Federal Aviation Agency
Washington, D.C.

Civil Aeronautics Manual 43

General Operations Rules

Supplement No. 7, CAM 43 dated Sept. 1959 — September 1, 1962

SUBJECT: Revisions to CAM 43.

In accordance with FAA's announced program to recodify its regulations, certain sections of Civil Aeronautics Manual 43 have been transferred to Part 61—Certification: Pilots and Flight Instructors [New], published in the Federal Register on August 10, 1962 (27 F.R. 7955), to become effective November 1, 1962.

CAM 43 will not be completely superseded by the new Parts until August 1963. As each new Part is published affecting CAM 43, corrected pages will be issued to this manual with the appropriate cross-reference to the new Part. In this way, CAM 43 will be kept current until it is completely superseded. (Page III of Part 1 sent you in June outlines the target dates for the issuance of the new Parts and page V carries a Distribution Table showing the old section numbers with the section numbers in the new Part to which the material has been transferred.)

This supplement also includes Special Civil Air Regulation No. SR-392D, which concerns the display of experimental exterior lighting systems approved for use on aircraft. This regulation was issued June 22, 1962, and became effective June 25, 1962.

Remove the following pages:	*Insert the following new pages:*
III and IV	III and IV
7 through 13	7 through 12
	26-1 through 26-3
83	83

GEORGE C. PRILL, *Director,*
Flight Standards Service.

ATTACHMENTS.

656320 O—62

Contents

General

	Section	Page
Scope	**43.1**	1

Aircraft Requirements

Aircraft requirements	**43.10**	1
Transport category airplane weight limitations	**43.11**	1

Maintenance

General	**43.20**	2
Discussion of the policies relating to the requirements of sec. 43.20–1		2
General (*FAA policies which apply to sec. 43.20*)	43.20–1	2
Flight tests	**43.21**	2
Flight tests on aircraft prior to carrying passengers—determination of repairs or alterations which may have appreciably changed flight characteristics or substantially affected operation in flight (*FAA policies which apply to sec. 43.21*)	43.21–1	2
Inspections	**43.22**	3
Discussion relating to maintenance requirements in sec. 43.22		3
Deleted	43.22–1	4
Progressive inspections (*FAA rules which apply to sec. 43.22(b)*)	43.22–2	4
Aircraft and engine maintenance records	**43.23**	4
Aircraft and engine maintenance records (*FAA rules which apply to sec. 43.23*)	43.23–1	4
Maintenance of engine maintenance records (*FAA interpretations which apply to sec. 43.23*)	43.23–2	5
Rebuilt engine logs	**43.24**	5
Rebuilt engine (*FAA interpretations which apply to sec. 43.24*)	43.24–1	5
Approval of rebuilt aircraft engines (*FAA rules which apply to sec. 43.24*)	43.24–2	5

Aircraft Instruments and Equipment

Instruments and equipment for NC powered aircraft or powered aircraft with standard airworthiness certificates	**43.30**	5
Instrument flight rules (*FAA interpretations which apply to sec. 43.30(c)(2)*)	43.30–1	6
Aircraft electronic navigation equipment accuracy	**43.31**	6
Flight recorders	**43.32**	7

Piloting Rules (General)

[Deleted	**43.40]**	8
[Deleted	**43.41]**	8
[Deleted	43.41–1]	8
[Deleted	**43.42]**	8
Use of liquor, narcotics, and drugs	**43.45**	8
Towing by aircraft	**43.46**	8
Authorization (*FAA policies which apply to sec. 43.46*)	43.46–1	8
Application (*FAA policies which apply to sec. 43.46*)	43.46–2	8
Certificate conditions (*FAA policies which apply to sec. 43.46*)	43.46–3	9

(Rev. 9/1/62)

Piloting Rules (General)—Continued

	Section	Page
Dropping objects or persons	43.47	9
Aerobatic flight	43.48	9
Aerobatic flight (*FAA interpretations which apply to sec. 43.48*)	43.48–1	9
Parachutes	43.49	10
Transportation of explosives and other dangerous articles	43.50	10
Fuel supply	43.51	10

Student Pilot Limitations
[Deleted]

