

**DOD MODEL PROGRAM
FOR
AIR CARRIER INTERNAL AUDIT EVALUATION PROGRAM**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4343, DSN: 779-4343, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by public law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model or ideal internal audit program. FAA Advisory Circular 120-59A can also be referenced to enhance program development. Internal audits assist managers in identifying problem areas and becoming proactive in implementing corrective actions. The DOD does not mandate this precise program, since not every carrier needs the level of detail presented. This model program is broken into two components.

- A. Overview of an internal audit program
- B. Components of an internal audit program

A. OVERVIEW

1. A company-wide internal audit program is implemented to provide formal, continuous self evaluations of an air carrier's operations, safety, and maintenance activities. This effort encompasses all stations, domiciles, line stations, and maintenance bases. The program focus is to ensure that the carrier operates in accordance with regulatory, customer,

and company requirements. Internal audit programs are frequently separate from the other management functions. Separation can be achieved for example, by establishing a separate safety, internal audit, or quality assurance/control department.

2. Scope of an internal audit program. A scheduled, continuous internal audit program evaluates the effectiveness of all programs, and in some cases, influences process improvements. The program identifies deficiencies, seeks out root causes, implements corrective actions, and verifies corrective action effectiveness. Areas to be considered for inclusion in the internal audit program include:

MAINTENANCE

Aircraft Inspections	Maintenance Program/Reliability
Facilities	Vendor Files
Aircraft Records	Aircraft Appearance
Unscheduled Maintenance	Stores Operation
Fuels Program	Maintenance Control/Planning
Maintenance Training	Manuals
Maintenance Staff Functions	Equipment Calibration
Quality Assurance/Control	Deferred Maintenance

OPERATIONS

Ops Specifications	Aircrew Training
Internal Evaluation Program	Safety Program
Captain Upgrade	Manuals
Aircrew/Dispatch	HAZMAT Procedures
Records	Hiring Procedures
Scheduling	Charter Procedures
Flight Planning/Dispatch	Ground Operations/Cargo Handling
Flight Control	Security

B. COMPONENTS OF AN INTERNAL AUDIT PROGRAM

1. The internal audit program is outlined in the company's maintenance manual, operations manual, or a stand-alone document. The program definition includes:

- a. An organizational diagram depicting management involvement in the program.
- b. Duties and responsibilities of personnel involved.
- c. Policies and procedures for implementation, performance, and modification of the internal audit program.
- d. Areas to be audited, audit objectives, and required frequencies.
- e. Follow-up procedures.
- f. Procedures to be used to provide ongoing, continual oversight of areas.
- g. Format for audit reports (reporting procedures) and responses to findings.
- h. Definitions of any unique terms.
- i. Auditor qualification requirements.
- j. Document control.
- k. Proactive real-time data analyzed for risk-based programs.

2. Senior managers are involved in reviewing program effectiveness.

- a. Management involvement includes oversight of overall program effectiveness, review of audits and responses, and periodic scheduled meetings to analyze results.
- b. Management participation should be at a level above those with direct supervision of the audited functions. Management level should include the decision authority to make changes based on audit results.

3. Skilled, knowledgeable, and trained auditors/inspectors are available in adequate numbers. Appointment and training of auditors is documented.
4. Formal schedule outlines of all areas to be audited, audit due dates, and any required follow-up activities. Audits and reviews of time-sensitive areas should be conducted on a continual basis, rather than a one-time annual schedule.
5. System exists to plan audits, track audit accomplishment, monitor discrepancies, and highlight necessary follow-up actions. Process should identify audits or responses that are overdue. In addition, it should ensure audits are not closed until all findings are answered in an acceptable manner.
6. Focused audit checklists are used to inspect all areas on a recurring basis.
7. Findings are documented and forwarded to functional areas for corrective action. Findings should be tracked by the internal audit program manager to ensure discrepancy resolution.
8. Formal procedures ensure that the root cause of all discrepancies is identified and corrected to prevent recurrence. Corrective actions that only address surface or superficial fixes should be rejected. Corrective action plans and timelines should be developed when deficiencies can not be resolved quickly. Follow-up audits are used to verify elimination of deep-rooted problems and ensure corrective action plans are effective.
9. Files are maintained. They include the most recently completed report, the previous audit report, audit checklist with findings identified, and documentation of discrepancy resolution. Concise audit summaries can be used for trend analysis of discrepancies.
10. A formal system is used by management to analyze audit results and identify areas that fall short of company expectations.
 - a. Periodic reports are provided to appropriate senior management personnel.
 - b. Action plans are developed to raise performance to meet goals.

