Aircraft Dispatcher Certificates

December 1954

U. S. DEPARTMENT OF COMMERCE
Sinclair Weeks, Secretary

CIVIL AERONAUTICS ADMINISTRATION
F. B. Lee, Administrator

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Civil Aeronautics Manual 27

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Introductory Note

Civil Aeronautics Manual 27 contains the rules, policies, and interpretations issued by the Administrator of Civil Aeronautics in application to the various sections of Civil Air Regulations Part 27, Aircraft Dispatcher Certificates.

CAA *rules* are supplementary regulations issued pursuant to authority expressly conferred on the Administrator in the Civil Air Regulations. Some rules are mandatory and must be complied with.

CAA *policies* provide detailed technical information on recommended methods of complying with the Civil Air Regulations. Such policies are for the guidance of the public and are not mandatory in nature.

CAA *interpretations* define or explain words and phrases of the Civil Air Regulations. Such interpretations are for the guidance of the public and will be followed by the Administrator in determining compliance with the regulations.

The table of contents is arranged to show the title and number of each section of the regulations. Any rules, policies, or interpretations follow the pertinent section of the Regulations and are identified by consecutive dash numbers appended to the regulations section number. The text contains only the rules, policies, and interpretations which have been issued.

This manual includes material previously issued as CAA Supplement No. 2 dated September 21, 1950, and CAA Supplement No. 3 dated November 30, 1951. New CAM material is indicated by brackets at the beginning of each paragraph and at the end of the last paragraph.

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Aircraft Dispatcher Certificates

Requirements

27.6–1 *The content and scope of the written examination required for an aircraft dispatcher certificate in proof of aeronautical knowledge (CAA policies which apply to sec. 27.6).* The written examination is designed for the specific purpose of determining whether an applicant possesses the basic theoretical knowledge required for the safe performance of his duties as an aircraft dispatcher. Since an aircraft dispatcher's aeronautical knowledge is extensive in scope, complete coverage in the examination is not feasible. The written examination offered is a sampling device wherein a limited number of questions are proposed for the purpose of determining knowledge.

The Administrator has compiled a study guide to aid applicants in preparing for the aircraft dispatcher certificate examination. This guide is contained in appendix A.

27.7–1 *Requirements for approved aircraft dispatcher course (CAA rules which apply to sec. 27.7 (e)).*

(a) *General.* Graduates of an aircraft dispatcher course approved by the Administrator are deemed to have met the aeronautical experience requirements for the aircraft dispatcher certificate. This means that they are accepted on equal terms with an applicant who has met any of the alternate minimum experience requirements provided for in section 27.7. For this reason it is essential that the requirements for approved aircraft dispatcher courses include adequate training facilities, and sufficient coverage of the subject matter to insure acceptable proficiency of persons applying for aircraft dispatcher certification as graduates of an approved course.

(b) *Application for approval.* The agency or applicant desiring approval of a flight dispatcher course must submit to the local agent 3 copies of the course outline, a description of the equipment and facilities to be used, and a list of instructors with their qualifications, together with a letter to the Administrator of Civil Aeronautics requesting approval of the course of study. The letter requesting approval shall be submitted to the nearest regional office of the Civil Aeronautics Administration through the local Aviation Safety agent.

(1) *Training course outline.* It is not mandatory that the training course outline have the subject headings arranged exactly as listed in the following example. Any arrangement of headings and subheadings will be satisfactory provided all the subjects listed in this section are included. Each general subject of the outline shall be broken down, in detail, showing the items to be covered. Additional subjects, especially those which are not closely associated with the training of aircraft dispatchers, may be listed so long as the hourly requirements devoted to the subjects are not included as a part of the basic minimum hours.

(2) *Format of the training outline.* The course outline submitted for approval shall be in looseleaf form and shall include a table of contents and minimum coverage of the course material shall include the following:

Subject	*Classroom hours*
Civil Air Regulations	15
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Part 27—Aircraft Dispatcher Certificates.	
Part 40—Scheduled Interstate Air Carrier Certification and Operation Rules.	
Part 41—Certification and Operation Rules for Scheduled Air Carrier Operations Outside the Continental Limits of the United States.	
Part 42—Irregular Air Carrier and Off-Route Rules.	

Subject	Classroom hours
Civil Air Regulations—Continued	
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Air mass analysis:	
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Analysis of Fronts:	
Structure and characteristics.	
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Interpreting weather data:	
Weather sequences and symbols.	
Weather map symbols.	
Drawing a weather map.	
Reading a weather map.	
Upper-level charts.	
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Winds-aloft charts.	
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Correction angle.	
Finding wind drift-off course.	
Off-course problems.	
Wind velocity by single and double drift.	
Interception problems.	
Radius of action—problems.	
Search problems.	
Computer use—problems.	
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Subject	Classroom hours
Navigation—Continued	
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Aircraft	15
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Center of gravity.	
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Problem in loading.	
Engine specifications:	
Power plant:	
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Fuel consumption.	
Accessories.	
Operating manual.	
Airplane specifications:	
Operational equipment.	
Flight controls, landing gear hydraulic system, electrical system, loading characteristics, fuel capacity heating and ventilating system, and de-icing equipment.	
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(c) *Facilities, equipment, and material.* Applicant for authority to operate an approved aircraft dispatcher course of study shall have the following facilities, equipment, and materials:

(1) *Facilities.* Suitable classrooms, adequate to accomodate the largest number of students scheduled for attendance at any one time. Such classrooms shall be properly heated, lighted, and ventilated.

(2) *Equipment and materials.* Suitable devices for the teaching of simulated instrument flight, navigation, meteorology, and Morse code, acceptable textbooks, operations manuals, wall maps, charts, blackboards, and visual aids of a quantity which will provide for each student the theoretical and practical aspects of aircraft dispatching.

