



Uprt advanced course for Approved Training Organizations

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European Union Aviation Safety Agency

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(EU-ASEAN SCOPE APP)

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The objective of the workshop is to increase knowledge for civil aviation authority staff on the regulatory issues in this domain, particularly in the context of applicable requirements related to certification of UPRT training programmes for Approved Training Organisations and for Flight Instructors providing UPRT training.

• Let me introduce myself:

- **23/09/2018 – CURRENT ITALIAN CAA FLIGHT INSPECTOR** Roma, Italy
- Team leader ATO/DTO oversight PPL/CPL/ATPL Licencing including integrated courses and UPRT ADV certifications.
- Reg. EU 1178:2011 expert in EASA international cooperation projects including EASA provider in ATO oversight.
- National representative in EU General Aviation technical body and EU aviation security integrated risk assessment group.
- EU pilot IT.FCL.1464
- A320+IR current and Examiner
- SingleEnginePiston (land) current and Examiner, Multi Engine Piston (land) 6'350 fh A320,F50,F900,G3, C130, military training jets, SEP,MEP
- **10/07/2015 – 23/09/2018** Pozzuoli , Italy
- deputy commandant of italian air force academy
- **10/07/2013 – 09/07/2015** Roma, Italy
- air force gvt base commander with 10 airplanes and 2 helicopters
- **15/09/2007 – 31/12/2010** Roma, Italy
- director operations of 10 airplanes and 2 helicopters



Loss of Control Inflight

https://www.youtube.com/watch?v=_rPZEPPfNCU



ICAO (INTERNATIONAL GLOBAL STANDARDS)
EU (EUROPEAN UNION)
EASA (EUROPEAN AVIATION SAFETY AGENCY)

Aim

Enhancing pilot skills for safe
flight operations

EU and EASA aim to equip pilots with the skills necessary to prevent, recognize and recover from aircraft upsets.

www.easa.europa.eu/regulations

What is an Upset?

Unintentional divergence from normal flight conditions involving:

Pitch attitude 25° up / 10° down

Bank angle above 45°

Inappropriate speeds

What causes lead to an Upset?

Environmental

Human factors

Mechanical issues

Operational errors

Reg.EU 1139:2018 Basic

Reg. EU 1178:2011 Aircrew

Reg. EU 965:2012 Airops

www.easa.europa.eu/regulations

Professional Pilots

Student pilots

EU student pilots get big change on 21° December 2019

Reg. EU 1178:2011 Aircrew

From 21 December 2019 FCL.745 becomes pre-requisite for issuing:

- ATPL airline transport pilot licence
- CPL commercial pilot licence
- MPL multi crew pilot licence
- Type Rating MultiPilot

Advanced Upset Prevention and Recovery Training

Key topics:

- Aircraft upsets
- Causes of aircraft upsets
- Prevention strategies
- Recovery techniques



Advanced Upset Prevention and Recovery Training

Key topics:

- Aircraft upsets
- Causes of aircraft upsets
- Prevention strategies
- Recovery techniques

- (a) The advanced UPRT course shall be completed at an ATO and shall comprise at least:
 - (1) 5 hours of theoretical knowledge instruction;

(a) The advanced UPRT course shall be completed at an ATO and shall comprise at least: (2) preflight briefings and postflight debriefings;

(a) The advanced UPRT course shall be completed at an ATO and shall comprise at least:

and

(3) 3 hours of dual flight instruction with a flight instructor for aeroplanes FI(A) qualified in accordance with point FCL.915(e) and consisting of advanced UPRT in an airplane qualified for the training task.

Tip for oversight inspectors: the flight time is not block to block, is actual AUPRT!

(b) Upon completion of the UPRT course, applicants shall be issued with a certificate of completion by the ATO.

Curiosity: statistically out of 10 training flights, 3 students feel sick, 1 needs interruption training maneuvers (data IT.ATO.0034)

APPROVED TRAINING ORGANIZATIONS Regulation Aircrew Annex part-ORA



Several aspects to take into account:

- Differences between operators with integrated ATOs, and operators contracting out the UPRT training to external ATOs;
- UPRT program design using a coordinated effort from operator and the ATO to include specific UPRT components;
- Operators ab-initio schemes to ensure that UPRT delivered by contracted ATOs remains with their own training requirements;
 - UPRT not be treated as a standalone concept, but as part of the operator's own safety concept
 - UPRT and acceptable crew performance
- ATOs delivering on-aeroplane training and/or FSTDs training to remain within safe flight envelopes using data representing realistic aircraft behaviour

**Ai sensi del regolamento (UE) n. 1178/2011 della Commissione e alle condizioni specificate di seguito,
l'ENAC certifica che:**

(Pursuant to Commission Regulation (EU) No 1178/2011 and subject to the conditions specified below, ENAC hereby certifies):

Professional Aviation S.r.l.

Via Sabbionara 5, 40064 Ozzano dell'Emilia (BO)

è un'organizzazione di addestramento certificata ai sensi della Parte ORA, con il privilegio di fornire corsi di addestramento secondo la Parte FCL, incluso l'uso di FSTD, come elencato nell'approvazione dei corsi di addestramento allegata.

