

RULES and REGULATIONS

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 45

[Docket No. 17528; Amdt. No. 45-15]

Location and Size of Registration Marks on Rotorcraft

Thursday, March 17, 1983

***11390** AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment requires the display of registration marks, N-numbers, at least 12 inches high, or as high as practicable, on rotorcraft sides in place of the dual markings that consist of an N-number at least 20 inches high on the bottom surface and an N-number at least 2 inches high on each of the fuselage side surfaces near the cabin. The rule will provide economic relief, maintain ease of positive identification, and standardize identification marking of aircraft. To avoid undue cost of compliance to rotorcraft owners and manufacturers, a rotorcraft displaying the dual 20-inch bottom surface and small side surface markings before the effective date of the amendment and a rotorcraft manufactured after April 18, 1983, but before December 31, 1983, will be allowed to continue the display of those marks until the rotorcraft is repainted or the marks are restored, repainted, or changed.

EFFECTIVE DATE: April 18, 1983.

FOR FURTHER INFORMATION CONTACT: Joseph J. Gwiazdowski, Aircraft Manufacturing Division (AWS-204), Office of Airworthiness, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591, telephone (202) 426-8361.

SUPPLEMENTARY INFORMATION:

Background

This amendment, which establishes new requirements for the location and size of N-numbers on rotorcraft, is adopted for essentially the reasons outlined in [Notice of Proposed Rulemaking \(NPRM\) No. 82-6 \(47 FR 14128: April 2, 1982\)](#). That action responded to the Robinson Helicopter Company, Torrance California petition for rulemaking to delete N-numbers from the bottom surface of rotorcraft and to the Bell Helicopter Textron, Fort Worth, Texas, petition for exemption from [§ 45.29\(b\)\(3\)\(i\)](#) to avoid the existing burden of compliance when attaching equipment that interferes with the display of 20-inch N-numbers on the bottom of a rotorcraft.

Also, as part of the FAA Rotorcraft Regulatory Review Program, a similar proposal was made in December 1979 on behalf of the Helicopter Association International (HAI) and the Aerospace Industries Association (AIA) to eliminate the 20-inch bottom surface markings on rotorcraft. The proposal reflected the Sikorsky Aircraft petition of February 22, 1977, for exemption from [§ 45.27](#), which contended that bottom surface marks should not be required on rotorcraft for the same reasons the marks are not required on the underwing surfaces of fixed-wing aircraft. Since the trend in rotorcraft design has resulted in fuselage shapes approaching those of

airplanes, the markings should be similar to facilitate identification. It was noted also that the elimination of the requirement for bottom markings would reduce the cost of rotorcraft marking, a savings which would be passed on the rotorcraft owners.

Because of these concerns, the FAA is adopting only side fuselage N-numbers 12 inches high in place of the dual N-numbers consisting of 20-inch bottom surface marks and the small (2- to 6-inch) side fuselage marks.

Interested persons were given an opportunity to participate in the making of the rule, and due consideration was given to all information submitted. Except as discussed in this preamble, the revisions adopted by this amendment and the reasons for them are the same as those in NPRM No. 82-6.

Need for Amendments

Costly underwing marking requirements imposed on fixed-wing airplanes were eliminated in 1961 by Amendment 1-4 to Civil Air Regulation Part 1. The bottom surface marking requirements for rotorcraft identification were not changed at that time because they suited the early commercial rotorcraft configurations. Those configurations usually had been adopted from military rotorcraft that had no need for the vertical tail surfaces or other design considerations applicable to small fixed-wing aircraft. Because the low-speed and stability design of these rotorcraft necessitated tail configurations having exposed metal tubular construction, there remained insufficient display area for adequate identification markings.

The new rotorcraft configurations, which have been designed for faster flight and more stability than the early designs, now have compact, low-drag fuselage and tail surfaces that closely resemble those of fixed-wing aircraft. This enables the marking requirements to be standardized.

The concerns of the aviation community regarding visual identification that resulted in the display of larger side fuselage N-numbers on fixed-wing aircraft also apply to rotorcraft. Citizens, law enforcement agencies, and the Department of Defense have complained that aircraft displaying small marks cannot be positively identified because the marks are too small to see; consequently, appropriate action cannot be taken against violators of regulations, particularly low-flying aircraft that cause hazardous conditions and excessive noise in the community.

FAA field offices also stressed the need to standardize aircraft markings and improve the ability to positively identify rotorcraft. Agreement has been expressed regarding the elimination of the large 20-inch bottom surface marks, and adoption of the 12-inch side fuselage numbers has been recommended to provide for positive aircraft identification.

In view of the foregoing, the FAA has determined that it is in the public interest to change the identification requirements on rotorcraft from the display of dual markings now required to standard 12-inch-high fuselage side marks only.

Discussion of Comments

Twenty-eight commenters, who represent the views of rotorcraft manufacturers, associations, and individual owners, submitted responses to NPRM No. 82-6. Generally, the comments favor the elimination of the 20-inch-high bottom surface marks; however, the majority note as unacceptable the requirement to display 12-inch-high N-numbers on the fuselage sides. About 20 commenters object to 12-inch N-numbers because of aesthetics, cost, or insufficient space or question the need for the change at this time. Some commenters recommend withdrawal of the proposed action or the optional use of 12-inch N-numbers in lieu of the dual markings.

