

# AS332L Super Puma, G-PUMK

**AAIB Bulletin No: 7/98 Ref: EW/G98/03/06      Category: 2.1**

**Aircraft Type and Registration:** AS332L Super Puma, G-PUMK

**No & Type of Engines:** 2 Turbomeca Makila 1A turboshaft engine

**Year of Manufacture:** 1983

**Date & Time (UTC):** 9 March 1998 at 0740 hrs

**Location:** Aberdeen Airport, Scotland

**Type of Flight:** Public Transport

**Persons on Board:** Crew - 2 - Passengers - 15

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

**Nature of Damage:** Heli-raft cover separated in flight

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

**Commander's Age:** 52 years

**Commander's Flying Experience:** 8,285 hours (of which 6,361 were on type)  
Last 90 days - 126 hours  
Last 28 days - 62 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot and maintenance personnel; related telephone enquiries

## History of Flight

The aircraft, which had just come off a maintenance check, was being used for passenger transport to offshore platforms. It had undergone an engineering pre-flight inspection before flight. The commander had also performed a pre-flight inspection, during which he had recorded two minor defects in the Technical Log. The helicopter took off from Runway 34 and was climbing through 1500 feet when ATC reported to the commander that a large object had been seen falling from the aircraft as it had started its climb-out, and that there appeared to be a cowling lying on the threshold of Runway 16. The aircraft immediately returned and landed. A post-landing inspection by the

commander found that the cover from the right side (external) heli-raft container pod was missing. It was then confirmed that this cover was the object which had fallen from the helicopter.

### **Previous maintenance activities**

The heli-rafts had been previously dispatched for maintenance and had been returned on Saturday, 7 March 1998. As a result of sickness and other commitments, the early day shift was below its planned complement throughout the weekend, particularly on the Saturday. On the Sunday, in an attempt to ensure that the shift completed its scheduled plan for the weekend, the shift supervisor elected not to divert any engineers from the work already allotted but to fit the heli-rafts to G-PUMK himself. This he accomplished, in addition to other short tasks, in parallel with his supervisory and organisational roles.

The heli-raft pod installation has two 'covers', a large cover and a rear frangible cover, in addition to a forward inspection panel; there is also a jettison lanyard which is routed inside the rear cover. The supervisor installed both rafts into their pods and had 'loose fitted' the cover over the right hand raft, using 3 of the required 8 screws, to establish that all the screw holes lined up. However, before he had time to draw new screws from the stores to secure the cover properly, he had to break off from the task to attend to pressing supervisory and organisational tasks. As he broke off, he directed another maintenance engineer to continue with the task. (However, with hindsight after the incident, he was uncertain that he had briefed this engineer thoroughly on what was still required to be done on the right pod covers).

This engineer, when he was tasked, had understood that the left pod 'large cover' and lanyard needed to be fitted, but only the 'cover' had to be fitted on the right pod. When he got to the helicopter he saw the large cover on the floor beside the left pod and noticed that he would have to remove the already fitted rear frangible cover in order to fit the lanyard correctly. He also noted that the forward inspection cover needed to be fitted. He then concentrated on finishing the left pod work before looking at what remained to be done on the right pod.

When he looked at the right pod, it appeared to him that only the rear frangible cover was not fitted. As he was in the process of fitting this, the supervisor came back and asked him if he had sufficient fasteners to complete the job, which he confirmed he had. He had felt that the supervisor was about to say something further when he was interrupted by an operational request on his radio and went off to another aircraft. The supervisor had, in fact, intended to relieve the engineer and complete the right pod himself, before receiving this radio call. The engineer therefore completed fitting the rear cover and then prepared the aircraft for a compass swing before signing for the work which he had done.

By the time that this had been completed, the early day shift was ending (at approximately 1500 hrs) and the engineer saw his supervisor, who was in the process of handing over to the supervisor of the oncoming late shift, and told him what he had done. The supervisor oversigned the work but, because of his concern regarding a problem on another aircraft, in his own words he 'thought no more about it'.

The aircraft was subjected to an engineering pre-flight inspection by the engineer in charge of the night shift. This was done between 0130 hrs and 0330 hrs and involved the opening and closing of a number of cowlings to check fluid levels and to conduct security inspections. During this inspection the engineer did not notice the absence of some of the attaching screws on the right pod cover. The final pre-flight inspection by the commander was conducted in the early morning light when the temperature was -5°C.

The operator has since discussed the findings and implications of this incident, both with their own personnel and with the CAA, and intends to draw on the associated lessons in formulating parts of related training schemes. The findings associated with this chain of maintenance lapses reflect many of the same human factor elements which were previously identified in the maintenance activities which led up to the much more serious incident which occurred to Boeing 737-400, G-OBMM, on 23 February 1996 (AAIB Aircraft Accident Report 3/96, available on internet). In particular, the understandable decision of the supervisor to carry out work himself, due to unexpected (but not unforeseeable) shortage of staff, and the disruptive effect of distractions are again clearly evident, in addition to the necessity for explicit hand over instructions when a part-completed task is handed over to someone else for completion.