

ฝ่ายสมควรเดินอากาศและวิศวกรรมการบิน กองตรวจสอบผู้ดำเนินการเดินอากาศ โทร. 0 2568 8840-1 PL

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เรื่อง รับรอง Advisory Circular เรื่อง Aircraft Maintenance Organization Manual

เรียน ผอ.กพท.

ตามที่ได้มีการปรับปรุงโครงสร้างองค์กรของ กพท. รวมถึงมีการแก้ไขปรับปรุงกฎ ระเบียบ และข้อบังคับของ กพท. นั้น

AIR ได้จัดทำ Advisory Circular เรื่อง Aircraft Maintenance Organization Manual เพื่อใช้เป็นแนวทางให้หน่วยซ่อมบำรุงอากาศยาน ในการจัดทำคู่มือ Maintenance Organization Exposition (MOE) หรือ Repair Station Quality Manual (RQSM) และยังเป็นแนวทางในการตรวจสอบ และรับรองคู่มือของหน่วยซ่อมบำรุงอากาศยาน สำหรับพนักงานฝ่ายสมควรเดินอากาศและวิศวกรรมการบิน ทั้งนี้ AIR ได้จัดทำร่าง Advisory Circular เป็นที่เรียบร้อยแล้ว ซึ่งมีรายละเอียด ตามร่างฯ ที่แนบมาพร้อมนี้

จึงเรียนมาเพื่อโปรดพิจารณาให้การรับรอง และลงนามในคู่มือฯ ที่แนบ ต่อไปด้วย
จะขอบคุณยิ่ง



(นายจรพัฒน์ มากลิน)

ผจก.AIR

รับเรื่องแล้ว

ลงนามแล้ว



(นายจุฬา สุจนานท์)

ผอ.กพท.

26 ต.ค. 2559

The Civil Aviation Authority of Thailand

Advisory Circular

Aircraft Maintenance Organization Manual

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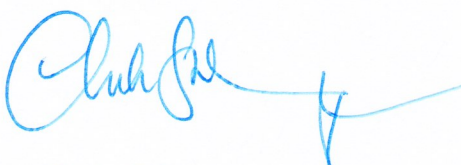
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ISSUE APPROVAL

This Advisory Circular provides information and guidance for the aircraft maintenance organizations on how to establish maintenance organization exposition (MOE) or repair station quality manual (RSQM) acceptable to the Civil Aviation Authority of Thailand (CAAT).

In addition, this Advisory Circular provides information for aircraft maintenance organizations to meet the CAAT requirements for certification.

Amendments to this manual will be notified through <http://www.caat.or.th/>



Chula Sukmanop

Director General of The Civil Aviation Authority of Thailand

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I. Introduction: Maintenance Organization Exposition Guidelines Purpose

This document is intended to help organizations write a Maintenance Organization Exposition by identifying which Regulations must be addressed, explaining the intent, and providing practical examples to further clarify the Regulation.

Each section of this document is formatted in the following manner:

The requirements of ADCA on repair station approval within a text box such as this.

Is an explanation of the ADCA requirements and why they are necessary. This section will be printed in bold font.

Example - An example of what each section of a MOE might contain.

This document has been designed to provide guidance in interpreting, not replacing the Thai Aviation Regulations. **The "examples" should not be used in a real MOE, as they are hypothetical and may not apply to an organization's actual methods.**

II. Introduction: Maintenance Organization Expositions (MOE)

MOE Role

A Maintenance Organization Exposition (MOE) is a description of how an organization intends on complying with the CAAT Regulations. The MOE is a CAAT approved document that is an acceptable method of complying with the regulations, and, in many ways, can be viewed as a contract between two parties: the organization that will use the MOE and CAAT, who will oversee the regulatory compliance.

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MOE Purpose

ADCA on repair station approval states that "...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information, where it is appropriate to the product maintained or the work performed."

For the most part, the ADCA on repair station approval are written as **performance-based** regulations. They are not prescriptive, and do not tell an organization exactly what and when it is to accomplish any specific task. The ADCA require that there is a program that addresses each regulatory requirement. For example, ADCA requires that the MOE contain "a detailed description of the quality audit system required by section 28 and 34 of the ADCA." Each organization must develop a quality control and quality audit system that is appropriate to the size and complexity of their organization. Obviously, the quality audit system will differ greatly between a large and small organization.

Each organization requires a manual to tell CAAT Thailand, and others, how it will comply with these performance-based regulations. The MOE is the means for setting guidelines, and informing an organization's staff about procedures.

The MOE is used by the organization as a means to establish, not only the policies of the organization, but also the procedures the organization has determined are best suited for the most efficient performance of the organization.

MOE Format

Each organization's manual will be different. Some may appear similar, while others will be different depending on the size, scope, and type of operation of the organization.

Some manuals will have been modeled on the same sample, or will have been approved by a particular office or inspector who had a vision of what might work well for a particular organization. The format does not really matter; the content and intent do. ADCA on repair station approval specifies what minimum information must be contained in the manual.

The MOE is used by the organization as a means to establish, not only the policies of the organization, but also the procedures the organization has determined are best suited for the most efficient performance of the organization. When documents are incorporated by reference in the MOE, the ACM must certify in writing that the incorporated documents and every amendment thereto meet the requirements of the policy established in the MOE with respect to those incorporated documents.

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1. Table of Contents

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(a) a table of contents..."

A table of contents (TOC) is used in the Manual to enhance data access and information retrieval by allowing a quick scan of the entire Manual when looking for a key item. A good TOC will get the reader to the first page of the topic in question. The TOC should be created after the Manual has been completed. The TOC contains a list of the Manual topics identified by number and Manual page number.

