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ADVANCED UPSET PREVENTION AND RECOVERY TRAINING (UPRT)

Semnat în original de către dl Nicolae STOICA, Director General AACR

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1. INTRODUCTION

This advisory circular provides recommendations and practical guidance, illustrating one possible, though not necessarily the only, means of compliance with the regulations, and contributes to the explanation of the requirements through additional information, interpretations and clarifications.

2. SCOPE

The content of this circular constitutes official advisory material issued by the Romanian Civil Aeronautical Authority (RCAA), intended to facilitate compliance with the provisions of civil aviation legislation related to UPRT training programmes within approved training organisations.

3. APPLICABILITY

The information in this circular is expected to be of general interest to all approved training organisations conducting operations in accordance with Regulation (EU) 1178/2011.

4. REFERENCES – REGULATORY AND PROCEDURAL ACTS

- Regulation (EU) 2018/1139 of the European Parliament and of the Council on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency;
- Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council;

Specific guidance to the UPRT elements and exercises is available in:

- the latest revision of the ICAO Doc 10011 ‘Manual on Aeroplane Upset Prevention and Recovery Training’;
- Revision 2 and 3 of the Airplane Upset Prevention and Recovery Training Aid (AUPRTA); and
- the Flight Safety Foundation publication ‘A Practical Guide for Improving Flight Path Monitoring’, November 2014.

5. PROVISIONS AND METHOD OF APPLICATION

This Circular provides guidance and brings clarifications on the application of the regulatory requirements applicable to Advanced UPRT. It also contains master verification questions, which are used by the RCAA during the evaluation of Advanced UPRT training programmes and during oversight and audit activities, in order to verify compliance with applicable regulatory requirements, training objectives and the effective implementation of the approved training programme.

ATOs are recommended to address and answer these questions prior to submitting the training programme for approval.

6. NOTES

N/A

7. FORMS

N/A

8. ANNEXES

N/A

FOR FURTHER INFORMATION, PLEASE CONTACT:

ROMANIAN CIVIL AERONAUTICAL AUTHORITY

38–40 București–Ploiești Road,
Bucharest, RO-013695
Tel.: +40 21 208 15 75, Fax: +40 21 208 15 35
e-mail: contact@caa.ro

Suggestions for amendments to this Circular may be submitted by e-mail to: contact@caa.ro or registratura@caa.ro

GENERALITIES

In order to expose pilots to different 'levels' of UPRT at various stages of their professional pilot's career, Annex I (Part-FCL) to Regulation (EU) No 1178/2011 contains the following "levels" of UPRT:

- **Basic UPRT** exercises as part of all CPL and ATP integrated training courses as well as the MPL training course (phase 1 to 3).

  Note: For basic UPRT training conducted during the CPL or ATP courses, it is not anticipated that aerobatic category aeroplanes will be required or that aircraft need to be certificated for intentional spins. Aeroplanes with a maximum bank angle limitation may not be suitable for exercises such as steep turns or recovery from spiral dive.

  Flight instructors are not required to hold any additional qualifications to conduct this training. However, ATOs are responsible for ensuring proper competence and standardisation of their instructors before assigning particular training responsibilities to them. It is therefore expected that ATOs provide additional training necessary for delivering basic UPRT to a good standard.

- An '**advanced UPRT course**' including at least 5 hours of theoretical instruction as well as at least 3 hours of dual flight instruction in an aeroplane, with the aim to enhance the student's resilience to the psychological and physiological aspects associated with upset conditions.

  Note: For the advanced UPRT course (FCL.745.A), the use of an aeroplane certificated in the aerobatic category will provide the greatest safety margin. Aeroplanes certificated in the normal or utility category may also be suitable provided the exercises used during the training take into account the capabilities of the aeroplane and are planned to remain within the training envelope for the aeroplane, as determined by the ATO.

  Only flight instructors having completed the Advanced UPRT instructor course (FCL.915(e)) should conduct the advanced UPRT course in accordance with FCL.745.A, containing exercises outside the recommended training envelope.

- **Class- or type-related UPR**T during class or type rating training to address the specificities of the relevant class or type of aeroplane.

For the full set of definitions applicable to Upset Prevention and Recovery Training (UPRT), refer to GM3 FCL.010.

PART A. ADVANCED UPRT COURSE

Ref: FCL.745.A

(a) The advanced UPRT course shall be completed at an ATO and shall comprise at least:
- *(1) 5 hours of theoretical knowledge instruction;*
- *(2) preflight briefings and postflight debriefings; 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 aeroplane qualified for the training task. Flight time that does not include advanced UPRT but serves to go to or return from the UPRT training area shall not count towards those 3 hours.*

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

The course is considered satisfactorily completed when the student pilot demonstrates the ability to effectively manage startle and surprise, recognise an upset condition, and apply the appropriate recovery techniques. This represents the minimum required training standard.

