worldskills

Standards and Assessment Guide

Heavy Vehicle Technology

v1.0

Introduction

Welcome to the Standards and Assessment Guide (SAG), a comprehensive resource designed to support excellence in assessment practices for all skills competitions hosted at the WorldSkills Competition. A key component of the SAG is the commitment to continuous improvement through ongoing review, ensuring that these guides consistently reflect the latest industry innovations and high standards of assessment in an open and transparent manner.

Purpose

The primary purpose of this guide is to provide a structured framework for the consistent and fair assessment of each skill competition. It aims to ensure that all assessments are conducted with a high degree of accuracy, reliability, validity, and reflect global industry standards. By adhering to these guidelines, assessors can maintain the integrity of the competition and uphold the high standards associated with WorldSkills.

Note: this guide is not a replacement for the Marking Scheme and should only be used as a reference when required during the assessment process. Competitors are not allowed to have a copy of this SAG in the workshop in either digital or paper form.

Scope

This document covers general assessment practices applicable to a diverse range of industry sectors including:

- Manufacturing and Engineering Technology
- Information and Communication Technology
- Construction and Building Technology
- Transportation and Logistics
- Social and Personal Services
- Creative Arts and Fashion

Each skill competition has its unique requirements and benchmarks, which are detailed within sections of this guide. The consistency of assessment across each skill is the overarching principle, ensuring a unified approach to evaluating Competitor performance to the highest standards.

Key Components

The guide is structured into several key components, each addressing critical aspects of the assessment process:

Assessment Principles and Objectives

- Emphasis on fairness, transparency, and objectivity in assessments.
- Alignment with global industry standards and best practices.

Assessment Methods and Tools

- Description of various assessment methods in Measurement and Judgement.
- Guidance on the application of appropriate assessment tools and equipment (if applicable).

Criteria and Benchmarks

- Examples of assessment criteria and aspects for each skill, outlining the expected competencies and performance standards.
- Benchmarks for different levels of proficiency i.e. Judgement award range 0, 1, 2, 3 or Yes/No criteria alongside clear measurable descriptors.

Expert assessment requirements

- Completion of the Access Programme.
- Approved Curriculum Vitae (CV).
- Reaching **100%** Expert preparedness.
- Full participation of online and in-person Mandatory Assessment Training (MAT).
- Completion of practical assessment testing at the Competition.

Quality Assurance and Improvement

- Monitoring and evaluation: Ensuring assessments are carried out correctly and produce reliable results.
- Continuous improvement: Using feedback from Experts and Skill Competition Managers to enhance future assessments.
- Periodic review: Regularly updating processes to reflect current industry and WorldSkills standards.

Implementation

For effective implementation, this guide should be used for guidance purposes only and in parallel with the Technical Description for each skill. Experts are encouraged to familiarize themselves thoroughly with both the general guidelines and the particular requirements of their respective skill areas. Collaborative efforts between the Skill Management Team, Experts, and Competitors are vital for achieving the ultimate goal of global skills development.

Conclusion

The Standards and Assessment Guide embodies the commitment of the WorldSkills movement to nurturing talent and promoting the highest standards of vocational education and training worldwide. By providing clear and comprehensive guidance, we aim to empower Experts to conduct marking and assessment practices that are not only rigorous and equitable but also inspiring and transformative for all participants.

Thank you for your dedication to upholding these standards and contributing to the success of the WorldSkills Competition. Together, we can continue to champion skills excellence and celebrate the achievements of talented individuals from around the globe.

