worldskills Europe

Technical Description

EuroSkills Graz 2020
Automobile Technology (33)

ES2020_TD

Contents

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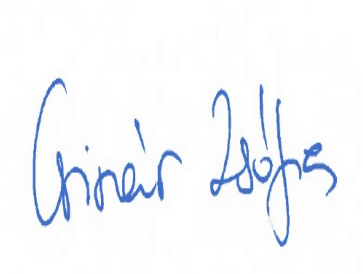

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1 Introduction

1.1 Name and description of the Skill Competition

1.1.1 The name of the skills competition is

Automobile Technology

1.1.2 1.1.2 Description of the associated work role(s) or occupation(s)

The modern Light Vehicle Automobile Technician is likely to be employed in a workshop that is closely associated with one major manufacturer of light vehicles. His/her expertise may be greatest with that manufacturer's vehicles; however, depending on the situation and range of services offered by the workshop, he/she may also handle other manufacturers' vehicles. Automobile Technicians also work in garages and workshops that are not associated with particular manufacturers. Where this is the case they may experience a wider range of light vehicles and use alternative equipment, parts and materials.

The trained and competent Light Vehicle Automobile Technician will service and repair a range of light vehicles. For diagnosis, repair and replacement, depending on the nature of the workshop, he/she may use the manufacturers' equipment, parts, materials and procedures. Therefore, according to a workshop's relationship with manufacturers, the Technician's experience may be deep or broad, or both. In every garage and workshop success is measured in time, correct fault finding and repair, and repeat business.

Most garages and workshops are small businesses or cost centres that work to tight financial parameters. The light automobile sector is volatile, being dependent on the wider economy and heavily affected by technological advances and environmental concerns. The highly skilled Automobile Technician keeps abreast of continuous changes in the sector, whether these are to do with performance, safety or green energy sources. He/she will deeply understand vehicles' electrical and electronic systems and their integration; have physical stamina, coordination and kinaesthetic skills, and be versatile. He/she will be assigned the more complex diagnostic tasks, the most advanced vehicles, and those incorporating the latest technologies. This person may rapidly progress to more senior roles as trainer, supervisor, planner and/or manager.

1.2 The content, relevance and significance of this document

This document incorporates a Role Description and Standards Specification which follow the principles and some or all of the content of the WorldSkills Standards Specifications. In doing so WSE acknowledges WorldSkills International's (WSI's) copyright. WSE also acknowledges WSI's intellectual property rights regarding the assessment principles, methods and procedures that govern the competition.

Every Expert and Competitor must know and understand this Technical Description.

In the event of any conflict within the different languages of the Technical Descriptions, the English version takes precedence.

1.3 Associated documents

Since this Technical Description contains only skill-specific information it must be used in association with the following:

- WSE –Competition Rules

- WSI – WorldSkills Standard Specification framework
- WSE – WorldSkills Europe Assessment Strategy
- WSE – Online resources as referenced in this document
- Host Country – Health and Safety regulations

2 The Standards Specification

2.1 General notes regarding WSSS / WSESS

Where appropriate WSE has utilised some or all of the WorldSkills International Standards Specifications (WSSS) for those skills competitions that naturally align between the two international Competitions. Where the skill is exclusive to the EuroSkills Competition, WorldSkills Europe has developed its own Standards Specification (WSESS) using the same principles and framework to that used for the development of the WSSS. For the purposes of this document the use of the words "Standards Specification" will refer to both WSSS and WSESS.

The Standards Specification specifies the knowledge, understanding and specific skills that underpin international best practice in technical and vocational performance. It should reflect a shared global understanding of what the associated work role(s) or occupation(s) represent for industry and business. (www.worldskills.org/WSSS) *(TBA for WorldSkills Europe)* Helpfully, for the global consultation on the WSSS in 2014, around 50 per cent of responses came from European industry and business.

Each skill competition is intended to reflect international best practice as described by the Standards Specification, and to the extent that it is able to. The Standards Specification is therefore a guide to the required training and preparation for the skill competition.

In the skill competition the assessment of knowledge and understanding will take place through the assessment of performance. There will not be separate tests of knowledge and understanding.

The Standards Specification is divided into distinct sections with headings and reference numbers added.

Each section is assigned a percentage of the total marks to indicate its relative importance within the Standards Specification. The sum of all the percentage marks is 100.

The Marking Scheme and Test Project will assess only those skills that are set out in the Standards Specification. They will reflect the Standards Specification as comprehensively as possible within the constraints of the skill competition.