While carrier audit programs will differ based on scope and size of the company, every carrier should have some method of continuous self-assessment.

SUMMARY

The DOD believes an IAP built around the above characteristics will benefit the air carrier in several ways. The program should improve safety, enhance air carrier image, enhance regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.

**DOD MODEL PROGRAM
FOR
MAINTENANCE FACILITIES AND CAPABILITIES**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4801, DSN: 779-4801, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by public law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model program for maintenance facilities. Such a program is not mandated by DOD, but represents a compilation of the most effective facility programs we have seen.

Model maintenance facility programs addressed in this document include:

- A. Repair station
- B. Main bases
- C. Facilities
- D. Sub-bases (operational)
- E. Ramps
- F. Stores
- G. Shelf-life

Many topics such as training, safety, housekeeping, and audit requirements are addressed only in the facilities portion of this document; however, apply to all other areas listed.

A. REPAIR STATION

Maintaining special authorization by an outside organization recognized by the industry is preferred; i.e., CASE, manufacturer's service center, etc.

B. MAIN BASES

Main bases usually refer to the places where the majority of maintenance is conducted.

1. Hangar facilities are capable of housing company aircraft for conducting level of maintenance required.
2. Experienced and qualified management staff available.
3. There are adequate numbers of qualified, licensed technicians, repairmen, and supporting infrastructures to perform required repairs. There is also enough on-site supervision to adequately monitor unlicensed personnel.
4. There is a comprehensive, proactive, and formal training program through factory schools, instructor led, self-study, and on-the-job instruction to ensure that all personnel are familiar with the most current repair methods and procedures.
5. A system is in place to ensure that training records are regularly reviewed by management, and documentation is current. Management develops and monitors forecasts for recurrent training tasks.
6. Adequate numbers of trained and authorized mechanics are available to all shifts to perform tasks, and a formal initial/recurrent training program is in place to ensure personnel remain current.
7. All special tools and equipment are calibrated and tracked, certificate of calibration is maintained, and calibration status can be verified prior to use.

8. Support equipment is serviceable.

C. FACILITIES

1. All facilities and stations are audited periodically to ensure they comply with company policies, procedures, and OSHA or equivalent standards. Audits and their findings are documented with negative results analyzed to determine the root cause of any discrepancies. Follow up is accomplished to ensure corrective actions taken prevent recurrence.

2. Facilities are clean, climate controlled, well lit, and of adequate size to perform required repairs. Current company/technical data is available and actively monitored for current revision.

3. Avionics rooms are environmentally controlled, preferably with a positive flow ventilation system to prevent contamination.

4. Personal protective equipment is readily available and serviceable.

5. All personnel practice sound industrial safety practices; e.g., keeping their work areas clean, are familiar with fire exits, know location of and maintain open access to fire extinguishers, emergency eye washes/showers, etc.

6. Fire extinguishers are boldly identified and have at least annual inspections accomplished by a qualified inspector.

7. Eyewash stations and showers are strategically located and easily accessible. Monthly operations of pressurized eyewash stations are performed to ensure proper operation and freedom from debris.

8. Good housekeeping is paramount to safety. Fuel/oil drips and spills are cleaned, aircraft panels placed on racks and tagged, and maintenance stands are in good repair.

D. SUB-BASES (OPERATIONAL)

1. Sub-bases are provided with necessary resources, both personnel and equipment.

2. Adequate company and technical reference materials are available and a person is designated to ensure revisions are kept current.
3. Calibrated tools and equipment are available and proactively monitored for calibration status.
4. Licensed mechanics are fully qualified on all types of company aircraft that frequent the station.

