

ACCIDENT

Aircraft Type and Registration:	1) Starduster Too SA300, G-STOO 2) Westland Wasp HAS1, G-BZPP
No & Type of Engines:	1) 1 Lycoming IO-360-C1E6 piston engine 2) 1 Rolls-Royce Nimbus MK 10301 turboshaft engine
Year of Manufacture:	1) 2008 2) 1967
Date & Time (UTC):	5 March 2011 at 1547 hrs
Location:	RNAS Yeovilton, Somerset
Type of Flight:	1) Private 2) Training
Persons on Board:	1 Crew - 1 Passengers - None 2) Crew - 2 Passengers - None
Injuries:	1) Crew - 1 (Serious) Passengers - N/A 2) Crew - None Passengers - N/A
Nature of Damage:	1) Extensive 2) Extensive
Commander's Licence:	1) National Private Pilot's Licence 2) Airline Transport Pilot's Licence
Commander's Age:	1) 72 years 2) 66 years
Commander's Flying Experience:	1) 657 hours (of which 27 were on type) Last 90 days - 2 hours Last 28 days - 1 hour 2) 14,150 hours (of which 2,632 were on type) Last 90 days - 42 hours Last 28 days - 27 hours
Information Source:	Aircraft Accident Report Forms submitted by the pilots, local unit investigation report and additional material provided by the airfield operating authority

Synopsis

The Wasp helicopter was in a low hover, about 150 m in from the Runway 04 threshold. The pilot of the Starduster was flying an approach to Runway 04 but was not aware of the presence of the Wasp. The Starduster collided with the rear of the Wasp and crashed on the

runway nearby, coming to rest in an upright attitude but tipped forward onto its nose. The Wasp yawed uncontrollably to the right and landed heavily, causing the left undercarriage to collapse.

Flying club operations

RNAS Yeovilton was closed for military operations at the time of the accident, so both aircraft were being flown in accordance with the procedures of the Yeovilton Flying Club (YFC). These required pilots of club aircraft to reach mutual agreement regarding the duty runway, unless the local gliding club was flying, in which case its duty instructor would nominate a duty runway.

Specific circuit instructions for operations under YFC procedures were not contained in the YFC operations manual. Runway 04 circuit direction was promulgated as right hand in Yeovilton Aviation Orders (a military document) and also shown as right hand in a commercially available flight guide.

YFC procedures stated that club aircraft operating at Yeovilton outside normal airfield hours were to use the Yeovilton Ground frequency (122.100 MHz), and make appropriate traffic information calls when flying in the visual circuit. However, if the local gliding club was flying, then the Common Glider Field Frequency of 129.975 MHz was to be used instead, in order to aid separation in the circuit between powered aircraft and gliders.

Wasp G-BZPP

The Wasp was carrying out a training detail from Runway 04. The weather was fine, with good visibility and a light wind from the north-east. There was no significant cloud.

The pilot of the Wasp was aware that the Starduster was airborne, having spoken to the pilot earlier and seen it climb out and turn to the left. As the circuit direction was right hand, the pilot believed that the Starduster

had departed the circuit. The Wasp flew its first circuit right hand with a simulated hydraulic failure. The pilot reported making 'blind' radio calls on the Tower frequency of (120.800 MHz): he did not hear any radio calls from other aircraft or see another aircraft in the circuit.

The Wasp made a slow approach and came to a low hover, about 150 m beyond the threshold on the runway centreline. As it started its final descent to land, the crew felt a vibration, accompanied by an uncommanded and rapid yaw to the right. As it did so, the helicopter rolled left, causing the main rotor blades to strike the surface. It landed heavily and the left undercarriage collapsed. The helicopter came to rest after about 270° of yaw, tilted about 45° to the left. The crew, who were uninjured, shut down the engine and turned off the battery before vacating the aircraft through the pilot's door.

The crew were unaware that another aircraft had been involved until after they had vacated the helicopter and saw the Starduster nearby. The aircraft was upright but tipped forward onto its nose. The pilot of the Starduster was conscious but dazed, and had apparently hit his head on a GPS mounting bracket which projected from the instrument panel.

The Wasp crew righted the aircraft and one of them, who was a medical doctor, rendered first aid. Having ascertained that it was safe to do so, the pilot was helped from his cockpit by the Wasp crew who attended him until the emergency services arrived. The Starduster pilot was taken to hospital with serious head injuries.

Subsequent examination of G-BZPP showed that the aircraft's radio was tuned to the Ground frequency (122.100 MHz) and not the Tower frequency.

However, the Tower frequency was set at 'Standby' and the frequencies could have been inadvertently interchanged during the crew's egress. There were no recorded transmissions from either aircraft on the Tower frequency, although transmissions from the air ambulance helicopter and another aircraft on frequency shortly after the accident were recorded. The Wasp co-pilot's transmission key was reported as being inoperative, which would account for intended transmissions made on the co-pilot's side on 120.800 MHz not being recorded. Radio reception was not affected by this fault.

Starduster G-STOO

Prior to leaving the club hangar, the pilot of the Starduster ascertained that no other club aircraft were due to be flying. Whilst walking to his aircraft, he saw the pilot of a Chipmunk that had just landed, who said that no-one else was flying and that he himself did not intend to fly again. However, after a late change of plan, that same pilot was to fly the Wasp. This fact was not communicated to the Starduster pilot, who thus believed that he would be the only powered aircraft operating.

The Starduster pilot saw a glider parked at dispersal with three people in attendance. Thinking that gliding may be taking place, he called on the glider frequency but got no clear response. He then tried the Tower frequency but again got no response, so chose to remain on the glider frequency.

The pilot took off and started flying left hand circuits on Runway 04, making 'blind' circuit calls on the gliding frequency and listening out for short periods on the Tower frequency. The pilot reported that it was not unusual to vary the circuit direction outside normal

operating hours. On his fifth circuit, after rolling out over the threshold from his normal curved approach, the Starduster pilot saw the Wasp ahead and slightly to the left. He immediately applied power and pulled up and to his right.

The pilot's next recollection was being treated by a paramedic after the accident. He had suffered facial and eye injuries and was taken to hospital by ambulance.

Subsequent inspection of the aircraft revealed that the pilot's left side seat harness anchor point had been compromised in the collision with the Wasp, so he was only partially restrained when the aircraft hit the runway.

Other damage

Parts of the Wasp's main rotor blades separated after striking the runway and were thrown some distance from the accident site. One piece caused minor damage to civilian property at a residence close to the airfield boundary.

Unit investigation

The Commanding Officer, RNAS Yeovilton, ordered that a unit investigation be carried out into YFC operations. As a result of recommendations made in the investigation report, the YFC introduced a number of changes to its procedures for operations outside normal airfield hours. These included the establishment of a Duty Pilot post with appropriate supervisory responsibilities, enhanced 'booking out' procedures, mandatory briefing for pilots, and the mandatory use of a single frequency (120.800 MHz) by all aircraft in the visual circuit. Additionally, limitations were put in place regarding mixed (rotary and fixed-wing) flying.