In acting on a request by a foreign air carrier for a statement of authorization under part 212, OST must find that the operation meets the requirements of that rule and is in the public interest.[4] The applicant foreign air carrier must demonstrate that its proposed arrangement with the U.S. air carrier for the foreign carrier to conduct a flight or series of flights with the foreign air carrier's aircraft and crew in foreign air transportation for an authorized U.S. carrier meets these standards. In particular, one way in which the public interest standard of part 212 could be met would be for the foreign air carrier to show that (1) operational control of the flight or flights rests with it and not with the U.S. certificated air carrier; (2) legal and actual possession of the aircraft at all times will remain with the foreign air carrier; (3) the country that issued its air operator certificate (AOC) has been rated as Category 1 under the FAA's International Aviation Safety Assessment program; [5] and (4) the U.S. certificated air carrier involved has assessed the level of safety of the service to be provided by the foreign air carrier involved and has found it to be satisfactory.

The foreign air carrier may provide information on operational control by submitting, with its application for a statement of authorization, a copy of the agreement for the aircraft with crew that it has entered into with the U.S. certificated air carrier. In making a determination on operational control, the FAA will consider the terms of that agreement and all other relevant factors to ensure that the foreign air carrier will exercise authority over initiating, conducting or terminating a flight conducted under the agreement. Likewise, in determining whether the foreign air carrier retains actual and legal possession of the aircraft, the FAA will consider all relevant factors, including the foreign air carrier's right to substitute other aircraft for the aircraft identified in the agreement, or its right to use the aircraft identified in the agreement for its own purposes when the aircraft is not needed by the U.S. air carrier.

The U.S. certificated air carrier involved in the arrangement may demonstrate its assessment of the safety of the service by conducting a safety audit of the foreign air carrier under an FAA-approved safety audit program, comparable to the audits that U.S. carriers now perform under the OST/FAA Code-Share Safety Program. The FAA would review the safety audit along with the agreement for the aircraft with crew and provide the Department with the results of that review.[6]

Because these applications are handled on a case-by-case basis, applicants may, of course, endeavor to show that the foreign air carrier is in operational control and that the operation is in the public interest by providing information and evidence other than that outlined above, but the burden of making that showing is on the applicants.

To summarize applicable regulations, one way that a foreign air carrier may demonstrate a public interest basis under which it could make an arrangement (which may be characterized by the parties as a wet lease) to conduct a flight or series of flights with the foreign carrier's aircraft and crew for a U.S. carrier authorized to perform the relevant foreign air transportation is to show that:

—The foreign air carrier involved holds a foreign air carrier permit or exemption authority from OST to conduct charter operations;
—The country that issued the foreign air carrier's AOC is rated as Category 1 under the FAA's International Aviation Safety Assessment program;
—The operations to be conducted represent foreign air transportation and not prohibited cabotage, in accordance with 49 U.S.C. 41703;
—The foreign air carrier files an application for a statement of authorization for any such operation proposed;
—The foreign air carrier demonstrates that it will be in operational control of the proposed operation, for example, by providing with its application, for review by the FAA, copies of the agreement for the aircraft with crew, that it has entered into with the U.S. certificated air carrier;
—The foreign air carrier demonstrates that it will retain legal and actual possession of the aircraft;
—The foreign air carrier provides evidence that the U.S. certificated air carrier involved has conducted a safety audit of the foreign carrier, consistent with an FAA-approved safety audit program, and has submitted a report of that audit to the FAA for review;
—The FAA notifies OST that it has determined that operational control of the proposed flights rest with the foreign air carrier applicant, that the oversight of the operation will remain with the country that issued the foreign air carrier's AOC, and that the safety audit meets the standards of the U.S. certificated air carrier's safety audit program; and
—OST determines that the proposed operations meet the requirements of 14 CFR part 212 and are in the public interest, and grants the statement of authorization requested by the foreign air carrier.

We will publish this Notice in the **Federal Register**, and will serve this Notice on all U.S. certificated air carriers and all foreign air carriers holding OST authority.

Dated: February 15, 2008.

Michael W. Reynolds,

Acting Assistant Secretary for Aviation and International Affairs, Department of Transportation.

Nicholas A. Sabatini,

Associate Administrator for Aviation Safety, Federal Aviation Administration.

[FR Doc. E8–3470 Filed 2–28–08; 8:45 am]

BILLING CODE 4910–9X–P

[4] See 14 CFR § 212.11(a).

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 27 and 29

[Docket No.: FAA–2006–25414; Amendment Nos. 27–44 and 29–51]

RIN 2120–AH87

Performance and Handling Qualities Requirements for Rotorcraft

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This final rule provides new and revised airworthiness standards for normal and transport category rotorcraft due to technological advances in design and operational trends in normal and transport rotorcraft performance and handling qualities. The changes enhance the safety standards for performance and handling qualities to reflect the evolution of rotorcraft capabilities. This rule harmonizes U.S. and European airworthiness standards for rotorcraft performance and handling qualities.

DATES: These amendments become effective on March 31, 2008. Affected parties, however, do not have to comply with the information collection requirements of this rule until the OMB approves the FAA's request for this information collection requirement. The FAA will publish a separate document notifying you of the OMB Control Number and the compliance date(s) for the information collection requirements of this rule.

FOR FURTHER INFORMATION CONTACT: For technical questions concerning this final

rule contact Jeff Trang, Rotorcraft Standards Staff, ASW–111, Federal Aviation Administration, Fort Worth, Texas 76193–0111; telephone (817) 222–5135; facsimile (817) 222–5961, e-mail *jeff.trang@faa.gov*. For legal questions concerning this final rule contact Steve Harold, Directorate Counsel, ASW–7G, Federal Aviation Administration, Fort Worth, Texas 76193–0007, telephone (817) 222–5099; facsimile (817) 222–5945, e-mail *steve.c.harold@faa.gov*.

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The FAA's authority to issue rules on aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority.

This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, ''General requirements,'' Section 44702, ''Issuance of Certificates,'' and section 44704, ''Type certificates, production certificates, and airworthiness certificates.'' Under section 44701, the FAA is charged with prescribing regulations and minimum standards for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. Under section 44702, the FAA may issue various certificates including type certificates, production certificates, and airworthiness certificates. Under section 44704, the FAA shall issue type certificates for aircraft, aircraft engines, propellers, and specified appliances when the FAA finds that the product is properly designed and manufactured, performs properly, and meets the regulations and minimum prescribed standards. This regulation is within the scope of that authority because it would promote safety by updating the existing minimum prescribed standards used during the type certification process to reflect the enhanced performance and handling quality capabilities of rotorcraft. It would also harmonize this standard with international standards for evaluating the performance and handling qualities of normal and transport category rotorcraft.

Background

Due to technological advances in design and operational trends in normal and transport rotorcraft performance and handling qualities, new and revised airworthiness standards have been developed. Some current part 27 and part 29 regulations do not reflect safety levels attainable by modern aircraft and FAA-approved equivalent level of safety findings. In fact, it has been more than 20 years since the last major promulgation of rules that address rotorcraft performance and handling qualities (Amendments 29–24 and 27–21).[1] Since then, the FAA has developed policies and procedures that address certain aspects of these requirements to make the rotorcraft airworthiness standards workable within the framework of later rotorcraft designs and operational needs. Additionally, most rotorcraft manufacturers have routinely exceeded the minimum safety requirements in current part 27 and part 29 regulations.

History of the NPRM

On January 20, 1995, the FAA tasked the Performance and Handling Qualities Harmonization Working Group (PHQHWG) to ''review Title 14 Code of Federal Regulations part 27 and Appendix B, and part 29 and Appendix B, and supporting policy and guidance material for the purpose of determining the course of action to be taken for rulemaking and/or policy relative to the issue of harmonizing performance and handling qualities requirements.'' The PHQHWG, which included broad membership from government authorities and industry representatives throughout the international rotorcraft community, met a total of ten times beginning in March 1995 to ensure participation by all interested parties early in the rulemaking process. Based on the recommendations of the PHQHWG, we published a notice of proposed rulemaking (NPRM 06–11)[2] in the **Federal Register** on July 25, 2006. The comment period for that NPRM closed on October 23, 2006.

Summary of Comments

The FAA received a total of 34 comments to the NPRM from four commenters: Erickson Air-Crane, Transport Canada, and three individuals, two of whom submitted their comments jointly. One commenter agreed with the proposed changes but had a comment relating to our economic evaluation. The remaining 33 comments related to specific proposed rule changes and included suggested changes, as discussed more fully in the discussion of the final rule below.

aircraft and its occupants, both direct and consequential, caused or contributed to by one or more failures, considering relevant adverse operation or environmental conditions.'' ARP4761 further states that, ''for each failure condition, the analyst must assign probability requirements.'' In existing

Discussion of the Final Rule

Weight Limits (§§ 27.25, 29.25)

The FAA proposed § 27.25(a)(1)(iv) to formalize previous equivalent level of safety findings by establishing a maximum allowable weight if the requirements in § 27.79 or § 27.143(c)(1) cannot be met. The equivalent level of safety is attained by prohibiting certain operations and including limitations in the Rotorcraft Flight Manual (RFM) that reflect the actual capability of the aircraft.

One commenter suggested that the proposed changes potentially lower the level of safety currently required under part 27 standards, are redundant and unnecessary, appear to delete the low-speed controllability requirements as a component in establishing the maximum weight under § 27.25(a)(1)(iii), and therefore should be withdrawn. The commenter stated that under the current standard the flight requirements that typically establish the maximum weight for a helicopter with a single main rotor are in-ground effect (IGE) hover performance (§ 27.73), height-velocity (§ 27.79), and low-speed controllability (§ 27.143). The commenter further stated that the structure of § 27.25 will always establish the maximum weight at a value that allows compliance with §§ 27.79 and 27.143(c)(1) because the applicant will always select the weights allowed by § 27.25(a)(1)(iii) to show compliance with §§ 27.73, 27.79 and 27.143. Under the scenario the FAA used to justify the proposed change (making an equivalent level of safety finding to § 27.143(c) and statements in advisory material for § 29.143(c) that relate to possible removal, under certain circumstances, of operating limitations based on any hover controllability condition), the commenter stated that the FAA intends to delete the low-speed controllability requirements of the current rule as parameters for establishing maximum weight. The commenter maintained that this would reduce the margin of safety for helicopter operations, particularly above sea level, and would require exceptional piloting skills or exceptionally favorable conditions in order to conduct safe operations. Such requirements are prohibited by certain regulations, such as § 27.51(a)(1).