[Deleted	43.52]	10
[Deleted	43.55]	10
[Deleted	43.56]	10

Private and Commercial Pilot Privileges and Limitations

[Deleted	43.60]	10
[Deleted	43.61]	10
[Deleted	43.62]	10
[Deleted	43.63]	10
[Flight instruction limitations	43.64]	10
[Deleted	43.65]	10
Simulated instrument flight	43.67	10
[Deleted	43.68]	11

Definitions

Definitions	43.70	11

Appendixes

Appendix A—Sample letters		15
Appendix B—Special Civil Air Regulations which affect Part 43		17
SR–330.	Special Flight Instruction for Military Personnel of Foreign Governments	19
SR–389B.	Emergency Exits for Airplanes Carrying Passengers for Hire	21
	Amendment No. 1 to SR–389B	24–1
SR–392C.	Facilitation of Experiments With Exterior Lighting Systems	25
[SR–392D.	Display of Experimental Exterior Lighting Systems Approved for Use on Aircraft]	26–1
SR–397.	Authorization for the United States Forest Service to Deviate from the Civil Air Regulations	27
SR–399D.	Provisional Maximum Certificated Weights for Certain Airplanes Operated by Alaskan Air Carriers, Air Taxi Operators in Alaska, and the Department of the Interior	29
SR–422A.	Turbine-Powered Transport Category Airplanes of Current Design	31
SR–422B.	Turbine-Powered Transport Category Airplanes of Current Design	51
SR–423.	Type Certification of Transport Category Airplanes with Turbo-Prop Replacements	69
SR–425C.	Provisional Certification and Operation of Aircraft	73
[SR–428.]	Deleted	83
SR–446A.	Use of Portable Frequency Modulation (FM) Type Radio Receivers on Aircraft During Flight	85
SR–448A.	Precautions to Prevent Hijacking of Aircraft and Interference With Crewmembers in the Performance of Their Duties	87
SR–450.	Airspeed Operation Limitation for Transport Category Airplanes	89
SR–451.	Requirements for Solo Flight in Single-Place Rotorcraft of the Gyroplane Class by Holders of Student Pilot Certificates	93

Addendum

Preambles to Amendments to Part 43	P–1

within the preceding ten days, and found to be within the limits of the indicated bearing error specified in this section for the particular check. The checks shall be conducted in accordance with either paragraph (a) or (b) of this section as follows:

(a)

(1) If an FAA operated or approved test signal [2] is available at the airport of intended departure, a check of the VOR equipment shall be accomplished using this test signal. The maximum permissible indicated bearing error is plus or minus 4°.

[2] FAA operated or approved test signals, and ground check points on an airport surface and airborne check points designated by the Administrator, will be shown in the Airman's Guide.

(2) If an FAA operated or approved test signal is not available at the airport of intended departure, a check shall be accomplished using a point on an airport surface designated [2] by the Administrator as a VOR system check point. The maximum permissible indicated bearing error is plus or minus 4°.[3]

[3] In making this check, caution should be exercised to head the aircraft in a direction to prevent the aircraft structure from interfering with the ground signal.

(3) If neither an FAA operated or approved test signal nor a designated check point on the airport surface is available, a check shall be accomplished using an airborne check point designated [2] as such by the Administrator. The maximum permissible indicated bearing error is plus or minus 6°.

(4) In the event none of the checks prescribed in subparagraphs (1), (2), and (3) of this paragraph can be accomplished, because of the unavailability of a check signal or point, the following airborne procedure shall be accomplished.

(i) Select the VOR radial which lies along the center line of an established VOR airway,

(ii) Choose a prominent ground point along the selected radial preferably more than 20 miles from the VOR ground facility and maneuver the aircraft directly over the point at a reasonably low altitude, and

(iii) Note the VOR bearing indicated by the receiver when over the point. The maximum permissible difference between the published radial and the indicated bearing is plus or minus 6°.

(b) If dual systems (defined as VOR units independent of each other with the exception of the antenna) are installed in the aircraft, one system may be checked against the other in the following manner in lieu of the check procedures specified above: Both systems shall be tuned to the same VOR ground facility and the indicated bearings to that station noted. The maximum permissible variation between the two indicated bearings is 4°.

