Civil Aviation Administration of China

Consultation Circular

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Formulation of the maintenance organization training program

145-FS-013 R2 Maintenance Formulation of unit training program

1 . Basis and Purpose

This Advisory Circular is formulated in accordance with the Civil Aviation Regulations of China "Rules for the Certification of Civil Aircraft Maintenance Organizations" (CCAR-145 Part), and the purpose is to provide guidance for maintenance organizations to formulate training programs that meet the requirements of CCAR-145.

2. Scope

This Advisory Circular is applicable to domestic and foreign maintenance organizations approved in accordance with CCAR-145.

3. Cancellation

From the date of issuance of this advisory circular, AC-145-13 R1 "Guidelines for the Preparation of Training Program for Maintenance Organizations" issued on July 12, 2012 will be canceled.

4. Description

As we all know, well-trained maintenance personnel are very important to ensure the safety of civil aviation and the healthy development of the maintenance industry. Therefore, the requirements for training management are generally increased in the management of maintenance units in the world, and it has gradually become a relationship with quality, safety, engineering technology. An important management system in parallel with production planning management.

Since the promulgation of Part 145 of the Civil Aviation Regulations of China "Rules for the Certification of Civil Aircraft Maintenance Organizations", the training requirements have been clarified in the personnel qualification requirements, and the third revision (CCAR-145 R3) has added the formulation of "Maintenance Organizations". The requirements of the "Training Syllabus" to promote the maintenance organization to standardize the implementation of training management.

The purpose of this advisory circular is to provide guidance for maintenance organizations to develop training programs. This revision is mainly based on the feedback from the implementation of AC-145-13 R1 since July 1, 2013, and strengthens the guidance on training management of normative implementation, and reduces restrictions on the form of training syllabus to make it more practical.

A special note is that, in accordance with Part 66 of the Civil Aviation Regulations of China "Civil Aircraft's License Management Regulations on X.X.2022" Obtain the aircraft maintenance personnel license or The signature of a valid model is only one of the entry or post authorization conditions for certain positions. It does not mean that you can take up the job directly. You still need to complete all the training in accordance with the training syllabus of the maintenance organization, and can only take up the job after obtaining authorization.

In addition, in addition to the requirements of this document, the maintenance organization may also organize other training programs, although not included in the management scope of this document, but the principle of scheduling personnel involved in the arrangement of each production workshop to participate in the training is also applicable.

5.general

The maintenance organization shall clarify the job training needs, training management system and management specifications for self-organized training by formulating its own training program.

Generally, the training program of the maintenance organization shall be submitted to the chief maintenance supervisor for review and approval together with the application for the maintenance license, and shall be revised in time according to the actual situation or changes in the requirements of civil aviation regulations. Amendments that cannot be combined with the maintenance permit application may be submitted to the Chief Maintenance Inspector for review and approval separately.

6.training requirements

6.1 On-the-job training

and maintenance units shall clarify their specific on-the-job training requirements (refer to the minimum training requirements listed in the appendix of this document) according to the types of work performed by various types of personnel, and comply with the following specifications: (1) Various types of The training items and training objectives that personnel need to complete before taking up their posts need to be further divided according to entry requirements, majors, models (or engine, propeller, component models), task categories, etc., and should be specific and clear.

(2) If the unit's maintenance work directly uses the English version of the continuous airworthiness document issued by the manufacturer of the aircraft, engine, propeller, and components as the maintenance basis document, the corresponding personnel should also conduct necessary aviation technical English classroom training according to the following requirements:

A. The personnel who directly and independently use the English version of the document should be familiar with and accurately understand the technical content in the document through training (has obtained the aircraft maintenance issued in accordance with the CCAR-66 Department and whose English level is marked as level 3 or above can be exempted); B. Those who need to use the English version of the document under the guidance of personnel with independent use ability should be able to accurately find and basically understand the technical content in the document through training (have obtained the aircraft maintenance personnel license issued in accordance with CCAR-66 and the English level is marked as 2 Class, can be exempted);

C. Those who can only use Chinese work order cards should at least be able to master the meanings of commonly used English abbreviations and marks.

