

ACCIDENT

Aircraft Type and Registration:	DH110 Sea Vixen Faw MK2, G-CVIX	
No & Type of Engines:	2 Rolls-Royce Avon MK 208 turbojet engines	
Year of Manufacture:	1963	
Date & Time (UTC):	5 April 2012 at 1505 hrs	
Location:	Bournemouth Airport, Dorset	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Left under wing fuel tank and forward fuselage damaged	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	55 years	
Commander's Flying Experience:	7,832 hours (of which 12 were on type) Last 90 days - 96 hours Last 28 days - 35 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

During the latter stages of the landing roll, whilst completing the after landing checklist, the pilot inadvertently selected the landing gear to UP which resulted in the retraction of the nose and left main landing gear. The operation of the left main landing gear microswitch on landing should have prevented retraction. However, it is thought that a combination of an increase in main landing gear oleo pressure, to allow for increased weight operations, and a low landing weight prevented the activation of the microswitch.

History of the flight

The aircraft had been carrying out a number of circuits at Yeovilton as part of a post-maintenance re-familiarisation flight. When retracting the landing

gear following a touch-and-go the pilot observed that the right main landing gear indicator remained red. The pilot recycled the landing gear, but the indicator remained red. The pilot carried out a "fly by" of the ATC tower to allow a visual inspection of the aircraft to be carried out. This confirmed that the right main landing gear door had remained extended.

Following completion of another "fly by" at Bournemouth, the pilot made an approach to land. After selecting the landing gear to DOWN, the pilot observed that landing gear indicators showed that all three gears were "down-and-locked". ATC had alerted the AFRS and a number of appliances were deployed to assist the aircraft in the event of a landing gear collapse.

The aircraft landed with minimum fuel and its landing and deceleration was normal. When the aircraft had slowed to approximately 15 kt, the pilot began to carry out the 'After Landing' checklist, during which he inadvertently selected the landing gear to UP. The nose and left main landing gear retracted and the aircraft dropped onto its nose and the left under-wing fuel tank. The aircraft turned through approximately 45° before coming to rest on the paved surface. The pilot made the aircraft safe before exiting the aircraft. The AFRS applied foam to a fuel leak from the damaged left under-wing fuel tank.

Landing gear controls

The landing gear selector switch of G-CVIX was located on the left of the main instrument panel and in front of the throttle quadrant adjacent to the left cockpit bulkhead.

The switch consisted of a lever with a spring-loaded knob that could be selected to one of four positions at the extremities of an H-shaped guide, by pulling out the knob and moving the lever to the desired position. Moving the lever to the top or bottom of the right vertical of the H-shaped guide controlled the normal retraction and extension functions respectively. Emergency retraction and extension could be achieved by translating the lever sideways to the left across the horizontal part of the H and then using the left vertical of the H to select UP or DOWN.

In normal gear selection mode, inadvertent retraction on the ground was prevented by the activation of a microswitch on the left main gear leg. G-CVIX had been modified so that the right main gear leg microswitch only activated the fatigue meter. A further microswitch on the nose landing gear leg prevented retraction whenever the nosewheel was not centred. Selecting emergency retraction by-passed these switches and permitted

emergency retraction on ground. However, G-CVIX had been modified to prevent the selection of emergency retraction either intentionally or inadvertently.

Recent flying experience

The pilot reported that in the preceding 28 days he had flown both the Hawker Hunter and the BAe Hawk aircraft. Both of these aircraft types have the flap selector switch located to the left of the main instrument panel, adjacent to the left cockpit bulkhead in a similar position to the landing gear selector of the Sea Vixen.

After Landing Checks

The Flight Reference Cards (FRC) stated:

'Checks After Landing	
<i>Wheelbrakes</i>	<i>Select mid position...</i>
<i>Hook</i>	<i>Up</i>
<i>Flaps</i>	<i>Up</i>
<i>Autostab</i>	<i>Standby</i>
<i>Fuel panel selector lever</i>	<i>Fully aft</i>
<i>ADD</i>	<i>Off</i>
<i>Pilot's hood</i>	<i>Open before</i>
	<i>Observer's hatch'</i>

There was no guidance as to when the 'Checks After Landing' should be performed.

The Pilots' Notes Chapter 3, Circuit and Landing Procedure, Paragraph 10, 'After Landing Checks and Shut-Down Procedure', also gave no recommendation as to the timing of this checklist.

It has been determined that it is not uncommon in military operations for the *After Landing* checklist to be initiated whilst the aircraft is in the later stages of the landing roll.

Maintenance

The aircraft had been configured to operate with pylon mounted fuel tanks. In anticipation of operating the aircraft at the higher weights associated with this configuration, the pressure in the main landing gear oleos was increased to the 'carrier landing' pressure, thus increasing the force required to compress the oleo and operate the landing gear microswitches.

Technical examination

The damage to the aircraft prevented tests being carried out on the landing gear systems. Building and modification work to the aircraft's maintenance facility further delayed these tests. However, a test of the left main landing gear microswitch confirmed that it operated correctly.

Analysis

The pilot's recent flying experience had been on the Hawk and Hunter aircraft, where the flap selector was located in a similar position to the landing gear selector of the Sea Vixen. It is therefore considered probable that, when the pilot actioned the '*After Landing*' checklist, his recent experience resulted in him inadvertently selecting the landing gear switch to UP instead of operating the flap selector.

It is possible that the increase in main landing gear oleo pressure coupled with the low landing weight prevented the left main landing gear oleo from compressing sufficiently to activate the microswitch, thus allowing the retraction of the landing gear on the ground when the gear switch was selected to UP.