Example:

Sample Table of Contents

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2. Name, Description, Scope of Work

(i) Legal Name

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(b) The legal name of the organization and, where that name is not the name under which the organization does business, its trade name."

An organization's legal name is the title it is registered under so that it may do business in a province. It may be a number or the name of the owner, but is not necessarily the name that the organization uses daily. This information should include street address and/or mailing address, phone and fax numbers, and an email address.

Example:

Bangkok Aerospace Ltd.
88 Ratchada Street
Bangkok, Thailand 10120
Phone: 02-455-7890
Fax: 02-455-7899
Email: chatchai@bkkaero.net

(ii) Description

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

A brief description of the organization including the approximate size of the organization, the geographic location and general layout of the facilities required by ADCA on repair station approval in respect of which the application is being made."

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of employees, the location and size of the hanger or shop, and the location of the corporate offices.

Example:

1. Bangkok Aerospace Ltd. is a privately owned organization providing aircraft maintenance services to the public.
2. Sixty technical employees are employed.
3. The organization is housed in a 100 x 200 heated hanger located at Donmuang Airport.
4. The organization offices are located at 88 Ratchada street in Bangkok.

(iii) Scope of Work

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

The scope of work that is intended to be performed."

List the Ratings and Scope of work that the AMO is approved to carry out.

Example:

Rating Scope

Aircraft B737-400
All non-specialized work

Engine Pratt & Whitney PW4000 Overhaul

Structures Sheet Metal Structures

The organization has ratings for Aircraft, Engines, and Structures. The company operates from a maintenance base at Donmuang Airport where all company activities are carried out.

3. Certification

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

- (c) A statement signed by the AMO certificate holder confirming that the MOE and any incorporated document identified therein reflects the AMO certificate holder's means of compliance with the CAAT Regulations.

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The MOE serves as a contract between the organization and CAAT Thailand, the certificate holder signs a statement, agreeing that the organization will use the MOE manual to comply with regulations.

Example:

CERTIFICATION OF COMPLIANCE

This manual, and any incorporated documents, reflects this organization's means of compliance with the CAAT Regulations as required by ADCA on repair station approval. In the event of a conflict between this advisory circular and the ADCA, the ADCAs will prevail. All personnel are required to understand their assigned duties as described in this manual. All incorporated documents identified herein, and every amendment thereto, shall meet the requirements established in this manual. The policies and procedures outlined in this manual, and all incorporated documents identified herein, will be strictly adhered to at all times.

Signed _____ Certificate Holder

Print _____ Date _____

APPROVAL

This manual is approved as meeting the requirements of an Approved Maintenance Organization pursuant to Thai Aviation Regulation, ADCA on repair station approval.

Signed _____ for the Director General of The Civil Aviation Authority of Thailand

Print _____ Date _____

4. Amendment Control

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(d) Provisions for issuing and controlling amendments, including a description of the amendment procedure, to ensure compliance with ADCA on repair station approval."

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the MOE be submitted to CAAT for approval and any amendment be inserted in each copy of the manual within 30 days after receiving approval.

This section details the process that an organization uses to control revisions to its MOE. CAAT must approve the amendment prior to its use by the organization. After CAAT approval, the organization must update all MOE copies within 30 days and incorporate the amendment into their work routines within a reasonable period of time.

The standard process for amendment is:

1. An amendment bar is placed by the changes to show the revised text.
2. Two copies of each amended page, including two copies of the list of effective pages, are sent to CAAT.
3. Once the amendment is approved, the CAAT inspector signs the revised list of effective pages. One copy is returned to the organization for copying and distribution.

CAAT must approve every amended page. An inspector may stamp and approve each page, or may just approve the list of effective pages.

Example:

When a manual amendment is submitted, two copies of the amendment will be sent to CAAT along with amendment instructions.

All amendments will be shown by providing a vertical line in the right margin to indicate where changes in paragraphs or wording have been made. Each amended page will show the amendment number and date in the lower right hand corner. If an amendment requires additional pages, these pages will bear the page number of the preceding page and be suffixed alphabetically.

A completed amendment control page and a list of effective pages will accompany each amendment. Amendments will be inserted by the person in the position as indicated on the distribution list within 30 days of the amendment date and return the control page to the Quality Manager for filing.

1.3 AMENDMENT CONTROL PAGE

Amendment No. _____ Dated: _____

Remove Pages Annotated**Insert Pages Annotated**

Prepared by: _____ Date: _____
Accountable Manager

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Incorporated by: _____ Date: _____

5. List of Effective Pages

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(e) A means of identifying each page of the MOE that has been submitted for approval, as required by ADCA on repair station approval. This shall be in the form of a List of Effective Pages, with each page numbered and either dated or marked with a revision number."

A List of Effective Pages (LEP) is used to ensure that every manual contains current, correct information. The LEP shows the revision status of each page. By checking the status of each page, users can ensure their information is up to date.

Example:

EXAMPLE LIST OF EFFECTIVE PAGES

Page	Revision	Date	Page	Revision	Date
1	0	1 MAY 2016	14	0	1 MAY 2016
2	0	1 MAY 2016	15	0	1 MAY 2016
3	0	1 MAY 2016	16	0	1 MAY 2016
4	0	1 MAY 2016	17	0	1 MAY 2016
5	0	1 MAY 2016	18	0	1 MAY 2016
6	0	1 MAY 2016	19	0	1 MAY 2016
7	0	1 MAY 2016	20	0	1 MAY 2016
8	0	1 MAY 2016	21	0	1 MAY 2016
9	0	1 MAY 2016			
10	0	1 MAY 2016			
11	0	1 MAY 2016			
12	0	1 MAY 2016			
13	0	1 MAY 2016			

Amendment # _____ approved

Certificate holder _____

Date _____

CAAT _____

Date _____

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6. Distribution Control

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(f) A description of the system used to distribute the manual, including the name or title of each person who holds a copy of the manual, to ensure compliance with CAAT requirements."

