

**2010 MICHIGAN SKILLSUSA CHAMPIONSHIPS  
TASK & MATERIALS LIST**

SKILL OR LEADERSHIP AREA: Diesel Equipment Technology

**TASKS TO BE PERFORMED:**

The following is a list of task areas, which will be utilized for evaluation in the Diesel Equipment Technology contest which will be held at the Heavy Equipment Center located on the campus of Ferris State University on Saturday April 17, 2010. All contestants are to submit a resume to the chairman by APRIL 1, 2010. Fax to Gary Maike at 231 591 2812 or e-mail MS Word to [maikeg@ferris.edu](mailto:maikeg@ferris.edu).

**1. Running Engine:**

Knowledge and Skill in the selection and use of tools, meters, and diagnostic equipment for tune-up, troubleshooting, and adjustment of Caterpillar, or Cummins, or Detroit Diesel engines could be required. Emphasis will be placed upon the basic operation of mechanical functions and/or malfunctions, and/or electronic engine operating control systems.

**2. Drive Train Components:**

This section will consist of two separate stations, which could consist of any component from the engine flywheel to and including the rear axle. Troubleshooting and adjustment procedures, failure analysis, product nomenclature, and specifications will be included along with hands-on tasks.

**3. Braking system:**

Identification, operation, testing, adjusting, repair, and troubleshooting of hydraulic and/or air operated drum or disc foundation braking systems which may/or may not include anti-skid features. A written test may also be utilized.

**4. Air Conditioning:**

Identification, operation, testing, and troubleshooting procedures of components and their functions within an air conditioning system may be required. A short written test may be utilized for evaluation.

**5. Electrical:**

Electrical fundamentals, circuit testing, and diagnosis of malfunctioning circuits utilizing schematic wiring diagrams and industry accepted testing equipment. Procedures in wiring repair. Areas of emphasis will include battery and charging systems, starting systems, and engine control systems.

**6. Hydraulic:**

Hydraulic fundamentals, nomenclature, testing, troubleshooting and/or repair may be covered along with schematic symbols, diagrams, and possible specification

inquiries. The contestant should be familiar with pressure gauging, flow-meters, and timed cycling tests

**7. Shop Practices:**

Areas which may be covered include welding, electric arc and/or oxyacetylene. Pipe, tubing, and hose fitting identification, repairs, and assembly practices. Fastener identification and repair practices. Electrical wiring maintenance and repair. Selection, identification, and safe usage of hand and power tools.

**8. Planned Maintenance Inspection:**

Accomplishment of a preventative maintenance inspection of a vehicle may be required. Use of symbols and identification of up to ten problems and/or adjustments may be required. Identification of a vehicle due for a preventative maintenance inspection program might be required. Failure analysis of components may also be included with the inspection.

**9. Employment Interview:**

All contestants will be required to submit a resume to the competition chairman by April 1, 2010. All resume received post marked after the due date will be accepted and penalized on a per day basis.

**10. Engine Fundamentals:**

This section will include use of measuring instruments required for the assembly and adjustment of diesel engine components. Metric as well as standard measurements may be required. A written test on component identification and diesel engine operation may also be used for evaluation.

**STUDENT MUST SUPPLY:**

\* ALL CONTESTANTS WILL BE REQUIRED TO HAVE AND UTILIZE SAFETY GLASSES, WORK SHOES, CALCULATOR AND APPROPRIATE WORK CLOTHING.

**TECHNICAL COMMITTEE WILL SUPPLY:**

All tools, manuals, and equipment will be supplied by the technical committee.

**CLOTHING REQUIREMENT (if different from National contest):**

**Work clothing including but not limited to long sleeve shirt, long pants, leather shoes and safety glasses with side shields.**

Revised 1/13/10



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