(as a Part-ORA certified training organisation with the privileges to provide Part- FCL training courses, including the use of FSTDs, as listed in the attached training course approval).

CONDIZIONI (CONDITIONS):

Il presente certificato è limitato ai privilegi e al campo di applicazione relativi alla fornitura di corsi di addestramento, incluso l'uso di FSTD, come elencato nell'approvazione dei corsi di addestramento allegata.

(This certificate is limited to the privileges and the scope of providing the training course, including the use of FSTDs, as listed in the attached training course approval.)

Il presente certificato è valido finché l'organizzazione autorizzata rispetta le Parti ORA e FCL nonché gli altri regolamenti applicabili

FLIGHT INSTRUCTORS UPRT ADVANCED FCL.745

REG. EU 1178:2011 part-FCL
subpart J point FCL.915



FLIGHT INSTRUCTORS UPRT ADVANCED FCL.745

Do we really need Top Gun pilots or
Aerobatic Champions?



Flight Instructors qualification and training for delivering UPRT effective training

- UPRT safety implications and the consequences of applying poor instructional techniques
- UPRT delivering complex concepts and relationships in a fast-moving setting •

- How to minimize risk through strict operational safety management and highly competent instructors
- Performance required for on-aeroplane UPRT:
 - risk and safety-margin management
 - human factors
 - students psychological and physiological reactions → confidence building, and
 - inflight recovery skills.

FLIGHT INSTRUCTORS UPRT ADVANCED FCL.745

Do we really need Top Gun pilots or
Aerobatic Champions?

Yes and No



FLIGHT INSTRUCTORS TRAINERS FOR FLIGHT INSTRUCTORS UPRT ADVANCED FCL.745

Who are this instructors for
instructors?

Where do we start from?

Year 2019

- Aircrew reg. EU 1178:2011 FCL.900 (b) **Special conditions**
- : (1) The competent authority may issue a specific certificate granting privileges for flight instruction when compliance with the requirements established in this Subpart is not possible in the case of the introduction of: (i) new aircraft in the Member States or in an operator's fleet; or **(ii) new training courses in this Annex (Part-FCL)**. Such a certificate shall be limited to the training flights necessary for the introduction of the new type of aircraft or the new training course and its validity shall not, in any case, exceed 1 year.;

- (e) Additional requirements for instructing in a training course in accordance with FCL.745.A:
 - (1) In addition to (b), before acting as instructors for a training course according to FCL.745.A, holders of an instructor certificate shall: (i) have at least 500 hours of flight time as pilots of aeroplanes, including 200 hours of flight instruction;

- (e) Additional requirements for instructing in a training course in accordance with FCL.745.A:
 - (1) In addition to (b), before acting as instructors for a training course according to FCL.745.A, holders of an instructor certificate shall: (ii) after complying with the experience requirements in point (e)(1)(i), have completed a UPRT instructor training course at an ATO, during which the competence of applicants shall have been assessed continuously

- (e) Additional requirements for instructing in a training course in accordance with FCL.745.A:
(3) Instructors holding the privileges specified in point (e)(1) may act as instructors for a course as specified in point (e)(1)(ii), provided that they: (i) have 25 hours of flight instruction experience during training according to FCL.745.A; (ii) have completed an assessment of competence for this privilege; and (iii) comply with the recency requirements in point (e)(2).
- (4) These privileges shall be entered in the logbook of the instructors and signed by the examiner

- CONTENT OF THE REFRESHER TRAINING FOR UPRT INSTRUCTIONAL PRIVILEGES
- (a) The objective of the refresher training is for the instructor to maintain or to re-obtain, as applicable, the level of competence required for instructing on a training course as per point FCL.745.A.
- **Tip for oversight inspectors:** the refresher training includes actual flight time!

- CONTENT OF THE REFRESHER TRAINING FOR UPRT INSTRUCTIONAL PRIVILEGES
- (b) The content of the refresher training should: (1) consist of elements from the initial UPRT instructor training course as per point FCL.915(e)(1)(ii); and (2) be determined by the ATO on a case-by-case basis, considering the needs of the individual instructor and taking into account the following factors: (i) the experience of the instructor; (ii) the amount of time elapsed since the instructor provided instruction on a training course as per point FCL.745.A for the last time; and (iii) the performance of the instructor during a simulated UPRT training session comprising exercises from the advanced UPRT course as per point FCL.745.A. During this simulated training session, another instructor qualified in accordance with point FCL.915(e) should play the role of the student on the advanced UPRT course.
- **Tip for oversight inspectors:** the refresher training includes actual flight time!

- CONTENT OF THE REFRESHER TRAINING FOR UPRT INSTRUCTIONAL PRIVILEGES
- (c) Taking into account the factors listed in (b)(2) above, the ATO may also count the simulated training session as per point (b)(2)(iii) as refresher training without the need for further refresher training sessions, provided that the instructor demonstrates that he or she already possesses the required level of competence.
- (d) The completion of the refresher training should be entered in the logbook of the instructor and should be signed by the head of training of the ATO. FCL.920 Instructor competencies and assessment.
- **Tip for oversight inspectors:** the refresher training includes actual flight time!

