

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration.****14 CFR Part 65****[Docket No. FAA-1998-4553; Amendment No.]****RIN 2120-AG04****Revision of Certification Requirements: Aircraft Dispatchers****AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Final rule.

SUMMARY: This final rule amends eligibility and certification requirements for aircraft dispatchers. The existing regulations prescribing these requirements do not reflect the significant technological advances that have occurred in the aviation industry and the enhancements in training and instructional methods that have affected all aircraft dispatchers. This final rule consolidates and clarifies eligibility, knowledge, experience, and skill requirements for aircraft dispatchers, enhances the technical capabilities of aircraft dispatchers, and increases the level of professionalism among aircraft dispatchers.

EFFECTIVE DATES: April 6, 2000.

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Background

In keeping with the FAA's policy of reviewing and updating regulations to ensure that they are consistent with changes in the aviation environment, the FAA, with the assistance of the Aviation Rulemaking Advisory Committee (ARAC), reviewed part 65, subpart C, and appendix A of 14 CFR part 65 that pertain to aircraft dispatchers. In the preceding 30 years, few changes have been made to the dispatcher certification requirements, although numerous technological advances in the aviation industry and concerns over changes in operational practices and training methods have occurred.

In October 1993, an industry task force concluded an initial investigation of part 65, subpart C. The task force's objective was to determine whether part 65, subpart C, needed to be updated, what specific sections required updating, and whether industry, training schools, and FAA examiners were of the same opinion. The task force was comprised of representatives of airlines, associations, unions, academia, and other interested parties. The Airline Dispatch Federation (ADF) coordinated these activities. The task force found that technology had outpaced the current regulations. The task force also found that various designated examiners and FAA regional offices were interpreting several of the regulations in a manner inconsistent with each other and FAA headquarters. The results of

this informal task force study were presented at several ADF quarterly meetings.

On September 27, 1993, the Transport Workers Union Local 542 of Euless, TX, petitioned the FAA to request a regulatory review of part 65, subpart C, and appendix A. On November 10, 1993, the FAA requested the ARAC to review the initial certification training requirements of aircraft dispatchers. The ARAC formed a "Dispatch Working Group" to complete this assignment (59 FR 3155, January 20, 1994). The ARAC tasked this working group to conduct a review of the certification requirements for aircraft dispatchers. On October 19, 1998, the FAA published a proposal as a result of the ARAC's recommendations (63 FR 55920). There has been only one substantive change from the NPRM. The FAA proposed to allow operating limitations on a dispatcher's certificate if the applicant was unable to read, speak, write, or understand the English language due to medical reasons. The FAA is not going forward with this proposal. For a more detailed discussion of this issue, see the Principal Issues section of the preamble. In addition, several editorial and clarifying changes have been made to the rule language proposed in the NPRM.

General Discussion of the Amendments

The amendments cover a broad range of issues affecting the certification of aircraft dispatchers. The amendments:

1. Establish a minimum age to be eligible to take the knowledge test required by § 65.55.
2. Update the experience requirements in § 65.57 for an aircraft dispatcher certificate.
3. Allow the equivalent experience finding under § 65.57(a)(4) to be made only by the Administrator.
4. Retain the current basic dispatch certificate without introducing a system of ratings or limitations.
5. Eliminate duplication of certain educational requirements by relocating them from current subpart C to appendix A.
6. Relocate information concerning initial and continued eligibility for dispatcher certification courses, training facilities, instruction, and records from appendix A to subpart C.
7. Add an "overview" paragraph to appendix A that contains general information about aircraft dispatcher training courses.
8. Revise appendix A to include a new training outline that adds new subjects, e.g., "emergency and abnormal procedure."
9. Eliminate sub-category training hour requirements from appendix A

while retaining total course hour requirements.

10. Introduce "human factors" training during initial certification.

11. Introduce in appendix A a training outline that allows training to change as technology changes, without the need for a rule change, by making the following changes:

(a) Stating the training outline in general terms so that future technological enhancements or changes in operational practices can be readily added.

(b) Linking appendix A to the Dispatch Practical Test Standards (PTS) guide, thus allowing training requirements to be revised.

Principal Issues

Revision of § 65.53 Eligibility Requirements

Section 65.53 adds a minimum age requirement of 21 years to be eligible to take the knowledge test. The minimum age requirement to be eligible for an aircraft dispatcher certificate is still 23 years of age. The FAA added this provision to clear up confusion among training centers and to provide a standard policy. Currently, confusion among training centers exists when prospective dispatchers take both the knowledge and practical exams prior to reaching their 23rd birthday. Some training centers find this practice acceptable and delay certificate issuance until the age requirement is met. Other training centers find this practice unacceptable and do not allow an applicant to take the knowledge test until the applicant is 23 years of age. As a practical matter, adding a minimum age requirement of 21 years is not a substantive change under § 65.55(b) since a passing grade on a written test is only valid for 24 months after the date the test is given.

In addition, the term "knowledge test" replaces "written test" because the term "knowledge test" is a more inclusive term, referring to either a test administered with pencil and paper or by computer.

Finally, the FAA is adding a requirement and eliminating an exception to the English language requirements for flight dispatchers. The FAA has determined, for safety concerns, that operations in the National Airspace System (NAS) require a basic command of the English language. Therefore, it has added the requirement that, to be eligible for a dispatcher certificate, a person must be able to write English in addition to the current requirements of reading, speaking, and understanding the

English language. The NPRM also proposed to permit limitations to be placed on a dispatcher certificate if a medical condition prevented the applicant from reading, writing, speaking, or understanding the English language. The FAA is not going forward with this proposal because it has determined that a dispatcher cannot perform safely without being able to read, write, speak, and understand the English language.

Revision of § 65.57 Experience or Training Requirements

Section 65.57 is reorganized and retitled to provide more clarity. In the past, there has been some confusion regarding whether experience requirements can be combined with training requirements or whether a person must meet the experience requirements and accomplish the training requirements. This final rule retitles this section and separates the experience requirements from the training requirements to make it clear that a person applying for an aircraft dispatcher certificate must meet either the experience requirements or the training requirements. In addition, this final rule reorganizes the experience requirements by separating military experience, part 121 air carrier operations experience (14 CFR part 121), and other aircraft operations experience. As a result, specific experience is delineated to the appropriate category, making the experience requirements easier to understand.

