



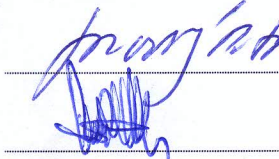

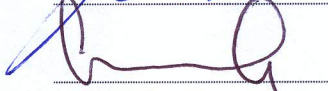
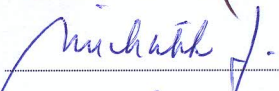

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MANDATORY BULLETIN No.: SPORTSTAR – 017 a SR
SAFETY ALERT

1. **CONCERNING:** All **SportStar** aeroplanes registered in Ultra-light (Advanced Ultra-light) or Light Sport category.
2. **REASON:** It was found an increased rudder deflection during investigation of aircraft accident of SportStar RTC, OK-EAK, S/N 20111402, which happened during spin testing.
The rudder deflection change could be caused due to a movement of a Nicopress clamp on the rudder cables under repeated rudder pedal full deflections up to the stops during spins.
It is therefore mandated an inspection of Nicopress clamps pressing as well as Inspection of rudder deflections on all aeroplanes made by Evektor-Aerotechnik, which use similar system of directional control.
3. **REQUIRED ACTION:** Inspection of Nicopress clamps pressing according to Appendix 2
Sticking of adjustable stop screws according to Appendix 3
Inspection of rudder deflections according to Appendix 4
Inspection of stops adjustment according to Appendix 5
4. **LATEST DATE OF ACTION:** **PRIOR TO NEXT FLIGHT** however not later than 14.8.2011
5. **ACTION CARRIED OUT BY:** Aeroplane Owner or Operator.
6. **COSTS COVERED BY:** Aeroplane owner or Operator.
7. **REQUIRED MATERIAL:** See Appendices
8. **PROCEDURE OF WORK:** See Appendices
9. **APPENDICES:** Appendix 1 Bulletin Flow Chart
Appendix 2 Inspection of Nicopress Pressing
Appendix 3 Sticking of adjustable stop screws
Appendix 4 Inspection of Rudder Deflections
Appendix 5 Inspection of Adjustment of Directional Control Stops
10. **ELABORATED BY:** Petr Javorsky
LSA Project Manager
11. **APPROVED BY:**

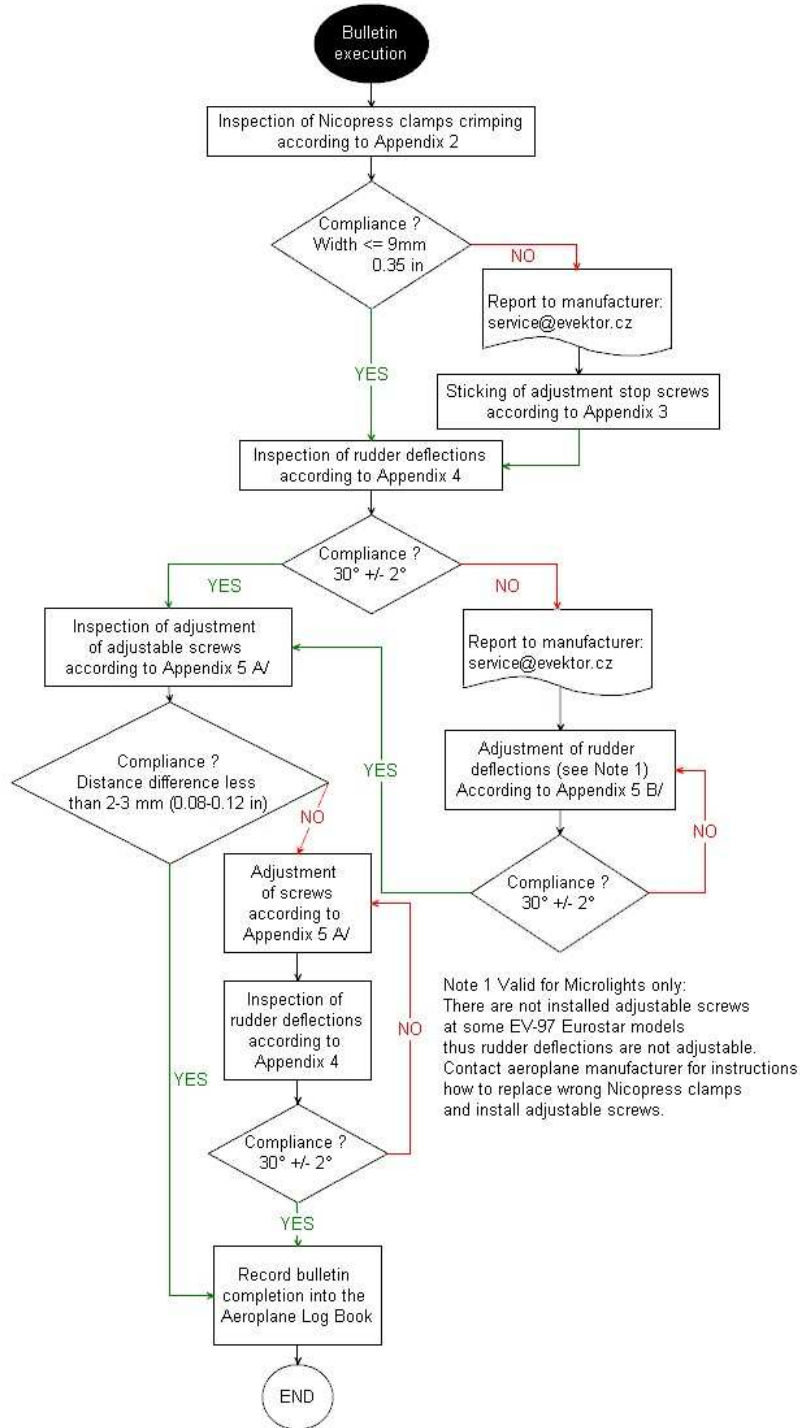
Stanislav MIKULASTIK Quality director		11.07.11
Miroslav MARTINEK Technical director		12.07.2011
Milan MACH Commercial director		12.07.2011
Jiri MICHALIK Service Manager		12.07.2011
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Appendix 1 Bulletin Flow Chart







