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## Landing on runway with construction equipment, Fokker 50, G-UKTH, 4 April 1996

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**Micro-summary:** This Fokker 50 landed on a runway that had construction equipment on it.

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**Event Date:** 1996-04-04 at 0846 UTC

**Investigative Body:** Aircraft Accident Investigation Board (AAIB), United Kingdom

**Investigative Body's Web Site:** <http://www.aaib.dft.gov/uk/>

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# Fokker 50, G-UKTH, 4 April 1996

**AAIB Bulletin No: 9/96 Ref: EW/C96/4/4 Category: 1.1**

**Aircraft Type and Registration:** Fokker 50, G-UKTH

**No & Type of Engines:** 2 Pratt & Whitney 125 turboprop engines

**Year of Manufacture:** 1993

**Date & Time (UTC):** 4 April 1996 at 0846 hrs

**Location:** Humberside International Airport, South Humberside

**Type of Flight:** Public Transport

**Persons on Board:** Crew - 4 Passengers - 37

**Injuries:** Crew - None Passengers - None

**Nature of Damage:** None

**Commander's Licence:** Airline Transport Pilot's Licence

**Commander's Age:** Not relevant

**Commander's Flying Experience:** Not relevant

**Information Source:** AAIB Field Investigation

## **History of the flight**

The aircraft was inbound to Humberside Airport on a scheduled service from Amsterdam. At 0841 hrs, as the aircraft was approaching FL 065 in the descent, the crew contacted the Humberside approach controller. He initially cleared the aircraft to descent to 1,700 feet and later, with other instrument pattern traffic in sight, the flight was further cleared to turn for a left base to join visually for Runway 21. The weather was fine with a surface wind of 150°/07 kt, visibility 7 km and a temperature of 4°C with clear sky conditions.

At 0843 hrs the crew called 'visual' with the runway and were transferred to the aerodrome controller. At the time, engineering work was being carried out to replace a faulty centreline runway light with engineers working by the runway edge and on the runway centreline itself. The controller, using the ground movement frequency, instructed the lighting engineers "BACK FROM THE RUNWAY IMMEDIATELY PLEASE". An engineer replied "THERE'S A HOLE IN THE MIDDLE...TOWER DO YOU WANT ME TO LEAVE THIS HOLE". The controller continued "THERE SHOULDN'T BE A HOLE WE'VE GOT TRAFFIC LANDING". Somewhat concerned, the engineer transmitted again "SAY AGAIN DO YOU WANT ME TO LEAVE IT OR DO YOU WANT ME TO FILL IT BACK IN". The controller replied "HAVE TO BE LEFT NOW THERE'S AN AEROPLANE LANDING GET BACK TO THE RUNWAY EDGE PLEASE". The engineer responded "THERE'S A LAMP ON THE CENTRELINE AS WELL..THERE'S A LAMP OUT ...AND ITS JUST ADJACENT TO THE CENTRELINE".

As they checked in on frequency the Fokker 50 crew was advised by the controller "INFORMATION FOR YOU IF YOU ARRANGE YOUR NOSE WHEEL TO BE EITHER TO THE LEFT OR RIGHT OF RUNWAY CENTRELINE DUE TO A LAMP WHICH IS OUT OF POSITION IN THE CENTRELINE I'M INFORMED". The crew asked for a confirmation of message and were told by the controller "YES IT'S BEEN REMOVED... THEY HAVE REMOVED IT SO IT'S ONE OF THE CENTRELINE LIGHTS THAT'S JUST ABOUT 100 METRES BEYOND THE PAPIs SO IF YOU ARRANGE FOR YOUR NOSE WHEEL TO BE EITHER RIGHT OR LEFT OF THAT". The crew acknowledged that they would comply with the instruction.

At 0846 hrs the controller cleared the aircraft to land. It is believed that the commander accepted the landing clearance in the belief that he could easily avoid what he assumed to be a small hole left by the removal of the centreline light. The landing was uneventful and nothing unusual was seen by the crew until the aircraft flared for landing. As they back-tracked the runway the crew informed the tower that "HE'S THE LAMP SITTING OUT ON THE RUNWAY IT'S GOT SOME KIND OF METAL TOOL STICKING OUT UP INTO THE AIR...AND ALL SORTS OF CABLE ON THE RUNWAY..."

The controller replied that he was not fully aware of the situation and was under the impression that the engineers were just changing a light bulb. Three minutes after the landing the aerodrome controller contacted the airfield engineers again and instructed them to "...GET THAT LAMP FILLED IN IMMEDIATELY AND RETIRE FROM THE RUNWAY".

After parking on stand the aircraft was inspected by ground engineers and the crew but no damage was found. Inspection of the runway revealed that the displaced centreline light assembly and its associated lifting handle and cable were also undamaged. The aircraft commander informed ATC, however, that he would forward an Air Safety Report to the Safety Data Department of the CAA.

