Paramotor throttle safety

In May, a pilot was practising motor familiarity and thrust exercises on his club site with his paramotor (no wing was attached) when he slipped on the dry grass and fell. The pilot tried to stop the engine using the kill switch on the throttle – which didn't function. It was later found that the throttle cable had contacted the propeller, which broke the kill circuitry in the throttle cable and then flicked it around the exhaust outlet.

The pilot was pinned on his knees with the paramotor stuck on a high power setting, the prop contact having also damaged the throttle cable sheath. Other club members were unable to approach him to assist without exposing themselves to the danger of the rotating propeller.

After several minutes the heat of the exhaust outlet melted through the throttle cable, shorting the circuit and killing the engine. The pilot was lucky that his hand wasn't drawn into the prop when it caught the throttle cable. Propeller contacts are well documented in Skywings and have resulted in life-changing injuries.

This incident highlights important safety points that paramotor pilots should consider.

1. Check your throttle cable length and routing. Using your standard throttle grip, can you conduct the full range of normal arm movements without the throttle cable passing behind you and possibly coming into contact with the propeller or engine components?

You may be exposed to this risk upon making a particular arm movement that results in rearward travel of the throttle cable. Throttle cable routing and gaps in cage netting vary across different paramotors.

In the above incident, the length of unrestrained throttle cable meant that it was able to pass behind the pilot when he lowered his arm. This issue is not unique to the Parajet Maverick that was involved in this incident, and Parajet now use a bungee system to inhibit rearwards movement of the throttle cable.

Other manufacturers have addressed the risk through the design of the throttle system, arranging protection for the cables, or using retaining clips to reduce the risk of throttle cable slack passing into the prop zone. If you have any doubts about the position or routeing of your throttle cable, contact the manufacturer of your paramotor.

2. Technique. Instead of letting the throttle cable hang loose under your arm (Fig. 1 below), use the 'over the forearm' method of throttle cable routeing, as illustrated in Fig. 2. This helps remove possible slack in the cable. If you are unsure, consult your Power Instructor or a Power Coach.

3. Be prepared! Just like a loss of engine power (which all powered pilots have either already experienced or will do in the future), throttle and kill-switch failures are predictable events that need to be prepared for. If your throttle-mounted kill system becomes inoperative for any reason, how do you cut the motor?

Some motors have an accessible master switch. Others have a choke that can be operated from the pilot position to flood the engine and stop it. You are recommended to find out how to cut your engine without using the throttle-mounted kill switch. Rehearse the operation so that you are familiar with what to do if it becomes necessary in an emergency.