UNITED STATES OF AMERICA
CIVIL AERONAUTICS BOARD
WASHINGTON, D. C.

Civil Air Regulations Amendment 42-11
Effective: September 9, 1957
Adopted: August 5, 1957

IRREGULAR AIR CARRIER AND OFF-ROUTE RULES

FLIGHT RECORDERS

On two occasions within the past several years, the Board has amended the Civil Air Regulations to require the use of a recording device on aircraft used in air transportation. In the first instance the Board found it necessary to rescind the rule because of the difficulty operators were having in providing proper maintenance due to procurement and transportation difficulties brought on by World War II. In the second instance the Board found that, contrary to earlier indications, there was no device readily available of proven reliability and fully adequate for the purpose intended. The Board gave notice, however, that a requirement for a recording device would be reconsidered at such time as a suitable instrument became available.

On November 10, 1955, the Board, having received information that a suitable instrument was available, circulated Civil Air Regulations Draft Release No. 55-26 which proposed in the alternative that flight recorders be required equipment on all large 4-engine and 2-engine airplanes originally type certificated under Part 4a or Part 4b of the Civil Air Regulations or that they be installed only on large transport category airplanes designed to operate above 25,000 feet altitude.

Although much comment, both written and oral, was received by the Board on this draft release, there was no significant opinion expressed by those in favor of requiring a flight recorder on the desirability of one or the other of the alternative proposals. It was clear that interested persons either favored the general use of flight recorders or they didn't favor use of them at all.

Those favoring use of the recorders were of the opinion that recorders might have been of some value in approximately 25 percent of the accidents studied by the Board's Analysis Division; that they would do much to eliminate the conjecture, supposition, and personal opinion from analysis of both accidents and daily routine operations; that there is a recorder in being which is rugged, dependable, and will operate months on end without need for calibration; that the record can be quickly removed and read at any time without processing; and that, aside from its value in accident investigation, its use may result in improved operational procedures and airworthiness standards.

On the other hand, those opposing use of flight recorders were of the opinion that the advantage to be derived from their use in accident investigation was highly exaggerated and that at best they would be of some assistance in only a very small percentage of accidents. This, they argued, was not sufficient justification to require use of these recorders on all large transport category airplanes when it is considered that, for the scheduled airlines alone, in a five-year period it is estimated that it would cost about 9 million dollars to purchase, maintain, and stock necessary spare parts for the recorder. Furthermore, it was argued that the reliability of the one recorder in being is subject to considerable question, the inference being that since there had been two previous abortive attempts to require use of these recorders because of their unreliability it would not be justified to require their use now until more positive evidence appeared as to their reliability.

The Board, having considered the comment received in response to the proposals contained in Civil Air Regulations Draft Release No. 55-26 and other information submitted during the oral argument held April 17, 1957, concludes that a flight recorder of sufficient reliability to fulfill the objectives for such a device is in being and should be used in all large airplanes certificated for use in air transportation above 25,000 feet altitude.

The Board agrees that the costs involved in comparison to the value of the recorder for the purposes intended do not justify a requirement for the installation of flight recorders on the entire transport fleet. The cost of the equipment and its installation and maintenance appears to be prohibitive when related to the total cost of some of the smaller airplanes of the current air carrier fleet. This consideration is magnified by the relatively low income generating capacity of many current airplane types. Furthermore, flight recorders in these airplane types would be furnishing information concerning design and operations for which there already exists a very substantial body of operational experience. Accordingly, no airplane certificated for flight below 25,000 feet altitude will be required to install and use flight recorders.

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The Board is of the opinion, however, that in the case of large airplanes certificated for use in air transportation above 25,000 feet altitude, a flight recorder should be required for accident investigation purposes and for use in analyzing various incidents, such as extreme vertical accelerations due to turbulence, which occur from time to time in flight but which do not result in accidents, in order to take appropriate precautionary or remedial action. Such airplanes will be operating under conditions with respect to which little operational experience directly applicable to civil transportation exists and the recorded intelligence involving these higher altitudes, pressure differentials, and speeds will help materially in making a more accurate determination of the cause of accidents of such aircraft. Furthermore, in assessing the economic impact this requirement might have on the air carriers affected, it is clear that it will be substantially less than for currently operated airplanes because of the higher initial cost of the airplanes for which flight recorders will be required and their greater seating capacity.

Interested persons have been afforded an opportunity to participate in the making of this amendment (20 F.R. 8500), and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, the Civil Aeronautics Board hereby amends Part 42 of the Civil Air Regulations (14 CFR Part 42, as amended), effective September 9, 1957.

By amending § 42.22 by adding a new paragraph (c) to read as follows:

42.22 Additional required instruments and equipment for large aircraft. * * *

(c) Flight recorders. After July 15, 1958, an approved flight recorder which records time, air speed, altitude, vertical acceleration, and heading shall be installed on all large airplanes which are certificated for operations above 25,000 feet altitude, and shall be operating continuously during flight time; except that, in the event of failure of such recorder, the airplane may continue flight to the next stop where repairs or replacements can be made.

(Sec. 205 (a), 52 Stat. 984; 49 U.S.C. 425 (a). Interpret or apply secs. 601, 605, 702, 52 Stat. 1007, 1010, 1013; 49 U.S.C. 551, 555, 582)

By the Civil Aeronautics Board:

/s/ M. C. Mulligan

M. C. Mulligan
Secretary

(SEAL)

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