We disagree with a majority of these comments. Proposed § 27.25(a)(1)(iv) is not redundant or unnecessary because it provides an additional standard, rather than a replacement standard, for determining the maximum weight. Recent certifications have resulted in rotorcraft designs that have been unable

to meet the current standards for controllability near the ground (§ 27.143 Controllability and maneuverability) while at the maximum weight established at 7,000 feet density altitude when meeting the standards for performance at minimum operating speed (§ 27.73) and for establishing the respective limiting height-speed envelope (§ 27.79). For those certification projects, we have permitted the applicant to show compliance through equivalent level of safety findings. In those cases, this new standard would allow for weight-altitude-temperature (WAT) limitations to be established for a part 27 rotorcraft that cannot meet the requirements of § 27.143(c) at 7,000 feet. The rotorcraft would then be required to operate within the weights, altitudes, and temperatures specified by those WAT limitations. This ''part 29 methodology,'' which imposes WAT limitations not usually required of normal category rotorcraft, therefore raises the minimum level of safety by restricting the aircraft from operating in those environmental conditions where the low-speed controllability requirements cannot be met.

As alluded to by the commenter, these equivalent level of safety prohibitions and limitations have historically been obtained through use of a certification methodology analogous to that for part 29 rotorcraft certification. They do not circumvent or eliminate the low speed controllability requirements for part 27 rotorcraft. As previously noted, one factor we have used in establishing WAT limitations is the low-speed controllability requirement of § 29.143(c). After these changes are effective, the low-speed controllability requirement of § 27.143(c) will remain a factor in establishing the WAT limitations. While we partially agree with the commenter's concerns about operating limitations being a greater workload on pilots, we do not believe that any new requirements proposed in this rule are beyond the scope of normal piloting responsibilities. Whether such data are provided in the Rotorcraft Flight Manual (RFM) as performance data or in the Limitations Section should not materially affect pilot workload. We agree with the commenter that certain environmental conditions may require increased pilot vigilance in determining wind speed and direction in order to adhere to some limitations and prohibitions. However, we believe that following such limitations should not require exceptional piloting skill. Furthermore, this standard does not reduce the margin of safety because, historically, such a margin of safety was maintained by an equivalent level of safety finding. Under the new standard, which adopts this equivalent level of safety as another alternative, prohibiting and limiting certain operations will maintain, not lower, that established level of safety. Accordingly, we are adopting the changes as proposed.

We proposed to amend § 29.25 by requiring that the maximum weights, altitudes, and temperatures demonstrated for compliance with § 29.143(c), which may also include wind azimuths, become operating limitations for Category B rotorcraft with a passenger seating capacity of nine or less. Such limitations are necessary to ensure safe aircraft operations within the demonstrated performance envelope of such rotorcraft.

Four comments were received regarding § 29.25. One commenter stated that the intent and applicability in this proposed rule change is confusing in the context of discussions associated with previous amendments to part 29 of the regulations and associated advisory material. The commenter recommended that the paragraph be rewritten to: (1) Clarify how this paragraph affects the relief granted to Category B rotorcraft at Amendment 29–24; (2) address maximum safe wind limitations in § 29.1583; and (3) make the paragraph applicable to all Category B rotorcraft, not just those having a passenger capacity of nine or less, if the intent of the change is to grant relief under certain conditions from any hover controllability conditions determined under § 29.143(c).

The FAA does not agree that the intent and applicability of the proposed change is confusing in the context of previous amendments to part 29 and the associated advisory material. As explicitly stated in the proposed change to § 29.25(a)(4) this paragraph of the regulation applies only to Category B rotorcraft with nine or less passenger seats. Even though there may be some imprecise wording in our advisory material, we chose to exclude Category B rotorcraft with ten or more passenger seats from this change to ensure that a higher level of safety is maintained for those transport category rotorcraft configured for 10 or more passenger seats. In short, we expect a higher level of safety to be applied to all Category A rotorcraft and most Category B rotorcraft. For those Category B rotorcraft having nine or less passenger seats, in prior certifications in which the current standards for controllability near the ground (§ 29.143(c)) could not be met, we have allowed the applicant to show compliance through an equivalent level of safety finding. We accepted these findings as providing the same level of safety as that for part 27 certifications, which also allows for configurations of no more than nine passenger seats. In those certification projects, this new standard would allow for demonstrated wind velocities and azimuths to be included as an operating limitation, which must be stated as such in the RFM. That is, for those part 29, Category B rotorcraft with nine or less passenger seats, we believe that by requiring the wind operating envelope to be a limitation, the proposed standard provides the same level of safety as in the standards prescribed by part 27, which also limits the seating capacity to nine or less passenger seats. This methodology is consistent with the standards adopted by Amendments 29–21 and 29–24, which, among other things, established different criteria for Category A and Category B rotorcraft certification in § 29.1 as a function of both aircraft weight and maximum passenger seating capacity. We believe that the proposed change is materially consistent with the current guidance material in Advisory Circular (AC) 29–2C, which only will need to be revised to reflect the requirement that the appropriate limitations be included in the RFM for these aircraft. Even though previous amendments did not specifically require that operating envelopes be included in the limitations section of the RFM for these aircraft, the proposed change makes this a requirement to further increase the safety standards. Further, because this standard deals with aircraft weight for various conditions—maximum weights, altitudes, and temperatures (WAT)—we opted to place the limitations requirement in this regulation, rather than in § 29.1583, to further emphasize that the maximum WAT conditions at which the rotorcraft can safely operate near the ground with maximum wind velocity are limitations and may also include other demonstrated wind velocities and azimuths.

Another commenter stated that revising the rule by addition of a new paragraph potentially lowers the level of safety established for part 29 standards; potentially shifts the burden for maintaining the currently established level of safety from the type design to the flight crew; and that maintaining the current version of § 29.25(a) is satisfactory and need not be changed. The commenter therefore recommended that the proposed change to § 29.25(a) be withdrawn. The commenter stated that the low-speed-controllability rule

consists of two elements, wind speed and weight. The commenter further stated that, under current regulations, all part 29 Category B rotorcraft are at a competitive disadvantage when compared to similarly-sized part 27 rotorcraft because, for part 27 rotorcraft, there is no requirement to take-off and land above 7,000 feet density altitude at a weight which allows all-azimuth low speed controllability in winds of at least 17 knots above 7,000 feet density altitude. The commenter asserts that part 29 transport category rotorcraft must be designed to operate at the maximum weight that allows compliance with § 29.143(c) at each takeoff and landing altitude. If the low speed requirement is deleted for part 29 Category B rotorcraft with nine or less passenger seats as proposed, the commenter believes the part 29 flight crew of these rotorcraft will be required to compensate by being more alert to the wind conditions when operating near maximum weight. Because the margin of safety currently provided by the part 29 design may no longer be included in the design of the rotorcraft, the commenter contends that this requirement would shift the burden for maintaining the currently established level of safety from the type design holder to the flight crew.

The FAA does not agree that these requirements will result in a lower safety standard for part 29 or that the requirement potentially shifts the burden for maintaining safety from the type design holder to the flight crew. Not only is this requirement a safety improvement, but critical safety information such as maximum weight, altitude, and temperature operating limits (which may include limited wind azimuths) would be listed in the Limitations Section of the RFM. Currently, we require that information to be placed in the Limitations Section of the RFM only for Category A rotorcraft. Our position as reflected in the preamble of the NPRM (82–12) [3] leading to Amendment 29–24, states, in part, ''The FAA considers the 17-knot controllability requirement an appropriate minimum safety requirement for Category A rotorcraft. * * * This proposal would add the requirement that the wind value be placed in the Flight Manual as a limitation for Category A rotorcraft. * * * In roles envisioned for utility rotorcraft and those carrying less than 10 passengers, takeoffs and landings are frequently conducted from sites where wind information is not readily obtainable. To require this wind information as an operating limitation for Category B is impractical.'' However, we have reevaluated our position relating to operating limitations and are now requiring this information for Category B rotorcraft with nine or less passenger seats be placed in the Limitations Section, for the same reasons described in our disposition of the first three comments to this section.

The commenter is correct that, under current regulations, all part 29 Category B rotorcraft must be designed to operate at the maximum weight that allows compliance with § 29.143(c) at each takeoff and landing altitude, and that for part 27 rotorcraft, there is no requirement to demonstrate all-azimuth low speed controllability in winds of at least 17 knots, above 7,000 feet density altitude and at the maximum weight. The commenter stated that this places part 29, Category B rotorcraft at a competitive disadvantage when compared to similarly-sized part 27 rotorcraft. We disagree. For Category B rotorcraft having nine or less passenger seats, in prior certifications in which the current standards for controllability near the ground (§ 29.143(c)) could not be met, we have allowed the applicant to show compliance through equivalent level of safety findings. We accepted these findings as providing the same level of safety as that for part 27 certifications, which also allows for no more than nine passenger seats, by allowing operating limitations in the RFM which may include wind velocities and azimuths. In those certification projects, this new standard would allow for demonstrated wind velocities and azimuths to be included as an operating limitation in the RFM. That is, for those part 29, Category B rotorcraft with nine or less passengers, we believe that by requiring wind operating envelope to be a limitation, the new standard provides the same level of safety as in the standards prescribed by part 27, which also limits the seating capacity to nine or less passenger seats.

As discussed earlier, the FAA did not intend to delete the low speed requirement for part 29 Category B rotorcraft with nine or less passenger seats. One factor we have used in establishing WAT limitations is the low-speed controllability requirement of § 29.143(c), which this final rule now formalizes.

Performance at Minimum Operating Speed (New § 27.49)

We proposed to re-designate § 27.73 as § 27.49 and add a requirement to determine the out-of-ground effect (OGE) hover performance, because OGE operations have become commonplace. The proposed change mandates that OGE hover data be determined throughout the range of weights, altitudes, and temperatures; most manufacturers already present this data in the RFM.

The FAA received a comment, outside of our proposed rule change, suggesting that in this final rule, where we are re-designating § 27.73 as § 27.49, that we revise paragraph (a)(2)(ii) to encompass the entire flight envelope requested by the applicant, including the temperature-altitude hover ceiling requirements where the temperature at sea level is well above the minimum standard 100 °F condition envisioned in § 27.1043(b). The commenter further stated that, if we adopt their suggested change to re-designate § 27.49(a)(2)(ii), for consistency we should revise §§ 27.51, 27.79(a)(1) and (a)(2), and 27.143(c)(1) to require turbine-powered rotorcraft to demonstrate compliance at maximum weight from sea level at temperatures established under § 27.1043(b) to 2,500 feet pressure altitude at a temperature corresponding to the established sea level temperature decreased by the standard lapse rate. The commenter also stated that the FAA should consider revising the 7,000 feet density altitude standard in proposed §§ 27.51(b), 27.79(a)(1), and 27.143(c)(1) and (c)(2) to 7,000 feet density altitude with temperature corresponding to the sea level temperature established in compliance with § 27.1043(b) decreased by the standard lapse rate. The commenter further stated that these changes would acknowledge the increased capability of turbine-powered rotorcraft by requiring compliance at the edge of the envelope requested, not to a single density altitude, which may not reflect the intended operational envelope of the rotorcraft. Although this comment may have merit, it is beyond the scope of our proposals and is not adopted. We may consider it in future rulemaking actions. Accordingly, it is adopted as proposed.