The Marking Scheme and Test Project will follow the allocation of marks within the Standards Specification to the extent practically possible. A variation of five percent is allowed, provided that this does not distort the weightings assigned by the Standards Specification.

2.2 Standards Specification

SECTION		RELATIVE IMPORTANCE %
1	**Work organization and self-management**	**10**
	The individual needs to know and understand: • the purposes, uses, care, maintenance of all equipment, material and chemicals together with their risk and safety implications • the difficulties and risks associated with related activities, together with their causes and methods of prevention. • the time management and parameters and associated with each activity • environmental, health and work safety principles and their application in the work environment	
	The individual shall be able to: • prepare and maintain a safe, tidy and efficient work station • prepare self for the tasks in hand, including full regard for health and safety • plan, prepare and complete each task within the time available • schedule work to maximize efficiency and avoid disruption • select and use all equipment and materials safely and in compliance with manufacturers' instructions • clean, store and test all equipment and materials safely and in compliance with manufacturers' instructions • apply or exceed the health and safety standards applying to the environment, equipment and materials • restore the work area and vehicle to an appropriate state and condition	
2	**Communication and interpersonal skills**	**15**
	The individual needs to know and understand: • the range and purposes of documentation, including written and technical drawings including schematic and wiring diagrams, in both paper based and electronic forms • the technical language associated with the skill • the industry standards required for inspection and fault reporting in oral, written and electronic formats • the required standards for customer service and care	

SECTION		RELATIVE IMPORTANCE %
	The individual shall be able to: • read, interpret and extract technical data and instructions from workshop manuals in any available format • communicate in the workplace by written and electronic means, using standard formats • have Initiative to find the best solutions to solve problematic situations • communicate in the workplace by oral, written and electronic means to ensure clarity, effectiveness and efficiency • use a standard range of communication technologies • complete reports and respond to issues and questions arising • respond to customers' needs face to face and indirectly	
3	**Electrical and mechanical systems and their integration**	**25**
	The individual needs to know and understand: • spark ignition and compression ignition engine management systems • engine mechanical systems • hybrid/electrical vehicle systems • forced induction, emission and exhaust systems • body electrical and electronic systems • braking and stability control systems • suspension and steering systems • drive line systems • HVAC systems • Air bag and safety restraint systems (SRS) • Consumer electronics (entertainment systems etc.) • how each system is interconnected and can have an effect on other systems • how sensors and information are shared between various management systems	
	The individual shall be able to: • use test equipment to measure, check and diagnose management systems for mechanical and/or electronic faults • perform tests to identify and isolate a fault	
4	**Inspection and diagnosis**	**35**

SECTION		RELATIVE IMPORTANCE %
	The individual needs to know and understand: • the correct use and interpretation of relevant measuring devices and equipment • the principles and applications of all relevant numerical and mathematical calculations • the principles and applications of specialist diagnostic procedures, tooling and equipment • Technological innovations	

	The individual shall be able to:
	• calibrate test and use all measuring devices and equipment (mechanical and electrical) for diagnosis
	• determine the precise location of component faults within a range of light vehicle systems
	• select and apply the appropriate devices and equipment to make inspections and diagnose deficiencies and faults to
	  • spark ignition systems
	  • compression ignition systems
	  • forced induction, emission and exhaust systems
	  • body electrical/electronic systems
	  • braking and stability control systems
	  • suspension and steering systems
	  • drive line systems
	  • electronic management systems
	  • Infotainment systems
	  • mechanical components and systems
	  • fuel injection and hybrid systems
	  • comfort systems
	  • charging and starting system
	• calculate, check and interpret results as required
	• review the options for repair or replacement	

5	**Repair, overhaul and service**	**15**
	The individual needs to know and understand: • the options for repair or replacement • repair methods / procedures, special tool requirements • procedures and methods applied to maintenance • procedures and methods applied to overhaul • effects on other vehicle systems and associated repair work	

SECTION	RELATIVE IMPORTANCE %
The individual shall be able to: • use manufacturers' and component suppliers' specification as required • construct, justify and communicate appropriate proposals and decisions regarding repair or replacement • use correct procedures for securing replacement parts • repair vehicle electrical systems and electrical circuits, repair/overhaul charging and starting systems • repair/overhaul hydraulic braking systems (disc and drum) and/or associated components, including hand or parking brake • repair electronically controlled antilock brakes and stability control systems • remove/overhaul driveline components • repair/overhaul steering systems/components, including mechanical, electrical and hydraulic power assisted steering systems • repair suspension systems and associated components • carry out steering wheel alignment operations • repair/overhaul four stroke engines and associated engine components • repair/overhaul hybrid/electrical vehicle systems • Repair diesel fuel systems including electronic compression ignition engine management systems and associated components	
Total	**100%**

3 The assessment approach & principles

3.1 General guidance

Note: this Section and Section 4 summarize a great deal of new information and guidance regarding assessment. Please refer to the Competition Rules for greater detail.

