MOTORCYCLE SERVICE TECHNOLOGY (VIRTUAL)

PURPOSE
To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of motorcycle service technology.

First, download and review the General Regulations at: http://updates.skillsusa.org.

CLOTHING REQUIREMENTS
Class D: Contest Specific — Blue Attire
- Official SkillsUSA light blue work shirt.
- Navy pants.
- Black, brown or tan leather work safety shoes (with protective toe cap).

Contest Clothing Notes (Apply ONLY to Virtual Competitions):
- Official SkillsUSA Competition Clothing recommended but NOT required.
- Contestant clothing options include the following:
  - Official Competition Clothing.
  - Trade Appropriate Clothing.
  - Professional Dress.
  - Business Casual.
- Clothing must meet industry safety standards.
- No identification of the contestant, school or state is allowed on clothing.
- No offensive, vulgar or inappropriate images or text are allowed on contestants' clothing.
- No shorts or sleeveless shirts are allowed.
- Skirts must be at least knee-length.
- Proper Personal Protective Equipment (PPE) must be worn by contestant to meet all state, local and school requirements due to COVID-19.
- Scoring deductions may only be given and/or disqualification of contestant if clothing safety standards are not met.

These regulations refer to clothing items that are pictured and described at: www.skillsusastore.org. If you have questions about clothing or other logo items, call 1-888-501-2183.

ELIGIBILITY
Open to active SkillsUSA members enrolled in career and technical programs that include motorcycle service technology as an occupational objective.

EQUIPMENT AND MATERIALS
Supplied by the contestant:
1. Computer with high-speed internet capability and camera to use applications such as Zoom, Teams, etc. The minimum recommended internet bandwidth speeds for joining Zoom meetings, accessing on-demand curriculum and other online operations is 2.0 Mbps up and down. You can test your current internet speeds by following this link: www.speedtest.net. Allow the page to load and click on GO.
2. A secondary camera(s) may be required to provide judges with the ability to view contestants from different angles. Additional camera requirements will be located on the SkillsUSA website at http://updates.skillsusa.org.
3. A contest Proctor will be required to be on site to assist judges. A local industry expert is preferred to serve as the Proctor and shall not be an individual who has been involved with the training of the contestant(s). The Proctor will serve as the onsite "hands and eyes" for the judges. Proctor will follow instructions from the judges for safety and operations related to the competition. Proctor may be asked by judges to perform several tasks such as operating a portable camera to show specific components or steps, measure parts, or any task that will provide judges with information needed to assist in accurate scoring of the contestant's work or presentation. However, the Proctor shall not serve as a judge nor have any influence on contestant scores.
4. The contestant's instructor or advisor shall be on site to observe all competition activities to ensure a safe and healthy competition experience for all participants.

That instructor or advisor will not be allowed to interact or interfere with the competitor unless a safety issue arises that requires interaction. Any other support or interaction between the contestant and the instructor/advisor will result in disqualification.

5. All competitors must create a one-page résumé and submit an electronic copy to the technical committee chair at least seven (7) days in advance of the competition. Failure to do so will result in a 10-point penalty. Instructions for submission of the electronic résumé copy will be provided on the SkillsUSA website at http://updates.skillsusa.org.
6. All necessary tools, equipment, supplies and publications for the contest

Note: Check the Contest Guidelines and/or the updates page on the SkillsUSA website at http://updates.skillsusa.org.

SCOPE OF THE CONTEST

The scope of the contest is defined by industry standards as set by the current industry technical standards. The contest is divided into two parts: a written exam and series of skill-related tests designed to assess skills selected from the following lists of competencies as determined by the SkillsUSA Championships technical committee.

Knowledge Performance

The contest will include a written knowledge exam assessing knowledge of industry standards and competencies as identified by the technical committee.

Skill Performance

The contest will include a series of tests designed to assess skills identified by industry standards in the areas of accuracy, proper use of tools and equipment and safety practices.

Contest Guidelines

1. Contestants will be tested on a variety of motorcycles, ATVs and scooters commonly found in the United States using both metric and American threads/wrenches.
2. Contestants will be judged on accuracy, proper use of tools and equipment and safety practices. Rating sheets will reflect each specific skill requirement as determined by the national technical committee.

Standards and Competencies

Note for Virtual Competitions: Contestants may not be required to perform all the standards and competencies listed in this section. However, contestants should be prepared to perform components in all areas. Prior to the competition, the technical committee may determine which standards and competencies contestants will be perform for the virtual contests. The technical committee will determine if additional information is needed for contestants prior to the competition. These changes will be posted on the SkillsUSA Championships contest update website at: http://updates.skillsusa.org.

