

## 1.0 Innledning akrobatikk med seilfly

På de følgende sider vil du finne et akrobatikk skoleprogram for seilfly. S/NLF har ikke utgitt egen lærebok i akrobatikk flyging. Men læreboken "Trygg acro med seilfly" 2. opplag (ISBN 9-788-291-193274) er gitt ut i samarbeid med S/NLF og oppdatert i 2020.

Boka dekker etter oppdateringen både teoretisk og praktisk pensum gitt i "SFCL.200 Aerobatic privileges" med tilhørende "AMC1 SFCL.200(b), (c), (d) og (e) Aerobatic privileges".

Seilfly har forskjellige operasjons begrensninger. Derfor må flyets håndbok kunne. Relevante deler av flyets håndbok for den/de flyene som benyttes ved oppflyging til rettighetene er pensum.

### Pensum etter forskriften

#### SFCL.200 Aerobatic privileges

(a) SPL holders shall only undertake aerobatic flights in sailplanes with any engine stopped, or, in the case of paragraph (d) and (e), with engine power, if they hold the appropriate aerobatic privileges in accordance with this point.

#### (b) Basic aerobatic privileges:

(1) entitle its holder to undertake aerobatic flights limited to the following manoeuvres:

- (i) 45-degree climbing and diving lines performed as aerobatic manoeuvres;
- (ii) inside loops;
- (iii) wingover;
- (iv) lazy eight;
- (v) spins;

(2) are included in the privileges of an SPL after a pilot has completed:

- (i) after the issue of the SPL, at least 30 hours of flight time or 120 launches as PIC on sailplanes;
- (ii) a training course at an ATO or a DTO, including:
  - (A) theoretical knowledge instruction appropriate for the privileges sought;
  - (B) aerobatic flight instruction on the manoeuvres specified in paragraph (1).

#### (c) Advanced aerobatic privileges:

(1) entitle its holder to undertake aerobatic flights not limited to manoeuvres as specified in paragraph (b)(1);

(2) are included in the privileges of an SPL after a pilot has:

- (i) complied with the requirements of paragraph (b)(2)(i);

(ii) completed a training course at an ATO or a DTO, including:

- (A) theoretical knowledge instruction appropriate for the privileges sought;
- (B) at least five hours or 20 flights of aerobatic flight instruction.

(d) The basic or advanced aerobatic privileges shall include aerobatic flights in sailplanes with engine power, if a pilot has received a training in aerobatic flight in sailplanes with engine power during a training course in accordance with paragraphs (b)(2)(ii) or (c)(2)(ii), as applicable.

(e) The privileges of an SPL shall include advanced aerobatic privileges for TMGs flown with engine power if a pilot also has or has had an aerobatic rating in accordance with point FCL.800 of Annex I (Part-FCL) to Regulation (EU) No 1178/2011, including privileges for aerobatic flight on TMGs.

(f) The completion of the training course as specified in paragraphs (b)(2)(ii) and (c)(2)(ii) and, as applicable, the inclusion of training specified in paragraph (d), shall be entered in the logbook and signed by the head of training of the ATO or the DTO that is responsible for the training

## **AMC1 SFCL.200(b) Aerobatic privileges**

### **TRAINING FOR THE BASIC AEROBATIC PRIVILEGES**

(a) The aim of the basic aerobatic training is to qualify SPL holders to perform the aerobatic manoeuvres specified in point SFCL.200(b)(1).

#### **(b) Theoretical knowledge**

The syllabus for the theoretical knowledge instruction as per point SFCL.200(b)(2)(ii)(A) should cover at least all of the following:

##### **(1) human factors and body limitations**

- (i) spatial disorientation;
- (ii) airsickness;
- (iii) body stress and G-forces, positive and negative; and
- (iv) effects of grey- and blackouts.

##### **(2) technical subjects**

- (i) legislation affecting aerobatic flying to include environmental and noise subjects;
- (ii) principles of aerodynamics to include slow flight, stalls and spins, flat and inverted; and
- (iii) general airframe and engine limitations (if applicable).

##### **(3) limitations applicable to the specific aircraft category (and type)**

- (i) air speed limitations (sailplane);
- (ii) symmetric load factors (type-related, as applicable); and
- (iii) rolling Gs (type-related, as applicable).

**(4) aerobic manoeuvres and recovery**

- (i) entry parameters;
- (ii) planning systems and sequencing of manoeuvres;
- (iii) rolling manoeuvres;
- (iv) looping manoeuvres;
- (v) combination manoeuvres; and
- (vi) entry and recovery from developed spins, flat, accelerated and inverted.

**(5) emergency procedures**

- (i) recovery from unusual attitudes; and
- (ii) drills to include the use of parachutes (if worn) and aircraft abandonment.

