

# Civil Aviation Administration of China

**ADVISORY**

**CIRCULAR**

**No: AC-145-13R1**

**Issue Date: July-12-2012**

## **Title: Guidelines for AC-145-13R1 MRO Training Program Manual Compilation**

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### **1. Introduction**

#### 1.1. Basis and Purpose

This Advisory Circular (AC) is formulated according to the provisions of Article 145.29 *Training Program Manual (TPM) & Personnel Technical Files* and Article 145.23 *Personnel* of CCAR-145 Regulation: *Civil Aircraft Maintenance Organization Certification Regulations*, to set specific requirements and guidance for MROs on how to compile the maintenance organization Training Program Manual (TPM).

#### 1.2. Scope of application

This AC applies to all MROs having obtained or applying for approval for CCAR-145 Maintenance Organization Certificate within and outside of China.

#### 1.3. Revocation

As of the release date of this AC, AC-145-13 *Civil Aircraft Maintenance Personnel Skills Training Program Manual (TPM)* issued on March 11, 2004 is superseded.

### **2. Description**

2.1. This AC includes provisions on compilation requirements, approval and implementation of TPM, TPM samples etc.

2.2. The appendix of this AC is a sample complying with the requirements of Article 145.29 and Article 145.23 of CCAR-145 Regulations for MROs; who may refer to the example shown in the Appendix to formulate Training Program Manual (TPM) based on operational characteristics of their respective organizations.

2.3. Training Program Manual shall specify relevant training requirements for maintenance personnel, certifying staff, management, support staff engaging in maintenance work, and personnel requiring special skills (such as welding, soldering, etc.) of MRO; including:

- Civil aviation regulations;
- National or industry standards;
- Professional knowledge;
- Basic skills;
- Human factors;

- Safety Management Systems (SMS);
- Other applicable training courses to meet the requirements of their jobs.

If MRO use part-time or contingent staff, the TPM shall also cover the training requirements for these personnel.

- 2.4. Training Program Manual (TPM) shall be formulated by MRO according to the respective working scope of Maintenance Organization Certificate (MOC) and operational characteristics.
- 2.5. Applying for Civil Aircraft Maintenance Personnel License, components repair personnel license, and license items/projects approval training, shall be preceded in accordance with relevant regulations of CCAR-66 *Civil Aircraft Maintenance Personnel License Management Regulations* and CCAR-147 *Civil Aircraft Maintenance Personnel Training Organization Certification Regulations*.
- 2.6. If Maintenance System Training Program (MSTP) of an air operator meets the requirements of this AC, approved by CAAC or Regional Administration, the air operator's MRO may use the air operator's MSTP as MRO's TPM.

### **3. Forms of Training Program Manual**

- 3.1. Training Program Manual (TPM) of MRO shall be maintained separately. MRO shall specify the relationship between the Maintenance Management Manual (MMM) and the TPM which include but not limited to:
  - The relationship between the TPM and job description, qualification and authorization;
  - Training Implementation i.a.w the trainings schedules required by the MMM.
- 3.2. Training program manual of domestic MROs shall be at least in Chinese; TPM of foreign/regional MROs shall be at least in English or Chinese; and when using phrase abbreviations or acronyms, there shall be appropriate labels or explanations.
- 3.3. Training Program Manual (TPM) of MRO can be in hard copy or electronic version, with page number, chapter number and MRO logo indicated on each page.
- 3.4. Electronic versions must include scanned copies of any original page with handwritten signature (including the list of effective pages, authority approval page, etc.). TPM shall be consistent with authority approved versions to prevent changes by non-authorized personnel.
- 3.5. TPM of MRO shall contain a table of contents, list of effective pages and revision records for reference and control of revision history.
- 3.6. Training Program Manual (TPM) of MRO shall include a statement of compliance with this Advisory Circular (AC), and a cross reference table.

### **4. Approval of Training Program Manual**

- 4.1. TPM must be signed by the MRO accountable manager or its authorized staff before submitting to CAAC.