Further, air carrier operations are changed from "scheduled air carrier" to "operations conducted under part 121 of this chapter" to ensure that experience is verifiable and applicable. Experience as a radio operator is no longer accepted because the FAA has determined that radio operators do not have sufficient experience in such subject areas as meteorology, weight and balance, emergency procedures, applicable regulations, aeronautical charts, and flight planning. Also, the experience for air traffic controllers is expanded to include "Flight Service Specialist." Flight Service Specialists are required to have knowledge and perform in the following areas: meteorology, air traffic control, pilot briefings, flight planning, aeronautical charts, and emergency procedures. Accordingly, the FAA has determined that the experience gained as a Flight Service Specialist is applicable to experience needed as an aircraft dispatcher.

In addition, § 65.57(a)(4) in this final rule states that the Administrator can

make a finding of equivalent experience. The NPRM used the term "Administrator's representative", and specified that such a representative must be a certificated aircraft dispatcher. The FAA modified the language to use the term "Administrator" since the term "Administrator's representative" is too inclusive; it includes designated aircraft dispatcher examiners (as authorized under part 183 of this chapter) but does not include FAA inspectors. In addition, it is redundant to state that the Administrator's representative must hold an aircraft dispatcher certificate since this is already required by internal FAA Orders. The requirements for FAA personnel are handled through internal Orders as well, and changes may be made regarding FAA inspectors and the requirement to hold an aircraft dispatcher certificate if the FAA determines such a requirement is needed.

Finally, this section changes the number of years of experience an assistant aircraft dispatcher may use to meet the experience requirements for an aircraft dispatcher certificate. Under the current rule, an applicant for an aircraft dispatcher certificate may meet the experience requirements for an aircraft dispatcher certificate by demonstrating that he or she works as an assistant in dispatching aircraft while under the direct supervision of a certificated aircraft dispatcher for a total of at least one out of the two years before the date he or she applies for the certificate. Under this amendment, the number of years of assistant aircraft dispatcher experience changes to two out of the last three years before the date the applicant applies for the certificate. This change standardizes the number of years of experience required for all accepted areas of experience and gives the assistant aircraft dispatcher an additional opportunity to gain experience in a variety of program areas similar to those areas taught in certificated aircraft dispatcher courses. The ARAC recommended the changes described above to the current experience requirements because of its determination that only the proposed experience requirements warrant being considered equivalent to the instruction received in an approved aircraft dispatcher course. In addition, the FAA is clarifying the language in paragraph (b) and codifying existing practice regarding training requirements.

Knowledge and Skill Requirements

Under the current regulations for aircraft dispatchers, information contained in the knowledge and skill

sections (§§ 65.55 and 65.59) was duplicated in the appendix to part 65 (Aircraft Dispatcher Courses). This final rule removes this redundancy by moving detailed training requirements set out in current §§ 65.55(a)(1) through (8) and 65.59(a) through (e) to appendix A. This reorganization makes the rules clearer and easier to follow.

Realignment of Regulations and Training Material

The requirements for obtaining approval of an aircraft dispatcher certification course covering required training facilities, instruction, and records that were at the end of appendix A are now included in subpart C. This material is relocated to §§ 65.61, 65.63, 65.65, 65.67, and 65.70. Since this material contains what are in fact eligibility requirements, it is more appropriate in the text of the regulation than in an appendix. Sections 65.63, 65.65, 65.67, and 65.70 are new.

As previously mentioned, detailed training material from the Knowledge and Skill sections of part 65 that describe course curriculum are being moved into appendix A. With this realignment, all eligibility requirements are contained in subpart C and all course related training material in appendix A. One exception is that the minimum number of 200 course hours is included in § 65.61(a) rather than in appendix A for clarification. Subcategory hour requirements have been eliminated so that an integrated training approach can be used more readily. This issue is discussed in more detail in the "Elimination of Minimum Training Times for Subcategories" section of the preamble.

Appendix A Revision

As mentioned above, an appendix introductory overview has been added to Appendix A and contains information on course topics, use of state of the art technologies and techniques, and air carrier specific training. While all of the listed material must be taught, the course order is flexible and an integrated training approach may be used. In the past, blocks of material were taught separately, yet the material was interrelated, so an integrated training approach is desirable.

Appendix A is completely revised based on technological advances from the past 30 years and those that may be anticipated in the future. Specific changes are discussed in detail below in the "section by section" analysis.

Elimination of Minimum Training Times for Subcategories

This final rule provides for a minimum hour content of 200 training hours (the previous minimum was 198 hours). The 2 hour increase in training accommodates the addition of new topics, e.g., human factors training. Appendix A is divided into eight main subject areas but does not include a minimum hour requirement for each subject area as it did in the past. By eliminating the subcategory hour requirement, an integrated training approach can be used more readily. This also allows training centers to change curriculum as needs change in the future.

Human Factors Training

An innovative concept in initial certification training for aircraft dispatchers includes the introduction of human factors training. This type of training is based on a number of human performance variables, such as communication, decision-making, teamwork, and leadership. Human factors training for cockpit crewmember personnel has been conducted for years and has recently been made mandatory for dispatchers under 14 CFR part 121 as well as for flight crewmembers under 14 CFR parts 61 and 121 (see "Air Carrier and Commercial Operator Training Programs," 60 FR 65940, December 20, 1995). Today, human factors experts agree that the cockpit crewmember is just one part of a team. Experts agree that Crew Resource Management (CRM) training is important because it includes all members of the operational team (see Advisory Circular (AC) 121-32, "Dispatch Resource Management Training" and AC 120-51B, as amended, "Crew Resource Management Training"). Rather than wait until the dispatcher has begun actively dispatching flights, it is better to begin human factors training during the certification process. This provides maximum benefit and retention level to the airman prior to actively working flights. Of central importance to human factors training are communications and decision making. Aircraft dispatchers are the communications nexus in the air transportation system. Dispatchers routinely communicate with and obtain information from over 25 groups of aviation professionals that have responsibility for some portion of the air transportation system. Then dispatchers must analyze, prioritize, and disseminate information as appropriate. Much of this information can be considered critical to the safety of flight.

Therefore, the FAA has determined that human factors training should be required and conducted during initial certification for maximum air transportation safety.

Basic Certificate vs. Endorsements and Ratings

The ARAC, after an extensive analysis, determined that it would be better to retain the current certificate structure without introducing a system of ratings or endorsements. The ARAC discussed adding an "international" endorsement; however, this was deemed unwarranted due to the complexity and unique qualities of international operators. The ARAC believed, and the FAA concurred, that airline or equipment-specific training was best left to the airlines so that it could be tailored to specific requirements. Examples of specific types of training include twin engine extended range operations, operations in areas of magnetic unreliability, and high altitude operations at several South American airports.