## **Airfield activity**

On the day of the incident the aerodrome lighting engineer was aware of a long standing problem with a runway centreline light adjacent to the access road to the aerodrome fire station. Unable to proceed with his planned work because of a lack of equipment, he decided of his own volition to correct this lighting fault. The engineer, who was trained in RT procedures and vehicle operations, was not aware that, even for routine maintenance duties, a briefing and authorisation was required from ATC. Having gathered the necessary tools and equipment, he and a colleague requested permission on the UHF ground movement frequency to proceed to the runway edge to carry out their work. ATC granted permission but no details of the exact nature of the work or the time that it would take to restore the runway to full operations was requested or received.

Previous attempts to solve the lighting fault had indicated that the cable from the runway edge to the centreline light had to be replaced. This involved removing the centreline light installation and pulling the new cable through as the old cable was removed. No permission was sought by the engineers from ATC to remove the centreline light as they reasoned that their work at the runway edge had effectively blocked the runway anyway. Removal of the centreline light fitting involved the removal of the retaining bolts and the fitting of a 15 inch extraction handle in one of the bolt holes (total weight of the light fitting plus handles was 14.2 kg). Once removed, the light fitting, handle and associated cable (approximately 5 metres) were left adjacent to the hole while both engineers returned to the runway edge to extract the old cable.

The Visual Control Room (VCR) controller who had originally cleared the work to commence handed over to the controller involved in the incident mentioning that the engineers were working on the lighting and that the runway was temporarily blocked. The oncoming controller believed that the work was to rectify an edge light fault and that the runway could be made fully operational at short notice. He was also aware of the arrival of the Fokker 50 flight from Amsterdam and therefore, at the appropriate time, warned the engineers to vacate the runway.

The engineers were also aware of the arrival of the Fokker 50 and when they saw it turning final an engineer immediately went to the runway centreline to replace the light fitting and cable and remove the extraction handle. The controller saw the engineer walking onto the runway and, unaware that he had already been working on the centreline, radioed the engineer to vacate the runway. Although the engineer acknowledged, he was concerned that there was an obstruction present and that removal of the fitting had left an open hole. Further exchanges between engineer and controller lead to a second call from the controller to vacate the runway. The controller realised that the light fitting had been removed but did not appreciate that any obstruction existed. Once he saw the engineers vacate the runway the controller issued a landing clearance to the inbound Fokker 50. He believed that he had given sufficient information to the pilot to land safely. The aircraft commander was not aware of the presence of the light fitting, extraction handle or cable until he was in the landing flare. The attached photographs show the location and nature of the runway obstruction and its size relative to the main landing gear of a Fokker 50.

## **"Clear to land"**

Although no definition of "clear to land" is evident in any technical publication, its use is one of the basic parts of ATC aerodrome operation. Despite the lack of any written definition, the term conveys an understanding that ATC is allowing an aircraft to use the runway for which the clearance is issued and, to the best of the controller's knowledge, that the runway is clear of obstructions or defects and complies with the conditions imposed upon licensed airfield operations.

## **Airfield procedures**

Aerodrome Control operations at Humberside are conducted from the VCR which is situated at the eastern side of the airfield in line with the displaced threshold for Runway 21. The VCR is usually staffed by an aerodrome controller and one assistant. The controller conducts operations on the VHF frequency while the assistant deals with vehicles on the manoeuvring area using a UHF channel. The controller however has direct access to the UHF channel if required. Procedures for the authorisation of work to be conducted on or in the vicinity of the manoeuvring area and the apron are detailed in the Humberside Manual of Air Traffic Services (MATS) Part II. This stated that work in progress (WIP) affecting the manoeuvring areas must be noted in the Aerodrome Watch Log and passed to pilots as 'essential aerodrome information'. Furthermore a thorough briefing was to be given by ATC personnel to any person carrying out work on or close to the manoeuvring area with particular attention paid to radio procedures.

When repair or installation work, authorised by the aerodrome authority, takes place on the manoeuvring area, a representative of the working party must be briefed by ATC about subjects relating to the proposed work (*eg* methods of access to the working area; the area in which vehicles may operate; the runway in use and the effects of any changes; methods of obtaining permission to cross the runway in use; signals or methods indicating that vehicles and personnel must leave the area). A representative of the working party should also possess an authorisation issued by the aerodrome authority counter signed by the senior controller after the requisite briefing.

Investigations conducted at Humberside showed that over a number of years a system had developed at Humberside where outside contractors received briefings from ATC, but aerodrome employees, conducting routine airfield maintenance, received little if any detailed briefings. Authorisation for them to proceed on to the manoeuvring areas was usually obtained via the UHF frequency. Furthermore examination of the ATC watch log, current at the time of the incident, indicated that maintenance work carried out was not recorded. Moreover the documentation and work instructions available to maintenance workers did not detail the requirements and procedures to be followed when working on manoeuvring areas.

## **Follow up actions**

Three further instructions relating to WIP were added to the Humberside Manual of Air Traffic Services Part II as a result of this incident. These highlighted the fact that sufficient time must be allowed to vacate equipment, personnel and vehicles from manoeuvring areas; radios, if required, are to be issued by the Technical Services Manager and the user instructed as required. After completion of work for the day, the appropriate area must be inspected by the duty aerodrome assistant.

Following investigation of this incident by several branches of the Safety Regulation Group, the CAA have taken the appropriate action to prevent a recurrence of this incident.