(c) The person making the VOR operational check as specified in paragraphs (a) or (b) of this section shall make an entry of such check in the aircraft log or other permanent record showing the date, place, bearing error, and his signature.

43.32 Flight recorders.

(a) The holder of an air carrier or commercial operator certificate shall not operate any of the following airplanes in the conduct of flights (other than a ferry flight conducted for the purpose of delivering a newly acquired airplane from the place where an air carrier or commercial operator takes possession to a base where a flight recorder is to be installed), unless there is installed on the airplane an approved flight recorder which records at least time, altitude, airspeed, vertical acceleration, and heading:

(1) Airplanes of more than 12,500 pounds maximum certificated takeoff weight which are certificated for operations above 25,000 feet altitude;

(2) Turbine-powered airplanes of more than 12,500 pounds maximum certificated takeoff weight.

(b) When an air carrier or commercial operator conducts a flight with an airplane which has a flight recorder installed as required by paragraph (a) of this section, the flight recorder shall be operated continuously from the instant the pilot commences the takeoff roll until he has completed the landing roll at a place of landing, subject to the following exceptions:

(1) If an airplane with an inoperative flight recorder is located at a place where facilities for the repair or replacement of the recorder are not available, the airplane may be ferried with the flight recorder inoperative to a base where the recorder can be repaired or replaced.

(2) If the flight recorder becomes inoperative after the airplane has become airborne, the particular flight may be continued and completed as originally planned.

(3) During an airworthiness flight test, the flight recorder may be turned off for any period of time necessary to conduct tests of the operation of the recorder, or any communication or electrical equipment, installed in the airplane.

(c) Recorded information shall be retained by the air carrier or commercial operator for a period of at least 60 days. For a particular flight or series of flights, the information shall be retained for a longer period if requested by an authorized representative of the Administrator or the Civil Aeronautics Board.

(Amendments 43–13, published in 26 F.R. 3985, May 9, 1961, effective June 6, 1961.)

Piloting Rules (General)

[43.40 Deleted effective November 1, 1962.]

The provisions of section 43.40 have been transferred to Part 61 [New].*

[43.41 Deleted effective November 1, 1962.]

The provisions of section 43.41 have been transferred to Part 61 [New].

[43.41–1 Deleted effective November 1, 1962.]

The provisions of section 43.41–1 have been transferred to Part 61 [New].

[43.42 Deleted effective November 1, 1962.]

The provisions of section 43.42 have been transferred to Part 61 [New].

43.45 *Use of liquor, narcotics, and drugs.* No person shall pilot an aircraft or serve as a member of the crew while under the influence of intoxicating liquor or use any drug which affects his faculties in any manner contrary to safety. A pilot shall not permit any person to be carried in the aircraft who is obviously under the influence of intoxicating liquor or drugs, except a medical patient under proper care or in case of emergency.

43.46 *Towing by aircraft.* No pilot shall tow anything by aircraft unless authority for such operation has been issued by the Administrator.

43.46–1 *Authorization (FAA policies which apply to sec. 43.46).* Authority for towing objects by aircraft is issued by the Administrator in the form of a Certificate of Waiver or Authorization, Form FAA–663. This certificate is issued to the operator of the aircraft by the local General Aviation District Office.

(Published in 18 F.R. 6871, Oct. 31, 1953, effective Nov. 25, 1953.)

43.46–2 *Application (FAA policies which apply to sec. 43.46).* An application will be made by the operator of the aircraft in the following manner:

(a) *Application form.* Obtain three copies of Form FAA–400, Application for Certificate of Waiver, from the local General Aviation District Office, and fill out all copies as follows:

(1) Type, or print, in ink.

(2) Give complete information on items 1 through 7.

(3) Sign all copies of the application on the reverse in the space provided for the applicant's signature.

(b) *Application procedure.*

(1) Submit all copies of the application to the local General Aviation District Office, and

(2) Arrange with the local agent for inspection of the aircraft, and equipment to be used, and the aircraft records.

(c) *Inspection.* Inspection of aircraft and equipment will include:

(1) Hitches, release mechanisms, and type of rope or cable used.

(2) Loading conditions of the aircraft.

(3) Area and procedure for dropping the tow or cable.

*Available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., for 30 cents.

