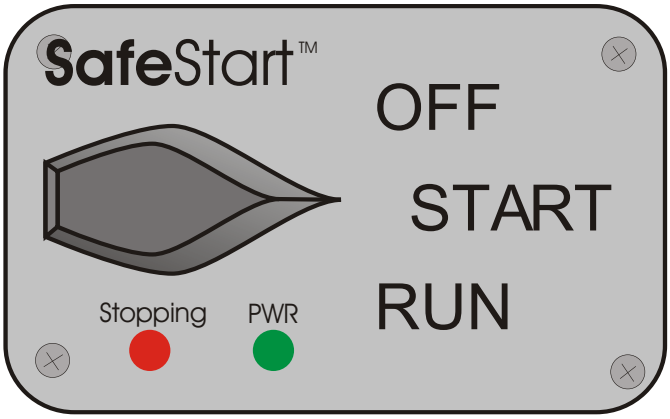
Paramotor **Safe**Start™

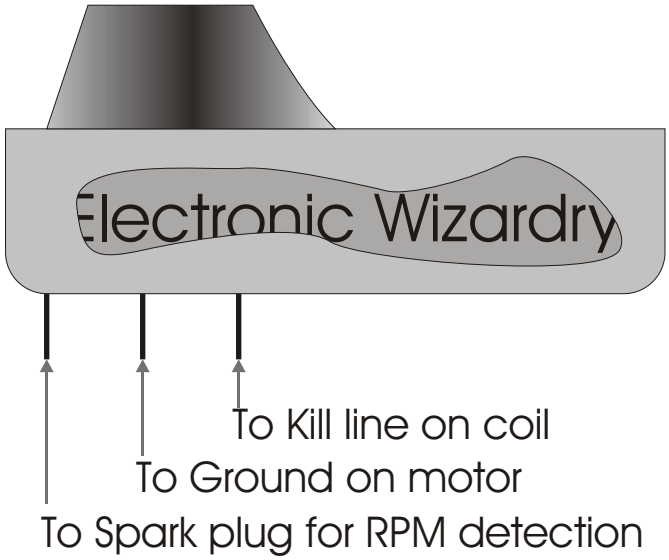
Use of the name **Safe**Start is available, for a nominal fee, with permission. The intent is to encourage its use while maintaining design integrity.

The most common cause of paramotor injuries is the propeller. And the single most common cause of those is when the motor is started and unexpectedly goes above idle power. This system reduces that likelihood.



Stopping: Lights up when the circuit is commanding a motor kill. That is when START is selected and the motor exceeds 3000 rpm, the kill line is shorted for 5 seconds. This light stays on for that time to let the pilot know why the motor shut off.

PWR: Lets the pilot know the auto-shutoff circuit has sufficient battery power. In would normally be lit with the switch in the start or run position.



OFF: The kill line is closed (shorted) mechanically and power is removed from the auto shutoff circuit.

START: The kill line is opened electronically (batt power is required) and power applied to the auto shutoff circuit. Without power, the motor will not start. With power, if the motor exceeds 3000 rpm, the kill line is shorted for 5 seconds.

RUN: The kill line is mechanically open so that, even with a dead **Safe**Start battery, the motor can be started and run. It's not "failsafe" in order to avoid stranding a pilot simply because of a dead battery.

With normal system power, the RUN position electronically shorts the kill line while rpm is below 1000. The idea is that the motor cannot be started in this position but can run once started. There is no problem if the battery dies in flight since it merely loses the ability to short the kill line based on RPM.

Another less-safe implementation is for the RUN position to simply bypass the whole circuit so that, in the event of an inflight motor failure, the pilot doesn't have to mess with this switch during a restart. This sacrifices some safety because a pilot could just select RUN when starting and give up the entire benefit.

The system should have a timer that would power itself down 20 minutes after the rpm has dropped below 1000. This will prevent running the battery down.

It would be preferrable to run on common alkaline batteries that are easily changed without tools.

Licensing: The mark was registered to provide an easily recognizable means for customers to know your paramotor comes equipped with this safety feature. It will be licensed to paramotor makers whose product complies with design specs, in effect at the time of manufacture, for $50 per *company* (not per machine). The fee is designed only to cover trademark application fees ($275). It is an effort to encourage adoption while preventing the trademark from being snatched up by any one company. Design specs may change.

Created 11/20/2006, Jeff Goin