Future Technological Advancements

Technology and new operational practices often outpace training and the regulations associated with training. This subpart, for example, has not been updated for over 30 years. With this in mind the ARAC's Dispatch Working Group explored ways to write a training outline that would not quickly become obsolete.

(1) General vs. Specific. The training outline in appendix A is written in general terms. If very specific terms were used in the representation of technology it could become obsolete within several years. Specific automated observations currently include AWOS (automated weather observing system), ASOS (automated surface observing system), etc. These observations may not be used in the future; therefore, the training outline lists "automated" weather observations.

(2) Practical Test Standards Guide (PTS). Appendix A contains language that references the PTS guide prepared and published by the FAA. Through the PTS guide, the FAA is able to give examiners general guidance on which subjects are appropriate for testing. From the PTS guide, an examiner is able to determine those specific subject areas that are appropriate for testing the knowledge and skills of a candidate for an aircraft dispatcher certificate. Since it is virtually impossible to theorize what technological advancements are in store for the aviation community in the future and to reflect those advancements specifically in part 65, subpart C and

appendix A, it is desirable to link the training outline in appendix A to a document like the PTS guide that can be easily revised but that is exposed to public review and participation.

Section-by-Section Analysis

Part 65—Certification: Airmen Other Than Flight Crewmembers

The revision to part 65, subpart C, updates eligibility, knowledge, experience and skill requirements for initial certification of aircraft dispatchers. Regulatory material is revised and relocated from appendix A to subpart C.

Section 65.51 Certificate Required

Section 65.51 contains the basic requirements for an aircraft dispatcher certificate and also requires each person who holds an aircraft dispatcher certificate to present it for inspection upon request of the Administrator or other authorized official. Minor editorial changes have been made to the current rule language.

Section 65.53 Eligibility Requirements: General

Section 65.53 contains eligibility requirements for aircraft dispatcher certification. This final rule amends § 65.53 by: (1) Establishing a minimum age requirement of 21 years for taking the knowledge test; and (2) adding a requirement and eliminating an exception to the English language requirements. These changes are more fully discussed above under the Principal Issues portion of this preamble.

Section 65.55 Knowledge Requirements

In § 65.55, the term “written test” is replaced with the term “knowledge test.” The FAA has determined the term “knowledge test” is a more inclusive term, referring to either tests administered with pencil and paper or by computer. This change is also consistent with changes that have been made in other parts of this chapter (*e.g.*, 14 CFR part 61).

In addition, general aeronautical knowledge areas are listed. This is a change from the NPRM, but is consistent with other parts of this chapter (*e.g.*, 14 CFR part 61). This final rule eliminates redundancy that is in §§ 65.55(a)(1) through (8) and 65.59(a) through (e) of the current rule. Also, the detailed subject matter is described in more general terms, allowing training to change as technology changes without the need for a rule change.

Finally, paragraph (b) was modified from the NPRM to clarify the FAA’s intent.

Section 65.57 Experience or Training Requirements

As previously discussed under the Principal Issues section of this preamble, this final rule reorganizes and retitles this section.

Section 65.59 Skill Requirements

The current regulation outlines specific topics and publications to be covered during the practical test. However, under this final rule, specific topics are deleted to reduce redundancy within other sections and the appendix. Instead, § 65.59 states that the test must be based on the Aircraft Dispatcher Practical Test Standards published by the FAA on the items outlined in appendix A of part 65. In addition, the language in the current rule regarding one type of large aircraft was inadvertently omitted from the proposed rule. The language has been added back in this final rule. Finally, § 65.59 in this final rule states that an applicant for an aircraft dispatcher certificate must pass a practical test given by the Administrator. The NPRM used the term “Administrator’s representative”, and specified that such a representative must be a certificated aircraft dispatcher. The FAA modified the language to use the term “Administrator” since the term “Administrator’s representative” is too inclusive; it includes designated aircraft dispatcher examiners (as authorized under part 183 of this chapter) but does not include FAA inspectors. In addition, it is redundant to state that the Administrator’s representative must hold an aircraft dispatcher certificate since this is already required by internal FAA Orders.

Section 65.61 Aircraft Dispatcher Certification Courses: Content and Minimum Hours

The current § 65.61 contains the general requirements for obtaining approval of an aircraft dispatcher certification course. Under this final rule, these requirements are divided between § 65.61(a) and § 65.63(a).

Section 65.61 also includes the minimum 200 hours of instruction as proposed. Under the current regulations, the minimum hours are contained in appendix A on a subject-by-subject basis. This issue is discussed more fully under the Principal Issues section of this preamble.

Under this final rule, § 65.61(b) requires a course outline as does the current rule but, in addition, it requires

that the outline indicate the number of hours proposed for major topics and subtopics to be covered since these hours are no longer stated in appendix A. Section 65.61(c) also includes a provision, currently in appendix A, paragraph (a), that additional subject headings can be included, but that the hours proposed for any subjects not listed in appendix A must be in addition to the minimum 200 required hours of instruction.

This final rule amends § 65.61(d) by including a provision, currently in paragraph (f) of appendix A, that allows a student to receive credit for a portion of the required 200 hours of instruction by substituting previous experience or training. As is currently the case, this final rule requires that the basis for any allowance and the total hours credited must be incorporated in the student’s records.

Finally, the proposed introductory language in § 65.61 is being deleted in this final rule since the requirement is already contained in 14 CFR part 121, subpart P and is more appropriate for an operating rule.

Section 65.63 Aircraft Dispatcher Certification Courses: Application, Duration, and Other General Requirements

Section 65.63 is a new section that includes in paragraph (a) the requirement for a letter application currently contained in § 65.61 that are more appropriate for the operating rule. Under this final rule, a person is required to submit only two copies of the course outline, in place of the three copies currently required. The FAA has determined that three copies are not needed and that the requirement imposes an unnecessary economic cost on the person and an administrative burden on the FAA.

Section 65.63(b) contains the duration requirements and includes the current 24-month duration for FAA approval of an aircraft dispatcher certification course.

Section 65.65(c) contains the renewal requirements for an approved aircraft dispatcher certification course. The only substantive change from the current rule is that an application for renewal has to be submitted at least 30 days before the expiration date. Currently it can be submitted up to 60 days after the expiration date. This change is needed to prevent approval of a course from continuing beyond its expiration date. In addition, this section continues the 80 percent success rate requirement currently under Appendix A but applies the 80 percent rate over a 24 month

period that is consistent with § 141.5 (14 CFR 141.5).

