



External cargo sling , CONSTRUCTION

Transport of external loads with helicopters "Level 5" required by RFP Art. 133 g  
After completion of training send this form to: Bundesamt für Zivilluftfahrt (BAZL), FA / Helikopter, Maulbeerstrasse 9, 3003 Bern

Name: ..... First Name: ..... Date of birth: .....

Tel Privat: ..... Tel Mobile: ..... Fax: .....

Change of address (indicate new address)  oui / ja E-Mail: .....

Zip code / City: ..... Street: .....

Pilot in charge of theoretical instruction (must have a minimum of 500h ECS experience):

Name: ..... First Name: ..... CH Licence N°: .....

## EXTERNAL CARGO SLING CONSTRUCTION GROUND INSTRUCTION

<b>FOM</b>	
Flight and duty times .....	<input type="checkbox"/> <input type="checkbox"/>
Max. cycles / day .....	<input type="checkbox"/> <input type="checkbox"/>
Min. and max. fuel .....	<input type="checkbox"/> <input type="checkbox"/>
Refueling procedures .....	<input type="checkbox"/> <input type="checkbox"/>
Radio communications .....	<input type="checkbox"/> <input type="checkbox"/>
Human factors / CRM / nutrition .....	<input type="checkbox"/> <input type="checkbox"/>
Safety equipment .....	<input type="checkbox"/> <input type="checkbox"/>
Pilot / marshaller responsibilities / Operational Briefing.....	<input type="checkbox"/> <input type="checkbox"/>
<b>Flight Manual</b>	
Limitations .....	<input type="checkbox"/> <input type="checkbox"/>
Performance / HOGE .....	<input type="checkbox"/> <input type="checkbox"/>
Cargo hook supplement .....	<input type="checkbox"/> <input type="checkbox"/>
<b>Flight Procedures</b>	
Airspeed selection with load .....	<input type="checkbox"/> <input type="checkbox"/>
Flight path selection (3rd party) .....	<input type="checkbox"/> <input type="checkbox"/>
Bank / load factor / load drag .....	<input type="checkbox"/> <input type="checkbox"/>
Load stabilisation techniques / hover & in-flight .....	<input type="checkbox"/> <input type="checkbox"/>
Downwash / Load rotation .....	<input type="checkbox"/> <input type="checkbox"/>
Visual hover reference / vert, horiz .....	<input type="checkbox"/> <input type="checkbox"/>
Rotor clearance .....	<input type="checkbox"/> <input type="checkbox"/>
Marshaller Hand signals .....	<input type="checkbox"/> <input type="checkbox"/>
Manual & Electrical load release .....	<input type="checkbox"/> <input type="checkbox"/>
Decision / exposure time .....	<input type="checkbox"/> <input type="checkbox"/>
<b>Load &amp; Person Preparation</b>	
Vertical loads .....	<input type="checkbox"/> <input type="checkbox"/>
Horizontal loads .....	<input type="checkbox"/> <input type="checkbox"/>
Light and bulky loads .....	<input type="checkbox"/> <input type="checkbox"/>
Load guiding devices .....	<input type="checkbox"/> <input type="checkbox"/>

Guide lines / ropes .....	<input type="checkbox"/> <input type="checkbox"/>
Wire stringing .....	<input type="checkbox"/> <input type="checkbox"/>
<b>Special Equipment</b>	
Remote hook / swivel hook .....	<input type="checkbox"/> <input type="checkbox"/>
Spansets / Steel cables/ chains .....	<input type="checkbox"/> <input type="checkbox"/>
Cable drums / winches .....	<input type="checkbox"/> <input type="checkbox"/>
Long lines .....	<input type="checkbox"/> <input type="checkbox"/>
Load meter / printer .....	<input type="checkbox"/> <input type="checkbox"/>
Mirrors .....	<input type="checkbox"/> <input type="checkbox"/>
Bubble window / vertical refernces .....	<input type="checkbox"/> <input type="checkbox"/>
Audio / vibration warning .....	<input type="checkbox"/> <input type="checkbox"/>
<b>Emergency / Limitations</b>	
Flight control stops .....	<input type="checkbox"/> <input type="checkbox"/>
TR failure .....	<input type="checkbox"/> <input type="checkbox"/>
Engine failure / OEI operation .....	<input type="checkbox"/> <input type="checkbox"/>
Height velocity diagram / exposure time .....	<input type="checkbox"/> <input type="checkbox"/>
Emergency procedures in construction ops .....	<input type="checkbox"/> <input type="checkbox"/>
Review of construction accidents .....	<input type="checkbox"/> <input type="checkbox"/>
<b>Dangers</b>	
Flights in valleys / cables / wires .....	<input type="checkbox"/> <input type="checkbox"/>
Flight over cities / roads / 3rd party .....	<input type="checkbox"/> <input type="checkbox"/>
Airflow / up and downdrafts .....	<input type="checkbox"/> <input type="checkbox"/>
Sun / shadow / snow / rain / static electricity .....	<input type="checkbox"/> <input type="checkbox"/>
Settling with power / vortex .....	<input type="checkbox"/> <input type="checkbox"/>
Emergency load jettison .....	<input type="checkbox"/> <input type="checkbox"/>
Remarks:	

