STEMME
FLUGPLATZSTRASSE F2, NR. 6-7 • GERMANY • 15344 STRAUSBERG

FLIGHT MANUAL SUPPLEMENT S03

SOLAR PANEL SYSTEM

FOR THE POWERED GLIDER STEMME S10, MODEL S12

DOCUMENT NUMBER • L400-912.813

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SIGNATURE ..... P. Illes-ger

AIRFRAME TYPE	: STEMME S12
TYPE CERTIFICATE	:
SERIAL NUMBER	: 12-
REGISTRATION	:

This powered sailplane must be operated in compliance with the instructions and limitations contained in the associated Aircraft Flight Manual and this Supplement.

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0.1 RECORD OF AMENDMENTS

The following table documents all amendment for the supplement S03 to the Flight Manual for the aircraft STEMME S10, model S12.

Minor revisions to the S12 Aircraft Flight Manual are approved and countersigned by Design Organization DOA EASA.21J.250 based on its privilege.

All other amendments are approved by the agency stating the EASA approval number (countersigned by DOA EASA.21J.250).
In the table hereafter only the last approved revision must be countersigned.

New or corrected text sections of the revised page(s) will be marked by a vertical line on the outer side of the page. The newest revision number of all revisions on the page is mentioned in the footnote-section of the page, along with the date of the newest revision.

Compliance with the following information and the corresponding aircraft is documented by the signature of the correcting person in the table below.

Am. No.	Removed Pages	Inserted Pages	Date of Amendment	Reference	Approval	Date of Insertion	Signature
00	--	ALL	NOV 11, 2016	P061-2016-084	21 MAR 2017 MPL 1		

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0.2 LIST OF EFFECTIVE PAGES

This list is valid only for the supplement in hand.

PAGE	APPR.	AM. NO.	DATE
CHAPTER 0			
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0.3 CONTENTS

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1. GENERAL

This supplement contains information and instructions for the STEMME S12 optional equipped with a solar panel system. It gives any additional information to pilots and instructors that is necessary for safe and efficient operation of the powered sailplane, as well as any information required by the JAR-22/ CS-22 airworthiness requirements.

For sections not included, no specific information is needed related to the operation with the solar panel system. In this case, the standard text of the pertinent basic S12 Aircraft Flight Manual is applicable.

1.5 CERTIFICATION BASIS

The solar panel system has been certificated for the type STEMME S10. The certification has been followed through on the certification basis as applied during the original approval of the type STEMME S10.

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2. LIMITATIONS

- No change to the basic S12 Aircraft Flight Manual. -

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3. EMERGENCY PROCEDURES

- No change to the basic S12 Aircraft Flight Manual. -

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4. NORMAL OPERATING PROCEDURES

4.2.1 DE-RIGGING AND RIGGING

Fuselage covering

Before installing the mid-fuselage covering:

- Insert the plug to connect the solar cells with the controller in the socket provided.

4.3 DAILY INSPECTION

4.3.2 WING CONNECTION AREA

In addition to the inspections in the S12 Aircraft Flight Manual:

- Check the plugs for the solar panel system.

4.5 NORMAL OPERATION PROCEDURES AND RECOMMENDED AIRSPEEDS

4.5.3 CRUISING AND CROSS-COUNTRY FLIGHT

In addition to the information provided in the S12 Aircraft Flight Manual

NOTICE

During powered flight the alternator output voltage is higher than the solar system output voltage, so the solar system is not used to recharge the battery.

During gliding the solar panel system can be used to support or recharge the main battery. This extends the operating time of the battery during gliding.

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5. PERFORMANCE

- No change to the basic S12 Aircraft Flight Manual. -

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6. WEIGHT AND BALANCE

- No change to the basic S12 Aircraft Flight Manual. -

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7. SYSTEM DESCRIPTION OF THE S12 AND ITS EQUIPMENT

7.12 ELECTRICAL SYSTEM

The solar panel system comprises a number of solar cells on the upper mid-fuselage covering (depending on the option chosen) plus a charge controller, and wiring. The solar system is permanently connected to the main battery.

During powered flight the aircraft voltage is generally higher than the solar charging voltage. The charge controller prevents any flow of current between the solar panel system and the aircraft electrical system. In gliding flight, the charge controller provides the battery with energy as soon as the battery voltage drops below the pre-set controller output voltage.

TECHNICAL DATA

SOLAR MODULE	
No-load voltage	21.2 V
Max. solar output	6.5 W
Max. current	400 mA

CHARGE CONTROLLER	
Nominal voltage	12 V
Max. module current	5 A
Cut-off voltage	13.7 V

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8. HANDLING, MAINTENANCE AND SERVICE

8.4 GROUND HANDLING / ROAD TRANSPORT

In addition to the information in the S12 Aircraft Flight Manual:

The solar panel system is also designed to recharge the batteries on the ground. If the aircraft is parked outdoors for a while the system can remain switched on.

Use the mode selector switch to select which battery is to be charged. The main switch of the aircraft electrical system must be switched off. It is not recommended that the system is operated for any length of time without regular inspections.

⚠ CAUTION

The solar panel system must be switched off if the powered sailplane is parked in the hangar or the trailer or if there is no guarantee of adequate insulation. If it is not switched off, the current needed by the controller may discharge the connected battery.

8.5 CLEAN AND CARE

In addition to the information in the S12 Aircraft Flight Manual:

The surfaces of the solar cells must be regularly cleaned using clear water, a sponge and a chamois leather. A light household cleaning agent can be used to remove stubborn dirt. Plexiglass / PMMA cleaners can also be used for anti-static cleaning.

NOTICE

Do not use solvents to clean the solar modules.

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