The Competition Development Committee (CDC) establishes the principles and techniques to which assessment at the EuroSkills Competition must conform.

Expert assessment practice lies at the heart of the EuroSkills Competition. For this reason it is the subject of continuing professional development and scrutiny. The growth of expertise in assessment will inform the future use and direction of the main assessment instruments used by the EuroSkills Competition: the Marking Scheme, Test Project, and Competition Information System (CIS).

Assessment at the EuroSkills Competition falls into two broad types: measurement and judgement. Where the earlier terms "objective" and "subjective" still occur, these must be understood to mean measurement and judgement for all procedural and practical purposes. All assessment will be governed by explicit benchmarks, referenced to best practice in industry and business.

The Marking Scheme must include these benchmarks and follow the weightings within the Standards Specification. The Test Project is the assessment vehicle for the skill competition, and also follows the Standards Specification. The CIS enables the timely and accurate recording of marks, and has expanding supportive capacity.

The Marking Scheme, in outline, will lead the process of Test Project design. After this, the Marking Scheme and Test Project will be designed and developed through an iterative process, to ensure that both together optimize their relationship with the Technical Description and the principles for assessment as set out in the WSE Assessment Strategy. They will be agreed by the Experts and submitted to WSE for approval together, in order to demonstrate their quality and conformity with the Standard Specification.

Prior to submission for approval to WSE, the Marking Scheme and Test Project will be reviewed by the WSE Skill Advisors in order to benefit from the capabilities of the CIS.

4 The Marking Scheme

4.1 General guidance

This Section describes the role and place of the Marking Scheme, how the Experts will assess Competitors' work as demonstrated through the Test Project, and the procedures and requirements for marking.

The Marking Scheme is the pivotal instrument of the EuroSkills Competition, in that it ties assessment to the standards that represent the skills to be tested. It is designed to allocate marks for each assessed aspect of performance in accordance with the weightings in the Standards Specification.

By reflecting the weightings in the Standards Specification, the Marking Scheme establishes the parameters for the design of the Test Project. Depending on the nature of the skill and its assessment needs, it may initially be appropriate to develop the Marking Scheme in more detail as a guide for Test Project design. Alternatively, initial Test Project design can be based on the outline Marking Scheme. From this point onwards the Marking Scheme and Test Project should be developed together.

Section 2.1 above indicates the extent to which the Marking Scheme and Test Project may diverge from the weightings given in the Standards Specification, if there is no practicable alternative.

The Marking Scheme and Test Project may be developed by one person, or several, or by all Experts. The detailed and final Marking Scheme and Test Project must be approved by the whole Expert Jury prior to submission for independent quality assurance. The exception to this process is for those skill competitions which use an external designer for the development of the Marking Scheme and Test Project.

In addition, Experts are encouraged to submit their Marking Schemes and Test Projects for comment and provisional approval well in advance of completion, in order to avoid disappointment or setbacks at a late stage. They are also advised to work with the CIS Team at this intermediate stage, in order to take full advantage of the possibilities of the CIS.

In all cases the complete and approved Marking Scheme must be entered into the CIS at least eight weeks prior to the Competition using the CIS standard spreadsheet or other agreed methods.

4.2 Assessment criteria

The main headings of the Marking Scheme are the Assessment Criteria. These headings are derived in conjunction with the Test Project. In some skill competitions the Assessment Criteria may be similar to the section headings in the Standards Specification; in others they may be totally different. There will normally be between five and nine Assessment Criteria. Whether or not the headings match, the Marking Scheme must reflect the weightings in the Standard Specification.

Assessment Criteria are created by the person(s) developing the Marking Scheme, who are free to define criteria that they consider most suited to the assessment and marking of the Test Project. Each Assessment Criterion is defined by a letter (A-I).

The Mark Summary Form generated by the CIS will comprise a list of the Assessment Criteria.

The marks allocated to each criterion will be calculated by the CIS. These will be the cumulative sum of marks given to each aspect of assessment within that Assessment Criterion.

4.3 Sub criteria

Each Assessment Criterion is divided into one or more Sub Criteria. Each Sub Criterion becomes the heading for a EuroSkills marking form.