<b>Minimum requirements before starting practical ECS 4 instruction:</b>	
- CPL(H) / ATPL(H) .....	<input type="checkbox"/>
- Mini. 1000h HEL .....	<input type="checkbox"/>
- ECS Level 2 or 3 completed .....	<input type="checkbox"/>
- Mini. 5000 ECS cycles .....	<input type="checkbox"/>
- Type rating completed .....	<input type="checkbox"/>
- Min. 10 hours PIC on type of helicopter .....	<input type="checkbox"/>
- ECS 4 Ground instruction completed .....	<input type="checkbox"/>
- Practical load preparation training .....	<input type="checkbox"/>

I herewith certify that the trainee has received the required ECS 4 ground instruction and is found competent to begin the practical ECS 4 instruction.

Date: .....

Name: .....

Signature: .....



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CH-Licence N°

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## LEVEL 4 CONSTRUCTION

### Conditions:

- Maximum cargo weight 1'500 kg
- 1 marshaller (with radio) at pickup point
- 1 marshaller (with radio) at drop off point
- helicopter fitted with cargo mirror / bubble window\*  
\*if applicable

### VERTICAL REFERENCES

The trainee must be able to perform a stabilized hover flight by means of vertical references without any external cargo attached to the helicopter prior to commencing training with external loads.

### DEFINITIONS

#### Mission:

One mission is an ECS flight or series of ECS flights, conducted from site A to site B, for a particular customer, on a particular day.

#### Cycle:

A cycle is a flight from site A to site B with an external load and subsequent return to site A.

Pilot (preferably Flight Instructor) in charge of ECS practical training (must be qualified at minimum for ECS level 4). **maximum 2 persons.**

Name: ..... Licence Nr:

Name: ..... Licence Nr:

**Flight instruction solo with on site supervision / min. 3 missions:** (every square is 1 mission)

Mirror  Vertical ref.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Date training started: .....

**Cycles / minimum 5 cycles:** (every square is 1 cycle) should include load types 1 and 3

Type of loads (use code in squares)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 1 Poles / Pylons
- 2 Vertical load
- 3 Horizontal load
- 4 Avalanche protections
- 5 Light and bulky load

**Trainee is found properly qualified for GROUND LEVEL CONSTRUCTION operations without supervision**  
**The trainee's logbook has been endorsed for "ECS Level 4 GL"**

Date:.....

Signature / License N°:.....

**Flight instruction solo with on site supervision / min. 3 missions:** (every square is 1 mission)

Mirror  Vertical ref.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Date training started: .....

**Cycles / no minimum required:** (every square is 1 cycle) should include load types 1 and 3

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Trainee is found properly qualified for GROUND & AERIAL CONSTRUCTION operations without supervision**  
**The trainee's logbook has been endorsed for "ECS Level 4"**

Date:.....

Signature / License N°:.....

## WIRE STRINGING / NO CONSTRUCTION REQUIRED

**Flight instruction with on site supervision/minimum 1 mission:** (every square is 1 Mission)

Mirror  Vertical ref.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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**Trainee is found properly qualified for WIRE STRINGING operations without supervision**  
**The trainee's logbook has been endorsed for "ECS Level 4 WIRE"**

Date:.....

Signature / License N°:.....

### Total Helicopter Flight experience:

- 1000h<HEL<3000h  
  3000h<HEL<5000h  
  5000h<HEL<10'000h  
  HEL>10'000h

TOTAL TIME ECS 4: ..... N° of cycles ECS4:.....

### Remarks: