designated heading within ±10° (for a 360° turn) without further correction. In addition, the student is expected to demonstrate similar performance for timed turns to preassigned headings, both at cruising and turbulent air airspeeds.

(3) *Climbs, descents, and spirals.* The student will execute climbs and descents straight ahead, to the right, and to the left at uniform rates of turn while maintaining the recommended climb and descent airspeed, within ±5 m. p. h., producing a change of heading within ±5° of 90° for each 30 seconds of turn, and reaching an assigned altitude within ±10 seconds of an estimated time.

(4) *Stalls.* The student will execute partial and full stalls (full stalls not required in multiengine airplanes).

A partial stall is considered to exist when the instruments reflect a noticeable decrease in rate of climb or a noticeable increase in the rate of descent, as the airplane's attitude approaches a maximum angle of attack. A full stall is considered to occur when the airplane pitches after reaching a maximum angle of attack.

Recovery from partial stalls will be initiated when the instruments indicate the partial stall condition has been reached. Recovery from full stalls is to be offered after the stall has occurred and the nose has begun to pitch down.

The student will be expected to recognize and identify both types of stalls (stall warning device made inoperative—if airplane is so equipped), to take corrective action without exceeding cruising airspeed, and to recover on the original heading within ±10°.

(5) *Recovery from unusual attitudes.* The student will execute recovery to straight and level flight from abnormal attitudes of flight, such as might be encountered in gusty instrument flying weather, without exceeding the airplane's approved operating limitations or load factors.

The student will also be expected, in the case of multiengine airplanes, to demonstrate control under engine-out procedures. He will also be expected to comply fully with the recommended procedures and checklist under such circumstances. The student will be expected to demonstrate ability to maintain the recommended engine-out airspeed within ±5 m. p. h. and a heading within ±10°.

(6) *Estimate arrival times.* The student will obtain weather data, aircraft performance data, flight charts, approach procedures, etc., from which a flight plan shall be prepared, and correctly compute estimated arrival times over checkpoints, at destination, and at alternate airports.

(7) *Tuning radio equipment.* The student will make correct selection of frequencies, use of volume control, use of voice and range filters, use of dual radio equipment—if installed.

(8) *Orientation.* The student will follow a planned course of action for orientation upon a range leg or radial at a preselected altitude, which is maintained within ±100 feet, and make the correct identification of position.

(9) *Following a range leg or radial.* The student will align with the leg or radial, using heading changes of progressively lesser magnitude after interception at an angle of approximately 45°.

(10) *Locating range stations.* The student will identify correctly the arrival over the station.

(11) *Instrument approach procedure.* The student will correctly execute the published approach procedures for the station and airport involved. If the airport being used has standard minimums above 500 feet and 1 mile, due to local conditions, a student is expected to demonstrate his ability to conduct a correct approach to these standard minimums.

(12) *Missed approach procedures.* The student will execute correctly the published missed approach procedures for the airport being used.

(13) *Air traffic control procedures.* The student will obtain and correctly adhere to ATC clearances and/or instructions, including holding arid emergency procedures.

Curriculum: Instruction will be given in the items and maneuvers listed under "Standards" above and in the subjects specified in section 20.42 (a). In addition, the course of instruction should assure student familiarity and con-

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versancy with radio facility charts, radio range charts, and terminal charts.[7]

(d) *Flight instructor school curriculum.* To be acceptable, the required curriculum of at least 25 hours of instructional flying and 40 hours of ground instruction will include the training phases listed below, and a demonstration of student performance to the standards indicated. The flying time curriculum will include at least 25 hours of flying time, of which at least 20 hours shall be set aside exclusively for instruction and practice in the science and techniques of effective flight instruction methods.

The flight instructor school curriculum will have the following objective, standard, and course requirements:

Objective: To impart to the instructor trainee a thorough understanding of the various items and maneuvers—both in theory and in actual performance, and to develop in the instructor-to-be the knowledge, ability, and techniques which will enable him, in turn, to impart and to develop in others the ability, skill, and techniques which are essential to competent piloting.

Standard: Each flight instructor trainee will be expected to demonstrate the knowledge and skill items to the same standards which apply to pilot student graduates of approved commercial flying schools. In addition, the flight instructor trainee will be expected to demonstrate a comparable degree of skill in the execution of the additional training maneuvers specified below under curriculum coverage.[8]

Curriculum: Instruction within the flight training portion of the curriculum will include at least the following items and maneuvers: all items and maneuvers specified in the Commercial Flying School Curriculum; precision spins of 1½ turns, 2 turns, and 3 turns, and other training maneuvers, such as: Lazy 8's chandelles; constant radius turns about a point; 8's around pylons; S-turns across a road; slow flight across airport without wheels touching, etc.

