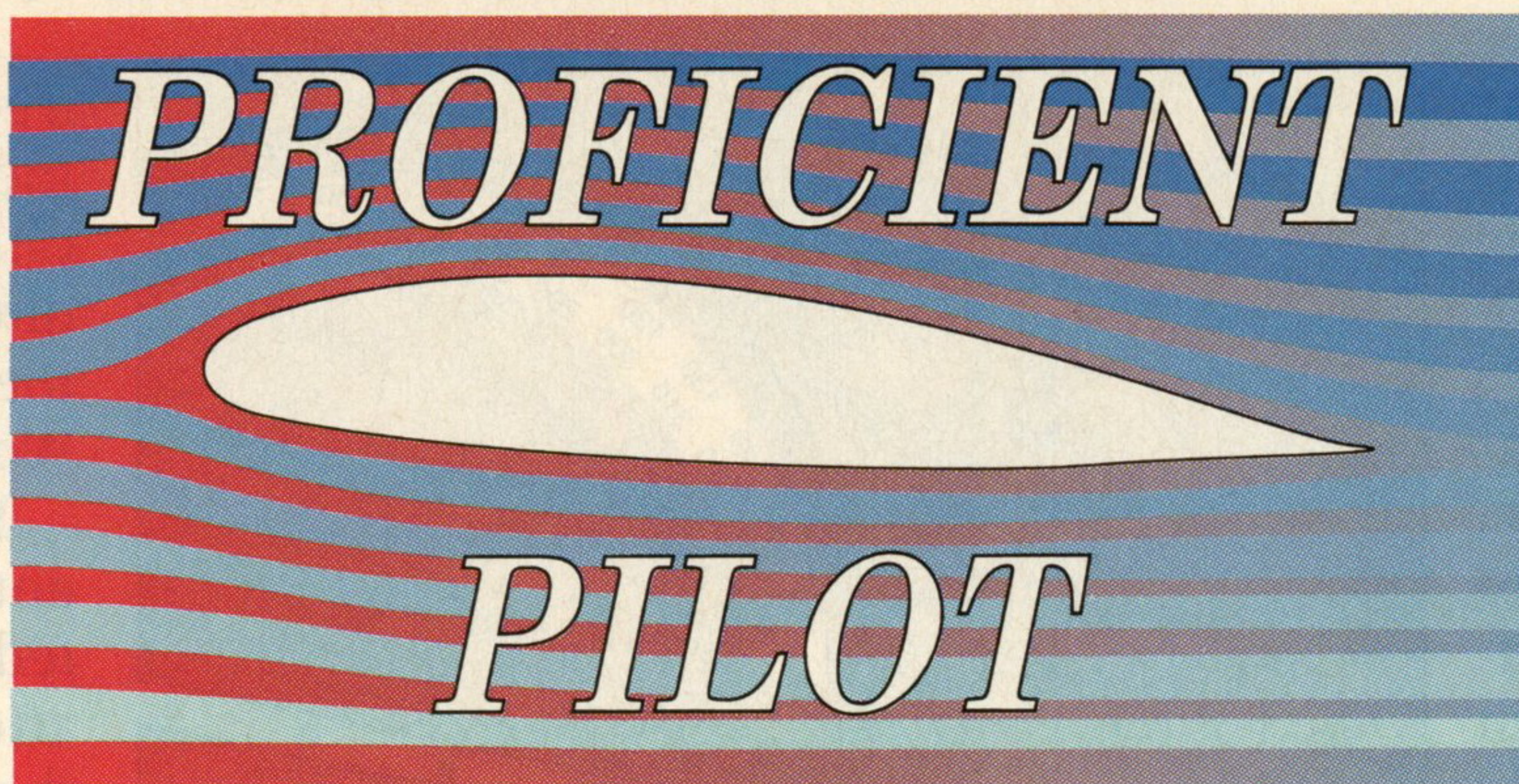


ARE THINGS REALLY AS THEY SHOULD BE?

