FEDERAL AVIATION AGENCY
FLIGHT STANDARDS SERVICE
Washington 25, D. C.

February 12, 1963

FEDERAL AVIATION REGULATIONS DRAFT RELEASE NO. 63-5

SUBJECT: Rotorcraft External-Load Operations

The Flight Standards Service of the Federal Aviation Agency has under consideration a proposed new part of the Federal Aviation Regulations covering rotorcraft external-load operations. The reasons therefor are set forth in the explanatory statement of the attached proposal which was published today in the Federal Register as a notice of proposed rule making.

The Flight Standards Service desires that all persons who will be affected by the requirements of this proposal be fully informed as to its effect upon them and is, therefore, circulating copies in order to afford interested persons ample opportunity to submit comments as they may desire.

Because of the large number of comments which we anticipate receiving in response to this draft release we will be unable to acknowledge receipt of each reply. However, you may be assured that all comments will be given careful attention.

It should be noted that comments should be submitted in duplicate to the Docket Section of the Federal Aviation Agency, and in order to insure consideration should be received on or before April 15, 1963.

J. S. Moore

Acting Director,
Flight Standards Service

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(As published in the Federal Register /28 F.R. 1343/ February 11, 1963)

FEDERAL AVIATION AGENCY

[14 CFR Part 133 [New]]

[Reg. Docket No. 1592; Draft Release No. 63-5]

ROTORCRAFT EXTERNAL-LOAD OPERATIONS

Notice of Proposed Rule Making

Notice is hereby given that there is under consideration a proposal to adopt a new Part 133 of the Civil Air Regulations; requiring an Agency certificate for operation of rotorcraft with external loads, and requiring approval of specific rotorcraft for external-load operations. In addition, the new part contains operating rules including an operator proficiency demonstration for authorization to carry the various classes of loads as defined in the part.

Interested persons may participate in the making of the proposed rules by submitting such written data, views, or arguments as they may desire. Communications should be submitted in duplicate to the Docket Section of the Federal Aviation Agency, Room A-103, 1711 New York Avenue NW., Washington 25, D.C. All communications received on or before April 15, 1963, will be considered by the Administrator before taking action upon the proposed rules. The proposals contained in this notice may be changed in the light of comments received. All comments submitted will be available in the Docket Section for examination by interested persons at any time.

Rotorcraft have a unique ability to raise, lower, and transport external loads, and to tow objects on land or water. A large number of civil rotorcraft are now being used in such operations and large "flying crane" helicopters are being designed. However, under the current regulations, the use of rotorcraft in external-load operations has been limited because of the restriction on the use of rotorcraft certificated under Part 8 in operations for compensation or hire, and the prohibitive burden and expense of obtaining certification of helicopters equipped for carriage of external loads under the provisions of Parts 6 and 7 of the Civil Air Regulations.

The authorization to conduct external-load operations will enable operators to use rotorcraft to accomplish tasks which may be difficult or impossible by other means. This increase in the utility of the rotorcraft for external-load operations is in the public interest.

For the foregoing reason, the Agency published as a notice of proposed rule making (27 F.R. 748), and circulated as Draft Release 62-2 dated January 18, 1962, a proposed Special Civil Air Regulation containing airworthiness standards for the approval of rotorcraft for use in the carriage of external loads for compensation or hire and setting forth appropriate operating limitations therefor. A large number of technical comments were received in response to the proposed rule. However, based upon an evaluation of the comments received, the Agency has determined that a new approach to the problem should be taken. Since some of these changes involved in this approach may be deemed more restrictive, it was found desirable to issue a new notice of proposed rule making. Therefore, the notice published in 27 F.R. 748 and issued as Draft Release 62-2 dated January 18, 1962, is hereby withdrawn.

In the previous notice of proposed rule making, it was proposed to introduce a number of specific airworthiness requirements, compliance with which would establish a minimum level of airworthiness and define the limitations necessary for rotorcraft external-load operations. Comments received from the manufacturing and operating industries indicated that, although the proposed regulations were generally satisfactory, there were several important areas in which they believe that the proposal fell short of its goal.

