

# *Vinland Aerodrome, Inc. K64*

## **FIRE DANGER**

There have been several incidents of aircraft, hangars or other property and persons being lost because of fires caused by static discharge while an airplane is being fueled or where fuel is being drained from aircraft.

## **WHAT IS STATIC?**

Static electricity is an electric charge built up on persons or objects through friction. It is most familiar as an occasional annoyance in seasons of low humidity, but can be destructive and harmful in some situations. When working in the presence of flammable gas, care must be taken to avoid accumulating and discharging static electricity.

Static electricity is electricity that does not flow in a current. The charge remains until there is a path for it to discharge. Usually, substances that do not conduct current electricity (insulators) are good at holding a charge. These substances may include rubber, plastic, glass or pitch. The electrons that are transferred are stored on the surface of an object. The static charge will not build up if the two objects are connected by a bonding wire that keeps them at the same electric potential.

## **BONDING** From Bill Missal's "Don't Take Any Static" *Cessna Pilots Association V23, No.8 Aug. 2006*

Aircraft and fuel trucks, storage tanks, fuel drums, or gas cans are not normally connected unless actual fueling is being performed. Static charges can exist between any of them at any time. If there is or has been a rain, thunder, or lightning storm, it is likely that static charges have built up and need to be dissipated. This is particularly likely with aircraft since they are usually separated from the ground and from fuel, tanks, drums, or cans by the rubber tires. This charge will not be dissipated, unless one of these objects is brought close enough to the aircraft for the electrical difference to discharge. If this discharge occurs rapidly when a fuel nozzle is being brought close to an aircraft's fuel tank opening, the spark can, and likely will, ignite the fuel vapors. If the vapors are in a high enough concentration, an explosion will occur.

To avoid this situation, fuel trucks, fuel drums, or gas cans should be electrically connected to the aircraft before being brought close to begin fueling. The proper way is by using a bonding or grounding wire. This will put them at the same electrical potential a static charge; if it was present, will not longer exist.

To ensure proper bonding; follow this sequence:

- The truck, tank, or can should be electrically bonded to the ground first.
- The aircraft should be electrically bonded to the ground.
- Bond the truck, tank, or can to the aircraft before the hose and nozzle are brought to the aircraft.

Any static charges that were present will be discharged through the bonding wires, and these wires will prevent additional charges from building during the fueling process. Remember that fuel being poured into a fuel tank will develop static charges just like the rain, if electrical bonding is not present.

## **PLASTIC GAS CANS** From Bill Missal's "Don't Take Any Static" *Cessna Pilots Association V23, No.8 Aug. 2006*

A plastic can, itself, cannot transmit an electric current; a static charge can build up between the plastic can and the aircraft for the fuel within the can and the aircraft. The same cautions should be taken with plastic cans as with other fueling containers. One method is to ensure that the spout of the can is actually touching the side of the fuel tank opening at all times during the fueling. Another is to sit the container in the grass and wipe the sides down with water. A metal probe can be inserted into your can and attached to the aircraft. A metal gas can is a safer alternative.

## **MR. FUNNEL**

Mr. Funnel is a heavy-duty, fast-flow filter in a funnel that separates damaging free water and solids from fuel. It is a Teflon coated stainless steel filter with a conductive plastic funnel body. Proper grounding is still required. A community one is available in the C152 cabinet. Three different sizes are available for sale; inquire in the office or by the contact information below.