



**Standard Modification**  
Issue 1

Mod No. SM11419

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Compiled : FD

Approved : AM

## TITLE : ELEVATOR FLUTTER DAMPER

APPLICABILITY : ALL DUAL-CONTROL CFM STREAK SHADOW, CFM STAR STREAK AND LAA ADMINISTERED SHADOW D SERIES AIRCRAFT

Mod Type : NEW BUILD OR RETROFIT

### 1. Introduction

This modification incorporates a damper arrangement at the base of the P2 sidestick and has been designed to eliminate elevator flutter which can otherwise occur when flying hands-off.

### 2. Parts List

Qty	Part No.	Description	Source
12	D1256205	BELLEVILLE SPRING WASHER	SHADOW FLIGHT CENTRE
1	11419-1	TOP HAT BUSH STAINLESS STEEL	SHADOW FLIGHT CENTRE
1	11419-2	THICK WASHER STAINLESS STEEL	SHADOW FLIGHT CENTRE
1	AN3-21	BOLT	STANDARD HARDWARE
1	AN381-2-12	SPLIT PIN	STANDARD HARDWARE

### 3. Actions

Aircraft to be standing on its three wheels on level ground, with tailplanes and elevators fitted. It is not necessary for the wings to be fitted. The work must either be carried out indoors or outdoors in calm conditions only.

1. Remove AN3 size pivot bolt from rear cockpit control column. This involves removing split pin, undoing castle nut, removing washer and then drawing bolt out in an inboard direction. Take care to avoid loose parts falling down into the interior of the cockpit sidewall, for example by using a magnet to catch parts as they are released. If parts are dropped, extract using magnetic probe tool before continuing job. Discard the old bolt and split pin.
2. Insert the new bolt through the top hat bush so that the flange of the top hat bush is against the bolt head.
3. Thread six of the Belleville spring washers onto the bolt, carefully orientated so that the conical washers are 'pointing' away from the bolt head.
4. Then thread the remaining six Belleville spring washers onto the bolt orientated so that they are pointing towards the bolt head.
5. Thread the thick washer over the bolt.
6. Lubricate the bolt and washers with oil.
7. Slide as many as possible of the Belleville spring washers down over the bush and centre the remainder of the Belleville spring washers and the thick washer over the others so as to create a neat stack of washers.



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8. Taking care not to drop off the assembled stack of washers, slide the bolt through the pivot bolt holes in the control column yoke and torque tube, in an outboard direction, aided if necessary with gentle taps from a soft mallet.
9. Replace the original washer and castle nut on the end of the bolt. With a spanner restraining the head of the bolt, tighten up the nut progressively, taking care to keep the stack of Belleville washers centred on the bush (they will tend to self-centre due to their conical shape).
10. When the nut is done up to the point where the Belleville spring washers start to compress, continue to tighten the nut while an assistant monitors the free movement of the P1 control column. The elevator control will progressively become stiffer to operate as the nut is tightened and the spring washers compress.
11. The assistant must pull the stick fully back and then release it, checking the rate at which the stick falls forward under the influence of the weight of the elevators. Adjust the position of the nut until the elevator just falls slowly throughout its travel when the stick is released from the full back position. The elevator must neither drop with a clonk nor remain static when the stick is released.
12. Once the correct nut setting has been established, fit the new split pin to the bolt, cut off excess length of split pin and fold the tails of the split pin carefully around the nut so as to avoid any risk of the split pin tails catching on adjacent parts.
13. Check full and free motion of controls column in pitch and roll, making sure that newly fitted parts do not foul on adjacent structure or restrict movement.

#### **4. Special Inspections**

Inspector to check installation of modification parts, full and free travel and correct setting of friction damper friction level in accordance with stages 11, 12 and 13 of the above procedure.

#### **5. Weight and Balance**

No significant effect.

#### **6. Certification**

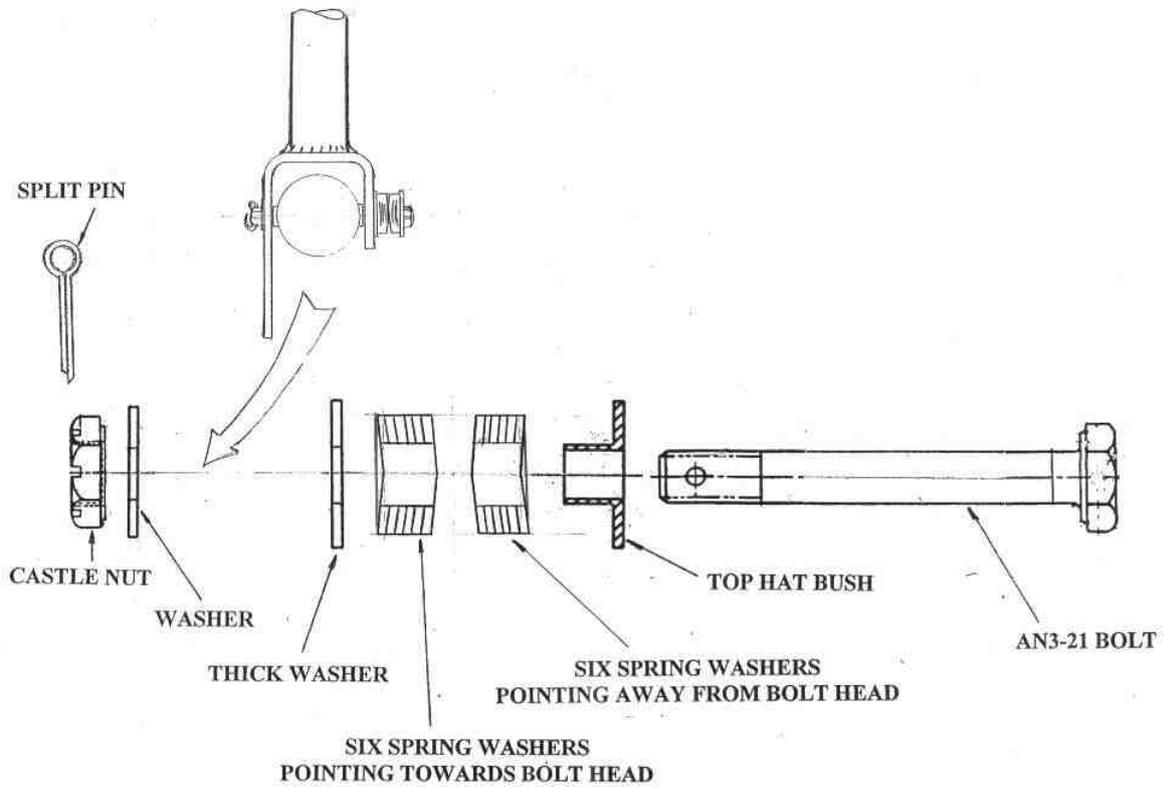
LAA inspector to raise suitable airframe logbook entry and Permit Maintenance Release, using a 'standard mod authority' form LAA/MOD 1.

#### **7. Flight Test**

None required

#### **8. Continued Airworthiness**

Check elevator control system damper setting in accordance with paragraph 3 'Actions' stages 11 and 12 annually at each subsequent permit renewal inspection. Details to be provided in LAA 'Notes to LAA Inspectors' (SPARS).



SCHEMATIC ASSEMBLY OF DAMPER MODIFICATION`  
View looking aft on pivot bolt of rear cockpit side stick