If the student pilot does not achieve the required level of competence within the minimum three hours of flight training, additional flight training shall be provided until the competency standard is met (please refer to Table 1). Instructors shall continuously assess the student pilot's performance throughout the training to ensure that the objectives of the upset recovery exercises are achieved in accordance with the criteria specified in Table 2.

! Master verification questions:

- *Does to the course correspond to minimal requirements regarding flight training and theoretical knowledge instructions?*
- *Theoretical knowledge instruction comprises at least 5 hours of teaching of students on course?*
- *What methodology is used for theoretical knowledge instruction? Person-2-person, classroom, CBT, mix?*
- *Time allocated for preflight briefing and post flight briefing is structured as standard part of the sortie/exercise?*
- *Flight instruction comprises at least 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 aeroplane qualified for the training task. Flight time that does not include advanced UPRT but serves to go to or return from the UPRT training area shall not count towards those 3 hours?*
- *Does ATO issue a course completion certificate to students? Check the sample in OM/TM.*

* Master verification questions: a structured set of standardised questions used by the RCAA during the evaluation of Advanced UPRT training programmes and during oversight and audit activities at the organisation, with the purpose of verifying compliance with applicable regulatory requirements, training objectives, and the effective implementation of the approved training programme. **ATO are recommended to address and answer these questions prior to submitting the training programme for approval.**

PART A. ADVANCED UPRT COURSE

A.1. THEORETICAL KNOWLEDGE

Ref: AMC1 FCL.745.A(c)

Theoretical knowledge instruction supports the objectives of the course and should include the following:

(1) a review of basic aerodynamics typically applicable to aeroplane upsets in transport category aeroplanes, including case studies of incidents involving potential or actual upsets.
(2) aerodynamics relevant to the aeroplane and exercises used in the practical training, including differences to aerodynamics as referred to in point (1);
(3) possible physiological and psychological effects of an upset, including surprise and startle effect;
(4) strategies to develop resilience and mitigate startle effect; and
(5) memorising the appropriate procedures and techniques for upset recovery.

! Master verification questions:

- *ATO prepared resources and literature to support theoretical instructions?*
- *Instructions encompass basic aerodynamics related to typical upsets?*
- *Case studies on aeroplane upsets are presented and explained (promotion of debate is recommended)? Check training material, presentations etc.)*
- *Aerodynamics explained regarding training aircraft used on practical training?*
- *Is training envelope and specifics of training aircraft explained? Check training materials*
- *Theoretic explanation of human brain function, physiological and psychological sensations, startle effect, surprise effect and response?*
- *Theoretical instructions explain instinctive and counter-instinctive reactions, enables adequate detailed progress monitoring and exercise repetitions?*
- *ATO developed and trains on upset recovery strategies?*
- *Does the syllabus encourage and facilitate memory items, graduated learning, emphasize critical factors of advanced UPRT and usage of Original Equipment Instructions (OEI) / Standard Operating Procedures (SOP)?*

A.2. FLIGHT INSTRUCTION

Ref: FCL.745.A / AMC1 FCL.745.A (d)

During the development of training scenarios, the ATO should ensure that all of the following is avoided:

- negative training and negative transfer of training; and
- training utilising predictive scenarios.

Flight instruction should include:
DEMONSTRATION OF UPRT EXERCISES
(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;

RECOVERY TECHNIQUES TRAINING
(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

RESILIENCE AND STARTLE EFFECT MITIGATION TRAINING
(3) training to develop resilience and to employ strategies to mitigate the startle effect.

In order to increase the applicant's resilience related to the handling of aeroplane upsets, the advanced UPRT course needs to include the development of confidence and competence in recognising and recovering safely from upsets under the presence of the real human factors. Such confidence building is specifically addressed by:

(i) successfully overcoming natural stress response (startle and surprise); and
(ii) performing critically important counter-intuitive actions.

In order to develop resilience, the instructor must expose the student pilot to the physiological effects of g-load within the range that might be experienced in an aeroplane upset on a transport category aeroplane. This range is typically from -1g up to 2,5/3g.