Any amendment be inserted in each copy of the manual within 30 days after receiving approval.

A copy of the MOE should be available to each person who performs or manages maintenance activities for the AMO. The organization and CAAT are the minimal number of MOE holders. Manuals can be serialized for identification.

Example:

MANUAL DISTRIBUTION

A copy of this manual will be available for each person who performs or manages maintenance activities within this AMO.

The Accountable Manager (ACM) is responsible for distribution of this manual, and will insure that all holders have an updated manual. Copies are identified by serial number.

<i>Manual Holder</i>	<i>Serial Number</i>
President (<i>Certificate Holder</i>)	1
Accountable Manager	2
Quality Manager	3
Stores Manager	4
CAAT	5

7. Assignment of Responsibility

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

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(g) Where management functions have been assigned:"

The ACM may assign management duties to other qualified individuals as long as those duties are described in the MOE.

The person assigned as Accountable Manager may be called by any title.

CAAT must be informed about any assignment of responsibility.

In a small organization, the certificate holder may take responsibility for the entire operation, but in larger companies, several individuals play a role in completing one operation.

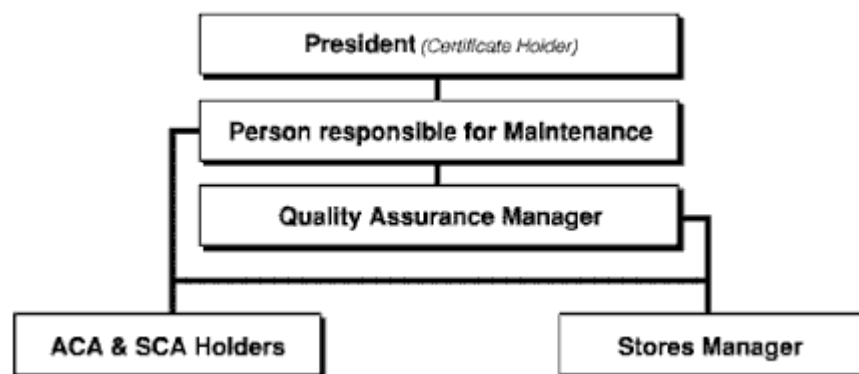
There are three information requirements:

1. **The name and title of the employee assigned responsibility.**
2. **Details of the management functions assigned to that employee.**
3. **When applicable, a company organization chart showing to whom each employee reports.**

Example:

SECTION 3 - MAINTENANCE PERSONNEL

3.1 ORGANIZATION CHART



3.2 MAINTENANCE PERSONNEL

President *(Certificate Holder)* *Name*
 Accountable Manager (Person Responsible for Maintenance or alternate title) *Name*

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Quality Assurance Manager
Stores Manager

Name
Name

3.2.1 DUTIES AND RESPONSIBILITIES

The Accountable Manager (ACM) is responsible for all of the activities that the AMO undertakes and may assign management functions to specified employees. Assigned duties are defined in the following sections. Organization personnel are required to be conversant with their assigned duties as described in this manual.

ACCOUNTABLE MANAGER (ACM)

The Accountable Manager is responsible to the President for all of the activities carried out as a CAAT Approved Maintenance Organization. He will ensure that these activities are accomplished in accordance with the policies and procedures defined in this manual. His duties consist of, but are not limited to the following:

- Supervise the maintenance, repair, modification, overhaul and alteration of aircraft and aeronautical products;
- Act as liaison between the Organization and CAAT regarding maintenance and related subjects;
- Providing the organization with direction, policy respecting aircraft maintenance, parts, materials and support equipment;
- Formulating and approving policies and procedures that will ensure proper management and efficient operation within the maintenance department;
- Responsible for the control, distribution and preservation of records relating to the maintenance functions carried out by the organization;
- Assigning production tasks, identifying problem areas and ensuring the completion of the maintenance performed;
- Ensuring that maintenance personnel are competent regarding maintenance methods to be employed in the performance of work;
- Ensuring that inspection and maintenance packages are complete with respect to the work contracted to the organization;
- Ensuring that the work performed and certifications have been entered in the aircraft maintenance record prior to the aircraft's return to service;
- Monitoring aircraft inspections, repair and modification processes including quality of shop and/or work performed by external agencies;
- Ensuring that organization personnel comply with the procedures contained in this MOE;
- Issue maintenance personnel, qualified to perform aircraft certification, certifying authority;
- Ensuring that sufficient parts, materials, special tools and equipment are available to accomplish the maintenance tasks;
- Ensuring that current technical publications are available to, and used by maintenance personnel performing work on aircraft and components;
- Ensuring the condition and cleanliness of the work place and equipment is maintained;
- Ensuring calibration of precision tools and equipment are current prior to use;
- Establishing a maintenance personnel training program;

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- Maintaining a record of maintenance personnel for training, ratings and qualifications;
- Issuing certifying authority to personnel qualified to perform certification;
- Ensuring that Service Difficulty Reports are submitted to CAAT within the required time constraints and that a filing and follow-up program is established;
- Ensuring this manual and technical reference publications are up to date and amended in a timely manner;
- Ensuring quality of aircraft maintenance workmanship by compliance with the manufacturers recommendations and/or industry standards;
- Ensuring that corrective action is carried out to rectify any deficiencies identified by the quality assurance program and,
- Retention of precision tool calibration records.

