Aviation Maintenance Technology NYS

**PURPOSE**
To evaluate each contestant’s preparation for employment and to recognize outstanding students for excellence and professionalism in the field of aviation maintenance technology.

**ELIGIBILITY**
Open to active SkillsUSA members enrolled in programs with aviation maintenance technology as the occupational objective.

**CLOTHING REQUIREMENT**
Contest Specific – Mechanic
- White crew neck short- sleeved T-shirt
- Work pants or jeans,
- Leather or steel toed work shoes.
- Hair must be contained.
- Safety glasses with side shields or goggles, (Prescription glasses can be used only if they are equipped with side shields approved by OSHA(Z-87). If not, they must be covered with goggles.)

*Note:* Contestants must wear their official contest clothing to the contest orientation meeting. Also bring #2 pencil, resume and safety assurance form.

**EQUIPMENT AND MATERIALS**
1. Supplied by the technical committee:
   a. All necessary tools and equipment for the contest
   b. All necessary information and furnishings for judges and technical committees
2. Supplied by the contestant:
   a. Calculator (nonprogrammable)
   b. All competitors must create a one-page résumé and submit a hard copy to the technical committee chair at orientation. Failure to do so will result in a 10-point penalty.

*Note:* Your resume may be judged as part of your contest. Check the Contest Guidelines and/or the updates page on the NYS SkillsUSA Web site: [http://www.nysskillsusa.org](http://www.nysskillsusa.org)

   c. Ear plugs
   d. Safety glasses

**SCOPE OF THE CONTEST**
The contest will be consistent with the airframe and powerplant mechanics certification guide published by the Department of Transportation Federal Aviation Administration Advisory Circular EA-AC 65-2D [Amdt. 147–2, 35 FR 5535, April 3, 1970, as amended by Amdt. 147–5, 57 FR 28960, June 29, 1992] and Sec. 6(c), Dept. of Transportation Act; 49 U.S.C. 1655(c) [Amdt. 147–2, 35 FR 5535, April 3, 1970, as amended by Amdt. 147–5, 57 FR 28961, June 29, 1992].

The high-school contest will cover the competencies classified as general aviation by the FAA.

**Knowledge Performance**
The contest will include a written knowledge test assessing general knowledge of aviation maintenance technology. Definitions, knowledge, processes and procedures relevant to aviation maintenance technology will be assessed.

**Skill Performance**
The contest will include a series of operations. A total of eight to 15 operations will be assigned; each operation must be broken down
into specific criteria and points assigned based on the difficulty of the task.

**Contest Guidelines**
1. Tasks assigned to a contestant will not have a set time limit or sequence.
2. The following shop safety rules will be followed:
   a. Safety glasses must be used
   b. No loose clothing is permitted
   c. Long hair must be tied behind the head and netted or worn under a cap
   d. No jewelry will be allowed

**Standards and Competencies**  
*(High School Contest)*

**AMT 1.0 — Apply knowledge of basic aviation electricity to FAA general aviation competencies**
1.1 Calculate and measure capacitance and inductance
1.2 Calculate and measure electrical power
1.3 Measure voltage, current, resistance and continuity
1.4 Determine the relationship of voltage, current and resistance in electrical circuits
1.5 Read and interpret aircraft electrical circuit diagrams including solid state devices and logic functions
1.6 Inspect and service batteries

**AMT 2.0 — Interpret aircraft drawings to FAA general aviation competencies**
2.1 Use aircraft drawings, symbols and system schematics
2.2 Draw sketches of repairs and alterations
2.3 Use blueprint information
2.4 Use graphs and charts

**AMT 3.0 — Use weight and balance knowledge to FAA general aviation competencies**
3.1 Weigh aircraft
3.2 Perform complete weight-and-balance check and record data

**AMT 4.0 — Demonstrate the ability to install fluid lines/fittings to FAA general aviation competencies**
4.1 Fabricate and install rigid and flexible fluid lines and fittings