Section 65.63(d) continues to contain the requirements for obtaining approval of course revisions.

Section 65.63(e) contains the provisions for withdrawal or cancellation of approval of an aircraft dispatcher certification course, whether at the FAA's or the operator's initiative. When a course approval is withdrawn or canceled, the operator is required to send to the FAA any records requested by the Administrator so that they are available if needed.

Sections 65.63(f) and (g) contain most of the current requirements that apply to changes in ownership, name, or location of an approved course. Two substantive changes from the current rule have been made. Currently, the section states that "approval of an aircraft dispatcher course may not be continued in effect after the course has changed ownership." Under this final rule, § 65.63(f) allows for continuation of approval after a change of ownership if application is made for an appropriate amendment to the approval and no change in the facilities, personnel, or approved aircraft dispatcher course is involved. The other change requires that the Administrator must be notified in writing within 10 days of any changes in ownership, name, or location. The current rule requires notification of a change in location "without delay." This change avoids differing interpretations of how much time is allowed.

In addition, § 65.63 has been reorganized from the NPRM for clarification and to make it consistent with other parts of 14 CFR (e.g., 14 CFR 141).

Section 65.65 Aircraft Dispatcher Certification Courses: Training Facilities

Section 65.65 is a new section that prescribes the training facilities necessary to operate an approved school. This section is based primarily on material that is provided for in appendix A. The section adds a requirement that the training facility must be located so that the students in that facility are not distracted by the instruction conducted in other rooms. This requirement aligns this section with part 141 of this chapter.

Section 65.67 Aircraft Dispatcher Certification Courses: Instruction

Section 65.67 is a new section that prescribes instruction requirements necessary to operate an approved school that are mostly based on material that is provided for in appendix A. The

maximum student-teacher ratio remains unchanged at 25 to 1.

Section 65.70 Aircraft Dispatcher Certification Courses: Records

Section 65.70 is a new section that prescribes recordkeeping requirements based on material currently provided for in appendix A. A change, however, allows schools to discard records after 3 years so that recordkeeping does not become a burden. This change could result in significant cost savings to dispatcher schools since a literal reading of the current regulations requires these records to be retained indefinitely.

Appendix A to Part 65—Aircraft Dispatcher Certification Courses

The overview paragraph introduces the specific minimum set of topics that must be covered in an aircraft dispatcher training course and contains general information about those courses.

The individual subject hourly requirements (e.g., Federal Aviation Regulations, 15 classroom hours; meteorology, 75 classroom hours) are eliminated, and in their place a total course-hour minimum is included in § 61.61(a) as discussed above.

A word-by-word comparison of new appendix A with current appendix A might make it appear that this regulation is adding to the subject areas to be covered. However, the FAA understands that as a practical matter, training schools, partially through the use of the PTS guide, are in fact covering the subject areas listed in the new requirements. In addition, by using modern teaching methods and training aids, it is possible to cover the proposed curriculum without an increase in overall teaching hours.

The new curriculum is considered necessary because of the important role of the aircraft dispatcher in maintaining safety of flight operations. The aircraft dispatcher and the pilot in command are jointly responsible for the authorization and control of a flight in accordance with applicable regulations and air carrier procedures. This responsibility extends from the preparation for a flight to its conclusion, and includes dealing with emergency situations.

Many of the dispatcher's tasks require familiarity in dealing with specific regulations and air carrier procedures. Others require exercising judgment to deal with unique aspects of a situation. Virtually all of these problem-solving activities require skill in working with the flight crew, Air Traffic Control, and members of the Air Carrier Operations Control and Maintenance staff.

Regulations

In addition to the parts currently covered (subpart C of part 65 and parts 25, 91, 121), a course has to cover parts 1, 61, 71, 139, and 175 of chapter I of 14 CFR as well as part 830 of the regulations of the National Transportation Safety Board, "Rules Pertaining to Aircraft Accidents, Incidents, Overdue Aircraft, and Safety Investigation." Another addition to appendix A training requirements is training on the "General Operating Manual," that is, training on the common features of a typical certificate holder's manual.

Meteorology

Meteorology is sub-divided into three subject headings: (1) Basic Weather Studies; (2) Weather, Analysis, and Forecasts; and (3) Weather Related Hazards. The subject of meteorology, due to its importance, is updated and expanded to provide greater detail for instructional guidance.

Navigation

Navigation is expanded to provide an introduction to international flight planning procedures and limitations.

Aircraft

Aircraft is updated to provide expanded systems training to ensure proper application of this knowledge.

Communications

Communications is expanded to include data link communications as well as sources of aeronautical information.

Air Traffic Control

Air traffic control is expanded to encompass areas of air traffic management.

Emergency and Abnormal Procedures

This new section addresses security; in particular, identifying, declaring, and reporting emergencies.

Practical Dispatch Applications

This section replaces the old practical dispatching section. Practical dispatch applications introduce the dispatch candidate to human factors as applied to decisionmaking, human error, and teamwork.

The "applied dispatching" subsection provides the student with methods of application for all previous subject matter.

To ensure that future technological advancements are taught, this appendix is linked to the PTS guide. The PTS is periodically revised, whereas regulatory

changes may not keep up with technological advancements.

Discussion of Comments

Five comments were received in response to Notice No. 98-14 (63 FR 55920; October 19, 1998). The comments were from: Airline Ground Schools (AGS); Academy Education Center (AEC), Inc; Timothy C. Antolovic, Dispatch Working Group Chairperson; Flight Control Academy (FCA); and Air Line Pilots Association, International (ALPA). All but AEC explicitly stated they supported the NPRM, although several commenters suggested minor revisions discussed more fully below. AEC did not state whether or not it supported the NPRM and submitted suggested revisions discussed more fully below.

Section 61.51: AEC stated that this section does not address certificate expiration, refresher training, bi-annual reviews, desk audits, etc.

FAA Response: Training and reviews are included in 14 CFR part 121. The FAA notes that dispatcher certificates do not expire, but they must be kept current in order to exercise the privileges of the certificate. The currency requirements are included in 14 CFR part 121.

Section 61.53: AEC recommended that if a candidate is under 23 years of age and passes the knowledge and practical exams, a form should be provided to officially record that the candidate is eligible for a certificate at age 23. In addition, AEC stated that limitations should be permitted to be placed on an individual's flight dispatcher certificate based on medical conditions. It also stated that guidelines should be provided regarding operating limitations.