QUALITY MANAGER

The quality manager is responsible to The Accountable Manager for the quality and regulatory compliance of work performed by the organization. His duties include but are not limited to:

- Establishing and maintaining a quality program;
- Ensuring that internal audits are carried out on this AMO and any external agency providing services to the organization;
- Retention of records associated to the quality program and,
- Communicating all findings and results from the quality program to the ACM.

STORES MANAGER

The stores manager is responsible to the The Accountable Manager for the following duties:

- Receiving, preservation, stocking, issuing and documentation of aeronautical products and materials;
- Maintaining records of certification and traceability for aeronautical products and materials;
- Ensuring the quarantine stores area is maintained to an acceptable standard and the contents are secure;
- To ensure that all aeronautical products and materials issued are properly identified;
- To ensure compliance with the Stores Section of this manual and,
- To report defects to aeronautical products being received that may require SDR action to the Quality Manager for further action.

8. Maintenance Standards

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

- (h) Where the organization uses standards for the performance of work that are equivalent to those

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recommended by the manufacturer, the identification of those additional standards, developed pursuant to ADCA on Repair Station Approval."

- **The latest standards be used for maintenance or elementary work as recommended by the manufacturer but allows an AMO to develop their own standards. The AMO must be able to demonstrate that the standard is equivalent to those specified by the manufacturer. If standards other than the manufacturers' recommendations are used they must be described in the MOE.**

- **Describe organization standards of work that are different from the manufacturer's recommendations.**

- **For instance, a manufacturer of a particular aircraft may describe a control rigging procedure in their manual that is complex, uses several expensive special tools, and is very time consuming. On the other hand, an organization may have had extensive experience with this aircraft type, and has developed a rigging procedure, which uses less tools, time and effort to arrive at the same result. The organization must demonstrate to TC that the procedure is equivalent to the manufactures. This may be accomplished by means of a letter from the manufacturer or documented evaluation by an expert in the field. The new standard must be identified in the MOE.**

- *Example:*

- All work carried out by this organization will be performed in accordance with the requirements of ADCA on Repair Station Approval., the manufacturer's recommendations, and standard industry practices with the exception of the following:

- Post Engine Overhaul Vibration Analysis will be complied with using Aero Vibration System (AVS). AVS has been evaluated by the engine manufacturer and found to be equivalent to their equipment. The ACM will maintain a file containing applicable drawings, specifications and letters of acceptance from the engine manufacturer.

9. Regulatory and Technical Information

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(i) Procedures to ensure that regulatory information and technical data appropriate to the work performed are used."

The latest standards be used for maintenance or elementary work as recommended by the manufacturer or as developed by an AMO.

Explain the system that makes sure any person who performs maintenance or elementary work has the latest applicable technical manuals or airworthiness directives and is aware of any revised

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regulations. This system should be easily auditable and should address how technical and regulatory information is controlled for any maintenance that is performed away from base.

Example:

Regulatory and Technical Information:

The Accountable Manager will insure that no work is initiated unless the latest regulatory and technical information is on hand and available to all persons performing work on behalf of the AMO.

The following publications are held in the company library:

- Thai Aviation Regulations
- Airworthiness Notices
- Airworthiness Directives and Type certificates (via internet)
- Advisory Circular AC43-13-1b/2a
- B737-400 Maintenance Manual
- B737-400 Parts Manual
- B737-400 Structures manual
- Pratt & Whitney PW4000 Service Manual
- Pratt & Whitney PW4000 Parts Manual
- Pratt & Whitney PW4000 Overhaul Manual
- AMS STD 1595 Welding Standard
- AMS-STD 2219 Spot & Seam Resistance Welding Standard Practices
- ISO-669 Resistance Welding Equipment

10. Technical Records

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(j) Details of the methods used to record the work performed and ensure that any defects are recorded in the technical record.."

an aircraft journey log; separate technical records for the airframe, engines, variable pitch propellers; and a weight and balance report.

The general requirements of technical record entries such as signing and dating entries; use of electronic records; safe record keeping practices; how to create an additional volume to a record; and corrections and alterations.

This section describes the system that the organization is going to use to record the maintenance that is performed. It could be as simple as having the person who performed the work write all of

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the details in the journey log or it may involve a complex system of organization forms and computer tracking accomplished by a dedicated technical records department.

Whatever system is chosen, the following key points should be considered:

1. **Keep the system as simple and direct as possible**
2. **Eliminate duplication of information on multiple forms**
3. **The system should be easily auditable**

Example:

A work order package is used to record each maintenance function performed by this AMO. All documentation related to the maintenance planned and performed will be attached to the work order and form part of the work order package. The work order package contains as appropriate; check sheets, additional work sheets, other documents developed to control maintenance tasks. The work order forms part of the technical record for the aeronautical product.

After the work order packages, have been verified for completeness, an appropriately authorized person will enter details of the work performed and applicable certifications in the aircraft Journey Log and pertinent Technical records. Each entry is to be legible, permanent, dated and include the unique number of the authorized person.

A copy of all maintenance related records will be maintained in the company records office and filed alphanumerically by the aircraft's registration marks, with the originals supplied to the aircraft owner upon completion of the work order. All records will be kept for a period not less than two years.

11. Maintenance and Retention of Technical Records

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(k) Details of the system used to maintain and retain records of the work performed for each aeronautical product."

inspection check sheets, corrective actions, ground runs and flight tests, Airworthiness Directive compliance and maintenance releases. In other words, anything related to the performance of maintenance.

Description of the system should include how the records are dispersed, where each copy is filed, and how long the records are retained. In the case of electronic records, describe how access is limited to authorized personnel, how changes are documented, and how these records are protected and backed up.

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Records must be retained for at least two years from the date of the maintenance release.

The example below is very generic. Please ensure to describe the system in place at your organization.

Example:

All records as listed in ADCA on Repair Station Approval will be maintained and retained by the AMO for a minimum of two years.