Takeoff (§ 27.51), Landing (§ 27.75), and Engines (§ 27.903)

We received no comments on these proposals; all three are adopted as proposed.

We proposed to revise § 27.51 to recognize in the standard that the most critical center-of-gravity (CG) may not be the extreme forward CG, and require that tests be performed at the most critical CG configuration and at the maximum weight for which takeoff certification is requested. Further, we proposed to clarify the requirement to

[3] 47 FR 37806–01, August 26, 1982, Docket # 23266.

demonstrate safe landings after an engine failure at any point along the takeoff path up to the maximum takeoff altitude or 7,000 feet, whichever is less, to explicitly state that the altitudes cited are density altitudes.

We proposed to revise § 27.75(a) to: (1) State the required flight condition in more traditional rotorcraft terminology; (2) require multi-engine helicopters to demonstrate landings with one engine inoperative and initiated from an established approach; and (3) replace the word ''glide'' with the word ''autorotation.''

We proposed to add paragraph § 27.903(d) to require engine restart capability, which is a fundamental necessity for any aircraft to minimize the risk of a forced landing. A restart capability will enhance safety, even if it may not be useful in every case such as when engine damage exists or when there is insufficient altitude to implement the engine restart procedure. We intend that the restart procedure be included in the RFM.

Glide Performance (§ 27.71)

One commenter noted that the word ''glide'' has been replaced with ''autorotation'' in the proposed text of § 27.143. However, the title of § 27.71 remains ''Glide Performance.'' The commenter recommended that the title of § 27.71 be changed to ''Autorotation Performance,'' to provide consistency with the proposed changes. The FAA agrees with the comment and the title has been changed.

Performance at Minimum Operating Speed (§ 27.73)

One commenter noted that in our proposed re-designation of current § 27.73 to § 27.49, we proposed to change the ambient temperature in paragraph (a)(2)(ii) from ''° F'' to ''° C.'' Consequently, the commenter recommended that all sections of part 27 containing temperature callouts likewise be revised. We disagree. The NPRM does not change the ambient temperature callout from degrees-Fahrenheit to degrees-Celsius. Rather, it recognizes degrees-Celsius in addition to degrees-Fahrenheit when making the temperature callout. Incorporating similar changes to other temperature callouts will be considered for future changes to part 27. Accordingly, the change is adopted as proposed.

Limiting Height—Speed Envelope (§ 27.79)

We proposed to revise § 27.79(a)(1) to include the words ''density altitude'' after ''7,000 feet.'' We also proposed to revise § 27.79(a)(2) by removing ''lesser'' from the first sentence, reflecting that current OGE weights for helicopters are not necessarily less than the maximum weight at sea level. Finally, we proposed to remove the term ''greatest power'' from § 27.79(b)(2) and replace it with language that more clearly states the power to be used on the remaining engine(s) for multi-engine helicopters. This ''minimum installed specification power'' is the minimum uninstalled specification power corrected for installation losses.

One commenter to the proposed language suggested that the FAA seems to be aligning the sections of part 27 with part 29, as was proposed with the re-designation of § 27.73 as § 27.49. Consequently, the commenter recommended that § 27.79 be re-designated as § 27.87. The FAA agrees that this paragraph re-designation better aligns the requirements for performance at minimum operating speed in part 27 and part 29. Furthermore, the re-designating of the paragraph is administrative in nature and imposes no additional requirements on applicants. Accordingly, the recommendation is adopted as proposed.

The second commenter noted that since the height-velocity (H–V) envelope for part 27 aircraft is not a limitation, the word ''limiting'' should be deleted from the title of § 27.79 and from any other references to the H–V envelope contained in part 27. The FAA agrees with the comment, since § 27.1587 requires that the H–V envelope be published in the RFM as performance information. Accordingly, the title of the paragraph is changed.

Controllability and Maneuverability (§§ 27.143, 29.143)

We proposed to revise §§ 27.143(a)(2)(v) and 29.143(a)(2)(v) to replace the word ''glide'' with ''autorotation.'' We proposed to re-designate portions of § 27.143, and to rewrite §§ 27.143(c) and 29.143(c) to more clearly state that controllability on or near the ground must be demonstrated throughout a range of speeds from zero to at least 17 knots. We also proposed to clarify the altitude requirement with the addition of the words ''density altitude.'' We further proposed to revise § 27.143(c)(2) to require that controllability be determined at altitudes above 7,000 feet density altitude if takeoff and landing are scheduled above that altitude. Lastly, we proposed to add §§ 27.143(d) and 29.143(d), to require the determination of controllability for wind velocities from zero to at least 17 knots OGE at weights selected by the applicant. These proposed changes, together with the new OGE hover requirement of § 27.49, would increase the level of safety by requiring additional performance information.

Relative to both sections 27.143 and 29.143, one commenter noted that the reference to ''paragraph (e)'' in paragraph (b)(4) of the current rule (which we did not propose to change in the NPRM) should be changed to read ''paragraph (f).'' The FAA agrees. As indicated in the NPRM, we proposed to re-designate §§ 27.143 and 29.143 paragraphs (d) and (e) as paragraphs (e) and (f), respectively. However, we failed to propose to change the reference in paragraphs in §§ 27.143 and 29.143(b)(4) from paragraph (e) to paragraph (f). That is, we gave no indication that we proposed to delete the exception enumerated in (b)(4) to exclude helicopters from the (b)(4) requirement if the helicopter demonstrates compliance with current paragraph (e) (re-designated paragraph (f)). Because these paragraph re-designations, as well as the unchanged provisions of paragraph (b), were intended only to continue the current requirements, we believe changing the reference in paragraph (b)(4) from (e) to (f) is non-substantive, constitutes a correction of an error, is consistent with our intended changes without which the proposed change would have unintended consequences, and continues the current standard to exclude the same helicopters from the provisions of paragraph (b)(4). We have changed the reference in the final rule.

A second comment stated that the NPRM proposes to add requirements to determine low-speed controllability: (1) Near the ground for takeoff and landing altitudes above 7,000 feet density altitude, and (2) for OGE for the altitude range from standard sea level to the maximum takeoff and landing altitude capability of the aircraft. The commenter stated that under § 27.25(a), the weight selected by the applicant to establish the all-azimuth wind velocities would be a factor in determining the maximum weight. The commenter stated that this weight would undoubtedly be much less than the maximum weight determined under the current rule and thus would make the rotorcraft less competitive. Further, the commenter assumes that the intent of the proposal is to develop additional performance information beyond that currently available, to assist the flight crew. The commenter stated that if these assumptions are true, the NPRM should be revised to clearly indicate that the proposed paragraphs are not applicable as flight requirements when establishing the maximum weight under § 27.25(a).

The FAA does not agree. As noted in the NPRM, the intent of the proposed language is to increase the level of safety by providing additional performance information in the RFM. This is further reflected in the proposed § 27.1587(a)(2), which proposed to explicitly require presentation of performance information found in meeting the requirements of the proposed § 27.143. Consequently, the new § 27.143(d)(4) will not be used in determining the rotorcraft's maximum weight under § 27.25(a). Except for the reference change in paragraph § 27.143(b)(4), the changes are adopted as proposed.

Another comment suggests that we used the word ''manner'' instead of ''maneuver'' in proposed § 29.143(c). The proposed requirement reads, in part, ''* * * the rotorcraft can be operated without loss of control on or near the ground in any manner appropriate to the type. * * *'' The commenter suggests that the word ''manner'' should be changed to ''maneuver'' because the latter is used in the current requirement and also in the proposed and current requirement in § 27.143(c). We agree. The word ''manner,'' as used in the proposed text, is an error. We intended to use the word ''maneuver'' in proposed § 29.143(c) and we have made that non-substantive change in this final rule.

Static Longitudinal Stability (§§ 27.173, 29.173)

We proposed to clarify §§ 27.173(a) and 29.173(a) by changing ''a speed'' to ''airspeed.'' We also proposed to combine paragraphs (b) and (c) to allow neutral or negative static stability in limited areas of the flight envelope, if adequate compensating features are present and the pilot can maintain airspeed within five knots of the desired trim airspeed under the conditions of §§ 27.175 and 29.175. Such neutral or negative static stability in limited flight domains have been allowed for numerous rotorcraft under equivalent level of safety findings. Lastly, we proposed to delete the §§ 27.173(c) and 29.173(c) requirements relating to the hover demonstration in current §§ 27.175(d) and 29.175(d).

We received no substantive comments relative to the proposed changes to § 27.173. One commenter noted that the proposed revision to § 29.173(b) has an open parenthesis mark in front of the ''5 knots'' and suggested that open parenthesis mark should be a ''±'' symbol. We agree and have made that change in the final rule. The other proposed changes have been adopted as proposed.

Demonstration of Static Longitudinal Stability (§§ 27.175, 29.175)

We proposed to decrease, in paragraphs (a) and (b) of §§ 27.175 and 29.175, the airspeed range about the specified trim speeds to more representative values than are currently contained in the rule. We also proposed to add a new paragraph (c) to require an additional level flight demonstration point, at a trim airspeed of $V_{NE} - 10$ knots, because the data coverage under the current cruise demonstration speed in modern helicopters may no longer represent a normal variation about a trim point. Additionally, we proposed to re-designate the current paragraph (c) as paragraph (d), and to delete the current paragraph (d) containing the hover demonstration, as the safety considerations associated with hovering flight are adequately addressed by §§ 27.143(a) and 29.143(a), respectively.

One commenter suggested that discrepancies may exist between § 27.175(d)(1) and (2), and §§ 27.67 and 27.71. Specifically, § 27.175 requires that static longitudinal stability be demonstrated in autorotation about the airspeeds for minimum rate-of-descent and best angle-of-glide. However, § 27.71 requires that the minimum rate of descent and the best angle of glide airspeeds be determined only for single engine helicopters and multiengine helicopters that do not meet Category A engine isolation requirements. Therefore, the commenter stated that this requirement would not apply to multi-engine helicopters that meet Category A engine isolation requirements. The commenter recommended that these sections be reconciled for part 27 designs that meet Category A engine isolation requirements. The FAA does not agree that any action is necessary. While § 27.71 does not have an explicit requirement to determine these two autorotation speeds for part 27 rotorcraft that meet Category A engine isolation requirements, § 27.141 requires that the rotorcraft demonstrate satisfactory flight characteristics for ''any condition of speed, power, and rotor r.p.m. for which certification is requested; * * *.'' Further, the two trim airspeeds explicitly cited in the proposed rule are intended to provide data at the most likely operating conditions flown during an autorotation, thereby providing a higher level of safety. Consequently, we are adopting the language as proposed.

