DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

G45EU
DG Flugzeugbau GmbH
Revision 3
LS 4
LS 4a
April 26, 2012

TYPE CERTIFICATE DATA SHEET NO. G45EU

This data sheet which is a part of type certificate No. G45EU prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder:	DG Flugzeugbau GmbH Otto-Lilienthal-Weg 2 D 76646 Bruchsal Germany
Type Certificate Holder Record:	Rolladen Schneider Flugzeugbau Gmbh transferred TC G45EU to DG Flugzeugbau GmbH on July 18, 2006.

I - Model LS 4 (Utility Category), approved 8 September 1983

Airspeed limits (I.A.S.)

Maximum Airspeeds in Calm Air

Never Exceed (Vne)			
0 - 6500 ft. alt.	146 kts	168 mph	270 km/h
6500 - 9800 ft. alt.	139 kts	160 mph	257 km/h
9800 - 19700 ft. alt.	118 kts	136 mph	219 km/h
19700 - 32800 ft. alt.	93 kts	107 mph	173 km/h
Never Exceed All Altitudes			
Dive brakes	146 kts	168 mph	270 km/h
Landing Gear (Vl)	146 kts	168 mph	270 km/h
In rough air (Vb)	97 kts	112 mph	180 km/h
Maneuvering (Va)	97 kts	112 mph	180 km/h
Aero Tow (Vt)	97 kts	112 mph	180 km/h
Winch tow (Vw)	70 kts	81 mph	130 km/h

C.G. range: 8.86 in (225 mm) to 14.76 in (375 mm) aft of datum.

Datum: Leading edge of wing at root

Empty Weight c.g.: See Section 6 of the ROLLADEN-SCHNEIDER LS 4 Flight Manual approved by the Luftfahrt-Bundesamt (LBA).

Leveling means: Underside of fuselage boom placed horizontal.

Maximum weight: 1041 lbs (472 Kg) including water ballast.

No. of seats: 1, adjustable seat back, with seat location at station 24.21 in (615 mm) forward of datum.

Baggage: Maximum 11 lbs. (5 kg) at station 7.87 in (200 mm) aft of datum. See Section 4 of the LBA-approved ROLLADEN-SCHNEIDER LS-4 Flight Manual.

Ballast Fixed: Fixture for 3 ballast weights of 5.5 lb. each (2.45 kg) at station 67.52 in. (1715 mm) forward of datum, compensating 11.3 lbs (5 kg) each at seat position.

I - Model LS 4 (Utility Category), approved 8 September 1983 (Cont'd)

Water Ballast	2 wing water bags, each 70 liters (70 kg, 154 lbs) at station 7.09 in (180 mm) aft of datum.		
Control surface movements	Elevator	Up	27°±3° = 14.33±0.2 in (364±5 mm)
		Down	21°±2° = 9.65±0.2 in (245±5 mm)
			Radius 5.83 in (148 mm)
			Distance of reference point on fin 11.81 in (300 mm) at neutral position measured to aft end of elevator at the root.
	Rudder		To both sides 28°±1° = 150±10mm (5.91±0.39 in)
			Radius 310 mm (12.20 in)
	Aileron	Up	23°±2° = 65±5 mm (2.56±0.2 in)
		Down	14°±1° = 40±3 mm (1.58±0.12 in)
			Radius 165 mm (6.50 in)
	Dive Brakes Up not less than 150 mm (5.91 in) at inner lever.		
Rated Load for Winch and Aero Tow	Maximum 1325 lbs (600 kg).		

II - Model LS 4a (Utility Category), approved June 7, 1984

(Similar to LS-4 except for modified landing gear and option for water ballast)

Airspeed limits (I.A.S.)	Maximum Airspeeds in Calm Air		
	Never Exceed (Vne)		
	0 - 6500 ft. alt.	151 kts	174 mph	280 km/h
	6500 - 9800 ft. alt.	144 kts	165 mph	266 km/h
	9800 - 19700 ft. alt.	123 kts	141 mph	227 km/h
	19700 - 32800 ft. alt.	97 kts	111 mph	179 km/h
	Never Exceed All Altitudes			
	Dive brakes	151 kts	174 mph	280 km/h
	Landing Gear (Vl)	151 kts	174 mph	280 km/h
	In rough air (Vb)	103 kts	118 mph	190 km/h
	Maneuvering (Va)	103 kts	118 mph	190 km/h
	Aero Tow (Vt)	103 kts	118 mph	190 km/h
	Winch tow (Vw)	76 kts	87 mph	140 km/h
C.G. range	8.86 in (225 mm) to 15.75 in (400 mm) aft of datum.		
Datum	Leading edge of wing at root		
Empty Weight c.g.	See Section 6 of the ROLLADEN-SCHNEIDER LS 4a Flight Manual approved by the Luftfahrt-Bundesamt (LBA).		
Leveling means	Underside of fuselage boom placed horizontal.		
Maximum weight	1157 lbs (525 Kg) including water ballast.		
No. of seats	1, adjustable seat back, with seat location at station 24.21 in (615 mm) forward of datum.		
Baggage	Maximum 11 lbs. (5 kg) at station 7.87 in (200 mm) aft of datum. See Section 4 of the LBA-approved ROLLADEN-SCHNEIDER LS-4a Flight Manual.		
Ballast Fixed	Fixture for 3 ballast weights of 5.5 lb. each (2.45 kg) at station 67.52 in. (1715 mm) forward of datum, compensating 11.3 lbs (5 kg) each at seat position.		

