

SERIOUS INCIDENT

Aircraft Type and Registration:	BAe ATP, SE-MAP	
No & Type of Engines:	2 Pratt & Whitney Canada PW126A turboprop engines	
Year of Manufacture:	1991 (Serial no: 2037)	
Date & Time (UTC):	27 November 2021 at 0127 hrs	
Location:	Belfast International Airport	
Type of Flight:	Commercial Air Transport (Cargo)	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	None	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	60 years	
Commander's Flying Experience:	10,800 hours (of which 1,305 were on type) Last 90 days - 62 hours Last 28 days - 27 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Whilst flying in storm conditions the crew experienced difficulties in controlling the aircraft elevator but managed to land the aircraft safely. The cause could not be established but whilst investigating the problem, the Operator identified and implemented maintenance policy enhancements.

History of flight

The flight from London Stansted (STN) to Belfast International (BFS) took place during Storm Arwen, although forecast weather conditions were not sufficient to require de-icing/anti icing before departure. On climb out from London Stansted (STN) airport the aircraft encountered some very minor icing in the climb, but this did not warrant the use of the anti-icing boots. During cruise at FL200 the pilot noted the aircraft demonstrated a small level of hunting whilst trying to maintain altitude and the trim wheel was constantly twitching. However, as the air wasn't smooth he did not consider this abnormal for the ATP in light turbulent conditions.

In the descent to BFS the pilot noticed that the autopilot was struggling at times to maintain a set vertical speed. On final approach the pilot disconnected the autopilot to continue with manual flying. The crew then discovered that the elevator was stiff to move, requiring two hands and very jerky in operation, both when pushing and pulling. Despite the unusual

response, the aircraft remained controllable and was landed successfully. During the taxi to the stand the pilot kept moving the elevator control and found it was freeing up gradually and after a few minutes it had returned to a more normal feel.

Operator's investigation

The crew confirmed that the autopilot had disconnected as they had received the audio warning and the autopilot engaged indications on the control panel and PFD had cleared. This was also confirmed by the data downloaded from the Flight Data Recorders. During the subsequent fault finding the engineers found the elevator primary servo and lever assembly sounded noisy and was not able to drive the elevator through the full range of motion. The elevator trim servo motor also did not drive through its full range. The primary elevator servo and lever assembly and elevator trim servo were all replaced and sent to the operator's component testing bay in Sweden for examination and testing. However, despite extensive testing the bay could not find any fault with the components.

The aircraft flew a further six cycles without incident. When on stand the flight crew discovered an elevator trim defect whilst depowering the aircraft. During testing, the electric trim switch was very slow to spring back to centre but when cleaned the spring action was restored. It was not possible to determine if this fault was related to the previous elevator control issue, but the cause was likely due to ingress of cleaning agents into the yoke switches. The operator has now ceased the disinfection of cockpit for ATP fleet due to the potential risk of inducing electrical problems and introduced a procedure for removing and residual cleaning agents from the yoke switches.

Safety Action

During these investigations the operator identified that inspection of the wiring in the steering columns was challenging due to access constraints. Consequently, a new procedure has been developed to enable a more extensive inspection. The operator is pursuing the completion of the steering column inspections across its ATP fleet as a priority.