! Master verification questions:

- *Check that **ALL ELEMENTS** of requirement are included in the training programme.*
- *Does ATO ensures, while preparing scenarios, avoidance and prevention of negative training and negative transfer of training? (check how instructors are briefed and familiarized with concept)*
- *Does ATO utilizes avoidance of predictive scenarios? (check how are training scenarios developed)*
- *Check how demonstration of startle effect is integrated into exercises? (check approach, scenarios developed)*
- *Nose high and nose low prevention strategy and stall recovery training uses Original Equipment Manufacturer (OEM) recommendations?*
- *Exercises cover intervention, path and energy management, Original Equipment Manufacturer (OEM) recommendations and events in different configuration?*
- *Syllabus explains instinctive and counter-instinctive reactions, enables adequate detailed progress monitoring and exercise repetitions?*
- *Does the syllabus encourage and facilitate memory items, graduated learning, emphasize critical factors of advanced UPRT and usage of Standard Operating Procedures (SOP)?*

A.3. COURSE COMPLETION INDICATORS

Ref: FCL.745.A / GM1 FCL.745.A

The course is considered to have been satisfactorily completed if the trainee is able to successfully:
(1) apply strategies to mitigate psychological and physical effects;
(2) recognise upsets;
(3) apply correct recovery techniques from following upset scenarios GM1 FCL.745.A :

(i) nose high at various bank angles (Exercise 1);
(ii) nose low at various bank angles (Exercise 2);
(iii) spiral dives (Exercise 3);
(iv) stall events (Exercise 4); and
(v) incipient spin (Exercise 5).

! Master verification questions:

- *Check, for each exercise, that training objectives, training tasks and enabling objectives (OI) are included in the system of student performance and assessment system? (check tables on next pages)*
- *Are course objectives and clearly defined in the training manual for course completion?*
- *Do instructors receive any guidance on assessment of student performance?*
- *Check the course completion certificate sample.*

TABLE 1. Advanced UPRT SPECIFIC EXERCISES		
Exercise 1: Recovery from NOSE HIGH upsets at various bank angles		
(1) Training objectives	**(2) Training tasks**	**(3) Enabling objectives**
The student pilot should: (i) recognise and confirm the Nose HIGH situation (AOA, attitude, energy, trends); (ii) announce 'Nose High'; and (iii) apply the correct recovery strategy.	The student pilot should: (i) regain situation awareness; (ii) recognise and analyse AOA, pitch, bank, energy state and trends; (iii) note natural and synthetic indications for AOA, attitude, and energy; (iv) manage human factors, stress response (startle and surprise, counter-intuitive actions); (v) take manual control; (vi) identify and apply the Nose HIGH recovery strategy; (vii) correct any out-of-trim condition; (viii) manage nose-down movement; (ix) manage g-load; (x) use the effects of power to assist nose-down movement; (xi) use bank to orient the lift vector as necessary; (xii) stabilise the flight path after recovery using basic pitch/power settings;	The student pilot should: (i) decide if Stall Recovery or Nose HIGH recovery is applicable; (ii) perform control inputs deliberately; (iii) use up to full control deflections; (iv) avoid unnecessary low or high loads; (v) use secondary flight controls (trim/power) as necessary to support primary flight control inputs (i.e. nose-down movement); (vi) apply control inputs in the correct sequence (see Table 1, Nose-HIGH Recovery Strategy); (vii) apply counter-intuitive actions as necessary: (A) unloading; (B) power-reduction in Nose-HIGH attitude (depending on engine mounting); and (C) using bank to orient the lift vector downwards.

Exercise 2: Recovery from NOSE LOW upsets at various bank angles		
(1) Training objectives	**(2) Training tasks**	**(3) Enabling objectives**
The student pilot should: (i) recognise and confirm the Nose LOW situation (AOA, attitude, energy, trends); (ii) announce 'Nose Low; and (iii) apply the correct recovery strategy.	The student pilot should: (i) regain situation awareness; (ii) recognise and analyse AOA, pitch, bank, energy state and trends; (iii) note natural and synthetic indications for AOA, attitude and energy; (iv) manage human factors, stress response (startle and surprise, counter-intuitive actions); (v) take manual control; (vi) identify and apply the Nose LOW recovery strategy; (vii) correct out-of-trim condition; (viii) decide if aircraft is stalled; (ix) manage g-load; (x) identify the correct direction to roll; (xi) roll to wings level to orient the lift vector upwards; (xii) manage power and drag; and (xiii) stabilise the flight path after recovery using basic pitch/power settings.	The student pilot should: (i) perform control inputs deliberately; (ii) use up to full control deflections; (iii) avoid unnecessary low or high loads; (iv) apply control inputs in the correct sequence (see Table 2, Nose-LOW Recovery Strategy); and (v) apply counter-intuitive actions as necessary: (A) apply Stall Recovery in nose low attitude first if needed; (B) unloading instead of pulling; (C) unloading to increase roll rate; (D) avoid 'rolling-pull'; and (E) accept the priority of rolling to wings level first, before reducing power and before pulling.

