

## Guidelines for Approval of an Airplane Type Rating Course

### Training Program

#### 1. Type ratings.

- 1.1 To obtain approval a type rating course should, as far as possible, provide for a continuous process of ground, STD and flight training to enable the student to assimilate the knowledge and skills required to operate a specific aircraft type safely and efficiently. The student's ability to do this will be determined by the demonstration of a satisfactory level of theoretical knowledge of the aircraft determined by progressive checking of knowledge and examination, progressive assessment by the FTO or TRTO during flying training and the successful completion of a practical skill test with an authorised examiner. There should be no difference in the level of knowledge or competency required of the student, irrespective of the intended role of the student as pilot-in-command, co-pilot or flight engineer member of the flight crew.
- 1.2 A type rating course should normally be conducted as a single, full-time course of study and training. However, in the situation where the course is intended to enable a pilot to fly a further aircraft type while continuing to fly a current type, such as to enable mixed fleet flying with the same operator acceptable under JCAR-OPS 1, some elements of the theoretical knowledge course conducted by self-study may be undertaken while the student continues to fly the current type. Any such arrangement should be acceptable to CARC but combining flight training for a new type with continuing operation of another type will not normally be acceptable.

#### 2. Variants.

- 2.1 **Familiarisation training:** Where an Airplane type rating also includes variants of the same aircraft type requiring Familiarisation training, the additional Familiarisation training may be included in the theoretical knowledge training of the initial type rating course. Flight training should be conducted on a single variant within the type.

- 2.2 **Differences training:** Where an Airplane type rating also includes variants of the same aircraft type for which difference training is required, the initial training course should be directed towards a single variant. Additional training to operate other variants within the same type rating should be completed after successful completion of the initial type rating course, although elements of this differences training may be undertaken at appropriate stages of the initial course, with the agreement of CARC. Differences training to operate variants within the same type rating will be subject to approval, either as a separate course or as part of the basic type rating training course.
3. **Program of Theoretical Knowledge and Flight Training.**
- 3.1 The training programme should specify the time allocated to theoretical knowledge training, STD training and if not approved for Zero Flight Time Training in accordance with Appendix 1 to JCAR-FCL 1.261(c)(2), the Airplane. The training program will be assessed and, for approval to be given, deemed to be adequate by CARC. The initial type rating course should be programmed on the basis that the student has the minimum licensing and experience requirements for entry to the course, as required by JCAR-FCL 1.250 and 1.255. For a first type rating on a multi-pilot Airplane, the course should also provide for consolidation and type-specific training in those elements of basic MCC training relevant to the type or variant.
- 3.2 If a TRTO wishes to provide a training course that includes credit for previous experience on similar types of aircraft, such as those with common systems or operating procedures with the new type, the entry requirements to such courses should be specified by the TRTO and must define the minimum level of experience and qualification required of the flight crew member. CARC will need to agree the proposed entry level and reduced training requirements of these courses.
- 3.3 A TRTO is permitted to sub-contract elements of training to a third party training provider. In such cases the sub-contracted organisation should normally be approved to conduct such training by CARC. When the sub-contracted organisation is not approved by CARC the approving Authority of the TRTO should include the sub contracted organisation in the approval process and be satisfied that the standard of training intended to be given meets the equivalent requirements of CARC approved organisation.

The other obligations of the TRTO, such as student progress monitoring and an adequate form of quality system management can be exercised by the TRTO seeking approval, and which retains responsibility for the whole course.

## Ground Training

### 4. Syllabus.

4.1 The ground training syllabus should provide for the student to gain a thorough understanding of the operation, the function and, if appropriate, the abnormal and emergency operation of all aircraft systems. This training should also include those systems essential to the operation of the aircraft, such as 'fly by wire' flight control systems, even if the flight crew have little or no control of their normal or abnormal operation.