Each marking form (Sub Criterion) has a specified day on which it will be marked.

Each marking form (Sub Criterion) contains Aspects to be assessed and marked by measurement or judgement. Some Sub Criteria have assessment by both measurement and judgement, in which case there is a separate marking form for each method

4.4 Aspects

Each Aspect defines, in detail, a single item to be assessed and marked together with the marks, or instructions for how the marks are to be awarded. Aspects are assessed either by measurement or judgement and appear on the appropriate marking form.

The marking form lists, in detail, every Aspect to be marked together with the mark allocated to it, the benchmarks, and a reference to the section of the Standards Specification.

The sum of the marks allocated to each Aspect must fall within the range of marks specified for that section of the Standards Specification. This will be displayed in the Mark Allocation Table of the CIS, in the following format, when the Marking Scheme is reviewed from C-8 weeks. (Section 4.1).

CRITERIA											Total marks per section
		A	B	C	D	E	F	G	H	I	
	1										
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
											100

4.5 Assessment and marking by judgement

In addition to measurement, Experts are expected to make professional judgements. These are normally judgements about quality. Benchmarks will be designed, agreed and recorded during the design and finalization of the Marking Scheme and Test Project in order to steer and support these judgements.

Marking through judgement uses the following scale:

- 0: performance below industry standard to any extent, including a non-attempt
- 1: performance that meets industry standard
- 2: performance that both meets industry standard and surpasses that standard to some extent
- 3: excellent or outstanding performance relative to industry standards and expectations.

4.6 Assessment and marking by measurement

Unless otherwise stated, only the maximum mark or zero will be awarded. Where they are used, partial marks will be clearly defined within the Aspect.

4.7 Assessment overview

For both measurement and judgement there will be three Experts in the assessment team.

Good practice in assessment comprises measurement and judgement applied both specifically and broadly. The final proportions of measurement and judgment, whether specific or broad, will be determined by the standards, their weightings and the nature of the Test Project.

4.8 Completion of skill assessment specification

This section defines the assessment criteria and the number of marks (judgement and measurement) awarded. The total number of marks for all assessment criteria must be 100. The content of this Table is advisory only and can be adapted as required.

Section	Criterion	Marks		
		Judgement	**Measurement**	**Total**
A	Engine Mechanical	0	25	**25**
B	Steering/Suspension/Brakes and Stability Control Systems	0	25	**25**
C	Petrol/Diesel and hybrid/electrical vehicle Management Systems	0	25	**25**
D	Electrical Systems	0	25	**25**
	Total =	**0**	**100**	**100**

A basic sample outline of the assessing specification is shown here:

Module 1: Engine Mechanical			
Work processes: Preparation - Safe and tidy working			
Performance indicators	**Marking system**		**Remarks**
Competitors are assessed on their preparation for the task prior to starting work on the engine. Will be judged on safety working and tidying up once the task is completed	Maximum score	3,0 points	
Work processes: Dismantling Engine			
Performance indicators	**Marking system**		**Remarks**
Competitors are assessed on disassembling the engine block with use of right equipment and tools.	Maximum score	5 points	
Work processes: Inspection and Measurement of Engine			
Performance indicators	**Marking system**		**Remarks**
Competitors are assessed on the inspection of the engine, the correct use of measurement tools, the accuracy of their measurements and making a correct conclusion from the measurements	Maximum score	9,6 points	
Work processes: Re-assembling Engine			
Performance indicators	**Marking system**		**Remarks**
Competitors are assessed on re-assembling the engine block with use of correct equipment and tools.	Maximum score	7,4 points	
	Total	**25 points**	

4.9 **Skill assessment procedures**

Work Health, Safety (including housekeeping) and Sustainable practice

- Engine Mechanical
  - Testing and diagnosis
  - Repair and measurement
- Steering/Suspension/Brakes and Stability Control Systems
  - Testing and diagnosis
  - Repair and measurement
- Petrol or Diesel Engine Management Systems
  - Testing and diagnosis
  - Repair and measurement
- Electrical Systems
  - Testing and diagnosis
  - Repair and measurement

Other procedures

- Competitors shall not be awarded points for an item within a task they are unable to complete because of tool shortage in their own tool kit.*if applicable
- If some or all Competitors are unable to complete one or more elements of a task due to shortfalls of the workstation itself, the points of these elements of the task shall be awarded to all Competitors so as not to distort the scoring scheme.
- When an equipment failure occurs preventing a Competitor from completing one or more elements of a task, then all points for all elements affected will be awarded to all Competitors.
- Experts are to complete a marking form for each assessment area for each individual Competitor.
- Marks will vary according to the marking scale defined for the Competition, but will align to the ranges defined by the standards specification.
- Expert marking teams are devised to include a mixture of WSE experience, language and culture.

