issues

MANDATORY BULLETIN No. HARMONY LSA-046a SR

1. CONCERNING TO:	*ALL HARMONY LSA, HARMONY ELSA AIRCRAFT MANUFACTURED UP TO 2017 (INCLUSIVE), I.E. S/N 2017 XXXX.*
2. REASON:	*Loosening of the bearing in the adjustable rod eye ONL 3797.1 (nom. 079575).*
3. REQUIRED ACTIONS:	*Inspection of the bearing swaging of the adjustable rod eyes ONL 3779.1.*
4. LATEST DAY OF THE ACTION:	*Immediately after bulletin delivery.*
5. CARRIED OUT BY:	*Operator.*
6. COSTS COVERED BY:	*Operator.*
7. NECESSARY MATERIAL:	*Manufacturer build to order.*
8. WORK PROCEDURE:	*According to the bulletin text.*
9. APPENDICES:	*None.*

Valid from: 29. 04. 2026

tel: +420 572 777 111 / +420 572 777 605
e-mail: service@evektor.com / evektor@evektor.com https://www.evektor.cz

1. Necessary tools

Name	Designation	Number of pieces
Combinated pliers	-	1
Cutting pliers	-	1
Wrench	No. 9	1
Wrench	No. 10	1
Wrench	No. 13	1
Offset box-end wrench	No. 13	1
Adjustable wrench	E.g. KNIPEX	1

2. Necessary material

Materials required for rod eye replacement

Name	Nomenclature	Number of pieces
Washer 8,4 DIN 463	038241	As required
Adjustable rod eye with bearing AEN 3779.1	079563	As required

Materials required for upper rudder hinge replacement

Name	Nomenclature	Number of pieces
Washer 8,4 DIN 463	038241	As required
Adjustable rod eye with bearing AEN 3779.1	079563	As required

Material required for the rod and elevator control linkage removal

Name	Nomenclature	Number of pieces
Cotter pin 1,6x16 ISO 1234	040008	1

Materials required for rudder removal

Name	Nomenclature	Number of pieces
Cotter pin 1x12 ISO 1234	038862	1
Nut M8 DIN 980 V	033870	1

3. Work procedure

Reason for inspection

Due to a reported case of bearing loosening in the adjustable rod eye ONL 3779.1 (Fig. 1) in service, perform an inspection of all aircraft that may be equipped with eyes with insufficiently staked (swaged) bearings. The cause is that during manufacturing, the bearing in the rod eye was not secured by rolling over groove material onto the chamfered edge of the bearing outer ring, as shown in Fig. 2.

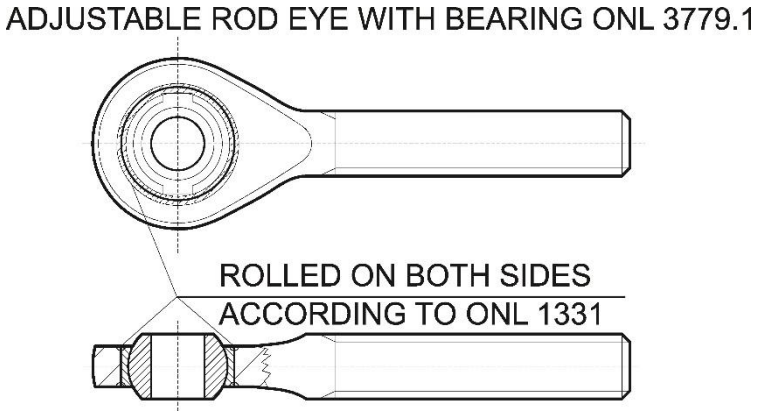

Fig. 1 Adjustable rod eye ONL 3779.1

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The bottom detail in Fig. 2 shows the proper bearing swaging in accordance with standard ONL 1331.2, where the bearing is secured by rolling over groove material onto the edge of the outer ring.