(d) *Instructors.* (1) The number of instructors available for conducting the course of study shall be determined according to the needs and facilities of the applicant. However, the ratio of students per instructor shall not exceed 25 students for one instructor.

(2) At least one instructor who possesses a currently effective aircraft dispatcher certificate shall be available for coordination of the training course instruction.

(e) *Revision of training course.* Requests for revision of course outlines, facilities, and equipment shall be accomplished in the same manner established for securing approval of the original course of study. Revisions shall be submitted in such form that an entire page or pages of the approved outline can be removed and replaced by the revision.

The list of instructors may be revised at any time without request for approval, provided the minimum requirements are maintained and the local agent is notified.

(f) *Credit for previous experience or training.* A course operator may evaluate an entrant's previous experience or training and where the training or experience is provable and comparable to portions of the approved course curriculum, may as each individual case warrants, allow credit for such, commensurate with accepted training practices. Where credit is allowed, the basis for alowance and the total hours credited shall be incorporated as a part of the student's records, provided for in paragraph (g) of this section.

(g) *Student records and reports.* Approval of a course shall not be continued in effect unless the course operator keeps an accurate record of each student, including a chronological log of all instructions, subjects covered, and course examinations and grades, and unless he prepares and transmits to the CAA not later than January 31 of each year, a report containing the following information:

(1) The names of all students graduated, together with school grades for aircraft dispatcher courses.

(2) The names of all students failed or dropped, together with school grades and reasons for dropping. (A sample form is included in appendix B for your guidance.)

(h) *Quality of instruction.* Approval of a course shall not be continued in effect unless at least 80 percent of the students who apply within 90 days after graduation are able to qualify on the first attempt for certification as aircraft dispatchers.

(i) *Statement of graduation.* Each student who successfully completes the approved aircraft dispatcher course shall be given a statement of graduation. An acceptable statement of graduation is:

CIVIL AERONAUTICS ADMINISTRATION,

Washington 25, D. C.

GENTLEMEN: This is to certify that _____ (Name of graduate) on _____ (Date of graduation) successfully completed a course of training for aircraft dispatchers which is approved by the Administrator of Civil Aeronautics.

Signed _____

Title _____

School _____

(j) *Change of ownership, name, or location.*

(1) *Change of ownership.* Approval of an aircraft dispatcher course shall not be continued in effect after the course has changed ownership. The new owner must obtain a new approved by following the procedure prescribed for original approval.

(2) *Change in name.* An approved course changed in name but not changed in ownership shall remain valid if the change is reported by the approved course operator to the local agent who will issue a letter of approval under the new name.

(3) *Change in location.* An approved course shall remain in effect even though the approved course operator changes location if the change is reported without delay by the operator to the local agent who will inspect the facilities to be used in the new location and, if they are found to be adequate, issue a letter of approval showing the new location.

(k) *Cancellation of approval.* Failure to meet or maintain any of the standards set forth herein for the approval or operation of an approved aircraft dispatcher course shall be considered sufficient reason for discontinuing approval of the course.

If an operator desires voluntary cancellation of his approved course, a letter requesting cancellation shall be directed to the Administrator of Civil Aeronautics through the local agent.

(l) *Duration.* The authority to operate an approved aircraft dispatcher course of study shall expire twenty-four months after the last day of the month of issuance: *Provided*, That any such authorization which was granted prior to December 1, 1949, shall expire on December 31, 1951.

(m) *Renewal.* Application for renewal of an approved aircraft dispatcher course shall be made by letter addressed to the Administrator of Civil Aeronautics through the local Aviation Safety Agent at any time within sixty days of the expiration date. Renewal of approval will depend on the course operator's meeting the current conditions of course approval and having a satisfactory record as a course operator.

[27.10–1 *Application* (*CAA rules which apply to sec. 27.10*). Application for the written examination shall be made on the combination application and score sheet Form ACA–983. Application for the certificate shall be made on Form ACA–374. The applicant for an aircraft dispatcher certificate shall complete items 1 through 16, inclusive. Incorrectly executed applications shall be returned for amendment.]

Aircraft Dispatcher Certificate

[27.23–1 *Airman identification card* (*CAA rules which apply to sec. 27.23*). An Airman Identification Card, Form ACA–2135, is issued by the Administrator and may be used to meet the requirements of section 27.23.]

[27.23–2 *Other identification cards acceptable to the Administrator* (*CAA rules which apply to sec. 27.23*). Identification cards which are acceptable in lieu of Form ACA–2135 to meet the requirements of section 27.23 are as follows:

[(a) Aircrewman Identification Card, Form ACA–2116.1 issued by CAA.

[(b) Crew Member Certificate, Form ACA–2116.1, issued by CAA. This certificate is a current revision of the Aircrewman Identification Card.

[(c) Current identification cards issued to members on active duty or on reserve status by:

[(1) U. S. Army.
[(2) U. S. Navy.
[(3) U. S. Air Force.
[(4) U. S. Marine Corps.
[(5) U. S. Coast Guard.
[(6) U. S. Merchant Marine.
[(7) National Guard.
[(8) Civil Air Patrol.

[27.23–3 *Application* (*CAA rules which apply to sec. 27.23*). An applicant for an airman identification card shall comply with the following procedure:

[(a) *Application.* The applicant shall apply in person to an Aviation safety agent, or an Aviation Safety District Office.

[(b) *Form.* Application for Airman Identification Card, Form ACA–2134, shall be completed in single copy, typed or printed in ink, and contain precise information on each item.

[(c) *Proof of identity.* The applicant shall furnish proof of his identity. The agent may exercise his discretion in the method by which he identifies the applicant. Identification of the applicant may be established by one or more of the following means:

[(1) Airman Identification Card, Form ACA–935, issued by the CAA to the applicant during World War II.

