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CIVIL AERONAUTICS MANUAL 8

U. S. Department of Commerce — Civil Aeronautics Administration

Civil Aeronautics Manuals and supplements thereto are issued by the Office of Aviation Safety, Civil Aeronautics Administration, for the guidance of the public and are published in the Federal Register and the Code of Federal Regulations.

Supplement No. 3 — February 23, 1954

SUBJECT: Revisions to CAM 8.

The purpose of this supplement is to provide holders of Civil Aeronautics Manual 8 with amended and clarifying information on special purpose operation in restricted category aircraft, and to bring references to Parts 18 and 43, and to Forms ACA–337 and 305a as originally published into agreement with the latest revisions of these documents.

Remove and destroy the following pages:

Introductory Note.
8.0 through 8.34–1 (c).
Supplement No. 1 dated February 15, 1951.

Insert in lieu thereof the following pages:

Introductory Note.
8.0 through 8.34–1 (c).

Office of Aviation Safety.

A. S. KOCH, *Director.*

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Introductory Note

The following policies and interpretations of the Administrator of Civil Aeronautics pertain to Part 8 of the regulations of the Civil Aeronautics Board, which became effective October 11, 1950 (15 F. R. 5224, August 12, 1950). The entire Part 8 is repeated here to assist the public in understanding how the Administrator's policies and interpretations apply to the various sections of the Board's regulations.

The Administrator's policies and interpretations explain and interpret the Board's regulations, and set forth acceptable procedures and practices for the guidance of the public in complying with the regulations. Other practices which provide equivalent safety to those specified by the Administrator will also be acceptable. Any provisions which are shown to be inapplicable in a particular case will be modified upon request.

The material is arranged to set forth in small type each numbered section of the Board's regulations followed by the related policies and interpretations of the Administrator. The Administrator's sections pertaining to a particular section of the Board's regulations are identified by consecutive dash numbers appended to the regulation section number. Thus section 8.0 means section 8.0 of the Board's regulations, and section 8.0–2 means the second of the Administrator's sections under section 8.0.

Guidance information for use in modifying aircraft for agricultural and similar purposes is contained in CAM 8, Appendix A.

The Administrator's policies and interpretations will be revised from time to time as the need for new or revised interpretations, procedures, or practices are brought to the attention of the CAA.

Because the new Part 8 presents a considerable departure from the previous restricted category airworthiness requirements, the explanatory statement issued by the Civil Aeronautics Board upon adoption of Part 8 is set forth below to explain its background and objectives. In this statement, the terms "currently effective" and "existing requirements" actually refer to the requirements in effect prior to Part 8, since the statement was issued before the effective date of the regulation.

"*Preamble to Part 8.* Currently effective airworthiness parts and Part 43 of the Civil Air Regulations provide for the type and airworthiness certification of aircraft built or modified for special purposes, such as crop dusting, seeding, spraying, and other special purposes. In accordance with current requirements the Administrator may waive such of the basic airworthiness requirements as are rendered inappropriate by the special purposes involved, but he is required to prescribe operating limitations to insure that the operation will have 'an equivalent level of safety' to that of an aircraft operating under an airworthiness certificate for an aircraft category other than restricted. The procedure by which compliance is shown with the restricted category is essentially the same as that required for certification in other airworthiness categories.

"We have been advised that the existing requirements, which were designed primarily to establish an appropriate level of safety for passenger-carrying aircraft, have imposed an unnecessary economic burden and are unduly restrictive for the manufacture and operation of aircraft intended for use in rural, sparsely settled areas outside the usual lanes of air transportation and in which no passengers are to be carried for hire. For such restricted operations where public safety is not endangered it appears unreasonable to require the same level of safety as that required for passenger-carrying aircraft. Therefore, a basic change in Part 8 from current practice has been the elimination of the 'equivalent level of safety' provision from the requirements for restricted category aircraft.

"In addition, the part establishes new standards for the issuance of type certificates for the

restricted category, for modifications or existing type certificates, and for issuance of airworthiness certificates for aircraft intended to be operated for special purposes and for operating limitations to be applicable to such aircraft. It also simplifies the procedure of showing compliance with the restricted category requirements and provides for the tailoring of the operating limitations to the particular purpose for which certification is sought. This part authorizes the Administrator to waive or modify any of the airworthiness requirements of the Civil Air Regulations, either for initial or continued airworthiness, for the standard (passenger-carrying) aircraft categories which he finds inappropriate for the special purpose for which the aircraft is to be used, including individual design requirements, requirements for flight testing, and submittal of engineering data and drawings. In the case of aircraft built for type certification in the restricted category, engineering data, reports, and flight tests will be required but in a greatly simplified manner as compared to the requirements for the passenger-carrying categories. However, it should be noted that nothing in this part is intended to contravene the statutory requirement that the administrator find that the aircraft is 'of proper design, material specification, construction, and performance for safe operation' before issuing a type certificate. (Sec. 603, 52 Stat. 1009, 49 U. S. C. 553)

"A civil aircraft which has previously been type certificated and subsequently modified for a special purpose may be issued a modified type certificate, and a military aircraft which has been manufactured according to the requirements of, and accepted for use by, a military service of the United States and subsequently modified for a special purpose may be issued a type certificate, when upon inspection the Administrator finds that the modification has been made in accordance with good aeronautical practice and that no feature or characteristic of the aircraft would render it unsafe when operated in accordance with the prescribed limitations. Engineering data, reports, or flight tests would not be required by the provisions of this part, except in cases where the inspection discloses a possible unsafe feature or characteristic.

"Provision is further made whereby an aircraft may be issued an airworthiness certificate in the restricted category and in any one or more of the airworthiness categories prescribed by the Civil Air Regulations, if the applicant shows compliance with the requirements for each category when in the configuration for that category and if the aircraft can be converted from one category to another by the addition or removal of equipment by simple mechanical means. Under such circumstances the Administrator will specify appropriate operating limitations for each category and will specify the approved changes necessary to convert and reconvert the aircraft from one category to another.

"This part is intended to provide the greatest possible flexibility of administration and to place the minimum possible burden consistent with public safety on the applicant for a certificate in the restricted category. While it is anticipated that it will be necessary to supplement this part with administrative policies and manual material, it is intended that such material be directly related to existing airworthiness standards and not take the form of independent administrative rules to be applied in lieu of the basic regulations.

"It will be noted that the Board is currently considering a revision of Parts 1 and 2, and it is contemplated that some of the material contained in this part will be included in that revision.

"Concurrently with the adoption of this part all reference to requirements for certification in the restricted category and to the operating limitations for aircraft so certificated, presently contained in Parts 3, 6, and 43 of the Civil Air Regulations, are being deleted from those parts.

