

# BAe ATP, G-MANU

**AAIB Bulletin No: 9/98 Ref: EW/G98/07/10      Category: 1.1**

**Aircraft Type and Registration:** BAe ATP, G-MANU

**No & Type of Engines:** 2 Pratt & Whitney PW-126 turboprop engines

**Year of Manufacture:** 1988

**Date & Time (UTC):** 3 July 1998 at 1055 hrs

**Location:** Manchester Airport

**Type of Flight:** Public Transport

**Persons on Board:** Crew - 4 - Passengers - 62

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

**Nature of Damage:** All six blades and spinner right engine propeller assembly, intake lip damaged and fuselage skin partially penetrated by ejected bolt

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

**Commander's Age:** 48 years

**Commander's Flying Experience:** 9,500 hours (of which 800 were on type)

Last 90 days - 200 hours

Last 28 days - 50 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot

The crew reported that on the first of three scheduled sectors, when descending through FL 70, the right engine torque and propeller RPM began to fluctuate but when propeller synchronisation was deselected the engine stabilised. The remainder of the approach and landing were completed without recurrence. After two more sectors the right propeller de-ice was recorded as inoperative.

An engineering inspection revealed that part of the right propeller spinner was missing with evidence that this was a result of bolts being projected forward from the back plate mounting position. Damage to all six blades was noted, including evidence of contact with the damaged spinner during blade pitch changes. Removal of the spinner revealed that all of the six bolts which

engage in thread inserts in the propeller hub and secure the back plate were missing. The loss of the bolts and resulting lack of security of the spinner had led to disbonding of the propeller de-ice slip-rings resulting in the recorded failure of the right propeller de-ice system. One bolt had penetrated the fuselage ice guard and had only been prevented from passing through the fuselage skin at cabin floor level by impact at a stringer position.

The operator instigated a check of the rest of their fleet to be completed by 5 July. This identified a number of loose bolts, one propeller with only one of the six bolts beyond finger tight. They then issued an instruction for the correct torque to be achieved (50 to 65 lbf/in) on all installations by 19 July with a repeat check at the next A check (A check at 300 hour intervals). A propeller hub thread insert 'run down torque' check is to be carried out at the next base maintenance input (E, 600 hour or C, 3600 hour check) and witness marks are to be applied to the bolts following refitting to allow for a visual inspection for any backing off. A visual inspection is to be carried out at each Intermediate A Check (300 hours) and torque checks are to be repeated every E check.

The aircraft and propeller manufacturers have been consulted and the maintenance instructions reviewed. The relevant section of the aircraft maintenance manual is to have minor amendments incorporated at the next scheduled revision. The propeller manufacturer, Hamilton Standard, is to issue a Service Information Release (SIR 6/5500/F:011) to all operators clarifying the requirement to check the bolt/thread insert rundown torque for each bolt and, provided that it is within the specified limits (9.5 to 80 lbf/in), to then torque the bolts to 50 to 65 lbf/in + rundown torque. They will also issue a Temporary Revision (T/R 61-1) to the ATP Propeller Maintenance Manual pending incorporation at the next scheduled revision due to be published in November 1998.