

<b>Aircraft Type and Registration:</b>	Reims Cessna FRA150M, G-BFGX	
<b>No &amp; Type of Engines:</b>	1 Continental Motors O-240-E piston engine	
<b>Year of Manufacture:</b>	1977	
<b>Date &amp; Time (UTC):</b>	27 January 2005 at 1202 hrs	
<b>Location:</b>	Prestwick International Airport, Glasgow, Scotland	
<b>Type of Flight:</b>	Training	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Damage to both wingtips and propeller	
<b>Commander's Licence:</b>	Student pilot	
<b>Commander's Age:</b>	19 years	
<b>Commander's Flying Experience:</b>	25 hours (all on type) Last 90 days - 10 hours Last 28 days - 2 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and subsequent enquiries by the AAIB	

The student pilot had initially been cleared by ATC to taxi to holding point 'S1' from Apron 'E'; Figure 1 shows the runways and holding positions. The student was also advised that a B747 was taxiing to 'R1'. After about 10 minutes at the holding point, the student watched as the B747 approached and then stopped at 'R1'. After a further five minutes, ATC cleared G-BFGX to taxi to holding point 'Q'. The student's impression was that the B747 was sitting with engines at idle as G-BFGX passed directly behind. He then felt his aircraft start to shake violently. Almost immediately, it was blown up onto its left wing and then clockwise through about 180° before the right wing and propeller struck the ground. The aircraft was then blown onto the grass where the student shut down the engine. The surface wind was light and variable.

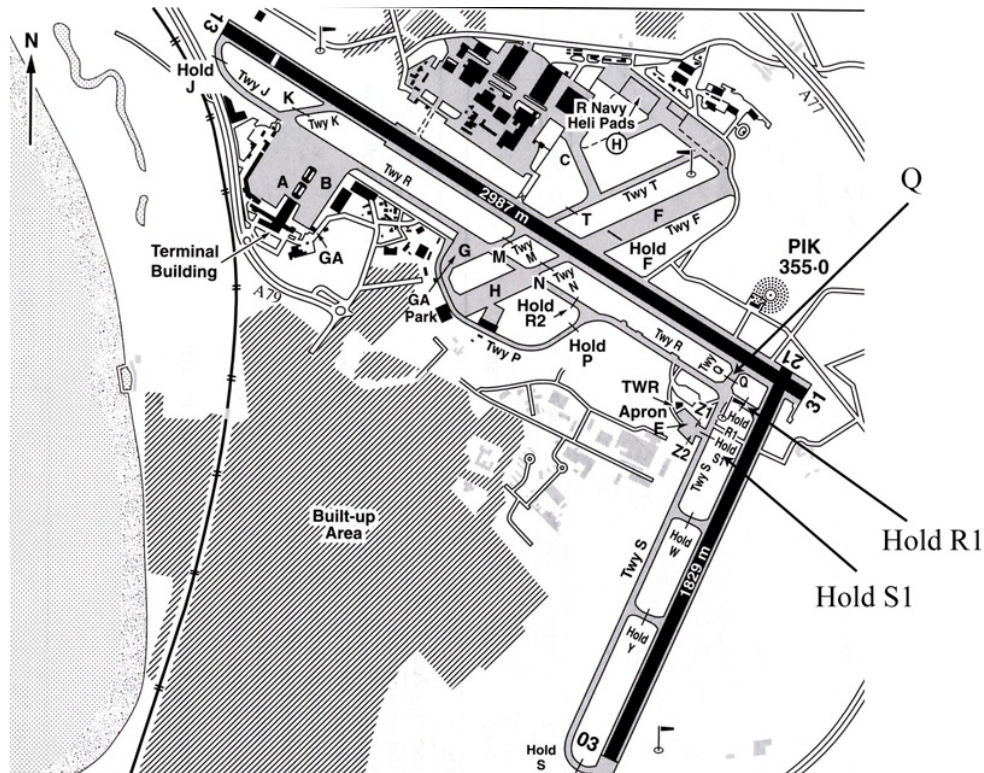


Figure 1: Airfield Map

ATC had cleared the B747 to line up on Runway 31 and had then cleared G-BFGX to taxi to 'Q'. However, the B747 advised ATC that he was still awaiting oceanic clearance and would hold his position at 'R1'. The controller then informed him of the light aircraft taxiing behind him and advised him that he should maintain idle engine power; this was acknowledged by the B747.

Subsequent enquiries by the AAIB confirmed that the flying club involved regularly briefs all club pilots on the hazards involved in operating on airfields with large aircraft. ATC personnel are also aware of the hazards involved. However, no written guidance was found in UK aeronautical publications dealing with the hazards of engine efflux on the ground. Reference to the subject was found in a Transport Canada Aeronautical Information Publication (AIP), dated 15 March 1984 and this indicated that the danger area of a 'Jumbo Jet' size aircraft at ground idle extended to 600 feet behind the tail of the aircraft. For the accident involving G-BFGX, ATC estimated that the tail of the B747 was at the edge of Taxiway 'S'.

The AAIB has also investigated a similar accident to a Cessna 172, registration G-BNKE on 3 March 2001 at Manchester Airport (reported in AAIB Bulletin No 6/2001). In that accident, it was estimated that G-BNKE was 102.5 metres behind the engines of a B777.

It is apparent that the hazards of engine efflux on the ground are not fully appreciated by aircraft crew or ATC personnel. Following this latest accident, discussions with the CAA have resulted in the following action:

1. The CAA intends to publish an article on the hazards of engine efflux on the ground in a future edition of General Aviation Safety Information Leaflet (GASIL) and to include guidance in an appropriate Safety Sense Leaflet.
2. The CAA intends to provide guidance on the hazards of engine efflux on the ground with an appropriate amendment to the Manual of Air Traffic Services Part 1.