The original work order and its associated documentation will be given to the customer. Copies of the work order will be kept in numerical order in a filing cabinet in the id office. After two years, these files will be moved to the file storage area on the mezzanine and kept for an additional four years.

The AMO has a computerized aircraft maintenance system which records all maintenance and certifications made to aircraft.

The Person Responsible will maintain a list of personnel authorized to modify electronic records. The list will include the scope of each employee's privileges. All access to electronic records will be read only with the exception of personnel whose duty requires them to modify records. Only authorized personnel will make electronic record entries. Once electronic records are saved, corrections and revisions are limited to authorized personnel only. When changes to the records are required, the Organizations computer software program saves the original text and displays changes in red. The software records the name of the individual who made the change and provides a text box to record the reason for the change. Back up copies of the companies electronic records are made nightly to a secure back up tape system to prevent the loss of data.

A current list of authorized individuals and the scope of their approval can be found in a file held by the ACM.

12. Maintenance Process Control

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(l) A detailed description of the system used to ensure that all maintenance tasks, applicable to the work requested of the AMO, have been completed."

The AMO have a system to make sure that all tasks and sub-tasks are completed and recorded before the maintenance release is signed.

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When an AMO takes on a job, the work is tracked and recorded. The process control system depends on the size and complexity of the AMO and the type of work that is done.

Consider these two scenarios:

1. **A small AMO changes a main wheel on a Cessna 150.**
2. **A large AMO performs a "C" check on a B737-400. This requires thousands of man-hours over several months, with possible subcontracts to specialized organizations.**

Both scenarios require the same basic steps, but on different scales. Changing the tire on a C-150 can be tracked on a single sheet of paper, whereas the B737-400 "C" check may result in a file of paper several inches thick.

There are various ways of describing the process and could include any of the following methods:

1. **A flow chart**
2. **A bullet form**
3. **In more complex AMO, a Procedures Manual may have to be referenced**

Example:

The Accountable Manager uses a check sheet attached to the work order that ensures that the following steps are taken:

- Review of the Technical Log, Purchase Order and associated documents for the maintenance requested.
- Adequate facilities, including current tooling and technical/regulatory data are available.
- A work order is initiated with appropriate check sheets and additional work sheets are attached.
- Duties are assigned to appropriately trained maintenance personnel.
- The inspection, troubleshooting, repair, overhaul or replacement of parts is done in accordance with the Parts and Material section of this manual.
- Additional maintenance items found are entered on the additional worksheet and the customer has been informed.
- All items entered on the additional worksheets have been addressed.
- Inspection by certifying personnel has been carried out.
- Dual inspections have been carried out as required.
- Functional tests have been carried out as required.
- A Review of all documentation for completeness has been carried out.
- A computerized maintenance release itemizing all maintenance performed and any outstanding defects is generated and entered appropriately for the customer.

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- For items released conditional to a satisfactory test flight, refer to the customer's test flight procedures.
- Copies of the documentation have been forwarded for dispersal and retention in accordance with the technical record section of the manual.

(all forms referenced can be found as an appendix to this manual)

13. Quality Assurance Program

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

A detailed description of the quality assurance program."

An organization must design a quality assurance program to ensure that they are following the procedures contained in the MOE. A good quality program will disclose shortcomings in organizational procedures or in the MOE itself.

An organization must identify who will perform evaluations of the maintenance control system, and describe the evaluation process, including its frequency and the associated record keeping.

An evaluation process is a set of techniques for monitoring and reviewing the adequacy of the maintenance control system. It should help to determine the cause of deficiencies, areas of noncompliance, areas that need improvement, the effectiveness of procedures, and corrective actions needed.

If a corrective action for any given finding identifies a lack of employee awareness of procedures then the organizations update-training program should be updated to include training in that area.

The size of an organization and its activities determines the complexity of the quality program. The program must be established, maintained and cover all functions defined within its approved MOE. Establishing the program is accomplished by providing the human and financial resources, analyzing the existing system, and a written description on how the program works. Quality assurance of the program is accomplished by reviewing the program's effectivity on a regular basis. This would include a review of the findings and how effective the corrective actions were at correcting the problems.

Example:

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The Quality Assurance Program is under the direct control of the Quality Assurance Manager. Corrective actions made in response to findings of the program are the responsibility of the ACM.

Quality assurance will be accomplished by a continuous review of organization activities in accordance with the following:

1. A job audit will be performed on each work package completed by the organization, using Form 3 (see Appendix). This audit will include a review of the work done, a check for accuracy, and completion of the work package, inspection sheets, and all required organization forms;
 1. Any findings from the work packages will be recorded on the Job Audit Finding Form 4 (see appendix),
 2. The supervisor responsible for the job being audited will be copied with the findings, determine the root cause and submit a corrective action proposal to the ACM, and
 3. The findings and corrective actions will be brought forward to the annual audit file for follow-up action.
2. An annual audit will be carried out covering all company activities using the Annual Audit Report Form;
 1. Corrected job audit findings and amendments to company documentation and procedures incorporated during the previous 12 months will be evaluated during the annual audit for effectiveness,
 2. All findings will be recorded on the Annual Audit Finding Form.
 3. Upon completion of the annual audit, the Annual Audit Report and the Annual Audit Findings will be forwarded to the ACM for root cause analysis and corrective action,
 4. The corrected findings will be forwarded to the annual audit file for review at the next annual audit for evaluation of effectiveness,
 5. A follow-up audit covering any non-conformance and the corrective actions will be carried out within 6 months of the annual audit, and
 6. Records of all audits, any non-conformance found, and any corrective actions required will be kept on file for 6 years.
3. The CARs will be reviewed at each amendment (quarterly), any pertinent changes will be incorporated and forwarded to the annual audit file for follow-up action.