E. RAMPS

1. Ramp areas are clean, well lit, and secure.
2. There is ample emergency equipment readily available and serviceable.
3. Support equipment is in good repair and a system is in place to ensure serviceability.
4. Flammable storage lockers are available, inventoried, kept clean, and used for combustible materials only.
5. Partially used oils and solvents are either properly discarded or stored in sealed containers and properly identified.

F. STORES

1. Process is in place to ensure adequate inventory to support aircraft maintenance needs.
2. Stores areas are secured with limited access.
3. A secured quarantine area for parts in unknown status is available, and shipping and receiving areas are segregated.
4. Parts being shipped are properly prepared, serviceability readily identifiable, and containers adequately labeled for HAZMAT, if appropriate.
5. Receiving inspection personnel are adequately trained (initial and recurrent), including unapproved parts recognition and HAZMAT handling. They also have access to the company-approved vendor list.

6. Parts available for issue are inspected, have proper documentation (serviceable tags, traceability information, and shelf-life tag, if required), and are properly protected.
7. Scrap part procedures are published and followed to ensure unserviceable/life limited parts cannot be reintroduced into the industry.
8. Process in place to ensure segregation of aircraft products from non-aircraft products.

G. SHELF-LIFE

1. The shelf-life program is well monitored by stores and quality assurance personnel.
2. A proactive method is in place to track shelf-life items to ensure that they are properly rotated, re-inspected, retested, or removed from service, as required.
3. Expiration dates for all shelf-life items are easily identified.

SUMMARY

The DOD believes maintenance facility programs built around the above characteristics will benefit the air carrier in several ways. They not only improve safety, but also enhance air carrier image, improve regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.

**DOD MODEL PROGRAM
FOR
MAINTENANCE INSPECTION**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4801, DSN: 779-4801, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by public law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model or ideal maintenance inspection program. Such a program is not mandated by DOD, but represents a compilation of the most effective maintenance inspection efforts we have seen.

An effective maintenance inspection function contains the following elements:

- A. Maintenance production vs. inspection
- B. Inspection personnel
- C. Required inspection items (RII)
- D. Inspection oversight
- E. Initial/recurrent training
- F. Timely inspections

G. Inspection Sign Offs

A. MAINTENANCE PRODUCTION VS. INSPECTION

Establish lines of authority which clearly separate maintenance production from inspection functions.

1. Maintenance production and inspection function lines of authority merge only at senior management levels. These levels are readily apparent in the company's maintenance manuals.
2. Personnel are under the control of an independent inspection unit whenever conducting an inspection (both full-time and designated/delegated inspectors).
3. Clear procedures for countermanding decisions of inspections are formally established. Only more senior inspection unit personnel or specifically designated senior management are authorized to overrule the decision of a line inspector.
4. Inspection personnel are not involved in performing the work that they inspect.

B. INSPECTION PERSONNEL

The company selects only the most experienced and highly qualified personnel as inspectors.

1. Procedures are established to ensure selection of highly qualified inspectors.
2. Company maintains an updated list of all inspection personnel. This listing includes all current company and contract inspectors, their authorizations, limitations, and supervisory personnel authorized to countermand decisions.

C. REQUIRED INSPECTION ITEMS (RII)

The company clearly identifies required inspection items (RII), and procedures for their accomplishment.

1. All maintenance personnel are aware of, and have access to, listings of those activities that require an RII signoff.
2. Formal procedures are established for the handling of all RIIs. Buy-back procedures are formally established for rejected items.

D. INSPECTION OVERSIGHT

The carrier has a policy for inspection oversight of all contract maintenance vendors.

1. Procedures include responsibilities for:
 - a. Inspection oversight of carrier representatives at contract facilities.
 - b. Qualification and authorization of vendor employees (if contract employees will conduct any inspections).
2. Contract vendor inspector process is an extension of the carrier's own inspection/maintenance program.

E. INITIAL/RECURRENT TRAINING

Formal training is provided and documented for all inspection personnel.