One commenter stated that the proposed revision to paragraph § 29.175(b) reads, ''* * * in the climb condition at speeds from $V_y - 10$ kt, to $V_y + 10$ kt. * * *'' The commenter recommended that we delete the comma after ''$V_y - 10$ kt.'' We agree. That comma in the proposed text is a typographical error and has been removed in this final rule. Otherwise, the changes are adopted as proposed.

Static Directional Stability (§§ 27.177, 29.177)

We proposed to revise §§ 27.177 and 29.177 to provide further objective criteria over which the directional stability characteristics are evaluated. We also proposed to allow for a minimum amount of negative stability around each trim point, which does not materially affect the overall safety considerations of static directional stability.

One commenter noted a typographical error in the proposed text of § 27.177, in that paragraph (a)(1) has an open parenthesis mark in front of ''10 degrees'' and suggests that it should be a ''±'' symbol. We agree and have corrected that error in § 27.177(a)(1) of this final rule. Otherwise, the proposal is adopted as proposed.

Two comments were received regarding § 29.177. In the first comment, Transport Canada stated that they do not think that § 29.177(a)(1) makes sense in relation to § 29.177(a). They recited what they assumed we meant by the proposal and stated that ''paragraph 29.177(a)(1) specifies a range of sideslip angles and the lesser sideslip angle in this range will always be the smallest angle in the range.'' We do not agree and have not made any changes based on this comment. We believe that the commenter has misinterpreted our meaning in the ''* * * sideslip angles up to the lesser of—'' language in proposed § 29.177(a). This language modifies the four options listed in paragraphs § 29.177(a)(1) through § 29.177(a)(4) and is intended to mean the lesser value found from each of those four subsequent paragraphs. Paragraph 29.177(a)(1) is intended to provide options of sideslip angles from trim that are 50° wide (+25° to −25°) at the minimum-rate-of-descent airspeed less 15 knots, then varying linearly and narrowing to 20° wide (+10° to −10°) at the V_{ne} airspeed.

The second commenter suggested that the phrase in proposed § 29.177(c) that reads ''paragraph (a) of this paragraph'' be changed to read ''paragraph (a) of this section.'' We agree. The correct reference is to paragraph (a) of § 29.177. Except for changing the word ''paragraph'' to ''section'' for proposed § 29.177(c), the other changes are adopted as proposed.

Performance Information (§§ 27.1587, 29.1587)

We proposed to revise § 27.1587(a) to include reference to new § 27.49. We also proposed to revise § 27.1587(a)(2)(i) and (ii) to specifically include requirements for presenting maximum safe winds for OGE operations established in proposed § 27.143. Lastly, we proposed to delete § 27.1587(b)(1)(i) and (ii), which were moved into § 27.1585(a) by Amendment 27–21 and inadvertently left in § 27.1587.

Three comments were received regarding § 27.1587. The first commenter suggested that the term ''maximum wind value'' in § 27.1587(a)(2)(ii) could be confusing and ambiguous and recommended that the term ''maximum wind value'' be replaced with ''in winds of not less than 17 knots from all azimuths.'' We disagree. The requirements of this proposed rule assume that the requirements of § 27.143(c) can be met by the applicant. The proposed change seeks to ensure that appropriate performance information will be included in the RFM, whether it is 17 knots or some higher demonstrated value.

The second commenter suggested that § 27.1587(a)(2)(ii) is in conflict with the proposed § 27.143(c)(2) and (3). Specifically, the former paragraph uses the term ''maximum weight,'' while the latter two allow the applicant to select a weight, which may be less than the maximum weight. The FAA disagrees. The proposed text of § 27.1587(a) explicitly requires that the RFM contain information determined in accordance with § 27.143(c) and (d). The term ''maximum weight,'' subsequently used in paragraph (a)(2)(ii) is intended to be a further description of the maximum weight used when demonstrating compliance with § 27.143(c) and (d).

The third comment stated that the FAA has no formal definition of ''maximum safe wind,'' nor is there a flight requirement to demonstrate a ''maximum safe wind.'' The commenter recommended that the FAA explain the term and include definitions in part 27 and part 29. The FAA agrees that the comment may have merit. However, the term is currently used in both part 27 and part 29, and has been used throughout the history of these regulations, to include Civil Air Regulations 6 and 7, predecessors to this regulation. Development of a formal definition may be evaluated for incorporation in future rulemaking. Accordingly, the changes are adopted as proposed.

We proposed to revise § 29.1587 to require new performance information be included in the RFM, including the requirement for presenting maximum safe winds for OGE operations.

A commenter stated that the proposed paragraphs (a)(7) and (b)(8) require, in part, ''* * * the maximum weight for each altitude and temperature condition at which the rotorcraft can safely hover in-ground-effect and out-of-ground effect in winds of not less than 17 knots. * * *'' The commenter stated that the requirement is redundant, is not pertinent to a paragraph referring only to OGE hover performance, and that other paragraphs of § 29.1587 already contain the in-ground-effect (IGE) hovering requirement. The commenter recommended that the IGE requirement be deleted from each proposed paragraph. We agree that the ''in-ground-effect'' requirement is redundant and unnecessary. In adopting the changes to this section, we have deleted the ''in-ground-effect'' hovering requirement from the proposed § 29.1587(a)(7) and § 29.1587(b)(8).

The commenter further stated that the proposed paragraphs (a)(7) and (b)(8) conflict with the proposed revision to § 29.143(d). Specifically, proposed paragraphs (a)(7) and (b)(8) require the applicant to publish performance data for the ''maximum weight,'' whereas proposed § 29.143(d) allows a ''weight selected by the applicant'' when demonstrating the OGE requirement. The commenter stated that the ''weight selected by the applicant'' may not be the ''maximum weight.'' Therefore, the commenter recommended that § 29.1587(a)(7) and (b)(8) be changed to reflect the ''weight selected by the applicant'' as stated in § 29.143(d). We disagree. Proposed § 29.143(d) does allow for a ''weight selected by the applicant'' for the controllability and maneuverability standards. However, the proposed § 29.1587(a)(7) and (b)(8) also require that OGE performance data be provided at minimum operating speeds under § 29.49 over the ranges of ''weight, altitude, and temperature'' for which certification is requested, in addition to performance data at the maximum weight for each altitude and temperature at which the helicopter can hover safely in winds of not less than 17 knots from all azimuths. Consequently, the intent of this final rule is to require new OGE hover performance data be provided at the maximum weight used to demonstrate compliance with §§ 29.49 and 29.143(d).

The commenter stated that § 29.1587(b)(2) could be revised to more clearly indicate that the hover ceiling data is for IGE hovering. We agree that making specific reference to the IGE hover ceiling, adds clarification, and removes any ambiguity in the requirement. Accordingly, the recommendation is adopted.

The commenter also suggested that since § 29.1587(b)(8) uses the term ''winds of at least 17 knots from all azimuths,'' it ''would seem reasonable to expect paragraph (b)(4) to be similarly changed.'' We do not agree. Section 29.1587(b)(4) assumes that the requirements of § 29.143(c) for critical conditions can be met during IGE operations. Consequently, the requirements of (b)(4) ensure that, if a higher wind value exists that could present an unsafe condition, the consideration of those higher wind values are reflected in the appropriate performance information in the RFM for the maximum safe winds for operations near the ground. Conversely, paragraph (b)(8) requires presentation of the maximum weight at which the rotorcraft can hover OGE in 17-knot winds from any azimuth.

The commenter questioned why we proposed to remove the term ''maximum safe wind'' from current § 29.1587(a)(7) and replace it with ''maximum weight for each altitude and temperature condition at which the rotorcraft can safely hover in-ground-effect and out-of-ground effect in winds of not less than 17 knots from all azimuths.'' The commenter noted that in § 29.1587(b)(8) the FAA proposed to continue to use the current terminology ''maximum safe wind'' but add an ''almost separate and distinct parameter,'' that is to say, ''maximum weight for each altitude and temperature condition at which the rotorcraft can safely hover in-ground-effect and out-of-ground effect in winds of not less than 17 knots from all azimuths,'' the exact language we proposed as replacement language in paragraph (a)(7). The commenter stated that there is some apparent confusion over the definition and use of the term ''maximum safe wind.'' The commenter further postulated that in the proposed paragraph (a)(7), standard maximum safe wind seems to be equated with winds established for all-azimuth low speed controllability as defined in § 29.143(c). Conversely, proposed paragraph (b)(8) seems to treat maximum safe wind as something other than winds established for all-azimuth low speed controllability. The commenter believes that ''maximum safe wind'' could be viewed as a range of wind speeds and azimuths for safe operation where the wind speed is neither less than the wind speed established by § 29.143(c) nor more than

the demonstrated speed, particularly in non-critical azimuth ranges. The commenter stated that the FAA has neither a formal definition of ''maximum safe wind'' nor a flight requirement to demonstrate a ''maximum safe wind,'' and therefore recommended that the FAA explain the term and include a formal definition in part 27 and part 29. The FAA disagrees. In paragraphs (a)(7) and (b)(8), we proposed to more explicitly relate these requirements to those of § 29.143. The term ''maximum safe wind'' is also included in paragraph (b)(8) to provide for the presentation of additional wind speeds and azimuths in which Category B rotorcraft may be safely operated. While this term is not formally defined, it has been used in the certification standards since the existence of Civil Air Regulations 6 and 7; development of a formal definition will be evaluated in future rule changes. We did not make any changes to § 21.1587 based on these comments.

Airworthiness Criteria of Helicopter Instrument Flight (Appendix B to Part 27 and Appendix B to Part 29)

We proposed to amend paragraph V(a) to allow for a minimal amount of neutral or negative stability around trim and to replace the phrase ''in approximately constant proportion'' with ''without discontinuity.'' We also proposed to require that the pilot be able to maintain the desired heading without exceptional skill or alertness. Additionally, we proposed to reorganize paragraphs VII(a)(1) and VII(a)(2) and to revise them to specify the standards that must be met when considering a stability augmentation system failure. Finally, in paragraph V(b) of Appendix B to Part 29, we proposed to replace the word ''cycle'' with the correct word, ''cyclic.''

One commenter noted that, in the proposed change to paragraph VII(a) of Appendix B to Part 27 and Part 29, we replaced the term ''failure condition'' with the term ''failure.'' The commenter stated that, ''in the context of a systems safety assessment a 'failure' and a 'failure condition' are two distinctly different things'' and that the proposed change represents an alleviation. Consequently, the commenter stated support for reinstating the original term ''failure condition'' as intended by the ARAC Performance and Handling Qualities Working Group. Although not stated specifically in the comment, we believe that the commenter is suggesting that the word ''condition'' be inserted after the word ''failure'' in the second and third sentences of paragraph VII(a). We agree that we should insert the word ''condition'' in the two places in paragraph VII(a) but do not agree that, as stated, the proposal lessens the safety standard. Rather, we believe that omitting the term ''condition,'' as proposed in the NPRM, could result in a perceived change to the requirements for the systems safety assessment for instrument flight certification or could create confusion in future certification activities since its use would not be consistent with other current regulations, advisory material, and industry practice. No such change was intended by the proposal.