To the extent reasonably possible each Expert will assess a similar number of aspects for each Competitor.

5 The Test Project

5.1 General notes

Sections 3 and 4 govern the development of the Test Project. These notes are supplementary.

Whether it is a single entity, or a series of stand-alone or connected modules, the Test Project will enable the assessment of the skills in each section of the Standards Specification.

The purpose of the Test Project is to provide full and balanced opportunities for assessment and marking across the Standards Specification, in conjunction with the Marking Scheme. The relationship between the Test Project, Marking Scheme and Standards Specification will be a key indicator of quality.

The Test Project will not cover areas outside the Standards Specification, or affect the balance of marks within the Standards Specification other than in the circumstances indicated by Section 2.1.

The Test Project will enable knowledge and understanding to be assessed solely through their applications within practical work.

The Test Project will not assess knowledge of the EuroSkills Competition's rules and regulations.

This Technical Description will note any issues that affect the Test Project's capacity to support the full range of assessment relative to the Standard Specification. Section 2.1 refers.

5.2 Format/ structure of the Test Project

[ ] Test Project assessed at end of Competition

[ ] Test Project with separately assessed modules

[ ] Test Project assessed in stages

[ ] Series of standalone modules

[X] Other

If other, please specify here:

The format of the assessment is a series of assessments to be completed in rotation. All competitors will do all assessments selected at the competition.

5.3 Test Project design requirements

The Competition is presently based on a maximum of 16 Competitors.

- The format of the assessment is a series of four assessments to be completed in rotation.
- All Competitors must compete in all assessments.
- The total working time for the assessments will be at least 14 hours.
- The Competitor has to carry out, independently, all assessments.

All assessments have to include:

- Description of the test.

- Competitor Instructions for completing the test.
- Competitor Report sheets (if necessary).
- Instructions to the Workshop Supervisor.
- Marking scheme for the test

The competitors will be assessed on all Assessment:

- Assessment 1: Engine Mechanical
- Assessment 2: Steering/Suspension/Brakes and Stability Control Systems
- Assessment 3: Petrol/Diesel and hybrid/electrical vehicle Management Systems
- Assessment 4: Electrical Systems

Specifications of each module:

- Assessment 1: Engine Mechanical:
  - Engine on stand.
  - Engine dismantling, measuring, reassembling, etc.
- Assessment 2: Steering/Suspension/Brakes and Stability Control Systems:
  - Vehicle
  - Steering and suspension mechanical and electrical/electronic repairs
  - Steering angle measurements and adjustments, etc.
  - Braking system mechanical inspection and repairs
  - Braking system electrical/electronic inspection/diagnostics and repairs
  - Stability control electrical/electronic inspection/diagnostics and repairs
- Assessment 3: Petrol or Diesel Engine Management Systems:
  - Vehicle/engine with management system on stand
  - Engine management diagnostics and testing.
  - Engine management electrical/electronic repairs
- Assessment 4: Electrical Systems:
  - Vehicle/electrical systems on stand
  - Body electrical circuits
  - Starter motor
  - Alternator
  - High voltage system on stand (Limited in low tension)

The assessments are representative of the daily activities in this trade. The detailed timing schedule is established in such a way that the competition area is constantly demonstrating activities for the complete competition period. For each assessment, the competitors will receive their work assignments and instructions from the Expert. It comes with a written work sheet and the competitor has to fulfill the tasks within the required time frame. The competitors can familiarize themselves with the modules the day prior to the starting day of the competition.

Assessments for Light Vehicle Technician Competition

This description has two main functions.

- It will be the basis on which Experts will select assessments for their submission to the Host country.
- It will act as a guideline to countries that do not have an Expert for Competitor preparation. The number and specification of the list must not be taken as complete or final as it is intended that regular amendments and additions will follow:
  - In the light of its use over a period of time
  - In the interest of arriving at a more complete list

- In regard to technological change and subsequent updating with respect to the regulations of the host country