A substantive issue was taken with the proposal that flight tests of three representative load configurations be accomplished and that operating limits be established for free external-load configurations based upon the results of these tests. It was pointed out that the detailed influence of any particular external load upon the flight characteristics and flight safety of a rotorcraft is dependent upon a number of unpredictable variables involving load shape, density, area, manner of attachment, and others. Thus, to specify limits based upon tests of only three loads might tend to bring about a lowered level of safety, inasmuch as parties operating rotorcraft carrying loads within the specified limits might consider that such rotorcraft would, in all cases, have no unsafe characteristics. As an alternative, it was suggested that the capability of the rotorcraft to carry external loads would be adequately established by an appropriate flight test program utilizing a single load of the maximum desired weight. Examination of the issues and problems has led to concurrence that the proposed alternative approach would attain the objective of determining the basic capability of the rotorcraft to carry a free external load, and would avoid bringing about a situation wherein erroneous assumptions regarding the flight characteristics of particular rotorcraft-load combinations might be drawn. The poposal has been modified accordingly.

A comment was received pointing out that the structure of the rotorcraft may be substantiated for weights in excess of the maximum weight for which the rotorcraft had previously been certificated, by adjusting the operating limitations to keep stress within the established limits. Section 133.31(c)(2) does permit the carrying of load combinations in excess of the maximum weight for which the rotorcraft was certificated, but only after substantiation of the structure of the rotorcraft for the excess weight under the pertinent portions of Part 6 or 7 of the current Civil Air Regulations, whichever is applicable. This procedure is currently available even in the absence of this new Part, and since this new section requires compliance with current Part 6 or 7 it does not change the status nor the procedure for substantiating loads in excess of the maximum weight for which the rotorcraft has been certificated.

A number of comments received concerned requirements that would be applicable to "flying-crane" type rotorcraft. Provisions have been included in this proposal which will avert the exclusion of this type of rotorcraft and the peculiar considerations related thereto. However it has been determined that the suggestion to modify the Transport Category B rotorcraft requirements to permit the certification of "flying-crane" type helicopters in excess of 20,000 pounds maximum certificated weight will be the subject of a separate rule making action and not included in this proposal.

Since the safe operation of rotorcraft with external loads is influenced not only by the characteristics of the rotorcraft and the configuration and magnitude of the load, but also by the capabilities of the operator of the rotorcraft, and the precise and sometimes peculiar manner in which the rotorcraft must be operated in carrying external loads, provisions are made for the issuance of an operator's certificate with authorizations to carry the various classes of external loads as defined in the new part.

This proposal provides for four classes of external loads and specifies the procedures and requirements for approval of specific rotorcraft for operation with the various defined classes of loads. The authorization for a specific class-load operation is issued to an operator after he demonstrates the capability of the rotorcraft to carry the specific class of load, and he demonstrates his ability to operate the rotorcraft safely with the external load attached.

In addition, the proposed new part would require an operator to conduct a flight check prior to conducting an external load operation involving a load of a different configuration of those within the previous experience of the operator.

Under the current provisions of the Civil Air Regulations, in addition to the necessity of having a rotorcraft certificated for external load-operations under Parts 6 or 7 of the Civil Air Regulations, persons conducting rotorcraft external-load operations for compensation or hire are subject to the provisions of Part 45 of the Civil Air Regulations governing commercial operators. The Agency recently proposed the adoption of a new Part 125 of the Federal Aviation Regulations to govern the operation of air taxi operators and commercial operators of small aircraft. As proposed, Part 125 would govern the operation of small rotorcraft conducting external-load operations and would re-

quire the operator to obtain a commercial operator certificate issued under that part and require the operator to comply with the operating rules of that part.

It is recognized that the rules set forth in proposed Part 125 as well as those in currently effective Part 45 are not specifically tailored to fit the peculiar needs of the operator conducting external-load operations with rotorcraft. On the other hand, this new proposed Part 133 is specifically designed to regulate external-load operations with rotorcraft. Therefore, if this proposed Part 133 is adopted, the Agency intends to amend Parts 45 and proposed Part 125 [New] to exclude from their applicability the operations which would be governed by this proposed Part 133.

This proposal is subject to the FAA Recodification Program announced in Draft Release 61-25 (26 F.R. 10698). The final rule, if adopted, may be in recodified form, however, the recodification itself will not alter the substantive contents proposed herein.

In consideration of the foregoing, it is proposed to promulgate a new Part 133 of the Federal Aviation Regulations to read as hereinafter set forth.