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

"In consideration of the foregoing the Civil Aeronautics Board hereby makes and promulgates a new Part 8 of the Civil Air Regulations to read as follows, effective October 11, 1950:"

Aircraft Airworthiness

Restricted Category

"8.0 *Applicability of this part.* This part establishes standards for the issuance of type and airworthiness certificates for aircraft in the restricted category which are intended to be operated for agricultural, industrial, or other special purposes. This part also establishes operating limitations applicable to such aircraft."

8.0–1 *Eligible special purposes (CAA interpretations which apply to section 8.0).*

(a) The operating limitations specified in sections 8.32 and 8.33 limit the special purposes for which an aircraft may be certificated in the restricted category under Part 8. Section 8.32 prohibits the carriage of persons or cargo for hire in restricted category aircraft. Section 8.33 prohibits the carriage of persons other than the crew during special purpose operations. A flight operation involving the carriage of persons or cargo under the conditions prohibited by sections 8.32 or 8.33 will therefore not be considered an eligible special purpose for certificating the aircraft under the provisions of Part 8.

(b) The following are examples of special purpose operations considered to be within the applicability of Part 8:

Agricultural—spraying, dusting, and seeding; livestock and predatory animal control.
Forest and wildlife conservation.
Aerial surveying—photography, mapping; oil and mineral exploration.
Patrolling—pipelines, power lines, canals.
Weather control—cloud seeding.
Aerial advertising—skywriting, banner towing airborne signs and public address systems.
Appropriate combinations of such special purposes will also be eligible.

NOTE: A Certificate of Waiver or Authorization is required to conduct special purpose operations over certain areas (see sections 8.31 and 8.31–1).

8.0–2 *Applicability to aircraft previously certificated in the restricted category (CAA policies which apply to section 8.0).*

(a) Aircraft which were certificated in the restricted category prior to the effective date of Part 8 (October 11, 1950) may at the option of the owner retain their existing certification status.

(b) Alternatively, aircraft previously certificated in the restricted category may be recertificated under Part 8 as follows:

(1) If the aircraft is not modified from its previously approved configuration, the applicant should apply for recertification in accordance with section 8.20–1 (a). The CAA representative, without further inspection of the aircraft, will prescribe revised aircraft operating limitations (see section 8.30–1) indicating that the aircraft is certificated under Part 8. For agricultural aircraft the placard capacities of hoppers and tanks may be established and revised by the owner in accordance with section 8.10–4 (b). Repairs and alterations to such aircraft made after recertification under Part 8 will be handled in accordance with section 8.20–3.

(2) If the configuration of the aircraft is modified (i. e. a major alteration) from the previously approved configuration, the recertification procedure will be that specified in section 8.10–3.

(c) On or after October 11, 1950, an aircraft certificated for the first time in the restricted category must be certificated under Part 8, since previous restricted category requirements are rescinded on that date.

8.0–3 *Applicability to aircraft certificated in a category other than restricted category (CAA policies which apply to section 8.0).*

(a) Part 8 does not require an aircraft used for a special purpose to be certificated in the

restricted category. An aircraft modified for a special purpose may therefore be certificated in a category other than the restricted category (e. g. normal, utility or acrobatic category), provided the modified aircraft fully complies with the airworthiness requirements for such category.

(b) An aircraft which has been previously modified and then certified in a category other than restricted (as described in paragraph (a) of this section), may either retain its existing certification status or be recertified in the restricted category under Part 8 in accordance with the procedure specified in section 8.0–2 (b). In the latter case, the CAA representative will issue a revised Certificate of Airworthiness and prescribe appropriate operation limitations.

(c) An aircraft which has been previously type certificated in another category and then modified for a special purpose may be certificated in the restricted category in accordance with the procedure specified in section 8.10–3.

(d) An aircraft which has been certificated in the restricted category under Part 8 may be recertificated in another category when:

(1) The aircraft is restored to a configuration which is eligible for certification under an existing type certificate in such category, or

(2) Any changes from such configuration are shown to comply with the airworthiness requirements for the appropriate category.

(e) An aircraft may, however, be certificated in the restricted and other categories in accordance with the multiple airworthiness certification provisions of section 8.21.

"8.1 *Definitions.*

"(a) As used in this part, terms shall be defined as follows:

"(1) *Administrator.* The Administrator is the Administrator of Civil Aeronautics.

"(2) *Applicant.* An applicant is a person or persons applying for approval of an aircraft or any part thereof.

"(3) *Approved.* Approved, when used alone or as modifying terms such as means, devices, specifications, etc., shall mean approved by the Administrator.

"(4) *Authorized representative of the Administrator.* An authorized representative of the Administrator shall mean any employee of the Civil Aeronautics Administration or any private person, authorized by the Administrator to perform any of the duties imposed upon him by the provisions of this part."

8.1–1 *Authorized representative of the Administrator (CAA interpretations which apply to section 8.1 (a) (4)).* The term "private person" mentioned in this section is interpreted to mean a Designated Aircraft Maintenance Inspector (DAMI), or a Designated Manufacturing Inspection Representative (DMIR). All such persons are issued a Certificate of Authority, Form ACA–1382, for the purpose of identification.

"8.10 *Eligibility for type certificate.*

"(a) Any aircraft of the following classifications shall be issued a type certificate in the restricted category, if the Administrator finds that no feature or characteristic of the aircraft renders it unsafe when operated in accordance with the limitations prescribed for its intended use:

"(1) An aircraft type which has not previously been type certificated but which is shown by the applicant to comply with all of the airworthiness requirements of any other aircraft category prescribed in this subchapter, except those requirements which the Administrator finds inappropriate for the special purpose for which the aircraft is to be used; or

"(2) An aircraft type which has been manufactured in accordance with the requirements of, and accepted for use by, a United States military service and subsequently modified for a special purpose, whether or not such aircraft has been issued a type certificate under the provisions of Part 9 of this chapter.

"(b) A modification of a type certificate may be issued to an applicant for an aircraft which has been previously type certificated in another category and then modified for a special purpose when, upon inspection, the Administrator finds that the modifications conform to a good aeronautical practice and

that no feature or characteristic of the aircraft renders it unsafe when operated in accordance with the limitations prescribed for its intended use."

8.10–1 *Aircraft of a type not previously type certificated (CAA policies which apply to section 8.10 (a) (1)).* The following policies apply to the certification of new design restricted category aircraft which have not been type certificated or accepted for use by a U. S. military service.

(a) The applicant should submit an application for type certificate, Form ACA–312, in duplicate, to the appropriate CAA Regional Office, applying for a type certificate under this part. The CAA will issue a type certificate after the aircraft has been shown to comply with appropriate airworthiness requirements.

(b) To establish the appropriate airworthiness requirements, the applicant may submit a proposal to the CAA Regional Office, Aircraft Division, in which he selects the airworthiness requirements of one of the standard categories (e. g. Normal or Utility in Part 3) as a basis, and indicates any requirements which he considers should be waived or modified for the special purpose involved. After examination of the applicant's proposal, the CAA will advise him of its acceptance as a basis for showing compliance, or specify the requirements which the CAA finds appropriate.