(3) Combining the training capabilities and conditions of this list, specify the training carried out by the unit itself, including the training carried out by the full-time training management department, production workshop, and other functional departments. Note: Manufacturing workshops and other functions should be limited to on-the-job practical training (OJT) and some self-study programs.

6.2 Renewal training or recurrent training

The maintenance organization shall, according to the needs of its various types of personnel to continuously maintain their post qualifications, clarify their renewal training needs, and comply with the following specifications:

(1) The relevant regulatory documents of the Civil Aviation Administration and the quality and safety management policies and management of the maintenance organization When procedures are changed, updated training should be provided to all involved personnel in a timely manner. This type of training can be in the form of self-study or classroom training depending on how much the content varies.

(2) For the personnel required by the training program of aircraft type, engine, propeller or other components, except for the case of participating in the training for the renewal of the validity of the signature of the aircraft type, the recurrent training shall be carried out according to the following specifications:

A. For those who have been on the job for 6 months or more within 2 consecutive years after taking the job, they can participate in recurrent training courses in a simplified form (eg classroom training is changed to CBT self-study, etc.). b. For those who have been on the job for less than 6 months within 2 consecutive years after taking up the post, they should participate in normal recurrent training courses.

Note: For simple training items such as propellers or other components, such as induction training is self-study, and recurrent training can still be self-study.

For those who leave their jobs for more than two consecutive years after taking up the post, they should re-take the training courses of the aircraft type, engine, propeller or other components. If you have been on the job for less than 6 months, and you have not engaged in maintenance or maintenance release work during the period of leaving the job, you should re-attend the relevant OJT training.

6.3 Job transfer training

For personnel who change jobs within the maintenance organization, the training items that need to be supplemented should be identified by comparing the job training requirements.

7. Training management

7.1 Management system

The maintenance organization shall establish a training management system with the training management department as the main body, and the support and cooperation of various functional departments and production workshops for its various types of personnel. Implementation after the decision of the Safety Management Committee.training management department shall at least undertake the following responsibilities:

(1) According to the training needs of various types of personnel, organize and formulate training syllabuses, and establish the training ability to carry out training programs by themselves;

(2) According to the job training needs specified in the training syllabus, formulate and manage Training plan for various types of personnel;

(3) According to the training plan, organize and implement the training of self-developed training projects, and coordinate the delivery of training and OJT and self-study projects organized by various functional departments and production workshops of the unit; (4) Establish Training records and files of various types of personnel, including training records sent to the outside world and self-organized training records of various functional departments and production workshops of the unit.

Each functional department and production workshop of the unit shall at least undertake the following responsibilities: (1) Cooperate with the training management department to formulate a training program, and designate personnel as OJT instructors organized by themselves;

(2) Select personnel according to the training plan to participate in the organization and implementation of the training management department or Coordinate the training delivered;

(3) Organize self-organized OJT and self-study training programs, and timely feedback the corresponding training to the training management department Record.

Note: In addition to the corresponding management responsibilities in the training management system, the planning of building training capacity depends on the relevant inputs, so it should be decided by the quality and safety management committee. 7.2 The planned management

maintenance organization shall formulate annual training plans for various types of personnel according to the training syllabus by the training management department, including external training and self-organized training programs, and take into account the following factors:

(1) Annual new recruits;

(2) ) Requirements for on-the-job personnel to obtain post qualification authorization or job transfer training; (3) Re-training requirements for on-the-job personnel on training items for aircraft types, engines, propellers or other components.

For the update training of the relevant regulatory documents of the Civil Aviation Administration and the quality and safety management policies and management procedures of the maintenance organization, the training management department shall formulate a plan according to the implementation time requirements of the relevant changes, which shall be used as a supplement to the annual training plan.

If training needs to be carried out outside the plan, the training management department may develop an ad hoc training plan, which also supplements the annual training plan.

After the specific time of any training items in the above annual training plan and its supplementary plans is determined, except that OJT can be carried out in conjunction with the normal schedule, each production workshop shall arrange the schedule of trainees according to the following principles:

(1) If the training time is all dayday

, you can arrange shifts to participate in other work outside the training time, but the training time should be included in the duty time.

7.3 Record management

The training management department of the maintenance organization shall establish all outsourced training certificates and

detailed records of the organizationEstablish personnel training files based on training records. Records of self-organized training should be kept in an immutable manner. If there are erroneous records that need to be modified, the modified and unmodified records and relevant evidence should be kept at the same time, and the certificate and signature of the person in charge of the training department should be attached.

Personnel training files shall be kept in a manner that cannot be altered except by persons authorized by the person in charge of the training department.

8. Training organized and carried out by the maintenance organization

8.1 Facilities and equipment

In addition to the necessary office facilities, the training management department of the maintenance organization shall also have the training facilities and equipment required for classroom training, skills training and self-study training organized and carried out by itself. The facilities and equipment for classroom training are mainly training classrooms. In addition to adequate space and student seating, training classrooms should be equipped with appropriate teaching equipment, such as black/white boards, projectors, CBT equipment, and other auxiliary teaching equipment (such as cutaway models).

The facilities and equipment for skills training are mainly skills training workshops. In addition to having sufficient space and operating desks, the training workshop should also be equipped with appropriate tools, equipment, equipment and safety protection facilities, and the area division, equipment operation specifications (if necessary) and safety precautions should be posted in an obvious way. When using technical documents, tools and equipment with identification requirements in skills training, it should be marked as "for training use only".

The facilities and equipment for self-study training are mainly self-study places. Self-study places can be study rooms or classrooms equipped with suitable equipment (such as browsing files, audio and video courseware, CBT, etc.). Note: If the self-study training is organized by the functional department, it can directly use its office and equipment; if it is organized by the production workshop, it can be a self-study room equipped with suitable equipment or a borrowed conference room.

8.2 Training instructors

For the classroom training and skill training organized and carried out by themselves, the training management department of the maintenance organization shall allocate enough full-time or part-time instructors according to the training scale. Full-time instructors refer to the instructors who are affiliated with and have training tasks as the main responsibility; Training tasks of the management department, but subordinate to other functional departments or personnel on the production floor.

Regardless of full-time or part-time instructors, the training management department shall clarify the qualifications of instructors of each training program, establish initial training and continuous training specifications, and hire or authorize instructors who meet the conditions and pass the training. Relevant engagements or authorizations should be re-evaluated on a minimum two-year cycle.

For OJT, each functional department and production workshop should clarify the qualifications of the corresponding OJT project teachers and designate personnel. The OJT instructors designated by each functional department and production workshop shall be trained through the teaching method organized by the training management department and the OJT record specification.

The training management department of the maintenance organization shall uniformly establish the files of all the above-mentioned trainers. 8.3 Training Courseware

For classroom training and self-study training programs organized by the training management department, corresponding training courseware shall be prepared. The training courseware can be in the form of teaching materials, slideshows or CBT systems, but any method should be able to systematically display the knowledge points required by the training syllabus and correspond to the requirements of the hours of study.

Note: CBT system refers to the auxiliary training system that can complete the training of each knowledge point of the training project through the realization of human-machine information exchange courseware, combined with dynamic images, sound or video, and can record the training time, track the training progress, and analyze the mastery degree. The application of the CBT system can simplify classroom training to self-study training for simple training items, but for complex training items (such as model and engine model training), it can only help teachers in targeted classroom guidance, and cannot completely replace teacher guidance.

For the self-study training organized by various functional departments and production workshops, it should generally be limited to simple training that can be completed directly by referring to the technical documents of the model, engine, propeller or other components, without the need to formulate training courseware.

For the skills training organized by the training management department and the formulation of the OJT 2022-07-2022, there is no need to develop training courseware, but the specific implementation should be clearly defined. The list of items. 8.4 Implementation Specifications

8.4.1 Training organized

by the training management department Classroom training and skill training organized by the training management department should be standardized and implemented through clear and specific teaching arrangements.teaching arrangement should contain at least the following clear information: (1) Designated instructors and training classrooms (including CBT classrooms);

(2) Training time for specific modules in sequence. If CBT system training is used, the completion period and tutoring time should be clearly defined;

(3) Exam planning time (if any).

For the teaching arrangement of classroom training, each class hour is calculated as 45-60 minutes, and it should meet the following restrictions:

(1) Trainees should not exceed 8 hours per day and 6 days per week; (2) Teachers should not teach more than 8 hours per day 8 class hours, no more than 40 class hours per week. There is no need to specify specific teaching arrangements for the self-study training organized by the training management department, but the time limit for completion should be clearly defined.

During the training process, the training management department shall truthfully record the attendance of the trainees and submit it to the quality management department before the training examination.

The quality management department shall evaluate whether the trainees meet the conditions for taking the exam or issuing the training certificate based on the attendance of the trainees.

During the training process, the quality department should also randomly check the attendance in the training process, record the problems found immediately, require timely corrections, and provide corresponding suggestions to the quality manager.

8.4.2 Training organized by production workshops and functional departments

For OJT projects organized by production workshops, the OJT projects should be combined with the normal schedule, and the designated OJT instructors should carry out one by one according to the list of internship projects, so that the trainees can independently follow the instructions under the supervision of the OJT instructors. Specifications and standards to complete the work of the corresponding project.

Note: The format for recording the list of OJT internship items can be formulated uniformly by the training management department, or by the production workshop.

During the OJT process, for each item in the list of internship items, the OJT instructor shall record the completion time, the aircraft, engine, propeller or other components involved and the specific work information. The workshop corresponding supervisor signs and confirms and submits it to the training management department.

For the self-study training organized by various functional departments and production workshops, the self-study training records can be filled in by the trainees or automatically recorded by the CBT system, including the course name, training materials and training duration, and signed and confirmed by the corresponding supervisor of the department and workshop Submit to Training Management.

Note: The format of self-study training records should be uniformly formulated by the training management department. 8.5 Training assessment

The assessment methods and standards for the training organized by the maintenance organization can be determined by the maintenance organization, including taking examinations or determined according to attendance and teacher evaluation. Classroom training), the training management department shall organize the examination according to the following standards:

(1) Standard multiple-choice questions from 4 to 1 or 3 to 1;

(2) No less than 1 question for each knowledge point.

Exam results are generally calculated on a percentile scale. For example, 4-to-1 multiple-choice questions should be passed with a correct rate of 70%; if 3-to-1 multiple-choice questions are used, a correct rate of 75% should be passed. In order to organize the above-mentioned examinations, the training management department shall organize full-time teachers to establish the examination question bank, which shall meet the minimum standard of at least 2 questions per class hour (inadequate rounding). Note: The exam can be computer-based and written. The computer-based test should meet the average test time of no more than 90 seconds per question, and meet the requirement that the answer sheet cannot be changed after submitting the answer sheet; the written test can also be given the total time according to the same standard.

9. Compilation of training syllabus to standardize

the training syllabus of the maintenance unit should be prepared according to the actual situation of the unit, covering the requirements of this document, and prepared according to the following three parts:

(1) Job training requirements: according to the entry conditions, majors, The actual division of aircraft type (or engine, propeller, component model), task category, etc. is compiled. (2) Training management system: It is necessary to specify the organizational structure and corresponding responsibilities of the training management department.

(3) Self-organized training management: write one by one according to the specific induction training and recurrent training projects, and clarify the knowledge points, skills training, OJT projects and self-study training hours required to achieve the training objectives, and list the specific corresponding courseware.

Note: For the update training of the relevant regulatory documents of the Civil Aviation Administration and the quality and safety management policies and management procedures of the maintenance organization, due to the nature of the situation, it is not necessary to clarify the above information in the training program.

The format of the training program is not limited, but it should be a formal controlled document of the maintenance organization and be signed and approved by the responsible manager of the maintenance organization.

Note: The training syllabus of domestic maintenance organizations should at least use Chinese, and the training syllabus of foreign maintenance organizations should at least use English.

10. Integration with CCAR-147 Maintenance Training Organization

When the training management department of the maintenance organization is also approved by the CCAR-147 model or engine training program, it can be replaced by the training quality management department established in accordance with the requirements of CCAR-147 The work of the quality management department of the maintenance organization in paragraph 8.4.1 of this document, and the corresponding training items organized and carried out by themselves only need to be indicated in the training syllabus, and there is no need to repeat the preparation.