Rotorcraft Aesthetics

Approximately 14 commenters object that 12-inch N-numbers would adversely affect

the aesthetics of rotorcraft. The FAA recognizes that this may be true in some cases; however, rotorcraft manufacturers and owners, in most cases, could modify the paint scheme to minimize any adverse effect on aesthetics. The effect of the 12-inch N-number requirement would be no greater on rotorcraft than on fixed-wing aircraft. Furthermore, the FAA must give prime consideration to the factors most *11391 affecting the public interest and safety such as positive aircraft identification.

Cost of Compliance

Eleven commenters object to the cost that would be imposed by the proposed 12-inch N-numbers and contend that the FAA evaluation does not reflect the additional costs required to redesign the paint schemes around the proposed large numbers.

The FAA evaluation, as noted in NPRM 82-6, primarily reflected the difference in the costs of applying the dual marks now required as compared to applying only the 12-inch side fuselage marks proposed. The FAA agrees with the commenters that the additional costs may be incurred by those rotorcraft operators desiring to modify paint schemes to accommodate the 12-inch N-numbers. Accordingly, the FAA conducted an additional survey of fixed-base operators (FBO's) before issuing this final rule. These costs are included in the final regulatory evaluation.

Further, to avoid any undue cost burden on rotorcraft owners and manufacturers, the rule, as adopted, allows rotorcraft displaying the dual marks before the effective date of the amendment and new rotorcraft manufactured after April 18, 1983, but before December 31, 1983, to display those marks until the rotorcraft is repainted or the N-numbers are restored, repainted, or changed. It is apparent that many failed to note that the amendment would relieve the marking burden on manufacturers and owners by extending the time period for compliance in this manner.

Lack of Space

Approximately 12 commenters contend that many small rotorcraft models have insufficient space to display full-size 12-inch N-numbers.

The FAA recognizes that certain rotorcraft configurations may lack sufficient space to display full-size N-numbers. However, when a rotorcraft to be marked in accordance with § 45.27(a) lacks sufficient space to display full-size marks on either the cabin, fuselage, boom, or tail, then § 45.29(f) allows marks as large as practicable to be displayed on both sides of the largest outside surfaces of the cabin, fuselage, boom, or tail side surfaces.

Alternatives

Some commenters recommend that the present dual-marking requirements be retained. In those cases where attached equipments would obscure the bottom-surface marks, the commenters recommend that the proposed marking requirements could be made optional or handled by the exemption process. The FAA does not consider this a viable alternative since it would perpetuate the use of the ineffective dual markings.

Additionally, FAA experience indicates that those marks are of limited value for aircraft identification. The large bottom surface marks and the small side surface marks were found to be of little value in air-to-air identification. The bottom surface marks may, in some instances, serve as a means of identifying violators of noise abatement programs. However, those marks are of little value unless the aircraft is flying at an appropriate altitude, attitude, and speed; the observer is situated directly below the flight path; and favorable light and weather conditions prevail.

Further, the FAA agrees that retaining the dual-marking requirements would impose an undue economic burden on rotorcraft owners, particularly those who attach equipment that would obscure the bottom surface marks. In those cases, numbers as large as practicable would have to be displayed; however, should the equipment be removed, 20-inch marks would have to be displayed, as required.

Accordingly, the only viable solution to reconcile the identification and marking problems on rotorcraft is to eliminate the ineffective dual marks and adopt the 12-inch side surface marks. The effectiveness of 12-inch marks has been confirmed under actual operating conditions on fixed-wing aircraft and recommended by the DOD and enforcement agencies to enhance rotorcraft identification.

Regulatory Evaluation

The FAA conducted a detailed regulatory evaluation, which is included in the regulatory docket.

The FAA first determined the number of rotorcraft that would be impacted during the 10-year period starting from 1983, the assumed earliest year that the rule change could take effect. Based on a review of the Census of U.S. Civil Aircraft for calendar years 1970-1980, an annual increase factor of 10 percent was applied to determine the forecast number of new rotorcraft for the period 1983-1992. The FAA's analysis indicates that these new rotorcraft and existing rotorcraft (manufactured before 1983) require repainting and thus new registration marks, on the average, every 5 years.

The FAA conducted a new survey of FBO's, which is in addition to the survey conducted for the NPRM No. 82-6. Conversations with the FBO's revealed that by rescinding the current registration marking requirement (standard fuselage bottom and side), the average 1982 dollar cost savings to rotorcraft manufacturers and owners is \$444. The proposed larger side markings would cost an average \$220. Additionally, certain rotorcraft manufacturers and owners will incur costs to modify or develop new paint schemes because larger side marks may not coincide aesthetically with existing paint schemes. Based on conversations with the FBO's, the average weighted distributed cost to modify paint schemes per rotorcraft is \$196. Modification of paint schemes is a one-time cost and applies only to the initial painting of rotorcraft manufactured after the effective date of the rule and the first repainting of existing rotorcraft that occurs after the effective date of the rule. Furthermore, the FAA does not agree that larger side markings will result in a loss of business because customers would not be able to readily identify rotorcraft with modified or new paint schemes as suggested by two commenters to NPRM No. 82-6. Based on conversations with the FBO's, the FAA has determined that these manufacturers and owners in most cases should be able to work out a modified paint scheme to minimize the amount of change from the current design.

