

## SERIOUS INCIDENT

<b>Aircraft Type and Registration:</b>	Rotorway Executive 162F Modified, G-ZHWH	
<b>No &amp; Type of Engines:</b>	1 Rotorway RI 600N piston engine	
<b>Year of Manufacture:</b>	2001 (Serial no: 6596)	
<b>Date &amp; Time (UTC):</b>	10 September 2023 at 1730 hrs	
<b>Location:</b>	In flight over Hampshire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	No damage reported	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	67 years	
<b>Commander's Flying Experience:</b>	580 hours (of which 39 were on type) Last 90 days - 17 hours Last 28 days - 4 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

### Synopsis

The helicopter took off with its ground handling wheels attached. This was discovered after landing as one was still attached and one was missing, having fallen off in flight. There were no known injuries or damage.

Safety action was taken by the UK maintenance organisation to amend the helicopter's checklist, in its Pilot Operating Handbook, to add a check that the ground handling wheels have been removed prior to departure.

### History of the flight

The pilot stated that he was on a local flight from a private site where the helicopter was kept. Prior to moving the helicopter out of its hangar, he completed the pre-flight inspection. He then self-manoeuvred it out of the hangar on its ground handling wheels. Each wheel weighs about 12 lb (5.4 kg). Figure 1 shows the helicopter with a wheel fitted. However, once the helicopter was in a position for startup and takeoff he became distracted by his dogs, which he had to take into his house. Upon returning to the helicopter the pilot forgot to remove the wheels and subsequently took off with them on. He only realised this after landing when he found one wheel attached and one missing. Realising the missing wheel had fallen off in flight, he immediately notified the local ATC unit and police but there had been no notification of any damage or injuries caused by the wheel falling off in flight.



**Figure 1**

G-ZHWH with ground handling wheel fitted

### **Pilot's comments**

The pilot commented that he should not have completed the pre-flight inspection in the hangar with the wheels on. The pilot subsequently attached a bungee to the wheels, which extends to the cockpit, with a 'Remove before flight' flag. He also added an item to his '*START UP, RUN UP AND TAKE OFF*' checklist, to check that the wheels are removed.

### **Helicopter information**

The kit-built helicopter was designed in the USA. There is a UK distributor of the kits, which is also a maintenance organisation for those helicopters registered in the UK. It also provides type rating conversions.

At the time of publication of this report, the design company had ceased trading and could not be contacted.

The ground handling wheels are attached to the rear of the helicopter's skids, with the handle to the rear. The handle is then pulled forward over centre which raises the rear of the helicopter onto the wheel and locks the wheel in position (Figure 1). The rear of the tail of the helicopter is then pulled down until the helicopter is on the wheels, and it can then be manoeuvred as required. The wheels are to be removed before flight.

### **Helicopter's Pilot Operating Handbook (POH)**

The helicopter's POH was produced by the design company in the USA, and a copy is required to be kept in the helicopter. There was no item in any checklist to ensure that ground handling wheels are removed before flight. This was also the case for all other variants with ground handling wheels from this design company.

The UK distributor/maintenance organisation commented that it has been informing its students and new owners not to leave the wheels on, including when putting the aircraft in the hangar. That way owners should always take the wheels off when the helicopter is put on the ground after moving. The organisation also tells owners to do a final walk around before flight.

As a result of this incident, and the inability of the design company to consider amending the POH, the UK maintenance organisation amended the helicopter's '*START UP, RUN UP AND TAKE OFF*' checklist by adding '*VERIFY THAT BOTH GROUND HANDLING WHEELS HAVE BEEN REMOVED BEFORE FLIGHT*'. The organisation planned to make this amendment to other helicopters' POH at their annual check. This would also be done on all the other variants maintained by the maintenance organisation. The CAA supported this safety action.

### **Discussion**

This event highlights the danger of distractions during a critical phase of a flight. This incident is unlikely to have happened had the pilot removed the wheels after he had moved the helicopter out of the hangar, and then completed the pre-flight inspection. Nonetheless, having noticed the distraction at the time, he could have returned to the beginning of a previous phase in his pre-flight preparations to ensure nothing untoward had been missed. A final walk around before engine start, as the maintenance organisation recommends, would also have probably prevented this incident. It is fortunate no known damage or injury resulted from the wheel falling off.

### **Conclusion**

The pilot became distracted during his pre-flight preparations. As a result, the helicopter took off with its ground handling wheels attached and one subsequently fell off in flight. While it was not known when or where the wheel fell off, it had the potential to cause damage and/or serious injury.

### **Safety action**

As a result of this incident the helicopter's maintenance organisation in the UK amended the '*START UP, RUN UP AND TAKE OFF*' checklist by adding '*VERIFY THAT BOTH GROUND HANDLING WHEELS HAVE BEEN REMOVED BEFORE FLIGHT*'. Other helicopters' POH would be amended when undergoing an annual check. This would also be done on all other variants maintained by the Maintenance organisation.