### 5. Theoretical Knowledge Instruction.

5.1 The theoretical knowledge instruction training should meet the general objectives of (but is not limited to):

- (a) Giving the student a thorough knowledge of the aircraft structure, power plant and systems, and their associated limitations, including mass and balance, aircraft performance and flight planning considerations;
- (b) Giving the student a knowledge of the positioning and operation of the flight deck controls and indicators for the aircraft and its systems;
- (c) Giving the student an understanding of system malfunctions, their effect on aircraft operations and interaction with other systems;
- (d) Giving the student the understanding of normal, abnormal and emergency procedures.

## 6. **Facilities and Training Aids.**

6.1 The TRTO should provide adequate facilities for classroom instruction and have available appropriately qualified and experienced instructors. Training aids should enable students to gain practical experience of the operation of systems covered by the theoretical knowledge syllabus and, in the case of multi-pilot Airplanes, enable such practical application of the knowledge to be carried out in a multi-crew environment. Facilities should be made available for student self study outside the formal training program.

## 7. **Computer Based Training (CBT).**

7.1 CBT provides a valuable source of theoretical instruction, enabling the student to progress at his own pace within specified time limits. Many such systems ensure that syllabus subjects are fully covered and progress can be denied until a satisfactory assimilation of knowledge has been demonstrated. Such systems may allow self study or distance learning, if they incorporate adequate knowledge testing procedures. When CBT is used as part of the theoretical knowledge instruction phase, the student should also have access to a suitably qualified instructor able to assist with areas of difficulty for the student.

## 8. **Self Study and Distance Learning.**

8.1 Reserved.

## 9. **Progress Tests and Final Theoretical Knowledge Examination.**

9.1 The theoretical knowledge training program should provide for progressive testing of the assimilation of the required knowledge. This testing process should also provide for retesting of syllabus items so that a thorough understanding of the required knowledge is assured. This should be achieved by intervention by a qualified instructor or, if using CBT with a self testing facility, and by further testing during the supervised consolidation phase of the ground course.



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AMC JCAR-FCL 1.261(c)(2)

- 9.2 The final theoretical knowledge examination should cover all areas of the theoretical knowledge syllabus. The final examination should be conducted as a supervised written knowledge test without reference to course material. The pass mark of 75% assumes the achievement of satisfactory levels of knowledge during the progressive phase tests of the course. The student should be advised of any areas of lack of knowledge displayed during the examination and, if necessary, given remedial instruction.
- 9.3 A successful pass of the theoretical knowledge course and final examination should be a pre- requisite for progression to the flight training phase of the type rating course.

## **Flight Training**

### **10. Synthetic Training Devices (STD).**

- 10.1 STDs provide the most effective flight training, enabling realistic practice of all abnormal and emergency procedures in a safe and easily-controlled environment for both the student and instructor. For multi-pilot Airplanes they also enable CRM and MCC concepts to be incorporated at all stages of training. Only in exceptional circumstances should CARC approve a type rating course for a multi-pilot Airplane which does not include STD training.
- 10.2 The amount of training required when using STDs will depend on the complexity of the Airplane concerned, and to some extent on the previous experience of the pilot. Except for those courses giving credit for previous experience (para 3.2) a minimum of 32 hours STD training should be programmed for a crew of a multi-pilot Airplane, of which at least 16 hours should be in a Flight Simulator operating as a crew. Flight simulator time may be reduced at the discretion of the approving Commission if other qualified STDs used during the flight training program accurately replicate the flight deck environment, operation and Airplane response. Such STDs may typically include FMC training devices using hardware and computer programs identical to those of the Airplane, or type specific FNPT IIs.

## 11. Airplane Training with Flight Simulator.

11.1 With the exception of courses approved for Zero Flight Time Training, certain training exercises normally involving take-off and landing in various configurations will need to be completed in the Airplane rather than an approved Flight Simulator. For multi-pilot Airplanes where the student pilot has more than 500 hours MPA experience in Airplanes of similar size and performance, these should include at least 4 landings of which at least one should be a full stop landing. In all other cases the student should complete at least 6 landings. With the agreement of CARC, this Airplane training, provided it does not exceed 2 hours of the flight training course, may be completed after the student pilot has completed the STD training and has successfully undertaken the type rating skill test.

