FEDERAL AVIATION AGENCY
FLIGHT STANDARDS SERVICE
Washington 25, D. C.

December 3, 1962

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 62-51

SUBJECT: Requirements for Air Carrier Continuous Airworthiness Program

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The Flight Standards Service of the Federal Aviation Agency has under consideration amendments to Parts 40, 41, 42, and 46 of the Civil Air Regulations to require each air carrier to establish an approved quality control program, including a maintenance and inspection organization, to assure the proper performance of maintenance. The reasons therefor are set forth in the explanatory statement of the attached proposal which is being published in the Federal Register as a notice of proposed rule making.

The Flight Standards Service desires that all persons who will be affected by the requirements of this proposal be fully informed as to its effect upon them and is therefore circulating copies in order to afford interested persons ample opportunity to submit comments as they may desire.

Because of the large number of comments which we anticipate receiving in response to this draft release, we will be unable to acknowledge receipt of each reply. However, you may be assured that all comment will be given careful consideration.

It should be noted that comments should be submitted in duplicate to the Docket Section of the Federal Aviation Agency, and in order to insure consideration should be received on or before February 7, 1963 .

George C. Pickett

Director,
Flight Standards Service

FEDERAL AVIATION AGENCY

FLIGHT STANDARDS SERVICE

/14 CFR Parts 40, 41, 42, 46/

NOTICE OF PROPOSED RULE MAKING

Requirements for Air Carrier Continuous Airworthiness Program

Pursuant to the authority delegated to me by the Administrator (Sec. 11.45, 27 F.R. 9585), notice is hereby given that there is under consideration a proposal to amend Parts 40, 41, 42, and 46 of the Civil Air Regulations to amplify upon the maintenance and inspection organization requirements and to assure the proper performance of maintenance.

Interested persons may participate in the making of the proposed rules by submitting such written data, views, or arguments as they may desire. Communications should be submitted in duplicate to the Docket Section of the Federal Aviation Agency, Room A-103, 1711 New York Avenue, N. W., Washington 25, D. C. All communications received on or before February 7, 1963 , will be considered by the Administrator before taking action on the proposed rules. The proposal contained in this notice may be changed in the light of comments received. All comments submitted will be available in the Docket Section for examination by interested persons at any time.

During the investigation of several major accidents and the surveillance of air carrier maintenance activities by this Agency, weaknesses were found in the airworthiness program of some air carriers, particularly in the inspection area. To correct these weaknesses, the Flight Standards Service, in conjunction with interested industry groups, conducted a study of the existing practices and regulatory provisions related to the

control of the quality of air carrier continuous airworthiness programs to determine whether changes were required. This study indicated that although the regulations governing air carrier maintenance programs, maintenance personnel, performance of maintenance, and the certification of repair stations, contain standards found in the past to be basically sound, they should be reevaluated in the light of current maintenance practices to assure their adequacy for the safety of present and future aircraft and equipment used by the air carriers. The need for this reevaluation was further evidenced by the fact that the basic regulations governing air carrier maintenance programs were not changed materially since the early postwar period. However, during that time the air carrier airworthiness control organizations grew in size and complexity as the air carriers acquired and operated fleets of evermore sophisticated aircraft. Moreover, each air carrier developed an airworthiness control organization which it believes is best suited for its particular type of aircraft and type of operation. In regard to airworthiness control organizations, the study indicated, in general, that:

(1) The regulations concerning inspections, the key element of quality control, have been too general and thus applied differently by the various air carriers;

(2) There is a need for regulations covering standards and procedures for certain specific components of quality control, such as completion of required work items and related items; and

(3) There is a lack of uniformity in the air carrier regulations with respect to the requirement for a maintenance release and the

person authorized to sign it. A maintenance release is required by Parts 40, 41, and 46, but is not required by Part 42. In addition, Parts 40 and 46 require the maintenance release to be signed by an "inspector or one authorized by the inspection organization," while Part 41 requires the release to be signed by "personnel of the air carrier charged with the duty of supervising the maintenance."

To the extent that the foregoing study showed a need for a reevaluation of the regulations related to the airworthiness quality control methods used by the air carriers, especially in regard to inspection, it was discussed during a maintenance requirements conference held by the FAA in Washington, D. C., on August 3, 4, and 5, 1960, which was attended by a wide range of civil aviation representatives, including supplemental and certificated route air carriers. The air carrier inspection requirements were further discussed during subsequent meetings in Washington on August 18, 1960, and on February 13, April 17, and June 6, 1962, and representatives of the Air Transport Association and several air carriers presented oral and written comments respecting the proposals. The principal problems that were discussed at these meetings pertained to (1) the "quality control" concepts; (2) the extent to which inspection authority may be delegated; and (4) the airworthiness release.

