Aviation Technology- Maintenance
Standard Course Outline

AVTP 1032 - INDUCTION AND ENGINE AIRFLOW SYSTEMS ENGINE EXHAUST AND REVERSER SYSTEMS

Catalog Description: Engine ice and rain control, baffles, carburetor heat, heat exchangers, superchargers and turbochargers, intake, exhaust and reverser systems, cooling systems, and starters.
Clock hours: 21 lecture and 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:

ENGINE EXHAUST AND REVERSER SYSTEMS

REFERENCES: AC 43.13-1B, AC 65-12A; AGTP.
FAA Standard: *FAA-S-8081-28* 5-10, Change 2 (9/24/2003)

By the end of the course, students will:

1. Exhibit knowledge of at least two of the following—
    a. exhaust leak indications and/or methods of detection.
    b. thrust reverser system operation and components.
    c. differences between a cascade and a mechanical blockage door thrust reverser.
    d. hazards of exhaust system failure.
    e. effects of using improper materials to mark on exhaust system components.
    f. function and operation of various exhaust system components.

2. *Demonstrate the ability to:
    a. Perform inspection of engine exhaust system and/or turbocharger system. (Level 3)

    *Core competency element

3. Demonstrate the ability to perform at least one of the following—
    a. determine if components of an exhaust system are serviceable. (Level 2)
    b. show the procedures to accomplish a pressurization check of an exhaust system. (Level 2)
    c. repair one or more exhaust system components. (Level 3)
    d. check engine exhaust system for proper operation. (Level 3)
    e. replace one or more exhaust gaskets. (Level 3)
    f. install an engine exhaust system. (Level 3)
    g. check a turbocharger and waste gate system for proper operation. (Level 3)
    h. troubleshoot and/or repair a turbine engine thrust reverser system and/or system component(s). (Level 3)

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INDUCTION AND ENGINE AIRFLOW SYSTEMS
REFERENCES: JSPT; AP.
FAA Standard: *FAA-S-8081-28* 5-8, Change 2 (9/24/2003)

By the end of the course, students will:

1. Exhibit knowledge of at least two of the following—
    a. inspection procedures for engine ice control systems and/or carburetor air intake and induction manifolds.
    b. operation of an alternate air valve, both automatic and manual heat systems.
    c. troubleshooting ice control systems.
    d. explain how a carburetor heat system operates and the procedure to verify proper operation.
    e. effect(s) on an aircraft engine if the carburetor heat control is improperly adjusted.
    f. causes and effects of induction system ice.
    g. function and operation of one or more types of supercharging systems and components.

2. *Demonstrate the ability to perform inspection of engine induction or airflow system to include at least one of the following (Level 3)—
    a. engine ice control system.
    b. induction manifolds.

    *Core competency element

3. Demonstrate the ability to perform at least one of the following—
    a. repair a defective condition in a carburetor heat box. (Level 3)
    b. check proper operation of an engine anti-ice system. (Level 3)
    c. rig a carburetor heat box. (Level 3)
    d. inspect an induction system. (Level 3)
    e. replace an induction system manifold gasket and/or induction tube. (Level 3)
    f. service an induction system air filter. (Level 3)
    g. trouble shoot an engine malfunction resulting from a defective induction or supercharging system. (Level 3)

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

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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.