Although the captain of an airliner is responsible for the safe operation of his aircraft, he is not necessarily the one flying it at any given time. The captain usually shares the flying with his first officer. (Some cynics believe that is done to provide the captain with a scapegoat for his occasional "firm" touchdown.)



We were getting ready to leave Cairo, and it was my copilot's turn to fly. I was reading the "Before Starting Engines Check List," and he was responding. A cockpit visitor would be impressed with the ease and rapid-fire staccato with which check-list items are covered by airline crews. The lengthy and complex check list of a Lockheed L-1011 or a Boeing 747 can be completed in half a minute. But this proves only that a pilot is adept at responding to the challenges of the check list. It does not necessarily mean that he has confirmed that all of the items have been readied for flight.

My copilot on this flight was extraordinarily skilled at responding by rote. He even seemed to take pride in the speed with which he could rattle off the correct responses to the check list. But after the list had been completed, I noticed that two important switches remained improperly positioned.

"Bob," I said. "I'd like to try a little experiment. Would you mind if we run through the list again?"

Apparently not suspecting anything, he said, "Sure, Skipper. Go ahead."

I picked up the check list and began reading. But this time, I started at the bottom. This interrupted Bob's routine and prevented him from responding rapidly and by rote. Instead, it forced him to actually check each item and respond accordingly. It also allowed him to discover that both of the stall warning switches were in the Off position.

Complacency and familiarity not only breed contempt; they encourage taking things for granted, errors for which aviation can be mercilessly intolerant. Numerous fatal accidents—involving both airline and general aviation aircraft—

have been the result of pilots not spending enough time with each check-list item to confirm that things really are as they should be.

Some years ago, the captain of a Boeing 727 was about to depart Runway 8 at Albuquerque, New Mexico. But as soon as he advanced the thrust levers, the takeoff warning horn blared intrusively. Something was wrong. He immediately retarded the throttles and taxied off the runway. The crew checked to ensure that the spoilers were stowed, the stabilizer trim was positioned in the green band, and the flaps were deflected properly for takeoff (5 degrees in this case). Everything appeared normal.

After explaining to his passengers that the takeoff had been aborted because of "rabbits on the runway," the captain began another takeoff. The warning horn sounded again, which was followed by another rejected takeoff and another announcement about "those pesky rabbits." The three crewmembers confirmed again that all controls were properly positioned and agreed that the problem obviously was a faulty warning

system. To prevent another so-called false alarm and get the flight under way, the captain asked the flight engineer to deactivate the takeoff warning system.

As the 727 approached 100 knots during the third takeoff roll, the first officer yelled, "My God; it's the flaps. Abort! Abort!"