[(2) The agent's knowledge of the applicant's identity.

[(3) The applicant's identification by a person known to the agent.

[(4) Combination of identification cards and licenses held by the applicant.

[(5) Comparison of the applicant's signature with that on other cards and licenses held by him.

[(d) *Proof of place and date of birth.* The following documentary evidence is satisfactory evidence of place and date of birth:

[(1) Airman Identification Card, Form ACA–935, issued by CAA during World War II. (If he held this card and lost it, he may write to CAA, Airman Records Branch, Washington 25, D. C., and obtain confirmation that it was issued to him and the information it contained.)

[(2) Birth certificate. (When the applicant's birth certificate does not contain the exact name now used by him, he shall explain the difference on the application form.)

[(3) Baptismal record, if it contains the full name and place and date of birth.

[(4) Naturalization papers, if place and date of birth are shown.

[(5) Passport, expired or current.

[(6) Aircrewman Identification Card, or Crew Member Certificate, Form ACA–2116.1.

[(7) Statement from any State or Federal Government agency which has the applicant's birth certification on file.

[(8) Statement from any military, State, municipal, local, or Federal Government agency which has established, by investigation or otherwise, the applicant's place and date of birth.

[Applicants who cannot furnish any of the documents listed in (1) through (8) may present affidavits from attending physician, either parent, brother, sister, relative, or acquaintances who have personal knowledge of the applicant's place and date of birth.

[Military identification cards, service records, discharge papers, drivers' licenses, and the like are not aceptable documentary evidence of place and date of birth.

[(e) *Evidence of citizenship.* The following documentary evidence is satisfactory evidence of citizenship:

[(1) Any document listed in paragraph (d) if citizenship is claimed in the country of birth.

[(2) Naturalization papers.

[(3) Currently valid passport.

[(4) Statement from an appropriate official of a foreign government that the applicant is a citizen of that country.

[(5) Civil Aeronautics Board waiver of citizenship requirements for the issuance of an airman certificate to stateless or other persons.

[(6) Certified statements from persons, courts, or agencies in authority on cases of derivative citizenship, incompleted naturalization, or other complex citizenship status. Such statements must contain information on the current status of the applicant's citizenship.

[(f) *Photographs.* The applicant shall furnish two photographs which are:

[(1) Taken from the same negative.

[(2) One inch square, full face, head only.

[(3) Taken within the past 12 months, and

[(4) Readily recognizable as photographs of applicant.

[(g) *Fingerprints.* The applicant shall be fingerprinted only by an Aviation Safety Agent or other CAA employee authorized by the agent.

[(h) *Reissuance of lost card.* An applicant who has lost his Airman Identification Card, Form ACA–2135, may obtain another by making application exactly as required for his original card, or by:

[(1) Writing to the CAA Airman Records Branch, W–253, Washington 25, D. C., and explaining the circumstances of the loss, and requesting a letter verifying that such card had been issued, and

[(2) Presenting the letter and two photographs, as required for original issuance, to an Aviation Safety Agent who will issue a duplicate card.

[27.23–4 *Scheduled air carrier airmen (CAA interpretations which apply to sec. 27.23).* An airman certificated under Part 27

is not required to hold an identification card when he is exercising the privileges of his certificate in operations conducted by a scheduled air carrier. This includes any operation in which the airman is carrying out his duties as an employee of a scheduled air carrier.

[27.23–5 *Other airman certificate* (*CAA interpretations which apply to sec. 27.23*). An identification card which meets the requirements of section 27.23 for pilots will also meet the identification card requirements for any other airman certificate which he may hold.

Examinations and Tests

[27.30–1. *General—Examinations* (*CAA policies which apply to sec. 27.30*). No mandatory order of examinations will be required. However, it is desirable that the written portion be administered only when it has been determined that the applicant is fully qualified in accordance with the applicable Civil Air Regulations. If the practical examination is administered before the written and the applicant is successful, the agent will issue Form ACA–578, Evidence of Aeronautical Knowledge.

[The practical examination for an aircraft dispatcher certificate is of approximately four hours' duration, and is divided into six sections of equal value, as follows:

[(a) Applied meteorology.

[(b) Morse code signals.

[(c) Airman's Guide and Flight Information Manual.

[(d) Company's operations manual, operating certificate, and operations specifications.

[(e) Practical dispatching problems.

[(f) Check sheet of duties.

[The applicant will provide the agent or examiner with two copies of an acceptable operations manuals. Since the examination is based on a specific airplane and a specific route chosen by the applicant, no problem should be encountered as to the acceptability of the manuals. The company's operations manual is the primary tool with which an operating aircraft dispatcher performs his assigned duties. For this reason, it is necessary in the examination that each applicant be conversant with content and use. It is impossible because of the volumes of changing information to require memorization of content. Instead, it is believed that safety may further be served by establishing a habit of referring to the manual where doubt exists as to the proper rule or procedure. The applicant should be allowed to refresh his memory by referring to the manual during the examination. His familiarity with the manual, the Airman's Guide and Flight Information Manual should be apparent from the demonstration of their use.]

Appendix A

Study Guide for the Written Examination Required for an Aircraft Dispatcher Certificate

(a) Taking the Examination

The applicant should read each statement or question carefully so that it is fully and completely understood before looking at the multiple choices given as possible answers. An attempt should be made by the applicant to frame in his mind not only the problem, but also what he conceives to be a satisfactory answer. After this process is followed, the applicant should then determine which answer among those given most exactly corresponds with the answer which he has arrived at from reading and understanding the problem involved. The questions posed are operational. To know the rule or procedure is one-half of the educational process. The applicant, therefore, is required to know not only the rule but also its application.

