

- Mode: Aviation
- Investigation Number: 2011-004
- Abstract: On 11 May 2011 the nose landing gear of a Piper PA31-350 Navajo Chieftain (the aeroplane) jammed in a partially retracted position during a training flight at Nelson Aerodrome. The nose landing gear could not be extended again, and in the subsequent landing the aeroplane sustained substantial damage. Neither of the 2 pilots, the only persons on board, was injured.

The nose landing gear jammed as a result of wrong parts and incorrect maintenance, over a number of years, which allowed the landing gear to turn too far when full rudder was applied during the training exercise. The increased angle and misalignment between 2 key components prevented the nose landing gear centring during the retraction, and the jam ensued.

This aeroplane had a recent history of nose landing gear defects, including other failures to extend or retract normally. Some of the rectifications of the earlier defects, carried out by various maintenance organisations, had not been in accordance with Civil Aviation Rules, because incorrect parts or unauthorised repairs had been used, and the aeroplane manufacturer's Maintenance Manual procedures had not been followed.

The Transport Accident Investigation Commission (Commission) made findings related to the cause of the accident, the standard of aircraft maintenance and the limited requirement for duplicate inspections.

The investigation identified the following safety issues:

- an inadequate standard of maintenance performed by a range of organisations and persons on the aeroplane
- the standard of maintenance for general aviation aircraft in New Zealand needs to be improved.

The Commission made recommendations to the Director of Civil Aviation that he take action, in concert with the aviation industry, with the goal of improving the level of compliance throughout the general aviation maintenance sector; and that he widen the range of maintenance that requires a duplicate check, at least for aircraft used in air transport operations, in order to reduce the likelihood of recurring defects and incidents.

The Commission noted the following key lessons from this inquiry:

- persons who work on aircraft must refer to the appropriate technical data and instructions, including maintenance manuals, to ensure that the correct procedures are followed fully. Effective supervision requires that supervisors physically check completed tasks before the tasks are signed off
- a physical check of a part taken off or installed, and comparison with the appropriate reference data, will ensure that the part is correct. Part number errors can arise, and be perpetuated, if reference is made only to the previous log book entry (which might be wrong)
- the correct part name and part number must be used in aircraft maintenance documentation to help avoid installation errors

- defect rectification is not completed just by repairing or replacing the defective part. The cause of the defect must be established and rectified as well. When maintenance is performed away from the usual base, it is important that the engineer is informed of any relevant recent or possible recurring defects
- the prompt receipt and review of loose-leaf log book entries by Maintenance Controllers can help with their recognition of possible recurring defects.
- A Link to the Report: [2011-004](#)