

The First World Vocational College Skills Competition

Automobile Technology

Module B – Automobile Electrical System Maintenance

Competitor Report

I. Task Description

Module B: Automobile electrical system maintenance

Vehicle model: xxx

Duration: 60 minutes

Task description:

- **Remove the faults according to customer complaints. Strictly comply with the specifications for operation safety during the operation.**
- **Customer complaints: abnormal operation of the automobile electrical system.**
- **There is no specific requirement for the sequence of determining faults.**
- **Show the fault identified to the judge, point out the corresponding electrical circuit (including terminals and correct leads) or parts on the circuit diagram, and fill in the report with a brief description of the fault.**
- **Repair the fault as directed by the judge.**
- **Fault types may include: open circuit, excessive line resistance (series resistance), plug terminal loss or damage, short circuit to positive, earthing fault, crossed line of the plug of a single component, component fault (the fault of switches, fuses, relays, sensors and other components should be measured and verified, and cannot be proved by changing parts), loose or detached plug, component assembly fault, component model error, etc.**

II. COMPETITOR REPORT

Item	Measurement data recording and fault point confirmation
	<p>Note: 1. The measurement covers the smallest parts: components, circuits and plugs, modules.</p> <p>2. Record the measurement data of fault points, such as fault code, data flow, voltage, resistance, waveform status, etc.</p> <p>3. Indicate the plug-in code and number of the fault point, pin code of control unit and fault type.</p>
Abnormal operation of power system, access and start permit system	<p>1. Description of fault phenomenon: (Describe the symptoms related to the fault type)</p> <p>2. Measurement data recording of fault point 1: (Record the reasonable process of fault confirmation, including fault code reading, data flow reading, specific measuring points, and measured values)</p> <p>3. Drawing of related schematic circuit diagrams: (Draw the schematic circuit diagrams related to the fault point)</p> <p>4. Confirmation of the fault point and fault mechanism: (Record the fault point in the minimum range, and describe the fault mechanism)</p>
Abnormal operation of electrical system of car body accessories	<p>1. Description of fault phenomenon: (Describe the symptoms related to the fault type)</p> <p>2. Measurement data recording of fault point 2: (Record the reasonable process of fault confirmation, including fault code reading, data flow reading, specific measuring points, and measured values)</p> <p>3. Drawing of related schematic circuit diagrams: (Draw the schematic circuit diagrams related to the fault point)</p> <p>4. Confirmation of the fault point and fault mechanism: (Record the fault point in the minimum range, and describe the fault mechanism)</p>

	<p>1. Description of fault phenomenon:</p> <p>(Describe the symptoms related to the fault type)</p> <p>2. Measurement data recording of fault point 3:</p> <p>(Record the reasonable process of fault confirmation, including the name of components checked, specific measuring points, and measured values)</p> <p>3. Drawing of related schematic circuit diagrams:</p> <p>(Draw the schematic circuit diagrams related to the fault point)</p> <p>4. Confirmation of the fault point and fault mechanism:</p> <p>The line between the middle plug of the earth wire for the main door lock switch and the ground is open.</p>
<p>Abnormal operation of lighting system</p>	<p>1. Description of fault phenomenon:</p> <p>(Describe the symptoms related to the fault type)</p> <p>2. Measurement data recording of fault point 4:</p> <p>(Record the reasonable process of fault confirmation, including the name of components checked, specific measuring points, and measured values)</p> <p>3. Drawing of related schematic circuit diagrams:</p> <p>(Draw the schematic circuit diagrams related to the fault point)</p> <p>4. Confirmation of the fault point and fault mechanism:</p> <p>(Record the fault point in the minimum range, and describe the fault mechanism)</p>

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Module B – Automobile Electrical System Maintenance Marking Form

Competitor No.		Signature by on-site judge		Spot review by jury president	
Signature by statistic judge		Signature by reviewing judge		Signature by supervisor	
Equipment model		Duration	60 minutes	Time used actually	
No.	Item	Assessment points	Description	Marking allocation	Mark
B1	Health and safety (20 points)	Operation preparation	<input type="checkbox"/> The vehicle stopper is not installed <input type="checkbox"/> The exhaust duct is not installed <input type="checkbox"/> The fenders, cover cloth, front grille cloth are not installed or the installation position is not correct <input type="checkbox"/> The fender cloth and grille cloth fall off <input type="checkbox"/> The steering wheel, seats, foot pads, shift lever are not installed or torn, or some of them are not installed <input type="checkbox"/> The driver side window is not fully down	3	
		Personal safety	<input type="checkbox"/> Start the engine directly at the first start without consulting the judge <input type="checkbox"/> Start the engine for more than 10 seconds each time, or start the engine for more than 3 times consecutively <input type="checkbox"/> The competitor wears sharp ornaments and does not wear safety shoes <input type="checkbox"/> Wear goggles when checking the removal and installation of batteries or when operating near a running engine	2	
		Equipment use	<input type="checkbox"/> The zero calibration of the multimeter is not checked correctly, including the connection of multimeter probe and gear	1.5	

