ATA Spec 104

104

Guidelines for Aircraft Maintenance Training

Revision (2017.1)

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Chapter 1. Introduction

1-1. General

Maintenance and maintenance training requirements have become increasingly complex as new technology aircraft and support equipment have emerged. At the same time, training methodologies and technology have also evolved.

Specification 104 now provides guidelines for the development of training programs for the various job function/skill mixes resident in air carrier maintenance organizations. It is intended to provide communication and a common understanding among the various interested parties concerning aviation maintenance training and its related training materials.

Interested parties include, but are not limited to, Original Equipment Manufacturers (OEM), operators, Maintenance Repair Organizations (MRO), airport ground operators, third-party maintenance training providers, and regulatory approved schools.

1-2. Training Program Components

The goal of a well-designed training program/course is to provide measurable assurance that employees gain the proper knowledge, skills, and abilities (KSA's) for efficient and safe work. Organizations can have a variety of programs that vary in their complexity. In this specification, the term organization refers to an air carrier, maintenance repair organization, or other facilities that support aviation manufacturing, maintenance, engineering, or aviation maintenance schools.

An effective training program should contain the following components:

- Training Needs Analysis (TNA)
- Training Design, Development, Implementation, and Evaluation Process
- Training Completion Documentation
- Training Program Quality Assurance Process

Each component will be addressed within this specification, providing guidelines and suggestions for creating a unique and effective training program for the organization.

1-3. Instructional System Design

The ADDIE (Analyze, Design, Develop, Implement and Evaluate) model is one of numerous instructional system design (ISD) methodologies and will be used as the foundation for the layout of this specification. It is a formal systematic process for the analysis, design, development, implementation, and evaluation of a training program/course.

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Other models may be used depending on the course developer's experience and the organization's needs. However, all models have a form of these five steps within them, but maybe named differently. See Figure 1 for a flowchart of the ADDIE program.

