



**Civil Aviation Authority**  
**SAFETY NOTICE**  
**Number: SN-2022/004**



**Issued: 17 June 2022**

**North American P51 Mustang (All Marks)**  
**Undercarriage leg pivot shafts**

**This Safety Notice contains recommendations regarding operational safety.**

Recipients must ensure that this Notice is copied to all members of their staff who need to take appropriate action or who may have an interest in the information (including any 'in-house' or contracted maintenance organisations and relevant outside contractors).

<b>Aerodromes:</b>	Not primarily affected
<b>Air Traffic:</b>	Not primarily affected
<b>Airspace:</b>	Not primarily affected
<b>Airworthiness:</b>	All BCAR A8-23 / A8-24 / A8-25 Organisations
<b>Flight Operations:</b>	CAP 632 Operators
<b>Licensed/Unlicensed Personnel:</b>	All maintenance engineers in airworthiness organisations operating, servicing, maintaining North American P51 Mustang aircraft (All Marks)

**1 Introduction**

- 1.1 A number of North American P51 Mustang aircraft operating under CAP 632 are potentially affected by the following condition. The purpose of this Safety Notice (SN) is to highlight the issue to owners and operators of North American P51 Mustang aircraft, and to recommend carrying out inspections of the affected parts at the intervals below or after a heavy landing incident.
- 1.2 Several instances of cracked main landing gear (MLG) pivot shafts have been found during undercarriage maintenance carried out on North American P51 Mustang aircraft.
- 1.3 While main undercarriage legs were removed for maintenance, MLG pivot shafts were subjected to NDT MPI (Magnetic Particle Inspection) and found to be cracked along the base of the shafts (See [Appendix 1](#) Figure 3). It has not been established what the exact cause of the cracking is - but heavy landing, fatigue and age-related wear of the pivot shaft and associated shaft spherical bushes are possible.
- 1.4 Two modification states of main landing gear pivot shafts may be fitted to the North American P51 Mustang. Part numbers 73-33112 & 66584, known as a 'Light pivot shaft', or part number 161271 known as a 'Heavy pivot shaft'. These are normally found fitted in pairs, but both types of shaft have been found to be fitted together on a single aircraft. For identification of which type of pivot shaft is fitted, see 'Aircorps Aviation' document AC.A. 01-151-L2 for further details of

the parts and inspection techniques. A link to this document may be found in the 'Further Information' section below.

## 2 Recommended Actions To Be Taken

- 2.1 It is recommended that North American P51 Mustang aircraft owners and operators carry out an inspection of the affected parts within 150 landings from the issue date of this SN.

If landing gear pivot shafts and bushes are found to be serviceable and within nominal OEM drawing dimensions, then further inspections should be carried out every 300 landings. Inspection should also be carried out following any heavy landing incident. It is recommended that the inspections are included in the aircraft maintenance program.

- 1) Jack and trestle the aircraft as required, in order to remove the aircraft MLG legs.
- 2) Remove the pivot shafts from the undercarriage legs as required.
- 3) Using a NDT MPI process, examine and inspect the pivot shafts for cracks and damage at the intersection of pivot and landing gear receptacle. This should be carried out on both 'Light' and 'Heavy' pivot shafts. (See [Appendix 1](#) Figures 3, 4 and 5).
- 4) If evidence of cracking or damage are found, the pivot shaft should be removed from service and replaced with serviceable items prior to further flight.
- 5) While the MLG leg and pivot shaft are removed from the aircraft, it is recommended that the wing pivot shaft bushes – (part number 73-33109) are also examined for wear (See Figure 2).

**Note:** An initial indication of excessive wear in the bushes may be detected before the MLG is removed from the aircraft. This may be achieved by removing the operating lever from the rear of the gear leg and rocking the landing gear fore and aft while the aircraft is jacked clear of the ground – fore aft looseness or movement of the leg may indicate excessive wear to the pivot shaft bushes. Wear in the bushes may initiate or accelerate cracking to the pivot shaft.