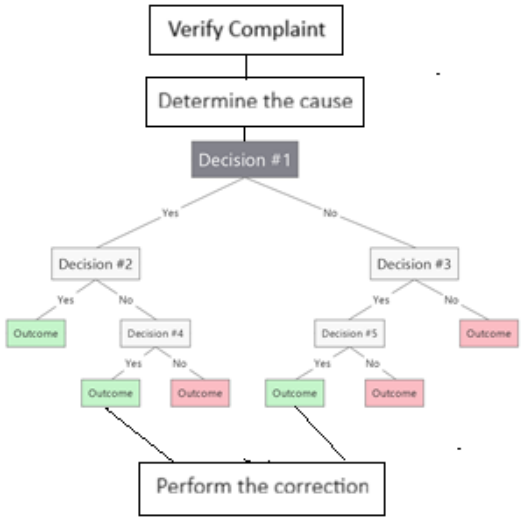
Skill – 49 Heavy Vehicle Technology

Measurement

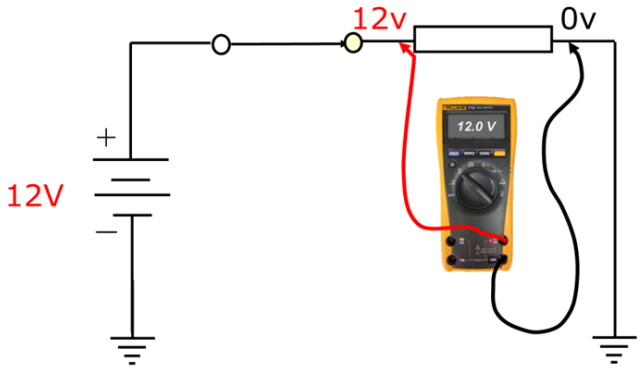
Measurement is used to assess accuracy, precision, and other performance that can be measured objectively. It is used where ambiguity must be avoided.

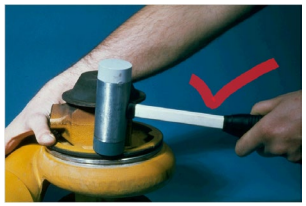
The total marks allocated to measurement marking may vary from competition to competition depending on the Test Project.

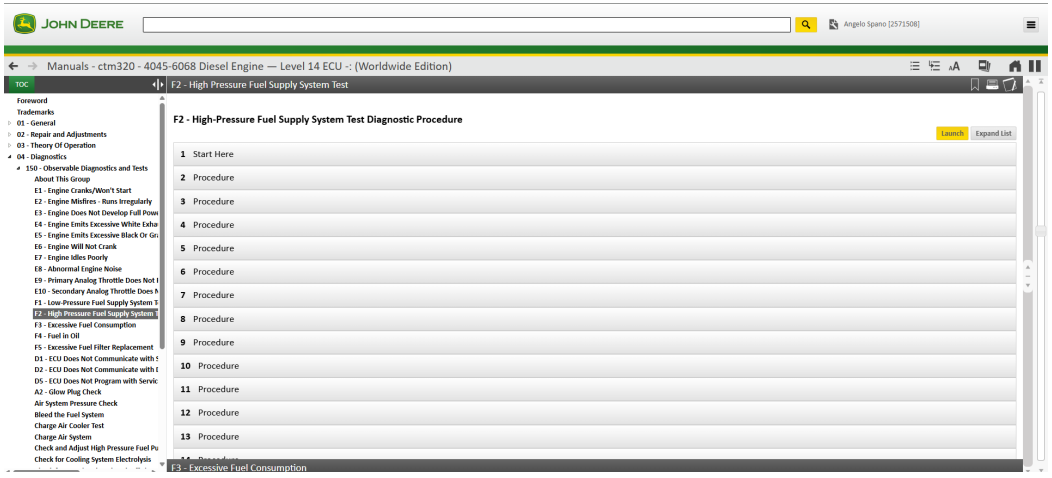
Aspect	WSOS section as per TD	Descriptor	Requirement
Work organization and safety management	1	Keeps an organized, tidy, workstation of tools and equipment. Fluid spills are promptly dealt with. Uses 3- points of contact when climbing into or out of machine, always facing the machine.  Uses personal protective equipment (PPE) as outlined in the WorldSkills Occupational Standards (WSOS). Safety footwear, bump cap and safety glasses worn while working on equipment. Hearing and face protection, nitrile and/or other gloves when required for a specific task.	Tools and equipment returned to work bench – **Full marks** Unorganized workspace, tools left on floor or on machine. Spills not immediately cleaned. – **Zero marks** Uses PPE as outlined in WSOS – **Full marks** Removes safety glasses while working on equipment – **Zero marks**