- 4.2. Domestic MROs shall submit TPM to Principal Maintenance Inspector (PMI) of CAAC authorities, incorporated and implemented after approval.
- 4.3. Foreign/regional MROs shall submit TPM to the PMI of CAAC following the guidelines in section 4.3.1 and 4.3.2, incorporated and implemented after approval.
- 4.3.1. The TPM compiled in accordance with this AC and submit to the PMI of CAAC for approval, or
- 4.3.2. The TPM approved/accepted by the local NAA and the supplemental TPM complying with this AC submits to CAAC, and the supplemental manual will be reviewed and approved by CAAC. The contents of supplemental manual shall at least include:
- Cover page, index and the list of effective pages;
  - Statement of compliance with this AC;
  - The cross reference of compliance of the TPM approved/accepted by the local NAA;
  - The differences/gaps required by this AC but not covered in the TPM approved/accepted by the local NAA;
  - Any other supplemental issues as necessary determined by CAAC.
- 4.4. For approved Training Program Manual (TPM), revision control shall be retained by the MRO to ensure that versions held by CAAC or Regional Administration shall be consistent.
- 5. Sources of Training Courses:**
- 5.1. MRO shall clearly state sources of selected training courses in Training Program Manual (TPM).
- 5.2. In addition to content obtained from MRO, training material may also be obtained from for example:
- 5.2.1 Aircraft or component manufacturers (OEM)
  - 5.2.2 Maintenance Training Organizations
  - 5.2.3 Maintenance organizations
  - 5.2.4 Air operators
  - 5.2.5 Government agencies
  - 5.2.6 Industry Associations
- 6. Training Types**
- 6.1 Training Types for MRO includes Initial Training and Recurrent Training.
- 6.2 Initial Training includes three categories: On-board Training, Technical Training and Special Skill Training.
- 6.2.1 On-board Training refers to the basic trainings developed for staff before they go to their post or transfer to another post. The range and scale of these trainings shall be based on the responsibility and requirements of the post. Training courses shall at least include Civil Aviation Regulations, National or Industry Standards, MRO duties and privileges, Maintenance Organization Manuals and relevant working

procedures, Maintenance Human Factors, the relevant computer system in MRO.

6.2.2 Technical Training refers to the training that meets the requirements of professional knowledge and skills for each job in the MRO. MRO shall evaluate each job and define responsibilities and personal practical experience requirements to effectively determine the proper level and depth of training required for the specific job.

6.2.3 Special Skills Training refers to the training developed for MRO personnel engaged in particular or complex processes. The training contents include but do not limit to: flame and/or plasma spraying process, special inspection or test techniques, special machining operation, welding process or complex assembly process.

### 6.3 Recurrent Training:

6.3.1 Recurrent Training refers to the training that must be refreshed periodically to maintain proficiency and update knowledge in areas such as:

6.3.1.1 The periodic training for maintaining the knowledge and skills of maintenance personnel continuously.

6.3.1.2 The training for the updates or changes in Civil Aviation Regulations, National or Industry Standards, Professional knowledge, MRO manual or procedures, working processes, knowledge of human factors, and/or updates to maintenance techniques, tools & equipment or repair processes;

6.3.1.3 The specific training for the issues/problems considered as necessary by MRO.

6.3.2 Training Program shall define the course and interval of the recurrent training and clarify the management methods to ensure the recurrent training could be implemented in time.

## 7.0 Training Methods:

Training Program shall determine training methods for training courses. Training methods include but are not limited to the following; Class Theory Training, Practical Operation Training, Computer Based Training (CBT), Remote Teaching, Self Study, Case Analysis and Seminars.