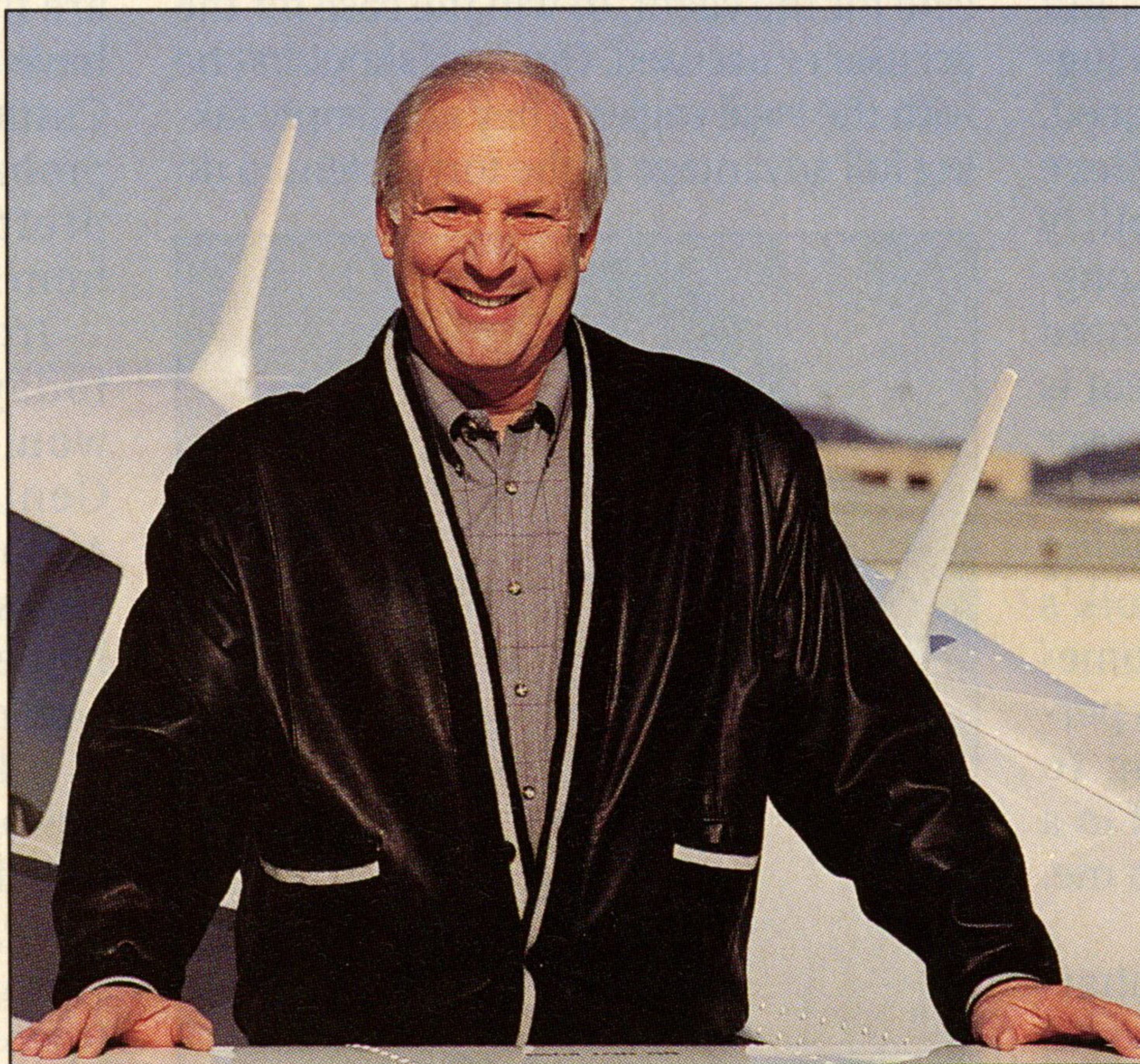
After the aircraft had again been pulled off the runway (this time with smoking tires and overheated brakes), the cockpit crew finally saw that the flaps had been extended only 2° instead of the required 5° (which also meant that some of the leading-edge devices were still retracted).

What makes this incident so remarkable is that all three pilots had looked at but did not see the 2° indication. They instead "saw" a 5° indication because that is what they had been conditioned to expect. Had this takeoff been continued, the heavily loaded aircraft probably could not have become safely airborne in the distance available. The passengers and crew (and possibly a few of the rabbits that really do live around the airport) would have been sacrificed on the altar of check-list complacency.

A pet peeve of mine involves those who use the before-takeoff check list as if it were a set of instructions. They use each item on the list as a reminder of what needs to be done. Someone who uses a check list in this manner often ignores items that might not be included (such as turning on pitot heat for an IFR departure).

The proper way to use a check list is to initially not use it at all. Instead, use a visual flow pattern, an organized method of attending to every switch, control, and instrument in the cockpit. Touch each item, and spend enough time with it to ensure that it either indicates, operates, or is positioned as desired. After everything is checked in this manner, then use the check list for its intended purpose: to verify that a critical item has not been overlooked.

To save time, some pilots run through a check list while taxiing. This also is a great way to bend metal. □



BY BARRY SCHIFF