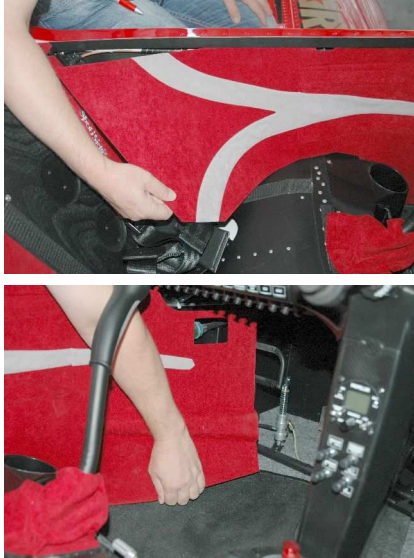
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APPENDIX 2 | Inspection of Nicopress Pressing

	Tooling: <ul style="list-style-type: none"><input type="checkbox"/> Vernier calliper or Nicopress check gauge<input type="checkbox"/> Felt-tip pen to mark clamps original position<input type="checkbox"/> Knife or scalpel to cut shrinking hoses on the Nicopress clamps	
	Procedure:	
	2 persons are needed. Duration approx. 30 minutes.	
1.	Place the aeroplane into a hangar.	
2.	Remove seat upholstery.	
3.	Remove side padded panels from the cockpit to have access to the directional control stops.	

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APPENDIX 2 | Inspection of Nicopress Pressing



4. Carefully, using a knife, cut shrinking hose on each Nicopress clamp (4 pcs.– 2 on a port side cable, 2 on the starboard side cable) and remove the shrinking hose.





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APPENDIX 2 Inspection of Nicopress Pressing

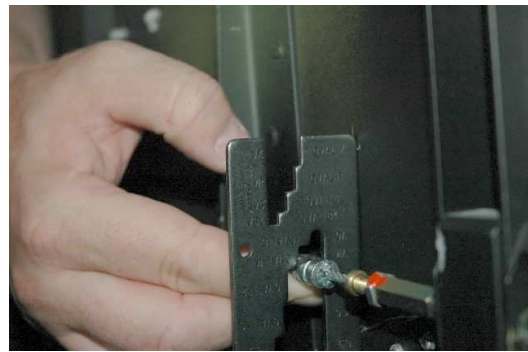
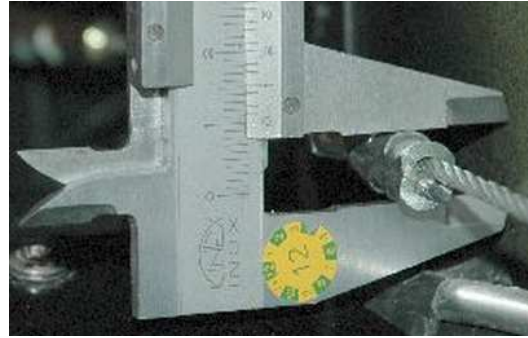
5. Use a Vernier calliper to measure width of each Nicopress clamp as shown on the pictures.

