



CHAPTER 52

APPROVAL OF A CONTRACT RELIABILITY PROGRAMME

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1.0 OBJECTIVE

This section provides guidance for approving contract reliability programmes for operator/applicants. Reference: ICAO Document 9389 - AN/919, Chapter 7, Sections 7.3.4 through Sections 7.3.14.6.

2.0 GENERAL

A. Definitions:

- (1) Operator: An air operator contracting with another air operator for a maintenance programme controlled by a reliability programme.
- (2) Contractor: An operator contracting out an approved maintenance programme controlled by a reliability programme to another operator.
- (3) Responsibility: This task is performed by the Airworthiness Aviation Safety Inspectors (ASIs) assigned to the operator/applicant. Special attention must be given to each element of a proposed programme.

3.0 CONTRACTUAL MAINTENANCE AGREEMENTS

A. Contractual maintenance agreements are used by operators for various reasons, including:

- The impracticality of staffing and equipping maintenance facilities.
- Lack of technical support staff to develop effective maintenance programmes
- Insufficient reliability control due to a lack of statistical data

B. Under contractual maintenance agreements, an operator's aircraft are treated as part of a contractor's operating fleet. The operator is not required to develop its own reliability programme for this arrangement. The operator must, however, participate in the contractual arrangement as necessary to uphold its airworthiness responsibilities.



- C. An operator/applicant must provide the assigned Airworthiness Inspector with the information and data needed to show the effectiveness of this agreement.
- D. Traditionally, an aircraft maintenance programme is based on:
- Integrity of the system, component, or installation
 - The capability of the facility performing the maintenance
 - The types of operation and environmental conditions in which the equipment is used
- E Equipment similarities and operating characteristics, such as utilization, flight cycle length, and environment must be considered when evaluating a contractual arrangement. Programme approval and the need to adjust inspection intervals, overhaul periods, etc., must be based on the suitability of the programme.

4.0 OPERATOR/APPLICANT AND CONTRACTOR COMPATIBILITY.

When evaluating a contractual arrangement for a reliability programme, the following must be considered:

- A. **Equipment.** When model, configuration, or previous maintenance programmes vary between the operator/applicant's equipment and the contractor's equipment, the programme must identify the maintenance tasks required to include the operator/applicant's equipment in the contractor's programme. The programme also must show additional tasks required to address specific differences in equipment.
- B. **Utilization.** If the operator/applicant's projected annual utilization differs significantly from the contractor's, consideration should be given to imposing calendar limits for inspection intervals in place of or in addition to flight hours.
- C. **Flight Cycle Length.** If the operator/applicant's ratio of flight hours per cycle differs significantly from the contractor's ratio, the operator/applicant's maintenance programme may need adjustment to compensate for the differences.
- D. **Environment.** The operator/applicant's maintenance programme may also need to be adjusted if the operating environments of the operator/applicant and contractor differ significantly. The operator/applicant may need to change existing maintenance tasks, adjust intervals, and/or add new maintenance tasks.



5.0 RELIABILITY PROGRAMME DOCUMENT

When an air operator develops reliability programmes for use by other air carriers, the reliability programme document must define the responsibilities of the participating air operators and include procedures for interface between the two. The document must be based on the premise that the operator/applicant adopts appropriate portions of the contractor's approved aircraft maintenance programme.

The reliability programme must meet the requirements of Chapter 4, Section 6, Approve Reliability Programme.

6.0 DATA ANALYSIS

The contractor's reliability programme must describe the data analysis system. The contractor should consolidate all data collected, analyze the data, and return it to the operator/applicant in a usable form. This analysis should compare the mechanical performance of the operator/applicant's aircraft to an acceptable level and to the performance of the contractor's fleet.

7.0 PROGRAMME DISPLAYS AND STATUS OF CORRECTIVE ACTION PROGRAMMES

Displays and reports must highlight the systems that have exceeded the established performance standard. "Over alert" conditions should be carried over from previous reports and status of ongoing corrective action should be provided.

- A. The contractor's programme must describe the reports, charts, and graphs used to document operating experience. Responsibilities for these reports must be established and the reporting elements must be clearly identified and described.
- B. A programme display, containing the essential information for each aircraft, aircraft system, and component controlled by the programme described. Each system and component must be identified by the appropriate Air Transportation Association Specification 100-system code number.
- C. The following must be displayed:
 - Performance trends
 - The current month's performance (graphical or tabular presentations may be used)
 - A minimum of 12 months' experience
 - The reliability performance standards (alert values)



- D. The status of corrective action programmes must include all corrective action programmes implemented since the last reporting period.
- E. The contractor must have manual procedures or a contractual requirement to provide the operator/applicant with reports that reflect performance experience and status of corrective action.