The ground instruction portion of the curriculum will comprise: effective instruction principles and methods, including (i) instructor advance preparation, (ii) student preparation, (iii) instructor demonstration, (iv) student participation, and (v) instructor follow-through checks; safe flying habits and principles, including those relating to extricating oneself from critical situations such as (i) getting lost, (ii) running low on fuel, (iii) encountering turbulent air, (iv) getting caught above clouds or in adverse atmospheric visibility conditions, (v) encountering unexpected radio aid shutdown, (vi) experiencing motor trouble, (vii) instrument failures, and (viii) operations under conditions of high temperature/altitude and/or in mountainous terrain; application of learning process characteristics to flight instruction; analysis and performance of maneuvers; methods by which explanations and directions to students can be made clear, simple, and correct; and recognition and correction of student errors.

50.13–2 *Flying school curriculum—helicopters (CAA policy which applies to 50.13 (b) (2)).* The applicant will submit a proposed curriculum which shall meet at least the minimum flight experience requirements set forth in section 50.13 (b) (2).

50.13–3 *Flying school curriculum—gliders (CAA policy which applies to 50.13 (b) (3)).* The applicant will submit a proposed curriculum which will meet at least the minimum flight experience requirements set forth in section 50.13 (b) (3).

General

50.20–1 *Application (CAA policies which apply to 50.20).* An application for an airman agency certificate and rating may be obtained from the local Aviation Safety District Office, which will also furnish full information concerning the execution of the application, and make arrangements for the precertificating inspection of facilities, equipment, and/or other items pertinent to the certificating or rating of an airman agency.

[7] Recommended sources of information include the Flight Information Manual, CAA Technical Manual No. 102—Pilots' Radio Handbook, and CAA Bulletin No. 24—Practical Air Navigation. See Appendix B on how to obtain.

[8] CAA Technical Manual No. 100 may be utilized as a basis for the correct execution of these additional maneuvers. See Appendix B on how to obtain.

50.22–1 *Duration of certificate (CAA interpretations which apply to 50.22).* An airman agency certificate will expire 24 months from the last day of the month in which issued.

50.23–1 *Renewal of certificate (CAA policies which apply to 50.23).* Application for renewal of the airman agency certificate and rating will be made to the local Aviation Safety District Office on a form furnished by that office. It is the responsibility of the agency to request renewal of its certificate at least 30 days in advance of the expiration date to allow the CAA Aviation Safety District Office sufficient time to arrange for the required renewal inspection.[9]

An agency found eligible for renewal of its certificate, any time within 90 days in advance of the certificate's expiration date, will have its certificate renewed to expire 24 months from the existing expiration date.

50.24–1 *Change in agency ownership (CAA policies which apply to 50.24).* An airman agency certificate expires automatically with a change in ownership of the agency. When the new owner desires certification, he should submit to the local Aviation Safety District Office an application for an airman agency certificate and rating which will be processed as an original application in accordance with section 50.20–1.

50.24–2 *Change of agency name (CAA policies which apply to 50.24).* A change in the name of an airman agency without a change of ownership will not invalidate the airman agency certificate. However, such a change of name should be reported within 15 days by the owner to the local Aviation Safety District Office, and a new airman agency certificate will be issued bearing the old certificate number, the new name, and the ratings formerly held by the agency.

50.25–1 *Voluntary surrender of certificate (CAA policies which apply to 50.25).* The holder of an airman agency certificate may voluntarily surrender such certificate by submitting to the CAA his current, or latest issuance of the air agency certificate, and a letter stating that the certificate is being voluntarily surrendered.

50.25–2 *Involuntary surrender of certificate (CAA policies which apply to 50.25).* In cases of suspension, revocation, expiration, or cancellation of an airman agency certificate, the holder of such certificate will surrender it to an authorized representative of the Administrator upon written request.

50.26–1 *Student flight checks (CAA policies which apply to 50.26).* The holder of an airman agency certificate will, upon request of the local Aviation Safety District Office, submit students for flight proficiency checks which are intended to determine the quality of instruction and compliance with the curriculum. Not less than 10 percent of all approved school students will be flight checked by CAA agents after completion of at least 50 percent of the flight curriculum. The flight test for the pilot certificate appropriate to the curriculum from which the student has graduated may be substituted for the above flight check provided such flight test is conducted by an Aviation Safety Agent. In order to facilitate scheduling of these spot flight checks, the agency will notify the local Aviation Safety District Office of the names of all students whom they expect to graduate. This notice should be submitted in writing at least 15 days in advance of the date on which the graduation certificate is to be issued.

