



The recent incident in the United States where a Jet Blue A320 landed in Los Angeles with the nose wheels turned 90 degrees has caused increasing concern among pilots and operators of Airbus A320 family aircraft. Through contacts at Airbus, IFALPA has learned that over the past 10 years, there have been 13 similar events worldwide, with four different causes identified. The summary below is a discussion of the cause factors for each event, and the solutions that Airbus has implemented:

\* Five events were linked to an early standard of Brake and Steering Control Unit (BSCU) standard 5.2 or earlier which cut off steering power to the nose landing gear (NLG) above 80kts. If a tire was deflated it could allow nose wheels to turn up to 90°.

Solution: Modification of steering control law introduced with BSCU standard 5.3 (twin wheel) standard 3.1 (bogie gear). Retrofit complete 1993

\* Four events caused by an extruded seal causing malfunction of the hydraulic steering block (6GC). After gear extension this led to a runaway of the nose wheel steering to 90°

Solution: Modification of the hydraulic block seal to prevent permanent pressurization of the steering actuator and possible rotation of the nose wheels. Retrofit complete 2000

\* One event due to the shock absorber being under-inflated allowing air loads to compress the gear during retraction, disengaging centering cams. As doors open and gear retracts hydraulic power to the steering is cut so the aero loads can rotate the nose gear. BSCU declares a fault due to gear rotation and cannot re-center the wheels.

Solution is BSCU standard 8 (for in-service evaluation) which allows BSCU to re-center the nose wheels. BSCU standard 9 introduced following evaluation of standard 8. Now superseded by standard 9.1. Available since August 2001 and retrofit is still in progress.

\* Three events, following maintenance action i.e. shock absorber seal change, the gear was re-assembled incorrectly. This led, after a few flights, to the shock absorber rotating in the nose gear and the wheels turning up to 90°

The solutions are: AMM revision (issued Dec 2002) to add secondary check for mis-installation.

Modified upper support to make a foolproof installation (modification requires gear removal). Available since October 2004.

For the still open cases, the gears fail to retract on both systems due to the position of the wheels. Then with the landing gear extended the warnings “L/G SHOCK ABSORBER FAULT” and “WHEEL N/W STRG FAULT” are given in the cockpit. These warnings however do not only mean that the wheels are not centred but do give an indication that it is possible.

Although the Jet Blue incident is still an active NTSB investigation, Airbus has issued a bulletin with the best information currently available. The bulletin states that there was damage to the nose gear shock absorber upper support anti-rotation lugs. The indications to the flight crew are L/G SHOCK ABSORBER FAULT and WHEEL N/W STRG FAULT. The Airbus bulletin also provides flight crew guidance for dealing with these fault indications.

IFALPA recommends that pilot groups worldwide work closely with their respective flight operations department to provide flight crews with the most up to date information from Airbus on this subject. In addition to insuring that all aircraft in the A318/319/320/321 family have the most current modifications and inspections, coordinating procedures should be developed that can be used to provide the most successful outcome possible, in the event that this type of failure occurs again.



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