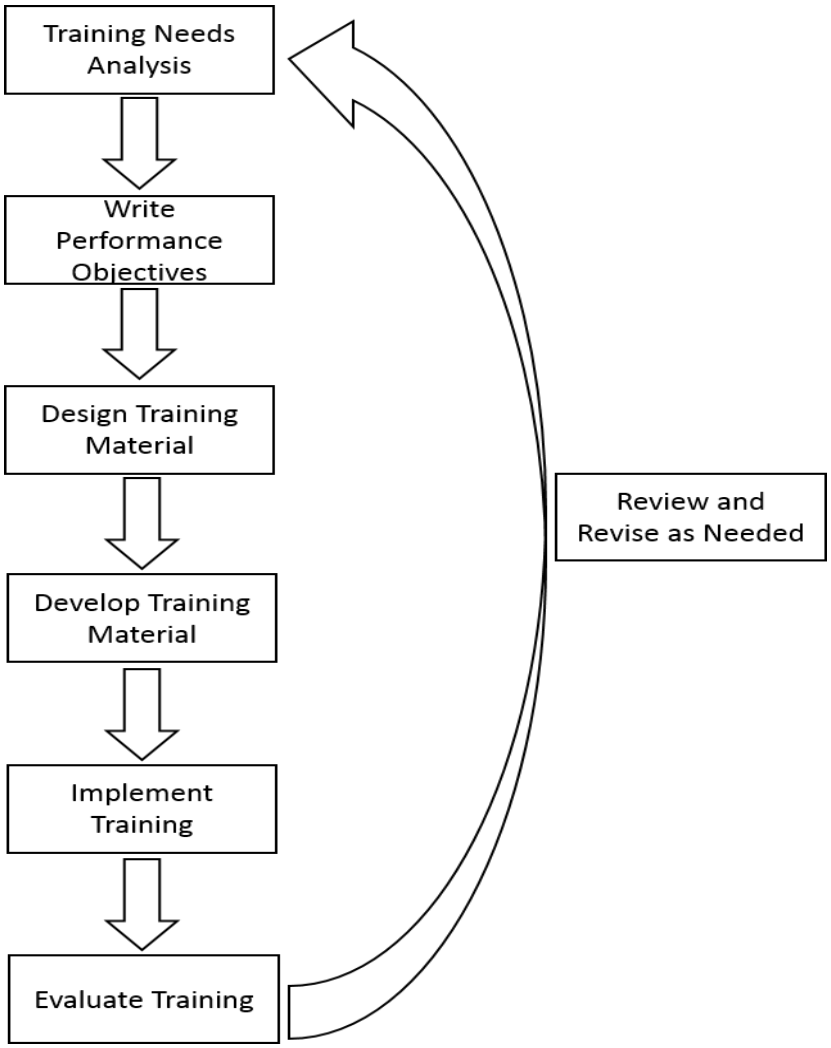

Figure 1: Task-Oriented Course Development Flowchart

A systems approach is an organized method that begins by analyzing the needs of the employee and their requirements to perform the job in the operational environment. Refer to Chapter 2 for a detailed discussion on training needs analysis.

These needs are turned into objectives and serve as design specifications for the development of a training program/course. Refer to Chapter 3 for a detailed discussion on course design and development.

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Aviation maintenance organizations are required by regulations to document training programs as well as the employee's individual training. For example, air carriers can refer to 14 CFR §121.375 and 135.433 for specific requirements. Refer to Chapter 4 for a detailed discussion on training completion documentation.

Finally, it is important to determine the effectiveness of the training through the stages of the life of a course using various methods of evaluation. Organizations should have a process for evaluation and continuous improvement of its training programs. Refer to Chapter 5 for a detailed discussion on evaluation and training program quality assurance.

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Chapter 2. Training Needs Analysis

The systems approach to instructional design begins by identifying the needs of the organization and the employees' requirements to perform the job in the operational environment. These needs are classified and then defined as measurable goals that determine the employee's Knowledge, Skills, and Abilities (KSA). These needs are turned into objectives and serve as design specifications for the development of a training program/course.

The analysis phase is sometimes omitted due to the need or perceived need for immediate training. However, if the course design is rushed without sufficient analysis the training project may be inefficient, inaccurate, incomplete, or completely unnecessary. It is understood that an organization might not have the time to complete a lengthy analysis, but some analysis should be done to make sure the training program will be a success. Past experience, manufacturer's guidelines, and other data have an impact of the appropriate level of initial needs analysis.

There are many resources available to assist the developer in completing an analysis, see Appendix A for a short list. The terms "analysis" and "assessment" are often confused, however for clarity in this document "analysis" will be used to mean the gathering of information to determine overall training needs, while "assessment" will refer to the evaluation (i.e. test) of an individual's KSAs. The organization should have defined processes for objectively identifying its overall training requirements and assessing each individual's and/or team's capabilities and training needs.

An organization should conduct two different training needs analyses (TNA) to assist in determining training requirements. The first is an analysis of the organization as a whole to determine its overall training requirements. The second TNA is aimed at individual workers to determine specific training requirements. Each organization's TNA process will be different and based on the organization's operation, size, employee hiring, job assignment. Training practices should be documented.

2-1. Organization Training Needs Analysis

The organization's TNA process should define the policies and procedures the organization will use to assess its overall employee training needs, the outcome of which constitutes the basis for developing the training program. Based on the outcome of its TNA, the organization should determine the type and extent of training needed for the company and for individual employees, and should develop and/or revise its training courses accordingly.

The organization should have a process to analyze each job function, tasks for each job position, and identify the knowledge and skill sets required to successfully fill those positions. Each organization should have TNA procedures applicable to its particular operation. However, when conducting its analysis, the organization should consider—

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- Using subject matter experts;
- Its current employee hiring criteria;
- The skills, experience, education, qualifications, and training level of new and current employees;
- Data from voluntary reporting systems and internal evaluations dealing with training matters,
- Data from Safety Management System (SMS) information to include reactive, proactive, and predictive information, and
- The effect of the introduction of new regulations, procedures, equipment, or recordkeeping requirements on the content of the training program.

After the organization completes its analysis, it should have a process to document the training required for each job position or task. Each organization may approach this documentation differently, but the ultimate outcome should be a document outlining the training requirements by category. For example, an organization may define training based on—

- Job positions or functions,
- Job tasks,
- Aircraft worked on,
- Recommendations from the manufacturer, or
- A combination of the above.

The organization's TNA documentation should include a list of the specific training courses required for a specific position, function, task, or aircraft worked on; when that training should take place; and any minimum qualifications for performing that function or task. The analysis documentation is usually broken down by initial, recurrent, and specialized training requirements.