SAE Aviation Recommended Practice, ARP4761, defines the term ''failure'' as ''a loss of a function or a malfunction of a system or a part thereof.'' It further defines the term ''failure condition'' as ''a condition with an effect on the aircraft and its occupants, both direct and consequential, caused or contributed to by one or more failures, considering relevant adverse operation or environmental conditions.'' ARP4761 further states that, ''for each failure condition, the analyst must assign probability requirements.'' In existing certification activities, we accept these definitions for assigning probability requirements. In application, the five probability classifications (frequent, reasonably probable, remote, extremely remote, and extremely improbable) are intended to relate to an identified ''failure condition'' resulting from or contributed to by the improper operation or loss of a function or functions and not to the reliability of specific components or systems. The FAA intends that the term ''failure condition'' relate to the assignment of a probability requirement (in this case, ''extremely improbable'') to the ''failure condition,'' and not to the ''failure'' itself. In this standard, a Stability Augmentation System (SAS) failure condition, under these definitions, requires that the applicant take into consideration that the operation is made during instrument flight.

Because we are concerned that this proposal may be viewed as an inadvertent change to the safety standard and the system safety analysis requirements associated with SAS for instrument flight certification, we have changed the proposed standard and now use the term ''failure condition'' in the suggested two locations in paragraph VII(a). This change is consistent with the intent of the proposed standard, current industry practice, and is the same terminology used elsewhere in our regulations and guidance material. The change is further consistent with our goal of maintaining harmonized certification standards with the European Aviation Safety Agency (EASA). The remaining proposals are adopted without change.

Appendix C to Part 27 Criteria for Category A

One commenter recognized that we did not propose to change Appendix C to part 27, but suggested that since we are proposing to revise the low speed controllability section of part 27, we should also require all-azimuth low speed controllability in winds of not less than 17 knots at all weights, altitudes and temperatures where Category A takeoff and landing operations are requested for certification. The commenter stated that current Appendix C to part 27 does not require that part 27 rotorcraft certificated for Category A operations meet the low speed controllability requirements of § 29.143(c) because that requirement is not listed in paragraph C27.2 of Appendix C to part 27. The commenter speculated that perhaps ''we reasoned that since the low speed controllability requirements of § 27.143(c) and § 29.143(c) are identical, there was not a need to repeat a requirement already in place.'' However, the commenter stated that there is a difference; specifically with regards to the altitude range over which the two rules apply. The commenter stated that § 27.143(c) applies only from sea level to 7,000 feet density altitude, while § 29.143(c) applies to all altitudes and temperature for takeoff and landing requested for certification. The commenter stated that part 27 rotorcraft certificated for Category A operations should meet the same level of safety as that for transport category rotorcraft. We disagree. Part 27 rotorcraft certificated for Category A operations were not intended to meet the same level of safety as that for transport category rotorcraft. If this were the case, Appendix C to part 27 would have included all the part 29 requirements for Category A, particularly where differences exist between part 27 and part 29. Indeed, different Category A certification requirements exist for part 29 rotorcraft, as a function of aircraft weight and passenger seating capacity.

Performance at Minimum Operating Speed (New § 27.49)

We proposed to re-designate § 27.73 as § 27.49 and add a requirement to determine the OGE hover performance, because such operations have become commonplace. The proposed change mandates that OGE hover data be determined throughout the range of weights, altitudes, and temperatures;

most manufacturers already present this data in the RFM.

Concerning this re-designation of § 27.73 as § 27.49, a commenter suggested that we revise paragraph (a)(2)(ii) to encompass the entire flight envelope requested by the applicant, including the temperature-altitude hover ceiling requirements, where the temperature at sea level is well above the minimum standard 100°F condition envisioned in § 27.1043(b). The commenter further stated that, if we adopt the suggested change to re-designate § 27.49(a)(2)(ii), for consistency we should revise §§ 27.51, 27.79(a)(1) and (a)(2), and 27.143(c)(1) to require turbine-powered rotorcraft to demonstrate compliance at maximum weight from sea level at temperatures established under § 27.1043(b) to 2,500 feet pressure altitude at a temperature corresponding to the established sea level temperature decreased by the standard lapse rate. The commenter also stated that the FAA should consider revising the 7,000 feet density altitude standard in proposed §§ 27.51(b), 27.79(a)(1), and 27.143(c)(1) and (c)(2) to 7,000 feet density altitude with temperature corresponding to the sea level temperature established in compliance with § 27.1043(b) decreased by the standard lapse rate.

The commenter stated that these changes would acknowledge the increased capability of turbine-powered rotorcraft by requiring compliance at the edge of the requested envelope, not to a single density altitude, which may not reflect the intended operational envelope of the rotorcraft. Although this comment may have merit, it is beyond the scope of our proposals and is not adopted. We may consider it in future rulemaking actions.

Takeoff (§ 27.51), Landing (§ 27.75), and Engines (§ 27.903)

We received no comments on our proposed changes to these sections. All are adopted as proposed, but are included here for informational purposes.

We proposed to revise § 27.51 to recognize in the standard that the most critical center-of-gravity (CG) may not be the extreme forward CG, and require that tests be performed at the most critical CG configuration and at the maximum weight for which takeoff certification is requested. Further, we proposed to clarify the requirement to demonstrate safe landings after an engine failure at any point along the takeoff path up to the maximum takeoff altitude or 7,000 feet, whichever is less, to explicitly state that the altitudes cited are density altitudes.

We proposed to revise § 27.75(a) to: (1) State the required flight condition in more traditional rotorcraft terminology; (2) require multi-engine helicopters to demonstrate landings with one engine inoperative and initiated from an established approach; and (3) replace the word ''glide'' with the word ''autorotation.''

We proposed to add paragraph § 27.903(d) to require engine restart capability, which is a fundamental necessity for any aircraft to minimize the risk of a forced landing. A restart capability will enhance safety, even if it may not be useful in every case, such as when engine damage exists or when there is insufficient altitude to implement the engine restart procedure. We intend to include the restart procedure in the RFM.

Economic Evaluation

Regarding our economic determination, Erickson Air-Crane Incorporated asked that we correct the *Regulatory Flexibility Determination* section to show that Erickson is a part 29, rather than a part 27, rotorcraft manufacturer; has 600 employees rather than 500; and suggested that we recalculate the percentages in the Annual Revenue table based on these changes. We concur. We have made these changes and do not believe that they materially change the economic determination of this rule.

Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA consider the impact of paperwork and other information collection burdens imposed on the public. An agency may not collect or sponsor the collection of information, nor may it impose an information requirement unless it displays a currently valid Office of Management and Budget (OMB) control number.

As required by the Act, we submitted a copy of the new information requirements to OMB for their review when we published the NPRM. Additionally, in the NPRM, we solicited comments from the public on the proposed new information collection requirements. No comments relating to the proposed new information collection requirements were received. Affected parties, however, do not have to comply with the information collection requirements of this rule until the OMB approves the FAA's request for this information collection requirement. The FAA will publish a separate document notifying you of the OMB Control Number and the compliance date(s) for the information collection requirements of this rule.

International Compatibility

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. The FAA has reviewed the corresponding ICAO Standards and Recommended Practices and has identified no ''differences'' with these regulations.

Regulatory Evaluation, Regulatory Flexibility Determination, International Trade

Impact Assessment, and Unfunded Mandates Assessment

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Pub. L. 96–354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Pub. L. 96–39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of $100 million or more annually (adjusted for inflation with base year of 1995). This portion of the preamble summarizes the FAA's analysis of the economic impacts of this final rule. We suggest readers seeking greater detail read the full regulatory evaluation, a copy of which we have placed in the docket for this rulemaking.

In conducting these analyses, FAA has determined that this final rule: (1) Has benefits that justify its costs, (2) is not an economically ''significant regulatory action'' as defined in section 3(f) of Executive Order 12866, (3) is not ''significant'' as defined in DOT's Regulatory Policies and Procedures; (4) will not have a significant economic

impact on a substantial number of small entities; (5) will not have a significant effect on international trade; and (6) will not impose an unfunded mandate on state, local, or tribal governments, or on the private sector by exceeding the monetary threshold identified. These analyses are summarized below.

Total Benefits and Costs of This Rulemaking

The estimated cost of this final rule is about $558,250 ($364,955 in present value). The estimated potential benefits of avoiding at least one helicopter accident are about $3.9 million ($2.7 million in present value).

Who is Potentially Affected by This Rulemaking?

- Operators of U.S.-registered part 27 or 29 rotorcraft, and
- Manufacturers of part 27 or 29 rotorcraft.

Our Cost Assumptions and Sources of Information

- Discount rate—7%.
- Period of analysis—10 years. During this period manufacturers will seek new certifications for one large and one small part 27 and two large part 29 rotorcraft.
- Value of fatality avoided—$3.0 million (Source: ''Economic Values for FAA Investment & Regulatory Decisions'' (March 2004)).

Benefits of This Rule

The benefits of this final rule consist of the value of lives and property saved due to avoiding accidents involving part 27 or 29 rotorcraft. Over the 10-year period of analysis, the potential benefit of this final rule will be at least $3.9 million ($2.7 million in present value) by preventing one accident.

Cost of This Rule

We estimate the costs of this final rule to be about $558,250 ($364,955 in present value) over the 10-year analysis period. Manufacturers of 14 CFR part 27 rotorcraft will incur costs of $383,250 ($234,039 in present value) and manufacturers of 14 CFR part 29 helicopters will incur costs of $175,000 ($130,916 in present value).

Final Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation.'' To achieve that principle, the RFA requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The RFA covers a wide-range of small entities, including small businesses, not-for-profit organizations and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the agency determines that it will, the agency must prepare a regulatory flexibility analysis as described in the Act.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the RFA provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

This Final Regulatory Flexibility Analysis examines the potential costs and benefits to small business entities of a final rule on new and revised performance and handling requirements for rotorcraft. The rule is intended to revise the flight certification requirements to incorporate flight test procedures for performance and handling qualities that reflect the evolution of rotorcraft capabilities since the last major revisions to this rule.

In addition the rule reflects an international effort to have common rotorcraft certification requirements.

We used the Small Business Administration guideline of 1,500 employees or fewer per firm as the criterion for the determination of a small business in commercial air service.[4]

In order to determine if the final rule will have a significant economic impact on a substantial number of small entities, a list of all U.S. rotorcraft manufacturers, who must meet normal and transport category rotorcraft airworthy standards under 14 CFR parts 27 and 29, respectively was developed.

Using information provided by three sources: The World Aviation Directory, Dunn and Bradstreet's company databases, and SEC filings through the Internet, we examined the publicly available revenue and employment of all businesses, and eliminated those with more than 1,500 employees and subsidiaries of larger businesses.