(4) Proper lighting for aircraft and tow when night operations are involved.

(5) General airworthy condition of the aircraft and tow.

(Published in 18 F.R. 6871, Oct. 31, 1953, effective Nov. 25, 1953.)

43.46–3 *Certificate conditions (FAA policies which apply to sec. 43.46).* A Certificate of Waiver or Authorization for towing objects by aircraft will be issued subject to the following conditions and limitations:

(a) *Operations authorized.* Operations will be limited to those specified on the certificate. No authorization will be issued unless the operation:

(1) Will not create a hazard to other air traffic, or persons or property on the ground.

(2) In a control zone, can be controlled by air traffic control, or other air traffic can be advised of the operation.

(3) On airways, or in the vicinity of busy airports, can be made known to affected air traffic.

(4) Can be conducted in accordance with such special provisions which the approving agent deems necessary.

(b) *Duration.* The certificate will contain an expiration date which will allow ample time to complete the operation, but may be surrendered by the holder or cancelled by the Administrator at any time.

(c) *Special provisions.* The certificate will contain such special provisions as the approving agent may deem necessary in the interest of safety. *Examples illustrating such provisions are:*

(1) A thorough inspection of the aircraft, engine, and special equipment shall be made prior to each day's operations.

(2) A planned course of action shall be followed with emphasis on selection of available emergency landing areas.

(3) A capable and experienced pilot holding at least a commercial rating will be used.

(4) Air traffic control and appropriate officials of the community shall be notified prior to beginning operations.

(5) Any other specific precaution the agent may assign.

(Published in 18 F.R. 6872, Oct. 31, 1953, effective Nov. 25, 1953.)

43.47 *Dropping objects or persons.*

(a) No person piloting an aircraft shall permit any object to be dropped from such aircraft in flight which creates a hazard to persons or property.

Note: **This rule prohibits neither aerial application operations, such as seeding, spraying or dusting, nor the dropping of newspapers, periodicals, circulars, or objects of any other kind, provided reasonable precautions are taken to avoid injury or damage to persons or property.**

(b) No person piloting an aircraft shall *permit a parachute jump to be made* from such aircraft over congested areas of cities, towns, or settlements, or an open air assembly of persons except in an emergency or except under the terms of an authorization issued by the Administrator.

43.48 *Aerobatic flight.* No pilot shall intentionally fly an aircraft in aerobatic flight carrying passengers unless all occupants are equipped with approved parachutes.

43.48–1 *Aerobatic flight (FAA interpretations which apply to sec. 43.48).* Aerobatic flight, insofar as it concerns the wearing of parachutes, must be deemed to exist when any maneuver intentionally performed results in the following:

(a) A bank in excess of 60° relative to the horizon, or

(b) A nose up or nose down attitude in excess of 30° relative to the horizon.

An example of the application of this interpretation is that parachutes are not required when stalls, lazy eights, etc., are performed within these limits, while these same maneuvers performed with attitudes in excess of the limits would require the wearing of parachutes. Stalls as practiced for the private pilot flight test normally would not exceed the prescribed limits.

Consideration must be given to the fact that these limits are not intended to insure that all

maneuvers which could be performed within them are also within the safe operating limits of the aircraft. It is reasonably certain that a prolonged full power descent in a nose down attitude of less than 30° would exceed placarded speeds, and that sudden full application of elevators at cruising speed could produce stresses sufficient to cause structural failure.

This interpretation is intended only to define the circumstances under which parachutes must be worn in accordance with section 43.48, and does not in any way modify the definition of aerobatic flight as it applies to other sections of the Civil Air Regulations.

(Published in 15 F.R. 5843, Aug. 30, 1950, effective Aug. 30, 1950.)

43.49 *Parachutes.* No pilot shall carry on an aircraft a parachute which is available for emergency use unless:

(a) It is an approved chair-type (canopy in back) parachute which has been packed by a qualified parachute rigger within the preceding 120 days; or

(b) It is an approved-type, other than a chair-type (canopy in back) parachute which has been packed by a qualified parachute rigger within the preceding 60 days.

