	<b>Safety Alert</b>	
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	Date of Initial Publication: <b>16-May-2012</b> Publication Date of this Revision: <b>16-May-2012</b>	

# SAFETY ALERT

## Trim Tab Retrofit CTSW SA-LTUL-CTSW-06

### Repeating Symbols:

Please pay attention to the following symbols throughout this document emphasizing particular information.

- ▲ **Warning:** Identifies an instruction, which if not followed may cause serious injury or even death.
- **Caution:** Denotes an instruction which if not followed, may severely damage the aircraft or could lead to suspension of warranty.
- **Note:** Information useful for better handling.

## 1 Planning Information

### 1.1. Affected Aircraft

- Type: CT
- Model: CTSW 2006
- Serial Number: All aircraft equipped with stabilizer built using Aramid fibers for the stabilizer skin (includes all Ultralight certified aircraft), and equipped with long (full span) Trimtab attached to the Stabilizer.
- Applicable Countries: All where aircraft are operated as Ultralight version (472,5 kg MTOW)


### 1.2. Concurrent Documents

-none-

### 1.3. Reason

One CTSW was operated outside the allowed speed range, in combination with too high control surface deflection. The aircraft experienced a structural failure of the stabilizer in flight. The aircraft could continue its flight and land safely. GPS log documented the speed exceeding  $V_{ne}$  at the moment of the failure. Accidentally taken video provides noises that could be interpreted as flutter, just prior to the stabilizer failure.

In consequence to the Occurrence Flight Design has conducted repeated ground vibration tests using other test facilities, other test equipment and other evaluation tools than used during ground vibration test when certifying the aircraft. It was found that a flutter mode on the trim tab is possible that was not possible to be detected with the available methods at the initial certification, only the newer analysis methods used today were able to identify the observed effect.

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To avoid misunderstanding and difficulties in the interpretation, please consider the following information:

- CT Supralight has a short trim tab and did undergo a complete new ground vibration test during certification using already the new methods at the new test institution in 2009. The aircraft design has been verified to be free from flutter. Therefore, CT Supralight is not affected.
- CTSW aircraft with short trim tab (for example all aircraft delivered to UK) are identical to the newly tested CT Supralight. Therefore, CTSW with short trimtab is not affected.
- CT models preceding CTSW are directly comparable to CTSW with short trim tab. Therefore, CT models preceding CTSW (CT2k, CT) are not affected.
- CTSW aircraft delivered as LSA aircraft (600 kg) are equipped with stabilizers built from significantly stiffer carbon fiber fabric instead of the Aramid fabric used on the more weight sensitive Ultralight aircraft. The increased stiffness of this version shifts flutter limits to higher airspeeds. In addition the  $V_{NE}$  of LSA aircraft is below the  $V_{ne}$  of the Ultralight version. Therefore CTSW LSA aircraft are not affected.
- CTLS aircraft are of completely different design in the questionable area. CTLS did undergo a complete ground vibration testing at the new test facility in 2007. The aircraft design has been verified to be free from flutter. Therefore, CTLS is not affected.

#### 1.4. Subject

##### **Action 1:**

Implementation of a mandatory limitation of the never-exceed speed ( $V_{ne}$ ) to CTSW aircraft as identified in Chapter 1.1 of this SA.

This limitation of the never-exceed speed is applicable until Action 2 is successfully completed.

This action is identical to the action identified in SA-LTUL-CTSW-04, which is superseded by this document.

##### **Action 2:**

Retrofit of the CTSW full-span Trim Tab to the short Trim Tab (See Fig. 1 of an aircraft after retrofit). This retrofit must be completed within the timeframe identified in Chapter 1.5 of this SA.

After successful completion of the retrofit as defined in Chapter 3.5 of this SA, removal of the airspeed limitation that was introduced in Action 1.



## Safety Alert

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Fig. 1

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## 1.5. Compliance

### Action 1:

Compliance must be demonstrated prior to next flight.

