CAA Library

CIVIL AERONAUTICS MANUAL 53

U. S. Department of Commerce — Civil Aeronautics Administration

Civil Aeronautics Manuals and supplements thereto are issued by the Office of Aviation Safety, Civil Aeronautics Administration, for the guidance of the public and are published in the Federal Register and the Code of Federal Regulations.

Supplement No. 1 — February 5, 1954

SUBJECT: 53.53 Examinations.

The purpose of this supplement is to set forth the CAA policies regarding methods for determining the credit to be allowed an applicant for work completed in another school.

Remove and destroy the following pages:	Insert in lieu thereof the following pages:
13 through 16.	13 through 16 (Rev. 2/5/54).

Attachment:

Office of Aviation Safety.

A. S. KOCH, *Director.*

MAY 8 1957

(2) Aircraft starters; types, principles, theory, electrical hookup, and operation (motors);

(3) Boosters; types, theory, electrical hookup, and operation;

(4) Generators; types, theory, electrical hookup, maintenance, and troubleshooting;

(5) Selection of wires or cables; sizes, soldering, terminal, and swaging;

(6) Construction and use of continuity test equipment; voltmeters, ammeters, ohmmeters, in the location of troubles in electrical units and circuits. Fuses; installation and precautions to be followed in replacement;

(7) Mockup work representing the entire aircraft electrical system and power source as related to the engine. Installation of equipment on aircraft;

(8) Complete overhaul procedure; starters, generators, and motors;

(9) Installation, adjustment of generator control boxes, boosters, etc.;

(10) Spark plugs; types, theory, maintenance, installation, and troubleshooting;

(11) Battery ignition system; principles and function;

(12) Magneto ignition, high tension, low tension; theory, principles, maintenance, troubleshooting;

(13) Ignition harnesses, plastic, supercharged, standard, shielded, unshielded; theory, troubles, maintenance, testing;

(14) Aircraft batteries; types, capacity, theory, maintenance, charging, and installation;

(15) Use of all types of test equipment necessary to the maintenance, repair, and inspection of all the above types of equipment.

(e) *Lubrication.*

(1) Theory and purpose of lubrication;

(2) Oils and lubricants; types, grades, and properties;

(3) Lubrication systems; dry and wet sump, splash and pressure;

(4) Pumps; types, installation, location, actuation, operation, construction, maintenance, repair, and inspection;

(5) Lines, hose connections, tanks, drains, vents, filters, etc.; their installation, care, and inspection;

(6) Heating and cooling; radiators, lagging, etc. Installation, maintenance, repair, and inspection;

(7) Pressure relief valves; types, location, purpose, adjustment, maintenance, repair, and inspection. Troubleshooting, high and low pressures, engine symptoms due to lubrication problems.

(f) *Propellers.*

(1) Aircraft propeller theory;

(2) Types; wood and metal, fixed, adjustable, controllable, automatic, feathering, etc.;

(3) R. P. M. and hp. ratings, limitations, and use;

(4) Propeller, including hub and blade; identification data, location, etc.;

(5) Maintenance and servicing of propellers;

(6) Alterations and modifications, repairs and inspections as recommended by the propeller manufacturer and in accordance with Civil Air Regulations; the extent of repairs permissible and by whom to be made, including changes in marking;

(7) Theory of local etching and magnetic particle inspection, procedure, purpose and extent used. Records; where recorded and by whom;

(8) Tracking of propellers; purpose and procedure;

(9) Propeller removal and installation and proper fitting; changes in installation to reduce vibration for representative types and models of all popular propellers;

(10) Equipment, tools and instruments necessary to properly adjust, service, and make such repairs as are permissible; the use and care of this equipment. Special emphasis is to be placed on safetying devices, such as lock rings, lock wires, cotter pins, clevis pins, safety wire, etc.;

(11) Maintenance, adjustment, and operation of controllable propellers;

(12) Maintenance, adjustment, and operation of the constant speed governor;

(13) Construction, adjustment, operation, maintenance of the hydromatic propeller;

(14) Construction, adjustment, and operation of electric propellers (theory);

(15) Operation of synchronization systems;

(16) Propeller de-icing and anti-icing systems (theory);

(17) Construction and operation of reverse thrust propellers (theory);

(18) Proper use and care of propeller maintenance, repair and testing equipment.

"53.42 *Instructors.* An applicant shall have that number of instructors holding appropriate mechanic certificates and ratings and such other qualified personnel as the Administrator determines necessary to provide adequate instruction and supervision of the students."

53.42–1 *Instructors (CAA policies which apply to sec. 53.42).* The applicant may use specialized instructors who are not certificated mechanics for giving instruction on subjects such as mathematics, physics, drawing, etc.

Operating Rules

"53.50 *Operating rules; general.* All holders of mechanic school certificates with appropriate ratings shall, in the conduct of the school, comply with the operating rules set forth in sections 53.41 through 53.58.