Note: If the above-mentioned CCAR-145 maintenance organization and CCAR-147 maintenance training organization are integrated, the training outline still needs to be prepared according to the requirements of this document. Only the specific training items need not be repeated because they have been managed in accordance with the requirements of CCAR-147.

: Minimum Job Training Requirements for Maintenance Organization

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| --- | --- | --- | --- | --- | --- |
| Training | Training | Objectives | Training | Job | Attachment |
| Personnel | | | | | |
| Project | Format Training | to understand the specific aircraft model, including basic ground handling work, required tools and equipment and standard operating procedures (SOP-GH). | Classroom training | The  similar CCAR-145 units | entry requirements for  If you have participated in the training of the same model aircraft, you can be exempted. |
| Service/procedures /sheets | Familiar with the work rules, procedures, work sheets and safety precautions related to the aircraft service work of the unit. | Classroom training  OJT | The unit | OJT should complete classroom training before OJT;should include training on the use of electronic management system equipment at work. |
| Human Factors Knowledge | Understand the basics, effects and considerations of human factors in actual ground service work. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| line maintenance personnel | Basic knowledge of aviation majors for | Understand basic flight principles, general structure of aircraft and basic knowledge of systems. | Classroom training | The  similar CCAR-145 aviation majors | entry requirements for  Exempted if you hold a maintenance personnel license. |
| Basic maintenance skills | Proficient in the use of tools and equipment commonly used in line maintenance, personal safety protection and emergency measures. | Skill training | The  same type CCAR-145 unit | may be exempted if it holds a maintenance personnel license. |
| Model training | Learn about specific aircraft models, including structure and system composition, manual system, inspection and troubleshooting procedures. | Classroom training | The  similar CCAR-145 manufacturers | can be divided by specialty.  If you hold a maintenance personnel license and the corresponding model signature can be exempted. |
| system/procedure/single card | Familiar with the work system, procedure, work order card and safety precautions related to the unit's line maintenance. | Classroom training  OJT | The unit | OJT should complete classroom training before OJT;should include training on the use of electronic management system equipment at work. |

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| 2022-0-11 | training | program | formulation | organization | FS |
|  | R2 | MaintenancePrecautions. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| Aircraft regular inspection system maintenance personnel | Basic knowledge of aviation majors | Understand basic flight principles, general aircraft structure and basic knowledge of systems | Classroom training | The  similar CCAR-145 aviation majors | entry requirements for  Exempted if you hold a maintenance personnel license. |
| Basic maintenance skills | Proficient in the use of tools and equipment commonly used in the maintenance of airframe structures, personal safety protection and emergency measures. | Skill training | The  same type CCAR-145 unit | may be exempted if it holds a maintenance personnel license. |
| Model system maintenance | Understand the structure and working principle of the model system, and the relevant manual system. Master the basics of maintenance techniques. Those involved in electrical systems should also master the basic knowledge of electrical engineering; those involved in electronic systems should also master the knowledge of analog and digital electronic technology. | Classroom training  Skills training | The  similar CCAR-145 manufacturers | can be divided according to specific systems (such as hydraulics, electronics, landing gear, etc.), but each system involved should complete this training. |
| work/procedures/sheets | rules, procedures, worksheets and safety precautions related to aircraft system maintenance of the unit. | Classroom training  OJT | The unit | OJT should complete classroom training before OJT;should include training on the use of electronic management system equipment at work. |
| Human factor knowledge | Understand the basic knowledge, influence and precautions of maintenance human factors. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| Aircraft regular inspection engine maintenance personnel | Basic knowledge of aviation majors | Understand basic flight principles, basic knowledge of aircraft general structure and systems | Classroom training | The  similar CCAR-145 aviation majors | entry requirements for  Exempted if you hold a maintenance personnel license. |
| Basic maintenance skills | Proficiency in the use of tools and equipment commonly used in the maintenance of aircraft engines and their accessories. | Training for | the  similar CCAR-145 units in | may be exempted if they hold a maintenance personnel license. |