The results of this methodology are displayed on Table VII–1 showing 4 U.S. part 27 rotorcraft manufacturers with fewer than 1,500 employees and one part 29 rotorcraft manufacturer with fewer than 1,500 employees.

One comment was received on the NPRM regulatory flexibility section. The comment was from Erickson Air-Crane. The regulatory flexibility analysis section of the NPRM listed Erickson Air-Crane as a part 27 manufacturer with 500 employees. Erickson Air-Crane commented that they are a part 29 manufacturer with 600 employees. The information provided by Erickson Air-Crane was used in the preparation of this final regulatory flexibility determination.

TABLE VII–1.—U.S. SMALL BUSINESS ROTORCRAFT MANUFACTURERS

No.	Name	Employment
	Part 27	
1	Hiller Aircraft Corp	35
2	Brantley Helicopter Industry	35
3	Enstrom Helicopter Corporation	100
4	Robinson Helicopter Company, Inc	700

[4] 13 CFR 121.201, Size Standards Used to Define Small Business Concerns, Sector 48–49 Transportation, Subsector 481 Air Transportation.

TABLE VII–1.—U.S. SMALL BUSINESS ROTORCRAFT MANUFACTURERS—Continued

No.	Name	Employment
	Part 29	
1	Erickson Air-Crane	600

Based on the historic number of new rotorcraft certificates over the next ten years, we expect that only one of the part 27 smaller firms will be affected by this final rule.

Although most of the proposed requirements intended to revise the flight certification requirements are current industry standards and support new FAA rotorcraft policy, some will increase costs, while some will decrease costs. Sections 27.49, 27.143, 29.143, 27.175, 29.175, 27.177, and 27.903 will increase costs by requiring manufacturers to add additional data and testing procedures to the RFM. Sections 27.173 and 29.173 on static longitudinal stability will be cost relieving to the manufacturers because they delete hover demonstrations that are redundant with other requirements.

As shown in Table VII–2, we estimate the total compliance costs for a small part 27 firm's new certification to be $77,000.

TABLE VII–2.—COMPLIANCE COSTS FOR SMALL BUSINESS PART 27 ROTORCRAFT MANUFACTURERS PER CERTIFICATION

Rule section	Cost
27.49	$20,075
27.143	29,300
27.173	(14,600)
27.175	3,650
27.177	20,075
27.903	18,250
Total	76,750

The annualized cost for this small operator is estimated at $10,928 ($76,750 × 0.142378 [5]).

As shown in Table VII–3, we estimate the total compliance costs for a small part 29 firm's new certification to be $175,000.

TABLE VII–3.—COMPLIANCE COSTS FOR SMALL BUSINESS PART 29 ROTORCRAFT MANUFACTURERS PER CERTIFICATION

Rule section	Cost
29.143	$280,000
29.173	(140,000)

TABLE VII–3.—COMPLIANCE COSTS FOR SMALL BUSINESS PART 29 ROTORCRAFT MANUFACTURERS PER CERTIFICATION—Continued

Rule section	Cost
29.175	35,000
Total	175,000

The annualized cost for this small operator is estimated at $24,916 ($175,000 × 0.142378 [6]).

The degree to which a small rotorcraft manufacturer can ''afford'' the cost of compliance is determined by the availability of financial resources. The initial implementation costs of the proposed rule may come from either cash flow or be borrowed. As a proxy for the firm's ability to afford the cost of compliance, we calculated the ratio of the total annualized cost of the proposed rule as a percentage of annual revenue. This ratio is a conservative measure as the annualized value of the 10-year total compliance cost is divided by one year of annual revenue. None of the small business operators potentially affected by this proposed rule will incur costs greater than 0.2 percent of their annual revenue (See Table VII–4).

TABLE VII–4.—IMPACT OF FINAL RULE ON SMALL U.S. ROTORCRAFT MANUFACTURERS

Name	Employment	Annual revenue	Cert. cost	Percentage
U.S. Part 27 Small Rotorcraft Manufacturers				
Hiller Aircraft Corp	35	$7,500,000	$10,928	0.15
Brantley Helicopter Industry	35	15,000,000	10,928	0.07
Enstrom Helicopter Corp	100	35,000,000	10,928	0.03
Robinson Helicopter Co., Inc	700	80,000,000	10,928	0.01
U.S. Part 29 Small Rotorcraft Manufacturers				
Erickson Air-Crane	600	35,000,000	24,916	0.07

As we expect only one of these companies to certificate a new rotorcraft in the next 10 years, only one will incur compliance costs. We estimated this compliance cost will be less that 0.2 percent of their total annual revenue.

Thus, we determined that no small entity will incur a substantial economic impact in the form of higher annual costs as a result of this rule. Consequently, the FAA Administrator certifies that this final rule will not have a significant economic impact on a substantial number of small rotorcraft manufacturers.

[5] Uniform Annual Value discounted at 7% over 10-year period.

Trade Impact Assessment

The Trade Agreements Act of 1979 (Pub. L. 96–39) prohibits Federal agencies from establishing any

[6] Uniform Annual Value discounted at 7% over 10-year period.

activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not

Continued

The FAA has assessed the potential effect of this final rulemaking action and determined that it will reduce trade barriers by narrowing the differences between international and U.S. certification standards. Therefore, this final rule is in accord with the Trade Agreements Act.

Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (adjusted annually for inflation) in any 1 year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a ''significant regulatory action.'' The FAA currently uses an inflation-adjusted value of $120.7 million in lieu of $100 million. This final rule does not contain such a mandate. The requirements of Title II do not apply.

Executive Order 13132, Federalism

The FAA has analyzed this final rule under the principles and criteria of Executive Order 13132, Federalism. We determined that this action will not have a substantial direct effect on the States, or the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government, and, therefore, does not have federalism implications.

Regulations Affecting Intrastate Aviation in Alaska

Section 1205 of the FAA Reauthorization Act of 1996 (110 Stat. 3213) requires the FAA, when modifying its regulations in a manner affecting intrastate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish appropriate regulatory distinctions. In the NPRM, we requested comments on whether the proposed rule should apply differently to intrastate operations in Alaska. We did not receive any comments, and we have determined, based on the administrative record of this rulemaking, that there is no need to make any regulatory distinctions applicable to intrastate aviation in Alaska.

considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that these international standards be the basis for U.S. standards.

Environmental Analysis

FAA Order 1050.1E identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this rulemaking action qualifies for the categorical exclusion identified in paragraph 312f and involves no extraordinary circumstances.

Regulations That Significantly Affect Energy Supply, Distribution, or Use

The FAA has analyzed this final rule under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). We have determined that it is not a ''significant energy action'' under the executive order because it is not a ''significant regulatory action'' under Executive Order 12866, and it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

Availability of Rulemaking Documents

You may obtain an electronic copy of rulemaking documents using the Internet by—

1. Searching the Federal eRulemaking Portal (*http://www.regulations.gov*);

2. Visiting the FAA's Regulations and Policies Web page at *http://www.faa.gov/regulations_policies/*; or

3. Accessing the Government Printing Office's Web page at *http://www.gpoaccess.gov/fr/index.html.*

You may also obtain a copy by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM–1, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267–9680. Make sure to identify the amendment number or docket number of this rulemaking.

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78) or you may visit *http://www.regulations.gov.*

Small Business Regulatory Enforcement Fairness Act

The Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 requires FAA to comply with small entity requests for information or advice about compliance with statutes and regulations within its jurisdiction. If you are a small entity and you have a question regarding this document, you may contact your local FAA official, or the person listed under the **FOR FURTHER INFORMATION CONTACT** heading at the beginning of the preamble. You can find out more about SBREFA on the Internet at *http://www.faa.gov/regulations_policies/rulemaking/sbre_act/.*

List of Subjects

14 CFR Part 27

Air transportation, Aircraft, Aviation safety, Rotorcraft, Safety.

14 CFR Part 29

Air transportation, Aircraft, Aviation safety, Rotorcraft, Safety.

The Amendment

■ In consideration of the foregoing, the Federal Aviation Administration amends parts 27 and 29 of title 14, Code of Federal Regulations as follows:

PART 27—AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT

■ 1. The authority citation for part 27 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701–44702, 44704.

■ 2. Amend § 27.25 by adding the word ''weight'' after the word ''maximum'' and removing the word ''or'' at the end of the sentence in paragraph (a)(1)(ii); removing the word ''and'' and adding the word ''or'' in its place in paragraph (a)(1)(iii); and by adding paragraph (a)(1)(iv) to read as follows:

§ 27.25 Weight limits.

(a) * * *

(1) * * *

(iv) The highest weight in which the provisions of §§ 27.79 or 27.143(c)(1), or combinations thereof, are demonstrated if the weights and operating conditions (altitude and temperature) prescribed by those requirements cannot be met; and

* * * * *

■ 3. Re-designate § 27.73 as new § 27.49 and revise to read as follows:

§ 27.49 Performance at minimum operating speed.

(a) For helicopters—

(1) The hovering ceiling must be determined over the ranges of weight, altitude, and temperature for which certification is requested, with—

(i) Takeoff power;

(ii) The landing gear extended; and

(iii) The helicopter in-ground effect at a height consistent with normal takeoff procedures; and

(2) The hovering ceiling determined under paragraph (a)(1) of this section must be at least—

(i) For reciprocating engine powered helicopters, 4,000 feet at maximum weight with a standard atmosphere;

(ii) For turbine engine powered helicopters, 2,500 feet pressure altitude at maximum weight at a temperature of standard plus 22 °C (standard plus 40 °F).

(3) The out-of-ground effect hovering performance must be determined over the ranges of weight, altitude, and temperature for which certification is requested, using takeoff power.

(b) For rotorcraft other than helicopters, the steady rate of climb at the minimum operating speed must be determined over the ranges of weight, altitude, and temperature for which certification is requested, with—

(1) Takeoff power; and

(2) The landing gear extended.

■ 4. Revise § 27.51 to read as follows:

§ 27.51 Takeoff.

The takeoff, with takeoff power and r.p.m. at the most critical center of gravity, and with weight from the maximum weight at sea level to the weight for which takeoff certification is requested for each altitude covered by this section—

(a) May not require exceptional piloting skill or exceptionally favorable conditions throughout the ranges of altitude from standard sea level conditions to the maximum altitude for which takeoff and landing certification is requested, and

(b) Must be made in such a manner that a landing can be made safely at any point along the flight path if an engine fails. This must be demonstrated up to the maximum altitude for which takeoff and landing certification is requested or 7,000 feet density altitude, whichever is less.

■ 5. Revise the section heading of § 27.71 to read as follows:

§ 27.71 Autorotation performance.

* * * * *

■ 6. Revise § 27.75(a) to read as follows:

§ 27.75 Landing.

