

Speed Brake Use

Speed brakes are just one of many tools that are available in that toolbox of items that can be used for aircraft control. Too often I find that pilots use them without giving much thought about when they are best used. The Mooney is a very efficient airplane and improper use of the speed brakes will just detract from that efficiency.

From my experience speed brakes may best be used in the following circumstances: 1. Slam dunks given by ATC. 2. When asked by ATC to “keep your speed up”, no sooner nor later than 5 miles from the airport. 3. For a steep approach to an airport with an obstacle for better slope control without speed increase. 4. To make a quick correction to an approach that has become unstabilized for any reason. 5. To slow down to gear speed in choppy conditions before lowering the gear which is to be used as a rudder to smooth the ride.

6. To assist in slowing down the plane when necessary at other times 7. On a “dive and drive” instrument non-precision approach when not in icing conditions. For the TLS the configuration for descent is 15” MP, Speed Brakes and Gear for a performance of 105 knots and 1000 ft/ min on the descent 8. Immediately AFTER touchdown on a normal landing, but only if the switch is located on the yoke. If it is not on the yoke it could be a distraction at a critical time. Although subjective, I have noticed their effectiveness in the first 10 knots of speed reduction after touchdown.

When should they not be used: Any other time.

I have observed many pilots use them in any descent or just way too early on an approach to an airport. This is really inefficient because no sooner are they at the lower altitude than they have to add power to maintain it. That’s just a waste of fuel. When possible, I like to establish a descent of a comfortable 500 ft/min at the top of the green arc. In smooth conditions I’ll go to the middle of the yellow arc, keeping my forefinger on the speed brake switch in order to be prepared to deploy them upon encounter of any turbulence in the descent. The speed will quickly be bled off to below the yellow arc.

Others have said they would use them in gusty crosswind landings for stability. I decided to go out and try it. On approach with a crosswind and gusty conditions one day at Tracy Airport I deployed them. A significant downdraft was experienced at about 100 feet AGL. At approach speed deploying the speed brakes will immediately add an additional 200 ft/min rate to the descent. Even with prompt gradual application of full power applied to my TLS, the additional drag associated with the speed brakes could have created a problem had I not retracted them. Lesson learned: don’t use the speed brakes in gusty crosswind conditions.

Don’t use them to try to “save” a landing when below 100 feet. The immediate 200 ft/min descent rate increase could cause the unwary pilot to damage the gear or worse when the plane slams into the ground. A go around would be the prudent thing to do from an obviously too fast approach.

Don’t use them in making a normal approach. You’re just using extra power and fuel and could have a problem in a significant downdraft, as I discussed above.

On an instrument approach to a busy airport serving jets, Approach will often ask that the speed be kept up. I’ll run the approach gear up to the 5 mile marker at 160 knot speed, “pop” the speed brakes and within a couple of seconds I’ll be slowed to gear speed of 140 knots. Additional speed will quickly be bled off to flaps speed of 110 knots. From there I’ll apply full flaps, and be slowed to touchdown speed by the large 1,000 foot marker. Regarding shock cooling of the engine, Lycoming says that the cylinders should not be cooled faster than 50°F/min. One can easily remove 5” of MP smoothly at a time and not have that be an issue. I have my MVP 50 alert for the fastest cooling

cylinder set at that and rarely have it alert.

While a non known ice TKS airplane should never be flown in icing conditions never, never extend the speed brakes if any ice is encountered. They WILL freeze in the up position.

Always be thinking ahead of the airplane, and don't be too fast to deploy the speed brakes if they really aren't necessary.

Incidentally, if I have a passenger on board, I will always tell them when I am going to add speed brakes so as not to alarm them with the disturbance that accompanies their deployment.

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