PFA 247/FSB-006 issue 3
PFA CLASSIFICATION **A**

PFA Approval :
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PFA AIRWORTHINESS INFORMATION

EUROPA CLASSIC AND EUROPA XS TAILPLANE FLUTTER AVOIDANCE AND INTEGRITY OF TAILPLANE ATTACHMENT

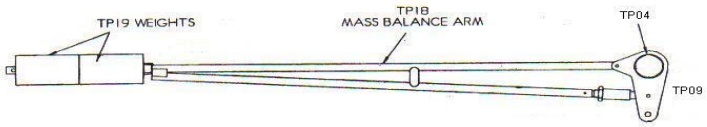
Applicability: All Europa Classic and Europa XS aircraft.

Compliance by: Parts 1 to 6 inclusive: Before next flight and at every subsequent 10 flying hours. Part 7**:** within 10 flying hours following the issue of this bulletin, or next permit renewal, whichever is sooner.

Background:
Following a fatal accident with Europa G-HOFC, initial investigation suggests that tailplane flutter may have occurred, leading to an in-flight catastrophic structural failure of the tailplane. Factors likely to influence tailplane flutter include correct tailplane mass-balancing, freedom from backlash in the tailplane drive and mass-balance arm and the integrity of the tailplane retention on its torque tube. This bulletin requires checks on all Europa aircraft to ensure that they satisfy established flutter-prevention criteria and that corrective action is taken where necessary.

Actions required:

1. Check for relative movement between the tailplane mass balance arm and the tailplane torque tube TP04. PFA's Europa Safety Bulletin PFA 247/FSB-002 dated 18.04.00 refers. Play of this sort is most likely due to worn holes for the TP14 interference fit pins in the TP09 torque tube drive horn assembly or at the arm attachment to the TP09 horn. Due to the vital role of the mass balance arm in preventing tailplane flutter, the play between the mass balance arm and either tailplane half must not exceed ½" measured at the tailplane trailing edge. This must be measured by having an assistant hold the P1 control column full back so that the mass balance arm is pressed against the up stop, and measuring the free play at each tailplane trailing edge under moderate up/down hand pressure. In cases of free play exceeding ½", Europa mod 62 provides a repair scheme for eliminating play in mass balance arm attachments. See diagram.



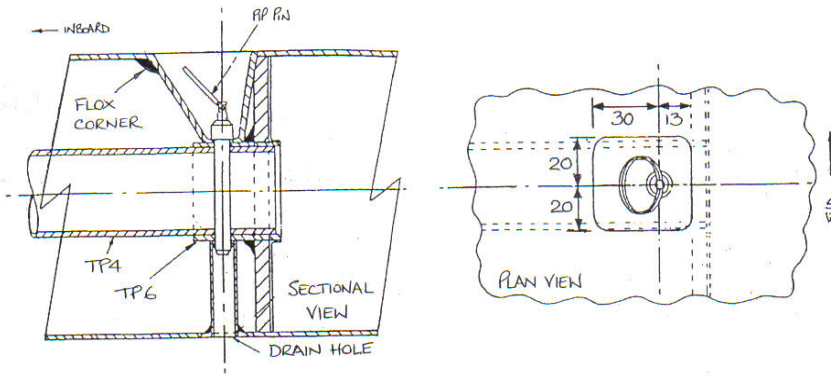
2. Check correct mass balancing of tailplane. The mass balancing may not have been correctly carried out at build, alternatively any rework or repainting of the tailplane carried out since may have upset the balance. The tailplane balance may be checked with the tailplane halves fitted to the fuselage in the normal manner. Check that the control columns are not obstructed by the harness or other cockpit items. Then, standing at one tailplane tip, check that the tailplane does not tend to balance either trailing edge up or trailing edge down, but remains in any position it is placed in. Then check that deflections of the tailplane in the trailing edge up and trailing edge down direction from the neutral position require equal forces ie there is no bias in either direction. If adjustment of the mass balance weight is needed to achieve this condition, refer to build manual.

3. Check for relative movement between the tailplane drive plates TP12 and the tailplane torque tube TP04. PFA's Europa Safety Bulletin PFA 247/FSB-001 dated 01.02.99 refers. To check this, apply opposing up/down forces to the port and starboard tailplane trailing edges and note the amount of free play between the two tailplane halves. This free play must be no more than ½" measured at the trailing edge. Now remove the tailplane retaining pip-pins and repeat the test. There should be no change in the amount of free play. If there is greater free play with the pip-pins removed then it indicates that the pip-pins are contributing to carrying torsional loads and the TP6 bushes within the tailplanes are likely to become loose if corrective action is not taken.

4. Check whether there is any sign of looseness of the TP6 outboard bush in either tailplane half. PFA's Europa Safety Bulletin PFA 247/FSB-001 dated 01.02.99 refers. With the pip-pins in place then, with the fuselage restrained from moving sideways, grasp each tailplane half in turn and pull on it spanwise whilst watching the pip-pin head. Then try waggling the tailplane half up and down and twisting it. There should be no relative movement between the pip-pin and its recess in the composite tailplane.

5. Check that the tailplane pip-pin recess complies with the description in the Europa Build Manual (see diagram). Build instructions were changed in March 1994 from a recess design similar to that shown below but had slightly smaller dimensions. This recess type is also acceptable. An important feature of the recess is that its base and inboard side wall provides a secondary tailplane retention function in the event of dis-bonding of the TP6 bush. Reports from inspectors reveal that there are many cases of aircraft being found to have tailplane pip-pin recesses that differ from the build manual in both shape and dimension. Inspectors may only accept variations in recess design if the modified version includes all of the following essential features:

    a) The sides and base of the recess is totally covered by a minimum of two plies of bi-directional glasscloth.
    b) The base of the recess in contact with the TP06 outboard bush has an area of at least 170mm².
    c) The connection between the recess side walls and the tailplane skin has a perimeter of at least 125mm minimum.
    d) The joint between the recess side walls and the tailplane skin is made using a 'flox corner'.



