SEG Awards Level 2

Motor Vehicle Studies

**Underpinning Knowledge Evidence Record**

**H/601/5555 Knowledge of Removing and Replacing Motorcycle Electrical Units and Components**

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| --- | --- |
| **Learners Name** |  |
| **SEG Awards Registration Number** |  |
| **Centre Name** |  |
| **Assessor 1 Name** |  |
| **Assessor 2 Name** |  |

**DECLARATION OF AUTHENTICITY**

This declaration must be completed and signed by the learner and countersigned by the tutor / assessor and covers all evidence submitted for moderation.

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| --- | --- | --- | --- |
| Learner Name |  | | |
| Unique Learner Number (ULN) |  | SEG  Learner Reg. ID |  |
| Qualification Title |  | | |
| Centre Name |  | | |

# Learner statement of authenticity

**Before signing please read the guidance below**.

I confirm, that the attached assignment / portfolio is all my own work[[1]](#footnote-1) and does not include any work completed by anyone other than myself. I have completed the assignment / portfolio in accordance with SEG Awards’ instructions and within the time limits set by my centre.

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| --- | --- | --- | --- |
| Signature |  | Date |  |

# Centre confirmation of authenticity

On behalf of …………………………………….(insert centre name), I confirm that the above mentioned learner, to the best of my knowledge, is the sole author of the completed assignment / portfolio attached, and the assessments have been completed under the required conditions.

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| Signed |  | Date |  |
| Name |  | | |
| Title |  | | |

**Guidance for Learners**

You have been asked to sign this Declaration of Authenticity and place it at the front of your portfolio or course work assessment. It confirms that the work you have submitted for assessment is your own and that you have not copied it from someone else or allowed another learner to copy it from you.

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| 8 | Methods of testing | 4.1, 4.2, 4.3, 4.4 |

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| **Task 1 – Basic electrical circuits** | **Assessment Criteria 1.1, 1.2, 1.4** |

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| **Identify and explain the meaning of these electrical wiring diagram symbols and units** | |
| **Symbol/unit** | **Meaning and function of component** |
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| **Draw a simple motorcycle starting and charging circuit incorporating electrical symbols and earths** |
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| **Task 2 – Cables and connectors** | **Assessment Criteria 1.5** |

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| **Identify and describe the uses of these electrical connectors** | |
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| **Identify and describe the uses of these electrical wire types** | |
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| **Task 3 – Electrical principles** | **Assessment Criteria 1.7, 1.8,** |

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| **Identify 4 electrical units of measurements commonly used in electrical circuits in the table below** | |
| **Electrical Unit** | **Explanation of principle** |
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| **Using Ohms Law calculate the missing values in the table below** | | |
| **Volts** | **Amps** | **Resistance** |
| **12** | **2** |  |
| **12** |  | **1.5Ω (Ohms)** |
|  | **2.2** | **6Ω (Ohms)** |

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| **A motorcycle electrical circuit with no faults when tested should read** | | | | | |
| **Volts** | | **Amps** | | | **Resistance** |
| **12** | | **4** | | | **3** |
| **From the readings below identify the type of circuit fault** | | | | | |
| **Volts** | **Amps** | | **Resistance** | **Type of Circuit fault** | |
| **12** | **0** | | **0Ω (Ohms)** |  | |
| **5** | **20** | | **0.2Ω (Ohms)** |  | |
| **12** | **0.5** | | **24Ω (Ohms)** |  | |

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| **Task 4 – Motorcycle circuit protection devices** | **Assessment Criteria 1.3** |

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| **Draw two circuit protection devices below** | **Describe their operation** |
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| **Task 5 – Sensors and actuators** | **Assessment Criteria 1.6** |

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| **Sensor/actuator** | **Briefly describe the construction and basic operation of the following sensors/actuators** |
| **Cooling sensors** |  |
| **Lambda sensor** |  |
| **Crank shaft position sensor** |  |
| **Throttle position sensor** |  |
| **Exhaust valve actuator** |  |

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| **Task 6 – Batteries, starting and charging systems** | **Assessment 2.1, 2.2, 2.3, 2.4** |

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| **Identify and explain the construction and operation of these batteries, starting and charging system components and compare against alternatives** | | | |
|  |  | http://image.made-in-china.com/2f0j00nMsQCSGlhthR/Motorcycle-Starter-Relay-DQ-J012-.jpg |  |
|  |  | http://universal-alternators.co.uk/Images/Content/Motorcycle%20Alternator.jpg |  |
|  |  | http://lh4.ggpht.com/_UwUXsVBsPZ0/Sa_dYILsdwI/AAAAAAAAAQQ/f-ZQ2xzpJxo/Stator& |  |
| http://img.alibaba.com/img/pb/024/449/226/1254032988657jpg.jpg |  | http://img.diytrade.com/cdimg/943726/9400082/0/1245137617/2012_Regulator.jpg |  |

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| **Task 7 – Auxiliary system components** | **Assessment 3.1, 3.2, 3.3, 3.4** |

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| **Indentify the construction and operation of auxiliary systems** | | |
| **Name of Auxiliary System** | **Construction** | **Operation** |
| **1.** |  |  |
| **2.** |  |  |
| **3.** |  |  |
| **4.** |  |  |
| **For the above systems compare a range of alternative auxiliary system to identify differences in construction and operation** | | |
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| **Task 8 – Methods of testing** | **Assessment 4.1, 4.2, 4.3, 4.4,** |

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| **Describe how you would safely remove motorcycle electrical and electronic components** |
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| **Identify 4 items of electrical test equipment, safety checks and how to use the equipment safely in the table below** | | |
| **Name** | **Safety checks**  **(where appropriate)** | **Describe testing method** |
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| **Identify 4 common faults found in motorcycle electrical systems and components** | | |
| **Fault** | **Symptom** | **Cause** |
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| **Explain how you would test and evaluate the performance of replacement units against manufacturers’ specifications** |
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1. Unless otherwise stated e.g. for some entry level qualifications, learners can work together but should identify sections which are their own work. [↑](#footnote-ref-1)