Clamp width to be measured as shown on the picture on the right i.e. over the larger diameter (one cable above another between calliper jaws).

Clamp width must be less or equal to 9 mm (0.35 in).

Note. If available, an appropriate Nicopress check gauge may be used to measure clamp width.

The gauge should be possible to slip over the clamp up to OVAL M cut out. If not, then such clamp was not properly pressed.



6. If the width of all clamps is less or equal to 9 mm (0.35 in), then the clamps were properly pressed and strength of the directional control stops is satisfactory on given aeroplane.

Continue by Inspection of rudder deflections according to Appendix 4 and Inspection of Adjustment of Directional Control Stops according to Appendix 5.

7. If the width of any of the clamps is higher than 9 mm (0.35 in) then such clamp was not sufficiently pressed and strength of the directional control stops is probably reduced.

Report this fact to the aeroplane manufacturer
(see contact data in this Bulletin).

Take corrective actions according to Appendix 3.

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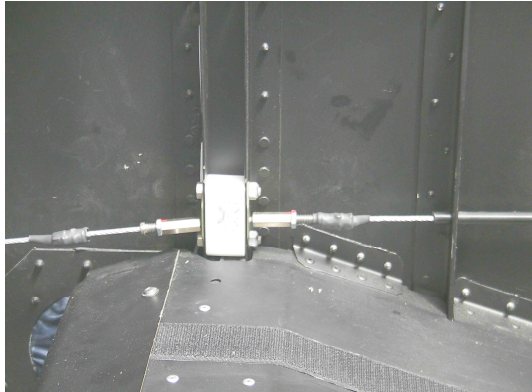

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APPENDIX 3 Sticking of Adjustable Stop Screws

	<p>Tooling:</p> <ul style="list-style-type: none"><input type="checkbox"/> Loctite 648<input type="checkbox"/> Nut wrenches metric size 8 and 10, to release adjustable stop screws<input type="checkbox"/> Degreasing agent to degrease control cables (e.g. industrial spirit, Teroson FL, etc.)<input type="checkbox"/> A piece of suitable fabric to apply decreasing agent and clean the cables	
	<p>Procedure:</p> <p>1 person needed. Duration approx. 1 ½ hour.</p>	
1.	<p>Seat upholstery and padded panels removed from the cockpit.</p>	
2.	<p>Shrinking hoses removed from the Nicopress clamps.</p>	

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APPENDIX 3 Sticking of Adjustable Stop Screws

3. Try to slide each adjustable screw along the cable.



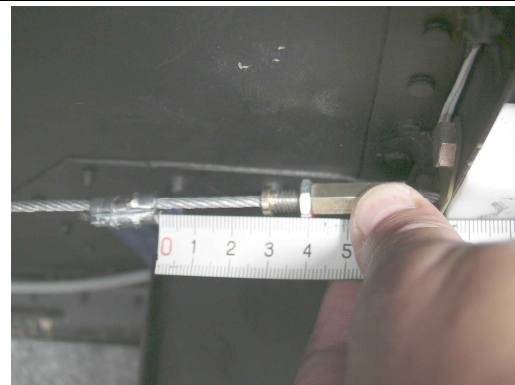
4. If it is impossible to slide the screws along the cables on your aircraft, then they were already stuck by the aeroplane manufacturer thus it is not necessary to stick them. Proceed with Inspection of the rudder deflections according to the Appendix 4 and Inspection of Adjustment of Directional Control Stops according to the Appendix 5.

5. If the screws may be slid along the cables, then they need to be stuck.

6. Try if it is possible to slide a screw off the Nicopress clamp of approx 30 mm (1.2 in) to uncover cable. If impossible, then release counter nut using metric nut wrenches size 8 and 10 and screw the inner bolt into outer hexagonal nut that far, so that approximately 28 to 30 mm (1.1 to 1.2 in) of cable is uncovered between the Nicopress clamp and adjustable screw when the crew is slid off the Nicopress clamp.