FAA response: The FAA does not believe such a form should be required since knowledge test results are valid for 2 years. Regarding medical limitations on certificates, the FAA has determined that a dispatcher certificate should remain unrestricted. Medical limitations, such as those on pilot certificates, are not appropriate in the dispatcher environment.

Section 65.55: AEC suggested identifying FAA-Authorized ADX Computerized test.

FAA Response: The FAA does not intend to use specific terms such as the ADX computerized test in order to allow for changes in technology. In addition, "knowledge test" would encompass the ADX computerized test.

Section 65.57: AGS, while stating it was in agreement with the proposal, disagreed with excluding ATP-rated pilots who gained experience in other

than military or part 121 operations, as an air traffic controller, or as a flight service specialist. It stated that it would not discriminate between military experience (no FAA ATP certificate) and civilian ATP experience. AGS also suggested that foreign air carrier pilots operating under part 129 meet the minimum requirements for consideration of substitution of experience. It stated that such pilots are required to be dispatched by a licensed US dispatcher to or from the United States. Finally, AGS stated that any ATP-rated pilot can request a dispatcher checkride from an FAA Flight Standards District Office (FSDO) when he/she has passed the knowledge exam by simply recommending himself/herself. It stated that this procedure should not be changed.

In addition, AEC suggested changing the term "Administrator" to "FAA FSDO Administrator" in order to differentiate between the FAA administrator and Aircraft Dispatcher training school administrator.

FCA recommended that credit should be offered to all Canadian dispatchers who have completed the Transport Canada curriculum or that a bilateral agreement be established that would allow the knowledge testing to be waived for personnel of both the U.S. and Canada who have passed these tests in their respective countries. FCA also stated that a practical test could be given by an approved school or agency and upon satisfactory completion of the practical test, the license for either country would be issued.

FAA Response: Regarding AGS's concern that the proposal discriminates between experience gained in military operations and civilian ATP operations, the FAA finds that dispatch systems are not required under operations conducted under part 91 and part 135. Therefore, such experience does not offer the same level of experience regarding dispatchers as military operations or operations conducted under part 121.

Regarding AGS's suggestion that foreign air carrier pilots operating under part 129 meet the minimum requirements for consideration of substitution of experience, the FAA notes that part 129 does not require the use of aircraft dispatchers. Therefore, no change is being made from the proposal.

Regarding AGS's comment about allowing an ATP-rated pilot to request a dispatcher checkride from an FAA FSDO after passing the knowledge exam and recommending himself or herself, the FAA notes that it did not propose any change to this practice, as long as

the ATP-rated pilot meets the experience requirements of 65.57.

In response to AEC's suggestion to change the term "Administrator", the FAA notes that this is the term that is used throughout 14 CFR. The FAA needs to be consistent throughout our requirements. Therefore, the term "Administrator" remains in the rule language.

In addition, the FAA notes that FCA's comments regarding Canada are beyond the scope of this rulemaking.

Section 65.61: AEC recommended using the term "air carrier" instead of "course operator" in § 65.61(c). ALPA noted that the terminology "a minimum of 200 total course hours" is not clear whether it means "classroom hours" or could include other "hours" such as computer based training.

FAA Response: The term "course operator" is correct in this context since the course operator is conducting the course under 14 CFR part 65, not 14 CFR part 121. Regarding ALPA's comment, the FAA has changed the rule language from "a minimum of 200 total course hours" to "a minimum of 200 hours of instruction" to clarify that a portion of those hours could include hours from computer based training.

Appendix A: AGS suggested that Computerized Flight Plan training be specifically included.

FAA Response: The FAA finds that Computerized Flight Plan training is not appropriate to specifically include in general areas of knowledge, since most air carriers have their own sophisticated computerized flight planning system. Manual flight plan training is needed in part 65, appendix A, "Courses" to understand the general concepts of flight planning. Specific knowledge in individual carrier's computerized programs is gained through training required under part 121.

Paperwork Reduction Act

Sections 65.63 and 65.70 contain information reporting, recordkeeping, and 3rd party notification requirements. As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the FAA has submitted a copy of these sections to the Office of Management and Budget for its review. The collection of information was approved and assigned OMB Control Number 2120-0648. No comments were received on this information collection submission. An agency may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number.

Section 65.63(a) requires that application for original approval of an aircraft dispatcher certification course or the renewal of approval of an aircraft dispatcher certification course must be made in writing to the Administrator; accompanied by two copies of the course outline required under § 65.61(b) for which approval is sought; accompanied by a description of the equipment and facilities to be used; and accompanied by a list of the instructors and their qualifications. This information is necessary for the FAA to evaluate the applicant's qualifications and compliance with the requirements of proposed subpart C of part 63.

Section 65.63(c) requires that application for renewal of an approved aircraft dispatcher certification course must be made within 30 days preceding the month the approval expires. This will allow the FAA time to review the course operator's performance and continued qualification for course approval.

Section 65.63(e) requires that a course operator who desires voluntary cancellation of an approved course must send a letter to the Administrator. This will provide the FAA with documentation showing the reason for the cancellation. After the course has been canceled, the operator is required to send any records to the FAA that the Administrator requests so that they will be available if needed.

Section 65.63(f) requires that 10 days after the date any change in ownership of the school occurs application is made for an appropriate amendment to the approval.

The FAA estimates the annual recordkeeping burden for § 65.63 to be 71 hours per year.

Section 65.70 requires that course operators keep a chronological log for 3 years of all instructors, subjects covered, and course examinations and results. In addition, the course operator must transmit to the Administrator, not later than January 31 of each year, a report for the previous year that lists the names of all students who graduated, together with the results of their aircraft dispatcher certification courses and the names of all the students who failed or withdrew, together with the results of their aircraft dispatcher certification courses or the reasons for their withdrawal. These requirements are necessary for the FAA to evaluate the quality of the course and the operator's compliance with part 65.

Section 65.70(b) requires the course operator to provide a written statement of graduation to each student who successfully completes the approved course. This requirement is necessary so

that the student has documentation of his or her qualification to serve as an aircraft dispatcher.

The FAA estimates the annual recordkeeping burden for § 65.70 compliance to be 1440 hours per year.

The annual reporting and recordkeeping burden for each aircraft dispatcher certification course operator has not changed as a result of this rulemaking. However, each aircraft dispatcher certification operator will be required to update the course curriculum and training outline, which will be a one time occurrence of up to 80 hours.

Compatibility With ICAO Standards

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 proposed regulations.