14. Parts and Materials

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

- (n) procedures used for incoming inspection and storage of parts and materials to ensure conformity with

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requirements of ADCA on Repair Station Approval. In the case of an undocumented part, prior to being recertified, that part shall be evaluated."

Maintenance Organization shall ensure that only appropriate parts are used.

An organization requires a system that controls the way parts and material are acquired, received, stored, and distributed. Each of these activities should be described in enough detail to ensure only eligible aeronautical products enter the organization system and that their traceability is maintained throughout. All of these activities must be documented so the system can be audited and shown to be in control.

The control of purchased aeronautical parts and materials is essential in providing an organization with what is expected from its suppliers. Through proper purchasing data, verification of part and material conformity is ensured.

Aeronautical products and their accompanying documentation need to be inspected and reviewed for acceptability prior to their introduction into the organization.

Parts and material need to be stored in an organized manner that ensures the control of shelf-life items, hazardous materials, deterioration, items without proper certification or identification, items to be scrapped, and items being held for re-certification or investigation after failure.

Distribution of aeronautical products both inside and outside the organization must be controlled to provide adequate tracking, documentation, record keeping, segregation, standards of work, and to maintain traceability of certification.

Example:

Purchasing:

The Stores Manager will order all parts. All parts will be obtained from approved company suppliers by the issue of a purchase order. The ordered parts certification requirements will be also specified on the purchase order. The Stores Manager will maintain a list of approved company suppliers.

Receiving:

All parts will be inspected when received. The parts received will be checked against the purchase order requirements and will be inspected for obvious damage and correct documentation.

All parts will be issued a tracking tag by the receiver to link it to the documentation received when they were purchased. This tracking tag, a round, red stick-on tag will be affixed on all parts and materials received. The tag will include a tracking number that will reflect the date the part was received, plus a suffix, if more than one lot is received on any given day. The date format will be year/month/day. For

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example, tracking no. 01/02/03-4 would indicate that the part was received on February 3, 2001, and was the fourth lot of parts received on that day.

All receiving records will be kept for at least 6 years.

Storage:

All parts will be stored in a secure, controlled access designated parts storage area. Flammable materials will be stored in a fireproof cabinet. Sensitive electronic equipment and instruments will be stored in the Electronic storage room.

Access to the Certified parts is limited to the Stores Manager and other Stores personnel. Access to the Quarantined Parts Rooms will be limited to the ACM and Stores Manager.

Shelf life limited items will be controlled by a Cardex system. The Stores Manager will monitor the Cardex system monthly. All shelf life limited materials will be quarantined prior to its expiry date.

Any non-conforming parts, including expired shelf life items, will be identified with an unserviceable tag and held in the Quarantined Parts Room until the ACM or the part's owners decide their disposal.

Distribution:

All parts records will be held in the Stores Manager's office and filed by the order in which they were received. The original purchase order will be attached to the documentation received with the parts. All parts issued to an aircraft will have their tracking number entered on the work order for that aircraft providing traceability to the original supplier.

All parts distributed outside the AMO will be provided with the original documentation from the original supplier. A copy of the documentation will be retained with the purchase order and sales documents.

15. Authorized Signatures

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(o) the identity of each person authorized to sign a maintenance release."

Anyone signing a maintenance release be trained and authorized by the AMO.

The identity of the individuals who are authorized to sign a maintenance release on behalf of the organization must be listed, including what particular authority they have. An individual may be qualified on all aircraft listed in the organization limitations, or limited to specific equipment or components.

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It is acceptable for the ACM to maintain a list of authorized individuals as a document incorporated by reference. This way, it would not be necessary to get an amendment approved by TC every time a new signatory is added or removed.

Example:

This example would require a MOE amendment approved by TC every time the list was changed.

No person shall sign a maintenance release unless authorized by the Accountable Manager (ACM).

Persons authorized to sign a maintenance release will have satisfied the ACM that they have sufficient knowledge, skill, and experience and hold an appropriately rated AME license.

Personnel authorized to certify a maintenance release are listed below

Name	ACA No.	Ratings	Valid from
Chat E. Wrench	001	Sheet metal Structures	January 23, 2015
Tae L. Schoen	002	B737-400, All non-specialized work	January 26, 2015
Bell Hyatt	003	B737-400, All non-specialized work	January 30, 2015
Num Lincoln	004	B737-400, All non-specialized work	July 5, 2016
Yim Drew	005	Pratt & Whitney PW4000, Overhaul	June 1, 2016

16. Non-Destructive Testing

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(p) a description of the methods used to ensure compliance with the personnel qualification and training requirements"

Anyone who supervises or carries out NDT tasks is qualified.

An organization needs to ensure that only persons who are certified to the National Standards listed in the CARs can perform or supervise the performance of nondestructive testing (NDT) inspection. The MOE should detail the NDT process and state what standards will be used.

Companies who employ NDT specialists must detail the specialist's qualifications and the method that their currency is maintained and tracked in the MOE.

Small companies who need to contract specialist companies or individuals to perform NDT through a maintenance arrangement should include a simple statement to this effect.

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Example:

All non-destructive testing, required by manufacturer's recommendation or by regulatory requirement, will be contracted to a qualified Approved Maintenance Organization in accordance with section 21 of this manual.

17. Organization Overview

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(q) details of the nature and scope of the work undertaken, in respect of the application made."

Describe in detail the type of work that is carried out by the organization. Although the scope of approval identifies aircraft type and structures ratings, a description of the companies specialized maintenance capabilities provides a better understanding of the full extent of services.

Example:

The organization is capable and approved to perform all non-specialized work on B737-400 aircraft.