43.50 *Transportation of explosives and other dangerous articles.* No person piloting an aircraft shall permit explosives or other dangerous articles such as inflammable liquids or solids, oxidizing material, corrosive liquid, inflammable or noninflammable compressed gas, poison gas or liquid, poisonous liquid or solid, or tear gas to be carried in aircraft, except as provided for in Part 49 of this chapter. Small arms ammunition for personal use, necessary aircraft signaling devices, and equipment necessary to safe operation of the aircraft are permitted.

43.51 *Fuel supply.* Aircraft operated under IFR conditions shall carry sufficient fuel, considering weather reports and forecasts of wind and other weather conditions, to complete the flight to the point of first intended landing, to fly from there to the alternate airport, and to fly thereafter for 45 minutes at normal cruising speed.

Student Pilot Limitations

[Deleted]

The provisions of *Student Pilot Limitations* have been transferred to Part 61 [New] effective November 1, 1962.

[43.52 Deleted effective November 1, 1962.]

The provisions of section 43.52 have been transferred to Part 61 [New].

[43.55 Deleted effective November 1, 1962.]

The provisions of section 43.55 have been transferred to Part 61 [New].

[43.56 Deleted effective November 1, 1962.]

The provisions of section 43.56 have been transferred to Part 61 [New].

Private and Commercial Pilot Privileges and Limitations

[43.60 Deleted effective November 1, 1962.]

The provisions of section 43.60 have been transferred to Part 61 [New].

[43.61 Deleted effective November 1, 1962.]

The provisions of section 43.61 have been transferred to Part 61 [New].

[43.62 Deleted effective November 1, 1962.]

The provisions of section 43.62 have been transferred to Part 61 [New].

[43.63 Deleted effective November 1, 1962.]

The provisions of section 43.63 have been transferred to Part 61 [New].

43.64 *Flight instruction limitations.* This section governs flight instructions:

(a) *Aircraft.* Aircraft shall be equipped with fully functioning dual controls.

[(b) Deleted effective November 1, 1962.]

[(c) Deleted effective November 1, 1962.]

[(d) Deleted effective November 1, 1962.]

The provisions of paragraphs (b), (c), and (d) of section 43.64 have been transferred to Part 61 [New].

[43.65 Deleted effective November 1, 1962.]

The provisions of section 43.65 have been transferred to Part 61 [New].

43.67 *Simulated instrument flight.* Aircraft shall not be flown under simulated instrument flight conditions unless:

(a) Fully functioning dual controls are installed in the aircraft.

(b) An appropriately rated pilot occupies the other control seat as safety pilot, and

(c) Such safety pilot at all times has adequate vision forward and to either side of the aircraft, or a competent observer occupies a position in the aircraft so that his field of vision adequately supplements that of the safety pilot.

[43.68 Deleted effective November 1, 1962.]

The provisions of section 43.68 have been transferred to Part 61 [New].

Definitions

43.70 *Definitions.* As used in this part terms shall be defined as follows:

Aircraft. An aircraft means any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air, including airframe, powerplant, propeller, and appliances.

Category. Category shall indicate a classification of aircraft such as airplane, helicopter, glider, etc.

Class. Class shall indicate a difference in basic design of aircraft within a category, such as single-engine land, multiengine sea, etc.

Copilot. Copilot shall mean a pilot serving in any piloting capacity other than as pilot in command on aircraft requiring two pilots for normal operations, but excluding a pilot who is on board the aircraft for the sole purpose of receiving dual instruction.

Dual instruction time. Dual instruction time shall mean that portion of the flight time during which a person is receiving flight instruction from a rated flight instructor on board the aircraft.

Flight instructor. Flight instructor means a pilot who is qualified to instruct other pilots and who has received a flight instructor rating.

Flight time. Flight time shall mean the total time from the moment the aircraft first moves under its own power for the purpose of flight until the moment it comes to rest at the end of the flight.[4]

[4] For example, a pilot taxies to the warmup apron and holds there for several minutes before taking off to permit the engine to warmup. Such taxi and warmup time is not considered flight time. Flight time begins when the aircraft leaves the warmup apron and ends when the pilot returns to parking apron and turns the switches off.

Maintenance. Maintenance, which includes preventive maintenance, means the inspection, overhaul, repair, upkeep, and preservation of airframes, powerplants, propellers, and appliances, including the replacement of parts.