Figures 2 through 5 provide examples of TNA documentation. Each organization should document its training needs in a format suitable for its operation. The exact format is up to the organization, provided all types of training and required subjects are covered.

2-2. Job Task Analysis

A job task analysis (JTA) is one way to complete an organization's TNA. It can be used to identify critical knowledge, skills and abilities for individuals and teams. These tasks, with their required knowledge, skills, and abilities, are used to determine the objectives of the course/lesson. Refer to Chapter 3 for more information on course objectives.

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Mechanic/Inspector

To Sign	Training Required	Experience Required
Airworthiness release	Maintenance initial training applicable to aircraft type; OJT	90 days of aircraft type experience or 1 year experience on air carrier, transport category jet aircraft
Job procedure cards	General familiarization course for aircraft type	90 days of aircraft type experience or 1 year experience on air carrier, transport category jet aircraft
Servicing	OJT familiarization course for aircraft type	90 days of aircraft type experience or 1 year experience on air carrier, transport category jet aircraft

Personnel Assigned to B-737

Task	Minimum Training Required	Course
Receipt and dispatch	Pushback procedures B–737 familiarization OJT	No. 123 No. 347
Sign maintenance checks	B–737 initial	No. 476
CAT II/III Autoland	B–737 initial or recurrent B–737 OJT B–737 CAT II/III initial/recurrent B–737 CAT OJT	No. 123 No. 173 No. 456 No. 217

Figure 2: Training Analysis by Job Position or Function (737 Example)

Line Maintenance
B-737
Initial Qualification

- General Familiarization
- Avionics Systems
- Policies and Procedures
- System Review
- Flight Deck Proficiency

Requalification – Every 2 year

- Policies and Procedures
- System Review
- Flight Deck Proficiency

Engine Start/Run Up/Taxi

- Policies and Procedures
- Ground Handling Engines Operation
- Safe Aircraft Movement
- Qualification

Engine RII (Engine Shop Personnel Only)
Initial Qualification

- Engine General Familiarization
- Required Inspection Items

Requalification- Every 2 years

- Required Inspection Items

Figure 3: Training Analysis Documentation by Job Task (737 Example)

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Mechanic General

Work Scope

- Qualified to perform maintenance, preventive maintenance, alterations, inspections, and repairs in accordance with approved data on any fleet type aircraft under the supervision of a fleet-type qualified mechanic

Requirements

- Maintenance Orientation Course
- GMM Familiarization Course
- General Safety Course
- Federal Regulations Course
- Human Factors in Maintenance Course

Certifications

- FAA mechanic certificate with airframe and/or powerplant ratings

B–737 Mechanic

Work Scope

- Qualified to perform B–737 aircraft maintenance, preventive maintenance, alterations, inspections, and repairs in accordance with approved data. Work limited to FAA mechanic certificate rating. Qualified to sign approval for RTS.

Requirements

- Mechanic General Qualification
- B–737 Aircraft Familiarization Course

Certifications

- FAA mechanic certificate with airframe and/or powerplant ratings

Figure 4: Training Analysis Documentation by Aircraft

Line Mechanic Training Requirements

Within the first 15 days of employment

- Paperwork Policies and Procedures
- Maintenance Basic Safety Awareness
- Computer Systems

Annual required after first year

- Maintenance Basic Safety Recurrent

Within 2 years of employment

- Aircraft-Specific Systems

Every 3 years after the first year of employment

- Paperwork, Policies, and Procedures

Within 15 days of assignment to ABC station

- Station Ramp Safety Procedures

Annual for ABC station specific personnel only

- Deicing/Anti-Icing

Figure 5: Training Analysis Documentation by Job Description and Timeframe

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2-3. Gap Analysis

A gap analysis is used to determine the discrepancies between the current employee's skills, knowledge, and abilities and the required skills, knowledge, and abilities. Basically determining what they know and what they need to know.

Once the organization assesses the employee's capabilities, it can identify employee-specific training needs. Several methods can be used for post-training testing/evaluation. See the section 5-4 Assessment.