**AMT 5.0 — Demonstrate a knowledge of materials and processes to FAA general aviation competencies**
5.1 Identify and select appropriate nondestructive testing methods
5.2 Perform dye penetrant, eddy current, ultrasonic and magnetic particle inspections
5.3 Perform basic heat-treating processes
5.4 Identify and select aircraft hardware and materials
5.5 Inspect and check welds
5.6 Perform precision measurements

**AMT 6.0 — Demonstrate knowledge of ground operation and servicing to FAA general aviation competencies**
6.1 Start, ground operate, move, service and secure aircraft and identify typical ground operation hazards
6.2 Identify and select fuels

**AMT 7.0 — Demonstrate knowledge of cleaning and corrosion control to FAA general aviation competencies**
7.1 Identify and select cleaning materials
7.2 Inspect, identify, remove and treat aircraft corrosion and perform aircraft cleaning

**AMT 8.0 — Demonstrate knowledge of mathematics to FAA general aviation competencies**
8.1 Extract roots and raise numbers to a given power
8.2 Determine areas and volumes of various geometrical shapes
8.3 Solve ratio, proportion and percentage problem
8.4 Perform algebraic operations involving addition, subtraction, multiplication and division of positive and negative numbers

**AMT 9.0 — Use maintenance forms and records to FAA general aviation competencies**
9.1 Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records
9.2 Complete required maintenance forms, records and inspection reports
AMT 10.0 — Recall knowledge of basic physics to FAA general aviation competencies
10.1 Use and understand the principles of simple machines; sound, fluid and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight

AMT 11.0 — Use maintenance publications to FAA general aviation competencies
11.1 Demonstrate ability to read, comprehend and apply information contained in FAA and manufacturers’ aircraft maintenance specifications, data sheets, manuals, publications and related federal guidelines
11.2 Use aviation regulations, airworthiness directives, and advisory material
11.3 Read technical data

AMT 12.0 — Explain mechanic privileges and limitations to FAA general aviation competencies
12.1 Exercise mechanic privileges within the limitations prescribed by Part 65 of this chapter

AMT 13.0 — Demonstrate knowledge of job-related safety requirements to FAA general aviation competencies
13.1 Demonstrate proper application of job site and shop rules and regulations (OSHA)
13.2 Demonstrate correct selection and use of electrical and hand tools
13.3 Demonstrate proper techniques and practices for working on and around live equipment

Standards and Competencies: Airframe Structures, Systems and Components (College/Postsecondary Contest)

AMT 1.0 — Maintain wood structures to FAA power plant and airframe competencies
1.1 Service and repair wood structures
1.2 Identify wood defects
1.3 Inspect wood structures

AMT 2.0 — Maintain aircraft covering to FAA power plant and airframe competencies
2.1 Select and apply fabric and fiberglass covering materials
2.2 Inspect, test and repair fabric and fiberglass

AMT 3.0 — Maintain aircraft finishes to FAA power plant and airframe competencies
3.1 Apply trim, letters and touchup paint
3.2 Identify and select aircraft finishing materials
3.3 Apply finishing materials
3.4 Inspect finishes and identify defects

AMT 4.0 — Maintain sheet metal and nonmetallic structures to FAA power plant and airframe competencies
4.1 Select, install and remove special fasteners for metallic, bonded and composite structures
4.2 Inspect bonded structures
4.3 Inspect, test and repair fiberglass, plastics, honeycomb, composite and laminated primary and secondary structures
4.4 Inspect, check, service and repair windows, doors and interior furnishings
4.5 Inspect and repair sheet-metal structures
4.6 Install conventional rivets
4.7 Form, lay out and bend sheet metal

AMT 5.0 — Demonstrate ability in aviation welding to FAA power plant and airframe competencies
5.1 Weld magnesium and titanium
5.2 Solder stainless steel
5.3 Fabricate tubular structures
5.4 Solder, braze, gas-weld and arc-weld steel
5.5 Weld aluminum and stainless steel