The Agency has considered the comments received during these exploratory conferences and is of the opinion that these problems can be resolved by the following regulatory proposals:

Inspection.

The existing regulations require each air carrier, or the person

with whom the carrier has contracted for the performance of maintenance, alterations, and inspection to establish an inspection organization responsible for determining that workmanship, methods employed, and materials used are in conformity with the regulations, and that any airframe, powerplant, or appliance released for flight is airworthy. The proposed rule places on the air carrier the responsibility for the inspection program, even though it may contract with another person to perform the program. In addition to requiring the establishment of an inspection organization, the proposed rule further requires each air carrier to include in its manual provisions which specify what is to be inspected and how, when, and by whom the inspection will be conducted. These provisions for inspection must cover all phases of maintenance and alteration work, including scheduled and nonscheduled work, materials used, and quality of workmanship.

During the various meetings held in conjunction with the preparation of this proposal, many persons expressed the desire or need for guide material which would enable industry and FAA personnel to make a uniform determination of what inspections are required in various phases of maintenance. The Agency believes that guidelines of this nature are very desirable, and realizes the need for more specific delineation of such inspections. Established FAA/Industry maintenance working groups may be utilized to prepare lists of maintenance and alteration inspections acceptable to the Agency for each aircraft type which would be included in each air carrier's list of mandatory inspection items. The Federal Aviation Agency will undertake discussions with the industry with a view toward eventually developing uniform methods of determining inspection requirements.

Pending the development of such a list, due to the varied maintenance systems used, and different configurations of the same model of aircraft operated by the various air carriers, the proposal does not include a listing of the items which must be inspected on each aircraft. This must be determined by each carrier and included in its manual. However, the determination of what inspections must be accomplished will be subject to the approval of the assigned FAA inspector.

In discussions of this portion of the proposal, the carriers expressed concern that the mandatory inspection requirements would require them to have an inspector for each production worker, and, in addition, would require them to have full-time inspection personnel physically located at each line station even though maintenance which requires an inspection is not routinely accomplished on a full-time basis at the station. This proposal does not require an inspector for each production employee or at each place where maintenance may be accomplished. For example, at a small one-man line station a certificated mechanic may certify the airworthiness release if maintenance or alteration work has been performed which does not require an inspection. If maintenance or alteration work has been performed which requires an inspection as prescribed by the air carrier's manual, the inspection must be performed by and certified by an authorized and qualified person other than the person who did the work. The person making the inspection may or may not be stationed at the place where the work was performed.

Delegation of Inspection Authority.

Delegation of the inspection authority to persons other than those

designated in the carrier's manual is not permissible under this proposal. This restriction does not prevent the carrier from assigning a properly qualified person to a line station where he is needed to perform inspection functions on infrequent occasions and also permitting or requiring him to perform other duties as a mechanic when there are no inspection functions to be performed. However, such a person may not inspect any maintenance or alteration work which he has performed.

Airworthiness Release.

In this proposal the title "maintenance release" is changed to "airworthiness release or airplane log entry" and the pertinent provisions of Parts 40, 41, 42, and 46 are standardized by requiring the release or airplane log entry to be signed by an inspector whenever maintenance functions which require an inspection have been performed. However, when the maintenance functions performed do not require an inspection, the release or log entry may be signed by the certificated mechanic or repairman directly in charge of the work performed.

The foregoing is not intended to be exhaustive of measures taken in the overall interest of assuming necessary quality control as quality control is reflected in many other regulatory areas and air carrier practices. Emphasis here upon the inspection organization and program is not to indicate that the control of quality begins and ends with inspection. However, it appears that the regulatory changes discussed above, plus the other requirements of the regulations and recognized air carrier practices, will assure that an adequate measure of control is maintained.

The format of any final rules adopted pursuant to this proposal will be subject to such changes as may be necessary for recodification under the Agency's recodification program announced in Draft Release 61-25 (26 F.R. 10698).

In consideration of the foregoing, it is proposed to amend Parts 40, 41, 42, and 46 as follows:

1. By amending the undesignated center head appearing before § 40.240 to read as follows:

MAINTENANCE OF AIRPLANES AND APPLIANCES

2. By amending § 40.240 to read as follows:

40.240 Responsibility for airworthiness of airplanes and appliances. Each air carrier is primarily responsible for the airworthiness of its airplanes and appliances used in air transportation, even though it has made arrangements with another person to perform the maintenance, alteration, or inspection of its airplanes and appliances.