The assessments may involve the diagnosis, service and repair of the following:

assessment	may include	excluding
Engine Mechanical	All engine measurements Removal and fitting of all engine mechanical components	Boring and honing cylinder Piston to connecting rod fitting by heating
Steering/Suspension/Brakes and Stability Control Systems	Removal and fitting of all steering and suspension components. Hydraulic systems PAS Air suspension (low pressure) Tyre pressure monitoring systems 4 Wheel Alignments 4 Wheel Steering systems Electronic Suspension systems Electric / Computer-controlled power assisted steering Removal and fitting of all brake components ABS Systems 4 Wheel Disc systems Disc/Drum systems Parking Brake systems Brake assistance and electronic stability control	Shock absorber testing Air brake systems
Engine Management Systems **The competition organizer will decide on availability to choose compression or spark ignition engines.**	**Spark ignition** Pressure and flow testing Use of diagnostic tools Exhaust Gas Recirculation Catalytic Converters Ignition systems Engine Actuators and Sensors Electronic Fuel Injection Engine Analysers Exhaust Gas Analysers Starting systems Multiplex systems	Fuel tanks Injector servicing Connecting/disconnecting fuel pipes. Any work that requires the fuel systems to be opened to the atmosphere. Work involving coolant

assessment	may include	excluding
	Compression Ignition Filtration systems Use of diagnostic tools Glow plug system Electronic pump control Systems Engine Actuators and Sensors Particulate filters Common rail systems Forced induction systems Starting systems Multiplex systems	Bench testing injector pumps In-line fuel pump
Electrical Systems	Charging systems Lighting systems Accessory circuits Dashboard gauges and warning devices Design, construct and test electrical / electronic circuit boards Multiplex systems Climate control systems Infotainment systems Smart Power charging system High voltage system, exclusively on didactic module designed for learning. Without risk of electrification.	Air bag and S.R.S. systems Alarm and immobiliser systems Work involving refrigerant Work involving coolant High voltage system on vehicle.

5.4 Test Project development

The Test Project MUST be submitted using the templates provided by WSE. Use the Word template for text documents and DWG template for drawings. Please contact jordy.degroot@worldskillseurope.org for guidance.

5.4.1 Who develops the Test Projects or modules

The Test Project / modules are developed under the supervision of the Jury President and Chief Expert by:

[X] All Experts

[ ] Some Experts

[ ] Nominated Experts

[ ] Equipment supplier

[ ] Chief Expert, Deputy Chef Expert under supervision of the Jury President

5.4.2 How and where is the Test Projects or modules developed

The Test Project or modules are developed:

[ ] Jointly on the Discussion Forum

[ ] By an external enterprise

[ ] Independently

[X] Other

The assessments are developed by all experts or external provider as follows:

- Assessments will be designed using the guidelines set out in 5.3
- Four (4) assessments of total 14 hours, assessments will be designed using the guidelines set out in 3.2
- The assessment proposals or actual assessment will be prepared on the Competition site by a team of Experts according to the equipment provided by the Host country. The Host country is required to provide a sufficient choice of materials and spare parts in order to enable the Experts to set up a variety of projects.

5.4.3 When is the Test Project developed

The Test Project is developed according to the following timeline:

TIME	ACTIVITY
At the previous Competition	not applicable
XX months prior to the Competition	not applicable
At the Competition	The assessments are chosen/developed at the Competition site in the day/days preceding the competition.

5.5 Test Project validation

- Validation will be demonstrated by the Expert groups designing/choosing the assessments so each can be completed with the equipment, knowledge and time constraints.
- The Chief Expert will ensure that the individual assessments are endorsed by the Expert group which has designed/chosen the assessments.

5.6 Test Project selection

[ ] By vote of Experts at the previous Competition

[ ] By vote of Experts on the Discussion Forum

[ ] By vote of Experts at the current Competition

[ ] By random draw by Technical Director 3 months before the current Competition

[X] Other

If other, please specify here

Refer to 5.4.2 (How and where is the assessments task are developed).

5.7 Test Project circulation

The Test Project is circulated via the website as follows:

[ ] Submitted to the Secretariat for circulation 3 months before the current Competition

[X] Not circulated

[ ] Other

If other, please specify here

5.8 Test Project coordination (preparation for competition)

Coordination of the Test Project will be undertaken by:

[ ] Skill Management Team

[ ] Chief Expert

[X] Chief Expert and Deputy Chief Expert

[ ] Chief Expert and Workshop Manager

[ ] Chief Expert with selected Experts

[ ] Chief Expert with Competition Organizer

[ ] Experts

[ ] Other

If other, please specify here:

NOTE: The Chief Expert who will be responsible for ensuring that

- The assessments can be completed in the prescribed time of 14 hours
- The material/equipment list is accurate
- Competitor instructions are kept to a minimum of text for all assessments.
- The Chief Expert shall set up deadlines for all assessments preparation work, detailing when assessments and the corresponding documentation must be completed.
- The CE and DCE are responsible for the quality assurance of each assessment in co-operation with the QA team of Experts.

