FEDERAL AVIATION AGENCY
BUREAU OF FLIGHT STANDARDS
Washington 25, D. C.

February 8, 1961.

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 61-2

SUBJECT: Daily Mechanical Reports

The Bureau of Flight Standards of the Federal Aviation Agency has under consideration an amendment to Parts 40, 41, 42, and 46 of the Civil Air Regulations. 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 Bureau of Flight Standards 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 by April 20, 1961. Thereafter, such comments will be available in the Docket Section to all interested persons, and an additional period will be allowed for submission of further comments in response thereto. In order to insure consideration, such additional comments must be received by May 22, 1961.

Orca Baker

Director,
Bureau of Flight Standards

FEDERAL AVIATION AGENCY

BUREAU OF FLIGHT STANDARDS

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

/Regulatory Docket No. 652; Draft Release No. 61-2/

NOTICE OF PROPOSED RULE MAKING

Daily Mechanical Reports

Pursuant to the authority delegated to me by the Administrator (14 CFR 405.27), notice is hereby given that there is under consideration a proposal to amend Parts 40, 41, 42, and 46 of the Civil Air Regulations as hereinafter set forth.

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 B-316, 1711 New York Avenue, N.W., Washington 25, D. C., prior to April 20, 1961. Thereafter, such comments will be available in the Docket Section to all interested persons. After examination of the original comments received, interested persons may submit such additional comments in response thereto as they may desire. Such additional comments must be submitted prior to May 22, 1961. (Photostatic copies of comments on file in the Docket Section may be obtained upon payment of the cost of such copies.) All original comments and additional comments in response thereto received by the dates specified for receipt thereof will be considered by the Administrator before taking action on the proposed rules. The proposals contained in this notice may be changed in the light of comments received.

The currently effective provisions of Parts 40, 41, 42, and 46 require operators to submit daily a report known as a Daily Mechanical Report (DMR) which contains information concerning each failure,

malfunctioning, or other defect, regardless of where detected, which may reasonably be expected by the air carrier to cause a serious hazard in the operation of an airplane.

The foremost objective of a reporting system is to warn industy and government of incidents of an "alert" type which may be common to aircraft, systems, or components of the same or similar type. Any failure or malfunction falls into this category when it results in a hazardous condition, or when good maintenance practice dictates the inspection of the fleet to prevent the occurrence of similar incidents in other equipment. Such reporting serves accident prevention in two ways: First, the knowledge of these incidents prompts other operators to take action for the prevention of similar incidents in their own equipment. Second, the statistical record of all such incidents and the related information provide the manufacturer with knowledge which will allow the source of such incidents to be "designed out" of new structures, systems, and components.

Another objective of a reporting system is the determination of the frequency of flight incidents arising from mechanical deficiencies, a knowledge of which would serve to give warning of unsafe operating conditions prior to the occurrence of hazards or accidents.

The final objective is to confine the nature of items to be reported to those directly related to the safety of operations and the number of items within practicable limitations so that complete, accurate, and uniform reporting is ensured throughout the industry.

With the foregoing objectives in mind, the Civil Aeronautics Board circulated, on March 1, 1957, Civil Air Regulations Draft Release No. 57-3 (22 F.R. 1613) which proposed more definitive standards to be used by the air carriers in determining when, and in what manner, a particular condition must be reported. In addition, Draft Release 57-3 proposed the deletion of that portion of the current regulations which leaves entirely to the air carriers the determination of which mechanical difficulties need be reported.

Numerous comments were received in response to Draft Release 57-3, among which was a strong objection from the Air Transport Association on behalf of its member air carriers. In lieu of the adoption of an amended regulation, the air carriers proposed a list of guide material which would be used voluntarily by them in the preparation of Daily Mechanical Reports.

At a joint airline-government meeting on December 9, 1958, it was agreed that no immediate regulatory action would be taken, but the air carrier industry would be given the opportunity to report on a trial basis in accordance with its own guide material for at least six months, starting February 1, 1959. After that date the government would reevaluate the reports for completeness and a decision would be made as to whether or not amended regulations were needed.

The Bureau of Flight Standards, in reassessing the reports submitted during the trial and subsequent period, found that while there was some improvement in the quality, uniformity, and completeness of the reports submitted by the air carriers, the reporting was still not satisfactory.

There apparently still exists among air carriers a wide divergence of views as to what constitutes a reportable hazard and when it should be reported. For example, one air carrier will report a certain hazardous incident, while another air carrier experiencing the same type of incident may not submit a report because, in its opinion, either the incident is not hazardous, or, since one air carrier already has alerted the industry, a further report would not be necessary. The Bureau believes that such nonuniform reporting can cause misinterpretations as to the seriousness of the incident, or can cause a false sense of security in that the incident might be thought to be an isolated one. In addition, the Bureau continues to receive reports which have no "alert" value which would enable operators to take action to prevent the repetition of such incidents in their own equipment. A typical example is a report which merely indicates the occurrence of an engine failure as evidenced by foreign material in the sump. Obviously, nonuniform and incomplete reporting of this nature does not satisfy the objectives of a good reporting system.

