

FLIGHT MANUAL SUPPLEMENT S05

WING FOLDING DEVICE

FOR THE POWERED GLIDER STEMME S10, MODEL S12



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21 MAR 2017



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SIGNATURE

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P. Ellw-fer
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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 S05 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.	Re-moved Pages	Inserted Pages	Date of Amendment	Reference	Approval	Date of Insertion	Signature
00	--	ALL	Nov 11, 2016	P061-2016-084			

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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			
0-1		00	NOV 11, 2016
0-2		00	NOV 11, 2016
0-3		00	NOV 11, 2016
0-4		00	NOV 11, 2016
0-5		00	NOV 11, 2016
0-6		00	NOV 11, 2016
0-7		00	NOV 11, 2016
0-8		00	NOV 11, 2016
CHAPTER 1			
1-1		00	NOV 11, 2016
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CHAPTER 2			
2-1	X	00	NOV 11, 2016
2-2	X	00	NOV 11, 2016
Chapter 3			
3-1	X	00	NOV 11, 2016
3-2	X	00	NOV 11, 2016
CHAPTER 4			
4-1	X	00	NOV 11, 2016
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4-3	X	00	NOV 11, 2016

PAGE	APPR.	AM. NO.	DATE
4-4	X	00	NOV 11, 2016
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4-6	X	00	NOV 11, 2016
4-7	X	00	NOV 11, 2016
4-8	X	00	NOV 11, 2016
CHAPTER 5			
5-1	X	00	NOV 11, 2016
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CHAPTER 6			
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6-2		00	NOV 11, 2016
CHAPTER 7			
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CHAPTER 8			
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1. GENERAL

This supplement contains information and instructions for the STEMME S12 optional equipped with a wing folding device. 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.

The wing folding device facilitates ground handling and allows slow taxiing by reducing the wing span to 11.4 m / 37.4 ft. This is done by swiveling the outer wings rearward. The outer wing tips are supported by cushions on the tailboom. Baggage compartment and tank filler necks are still accessible.

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

1.5 CERTIFICATION BASIS

The wing folding device has been certificated with the type STEMME S12. The certification has been followed through on the certification basis as applied during the original approval of the type STEMME S12.

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2. LIMITATIONS

2.14 OTHER LIMITATIONS

Taxiing with the wings folded: max. speed 12 km/h/7 kt

 **WARNING**

Adapt taxiing speed to ground service conditions!

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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 RIGGING AND DERIGGING

This section describes the additional procedure wing swiveling, which is an alternative RIGGING/DE-RIGGING of the outer wings. All procedures and recommendations from the basic S12 Aircraft Flight Manual are still valid.

⚠ CAUTION

When performing the wing folding procedures for the first few times it is strongly advised to get the help of a second person monitoring the inner/outer-wing intersection to assist and to prevent damage to the flaps, aileron and pushrod.

4.2.1.2 WING (WING SWIVELING ONLY)

- LOCK the wheel brake.
- SET FLAPS position "L".
- Fasten the wing support on the fuselage with the cushion aligned to the rear end of the baggage compartment. Secure all fastening belts.
- If installed, de-rigg outer wing extension (25.07 m / 82.25 ft extensions) and store in a safe place.
- PULL main wing bolt of outer wing according to the basic S12 Aircraft Flight Manual.
- PULL outer wing out of inner wing by max. 0.1 m / 4 in.

 **WARNING**

Never stop lifting the wing tip, when not being sure that the gap between inner and outer wing is less than 0.1 m/4 in!
Severe damage to the main wing spar could result.

- DISCONNECT aileron pushrod and electric connectors according to the basic S12 Aircraft Flight Manual.
- PULL outer wing out of inner wing until reaching the internal stop. TURN outer wing “leading-edge down” by approximate 15° then PULL another approximate 0.05 m/2 in until reaching the 2nd internal stop. This is the twist lock. CHECK if twist lock is preventing twisting.
- Place wing tip on soft ground or cushion and insert safety lock pin (special on board tool) in dedicated hole in wing folding device located close to the outer root rib of inner wing.
- Lift outer wing back into correct position and carry outer wing by consistently pulling wing on a circular path towards its position on the fuselage. Avoid any radial pushing force on the wing during that process.

 **WARNING**

Any deviation from the most outward circular path may damage the aileron, flap and pushrods. Slight, consistent pulling of the wing radially outwards on that path will avoid that easily.

- SECURE wing on the cushion.
- Proceed with 2nd wing. Perform the same steps in the same order with the 2nd outer wing.
- It is possible to install the wing extensions to the folded wings.

