



1. Effectivity

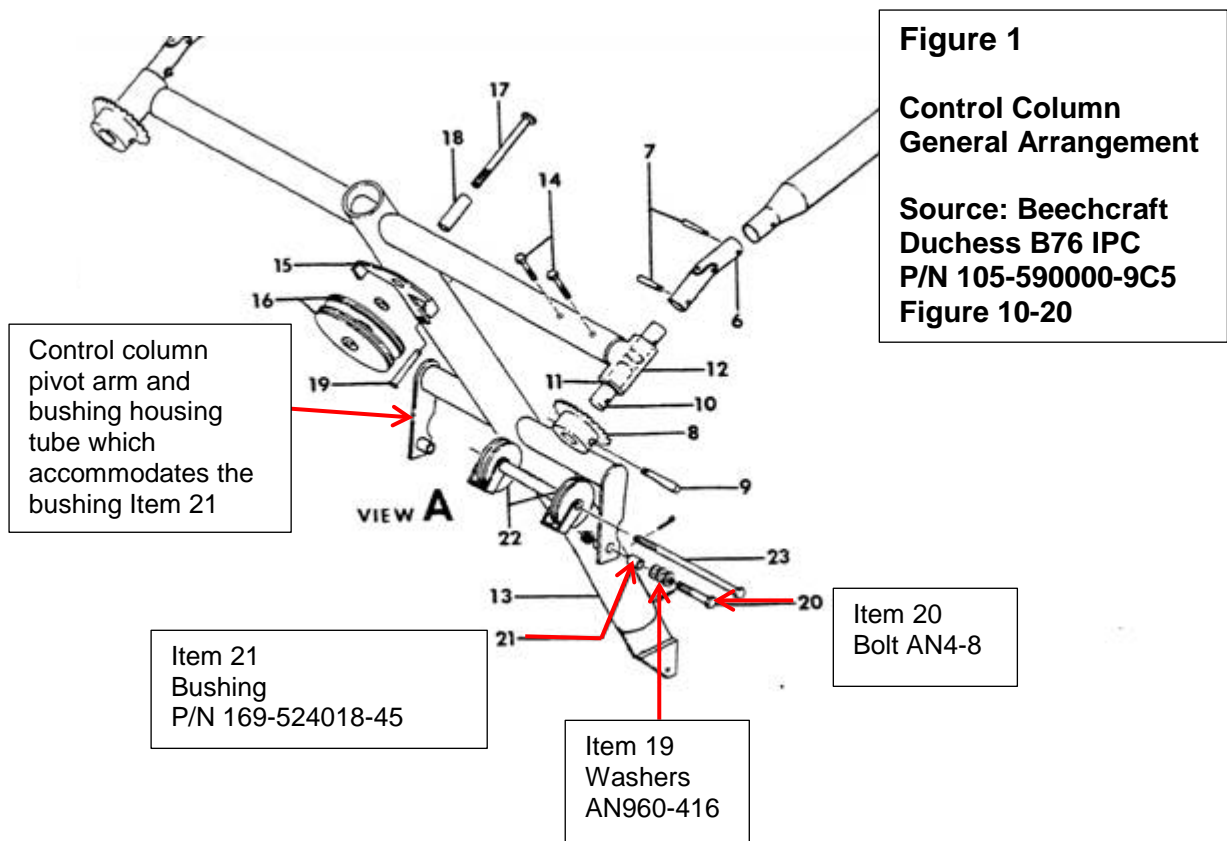
Beechcraft Duchess Model B76 Series aeroplanes

2. Purpose

Advise operators and maintainers of possible adverse wear of the control column pivot attachment which can result in reduced elevator control and possible loss of elevator control in flight.

3. Background

CASA has received multiple reports detailing main control column pivot hole wear, elongation including an occurrence where the AN4-8 pivot bolt head had pulled through a hole worn in Cover P/N 169-400005-387.