(a) The rotorcraft must be able to be landed with no excessive vertical acceleration, no tendency to bounce, nose over, ground loop, porpoise, or water loop, and without exceptional piloting skill or exceptionally favorable conditions, with—

(1) Approach or autorotation speeds appropriate to the type of rotorcraft and selected by the applicant;

(2) The approach and landing made with—

(i) Power off, for single engine rotorcraft and entered from steady state autorotation; or

(ii) One-engine inoperative (OEI) for multiengine rotorcraft, with each operating engine within approved operating limitations, and entered from an established OEI approach.

* * * * *

■ 7. Re-designate § 27.79 as new § 27.87; revise the section heading; remove the word ''rotocraft'' and add in its place the word ''rotorcraft'' in paragraph (b)(3); and revise paragraphs (a)(1), (a)(2) and (b)(2) to read as follows:

§ 27.87 Height-speed envelope.

(a) * * *

(1) Altitude, from standard sea level conditions to the maximum altitude capability of the rotorcraft, or 7000 feet density altitude, whichever is less; and

(2) Weight, from the maximum weight at sea level to the weight selected by the applicant for each altitude covered by paragraph (a)(1) of this section. For helicopters, the weight at altitudes above sea level may not be less than the maximum weight or the highest weight allowing hovering out-of-ground effect, whichever is lower.

(b) * * *

(2) For multiengine helicopters, OEI (where engine isolation features ensure continued operation of the remaining engines), and the remaining engine(s) within approved limits and at the minimum installed specification power available for the most critical combination of approved ambient temperature and pressure altitude resulting in 7000 feet density altitude or the maximum altitude capability of the helicopter, whichever is less, and

* * * * *

■ 8. Amend § 27.143 by revising paragraph (a)(2)(v); re-designating paragraphs (d) and (e) as paragraphs (e) and (f) respectively; revising paragraphs (b)(4) and (c); and adding a new paragraph (d) to read as follows:

§ 27.143 Controllability and maneuverability.

(a) * * *

(2) * * *

(v) Autorotation;

* * * * *

(b) * * *

(4) Power off (except for helicopters demonstrating compliance with paragraph (f) of this section) and power on.

(c) Wind velocities from zero to at least 17 knots, from all azimuths, must be established in which the rotorcraft can be operated without loss of control on or near the ground in any maneuver appropriate to the type (such as crosswind takeoffs, sideward flight, and rearward flight)—

(1) With altitude, from standard sea level conditions to the maximum takeoff and landing altitude capability of the rotorcraft or 7000 feet density altitude, whichever is less; with—

(i) Critical Weight;

(ii) Critical center of gravity;

(iii) Critical rotor r.p.m.;

(2) For takeoff and landing altitudes above 7000 feet density altitude with–

(i) Weight selected by the applicant;

(ii) Critical center of gravity; and

(iii) Critical rotor r.p.m.

(d) Wind velocities from zero to at least 17 knots, from all azimuths, must be established in which the rotorcraft can be operated without loss of control out-of-ground-effect, with—

(1) Weight selected by the applicant;

(2) Critical center of gravity;

(3) Rotor r.p.m. selected by the applicant; and

(4) Altitude, from standard sea level conditions to the maximum takeoff and landing altitude capability of the rotorcraft.

* * * * *

■ 9. Amend § 27.173 by removing the words ''a speed'' in the two places in paragraph (a) and adding the words ''an airspeed'' in both their places; removing paragraph (c); and revising paragraph (b) to read as follows:

§ 27.173 Static longitudinal stability.

* * * * *

(b) Throughout the full range of altitude for which certification is requested, with the throttle and collective pitch held constant during the maneuvers specified in § 27.175(a) through (d), the slope of the control position versus airspeed curve must be positive. However, in limited flight conditions or modes of operation determined by the Administrator to be acceptable, the slope of the control position versus airspeed curve may be neutral or negative if the rotorcraft possesses flight characteristics that allow the pilot to maintain airspeed within ±5 knots of the desired trim airspeed without exceptional piloting skill or alertness.

■ 10. Amend § 27.175 by removing paragraph (d); revising the introductory text paragraphs (a) and (b); revising paragraphs (b)(3) and (b)(5); re-designating paragraph (c) as (d) and

revising re-designated paragraph (d); and adding a new paragraph (c) to read as follows:

§ 27.175 Demonstration of static longitudinal stability.

(a) *Climb.* Static longitudinal stability must be shown in the climb condition at speeds from Vy − 10 kt to Vy + 10 kt with—

* * * * *

(b) *Cruise.* Static longitudinal stability must be shown in the cruise condition at speeds from 0.8 V_{NE} − 10 kt to 0.8 V_{NE} + 10 kt or, if V_H is less than 0.8 V_{NE}, from V_H − 10 kt to V_H + 10 kt, with—

* * * * *

(3) Power for level flight at 0.8 V_{NE} or V_H, whichever is less;

* * * * *

(5) The rotorcraft trimmed at 0.8 V_{NE} or V_H, whichever is less.

(c) V_{NE}. Static longitudinal stability must be shown at speeds from V_{NE} − 20 kt to V_{NE} with—

(1) Critical weight;

(2) Critical center of gravity;

(3) Power required for level flight at V_{NE} − 10 kt or maximum continuous power, whichever is less;

(4) The landing gear retracted; and

(5) The rotorcraft trimmed at V_{NE} − 10 kt.

(d) *Autorotation.* Static longitudinal stability must be shown in autorotation at—

(1) Airspeeds from the minimum rate of descent airspeed − 10 kt to the minimum rate of descent airspeed + 10 kt, with—

(i) Critical weight;

(ii) Critical center of gravity;

(iii) The landing gear extended; and

(iv) The rotorcraft trimmed at the minimum rate of descent airspeed.

(2) Airspeeds from best angle-of-glide airspeed − 10 kt to the best angle-of-glide airspeed + 10 kt, with—

(i) Critical weight;

(ii) Critical center of gravity;

(iii) The landing gear retracted; and

(iv) The rotorcraft trimmed at the best angle-of-glide airspeed.

* * * * *

■ 11. Revise § 27.177 to read as follows:

§ 27.177 Static directional stability.

(a) The directional controls must operate in such a manner that the sense and direction of motion of the rotorcraft following control displacement are in the direction of the pedal motion with the throttle and collective controls held constant at the trim conditions specified in § 27.175(a), (b), and (c). Sideslip angles must increase with steadily increasing directional control deflection for sideslip angles up to the lesser of—

(1) ±25 degrees from trim at a speed of 15 knots less than the speed for minimum rate of descent varying linearly to ±10 degrees from trim at V_{NE};

(2) The steady state sideslip angles established by § 27.351;

(3) A sideslip angle selected by the applicant, which corresponds to a sideforce of at least 0.1g; or

(4) The sideslip angle attained by maximum directional control input.

(b) Sufficient cues must accompany the sideslip to alert the pilot when the aircraft is approaching the sideslip limits.

(c) During the maneuver specified in paragraph (a) of this section, the sideslip angle versus directional control position curve may have a negative slope within a small range of angles around trim, provided the desired heading can be maintained without exceptional piloting skill or alertness.

■ 12. Amend § 27.903 by adding a new paragraph (d) to read as follows:

§ 27.903 Engines.

* * * * *

(d) *Restart capability:* A means to restart any engine in flight must be provided.

(1) Except for the in-flight shutdown of all engines, engine restart capability must be demonstrated throughout a flight envelope for the rotorcraft.

(2) Following the in-flight shutdown of all engines, in-flight engine restart capability must be provided.

■ 13. Amend § 27.1587 by removing paragraphs (b)(1)(i) and (b)(1)(ii), and revising the introductory text of paragraph (a) and paragraphs (a)(2)(i) and (a)(2)(ii) to read as follows:

§ 27.1587 Performance information.

(a) The Rotorcraft Flight Manual must contain the following information, determined in accordance with §§ 27.49 through 27.79 and 27.143(c) and (d):

* * * * *

(2) * * *

(i) The steady rates of climb and descent, in-ground effect and out-of-ground effect hovering ceilings, together with the corresponding airspeeds and other pertinent information including the calculated effects of altitude and temperatures;

(ii) The maximum weight for each altitude and temperature condition at which the rotorcraft can safely hover in-ground effect and out-of-ground effect in winds of not less than 17 knots from all azimuths. These data must be clearly referenced to the appropriate hover charts. In addition, if there are other combinations of weight, altitude and temperature for which performance information is provided and at which the rotorcraft cannot land and take off safely with the maximum wind value, those portions of the operating envelope and the appropriate safe wind conditions must be stated in the Rotorcraft Flight Manual;

* * * * *

■ 14. Amend Appendix B to part 27 by revising paragraphs V(a) and VII(a) to read as follows:

Appendix B to Part 27—Airworthiness Criteria for Helicopter Instrument Flight

* * * * *

V. Static Lateral Directional Stability

(a) Static directional stability must be positive throughout the approved ranges of airspeed, power, and vertical speed. In straight and steady sideslips up to ±10° from trim, directional control position must increase without discontinuity with the angle of sideslip, except for a small range of sideslip angles around trim. At greater angles up to the maximum sideslip angle appropriate to the type, increased directional control position must produce an increased angle of sideslip. It must be possible to maintain balanced flight without exceptional pilot skill or alertness.

* * * * *

VII. Stability Augmentation System (SAS)

(a) If a SAS is used, the reliability of the SAS must be related to the effects of its failure. Any SAS failure condition that would prevent continued safe flight and landing must be extremely improbable. It must be shown that, for any failure condition of the SAS that is not shown to be extremely improbable—

(1) The helicopter is safely controllable when the failure or malfunction occurs at any speed or altitude within the approved IFR operating limitations; and

(2) The overall flight characteristics of the helicopter allow for prolonged instrument flight without undue pilot effort. Additional unrelated probable failures affecting the control system must be considered. In addition—

(i) The controllability and maneuverability requirements in Subpart B of this part must be met throughout a practical flight envelope;

(ii) The flight control, trim, and dynamic stability characteristics must not be impaired below a level needed to allow continued safe flight and landing; and

(iii) The static longitudinal and static directional stability requirements of Subpart B must be met throughout a practical flight envelope.

* * * * *

PART 29—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY ROTORCRAFT

■ 15. The authority citation for part 29 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701–44702, 44704.

■ 16. Amend § 29.25 by adding paragraph (a)(4) to read as follows:

§ 29.25 Weight limits.

(a) * * *

(4) For Category B rotorcraft with 9 or less passenger seats, the maximum weight, altitude, and temperature at which the rotorcraft can safely operate near the ground with the maximum wind velocity determined under § 29.143(c) and may include other demonstrated wind velocities and azimuths. The operating envelopes must be stated in the Limitations section of the Rotorcraft Flight Manual.

* * * * *

■ 17. Amend § 29.143 by revising paragraph (a)(2)(v); re-designating paragraphs (d) and (e) as paragraphs (e) and (f) respectively; revising paragraphs (b)(4) and (c); and adding a new paragraph (d) to read as follows:

§ 29.143 Controllability and maneuverability.

