TITLE 14 - AERONAUTICS AND SPACE

CHAPTER I - FEDERAL AVIATION AGENCY

[Regulatory Docket No. 65; Regulation No. SR-436A]

[Affects Parts 40, 41, 42]

SPECIAL CIVIL AIR REGULATION

Airborne Weather Radar Equipment Requirements for Airplanes Carrying Passengers

Special Civil Air Regulation SR-436, effective February 15, 1960, (25 F.R. 167), as amended by Amendment No. 1[1/] (25 F.R. 1987), requires the installation of airborne weather radar equipment in most of the transport category airplanes used for the carriage of passengers under Parts 40, 41, or 42 of the Civil Air Regulations. Other provisions of the operation and airworthiness rules require dual sources of electrical power for such required equipment.

In regard to the requirement for dual sources of electrical power, airborne weather radar equipment uses approximately 500 to 700 VA (voltamperes) of 115 volt AC power. Airplanes which generate direct current (DC) power obtain alternating current (AC) power from power converters generally known as inverters. Inasmuch as some instruments and other equipment require AC power, transport category airplanes which basically generate DC power presently are required to have 2 inverters to supply dual power to required AC-powered equipment.

Airborne weather radar equipment uses a large portion of the output capability of the typical airplane inverter. To accommodate weather radar, prior to the promulgation of SR-436, the various AC power loads

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1/ No distribution was made of this amendment. It corrected an inadvertent error in SR-436 by adding the word "radar" between the words "weather" and "is" in the first sentence of section 2a.

were divided between the two existing inverters in such manner that the weather radar could be turned off in the event of a single inverter failure. The remaining inverter would supply the AC power for required instruments and equipment, consistent with the dual power source requirement in the operating and airworthiness rules.

When airborne weather radar became required equipment, the installation described above would not provide for dual power sources for both the airborne weather radar and the required AC-powered instruments and equipment. To comply with the dual power requirement, the installation of an additional inverter (with suitable switching, failure indicators, and metering) would be necessary, and such installation would involve extensive modifications to all airplanes which generate DC power. In addition, for most, if not all, 2-engine airplanes equipped with 2 DC generators, the installation of an additional inverter would not fully satisfy the dual power source supply requirement, since in the event of a generator failure the combined electrical load of the weather radar and other required equipment would overload the remaining DC generator, irrespective of the number of inverters installed on the airplane.

In reconsidering the requirement for dual electrical power supply for airborne weather radar equipment, the Federal Aviation Agency recognizes the difficult engineering problem involved in providing for dual power for such equipment. Consideration has also been given to the present reliability of inverters as evidenced by the satisfactory

use of airborne radar by the airlines with the single inverter installation. Furthermore, SR-436 requires the operator to establish procedures for the continuance of flight when the weather radar becomes inoperative during en route operations.

In view of the above, present section 5 of SR-436 is being deleted and a new section 5 is being added to permit the installation of airborne weather radar equipment which is not provided with an alternate electrical power supply.

This superseding Special Civil Air Regulation incorporates into one document all of the provisions of SR-436, as amended herein and by Amendment No. 1. Since this superseding Special Civil Air Regulation, which is substantively the same as SR-436, imposes no additional burden on any person and relieves a restriction, the Administrator finds that notice and public procedure are unnecessary and that good cause exists for making this regulation effective on less than 30 days' notice.

In consideration of the foregoing, the following Special Civil Air Regulation is hereby adopted:

1. Airborne weather radar equipment requirement. After the dates specified, the following transport category airplanes shall not be used for the carriage of passengers under the provisions of Parts 40, 41, or 42 of the Civil Air Regulations, unless approved airborne weather radar equipment is installed in such airplanes:

(a) July 1, 1960, for all turbine-powered airplanes certificated under the transport category rules.

(b) January 1, 1961, for the airplane types listed below:

Douglas DC-7 Series,

Douglas DC-6 Series, and

Lockheed 1049 and 1649 Series.

(c) January 1, 1962, for all airplanes certificated under the transport category rules, except C-46 type airplanes.

NOTE: Airplanes subject to the provisions of paragraph (c) of this section include, but are not limited to, the following types: Boeing 377; Convair 240, 340, and 440; Lockheed 049 and 749; Martin 202 and 404; and Douglas DC-4.

2. Schedule for installation of equipment.

(a) Each operator conducting passenger operations under the provisions of Parts 40, 41, or 42 of the Civil Air Regulations with transport category airplanes on which airborne weather radar is not installed, shall establish a schedule for the progressive completion of such radar installations, in accordance with the provisions of section 1 of this regulation. The schedule shall provide for the completion of all required radar installations on or before the dates specified in section 1 of this regulation, and the completion of at least 40 percent of the required installations on or before the following dates:

(1) August 1, 1960, for airplanes of the types specified in section 1(b), and

(2) February 1, 1961, for airplanes of the types specified in section 1(c).

(b) On or before July 1, 1960, a copy of the schedule required by paragraph (a) of this section shall be submitted to an authorized representative of the Administrator, together with a list of any airplanes the operato

intends to discontinue using in the carriage of passengers prior to the date on which radar equipment must be installed.

3. Requirement for dispatch and continuance of flight. After the effective date specified in section 6 of this regulation, all transport category airplanes having approved airborne weather radar installed shall be operated in accordance with the following rules when used in passenger operations under Parts 40, 41, or 42:

(a) Dispatch. No airplane shall be dispatched (or flight of an airplane started under the provisions of Part 42) under IFR or night VFR conditions when current weather reports indicate thunderstorms, or other potentially hazardous weather conditions which can be detected by airborne weather radar, may reasonably be expected to be encountered along the route to be flown, unless approved airborne weather radar equipment installed in the airplane is in a satisfactory operating condition.

(b) En Route. In the event the airborne weather radar becomes inoperative en route, the airplane shall be operated in accordance with the instructions and procedures specified in the operations manual for such occurrence. After the date specified by section 1 of this regulation for the mandatory installation of approved airborne weather radar on the type of airplane involved, such instructions and procedures shall meet with the approval of an authorized representative of the Administrator.

4. Exceptions. The provisions of this regulation shall not apply to those airplanes used solely within the States of Alaska or Hawaii, or during all-cargo, training, test, or ferry flights.

5. Electrical power supply. Contrary provisions of the Civil Air Regulations notwithstanding, an alternate electrical power supply need not be pro-

vided for airborne weather radar equipment.

6. Effective date. This Special Civil Air Regulation shall become effective on June 30, 1960, and supersedes Special Civil Air Regulation No. SR-436.

(Secs. 313(a), 601, 604, 605; 72 Stat. 752, 775, 778; 49 USC 1354, 1421, 1424, 1425).

/s/ E. R. Quesada
Administrator

Issued in Washington, D. C., on June 27, 1960.