

## **FREQUENT ASKED QUESTIONS ON MULTI-CREW PILOT LICENSE (MPL)**

### 1. Why MPL?

By adopting new standards and recommendations for ab-initio airline pilot training in November 2006 ICAO cleared the way for a substantial modernization of this type of training. Now best industry practice can be applied by making use of modern Instructional System Design (ISD) and the latest developments of Flight Simulation Training Devices (FSTD).

The MPL training scheme concentrates on the core competencies of pilots of modern jet transport airplane emphasizing the aspect of multi-crew operation from the early stages of the training.

It prioritizes the overarching principle of Threat and Error Management (TEM) considering the fact that the vast majority of incidents and accidents in civil aviation are caused by a lack of interpersonal skills (communication, leadership and teamwork, workload management, situational awareness and structured decision making).

Beyond that the MPL considers the threats inherent to increased automation and reduced manual flying.

Although this new approach to ab-initio pilot training is NOT driven by economic aspects, the outcome based focus will result in the reduction of training time thus leading to higher efficiency. The obvious improvement of the training quality will lead to improved safety standards in cockpit operation.

Compared to current ab-initio airline pilot training the MPL scheme shifts a substantial part of training from real airplane into Flight Simulation Training Devices (FSTD) hence reducing CO2 emissions, noise and airspace congestion.

The MPL is a contribution to the ongoing effort to preserve and improve the safety standard of civil aviation cockpit operation in view of the doubling of its volume within the next two decades.

Through PANS TRG (Doc. 9868) the MPL is the best documented training system in the long history of ICAO Annex 1.

### 2. Where can the governing rules and guidance material for MPL be found?

- a) In ICAO Annex 1 Chapter 2.5 plus Appendix 3 and Attachment B as well as in ICAO Doc. 9868 "PANS TRG"
- b) In JAR-FCL Amendment 7, Section 1, Subpart K, 1.500-1.535 plus Appendix 1 to 1.520 & 1.525 (which leads to all other relevant Subparts in Section 1 and the relevant additional guidance material in Section 2). For MPL Instructors see Section 1, Subpart H, 1.310 (d) plus Appendix 1 to 1.310 (d) (which leads to further guidance material in Section 2)
- c) In the National Aviation Regulations for:
  - Australia
  - Canada

- China
- Hongkong
- Jordan (draft status)
- Philippines
- Singapore
- Thailand
- UAE

3. What is competency?

A combination of skills, knowledge and attitude required to perform a task to the prescribed standard under a certain condition.

4. What is Competency-based training and assessment?

Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specific performance standards embedded in a continuous assessment against a predefined norm.

5. What is a Competency Element?

An action that constitutes a task that has a triggering event and a terminating event that clearly defines its limits, and an observable outcome.

6. What is a Competency Unit?

A discrete function consisting of a number of competency elements

7. Will every Training Organisation be allowed to deliver MPL training?

No, it needs a special approval according to ICAO Annex 1. Chapter 1.2.8 plus Appendix 2 to Chapter 1.

8. Is the traditional integrated ATPL course still available?

Yes

9. What is the meaning of phase 1?

Single Pilot Training in aeroplanes and FSTD to consolidate basic aeronautical knowledge in the real single pilot environment including upset recovery, basic instrument flying and night flying

10. Is solo flying required?

Yes; the minimum is the requirement for PPL which is 10 hours; but most of the trial courses which have started around the world contain around 15 hours solo flight time.

11. Upset recovery: Why is it necessary and in which phase should it happen?

Upset recovery training is a new element in MPL training. It serves to increase the pilot's ability to recognize and avoid upset situations and to improve the pilot's ability to recover control, if avoidance is not successful. In addition it shall substantiate confidence of the crew member in his core flying skills.

It can be done at any time during the course, preferably to the end of phase 1 or in phase 2. The ideal Upset Recovery training module should consist of a set of aircraft and FSTD lessons to combine both, human sensorial aspects and flight characteristics of modern swept-wing aircraft.

12. How many hours airplane flying is required?

35 hrs (minimum for PPL), although most of the trial courses which have started around the world contain 80-90 hrs (including solo flight time) on single engine piston airplane and around 25 hrs FNPT I for VFR preparation and basic instrument training.

13. Can PNF hours be credited in phase 1?

No, because there is no Pilot Not Flying (PNF) in a single pilot operation (see question 9).

14. What are the requirements for a MPL holder to become Captain?

Same as today for CPL/IR or ATPL holders (1500 hrs).