(c) In selecting and showing compliance with the appropriate airworthiness requirements the applicant may use as a guide, the information contained in Appendix B to this part, entitled "Airworthiness Criteria for Agricultural and Similar Special Purpose Aircraft."

8.10–2 *Military type aircraft (CAA policies which apply to section 8.10 (a) (2)).* For certification in the restricted category, military aircraft are divided into three classes:

(a) *Military aircraft models previously type certificated in the limited category under Part 9.*

(1) For such aircraft, the certification procedure will be that specified in section 8.10–3.

(2) A list of military models that have been previously type certificated in the limited category is given in CAA Safety Regulation Release No. 277, "Status of Aircraft Certificated in the Limited Category."

(3) Compliance with the military technical orders listed on the CAA aircraft specifications will not be mandatory; however, the applicant should review the changes specified in these orders to determine if they are appropriate for the particular airplane and special purpose.

(b) *Military aircraft models previously type certificated under Part 4a.*

(1) Some military aircraft have been type certificated under Part 4a on the basis of required "conversion modifications" which are listed on the pertinent CAA aircraft specification. Such modifications will not be mandatory for certification under Part 8; however, the applicant should review the conversion modifications listed on the aircraft specification to determine if they are appropriate to the particular aircraft and special purpose.

(2) For such aircraft the certification procedure will be that specified in section 8.10–3.

(3) A listing of these military aircraft models is given in the CAA "Alphabetical List of Aircraft Specifications" which is included in the files of CAA Regional and District Offices, Aviation Safety Agents and Designated Aircraft Maintenance Inspectors.

(c) *Military aircraft models not previously type certificated in any category.* For Military aircraft not covered by paragraphs (a) and (b) of this section, the certification procedure will be that specified in section 8.10–3 upon completing the following initial steps:

(1) The applicant should first submit a letter to the CAA, Aircraft Division, Washington 25, D. C., identifying the military model and the proposed special purpose, and requesting certification under Part 8.

(2) The CAA will check the military record of the aircraft type. If the record discloses unsafe characteristics, the CAA will inform the applicant of these, and the aircraft will not be eligible for certification unless they are corrected or can be compensated by operating restrictions. If the military record is considered satisfactory, the applicant will be so informed, and a type certificate issued for the basic type.

The certification procedure will then continue as specified in section 8.10–3.

8.10–3 *Aircraft modified from a previously approved type (CAA policies which apply to*

section 8.10 (b)). Under the provisions of sections 8.10 (b) and 8.20 (a), a modification to the type certificate must be issued for an aircraft which has been previously type certificated in another category and then modified for a special purpose, in order to make the aircraft eligible for an airworthiness certificate in the restricted category. A modification of the type certificate will be issued by means of Repair and Alteration Form ACA–337 upon completion of the procedure specified in paragraphs (a) through (f) of this section.

The term "another category", as used in section 8.10 (b), includes normal, utility, acrobatic, transport or limited categories, under Parts 3, 4a, 4b, 6, or 9 but does not include experimental. For aircraft previously certificated in the restricted category, see section 8.0–2.

(a) *Classes of modifications.* Since modifications may vary in scope from minor alterations to complete redesign of major components, the basis for determining the airworthiness of a modified aircraft will depend upon the nature and extent of the modification. For this purpose, modifications are divided into two classes:

(1) *Visual basis modifications.* Modifications in this class are those for which airworthiness can be determined by visual examination, using as guides the original design of the aircraft and available information on modification practices. (See section 8.10–4.)

The procedure for this class is given in paragraphs (b) through (f) of this section. The submittal of technical data, such as drawings and stress analysis, is not required: however, for some modifications of this class it may be desirable to obtain engineering advice.

Examples of this class are:

(i) The removal of a diagonal from a lower fuselage bay and substitution of equivalent bracing, installation of a hopper, and increase of engine weight and power, using information referenced in section 8.10–4 as a guide.

(ii) Reduction in span of a strut braced monoplane. In this case engineering advice should be obtained, since the loads in the wings spars may or may not be seriously changed, depending on the relative location of the strut attachment point in the original and modified designs. In such cases, the CAA will furnish technical assistance upon request by the applicant.

(2) *Design requirement modifications.* Some modifications may be so extensive that the original design of the aircraft and available information on modification practices no longer furnish a suitable basis for determining airworthiness.

An example is the conversion of a monoplane to a biplane, in which case the original design does not furnish an adequate basis of comparison for judging the structural strength of the new lift truss.

The airworthiness of this class of modifications should be determined in accordance with the applicable parts of the airworthiness requirements for new design aircraft, as specified in section 8.10–1 (b) or (c). Technical data or other proof of compliance should be submitted in accordance with those requirements.

(b) *Application.* The applicant should apply to a CAA Aviation Safety District Office, CAA Aviation Safety Agent, or a Designated Aircraft Maintenance Inspector (DAMI) who has been specifically authorized to perform restricted category certification, and request certification of the modified aircraft in the restricted category. The following documents should be submitted by the applicant.

(1) Duplicate copies of Repair and Alteration Form ACA–337. (See paragraph (d) of this section.) These forms are prepared by the agency performing the modification.

(2) Application for Airworthiness Certificate and/or Annual Inspection of an Aircraft Form ACA–305. (See section 8.20–1 (a).) These forms are obtainable from all CAA Regional and District Offices and DAMI's. The applicant may consult with CAA or proceed with the modification prior to making formal application.

(c) *Performance of modification.* The modification to the aircraft should be performed by or under the supervision of an authorized agency (i. e., a certificated mechanic, or approved repair station having the proper ratings, or the manufacturer of the aircraft) as specified by section 18.10. Information for guidance in performing modifications is referenced in sections 8.10–4 and 8.10–5.

(d) *Form ACA–337.* Two copies of Repair and Alteration Form ACA–337 should be prepared by the agency performing the modification, in accordance with the following:

(1) Under Item 8 of Form ACA–337, state that the aircraft has been modified in accordance with Part 8 and briefly describe the modifications which have been made to the aircraft from its previously approved configuration. Examples of this entry are given in section 8.20–3 (b) (2) (ii).

(2) It is not required that the aircraft empty weight, empty center of gravity or useful load be listed under item 4 of Form ACA–337; however, if this information is being voluntarily maintained by the aircraft owner it may be entered in this space. (See sections 8.10–4 (b) and (c).)

(3) When the flight check specified in paragraph (e) has been completed, it should be recorded on the back of Form ACA–337.