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| --- | --- | --- | --- | --- | --- |
| Job | Training Project | Training Objectives | Training Form | Training Organization | Remarks |
|  |  | Methods, Personal Safety Protection and Emergency Handling Measures. |  |  |  |
| Model engine maintenance | Understand the composition and working principle of the model engine and its accessories, and the relevant manual system. Master the basics of maintenance techniques. Those involved in electrical systems should also master the basic knowledge of electrical engineering; those involved in electronic systems should also master the knowledge of analog and digital electronic technology. | Classroom training  skills training | The  same type CCAR-145 unit manufacturers in | can be divided by engine model (for example, different engine models are selected for this model). |
| system/procedure/sheet. | Familiar with the work system, procedure, worksheet and safety precautions related to aircraft engine maintenance of the unit. | Classroom training  OJT | The unit | OJT should complete classroom training before OJT;should include training on the use of electronic management system equipment at work. |
| Human factor knowledge | Understand the basic knowledge, influence and precautions of maintenance human factors. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| Aircraft regular inspection and structure maintenance personnel | Basic knowledge of aviation majors | Understand basic flight principles, basic knowledge of aircraft general structure and systems | Classroom training | The  similar CCAR-145 aviation majors | entry requirements for  Exempted if you hold a maintenance personnel license. |
| Basic maintenance skills | Proficient in the use of tools and equipment commonly used in the maintenance of airframe structures, personal safety protection and emergency measures. | Skill training | this unit  same type CCAR-145 unit in |  |
| : Repair | Understand the basic components and stress characteristics of the airframe structure of the aircraft, as well as the relevant manual system, and master various structural inspection methods, damage types and corresponding repair techniques. | Classroom training  skills training | the  similar CCAR-145 manufacturer | this unit is not trained by this unit, it should be confirmed by evaluation. |
| Work system/procedure/single card | related to the aircraft body structure inspection and repair of | classroom training  OJT | The unit | OJT complete the classroom trainingbefore should |

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| --- | --- | --- | --- | --- | --- |
| work | training project | training objectives | Training form | training organization | notes |
|  |  | order card and safety precautions. |  |  | Training in the use of system equipment. |
| Human factor knowledge | Understand the basic knowledge, influence and precautions of maintenance human factors. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| Aircraft maintenance and release personnel | type training | was signed by the aircraft type. | Classroom training | CCAR-147 maintenance training institutions | job requirements should be a maintenance personnel license, and have the corresponding aircraft type line maintenance or regular inspection maintenance experience.  If the corresponding model has been signed, it can be exempted. |
| Aircraft maintenance release training | Familiar with the work system, procedures, standards and coordination and communication specifications related to the aircraft maintenance release of the unit. | Classroom training  OJT | The unit | OJT should complete classroom training before OJT;should include training on the use of electronic management system equipment at work. |
| Professional policy and regulation training | Understand the relevant regulations and policy requirements of civil aviation maintenance, and be familiar with the unit's quality and safety management policies and corresponding manuals and management procedures requirements. | Classroom training | The unit's  professional training institution (limited to relevant civil aviation regulations and policies), | if it is not the unit's training, should be evaluated and confirmed. |
| Power Unit Repairer | | | | | |
| Workshop Repairer | Engine Fundamentals Training | UnderstandAPUthe basic working principles, structures and systems of an | Classroom training | The  similar CCAR-145 aviation professional colleges and universities | entry requirements for  Exempted if you hold a maintenance personnel license. |
| Basic maintenance skills | Proficient in the use of tools and equipment commonly used in engine maintenance, personal safety protection and emergency measures. | Skills training | this  Similar CCAR-145 units in | can be divided into specific units for disassembly, assembly, inspection and repair, etc. |
| Engine (or APU) model training | Learn about APUthe composition and working principle of the | Classroom | The  same CCAR-145 manufacturer |  |
| work system/procedure/list | familiar with the unit's aircraft engine maintenance | classroom training | The unit | OJT should complete the classroom training beforeOJT |