50.26–2 *Student ground instruction checks (CAA policies which apply to 50.26).* A CAA Aviation Safety Agent may, at any reasonable time, question or examine an airman agency student on appropriate subjects or items which are a part of the curriculum in a course in which the student is enrolled and which have, according to the school course schedule and records, been covered. Such check is for the purpose of determining compliance with the curriculum.

50.27–1 *Composition of student examinations (CAA interpretations which apply to 50.27).* The holder of an airman agency certificate must devise and administer written or practical examinations to each student upon completion of each subject covered in the cur-

[9] An agency which has allowed its certificate to expire will be required to make an application, and to meet the same requirements as for original issuance.

riculum. These examinations will be of such coverage and degree of difficulty that a student who has successfully accomplished the school examination may reasonably assume himself to be qualified to achieve success, on his first attempt, in passing required CAA examinations pertinent to the subject, in the rating sought.

50.28–1 *Attendance and accomplishment records (CAA interpretations which apply to 50.28)*. The school must maintain a current record of each student's participation and accomplishments during course enrollment. Upon course completion or graduation, the entire record or file will be certified by an authorized representative of the agency. This student record, or file folder, will be retained for a period of at least one year, and made available for inspection by authorized representatives of the Administrator upon reasonable demand.

50.29–1 *Graduation certificate form and conditions for issuance (CAA policies which apply to 50.29)*. A graduation certificate (see appendix) will be made available upon request from the local Aviation Safety District Office. An approved school will not issue a graduation certificate to a student unless he has successfully completed at least 90 percent of the curriculum required for graduation, as a bona fide enrolled student in an approved school.[10]

50.30–1 *Frequency and extent of inspections (CAA policies which apply to 50.30)*. At varying time intervals CAA representatives will spot check, reinspect, or examine each operation including students, instructors, records, facilities, and equipment. Arrangements for these inspections will be made on a mutually agreeable basis, and every effort will be made to minimize interruptions to normal training schedules.[11]

50.31–1 *Written notice of curriculum changes (CAA policies which apply to 50.31)*. Proposed changes in any approved curriculum will be submitted in writing to the local Aviation Safety District Office. This notification will state specifically which portions of the previously approved curriculum are to be changed, and will specifically set forth the proposed changes.

50.32–1 *Maintenance of certificating qualifications (CAA policies which apply to 50.32)*. Any qualitative or quantitative deviation in the agency personnel, facilities, or equipment, which results in the agency furnishing less than the requirements for original certification, may result in the suspension of the airman agency certificate.

50.34–1 *Notice of change of location (CAA policies which apply to 50.34)*. The intention of an approved airman agency to change location will be reported in advance to the local Aviation Safety District Office, from which forms may be obtained for this purpose. Upon receipt of such notification of intent, the local Aviation Safety District Office will ascertain, within 30 days after transfer, that original certification requirements are met at the new location, prior to approval. If the inspection shows the new facilities to be satisfactory, a new airman agency certificate will be issued showing the previously held number, the new location, ratings issued, and the date of reinspection. If the results of this inspection are not satisfactory, the agency will be notified in writing of the deficiencies found by the Aviation Safety District Office. Immediate action will be taken by the agency to eliminate the deficiencies, or steps will be taken to revoke or suspend the certificate for failure to meet minimum requirements of CAR/CAM 50.

[10] Credit for student attendance and accomplishment may be transferred from one approved school to another approved school. In such a case, the receiving school will determine by student flight check and/or written examination as appropriate, the amount of credit to be transferred, which may not in any case be greater than the amount of attendance and accomplishment credit compiled by the student in the approved school(s) from which he transfers.

[11] As agencies demonstrate ability to graduate competent students on a continuing basis, the frequency and extent of the inspections will be minimized.

Appendix A

Forms to which reference has been made throughout Civil Aeronautics Manual 50 are reproduced on pages 17 to 20, inc.

