

Thunderstorms can be treacherous to aviation personnel and equipment. High winds, heavy rains, hail, icing, and lightning all have a potential for destruction and death whether aviation Soldiers are on the ground or in the air. For aircrews, there is sufficient guidance and regulatory information to keep you from putting your crew, aircraft, and mission capability at risk. Let's look at a few of these to keep you refreshed and sharp!

Army Regulation (AR) 95-1, Aviation Flight Regulations: Paragraph 5-2, c., (3) Flight into thunderstorms. Aircraft/UAS will not be intentionally flown into thunderstorms.

Training Circular (TC) 3-04.5, Instrument flight for Army Aviators:

TURBULENCE

Paragraph 6-9. Because thunderstorms always indicate turbulence, areas of known and forecast thunderstorm activity are always of interest to the aviator.

Paragraph 6-11. Avoid turbulence associated with strong thunderstorms. Circumnavigate cells by at least 20 miles. Turbulence may also be present in the clear air above a thunderstorm. Fly at least 1,000 feet above the cloud tops for every 10 knots of wind at that level, or fly around the storm. Do not underestimate turbulence underneath a thunderstorm. Never attempt to fly under a thunderstorm even if the other side is visible. The possible results of turbulence and wind shear under the storm could be disastrous.

THUNDERSTORMS

Paragraph 6-23. A thunderstorm contains nearly every weather hazard known to aviation. Turbulence, hail, rain, snow, lightning, sustained updrafts and downdrafts, and icing conditions are all present in thunderstorms. Do not take off in the face of an approaching thunderstorm or fly an aircraft not equipped with thunderstorm detection in clouds. Likewise, do not fly at night in areas of suspected thunderstorm activity.

Paragraph 6-25. There is no useful correlation between the external visual appearance of thunderstorms and the severity or amount of turbulence or hail within them. All thunderstorms are considered hazardous, and thunderstorms with tops above 35,000 feet are considered extremely hazardous.

Paragraph 6-27. The probability of lightning strikes occurring to aircraft is greatest when operating at altitudes where temperatures are between -5 degrees Celsius and +5 degrees Celsius. In addition, an aircraft flying in the clear air near a thunderstorm is also susceptible to lightning strikes. Thunderstorm avoidance is always the best policy.

Great information right, but what should you do if you inadvertently encounter a thunderstorm? Here are key points:

- 1) As with any emergency, the first order of business is to fly the aircraft.
- 2) Reduce power to a setting that will maintain a recommended turbulence penetration speed as described in the appropriate aircraft operator's manual
- 3) Once in a thunderstorm, it is better to maintain a course straight through the thunderstorm rather than turning around.
- 4) Concentrate on keeping the aircraft in a level attitude while allowing airspeed and altitude to fluctuate. Similarly, if using autopilot, disengage altitude and speed hold modes because they only increase the aircraft's maneuvering—which increases structural stress.
- 5) Turn on anti-icing/deicing equipment, if the aircraft is equipped with it. Icing can be rapid at any altitude and may lead to power failure and/or loss of airspeed indication.

5 Questions

1. What is your aircraft recommended turbulence penetration airspeed?
2. What hazards does a thunderstorm contain for aviators?
3. Is it okay for UAS to launch into thunderstorms? What about Army manned aircraft?
4. You should always turn around and use a reverse course method to exit a thunderstorm once you are in the thunderstorm. True or False.
5. You see an intensity level of +TSRA, is this a heavy thunderstorm with rain? Yes or No (What was the reference to your answer?)



Inadvertantly Caught in a
THUNDER **STORM**

What do I do now?

- Fly the Aircraft
- Establish turbulence penetration speed
- Concentrate on maintaining level attitude
- Disengage autopilot



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