When conducting an analysis of an individual's KSAs, the organization's process should be as objective as possible and structured to produce consistent results. The organization should have procedures to ensure the individual conducting the analysis is qualified to conduct the evaluation and interpret the results. It may be necessary for the organization to use more than one method to adequately assess an individual's KSAs.

The organization should have procedures to accept prior experience, training, or education to establish an individual's capability. For example, an organization may accept graduation certificates from a Part 147 school and/or an airframe and powerplant certificate as acceptable evidence of a basic knowledge and skill level in a particular area. An organization could also have procedures for accepting certificates of previous training by manufacturers, organizations, associations, or repair stations, or military records. The organization should have procedures on how to document the analysis in the individual's training records.

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Chapter 3. Training Design, Development, and Implementation Process

This chapter will provide an overview of the design, development and implementation stages of the ADDIE model.

The design phase focuses on writing the course objectives, determining student assessments, class activities, content, lesson planning and delivery methods.

See Appendix A for additional resources.

3-1. Design

Now that the training needs have been determined. The design phase can begin. Several questions the developer should consider may include, but is not limited to, are:

- In what order should the content be organized (grouped or sequenced)?
- In what ways should the ideas be presented to the students?
- How will the course be delivered? Instructor-led, computer/web-based (synchronous or asynchronous), blended, job aids, or paper-based self-study? Refer to Section 3-1-4 Identify Training Delivery Method.
- What instructional methods will be used to present the material? Instructor-centered (Demonstration, Direct Instruction, Lecture or Lecture with Discussions) or Student-centered (Case Studies, Cooperative Learning, Discussion, Discussion Boards (online), Discovery Learning, Graphic Organizers, Journals/Blogs, Role-Play, Problem-Based Learning and Inquiry Learning or Simulations)?
- What activities or exercises will best assist the student to retain/transfer the material to the working environment?
- What type of student evaluations/assessments should be used to measure student success?
- What will be the completion standards?
- What prerequisite knowledge does the student need, if any?
- What are the time requirements for the course itself or for development?

During the design phase, an instructional design document should be created. This document answers the questions above. It should be reviewed by the requestor of the training for approval before the development phase begins. This document should address, but is not limited to, the following goals:

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- Solidify the purpose of the training;
- Define the audience/student; and
- List media that will be used (printed text, printed visuals, display boards, audio, video, film, computer software, internet, etc.)

If training is being developed through a third party vendor, this vendor will provide an instructional design document.

3-1-1. Define Objectives / Outcomes

Objectives are the core of any course. They should be well written using the Smart, Measurable, Attainable, Relevant and Time Bound (SMART) techniques.

This specification uses a category maintenance levels concept for development of maintenance training programs that is now recognized world-wide. This concept helps ensure that training is specified, developed, evaluated, and generally targeted to the appropriate target population. It also ensures that the training objectives are matched to the competency levels of the job/task requirements.

This system enhances student acceptance of the training and likely increases retention of job-specific knowledge, skill, and ability. Safety and human factors related to the subjects should be discussed throughout the courses.

3-1-2. Levels of Training

The five levels listed below define the target populations and the objectives that a particular level of training is intended to achieve. The levels identify associated job-related objectives only and are not designed to be pre-requisites of one another.

NOTE: ATA Specification 104 maintenance training levels should NOT be confused with knowledge levels as outlined in some regulations, i.e. EASA Part 66. These maintenance levels can be taught to various knowledge levels depending on the needs of the organization.

If new technologies are applied to new aircraft or equipment, the organization will specify what basic knowledge is considered a prerequisite to enter a course. Students should be proficient in reading, writing, and speaking the English language.

Level I

Training targeted to personnel who are not directly performing maintenance on the aircraft or associated components. Level I provides a brief overview of the airframe, systems, and powerplant as outlined in the Systems Description Section of the Aircraft Maintenance Manual.

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Level IIA - Thru/Transit Service Maintenance

Training targeted to personnel familiar with commercial transport aircraft and digital electronic equipment. Level IIA provides a description of a systems' functions, controls, indications, component location, interfaces, operations, tests, tooling, and safety precautions related to thru/transit servicing, maintenance activities, and the necessary practical training.

Thru/Transit Service Maintenance activities are comprised of:

- Unscheduled maintenance tasks linked to MEL/CDL go/no-go items.
- Scheduled maintenance tasks associated with daily, weekly, and preflight activities.