(e) *Flight check.*

(1) The applicant should have the modified aircraft flight checked by a certificated pilot holding at least a private pilot rating to determine that it is safely controllable and operates satisfactorily in flight under the most adverse loading conditions anticipated in service. (See sections 8.10–4 (b) and (c)). For agricultural aircraft, the hoppers or tanks should be loaded to the maximum weights selected by the applicant and discharged in flight. For other aircraft, flight checks should be made with the special purpose loads, such as equipment (or equivalent weights), installed, and with such loads removed, if the aircraft is intended to be operated in that condition. The maximum capacity weights should be approached in stages, if there is any doubt concerning the controllability or performance of the airplane.

(2) The take-off should be made from a field of ample size or over suitable open terrain. The flight check should include maneuvers simulating the intended special purposes operations. The maneuvers should first be performed at a safe altitude over open terrain. Any undue tendency to go into a stall or dive (instability) or to roll should be considered unsatisfactory.

(3) Upon completion of a satisfactory flight check, the following entry should be made on the back of Form ACA–337 and signed by the pilot who performed the flight check:

Modified aircraft flight checked on _____ (Date)

by _____ _____ (Name) (Pilot certificate number)

in accordance with CAM 8.10–3 (e) and found to be safely controllable and to operate satisfactorily with the following special purpose load: _____ pounds.

(4) Entries similar to those specified in subparagraph (3) of this paragraph should also be made in the aircraft logbook.

(f) *Inspection of modifications.* A CAA Agent, or a DAMI specifically authorized to perform this function, will visually inspect the aircraft modifications for the following, using the information referenced in section 8.10–4 as a guide:

(1) Good aeronautical practice in respect to materials, techniques, and workmanship.

(2) Obvious unsafe features or hazards, of which the following are examples:

(i) *Structure.* Removal of structural members or material without adequate reinforcing; attachment or heavy loads to members at improper points.

(ii) *Fire and toxicity.* Improper location, construction or installation of hoppers, tanks, discharge devices, inflammable fluid lines, pumps, and connections; lack of ventilation, drainage, and cleaning provisions; special fire prevention features if the aircraft is to be used for sulphur dusting; otherwise such operations will be restricted by operating limitations (see section 8.30–1 (a) (2) (i)).

(iii) *Crash hazards.* Inadequate attachment of seats and safety belts; tanks or hoppers located aft of pilot and not adequately supported for forward acting inertia loads.

(iv) *Vision.* Any appreciable reduction in angles of vision.

(g) *Approval of modified type aircraft.* Upon satisfactory completion of items (b) through (f), the Forms ACA–337 will be checked "approved." The original copy of the Form ACA–337 will be returned to the aircraft owner for inclusion in the aircraft's records, and will constitute the modification of the type certificate required in section 8.10 (b).

The agent or designee will also inspect the entire aircraft for general airworthiness condition, issue an airworthiness certificate, and prescribe the operating limitations in accordance with sections 8.20–1 and 8.30–1.

(h) *Approval of alternate installations.* Approval of alternate installations (e. g. hopper or tank) may be obtained on the same Form ACA–337, provided both are described and meet the requirements for approval.

(i) *Additional modified aircraft.* After the first modified type aircraft has been approved in accordance with paragraph (g) of this section, additional aircraft of the same type may be approved on the basis of conformity with the original, without requiring the complete flight check speed specified in paragraph (f) of this section. The following entry should be made at the end of item 7 of the Forms ACA–337 for the additional aircraft:

These modifications are the same as described on approved Form ACA–337, dated

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for ---

(CAA Registration Mark of original approved aircraft)

8.10–4 *Agricultural aircraft modifications (CAA policies which apply to section 8.10 (b)).*

(a) *General.* This section applies to aircraft used for agricultural and similar special purpose operations which are normally conducted over open areas.

Information for the guidance of operators in modifying and operating aircraft for agricultural purposes is given in CAM 8, Appendix A. Compliance with this guide material is not required to obtain approval of a modified aircraft; however, precautions should be taken to avoid hazards such as those listed in section 8.10–3 (f). Sections 18.30–1 through 18.30–17, manufacturer's bulletins, military manuals, industry specifications, and previous satisfactory modifications may also be used as guides in modifying aircraft.

The CAA will, upon request, furnish consulting service on the safety aspects of aircraft modifications and installations.

(b) *Maximum weight.*

(1) It is not required that a maximum (total) weight be established as an operating limitation for agricultural aircraft. In lieu thereof maximum weights for the special purpose loads (e. g. hopper or tank capacities) should be selected by the applicant and demonstrated in the flight check in accordance with section 8.10–3 (e).

(i) These maximum capacities (weights) for the hoppers or tanks should be listed on placards on or adjacent to the appropriate filler covers.

(ii) If subsequent modifications change the aircraft weight or balance appreciably, or the operator desires to increase the special purpose loads, the flight check specified in sections 8.10–3 (e) (1) and (2) should be conducted with the revised loadings. Hopper or spray tank placards may be revised accordingly. The flight check should be recorded in the aircraft logbook as specified in section 8.10–3 (e) (4). Form ACA–337 is not required to be submitted when the special purpose load is changed without modification of the aircraft.

(iii) When a previously certificated agricultural aircraft is recertificated under Part 8 without changing the aircraft (see sections 8.0–2 (b) and 8.0–3 (b)), the placard capacities may be determined by calculation from the previous "useful load" data, without flight check.

(2) Under the aircraft operating limitations, the operator is responsible for adjusting the actual operating weight to provide a safe margin of performance for the existing flight conditions. (See section 8.30–1.) Appendix A contains information from which the effects of drag, weight, altitude, and temperature on aircraft performance may be estimated.

(3) Any increase in maximum weight will, of course, impose higher loads on the aircraft structure. The extent to which the weight may be safely increased will depend on the maneuvers and speeds used in the special purpose operations and the strength requirements to which the aircraft was originally designed. Information on the strength requirements to which a previously type certificated aircraft was originally designed may usually be obtained from the CAA.

(c) *Center of gravity.*

(1) A weight and balance report is not required to be submitted. However, to prevent possible dangerous flight characteristics, it is

recommended that the modification be planned so as to avoid excessive change in center of gravity. Information on this subject is given in Appendix A and in section 18.30–16.

(2) One purpose of the flight check specified in section 8.10–3 (e) is to determine that the aircraft is safely controllable at the most forward and most aft loading conditions anticipated in service. For agricultural aircraft this may usually be accomplished by conducting the flight check with maximum and minimum fuel loads intended to be carried in combination with the corresponding hopper or spray tank loads. For large aircraft, or those with more complicated arrangements of the variable loads, weight and balance calculations should be made to determine critical combinations for the flight check.

(d) *Powerplant modifications.*

(1) It is recommended that CAA type certificated or military approved aircraft engines and propellers be installed, and that a propeller stress survey be made for all metal propeller-engine combinations which have not been previously surveyed to determine the existence of dangerous vibration ranges.

