

Recreational Pilot e-zine

lssue 142 May 2019

Incident report- rollover in soft sand.

Aircraft. Magni M16 Gyrocopter Location Transit Bay Fiordland Date. 15 April 2019 Time 9:40 am Pilot Total flight time 30,250 hrs. Time on type. 501 POB One Injuries Nil Aircraft Damaged.

Gyrocopter rollover on beach during later stage of take off roll due to encountering an unobserved patch of soft sand. Main Rotor, Prop & Mast were damaged.

Having flown helicopters for 30+ years I am relatively new to gyrocopters, two years & have flown 500 hrs. 400 of these in the South Westland & Fiordland areas with numerous beach & riverbed landings. I have fitted 26" Tundra tyres & a larger suspension nose wheel assembly to allow me to operate in this environment. I was reasonably confident I had cautiously found the aircraft & my limits with regards to performance, slope & soft / rough ground. In my opinion I had pulled back from these limits enough to provide an acceptable level of risk.

The plan was to fly from Neils Beach to Spit Island in Preservation Inlet & return. One POB .A distance of 160 nm each way. A flight I have done numerous times. With my aux tank I have 5.5 hrs endurance. I usually land on a beach enroute to check for engine leaks etc as there are some rather long hostile stretches with no landing areas available. Also to stretch the legs & enjoy Fiordland.

Landings are made below high tide for two reasons, this is generally the firmer sand, & above high tide is DOC land with wilderness areas with no landings permitted. I elected to land on Transit Beach just south of Milford Sound. I had landed on this beach the day before although at the southern end as there was a wind from the north. Allowing for the tides meant landing at Transit Bay 2.5 hrs after high tide & Spit Island 4 hours & after some wandering around then back at Transit Bay 3 hours after low tide.

I landed at the north end and while on the ground walked my take off run. The sand was not as firm as lower down the tidal area (under water at this time) but I was confident it was firm enough. I expected a longer ground roll as no wind & was reasonably heavy with fuel and life raft etc, but had plenty of beach available.

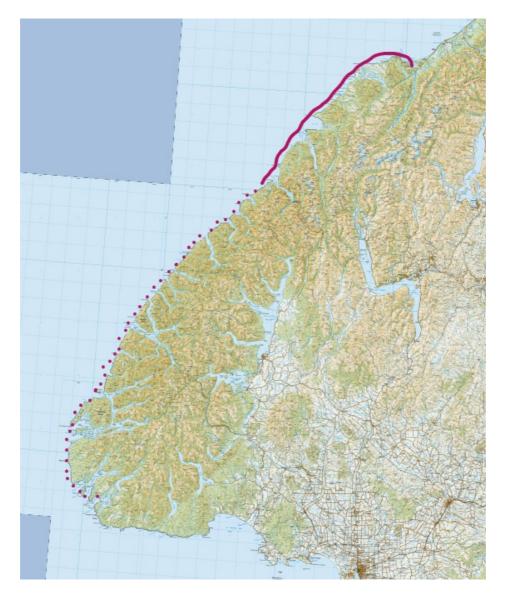
I pre rotated the rotor to 250 rpm and commenced the take off. All was good with the rotor rpm building then at about 70 meters and with approx 30 kts almost instantly the aircraft slowed & rolled over on its right side. After exiting & securing the aircraft I could see the nose wheel had broken through and sunk in approx 200 mm. The sand in this patch was still quite damp underneath. With a sat phone call to RAANZ & a helicopter operator the gyro & I were lifted out to Milford.

What I learnt & will do differently in the future.

This patch of soft sand was at a crucial distance in the take off roll. If it had been earlier things would have happened slower and I would probably have had time to quickly reduce throttle. If it had been later then the nose wheel would have been coming lighter and possibly would not have dug in. I now have even more respect for when at high power settings if the nose wheel meets high resistance and with all that thrust still acting is going to either vertically or laterally can result in bring the tail end around past the front. I am fully aware that beach conditions are constantly changing and need a good assessment prior to landing.

In the future I will also have an even more vigilant & humble approach to suitability of landing & take off surfaces & will include a taxi run down the take off area prior to taking off to further check the suitability.

After 30 years with no pilot error accidents this confirmed to me the old saying in flying the "every day is a school day until you retire".



Editor's note: Liferaft, satphone, fuel reserves, 30000+ hours. A very experienced pilot and well prepared flight....and you can still get caught out!

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