Regulatory Evaluation Summary

Proposed and final rule 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 requires agencies to analyze the economic effect of regulatory changes on small entities. Third, the Office of Management and Budget directs agencies to assess the effect of regulatory changes on international trade. In conducting these analyses, the Federal Aviation Administration (FAA) has determined that the final rule will generate benefits that justify its costs and is not "a significant regulatory action" as defined in the Executive Order or Department of Transportation Regulatory Policies and Procedures. The final rule will not have a significant impact on a substantial number of small entities and will not constitute a barrier to international trade. In addition, this final rule does not contain any Federal intergovernmental mandates, but does contain a private sector mandate. However, because expenditures by the private sector will not exceed \$100 million annually, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

This rule amends existing regulations that define the qualification and certification requirements for aircraft

dispatchers. Current regulations prescribing these requirements do not reflect the significant technological advances that have occurred in the aviation industry and the enhancements in training and instructional methods that have affected all aircraft dispatchers.

The FAA has determined that the final rule has little effect on aviation industry costs, but results in minor cost savings for dispatcher schools by relieving them of the burden to retain records indefinitely. Additionally, the rule consolidates and clarifies eligibility, knowledge, experience, and skill requirements among aircraft dispatchers.

Ordinarily, a full regulatory evaluation of the potential monetary costs that would be imposed and benefits that would be generated is prepared for all FAA rulemaking actions. For this final rule, however, a full regulatory evaluation is unwarranted because little costs will be imposed on the U.S. aviation community. Thus, the FAA has not prepared a full regulatory evaluation for the docket.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 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 principal, the Act requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The Act 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 determination is that it will, the agency must prepare a regulatory flexibility analysis (RFA) 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 1980 act provides that the head of the agency may so certify and an RFA is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

This rule will impact entities regulated by Part 65. This final rule will not impose any additional costs on small entities covered by these changes to Part 65. Accordingly, the Federal Aviation Administration certifies that this rule will not have a significant economic impact on a substantial number of small entities.

International Trade Impact Assessment

This final rule will not impose a competitive disadvantage to either U.S. air carriers doing business abroad or foreign air carriers doing business in the United States. This assessment is based on the fact that this rule will not impose any additional costs on the aviation industry. This final rule will have no effect on the sale of foreign aviation products or services in the United States, nor will it affect the sale of United States aviation products or services in foreign countries.

Federalism Implications

The regulations herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this rule will not have sufficient federalism implications to warrant the preparation of a federalism assessment.

Energy Impact

The energy impact of this final rule has been assessed in accordance with the Energy Policy and Conservation Act (EPCA) and Public Law 94-163, as amended (42 U.S.C. 6362). It has been determined that this proposed rule is not a major regulatory action under the provisions of the EPCA.

List of Subjects in 14 CFR Part 65

Air traffic controllers, Aircraft, Aircraft dispatchers, Airmen, Airports, Reporting and recordkeeping requirements.

The Amendment

In consideration of the foregoing, the Federal Aviation Administration amends part 65, Chapter I, Code of Federal Regulations, as follows:

PART 65—CERTIFICATION: AIRMEN OTHER THAN FLIGHT CREWMEMBERS

1. The authority citation for part 65 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701-44703, 44707, 44709-44711, 45102-45103, 45301-45302.

2. Subpart C of part 65 is revised to read as follows:

Subpart C—Aircraft Dispatchers

Sec.

- 65.51 Certificate required.
- 65.53 Eligibility requirements: General.
- 65.55 Knowledge requirements.
- 65.57 Experience or training requirements.
- 65.59 Skill requirements.
- 65.61 Aircraft dispatcher certification courses: Content and minimum hours.
- 65.63 Aircraft dispatcher certification courses: Application, duration, and other general requirements.
- 65.65 Aircraft dispatcher certification courses: Training facilities.
- 65.67 Aircraft dispatcher certification courses: Personnel.
- 65.70 Aircraft dispatcher certification courses: Records.

Subpart C—Aircraft Dispatchers

§ 65.51 Certificate required.

(a) No person may act as an aircraft dispatcher (exercising responsibility with the pilot in command in the operational control of a flight) in connection with any civil aircraft in air commerce unless that person has in his or her personal possession an aircraft dispatcher certificate issued under this subpart.

(b) Each person who holds an aircraft dispatcher certificate must present it for inspection upon the request of the Administrator or an authorized representative of the National Transportation Safety Board, or of any Federal, State, or local law enforcement officer.

§ 65.53 Eligibility requirements: General.

- (a) To be eligible to take the aircraft dispatcher knowledge test, a person must be at least 21 years of age.
- (b) To be eligible for an aircraft dispatcher certificate, a person must—
 - (1) Be at least 23 years of age;
 - (2) Be able to read, speak, write, and understand the English language;
 - (3) Pass the required knowledge test prescribed by § 65.55 of this part;
 - (4) Pass the required practical test prescribed by § 65.59 of this part; and
 - (5) Comply with the requirements of § 65.57 of this part.

§ 65.55 Knowledge requirements.

- (a) A person who applies for an aircraft dispatcher certificate must pass a knowledge test on the following aeronautical knowledge areas:
 - (1) Applicable Federal Aviation Regulations of this chapter that relate to airline transport pilot privileges, limitations, and flight operations;
 - (2) Meteorology, including knowledge of and effects of fronts, frontal characteristics, cloud formations, icing, and upper-air data;

(3) General system of weather and NOTAM collection, dissemination, interpretation, and use;

(4) Interpretation and use of weather charts, maps, forecasts, sequence reports, abbreviations, and symbols;

(5) National Weather Service functions as they pertain to operations in the National Airspace System;

(6) Windshear and microburst awareness, identification, and avoidance;

(7) Principles of air navigation under instrument meteorological conditions in the National Airspace System;

(8) Air traffic control procedures and pilot responsibilities as they relate to enroute operations, terminal area and radar operations, and instrument departure and approach procedures;

(9) Aircraft loading, weight and balance, use of charts, graphs, tables, formulas, and computations, and their effect on aircraft performance;

(10) Aerodynamics relating to an aircraft's flight characteristics and performance in normal and abnormal flight regimes;

(11) Human factors;

(12) Aeronautical decision making and judgment; and

(13) Crew resource management, including crew communication and coordination.

(b) The applicant must present documentary evidence satisfactory to the administrator of having passed an aircraft dispatcher knowledge test within the preceding 24 calendar months.

§ 65.57 Experience or training requirements.