(2) If the recommendations in (1) are not followed, the aircraft operating limitations will state that the aircraft shall not be operated over congested areas and is not eligible for a waiver to conduct such operations. (See sections 8.30–1 and 8.31–1.)

(3) Information for guidance in making engine installations is given in CAM 8, Appendix A.

8.10–5 *Advertising aircraft modifications (CAA policies which apply to section 8.10 (b)).* Since aerial advertising operations are normally conducted over congested areas, for which a certificate of waiver or authorization would be required under the provisions of sections 8.31 and 8.31–1, it is important that high standards for powerplant reliability, structural integrity, and safe flight characteristics be maintained in modifying aircraft for such purposes.

"8.20 *Eligibility for airworthiness certificate.* An aircraft shall be issued an airworthiness certificate in the restricted category if it complies with all of the following provisions:

"(a) The aircraft is type certificated under the provisions of section 8.10 (a), or modified under the provisions of section 8.10 (b);

"(b) The aircraft has been inspected by the Administrator and found by him to be in a good state of preservation and repair and in a condition for safe operation; and

"(c) The Administrator has prescribed operating limitations for the aircraft in accordance with section 8.30."

8.20–1 *Issuance of airworthiness certificates for aircraft modified from a previously approved type (CAA policies which apply to section 8.20 (b)).* The following procedure applies to aircraft which have been modified from a previously approved type or a military type under the provisions of sections 8.10 (b) or 8.10 (a) (2), and 8.10–3:

(a) *Procedure to be followed by applicant.* The applicant should make application for a restricted category certificate of airworthiness on Form ACA–305, entitled "Application for Airworthiness Certificate and/or Annual Inspection of an Aircraft." This form is obtainable from all CAA Regional and District Offices, and Designated Aircraft Maintenance Inspectors (DAMI's). It is suggested that the applicant discuss the entries required to complete the form with an Aviation Safety Agent, or a DAMI authorized to perform restricted category certification, at the time the form is secured.

Normally, restricted category certificates will be issued by a CAA aviation safety agent; however, the Administrator may authorize DAMI's who are especially experienced with restricted category aircraft to issue restricted category airworthiness certificates. In order that applications may be processed expeditiously, they should be directed to the local aviation safety district office, unless the applicant knows of a DAMI who has been given specific authority to issue restricted category airworthiness certificates.

(b) *Inspection for state of preservation and repair.*

(1) *Inspection.* In addition to the inspection of the modification referred to in section 8.10–3 (f), the CAA representative will make an inspection for determining the state

of preservation and repair, approximating the scope of a periodic inspection. (See instruction items 3 through 11 contained on the reverse side of Form ACA–319 (revised 11–49) for the scope of a periodic inspection.) Form ACA–319, entitled, "Periodic Aircraft Inspection Report," is obtainable from any CAA District Office or Regional Office, or CAA representative.

(2) *Airworthiness directives.* Compliance with CAA airworthiness directives issued for the basic (unmodified) type will not be mandatory for aircraft certificated under Part 8. However, the owner should review these airworthiness directives to determine if they are applicable to the modified aircraft and special purpose involved. The CAA representative may use the airworthiness directives as a guide and will not approve the aircraft if he finds that an unairworthy condition actually exists at the time of the inspection.

(3) *Aircraft identification marks.* In accordance with the provisions of sections 1.101 through 1.108, all restricted category aircraft must display aircraft identification marks which comply with the following:

(i) The word "restricted" must be prominently displayed near each entrance to the cabin or cockpit.

(ii) If the symbol "R" appears in the aircraft identification marks, it need not be removed until the aircraft is refinished; except that such symbol must be removed from aircraft operating outside the United States after December 31, 1950.

(iii) If the aircraft was previously certificated in another category and bears the symbol "C," "X," or "L" in the identification marks, such symbol must be removed prior to certification in the restricted category. In such cases it will not be necessary to relocate the remaining symbols or numbers.

8.20–2 *Issuance of airworthiness certificates for aircraft manufactured under a restricted category type certificate (CAA policies which apply to section 8.20 (b)).* An airworthiness certificate will be issued for an aircraft manufactured under a restricted category type certificate (for example, a new design type certificated under the provisions of sections 8.10 (a) (1) and 8.10–1 when the following procedure is completed:

(a) For aircraft manufactured under a type certificate only:

(1) An application for an airworthiness certificate is made on Form ACA–305.

(2) A statement of conformity, Form ACA–317, signed by the manufacturer, is submitted with the application.

(3) A representative of the Administrator has inspected the aircraft and finds that it conforms to the type design and is in condition for safe operation.

(b) For aircraft manufactured under a production certificate: The procedure will be as specified in paragraph (a) of this section, except that a statement of conformity is not required, and the conformity inspection may be omitted.

8.20–3 *Repairs and alterations (CAA policies which apply to section 8.20 (b)).* The procedures specified in this section apply to repairs and alterations which are made subsequent to the original certification of an aircraft in the restricted category under Part 8. For restricted category aircraft which have not been recertificated under Part 8 (see section 8.0–2 (a)) repairs and alterations should continue to be accomplished in accordance with Part 18 including the Administrator's policies and interpretations.

For aircraft which have been issued a multiple airworthiness certificate under the provisions of section 8.21, repairs and alterations should be accomplished in accordance with section 8.21–1 (f).

(a) *Owner's procedure.* It is the responsibility of the aircraft owner, or his agent, to assure that all mechanical work, other than routine maintenance, is performed by or under the supervision of an authorized agency (i. e., a certificated mechanic or approved repair station having the proper ratings, or the manufacturer of the aircraft) as specified in section 18.10, and in accordance with this manual.

Prior to returning the aircraft to service, the owner should determine that the repairing or altering agency has completed the record of such repairs and/or alterations in the appropriate aircraft or engine records, in accordance

with section 43.23, and that a flight check has been made, if applicable. See section 8.20–3 (b) (2) (iii).)

(b) *Repair agency procedure.* A repair agency (i. e., a certificated mechanic, approved repair station, or the manufacturer of the aircraft) should be guided by the following when accomplishing repairs and/or alterations to an aircraft certificated in the restricted category under Part 8:

(1) *Good practices.* All repairs and/or alterations should be made in accordance with good aeronautical practice. The Administrator's policies and interpretations in Civil Aeronautics Manual 18 describe in detail the operations which the Administrator of Civil Aeronautics considers to be routine maintenance, minor and major repairs, and minor and major alteration. They set forth in detail repair methods, techniques, and practices which the Administrator has found acceptable. Sections 8.10–4 and 8.10–5, Appendix A to CAM 8, and other publications such as Army-Navy specifications, maintenance manuals for military aircraft, and recognized industry specifications are also acceptable guides to good aeronautical practice.

