UNITED STATES OF AMERICA
FEDERAL AVIATION AGENCY
WASHINGTON, D.C.

Civil Air Regulations Amendment 40-35
Effective: March 12, 1962
Issued: February 6, 1962

[Reg. Docket No. 652; Amdt. 40-35]

PART 40—SCHEDULED INTERSTATE AIR CARRIER CERTIFICATION AND OPERATION RULES

Mechanical Reliability Reports

The Federal Aviation Agency published as a notice of proposed rule making (26 F.R. 1410) and circulated as Civil Air Regulations Draft Release No. 61-2 dated February 8, 1961, a proposal to amend Parts 40, 41, 42, and 46 of the Civil Air Regulations to establish requirements for the reporting of specific types of malfunctions, failures, and defects occurring to airplanes.

With the adoption of this amendment, it should be noted that the title, Daily Mechanical Report (DMR), is changed and will hereafter be known as the Mechanical Reliability Report (MRR). The Federal Aviation Agency believes the name to be appropriate in that it is more descriptive of the concept of the report.

The currently effective provisions of Part 40 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 lack of specific reporting requirements and the fact that each air carrier reported only those items which, in the opinion of the air carrier, constitute a hazard, heretofore resulted in inadequate and nonuniform reporting. Various attempts were made to correct these inadequacies, such as joint industry-government meetings and the use of a trial reporting guide for a six-month period. Some improvement in reporting was accomplished; however, satisfactory reporting was not achieved. In accordance with the proposal contained in Draft Release 61-2, this amendment specifies certain airplane and airplane component failures, malfunctions, or defects which must be reported by air carriers in mechanical reliability reports. In addition, an air carrier is required to report other airplane and airplane component failures, malfunctions, or defects, even though they are not specified in the rule, when the air carrier is of the opinion that they may seriously endanger the safe operation of its airplanes.

In Draft Release 61-2 it was proposed to require air carriers to report engine shutdowns during flight necessitated or caused by airplane component failure, malfunction, or defect. Although the Agency evaluates the significance of every engine shutdown, regardless of cause or effect, it has been determined that it is presently not necessary to require all engine shutdowns to be included in mechanical reliability reports. Accordingly, in this amendment, the proposed rule has been changed to require mandatory reporting of engine shutdowns only when they involve engine flameout, foreign object ingestion or icing, external damage to the engine or airplane structure, or when more than one engine is shutdown during flight. Paragraph (b)(17) of § 40.508 has been worded to make it clear that action taken to shutdown an engine in flight need not be reported as an emergency action under the requirements of that provision.

Draft Release 61-2 contained a proposal to require reports of failures of the landing gear to extend or retract properly during flight. To avoid any misunderstanding of our intention that landing-gear doors be included in this reporting requirement, this final rule expressly provides for reporting the occurrence of a failure, malfunction, or defect which involves the extension or retraction of the landing gear, or the opening or closing of the landing-gear doors during flight.

Also, it will be noted that paragraph (b)(15) of § 40.508 has been changed from the original proposal so that failures, malfunctions, or defects in airplane structures are required to be reported only if a major repair is necessary.

Many failures, malfunctions, or defects are required to be included in the mechanical reliability report only if they occur during "flight." A note has been added to the rule to explain that in complying with the reporting requirements of § 40.508 an airplane is to be considered in "flight" from the moment it leaves the surface of the earth on takeoff until it touches down at a place of landing.

Attention is directed to the fact that Draft Release 61-2 proposed 13 specific reporting items while this amendment contains 17 reportable items. This increase in the number of items is the result of rewording and expanding the previous items to facilitate administrative handling of the reports within the Agency with automatic data processing equipment.

Another change has been made in this amendment which differs from the original proposal. This change provides that the report shall cover a 24-hour period beginning at 0900 hours local time each day and is to be submitted by 0900 hours of the following day rather than the midnight to midnight report period proposed. In this respect, local time is considered to be the time at each air carrier's main maintenance base. This revision does not alter the 24-hour interval made in the proposal, but is incorporated so that the reports can be handled more expeditiously by the Agency under its new automatic data processing system for evaluating individual reports and for distributing mechanical reliability report summaries.