II - Model LS 4a (Utility Category), approved June 7, 1984 (Cont'd)

Water Ballast	2 wing water bags, each 85 liters (85 kg, 187.5 lbs) at station 7.09 in (180 mm) aft of datum.		
Control surface movements	Elevator	Up	27°±3° = 14.33±0.2 in (364±5 mm)
		Down	21°±2° = 9.65±0.2 in (245±5 mm)
			Radius 5.83 in (148 mm)
			Distance of reference point on fin 11.81 in (300 mm) at neutral position measured to aft end of elevator at the root.
	Rudder		To both sides 28°±1° = 5.91±0.39 in (150±10mm)
			Radius 12.20 in (310 mm)
	Aileron	Up	23°±2° = 2.56±0.2 in (65±5 mm)
		Down	14°±1° = 1.58±0.12 in (40±3 mm)
			Radius 6.50 in (165 mm)
			Drive Brake Up not less than 5.91 in (150 mm) at inner lever.
Rated Load for Winch and Aero Tow	Maximum 1325 lbs (600 kg).		

DATA PERTINENT TO ALL MODELS:

Serial Numbers Eligible — See Import Requirements

Certification Basis — FAR 21.23 and FAR 21.29 effective February 1, 1965.

For Model LS-4:
Compliance with FAR 21.23 through Amendment 21.53 has been shown using the airworthiness requirements from the Joint Airworthiness Requirements for Sailplanes and Powered Sailplanes (JAR-22) dated 1 April 1980 including Amendments 1 and Section 5, paragraph (e)(6) of Advisory Circular 21.23-1 dated 12 January 1981.
Type Certificate G45EU issued: September 8, 1983.
Date of application for Type Certificate: 10 June 1980.

For Model LS-4a:
Compliance with FAR 21.23 through Amendment 21.53 has been shown utilizing the provisions of Advisory Circular 21.23-1 dated 12 January 1981, Section 5, paragraph a. The airworthiness requirements met under this provision are the Joint Airworthiness Requirements for Sailplanes and Powered Sailplanes (JAR-22) dated 1 April 1980 including Amendments 1 and 2 and Section 5, paragraph (e)(6) of Advisory Circular 21.23-1 dated 12 January 1981.
Type Certificate G45EU amended: June 7, 1984.
Date of application for amendment for the Type Certificate: January 14, 1983.

The applicable airworthiness requirements for U.S. certification under FAR 21.29, identified above, were established considering the airworthiness requirements applied by the exporting country, under the provisions of paragraphs 4 and 9(h)(ii) of the agreement between the United States of America and the Federal Republic of Germany, dated 31 May 1974 titled Certificates of Airworthiness for Imported Aeronautical Products and Components.

The German Airworthiness Authority, the Luftfahrt-Bundesamt (LBA), originally type certificated glider Models LS-4 and LS-4a under its Type Certificate Number 345. The FAA validated these products under U.S. Type Certificate Number G45EU. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of these products on behalf of Germany. The EASA TCDS number is EASA.A.095.

DATA PERTINENT TO ALL MODELS: (Cont'd)

Import Requirements

The FAA can issue a U.S. airworthiness certificate based on a German Airworthiness Authority Export Certificate of Airworthiness (Export C of A) signed by a representative of the Luftfahrt-Bundesamt (LBA) on behalf of the European Community. The Export C of A should contain the following statement: "The aircraft covered by this certificate has been examined, tested, and found to conform to the type design approved under U.S. Type Certificate No. G45EU and to be in a condition for safe operation."

a) For Model LS-4:
Glider serial numbers 4005-4009, 4026, 4075- 4077, 4081-4098, 4134, 4180, 4184, 4192, 4196-4209, 4211, 4212, 4299, 4328, 4335 and 4337-4340 are eligible for U.S. Standard Airworthiness Certification when:

1) The FAA inspector is provided with the original Export Certificate of Airworthiness issued by the LBA which certifies the glider conforms to the U.S. type certificate,
2) The glider has been modified in accordance with the LBA-approved ROLLADEN-SCHNEIDER Technical Bulletin 4017, dated 12 August 1983, and
3) The glider is found to be in a condition for safe operation by the FAA inspector. Modifications pre-dating the issuance of this Type Certificate and not included in paragraph 1 and 2 of this note and modifications dated after the issuance of this Type Certificate not covered by the note contained in the Service Information paragraph of this Type Certificate must be assumed not to be approved under this Type Certificate.

