

Aircraft Cold Weather Operations and Engine Handling

GENERAL

- Fouled plugs
 - lean mixture on the ground
 - idle RPM 1000 to 1200 RPM to keep plug temperature up
 - carb heat - cold position on the ground. For the PA28 Lycoming 360 engine do not use carb heat unless there is evidence of carb icing (including circuit and descent).
 - shut down
 - 1000 to 1200 RPM until Temperatures stabilized
 - increase to 1800 RPM for 15 to 20 sec with lean mixture
 - reduce to 1000 to 1200 RPM and immediately mixture Idle-Cut-Off

COLD ENGINE STARTING

- priming/throttle/fire risk
- it may be essential to get a start on the first try to avoid icing over the spark plug
- factors
 - battery condition
 - fuel/air mixture (warm air = less dense mix lesser amount of fuel)
 - how many cylinders are being primed?
 - If only one cylinder is being primed, difficult to start in cold wx
 - as the air becomes colder and denser, the amount of prime used must be increased (determined by trial and error)
 - possibility of primer line being blocked
 - reduce the air part of the mixture with the throttle position closed to half of what is used during warm wx
 - starter overheat- after three (10 sec) attempts allow a cooling period of at least five minute cooling period
 - after start do not idle below 1000 RPM to prevent fouling of spark plugs.

ENROUTE

- Carburetor Icing can occur between -6 deg to +32 deg C
 - use full cold or hot unless the aircraft is equipped with a carb air temp gauge - CAT
- Ensure engine/oil temperatures are maintained within operating limits.
 - desired oil temperature is from 165 to 220 deg F
- Cabin Heat - Carbon Monoxide (leaks in exhaust system)
 - odorless, colorless gas
 - monitor indicator for black dots
 - blurred thinking, headache and cherry-red lips
 - if suspected - shut-off heater, open air vents descend, land at nearest airport

DESCENT

- Engine Temperatures and Pressures are maintained within operating limits.
 - desired oil temperature is from 165 to 220 deg F
- Limit low power settings in descent and circuit.
 - CHT change should not exceed 50 deg F per minute
 - keep fuel/air mixture leaned out during the descent

PRE-FLIGHT COLD WEATHER

- Preheating guidelines
 - Preheat 5 hours with cowling covered when temperature is -5 deg C
 - Preheat 8 hours with cowling covered when temperature is between - 5 and - 20 deg C
 - When temperature is below - 20 deg C no flying.
- Frost/frost removal - surfaces, hinge areas
- NOTE - Wing contamination having the thickness and roughness of medium to coarse sandpaper can decrease lift as much as 30% and increase the drag by 40%.

SURVIVAL GEAR FOR X-COUNTRY (CAR 602.61)

- **602.61** (1) Subject to subsection (2), no person shall operate an aircraft over land unless there is carried on board survival equipment, sufficient for the survival on the ground of each person on board, given the geographical area, the season of the year and anticipated seasonal climatic variations, that provides the means for
 - a) starting a fire;
 - b) providing shelter;
 - c) providing or purifying water; and
 - d) visually signalling distress.