AMT 6.0 — Demonstrate knowledge of assembly and rigging to FAA power plant and airframe competencies
6.1 Rig rotary-wing aircraft
6.2 Rig fixed-wing aircraft
6.3 Check alignment of structures
6.4 Assemble aircraft components, including flight control surfaces
6.5 Balance, rig and inspect movable primary and secondary flight control surfaces
6.6 Jack aircraft
AMT 7.0 — Apply knowledge of airframe inspection to FAA power plant and airframe competencies
7.1 Perform airframe conformity and airworthiness inspections

AMT 8.0 — Apply knowledge of aircraft landing gear systems to FAA power plant and airframe competencies
8.1 Inspect, check, service and repair landing gear, retraction systems, shock struts, brakes, wheels, tires and steering systems

AMT 9.0 — Apply knowledge of hydraulic and pneumatic power systems to FAA power plant and airframe competencies
9.1 Repair hydraulic and pneumatic power systems components
9.2 Identify and select hydraulic fluids
9.3 Inspect, check, service, troubleshoot and repair hydraulic and pneumatic power systems

AMT 10.0 — Ability to apply knowledge of cabin atmosphere control systems to FAA power plant and airframe competencies
10.1 Inspect, check, troubleshoot, service and repair heating, cooling, air conditioning and pressurization systems and air cycle machines
10.2 Inspect, check, troubleshoot, service and repair heating, cooling, air conditioning and pressurization systems
10.3 Inspect, check, troubleshoot, service and repair oxygen systems

AMT 11.0 — Apply knowledge of aircraft instrument systems to FAA power plant and airframe competencies
11.1 Inspect, check, service, troubleshoot and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, temperature, pressure and position indicating systems to include the use of built-in test equipment
11.2 Install instruments and perform a static pressure system leak test

AMT 12.0 — Apply knowledge of communication and navigation systems to FAA power plant and airframe competencies
12.1 Inspect, check and troubleshoot autopilot, service and approach coupling systems
12.2 Inspect, check and service aircraft electronic communication and navigation systems, including VHF passenger address interphones and static discharge devices, aircraft VOR, ILS, LORAN, radar beacon transponders, flight management computers, and GPWS
12.3 Inspect and repair antenna and electronic equipment installations

AMT 13.0 — Apply knowledge of aircraft fuel systems to FAA power plant and airframe competencies
13.1 Check and service fuel dump systems
13.2 Perform fuel management transfer and defueling
13.3 Inspect, check and repair pressure fueling systems
13.4 Repair aircraft fuel system components
13.5 Inspect and repair fluid quantity indicating systems
13.6 Troubleshoot, service and repair fluid pressure and temperature warning systems
13.7 Inspect, check, service, troubleshoot and repair aircraft fuel systems

AMT 14.0 — Apply knowledge of aircraft electrical systems to FAA power plant and airframe competencies
14.1 Repair and inspect aircraft electrical system components; crimp and splice wiring to manufacturers’ specifications; and repair pins and sockets of aircraft connectors
14.2 Install, check and service airframe electrical wiring, controls, switches, indicators and protective devices
14.3 Inspect, check, troubleshoot, service and repair alternating and direct current electrical systems
14.4 Inspect, check and troubleshoot constant speed and integrated speed drive generators

AMT 15.0 — Apply knowledge of position and warning systems to FAA power plant and airframe competencies
15.1 Inspect, check and service speed and configuration warning systems, electrical brake controls and anti-skid systems
15.2 Inspect, check, troubleshoot and service landing gear position indicating and warning systems

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AMT 16.0 — Apply knowledge of ice and rain control systems to FAA power plant and airframe competencies
16.1 Inspect, check, troubleshoot, service and repair airframe ice and rain control systems

AMT 17.0 — Apply knowledge of fire protection systems to FAA power plant and airframe competencies
17.1 Inspect, check and service smoke and carbon monoxide detection systems
17.2 Inspect, check, service, troubleshoot and repair aircraft fire detection and extinguishing systems

AMT 18.0 — Demonstrate knowledge of job-related safety requirements to FAA power plant and airframe competencies
18.1 Demonstrate proper application of job site and shop rules and regulations (OSHA)
18.2 Demonstrate correct selection and use of electrical and hand tools
18.3 Demonstrate proper techniques and practices for working on and around live equipment