The subject of the examination will always provide a clue to the answer; e. g., if the subject deals with Civil Air Regulations, a regulation is involved in the correct answer. Similarly, if aids to air navigation is the subject, the answer will involve that subject. From the possible answers given it may appear that there is more than one correct answer. However, this is not the case. There is only one correct and complete answer. There are no trick questions or answers. The possible choices provided, other than the correct answers, are incomplete, involve incorrect procedures, or result from popular misconception. Care should be exercised to ascertain that the answer chosen fully and completely answers the problem involved.

If difficulty is encountered with a particular problem, the applicant should proceed to the next problem where the answer is known. When the particular section of the examination has been completed, he should go back to the unanswered problems. By utilizing this procedure, the applicant's time and energy will be conserved to maximum advantage in the demonstration.

The applicant who is adequately prepared will have ample time to complete the examination within the prescribed time limit. Failure to complete the examination within the allotted time may indicate the absence of alertness, resourcefulness, power of analysis, and sound judgment, which are considered essential attributes of an aircraft dispatcher. If these facts are remembered and followed no difficulty should be experienced with the examination.

The applicant's answer sheets, together with any papers used during the examination for computation, must be surrendered to the proctor before the applicant leaves the examination room. Examination answer sheets are mailed immediately to the Washington office of the Civil Aeronautics Administration where a grade in each section is determined by an electric scoring machine. An applicant must receive a grade of at least 70% in each section to be successful in the examination. A complete record of grades and other matters pertaining to the applicant's activity as an airman are maintained in the Washington office of the Civil Aeronautics Administration.

(b) The Examination—Reference Material

The publications listed below which are marked "GPO" may be ordered from the Government Printing Office. Orders must be accompanied by money order or check made payable and addressed to the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Publications marked "CAA" may be obtained from the Office of Aviation Information, Civil Aeronautics, Administration, Washington 25, D. C.

(1) *Section one—Civil Air Regulations.*

The applicant can prepare himself for this section of the written theoretical examination, which consists of 30 questions, by studying the following material:

Study Material	Where Obtained	Cost
Civil Air Regulations:		
Part 4b—Airplane Airworthiness—Transport Categories	GPO	$0.25
Part 18—Maintenance, Repair, and Alteration of Certificated Aircraft and of Aircraft Engines, Propellers, and Instruments	GPO	.05
Part 27—Aircraft Dispatcher Certificates	GPO	.05
Part 40—Scheduled Interstate Air Carrier Certification and Operation Rules	GPO	.15
Part 41—Certification and Operation Rules for Scheduled Air Carrier Operations Outside the Continental Limits of the United States	GPO	.10
Part 42—Irregular Air Carrier and Off-Route Rules	GPO	.10
Part 43—General Operation Rules	GPO	.05
Part 49—Transportation of Explosives and Other Dangerous Articles	GPO	.10
Part 60—Air Traffic Rules	GPO	.10
Part 62—Notice and Reports of Aircraft Accidents and Missing Aircraft	GPO	.05
ANC Procedures for the Control of Air Traffic	GPO	1.00
Civil Aeronautics Manual 4b	GPO	.75
Civil Aeronautics Manual 18	GPO	1.75
Civil Aeronautics Manual 40	GPO	1.25
Civil Aeronautics Manual 41	GPO	.75
Civil Aeronautics Manual 42	GPO	1.00

(2) *Section two—Meteorology.*

The applicant can prepare himself for this section of the written theoretical examination, which consists of 30 questions, by studying the following material:

Study Material	Where Obtained	Cost
Circular "S" (Clouds)	GPO	$0.35
Pilot's Weather Handbook (TM 104)	GPO	
Weather Bureau Circular "N"—Revised November 1951, Sixth Edition	GPO	.75
Airways Operations Division, Weather Schedules, Service "A," "C," and "O"	CAA	No charge
CAA Weather Bureau Standard Procedures for Flight Assistance Service	CAA	No charge

(3) *Section three—Navigation.*

The applicant can prepare himself for this section of the written theoretical examination, which consists of 30 questions, by studying the following material:

Study Material	Where Obtained	Cost
Practical Air Navigation. Bulletin 24	GPO	Supply exhausted
Pilots' Radio Hand Book TM-102	GPO	$0.55

(4) *Section four—Radio.*

The applicant can prepare himself for this section of the written theoretical examination, which consists of 30 questions, by studying the following material:

Study Material	Where Obtained	Cost
Airways Operations Training Bulletin Series:		
No. 1—Instrument Landing System	GPO	$0.20
No. 2—Location Markers and Homing Facilities	GPO	.15
No. 3—Visual—Aural Ranges and Omniranges	GPO	.20
No. 4—Distance Measuring Equipment and Offset Course Computer	GPO	.15
No. 6—Radar Fundamentals and Surveillance, Precision and Route Radar	GPO	.35
No. 7—LORAN	GPO	.10
Pilots' Radio Hand Book TM-102	GPO	.55
Federal Airways Manuals of Operation, Vol. II, Chapter B	CAA	
Flight Information Manual, Vol. 8, May 25, 1954	GPO	.50
Airman's Guide	GPO	(1)
FCC Rules, Part 9, Rules and Regulations Governing Aviation Services	GPO	.10

[1] Price varies ($0.10–$0.45)

(c) Sample Examination Questions

(1) *Section one—Civil Air Regulations.*

1. While riding in the pilot's compartment of an air carrier aircraft, you notice directly ahead of you an alternately flashing red and white light, indicating the presence

of another air carrier aircraft of the transport category. Since these are the only two lights you can see, the aircraft ahead is:

1. Coming toward you on a collision course.
2. Proceeding in approximately the same direction as your path of flight.
3. Approaching you from the right.
4. Approaching you from the left.