UPRT ADVANCED AIRPLANE «qualified for the task»

HOW TO CHOOSE?

NORMAL OR AEROBATIC AIRPLANE?





FLIGHT INSTRUCTION (d) Flight instruction should include: (1) exercises to demonstrate: (i) the relationship between speed, attitude and AoA; (ii) the effect of g-load on aeroplane performance, including stall events at different attitudes and airspeeds; (iii) aerodynamic indications of a stall including buffeting, loss of control authority and inability to arrest a descent; (iv) the physiological effects of different g-loads between -1 and 2.5G; and (v) surprise and the startle effect; (2) training in techniques to recover from: (i) nose high at various bank angles; (ii) nose low at various bank angles; (iii) spiral dives; (iv) stall events; and (v) incipient spin; and (3) training to develop resilience and to employ strategies to mitigate the startle effect.

NORMAL CATEGORY SPIN APPROVED AIRPLANE OR FULL AEROBATIC AIRPLANE?

PROs and CONTRARIES

SIDE SEATED OR TANDEM SEATED?

For me definitely side seated, let's watch a short a video courtesy of IT.ATO.0061





Best Practices regarding CAA initial approval of Training Organizations

How did we start in 2019?

UPRT ADV - Training Approval Roadmap

- Training Organization Application
- Management of Change
- Risk assessment
- Mitigation measures
- Audit plan
- Interviews with Flight Instructors
- Evaluation of Flight Instructors, Airplane, Environment.
- Certificate revision with FCL.745 privileges

UPRT ADV – Training Organizations Oversight

- Training Organization Safety Assurance
- Management of Changes
- Risk assessment
- Mitigation measures
- Plan of audits
- Interviews with Flight Instructors
- Standardization of Flight Instructors
- Airplane continuous airworthiness

UPRT ADV – Plan of audits and audit plan

Integrated ATP Appendix 3 Aircrew Reg. EU 1178:2011

Connection with
DAY 3 Thai Airways

Integrated ATP

8a. Flight experience in actual flight shall include: (a) all the experience requirements of Subpart H;

(b) UPRT flight instruction in accordance with FCL.745.A;

(c) aeroplane UPRT exercises related to the specificities of the relevant type in accordance with FCL.725.A(c);

(d) night flying;

(e) flight solely by reference to instruments; and (f) the experience required to achieve the relevant airmanship.

FCL.725.A (c)

(c) aeroplane UPRT exercises related to the specificities of the relevant type in accordance with FCL.725.A(c);

→ (c) for single-pilot non-high-performance complex aeroplanes, single-pilot high-performance complex aeroplanes and multi-pilot aeroplanes, the training courses shall include UPRT theoretical knowledge and flight instruction related to the specificities of the relevant class or type.

Airops Reg. EU 965:2012 part ORO

DAY 3 Thai Airways

Airops reg. EU 965:2012 ORO.FC.220&230

in preparation of FFS experience



*Before conducting any
UPRT exercises ensure
that all
occupants and objects in
the FFS just like in the
airplane are securely
fastened.*



Full Flight Simulator training provides a safe scenario to practice



Scenarios include:

low speed stalls
high altitude upsets
spatial disorientation



Recovery from Upset:

PUSH (reduce AoA)
ROLL (wings level)
POWER (as needed)
STABILIZE (return to stable)
HUMAN FACTOR (stay calm)

UPSET PREVENTION AND RECOVERY TRAINING (UPRT) FOR COMPLEX MOTOR-POWERED AEROPLANES WITH A MAXIMUM OPERATIONAL PASSENGER SEATING CONFIGURATION (MOPSC) OF MORE THAN 19 (a) Upset prevention training should: (1) consist of ground training and flight training in an FSTD or an aeroplane; (2) include upset prevention elements from Table 1 for the conversion training course; and (3) include upset prevention elements in Table 1 for the recurrent training programme at least every 12 calendar months, such that all the elements are covered over a period not exceeding 3 years.

(b) Upset recovery training should: (1) consist of ground training and flight training in an FFS qualified for the training task; (2) be completed from each seat in which a pilot's duties require him/her to operate; and (3) include the recovery exercises in Table 2 for the recurrent training programme, such that all the exercises are covered over a period not exceeding 3 years.

The operator should ensure that personnel providing FSTD UPRT are competent and current to deliver the training, and understand the capabilities and limitations of the device used. (d) An FFS that is used for the training referred to in point (b)(1) should be qualified in accordance with the special evaluation requirements set out in CS-FSTD(A) (Issue 2 or later).

Challenges for pilots:

- Overcoming natural human responses
- Managing workload during high stress events

Conclusion

- Prevention, Recognition and Recovery are the critical elements
- Ongoing training including Airplanes and Full Flight Simulators keep pilots proficient

Safety nets for NAAs

- First ATO approval
- Initial Oversight (Plan implemented)
 - Instructor standardization
 - Continuous Oversight

Question time

Thank you very much for your attention and patience



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