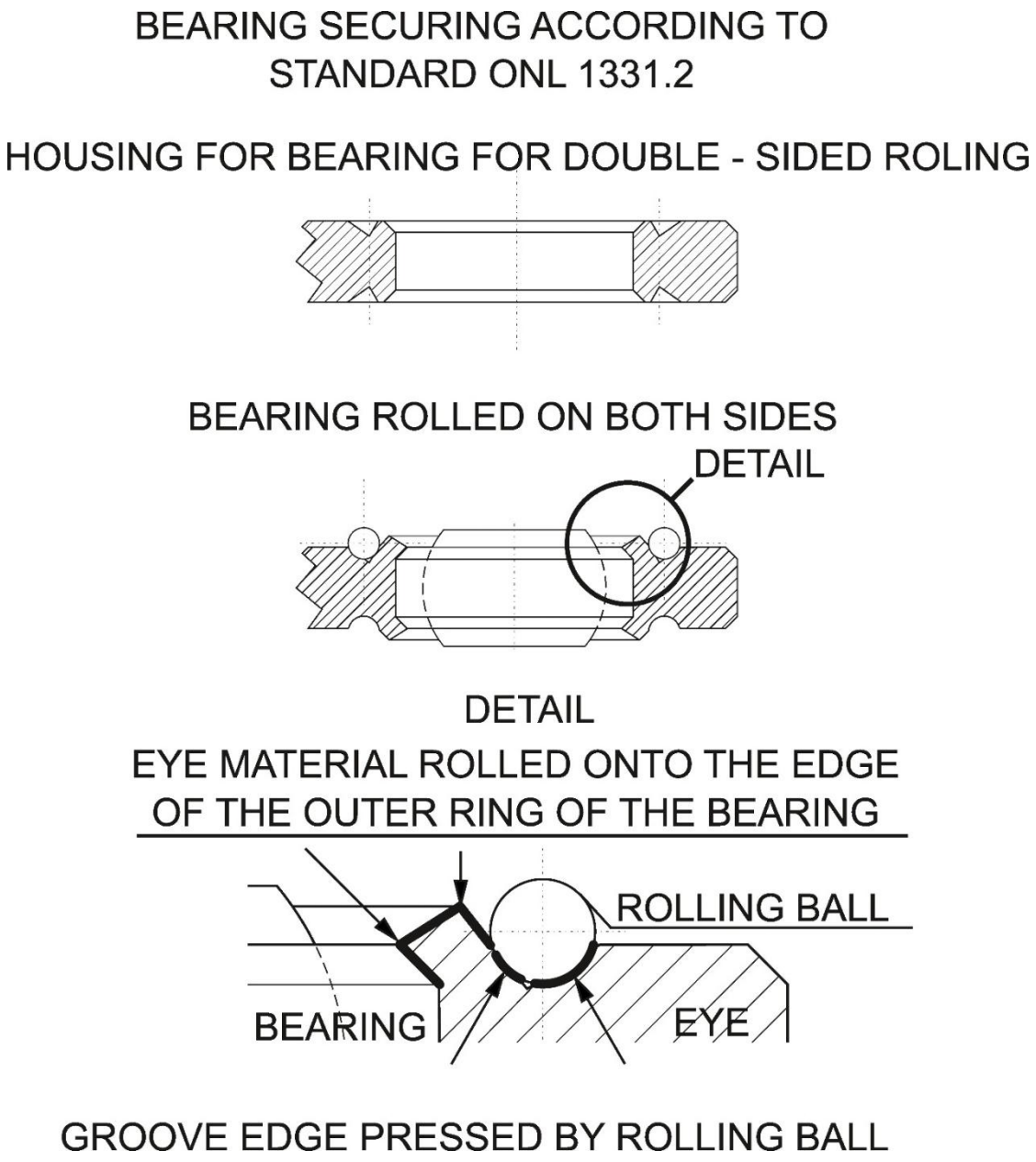

Fig. 2 Groove profile before swaging and properly swaged bearing

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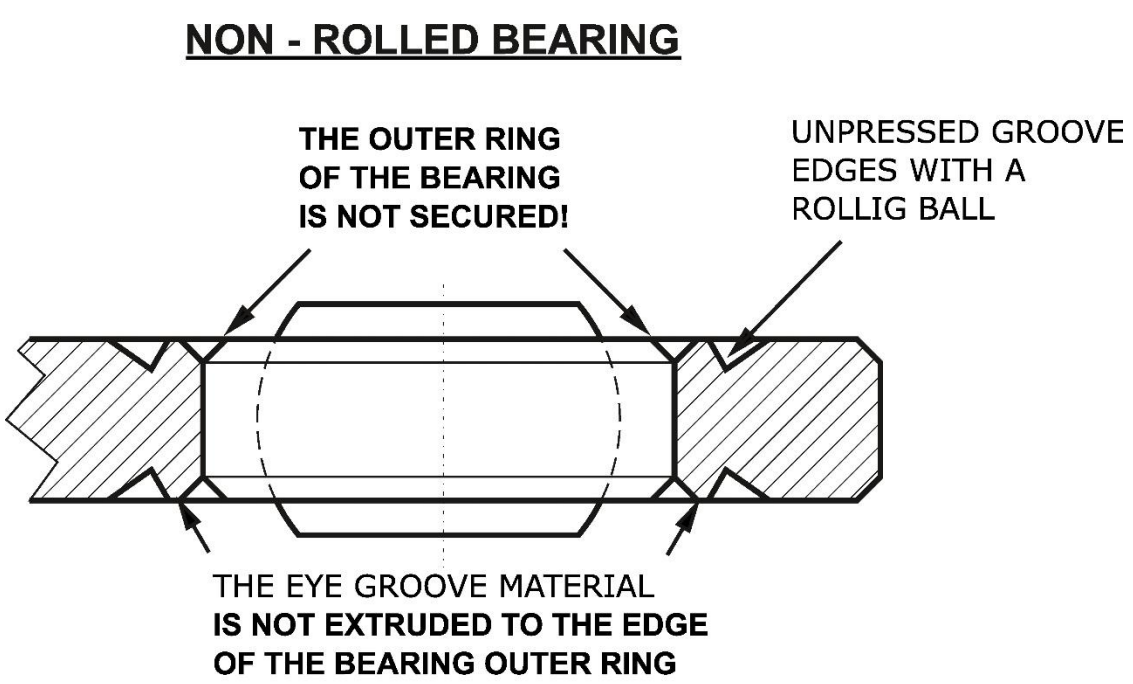

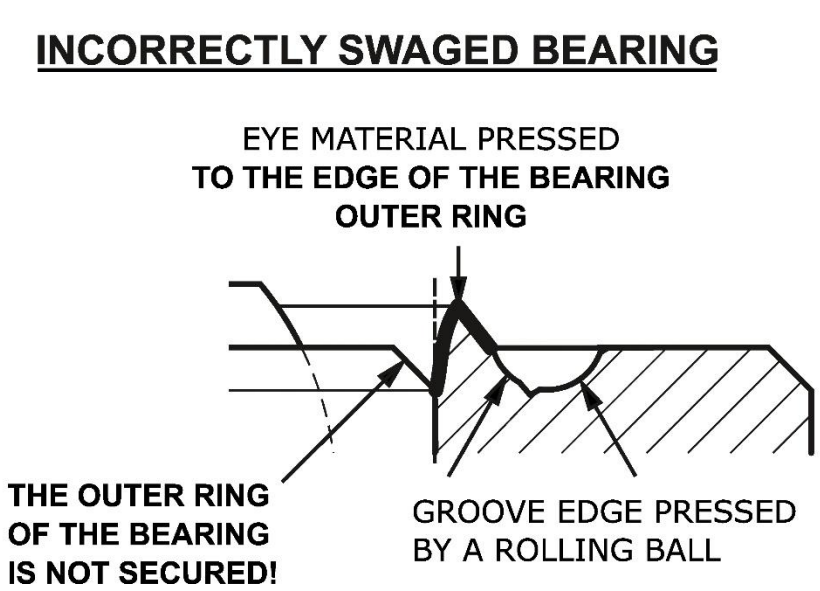

Fig 3. Incorrectly swaged bearing

Fig. 3 illustrates incorrect bearing swaging, where the bearing is insufficiently secured in the rod eye or not swaged at all.
On HARMONY LSA; ELSA aircraft, rod eyes ONL 3779.1 are used in the pitch control linkage at the elevator control lever and as the upper rudder hinge. In these connections, the rod eye cannot slide off the bolt head.
Action
If, during the pre-flight inspection, no excessive clearance in the controls or rudder mounting is found, stiffness in the control system, or any other abnormal condition is detected, perform a visual inspection of the rod eye S4 01-10 01 in the elevator control system (Fig. 4, Detail A) and the rod eye of the upper rudder hinge (Fig. 4, Detail B) at the next annual or 100-hour inspection.
If abnormal clearance or stiffness is observed in the joint, perform the inspection immediately.

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Inspection / replacement of the elevator control rod eye
Disconnect the connection between the rod and the lever on the elevator.
Remove the 1,6x12 cotter pin (Fig. 4) and the M6 nut.
Remove the 6x1 washer and the 6x23,5 bolt.
Check the bearing swaging in the rod eye for clearance by hand.
If clearance is detected, unlock the washer and remove the rod eye.
Visually inspect (preferably using a magnifying glass) the condition of the swaging grooves and the bearing securing in the eye. If you find conditions similar or the same as in Fig. 3, replace the adjustable eye with a new one, 8x14x6 AEN 3779.1, nomenclature 079563, supplied by the aircraft manufacturer.
In case of replacement, install the new rod eye including a new washer.
Connect the control rod to the elevator lever using a 6x23,5 bolt, 6x1 washer and M6 nut (Fig. 4).
Check the elevator deflection and adjust as necessary. After checking and adjusting the deflections, secure the washer.
Secure the M6 nut with a 1,6x12 cotter pin.

Inspection of the rudder upper hinge rod eye
Disconnect the control cabled from the rudder hinges (Fig. 5, Detail C).
Remove the 6x23 bolts and the 6,4 ISO 7089 washers.
Remove the 6x23 bolts from the ends of the rudder cables and remove the 6,4 DIN 463 washers.
Secure the free ends of the cables to prevent them from being pulled into a fuselage (e.g. using safety wire).
Remove the rudder according to Fig. 5, Detail D.
Remove the 1x12 cotter pin and the M5 nut from the rudder lower hinge.
Remove the rudder.
Visually inspect (preferably using a magnifying glass) the condition of the swaging grooves and the bearing securing in the rod eye of the rudder upper hinge. If you find conditions similar or the same as in Fig. 3, replace the adjustable eye with a new one, 8x14x6 AEN 3779.1, nomenclature 079563, supplied by the aircraft manufacturer.,

Removal / installation of the rudder upper hinge rod eye
According to Fig. 6, unlock the washer.
Hold the M8 self-locking nut inside fin using an offset wrench (No. 13) and loosen the M8 nut on the rod eye thread.
Unscrew the rod eye using an adjustable wrench. Screw the eye by the flat part avoiding the bearing inner ring.
If necessary, the inner bearing ring can be removed.
Remove the M8 self-locking nut.
Install a new M8 nut onto the threaded section of the new rod eye and slide on a new washer. Position the M8 self-locking nut on the fin rear spar, against the rod eye hole. Position the nut with one of its flats horizontally and hold it in place with an offset wrench (No. 13). In this position, screw the rod eye into the nut thread by hand. Once increased resistance is felt, use the adjustable wrench to complete the installation.
Adjust the rod eye depth to maintain a distance of 31 mm according to Fig. 6.
Tighten the M8 nut and bend the tabs of the washer.
After inspecting the upper hinge, install the rudder and connect the control cables (Fig. 5).

4. Influence on airplane documentation

Accompanying technical documentation - without influence.

Operational technical documentation - after compliance with this bulletin, record the following note in the aircraft logbook: ,,Inspection of bearing swaging in control rods performed in accordance with MB No. HARMONY LSA - 046a SR", and add date and signature.