Exercise 3: Recovery from Spiral Dive		
(1) Training objectives	**(2) Training tasks**	**(3) Enabling objectives**
The student pilot should: (i) recognise the spiral dive as a result of improper nose-up elevator input during a Nose LOW turning situation; and (ii) apply the Nose LOW Recovery Strategy.	The student pilot should: (i) maintain/regain situation awareness; (ii) recognise and analyse AOA, pitch, bank, energy state and trends; (iii) manage human factors, stress response (startle and surprise, counter-intuitive actions); (iv) take manual control; (v) identify and apply the Nose LOW recovery strategy; and (vi) stabilise the flight path after recovery using basic pitch/power settings.	The student pilot should: (i) perform control inputs deliberately and in the correct sequence; (ii) use up to full control deflections, if required; and (iii) apply counter-intuitive actions as necessary: (A) unloading instead of pulling; (B) unloading to increase roll rate; (C) avoid 'rolling-pull'; and (D) accepting the priority rolling to wings level first, before reducing power and before pulling.

Exercise 4: Recovery from Stall Event Recovery		
(1) Training objectives	**(2) Training tasks**	**(3) Enabling objectives**
The student pilot should: (i) recognise and confirm the situation (AOA, attitude, energy, trends); (ii) announce 'Stall'; (iii) apply the Stall Event Recovery Strategy.	The student pilot should: (i) regain situation awareness; (ii) recognise and analyse AOA, pitch, bank, energy state and trends; (iii) note natural and synthetic indications for high AOA/stall; (iv) manage human factors, stress response (startle and surprise, counter-intuitive actions); (v) recover from: (A) approach to stall (B) full stall, wings level and during turn (C) slipping stall (D) skidding stall (E) accelerated stall (F) secondary stall (vi) take manual control; (vii) identify and apply the Stall Event Recovery Template or the aircraft manufacturer Stall Recovery SOP; (viii) apply nose-down elevator input to reduce AOA; (ix) manage trim; (x) consider power reduction (if engine mounting induces a nose-up effect); (xi) accept altitude loss; (xii) identify the correct direction to roll to wings level; (xiii) manage power and drag; (xiv) manage g-load and energy to avoid secondary stall; and (xv) stabilise the flight path after recovery using basic pitch/power settings.	The student pilot should: (i) perform control inputs deliberately; (ii) use up to full control deflections; (iii) apply control inputs in the correct sequence (see Table 3, Stall Event Recovery Strategy Template); and (iv) apply counter-intuitive actions as necessary: (A) unloading to reduce AOA; (B) unloading before rolling; (C) power reduction if necessary; (D) accepting altitude loss; and (E) waiting for airspeed increase before loading again.

Exercise 5: Recovery from Incipient Spin		
(1) Training objectives	**(2) Training tasks**	**(3) Enabling objectives**
The pilot should: (i) recognise and confirm the spin (AOA, yaw, attitude, energy, roll, trends); (ii) apply the OEM Incipient Spin Recovery procedure.	The pilot should: (i) be aware of the aircraft response to all possible pitch and roll control inputs and to thrust/power changes during (incipient) spin; (ii) maintain/regain situation awareness; (iii) recognise and analyse AOA, attitude, energy, yaw, roll, trends); (iv) note natural and synthetic indications for high AOA, stall, spin; (v) manage human factors, stress response (startle and surprise, counter-intuitive actions); (vi) take manual control; (vii) identify and apply the OEM Incipient Spin Recovery Procedure; (viii) manage AOA, g-load and energy to avoid secondary stall; and (ix) stabilise the flight path after recovery using basic pitch/power settings.	The pilot should: (i) perform control inputs deliberately and in the correct sequence; (ii) use up to full control deflections as required by the procedure; (iii) apply counter-intuitive actions as necessary; (iv) avoid unreflected control inputs; and (v) allow time for control inputs to show results.