2. The operating center of gravity range is the:
   1. Distance between datum line and the mean aerodynamic chord.
   2. Distance between the weighing point and center of gravity.
   3. Distance between the tare and the moment.
   4. Distance between the forward and rearward center of gravity limits indicated on the pertinent aircraft specification.
3. Part 27 of the Civil Air Regulations establishes the requirements for an aircraft dispatcher certificate. You have been a pilot member of a crew engaged in regular scheduled military flights for one and a half years, with no other aeronautical experience. The only manner in which you can qualify without additional aeronautical experience is to:
   1. Graduate from an approved aircraft dispatcher course of study.
   2. Serve for 90 days under the immediate supervision of an aircraft dispatcher.
   3. Be a college graduate.
   4. Be employed by an irregular air carrier.
4. To be eligible for an air carrier operating certificate, a domestic air carrier applicant must meet certain minimums set forth in the Civil Air Regulations. To comply with route requirements in visual contact day operations, the carrier must show:
   1. Government radio facilities for their communication system.
   2. A two-way ground-to-aircraft radio telephone communication system, which is independent of Federal facilities.
   3. Whatever the carrier deems satisfactory for their individual operation.
   4. A system of air-to-ground and ground-to-air communication system, using radio telegraphy.
5. The "X" Air Carrier Company is issued an operating certificate which specifies that all operation shall be conducted under visual contact flight rules. Shortly thereafter the carrier applies to the CAA for authorization to conduct instrument flight rule operation. One of the factors which the Administrator of Civil Aeronautics considers in determining whether IFR operation should be authorized is:
   1. The economic stability of the air carrier.
   2. The skill and experience of dispatcher personnel.
   3. The number of aircraft available for use.
   4. The need for additional frequency of flights to serve a particular area.
6. The "X" Air Carrier operates long-distance over-water flights between San Francisco and Honolulu. Since there are no available alternates, a flight departing San Francisco for Honolulu uses the point of departure as an alternate. In order to use San Francisco as an alternate, the current weather forecasts must indicate that the ceiling and visibility at the point of departure are above approved minimums at:
   1. The time when the point-of-no-return has been reached.
   2. The time of arrival back at point of departure from any point between that point and destination.
   3. Any point short of the point-of-no-turn.
   4. Any point short of the point-of-no-return, provided the above minimums forecasted, hold until the departure point is reached.
7. The "X" Scheduled Air Carrier operates between the United States and Europe. Flight 88 was dispatched to Shannon from New York with an intermediate stop at Gander, Newfoundland. The flight arrives at Gander at 1000 GCT but is delayed there. Under the Civil Air

Regulations, the flight must be redispatched at:

1. 1030 GCT.
2. 1200 GCT.
3. 1500 GCT.
4. 1600 GCT.

8. The "Y" Scheduled Air Carrier Company operates a fleet of aircraft in scheduled air transportation. As an adjunct to their business, they have a contract with the "B" Baseball Team to provide air transportation where and when needed. In dispatching such a flight, which is not over an authorized route, the flight must abide by the Civil Air Regulations governing.
   1. Irregular air carrier operation.
   2. Scheduled air carrier operation.
   3. Interstate operation.
   4. Intrastate operation.
9. You are about to dispatch one of your company's training aircraft on a simulated instrument flight. You should make certain among other things that:
   1. There is a safety pilot aboard to observe other aircraft while the pilot flying the ship is "under the hood."
   2. That the weather is VFR.
   3. That the pilot is properly qualified for instrument flight.
   4. That the aircraft is properly equipped for instrument flight.
10. Class C explosives may be carried aboard passenger-carrying aircraft provided:
   1. The weight is not in excess of 60 lbs.
   2. The package is packed, marked, and labeled as required by Part 72 of the ICC Rules and Regulations, and is not in excess of 50 lbs.
   3. That upon the package there is a statement relieving the shipper of responsibility.
   4. A statement of the shipper is attached to the package relieving the carrier of responsibility.
11. Flight 50 of the "X" Air Carrier Company, in flight, is rapidly overtaking an aircraft in the light plane category. The pilot of the overtaking aircraft should pass:
   1. On the right.
   2. On the left.
   3. Over.
   4. Under.
12. Flight 58 of the "Y" Air Carrier Company is to cruise at 14,000 ft. from point "A" to "B," a flight of one hour's duration. The oxygen which should be on board the aircraft is:
   1. A 30-minute supply for at least 10 percent of the passengers carried.
   2. An hour's supply for all the passengers.
   3. An hour's supply for all the passengers and crew.
   4. To be determined by the air carrier operator.
13. During the starting of an engine, a mechanic for the "X" Air Carrier Company is struck by the revolving propeller of an air carrier aircraft, and killed. Under the Civil Air Regulations this:
   1. Is considered an aircraft accident, but no report is required.
   2. Is not considered an aircraft accident.
   3. Is considered an aircraft accident and immediate notice and a written report should be made.
   4. Is not considered an aircraft accident since damage to the aircraft is not involved.
14. Flight 25 of the "X" Air Carrier Company, operating under IFR, has been cleared by ATC from points "A" to "B" to cruise at 10,000. The weather is CAVU. In climbing to 10,000 the pilot:
   1. Should watch out for other aircraft since it is his responsibility to avoid collisions.
   2. May put his head down in the cockpit and make his climb on instruments, since he is on an IFR flight plan.
   3. May consider his climb and cruising altitude protected by ATC from other VFR and IFR traffic, by virtue of the instrument clearance.
   4. Is responsible for avoiding other IFR traffic.
15. You are dispatching aircraft over route 257, which has scheduled stops at "A," "B,"

and "C." Because of an emergency situation, flight 55, operating over Route 257 lands at an alternate field between "A" "B." No weather is involved in the problem. In determining the maximum take-off weight of the airplane the factors to be considered in loading are:

1. Wind, temperature, runway length, runway gradient and altitude at the field of take-off, and wind, runway length and altitude at the field of intended destination.
2. V_1 and V_2 speeds of the aircraft.
3. Temperature and runway length only at field of intended destination.
4. Wind, temperature, runway length, runway gradient and altitude only at the field of take-off.

