

## PROS AND CONS OF DIFFERENT TYPES OF HEATERS FOR GOLF CARTS

One does not have to do a lot of investigating to see the danger of using propane type heaters in golf cars. In my home state of Oregon at Springfield Country Club a major fire occurred when 140 golf cars burned up, along with the storage building. The cause was contributed to a leaking propane tank.

A look at the Internet brings up several reports of similar fires. The problem is not so much the small one pound tanks but when the golf car owner installs a two gallon or larger propane tank. It is usually mounted in the rear with the hose running up to the front heating burner unit. I have talked to dozens of golf car dealers who say that although they have had requests they will not install these larger propane tanks. All propane heaters are subject to flare ups. The propane heater often will seem to be operating fine, but for some reason will flare up and can often either start a fire or burn the carts occupants. Therefore Propane should not be left on unattended.

Quite often, the car owner will more than likely install the tanks themselves and often do not do a very good job. Propane, when it leaks, will go down to just above the floor and will accumulate until some type of spark sets it off. The spark or arc is generally caused by either a charger or some type of motor, i.e.; fan, air compressor, etc. All of the heat from a propane heater is located right in front of the burner and is not dispersed throughout the car's interior very well. Although propane heaters may have a heat control, they do not work well. When the car occupant tries to turn down the heater control knob, they often go out. A strong wind will also often blow them out as well. Although the initial cost of a propane heater is lower, when one considers the cost of replacement tanks, they lose the price advantage. Another negating factor about propane is that they often will run out of fuel in the middle of a round.

Electric heaters run off of the full voltage of the batteries, either 36 or 48 volts. Some heaters inconveniently require a separate fan wire, this third wire goes to a 24 volt source. Electric heaters, most of which have a fan, disperse the heat far more evenly. For safety a fuse cable should always be required. Some heaters take a few minutes after they are turned on to produce any heat while others have heating elements that heat up to the full capacity in only a second or two. Generally this is referred to as instant heat. The advantage of this type of heater is they can be turned off during the time the cart occupants are out of the cart putting or waiting to drive and then turn back on.

All heaters are most effective when the golf car is fully enclosed. To be totally effective the enclosure air leaks should be plug up, particularly around the front windshield. Most electric heaters, when on high, draw 15 to 20 amps. This compare to the 100 or more amps the motor draws. Thus using the heater is like going two or three extra holes. Most golf cars with a fairly good batteries will go at least 36 holes with no problem

The mounting of an electric heater is important. To mount it on the right side of the golf cars glove box is not going to be very satisfactory to the golf car driver. The heater requires at least a minimum of 1 inch of clearance. Also, some manufacturers put the power switch , low / high, on the rear or the side towards the rear. This is not very convenient. Ideally the combination low/high off switch should be located to the front. The most preferred place is to mount the heater is on the steering post. It is out of the way and puts the heater close to the car occupants. The other advantage is that the cable can simply be run down the steering post and, in most cases, run through the rubber boot which then needs to be run to the battery compartment. Having the convenience of a rear Detachable cable is important in that the heater can easily be removed if needed. The heater enclosure should be made out of metal and have sufficient openings so that the enclosure will not get too hot. Some manufacturers have actually made them out of wood, which looks out of place in the golf car. In coastal areas rust can be a problem. Therefore both the inside and outside of the metal enclosure should be painted.

Electric heaters for gas carts are just not too practical. The reason for this is the heater only puts out about 300 watts and is little more than a hand warmer. Because gas carts have a rather small 12 volt battery increase, the wattage is not too practical.

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