†FORM ACA-387
(4-17-47)

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

FORM APPROVED
BUDGET BUREAU NO. 41-R067.4

APPLICATION FOR AIRMAN AGENCY CERTIFICATE AND RATING, AND INSPECTION REPORT

APPLICATION IS MADE FOR AN AIRMAN AGENCY CERTIFICATE WITH THE FOLLOWING RATINGS

☐ BASIC GROUND SCHOOL ☐ PRIMARY FLYING SCHOOL ☐ INSTRUMENT FLYING SCHOOL

☐ ADVANCED GROUND SCHOOL ☐ COMMERCIAL FLYING SCHOOL ☐ FLIGHT INSTRUCTOR SCHOOL

I CERTIFY THAT I AM FAMILIAR WITH PART 50 OF THE CIVIL AIR REGULATIONS AND ITS ACCOMPANYING MANUAL 50 AND, TO THE BEST OF MY KNOWLEDGE, BELIEVE THAT MY SCHOOL MEETS THE REQUIREMENTS FOR CERTIFICATION AS PRESCRIBED THEREIN.

(Check applicable item)

☐ THE APPROPRIATE CURRICULUM OUTLINED IN MANUAL 50 WILL BE FOLLOWED

☐ THE CURRICULUM ATTACHED HERETO IN DUPLICATE WILL BE FOLLOWED

NAME OF SCHOOL	ADDRESS OF SCHOOL

DATE _____ SIGNATURE OF APPLICANT _____ TITLE _____

THE FOLLOWING IS FOR THE USE OF CAA PERSONNEL ONLY

INSPECTION REPORT

AIR AGENCY CERTIFICATE NO.

INSTRUCTIONS

The inspector will indicate in appropriate spaces below the results of his inspection of the applicant's facilities. Explain any deficiencies found under Item III, "Remarks".

☐ APPROVED ☐ DISAPPROVED

SIGNATURE OF INSPECTOR

DATE OF INSPECTION

	YES	NO
I-GROUND SCHOOL (NOT APPLICABLE TO PRIMARY AND COMMERCIAL FLYING SCHOOLS)		
A. ARE CLASSROOMS ADEQUATELY HEATED AND LIGHTED AND OF SUITABLE SIZE FOR NUMBER OF STUDENTS ENROLLED?		
B. ARE ADEQUATE TOILET AND WASHROOM FACILITIES PROVIDED?		
C. IS CLASSROOM EQUIPMENT SUFFICIENT FOR INSTRUCTION IN REQUIRED SUBJECTS?		
D. ARE CERTIFICATED GROUND INSTRUCTORS AVAILABLE FOR ALL SUBJECTS FOR WHICH RATINGS ARE PROVIDED IN CIVIL AIR REGULATIONS?		
II-FLYING SCHOOLS		
A. FACILITIES		
1. ARE SUITABLE OFFICE FACILITIES PROVIDED?		
2. IS SUITABLE STUDENT READY ROOM PROVIDED?		
3. ARE ADEQUATE TOILET AND WASHROOM FACILITIES PROVIDED?		
4. IS HANGAR OF SUFFICIENT SIZE TO HOUSE ALL AIRCRAFT USED FOR FLIGHT INSTRUCTION AND TO MEET THE REQUIREMENTS OF MANUAL 50?		
5. ARE SUITABLE SHOP AND MAINTENANCE FACILITIES PROVIDED?		
a. ARE THESE OWNED BY APPLICANT? OR		
b. UNDER SATISFACTORY AND PRACTICAL LEASE TO APPLICANT?		
6. LOCATION OF MAINTENANCE FACILITIES *(Describe)*	XXX	XXX
7. DOES AIRPORT MEET THE MINIMUM REQUIREMENTS OF MANUAL 50 FOR TYPE OF SCHOOL RATING SOUGHT?		
8. ARE ADEQUATE NIGHT FLYING FACILITIES PROVIDED?		
9. WHERE APPLICABLE, GIVE DATE OF STATE APPROVAL FOR COMMERCIAL OPERATION OF THIS FIELD.		

FORM ACA-387 (4-17-47)

II-FLYING SCHOOLS (Continued)	YES	NO
B. FLIGHT EQUIPMENT		
1. ARE AIRCRAFT PROVIDED IN SUFFICIENT NUMBER AND OF A TYPE REQUIRED BY MANUAL 50 FOR THE TYPE OF SCHOOL RATING SOUGHT?		
2. DO THE AIRCRAFT TO BE USED PROVIDE THE NECESSARY EQUIPMENT AND DEVICES REQUIRED BY MANUAL 50 FOR THE TYPE OF SCHOOL RATING SOUGHT?		
3. ARE AIRCRAFT OWNED BY APPLICANT?		
4. IF AIRCRAFT IS LEASED, IS LEASE ARRANGEMENT PRACTICAL AND SATISFACTORY?		
5. ARE SUFFICIENT NUMBER OF PARACHUTES AS REQUIRED BY MANUAL 50 PROVIDED?		
C. PERSONNEL		
1. IF SHOP AND MAINTENANCE FACILITIES ARE OWNED BY APPLICANT, ARE SUFFICIENT CERTIFICATED PERSONNEL AVAILABLE TO MAINTAIN AIRCRAFT?		
a. ARE CERTIFICATED PERSONNEL REGULARLY EMPLOYED? OR		
b. ARE CERTIFICATED PERSONNEL UNDER CONTRACT?		
c. IF CERTIFICATED PERSONNEL ARE UNDER CONTRACT, IS THE ARRANGEMENT PRACTICAL AND SATISFACTORY?		
2. ARE SUFFICIENT NUMBER OF CERTIFICATED FLIGHT INSTRUCTORS REGULARLY AVAILABLE?		
3. NAME AND CERTIFICATE NUMBER OF CHIEF FLIGHT INSTRUCTOR		

