Aviation Technology- Maintenance
Standard Course Outline

AVTP 1097 - RECIPROCATING ENGINES

Catalog Description: Theory and operation of reciprocating (piston) engines.
Clock hours: 64 lecture and 134 shop

Prerequisite: AVTG 1001

Credit hours/ Contact hours/ Load hours: 7/198/6 hours per day for 33 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: AC 65-12A; JSPT.
FAA Standard: *FAA-S-8081-28* 4-1, Change 2 (9/24/2003)

By the end for the course, students will:

1. Exhibit knowledge of at least two of the following—
    a. reciprocating engine theory of operation.
    b. basic radial engine design, components, and/or operation.
    c. firing order of a reciprocating engine.
    d. probable cause and removal of a hydraulic lock.
    e. valve adjustment on a radial engine.
    f. purpose of master and/or articulating rods.
    g. checks necessary to verify proper operation of a reciprocating engine.
    h. induction system leak indications.
    i. reciprocating engine maintenance procedures.
    j. procedures for inspecting various engine components during an overhaul.
    k. correct installation of piston rings and results of incorrectly installed or worn rings.
    l. purpose/function/operation of various reciprocating engine components, including, but not limited to, any of the following: crankshaft dynamic dampers, multiple springs for valves, piston rings, and reduction gearing.

2. N/A

3. Demonstrate the ability to perform at least one of the following—
    a. measure the valve clearance on a reciprocating aircraft engine when the lifters are deflated. (Level 2)
    b. accomplish a compression test, and note all findings. (Level 3)
    c. inspect engine control cables and/ or push-pull tubes for proper rigging. (Level 3)
    d. inspect ring gap, install piston rings on a piston, and install an aircraft engine cylinder. (Level 3)
    e. dimensionally inspect an aircraft engine component. (Level 3)
    f. replace/install one or more aircraft engine components. (Level 3)

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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.