			<p>selection</p> <ul style="list-style-type: none"> <input type="checkbox"/> The instruments, meters and test equipment are improperly connected to the car, mainly including the multimeter and oscilloscope detection probe connection (particularly, the black probe should not be connected to the anode of power supply) <input type="checkbox"/> Directly test the car without properly operating it to the test conditions first, mainly check whether the operation of the car can correctly serve the purpose of the test 		
		Operation specifications	<ul style="list-style-type: none"> <input type="checkbox"/> The battery is not disconnected when the plug of each module is pulled off <input type="checkbox"/> After completing all tasks, tighten the battery pole piles with the specified torque <input type="checkbox"/> Start the engine directly without checking the oil and coolant level correctly <input type="checkbox"/> The car is not restored to its original state after the completion of the test, mainly including that the removed parts are not installed properly and the ignition Switch and other switches are not reset improperly 	2	
		Safe operation	<ul style="list-style-type: none"> <input type="checkbox"/> The test equipment and car may be damaged during the operation, and the operation is stopped by the judge <input type="checkbox"/> The car fuse is blown because of improper operation <input type="checkbox"/> Fault points have been incorrectly identified for three times <p>Veto item: The competitor is disqualified for damaging the car or equipment</p>	10	
		5S specifications	<ul style="list-style-type: none"> <input type="checkbox"/> The instruments, tools and parts drop down or are not placed neatly <input type="checkbox"/> After each test, the test equipment was not properly placed, mainly including that the equipment and tools are placed in the engine compartment or the ground or other improper places, and the power was not turned off after the use of the equipment 	1.5	

			<input type="checkbox"/> The workstation is not restored to the original standard layout		
B2	Abnormal operation of power system, and access and start permit system (20 points)	Description of fault phenomenon	<input type="checkbox"/> The fault symptoms are not recorded correctly on the competitor report	2	
		Cause analysis	<input type="checkbox"/> The possible fault range is not analyzed correctly on the competitor report	3	
		Measurement data recording of fault point 1	<input type="checkbox"/> The measurement data is not recorded correctly on the competitor report	5	
		Drawing of related schematic circuit diagrams	<input type="checkbox"/> Schematic circuit diagrams are not drawn correctly on the competitor report	3	
		Diagnosis: <u>open circuit in the start button</u> (Determine the specific fault point based on the vehicle model)	<input type="checkbox"/> The fault points are not recorded correctly on the competitor report <input type="checkbox"/> Parts damaged (or fault type) are not shown	4	
		Maintenance: Replace the start button correctly	<input type="checkbox"/> The measurement data or test data flow that can be used to determine the minimum fault point is not properly recorded	1	
<input type="checkbox"/> The start button is not replaced according to correct procedures (turn off the ignition switch) The competitor removes the component fault	2				
B3	Abnormal operation of electrical system of car body accessories (40 points)	Description of the fault phenomenon 1	<input type="checkbox"/> The fault symptoms are not recorded correctly on the competitor report	2	
		Cause analysis	<input type="checkbox"/> The possible fault range is not analyzed correctly on the competitor report	3	
		Measurement data recording of fault point	<input type="checkbox"/> The measurement data is not recorded correctly on the competitor report	5	
		Drawing of related schematic circuit diagrams	<input type="checkbox"/> Schematic circuit diagrams are not drawn correctly on the competitor report	3	
		Diagnosis: <u>open circuit in the electric window relay</u> (Determine the specific fault point based on the vehicle model)	<input type="checkbox"/> The fault points are not recorded correctly on the competitor report <input type="checkbox"/> Parts damaged (or fault type) are not shown	4	
		Maintenance: replace the electric window relay correctly	<input type="checkbox"/> The measurement data or test data flow that can be used to determine the minimum fault point is not properly recorded	1	
<input type="checkbox"/> The start button is not replaced according to correct procedures (turn off the ignition switch)	2				

			The competitor removes the component fault		
				
		Description of the fault phenomenon 2	<input type="checkbox"/> The fault symptoms are not recorded correctly on the competitor report	2	
		Cause analysis	<input type="checkbox"/> The possible fault range is not analyzed correctly on the competitor report	3	
		Measurement data recording of fault point	<input type="checkbox"/> The measurement data is not recorded correctly on the competitor report	5	
		Drawing of related schematic circuit diagrams	<input type="checkbox"/> Schematic circuit diagrams are not drawn correctly on the competitor report	3	
		Diagnosis: <u>The line between the middle plug of the earth wire for the main door lock switch and the ground is open (Determine the specific fault point based on the vehicle model)</u>	<input type="checkbox"/> The fault points are not recorded correctly on the competitor report <input type="checkbox"/> The fault section is not indicated on the schematic circuit diagram <input type="checkbox"/> The fault point is recorded accurately on the competitor report, but the middle plug locking the minimum fault point is not disconnected for measurement confirmation	4	
		Maintenance: Measure and display the connection of repaired lines	<input type="checkbox"/> The measurement data or test data flow that can be used to determine the minimum fault point is not properly recorded	1	
			<input type="checkbox"/> The repaired lines are not properly measured and displayed	2	
				
B4	Abnormal operation of lighting system (20 points)	Description of fault phenomenon	<input type="checkbox"/> The fault symptoms are not recorded correctly on the competitor report	2	
		Cause analysis	<input type="checkbox"/> The possible fault cause is not analyzed correctly on the competitor report	3	
		Measurement data recording of fault point	<input type="checkbox"/> The measurement data is not recorded correctly on the competitor report	5	
		Drawing of related schematic circuit diagrams	<input type="checkbox"/> Schematic circuit diagrams are not drawn correctly on the competitor report	3	
		Diagnosis: <u>The earth wires of left and right reversing lights are disconnected at the earthing point of the car body (Determine the specific fault point based on the vehicle model)</u>	<input type="checkbox"/> The fault points are not recorded correctly on the competitor report <input type="checkbox"/> The fault section is not indicated on the schematic circuit diagram <input type="checkbox"/> The fault point is recorded accurately on the competitor report, but the fault point	4	

			measurement is not confirmed		
		Maintenance: Measure and display the connection of repaired lines	<input type="checkbox"/> The measurement data or test data flow that can be used to determine the minimum fault point is not properly recorded	1	
			<input type="checkbox"/> The repaired lines are not properly measured and displayed The judge removes the line fault	2	
				
Total				100	