

Aviation Technology- Maintenance  
Standard Course Outline

AVTA 1053 - AIRFRAME ELECTRICAL

Catalog Description: Theory and applications of generators, alternators, motors, wiring and electrical troubleshooting. Clock hours: 30 lecture, 66 shop

Prerequisite: AVTG 1001

Credit hours/ Contact hours/ Load hours: 3/96/16 six hour days

Target Audience & Transferability:

This course is designed for students seeking a Technical Certificate in Airframe or, when combined with General and Powerplant, an AAS in Aviation Maintenance Technology, or an AS in Aviation Maintenance Management. Individual AVT courses or Certificates may be transferable to other FAA Certified Aviation Maintenance Technician schools under Federal Regulations.

Student Outcomes/ Topics:

REFERENCES: AC 65-9A, AC 65-15A; AMT-A; JSAT; JSGT; AEE.  
FAA Standard: *FAA-S-8081-27* 3-7, Change 2 (9/24/03)

**Upon completion of the course, the student:**

1. Exhibits knowledge of at least two of the following—
  - a. factors to consider when selecting wire size for an aircraft circuit.
  - b. routing and/or installation of electric wire or wire bundles.
  - c. wire splicing.
  - d. use of derating factors in switch selection.
  - e. requirements for circuit protection devices.
  - f. voltage regulator—purpose and operating characteristics.
  - g. lighting and/or lighting system components.
  - h. electric motor operation and/or motor components.
  - i. constant speed drive (CSD) and/or integrated drive generator (IDG) systems and/or system components.
  - j. airframe electrical system components.
  - k. wiring defects and/or inspection.
2. \*Demonstrates the ability to:
  - a. Troubleshoot an electrical system or portion thereof, using appropriate tools and/or test equipment. (Level 3)\*Core competency element.
3. Demonstrates the ability to perform at least one of the following—
  - a. select a circuit switch or circuit protection device for a specific aircraft and application. (Level 2)
  - b. install a circuit switch or circuit protection device. (Level 3)
  - c. select materials and tools and accomplish a wire splice. (Level 3)

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Standard Course Outline

- d. adjust one or more voltage regulators. (Level 3)
- e. select and install one or more wires and pins and/or sockets in a connector. (Level 3)
- f. select materials and fabricate a bonding wire. (Level 3)
- g. install a bonding wire and accomplish a resistance check. (Level 3)
- h. check the operation of one or more airframe electrical system circuits and/or system components. (Level 3)
- i. inspect and check a landing light. (Level 3)
- j. inspect and check anti-collision and position lights. (Level 3)
- k. inspect generator brushes and determine serviceability. (Level 3)

Required Text(s):

Airframe Structures Textbook (ASA)	ISBN # 1-56027-339-9
Airframe Systems Textbook (ASA)	ISBN # 1-56027-340-2
Airframe Test Study Guide (ASA)	ISBN # 1-56027-571-5
FAR Handbook for AMT (ASA)	ISBN # 1-56027-563-4
AC43.13-1B Acceptable Methods, Practices, & Techniques (ASA)	ISBN # 1-56027-488-3

Optional Text(s):

Technician Airframe Textbook (Jeppesen)	ISBN # 0-89100-395-9
Technician Airframe Workbook (Jeppesen)	ISBN # 0-89100-402-5
AC65-15A Aircraft Mechanics Handbook Airframe (FAA)	ISBN # 1-56027-023-3

Supporting Reference(s)

O&P Study Guide (ASA)	ISBN # 1-56027-406-9
Maintenance Handbook (ASA)	ISBN # 1-56027-518-9
Dictionary of Aeronautical Terms (ASA)	ISBN # 1-56027-587-2

The workbooks and test study guides may be used to aid the instructor and students to reinforce the textbook information. Other Textbooks may be used depending upon availability.

Required Methods of Instruction:

Classes are taught in a full time day or night format, requiring maximum attendance. Attendance is taken every hour. Missed time must be made up outside of regular scheduled class time before moving to the next subject.

Required Forms of Assessment:

Periodic exams will be performed by FAA approved instructors as required to insure progress. Students must pass this course with a 70% or better to qualify for an FAA approved Certificate of Completion in the Aviation Section.