SEG Awards Level 2

Motor Vehicle Studies

**Underpinning Knowledge Evidence Record**

Y/601/5519 Knowledge of Motor Cycle Internal Engine Systems

|  |  |
| --- | --- |
| **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.

|  |  |  |  |
| --- | --- | --- | --- |
| 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.

|  |  |  |  |
| --- | --- | --- | --- |
| 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.

|  |  |  |  |
| --- | --- | --- | --- |
| 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.

When preparing any course work it is good practice to undertake research using information from published sources. If you quote directly from these sources then this must be indicated in your work by using quotation marks and referencing the document from which the quotation was taken. You must then comment in your own words on any ideas expressed.

Assessors, internal verifiers and SEG Awards’ external moderators and verifiers are subject specialists who can spot the use of published materials that may be passed as your own words or ideas.

If you do copy words from a published source and do not indicate their reference you will be committing plagiarism. This is considered a form of cheating and may result in your assessment being declared void.

**Contents**

|  |  |  |
| --- | --- | --- |
| **Task No** | **Title** | **Assessment Criteria** |
| 1 | Engine components | 1.1, 1.2 |
| 2 | Engine configuration | 1.3 |
| 3 | Engineering terms | 1.4, 1.5 |
| 4 | Engine lubrication | 2.1, 2.2, 2.3, 2.4, 2.5 |
| 5 | Cooling systems | 3.1, 3.2, 3.3. 3.5 |
| 6 | Clutch and transmission systems | 4.1, 4.2, 4.3. |
| 7 | Powertrain systems | 5.1, 5.2, 5.3, 5.4 |

|  |  |
| --- | --- |
| **Task 1 – Engine components** | **Assessment Criteria 1.1, 1.2** |

|  |  |
| --- | --- |
| **Label the engine components in the table below** | |
|  | |
|
|
|
|
|
|
|
|
|
|
|
| **Briefly describe the function of the labelled engine components** | |
| **Component** | **Function** |
| **A** |  |
| **B** |  |
| **C** |  |
| **D** |  |
| **E** |  |
| **F** |  |
| **G** |  |
| **H** |  |
| **I** |  |
| **J** |  |
| **K** |  |
| **L** |  |

|  |  |
| --- | --- |
| **Task 2 – Engine configuration** | **Assessment Criteria 1.3** |

|  |  |
| --- | --- |
| **Investigate THREE engine configurations and complete the table below** | |
|  | |
| **Compare and list differences in operation of;** | |
| **Transverse (in-line)** |  |
| **Flat (Boxer)** |  |
| **V configuration** |  |

|  |  |
| --- | --- |
| **Compare the construction and operation of the following engine types** | |
| **2 Stroke** | **4 Stroke** |
|  |  |

|  |  |
| --- | --- |
| **Task 3 – Engineering terms** | **Assessment Criteria 1.4, 1.5** |

|  |  |
| --- | --- |
| **Describe what is meant by the following engineering terms** | |
| **Compression ratio** |  |
| **Cylinder capacity (CC)** |  |
| **Power** |  |
| **Torque** |  |
| **TDC** |  |
| **BDC** |  |
| **Stroke** |  |
| **Bore** |  |

|  |  |
| --- | --- |
| **Task 4 – Engine lubrication** | **Assessment Criteria 2.1, 2.2, 2.3, 2.4, 2.5** |

|  |
| --- |
| **Label the lubrication system components** |
|  |
|
|
|
|

|  |  |  |
| --- | --- | --- |
| **Describe the advantages and disadvantages of wet and dry engine lubrication systems** | | |
| **Wet** | **Dry** | **Total Loss** |
|  |  |  |

|  |
| --- |
| **Explain classification of lubricants including properties and methods of reducing friction** |
|  |

|  |  |
| --- | --- |
| **Task 5 – Cooling systems** | **Assessment Criteria 3.1, 3.2, 3.3. 3.5** |

|  |  |
| --- | --- |
| **Label the cooling system components** | |
|  | |
|
|
|
|
|
|
|
|
|
|
|
|  | **Component** |
| **A** |  |
| **B** |  |
| **C** |  |
| **D** |  |
| **E** |  |
| **F** |  |
| **G** |  |
| **H** |  |
| **I** |  |
| **J** |  |
| **K** |  |

|  |  |
| --- | --- |
| **Describe the advantages and disadvantages of water and air cooling systems** | |
| **water** | **Air** |
|  |  |

|  |  |
| --- | --- |
| **Explain the following engineering terms** | |
| **Heat transfer** |  |
| **Linear and cubical expansion** |  |
| **Specific heat capacity** |  |
| **Boiling point of liquids** |  |

|  |  |
| --- | --- |
| **Task 6 – Clutch and transmission systems** | **Assessment Criteria 4.1, 4.2, 4.3.** |

|  |  |
| --- | --- |
| **Identify the labelled motorcycle clutch assembly components below** | |
|  | |
|
|
|
|
|
|  | **Component** |
| **A** |  |
| **B** |  |
| **C** |  |
| **D** |  |
| **E** |  |
| **F** |  |
| **G** |  |
| **H** |  |
| **I** |  |
| **J** |  |
| **K** |  |
| **L** |  |
| **M** |  |
| **N** |  |
| **O** |  |
| **P** |  |

|  |  |
| --- | --- |
| **Identify and explain the operation of these motorcycle clutch and transmission systems and compare their construction** | |
|  |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Task 7 – Powertrain systems** | **Assessment Criteria 5.1, 5.2, 5.3, 5.4** |

|  |  |
| --- | --- |
| **Describe how to remove and replace these powertrain components** | |
| **Engine** |  |
| **Gearbox** |  |
| **Driveshaft** |  |
| **Drive chain** |  |

|  |  |  |
| --- | --- | --- |
| **Describe 2 different methods of testing these powertrain components and the purpose of each test. Include how you would compare against manufacturer specification** | | |
|  | **Test method 1** | **Test method 2** |
| **Engine** |  |  |
| **Gearbox** |  |  |
| **Driveshaft** |  |  |
| **Drive chain** |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Give at least 3 examples of common powertrain faults and common causes for each** | | | |
|  | **Fault 1** | **Fault 2** | **Fault 3** |
| **Engine** |  |  |  |
| **Gearbox** |  |  |  |
| **Driveshaft** |  |  |  |
| **Drive chain** |  |  |  |

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)