5. Influence on weight and balancing

Without influence.

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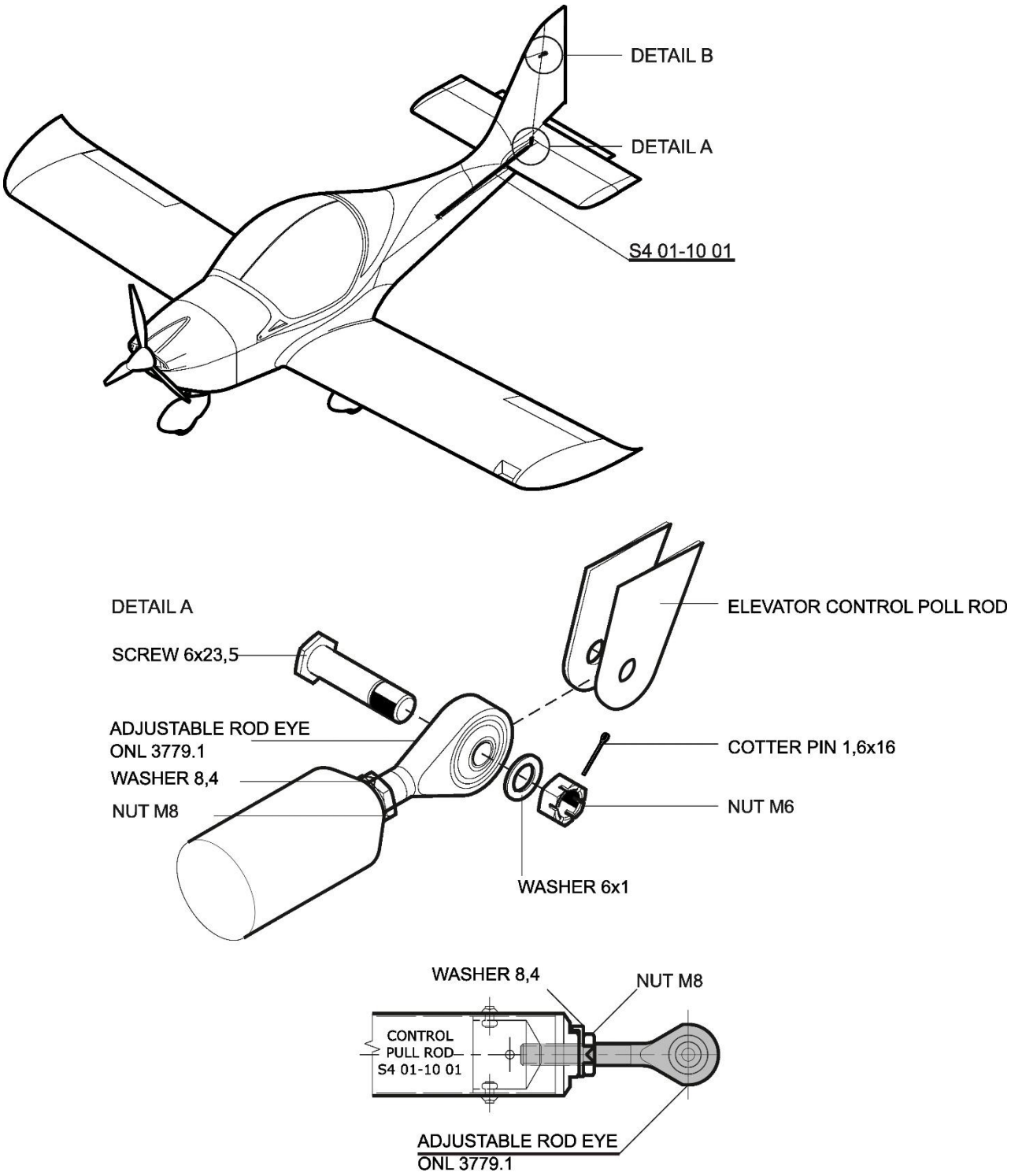