Action 1 is identical to the action identified in SA-LTUL-CTSW-04, which is superseded by this document. Aircraft that comply with the superseded SA-LTUL-CTSW-04 also comply with this new SA-LTUL-CTSW-06 Action 1.

- **Caution:** Compliance with the superseded SA-LTUL-CTSW-04 does not result in compliance with Action 2.

### Action 2:

Compliance must be shown latest at the next annual inspection of the aircraft. In cases where the annual inspection of the aircraft is within six months from issuing of this SA, showing of compliance may be delayed until six months following the issue date of the SA.

- ▲ **Warning:** Non-compliance with these instructions could result in further damages, personal injuries or death.

## 1.6. Approval

Not applicable

## 1.7. Type of Maintenance

### Action 1:

Not applicable

### Action 2:

heavy

## 1.8. Personnel Qualifications

National regulations apply.


## 1.9. Release to Service

Conduct of this SA (Action 1 and Action 2) must be confirmed by an aircraft inspector according to the national applicable regulations for the country of registry of the aircraft.

Conduct of this SA (Action 1 and Action 2) must be logged in the aircraft log book with date and signature of the responsible Person according to national regulations.

Release to Service after conduct of the superseded SA-LTUL-CTSW-04 for an individual aircraft is considered as Release to Service following Action 1 of this new SA-LTUL-CTSW-06.

- **Caution:** Release to Service with the superseded SA-LTUL-CTSW-04 does not result in Release to Service following Action 2.

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### 1.10. Weight and Balance

#### Action 1:

Not affected

#### Action 2:

When SI-LTUL-CTSW-13, Shortening of the CTSW Trim Tab, has been conducted and the total weight change of trim tab and re-balancing of the stabilizer remains below 1 lb (0.45kg), in compliance with FAA publication AC 43.13-1B re-weighing of the aircraft is not required due to this measure alone. In any other cases new weight and balance of aircraft is required.

▲Warning: When this exemption has been used already for earlier maintenance events on the aircraft, or when other maintenance events are conducted in parallel and the weight he individual events add up to more than 0.45 kg (1 lb), re-weighing of the aircraft is required for the sum of the effects.

### 1.11. References

#### 1. Drawings:

None.

#### 2. Documents:

#### Latest issues - as applicable for the individual aircraft - of:

- [1] Flight- and Maintenance Manual CTSW 2006
- [2] SI-LTUL-CTSW-13 (Shortening of the CTSW Trim Tab)
- [3] SI-LTUL-CTSW-05 (Removal / Installation of Trim Tab)

### 1.12. Superseded Documents

- [4] Flight Design Safety Alert SA-LTUL-CTSW-04 (Temporary Airspeed Limitation CTSW)

### 1.13. Contact Details

For further information on conduct of this SA, or to report any Safety of Flight or Service Difficulty issues contact your Distributor responsible for your country. Your Distributor can be located via the Flight Design website: [www.flightdesign.com](http://www.flightdesign.com) under "Dealer Location".

In cases where the local distributor is not known or available contact Flight Design GmbH directly: [airworthiness@flightdesign.com](mailto:airworthiness@flightdesign.com).

To obtain necessary spare parts and the retrofit kit required by the referenced SI, use the Flight Design template for "SI-LTUL-CTSW-13 Retrofit Kit Order" in the chapter 4.4 of this SA.


## 2 Resources

#### Action 1:

Not applicable

#### Action 2:

All required resources are listed in the referenced Service Instruction [2].

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The retrofit kit used for SI [2] can be obtained free of charge from Flight Design using the Flight Design template for “SI-LTUL-CTSW-13 Retrofit Kit Order” in the chapter 4.4 of this SA. Submission can be done by mail, Fax or as scanned copy by e-mail to Flight Design GmbH (see header of this page) or to your national Flight Design Distributor who will forward the information for you.

