

Aviation Technology- Maintenance  
Standard Course Outline

AVTA 1071 - AIRCRAFT INSTRUMENTS SYSTEMS POSITION AND WARNING

Catalog Description: Basic aircraft instruments theory, operation, installation and troubleshooting. Clock hours: 14 lecture, 10 shop

Prerequisite: AVTG 1001

Credit hours/ Contact hours/ Load hours: 1/24/ meets four 6-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:

**AIRCRAFT INSTRUMENT SYSTEMS REFERENCES:** AC 65-15A; AMT-A; JSAT.  
FAA Standard: *FAA-S-8081-27* 3-4, Changes 2 (9/24/03) & 3 (6/21/04)

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

1. Exhibits knowledge of at least two of the following—
  - a. magnetic compass operation.
  - b. magnetic compass swinging procedures.
  - c. gyroscopic instrument(s) purpose and operation.
  - d. vacuum/pressure and/or electrically operated instrument system operation.
  - e. vacuum/pressure and/or electricity operated instrument system maintenance procedures.
  - f. pitot and/or static instruments purpose and operation.
  - g. pitot and/or static system operation.
  - h. 14 CFR parts 43 and/or 91 requirements for static system checks.
  - i. aircraft instrument range markings.
2. N/A
3. Demonstrates the ability to perform at least one of the following—
  - a. remove and install an aircraft instrument. (Level 3)
  - b. accomplish a magnetic compass swing. (Level 3)
  - c. determine range/limit markings for one or more instruments. (Level 2)
  - d. remove, inspect, and install one or more vacuum or pressure system filters. (Level 3)
  - e. determine the proper setting of a vacuum and/or pressure system for a particular aircraft. (Level 2)
  - f. inspect and/or troubleshoot portions of a vacuum and/or pressure and/or electrically operated instrument power system. (Level 3)
  - g. inspect portions of a pitot-static system. (Level 3)

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- h. find barometric pressure using an altimeter. (Level 2)

**POSITION AND WARNING SYSTEM REFERENCES:** AC 65-15A; AMT-A; JSAT.  
FAA Standard: *FAA-S-8081-27* 3-8, Change 2 (9/24/03)

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

1. Exhibits knowledge of at least two of the following—
  - a. anti-skid system basic components.
  - b. anti-skid system operating characteristics.
  - c. takeoff warning system basic components.
  - d. takeoff warning system function and operation.
  - e. control-surface trim indicating system basic components and/or operating characteristics.
  - f. landing gear position indicators.
  - g. flap position indicators.
  - h. landing gear warning system basic components and/or operating characteristics.
  - i. checking and/or repairing a landing gear warning system.
  - j. types of stall warning/lift detector systems and/or operating characteristics.
  - k. common annunciator system indications.
  - l. mach warning system indicator(s) and/or operating characteristics.
  
2. N/A
  
3. Demonstrates the ability to perform at least one of the following—
  - a. inspect and/or adjust a landing gear position switch. (Level 3)
  - b. accomplish an operational check of a landing gear position indicating and/or warning system. (Level 3)
  - c. inspect and/or adjust a flap position indicating system. (Level 3)
  - d. check the operation of a flap position indicating and/or warning system. (Level 3)
  - e. troubleshoot a landing gear warning system. (Level 3)
  - f. check the operation of an annunciator system. (Level 3)
  - g. check the operation of an anti-skid warning system. (Level 3)
  - h. identify landing gear position/warning system components. (Level 2)
  - i. locate troubleshooting procedures for an anti-skid system. (Level 1)
  - j. locate troubleshooting procedures for a landing gear warning system. (Level 1)

Required Text(s):

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|--|----------------------|
| 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):

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| Technician Airframe Textbook (Jeppesen) | ISBN # 0-89100-395-9 |
| Technician Airframe Workbook (Jeppesen) | ISBN # 0-89100-402-5 |

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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 General Section.