Aspect	WSOS section as per TD	Descriptor	Requirement
Logical order of diagnosis and repair	2	Uses diagnosis system tools available [mechanical, electrical, electronic (computer)] used to carry out logical order of diagnosis and repair.  Organizes and implements appropriate decisions regarding diagnoses, maintenance, or repair.	Follows repair procedures as outlined in Service Literature and Original Equipment Manufacture (OEM) manuals and procedures – **Full marks** Skips proceedural steps outlined in Service Literature and manuals. Skips repair processes. – **Zero marks**

Aspect	WSOS section as per TD	Descriptor	Requirement
Diagnostics and Precision Measurement	4	Understands and uses precision measurement tools to accurately measure dimensions of components for re-usability.  Selects proper precision measurement tool for a specific task. 	Example: dimensions within its limit of size? 120.00 +/- 0.15mm inclusive – **Full marks** Above or below +/- 120.15mm inclusive – **Zero marks** Example: Uses depth micrometre to measure liner counter-bore. – **Full marks** Uses precision calliper gauge to measure liner counter-bore. – **Zero marks**

Aspect	WSOS section as per TD	Descriptor	Requirement
Fault-finding	5	Apply the results of diagnostic testing and any relevant calculations to correctly identify and isolate faults related to the task.  	Example: Measures voltage-drop on electrical component and determines measurement is above the specific voltage value, according to O.E.M. specifications. Recommends replacement of electrical component. – **Full marks** Measures voltage drop on electrical component and does not compare to O.E.M. specifications or does not recommend component replacement. – **Zero marks**

Aspect	WSOS section as per TD	Descriptor	Requirement
Appropriate use of tools and equipment	6	Selects the correct piece of equipment or tools to complete a task. Image 1   Image 2	Example: Uses a soft-blow hammer to help assemble a turbocharger. (Image 1) – **Full marks** Uses a ball-peen hammer to help assemble a turbocharger. (Image 2) – **Zero marks**

Aspect	WSOS section as per TD	Descriptor	Requirement
Maintenance or repair of components or system	7	Selects the correct range of procedures and manufacturers' specifications for maintenance or repair. 	Chooses the appropriate O.E.M. procedures to follow or repair these systems. – **Full marks** Chooses incorrect O.E.M. procedures to follow or repair these systems. – **Zero marks**

Aspect	WSOS section as per TD	Descriptor	Requirement
Communication of maintenance or repair process	8	Understands and documents the technical language (nomenclature) associated with the occupation and associated tasks in both paper and electronic versions.	Demonstrates proper nomenclature and clarification of technical terms, component names and/or function. – **Full marks** Does not demonstrate proper nomenclature and clarification of technical terms, component names and/or function. – **Zero marks**

Judgement

Judgement is used to assess the quality of performance about which there may be small differences of view when applying the external benchmarks.

The Resources column in the table below may include all kinds/formats of resources such as: a link to a YouTube video, a website link, an illustration, a photo, a reference to a book, and so on. It needs to be as detailed as possible to show the differentiation between 0, 1, 2, 3.

Generic rules:

The assessment group comprises three Experts plus one Expert who acts as the supervisor. The supervising Expert will replace an Expert in the marking group to prevent compatriot marking.

The difference of the three Experts' scores may not exceed 1. If this is the situation the Experts must re-score until there is a maximum difference of 1. As long as the three Experts judge within 1, the result can be entered into the CIS.

The total marks allocated to judgement marking may vary from competition to competition depending on the Test Project.

WSOS section as per TD	Score	Descriptor :	Requirement
WSOS Section 3. Use and interpretation of technical information	3	Understands and interprets circuit diagrams and schematics	Is able to apply their interpretation of schematics to the physical machine, example: Is able to locate all measuring poi described on schematics to correct location on equipment or machine.
	2		Is able to apply their interpretation of schematics to the physical machine to specific circuits, example: Is able to locate measuring points of starting and charging circuits only.
	1		Is able to apply their interpretation of schematics to the physical machine to only one specific circuit, example: Is able measuring points of starting circuit only.
	0		Is not able to apply their interpretation of schematics to the physical machine to any circuits. Electrical or hydraulic.

Summary

In summary this document is to assist new and existing Experts in their own and their Competitor training in preparation for the WorldSkills Competition in skill 49 Heavy Vehicle Technology

Both need to be experience in Marks are awarded to the Competitor as described in the previous sections of this guide and will be based on **Original Equipment Manufacturer (OEM) specifications and procedures.**