Table 2. Advanced UPRT Course Competencies for Student Assessment	
Competency	Observable behaviors (OB)
Application of knowledge	(i) Follows the recommended Nose HIGH or Nose LOW recovery strategy or the Stall Event Recovery Template / STALL RECOVERY SOP (ii) Identifies and follows operating instructions in a timely manner (iii) Correctly operates aircraft systems and equipment (iv) Applies relevant procedural knowledge
Communication	(i) Adheres to callouts (ii) Verbalises the essential steps during the recoveries
Aeroplane flight path management — automation	Disconnects autopilot and autothrust/autothrottle before initiating the recovery (to be simulated if the training aeroplane is not fitted with autothrust/autothrottle)
Aeroplane flight path management — manual control	(i) Detects deviations from the desired aircraft trajectory and takes appropriate action (ii) Controls the aircraft using appropriate attitude and power settings (iii) Contains the aircraft within the defined flight envelope
Leadership and teamwork	(i) Understands and agrees with the crew's roles and objectives (ii) Uses initiative and gives directions when required (iii) Admits mistakes and takes responsibility (iv) Communicates relevant concerns and intentions (v) Gives and receives feedback constructively (vi) Projects self-control in all situations
Problem-solving and decision-making	(i) Seeks accurate and adequate information from appropriate sources (ii) Identifies and verifies what and why things have gone wrong (iii) Perseveres in working through the event safely (iv) Sets priorities appropriately
Situational awareness (SA) and information management	(i) Identifies and assesses accurately the state of the aircraft and its systems (ii) Identifies and assesses accurately the aircraft's vertical and lateral position, and its anticipated flight path (iii) Anticipates accurately what could happen, plans and stays ahead of the situation (iv) Recognises and effectively responds to indications of reduced situation awareness.
Workload management	(i) Maintains self-control in all situations Manages and recovers from stress response (startle surprise), interruptions, distractions, variations and errors effectively (ii) Reviews, monitors and cross-checks actions conscientiously (iii) Verifies that tasks are completed to the expected outcome (iv) Offers and accepts assistance, delegates when necessary, and asks for help early (v) Manages and recovers from interruptions, distractions, variations and failures effectively

Sistem de evaluare - *the grading system may be adapted depending on the training organisation's approach.*

Competență	Nesatisfăcător	Satisfăcător	Bun	Foarte bun	Excelent
General description of each competency level.	The pilot's performance in this competency was unsatisfactory with a negative effect on safety. The pilot did not demonstrate the majority of the relevant performance indicators.	The pilot's performance in this competency was satisfactory with a slightly positive effect on safety. The pilot demonstrated most of the relevant performance indicators in this competency to at least a satisfactory standard.	The pilot's performance in this competency was effective with a significant contribution to safety. The pilot consistently demonstrated most of the relevant performance indicators in this competency to a good standard.	The pilot's performance in this competency was very effective, which significantly enhanced safety. The pilot regularly demonstrated all of the relevant performance indicators in this competency to a very good standard.	The pilot's performance in this competency was exemplary with an outstanding effect on safety. The pilot always demonstrated all of the relevant performance indicators in this competency to an exemplary standard.

PART B. INSTRUCTORS

B.1. INSTRUCTOR INITIAL Advanced UPRT TRAINING

Ref: FCL.915(e)(1) / AMC1 FCL.915(e)

In order to deliver the advanced UPRT course, an extension of instructor privileges is required.

QUALIFICATION OF INSTRUCTORS

Qualification requirements for instructing in a training course in accordance with FCL.745.A:

In addition to **FCL.915 (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;
(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; and
(iii) upon completion of the course, have been issued with a certificate of course completion by the ATO, whose Head of Training (HT) shall have entered the privileges specified in point FCL.915(e)(1) in the logbook of the applicants.

in addition…

As any instructor, and not only flight instructors (FI), may attend this type of training, EASA has introduced minimum regulatory prerequisites, including a defined level of prior instructional and flight experience, in order to ensure consistency with other instructor prerequisites laid down in Part-FCL, Subpart J. It should be emphasised that the Advanced UPRT course shall not be confused with aerobatic training. Nevertheless, the regulation recognises that previous aerobatic experience may be beneficial, as it enables instructors to better manage unexpected or incorrect recovery actions performed by student pilots following dynamic upset exercises.

For these reasons, RCAA requires that Flight Instructors FI(A) who seek to extend their privileges to conduct Advanced UPRT flight training on an aircraft demonstrate, as a prerequisite for entry into the Advanced UPRT instructor course, the successful completion of one of the following:

1. Advanced UPRT training; or
2. the holding of an aerobatic rating; or
3. other relevant equivalent experience acceptable to the competent authority (e.g. military flight experience),

in order to ensure compliance with Regulation (EU) 2018/1139, Annex IV, point 1.9.2, and GM1 FCL.915(e)(e).

RCAA clarifies that, in accordance with AMC1 FCL.915(e)(d), instructor training shall be based on a train-to-proficiency principle, whereby the content of the theoretical knowledge instruction and flight instruction is tailored to the competence of the applicant, as demonstrated during both the pre-course assessment and the continuous assessment. Nevertheless, in order to ensure effective flight training covering the training

programme for initial Advanced UPRT instructor training, a **minimum training threshold** shall apply, consisting of:

- **at least 5 hours of theoretical knowledge instruction;** and
- **at least 3 hours of flight training**.