This new part is proposed under the authority of sections 307, 313(a), 601, and 607 of the Federal Aviation Act of 1958 (72 Stat. 749, 752, 775, 779; 49 U.S.C. 1348, 1354, 1421, 1427).

Issued in Washington, D.C., on February 5, 1963.

G. S. MOORE,
Acting Director,
Flight Standards Service.

PART 133—ROTORCRAFT EXTERNAL-LOAD OPERATIONS [NEW]

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Subpart A—Applicability and Definitions

§ 133.1 Applicability.

The rules in this part establish the certification and operating rules for persons engaged in rotorcraft external-load operations within the United States.

§ 133.2 Definitions.

(a) "External load" means a load that is carried outside of the rotorcraft fuselage.

(b) "Rotorcraft-load combination" means the combination of the rotorcraft and the external load including equipment necessary to effect the combination. Rotorcraft-load combinations are designated as Class I, Class II, Class III, and Class IV, as follows:

(1) "Class I rotorcraft-load combination" means one in which the load is carried in such a manner that it cannot move freely, cannot be jettisoned, does not extend below the landing gear, is of a specified configuration, and the resulting rotorcraft-load combination has complied with all of the provisions of Part 6 or 7 of this chapter (Civil Air Regulations), whichever is applicable.

(2) "Class II rotorcraft-load combination" means one in which the load is carried in such a manner that it cannot move freely, cannot be jettisoned, does not extend below the landing gear, is bounded by a specified envelope, and the airworthiness of the resulting rotorcraft-load combination has been demonstrated to the Administrator in accordance with Subpart C of this part.

(3) "Class III rotorcraft-load combination" means one in which the load is attached to the rotorcraft in a manner permitting the load to be jettisoned when the rotorcraft is in flight.

(4) "Class IV rotorcraft-load combination" means one in which the load connected to the rotorcraft remains on land or water, but does not include towing of objects such as gliders, banners, etc., through the air.

(c) "Rotorcraft-load combination maximum weight" means the greatest weight at which the rotorcraft-load combination is approved for operation in accordance with Subpart C of this part.

(d) "External-load attaching means" means the approved structural components attached to the rotorcraft airframe used to secure the removable external load and individual load-rigging devices to the rotorcraft including the backup structure of the attachment points and any quick-release device used.

Subpart B—Rotorcraft External-Load Operation Certification and Operating Rules

§ 133.10 Certification required.

No person may conduct rotorcraft external-load operations without, or in violation of the terms of, a Rotorcraft External-Load Operator Certificate issued by the Administrator under the provision of this part.

§ 133.11 Duration of certificate.

A Rotorcraft External-Load Operator Certificate is of indefinite duration and shall continue in effect until suspended, revoked, or voluntarily surrendered.

§ 133.12 Application for certificate.

Application for a Rotorcraft External-Load Operator Certificate is made on a form and in a manner prescribed by the Administrator. The form may be obtained from any General Aviation District Office of the Federal Aviation Agency. The completed application is sent to the district office having jurisdiction over the area in which the applicant's home base of operations is located.

§ 133.13 Certification requirements.

If an applicant shows that he meets the requirements of §§ 133.14, 133.15, and 133.16, the Administrator may issue to him a Rotorcraft External-Load Operator Certificate with an authorization to carry those classes of external loads for which the applicant meets the requirements of Subpart C of this part.

§ 133.14 Rotorcraft.

The applicant must have at least one rotorcraft certificated in accordance with Part 6 or 7 of this chapter (Civil Air Regulations) which meets the airworthiness requirements of Subpart C of this part for the particular class of rotorcraft-load combination for which authorization is desired.

§ 133.15 Pilots.

The applicant must hold, or have available the services of at least one person who holds, a currently effective commercial or airline transport pilot certificate issued by the Administrator and must be rated for the rotorcraft to be used.

§ 133.16 Knowledge and skill.

The applicant must demonstrate, or designate an individual as chief pilot of his rotorcraft external-load operations who must demonstrate, to the Administrator satisfactory knowledge and skill regarding rotorcraft external-load operations as described in paragraphs (a) and (b) of this section.

(a) The test of knowledge shall consist of the following subjects:

(1) Steps to be taken prior to starting operations, including survey of the flight area;

(2) Proper method of loading, rigging, or attaching the external load;

(3) Performance capabilities under approved operating procedures and limitations of the rotorcraft to be used; and

(4) Proper instruction of flight crew and ground workers.

