WINTER FLYING

In preparing the aircraft for flight, warm-up procedures are a necessity in Alaska's very cold temperatures. Using a hangar is best, as it is comfortable and time efficient. Put the aircraft in the hangar the night before flight if possible. Caution must be taken if the fuel tanks are completely filled, as fuel will expand as it warms and vent overboard. As always check for water in the fuel sumps, before leaving hangar.

When a hangar is not available, you can use wing and engine covers. Consider also insulated hub prop cover for constant speed props, tail and windshield covers as well as top of the cabin. You can preheat the engine with electric heaters, permanently mounted Tanis or firewall-mounted heaters. Permanent heaters should be installed by an A & P mechanic as it will require a logbook entry. Propane heaters, i.e. Red Dragon-type, will also require 12-volt power supply. Weed burner-type heaters using stove pipes must be used with **extreme caution** due to open flame. Camping backpacker type multi-fuel cooking stoves (which should be included in your survival kit) can also be used to preheat the engine in an emergency.

Fueling the aircraft from cans or barrels should be filtered before going into the airplane tanks. Chamois filters should be clean and dry to filter water. There are filters available that do a better job than the chamois filter method. Keep the fuel tanks full to avoid condensation of water. If fuel is delivered make sure the correct grade of fuel for your engine is being used. Fuel filters and sumps should be equipped with quick drains for checking fuel. Static electricity can cause fires during fueling, be sure you have a good grounding system and a fire extinguisher close by. **If you use a truck if truck with a plastic liner to transport fuel, be very careful as gas cans slide in the bed and cause static electricity**. If you do not have quick drains, it is advisable to drain a substantial amount of fuel (a quart) from the gascolator, then change the selector valve and allow fuel to drain from the other tank. Check your fuel for contamination. Refer to AC20-43C. Do not scrimp when checking your fuel.

Dress warmly for your walk-around. The winter walk-around should take longer, not shorter. If you get cold during the walk-around, you are not dressed correctly for the trip; especially in case of an unscheduled stopover. Check hoses, clamps and seals carefully. Cabin heater - Be sure to check your muffler system carefully for cracks. Each year carbon monoxide is the probable cause of many accidents that have occurred in cold weather. Control cables should be checked and properly adjusted to compensate for temperature changes. This should be done by an A & P mechanic. If your airplane is equipped with skis, make sure safety cables and shock cords on the front of the skis are carefully inspected. If

broken, the tip of the ski can fall to a vertical position which can affect the flight aerodynamics and create landing hazards. Remove as much snow and frost as possible, do not assume that it will blow off. Check Pitot Tubes, heater intakes, carburetor intakes and elevator controls for snow and or ice. Fuel vents should be checked before each flight.

Safety tips for pilots. Are you properly dressed? DO NOT dress for airport to airport flying, even if that is your intended flight plan. Dress to survive. Are you prepared to stay outside for a few days? Avoid "get home-itis". Always file a flight plan. Make sure your passengers are dressed properly for the weather conditions. If they are uncomfortable waiting outside for a bit, they are not dressed properly.

Know your aircraft's winter operating capabilities. Do you have sufficient power to operate in deep snow if you are using skis? Avoid making sharp turns on skis as that creates too much torque on the landing gear. Be aware of the weight of your airplane loaded; will you be able to get the plane unstuck by yourself? Skis have no brakes and little traction in a crosswind. **Wheeled Aircraft braking action on ice or snow is poor while taxiing**. Your aircraft can slide sideways on hard-packed or icy surfaces in a crosswind conditions.

Warm the engine prior to start. Without preheating the engine it is hard to turn, which puts undue strain on the starter and battery. During engine start over-priming can cause excess fuel in the induction system creating a fire hazard. Over-priming during cold starts can cause the spark plugs to foul out and can scour oil from the cylinder walls causing poor compression. Radios should be turned on after electrical power is stabilized.

Before takeoff use carburetor heat as needed. In some cases in extreme cold it is necessary to use the heat to vaporize the fuel. A good investment is a carburetor temperature gauge.

During climb-out certain aircraft are approved for winter baffles and oil cooler plates. FAA approval is required, unless the manufacturer has provided the approval. It is possible to overheat the engine at normal climb speeds when these baffles are installed. If the head temperature nears the critical stage, increase the airspeed and open the cowl flaps. During climb-out keep a close watch on the cylinder head temperature gauge. Some enroute considerations are weather and carburetor ice. Watch out for carbon monoxide (CO) poisoning, symptoms include sluggishness, warmth and tightness across forehead, headache, pressure at the temples, ringing in the ears and dizziness. Also remember that spatial disorientation may occur due to low visibility, ragged ceiling and or white-out conditions.

During letdown maintain a warm engine temperature. Watch the weather at your destination, blowing snow and ice fog can form quickly, have an alternate landing site planned.

During landing take the time to circle the field. Before landing look for snow drifts and other obstacles. After landing and engine shutdown prop skis up to avoid having your skis freeze to the ground, you can use plastic bags around them. Turn off the fuel and run the carburetor dry to lessen the fire hazard during next engine heating period.

Post flight fill the fuel tanks with fuel, put on engine, pitot tube and wing covers; do not forget to tie down your aircraft as the wind can pick up quite suddenly.

Some weather considerations are ice fog, blowing snow, flat light and white out conditions which can prove extremely dangerous especially for VFR operations. Overflow conditions, where water seeps above the ice but under the snow, can cause your airplane to become stuck possibly until Spring J . Also consider the short daylight hours in winter.

In case of a survival situation, survey your conditions. Should you stay with the aircraft or start out on foot? Asking yourself the following questions can help you make a decision. Did you file a flight plan and or does anyone know your flight itinerary? Is your emergency locator transmitter (ELT) operating and turned on? Do you have a survival kit, equipment (for a tent, you can use parts of the plane, etc.) to make a shelter. Use airplane parts to help you survive; Gas for fire, oil for smoke signals, seat upholstery to wrap around feet or hands, wiring for tie strings, the battery may be used to ignite fuel. A survival kit is required by Alaska law; food for each occupant to sustain life for two weeks, an ax or hatchet, a first aid kit, a pistol, revolver, shotgun or rifle and some ammunition, a small gill net and an assortment of tackle such as hooks, flies, lines, sinkers, etc., a knife, two small boxes of matches, a mosquito head net for each occupant.

Two small signaling devices such as colored smoke bombs, railroad fuses, or very pistol shells, in sealed metal containers. Also, from October 15 to April 1st you must also carry one pair of snowshoes, one sleeping bag and one wool blanket for each occupant over four.

The **bare** necessities of survival gear that you should carry on you would include; a knife or Leatherman type tool, high energy food bars, strike anywhere matches and fire starter (in a zip lock bag to keep them dry), a signal mirror, a few large heavy duty plastic bags for protection against heat loss. **Remember, you must stay warm and dry to survive, and you will need a shelter.**