The organization is capable and approved to perform the following structural specialized maintenance:

- aircraft skin, or the skin of an aircraft float, if the work requires the use of a support, jig or fixture;
- aircraft skin that is subject to pressurization loads, if the damage to the skin measures more than 15 cm (6 inches) in any direction;
- a load-bearing part of a control system, including a control column, pedal, shaft, quadrant, bellcrank, torque tube, control horn and forged or cast bracket, but excluding
 - the swaging of a repair splice or cable fitting, and
 - the replacement of a push-pull tube end fitting that is attached by riveting; and
- any other structure that a manufacturer has identified as a primary structure in its maintenance manual, structural repair manual or any instructions for continuing airworthiness.

The organization is capable and approved to perform the following specialized engine maintenance:

- the overhaul of a turbine engine or turbine engine module.

18. Aircraft Certification Authority

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

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(r) a description of the methods used to ensure that the persons authorized to sign maintenance releases are qualified in accordance with the requirements that are applicable to maintenance performed."

Anyone authorized to sign a maintenance release is appropriately trained and has the knowledge, experience and qualifications necessary.

The authority for a person to sign a maintenance release within the organization's jurisdiction is separately granted by the organization and is commonly known as Aircraft Certification Authority (ACA) or Shop Certification Authority (SCA) in the case of component certifications.

The organization needs a system to assess the qualifications of each employee to determine eligibility for ACA status. The MOE should describe the following criteria for the issuance of the ACA authority:

- **The specific training and experience requirements needed to qualify for the granting of ACA authority**
- **Who in the organization may authorize the ACA/SCA privileges**
- **What documentation is needed to substantiate the ACA/SCA credentials**
- **Where the ACA/SCA records will be kept**

Example:

Authority to certify each aircraft type on behalf of the organization will be granted by the Accountable Manager when the following requirements have been met:

1. The employee has completed a course of training in organization policy and procedures including the requirements of this manual.
2. The employee holds a valid CAAT Aircraft Maintenance Engineer license in the appropriate category.
3. The employee has shown a combination of training and experience appropriate to that aircraft type for which the authority is being granted.
4. The employee has demonstrated to the Accountable Manager the ability to successfully complete the assigned responsibilities by interview, practical demonstration of abilities and exams, which will be kept on file.
5. The Accountable Manager will authorize each ACA holder by means of a letter and stamp that will define the specific certification authorities held. Each stamp will bear a unique number linked to the ACA holder. Stamp numbers will not be reused and will be returned to the ACM when ACA authority is terminated. A copy of this letter and stamp impression will be kept in the employees file, and a copy will be given to the individual.

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19. Training and Training Records

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(s) A description of the training program."

The organization-training program include the applicable regulations or advisory circular as well as the AMO standards and procedures necessary to provide currency and continued qualifications.

A training program makes sure that personnel with technical responsibilities are properly trained for the work they are responsible.

Training has three basic levels:

- 1. Initial Training:** The employer makes a new employee aware of regulatory, technical, human factors and organization requirements.
- 2. Update Training:** Update Training is required to ensure that personnel remain competent and are made aware of any changes to the regulations, manufacturers recommendations, and the organizations procedures.
- 3. Additional Training:** Additional Training is required when the organizations quality program reveals that an employee is not aware of changes to the regulations, applicable standards, or company procedures. Additional training is also used to keep staff aware of maintenance safety related issues. This can be in the form of bulletin boards, information notices, and company publications, verbal briefings, or by any similar means.

The training objectives will be evaluated by means of examination or practical evaluations.

Example:

All employees will receive initial training in organization policy, procedures, maintenance related safety issues and human factors when hired. The Quality Manager will conduct the policy and procedures training within the first week of employment. Human Factors Training will be completed during the first year for each employee. Each employee having technical responsibilities will receive Human Factors training as appropriate to their duties. The human factors training will be contracted to ABC Training Ltd. in a two-day classroom setting. The Human Factors training will include the following:

- a) human performance;

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b) factors influencing human error, including:

1. fatigue;
2. stress;
3. assertiveness;
4. awareness;
5. resources;
6. knowledge;
7. team work;
8. norms (commonly accepted standards and procedures);
9. complacency;
10. pressure;
11. distraction; and
12. communication;

c) error management, including error prevention and error containment.

Additional training will be carried out whenever there are rule changes or at the discretion of the certificate holder, who will assess the need and quality of the training based on the results of the organizations internal audit.

Update training will be obtained through, but not limited to, reviewing initial training material, attending aviation seminars; the use of Aerolearn.com; AMT magazine; interaction and discussions with qualified specialist organizations; and CAAT publications. The training cycle for update training will not exceed 36 months.

All training will be recorded in a separate file for each employee and kept in the organization office. All training records will be kept for at least 2 years after the date that a person is no longer employed with Acme Aero. Each employee will be given a copy of all records that pertain to their training.

20. Personnel Records

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(t) A description of the personnel records to be retained."

Personnel records must be kept for at least two years and will include personal qualifications, authorizations, and training. Each person will be provided with a copy of his or her record.

Describe what employee records will be kept in regards to:

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1. **Persons appointed to the position of ACM and persons assigned management functions (per AC AW-05-NOM)**
2. **ACA/SCA authorities granted**
3. **All training given**

Records must be retained for a minimum of 2 years after the date of the last entry. For audit purposes, it is recommended that they be kept beyond the two-year period.

The person in question must be given a copy of all records.

Example:

The quality manager maintains a separate file on all company maintenance personnel.

These personnel files will include the following:

- Tombstone data applicable to each individual
- Experience
- Qualifications
- Training History
- AME license
- Aircraft Certification Authority and/or Shop Certification Authority issued

All personnel are to advise the quality manager whenever there has been a change affecting their personal records.