8.0 CONTRACTUAL AGREEMENT

The requirements imposed on the contractor by the operator/applicant's maintenance programme, reliability programme, and operations specifications must be supported by the contractual agreement. The operations issued to the operator/applicant are not binding on the contractor. It is the operator/applicant's responsibility to ensure that all requirements of the specifications, programme, and manual are met.

9.0 APPROVAL

The assigned Airworthiness Inspectors assigned to the operator/applicant will approve the use of the reliability programme by issuing operations specifications. Programme changes must be approved by the Airworthiness Inspectors either on an individual basis or by procedures approved as part of the reliability programme.

10.0 PROCEDURES

A. Coordination

- This task requires coordination between Airworthiness Inspectors and assistance from ICAO, the US-FAA, the UK-CAA or other JAA States.
- NCAA if the assigned inspectors have not received reliability programme training.

B. Meet With the Operator/applicant. Provide the operator/applicant with the appropriate information.

- (1) Upon request for reliability programme information, provide FAA Advisory Circular 120-17, as amended.
- (2) Advise the operator/applicant that the application for authorization to use a contractor's reliability programme consists of at least the following documents:
 - Contractor's approved reliability programme
 - Operator/applicant's manual procedures to support the reliability programme



- Operations specifications checklist/worksheet
 - The contractual agreement between the operator/applicant and the contractor
- (3) Advise the operator/applicant that the reliability programme must include the following:
- (a) For the operator/applicant and contractor:
 - Adequate organizational structure
 - Data collection and analysis
 - Programme revisions
 - Details of contractual arrangements
 - (b) For the contractor only:
 - Adjustment of time limits and process changes
 - Definition of significant terms
 - Procedures for revising performance standards
 - (c) Provisions for compatibility between the operator/applicant and the contractor regarding types of equipment, operational environment, flight length, and aircraft utilization.
- C. Contact the Contractor's Regulatory Authority. Accomplish the following:
- (1) Ensure that the contractor has a valid certificate, an approved continuous airworthiness maintenance programme, and approved reliability programme (if applicable) for the type of the equipment operated by the operator/applicant.
 - (2) Review the content of the contractor's reliability programme (if applicable)
 - (3) Determine the types of equipment the operator/applicant has in operation



- D. Determine if the Operator/Applicant and the Contractor's Equipment, Utilization, Flight Cycle Length, and Environment are Compatible.
- E. Evaluate the Programme Application Procedures. Ensure that the contractor's reliability programme includes the following:
- (1) Components, systems, or complete aircraft controlled by the programme. Individual systems and/or components are identified by Air Transportation Association Specification 100. A list of all components controlled by the programme must be included.
 - (2) A complete aircraft inspection programme, including the portion of the maintenance controlled by the reliability programme (overhaul and/or inspection, check periods, etc.)
 - (3) Evaluation of conditions and trends found during the inspection of the aircraft that will result in corrective action.
- F. Evaluate the Operator/Applicant's and the Contractor's Organizational Structures. The organizational charts must show the following:
- (1) The relationship between the participants responsible for administering the programme
 - (2) The authority delegated to each organizational element.
- G. Evaluate the Organizational Responsibilities.
- (1) Ensure that the contractor's reliability programme document and the operator/applicant's procedures describe how information is to be exchanged between organizational elements. This may be displayed in a diagram.
 - (2) Ensure that the reliability programme document and the operator/applicant's procedures define the activities and responsibilities of each organizational element (Engineering, Quality Control, Flight Operations, etc.) and/or reliability control committee for enforcing policy and ensuring corrective action.
 - (3) Compare the operator/applicant's organizational structure and personnel duties and responsibilities with the requirements in the contractual agreement and the reliability programme.



H. Evaluate the Data Collection System

- (1) Ensure that the contractor's programme fully describes the data collection system as it relates to the aircraft, components, and/or systems to be controlled. The programme must.
 - Address the flow of information
 - Identify any sources of information
 - Specify the steps of data development from source to analysis
 - Describe the organizational responsibilities for each step of data development.

- (2) Ensure that the programme includes samples of data to be collected, such as reports for the following:
 - Powerplant disassembly and inspection
 - Component condition
 - Mechanical delay and cancellation
 - Flight log
 - Premature removal
 - In-flight
 - Confirmed failure
 - Internal leakage
 - Engine shutdown

- (3) Verify that the operator/applicant's manual includes procedures for collecting the required data and sending it to the contractor in accordance with the contractual arrangement. The required data should include corrective actions as well as shop repair records for work performed away from the contractor's facility.