"53.51 *Quality of instruction.* The quality of instruction shall be such that at least 80 percent of the students who apply within 60 days after graduation for mechanic certificates and ratings appropriate to the curriculum from which they were graduated will be able to qualify for such certificates and ratings.

"53.52 *Hours of attendance.* No student shall be required to attend any class or classes of instruction for more than 8 hours in any day, or more than 6 days or 40 hours in any 7-day period."

53.52–1 *Hours of attendance (CAA interpretations which apply to sec. 53.52).* No student will be required to attend any class or classes of instruction more than 8 hours in any day, and in no case more than 40 hours in any 7-day period, or more than 6 days in any 7-day period. In the event a student be required to attend classes of instruction for more than 5 days of a 7-day period, the total attendance time shall not exceed the 40-hour limit.

"53.53 *Examinations.* Upon completion of each subject included in any approved curriculum each student shall be given an appropriate examination."

53.53–1 *Examinations (CAA interpretations which apply to sec. 53.53).* The examinations given by the approved school are to test the students' knowledge of the subject just completed, and do not constitute the CAA examinations required by Part 24 of the Civil Air Regulations for the issuance of a mechanic certificate.

53.53–2 *Entrance examinations (CAA policies which apply to sec. 53.53).* A certificated mechanic school may apply credit toward the completion of its approved course for work an applicant has satisfactorily completed while a student at another mechanic school, accredited college, State-owned vocational or trade school, or military technical specialty school. The amount of credit to be allowed may be determined by requiring that the applicant pass an entrance examination equivalent to one given their own students at the completion of each course; phase; or by requiring that the applicant furnish a properly authenticated transcript of grades from the former school showing the curriculum in which he was enrolled, and the hours of attendance, as well as the grades for each subject. In lieu of a transcript of grades, the amount of credit to be allowed an applicant with military technical specialty training will be determined by the entrance examination. In any case, the credit given any applicant is to be shown in hours on the student record.

"53.54 *Transcript of grades.* A certificated mechanic school shall furnish a transcript of grades for each graduate and each student leaving the school prior to graduation. The transcript shall be properly authenticated by an official of the school, and it shall state the curriculum and courses in which the student was enrolled, whether the student satisfactorily completed the particular curriculum and courses, and the final grades received in each course.

"53.55 *Graduation certificate.* A certificated mechanic school shall furnish each graduate a graduation certificate properly authenticated by an official of the school. Each graduation certificate shall show the date of graduation."

53.55–1 *Graduation certificate (CAA policies which apply to sec. 53.55).* The grade on the Graduation Certificate, Form ACA–391, should be an average grade, and should reflect the standard of performance of the student during the entire course and not just the grade made on the final examinations given by the school.

"53.56 *Required student records.* A certificated mechanic school shall maintain a current record of each student enrolled, showing the student's attendance, courses in which enrolled, examinations, and grades. These records shall be retained by the school for at least 2 years from the date of termination of enrollment. During such period the records shall be available for inspection by an authorized representative of the Administrator or the Board."

53.56–1 *Required student records (CAA policies which apply to sec. 53.56).*

(a) A certificated mechanic school should also maintain a progress chart or an individual progress record for each student, showing the practical projects or laboratory work completed, or to be completed, by the student in each phase of the approved course. The chart, or record, should be kept current so that at all times a record of the student's progress will be available.

(b) When a certificated mechanic school applies credit toward the completion of its approved course for work satisfactorily completed by a student at another mechanic school, accredited college, State-owned vocational or trade school, or military technical specialty school, the records should contain a properly authenticated transcript of grades from such school, including the curriculum in which the applicant was enrolled, listing each major instructional unit or subject, the hours of attendance, and the grades for each subject.

"53.57 *Maintenance of facilities, equipment, and material.* The holder of a mechanic school certificate shall maintain all facilities, equipment, and material in conformity with the standards required for the original issuance of the certificate.

"53.58 *Reports.* On the 1st day of January and July of each year and at such other times as the Administrator may require, every holder of a mechanic school certificate shall transmit to the Administrator a correct and completely executed report on the form prescribed and furnished by the Administrator. Such reports shall include the following information as to students enrolled in the course or courses approved by the Administrator:

"(a) The names of all students enrolled;

"(b) The course or courses for which they are enrolled;

"(c) The names of the students who have been graduated within the period covered by the report and the course or courses from which graduated;

"(d) The names of all students dropped from enrollment within the period covered by the report and the reasons therefor."

53.58–1 *Reports (CAA rules which apply to sec. 53.58).* On the 1st day of January and July of each year, the holder of a mechanic school certificate shall transmit to the local CAA Aviation Safety District Office a correct and completely executed Mechanic School Report, Form ACA–392.

Appendix

CAA Regional Offices and Areas of Jurisdiction

Region 1, with headquarters office at Jamaica, Long Island, N. Y., is composed of the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Delaware, New Jersey, Pennsylvania, Ohio, Maryland, Virginia, West Virginia, Kentucky, and the District of Columbia.