(a) * * *

(2) * * *

(v) Autorotation; and

* * * * *

(b) * * *

(4) Power off (except for helicopters demonstrating compliance with paragraph (f) of this section) and power on.

(c) Wind velocities from zero to at least 17 knots, from all azimuths, must be established in which the rotorcraft can be operated without loss of control on or near the ground in any maneuver appropriate to the type (such as crosswind takeoffs, sideward flight, and rearward flight), with—

(1) Critical weight;

(2) Critical center of gravity;

(3) Critical rotor r.p.m.; and

(4) Altitude, from standard sea level conditions to the maximum takeoff and landing altitude capability of the rotorcraft.

(d) Wind velocities from zero to at least 17 knots, from all azimuths, must be established in which the rotorcraft can be operated without loss of control out-of-ground effect, with—

(1) Weight selected by the applicant;

(2) Critical center of gravity;

(3) Rotor r.p.m. selected by the applicant; and

(4) Altitude, from standard sea level conditions to the maximum takeoff and landing altitude capability of the rotorcraft.

* * * * *

■ 18. Amend § 29.173 by removing the words ''a speed'' in the two places it appears in paragraph (a) and adding the words ''an airspeed'' in their places; removing paragraph (c); and revising paragraph (b) to read as follows:

§ 29.173 Static longitudinal stability.

* * * * *

(b) Throughout the full range of altitude for which certification is requested, with the throttle and collective pitch held constant during the maneuvers specified in § 29.175(a) through (d), the slope of the control position versus airspeed curve must be positive. However, in limited flight conditions or modes of operation determined by the Administrator to be acceptable, the slope of the control position versus airspeed curve may be neutral or negative if the rotorcraft possesses flight characteristics that allow the pilot to maintain airspeed within ±5 knots of the desired trim airspeed without exceptional piloting skill or alertness.

■ 19. Revise § 29.175 to read as follows:

§ 29.175 Demonstration of static longitudinal stability.

(a) *Climb.* Static longitudinal stability must be shown in the climb condition at speeds from Vy − 10 kt to Vy + 10 kt with—

(1) Critical weight;

(2) Critical center of gravity;

(3) Maximum continuous power;

(4) The landing gear retracted; and

(5) The rotorcraft trimmed at Vy.

(b) *Cruise.* Static longitudinal stability must be shown in the cruise condition at speeds from 0.8 V_{NE} − 10 kt to 0.8 V_{NE} + 10 kt or, if V_H is less than 0.8 V_{NE}, from VH − 10 kt to V_H + 10 kt, with—

(1) Critical weight;

(2) Critical center of gravity;

(3) Power for level flight at 0.8 V_{NE} or V_H, whichever is less;

(4) The landing gear retracted; and

(5) The rotorcraft trimmed at 0.8 V_{NE} or V_H, whichever is less.

(c) *V_{NE}.* Static longitudinal stability must be shown at speeds from V_{NE} − 20 kt to V_{NE} with—

(1) Critical weight;

(2) Critical center of gravity;

(3) Power required for level flight at V_{NE} − 10 kt or maximum continuous power, whichever is less;

(4) The landing gear retracted; and

(5) The rotorcraft trimmed at V_{NE} − 10 kt.

(d) *Autorotation.* Static longitudinal stability must be shown in autorotation at—

(1) Airspeeds from the minimum rate of descent airspeed − 10 kt to the minimum rate of descent airspeed + 10 kt, with—

(i) Critical weight;

(ii) Critical center of gravity;

(iii) The landing gear extended; and

(iv) The rotorcraft trimmed at the minimum rate of descent airspeed.

(2) Airspeeds from the best angle-of-glide airspeed − 10kt to the best angle-of-glide airspeed + 10kt, with—

(i) Critical weight;

(ii) Critical center of gravity;

(iii) The landing gear retracted; and

(iv) The rotorcraft trimmed at the best angle-of-glide airspeed.

■ 20. Revise § 29.177 to read as follows:

§ 29.177 Static directional stability.

(a) The directional controls must operate in such a manner that the sense and direction of motion of the rotorcraft following control displacement are in the direction of the pedal motion with throttle and collective controls held constant at the trim conditions specified in § 29.175(a), (b), (c), and (d). Sideslip angles must increase with steadily increasing directional control deflection for sideslip angles up to the lesser of—

(1) ±25 degrees from trim at a speed of 15 knots less than the speed for minimum rate of descent varying linearly to ±10 degrees from trim at V_{NE};

(2) The steady-state sideslip angles established by § 29.351;

(3) A sideslip angle selected by the applicant, which corresponds to a sideforce of at least 0.1g; or

(4) The sideslip angle attained by maximum directional control input.

(b) Sufficient cues must accompany the sideslip to alert the pilot when approaching sideslip limits.

(c) During the maneuver specified in paragraph (a) of this section, the sideslip angle versus directional control position curve may have a negative slope within a small range of angles around trim, provided the desired heading can be maintained without exceptional piloting skill or alertness.

■ 21. Amend § 29.1587 by revising paragraph (a)(7), (b)(2), and (b)(8) to read as follows:

§ 29.1587 Performance information.

* * * * *

(a) * * *

(7) Out-of-ground effect hover performance determined under § 29.49 and the maximum weight for each altitude and temperature condition at which the rotorcraft can safely hover out-of-ground effect in winds of not less than 17 knots from all azimuths. These data must be clearly referenced to the appropriate hover charts.

(b) * * *

(2) The steady rates of climb and in-ground-effect hovering ceiling, together with the corresponding airspeeds and other pertinent information, including

the calculated effects of altitude and temperature;

* * * * *

(8) Out-of-ground effect hover performance determined under § 29.49 and the maximum safe wind demonstrated under the ambient conditions for data presented. In addition, the maximum weight for each altitude and temperature condition at which the rotorcraft can safely hover out-of-ground-effect in winds of not less than 17 knots from all azimuths. These data must be clearly referenced to the appropriate hover charts; and

* * * * *

■ 22. Amend Appendix B to Part 29 in paragraph V(b) by removing the word ''cycle'' and adding the word ''cyclic'' in its place; and by revising paragraphs V(a) and VII(a) to read as follows:

Appendix B to Part 29—Airworthiness Criteria for Helicopter Instrument Flight

* * * * *

V. Static Lateral Directional Stability

(a) Static directional stability must be positive throughout the approved ranges of airspeed, power, and vertical speed. In straight and steady sideslips up to ±10° from trim, directional control position must increase without discontinuity with the angle of sideslip, except for a small range of sideslip angles around trim. At greater angles up to the maximum sideslip angle appropriate to the type, increased directional control position must produce an increased angle of sideslip. It must be possible to maintain balanced flight without exceptional pilot skill or alertness.

* * * * *

VII. Stability Augmentation System (SAS)

(a) If a SAS is used, the reliability of the SAS must be related to the effects of its failure. Any SAS failure condition that would prevent continued safe flight and landing must be extremely improbable. It must be shown that, for any failure condition of the SAS that is not shown to be extremely improbable—

(1) The helicopter is safely controllable when the failure or malfunction occurs at any speed or altitude within the approved IFR operating limitations; and

(2) The overall flight characteristics of the helicopter allow for prolonged instrument flight without undue pilot effort. Additional unrelated probable failures affecting the control system must be considered. In addition—

(i) The controllability and maneuverability requirements in Subpart B must be met throughout a practical flight envelope;

(ii) The flight control, trim, and dynamic stability characteristics must not be impaired below a level needed to allow continued safe flight and landing;

(iii) For Category A helicopters, the dynamic stability requirements of Subpart B must also be met throughout a practical flight envelope; and

(iv) The static longitudinal and static directional stability requirements of Subpart B must be met throughout a practical flight envelope.

* * * * *

Issued in Washington, DC, on February 20, 2008.

Robert A. Sturgell,

Acting Administrator.

[FR Doc. E8–3817 Filed 2–28–08; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2007–0104; Airspace Docket No. 07–AEA–10]

Establishment of Class E Airspace; Oil City, PA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; confirmation of effective date.

SUMMARY: This action confirms the effective date of a direct final rule that establishes a Class E airspace area to support Area Navigation (RNAV) Global Positioning System (GPS) Special Instrument Approach Procedures (IAPs) that serve the Northwest Medical Center in Oil City, PA.

DATES: Effective 0901 UTC, February 14, 2008. The Director of the Federal Register approves this incorporation by reference action under Title 1, Code of Federal Regulations, part 51, subject to the annual revision of FAA Order 7400.9 and publication of conforming amendments.

FOR FURTHER INFORMATION CONTACT: Daryl Daniels, Airspace Specialist, System Support, AJO2–E2B.12, FAA Eastern Service Center, 1701 Columbia Ave., College Park, GA 30337; telephone (404) 305–5581; fax (404) 305–5572.

SUPPLEMENTARY INFORMATION:

Confirmation of Effective Date

The FAA published this direct final rule with a request for comments in the **Federal Register** on December 19, 2007 (72 FR 71762). The FAA uses the direct final rulemaking procedure for a non controversial rule where the FAA believes that there will be no adverse public comment. This direct final rule advised the public that no adverse comments were anticipated, and that unless a written adverse comment, or a written notice of intent to submit such an adverse comment, were received within the comment period, the regulation would become effective on February 14, 2008. No adverse comments were received, and thus this notice confirms that effective date.

Issued in College Park, GA, on February 12, 2008.

John D. Haley,

Acting Manager, System Support Group, Eastern Service Center.

[FR Doc. 08–875 Filed 2–28–08; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–0165; Airspace Docket No. 07–AEA–11]

Establishment of Class E Airspace; Montrose, PA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; confirmation of effective date.

SUMMARY: This action confirms the effective date of a direct final rule that establishes a Class E airspace area to support Area Navigation (RNAV) Global Positioning System (GPS) special Instrument Approach Procedures (IAPs) that serve the Montrose High School Heliport, Montrose, PA.

DATES: Effective 0901 UTC, February 14, 2008. The Director of the Federal Register approves this incorporation by reference action under Title 1, Code of Federal Regulations, part 51, subject to the annual revision of FAA Order 7400.9 and publication of conforming amendments.

FOR FURTHER INFORMATION CONTACT: Daryl Daniels, Airspace Specialist, System Support, AJO2–E2B.12, FAA Eastern Service Center, 1701 Columbia Ave., College Park, GA 30337; telephone (404) 305–5581; fax (404) 305–5572.

SUPPLEMENTARY INFORMATION:

Confirmation of Effective Date

The FAA published this direct final rule with a request for comments in the **Federal Register** on December 13, 2007 (72 FR 70768). The FAA uses the direct final rulemaking procedure for a non controversial rule where the FAA believes that there will be no adverse public comment. This direct final rule advised the public that no adverse comments were anticipated, and that unless a written adverse comment, or a written notice of intent to submit such