(b) The test of skill shall consist of the following maneuvers which must be demonstrated in any of the rotorcraft specified in § 133.14 with the class of rotorcraft-load combination for which authorization is desired, at the rotorcraft's maximum certificated weight or maximum approved rotorcraft-load combination weight, whichever is applicable:

(1) Takeoffs and landings;

(2) Hover turns, both right and left;

(3) Acceleration from a hover;

(4) Cruising flight;

(5) Approaches to landing or working area; and

(6) Maneuvering of Class III load into release position, if applicable.

§ 133.17 Amendment of certificate.

The holder of a Rotorcraft External-load Operator Certificate may apply to the Administrator for an amendment of his certificate to add or delete class load authorizations. Application for such an amendment is made by executing the appropriate portion of the form used in applying for a Rotorcraft External-Load Operator Certificate. The completed application for amendment is sent to the General Aviation District Office of the Federal Aviation Agency having

jurisdiction over the area in which the certificate holder's home base of operations is located.

§ 133.18 Display, transfer, and surrender of certificate.

(a) The Rotorcraft External-Load Operator Certificate shall be kept at the holder's home base of operations specified in § 133.12, and shall be made available for inspection by the Administrator upon reasonable request.

(b) A Rotorcraft External-Load Operator Certificate is not transferable.

(c) Upon the suspension or revocation of a Rotorcraft External-Load Operator Certificate, the holder shall surrender it as requested by the Administrator. When the certificate holder for any other reason abandons operations under the certificate, he shall within 30 days after termination surrender the certificate to the General Aviation District Office of the Federal Aviation Agency having jurisdiction over the area in which the holder's home base of operations is located.

§ 133.20 Operating rules.

(a) No person holding a Rotorcraft External-Load Operator Certificate may operate a rotorcraft in operations subject to this part under a business name that is not on such certificate.

(b) No operation may be conducted under the provisions of this part without or contrary to provisions of the Rotorcraft-Load Combination Flight Manual required by this part.

(c) The holder of a Rotorcraft External-Load Operator Certificate may not utilize a pilot nor shall a pilot conduct operations under this part unless he meets the competency and recency requirements specified in this part.

(d) The holder of a Rotorcraft-External-Load Operator Certificate shall report any changes in the designation of chief pilot to the General Aviation District Office of the Federal Aviation Agency responsible for the certificate. The new chief pilot must meet all the requirements of § 133.16 before the operator may conduct further operations under his Rotorcraft External-Load Operator Certificate.

(e) Before a person may operate a rotorcraft with an external load configuration that he has not previously carried with the rotorcraft, he must conduct the following flight operational check in a manner which will not endanger persons or property:

(1) Determine that the overall weight and net center of gravity is within approved limits, that the load is securely fastened, and that it does not interfere with any emergency release devices;

(2) Make initial lift-off of external load slowly to establish adequacy of cyclic control;

(3) Make hovering right and left turns to verify satisfactory directional control;

(4) Accelerate slowly into forward flight to verify that no uncontrollable or hazardous attitudes of the rotorcraft or load are encountered;

(5) In slow forward flight, check for excessive external load oscillation (if load not visible to pilot, arrange for ground personnel to make this check and signal to pilot); and

(6) Increase airspeed slowly to establish an operational airspeed at which no oscillations or aerodynamic turbulence are encountered.

(f) Notwithstanding the provisions of § 60.17(c) of this chapter (Civil Air Regulations), the holder of a Rotorcraft External-Load Operator Certificate may conduct external-load operations over noncongested areas below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if the operations are conducted in such a manner that an emergency landing can be made in the event of the failure of an engine, and without creating a hazard to persons or property.

(g) Each pilot must meet the requirements of § 133.15 and, for external-load operations, except Class I, each pilot must meet the requirements of § 133.16 and a logbook entry to that effect must be made by the chief pilot.

(h) Each rotorcraft used must meet the requirements of § 133.14.

(i) Notwithstanding any provisions of Part 60 of this chapter (Civil Air Regulations), the holder of a Rotorcraft External-Load Operator Certificate may conduct rotorcraft external-load operations over congested areas if conducted in such a manner as not to create a hazard to persons or property, and if conducted in compliance with the following:

(1) Each pilot must have acquired at least 25 hours of flight time as pilot in the make and model of rotorcraft to be used, 10 hours of which must have been acquired within the 12 months preceding application; and must also have acquired at least 50 hours of flight time as pilot in the carriage of external loads by rotorcraft.