A current list of all approved company personnel and scope of certification authority is located in the documents incorporated by reference section.

All personnel records will be retained for at least 2 years after the company no longer employs the employee.

21. Level of Work

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(u) Identification of the level of work which can be performed at each facility and where the facility is leased, the times at which the facility is available to the lessee."

All work performed by an AMO be carried out in the facilities described in the MOE.

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When unforeseen work is to be accomplished, identify the level of work accomplished at external facilities. This ensures adequate support facilities for unforeseen organization operations.

Example:

The organization has ratings for aircraft non-specialized work, structures and engine overhauls all accomplished at its Anytown hangar, located at the Anytown Airport.

All scheduled maintenance is accomplished at the organization's Anytown facility. Technical publications, basic tools, an engine stand and basic test equipment are kept in this location.

The level of work to be accomplished at this facility is limited to structure repairs and defect rectifications up to and including engine replacement.

22. Maintenance Arrangements

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(v) Details of the procedures used to approve maintenance arrangements and a list of all such arrangements. Where such maintenance arrangements are made, the information provided in the MOE shall include details concerning the assignment of responsibilities for the certification of the work performed, and for the extension of the AMO quality system to address work performed under the arrangement. Where no such arrangements exist, no approval procedures are required."

An AMO may sub-contract work to and how the work is to be controlled and supervised.

Many companies contract work to other organizations because facilities or personnel are unavailable or because the work is specialized. The contractors are either Approved (AMO) or Unapproved. The AMO must develop specific approval procedures governing maintenance arrangements and describe these procedures in its MOE. Should an AMO choose not to include these procedures in their MOE, each specific maintenance arrangement will have to be submitted to CAAT for individual approval.

Approved and Unapproved differ in certification and quality assurance. Their contracts are similar in terms of including the usual who, what, when, where, and how.

In a contract with an Approved organization, the organization must specify the task, the work standard, and the time frame. The authority of the AMO provides assurance of certification and quality.

In a contract with an unapproved organization, the contract must specify the task, the work standard, the time frame, and how quality assurance will be secured.

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With unapproved organizations, the AMO is responsible for:

1. **Providing technical data to the contractor.**
2. **Direct supervision of the work.**
3. **Quality control of the work.**
4. **All certification of the work.**

For quality assurance purposes, it is recommended that an organization representative reviews an Unapproved contractor's work in progress, and inspects the completed project thoroughly.

Example:

From time to time, work may be contracted to specialist companies. These fall into two categories; Approved Organizations, and Unapproved Organizations that are not approved by CAAT.

Subcontracts to Approved Organizations:

Each subcontract will be documented in a Purchase Order that details:

1. The work to be performed.
2. The standard to be used in the performance of the work.
3. Any special requirements.

Details of each subcontract will be entered in each work package as required by section 11 of this AC.

Subcontracts to Unapproved Organizations:

In addition to the above requirements, Acme Aero will retain responsibility for:

1. Assuring technical information appropriate to the work is available to the subcontractor.
2. Completion of form 1.
3. Direct supervision of the work.
4. Quality control of the work.
5. All certification of work performed.

23. Service Difficulty Reports

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

Procedures used to report service difficulties as required by ADCA on Repair Station Approval, Section 33."

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All service difficulties be reported to CAAT by an AMO in accordance with ADCA on Repair Station Approval, Section 33.

In small organizations, the service difficulty is reported to the ACM, who assesses the report and submits the form when necessary.

In larger organizations, the systems can be more complex requiring information to be routed through an organization reliability program prior to a SDR submission.

Example:

All service difficulties will be reported on SDR FORM. Anyone finding a defect, which warrants a SDR submission, will bring it to the attention of the Accountable Manager will submit SDRs to CAAT for any defect deemed reportable. A copy of the report will be provided to the owner of the aircraft.

24. Calibration of Tools and Equipment

"...the Maintenance Organization Exposition (MOE) of a domestic AMO Certificate holder shall contain at least the following information...

(x) Procedures to control the calibration of tools and equipment."

The appropriate tools are used and that measuring and test equipment be accurate and calibrated.

As this area is important, consider what a tool is used for, how often it is used, and how it is stored and handled. Draw up a calibration schedule. Keep in mind that sending out all tools for calibration once a year may not be necessary. A tool used only a couple times yearly for a single task will probably not need recalibrating every year, while a tool used daily for many tasks may need calibration every few months. Minimum calibration intervals may be specified by the manufacturer.

Example:

All measuring devices and test equipment will:

1. Meet any requirements published by the manufacturer of the measuring device with respect to accuracy.
2. Meet any calibration requirements that are published by the tool manufacturer.
3. Be inspected before use.
4. Any tool suspected of inaccuracy or damage, despite meeting any other requirements, will be taken out of service, repaired and calibrated, or replaced.
5. Where calibration is required, be calibrated in accordance with a national standard.

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6. Each precision tool will have a calibration sticker attached. Records relating to the calibration of the tool will be retained on file.

All tools and equipment requiring calibration will be listed on a status board in the organization office. The status board will contain:

1. Name of tool
2. Serial number of tool
3. Date last calibrated
4. Date next calibration due

Organization Forms and Documents Incorporated by Reference

If the MOE refers to specific organization forms or documents incorporated by reference, create a section that lists them and attach examples.

The MOE may incorporate documents and lists by reference. Lists and details of lengthy and complicated procedures, may be referenced provided the MOE contains a brief description of each Document Incorporated by Reference (DIR). The MOE should detail how management exercises control over those functions. Where the organization is small and the number of procedures are limited, the procedures should be contained in the MOE. The MOE should reference each DIR by name or number. The MOE should describe how the DIRs are amended, distributed and certified.