15. Can a MPL holder fly single pilot commercial operation?

No; it requires additional training, see ICAO Annex 1, Chapter 2.5.2.3 and JAR-FCL Amendment # 7, JAR-FCL 1.510 (a) (2)

16. Will the MPL be globally acknowledged?

Yes, as long as the National requirements match the ICAO Annex 1 SARPS

17. Why is the cooperation between ATO and a specific airline necessary for a successful MPL training (see Appendix 1 to JAR-FCL 1.520 & 1.525, § 2)?

Because from phase 2 and onwards the training should be conducted according to the SOPs of that specific airline

18. What, if a MPL holder who has graduated on A320 needs to fly B737 (or Embraer or Canadair or other Multi Pilot transport airplane) or vice versa?

S/he needs a regular type rating and if applicable an adaption to the operation of the new airline.

19. Can previous experience be credited towards a MPL course?

No (see Appendix 1 to JAR-FCL 1.520 & 1.525, § 4)

20. Can previous experience acquired in a MPL course be credited towards a traditional integrated or modular ATPL course?

Yes, up to the decision of the responsible NAA (see Appendix 1 to JAR-FCL 1.520 & 1.525, § 4).

21. Is ATC simulation required?

Yes, in PANS TRG recommended, in JAR-FCL a requirement for phase 3 & 4. The industry is working on it. It can be substituted by alternate means of compliance individually approved by the NAA.

New ICAO Doc. 9625 Edition 3 is recommending a grace period of 4 years.

22. Does a MPL instructor need a special training?

Yes, in PANS TRG recommended, in JAR-FCL a requirement (see JAR-FCL Amendment # 7, JAR-FCL 1.310 (d) (1), (2) and (3)

23. Does an instructor delivering training in phase 2 need multi-crew operation experience?

Yes

24. How long should a MPL course be?

Around 18 month at least in the trial phase.

25. Was the pilot shortage in Asia the trigger for MPL?

NO, when the FCLT-Panel convened for its first meeting in 2002 the world's civil aviation suffered from 9/11 2001 and other severe negative economic impacts; events that suppressed demand for air transport services, and hence pilot recruiting. Thousands of pilots were jobless at that time.

MPL can not cure the shortage, but it can minimize the threats inherent to the shortage.

26. Was the MPL developed to save money and time?

The MPL initiative is NOT meant to reduce training effort and time

The MPL initiative is NOT economy driven, but it will improve efficiency by the fact that it enhances operational safety by producing better pilots.

Its development was driven by the fact that the 40-years old Standards of Annex 1 and Annex 6 had become out of step with the evolving industry practice, the developments of simulation and of modern Instructional System Design.

27. When can the EASA Part FCL (including MPL) and the related Implementing Rules be expected to be in force?

Between 2011 and 8.4.2012. Until that time JAR-FCL Amdmt # 7 is in force.

28. Why is training on small, straight wing, single engine piston (SEP) airplane beyond a certain minimum counterproductive or at least useless in the training process for future pilots on modern multi-crew jet transport airplane?

(Minutes of the discussion during the first FCLT-Panel in Montreal in December 2003)

- a) The reduction of training on SEP aeroplanes was subject to intense discussion within the Panel. Some of the participants identified basic flying skills as still being important to the development of future multi-crew pilots and, therefore, questioned the validity of reducing SEP aeroplane training. They claimed that a reduction would result in a critical degradation of basic flying skills.

Such concerns, however, ignore the fact that, in spite of the continued importance of basic flying skills, interpersonal skills, such as threat and error management (TEM), communication, leadership, teamwork, workload management, situational awareness and structured decision making are more important to the successful handling of system degradation or to the occurrence of an abnormal situation in a multi-crew environment. There is no question that future multi-crew airline pilots must have the ability to manually control a modern transport aeroplane in all manoeuvres and situations. However, since the 'stick and rudder' skills for flying a multi-crew aeroplane are completely different to those required to handle a SEP aeroplane, they can only be acquired in type specific FSTDs or in the corresponding transport aeroplane.

It is not possible to train and develop these handling skills in SEP aeroplanes.

- b) If it is agreed that, at high levels of stress, humans revert to the basics first learned for a specific task, then it stands to reason that basic training on SEP aeroplanes for the MPL is, beyond a certain level, counterproductive, if not unsafe.

Swept-wing jet transport aeroplanes have very different handling characteristics to those of SEP aeroplanes in most regimes, including a substantially greater speed range, and take-off, landing and pitch and power techniques.