### 3 Instructions

#### Action 1:

##### 3.1 Airspeed Limitation

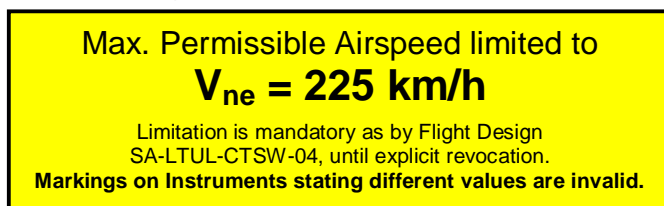
The never-exceed speed of the affected aircraft is reduced to  $V_{ne} = 225$  km/h.

This new limitation must be displayed in the cockpit and in the aircraft operating relevant manuals.

It is the duty of the operator of the aircraft to ensure that all pilots flying the aircraft are made aware of this limitation.

##### 3.2 Install Placard to the Instrument Panel

Print the following placard in color.



Install placard to the instrument panel, in direct vicinity to the airspeed indicator. When the aircraft is indicated with an EFIS, install close to the EFIS in a location, where the pilot must notice it when operating the aircraft.

##### 3.3 Amend Aircraft Flight- and Maintenance Manual

Print amendment page as provided by the Appendix three (3) times.

Add one amendment page each to the following chapters of the Flight- and Maintenance manual, in front of the page where the regular  $V_{ne}$  limitation is displayed:


- Chapter 2 – Performance Limitations (section Airspeeds)
- Chapter 5 – Capacities (section Airspeeds)
- Chapter 7 – System Description and Functions (section List of Indications, Markings)

##### 3.4 Documentation

Conduct of this SA, Action 1, must be logged in the aircraft log book with date and signature of the responsible Person conducting the SA. National regulations have to be considered.

Documentation of conduct of the superseded SA-LTUL-CTSW-04 for an individual aircraft is considered as compliant documentation of Action 1 of this new SA-LTUL-CTSW-06.

- **Caution:** Compliance with the superseded SA-LTUL-CTSW-04 does not result in compliance with Action 2.

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## Action 2:

### 3.5 Trim tab shortening

All applicable instructions are provided by the referenced Service Instructions [2] and [3].

### 3.6 Removal of Airspeed Limitation

After successful completion of the trim tab shortening as defined in Chapter 3.5 of this SA, the airspeed limitation required by Action 1 loses validity.

Remove the airspeed limitation placard installed in compliance with Chapter 3.2 of this SA from the instrument panel.

Remove the three amendment pages added in compliance with Chapter 3.3 of this SA from the Aircraft Flight- and Maintenance Manual.

### 3.7 Documentation

Conduct of this SA, Action 2, must be logged in the aircraft log book with date and signature of the responsible Person conducting the SA. National regulations have to be considered.

## 4 Appendix

### 4.1 Changes to Previous Revision

Original Issue – no changes


### 4.2 Feedback Template Flight Design

No specific feedback required

### 4.3 Amendment Page to Flight and Maintenance Manual

Amendment page see following page.

### 4.4 Retrofit kit order form

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## Amendment to Flight- and Maintenance Manual CTSW 2006

The Never Exceed Speed (maximum permissible speed)  $V_{ne}$  of the aircraft is limited to:

$$V_{ne} = 225 \text{ km/h}$$


This limitation is mandated by Flight Design SA-LTUL-CTSW-06

A placard must be displayed on the instrument panel of the aircraft in the close vicinity to the airspeed indicator or EFIS stating:

Max. Permissible Airspeed limited to  
 **$V_{ne} = 225 \text{ km/h}$**   
 Limitation is mandatory as by Flight Design  
 SA-LTUL-CTSW-04, until explicit revocation.  
**Markings on Instruments stating different values are invalid.**

This page must be inserted to all positions in the Flight and Maintenance Manual where the Never Exceed Speed  $V_{ne}$  is defined or quoted.



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#### 4.4 Retrofit Kit Order Form

<b>Order Form</b> <b>SA-LTUL-CTSW-06 Retrofit Kit</b>	
CTSW serial number:	
Aircraft owner, Name and Address:	
Please send Retrofit kit to this Address:	