5.9 Test Project change at the competition

Not applicable

5.10 Material or manufacturer specifications

Ideally will be 2 months before, but, at least, one month prior to the Competition the Host Country is requested to supply a finalized Infrastructure List of vehicles, test equipment and general equipment.

Information is to include:

- Make, model and year and option level of vehicles – brochures to be included (also include CD-ROM workshop manuals, ideally with online access, and proprietary vehicle scan tool if available for selected vehicles)
- Reference numbers and details of test equipment – brochures to be included where possible

List of vehicle and equipment manufactures/suppliers contact.

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6 Skill management and communication

6.1 Discussion forum

Prior to the EuroSkills Competition, all discussion, communication, collaboration, and decision making regarding the skill competition must take place on the skill specific Discussion Forum, which can be reached via www.worldskillseurope.org. Skill related decisions and communication are only valid if they take place on the forum. The Chief Expert (or an Expert nominated by the Chief Expert) will be the moderator for this Forum. Refer to Competition Rules for the timeline of communication and competition development requirements.

6.2 Competitor information

All information for registered Competitors is available from the WorldSkills Europe website www.worldskillseurope.org. Please contact jordy.degroot@worldskillseurope.org for guidance.

The information includes:

- Competition Rules
- Technical Descriptions
- Marking Schemes
- Test Projects
- Infrastructure List
- Health and Safety documentation
- Other Competition-related information
- List of material that can be used to build templates and not been provided by the host

6.3 Test Projects and Marking Schemes

Circulated Test Projects will be available at the WorldSkills Europe website from www.worldskillseurope.org. Please contact jordy.degroot@worldskillseurope.org for guidance.

6.4 Day-To-Day management

The day-to-day management of the skill competition during the EuroSkills Competition is defined in the Skill Management Plan that is created by the Skill Management Team led by the Chief Expert. The Skill Management Team comprises the Jury President, Chief Expert and Deputy Chief Expert. The Skill Management Plan is progressively developed in the six months prior to the Competition and finalized at the Competition by agreement of the Experts. The Skill Management Plan can be viewed at www.worldskillseurope.org. Please contact jordy.degroot@worldskillseurope.org for guidance.

7 Skill specific safety requirements

Refer to Host Country/Region Health and Safety documentation for Host Country/Region regulations.

- Work clothes must comply with relevant codes. If the host country has any specific codes that are to be in place during the Competition, then these must be made known to the Competitors at least 3 months prior to the Competition.
- All machinery and/or equipment must comply with the safety requirements of the host country.
- Competitors must keep their work area clear of obstacles and their floor area clear of any material, equipment or items likely to cause someone to trip, slip or fall.
- All Competitors must wear PPE when so is required, in the workshop area.
- Experts will use the appropriate personal protective equipment when inspecting, checking or working with a Competitor's assessment.
- Experts are required to bring their own PPE, and should be worn at all times when in the work shop.
- A typical example of the work area is shown in 7.5
- The competitors will require an area for resting while they are not performing in the competition including hand washing and hand drying facilities.
- *If the competitors are supposed to bringing their own toolkit.
- Due to the size of the vehicles this skill probably requires a site on the perimeter of the location adjacent to large access doors.
- Due to safety requirement a first aid box has to be available at the stand.
- There is a requirement for exhaust extraction or exhaust filter equipment for the vehicles.
- There may be a requirement for equipment or material for the safe removal of oil and fuel.
- There is a requirement for the safe storage and transport of petrol and diesel fuel.
- Due to the fire regulations an A, B, and C fire extinguishers in compliance with the applicable health, safety and environmental regulations. (Applicable to both oil flames and electric flames) has to be available at the stand.

8 Materials and equipment

8.1 Infrastructure List

The Infrastructure List details all equipment, materials and facilities provided by the Competition Organizer.

The Infrastructure Lists will be available at the WorldSkills Europe website from www.worldskillseurope.org. Please contact jordy.degroot@worldskillseurope.org for guidance.

The Infrastructure List specifies the items and quantities requested by the Experts for the next Competition. The Competition Organizer will progressively update the Infrastructure List specifying the actual quantity, type, brand, and model of the items. Items supplied by the Competition Organizer are shown in a separate column.

At each Competition, the Experts must review and update the Infrastructure List in preparation for the next Competition. Experts must advise the Technical Director of any increases in space and/or equipment.

