



1. Effectivity

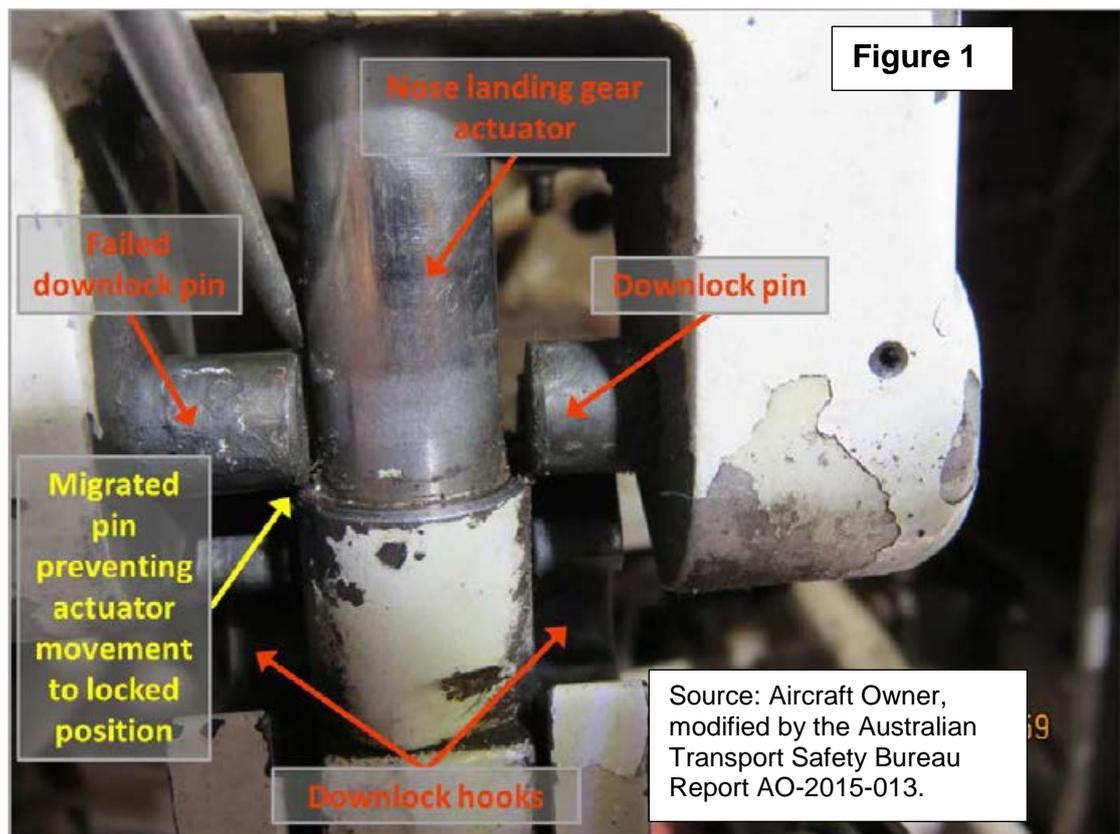
All Cessna single engine aircraft equipped with a retractable undercarriage.

2. Purpose

To alert Cessna 172RG, R182 and 210 Series operator's owners and maintainers of gear-up landings in Cessna single engined aircraft due to failing undercarriage structures and systems.

3. Background

Following multiple reports of nose gear actuator down lock pin failures in Australia and overseas, in 1998 CASA issued AAC 1-102 Nose Gear Actuator Down Lock Pin Failures in Cessna 172RG, R182 and 210 aircraft, and recommended the incorporation of Cessna SEB95-20 and SK210-155 to inspect for and replace cracking and loose lock pins. (Figure1).