NOTE

It is recommended to measure rudder deflections according to Appendix 4 before sticking the screws. If the rudder deflections would be too high (35° to 40°) and the adjustable screws would be stuck at the Nicopress clamp, then it may happen, that the screws would be not long enough to allow rudder deflections adjustment into the permitted range. So in case of rudder high deflections it is necessary to stick the screws in some distance from the Nicopress clamps.



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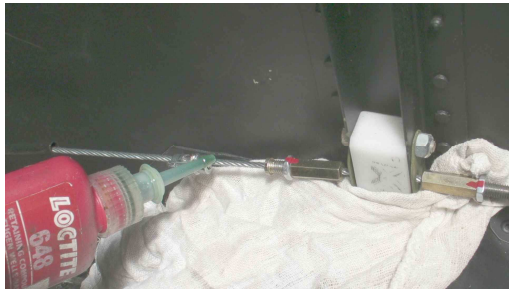


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APPENDIX 3 Sticking of Adjustable Stop Screws

7.	Thoroughly degrease uncovered cable using suitable degreasing agent like industrial spirit or Teroson FL.	
8.	Place a piece of fabric or paper under the cable so that to avoid dropping of the glue from the cable onto the seat sheet. Then apply sufficient quantity of Loctite 648 on the uncovered cable between the adjustable screw and the Nicopress sleeve.	
9.	Slide the adjustable screw against the Nicopress sleeve and rotate it to uniformly spread the glue on the cable and then slide the screw back off the Nicopress clamp.	
10.	Apply repeatedly a sufficient quantity of the glue on the cable. The glue must leak in and fill in all gaps of the stranded steel cable. Then again slide the adjustable screw against the Nicopress sleeve. Rotate the screw to uniformly spread the glue. Wipe off overflowing glue.	



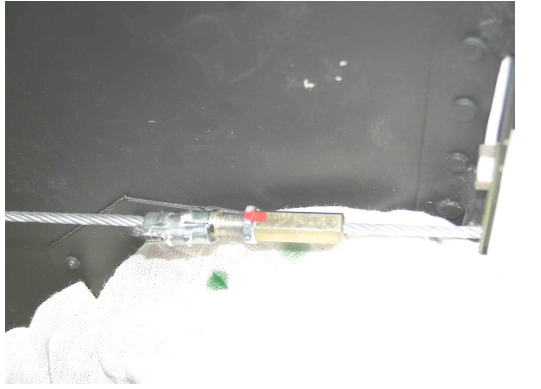
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APPENDIX 3 | Sticking of Adjustable Stop Screws

11.	Now let the glued joint to cure at least 10 minutes to avoid any movement of the screw along the cable during further manipulation with the cables. Not until then proceed with gluing of a next screw.	
12.	Repeat steps 6 to 11 to fix other 3 adjustable screws.	
13.	<p><u>Let all glued joints to fully cure at least 72 hours at room temperature, so that the joints could reach their full strength.</u></p> <p>The strength of properly glued joint varies around 4000 N which corresponds to strength of properly pressed Nicopress clamps. Joint warming up may speed up curing, refer Loctite 648 technical data available on internet.</p> <p>Neither taxiing nor flying is allowed with the aeroplane during curing of the glued joints! The screws could move along the cables thus such glued joint would loose its strength!</p>	
14.	After complete curing of the joints it is possible to proceed with adjustment of the adjustable screws and rudder deflections according to the Appendix 5.	
15.	During periodical inspections check, if release of glued joints did not appear (screw free movement along the cable).	



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APPENDIX 4 Inspection of Rudder Deflections

	<p>Tooling:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Tip plumb line <input type="checkbox"/> A piece of adhesive tape to fix plumb line to the rudder trailing edge <input type="checkbox"/> Tape rule or a ruler 300 mm (1 ft) <input type="checkbox"/> Straight bar 800 mm (3 ft) to check alignment of the rudder pedals <input type="checkbox"/> Felt-tip pen (or pencil) <input type="checkbox"/> Support to support aeroplane tail <input type="checkbox"/> Table of distances and corresponding rudder deflections (shown in this Appendix) 	
	<p>Procedure:</p>	
	<p>2 persons needed. Duration approximately 45 minutes.</p>	
<p>1.</p>	<p>Place the aeroplane in a hangar on a flat floor.</p>	
<p>2.</p>	<p>Seat upholstery removed.</p>	
<p>3.</p>	<p>Side padded panels removed from the cockpit to have access to the directional control stops.</p>	