NAME	CERTIFICATE NO.

III-REMARKS

23344

Form ACA 391
(Rev. 6-15-41)

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION
WASHINGTON

School Graduation Certificate

This is to certify that _____ (Name)

_____ (Address) was graduated from the

_____ curriculum of the

_____ (School)

_____ (Address) Air Agency Certificate No. _____

on _____ (Date); that he has successfully completed the instruction required by the Civil Air Regulations and is eligible to apply for a _____

Certificate and _____ Rating as issued by the Administrator of Civil Aeronautics.

The record of this graduate is as follows:

Flying time:

Dual _____

Solo _____

Total _____

Final flying grade _____ _____

COURSES SATISFACTORILY COMPLETED	GRADE

I certify that the above statements are true.

_____ (School)

By _____ (Signature)

_____ (Title)

Date issued _____

16—8127-1 U. S. GOVERNMENT PRINTING OFFICE

The United States of America
Department of Commerce
Civil Aeronautics Administration

Air Agency Certificate

Number 3-11-05

This certificate is issued to

DOE FLYING SCHOOL

whose business address is

Municipal Airport
Kansas City, Missouri

upon finding that its organization complies in all respects with the requirements of the Civil Air Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved Airman Agency

with the following ratings:

Primary Flying School
Airplanes
Helicopters
Gliders
Commercial Flying School
Airplanes
Helicopters
Gliders

This certificate, unless canceled, suspended, or revoked, shall continue in effect until April 30, 1954.

Date issued:

April 1, 1954

By direction of the Administrator

Chief, General Safety Branch

This Certificate is not Transferable, AND ANY MAJOR CHANGE IN THE BASIC FACILITIES, OR IN THE LOCATION THEREOF, SHALL BE IMMEDIATELY REPORTED TO THE APPROPRIATE REGIONAL OFFICE OF THE CIVIL AERONAUTICS ADMINISTRATION.

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both

U. S. GOVERNMENT PRINTING OFFICE: 1949—O-818984

Form ACA-390
(12-48)

Appendix B

Reference Material

The publications listed below are basic sources of materials included in the CAA written examinations for private pilot, commercial pilot, instrument, and flight instructor ratings. These bulletins, manuals, and references are subject to revision at any time, and care should be taken to ensure use of current publications. These materials may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Prices listed for source materials are those which were in effect at the time of printing this revision of CAM 50.

In addition to the listed references, many excellent articles, books, bulletins, and manuals are published by the flying branches of the U. S. Military Establishment, various manufacturers, and professional experts.

Aircraft Powerplant Handbook (CAA Technical Manual No. 107)	$1.50
Air Force-Navy-CAA Procedures for the Control of Air Traffic	1.00
Airman's Guide (Individual copies vary in price—subscription of 26 issues per year, including Flight Information Manual)	2.75
Airways Operations Training Series	
Instrument Landing System (Bulletin No. 1)	.20
Location Markers and Homing Facilities (Bulletin No. 2)	.15
Visual-Aural Ranges and Omniranges (Bulletin No. 3)	.20
Distance Measuring Equipment and Offset Course Computer (Bulletin No. 4)	.15
Basic Omnirange Flying	Free
Facts of Flight	.50
Flight Information Manual—Part I	.40
Part II	1.00
Flight Instruction Manual (CAA Technical Manual No. 100)	1.50
Flight Instructor Oral Examination Guide Book	.05
Meteorology for Pilots (CAA Bulletin No. 25)	1.50
Path of Flight	.75
Personal Aircraft Inspection Manual (CAA Technical Manual No. 101)	.55
Questions and Answers for Private Pilots	.25
Realm of Flight	.60
Student Pilot Guide	.15
Terrain Flying (CAA Office of Aviation Information)	.30

CAA AVIATION INFORMATION