(2) *Section two—Meteorology.*

1. The low clouds of bad weather are termed:
   1. Stratocumulus.
   2. Cirrostratus.
   3. Nimbostratus.
   4. Cumulus.
2. Middle clouds found generally in small isolated patches which are in the process of dissolution by evaporation are termed:
   1. Stratocumulus.
   2. Nimbostratus.
   3. Altocumulus.
   4. Cirrocumulus.
3. The high cloud, generally in the form of a hook which ends in a point or small tufts, is termed:
   1. Stratus.
   2. Altocumulus.
   3. Nimbostratus.
   4. Cirrus.
4. The instrument which measures the weight of air existing above a given station is called a barometer. A simple aneroid barometer calibrated in terms of altitude is called:
   1. A barograph.
   2. An altimeter.
   3. A sling psychrometer.
   4. A mercurial barometer.
5. You are called upon to estimate the ceiling at your base of operation where clouds are forming from convection. If the temperature is 90° F., and the dew point is 63° F., the cloud base is approximately:
   1. 6,000 ft.
   2. 7,000 ft.
   3. 4,000 ft.
   4. 5,000 ft.
6. A smooth flight may be expected if the radiosonde observation shows:
   1. Inversion of temperature.
   2. Adiabatic lapse rate.
   3. Super-adiabatic lapse rate.
   4. Dry adiabatic lapse rate in the clouds.
7. Air blows up hill and is cooled adiabatically. If it starts at 2,000 feet with a temperature of 65° F., and moves upward without condensation to 6,000 feet, its new temperature will be approximately:
   1. 61° F.
   2. 45° F.
   3. 54° F.
   4. 37° F.
8. The weather report at 1300 GCT indicated a ceiling of 2,000 feet, broken clouds; the temperature was 67° F., dew point 60° F. At 1500 GCT the same station reported only that the temperature was 70° F. and the dew point 60° F. The ceiling at 1500 GCT would be approximately:
   1. 1,800 ft.
   2. Unlimited.
   3. 12,000 ft.
   4. Slightly more than 2,000 ft.
9. Ice will generally form on an aircraft when:
   1. The aircraft is being flown in cirrus clouds.
   2. Ice crystals are present.
   3. Water droplets are present with subfreezing temperature.
   4. The outside air temperature is below 30° F.
10. Severe thunderstorms may be most generally expected:
    1. 100 miles west behind a fast-moving cold front.
    2. Along a cold front when the temperature of the air ahead of the front is about 5 degrees more than the temperature of the air behind the front.

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3. When the air mass in the warm sector of a cyclone is stable and the velocity of the wind at 8,000 feet is twice the velocity of the wind at 4,000 feet.
4. Along, or in advance of, a well-defined, fast-moving cold front if the temperatures aloft ahead of the front indicate much greater instability than the temperatures behind the front, and the wind shifts from south or southwest to northwest along the frontal line.

11. A cold air mass overlying the Central United States, which originated in the North Pacific Ocean, is designated as:
    1. MPK.
    2. CP.
    3. MPW.
    4. CPK.
12. A warm front lies 100 miles south of Station "X." The slope of this front is 1 to 150. The depth of the cold air at Station "X" is approximately:
    1. 1,700 ft.
    2. 3.500 ft.
    3. 5,300 ft.
    4. 2,500 ft.
13. The tops of most thunderstorms are generally well above:
    1. 3,000 ft.
    2. 10,000 ft.
    3. 20,000 ft.
    4. 14,000 ft.
14. Ground fog most generally occurs when:
    1. The difference between the dew point and temperature is great and the surface wind is light.
    2. The difference between the dew point and the temperature is small, and the surface wind is blowing downslope.
    3. The sky is clear, the difference between the dew point and temperature is small, and there is a surface wind of 4 to 7 MPH.
    4. The temperature is 30° F., the sky is clear, and the surface wind is approximately 10 MPH blowing downslope.
15. The night is clear, the wind is light to calm, the dew point and temperature are 60° F. By morning it would be reasonable to expect:
    1. Radiation fog.
    2. Strong convection currents.
    3. Advection fog.
    4. Clear calm weather.

(3) *Section three—Navigation.*

1. An aircraft is dispatched to search as far as possible on a true course of 300 degrees and return to base. The true air speed is 180 knots, the fuel capacity is 5 hours with a 20 percent reserve. The wind at altitude is 35 knots from 20 degrees. The mean variation is 12 degrees east and the deviation on both headings is 8 degrees west. The elapsed time before the aircraft must turn back to the point of departure is:
    1. 1 hour, 15 minutes.
    2. 2 hours, 05 minutes.
    3. 2 hours, 35 minutes.
    4. 1 hour, 50 minutes.
2. A scheduled flight is cleared on instrument from "A" to "B," a distance of 340 miles with "X" as an alternate airport, a distance of 75 miles from "B." Gas consumption for the aircraft is 80 gallons per hour, and the ground speed is 165 MPH. The gas required for the flight is approximately:
    1. 202 gallons.
    2. 242 gallons.
    3. 264 gallons.
    4. 302 gallons.
3. One degree of longitude at 60 degrees latitude is approximately:
    1. 1 nautical mile.
    2. 30 nautical miles.
    3. 60 nautical miles.
    4. 90 nautical miles.
4. A multi-engine aircraft under your control is dispatched from "A" with 1,800 gallons of gasoline on board, for "B," 950 nautical miles, 90 degrees true from "A." After arriving over "B," the flight is redispatched to "C," 350 nautical miles, 180 degrees true from "B." Assuming an average fuel consumption of 180 gal-

lons an hour, a wind from 300 degrees, velocity 30 knots prevailed throughout the entire flight and T. A. S. was 195 knots. The quantity of fuel remaining on arrival at "C" would be:

1. 717 gallons.
2. 560 gallons.
3. 510 gallons.
4. 625 gallons.