Fig. 4 Inspected connections – detaila A and B

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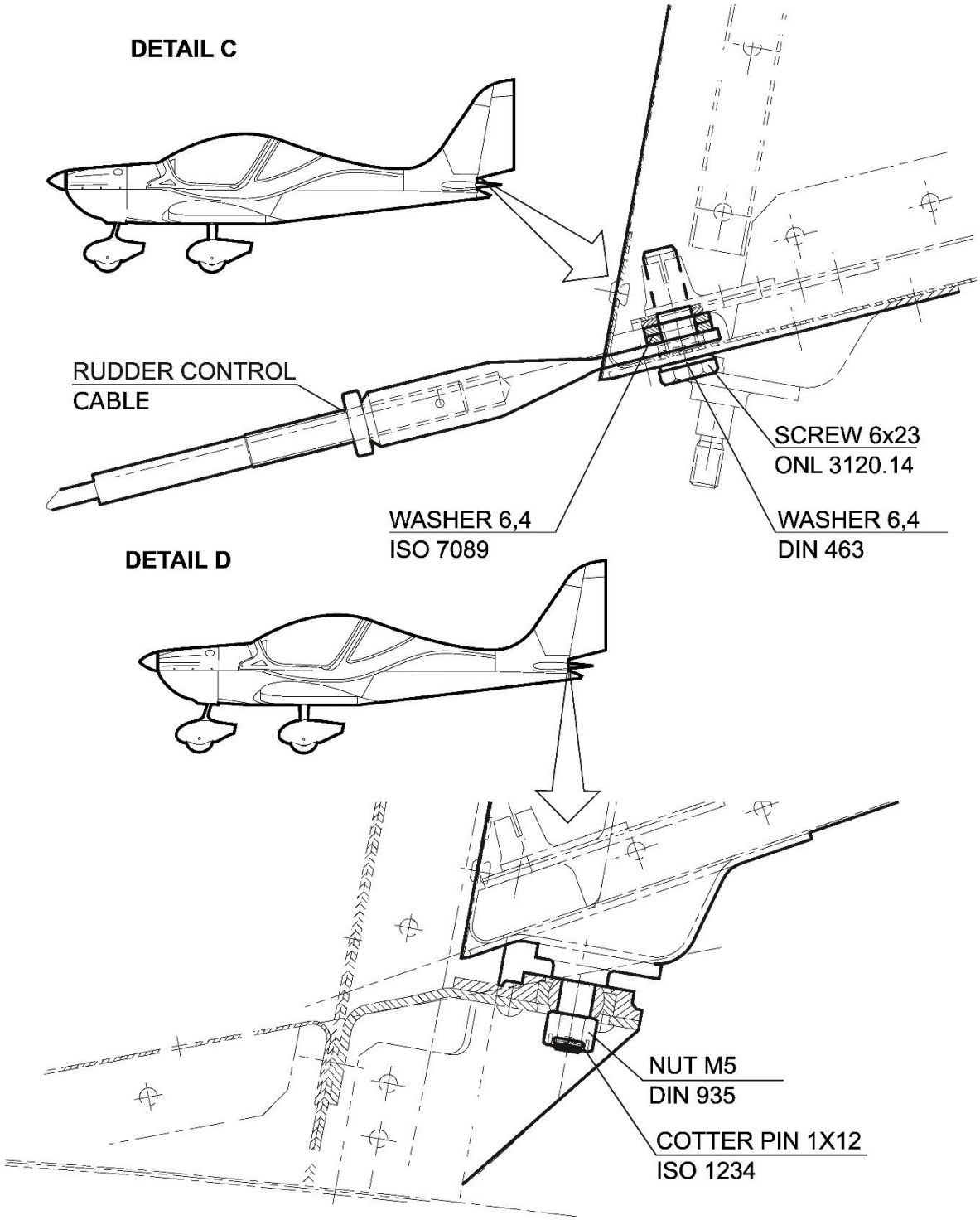