1. Initial and recurrent training program covers all full-time, designated/delegated, and receiving inspectors.
2. Program applies to all carrier and contract vendor inspectors. Training is provided to contractors by carrier employees or designated trained vendor personnel.
3. Training is conducted according to a written lesson plan, syllabus, or on-the-job training (OJT).

a. Classes, computer based training, videos, or workbooks are acceptable methods, which may be augmented by OJT.

b. Recurrent training is conducted at a set frequency (annual, biennial, etc.).

4. Major changes or revisions to RII program are disseminated to all RII authorized personnel and training provided if required.

F. TIMELY INSPECTIONS

Management ensures all inspections are conducted at required frequencies, with minimal use of escalation authority. All inspection actions are thoroughly documented.

1. Inspections are not delayed for marketing purposes.

2. All maintenance actions are recorded in inspection packages. Packages are reviewed for completion prior to aircraft returning to service and inclusion into aircraft records archives.

G. INSPECTION SIGN OFFS

Management has processes and procedures in place that ensure aircraft are not returned to service without verifying all inspections have been properly signed off.

1. All inspection packages are audited by personnel to ensure all inspections have been completed and that the inspections were done by individuals qualified to conduct those inspections.

2. If inspection personnel are issued stamps to conduct sign offs, there is a documented stamp control process to ensure that any lost or stolen stamps are immediately reported and these processes stipulate what steps are taken once a stamp has been reported lost or stolen

SUMMARY

The DOD believes an inspection program built around the above characteristics will benefit the air carrier in several ways. They not only improve safety, but also enhance air carrier image, improve regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.

**DOD MODEL PROGRAM
FOR
AIR CARRIER MAINTENANCE MANAGEMENT**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4801, DSN: 779-4801, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by public law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model or ideal maintenance management program within an air carrier maintenance complex. Such a program is not mandated by DOD, but represents a compilation of the most effective management efforts we have seen.

Effective Maintenance Management includes the following elements:

- A. Safety Emphasis
- B. Organizational Structure
- C. Internal Audit Program
- D. Communications

A. SAFETY EMPHASIS

Safety is the number one priority.

1. Passenger and employee safety is paramount.
2. A policy is evident that ensures aircraft maintenance is properly accomplished with safety in mind, in spite of scheduling or potential of lost revenue, due to mission cancellation, delay, and/or competitive image or other pressures.
3. No "launch-the-fleet" attitude.
 - a. Shortcuts, or "pencil-whipping" (falsified documentation) are not tolerated.
 - b. Personnel are given adequate time to properly accomplish maintenance.
 - c. Nonconformance with established maintenance practices is not tolerated.
 - d. Maintenance status of all aircraft is properly communicated at shift changes.
4. Quality is stressed at every level.

B. ORGANIZATIONAL STRUCTURE

Company policies and organizational structure are clearly defined in company manuals.

1. Manuals include position, duties, responsibilities, and definitive lines of authority.
2. Experience levels of managers and key personnel exceed the minimum experience requirements of 14 Code of Federal Regulations (CFRs).
 - a. Managers are fully aware of and involved in daily operations, and safety implications are considered when making decisions.
 - b. Management ensures adequate numbers of qualified maintenance personnel.
3. Proactive management ensures infrastructure satisfies current needs as well as adjusts easily to changes in routing, aircraft types, and air

carrier growth or downsizing. Maintenance support positions (such as training, quality assurance, and records) are not automatically eliminated or reduced when business is slow.

4. Clear separation exists between production and quality assurance activities with clear counterman policies and procedures.

C. INTERNAL AUDIT PROGRAM

Senior managers openly support quality maintenance programs, to include active involvement with the internal audit program. A focal point manages the internal audit program. Audits are conducted and management ensures all discrepancies are corrected.

D. COMMUNICATIONS

Efficient communications exist between management, the work force, and functional areas.

1. Changes in company policies or procedures are effectively communicated to all personnel in a timely manner.
2. Employee concerns or problems are quickly identified to management.
3. Management fosters an environment of teamwork and continuous improvement with the focus on safety.

SUMMARY

The DOD believes maintenance management programs built around the above characteristics will benefit the air carrier in several ways. They not only improve safety, but also enhance air carrier image, improve regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.