(2) Each copilot must meet the requirements of § 133.16.

(3) A plan for each complete operation must be developed by the operator, coordinated with, and approved by, the General Aviation District Office of the Federal Aviation Agency having jurisdiction over the area where the operation is to be conducted. The plan must include the type of vehicle traffic control measures to be provided for by the political subdivision, the means by which officers or officials of the local area will prevent unauthorized persons from entering the working or flight area, coordination with air traffic control if necessary, and a detailed chart depicting the flight routes and altitudes.

(4) All flights must be conducted at altitudes and on routes which will permit the rotorcraft to make an emergency landing without hazard to persons or property.

(5) Zero load automatic activation features of release devices must be rendered inoperative.

§ 133.21 Inspection authority.

The Administrator shall be permitted at any reasonable time and place to make inspections, including on-the-job inspections, to determine compliance with regulations issued by the Administrator and the terms of the Rotorcraft External-Load Operator Certificate.

§ 133.22 Records.

(a) Each holder of a Rotorcraft External-Load Operator Certificate shall maintain and keep current, at the home base of operations designated in his application, records showing the name, address, duties, certificate number, grade, and ratings for pilot personnel engaged in external-load operations, the date and class of the most recent FAA medical certificate, including any restrictions or limitations shown on it, and the class of rotorcraft-load combination for which he has met the requirements of § 133.16.

(b) The operator shall make these records available for inspection by the Administrator upon reasonable request, and, if the home base of operations is moved to another location, the operator shall report the new address to the Administrator within 30 days.

Subpart C—Airworthiness Requirements

§ 133.30 Flight characteristics requirements.

(a) *Class I rotorcraft-load combinations.* The airworthiness of this class of rotorcraft-load combination shall be established in accordance with the requirement of Part 6 or 7 of this chapter (Civil Air Regulations), whichever is applicable.

(b) *Class II rotorcraft-load combinations.* The airworthiness of this class of rotorcraft-load combination at the rotorcraft-load combination maximum weight including the attaching means must be demonstrated to the Administrator by an operational flight check consisting of at least the following maneuvers:

(1) Takeoff and landing;

(2) Hover turns, both right and left;

(3) Acceleration from a hover;

(4) Cruising flight; and

(5) Approaches to landing areas.

(c) *Class III rotorcraft-load combinations.* (1) The airworthiness of the rotorcraft and the attaching means for these classes of rotorcraft-load combinations must be demonstrated to the Administrator by an operational flight check consisting of at least the following maneuvers:

(i) Pickup of load;

(ii) Hover turns, both right and left;

(iii) Acceleration from a hover;

(iv) Cruising flight; and

(v) Maneuver load into release position.

(2) During this operational flight check, the maximum desired external load must be attached to the quick-release device.

(3) The quick-release device shall be checked for functional performance under both normal and emergency conditions.

§ 133.31 Structures and design.

(a) *General.* The external-load attaching means shall meet the applicable provisions of Part 6 or 7 of this chapter (Civil Air Regulations) considering the maximum load for which approval is sought.

(b) *Weight and center of gravity*—(1) *Weight.* (i) For operations with Class I and Class II external loads, the rotorcraft-load combination weight must be established as not exceeding the ap-

proved rotorcraft maximum weight. (See paragraph (c) (3) of this section for Class IV.)

(ii) For operations with Class III external loads, the rotorcraft-load combination weight must be established as not exceeding the approved rotorcraft maximum weight by more than the magnitude of the free external load, and must not exceed the weight at which the rotorcraft can be hovered with the external load clear of the ground by an amount equal to or greater than the landing gear clearance value specified in the Rotorcraft Flight Manual for normal operations. (See also paragraph (c) (2) of this section.)

(2) *Center of gravity.* The location of the center of gravity shall, under all loading conditions, be within the range established for the rotorcraft. For Class IV loads, the magnitude and direction of the loading force must be established so that the center of gravity limits are in effect not exceeded.