An applicant for an aircraft dispatcher certificate must present documentary evidence satisfactory to the Administrator that he or she has the experience prescribed in paragraph (a) of this section or has accomplished the training described in paragraph (b) of this section as follows:

(a) A total of at least 2 years experience in the 3 years before the date of application, in any one or in any combination of the following areas:

(1) In military aircraft operations as a—

- (i) Pilot;
- (ii) Flight navigator; or
- (iii) Meteorologist.

(2) In aircraft operations conducted under part 121 of this chapter as—

- (i) An assistant in dispatching air carrier aircraft, under the direct supervision of a dispatcher certificated under this subpart;
- (ii) A pilot;
- (iii) A flight engineer; or
- (iv) A meteorologist.

(3) In aircraft operations as—

- (i) An Air Traffic Controller; or
- (ii) A Flight Service Specialist.

(4) In aircraft operations, performing other duties that the Administrator finds provide equivalent experience.

(b) A statement of graduation issued or revalidated in accordance with § 65.70(b) of this part, showing that the person has successfully completed an approved aircraft dispatcher course.

§ 65.59 Skill requirements.

An applicant for an aircraft dispatcher certificate must pass a practical test given by the Administrator, with respect to any one type of large aircraft used in air carrier operations. The practical test must be based on the aircraft dispatcher practical test standards, as published by the FAA, on the items outlined in appendix A of this part.

§ 65.61 Aircraft dispatcher certification courses: Content and minimum hours.

(a) An approved aircraft dispatcher certification course must:

(1) Provide instruction in the areas of knowledge and topics listed in appendix A of this part;

(2) Include a minimum of 200 hours of instruction.

(b) An applicant for approval of an aircraft dispatcher course must submit an outline that describes the major topics and subtopics to be covered and the number of hours proposed for each.

(c) Additional subject headings for an aircraft dispatcher certification course may also be included, however the hours proposed for any subjects not listed in appendix A of this part must be in addition to the minimum 200 course hours required in paragraph (a) of this section.

(d) For the purpose of completing an approved course, a student may substitute previous experience or training for a portion of the minimum 200 hours of training. The course operator determines the number of hours of credit based on an evaluation of the experience or training to determine if it is comparable to portions of the approved course curriculum. The credit allowed, including the total hours and the basis for it, must be placed in the student's record required by § 65.70(a) of this part.

§ 65.63 Aircraft dispatcher certification courses: Application, duration, and other general requirements.

(a) *Application.* Application for original approval of an aircraft dispatcher certification course or the renewal of approval of an aircraft dispatcher certification course under this part must be:

(1) Made in writing to the Administrator;

(2) Accompanied by two copies of the course outline required under § 65.61(b) of this part, for which approval is sought;

(3) Accompanied by a description of the equipment and facilities to be used; and

(4) Accompanied by a list of the instructors and their qualifications.

(b) *Duration.* Unless withdrawn or canceled, an approval of an aircraft dispatcher certification course of study expires:

(1) On the last day of the 24th month from the month the approval was issued; or

(2) Except as provided in paragraph (f) of this section, on the date that any change in ownership of the school occurs.

(c) *Renewal.* Application for renewal of an approved aircraft dispatcher certification course must be made within 30 days preceding the month the approval expires, provided the course operator meets the following requirements:

(1) At least 80 percent of the graduates from that aircraft dispatcher certification course, who applied for the practical test required by § 65.59 of this part, passed the practical test on their first attempt; and

(2) The aircraft dispatcher certification course continues to meet the requirements of this subpart for course approval.

(d) *Course revisions.* Requests for approval of a revision of the course outline, facilities, or equipment must be in accordance with paragraph (a) of this section. Proposed revisions of the course outline or the description of facilities and equipment must be submitted in a format that will allow an entire page or pages of the approved outline or description to be removed and replaced by any approved revision. The list of instructors may be revised at any time without request for approval, provided the minimum requirements of § 65.67 of this part are maintained and the Administrator is notified in writing.

(e) *Withdrawal or cancellation of approval.* Failure to continue to meet the requirements of this subpart for the approval or operation of an approved aircraft dispatcher certification course is grounds for withdrawal of approval of the course. A course operator may request cancellation of course approval by a letter to the Administrator. The operator must forward any records to the FAA as requested by the Administrator.

(f) *Change in ownership.* A change in ownership of a part 65, appendix A-

approved course does not terminate that aircraft dispatcher certification course approval if, within 10 days after the date that any change in ownership of the school occurs:

(1) Application is made for an appropriate amendment to the approval; and

(2) No change in the facilities, personnel, or approved aircraft dispatcher certification course is involved.

(g) *Change in name or location.* A change in name or location of an approved aircraft dispatcher certification course does not invalidate the approval if, within 10 days after the date that any change in name or location occurs, the course operator of the part 65, appendix A-approved course notifies the Administrator, in writing, of the change.

§ 65.65 Aircraft dispatcher certification courses: Training facilities.

An applicant for approval of authority to operate an aircraft dispatcher course of study must have facilities, equipment, and materials adequate to provide each student the theoretical and practical aspects of aircraft dispatching. Each room, training booth, or other space used for instructional purposes must be temperature controlled, lighted, and ventilated to conform to local building, sanitation, and health codes. In addition, the training facility must be so located that the students in that facility are not distracted by the instruction conducted in other rooms.

§ 65.67 Aircraft dispatcher certification courses: Personnel.

(a) Each applicant for an aircraft dispatcher certification course must meet the following personnel requirements:

(1) Each applicant must have adequate personnel, including one instructor who holds an aircraft dispatcher certificate and is available to coordinate all training course instruction.

(2) Each applicant must not exceed a ratio of 25 students for one instructor.

(b) The instructor who teaches the practical dispatch applications area of the appendix A course must hold an aircraft dispatchers certificate

§ 65.70 Aircraft dispatcher certification courses: Records.

(a) The operator of an aircraft dispatcher course must maintain a record for each student, including a chronological log of all instructors, subjects covered, and course examinations and results. The record must be retained for at least 3 years after graduation. The course operator also

must prepare, for its records, and transmit to the Administrator not later than January 31 of each year, a report containing the following information for the previous year:

(1) The names of all students who graduated, together with the results of their aircraft dispatcher certification courses.

(2) The names of all the students who failed or withdrew, together with the results of their aircraft dispatcher certification courses or the reasons for their withdrawal.

(b) Each student who successfully completes the approved aircraft dispatcher certification course must be given a written statement of graduation, which is valid for 90 days. After 90 days, the course operator may revalidate the graduation certificate for an additional 90 days if the course operator determines that the student remains proficient in the subject areas listed in appendix A of this part.