## 8.0 Basics content of TPM

### 8.1 General:

8.1.1 Training Program Manual shall at a minimum include but is not limited to the following ;

- Training Management Policy
- Training Management Duty
- Training Course Source
- Training Needs Analysis
- Training Course Development
- Training Instructor Management

- Training Plans and Implementation
  - Training Documents and Records
  - Training tend of course assessment
- 8.2 Training Management Policy:
- 8.2.1 Management shall develop a policy as the guidance of formulating and executing Training Program Manual (TPM) to ensure that the training program is provided with sufficient resources to develop and implement the required training ;
- 8.2.2 Training Management Policy shall be approved and signed by the accountable manager of MRO.
- 8.3 Training Management Responsibilities:
- 8.3.1 Training Program shall define the requirements for administration of the program and define applicable management duties;
- 8.3.2 When using third party sources to implement training listed in the Training Program, the maintenance organization shall be responsible for ensuring the content meets program requirements.
- 8.4 Training Needs Analysis:
- 8.4.1 Training Program shall determine the methods, ways or standard for evaluating the abilities of individuals and analyzing their training needs;
- 8.4.2 The MRO shall review the evaluation for any gap in skill between the employee's current knowledge and capability required for the job. Determine which development actions may be required in order to provide the employee with the additional capability to perform his assigned duties.
- 8.4.3 MRO shall analyze and revise the Training Program Manual (TPM) as required, any time there is a change in regulations, standards, maintenance organization procedures, organization, staff's post and working procedure.
- 8.5 Training Courses Development:
- 8.5.1 MRO shall identify the specific training requirements for different types of personnel on the basis of training demands analysis.
- 8.5.2 Training courses established to meet the training requirements shall at a minimum include:
- Title and general description of training course
  - Training objects
  - Training objectives
  - Teaching approach
  - Training assessment methods
  - Training hours
- 8.6 Training Instructors Management:
- The qualifications and management of training instructors shall be defined in Training Program. The following items shall be included when

assessing the training instructors' qualifications: knowledge and working experience in relevant field, and training capability, etc. MRO shall define the teaching areas of the qualified instructors.

#### 8.7 Training Planning and Implement:

8.7.1 Training planning and management shall be defined in Training Program to ensure the implementation of training requirements. The MRO shall establish training plans for different types of personnel in accordance with training requirements. Training plans shall be updated when necessary.

8.7.2 Course outline and teaching materials of instructor lead training shall be compiled according to course requirements and shall be approved according to maintenance organization procedures. For self-study, training the MRO shall establish procedures to ensure that self-study training meets the defined training objectives.

8.7.3 For topics in which trainees are required to receive on the job training (OJT), the MRO shall first complete any prerequisite requirements including Safety related topics before proceeding with the hands-on portion of the training class,

#### 8.8 Training Documents and Records:

8.8.1 Course outline : Training Program shall specify the control procedures of course outline which at includes the following: Course title, training hours, training method, training contents and requirements, training materials, examination or assessment methods, etc.

8.8.2 Training materials : The Training Program shall define what processes are used to ensure that the materials meet the requirements of the course outline and objectives. Teaching materials acquired through a third-party may be used only after these materials have been evaluated for proper and complete content. Training material shall be clearly identified to prevent them from using as maintenance instructions.

#### 8.8.3 Training and Attendance Records:

8.8.3.1 The management of training records shall be defined in Training Program and shall be kept in archive in electronic or hard copy. Training records shall include:

- title of course
- duration of course
- training hours (If applicable)
- location of training (If applicable)
- training method
- examination scores or assessment result (If applicable)
- course completion identification or certificate (If applicable)

- training source
- Instructor's name (If applicable)

8.8.3.2 MRO shall establish attendance records. Any trainee whose training attendance is less than 80% of total training hours may not take the course examination (if it is required), and thus his/her training is regarded as invalid.

#### 8.9 Training Validity Assessment:

8.9.1 Training validity assessment method shall be specified in Training Program to decide whether training target is achieved or not.

8.9.2 Validity assessment method shall include:

- Assessment shall be conducted immediately upon course completion to decide if training target is achieved and basic knowledge and skills have already been imparted.
- Assessment can be also conducted in practical work. MRO can determine if training target is achieved by evaluating trainees' proficiency in training program, or by collecting customer complaints, examination findings and audit findings.

#### 9.0 MRO Training Program Manual Sample

Refer to the AC Attachment.

#### 10.0 Implementation Deadline

From the date of issue of this AC, MRO may submit Training Program Manual to the Authority (domestic MRO for Regional Administration's approval, overseas MRO for CAAC HQ approval). All MROs are required to comply with this AC by July 1<sup>st</sup>, 2013.