**DOD MODEL PROGRAM
FOR
MAINTENANCE MANUALS**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4801, DSN: 779-4801, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by public law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model or ideal maintenance manuals program within an air carrier maintenance complex. Such a program is not mandated by DOD, but represents a compilation of the most effective management efforts we have seen.

An effective maintenance manuals program contains the following elements:

- A. Procedures and policies.
- B. Manual revision and distribution procedures.
- C. Availability.

A. PROCEDURES AND POLICIES

Company maintenance manuals comprehensively detail maintenance procedures and policies. Manuals:

1. Define terms/acronyms that are unique to the company's operation.
2. Describe the format and proper use of all maintenance forms.
3. Provide detailed procedures for utilizing contract maintenance vendors.
4. Define the programs covering inspection, maintenance, preventive maintenance, and alterations. It ensures:
 - a. All maintenance performed is in accordance with the certificate holder's manual and approved maintenance program.
 - b. All aircraft returned/released to service are airworthy and properly maintained.
5. Describe duties and responsibilities of key positions in all functional areas.
6. Provide an organizational chart that illustrates:
 - a. Lines of authority.
 - b. Maintenance organization and support structure.
 - c. Separation of maintenance production and inspection organizations.
7. Detail the company's maintenance training program, including:
 - a. Description of how and when maintenance personnel will be trained (including indoctrination).
 - b. Process for documentation of all training (formal, on-the-job, and recurrent).
 - c. Methods and frequencies of all recurrent training.
8. Define procedures for reporting and correcting aircraft discrepancies, ensuring:
 - a. The recording of all mechanical irregularities in the aircraft maintenance log.

b. Accurate documentation of all routine/non-routine maintenance actions taken, including verification that:

(1) Work was performed IAW manual requirements.

(2) All items requiring inspection were inspected.

(3) No known condition exists that would make the aircraft non-airworthy.

9. Specify procedures ensuring only proper parts and materials are used, including:

a. Receiving inspection.

b. Shelf-life.

c. Preservation of parts.

d. Parts identification system.

e. Disposition of failed/life-limited parts.

f. Quarantine procedures for parts where serviceability is in question.

10. Provide procedures outlining internal and vendor audit requirements, and a method for monitoring fleet performance.

11. Identify maintenance actions requiring test flights and test flight preparation procedures.

12. Detail procedures for conducting ferry flights, to include the required coordination process, management approving authority, and aircraft preparation procedures.

13. List procedures to report the occurrence/detection of each failure, malfunction or defect of mechanical reliability (reliability reports), flight interruptions, unscheduled change of aircraft en route, or unscheduled stops/diversions caused by mechanical difficulties (Mechanical Interruption Summary Report).

14. Specifically address aircraft ground handling procedures such as:

- a. Parking aircraft in high winds.
- b. Short and long-term storage.
- c. Seasonal operation.
- d. Towing.
- e. Emergency procedures.
- f. Run-up/taxi personnel authorizations.

15. Establish policies for specialized programs, such as:

- a. Category II/III landing systems.
- b. Extended Range Operation with Two-Engine Aircraft (ETOPs).
- c. Reduced Vertical Separation Minimums (RVSM).

B. MANUAL REVISION AND DISTRIBUTION PROCEDURES

Manual revision and distribution procedures are well defined, and provide a positive method of tracking revision status; ensuring only current manuals are available for use.

1. Distribution procedures are sufficient to ensure that all manual holders receive updates and temporary revisions in a timely manner.
2. Manuals are easy to revise, have the date of the last revision on each page, have a method to readily identify changed portions (e.g., revision bar), and include a list of effective pages covering all revisions.
3. A revision tracking system provides a means for publications personnel and management to verify all manual holders have received required revisions. This can be accomplished by return receipts, email, automation, etc.

C. AVAILABILITY

Sufficient number of company manuals and technical reference materials are available for use by all company and contract maintenance personnel.

1. Adequate numbers of manuals are provided for use by mechanics.
2. When applicable, computers and reader/printers are serviceable and conveniently located to provide maintenance personnel with technical information.
3. Temporary revision files are complete, in good condition, and are conveniently located near printer/readers.
4. Procedures are in place to control printed pages of on-line manuals.