3. Appendix A to part 65 is revised to read as follows:

Appendix A to Part 65—Aircraft Dispatcher Courses

Overview

This appendix sets forth the areas of knowledge necessary to perform dispatcher functions. The items listed below indicate the minimum set of topics that must be covered in a training course for aircraft dispatcher certification. The order of coverage is at the discretion of the approved school. For the latest technological advancements refer to the Practical Test Standards as published by the FAA.

I. Regulations

- A. Subpart C of this part;
- B. Parts 1, 25, 61, 71, 91, 121, 139, and 175, of this chapter;
- C. 49 CFR part 830;
- D. General Operating Manual.

II. Meteorology

A. Basic Weather Studies

- (1) The earth's motion and its effects on weather.
- (2) Analysis of the following regional weather types, characteristics, and structures, or combinations thereof:

- (a) Maritime.
- (b) Continental.
- (c) Polar.
- (d) Tropical.

- (3) Analysis of the following local weather types, characteristics, and structures or combinations thereof:

- (a) Coastal.
- (b) Mountainous.
- (c) Island.
- (d) Plains.
- (4) The following characteristics of the atmosphere:
- (a) Layers.
- (b) Composition.
- (c) Global Wind Patterns.
- (d) Ozone.
- (5) Pressure:
- (a) Units of Measure.

- (b) Weather Systems Characteristics.
- (c) Temperature Effects on Pressure.
- (d) Altimeters.
- (e) Pressure Gradient Force.
- (f) Pressure Pattern Flying Weather.
- (6) Wind:
- (a) Major Wind Systems and Coriolis Force.
- (b) Jetstreams and their Characteristics.
- (c) Local Wind and Related Terms.
- (7) States of Matter:
- (a) Solids, Liquid, and Gases.
- (b) Causes of change of state.
- (8) Clouds:
- (a) Composition, Formation, and Dissipation.
- (b) Types and Associated Precipitation.
- (c) Use of Cloud Knowledge in Forecasting.
- (9) Fog:
- (a) Causes, Formation, and Dissipation.
- (b) Types.
- (10) Ice:
- (a) Causes, Formation, and Dissipation.
- (b) Types.
- (11) Stability/Instability:
- (a) Temperature Lapse Rate, Convection.
- (b) Adiabatic Processes.
- (c) Lifting Processes.
- (d) Divergence.
- (e) Convergence.
- (12) Turbulence:
- (a) Jetstream Associated.
- (b) Pressure Pattern Recognition.
- (c) Low Level Windshear.
- (d) Mountain Waves.
- (e) Thunderstorms.
- (f) Clear Air Turbulence.
- (13) Airmasses:
- (a) Classification and Characteristics.
- (b) Source Regions.
- (c) Use of Airmass Knowledge in Forecasting.
- (14) Fronts:
- (a) Structure and Characteristics, Both Vertical and Horizontal.
- (b) Frontal Types.
- (c) Frontal Weather Flying.
- (15) Theory of Storm Systems:
- (a) Thunderstorms.
- (b) Tornadoes.
- (c) Hurricanes and Typhoons.
- (d) Microbursts.
- (e) Causes, Formation, and Dissipation.
- B. Weather, Analysis, and Forecasts
- (1) Observations:
- (a) Surface Observations.
- (i) Observations made by certified weather observer.
- (ii) Automated Weather Observations.
- (b) Terminal Forecasts.
- (c) Significant En route Reports and Forecasts.
- (i) Pilot Reports.
- (ii) Area Forecasts.
- (iii) Sigmets, Airmets.
- (iv) Center Weather Advisories.
- (d) Weather Imagery.
- (i) Surface Analysis.
- (ii) Weather Depiction.
- (iii) Significant Weather Prognosis.
- (iv) Winds and Temperature Aloft.
- (v) Tropopause Chart.
- (vi) Composite Moisture Stability Chart.
- (vii) Surface Weather Prognostic Chart.
- (viii) Radar Meteorology.
- (ix) Satellite Meteorology.
- (x) Other charts as applicable.

(e) Meteorological Information Data Collection Systems.

(2) Data Collection, Analysis, and Forecast Facilities.

(3) Service Outlets Providing Aviation Weather Products.

C. Weather Related Aircraft Hazards

- (1) Crosswinds and Gusts.
- (2) Contaminated Runways.
- (3) Restrictions to Surface Visibility.
- (4) Turbulence and Windshear.
- (5) Icing.
- (6) Thunderstorms and Microburst.
- (7) Volcanic Ash.

III. Navigation

A. Study of the Earth

- (1) Time reference and location (0 Longitude, UTC).
- (2) Definitions.
- (3) Projections.
- (4) Charts.
- B. Chart Reading, Application, and Use.
- C. National Airspace Plan.
- D. Navigation Systems.
- E. Airborne Navigation Instruments.
- F. Instrument Approach Procedures.
- (1) Transition Procedures.
- (2) Precision Approach Procedures.
- (3) Non-precision Approach Procedures.
- (4) Minimums and the relationship to weather.
- G. Special Navigation and Operations.
- (1) North Atlantic.
- (2) Pacific.
- (3) Global Differences.

IV. AIRCRAFT

A. Aircraft Flight Manual.

B. Systems Overview.

- (1) Flight controls.
- (2) Hydraulics.
- (3) Electrical.
- (4) Air Conditioning and Pressurization.
- (5) Ice and Rain protection.
- (6) Avionics, Communication, and Navigation.
- (7) Powerplants and Auxiliary Power Units.
- (8) Emergency and Abnormal Procedures.
- (9) Fuel Systems and Sources.
- C. Minimum Equipment List/Configuration Deviation List (MEL/CDL) and Applications.
- D. Performance.
- (1) Aircraft in general.
- (2) Principles of flight:
- (a) Group one aircraft.
- (b) Group two aircraft.
- (3) Aircraft Limitations.
- (4) Weight and Balance.
- (5) Flight instrument errors.
- (6) Aircraft performance:
- (a) Take-off performance.
- (b) En route performance.
- (c) Landing performance.

V. Communications

- A. Regulatory requirements.
- B. Communication Protocol.
- C. Voice and Data Communications.
- D. Notice to Airmen (NOTAMS).
- E. Aeronautical Publications.
- F. Abnormal Procedures.

VI. Air Traffic Control

- A. Responsibilities.
- B. Facilities and Equipment.
- C. Airspace classification and route structure.

- Issued in Washington, DC, on December 2, 1999.

Jane F. Garvey,
Administrator.

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