(c) *Class III and Class IV external load design requirements.* (1) The attaching means for these classes of external loads must include a quick-release device which is operable while the rotorcraft is in flight. This device and the means by which it is controlled must comply with the following:

(i) The quick-release device must incorporate a control on one of the pilot's primary controls which is readily available to the pilot. This control must be designed and installed so that it may be operated without requiring the pilot to engage in movements or to change his position so that it will jeopardize his ability to control the rotorcraft during an emergency situation. An additional manual mechanical release with controls readily accessible either to the pilot or to a crewmember, shall be provided;

(ii) The quick-release device used for Class IV rotorcraft-load combinations must be capable of functioning properly within the cable angle limits determined in accordance with § 133.31(c)(4); and

(iii) The quick-release device must be capable of functioning properly with all external loads up to and including the maximum authorized external load.

(2) The effective rotorcraft-load combination weight may exceed the approved rotorcraft maximum weight provided that the affected portions of the rotorcraft are shown to comply with the pertinent provisions of Part 6 or 7 of this chapter (Civil Air Regulations), whichever is applicable, at the higher weight. The landing loads and landing gear requirements of §§ 6.230 through 6.247, 6.260, and 6.333 or §§ 7.230 through 7.248, 7.260 and 7.330 through 7.333, as appropriate, depending upon whichever of Part 6 or 7 of this chapter (Civil Air Regulations) is applicable, need not be considered.

(3) Additional requirements for Class IV:

(i) The maximum safe load magnitude and cable angle limits must be established, and demonstrated;

(ii) Means must be provided to enable the pilot to avoid exceeding the cable angle limits;

(iii) Means must be provided to prevent the maximum permissible tow-load magnitude from being exceeded. The activation of this means must not endanger the basic structure of the rotorcraft.

§ 133.32 Operating limitations.

In addition to the operating limitations set forth in the approved Rotorcraft Flight Manual and any other limitations the Administrator may prescribe, at least the following limitations shall be established and included in the Rotorcraft-Load Combination Flight Manual for rotorcraft-load combination operations:

(a) Passengers may be carried only during Class I external-load operations.

(b) In addition to the flight crew, only persons essential to the external-load mission may be carried during Class II or Class III external-load operations.

(c) The rotorcraft shall be operated only within the weight and center of gravity limitations established for the particular class of rotorcraft-load combination in accordance with § 133.31(b).

(d) The rotorcraft shall be operated only within the load magnitude and cable angle limits established in accordance with § 133.31(c)(3).

§ 133.33 Rotorcraft-Load Combination Flight Manual.

A Rotorcraft-Load Combination Flight Manual shall be prepared by the applicant and submitted for approval by the Administrator. The Manual shall be prepared in accordance with the requirements of Subpart G of Part 6 or 7 of this chapter (Civil Air Regulations), whichever is applicable. The limiting height-speed envelope material may be considered performance information in lieu of operational limitations except for Class I external-load operations with rotorcraft certificated under Part 7 of this chapter (Civil Air Regulations). The Manual shall set forth:

(a) Operating limitations, procedures (normal and emergency), performance, and other information established under this subpart.

(b) The class of rotorcraft-load combination for which the airworthiness of the rotorcraft has been demonstrated in accordance with § 133.30.

(c) Information in the Information Section of the Rotorcraft-Load Combination Flight Manual shall include information on any general peculiarities found to exist when the rotorcraft is operated with a specific class of external load.

(1) If Class III external loads are involved, the section shall include precautionary advice regarding static electricity discharges.

(2) If Class IV external loads are involved, this section shall include precautionary advice regarding the importance of providing a towing cable with a breaking strength in excess of the activating load of the means required by § 133.31(c)(4) for preventing the maximum permissible tow load from being exceeded.

(3) This section shall also contain any other information the applicant considers essential to safe operation with external loads.

§ 133.34 Markings and placards.

The following markings and placards shall be displayed in conspicuous places and shall be such that they cannot be easily erased, disfigured, or obscured.

(a) A placard shall be displayed in the cockpit or cabin which specifies the class of external-load operations for which the rotorcraft has been approved and the occupancy limitations that are applicable thereto as set forth in § 133.12(a).

(b) A placard, marking, or instruction shall be displayed adjacent to the external-load carrying means which states the capacity, maximum weight, location, load-angle limits, or other essential information for safe operation.

[F.R. Doc. 63-1487; Filed, Feb. 11, 1963; 8:45 a.m.]