SUMMARY

The DOD believes maintenance manual programs built around the above characteristics will benefit the air carrier in several ways. They not only improve safety, but also enhance air carrier image, improve regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.

**DOD MODEL PROGRAM
FOR
AIR CARRIER MAINTENANCE PERSONNEL**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4801, DSN: 779-4801, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by public law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model or ideal maintenance personnel program. Such a program is not mandated by DOD, but represents a compilation of the most effective personnel programs we have seen.

An effective maintenance personnel program contains the following elements:

- A. Effective new-hire screening
- B. Adequate manning
- C. A drug/alcohol-free work force
- D. Effective training procedures
- E. Continuing education and training programs

A. EFFECTIVE NEW-HIRE SCREENING

There are effective procedures in place to ensure only reliable, properly certificated mechanics are hired.

1. Extensive background checks of all prospective new-hires are conducted.
2. Verification by the FAA of each mechanics airframe and power plant license is completed for all new-hires, returning employees, and contract maintenance vendors. Verification should contain confirmation of validity and currency of license as well as specific information regarding violations.

B. ADEQUATE MANNING

There are adequate number of trained certificated personnel and a proper continuum mix in the maintenance work force to support maintenance activities at en route and hub locations.

1. Each shift has enough qualified mechanics with aircraft-specific training to complete all maintenance actions and required inspections.
2. Each shift has a proper mix of maintenance experience levels, and duty time is monitored.
3. Appropriate supervisor-to-mechanic ratio.

C. A DRUG/ALCOHOL-FREE WORK FORCE

The maintenance work force is free from drug and alcohol abuse. Drug and alcohol screening and education programs are in place, tested, documented, and FAA approved where applicable.

Companies operating overseas conduct testing when reasonably accessible/sustainable to include testing employees prior to or returning from rotation.

When testing is not reasonably supported, comprehensive continuing education programs for both employees and supervisors are in place with documented policy and procedures to react when use is suspected. Procedures will immediately mitigate risk to operations and provide for timely and accurate validation of suspected use.

D. EFFECTIVE TRAINING PROCEDURES

Personnel in training status or otherwise not qualified, do not accomplish maintenance without direct supervision.

E. CONTINUING EDUCATION AND TRAINING PROGRAMS

Continuing education, as well as progressive technical training, is provided. All personnel are given the opportunities through training to advance.

SUMMARY

The DOD believes personnel programs built around the above characteristics will benefit the air carrier in several ways. They not only improve safety, but also enhance air carrier image, improve regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.

**DOD MODEL PROGRAM
FOR
MAINTENANCE TRAINING**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4801, DSN: 779-4801, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by public law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model or ideal maintenance training program. Such a program is not mandated by DOD, but represents a compilation of the most effective efforts we have seen.

An effective maintenance training program contains the following elements:

- A. Training requirements
- B. Documentation
- C. Facilities
- D. Instructors

A. TRAINING REQUIREMENTS

1. Initial and recurrent requirements are described in company manuals and provide for continuing education and progressive experience.
2. Ideally, initial training is accomplished prior to the employee beginning the duties they were hired to perform and includes:
 - a. Indoctrination training to ensure a thorough understanding of company manuals, policies, procedures, and forms.
 - b. Technical training (factory, classroom, or on-the-job training) includes aircraft familiarization, systems, or other training requirements applicable to the individual's position. Credit may be given for documented prior experience, if it is evaluated by an appropriate company representative.
3. Each person with special qualifications is appropriately certificated, properly trained, qualified, and authorized by the company to perform these functions. Special qualifications include:
 - a. Airworthiness release.
 - b. Engine run-up (power and idle run, if applicable).
 - c. Aircraft taxi.
 - d. Inspection authority.
 - e. Required inspection items (RIIs), full-time and designated.
 - f. Receiving inspectors, full-time and designated.
 - g. Nondestructive testing (NDT).
 - h. Extended Range Operation with Two-Engine Aircraft (ETOPs).
 - i. Reduced Vertical Separation Minimums (RVSM).
 - j. CAT II & III landing systems.
 - k. De-ice/Winter operations.
 - l. Towing.