The aforementioned conclusions led to an informal industry-government conference in August 1960, to discuss contemplated changes in the daily mechanical reporting procedure. The changes informally proposed by the Bureau at the conference were opposed by the airlines with the main objection being aimed at that portion of the proposal which would require the reporting of all failures, malfunctions, or defects regardless of importance. The air carriers believed that such a requirement would subject them to an unwarranted exposure to violation action, unless they

adopted the policy of submitting a report on every malfunction or defect which occurred. The air carriers pointed out that such voluminous reporting would destroy the entire purpose of the daily mechanical reporting system.

The Bureau has recognized the validity of the points raised by the air carriers, and the proposed regulatory guidance material hereinafter contained does not require the reporting of all malfunctions or defects, but establishes specific types of occurrences which are to be reported. The establishment of such guidelines on a regulatory basis will ensure a uniform and complete reporting of those occurrences most directly related to the continued safe operation of aircraft engaged in air transportation. The proposal still retains the feature which gives air carriers the latitude to report any other item or incident which, in their opinion, would constitute a hazardous or potentially hazardous condition in an aircraft.

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

1. By amending § 40.508 of Part 40 to read as follows:

40.508 Daily mechanical reports.

(a) Each air carrier shall report the occurrence or detection of those failures, malfunctions, or defects specified in paragraph (b) of this section. In addition, each air carrier shall report any other failure, malfunction, or defect which occurs or is detected at any time in an airplane or airplane component (including appliances, powerplants, and propellers) used by the air carrier, when, in the air carrier's

opinion, such failure, malfunction, or defect has seriously endangered or may seriously endanger the safe operation of an airplane used by the air carrier. The report shall be in written form, shall cover a 24-hour period beginning and ending at midnight of each day, and shall be submitted to the Federal Aviation Agency maintenance inspector assigned to the air carrier by 12 o'clock midnight of the day following the occurrence or detection of the failure, malfunction, or defect: Provided, That reports which are due on Saturday or Sunday may be submitted on the following Monday and in the case of legal holidays on the following workday.

NOTE: Failures, malfunctions, or defects reported in accordance with the accident reporting provisions of Part 320 of the Regulations of the Civil Aeronautics Board need not be included.

(b) Each air carrier shall report the occurrence or detection of the following failures, malfunctions, or defects:

(1) Occurrences of airplane or airplane component failures, malfunctions, or defects resulting in the accumulation or circulation of smoke, oil vapor, or toxic or noxious fumes in the cockpit or cabin during flight;

(2) Occurrences of fires and information as to whether the related fire-warning system did or did not function properly during flight;

(3) Occurrences of false fire warnings during flight;

(4) Occurrences during flight of engine exhaust system failures or defects that result in damage to adjacent structure, equipment, or components;

(5) Engine shutdowns during flight necessitated or caused by airplane component failure, malfunction, or defect;

(6) Occurrences of malfunctioning of the fuel or fuel-dumping system during flight;

(7) Failures of the landing gear to extend or to retract properly during flight;

(8) Failures of brake system components or losses of brake actuating force while the aircraft is in motion on the ground;

(9) Failures of the airplane structure;

(10) Turbine engine flameouts during flight;

(11) Cracks, permanent deformation, or corrosion of airplane structure which exceed the maximum acceptable limits prescribed by the manufacturer or by the Federal Aviation Agency;

(12) Failures or malfunctions during flight which result in the inability to feather or to control overspeeding of propellers; and

(13) Failures, malfunctions, or defects in an airplane or airplane component which result in the use of emergency procedures.

(c) Reports required by paragraph (a) of this section shall be transmitted in a manner and on a form convenient to the air carrier's system of communication and procedure, and shall include as much of the following information as is available on the first daily report:

(1) Type and identification number of airplane, name of the operator, date, flight number, and stage during which the incident occurred; e.g., preflight, takeoff, climb, cruise, descent, landing, inspection, etc.;

(2) Emergency procedure effected; e.g., unscheduled landing, emergency descent, etc.;

(3) Nature of condition; e.g., fire, structural failure, etc.;

(4) Identification of part and system involved, including type designation of the major component and time since overhaul;

(5) Apparent cause of trouble; e.g., wear, crack, design deficiency, personnel error, etc.;

(6) Disposition; e.g., repaired, replaced, airplane grounded, part sent to manufacturer, etc.; and

(7) Brief narrative summary of other pertinent information necessary for more complete identification, determination of seriousness, and corrective action.

(d) Reports required by paragraph (a) of this section shall not be withheld pending accumulation of all information specified in paragraph (c) of this section. When additional information is obtained relative to the incident, it shall be expeditiously submitted as a supplement to the original report, reference being made to the date and place of submission of the first report.

2. By amending sections 41.130, 42.96, and 46.508 of Parts 41, 42, and 46, respectively, to read in substance the same as proposed in paragraph 1 above.

3. By deleting the rules prescribed in sections 41.130-1 and 42.96-1 of Parts 41 and 42 respectively.

These amendments are proposed under the authority of sections 311, 313(a), 601, 605 of the Federal Aviation Act of 1958; (72 Stat. 751, 752, 775, 778, 49 U.S.C. 1352, 1354, 1421, 1425).

Oscar Baker

Director,
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Issued in Washington, D. C., on February 8, 1961.