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Regulation No. SR-436A

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

Effective: June 30, 1960
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Special Civil Air Regulation No. SR-436A

Reg. Docket No. 65; Reg. No. SR-436A]

**Part 40—SCHEDULED INTERSTATE
AIR CARRIER CERTIFICATION AND
OPERATION RULES**

**Part 41—CERTIFICATION AND OPER-
ATION RULES FOR SCHEDULED
AIR CARRIER OPERATIONS OUT-
SIDE THE CONTINENTAL LIMITS OF
THE UNITED STATES**

**Part 42—IRREGULAR AIR CARRIER
AND OFF-ROUTE RULES**

**Airborne Weather Radar Equipment
Requirements for Airplanes Carry-
ing Passengers; Special Civil Air
Regulation**

Special Civil Air Regulation SR-436,
effective February 15, 1960 (25 F.R. 167),
amended by Amendment No. 1 (25
F.R. 1987), requires the installation of
airborne weather radar equipment in
all of the transport category airplanes
used for the carriage of passengers under
Parts 40, 41, or 42 of the Civil Air Regu-
lations. Other provisions of the opera-
tion and airworthiness rules require dual
sources of electrical power for such re-
quired equipment.

No distribution was made of this amend-
ment. 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.

In regard to the requirement for dual
sources of electrical power, airborne
weather radar equipment uses approxi-
mately 500 to 700 VA (voltamperes) of
115 volt AC power. Airplanes which gen-
erate direct current (DC) power obtain
alternating current (AC) power from
power converters generally known as in-
verters. Inasmuch as some instruments
and other equipment require AC power,
transport category airplanes which basi-
cally 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 capa-
bility of the typical airplane inverter.
To accommodate weather radar, prior
to the promulgation of SR-436, the vari-
ous AC power loads were divided be-
tween 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 in-
verter would supply the AC power for
required instruments and equipment,
consistent with the dual power source
requirement in the operating and air-
worthiness rules.

When airborne weather radar became
required equipment, the installation de-
scribed 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 require-

ment, 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 com-
bined 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 pro-
viding for dual power for such equip-
ment. Consideration has also been given
to the present reliability of inverters as
evidenced by the satisfactory use of air-
borne radar by the airlines with the
single inverter installation. Further-
more, SR-436 requires the operator to
establish procedures for the continuance
of flight when the weather radar be-
comes 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

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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 operator 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, or 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 aircraft. 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, the instructions and procedures shall meet 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, Hawaii, or during all-cargo, training, or ferry flights.

5. *Electrical power supply.* Contrary provisions of the Civil Air Regulations notwithstanding, an alternate electrical power supply need not be provided for airborne weather radar equipment.

6. *Effective date.* This Special Civil Air Regulation shall become effective on July 1, 1960, and supersedes Special Civil Air Regulation No. SR-436.

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

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

E. R. QUESADA
Administrator

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