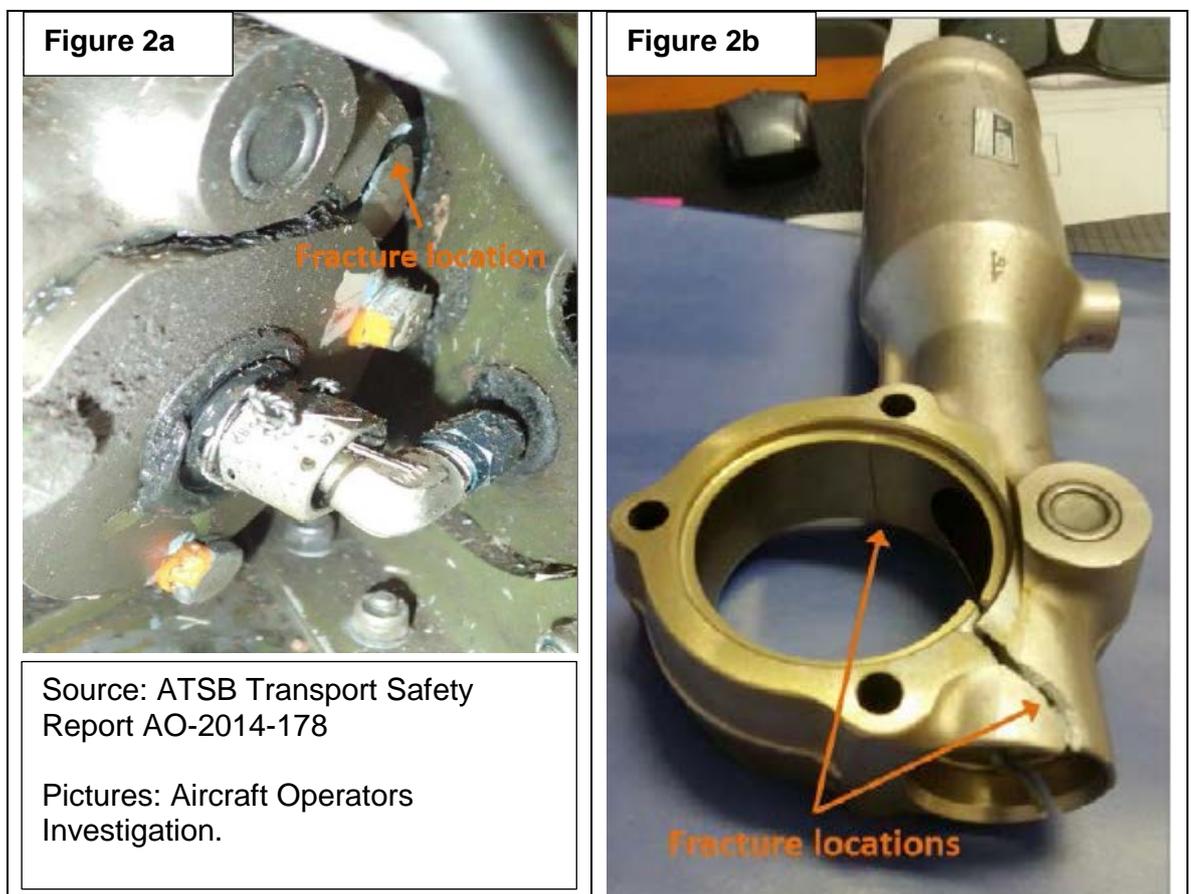
The old style nose landing gear down lock pins work loose, crack and fail at the retaining groove, which allows them to move out and jam the undercarriage actuator. This prevents the nose landing gear from locking fully down. The nose gear typically collapses on landing. ATSB report AO-2015-013 reflects that the US National Transport Safety Board (NTSB) has received over 30 reports of failed nose landing gear down lock pins.



Cessna SEB 95-20 was raised to address these failures and is applicable to a wide range of Cessna 172RG, R182 and 210 aircraft.

A survey of CASA Service Difficulty Reports (SDR) reveals that structural undercarriage component failures have been occurring in landing gear actuators and trunnions which have typically resulting in one of the undercarriage legs failing to move either to the up and locked, or to the fully down and locked position, frequently resulting in gear-up landings.

For example, ATSB Report AO-2014-178 describes a Cessna 210 left main landing gear actuator which cracked open (Figure 2a and 2b) and failed to extend the left main gear leg. The pilot elected to land with the undercarriage retracted.



There have been other cases of Cessna single engine retractable aircraft where the main landing gear could not be either fully retracted or extended due to broken actuator piston rack teeth, or due to the housing cracking open, resulting in actuator disengagement.

The SDR system also shows that undercarriage retraction system defects have been discovered prior to failure as a result of accomplishing the relevant Cessna Single Engine Bulletin (SEB) undercarriage inspections, as identified in the Cessna Supplemental Inspection Documents (SIDs).



AIRWORTHINESS BULLETIN

Cessna Single Engine
Retractable Undercarriage Failures

AWB 32-026 **Issue** : 1
Date : 10 March 2016

While CASA has mandated SIDs for Primary Structural Items, as a means of providing a measure of relief to industry from the burden of the SIDs, CASA has issued an exemption against those SIDs which relate to undercarriage structure in Cessna aircraft, as clarified by CASA AWB 02-048.

Nevertheless, Civil Aviation Regulation (CAR) (1988) 42V (1) requires that the performance of maintenance is to be carried out in accordance with the relevant approved data, irrespective of the elected maintenance schedule. This includes the Manufacturers Maintenance Schedule under CAR42A, the CASA Maintenance Schedule in accordance with CAR 42B (Schedule 5), or an Approved System of Maintenance under CAR42C.

4. Recommendations

CASA strongly recommends the incorporation of Cessna SID inspections for all Cessna aircraft undercarriage structures and systems, including Cessna SEB 95-20, currently omitted from the SID requirements for the Cessna 210 series.

5. Reporting

Defects discovered as a result of inspecting Cessna 172RG, R182 and 210 series aircraft in accordance with Cessna should be reported to CASA via the defect reporting system (SDR).

6. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

AirworthinessBulletin@casa.gov.au

or in writing, to:

Airworthiness and Engineering Standards Branch
Standards Division
Civil Aviation Safety Authority
GPO Box 2005, Canberra, ACT, 2601