Region 2, with headquarters office at Fort Worth, Tex., is composed of the States of Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Oklahoma, Louisiana, and Texas, and Puerto Rico, Swan Island, the Virgin Islands, and the Canal Zone.

Region 3, with headquarters office at Kansas City, Mo., is composed of the States of Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

Region 4, with headquarters office at Los Angeles, Calif., is composed of the States of Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, Washington, Oregon, Nevada, and California.

Region 5, with headquarters office at Anchorage, Alaska, consists of the Territory of Alaska, including the Aleutian Islands.

Region 6, with headquarters office at Honolulu, T. H., consists of the areas contained within the Honolulu, Wake, and Guam Flight Information Regions established by ICAO. (Major operations are conducted in the Territory of Hawaii and the islands of Canton, Wake, and Guam.)

(Rev. 2/5/54.)

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

BUDGET BUREAU NO. 41-R070.4
APPROVAL EXPIRES AUGUST 31, 1950

TO BE COMPLETED BY AGENT

SIGNATURE

DATE RECEIVED

MECHANIC SCHOOL REPORT

1. NAME OF SCHOOL: Pence Aviation School

2. ADDRESS: 2299 Fifth Avenue, Pittshurgh, Pennsylvania

3. CERTIFICATE NUMBER: 1010

4. DATE OF CERTIFICATE: 11/6/50

5. TYPE OF TRAINING FOR WHICH SCHOOL IS CERTIFICATED: [X] COMBINED AIRCRAFT AND ENGINE [X] AIRCRAFT [X] ENGINE

ITEM	TOTAL DAY	TOTAL NIGHT
6. TOTAL SCHOOL HOURS IN		
a. COMBINED A & E COURSE	1890	1890
b. AIRCRAFT COURSE	1155	1155
c. ENGINE COURSE	1155	1155
7. HOURS OF TRAINING PER WEEK PER STUDENT, EXCLUSIVE OF REST PERIODS AND LUNCH HOUR	32.5	17.5
8. APPROXIMATE PER CENT OF TOTAL COURSE SPENT IN CLASSROOM OR THEORY IN		
a. COMBINED A & E COURSE	25%	25%
b. AIRCRAFT COURSE	25%	25%
c. ENGINE COURSE	25%	25%
9. INSTRUCTORS		
a. NUMBER OF INSTRUCTORS IN SCHOOL	12	1
b. NUMBER OF INSTRUCTORS THAT HAVE GROUND INSTRUCTORS CERTIFICATES	4	1
c. NUMBER OF INSTRUCTORS THAT HAVE BOTH A & E CERTIFICATES	8	1
d. NUMBER OF INSTRUCTORS THAT HAVE AN AIRCRAFT CERTIFICATE ONLY	0	0
e. NUMBER OF INSTRUCTORS THAT HAVE AN ENGINE CERTIFICATE ONLY	0	0
10. AVERAGE NUMBER OF STUDENTS PER INSTRUCTOR *(Count only those instructors that actually conduct classes daily)*	11	15
11. NUMBER OF STUDENTS IN THE LARGEST CLASS	17	15
12. NUMBER OF STUDENTS CURRENTLY ENROLLED IN THE SCHOOL IN		
a. COMBINED A & E COURSE	21	14
b. AIRCRAFT COURSE	0	0
c. ENGINE COURSE	1	1
13. NUMBER OF STUDENTS DROPPED FROM THE SCHOOL SINCE THE LAST REPORT	6	11
14.*NUMBER OF GRADUATES SINCE LAST REPORT IN		
a. COMBINED A & E COURSE	17	0
b. AIRCRAFT COURSE	0	0
c. ENGINE COURSE	1	1
15. NUMBER OF STUDENTS WHO ARE VETERANS TAKING TRAINING UNDER G.I. BILL	15	15
16. DOES YOUR SCHOOL GIVE A MECHANIC REFRESHER COURSE IN ADDITION TO REGULAR COURSE?	[X] YES	[ ] NO
17. NUMBER OF DESIGNATED MECHANIC EXAMINERS LOCATED AT YOUR SCHOOL	1	
18. IF YOUR SCHOOL GIVES A MAINTENANCE OR AERONAUTICAL ENGINEERING COURSE IN ADDITION TO THE A & E COURSE, GIVE NUMBER OF HOURS FOR THIS COURSE	No	
19. WHEN WAS YOUR CURRICULUM NOW IN USE APPROVED AND SEALED?	11/6/50	

REMARKS OR SUGGESTIONS *(If more space is required, continue on reverse)*

CERTIFICATION - I certify that the above statements and the statements made in any attachment are true.

SIGNATURE Clifford C. Phelps

DATE July 1, 1952

TITLE Director of Training

*Attach a list of graduates, giving their full name, the course in which they graduated and dates of entrance and completion of course.

21609

FORM ACA-392 (8-49)