Fig. 5 Rudder control cable attachment and rudder lower hinge - details C and D

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RUDDER UPPER HINGE

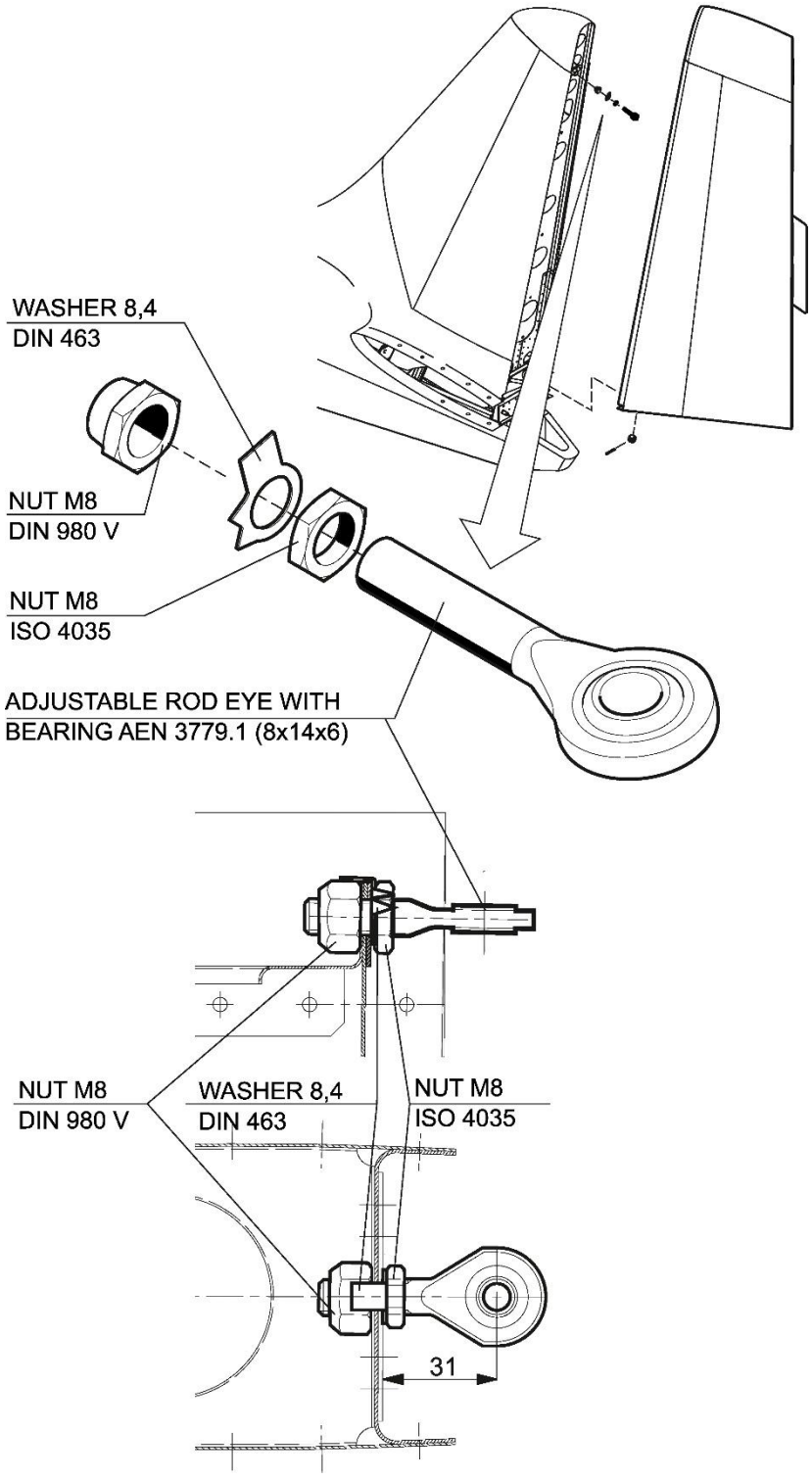

Fig. 6 Rudder upper hinge

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