



THE GLIDING FEDERATION OF AUSTRALIA

BUILDING 130, WIRRAWAY ROAD, ESSENDON AIRPORT, VICTORIA 3041.

AIRWORTHINESS DIRECTIVE GLIDERS/POWERED SAILPLANES

GFA/AD 205

ROLLADEN-SCHNEIDER 16

ISSUE 3

13.11.1981

Sheet 1 of 6

GLIDER TYPES AFFECTED: Sailplane LS3-A, all serial numbers except 3260, 3273, 3430 3446, 3460, 3463, 3467, 3468.

SUBJECT: Installation of aileron mass balance to LS3-17 specification.

BACKGROUND:

Note: Issue 1 and Issue 2 of this Airworthiness Directive are completely superceded by Issue 3 dated 13/11/1981

Following reported incidents involving aileron flutter, the manufacturer has issued Technical Bulletin No. 3028, which has been classified as mandatory by G.F.A. if the operator wishes to carry water ballast.

Note: Gliders modified prior to receipt of Issue 3 must be checked against this Airworthiness Directive, and where substantial difference is found, details are to be forwarded to the CTO/A, G.F.A. Secretariat, for individual modification approval to be negotiated.

ACTION REQUIRED:

(1) Maintenance Manual

Exchange page 6-2 of Maintenance Manual against Edition 1.5.81. (Enclosed)

Page 6-2 (LS3-a elevator system) for the following S/Ns:

3060, 3067, 3068, 3071, 3075-77, 3084, 3095, 3097, 3098, 3101, 3107, 3109, 3110, 3112, 3114, 3116, 3118, 3121, 3125, 3127, 3128, 3130, 3134, 3137, 3140, 3142-45, 3147-49, 3151, 3153, 3155, 3156, 3158, 3160-63, 3165-67, 3169-71, 3174, 3175, 3177, 3178, 3181, 3182, 3185, 3188, 3191, 3192, 3200-3202, 3204-3207, 3218-20, 3227-29, 3232-35, 3238-43, 3249, 3256, 3258, 3259, 3261, 3262, 3274, 3280-84, 3286, 3287, 3296, 3301, 3303-3305, 3310, 3314, 3315, 3318, 3324-28, 3332, 3339, 3341-43, 3345, 3349-51, 3353-55, 3359-61, 3373, 3375, 3377-80, 3398, 3401, 3404

Page 6-2 (LS3-17 elevator system) for all other LS3-a's. (Enclosed)

(2) Installation of Aileron Mass Balance.

1. Disassemble flaps and ailerons according to Maintenance Manual chapter 4.
2. Weigh each aileron
3. Remove residual adhesive of internal sealing from wing control surfaces and lower surface tape.
4. Check bearings, control surface bearing pins and wing's rear web for cracks, delamination and deformation.
5. (a) Fix maximum length of lead strips provisionally flush with leading edge of ailerons according to drawing 3028-2 using double sided adhesive tape, small clamps or clothes pins. Weigh aileron.
(b) Set aileron on bearing pin support with bearings No. 8 and 11 (counted from wing root rib).



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(c) Weigh rear edge of aileron at reference radius (inner edge). To eliminate friction, two measurements are necessary:
First, lift rear edge with spring scale from horizontal position and read value just before motion starts.
Second, lower rear edge with spring scale from horizontal position and read value just before motion starts.

(d) Mean value from both measurements is rear edge weight.

6. Shorten lead strip as required and position centrally between bearings until weight and rear edge weight are within given limits:

weight: 3420 - 4600 grams (7.540 - 10.141 lbs).

rear edge weight: 195 - 260 grams (0.430 - 0.573 lbs.).

7. Sand glueing area of aileron and lead. Position lead flush with leading edge, drill holes of No 11 diameter, pitch approximately 80-100mm (3.15 - 3.937 in). Counterbore with 10 mm diameter and 3.5 mm (0.138 in) deep. Mix Agomet U3 adhesive with 3% hardener (or equivalent epoxy adhesive) and apply to both surfaces. Fix lead to aileron using blind rivets and washers. (3/16" "Pop" Monel metal, length to suit each location).
8. Place aileron provisionally to wing without connecting drive, check maximum deflections of 20° up and 10° down. Using measuring technique according to Maintenance Manual page 6-1, for a neutral position of 8 mm (0.315 in) max. deflections are 52 mm (2.047 in) up, 9 mm (0.354 in) down. Higher values for neutral position enlarge upper max. deflection by neutral value difference and reduce lower max. deflection by difference. (Example: neutral position 10 mm (0.394 in), neutral value difference 2 mm (0.079 in), max. up 54 mm (2.126 in), max. down 7 mm (0.276 in)
Neutral position may either be taken from Maintenance Manual page 6-1 or from production inspection report.