**(d) Flying training**

The exercises of the basic aerobic flying training syllabus should be repeated as necessary until the applicant achieves a safe and competent standard. Having completed the flight training, the student pilot should be able to perform a solo flight containing the manoeuvres specified in point SFCL.200(b)(1). The dual training and the supervised solo training flights should be limited to the permitted manoeuvres of the type of sailplane used. The exercises should comprise at least the following practical training items:

**(1) confidence manoeuvres and recoveries**

- (i) slow flights and stalls;
- (ii) steep turns;
- (iii) side slips;
- (iv) engine restart in-flight (if applicable);
- (v) spins and recovery;
- (vi) recovery from spiral dives; and
- (vii) recovery from unusual attitudes.

**(2) aerobic manoeuvres as per point SFCL.200(b)(1).**

**AMC1 SFCL.200(c) Aerobatic privileges**

**TRAINING FOR THE ADVANCED AEROBATIC PRIVILEGES**

- (a) The aim of the advanced aerobic training is to qualify SPL holders to perform aerobic manoeuvres.
- (b) **Theoretical knowledge**  
The syllabus for the theoretical knowledge instruction as per point SFCL.200(c)(2)(ii)(A) should cover at least the elements specified in point (b) of AMC1 SFCL.200(b).
- (c) **Flying training**  
The exercises of the advanced aerobic flying training syllabus should be repeated as necessary until the applicant achieves a safe and competent standard. Having completed the flight training, the student pilot should be able to perform a solo flight containing a sequence of aerobic manoeuvres. The dual training and the

supervised solo training flights should be limited to the permitted manoeuvres of the type of sailplane used. The exercises should comprise at least the following practical training items:

(1) confidence manoeuvres and recoveries as specified in point (d)(1) of AMC1 SFCL.200(b);

(2) aerobatic manoeuvres:

- (i) Chandelle; *(Basic øvelse, samme som Wing Over)*
- (ii) Lazy Eight; *(Basic øvelse, er også med i Basic kravet)*
- (iii) rolls;
- (iv) loops;
- (v) inverted flight;
- (vi) Hammerhead turn; and
- (vii) Immelmann.

(d) For applicants who already hold basic aerobatic privileges as per point SFCL.200(b), the theoretical knowledge instruction as per point (b) may consist of a repetition of the elements specified in point (b) of AMC1 SFCL.200(b), and the flying training as per point (c) may focus on the aerobatic manoeuvres that are outside the scope of the basic aerobatic privileges.

### **AMC1 SFCL.200(d) Aerobatic privileges**

#### **TRAINING FOR AEROBATIC FLIGHT WITH ENGINE POWER**

Applicants who seek privileges for aerobatic flights with engine power in accordance with point SFCL.200(d) should complete, under engine power, all manoeuvres specified in point (d) of AMC1 SFCL.200(b) or point (c) of AMC1 SFCL.200(c), as applicable, that can be completed with engine power.

### **AMC1 SFCL.200(e) Aerobatic privileges**

#### **CREDITS FOR AEROBATIC RATING AS PER REGULATION (EU) No 1178/201**

SPL holders who wish to make use of the credit established in point SFCL.200(e) should, when exercising aerobatic privileges, carry one of the following:

- (a) the aeroplane licence with the aerobatic rating, issued in accordance with Part-FCL; and
- (b) a confirmation (e.g. logbook entry) by the competent authority that an aerobatic rating in accordance with Part-FCL is or was held.

## AKROBATIKKØVELSER

### A-1.1 - Demonstrasjon av akro og nødprosedyrer

**Forutsetning:**

Ingen

**Øvelsens formål og utførelse:**

Første turen med akro er en ren introduksjon og demonstrasjon av akro.

Det flys enkel akro ut fra elevens ønsker.

Eleven skal lære å forberede seilflyet for akro?

- Støvsuge

- Løse deler

- Feil på fartsmåleren

- Hvordan feste setebeltene riktig.

- Nødprosedyrer.

- Flyets Flight manual. Hva er tillatt. Hastigheter og G belastning.

**Eleven øver:**

Gjennomgå øvelsen på nytt etter landing. Still kontrollspørsmål.

**Vanlige instruktørfeil:**

For mye og for detaljert instruksjon som eleven ikke er i stand til å fordøye.

**Følgende øvelser er beskrevet i og undervises etter boka «Trygg acro med seilfly. 2. opplag».**

**Basic rettigheter:**

- 45 graders linjer

- Lazy Eight

- Wing Over

- Loop

- Spinn

**Advanced rettigheter:**

- Lazy Eight

- Wing Over

- Loop

- Stall Turn

- ½ Adam

- Roll inn og roll ut. (Ryggflyging 1)

- Rett Roll

## Teoripensum:

Boka «**Trygg acro med seilfly**» 2. opplag:

Kapittel 2 Akrorelatert flymedisin

Kapittel 3 Krefter fart og innfallsvinkel

Kapittel 4 Akroøvelser

Kapittel 5 Flyets håndbok – Ytelser, begrensninger og tillatte øvelser

Kapittel 6 Lover og bestemmelser

Kapittel 7 Nødprosedyrer ved akroflyging