If the pip-pin recesses do not satisfy the above criteria, the aircraft must not be flown until modified in accordance with part 7 below.

6. Check the security of the tailplane drive bushes bonded into the tailplane root rib and that the drive pins of the TP12 drive plates are fully engaged into the bushes in each tailplane half. PFA's Europa Safety Bulletin PFA 247/FSB-001 dated 01.02.99 refers.

7. **Within 10 flying hours following the issue of this bulletin, or next permit renewal, whichever comes first, Europa modification 73 'Tailplane Retention' must be incorporated.**

If the above checks show that any of the above inspection requirements are not satisfied, then:

a) DO NOT FLY the aircraft.
b) Put an attention-getting note in the cockpit to indicate that the aircraft is grounded pending essential maintenance work.
c) Notify PFA Engineering of your findings and for advice on how to proceed.

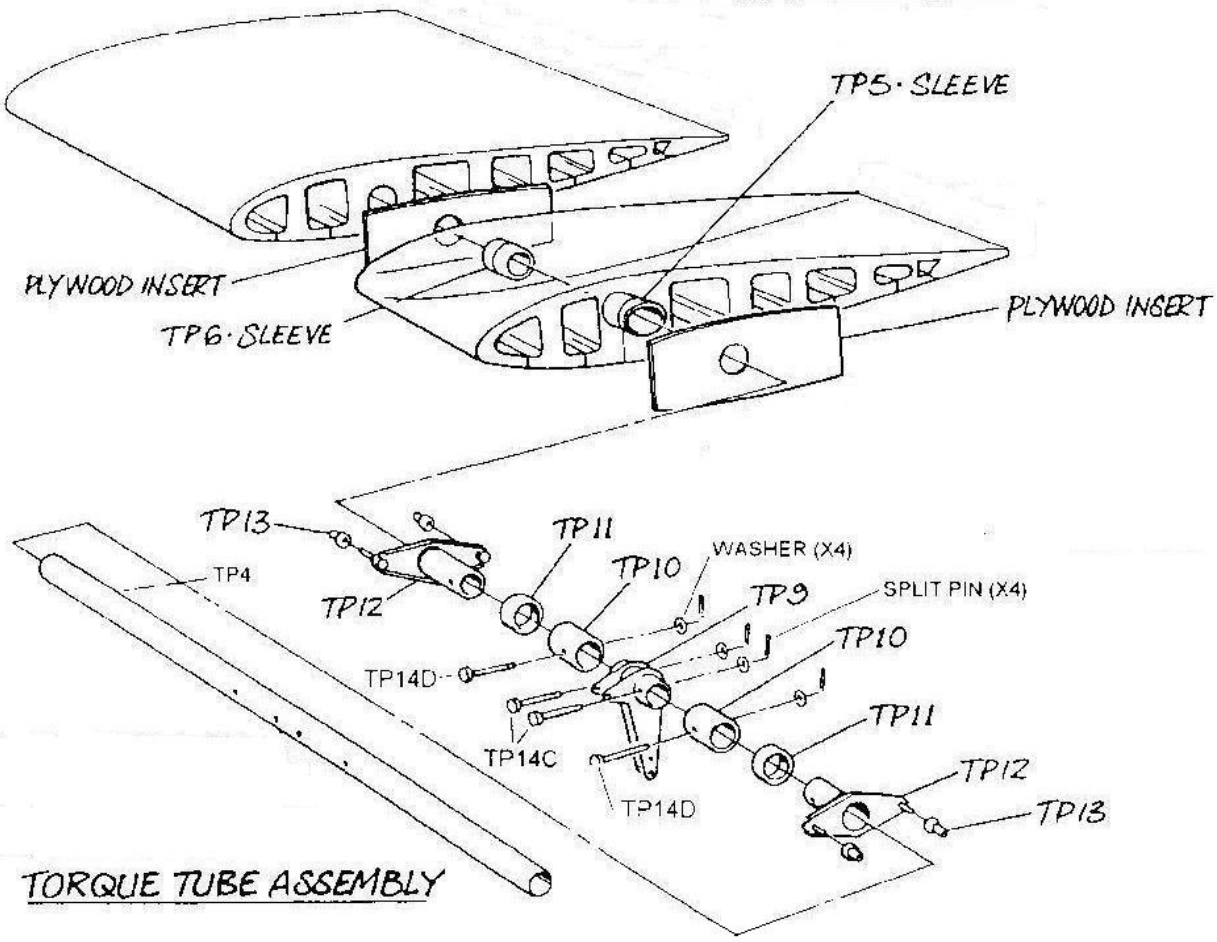
If the checks detailed in this bulletin find that no corrective action is required the aircraft may be returned to service. The checks specified in parts 1 to 6 above must be repeated every 10 flying hours. It is also recommended that pilots check item 4 above as part of their normal pre-flight checks.

- RE-INSTALL THE PIP-PINS BEFORE FURTHER FLIGHT-

Certification Requirements:

Inspections must be carried out by a suitably approved PFA inspector before flight. Airframe logbook entry to be raised and signed by the inspector confirming compliance with PFA airworthiness information PFA 247/FSB-006 Issue 3.

TAILPLANE COMPONENTS



TORQUE TUBE ASSEMBLY