5. Soon after take-off on a dead reckoning flight, a check was made between two points, 83 miles apart, which required 28 minutes. At the same rate the time required to fly 216 miles is:
   1. 1 hour, 03 minutes.
   2. 1 hour, 22 minutes.
   3. 1 hour, 13 minutes.
   4. 1 hour, 27 minutes.
6. A great circle course is:
   1. Known as a rhumb line.
   2. Plotted as a straight line on a mercator projection.
   3. Plotted as a straight line on a gnomonic projection.
   4. Always the straight line drawn between any two points on a Lambert projection.
7. A pilot flying at a pressure altitude of 10,000 ft., temperature 5 degrees centigrade, notes his indicated air speed to be 180 miles per hour. Assuming no calibration error, his true air speed will be:
   1. 180 MPH.
   2. 198 MPH.
   3. 213 MPH.
   4. 210 MPH.
8. A O (circle) found on an aeronautical chart indicates:
   1. Military base.
   2. Joint civil and military base with complete facilities.
   3. A landing strip with limited or no facilities.
   4. A landing area with limited or no facilities.
9. Flight 58 of the "X" Air Carrier Company departs a sea level airport with his altimeter indicating zero, at a barometric pressure of 30.30. The flight lands at an emergency field 2,000 feet above sea level which broadcasts an altimeter setting of 29.80. The altimeter in the aircraft without adjustment would indicate an elevation of:
   1. 1,000 ft.
   2. 2,000 ft.
   3. 2,500 ft.
   4. Zero.
10. Flight 60 is making an instrument approach. The airport is three miles from the range station and its elevation is 750 feet. The ceiling at the airport is 300 feet. If the pilot lets down at 400 feet per minute with a true air speed of 110 MPH and a ground speed of 100 MPH, in order to break out under the ceiling at the edge of the airport, he must cross the range station at an altitude of approximately:
    1. 1,680 feet above sea level.
    2. 1,800 feet above sea level.
    3. 750 feet above sea level.
    4. 1,770 feet above sea level.
11. The wind correction angle will always be the:
    1. Angle between compass heading and true heading.
    2. Angle between course and track.
    3. Angle between true heading and track.
    4. Angle between magnetic heading and true heading.
12. Given a true course of 226 degrees, right wind correction angle 12 degrees, deviation 3 degrees east, variation 21 degrees east, the compass heading is:
    1. 214 degress.
    2. 262 degrees.
    3. 228 degrees.
    4. 235 degrees.
13. A pilot departing on a dead reckoning flight, due to an error in calculating his compass course, finds that after 30 minutes he is off his course 10 degrees to the right. Both the ground speed and the air speed are 180 MPH and the wind conditions remain the same. If the pilot desires to return to the original track

in one half-hour of flying time, he must correct heading approximately:
1. 28 degrees right.
2. 20 degrees left.
3. 10 degrees left.
4. 20 degrees right.

14. In the measuring of distance a minute of latitude is equal to:
1. One statute mile.
2. One nautical mile.
3. 60 nautical miles.
4. A minute of longitude at latitude 45 degrees north.

15. Flight 58 of the "X" Air Carrier Company is dispatched from San Francisco to Honolulu a distance of 2,100 nautical miles. The fuel consumption will be 190 gallons per hour and an estimated ground speed for the trip of 180 knots. In dispatching this flight with no alternate the minimum amount of fuel required on board is:
1. 3,000 gallons.
2. 2,787 gallons.
3. 1,393 gallons.
4. 2,500 gallons.

(4) *Section four—Radio.*

1. The new two-way international emergency frequency which all CAA tower and communications stations will guard is:
1. 121.9 mc.
2. 126.18 mc.
3. 121.5 mc.
4. 500 kc.

2. The basic elements of an ILS system are:
1. A localizer, a glide path, and fan markers.
2. A radio range, a compass locator station, and high intensity approach lights.
3. Fan markers, a radio range, and precision approach radar.
4. A localizer, high intensity approach lights, and a fan marker.

3. Approach control instructions from a control tower are issued to aircraft using the ILS, on the voice feature of the:
1. Radio range.
2. Fan markers.
3. Localizer.
4. Glide path.

4. The need for both fan markers and compass locators in connection with the ILS will be eliminated when:
1. DME (Distance Measuring Equipment) is used.
2. SECO (Sequential Control) is used.
3. VAR (Visual Aural Range) is used.
4. VOR (an Omnirange) is used.

5. In the operation of the DME, the instrument which measures the round trip time of a signal and translates it into the distance of the aircraft from station is called:
1. A transponder.
2. Surveillance radar.
3. Precision beam radar.
4. A course line computer.

6. In search and rescue proceedings, the code symbol ☐ on the ground indicates the need for:
1. A doctor.
2. Food and water.
3. Map and compass.
4. Medical supplies.

7. VHF omniranges operate within the:
1. 200–400 K band.
2. 112–118 mc band.
3. 120–130 mc band.
4. 126.18–128.17 band.

8. At minimum instrument altitudes a VOR gives reliable indications up to approximately:
1. 100 miles.
2. 75 miles.
3. 50 miles.
4. 150 miles.