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APPENDIX 4 | Inspection of Rudder Deflections

4.	Support the aeroplane tail by a suitable support placed under a bulkhead.	
5.	Set all rudder pedals into a middle position if your aeroplane is fitted with adjustable pedals.	
6.	Align all rudder pedals, check alignment by attachment of a straight bar to the pedals.	
7.	Visually check position of the rudder neutral position, adjust position by gentle pushing on appropriate pedal as required.	
8.	Let the plumb line from the rudder trailing edge down to the floor. Use a piece of tape to fix line to the trailing edge. The tape must fix the plumb line at the most bottom edge of the rudder.	

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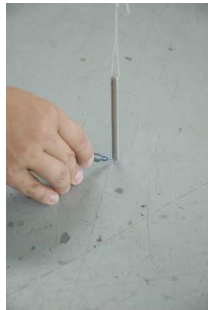
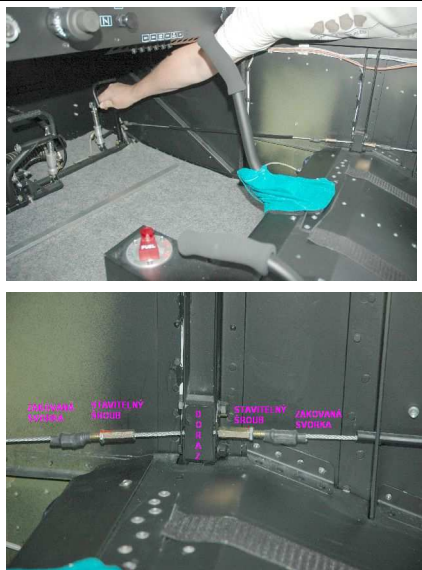

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APPENDIX 4 | Inspection of Rudder Deflections

9.	Wait until the plumb line tip position stabilises.	
10.	Use a felt-tip pen to mark stabilised position of the plumb line tip on the floor by a crosslet. This is rudder neutral position.	
11.	An assistant shall push the co-pilot's right pedal at the starboard side fully forward by a hand so that the right rear adjustable screw would reach the stop on the fuselage starboard side and shall keep pedal full deflection.	
12.	Using a felt-tip pen mark plumb line tip position on the floor by making a crosslet. This is rudder right deflection.	



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APPENDIX 4 | Inspection of Rudder Deflections

13. The assistant shall push the pilot's left pedal at the port side fully forward by a hand so that the left rear adjustable screw would reach the stop on the fuselage port side and shall keep pedal full deflection.



14. Using a felt-tip pen mark plumb line tip position on the floor by making a crosslet. This is rudder left deflection.



15. The assistant then shall align the rudder pedals and after stabilisation of the plumb line tip check, that the plumb line tip is pointed to the original neutral position. If not, then aeroplane tail moved during measurement and the measurement should be repeated.



16. Use a tape rule or ruler placed on the floor (which should be flat) to measure distances between neutral position and right deflection and neutral position and left deflection.





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APPENDIX 4 Inspection of Rudder Deflections



17. Refer to the table to find rudder right and left deflection in degrees corresponding to by you measured distances.
 Note: Accuracy of measurement is within 0.5 deg. (2-3 mm).

Permitted rudder deflection range	Rudder deflection (°)	Distance (mm)	Distance (in)
		25	186
	26	194	7,6
	27	201	7,9
	28	208	8,2
	29	215	8,5
	30	223	8,8
	31	230	9,0
	32	237	9,3
	33	244	9,6
	34	252	9,9
	35	259	10,2
	36	266	10,5
	37	273	10,8
	38	281	11,0
	39	288	11,3
	40	295	11,6

18. Check, whether found deflections lie within permitted range $30 \pm 2^\circ$ (i.e. 28° to 32°).
 If YES, then rudder deflections comply.
 Proceed in accordance with Appendix 5 A/ Inspection of Adjustment of Adjustable Stop Screws.
 If NO, then rudder deflections do not comply.
Report this fact to the aeroplane manufacturer (see contact data in this Bulletin). Proceed with Appendix 5 B/ Rudder Deflections Adjustment.