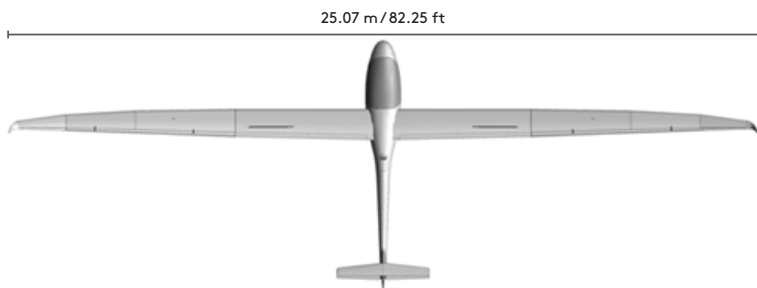


Figure 4.2.a.
Aircraft 25.07 m / 82.25 ft Version



Figure 4.2.b.
Aircraft 21.4 m / 70.20 ft Version

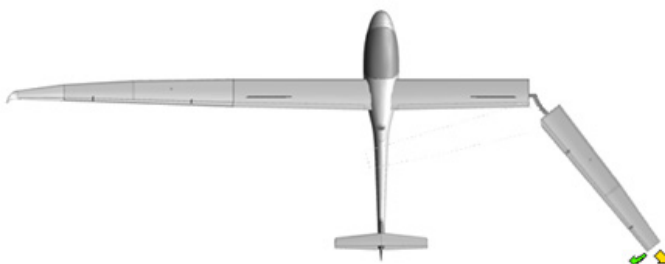


Figure 4.2.c.
Right Wing in Motion



Figure 4.2.d.
Right Wing stabilized on the Fuselage

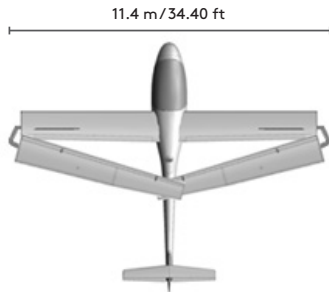


Figure 4.2.e.
Aircraft 21.4 m / 70.20 ft Version - folded



Figure 4.2.f.
Aircraft 25.07 m / 82.25 ft Version - folded

RIGGING (WING SWIVELING ONLY)

Prior to rigging CHECK as described in this supplement »4.3 Daily Inspection«.

- SET FLAPS position "L".
- If installed REMOVE outer wing extensions. It is not recommended to swivel the wings with wing extensions (25.07 m / 82.25 ft version) mounted.
- SECURE outer wings aileron in neutral position by clip OR LIFT it by hand while swiveling the outer wing.
- Open wing fastening belt of cushion. CHECK that 2nd wing is still secured.
- CARRY outer wing by consistently pulling on a circular path towards its regular position straight to center wing. Avoid any radial pushing force on the wing during that process.

 WARNING

Any deviation from the most outward circular path may damage the aileron, flap and pushrods. Slight, consistent pulling of the wing radially outwards on that path will avoid that easily.

- Place wing tip on soft ground or cushion and pick safety lock pin on wing folding device.
- Lift outer wing back into correct position. SUPPORT outer wings horizontal angle while pushing outer wing into inner wing, as the twist lock will release. PUSH outer wing into inner wing until gap is about 0.1m / 4 in. For training of this procedure wait for your helpers confirmation before you stop lifting the wing tip.

 WARNING

Never stop lifting the wing tip, when not being sure that the gap between inner and outer wing is less than 0.1 m / 4 in!
Severe damage to the main wing spar could result.

- CONNECT aileron pushrod and electric connectors according to the basic S12 Aircraft Flight Manual.
- SECURE and CHECK aileron pushrod connectors.
- PUSH outer wing fully into inner wing.
- PUSH in main bolt as described in the basic S12 Aircraft Flight Manual.
- SECURE and CHECK main bolt as described in the basic S12 Aircraft Flight Manual.
- Proceed with 2nd wing. Perform the same steps in the same order with the 2nd outer wing.
- CHECK wing as described in the basic S12 Aircraft Flight Manual »Daily Inspection«.

4.3 DAILY INSPECTION

Additionally to the instructions provided in the basic S12 Aircraft Flight Manual the following checks have to be performed:

Check before Rigging

- With outboard wings folded on the tailboom, check the end ribs of inner and outer wings around the folding mechanism mounting points for damage. Check the spar stubs and the spar stub bolts for damage.
- Check the ends of the aileron pushrods for damage (e.g. bending).
- Clean the bolts and bushings, as they are more easily soiled than in normal use. Refer to maintenance instructions of L'Hotellier-joints.

4.5 NORMAL PROCEDURES AND RECOMMENDED SPEEDS

4.5.1.3 TAXIING

The taxiing speed has to be adapted to ground surface conditions, but may never exceed 12 km/h / 7 kt. Higher speeds may cause damage to the structure of wing folding device, wing and fuselage.

NOTICE

With wings folded the spar stubs protrude approx. 0.8 m / 32 in over the ends of the inner wing and are difficult to monitor from the cockpit!

WARNING

If a collision occurs, the aircraft has to be inspected by an authorized expert prior to next flight!

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5. PERFORMANCE

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

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6. WEIGHT AND BALANCE

With the installation of the wing folding device the empty weight increases by about 4 kg/8.6 lb.

The weight is considered in the basic S12 Aircraft Flight Manual, chapter »6«.

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7. SYSTEM DESCRIPTION OF THE S12 AND ITS EQUIPMENT

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

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8. HANDLING, MAINTENANCE AND SERVICE

The wing folding device is maintenance-free.

NOTICE

Do not lubricate the sliding surfaces! Doing so would damage the low-friction surface-coating.

8.4 GROUND HANDLING / ROAD TRANSPORT

For complete De-Rigging, e.g. for road transport in a trailer the outboard-wings can be derigged as described in the basic S12 Aircraft Flight Manual.

The wing folding device needs to be disconnected by pulling out the outboard wing by approx. 0.3 m/12 in (Lift the wing tip!) and unscrewing (big flat head screwdriver) and pulling the inward bolt of the cardan flange. The device can then be pushed back into the wing for storage.

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