Level IIB - Base/MRO Maintenance

Training targeted to personnel familiar with commercial transport aircraft and digital electronic equipment. Level IIB provides a description of the systems' functions, controls, indications, component location, interfaces, operations, tests, tooling, and safety precautions related to routine/non-routine hangar maintenance activities, and the necessary practical training.

Level III - Line/Base/MRO Maintenance Training

Training targeted to personnel familiar with commercial transport aircraft, digital electronic equipment, and have the knowledge and experience required to maintain turbine-powered aircraft. Level III provides a detailed description of system operation, component location, removal/installation, and BITE to include Onboard Maintenance Systems (OMS), and troubleshooting procedures to maintenance manual level.

Level IV - Specialized Training

Target audience is defined by the subject matter. Personnel must meet prerequisites established by the training provider (i.e. Air Carrier Operators, OEM's and MRO's). Level IV provides detailed theoretical and practical course objectives such as for engine start, run-up, and/or taxi, boroscope, lower landing minimums (LLM), Extended Twin Operations (ETOPS), Reduced Vertical Separation Minimums (RVSM), rigging, composite and metallic structures damage assessment and repairs, fueling and deice/anti- ice training. Level IV courses provide detailed descriptions, in-depth troubleshooting, adjustment, test procedures for specific systems, and in-depth use of wiring diagrams and schematics. Level IV training may also address additional specialized training as determined by Air Carrier Operators, OEMs or MROs.

Level V - Component Maintenance Training

Target audience is defined by the subject matter. Personnel must meet prerequisites established by the vendor. Level V provides specialized maintenance/overhaul training conducted by airframe, engine, or avionics manufacturers and/or their suppliers and/or air carriers to a component maintenance manual level. Specific and detailed component maintenance training objectives for Level V are located in Chapter 6.

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3-1-3. Training Level Target Populations and Course Objectives

LEVEL 1

TARGET POPULATION	COURSE OBJECTIVES
Management, non-certificated support personnel, and regulatory agencies requiring a general familiarization with the aircraft, and who are not directly performing maintenance on the aircraft or associated components.	
Theoretical	Upon completion of Level I training, the student will be able to: 1. Identify the physical and operating characteristics of the aircraft and the powerplant. 2. Discuss maintenance programs specific to the aircraft type and powerplant. 3. Locate major systems of the aircraft and powerplant. 4. List the main systems and sub-systems and their respective functions. 5. Describe the internal and external system interfaces. 6. Locate the areas/zones of the components essential to systems operations. 7. Name the main controls and indications. 8. Locate the main controls and indications. 9. Identify safety precautions related to the airframe, its systems, and powerplant.
Practical	No practical application required for this category level.

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Level IIA – Thru/Transit Service Maintenance

TARGET POPULATION

Certificated personnel performing thru/transit service maintenance activities.

COURSE OBJECTIVES

Theoretical

At the completion of Level IIA Thru/Transit Service Maintenance theoretical training, the student will be able to:

1. Identify and discuss the safety precautions linked to thru/transit service maintenance activities to be observed when working on or around the aircraft and its systems.
2. Identify the physical characteristics of the aircraft and the powerplant.
3. Identify the principal systems and subsystems associated with thru/transit maintenance.
4. Discuss the purpose of those systems and subsystems associated with thru/transit maintenance.
5. Locate those systems and subsystems associated with thru/transit maintenance.
6. Locate controls and indications associated with those systems and subsystems.
7. Describe the normal operation of those systems and sub-systems including terminology and nomenclature.
8. Discuss the use of appropriate documentation and procedures.
9. Discuss the use of onboard diagnostics.
10. Discuss proper ground handling procedures, controls, accesses, and communication interfaces.
11. Discuss thru/transit servicing requirements and associated tooling/support equipment.
12. Discuss Minimum Equipment List (MEL) and Configuration Deviation List (CDL) and Non-Essential Furnishings (NEF) requirements.

Practical

At the completion of Level IIA Thru/Transit Service Maintenance practical training, the student will be able to:

1. Perform scheduled routine maintenance tasks associated with thru/transit service.
2. Perform unscheduled maintenance tasks linked to minor troubleshooting including the use of onboard diagnostics where applicable.
3. Demonstrate proficiency in use of aircraft technical manuals and on-board reporting systems.
4. Perform a representative cross section of thru/transit service maintenance activities, while following all safety precautions/warnings.
5. Demonstrate the ability to dispatch the aircraft by applying the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) and Non-Essential Furnishings (NEF) requirements.

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Level IIB – Base/MRO Maintenance

TARGET POPULATION	COURSE OBJECTIVES
Base/MRO Maintenance personnel performing routine/non-routine maintenance, and are not performing tasks such as functional checks and fault isolation/troubleshooting that would require Level III training. May be certificated or non-certificated personnel.	

Theoretical

At the completion of this Level IIB Base/MRO Maintenance theoretical training, the student will be able to:

1. Identify and discuss the safety precautions linked to Base/MRO Maintenance activities to be observed when working on the aircraft and its systems.
2. Identify the structural characteristics of the airframe.
3. Identify the principal systems and subsystems associated with Base/MRO maintenance.
4. Discuss the purpose of those systems and subsystems associated with Base/MRO maintenance.
5. Locate those systems, and subsystems associated with Base/MRO maintenance.
6. Locate controls & indications associated with those systems and subsystems.
7. Describe the normal operation of those systems and sub-systems including terminology and nomenclature.
8. Discuss the use of appropriate documentation and procedures.
9. Discuss of the general use of onboard diagnostics.
10. Discuss proper ground handling procedures including controls, accesses, and communication interfaces.
11. Discuss Base/MRO servicing requirements and associated tooling/support equipment.

Practical

At the completion of this Level IIB Base/MRO Maintenance practical training, the student will be able to:

1. Locate and use appropriate documentation and procedures.
2. Identify tooling, test, and support equipment as applicable.
3. Perform a representative cross section of Base/MRO maintenance activities, while following all safety precautions/warnings.

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Level III – Line/Base/MRO Maintenance Training

TARGET POPULATION

Certificated Line, Base and MRO personnel performing, coordinating and/or directing routine/non-routine maintenance, operational and functional checks, trouble shooting and BITE to include Onboard Maintenance Systems (OMS), and repair of airframe, engine and avionics systems.

COURSE OBJECTIVES

Theoretical

At the completion of Level III Line, Base and MRO Maintenance theoretical training, the student will be able to:

1. Identify and discuss the safety precautions linked to Line/Base/MRO Maintenance activities to be observed when working on the aircraft and its systems.
2. Identify the principal systems and subsystems.
3. Discuss the purpose of those principal systems and sub-systems.
4. Locate those systems and sub-systems.
5. Locate controls & indications associated with those systems and subsystems.
6. Explain in detail the normal function/operation of those systems and sub-systems including terminology and nomenclature.
7. Explain system and subsystem failure indications.
8. Discuss system servicing requirements.
9. Discuss proper ground handling procedures including controls, accesses, and communication interfaces.
10. Discuss Line/Base/MRO tooling/support equipment.
11. Discuss MEL/CDL/NEF requirements.

Practical

At the completion of Level III Line, Base and MRO Maintenance practical training, the student will be able to:

1. Demonstrate a representative cross section of Line/Base/MRO maintenance servicing, maintenance practices, adjustment, test, removal and installation, while following all safety precautions/warnings.
2. Use aircraft information to troubleshoot and perform BITE, to include Onboard Maintenance Systems (OMS), for the purpose of fault confirmation, fault diagnosis, and fault rectification, in accordance with maintenance manual procedures.
3. Demonstrate proficiency in use of crew reports and on-board reporting systems, as applicable.
4. Find and use appropriate documentation and procedures.
5. Demonstrate how to dispatch the aircraft by applying the MEL/CDL/NEF procedures.

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Level IV - Specialized Training

In addition to specialized training listed in this section other specialized training courses may be provided as needed.

NOTE:	Prerequisites for students attending this level of training shall be determined by the training providers (i.e. Air carriers, OEM's and MRO's).

Level IV - Engine Start, Run-Up and/or Taxi Training

TARGET POPULATION

Certificated Line, Base/MRO personnel performing engine start, run-up and/or taxi operations.

COURSE OBJECTIVES

NOTE: Engine Start, Engine Run-up, and/or Taxi can be taught separately or as a combined course.