19. Proceed with Appendix 5 Inspection of Adjustment of Directional Control Stops.




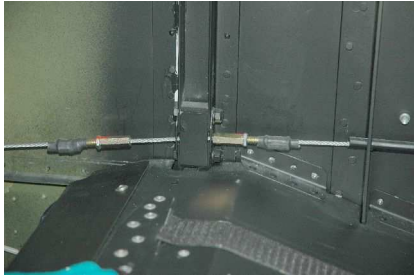


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APPENDIX 5		Inspection of Adjustment of Directional Control Stops A/ Inspection of Adjustment of Adjustable Stop Screws	
	Tooling: <ul style="list-style-type: none"><input type="checkbox"/> Vernier calliper to measure distances between stops on the port and starboard side<input type="checkbox"/> Nut wrenches metric size 8 and 10, to release adjustable stop screws<input type="checkbox"/> Red paint to mark position of counter nuts against adjustable stop screws		
	Procedure:		
	1 person needed. Duration approximately 30 minutes.		
1.	Seat upholstery removed.		
2.	Side padded panels removed from the cockpit to have access to the directional control stops.		
3.	Push the co-pilot's right pedal fully forward and observe, whether at the same moment reaches the right rear adjustable screw the stop on the starboard side and left front adjustable screw the stop on the port side. If not, then it is advisable to use metric nut wrenches size 8 and 10 to adjust the screws so that both screws reach the stops simultaneously. Note: The picture shows right rear adjustable screw when reached the stop. Simultaneously the left front screw should reach its stop.		

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APPENDIX 5 **Inspection of Adjustment of Directional Control Stops**
A/ Inspection of Adjustment of Adjustable Stop Screws

4. Push the pilot's left pedal fully forward and observe, whether at the same moment reaches the left rear adjustable screw the stop on the port side and right front adjustable screw the stop on the starboard side. If not, then it is advisable to use metric nut wrenches size 8 and 10 to adjust the screws so that both screws reach the stops simultaneously.

Note: The picture shows left rear adjustable screw when reached the stop. Simultaneously the right front screw should reach its stop.



5. Use a Vernier calliper to measure distance between faces of the adjustable stop screws, both on the port and then starboard side. The distances should not differ more than 2-3 mm (0.08 to 0.12 mm). Adjust the screws if this range is exceeded, the distances should be approximately equal.



6. Check rudder deflections according to Appendix 4.

7. Use a red paint to mark counter nut position against the adjustable screw for those screws which you have re-adjusted.






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APPENDIX 5 **Inspection of Adjustment of Directional Control Stops**
A/ Inspection of Adjustment of Adjustable Stop Screws

8.	Re-install the side padded panels and seat upholstery.	
9.	Record the bulletin completion into the Aeroplane Log Book.	



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APPENDIX 5 **Inspection of Adjustment of Directional Control Stops**
B/ Rudder Deflections Adjustment

	<p>Tooling:</p> <ul style="list-style-type: none"> □ Nut wrenches metric size 8 and 10, to release adjustable stop screws □ Red paint to mark position of counter nuts against adjustable stop screws 	
	<p>Procedure:</p>	
	<p>1 person needed. Duration approximately 30 minutes.</p>	
1.	<p>The aeroplane as per points 1-4 in Appendix 4.</p>	
2.	<p>Decrease of rudder right deflection of 1°</p> <ul style="list-style-type: none"> - Rear adjustable screw at the starboard side to be screwed forward (towards the stop on the side) of 1 mm (0.04 in). - Re-adjust front adjustable screw on the port side backwards (towards the stop on the port side). Both adjustable screws should reach the stops on the sides simultaneously. 	
3.	<p>Increase of rudder right deflection of 1°</p> <ul style="list-style-type: none"> - Rear adjustable screw at the starboard side to be screwed backward (outwards the stop on the side) of 1 mm (0.04 in). - Re-adjust front adjustable screw on the port side forwards (outwards the stop on the port side). Both adjustable screws should reach the stops on the sides simultaneously. 	
4.	<p>Rudder left deflections may be adjusted by analogy.</p>	
5.	<p>After adjustment of screws perform Inspection of rudder deflections according to the Appendix 4. If the rudder deflections are within permitted range, then tight the counter nut against the adjustable screw and mark their mutual position using a red paint.</p>	




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APPENDIX 5 **Inspection of Adjustment of Directional Control Stops**
B/ Rudder Deflections Adjustment

6.	Re-install padded side panels and seat upholstery.	
7.	Remove the support from below the fuselage tail.	
8.	Record the bulletin completion into the Aeroplane Log Book.	

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