



MINISTRY OF DEFENCE

Military Aircraft Accident Summaries

MAAS 8/85/1

12 April 1985

AIRCRAFT ACCIDENT INVOLVING ROYAL AIR FORCE HAWK TI XX251

| | |
|--------------------|---------------------------|
| Date: | 21 March 1984 |
| Parent Airfield: | RAF Scampton (Red Arrows) |
| Place of Accident: | RAF Akrotiri, Cyprus |
| Crew: | One Pilot |
| Casualties: | One Major |

CIRCUMSTANCES

1. On 21 March 1984 the Red Arrows Aerobatic Team prepared for the first of a series of full display rehearsals which were to take place during the team's work-up detachment at RAF Akrotiri. Preparations included individual briefing of the 'Synchro Pair', comprising Synchro 1 (the leader for synchronised aerobatics) and Synchro 2, who had been a team member since October 1982 and was preparing for his first synchro flying season. After take off, the display progressed normally until the final manoeuvre - the opposition loop - by the synchro pair. This procedure involves a head-on cross at a height of 100 feet, a pull up into a simultaneous loop to cross at the top in the inverted position, and a third cross over during the final descent prior to achieving a 'crowd departure gate'. On this occasion, it became apparent to both Synchro pilots as they approached the top of the loop that Synchro 2 would be higher than Synchro 1 on the subsequent descent. To remedy this imbalance, Synchro 2 pulled more rapidly from the inverted position at the top of the loop and then relaxed his pull on the way down in order to gain speed on Synchro 1. As a result, when the third, downward, cross-over was achieved, Synchro 2 was in a steeper than usual attitude, although not alarmingly so. However, Synchro 2 continued to descend more steeply than Synchro 1 until, at about 100 feet above the airfield, and in spite of pulling the aircraft's nose up, the pilot was unable to prevent the aircraft from striking the ground at high speed, where it bounced several times.

2. During the initial impact the pilot's ejection seat was forced up its guide rails through the canopy, leaving the pilot exposed in the airflow. The second impact forced the seat downwards slightly and breached the seat firing mechanism, rendering it useless. However, by this stage the forcible upward movement of the seat had triggered automatic man-seat separation devices so that, at the apogee of the aircraft's second bounce, the main parachute deployed to drag the pilot clear of the disintegrating aircraft and lower him quickly to the ground. The aircraft continued to a third and final impact where it broke up and caught fire. The pilot suffered abrasions, cuts and bruises which were later defined as major injuries.

/...

CAUSES

3. After detailed investigation, it was concluded that the accident happened because the pilot had over-concentrated on achieving a good third cross-over without appreciating the flight path he would have to follow in order to effect a safe recovery. After the cross-over, his immediate concerns had been to achieve a smoothly consistent smoke trail and a precise departure point and his proximity to the ground and the general geometry of the descent had been lesser considerations until, having satisfied himself on the smoke trail aspects, he became fully aware of his predicament. By this time it was considered to be impossible to counter the aircraft's sink rate with the performance available.

SUBSEQUENT ACTION

4. Whilst the accident did not involve indiscipline or deliberate flouting of regulations, the team's activities were reviewed. Additional specialist briefings were also introduced to ensure that individual manoeuvres in the team's repertoire would be comprehensively considered once every 2 months during the work-up and display season. The pilot concerned left the Red Arrows Aerobatic Team, moving on to other duties.

Issued by - Public Relations
Ministry of Defence
Main Building
Whitehall
London SW1A 2HB

01-218-3253/3254 (Royal Air
Force)