Replacement of tailplane torque tube drive pins

Classification Optional

Applicability All Europas

Compliance As required - see wear limits

Introduction

There have been some cases of wear developing in the 1/4" drive pins and their associated bores in the tailplane torque tubes, resulting in play in the pitch drive mechanism. This modification replaces the 1/4" diameter pins with 3/8" diameter pins, and should be incorporated if the play exceeds the limits shown below.

Wear limits

First remove the pip pins from the tailplanes. Now with the control column held rigidly on the aft stop, measure the play of the tailplane at the trailing edge just outboard of the trim tab. With the tailplane in neutral, hold one tailplane secure, and try to move the other. Some differential movement is to be expected due to flexibility in the system, so look for movement associated with a "clunk". If the play exceeds 12mm (½") on either of the checks, then this modification should be incorporated.

Action

It is not considered practical to attempt to fit 3/8" diameter pins with the torque tube in situ, and it will therefore be necessary to remove it for the modification to be carried out.

1. Remove the tailplanes from the fuselage.

2. For trigear aircraft, arrange suitable supports at the rear of the fuselage, since it will be necessary to crawl down to the back to remove the existing drive pins, thus allowing the torque tube to be withdrawn.

3. For increased access remove the pitch stop assembly from the top and bottom brackets.

4. To help to avoid the possibility of damage to the main pitch pushrod, disconnect it at the front end.

5. Remove the split pins and washers from the four drive pins (two for the TP9 drive lugs, and two for the TP12 drive plates), and extract the 1/4" drive pins.

6. Withdraw the torque tube from the fuselage, noting and marking with a marker pen (do not scribe) the orientation of the various parts in relation to the tube - there are 3 ways to get it wrong, and only one which is right - so be careful!

7. Disconnect the TP9 assembly from the main pitch pushrod, and remove it from the aircraft.

8. Reassemble the torque tube in the correct orientation, but without the pins.

9. Fit the existing 1/4" drive pin into one side only of one of the TP10/TP12 units; choose the closest fitting side if badly worn. With a sharp 23/64" or 9mm drill, carefully drill out the hole on the opposite side. Use cutting fluid / oil when drilling and reaming. Then ream that side with the 3/8" reamer; it will then be possible to partially insert a TP14D pin just far enough to ensure no movement whilst the same procedure is repeated on the opposite side. Finally remove the pin and ream right through the assembly.

10. Repeat this technique for the other hole.

11. For the TP9 unit remove one 1/4" pin only, and drill and ream right through using the 23/64" (or 9mm) drill and 3/8" reamer. Fit the new TP14C pin, and then remove the remaining 1/4" pin and drill and ream the other remaining hole.

12. Reassemble in the reverse sequence of disassembly, noting that it will be necessary to file flats on the washers for the two central pins to give clearance from the welds of the TP9. To make attachment of the push rod to TP9 easier, bond the washers which go each side of the rod-end bearing to the arms of TP9 first.

Inspection

Arrange for the modification to be inspected by the appropriate authority before flight.

Documentation

Enter the incorporation of Mod 62 into the aircraft log book.