9. Omnirange stations along a VOR airway are spaced at:
1. 100-mile intervals.
2. 50-mile intervals.
3. 75-mile intervals.
4. 150-mile intervals.

10. One advantage of VAR over four course aural low-frequency range is that the VAR:
1. Eliminates the complicated orientation process when "lost" near a station.
2. Gives excellent signals up to 400 miles at en route altitudes.

3. Is not subject to any bends.
4. May be received with any radio receiver.

11. An aircraft is using VHF for company en route communications. Prior to reaching a position where VHF is no longer usable, the ground station advises: "Shift to night frequency." Which of the following would be used as an air carrier night frequency?
    1. 3117.5 kc.
    2. 8280 kc.
    3. 375 kc.
    4. 3692 kc.
12. The radio class designations "AC," "CA," and "IM" indicate in order:
    1. Air Corps tower, controller approach, instrument marker.
    2. Approach control tower CAA, control tower Air Force, and a VHF boundary marker.
    3. Approach control city, control tower city operated, and instrument Landing System.
    4. Air Corps tower, ground controlled approach, and VHF boundary marker.
13. VAR and VOR Ranges are monitored at least once every hour by the:
    1. FCC.
    2. INSAC Station.
    3. Control tower.
    4. Army and Navy.
14. In the NOTAM Code, "QAIAU" decoded means:
    1. Meteorological communications appear unreliable on Instrument Landing System.
    2. Instrument Landing System appears unreliable.
    3. Boundary lights not burning.
    4. Aerodrome beacon light not burning.
15. In the NOTAM Code, "QURUJ 22" decoded, means:
    1. Lighting facilities on airport are back in operation at 0022.
    2. Runway Number 22 is closed until further notice for repairs.
    3. Radio range on 220 kc is shut down.
    4. ILS system on runway 22 shut down for repairs.

(d) Answers to Sample Questions

(1) *Civil Air Regulations.*

Question	*Answer*
1	2
2	4
3	1
4	2
5	2
6	4
7	4
8	1
9	1
10	2
11	1
12	1
13	3
14	1
15	1

(2) *Meteorology.*

Question	*Answer*
1	3
2	3
3	4
4	2
5	1
6	1
7	2
8	4
9	3
10	4
11	1
12	2
13	3
14	3
15	1

(3) *Navigation.*

Question	*Answer*
1	3
2	3
3	2
4	1
5	3
6	3
7	3
8	4

(3) *Navigation* (Continued)

Question	*Answer*
9	3
10	4
11	3
12	1
13	2
14	2
15	2

(4) *Radio.*

Question	*Answer*
1	3
2	1
3	3
4	1
5	1
6	3
7	2
8	3
9	1
10	1
11	4
12	2
13	2
14	2
15	2

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"(b) Any material which purports to be a key sheet of specific answers to any multiple choice examination paper in use by the Administration for the examination of applicants for airman or ground instructor certificates."

Appendix B

Sample Form for Annual Report

Annual Report for 1950

Bellows Approved Aircraft Dispatcher Course of Study

Graduates

Name	Date Enrolled	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Link Trainer	Date of Graduation
Arlen, George	Jan. 3, 1950	C	C	A	C	A	A	A	91%	July 28, 1950
Barnes, Wm.	Jan. 3, 1950	B	C	B	C	C	C	B	84%	Aug. 10, 1950
Heffner, Chas.	Jan. 5, 1950	C	B	B	C	B	B	A	94%	Aug. 14, 1950
Larson, James	Jan. 4, 1950	*B	B	A	C	B	C	C	93%	Aug. 10, 1950

Students who have withdrawn, failed, or were dropped from the course of study

Name	Date Enrolled	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Course or Subject	Link Trainer	Remarks
Collier, John	Dec. 20, 1950	D		C	D	Inc.	B	D		Withdrew. Recalled to military service.
Dalton, Wm.	Dec. 18, 1950	Inc.	D	(**)	F	(**)	B	C		He discontinued. Poor grades and inability to attend classes.
Marsden, Chas.	Dec. 10, 1950	Inc.	F	B		(**)	F			Dropped. Poor grades.
Watson, T. J.	Dec. 20, 1950	(**)		F		(**)	D	B		Withdrew. Recalled to military service.

*Advance credit.
**Course in progress when student withdrew.
Explanation of grading system: A—90–100%; B—80–90%; C—70–80%; D—60–70%; F—Failure; Inc.—Did not complete assignment.

Sample List of Instructors

Department of Aeronautical Education

December 31, 1950

Instructors

Name and Title	Ground Instructor's Certificate Number and Ratings	Subject (At Present)
Joseph J. Champlain, Assistant Supervisor Flight Dispatch—Meteorology, Pan American World Airways	#73925–40 Meteorology	Meteorology
Thomas P. Littleton, Assistant Dispatcher, Junior, American Airlines	Aircraft Dispatcher #1073564 Radio Telegraph #T2–3558 (Second Class) Radio Telephone #P2–35744 (Second Class)	Radio Code and Theory
Anthony J. St. Clair, Operations Training Supervisor, American Airlines	#75336–40 Aircraft Aircraft Engines Meteorology Civil Air Regulations Aerial Navigation	Civil Air Regulations and Aircraft Loading
Jefferson Hancock, Link-Dehmel Instructor, Pan American World Airways	#736840 Link Trainer	Link Trainer

U. S. GOVERNMENT PRINTING OFFICE, 1954

Now in new
CAM-27
dated 10/15/56

~~Supplement 1 - April 15, 1955~~
~~Supplement 2 - May 1, 1956~~

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of suggested study material

Supp 1 - 12/31/56 (~~Supplement 1~~) (Supp 1 to Vol V)
2, 8-1-57 (Supp 4 to Vol V)