

SPEED BRAKES: **Are they for you?**



BY GEORGE WILHELMOSEN

The scene is repeated every day across our country. Despite numerous pleas made as the plane streaked closer and closer to the airport, the guys at the radar screens at ATC just couldn't let down the airplane until they were a scant five miles from the initial approach fix!

So for the next five miles, instead of reviewing the approach plate for the third time, our pilot is locked in a struggle between energy and altitude-balancing increasing airspeed against descent in an effort to reach an appropriate entry altitude for their instrument approach. Sweat beads on our pilot's brow as the altitude bleeds away, down to the right initial altitude for their non-precision approach.

Finally, our pilot starts to slow down the plane, hopefully in time to get within gear extension speed before hitting the IAF at nearly double the normal entry speed! Worse off yet is the pilot of a turbocharged Baron, who was held up for the same length of time, and then had to ask for a slow, circling descent to avoid shock-cooling his turbocharged engines, and as a result, causing potential top end damage to his engines.

If you can imagine it, there are yet other pilots who have still more concerns. The pilots of pressurized aircraft such as the P Baron and Duke have to contend with keeping enough engine power to keep their cabins pressurized to comfortable levels for their occupants, in addition to the concerns of their non-pressurized brethren.

If any of these situations sound even faintly familiar to you, then perhaps it is time for you to invest in the general aviation wonder of the late 1980s: the aircraft speed brake. The speed brake has been used in large jet aircraft for years, and on military aircraft for an even longer period of time.

The purpose of a speed brake is simple: It spoils the lift of the wing. This in turn allows the plane to maintain a better descent rate, or to maintain the same engine power and establish a reasonable descent rate that will please even the most difficult of the ATC controllers. The handy device also allows for the rapid reduction in airspeed in order to allow for gear extension. PowerPac spoilers, dba. Spoilers Inc. units looks a good deal like the spoiler used on most big jets these days. It consists of a panel that sits flush with the wing, and blends in well with the wing surface.

When activated, the spoiler panel deploys with a hydraulic system and extends at an angle of 60 degrees from the surface of the wing. This disrupts the airflow over the wing, which results

in spoiled lift. According to testing performed by the manufacturer, this allows equipped aircraft to descend at two to three and a half times their normal rate, while maintaining cabin pressure. Of course, flying at non-pressurized altitudes and using the spoilers, or being able to reduce power beyond nominal expected values, can result in even higher descent rates. The PowerPac spoiler system uses a hydraulic unit to drive the spoiler into position. This provides a number of safety features, as any hydraulic failure will result in a loss of system pressure, which will retract the devices. This fail-safe feature makes the system virtually incapable of causing an asymmetric loss of lift due to one panel extending while the other remained retracted.

Spoilers, Inc. has performed extensive testing of their spoilers in icing conditions. It is interesting to note that during their original test series, the company had a difficult time getting ice to form over their spoilers. In order to get a good indication of how their system would perform in icing, they had to resort to some pretty exotic means, but they finally were able to get around a half-inch of ice to form over the surface of the spoiler. When it was deployed, the force of the hydraulics was too much for the ice- and the spoiler opened. When retracted while iced, the spoiler was said to have dropped to within a 1/4" of the wing, which is well below the level of the airstream.

The PowerPac Spoiler system is activated by a single, panel mounted push-button and two lamps. When the button is pushed, the hydraulic system turns on and the spoilers deploy. Once open, the two lights come on to indicate the spoilers are deployed. From there, a press of the button causes the spoilers to retract. This is the second fail-safe portion of the system, as any loss of electric power will cause the spoilers to retract, which helps to eliminate the chance of a stuck spoiler. The PowerPac Spoilers are available for the Baron 58 series, as well as the Duke 60, A60 and B60 series.

For more information, contact Spoilers Inc. at 800-544- 0169 or 253-851-1769, or www.powerpacspoilers.com.