## Appendix 1

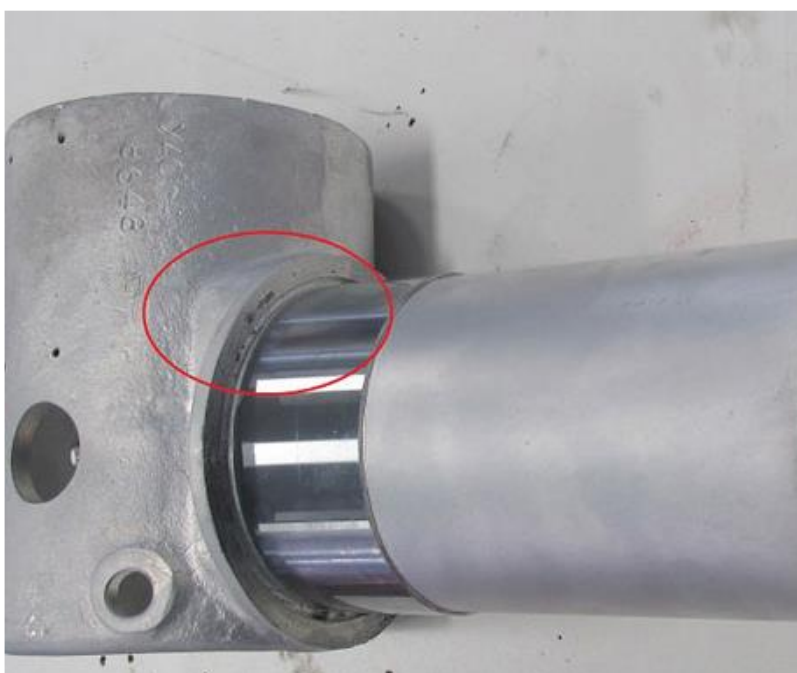
**Figure 1.** Main Landing Gear and pivot shaft





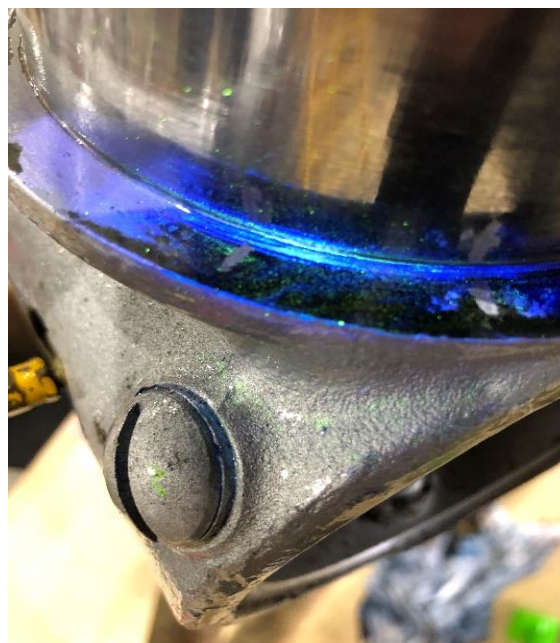
**Figure 2:** Wing casting and pivot shaft bushes

**Figure 3:** Pivot shaft to landing gear receptacle interface





**Figure 4:** Pivot shaft cracking-MPI inspection



**Figure 5:** MPI inspection of pivot shaft

### 3 Reporting Feedback of Inspection Findings

- 3.1 Any findings of damaged or cracked pivot shafts and associated mounting bushes should be fed back to UK CAA via the Mandatory Occurrence Reporting (MOR) system.

### 4 Further Information

- 4.1 While both 'Light' and 'Heavy' shafts can be used where found serviceable, it is recommended that the following document is accessed for further information and background on pivot shaft part numbers and identification.

<https://www.aircorpsaviation.com/p-51-landing-gear-pivot-shafts/>



### 5 Queries

- 5.1 Any queries or requests for further guidance as a result of this communication should be addressed to the GA Unit, Safety Airspace Regulation Group, Civil Aviation Authority, Aviation House, Gatwick Airport South, West Sussex RH6 0YR. Tel: +44 (0)1293 573988 E-mail: GA@caa.co.uk

## **6 Cancellation**

6.1 This Safety Notice will remain in effect until further notice.