

Assessment Requirements

Unit G4K – Knowledge of Materials, Fabrication, Tools and Measuring Devices used in the Automotive Environment

Content:

Common types of hand tools used for fabricating and fitting in the automotive workplace. To include:

- a. files
- b. hacksaws and snips
- c. hammers
- d. screwdrivers
- e. pliers
- f. spanners
- g. sockets
- h. punches
- i. types of drill and drill bits
- j. taps and dies
- k. stud removers
- l. marking out tools

Common measuring devices used for fabrication and fitting in the automotive workplace. To include:

- a. rule/tape
- b. callipers
- c. feeler gauge
- d. volume measures
- e. micrometer
- f. dial gauges
- g. torque wrenches
- h. depth gauges

Common electrical measuring tools used in the repair of vehicles and components. To include:

- a. ammeter
- b. voltmeter
- c. ohmmeter
- d. multi-meter

Common electrical terms when measuring:

- a. voltage
- b. current
- c. resistance

Workshop equipment (including appropriate PPE). To include:

- a. hydraulic jacks
- b. axle stands
- c. pillar drills
- d. air tools
- e. vehicle lifts
- f. cranes
- g. hoists

h. electrical power tools

Properties, application and limitations (to include safe use) of ferrous and non-ferrous metals used when constructing, modifying and repairing vehicles and components. Materials to include:

- a. carbon steels
- b. alloy steels
- c. cast iron
- d. aluminium alloys
- e. brass
- f. copper
- g. lead

Properties, application and limitations (to include safe use) of non-metallic materials used when constructing, modifying and repairing vehicles and components. Materials to include:

- a. glass
- b. plastics (inc. GRP)
- c. Kevlar
- d. rubber

Terms relating to the properties of materials. To include:

- a. hardness
- b. toughness
- c. ductility
- d. elasticity
- e. tenacity
- f. malleability
- g. plasticity