Theoretical

At the completion of this Level IV Engine Start, Run-up and/or Taxi theoretical training the student will be able to:

1. Identify and discuss the safety precautions linked to engine start, engine run-up, and/or taxi operations.
2. Discuss applicable regulatory requirements associated with engine start, engine run-up and/or taxi operations.
3. Discuss human factors i.e., Communication and Crew Resource Management (CRM), and use of checklists.
4. Discuss runway incursion prevention i.e., communication with Air Traffic Control (ATC), airport signage, airport diagram.
5. Identify the principal systems and subsystems associated with engine start, engine run-up and/or taxi operations.
6. Locate controls & indications associated with those systems and subsystems.
7. Describe the normal/abnormal engine and systems operation associated with engine start, engine run-up and/or taxi.
8. Describe emergency procedures associated with engine start, engine run-up and/or taxi.
9. Discuss applicable engine test procedures.

Practical

At the completion of this Level IV Engine Start, Engine Run-up, and/or Taxi practical training while using either an appropriately rated simulated training device or the actual aircraft, the student will be able to:

1. Demonstrate the use of applicable checklists and/or AMM procedures for cockpit preparation and engine start.
2. Perform normal engine start procedures.
3. Perform and/or simulate non-normal and emergency procedures for engine start.
4. Perform normal engine run-up procedures.
5. Perform and/or simulate non-normal and emergency procedures for engine run-up.
6. Perform normal taxi procedures.
7. Perform and/or simulate non-normal and emergency procedures for aircraft taxi.
8. Demonstrate communication (flight deck and ATC) using appropriate Crew Resource Management (CRM) methods/procedures.
9. Demonstrate runway incursion prevention practices.
10. Observe and obey all airport signage.
11. Demonstrate use of airport charts, as applicable.

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Rigging Training

TARGET POPULATION	COURSE OBJECTIVES
Base/MRO personnel performing rigging of aircraft systems and components.	
Theoretical	At the completion of Level IV Rigging theoretical training the student will be able to: 1. Identify and discuss safety concerns when rigging aircraft systems and components. 2. Discuss the normal functions of systems that require rigging. 3. Discuss non-normal functions of systems that require rigging in order to troubleshoot and determine if the system is not rigged properly. 4. Identify and locate all components that are part of the rigging procedure and their rig points. 5. Identify the rigging procedures in the applicable maintenance documents. 6. Describe functional tests to verify rigging procedures. 7. Identify rigging tooling and equipment, as applicable.
Practical	At the completion of Level IV Rigging practical training the student will be able to: 1. Demonstrate safety practices associated with specific rigging procedures. 2. Demonstrate the use of appropriate rigging documentation procedures. 3. Demonstrate specific rigging procedures. 4. Demonstrate functional tests to verify rigging procedures. 5. Demonstrate the use of tooling and equipment to perform specific rigging procedures. 6. Troubleshoot and correct out-of-rig conditions.

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Composite Structures Damage Assessment and Repair Training

TARGET POPULATION

Base/MRO personnel performing composite structure damage assessment and repair.

COURSE OBJECTIVES

Theoretical

At the completion of this Level IV Composite Structures Damage Assessment and Repair theoretical training the student will be able to:

1. Discuss health and safety concerns when working with composite materials, including the use of personal protection equipment (PPE).
2. Discuss material science, design considerations, aircraft applications and manufacture of composite elements.
3. Discuss the use of the AMM, CMM, Structural Repair Manual (SRM), Non-Destructive Testing (NDT) Manual, and engineering data.
4. Discuss the handling, storage, and disposal of composite materials.
5. Describe damage assessment and repair selection.
6. Describe metal bond, pre-impregnated, and wet lay-up repairs.
7. Discuss the use of appropriate documentation and procedures.
8. Identify tooling and equipment to perform composite repairs.

Practical

At the completion of this Level IV Composite Structures Damage Assessment and Repair practical training the student will be able to:

1. Demonstrate the use of personal protection equipment (PPE) when working with composite materials.
2. Assess damage.
3. Select appropriate repair.
4. Complete final inspection.
5. Demonstrate metal bond, pre-impregnated, and wet lay-up repairs.
6. Demonstrate the use of appropriate documentation and procedures.
7. Demonstrate the use of tooling and equipment to perform composite repairs.

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