Operate. Operate means to cause or authorize the operation of aircraft, whether with or without the right of legal control (in the capacity of owner, lessee, or otherwise) of the aircraft.

One-hundred-hour inspection. A 100-hour inspection is an inspection of an aircraft required within each 100 hours of time in service and is a complete airworthiness inspection of such aircraft and its various components and systems in accordance with procedures prescribed by the Administrator.

Passenger. A passenger is an occupant of the aircraft in flight other than a crew member.

Periodic inspection. A periodic inspection is an inspection of an aircraft required once each 12 calendar months and is a complete airworthiness inspection of such aircraft and its various components and systems in accordance with procedures prescribed by the Administrator.

Pilot. A pilot is a person holding a valid pilot certificate issued by the Administrator.

Pilot in command. Pilot in command shall mean the pilot responsible for the operation

and safety of the aircraft during the time defined as flight time.

Progressive inspection. A progressive inspection is a continuing airworthiness inspection of an aircraft and its various components and systems at scheduled intervals in accordance with procedures prescribed by the Administrator.

Solo flight time. Solo flight time shall mean the flight time during which a pilot is the sole occupant of an aircraft.

Time in service. Time in service, as used in computing maintenance and inspection time records, is the time from the moment an aircraft leaves the ground until it touches the ground at the end of a flight.

To pilot. To pilot means to be in command of the aircraft during take-off, in flight, or landing.

Type. Type shall mean all aircraft of the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.

Note: The reporting and/or record-keeping requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

SPECIAL CIVIL AIR REGULATION NO. SR-392D

Effective: June 25, 1962
Adopted: June 22, 1962
Published: June 26, 1962
(27 F.R. 5979)

Display of Experimental Exterior Lighting Systems Approved for Use on Aircraft

Special Civil Air Regulation No. SR-392B, adopted on February 25, 1957, and superseded by SR-392C on February 3, 1962, permitted experimentation with exterior lighting systems that did not comply with the standards prescribed in the Civil Air Regulations on aircraft with standard airworthiness certificates. Several conditions were imposed to insure that the number of aircraft engaged in the experiments was reasonably limited; that the experimental exterior lights were in fact installed for bona fide experimentation; and that the results of such experimentation became generally available.

In a notice of proposed rule making contained in Draft Release No. 61-27 and published in the Federal Register, December 23, 1961 (26 F.R. 12294), the Agency gave notice that it had under consideration the termination of SR-392B, which was then in effect, and requested comments from interested persons. However, the nature of the comments received was such that there was not sufficient time remaining, before the February 25, 1962, termination date specified in SR-392B, for their proper review and evaluation. To provide the time needed, the Agency adopted SR-392C which superseded SR-392B without revision other than extension of the termination date from February 25, 1962, to June 25, 1962.

On April 3, 1962, the Agency convened a public conference (previously announced by a notice of conference dated February 12, 1962) to give persons interested in SR-392C an opportunity to supplement their written comments with oral presentations, to make additional evidence available, and to participate in direct discussions with government-industry technical people in the aircraft lighting field.

From a study of all comments made on the issue, those who support the need for an extension of SR-392C contend essentially as follows: (1) Experimental lighting systems now operating under SR-392C are more effective than the system prescribed in the Civil Air Regulations; (2) much money and time has been invested in the experiments, which would be wasted if SR-392C were terminated; (3) extension would continue grass-roots cooperation between experienced FAA inspectors and inventors, and stimulate inventive initiatives; (4) unrestrictive field testing would insure reliability of new lighting equipment by exposing it to actual service conditions; (5) a new lighting concept cannot attract financing, or interest manufacturing management, unless its sales potential is established by flight demonstrations to prospective customers; and (6) there is no satisfactory alternative to extension of SR-392C.

After more than 10 years of experimentation under the provisions of SR–392C and predecessor special regulations, the evidence supporting the contention that various experimental lighting systems surpass the standard system now prescribed in the Civil Air Regulations remains inconclusive. For the most part, reports submitted by experimenters contain subjective evaluations of proposed systems without the use of experimental controls to insure a valid basis for comparison. Tests and studies conducted by the Navy Department and by the Agency's National Aviation Facilities Experimental Center have not corroborated the advantages claimed by private experimenters for their respective systems.