Flight time that does not include Advanced UPRT exercises and that is used solely for transit to or from the UPRT training area shall not be credited towards the minimum required 3 hours of flight training.

! Master verification questions:

- *Are instructors qualified for the training tasks according to FCL.905.FI(e)? Check instructor list and qualifications.*
- *Does ATO ensures that instructors meet requirements to be able to instruct in advanced UPRT course?*
- *Check that OM/TM includes minima requirements for instructors.*
- *Does ATO ensures that instructor completed UPRT instructor training course?*
- *Is instructor training course completed in the same ATO or in other ATO? (check relations between ATOs)*
- *Instructor training course is completed in the same ATO, is there a standard wording included in OM for logbook entry?*
- *Instructors received course completion certificate when a UPRT instructor course was completed and issued by HT?*
- *Check that ATO has advanced UPRT recurrent training included in OM.*
- *Check that manual include pre-entry check 6 months before starting the course?*
- *Syllabus of advanced UPRT instructor course is compliant with the topics covered in UPRT advanced course?*
- *Check that content of the instructor initial course include, as a minimum, topics defined in table on next page.*
- *Special emphasis of the instructor training is defined in syllabus (student mishandling, physiological and psychological aspects, etc)? Describe ATO approach to instructor training.*
- *Check that course completion criterias are defined.*
- *Check the logbook endorsement sample.*
- *Check the course completion certificate sample.*

B1.1. TASKS, RESPONSIBILITIES & COMPETENCIES

Ref: FCL.920 / AMC1 FCL.920 / GM1 FCL.745.A

RCAA clarifies that the Advanced UPRT instructor training shall be updated to reflect the provisions of AMC1 FCL.920, including the requirement to operate strictly within the training envelope determined by the ATO, as referred to in GM1 ORA.ATO.125 point (f).

Furthermore, the training shall emphasise the application of threat and error management (TEM) and crew resource management (CRM) principles as essential elements in the prevention of undesired aircraft states.

Integrate TEM and CRM	(a) makes TEM and CRM links with technical training; (b) for aeroplanes: makes upset prevention links with technical training.	(a) TEM and CRM; (b) Causes and countermeasures against undesired aircraft states

Instructors should:
(1) ensure that the risk mitigation measures determined by the ATO are strictly adhered to;
(2) continuously assess the performance of the student to ensure that the training objectives of the upset recovery exercises are achieved;

(3) understand that all-attitude/on-aeroplane upset recovery exercises serve primarily as resilience-builder. In other words, the training serves mainly human-factor training objectives and not only flying skills training;

(4) understand the differences between all-attitude UPRT and aerobatics training;

(5) have knowledge and understanding of how:

(i) on-aeroplane and FSTD UPRT complement each other; and

(ii) to ensure that negative transfer of training from small aeroplanes to heavier transport category aeroplanes is avoided. This may be achieved by observing UPRT in an FSTD, especially in a type-specific FFS; and

(6) have knowledge and understanding of the upset prevention theoretical knowledge and flight instruction elements taught during the CPL(A) and ATPL(A) training courses to ensure continuity and consistency in delivering UPRT.

Note: Instructors should be aware that the safety and potential human factor implications of poor upset recovery instructional technique or misleading information are more significant than in any other areas of pilot training.

! Master verification questions:

- *Check that instructor training is based on competencies defined in FCL.920?*
- *Check that assessment system of students is defined?*
- *Instructor training adhere to advanced UPRT philosophy?*
- *Check that training objectives of advanced UPRT course are well defined and understandable.*

