TP 2228E-13 (04/2003)

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Fuel Drum Etiquette

Prior to the first takeoff, make sure that the aircraft tool box contains rubber gloves, a bung wrench, filters, a standpipe and collar, a diaphragm and nylon valve repair kit, grounding cables, and enough tools to do the job. Make sure that you know how to use them.

Okay. You have just landed at a fuel cache, perhaps one that is not familiar to you. All things being equal, the fuel cell in your aircraft is presently uncontaminated, and the trick is to refuel, without incident, while maintaining this uncontaminated state!

The Basics

1. Ensure that the drum you are using contains the proper fuel, regardless of what is printed on the outside! Also note: different oil companies have different colours for drums, but a drum's colour is not a foolproof indicator. Confirm by the appearance and odour of the fuel each time.

   Be suspicious of any drum that seems light or heavy: water weighs 20% more, and AvGas 10% less, than Jet B. Whatever is printed on the drum cannot be trusted if the original seal is broken or missing.

2. Somewhere on the drum is a fill date. Most oil companies discourage using fuel that is more than two years old. One reason is that a nasty fungus (cladosporium resinae) can thrive in small amounts of water in jet fuel, and will clog fuel lines. Older fuel can be used safely with caution. Check for any strange odour, or a dark or cloudy condition. If you have any doubt, do not use it.

3. Check all unsealed drums for an "X" markedon the end. This is the accepted marking for contamination. However, the lack of an "X" is no guarantee of quality! Many pilots who use a part drum will mark the date, aircraft registration, and approximate amount used, near the bung. (If you have any doubt, don't use it!)

4. Store the drum in the proper manner, and be suspicious of any drum that is not, especially if you have reason to doubt whether it has been well resealed (bung or vent loose; gaskets torn, missing, or twisted). Even when properly resealed and stored, a part drum is more likely to contain moisture because of the increased "breathing" (more air content equals greater compressibility.)

5. All fuel drums should be stored on their side, with bungs and vents at the 3 o'clock and 9 o'clock positions. Make sure that the top of the drum (with the openings) is lower than the bottom. This will minimize breathing (air and moisture exchange from the outside).

6. When opening a drum, observe the following:

   a. Stand the drum on end and block it with the high side at 12 o'clock, the bung at 3 o'clock, and the vent at 9 o'clock. This prevents water or dirty fuel from reaching the openings.

   b. Ensure that the standpipe cannot reach the lowest point in the drum. Thus, any small amount of water or dirt will remain in the drum. You should not need the last gallon badly enough to risk using it.

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c. If possible, stand up your drums prior to their usage (up to two days, if dry conditions can be assured) to allow contaminants time to settle out. Avoid agitating the drums when refueling.

7. If you have a helicopter and you must hot-refuel, avoid putting loose items such as bungs and wrenches on top of the drum.

   Note: Hot refueling from drums should be done only during an emergency, or under very controlled conditions in compliance with CAR 602.09 and the approved Company Operations Manual (lots of ground crew, no passengers on board, pilot at the controls, and a developed refueling procedure complete with individual duties and signals). The potential for disaster normally outweighs the potential for time saved.

8. Upon emptying the drum, locate it (with bung and vent reinstalled) so that it will not become a rolling or flying hazard to yourself or others using the fuel dump.

9. Proper grounding is critical, especially during winter operations. Dry winter air and blowing snow transform the rotors into powerful static generators. Moreover, snow insulates, and static may not dissipate on touchdown. Avoid wearing nylon clothing or wiping plexiglass when refuelling. Dusty or sandy conditions are also conducive to static buildup. Check the condition of the ground cables, and replace any doubtful connections.

   Note: The proper sequence for grounding is: drum to ground (anchor post), drum to pump, pump to aircraft, nozzle to aircraft, then open cap. When finished, reverse order.

10. Fuel caches should be located clear of sandy, dusty, or debris-strewn areas. They should be organized to expedite refueling, with a good approach/departure path. (Remember: you will be heavier leaving, than arriving, unless you arrived with a load of uranium)

11. Always carry and use water finding paste, such as Kolor Kut. A tube will fit unobtrusively in your map case and last for a long time. A dab on the end of the standpipe will give a positive indication of water.

12. Ensure that the pump is equipped with a clean and serviceable go-no-go filter and particle filter in series, with intact o-rings. The go-no-go is designed to bind up and prevent flow in the presence of water. Increased pressure usually means blockage or contamination. Observe the sight glass for dirt or water in the sediment filter.

13. Squirt the first pump strokes into a container before putting the nozzle into the aircraft. Any dirt downstream of the filters will be flushed out of the hose, and can thus be examined.

14. Dispose of plastic caps, metal rings, and date tags from your used drums carefully to prevent the risk of foreign object damage (FOD) in the refueling area.

15. Don't forget that the first preflight of the day should include a draining and catching of the aircraft's sump/airframe fuel-filter contents. Do this before disturbing the aircraft.