

Aviation Technology- Maintenance  
Standard Course Outline

AVTP 1072 - IGNITION AND STARTING SYSTEMS

Catalog Description: Study of reciprocating engine and turbine engine ignition systems, igniters, spark plugs, magnetos, wiring harnesses, booster coils, and vibrator coils. Students disassemble and assemble magnetos, rebuild harnesses and time magnetos to engines. Students will also check armatures using a growler, generators, alternators, and engine wiring.

Clock hours: 21 lecture, 21 shop

Prerequisite: AVTG 1001

Credit hours/ Contact hours/ Load hours: 2/42/6 hours per day for 7 days

Target Audience & Transferability:

This course is designed for students seeking a Technical Certificate in Powerplant or, when combined with General and Airframe, 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.

Course Topics/ Student Outcomes:

REFERENCES: AP.

FAA Standard: *FAA-S-8081-28 5-5, Change 2 (9/24/2003)*

**By the end of the course, students will:**

1. Exhibit knowledge of at least two of the following—
  - a. troubleshooting a reciprocating and/or turbine engine ignition system.
  - b. replacement of an exciter box and safety concerns if the box is damaged.
  - c. troubleshooting a starter system.
  - d. checking a starter system for proper operation.
  - e. the operation of a pneumatic starting system.
  - f. reasons for the starter dropout function of a starter generator or pneumatic starter.
  - g. the purpose of a shear section in a starter output shaft.
  - h. purpose of checking a p-lead for proper ground.
  - i. inspection and servicing of an igniter and/or spark plug.
  - j. magneto systems, components, and operation.
  - k. function/operation of a magneto switch and p-lead circuit.
  - l. high and low tension ignition systems.
  
2. \*Demonstrate the ability to: Perform at least one of the following (Level 3)—
  - a. check engine timing.
  - b. check a magneto switch for proper operation.
  - c. inspect a turbine engine ignition system for proper installation.
  - d. inspect a starter/generator for proper installation.
  - e. inspect magneto points.\*Core competency element
  
3. Demonstrate the ability to perform at least one of the following—
  - a. install a magneto, and set timing on an aircraft engine. (Level 3)
  - b. repair an engine ignition and/or starter system. (Level 3)

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- c. remove, inspect, and install turbine engine igniter plugs, and perform a functional check of the igniter system. (Level 3)
- d. inspect generator or starter-generator brushes. (Level 3)
- e. install brushes in a starter or starter-generator. (Level 3)
- f. install breaker points in a magneto and internally time the magneto. (Level 3)
- g. repair an engine direct drive electric starter. (Level 3)
- h. inspect and test an ignition harness with a high tension lead tester. (Level 3)
- i. inspect and/or service and install aircraft spark plugs. (Level 3)
- j. bench test an ignition system component. (Level 2)

Required Text(s):

Powerplant Textbook (ASA)	ISBN # 1-56027-547-2
Powerplant Test Study Guide (ASA)	ISBN # 1-56027-572-3
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 Powerplant Textbook (Jeppesen)	ISBN # 0-88487-207-6
Technician Powerplant Workbook (Jeppesen)	ISBN # 0-88487-243-2
AC65-12A Aircraft Mechanics Handbook Powerplant (FAA)	ISBN # 1-56027-024-1

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 issued depending upon availability.

Required Methods of Instruction:

Classes are taught off-campus 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 Power-plant Section.