(2) *Major repairs and alterations.*

(i) *Technical data.* The repair agency should prepare Form ACA–337 as specified in subdivision (ii) of this subparagraph. It is responsible for determining that the repair and/or alteration is airworthy in accordance with good aeronautical practices.

(ii) *Form ACA–337.* Repair agencies should complete Form ACA–337, Repair and Alteration Form, for every major repair and/or alteration. Form ACA–337 should be completed in accordance with the instructions contained on the reverse, except that item 4 (weight and balance) need not be completed unless this information is voluntarily being maintained by the aircraft owner. (See sections 8.10–4 (b) and (c).)

The repair agency should insert under item 8 a narrative description of the repair and/or alteration. The first statement under item 8 should indicate that the repair or alteration has been made under the provisions of Part 8. It is not necessary to include details in the description such as method of attachment, size and gauges of material, etc., since these items will be visually inspected when the aircraft is examined and approved. If the repair agency finds it easier, or preferable, to describe the repair and/or alteration by the use of photographs or sketches, these may be used to supplement the narrative description. If equipment shown on CAA Aircraft Specifications (e. g. a spray kit) is installed, it may be identified by the specification and item number. Standard repairs such as a spar splice which has been made in accordance with the Administrator's policies and interpretations in CAM 18 may be described by reference to the appropriate figure contained in the Administrator's policies and interpretations in CAM 18.

For example, a typical statement might read as follows:

The repair described below to this duster aircraft has been accomplished under the provisions of Part 8, the welding and longeron splicing have been made in accordance with figures _____ (continue with description of repair).

(iii) *Flight check.* Whenever a repair or alteration is likely to adversely effect the weight and balance, or flight characteristics (See section 8.10–4 (b) and (c)), the repair agency should advise the owner to conduct a flight check as specified in section 8.10–3 (e). Hopper and tank capacity (weight) placards and other special purpose weights may be changed on the basis of the flight check, as specified in section 8.10–4 (b).

(c) *Approval of major repairs and alterations performed by certificated mechanics.* Major repairs and/or alterations accomplished by certificated mechanics should be inspected, examined, and approved by an authorized representative of the Administrator prior to returning the aircraft to service.

(1) Major repairs which have been accomplished in accordance with a manual or specification approval by the Administrator may be submitted to either a DAMI or a CAA agent for inspection and approval.

(2) All major alterations, and those major repairs not made in accordance with a manual or specification approved by the Administrator,

should be submitted only to a CAA aviation safety agent or to a DAMI who has been specifically authorized to perform restricted category certification for inspection and approval.

(3) It is suggested that mechanics making major repairs and/or alterations notify the CAA agent or DAMI as far in advance of the anticipated completion date as possible, in order that he may make the necessary arrangements to conduct the airworthiness inspection.

(4) The aircraft should be presented in condition for inspection, that is, all work should be completed, the appropriate cowling and inspection plates should be removed, and the parts or installations to be inspected cleaned and visible for inspection. All aircraft and engine logbook entries should have been completed, the Repair and Alteration Form ACA–337, executed, and the flight check accomplished, if applicable.

(d) *Approval of major repairs and alterations performed by manufacturers and approved repair stations.*

(1) Manufacturers of the aircraft and approved repair stations may return aircraft to service after major repairs and or alterations without prior inspection and approval of the CAA, provided that:

(i) Repairs and alterations are performed in accordance with good aeronautical practice as defined in this manual. (See sections 8.10–4, 8.10–5, and 8.20–3 (b) (1).)

(ii) Major alterations are in the class for which airworthiness can be determined by visual examination. (See section 8.10–3 (a).)

(iii) Major alterations are examined to determine that they do not result in unsafe features or hazards. (See section 8.10–3 (f).)

(iv) A satisfactory flight check has been accomplished, if applicable. (See section 8.20–3 (b) (2) (iii).)

(2) Major alterations in the design requirement modification class (see section 8.10–3 (a) (2)) should be approved by the CAA prior to returning the aircraft to service.

(3) When the Repair and Alteration Form ACA–337 has been completed in accordance with section 8.20–3 (b) (2) (ii) and the required logbook entries made, the original copy of the Form ACA–337 should be given to the owner of the aircraft and made part of the official aircraft record. The copy of Form ACA–337 should be forwarded to the nearest CAA Aviation Safety District Office in accordance with the instructions contained on the reverse of the form.

"8.21 *Multiple airworthiness certification.*

"(a) An aircraft shall be issued an airworthiness certificate in the restricted category and in any one or more of the other airworthiness categories prescribed in this subchapter, if the applicant shows compliance with the requirements for each category when the aircraft is in the configuration for that category and if the aircraft can be concerted from one category to another by removal or addition of equipment by simple mechanical means.

"(b) Any aircraft certificated in the restricted and any other category shall be inspected and approved by an authorized representative of the Administrator, or by a certificated mechanic with an appropriate airframe rating, to determine airworthiness each time the aircraft is converted from the restricted category to another category for the carriage of passengers for compensation or hire, unless the Administrator finds this unnecessary for safety in a particular case."

8.21–1 *Multiple airworthiness certification (CAA policies which apply to section 8.21).* Since the operating limitations for the restricted category differ from those of other categories (e. g. in respect to maximum weights and the carriage of passengers) an owner may desire multiple airworthiness certification in the restricted and other categories in order to avoid the need for revising the airworthiness certification documents each time the aircraft is converted from one category to another. The following procedure applies to multiple certification:

(a) *Eligibility of aircraft.* An aircraft will be eligible for multiple airworthiness certification in the restricted category and another (passenger-carrying) category when:

(1) The aircraft complies with the requirements for a normal, utility, acrobatic, transport or limited category aircraft under Parts 3, 4a, 4b, 6, or 9 when in the appropriate

configuration. This configuration may include alterations from the basic type (e. g. to accommodate the subsequent installation of special purpose equipment), provided these alterations are accomplished and approved in accordance with Part 18. This configuration will be called the "standard" configuration for the aircraft.

(2) The aircraft is shown to comply with the requirements for the restricted category in accordance with section 8.10–3 when in the restricted category configuration.

(3) The aircraft can be converted from one category to another by the addition or removal of equipment by simple mechanical means within the scope of a minor alteration. Examples of minor alterations are given in section 18.7–4.

(b) *Application.* An applicant for multiple airworthiness certification should make application for such certificate on Form ACA–305, entitled, "Application for Airworthiness Certificate and/or Annual Inspection of Aircraft." This form is available at all CAA aviation safety district and regional offices. It is suggested that the applicant discuss the requirements and information that must be submitted with the application at the time the form is secured. The completed application form should be submitted to the local aviation safety district office.