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| work | organization | training | training | 's | remark |
|  | card | system, procedure, work order card and safety precautions related to the | OJT |  | should include training in the use of electronic management system equipment on the job. |
| Human factor knowledge | Understand the basic knowledge, influence and precautions of maintenance human factors. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| Engine (or APU) maintenance release personnel | Engine (or APU) model maintenance release training | Familiar with the unit's engine (orAPU) model maintenance release related work systems, procedures, standards and coordination and communication specifications. | Classroom training  OJT | unit | should be to obtain a maintenance personnel license and have APUworkshop maintenance experience OJT Classroom training should be completed prior toOJT should include training on the use of electronic management system equipment at work. |
| Professional policy and regulation training | Understand the relevant regulations and policy requirements of civil aviation maintenance, and be familiar with the unit's quality and safety management policies and corresponding manuals and management procedures requirements. | Classroom training | The unit's  professional training institution (limited to relevant civil aviation regulations and policies), | if it is not the unit's training, should be evaluated and confirmed. |
| Propeller Maintenance Personnel | | | | | |
| Workshop Maintenance Personnel | Propeller Basics Training | Understand the basic working principles, structures and systems of propellers. | Classroom training | The  similar CCAR-145 aviation professional colleges and universities | entry requirements for  Exempted if you hold a maintenance personnel license. |
| Basic maintenance skills | Proficient in the use of tools and equipment commonly used in propeller maintenance, personal safety protection and emergency measures. | Skills training | this  Similar CCAR-145 units in | can be divided into specific units for disassembly, assembly, inspection and repair, etc. |
| Propeller model training | Understand the structure and working principle of the propeller model and its accessories, and the related manual system. | Classroom training or self-study | The  similar CCAR-145 manufacturer | For those who already have experience in maintenance of similar propeller models, they can self-study when adding models. |
| Work system/procedure/single | related to the propeller maintenance of the unit. The | training | unit | OJT be completed beforeshould |

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| --- | --- | --- | --- | --- | --- |
| classroom | training | Training Objectives | Training Form | Training Institution | Remarks |
|  | Card | Work system, procedure, work order card and safety precautions. | OJT |  | should include training in the use of electronic management system equipment on the job. |
| Human factor knowledge | Understand the basic knowledge, influence and precautions of maintenance human factors. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| Propeller maintenance and release personnel are | . | familiar with the work system, procedures, standards and coordination and communication specifications related to the propeller type maintenance and release of the unit | Classroom training  OJT | unit | should be to obtain a maintenance personnel license and have workshop maintenance experience for the corresponding propeller model.  OJT Classroom training should be completed prior toOJT should include training on the use of electronic management system equipment at work. |
| Professional policy and regulation training | Understand the relevant regulations and policy requirements of civil aviation maintenance, and be familiar with the unit's quality and safety management policies and corresponding manuals and management procedures requirements. | Classroom training | The unit's  professional training institution (limited to relevant civil aviation regulations and policies), | if it is not the unit's training, should be evaluated and confirmed. |
| Component maintenance personnel | | | | | |
| Workshop maintenance personnel | component knowledge training | Understand the basic working principle, composition and related manual system of components. | Classroom training | The  similar CCAR-145 manufacturers | entry requirements for |
| Basic maintenance skills | Proficient in the use of tools and equipment commonly used in component maintenance, personal safety protection and emergency measures. | Skills training | this  Similar CCAR-145 units in | can be divided into specific units for disassembly, assembly, inspection and repair, etc. |
| Component project training | to understand the composition and working principle of specific components, and related manual systems. | Classroom training or self-study | this unit  similar CCAR-145 manufacturer | can self-study when adding models for those who already have experience in repairing similar components. |
| work system/procedure/list | familiar with the classroom training related to the maintenance of the unit's components. The | be | unit | OJT beforecompleted |