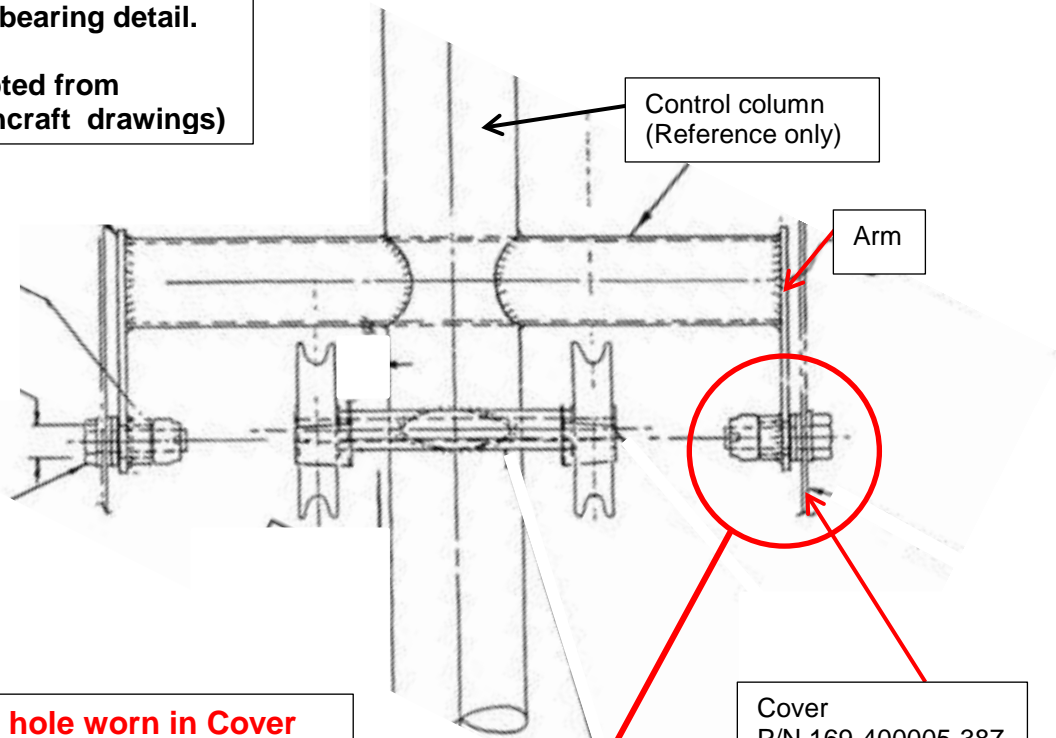
Loss of a control column pivot anchor point means the control column has nothing to pivot about, particularly on the side of the aircraft on which pivot failure occurs, and which could lead to a loss of elevator control.



Figure 2a.

**Control Column &
Pivot bearing detail.**

**(Adapted from
Beechcraft drawings)**



**Note hole worn in Cover
P/N 169-400005-387**

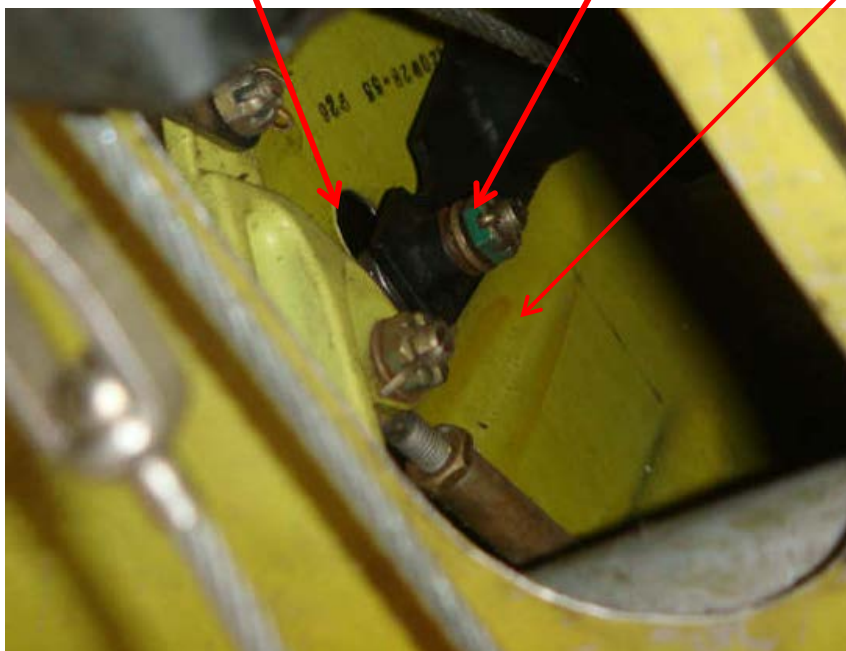
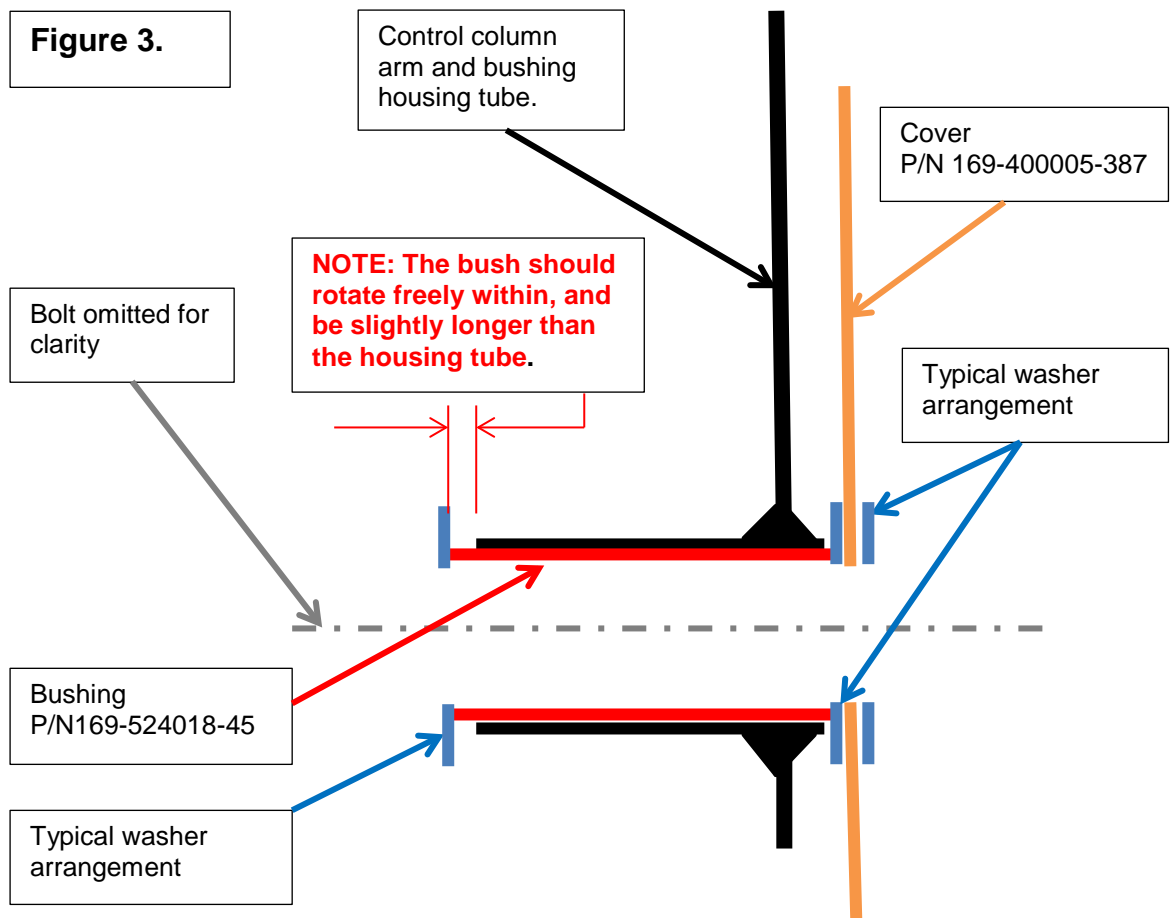


