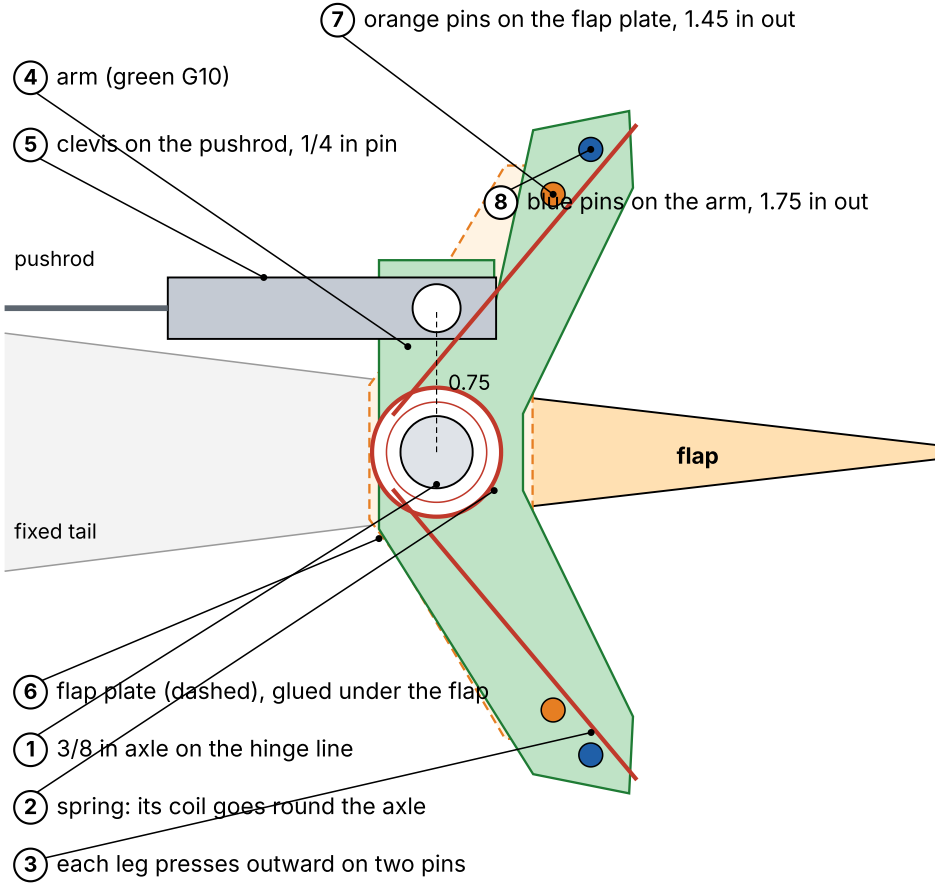
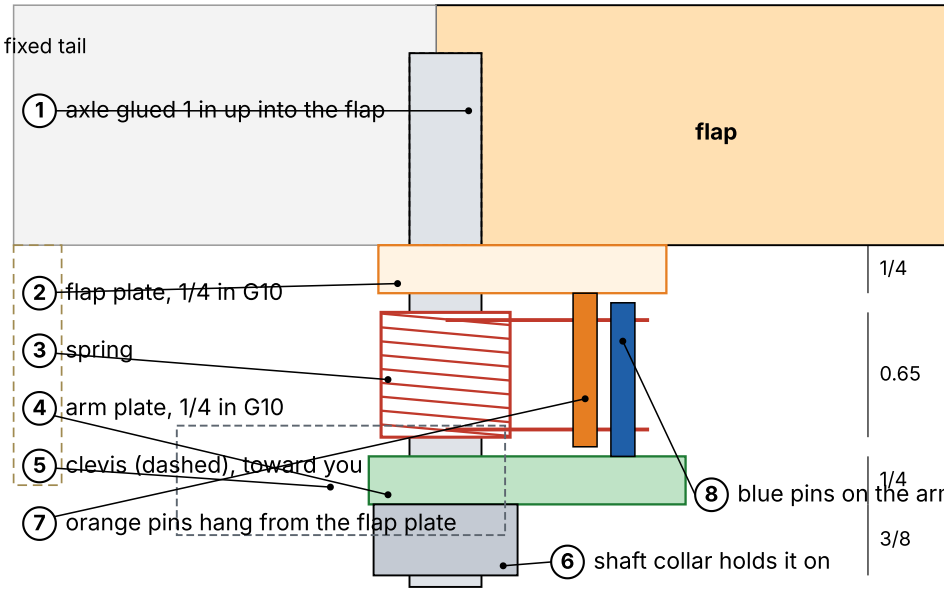
What it is: it replaces the spring link inside the boom. One stainless coil spring sits on a short 3/8 in axle on the flap's hinge line, under the flap's bottom end. The flap carries two orange pins, the arm the pushrod pulls on carries two blue pins, and the spring's legs press outward on both pairs. Up to the setting the flap and arm turn together. Past it, the flap turns toward straight while the arm stays put, and the spring brings it back.