11.2 For courses approved for Zero Flight Time Training.

- (a) During the specific simulator session before Line Flying Under Supervision (LIFUS), consideration should be given to varying conditions, for example:
- (1) Runway surface conditions;
  - (2) Runway length;
  - (3) Flap setting;
  - (4) Power setting;
  - (5) Crosswind and turbulence conditions;
  - (6) MTOW and MLW.

The landings should be conducted as full-stop landings. The session should be flown in normal operation.

Special attention should be given to the taxiing technique.

- (b) A training methodology should be agreed with CARC that ensures the trainee is fully competent with the exterior inspection of the Airplane before conducting such an inspection unsupervised.
- (c) The LIFUS should be performed as soon as possible after the specific simulator session.

- (d) The licence endorsement should be entered on the licence after the skill test, but before the first 4 take-offs and landings in the Airplane. At the discretion of CARC, provisional or temporary endorsement and any restriction should be entered on the license.
- (e) Where a specific arrangement exists between the Training Organisation and the JCAR-OPS 1 operator, the Operator Proficiency Check (OPC) and the ZFTT specific details should be conducted using the operators' standard operational procedures (SOPs).

## **12. Airplane without Flight Simulator.**

- 12.1 Flight training conducted solely in an Airplane without the use of STDs cannot cover the CRM and MCC aspects of MPA flight training, and for safety reasons cannot cover all emergency and abnormal aircraft operation required for the training and skill test. In such cases, the FTO or TRTO will need to satisfy CARC that adequate training in these aspects can be achieved by other means.

For training conducted solely on a multi-pilot Airplane where two pilots are trained together without the use of a flight simulator, a minimum of 8 hours flight training as PF for each pilot should normally be required. For training on a single pilot Airplane, 10 hours flight training should normally be required. It is accepted that for some relatively simple single or multi-engine aircraft without systems such as pressurisation, FMS or electronic flight deck displays, this minimum may be reduced at the discretion of CARC. In the case of multi-engine Airplane the minimum training required by JCAR-FCL 1.261(b) (2) shall be included.

- 12.2 It is widely accepted that Airplane training normally involves inherent delay in achieving an acceptable flight situation and configuration for training to be carried out in accordance with the agreed syllabus. These could include ATC or other traffic delay on the ground prior to take off, the necessity to climb to height or transit to suitable training areas and the unavoidable need to physically reposition the aircraft for subsequent or repeat manoeuvres or instrument approaches. In such cases CARC will need to ensure that the training syllabus provides adequate flexibility to enable the minimum amount of required flight training to be carried out.

## Skill Test

13. Upon completion of the flight training the pilot will be required to undergo a skill test with an authorised examiner to demonstrate adequate competency of aircraft operation for issue of the type rating. The skill test is separate from the flight training syllabus, and provision for it cannot be included in the minimum requirements or training hours of the agreed flight training programme. The skill test may be conducted in a flight simulator, the Airplane or, in exceptional circumstances, a combination of both.

## Course Completion Certificate

14. The Head of Training, or a nominated representative, is required to certify that all training has been carried out before an applicant undertakes a skill test for the type rating to be included in the pilot's licence. It is not uncommon for an approved TRTO to be unable to provide, or have direct supervision over any training that is required to be carried out on an Airplane conducted by a third party such as the operator. In such cases, and with the agreement of CARC, a TRTO Course Completion Certificate may be issued confirming completion of ground and STD flight training.

Confirmation of the completion of Airplane training should then be provided by the organisation undertaking this training, as a requirement for issue of the type rating. The period of time between any two phases of training should not exceed 60 days otherwise refresher training at the discretion of CARC will be required.