ACCIDENT

Aircraft Type and Registration:	Skyranger 912(2), G-CCXM
No & Type of Engines:	1 Rotax 912-UL piston engine
Category:	1.4
Year of Manufacture:	2004
Date & Time (UTC):	10 July 2005 at 1132 hrs
Location:	Redlands Airfield, Swindon, Wiltshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - 1 (Serious) Passengers - N/A
Nature of Damage:	Extensive to airframe and propeller
Commander's Licence:	UK Private Pilot's Licence
Commander's Age:	49 years
Commander's Flying Experience:	639 hours (of which 58 were on type) Last 90 days - 20 hours Last 28 days - 11 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Circumstances

The Skyranger is a two seat, three axis aeroplane; G-CCXM had a tricycle undercarriage though the type is available in a taildragger configuration. The pilot, who was also the aircraft owner, had flown to Redlands Airfield from his home strip in Northamptonshire and was preparing for the return flight when the accident happened. Prior to the flight to Redlands, the aircraft battery was found to be discharged, so a 'jump start' pack was used to start the engine. The 43 minute flight to Redlands was otherwise uneventful. After a ground stop of some 40 minutes, the pilot boarded the aircraft for the return flight, but found that there was still insufficient battery power to turn the engine. As the pilot had not brought the starter pack with him he decided to hand swing the propeller.

The pilot manoeuvred the aircraft to point it in a safe direction before applying the parking brake, which consisted of a 'bungee' cord which was looped over the control column and brake lever – a common arrangement on this type. The pilot did not have any wheel chocks and none were immediately available. He considered asking someone to sit in the cockpit to guard the switches but felt that there was no-one nearby whom he could trust with this task and that it may potentially endanger them. The pilot checked that the master and ignition

switches were ON and that the throttle was closed before hand swinging the three bladed propeller. The engine did not fire at the first swing, so the pilot re-checked the switches and confirmed the throttle was closed. On the next swing the engine started but ran up to a high power setting, causing the aircraft to move forward. The pilot attempted to jump clear of the propeller and to reach the cockpit to turn the switches off, but in so doing his left arm was struck by two blades of the propeller, breaking his elbow and causing a deep laceration which later required surgery.

The aircraft proceeded unmanned across a runway and into a hedge where it came to rest. The engine stopped as a result of the propeller coming into contact with the ground. The main undercarriage had collapsed, and damage had occurred to the cabin and main fuselage areas. The aircraft was subsequently examined by a BMAA inspector but the reason for the engine starting on a high power setting could not be determined; there was no pre-accident damage to throttle cables and no sign of a carburettor fault that would cause the engine to default to a high power setting. Throttle friction, which was not adjustable, was set correctly.

In his frank report, the pilot stated the following:

> *"My naïve belief was that because I had hand-started Rotax 912 engines before I could do so on this occasion without any problem. Had the engine not started at a high power setting I would probably have had no difficulty, but when it did I was caught out. The one thing I did right was to point the aircraft away from people. I quite accept that it is possible to hand-start an aeroplane safely if you take every possible precaution, though I will not push my luck by hand-swinging a propeller again."*

The pilot also commented that he should have persisted with his efforts to find some chocks; although the aircraft may well have jumped the chocks at high power, he might have avoided the propeller and may even have reached the cockpit before it did so. The pilot later felt he was wrong in thinking that a properly briefed person in the cockpit would have been subject to any unacceptable risk. He also thought that it would have been better to have obtained a 'jump start' pack or to place the battery on charge and accept that he would be a few hours late home.

The CAA issues the following advice to pilots through its General Aviation Safety Sense leaflets:

> *"**Never** attempt to hand swing a propeller (or allow anyone else to swing your propeller) unless you know the proper, safe procedure, and there is a suitably briefed person at the controls, the brakes are ON and the wheels are chocked. Check that the area behind the aircraft is clear."*

Comment

The discharged battery was a common feature to both engine starts on the day, though only one resulted in an accident. At the pilot's home base the correct equipment was available and there would have been minimal pressure to conduct the flight. On the return flight, an unexpected situation left the pilot with apparently limited options, an unfamiliar environment and a lack of the right equipment readily available. Additionally, there was an increased element of pressure to make the flight as it was to return to home base. It is the unexpected situation, probably away from base, which is more likely to lead to a degree of 'improvisation' which in turn increases the risk of a mishap.