Figure 2b.



The column is designed to rotate about two bushings (Figure 1 Item 21) which should be tightly clamped against the cover assembly by the bolts (Figure 1 Item 20). The bushes should be slightly longer than, and move freely within the welded tube bushing housings in the control column arms.

When the bolts are correctly torqued, the bushes will be clamped against the tunnel wall which is protected by steel washers. (Figure 3) The only relative motion should be between the control column and the bushings as the yoke is moved back and forth to control the elevators.



If the pivot bushes are not lubricated, they will likely become seized inside the control column arm tubes, together with the bolt, and possibly wear into the sheet metal cover, reducing the thickness of the cover in the local contact area and severely reducing the clamp-up torque on the bolt. This can then allow the thin sheet metal cover to support the pivot bolt and inadvertently become a bearing, allowing the bolt and washer to rapidly wear a hole in the cover assembly.

As the hole in the cover assembly increases in size, there will be increasing 'slop' or play in the control column pivot assembly, to the extent that the head of the bolt may pull through the cover, resulting in reduced and possible loss of elevator control.



Beechcraft Duchess B76 Series
Control Column Pivot Failures

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As a result of such a sequence, the bush may become reduced in length so as to be approximately the same length as the housing tube and appear to be a press-fit in the housing.

If the bush has seized in the pivot tube housing in the control column arm, and/or if it has been reduced in length so that it is no longer proud of the pivot bushing housing in the control column arm, it may appear that the design requires that the bolt is to be left slightly loose to allow the bolt to pivot in the cover. This is not the case.

4. Recommendations

For those aeroplanes maintained under CASA Schedule 5, operators and maintainers are reminded that Schedule 5 is only a list of inspection tasks, with no maintenance procedures, techniques or instructions, which can vary according to the aeroplane type.

CASA Schedule 5 does not relieve the operator or the maintainer from the obligations of Civil Aviation Regulation (CAR) (1988) 42V(1) which requires that maintenance is to be carried out in accordance with the applicable provisions of the approved data for the aircraft.

CASA strongly recommends that the control column pivots are checked for security and correct operation at the next opportunity, and that operators ensure:

- a. The control column pivots (left and right) are inspected for wear, lack of lubrication, loss of bolt torque and damage to cover P/N 169-400005-387.
- b. The pivot bushings are correctly installed and functioning as intended, and
- c. Defects discovered as a result of the inspection are rectified at each 100 hour/12month inspection, and that consideration be given to reducing the current manufacturers lubrication interval for the control column pivot bushes from 1000 hours to 500 hours, in accordance with the provisions of the Beechcraft Duchess 76 Maintenance Manual Chapter 05 - Time Limits / Maintenance Checks; *SECIAL CONDITIONS CAUTIONARY NOTICE* to reduce the risk of bushings seizing.

5. Reporting

All defects discovered in relation to Duchess B76 control column pivots should be reported to CASA via the Service Difficulty Reporting (SDR) system



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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