

Aviation Safety Bulletin

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Subject :

Thunderstorm Flying

Background :

A. Above all, remember this: never regard any thunderstorm “lightly” even when radar observers report the echoes are of light intensity. Avoiding thunderstorms is the best policy. Following are some Do’s and Don’ts of thunderstorm avoidance.

Don’t land or takeoff in the face of an approaching thunderstorm. A sudden gust front of low level turbulence could cause loss of control.

Don’t attempt to fly under a thunderstorm even if you can see through to the other side. Turbulence and wind shear under the storm could be disastrous.

Don’t fly without airborne radar into a cloud mass containing scattered embedded thunderstorms. Scattered thunderstorms not embedded usually can be visually circumnavigated.

Don’t trust the visual appearance to be reliable indicator of the turbulence inside a thunderstorm.

Do avoid by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo. This is especially true under the anvil of a large cumulonimbus.

Do clear the top of a known or suspected severe thunderstorm by at least 1,000 feet altitude for each 10 knots of wind speed at the cloud top. This should exceed the altitude capability of most aircraft.

Do circumnavigate the entire area if the area has 6/10 thunderstorm coverage.

Do remember that vivid and frequent lightning indicates the probability of a strong thunderstorm.

Do regard as extremely hazardous any thunderstorm with tops 35,000 ft or higher whether the top is visually sighted or determined by radar.

B.If you cannot avoid penetrating a thunderstorm, following are some Do's before entering the storm:

Tighten your safety belt, put on your shoulder harness if you have one and secure all loose objects.

Plan and hold your course to take you through the storm in a minimum time.

3.To avoid the most critical icing, establish a penetration altitude below the freezing level or above the level of minus 15 degrees Celsius.

4.Verify that pitot heat is on and turn on carburetor heat or jet engine anti-ice. Icing can be rapid at any altitude and cause almost instantaneous power failure and/or loss of airspeed indication.

5.Establish power setting for turbulence penetration airspeed recommended in your aircraft manual.

6.Turn up cockpit lights to highest intensity to lessen temporary blindness from lightning.

7.If using automatic pilot, disengage altitude hold mode and speed hold mode. The automatic altitude and speed controls will increase maneuvers of the aircraft thus increasing structure stress.

8.If using airborne radar, tilt the antenna up and down occasionally. This will permit you to detect other thunderstorm activity at altitudes other than the one being flown.

C.Following are some Do's and Don'ts during the thunderstorm penetration:

Do keep your eyes on your instruments. Looking outside the cockpit can increase

danger of temporary blindness from lightning.

Don't change power setting; maintain settings for the recommended turbulence penetration airspeed.

Do maintain constant attitude; let the aircraft "ride the wave." Maneuvers in trying to maintain constant altitude increase stress on the aircraft.

Don't turn back once you are in thunderstorm. A straight course through the storm most likely will get you out of the hazards most quickly. In addition, turning maneuvers increase stress on the aircraft.

Recommendation :

Above all, "Flight safety comes first" shall be the utmost strategy of operational control for every operator. Each operator shall ensure that all operations personnel are properly instructed and fully understand the potential risk of "thunderstorm flying" and react properly to avoid unnecessary risk.