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| --- | --- | --- | --- | --- | --- |
| classroom | trainingProject | training objectives | training forms, | training institutions, | note |
|  | cards | , system, procedures, work order cards and safety precautions. | OJT |  | should include training in the use of electronic management system equipment on the job. |
| Human factor knowledge | Understand the basic knowledge, influence and precautions of maintenance human factors. | Classroom training | the  same CCAR-145 professional training institution | not trained by the unit, it should be confirmed by evaluation. |
| 部件维修放行人员 | 部件维修放行培训 | 熟知本单位部件维修放行有关的工作制度、程序、标准和协调沟通规范。 | 课堂培训  OJT | 本单位 | 岗位条件应当为取得维修人员执照，并具备对应部件车间维修经验。  OJT 前应当完成课堂培训；OJT 应当包括工作中使用电子管理系统设备使用的培训。 |
| 专业政策法规培训 | 了解民航维修有关规章及政策要求，熟悉本单位质量安全管理政策及对应手册、管理程序要求。 | 课堂培训 | 本单位  专业培训机构（限有关民航规章及政策） | 如非本单位培训，应当经评估确认。 |
| 专项工作人员 | | | | | |
| 发动机在翼试车人员 | 在翼试车培训 | 熟练掌握发动机在翼试车程序、指挥信号、安全防护和应急处理措施。 | 课堂 | 本单位  同类 CCAR-145 单位制造厂家 | 岗位条件应当为取得维修人员执照，获得对应机型签署，并具备对应机型航线维修或者定检发动机维修经验。 |
| 工作制度/程序/单卡 | 熟知本单位发动机在翼试车有关的工作制度、程序、工作单卡和安全注意事项。 | 课堂培训  OJT | 本单位 | OJT 前应当完成课堂培训；OJT 应当包括工作中使用电子管理系统设备使用的培训。 |
| 发动机台架试车人员 | 台架试车培训 | 熟练掌握发动机台架试车程序、指挥信号、安全防护和应急处理措施。 | 课堂  OJT | 本单位  同类 CCAR-145 单位制造厂家 | 岗位条件应当为取得维修人员执照，获得对应机型签署，并具备对应机型航线维修或者定检 |

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AC-145-FS-013 R2 维修单位培训大纲的制定

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 工作岗位 | 培训项目 | 培训目标 | 培训形式 | 培训机构 | 备注 |
|  |  |  |  |  | 发动机维修经验。 |
| 工作制度/程序/单卡 | 熟知本单位发动机台架试车有关的工作制度、程序、工作单卡和安全注意事项。 | 课堂培训  OJT | 本单位 | OJT 前应当完成课堂培训；OJT 应当包括工作中使用电子管理系统设备使用的培训。 |
| 发动机孔探人员 | 资格培训 | 获取民航维修协会认证的发动机孔探人员培训合格证书 | 按协会标准规定 | 民航维修协会认证培训机构 | 岗位条件参见民航维修协会相关标准。 |
| 工作制度/程序/单卡 | 熟知本单位发动机孔探有关的工作制度、程序、工作单卡和安全注意事项。 | 课堂培训  OJT | 本单位 | OJT 前应当完成课堂培训；OJT 应当包括工作中使用电子管理系统设备使用的培训。 |
| 无损检测人员 | 资格培训 | 获取民航维修协会认证的无损检测人员资格证书 | 按协会标准 | 民航维修协会认证培训机构 | 岗位条件参见民航维修协会相关标准。  应当按具体的无损检测类别。 |
| 工作制度/程序/单卡 | 熟知本单位无损检测有关的工作制度、程序、工作单卡和安全注意事项。 | 课堂培训  OJT | 本单位 | OJT 前应当完成课堂培训；OJT 应当包括工作中使用电子管理系统设备使用的培训。 |
| 特种作业人员 | 资格培训 | 获取国家安全生产监督管理部门相应资格证书（如有）或者本单位培训合格证明 | 按国家标准 | 按国家安全生产监督管理部门规定（如有）本单位（如无） | 岗位条件参见国家安全生产监督管理部门相关标准，如无可由维修单位自定。  按具体特种作业类别，包括但不限于焊接、表面处理、热处理、 复合材料修理等。 |
| 工作制度/程序/单卡 | 熟知本单位特种作业有关的工作制度、程序、工作单卡和安全注意事项。 | 课堂培训  OJT | 本单位 | OJT 前应当完成课堂培训；OJT 应当包括工作中使用电子管理系统设备使用的培训。 |
| 维修检验人员 | 工作制度/程序/单卡 | 熟知本单位维修过程中维修任务检验有关的工作制度、程序 | 课堂培训 | 本单位 | 岗位条件应当为具备相应的维修放行经验。 |