
AIRCRAFT ACCIDENT REPORT No 6/2009

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**REPORT ON THE ACCIDENT TO
HAWKER HURRICANE MK XII (IIB), G-HURR
1 NM NORTH-WEST OF SHOREHAM AIRPORT, WEST SUSSEX
ON 15 SEPTEMBER 2007**

Registered Owner and Operator:	Spitfire Ltd
Aircraft Type:	Hawker Hurricane Mk XII (Iib)
Registration:	G-HURR
Manufacturer's Serial Number:	52024
Place of Accident:	1 nm north-west of Shoreham Airport, Sussex
Date and Time:	15 September 2007 at 1422 hrs (All times in this report are UTC, unless otherwise stated)

Synopsis

The accident was notified to the Air Accidents Investigation Branch (AAIB) by Shoreham Airport Air Traffic Control (ATC) shortly after it occurred; an AAIB field investigation was commenced immediately.

The Hurricane aircraft, G-HURR, was taking part in a flying display and was following another Hurricane in a tail chase. Both aircraft flew past the spectators along the display line at a height of approximately 200 ft before tracking to the north-west and climbing. The lead Hurricane climbed to approximately 1,100 ft above ground level (agl), pitched nose-up about 45° and rolled to the left through 270°, before pulling into a right turn to rejoin the display line. The second Hurricane, which was approximately 700 ft agl, pitched nose-up about 15°, before rolling to the left. As it reached the inverted position, the roll stopped, the nose dropped and the aircraft entered a steep dive. It struck the ground,

fatally injuring the pilot. The aircraft was destroyed by the ground impact and subsequent fire.

The pilot appeared to have attempted to follow the manoeuvre flown by the leading pilot. Although the airspeed was adequate, the aircraft had insufficient nose-up pitch attitude at the point of entry to ensure the safe execution of the manoeuvre in the height available. When the aircraft was inverted, the roll stopped, the nose dropped and insufficient height was available to recover from the dive.

The investigation identified the following causal factors:

- 1 The accident probably occurred as a result of the pilot attempting an unplanned rolling manoeuvre.

- 2 When the manoeuvre was commenced, the airspeed was adequate, but the nose-up pitch attitude was insufficient to enable the manoeuvre to be completed safely in the height available.
- 3 When the roll stopped in the inverted position, the aircraft's nose dropped rapidly and there was insufficient height available for the recovery manoeuvre the pilot attempted.
- 7 When the roll stopped at the inverted, the aircraft's nose dropped rapidly and insufficient height was available to recover from the dive.
- 8 The pilot had stated on a number of occasions prior to the display that he would not be rolling the aircraft, but in the event, did so.
- 9 Whilst the lead Hurricane pilot and the display sequence organisers were satisfied from the briefings and the pilot of G-HURR's comments that he was clear about the manoeuvres he would be performing, his action of attempting the rolling manoeuvre suggested otherwise.

As a result of this accident six Safety Recommendations are made.

Findings

- 1 The aircraft had a current Permit to Fly and was properly maintained.
- 2 No evidence was found of any defect or malfunction in the aircraft that could have caused or contributed to the accident.
- 3 The mass and centre of gravity of the aircraft were within the prescribed limits.
- 4 The pilot was properly licensed, held a current Class 2 medical certificate and was properly authorised to display the Hurricane.
- 5 There was no record of the pilot having completed the currency training requirements as specified in the operator's Organisational Control Manual.
- 6 The pilot appears to have attempted to perform a rolling manoeuvre with insufficient nose-up pitch attitude to ensure safe completion of the manoeuvre in the height available.
- 10 The intended display sequence had not been practised.
- 11 The pilot had not demonstrated similar manoeuvres in an aircraft in the same category when his Display Authorisation was last renewed.

Safety Recommendations

Safety Recommendation 2009-052

It is recommended that the UK Civil Aviation Authority requires that the sequence of manoeuvres for a flying display is clearly specified in advance of the display and provided to the display organiser and that the sequence is practised prior to displaying to the public.

Safety Recommendation 2009-053

It is recommended that the UK Civil Aviation Authority amend the Display Authorisation process to identify the level of aerobatic manoeuvres a pilot is permitted to perform when leading or flying as a member of a tail chase.

Safety Recommendation 2009-054

It is recommended that the UK Civil Aviation Authority introduce a recurrent programme of Human Factors training for display pilots. The training should specifically address human performance and its limitations when undertaking display flying and should form part of the Display Authorisation process.

Safety Recommendation 2009-055

The UK Civil Aviation Authority should amend CAP 403 to require a pilot to demonstrate competence in each aircraft category to be flown and the level of aerobatic maneuvers to be performed in the specific flying display discipline (solo, formation, tail chase) for which the Display Authorisation is being sought.

Safety Recommendation 2009-056

It is recommended that the UK Civil Aviation Authority (CAA) remind CAP 632 aircraft operators of the need to clearly identify in the Organisational Control Manual the level of initial and recurrent training required and that the CAA should ensure compliance with those requirements.

Safety Recommendation 2009-057

It is recommended that the UK Civil Aviation Authority conduct periodic reviews of the current operating requirements to ensure that they provide adequate safety for display flying.