Each air carrier is presently required by paragraph (a) of § 40.509 (Mechanical interruption summary report) to regularly file a summary report of "All interruptions to a scheduled flight, unscheduled changes of airplanes en route, and unscheduled stops-and diversions from route which result from known or suspected mechanical difficulties or malfunctions." In response to comment received, paragraph (a) of § 40.509 is being amended to avoid duplicate reporting under paragraph (a) of those malfunctions or mechanical difficulties required to be reported under § 40.508.

The Federal Aviation Agency believes that reports of the failures, malfunctions, and defects required under this amendment, plus additional reports received from the air carriers regarding other occurrences of failures, malfunctions, and defects they consider hazardous, will provide complete, accurate, and uniform reporting. Safety will be served better by this amended reporting procedure as the Agency will be able to disseminate to industry improved reports of hazardous conditions pertaining to airplane systems, components, and equipment. In addition, through analysis of information developed from reports received, the Agency will be able to detect deteriorating conditions in airplane systems, components, and equipment, and issue Airworthiness Directives and Alert Notices before such conditions reach hazardous proportions.

Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Part

of the Civil Air Regulations (14 CFR Part 40, as amended) is hereby amended as follows, effective March 12, 1962:

1. By amending § 40.508 to read as follows:

§ 40.508 Mechanical reliability 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 airplane systems, appliances, powerplants, and propellers) used by the air carrier, when, in the carrier's opinion, such failure, malfunction, or defect has endangered or may endanger the safe operation of an airplane used by the air carrier. The report shall be in written form covering a period of 24 hours beginning at 0900 hours local time of each day and ending at 0900 hours local time the next day, and shall be submitted to the Federal Aviation Agency maintenance inspector assigned to the air carrier by 0900 hours local time of the following day: *Provided*, That reports which are due on Saturday or Sunday may be submitted on the following Monday and in 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) The air carrier shall report each occurrence or detection of a failure, malfunction, or defect involving:

(1) Fires during flight and whether the related fire-warning system functioned properly;

(2) Fires during flight and whether the related fire-warning system did not function properly;

(3) Fires during flight not protected by a related fire-warning system;

(4) False fire warning during flight;

(5) Engine exhaust systems which result during flight in damage to engine, adjacent structure, equipment, or components;

(6) An airplane component which results during flight in the accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or cabin;

(7) Engine shutdown during flight due to engine flameout;

(8) Engine shutdown during flight when external damage to the engine or to the airplane structure has occurred;

(9) Engine shutdown during flight due to foreign object ingestion or icing;

(10) Engine shutdown during flight of more than one engine on an airplane;

(11) Propeller feathering system or ability of the system to control overspeeding during flight;

(12) Fuel or fuel-dumping systems affecting fuel flow or causing hazardous leakage during flight;

(13) Landing gear extension or retraction or opening or closing of landing-gear doors during flight;

(14) Brake system components which result in loss of brake actuating force while the airplane is in motion on the ground;

(15) Airplane structure which requires major repair;

(16) Cracks, permanent deformation, or corrosion of airplane structure which exceed the maximum limits acceptable to the manufacturer or the Federal Aviation Agency; and

(17) Airplane components or systems which result during flight in the taking of emergency actions; except that action taken to shutdown an engine need not be reported as an emergency under this provision.

NOTE: Under the provisions of this paragraph, an airplane is in flight from the moment it leaves the surface of the earth on takeoff until it touches down at a place of landing.

(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 in the first daily report as much of the following information as is available:

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

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

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

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

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

(6) Disposition; e.g., repaired, replaced, airplane grounded, part sent to manufacturer; 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) shall not be withheld pending accumulation of all information specified in paragraphs (b) and (c) of this section. When additional information is obtained relative to the incident, including any that may be furnished by the manufacturer or other outside agency, it shall be expeditiously submitted as a supplement to the first report, referencing the date and place of submission of such report.

2. By amending § 40.509(a) to read as follows:

§ 40.509 Mechanical interruption summary report.

* * * * *

(a) All interruptions to a scheduled flight, unscheduled changes of airplanes en route, and unscheduled stops and diversions from route which result from known or suspected mechanical difficulties or malfunctions that are not required to be included in mechanical reliability reports.

The reporting requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

(Secs. 311, 313(a), 601, 605; 72 Stat. 751, 752, 775, 778; 49 U.S.C. 1352, 1354, 1421, 1425)

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N. E. HALABY,
Administrator.

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