WINTER-WISE OPERATIONS - "TEST"

By Lou Wipotnik, ATP, CFI and FAA Safety Counselor

Name: _____

Date: _____ rev 5. 11/03

1. Overnight there were strong gusty winds and heavy snow fall. Your aircraft was parked outside. What **extra** preflight checks should be performed?
   a) Make sure snow wasn't blown into your fuselage, thereby changing your total weight and/or weight and balance.
   b) Check all openings and vents for blockage.
   c) Check that your wheel brakes are not frozen.
   d) All of the above.

2. What is the preferred method of cleaning snow from the wings and tail?
   a) Do a highspeed taxi - the wind will blow it off.
   b) Use a broom to get rid of most of the snow, that's all that is necessary.
   c) Have the airplane placed in a heated hangar, and wipe off all melted moisture before taking it outside in sub-freezing temperatures.
   d) Use an auto type ice/snow scraper.

3. What is the best method of cleaning snow/ice from the windscreen?
   a) Use an auto type ice scraper.
   b) Use a wooden broom handle, gently tapping away the ice.
   c) Use a cloth or soft rag.
   d) Use the defroster after engine start

4. You request (night before) that the airplane be pulled from the heated hangar at 10. However, you arrive at 10:30 and the airplane has been sitting outside in 10^0F temperatures. You start the engine on the first try and it runs for a couple of seconds, then quits. Now you can't get it to start. Why?
   a) You're not giving it enough prime.
   b) Your carburetor is iced.
   c) Your mixture is too lean.
   d) Your plugs are frosted.

5. In the above problem what should you do?
   a) Have a certified mechanic take the plugs out to clean the ice from the electrodes.
   b) Pre-heat the aircraft.
   c) Place the aircraft in a heated hangar.
   d) All or any of the above.

6. What is the recommended procedure for using the airplanes starter?
   a) Do not continue cranking beyond three minutes without cooling the starter.
   b) Do not continue cranking beyond thirty seconds without cooling the starter.
   c) Continue cranking, looking for puffs of black smoke from the exhaust, meaning the engine is showing signs of starting.
   d) Use the hand propping technique to save the starter.

7. When the temperature is just above the pre-heat temp., what is the preferred starting technique?
   a) Pump the throttle five or six times.
   b) Pump the primer five or six times.
   c) Pump the primer according to the POH, set the throttle to a position of 1000/1200 RPM. Keep the primer out for continued priming (slowly) if necessary.
   d) Pump the primer according to the POH. and then pump the throttle four to five times.

8. How long after the engine starts in cold weather should the oil pressure begin to rise?
   a) Within 10 - 30 seconds
   b) Within 30 - 60 seconds
   c) Within 1 -2 minutes
   d) Immediately

9. How can you tell if the engine has warmed sufficiently for take off?
   a) It runs smoothly at idle.
   b) After one minute, if it doesn't stop, it is normally warmed for takeoff.
   c) The engine accelerates smoothly and oil pressure remains normal and steady.
   d) If the oil pressure is in the green, the airplane is ready for takeoff.

10. In an aircraft that costs $120 per TACH hour, how much will it cost a club member if it takes 15 minutes from engine start to takeoff (to get ATIS, warm up the engine and taxi)?
   a) $60
   b) $30
   c) $15
   d) Less than $15

11. The presence of ice pellets at the surface is evidence that there:
   a) are thunderstorms in the area
   b) a cold front has passed
   c) is a temperature inversion with freezing rain at a higher altitude
   d) there is colder air aloft with heavy moisture

12. When a cylinder becomes scored or cracked due to a lack of pre-heat or shock cooling, a single replacement cylinder can cost
   a) $600 each - plus labor
   b) $800 each - plus labor
   c) $1,000 each - plus labor
   d) more than $1,000 each - plus labor

13. When forced to do a "Go-around" in cold weather, what should you do?
   a) Rapidly add full power, carb heat hot.
   b) Carb heat cold, add full power.
   c) Steadily add full power, carb heat cold.
   d) Rapidly add full power, carb heat cold.

14. What are the consequences of starting an engine below 25^0F without an engine pre-heat?
   a) Reduces the useful life of the engine (TBO)
   b) The different metallic elements of the engine expand and contract differently at these temperatures and can cause the cylinder walls to become scored.
   c) The oil is too thick to lubricate the cylinder walls.
   d) All of the above.

For **15 - 18**: When outside ambient temperatures reach or fall below
   A) -17^0C / 0^0F
   B) -12^0C / 10^0F
   C) -4^0C / 25^0F
   D) 5^0C / 40^0F

15. ____ an engine pre-heat is required

16. ____ intentional engine cuts are no longer approved in our multi-engine trainer aircraft

17. ____ pattern work is not allowed (due to abrupt changes in power and cylinder head temperatures)

18. ____ cross country flights must be individually approved in order to be taken

Circle either **True** or **False** on the following questions

19. **True** or **False** - Engine fires during starts are usually the result of under priming.

20. **True** or **False** - 85% of all body heat escapes through the top of a persons head (regardless of how much hair you still have)

21. **True** or **False** - Leaving the Master Switch on overnight could cause the battery to discharge so badly that the cells could freeze and crack the case.

22. **True** or **False** - A hangar de-ice will always substitute for an engine pre-heat.

23. **True** or **False** - If a fire is present before the engine has started, move the mixture control to idle cut off, open the throttle and crank the engine.

24. **True** or **False** - The above procedure is an attempt to draw the fire into the engine.

25. **True** or **False** - If a fire is present after the engine has started, continue cranking to try to pull the fire into the engine.

26. **True** or **False** - The best way to descend in cold heavy air, is to cut the power and come down quickly.

27. **True** or **False** - A few quick pumps of the throttle is an acceptable way of priming most engines.

28. **True** or **False** - Even for short flights, pilots should carry warm clothing for all passengers, and file flight plans as the best insurance against cold weather exposure, in the event of a forced landing, or crash.

29. **True** or **False** - Ice cannot form on an aircraft in flight unless the outside air temperature falls below 0^0C.

30. **True** or **False** - In order for ice to form on an aircraft in flight, the plane must be flown in IMC through a cloud.

31. **True** or **False** - The reason an engine needs to be pre-heated is primarily due to the fact that the different metals used in engines expand and contract at different temperatures

32. **True** or **False** - A scored cylinder will result in lower compression.

33. **True** or **False** - Always check the electric lights, flaps and other accessories by operating them before starting the engine.

34. **True** or **False** - Always remember to re-engage the starter bendix after shutting down the engine.

BONUS QUESTION: Where can a member of Windy City Flyers find the latest winter weather info on the Internet?

DISCUSSION TOPICS & PROCEDURES

1. Procedures for scheduling and coordinating line services including: towing, pre-heats, glycol, hangar de-ice & hangar overnights

2. Procedure for canceling line services previously ordered

3. Pre-flight considerations - electrical systems

4. Procedures for recording line services in the Windy City Flyers' aircraft clipboards

5. Cold weather operations in high performance and retractable gear aircraft

6. Thermal shock - heating and cooling

APPROVED BY: _____ DATE: _____

(*Flight Instructor)*