SEEN FROM BELOW, LOOKING UP THE AXLE

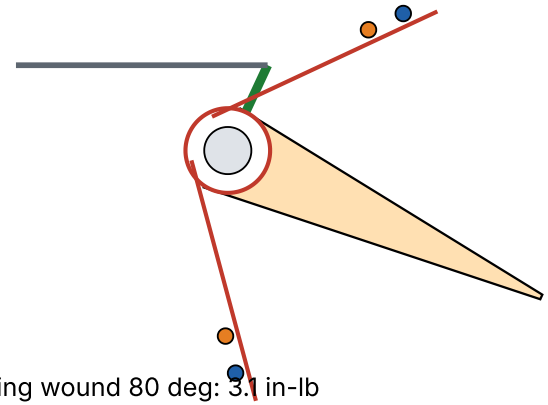


FROM THE SIDE



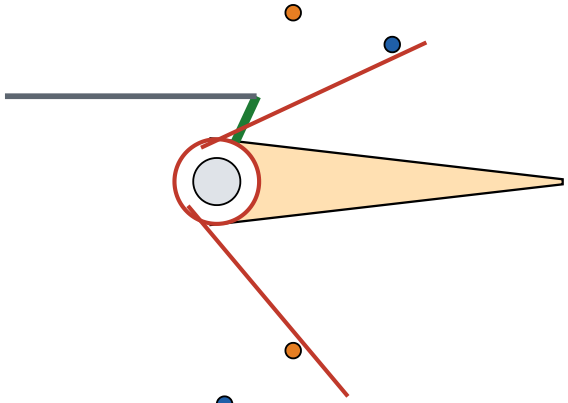
dashed at left: the boom's end, about 2 in ahead

1. Normal: arm and flap turn together



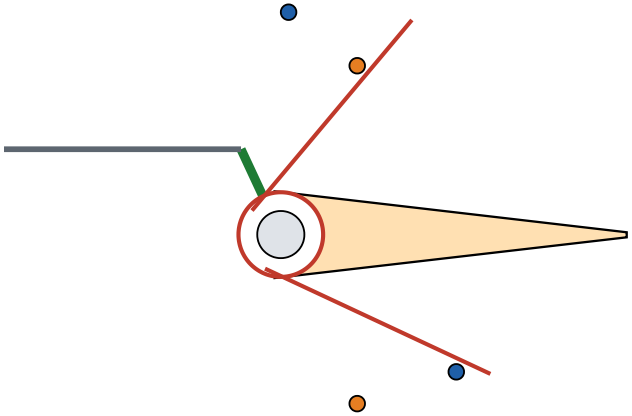
spring wound 80 deg: 3.1 in-lb

2. Strong wind: flap pushed straight



spring wound 105 deg: 4.1 in-lb

3. Same the other way



spring wound 105 deg: 4.1 in-lb

PUTTING IT TOGETHER

1. Drill a 3/8 in hole 1 in up into the flap's bottom end, on the hinge line. Glue in 2-3/4 in of 3/8 in 316 rod, so 1-3/4 in sticks out below.
2. Cut the flap plate from 1/4 in G10; drill the 3/8 in axle hole and two 1/8 in pin holes 0.2 in deep, 1.45 in out, 100 deg apart. Glue the plate under the flap and glue in the two orange pins.
3. Slide the spring onto the axle.
4. Cut the arm from 1/4 in G10; drill the 3/8 in axle hole, a 1/4 in hole 0.75 in out for the clevis pin, and two 1/8 in pin holes 1.75 in out, in line with the flap plate's. Glue in the two blue pins.
5. Squeeze the spring's legs together by hand, slide the arm on, and let go: each leg rests on its two pins.
6. Shaft collar under the arm, set screw tight. Pin the pushrod's clevis to the arm.

NUMBERS (WORKED OUT FROM MCMASTER'S TABLE)

- Spring: 7.07 in-lb at its full 180 deg, 0.039 in-lb per degree.
- Wound 80 deg at rest: 3.1 in-lb. On the 0.75 in arm it gives at 4.2 lb on the pushrod. The Trim Guide starts at 4 lb.
- At the flap's full 30 deg of give: 4.3 in-lb, 1.38 times the start (the Trim Guide allows 1-1/2).
- Squeezing the legs to fit it takes about 3 lb at 1 in out: easy by hand.
- To set it lighter or heavier at a refit: drill the pin holes a little closer together or further apart.
- Weight about 0.3 lb (5 oz) at the tail, mostly the axle and the two plates (worked out). At the tail that takes about 1.4 lb of nose lead; taking the link out of the boom root saves about 0.6 lb of it back (a guess), so about 0.8 lb more lead in all.

TAKEN AS GIVEN (THE TAIL IS NOT DRAWN YET)

- The tail stands on the boom's end and the flap's bottom end is free; the boom ends about 2 in ahead of the hinge line so the legs clear it.
- The flap's own light centering spring and its 30 deg stops stay as the Wing Construction Guide has them.

PARTS (AMAZON FIRST)

- Spring: McMaster 9287K173, 302 stainless; Amazon has none with listed strength.
- Axle, 3/8 in 316 rod, 12 in: Amazon B076CMP5J5.
- Pins, 1/8 × 1 in 316 dowel pins (4): Amazon B00R1UV7QS.
- Shaft collar, 3/8 in bore, 304 stainless: Amazon B0D5RK2GGJ, 2 pack.
- Clevis, 316, 1/4-28, 1/4 in pin: McMaster 6071K47, on the same McMaster order.
- G10: the 1/4 in sheet on hand.

Prices not checked. Do not buy until the tail is drawn.