(c) *Information to be submitted with application.* The applicant for multiple certification should submit with the application form the following information:

(1) *Form ACA–337.* Duplicate copies of Repair and Alteration Form ACA–337 should be prepared by the repair agency. The alterations should be listed under two headings as follows:

(i) Standard configuration—the alterations to the basic type and the equipment which will remain in the aircraft in this configuration. This portion of the form should be executed in accordance with Civil Aeronautics Manual 18, Appendix A.

(ii) Restricted configuration—description of restricted category equipment and record of flight check, as specified in section 8.10–3 (d).

(2) *Conversion instructions.* Detailed step by step instructions should be prepared covering the installation and removal of the components or equipment required for each category in which certification is being sought.

(d) *Issuance of multiple airworthiness certificates.*

(1) *CAA inspection.* Upon receipt of the information specified in paragraph (c) of this section, the CAA agent will inspect the aircraft as follows:

(i) For the standard configuration, the inspection will cover conformity with the pertinent CAA aircraft specifications and airworthiness directives, compliance with Part 18 and the Administrator's policies and interpretations in CAM 18 for any alterations included in this configuration, and general airworthiness (i. e., state of preservation and repair).

(ii) For the restricted configuration, the restricted category installations will be inspected in accordance with section 8.10–3 (f).

(iii) The Repair and Alteration Form ACA–337 and the instructions for conversion will be examined for completeness. The agent, at his discretion, may require the applicant to demonstrate that the aircraft can be converted from one category to the other by simple mechanical means in accordance with the conversion instructions specified in paragraph (c) (2) of this section.

(2) *Identification marks.* Aircraft issued multiple airworthiness certificates are required to display identification and airworthiness classification marks prescribed by section 1.101 through 1.108 of this part. If the aircraft bears the symbol "C" or "R" following the nationality symbol "N" in the identification marks, the symbol "C" or "R" should be removed prior to multiple airworthiness certification. When restricted category operations are being conducted, the airworthiness classification mark, "Restricted" should be displayed at each entrance to the cockpit or cabin.

When the aircraft is operated in the standard (passenger-carrying) category, the airworthiness classification mark "Restricted" should be removed. In order to facilitate installation and removal of this mark, it may be a separate placard fastened in place by bolts, or by any other method of attachment that is easily in-

stalled or removed. The installation and removal of this airworthiness classification mark should be incorporated in the detailed conversion instructions described in section 8.21–1 (c) (2).

(3) *Airworthiness documents.* Upon completion of the inspection, and when the agent finds the aircraft conforms to the requirements for multiple certification, he will issue a Certificate of Airworthiness, Form ACA–1362, prescribe the appropriate aircraft operating limitations, and attach to the latter the detailed conversion instructions. The original copy of the Form ACA–337 will be returned to the owner for inclusion in the aircraft records.

(e) *Converting aircraft from one category to the other.* Aircraft having multiple airworthiness certification should be converted from one category to the other in accordance with the approved conversion instructions and the following:

(1) *Non-revenue operations.* Any certificated mechanic or pilot may convert the aircraft from one category to the other: provided, the aircraft does not carry passengers for compensation or hire.

(2) *Carriage of passengers for compensation or hire.* In order for an aircraft certificated in the multiple airworthiness classification to carry passengers for compensation or hire, the aircraft must, under the provisions of section 8.21, be inspected by a certificated mechanic having an airframe mechanic rating or a representative of the Administrator, and found to be in airworthy condition each time the aircraft is converted from the restricted category to a standard (passenger-carrying) category, unless the aircraft operating limitations, described in section 8.34–1, specifically state that such inspection is not necessary.

(i) *Scope of inspection.* The airworthiness inspection should be the equivalent of the inspection described in items 3 through 11 on the reverse side of the Periodic Aircraft Inspection Report, Form ACA–319 (Revised 11–49). The periodic aircraft inspection form may be used as an inspection guide; however, it is not mandatory.

(ii) *Recording of inspections.* A record of each such inspection should be made in the aircraft record or logbook in accordance with section 43.23 (a). This entry should include a statement as to the airworthiness of the aircraft, which should be dated and signed by the mechanic or representative making the inspection. A mechanic should include his certificate number following his signature, and a representative of the Administrator should place his designation identification and number following his signature. (For example, DAMI 01234.)

It is the owner's responsibility to determine that the inspection and recording of the inspection have been made prior to carrying passengers for compensation or hire.

(f) *Repairs and alterations to aircraft issued multiple airworthiness certificates.*

(1) All repairs and/or alterations to the standard configuration portion of the aircraft, including powerplant and propeller, must be accomplished in accordance with Part 18 and the Administrator's policies and interpretations in CAM 18.

(2) All major repairs and/or alterations to aircraft certificated in multiple airworthiness classifications must be examined, inspected, and approved in accordance with section 18.11.

(3) Repairs and/or alterations to any part of the removable equipment, not included in the aircraft in the standard configuration, may be handled in accordance with section 8.20–3.

(g) *Application of airworthiness directives.* Compliance with airworthiness directives issued by the CAA for the standard (passenger-carrying) category aircraft will be mandatory for all aircraft certificated in the multiple airworthiness classification, without regard to the category in which the aircraft is being operated.

"8.30 *Operating limitations—Administrator's authority to prescribe.* In addition to the operating limitations set forth in sections 8.31 through 8.34, the Administrator shall prescribe such operating limitations and restrictions as he finds necessary for safe operation of the aircraft and for the protection of the public.[1] "

[1] "Where the special purpose operations require deviation from the Air Traffic Rules in Part 60 of this chapter, a waiver of such rules must be obtained from the Administrator in accordance with the provisions of Part 60."

8.30–1 Operating limitations (CAA policies which apply to section 8.30).

(a) *General.* The special purpose operations authorized for the aircraft and the operating limitations prescribed in section 8.30 will be listed in accordance with the rules set forth in section 43.10–1 of this subchapter. The operating limitations prescribed in sections 8.31 through 8.34 will also be listed at the time of issuance of the airworthiness certificate, which is issued by a CAA representative, as specified in section 8.20–1, and carried in the aircraft in accordance with section 43.10 of this subchapter.

(b) *Agricultural aircraft.* The example of operating limitations given in subparagraph (1) of this paragraph, indicates the scope of the operating limitations which may be listed in accordance with section 43.10–1 of this subparagraph, for an aircraft certificated under Part 8 and intended for agricultural operations, such as spraying, dusting, seeding, and pest control. The CAA representative may modify these or prescribe additional aircraft limitations if he finds they are necessary for the safe operation of the aircraft and protection of the public.

(1) *Example of operating limitations.* This aircraft has been certificated under the provisions of Part 8 as a special purpose agricultural and pest control aircraft.

(i) This aircraft shall not be operated in any manner which will endanger public life and property. The operator shall adjust the take-off weight to provide a safe margin of performance for the existing operating conditions, considering the take-off area, altitude, temperature, and terrain. For maximum capacities of hoppers and spray tanks see placards.