Theoretical Knowledge		Practical training exercises	
No.	Topic	**No.**	**SECTION 1 — PRE-FLIGHT PREPARATION**
1	Completion of a flight risk assessment	1.1	Correct completion of a flight risk assessment (such as weather, terrain, traffic density, student's experience level and capabilities)
2	Resilience-building strategies, managing startle and surprise	1.2	Safety briefing
3	The limitations and type-specific characteristics of the aeroplane used for training		**SECTION 2 — FLIGHT**
4	The importance of adhering to the scenarios that have been validated by the training programme developer	2.1	Selection of suitable airspace for the conduct of recovery exercises
5	Instructor techniques to induce and manage startle and surprise	2.2	Accurate execution of all of the manoeuvres required for the advanced UPRT course
6	Upset recognition and recovery strategies	2.3	Recovery from upsets that could result from the student or instructor mishandling the aeroplane including: – timely and appropriate intervention; – accelerated stall; – secondary stall; – incipient spin; – fully developed spin; and – spiral dive.
7	Disorientation		
8	Distraction		
9	Immediate recognition of student pilot errors		
10	Intervention strategies		
11	Delivery of the theoretical knowledge instruction of the advanced UPRT course		
TRAINING ON SPIN AVOIDANCE AND SPIN RECOVERY (a) While the purpose of advanced UPRT course is to expose students to psychological and physiological effects, students' responses and actions on controls may take any conceivable variations, including some which can initiate spin entry or, most importantly, can highly aggravate the upset or loss-of-control they are supposed to recover from. (b) The advanced UPRT course in accordance with point FCL.745.A is not aerobatic training and only requires training for the incipient spin as well as uncoordinated side slipped stalls which are prone to initiating spins. Full spin training or the development of spin recovery proficiency is reserved for the training course in accordance with point FCL.915(e). (c) Even though most flights will go exactly as planned without an unanticipated departure from controlled flight, the instructor is responsible for the safety of flight despite anomalies or unexpected student inputs. (d) Even in a case where an aeroplane is not certified for intentional flat or aggravated or inverted spins, it does not mean that mishandled student recovery avoids placing the aeroplane in such a situation. Some student inputs will take the aeroplane uncontrolled far beyond the normal scope of the aerobatic rating as defined in point FCL.800. Those situations might also have the potential to draw the aeroplane outside its certified flight envelope (e.g. overloads, snap-roll departures above limit speed, spin or inverted spin when not certified for, flat spins, etc.). Most importantly, those resulting situations could startle the instructor. (e) For the reasons specified in point (d), instructors should: (1) be trained to the extent of proficiency on the specific type of aircraft they use to deliver the course;		2.4	Delivery of all of the training exercises in the advanced UPRT course
		2.5	Anticipating and immediately recognising incorrect student inputs which might exceed aeroplane limitations and acting swiftly and appropriately to maintain the necessary margins of safety
		2.6	Exercises to surprise the student
		2.7	Adapt the training programme to take account of the physiological and psychological state of the student
		2.8	Ensure the safety of the operation during training by maintaining awareness of the operating environment
		2.9	Assess the competence of the student
			SECTION 3 — POST-FLIGHT
		3.1	Provide effective instructor feedback to the student and plan subsequent training details
		3.2	Avoid negative transfer of training

(3) demonstrate that they have the ability to early recognise abnormal situations, timely take action, and safely recover from all the conditions that they may encounter in the delivery of training; and (4) demonstrate their ability to recover from all spin types, not only from spins entered intentionally, but from spins of unannounced direction of autorotation, and from all potential spin variations, including: (i) normal (non-aggravated) spins; (ii) flat spins; (iii) accelerated spins; and (iv) transition spins (incorrect recovery resulting in reversal of rotation). (f) In the context of points (d) and (e), it is recommended that candidates either hold an aerobatic rating for aeroplanes or have equivalent experience.	

B.2 INSTRUCTORS

B.2.1. INSTRUCTOR CURRENCY & REFRESHER UPRT TRAINING

Ref: FCL.915(e)(2) / AMC1 FCL.915(e)(2)

ADVANCED UPRT INSTRUCTOR CURRENCY REQUIREMENTS

The privileges referred to in point FCL.915(e)(1) shall only be exercised if instructors have, during the last year, received refresher training at an ATO during which the competence required to instruct on a course in accordance with point FCL.745.A is assessed to the satisfaction of the HT.

The syllabus of this refresher training is not specified in the rule, **as the head of training of the ATO will determine the required training for each individual case**. The ATO shall conduct annual refresher training for instructors holding Advanced UPRT privileges by mandatorily including elements of the initial training referred to in point FCL.915(e)(1)(ii), individually adapted on the basis of a written assessment of the three factors defined in AMC1 FCL.915(e)(2)(b)(2) (experience, time elapsed since the last delivery of training in accordance with FCL.745.A, and performance during the simulated session).

The simulated session may constitute the full refresher training only where the written assessment conducted by the Head of Training clearly demonstrates the instructor's full competence, based on predefined objective criteria (e.g. accuracy and clarity of the briefing and debriefing, correct application of upset recovery techniques in accordance with FCL.745.A templates, safe management of flight situations—including avoidance of negative transfer and effective control of risk factors—identification and correction of errors by the simulated student, appropriate integration of human factors aspects (startle/surprise effects, TEM), quality of instructional communication, and absence of any major deficiencies in execution or instruction).
All decisions, assessments and criteria applied by the Head of Training shall be documented and retained in the instructor's file, together with the relevant logbook entries, duly confirmed by signature.

