Secondary Control Failures

Many of the control surfaces employed on personal aircraft aren't primary in nature, i.e., they aren't regularly used to establish and maintain the airplane's attitude while airborne. Instead, secondary controls—wing flaps, speed brakes and trim tabs—are used to supplement and fine-tune the ways we control an airplane. Trim systems are perhaps the easiest to understand, since we use them on every flight, but wing flaps also can help us maintain control when the chips are down. Of course, these systems also can fail, and bring with them their own set of remedial actions.

Perhaps most common is a trim system failure, presenting either as a jammed trim tab or a runaway electric system, driving itself to either the full nose-up or nose-down position. These kinds of failures often become a test of the pilot's strength, especially if the trim fails in a nose-down position.

The most common wing flap system failure involves a split condition, where one flap is extended and the other is fully or partially retracted. In such an event, roll control becomes problematic. Hopefully, the extended flap can be retracted and the flight concluded with a no-flap landing. Perhaps the stuck flap is partially extended and retracting the opposite flap to the same position eliminates at least the uncommanded roll. If not, you'll need to crank in a bunch of aileron to counter the stuck flap. Use some rudder to help and, if you're flying a conventional twin, consider differential power.

Regardless, don't do anything to make the situation worse, like closing a pulled trim or flap circuit breaker after pulling it, or reengaging the autopilot. As long as you can maintain a wings- or nose-level attitude, you can get it on the ground under control. In any case, choose the longest runway reasonably available; this is not a good time for doing short-field work.