At each Competition, the Technical Observer must audit the Infrastructure List that was used at that Competition.

The Infrastructure List does not include items that Competitors and/or Experts are required to bring and items that Competitors are not allowed to bring – they are specified below.

8.2 Materials, equipment and tools supplied by Competitors in their toolbox

If sponsorship of tools can be achieved, competitors are not allowed to bring any tools (head lights/personal torch lights are allowed). If sponsorship not can be achieved a minimum tool requirement is listed below. The use of extra tools, instructions and checklists has to be explicitly permitted by the Experts by 2/3 majority..

Competitor's minimum tool requirements include:

- 1 set of flat bladed screwdrivers
- 1 set of pozi-drive screwdrivers (4 pieces min.)
- 1 set of Allen (hex, inbus) key 1.5 to 10 mm
- 1 set of torx drivers internal ranging from size 8 to 55
- 1 set of torx drivers external ranging from 8 to 55
- 1 open ended spanners 6 to 32 mm
- 1 set of ring spanners 6 to 32 mm
- 1 set of torx ring spanners 8 – 55
- 1 water pump (pipe) pliers
- 1 side cutter
- 1 long nosed pliers
- 1 combination pliers
- 1 vice grip
- 1 metal ruler (300 mm)
- 1 torch lamp (flashlight)
- 1 vernier caliper gauge, internal, external and depth gauge (accuracy 0.02 mm)
- 1 micrometer (palmer) 0 – 25 mm (0 - 1 inch)
- 1 digital multimeter, V, A (10 A), Ohms
- 1 feeler gauge set (0.05 mm / 0.002 inch increments up to 2.00 mm / 0.080 inch)

- 1 test lamp 12 V
- 1 test lamp (LED type)
- Socket set/s ranging from 6 to 32 mm
- Torque wrench(s) ranging from 0 to 200 Nm
- 1 torque angle adapter
- 1 hammer 300g
- 1 soft headed hammer (mallet)
- 1 parallel drift punch set (diameter 2 to 8 mm)
- 1 magnetic pick up tool
- 1 set metric deep/long wall sockets

8.3 Materials, equipment and tools supplied by the organizing country

Not applicable

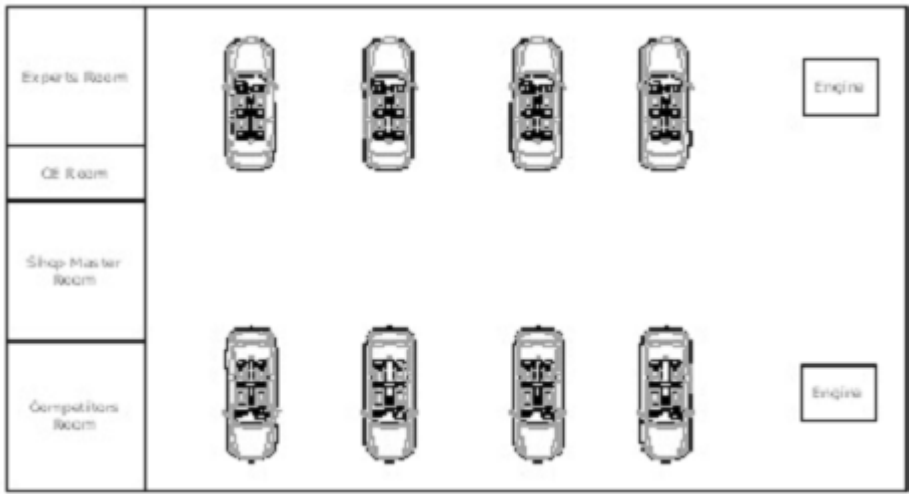
8.4 Materials and equipment prohibited in the Skill area

Electric, battery or pneumatic powered tools

8.5 Proposed workshop and workstation

Workshop layouts from previous competitions are available by contacting the Competition and IT Coordinator at: jordy.degroot@worldskillseurope.org

For workshop development, please check the forums.



The floor must be capable of supporting large loads over a small area due to the use of vehicle hoists.

Workstation layout:

- For each module a 40m² (8 m x 5 m) workspace should be available, including personal working space. If cars are used which are longer than 4,4 m, the length of the workspace has to be more than 8 m

9 Visitor and media engagement

- Try a trade
- Display screens
- Assessments descriptions
- Enhanced understanding of Competitor activity
- Competitor profiles
- Career opportunities
- Daily reporting of competition status
- Time based parts of the Test Project

10 Sustainability

- Recycling
- Use of ‘green’ materials
- Use of completed Assessments after Competition