NOTE: These placards may be revised in accordance with section 8.10–4 (b).

(ii) Maneuvers shall be limited to those normally performed in agricultural operations.

(iii) Agricultural and pest control operations shall not be conducted over densely populated areas, in congested air lanes, or in the vicinity of busy airports where passenger transport operations are being conducted, unless the Administrator finds it in the public interest to authorize such operation and has issued a Certificate of Waiver or Authorization, Form ACA–663, permitting such operation.

(iv) Persons and cargo shall not be carried for compensation or hire.

(v) Persons other than the minimum crew necessary for the agricultural operations shall not be carried during these operations.

(vi) No person shall be carried in the aircraft unless a seat and safety belt, installed in accordance with good aeronautical practice is provided for his use.

(2) *Examples of additional limitations.* Examples of additional limitations which the CAA representative may prescribe for safe operation and the protection of the public are:

(i) A prohibition against sulphur dusting, unless special fire prevention measures have been incorporated in the aircraft.

(ii) A statement in the area operating limitations (subparagraph (1) (iii) of this paragraph) that the aircraft is not eligible for a waiver to operate over congested areas because of uncertificated powerplant components. (See section 8.10–4 (d).)

(iii) Restricted engine speed (rpm) ranges, if a metal propeller stress survey indicates the need for such restrictions.

(c) *Aerial advertising aircraft.* For special purpose operations such as banner towing, skywriting, and similar operations normally conducted over populated areas, aircraft limitations, such as weight, airspeed and engine limits, will be prescribed and will be essentially the same as those established under the airworthiness requirements for the basic type, unless the nature of the special purpose operations or the design of the basic aircraft or the modifications indicate that a particular limitation should be altered. (See section 8.10–5.)

"8.31 *Area operating limitations.* Special purpose operations in restricted category aircraft shall not be conducted over densely populated areas, in congested air lanes, or in the vicinity of busy airports where passenger transport operations are being conducted, unless the Administrator finds it in the public interest to allow operations in such area, in which case he shall prescribe specific operating limitations to provide the highest degree of public safety compatible with the type of operation involved."

8.31-1 *Waiver of operation limitations (CAA policies which apply to section 8.31).* If an operator desires to conduct special purpose operations in the areas described in section 8.31, using a restricted category aircraft, he should comply with the following procedures:

(a) *Application.* The applicant should obtain two copies of Form ACA-400, Application for Certificate of Waiver, from the local Aviation Safety District Office, and fill out both copies as follows:

(1) Type, or print in ink.

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

(3) Under item 3, insert "8.31" and describe the area. List all other sections of the Civil Air Regulations for which other authorization, permission or waiver is required, such as CAR 60.17 (b) for operation below minimum altitudes.

(4) Sign both copies of the completed application in the space provided on the reverse side for the applicant's signature.

(b) *Certificate of waiver or authorization.* After examining the application and the aircraft operation limitations, the CAA will issue a Certificate of Waiver or Authorization, Form ACA-663, where it is found in the public interest to allow the proposed operations. Where the operation conflicts with any state law or local ordinance or requires permission of local authorities or property owners, it is the responsibility of the operator to obtain such permission.

(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) Appropriate officials of the community involved shall be notified prior to beginning the operations.

(5) Air traffic control for the area involved shall be notified prior to the beginning of the operations.

(6) Any specific precaution deemed necessary for the particular area involved.

(7) Any specific precaution deemed necessary for the type of operation involved.

(d) *Duration.* The certificate will contain an expiration date which will allow ample time for completion of the operation.

"8.32 *Economic operating limitations.* Persons and cargo shall not be carried for compensation or hire in restricted category aircraft. For purposes of this section crop dusting, seeding, and other similar specialized operations, including the carriage of materials necessary for such operations, shall not be considered as the carriage of persons or cargo for compensation or hire."

8.32-1 *Economic operating limitations (CAA interpretations which apply to section 8.32).* Under the provisions of section 8.32 restricted category aircraft are not permitted to carry passengers or cargo for hire. This section does not prohibit the non-revenue carriage of personnel in addition to crew members from one location to the other; provided, the aircraft does not engage in special purpose operations during the flight. (See section 8.33.) For example, an operator might fly his groundcrew to a location where special operations are to be conducted. The carriage of such persons, their personal luggage, and spare parts would not be considered as the carriage of passengers or cargo for hire or compensation. When such persons are carried, they should have available seats and safety belts, installed in the aircraft in accordance with good aeronautical practice.

"8.33 *Passengers prohibited during special purpose operations.* Persons, other than the minimum crew necessary for the purpose involved, shall not be carried during special purpose operations in restricted category aircraft."

8.33-1 *Passengers prohibited during special purpose operations (CAA interpretations which apply to section 8.33).* The minimum crew specified in section 8.33 includes those persons necessary to navigate the aircraft, such as pilot, co-pilot, and flight engineer, and such

other persons as may be required to perform the special purpose operations. For example, a multi-engine aircraft engaged in an agricultural operation of dispersing poison bran might be navigated by a pilot and co-pilot, and also have as part of its crew persons engaged in the dispersing of the bran. All of these persons would be considered crew members since each has a specific job to perform in connection with the special purpose operation. Persons other than crew members are not permitted to be carried during special purpose operations. A pilot or other crew member who is being given training in the special purpose operations may be considered an essential crew member. In such case, a charge may be made for the training in aircraft certificated under part 8.

"8.34. *Separate operating limitations for multiple airworthiness certification.* In case of multiple airworthiness certification under the provisions of section 8.21, the Administrator shall establish separate operating limitations for each category and shall specify the approved changes necessary to convert and reconvert the aircraft from one category to another."

8.34–1 *Operating limitations for multiple airworthiness certification (CAA policies which apply to section 8.34).*

(a) *Operations limitations.* The operating limitations referred to in section 8.34 will be prescribed by the CAA representative at the time he issues the airworthiness certificate. The prescribed operating limitations should be displayed in the aircraft in accordance with the rules set forth in CAM 43.10–1.

(1) The operating limitations for the restricted category operations will be designated as applicable to the restricted category and will be prescribed in accordance with section 8.30–1. Provisions will also be included covering the conversion of the aircraft from one category to another (see section 8.21–1 (c) (2)), and inspection of the aircraft prior to the carriage of passengers for hire. (See section 8.21–1 (e) (2).)

(b) *Conversion instructions.* The approved changes necessary to convert the aircraft from one category to the other as specified in section 8.21–1 (c) (2), are considered part of the operating limitations and should not be changed or amended without the approval by the CAA.

(c) *Owner's responsibility.* It will be the responsibility of the aircraft owner to keep the operating limitations available in the aircraft in accordance with section 43.10 (b) (1) of this chapter, and to assure that the changes necessary to convert from one category to the other are made in accordance with the approved instructions.