MST 1.0 — Implement skills and apply knowledge needed to perform general shop procedures

- 1.1 Use the parts manual to identify part numbers of specified parts
- 1.2 Apply the knowledge needed to use and read service manuals to find specifications and procedures
- 1.3 Apply the knowledge to use proper techniques in the care and use of equipment
- 1.4 Demonstrate proper safety procedures
- 1.5 Fill out repair orders

MST 2.0 — Apply the knowledge and skills needed to test the performance of engine/drive train condition in a motorcycle service situation

- 2.1 Determine engine condition by performing a cylinder leak down and compression test
- 2.2 Use dial bore gauges, micrometer and feeler gauges to determine the condition of cylinders, pistons, rings and other engine parts
- 2.3 Remove, measure and reinstall clutch components
- 2.4 Adjust valve clearance of screw-type and shim- (pad) type valves
- 2.5 Diagnose, service and repair chain and sprocket and/or shaft-driven and/or belt type final drive systems

2.6 Identify and inspect transmission components

MST 3.0 — Implement the skills and knowledge needed to run a carburetion and fuel injection inspection in a motorcycle service situation

3.1 Remove and disassemble carburetor, adjust the float, identify components and reassemble and reinstall carburetor
3.2 Remove and disassemble intake runner, identify components, reassemble and reinstall
3.3 Inspect, service and reinstall an oil-foam air filter
3.4 Synchronize carburetors
3.5 Reflash ECM/BCM

MST 4.0 — Apply the knowledge needed and the skills required to inspect, repair and service wheels in a motorcycle service situation

4.1 Inspect, repair and service tubeless tires (street and ATV type)
4.2 Inspect, repair and service tube tires
4.3 Diagnose, service and repair disc and drum brake systems
4.4 Measure radial and lateral run out of a rim using a dial indicator true spoke wheel
4.5 Static balance the wheel

MST 5.0 — Demonstrate the skills needed to perform a routine inspection and maintenance check in a motorcycle service situation

5.1 Inspect, service and replace cables
5.2 Inspect, service and reinstall crankcase breather
5.3 Inspect fluid levels
5.4 Adjust ignition timing
5.5 Adjust clutch mechanisms and cable

MST 6.0 — Apply the knowledge and the skills needed to perform an electrical inspection in a motorcycle service situation

6.1 Use a multimeter to measure and diagnose resistance of specified components, amperage drain key off and on, battery voltage key off and key on, charging voltage and amperage
6.2 Locate and repair other electrical problems
6.3 Inspect the ignition timing

Committee Identified Academic Skills

The technical committee has identified that the following academic skills are embedded in this contest.

Math Skills

- Use fractions to solve practical problems.
- Simplify numerical expressions.
- Solve problems using proportions, formulas and functions.

Science Skills

- Use knowledge of chemical properties (acidity, basicity, combustibility and reactivity).
- Use knowledge of mechanical, chemical and electrical energy.
- Use knowledge of speed, velocity and acceleration.
- Use knowledge of Newton's laws of motion.
- Use knowledge of work, force, mechanical advantage, efficiency and power.
- Use knowledge of simple machines, compound machines, powered vehicles, rockets and restraining devices.
- Use knowledge of principles of electricity and magnetism.
- Use knowledge of static electricity, current electricity and circuits.
- Use knowledge of magnetic fields and electromagnets.
- Use knowledge of motors and generators.

Language Arts Skills

- Understand source, viewpoint and purpose of texts.
- Demonstrate knowledge of appropriate reference materials.
- Demonstrate informational writing.

Connections to National Standards

State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards

- Numbers and operations.
- Algebra.
- Geometry.

- Measurement.
- Data analysis and probability.
- Problem solving.
- Communication.
- Connections.
- Representation.

Source: NCTM Principles and Standards for School Mathematics. For more information, visit: http://www.nctm.org..

Science Standards

- Understands the structure and properties of matter.
- Understands the sources and properties of energy.
- Understands forces and motion.
- Understands the scientific enterprise.

Source: McREL compendium of national science standards. To view and search the compendium, visit: http://www2.mcrel.org/compendium/browse.asp.

Language Arts Standards

- Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire. new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
- Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
- Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Source: IRA/NCTE Standards for the English Language Arts. To view the standards, visit: www.ncte.org/standards.