4. Contract maintenance vendor training for vendor personnel on company policies, procedures, and special qualifications.
5. Ideally, recurrent training is accomplished at least annually and requirements would include:
 - a. Training to familiarize employees with changes in company policies, maintenance or inspection techniques, and new equipment.
 - b. System familiarization refresher to include deficiencies in training discovered through continuing analysis and surveillance or reliability programs.
 - c. Training for special qualifications to include: airworthiness release, engine run-up, aircraft taxi, IA (Inspector Authorization), full-time or designated RII, full-time and designated receiving inspectors, NDT, ETOPs, RVSM, CAT II & III landing, de-ice, and any other special qualification authority.
6. Both initial and recurrent training will have time limits regarding when an employee is expected to complete each portion of training. A scheduling method will be employed that ensures all required initial and recurrent training are accomplished on time or an individuals authorizations are removed until required training is completed. A training forecast is available to all employees.

B. DOCUMENTATION

1. Documentation is maintained for each mechanic in the form of a standardized training folder or automated product that shows a continuous and chronological account of training received and experience gained. Records include:
 - a. A training summary: Normally the first item in the record, to easily determine the individual's experience level, training requirements, and expiration of recurrent training or special qualifications.
 - b. Diplomas or class attendance rosters from factory schools or company classroom training sessions.

- c. OJT documentation, whether conducted formally or informally.
 - d. Documentation of special authorizations, such as airworthiness releases, engine-run, aircraft taxi, receiving inspections, RII, NDT, ETOPs, RVSM, CAT II & III landing, de-ice, etc.
2. Training for essential/contract vendor is identified, completed, and documented.
 3. If credit is given for prior experience, there is documented evidence that an appropriate manager has evaluated that experience.
 4. All training must be documented and records kept current. Proper documentation not only indicates the individual's training status, but allows maintenance managers to properly forecast training needs.

C. FACILITIES

1. Facilities should be clean, comfortable, and conducive to learning.
2. Training aids such as mock-ups, simulators, computer-based training, and actual components are used to enhance training.

D. INSTRUCTORS

1. Full-time certified instructors are ideal.
2. Instructors are qualified to teach special qualifications, such as engine-run, RII, NDT, etc., and are specifically identified.
3. Instructors used for essential contract vendor training are identified.
4. Instructors are thoroughly familiar with subject materials.
5. Instructor qualifications are documented.
6. Training is provided to instructors on the latest technology and training techniques.

SUMMARY

The DOD believes maintenance training programs built around the above characteristics will benefit the air carrier in several ways. They not only improve safety, but also enhance air carrier image, improve regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.

**DOD MODEL PROGRAM
FOR
QUALITY ASSURANCE**

**402 SCOTT DRIVE, UNIT 3A1
SCOTT AFB IL 62225-5302**

(618) 229-4801, DSN: 779-4801, FAX: (618) 256-5937

INTRODUCTION

The Department of Defense (DOD) Commercial Airlift Division is mandated by Public Law and DOD directive to continuously monitor and oversee commercial air carriers doing business for the DOD. The DOD Commercial Airlift Division accomplishes this responsibility through on-site surveys and tabletop performance evaluations. The benchmark used during these evaluations is the DOD Commercial Air Transportation Quality and Safety Requirements. The DOD has compiled characteristics of air carrier programs that stand out as models for the industry. Each model represents a specific requirement that the DOD measures during evaluations.

Here we describe what we believe is a model, or ideal, quality assurance program. Such a program is not mandated by DOD, but represents a compilation of the most effective quality assurance efforts we have seen.

An effective quality assurance program contains the following elements:

- A. Continuing Analysis & Surveillance (CAS) Program
- B. Special tool and test equipment calibration
- C. Documented management involvement/follow-up

A. CONTINUING ANALYSIS & SURVEILLANCE (CAS) PROGRAM

CAS has two sub-elements. The first (Auditing) is auditing of administrative and supervisory aspects of the operator's maintenance program, including the work performed outside the operator's basic organization. These audits are conducted by qualified personnel to

ensure that the operator's main bases, sub-bases, line stations, and support shops operate in accordance with company procedures. The second (Mechanical Performance Monitoring) is monitoring the effectiveness of the carrier's maintenance program, through analysis of such data as powerplant/component teardown reports, flight log reports, premature removal reports, and other available data sources. CAS programs are separate from the other maintenance functions. This separation can be achieved by the operator establishing a separate quality assurance department or assigning the CAS program to the inspection/quality control department.