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.

(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.*

(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 (HT) of the ATO.

! Master verification questions:

- *Does ATO documentation include individual instructor refresher content?*
- *Check that currency requirements are defined in the ATO documentation?*
- *Check the system of personnel training and managing the privileges of instructors.*
- *Check the logbook endorsement sample.*

B2.2. FI-FI UPRT

Ref: FCL.915(e)(3)

FI – FI ADVANCED UPRT INSTRUCTORS

(3) Instructors holding the privileges specified in point FCL.915(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 FCL.915 (e)(2).

(4) These privileges shall be entered in the logbook of the instructors and signed by the examiner.

RCAA clarifies that the assessment of competence (AoC) may be performed by a Flight Instructor Examiner (FIE) holding the privilege to instruct on the Advanced UPRT course, and that such an assessment is limited to evaluating the instructor delivering the instructor training ("train the trainer"). The list of examiners holding these privileges will be published on the RCAA website, under the "List of Flight Examiners" section.

The application may be submitted via the RCAA portal portal@caa.ro for the purpose of conducting the Assessment of Competence.

! Master verification questions:

- *Check that FI-FI is qualified in accordance with FCL.915(e)(3)? Check logbook endorsement.*

PART C. TRAINING AIRCRAFT

Ref: ORA.ATO.135 / GM1 FCL.745.A(d) / GM1 ORA.ATO.125

SUITABLITY OF TRAINING AIRCRAFT

(a) The ATO shall use an adequate fleet of training aircraft or FSTDs appropriately equipped for the training courses provided.

When designing a training course, ATOs should select aeroplanes that are suitable for all the required training exercises. Where certain exercises require particular capabilities, then an ATO may consider the use of different aeroplanes for different exercises. Examples include basic UPRT or instrument flight training and the advanced UPRT course.

As aerobatic aircraft is not required for all exercises in the syllabus, EASA decided not to specifically mandate aerobatic aircraft to be used for the entire course. It will be up to the ATO to evaluate which aircraft will be used for which part of the training.

Aeroplanes used in Advanced UPRT course should be:
(1) appropriately certified and operated by the ATO in a manner that takes into account the effects of repeated training manoeuvres on airframe fatigue life; and
(2) provide sufficient safety margins to cater for student and instructor errors.

For the advanced UPRT course (FCL.745.A), the use of an aeroplane certificated in the aerobatic category will provide the greatest safety margin. Aeroplanes certificated in the normal or utility category may also be suitable provided the exercises used during the training take into account the capabilities of the aeroplane and are planned to remain within the training envelope for the aeroplane, as determined by the ATO.

If an ATO uses different aeroplane types for different training exercises, then it may be reasonable to have different training envelopes for each aeroplane type.

RCAA clarifies that ATOs shall explicitly describe, within their organisational manuals, the training envelope applicable to each aircraft type used for Advanced UPRT training and/or UPRT instructor training.

For aircraft with a Type Certificate Data Sheet (TCDS) issued before 2017, the traditional CS-23 design categories (Normal, Utility and Aerobatic) continue to apply in accordance with the pre-2017 CS-23 definitions, where explicitly stated in the TCDS. For aircraft certificated under the revised, performance-based CS-23 framework introduced after 2017, these categories are no longer used as regulatory certification classes, and training suitability must be determined based on the approved flight envelope, AFM/POH limitations and OEM guidance, rather than on category labels alone.

TRAINING ENVELOPE
The training envelope is the envelope within which all training exercises will be carried out. It should be specified by the ATO in terms of the range of attitudes, speed and g-loads that can be used for training, taking into account:
(1) the training environment;
(2) the capabilities of the instructors; and
(3) in the case of training in FSTDs, the limitations of the FSTD (as per GM3 FCL.010 for the FSTD training envelope); and
(4) in the case of training in aeroplanes, the capabilities and certification of the aircraft, while considering a margin of safety in order to ensure that unintentional deviations from the training envelope will not exceed aircraft limitations. Different training envelopes may be specified for different aeroplane types even within a single training course.

When determining the suitability of an aircraft for Advanced UPRT training, ATOs shall take into account the limitations of the aircraft used for the training.

! Master verification questions:

- *ATO assessed the aircraft suitability for advanced UPRT training course?*
- *ATO assessed the aircraft suitability for UPRT instructor training course? (recommended A category)*
- *Training envelope for each aircraft is defined?*
- *Familiarization with aircraft required (familiarization flight, etc)? Any additional requirements?*
- *Limitations of each aircraft are defined and presented to instructors/students?*