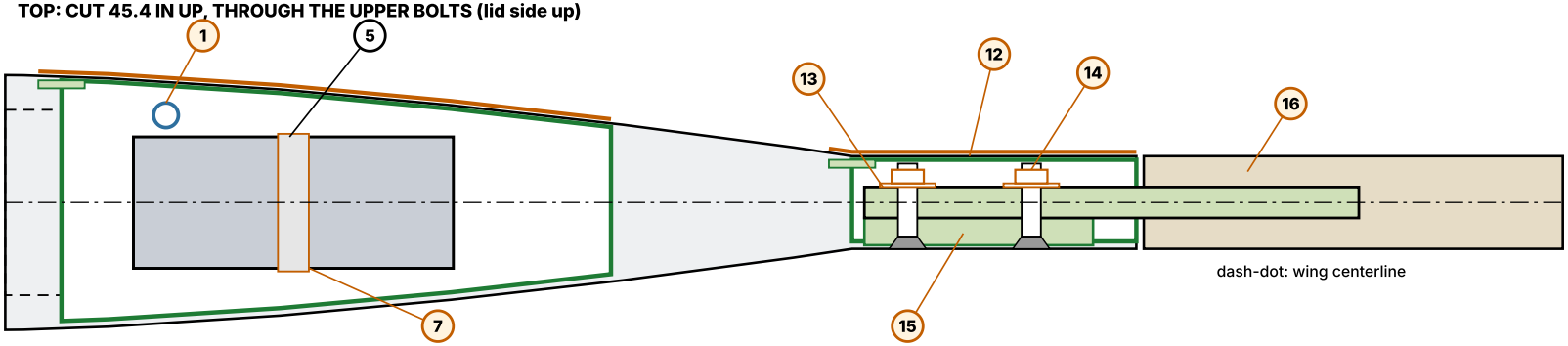
END: CUT 26 IN BACK, LOOKING AFT



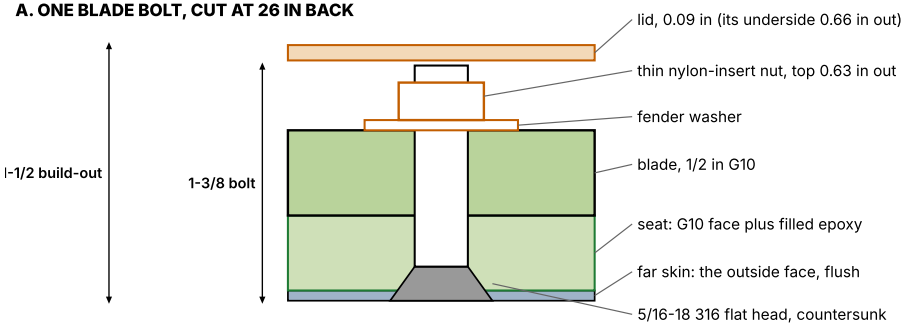
TOP: CUT 47 IN UP, ON THE ROD LINE, LOOKING DOWN (lid side up)



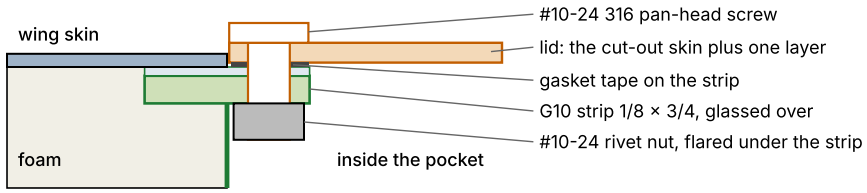
TOP: CUT 45.4 IN UP, THROUGH THE UPPER BOLTS (lid side up)



