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S.A.

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## SERVICE BULLETIN No BO-21/2015 MDM-1 FOX

DESIGNATION-TYPE/MODEL: MDM-1 FOX

SERIA / NUMBER: MDM-1 FOX model gliders, S/N up to 244 inclusive  
variants: MDM-1 FOX, MDM-1P FOX-P, MDM-1M FOX

CONCERNS: Inspection of front node in tailplane mount, and  
repair with modification – as necessary

COMPLIANCE TIME: At nearest annual/ 100h inspection (whichever expires first)

The technical content of this document is approved  
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Bielsko-Biała, 14.09.2015

## **1. GROUNDS FOR ISSUANCE OF THIS BULLETIN**

To the information from operators of MDM-1 FOX, on few gliders of this type the visible cracks on external surface of composite elements in tailplane front mount have been found, within these: repeated damage of this type occurred on single S/N after repair restoring the original structure.

In the glider inspections carried out for every reported occurrence, identified were cracks around the front fitting metal sleeve in the composite rib installed on stabilizer, and in the bonded joint between rib and stabilizer, of extent/ size varying between individual cases.

Location of reported damage is easily accessible for inspection, and hitherto occurrences have been detected by the maintenance work required in the glider Technical Service Manual. However, if not detected on time, the damage might grow to the size critical to safety.

The suspected cause of this damage are: design features, possible error in production process and incorrect maintenance & servicing.

In the original design, successfully verified by structural static test, the sleeve in tailplane front mount is supported on each side (L/R) of symmetry plane with one structural element only (rib) and no additional elements duplicating this function were provided by design. The unduly tight fit between mating parts of the tailplane mount, caused either by error in original production or by later part replacement might lead to increased forces at tailplane rigging. Suspected on some gliders incorrect maintenance – like driving the closely-fit bolt into sleeve with hard tool - could exacerbate the problem since the solution is sensitive to lateral loads. Possible is also that, a defect originated with inaccuracy in production process of tailplane mount composite components (the rib or its bonding to stabilizer), under dynamic service loads might grow to the size affecting the stiffness and load carrying capability of the structure – especially on gliders where combination of multiple a.m. factors will occur.

The experience gained so far indicates that in repair of damage of this kind, instead of simple reconstruction of damaged structure, justified is a modification to the design of tailplane front mount. Proposed design change is introducing the additional elements to support the sleeve, thus contributing to more uniform distribution of loads within the affected portion of structure and enhancing its resistance to the concerned mode of damage.

Details on design change implementation are described in the WORKING INSTRUCTION referred to in item 5 ENCLOSURES.

To prevent next occurrences of a.m. damage, on every glider covered with this Bulletin required is single action comprising:

- verification of tailplane front mount

-depending on results of verification, implementation of the described design change is required/ recommended as single action – details see item 3 PROCEDURE

Implementation of the described design change to the tailplane mounting node, is recommended by glider Producer regardless of verification result, either as repair method of the identified damage, or as preventive means against possible problems in a future.

## **2. LIST OF FACTORY NOS COVERED WITH THIS BULLETIN**

This Bulletin concerns MDM-1 FOX gliders, Serial No up to 244, inclusive all variants: MDM-1 FOX, MDM-1P FOX-P, MDM-1M FOX,

**NOTE:**

*the concerned design change is implemented in every serially built glider with S/N 245 and above.*

## **3. PROCEDURE**

1. In case of encountering the tailplane excessive play (lateral bank) and/or unusual in-flight vibrations, or at the nearest annual/ 100h inspection (whichever occurs first), inspect the front node of stabilizer mount against possible cracks on the outboard, side surface of composite rib around metal sleeve and in the area of rib to stabilizer bonding.



*Possible form of damage to tailplane mounting node*

2. Investigate the extent of every crack detected: verify if this is limited to lacquer & filler coat, or penetrating into composite. To do so, carefully remove the lacquer in the area of crack and check the condition of uncovered composite against presence of cracked fibres and/ or white spots being evidence of damage in composite.
3. Detected damage to composite structure must be repaired before next flight, by implementation of design change described in the WORKING INSTRUCTION, see item 5 ENCLOSURES.

**NOTE:**

*Due to interference with tailplane mount, the modification is to be completed at Aircraft Repair Workshop authorised for repairs of composite structure aircrafts – to the regulations in the country of glider registration*

4. If no defects to the structure have been found, decision on implementation of the design change remains with the operator / owner of the glider – Producer recommends this change anyway as a remedy preventing possible problems in continued operation of the glider in a future.
5. Record the modification in the glider log book.

***LABOUR DEMAND***

Time required to implement this modification 2 days/1 person

***4. MASS (WEIGHT) AND BALANCE***

In case of modification, repeat the weighing and CG determination for empty glider – in accordance with item 2.6 WEIGHING THE GLIDER in Technical Service Manual.

***5. ENCLOSURES***

1. WORKING INSTRUCTION, MODIFICATION TO TAILPLANE FRONT MOUNT, MDM-1 FOX, 10.02.2014

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