signifying total electrical system failure, then:

1. Transition to partial-panel flight using the available backups.
2. Manually turn on any backup instrumentation, if it is not already on, or it does not come on automatically in your airplane.
3. Follow any emergency procedure for electrical failure that may exist in your Pilot's Operating Handbook and/or the POH supplement for your installed equipment.
4. Activate a backup alternator or generator, if available.
5. Activate a handheld GPS for navigation, if it's available but not already on, and establish radio contact with a handheld radio as necessary, if available.
6. Shed electrical load as necessary to conserve power.
7. Assess the remaining capabilities.
8. Land at the first suitable airport. Partial-panel flight is not intended for completing a planned trip all the way home or to destination.

It's easy to assume that glass cockpit systems are infallible. Most are very new (new avionics equipment rarely fails and when it does, installation error often is at fault), and the systems that drive them are extremely reliable. But a partial-panel situation is still always possible in glass-cockpit airplanes. And the likelihood of system outages or failures probably will increase as glass-cockpit airplanes amass on/off flight cycles and calendar age.

The new age of PFDs and digital equipment has dramatically reduced the chances of failure. But it's still our job as pilot-in-command to have a practiced plan for when an unlikely failure occurs.

Tom Turner is a CFII-MEI who frequently writes and lectures on aviation safety.

Learning To Love Stalls

Stalls should be respected, not feared. Understanding how they develop and progress can go a long way toward eliminating any unreasonable fears.

BY JOSEPH E. (JEB) BURNSIDE

Among the concerns expressed by a brand-new student pilot I was talking with recently was what I took to be a strong fear of stalls. I didn't have the opportunity to ask him where he learned stalls should be feared. I did, however, relate they were important but—at least when understood—weren't anything to fear. Which is not to say they shouldn't be respected.

Key to understanding stalls, of course, is knowing why and how they occur, why we practice them and how we can use the knowledge and experience gained during that practice to prevent more dramatic behavior, like deep stalls or spins, especially when close to the ground.

STALLS 101

If you've progressed beyond basic ground school, you should know an airplane's wing can be made to stall at any airspeed, in any attitude and at any power setting. All you need to do is exceed the wing's critical angle of attack, AoA (see the sidebar on the opposite page for more). Of course, the airplane's AoA has nothing to do with this—it's not the airplane that will stall; it's the wing.

Let's stipulate a power-off stall—by itself—is a rather benign demonstration of what happens when the airplane is operated at the bottom of its flight envelope, where power and airspeed are at their lowest. In the average light plane, a full, power-off stall results in some buffeting, a clean break and pitch over, perhaps a slight fall off onto one wing or another and—if the pilot reacts properly—a further dip of the nose and increasing power, which puts us back to flying again.

Of course, there's more going on while all this is happening. Among