1. Auditing

a. Internal audits.

(1) A scheduled, continuous internal audit program evaluates the effectiveness of all maintenance programs, identifies deficiencies, implements corrective actions to eliminate the root cause of the deficiency, and verifies effectiveness of the corrective actions. The internal audit program will analyze, but not be limited to: aircraft inspections and appearance, maintenance training, scheduled and unscheduled maintenance, aircraft records, maintenance manuals and publications, maintenance control and planning, conformity to technical instructions, compliance with procedural requirements, and the adequacy of facilities, including parts management.

(2) An audit checklist is used to audit all areas on a recurring, scheduled basis.

(3) Program includes a system to plan and track audit accomplishment, discrepancies noted, and follow-up actions required.

(4) Files are maintained which include the most recently completed audit checklist with discrepancies identified and documentation of discrepancy resolution.

(5) A system is used by management to analyze audit results and identify areas that fall short of company expectations.

b. Vendor/Supplier Audits

(1) A vendor audit program evaluates all vendors who perform maintenance, inspections, alterations, or modifications to aircraft,

engines or components. The program examines the adequacy of vendor's equipment and facilities, parts protection and inventory, mechanics' competency, and shop orderliness at the vendor's facility. An on-site audit of the vendor by a qualified individual is ideal.

(2) When distributors and suppliers are utilized, the carrier should ensure suppliers and distributors have a program in place, similar to a vendor audit program, that would verify only quality, airworthy parts are provided and are from FAA-approved sources.

(3) Vendor/supplier files include, as applicable, vendor repair station certificates and operations specifications, documentation of approved drug and alcohol programs, the most recently completed audit checklist with discrepancies identified, and documentation of discrepancy resolution.

(4) An audit checklist is used to perform vendor audits on a recurrent basis.

(5) A system is used to plan and track audit accomplishment, discrepancies noted, and follow-up actions taken.

(6) Vendor audit requirements may be fulfilled through an FAA-approved consortium.

2. Mechanical Performance Monitoring.

a. An ideal mechanical performance monitoring program is both a day-to-day and a long-term process used to determine the operational condition of company's aircraft and components. This program should be proactive to detect performance deterioration before failures occur.

b. Mechanical performance analysis is performed as part of a reliability program or as an independent data collection and analysis system.

c. The monitoring system includes charting or other appropriate methods for recording and accounting of pertinent data at specified intervals.

B. SPECIAL TOOL & TEST EQUIPMENT CALIBRATION

1. Procedures, standards, adequate records, and limits necessary for periodic inspection and calibration of precision tools, measuring devices, and test equipment are defined and implemented.
2. Special tools and test equipment calibration dates are tracked, and a forecast for all upcoming tool and test equipment calibration is forwarded to applicable functional areas.
3. A system is implemented ensuring quarantine for special tools and test equipment not within calibration standards.
4. A method is in place to ensure tool accountability.
5. Scheduled audits ensure special tools and test equipment calibration program functions as documented.

C. MANAGEMENT INVOLVEMENT/FOLLOW-UP

Management uses a system that ensures any recurring discrepancy or negative trend is researched and eliminated. Follow-up action is taken to prevent recurrence of these discrepancies and actions are monitored. The results of preventive actions are provided to appropriate maintenance technicians.

SUMMARY

The DOD believes quality assurance programs built around the above characteristics will benefit the air carrier in several ways. They not only improve safety, but also enhance air carrier image, improve regulatory compliance, and promote air carrier efficiency.

Air carriers desiring copies of DOD model programs should access the DOD Commercial Airlift Division public website at <http://www.amc.af.mil/Home/AMC-Commercial-Services/> or contact our office at Scott AFB IL, (618) 229-4801.