To determine the benefits and cost of the proposal over the period 1983- 1992, FAA inflated the unit dollar values for the current and proposed registration mark requirements and aesthetic-related costs to 1983 values, multiplied the unit costs by the affected number of rotorcraft for each year, and discounted the totals to 1983.

Based on the above methodology, the discounted value of the expected benefits over the period 1983 to 1992 is approximately \$14.0 million, whereas the discounted value of the costs over the same period is approximately \$11.2 million, for a benefit/cost ratio of 1.25.

The actual cost savings may be larger than determined above because under current regulations owners of rotorcraft who install or remove kits or parts that mount on the bottom of the rotorcraft often have to replace the marks on the fuselage bottom to maintain compliance. Therefore, owners of such rotorcraft would receive benefits from the elimination of the bottom marking requirement since the rotorcraft would not need to be marked each time such kits are installed and removed. These rotorcraft are still included, however, in the estimates of those that will have to be repainted with new marks every 5 years. Additionally, larger side marks *11392 may make rotorcraft easier to identify and aid in law enforcement by not only helping to identify alleged violators but also acting as a deterrent to potential violators.

Regulatory Flexibility Analysis and Determinations

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure, among other things, that small entities are not disproportionately affected by Government regulations. The RFA requires agencies to review rules which may have a "significant economic impact on a substantial number of small entities."

As detailed in the preceding review, this rule provides a small net benefit to rotorcraft manufacturers and owners. Therefore, the FAA has determined that the rule will not have a significant economic impact on a substantial number of small entities.

List of Subjects in 14 CFR Part 45

Nationality, Air safety, Safety, Aviation safety, Air transportation, Transportation, Airplanes, Helicopters, and Rotorcraft.

Adoption of the Amendment

Accordingly, Part 45 of the Federal Aviation Regulations (14 CFR Part 45) is amended as follows, effective April 18, 1983:

PART 45--IDENTIFICATION AND REGISTRATION MARKING

14 CFR § 45.27

1. By revising § 45.27(a) to read as follows:

14 CFR § 45.27

§ 45.27 Location of marks; nonfixed-wing aircraft.

(a) Rotorcraft. Each operator of a rotorcraft shall display on that rotorcraft horizontally on both surfaces of the cabin, fuselage, boom, or tail the marks required by § 45.23.

* * * * *

14 CFR § 45.29

2. By revising § 45.29 (b)(3) and (f) to read as follows:

14 CFR § 45.29

§ 45.29 Size of marks.

* * * * *

(b) * * *

(b)(3) Rotorcraft, must be at least 12 inches high, except that rotorcraft displaying before April 18, 1983, marks required by § 45.29(b)(3) in effect on April 17, 1983, and rotorcraft manufactured on or after April 18, 1983, but before December 31, 1983, may display those marks until the aircraft is repainted or the marks are repainted, restored, or changed.

* * * * *

(f) If either one of the surfaces authorized for displaying required marks under § 45.25 is large enough for display of marks meeting the size requirements of this section and the other is not, full-size marks shall be placed on the larger surface. If neither surface is large enough for full-size marks, marks as large as practicable shall be displayed on the larger of the two surfaces. If any surface authorized to be marked by § 45.27 is not large enough for full-size marks, marks as large as practicable shall be placed on the largest of the authorized surfaces.

* * * * *

(Secs. 307(c), 313(a), 501, and 601(a), Federal Aviation Act of 1958, as amended (49 U.S.C. 1348(c), 1354(a), 1401, and 1421(a)); and sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c))

Note.--This amendment will have a net beneficial cost impact because it will reduce the economic burden on rotorcraft owners and manufacturers. Specifically, the elimination of the costly 20-inch bottom surface marks will more than offset the increase of the fuselage side marks to 12 inches. Further, rotorcraft displaying bottom surface marks before the effective date will be allowed to display those marks until the rotorcraft is repainted or the marks are repainted, restored, or changed. The FAA has determined this document does not involve requirements that will result in any significant burden on owners or manufacturers. Accordingly, it has been determined that this final rule is not major under Executive Order 12291 or significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). For these reasons and because this rule will only result in a small economic benefit to individual rotorcraft owners, I certify that, under the criteria of the Regulatory Flexibility Act, this rule will not have a significant economic impact on a substantial number of small entities.

A copy of the regulatory evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

Issued in Washington, D.C., on February 14, 1983.

J. Lynn Helms,
Administrator.

[FR Doc. 83-6730 Filed 3-16-83; 8:45 am]

BILLING CODE 4910-13-M

48 FR 11390-01, 1983 WL 126061 (F.R.)

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