- I. Evaluate the Methods of Data Analysis and the Application of Maintenance Controls. Ensure that the data analysis system included the following:
 - (1) One or more of the types of action appropriate to the trend or level of reliability experienced, such as:
 - Actuarial or engineering studies employed to determine a need for maintenance programme changes
 - Maintenance programme changes involving inspection frequency and content, functional checks, overhaul procedures, and time limits
 - Aircraft, aircraft system, or component modification or repair
 - Changes in operating procedures and techniques.
 - (2) Effects on maintenance controls, such as overhaul time, inspection and check periods, and overhaul and/or inspection procedures
 - (3) Procedures for evaluating critical failures as they occur
 - (4) Documentation required for maintenance programme changes, modifications, special inspections, or fleet campaigns. The contractor's manual must provide procedures for retaining these documents.
 - (5) A corrective action programme that shows the results of corrective actions in a reasonable period of time. Depending on the effect on safety, a "reasonable" period of time can vary from immediate to the time period of an overhaul cycle.
 - (6) A description of statistical techniques used to determine operating reliability levels.
 - (7) Procedures to inform the operator/applicant of changes to maintenance controls.
 - (8) Data analysis that considers the past experience of both the contractor and the operator/applicant.
 - (9) An adequate timely flow of information between the contractor and the operator/applicant.



I. Evaluate the Operator/Applicant's Manual. Ensure that the operator/applicant has manual procedures to accomplish the following:

- (1) Performing corrective action through the person responsible
- (2) Notifying persons responsible for taking corrective action
- (3) Informing the contractor when corrective action changes were made and the extent of those changes
- (4) Follow-up to ensure corrective actions taken is effective.

NOTE: A corrective action is effective if the out-of-limit condition is brought back to an acceptable level of performance.

K. Evaluate the Procedures for Revising the Reliability Programme. Ensure that there are procedures for the contractor to obtain regulatory approval before changing any of the following elements of the reliability programme:

- Performance standards
- Data Collection
- Data analysis system
- Procedures/task
- Procedures/organization concerning programme administration. Changes from alert-type programmes to non-alert-type programmes or vice versa.
- Adding or deleting aircraft, components, or systems.

NOTE: Changes to these aspects of the reliability programme must be coordinated between the assigned Airworthiness Inspectors assigned to the operator/applicant and the contractor.

L. Evaluate the Procedures for Revising Performance Standards

- (1) Ensure that the contractor's procedures specify the organizational elements responsible for monitoring and revising the performance standard and the content of those revisions. Performance standards should be revised when they are not responsive or sensitive enough to reflect changes in actual performance.



- (2) If the operator/applicant submits a programme which does not incorporate statistical performance standards or which deviates significantly from Advisory Circular 120-17, as amended, contact the contractor's assigned Regulatory Authority.
 - (a) Examine the basis for deviations and the integrity of the programme and determine if any restrictions apply.
 - (b) If unresolved issues about the contractor's programme remain, coordinate refusal of the programme with the Director, Airworthiness and Operations Standards.
- M. Evaluate Definitions. Verify that the reliability programme clearly defines unique terms, acronyms, and abbreviations as applied to the programme.
- N. Evaluate the Programme Displays and the Status of Corrective Action Programmes. Ensure that the contractual agreement or the contractor's manual requires the contractor to provide the operator/applicant with reports that reflect performance experience and corrective action status.
- O. Evaluate the Procedures for Maintenance Control Changes. Verify that the contractor's reliability programme document:
 - (1) Describes the procedures for maintenance control changes to the reliability programme.
 - (2) Identifies the organizational elements responsible for preparing reports that justify maintenance control changes. At least two separate organizational elements are required, one of which exercises inspection or quality control responsibility for the operator/applicant.
 - (3) Specifies the processes used to determine maintenance control changes, such as sampling, functional checks, bench checks, decision tree analysis, and unscheduled removal.
 - (4) Provides procedures to cover all maintenance programme activities controlled by the programme.
 - (5) Recognizes critical failures and contains procedures for taking corrective actions.
 - (6) Provides procedures to ensure that any maintenance interval adjustments will not interfere with ongoing corrective actions.



- (7) Contains procedures for notifying the NCAA when time limitation adjustments or other programme changes occur.
- P. Review the Contractual Arrangement. Ensure that the contract accomplishes the following:
- (1) Identifies the participating parties
 - (2) Identifies all applicable equipment
 - (3) Defines the responsibilities of the contractor specified in the reliability programme
- Q. Inspect the Contract Maintenance Facility. Determine if the contractor is capable of meeting its contractual obligations.
- R. Analyze the Findings
- (1) Record all deficiencies noted.

NOTE: If discrepancies are found in the approved reliability programme, contact the contractor's Regulatory Authority to resolve the discrepancies.

- (2) Determine the appropriate corrective action(s) to be taken.
- (2) Advise the operator/applicant of discrepancies. Agree on the corrective actions to be taken.

11.0 TASK OUTCOMES

- A. Completion of this task results in one of the following:
- (1) Operations specifications authorizing the use of the contractor's reliability programme.
 - (2) A letter to the operator/applicant denying the authorization
- B. Document Task. File all supporting paperwork in the operator/applicant's office file.

12.0 FUTURE ACTIVITIES.

Normal surveillance.