The ab initio student, having thoroughly learned the basic skills needed to manually control a SEP aeroplane, very often has difficulties to re-learn and acquire the completely different basic skills needed to manually control a modern jet transport aeroplane.

The facts show that the use of SEP aeroplanes to train multi-crew airline pilots, establish basic skills which may be hazardous if reverted to, under stressful situations, whilst flying a modern transport aeroplane.

- c) The agreement that training must be done in a sufficient amount to enable it to settle in the long term memory, also argues in favour of a substantial reduction of SEP aeroplane training for the MPL.

Instead, greater emphasis has to be placed, at the very early stages of training, on the technical, procedural and interpersonal behavioural domains that are most relevant to multi-crew operations in commercial jet transport aeroplanes.

Training in SEP aeroplanes should be just sufficient for the student to:

- appreciate the feel of aerodynamic laws in the real environment;
- gain an insight into the use of aviation language, including ATC phraseology and the use of general procedures in aviation;

## 29. What is Threat and Error Management (TEM)?

TEM is the latest development in the long history of CRM as a successful safety concept; whereby CRM can now be seen to be the "toolkit" for a successful TEM.

TEM is an overarching pilot competency (consisting of skills, knowledge and attitude) which pervades the whole dynamic process of a flight, or a series of flights, from the very moment the crew meets at the check in counter until the completion of the shut down checklist at the end of a duty cycle.

For further details see ICAO Doc. 9868 “PANS TRG”, Attachment C to Chapter 3 and ICAO Doc. 9683 “The Human Factors Training Manual”, Part II, Chapter 2.

30. Who delivered or does actually deliver or plans to deliver MPL courses, how many students for which type of airplane and who was/is the cooperating airline?

CAPA, Denmark for Sterling, 2006 to 2008, 19 graduates on B737NG. No courses at the moment

Alteon, Australia, for Chinese airlines, 2006/2007, 6 graduates on B737NG. No courses at the moment

Swiss Aviation Training for Swiss, started 2007, 47 in training and 23 graduates (7 students in the IOE phase on A320 and 16 students checked out on A320)

CAFUC, China, for Chinese Airlines, started first trial course with 12 students in 7/2008 and a second trial course with 12 students 9/09. Targeted for A320.

Flight School Käufer, Germany, for Air Berlin, started 5/2008, 23 students in training for A320 and 7 successfully graduated in November 2009

Lufthansa Flight Training, for Lufthansa, started 3/2008, 10 courses per year with 20-24 students per course, > 400 students in training for A320 and B737. First graduates expected to be checked out in July 2010

Lund University, Sweden, for City Airline and Skyways, started in 2008, 15 students in training for EM 145 and F50 and 10 successfully graduated in January 2010

OAA, UK for Flybe, started a first trial course 7/2009 for Dash 8

STATA, Singapore for Tiger Airways, started the first trial course with 6 students on 1.12.09 for A320

31. What are the major challenges in MPL training?

- a) The standardization of instructors (this is the reason why JAR-FCL Amendment 7 requires every instructors who intends to deliver MPL training to successfully complete an MPL Instructor Training Course including an assessment and the maintenance of his competencies).
- b) The development of a profound Lesson Plan and Syllabus for all phases of the course
- c) The elaboration of a Performance Norm and a Grading System, which allows 1. a continuous assessment of the students performance by instructors in every single lesson and 2. a course evaluation to continuously adjust the norm.

This in turn requires the precise definition of the performance criteria categorized into Human Performance and Technical elements which the student has to show to reach certain grades during his Novice-to-Expert transformation.

d) Validation of the MPL course by evaluating the observed performance of the graduates during line operation.

32. What is the impact of the new ICAO Doc. 9625 Edition 3 “Manual of Criteria for the Qualification of Flight Simulation Training Devices”.

It gives a description of the minimum technical requirements, validation and objective and subjective testing of the devices required in the different phases of the MPL training.

33. Does MPL consider the fact that increasing numbers of incidents and accidents seem to be caused by a mismatch between the crew and advanced automation leading to undesired aircraft states?

Triggering facts for the development of MPL were a) the obvious divergence between the competencies required for a successful operation of modern, multi-crew jet transport airplane and the regulatory requirements for training and b) the lack of exercise to manually control this type of airplane in normal and abnormal regimes.

The MPL training scheme covers these items by defining detailed performance criteria for a) *Flight Management, Guidance & Automation* and b) *Manual Airplane Control*.

Compared to current ab-initio training schemes the MPL training course provides 4 times more instruction time in multi-crew environment thus producing a better prepared Copilot.

Source: Captain Dieter Harms