If deflections are lower than max. values, check where lead touches wing and chamfer lead as necessary.

9. Determine finished aileron weights and rear edge weights. Assemble internal sealing and control surfaces according to Maintenance Manual chapter 4.
10. Assemble sailplane and check control surface deflections.
11. Carry out independent control check.
12. Carry out wing frequency check (c.p.m.)

WEIGHT AND BALANCE

- (1) Add total aileron weight increase to the original empty weight.
- (2) Reduce the maximum allowable pilot weight/water ballast by the same amount.
- (3) Measure the arm rearwards from the wing root leading edge to the centre of the new mass balances and use this arm to determine the change in c.g. position for the empty sailplane, and the new minimum pilot weight.

NOTE: If possible the sailplane should be reweighed.



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COCKPIT PLACARDS.

- (1) Change all weight placards as necessary
- (2) Remove water ballast restriction.

LOG BOOK Enter full details of this modification into the Log book including independent control check, c.p.m., aileron weight data and revised weight and balance.

TEST FLIGHT One or more check flights should be carried out by a pilot experienced on type, carrying $\frac{1}{2}$ water ballast. Displacement of the ailerons should be made at all speeds up to VNE, in an effort to induce control oscillation, coarse displacement up to VA, progressively less displacement as VNE is approached.

IMPLEMENTATION: This modification is to be carried out under the supervision of a person holding an 1109 endorsed for F.R.P. C. of A., who must certify compliance with this A.D. in the Log book.

COMPLIANCE: The requirements of this directive are mandatory. This Directive is issued pursuant to Air Navigation Regulations under authority delegated by the Secretary, Department of Transport Australia.

M.P. BURNS.

CHIEF TECHNICAL OFFICER AIRWORTHINESS
GLIDING FEDERATION OF AUSTRALIA



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THIS PAGE TO BE ADDED TO THE MAINTENANCE MANUAL AS DIRECTED ON SHEET 1

Rolladen Schneider Flugzeugbau GmbH	Maintenance Manual	LS3-a	Page 6.2 Edition 1.5.81
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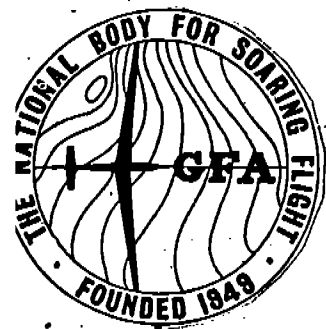
WEIGHT, REAR EDGE PLAY AND MASS BALANCE OF CONTROL SURFACES (LS3-17 elevator system)

Weight, rear edge play and mass balance should be within given limits for safety against flutter.

	Radius	Horizontal reference line	Weight at rear edge of reference line	All-up weight	Max. rear edge play
Flap	170 mm 6.69 in	lower side of section	0.740 to 0.980 kg 1.63 to 2.16 lbs	4.30 to 5.50 kg 9.48 to 12.13 lbs	3.0 mm 0.12 in
Aileron	130 mm 5.12 in	lower side of section	0.195 to 0.260 kg 0.43 to 0.57 lbs	3.42 to 4.60 kg 7.54 to 10.14 lbs	2.6 mm 0.10 in
Elevator	145 mm 5.71 in	centerline of section	0.330 to 0.440 kg 0.73 to 0.97 lbs	1.41 to 1.90 kg 3.11 to 4.19 lbs	3.0 mm 0.12 in
Rudder	310 mm 12.2 in	centerline of section	\pm 0.040 kg \pm 0.09 lbs	3.10 to 4.10 kg 6.83 to 9.04 lbs	not affected

Measuring technique: Flight control surface should be attached to bearings without any tension or friction. Weight at rear edge should be measured at level position of reference line.

Fix steering stick to zero position to measure rear edge play at reference line.



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Elevator	145 mm 5.71 in	centerline of section	0.230 to 0.310 kg 0.51 to 0.68 lbs	2.60 to 3.50 kg 5.73 to 7.72 lbs	3.0 mm 0.12 in
Rudder	310 mm 12.2 in	centerline of section	± 0.040 kg ± 0.09 lbs	3.10 to 4.10 kg 6.83 to 9.04 lbs	not affected

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