The experiments were no doubt expensive and time-consuming, but the persons who undertook them did so voluntarily and with no assurance of success. In any case, the costs incurred in such experiments do not justify the indefinitely prolonged display of experimental lighting systems, since these systems necessarily introduce some degree of ambiguity and confusion in night operations.

Termination of SR–392C would not prevent further lighting experimentation since such experiments could still be performed under the terms of an experimental airworthiness certificate. There appears to be no reason why cooperation between FAA inspectors and inventors would necessarily diminish if further lighting experiments were conducted only on that basis.

The point that unrestricted field testing insures reliability of experimental lighting equipment is largely irrelevant since the objective of SR–392C was to facilitate experiments with new lighting concepts rather than to achieve component reliability. Component technology is not in question; and, in any case, there is no evidence that unusual problems exist. Further, reliability can be attained to a large extent by laboratory tests in a simulated environment, a practice which has worked satisfactorily in the past.

It may be true that the privileges granted by SR–392C (as opposed to the generally more restrictive terms of experimental airworthiness certificates) make it easier to finance new lighting concepts, but similar privileges are not granted to those who experiment with aircraft in other ways. This preference for one class of experimenters over all other classes has not been justified in terms of safety improvements achieved to date.

Reasonable alternatives to SR–392C are, in fact, open to experimenters. Experiments may be conducted under the terms of an experimental airworthiness certificate; and the Agency's well-equipped experimental facilities, with trained personnel, are now available for cooperative evaluation of new lighting concepts developed by inventors.

For these reasons, the Agency concludes that the arguments offered in support of an extension of SR–392C are not persuasive; and SR–392C will not be continued in effect beyond June 25, 1962. However, the Agency believes that a reasonable transition period of not less than one year should be established. This would permit 6 months for completion of experiments begun before June 25, 1962, the maximum period of experimentation permitted under SR–392C without special permission, and

would allow not less than an additional 6 months for airplane modifications that may be necessitated by the termination of experimentation hereunder.

The various experiments which were conducted under the provisions of SR–392C and predecessor special regulations, although inconclusive, have, nevertheless, helped to crystallize the Agency's position on the need for revisions of the currently effective exterior lighting regulations. Therefore, a proposed rule concerning these requirements is under study by the Agency. If rule making action is initiated as a result of this study, it may ultimately affect some of the details of the lighting systems now required to be installed on aircraft. Moreover, if such rule making action is initiated it may not be completed before December 25, 1962. In such case, a requirement to accomplish the necessary modifications within one year after the termination of SR–392C, i.e., by June 25, 1963, may not provide the operator with a period of 6 months in which to accomplish the modifications, if any, required by the regulation.

In order to permit an adequate transition period for the accomplishment of any necessary modifications, this regulation permits the current experimental lighting systems to be used until June 25, 1963, or 6 months after completion of the proposed rule making action in regard to exterior lighting systems, whichever date is later. If, however, the Agency finds at the conclusion of its studies that rule making action will not be adopted an appropriate notice thereof will be issued and published in the Federal Register. In such case this regulation also permits the experimental lighting systems to be used until June 25, 1963, or 6 months after such notice is published in the Federal Register, whichever date is later.

In consideration of the foregoing, the following Special Civil Air Regulation is adopted to become effective on June 25, 1962:

Contrary provisions of the Civil Air Regulations notwithstanding, experimental exterior lighting systems which do not comply with the Civil Air Regulations, and which were installed for the purposes of experimentation on aircraft with standard airworthiness certificates under the provisions of SR–392B or SR–392C, may be displayed until:

(1) 6 months after the date of publication in the Federal Register of either

(i) revised standards adopted by the Agency for exterior lighting systems, or

(ii) a notice that rule making action to revise such standards will not be adopted by the Agency; or

(2) June 25, 1963, if later than that specified in paragraph (1).

This Special Civil Air Regulation shall remain in effect until superseded or rescinded.

SPECIAL CIVIL AIR REGULATION NO. SR–428

[Deleted]

The requirements of Special Civil Air Regulation No. SR–428 have been transferred to Part 61—Certification: Pilots and Flight Instructors [New] effective November 1, 1962.

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