3. By amending § 40.241 to read as follows:

40.241 Maintenance and inspection organization.

(a) Each air carrier must have a maintenance and inspection organization and an approved maintenance and inspection program to assure that:

(1) All maintenance, alterations, and inspections performed by the air carrier, or by persons with whom the air carrier contracts for the performance of these functions, are performed in compliance with the

applicable regulations prescribed by the Administrator in this subchapter, the airworthiness directives, the air carrier's manual, and accepted standards;

(2) Sufficient tools, equipment, time, and personnel are provided for the performance of all maintenance, alterations, and inspection functions; and

(3) Each airplane released to service is airworthy and has been properly maintained for operation in air transportation.

(b) The maintenance and inspection program of an air carrier must be set forth in its air carrier manual and include at least the following:

(1) A description of the maintenance and inspection organizations, the designation of each unit of such organizations, and the duties, responsibilities, and authority of each unit;

(2) A description of the types of maintenance and alterations, both routine and nonroutine, and materials which must be inspected;

(3) Procedures to assure that maintenance, alterations, and inspections that are not completed as a result of shift changes or similar work interruptions are subsequently completed before the airplane is released to service;

(4) Procedures whereby each person authorized to perform maintenance, alterations, or inspection will be currently informed of the types of maintenance and alterations which must be inspected;

(5) Procedures and standards for the operation of the material review board or salvage committee; and

(6) Procedures and standards for the acceptance of new and used airplanes purchased or leased by the air carrier.

(c) In order to assure the proper performance of the inspection function, each air carrier's manual must also include the following:

(1) Identification of each individual authorized to perform inspections by name and occupational title, and the types of inspection he is authorized to perform;

(2) Procedures and standards for the inspection of each type of maintenance, alteration, and material which must be inspected;

(3) The scope, standards, and methods for the inspection and handling of components overhauled by outside agencies;

(4) Procedures and standards for reinspection of work performed as a result of previous inspection findings (buy-back procedures);

(5) Procedures for the inspection and calibration of test equipment and measuring devices and the recording of inspections;

(6) Instructions to prevent the inspection decisions of an authorized member of the inspection organization from being countermanded by persons other than designated supervisory personnel of the inspection organization;

(7) Instructions to prevent a person from inspecting any maintenance or alteration performed by him; and

(8) Procedures to prevent any person from performing an inspection unless:

(i) He is authorized by and under the control of the inspection organization when performing the inspection; and

(ii) He holds a mechanic or repairman certificate and has been trained and qualified to perform the inspection.

4. By redesignating §§ 40.242 and 40.243 as §§ 40.243 and 40.245, respectively.

5. By adding a new § 40.242 to read as follows:

40.242 Continuous analysis and surveillance.

(a) Each air carrier shall establish and maintain a system for the continuous analysis and surveillance of the performance and effectiveness of its maintenance and inspection program, including the prompt correction of any deficiency found in the program.

(b) Whenever the Administrator or his authorized representative finds that the maintenance and inspection program established by an air carrier does not contain adequate procedures or standards to meet the requirements of this Part, the air carrier shall, upon notice thereof, make such changes in its quality control program as the Administrator or his authorized representative finds necessary to meet such requirements.

6. By adding a new § 40.244 to read as follows:

40.244 Certificate requirements. Any individual who is directly in charge of maintenance, overhaul, or repair of any airframe, engine, propeller, or appliance shall hold an appropriate mechanic or repairman certificate.

7. By amending § 40.511 to read as follows:

40.511 Airworthiness release or airplane log entry.

(a) An airworthiness release, or an appropriate entry in the airplane log, shall be prepared for each alteration or maintenance performed on an airplane. One copy of the release or entry shall be given to the pilot in command of the airplane and a record copy retained by the air carrier for at least two months.

(b) The release or entry shall:

(1) Be prepared in accordance with the procedures set forth in the air carrier manual;

(2) Certify that the work was performed in accordance with the requirements of the air carrier manual and the airplane is in condition for safe operation; and

(3) Be signed by either:

(i) The person authorized to make the inspection if the work is required to be inspected; or

(ii) The certificated mechanic or repairman directly in charge of the work performed if the work does not require an inspection.

8. By promulgating amendments to Parts 41, 42, and 46 of the Civil Air Regulations similar to those proposed herein.

These amendments are proposed under the authority of sections 313(a), 601, 604, 605, 607 of the Federal Aviation Act of 1958 (72 Stat. 752, 775, 778, 779; 49 U.S.C. 1354, 1421, 1424, 1425, 1427).

George C. Pratt

Director
Flight Standards Service

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