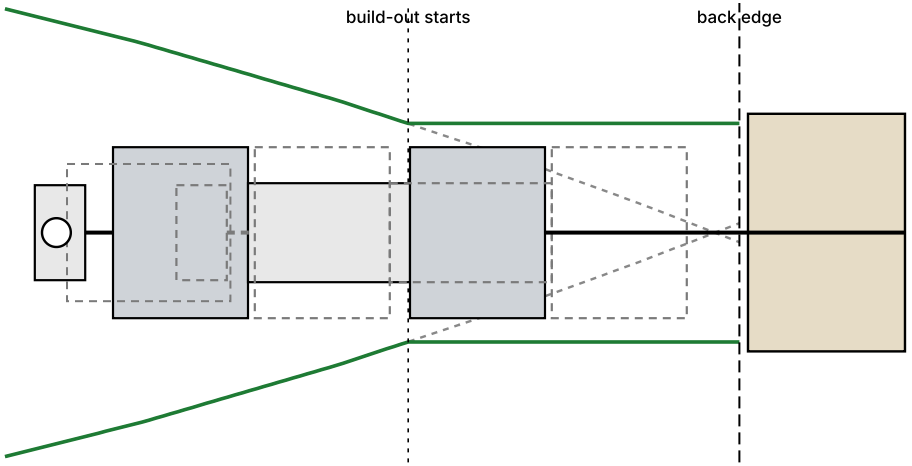
A. ONE BLADE BOLT, CUT AT 26 IN BACK



B. LID EDGE: THE CUT LINE IS ON THE POCKET WALL



C. LINK TRAVEL, SEEN FROM ABOVE (thickness drawn 2.2 times too big)



green: the wing's inside with the build-out. gray dashed: the plain wing. gray parts: fully out.

WHY EACH CHANGE

- **Bolts through the far skin** (Mike): the heads clamp the skin itself, so a pull on the blade loads the skin, not the glue line. They can be pulled and replaced.
- **G10 strip under the screws** (Mike): one strip clamps the gasket evenly all round and stiffens the cut edge. About 0.3 lb, against about 0.1 lb for separate pads.
- **Build-out:** the link's caps are 5/8-18 coupling nuts (Trim Guide sec 6), 1.08 in across the corners. Fully out, the back cap runs from about 25 to 27 in, where the plain wing is only 0.8 to 0.1 in thick inside: it would push through both skins. Built out to the boom's 1-1/2 in it has 0.15 in to spare each side (C).
- **One rod:** the link's own rod runs on as the pushrod. No joint between link and pushrod, nothing fat past 27 in, and the single rod Mike wanted.
- **Front hook dropped:** it saved 3 screws and needed a thin lip of skin over a gap. Screws all round but the back edge.
- **Lid back edge:** no screws there (nothing to screw into); it is held by the top and bottom rows, and the boom's front face gasket closes the gap.

OUT WITHOUT CUTTING

Lid off; unplug the actuator, loosen its strap, pull its two 10 mm pins and lift it out past the slack loop. For the boom: nuts off, bolts out the far side, lift the boom, blade, link and rod away sideways together.

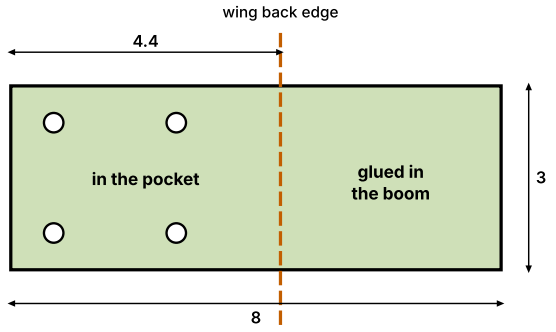
BUILD INTO THE WING BEFORE THE BOOM FACE IS SKINNED

Carve the pocket and the build-out blocks; glue in the rear lug, the far seat (drilled and countersunk for the bolts) and the G10 strip; glass the walls and floor over the strip's inner half; put the carved foam back as a plug wrapped in packing tape, with release tape on the strip's inner half; skin the face whole; cut the lid out along the pocket wall line and pull the plug. The far-side build-out is skinned with the far face.

WEIGHT, ROUGH GUESSES

About 2.5 to 3 lb of parts, against about 2 to 3 lb for the original plan's plate, solid patch, extra layers, outside fairing and pads. The actuator this far forward takes about 2-1/2 lb of lead off the nose (inferred).

D. THE BLADE ALONE, 1/2 IN G10, ABOUT 0.8 LB



5/16 in holes: 2 in apart along, 1.8 in up and down, 0.6 in from the edges