b) For Model LS-4a:
Glider serial numbers 4321, 4329, 4355-4356, 4384-4386, and 4402 are eligible for U.S. Standard Airworthiness Certification when:

1) The FAA inspector is provided with the original Export Certificate of Airworthiness issued by the LBA which certifies the glider conforms to the U.S. type certificate,
2) The glider has been modified in accordance with the LBA-approved ROLLADEN-SCHNEIDER Technical Bulletin 4021a dated 5 December 1984, and
3) The glider is found to be in a condition for safe operation by the FAA inspector. Modifications pre-dating the issuance of this Type Certificate and not included in paragraph 1 and 2 of this note and modifications dated after the issuance of this Type Certificate not covered by the note contained in the Service Information paragraph of this Type Certificate must be assumed not to be approved under this Type Certificate.

c) In addition, Model LS-4 glider serial numbers 4077, 4081, 4082, 4090, 4091, 4096, 4134, 4192, 4197, 4200, 4204, 4299, 4335 and 4337-4340 are eligible for U.S. Standard Airworthiness Certification as a Model LS-4a when:

1) The FAA inspector is provided with the original Export Certificate of Airworthiness issued by the LBA which certifies the glider conforms to the U.S. type certificate,
2) The glider has been modified in accordance with the LBA-approved ROLLADEN-SCHNEIDER Technical Bulletin 4018a dated 28 October 1983, Technical Bulletin 4017 dated 12 August 1983 (Instruction 1), Technical Bulletin 4020 dated 1 September 1983, and Technical Bulletin 4021a dated 5 December 1984, and
3) The glider is found to be in a condition for safe operation by the FAA inspector. Modifications pre-dating the issuance of this Type Certificate and not included in paragraph 1 and 2 of this note and modifications dated after the issuance of this Type Certificate not covered by the note contained in the service

DATA PERTINENT TO ALL MODELS: (Cont'd)

information paragraph of this Type Certificate must be assumed not to be approved under this Type Certificate.

Equipment

For Model LS-4:
The required equipment for the kinds of approved operations are listed in the ROLLADEN-SCHNEIDER Model LS-4 Flight Manual, LBA- approved 12 August 1983.

The equipment approved for the LS-4 glider is listed on pages 9-4 through 9-6 of the ROLLADEN-SCHNEIDER LS-4 Flight Manual, LBA- approved 12 August 1983.

For Model LS-4a:
The required equipment for the kinds of approved operations are listed in the ROLLADEN-SCHNEIDER Model LS-4a Flight Manual, LBA- approved 15 November 1983.

The equipment approved for the LS-4a glider is listed on pages 9-4, 9-5 and 9-6 of the ROLLADEN-SCHNEIDER LS-4a Flight Manual, LBA- approved 15 November 1983.

Service Information

Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or – for approvals made before September 28, 2003 – by the German Airworthiness Authority (LBA).

- Service bulletins
- Structural repair manuals
- Vendor manuals
- Aircraft flight manuals
- Overhaul and maintenance manuals

The FAA accepts such documents and considers them FAA-approved for type design data unless one of the following conditions exist:

- The documents change the limitations, performance, or procedures of the FAA approved manuals.

The FAA uses the post type validation procedures to approve these documents. The FAA may delegate case-by-case approval to EASA on behalf of the FAA for the U.S. type certificate. If this is the case it will be noted on the document.

Available documents for ROLLADEN-SCHNEIDER Model LS-4:
- Flight Manual, dated 12 August 1983.
- Maintenance Manual, LS-4, dated 12 August 1983.

Available documents for ROLLADEN-SCHNEIDER Model LS-4a
- Flight Manual, dated 15 November 1983.
- Maintenance Manual, LS-4a, dated 15 November 1983.

NOTES

NOTE 1. Current weight and balance report including list of equipment in certificated empty weight, and loading instructions, when necessary, must be provided at the time of original certification.

NOTE 2. The placards listed in the LBA-approved ROLLADEN-SCHNEIDER Flight Manual must be displayed in the location defined.

NOTE 3. Section 10 of the ROLLADEN-SCHNEIDER Maintenance Manual, titled "Airworthiness Limitations Section", is FAA-approved and it specifies mandatory replacement times, structural inspection intervals, and related structural inspection procedures. These airworthiness limitations may not be changed without FAA approval.

NOTE 4. All external portions of the glider exposed to sunlight must be painted white except for wing tips, nose of fuselage and rudder.

NOTE 5. Major repairs must be accomplished at FAA certificated repair stations rated for composite aircraft structure work or by a certified mechanic, in accordance with DG Flugzeugbau GmbH (or ROLLADEN-SCHNEIDER) repair methods approved by the FAA or by other methods approved by the FAA.

...END...