

Flight Control Malfunction

- A TAKE CONTROL.** Prevent the situation from getting away from you in the first seconds.
- B ASSESS THE DAMAGE.** Determine which control surfaces are compromised and what's left to take their place. Could it get worse?
- C TEST CONTROLLABILITY.** Eventually, you'll need to land, but consider practicing new techniques at altitude first where the consequences aren't so severe.
- D DEVISE A PLAN.** Take what you've learned and put it into practice.

KEY SKILLS



Fly the airplane



Know your systems and troubleshoot

SCENARIO 1 Elevator Troubles

You departed Whidbey Airpark (W10) in a 152 for a sunset stress-reliever flight. As you roll into a steep bank to follow the coastline, you hear a loud pop and feel a strange lightness in the controls.



A Take Control

Control failures can be disorienting and lead to unrecoverable upsets in seconds. Your instincts will serve you well here when you roll back to level flight. You'll probably pull aft on the yoke as well—but when you do, you'll meet no resistance and accomplish nothing. What will you do next? Probably add some nose-up trim, which (lucky for you) will work.

Now the plane is stable and trimmed for level flight, and there's time to work on the problem.

B Assess the Damage

Human nature is to try again when something doesn't work, so you might gingerly try aft yoke again. You'll find it as ineffective as before. However, you'll find that *pushing* on the yoke *does* work normally. What's going on?

In many light airplanes, the elevator system consists of separate cables for pitching up and down. With that knowledge you can deduce that the “up” cable has snapped. That's why pulling back on the yoke has no effect, yet pushing does. Trim should be unaffected, so nose-up trim will succeed in moving the elevator up. The problem shouldn't worsen unless broken cable components manage to jam up other parts of the control system.

Bottom line: You can adjust pitch with trim, throttle, and forward elevator pressure. The only thing you can't do is pitch up by pulling on the yoke.

C Test Controllability

You have control in all axes, so you should be able to land the plane. More good news: Certification required being able to land using only trim and throttle.