

Assessment Requirements

Unit AE03K – Knowledge of Overhauling Electrical Units

Content:

The various types of generators fitted to motor vehicles

- a. Generators must include:
 - i. alternator with an internal regulator
 - ii. alternator with an external regulator
 - iii. alternator with a separate regulator
 - iv. DC generators

The operating principles of each generator

- a. Generators must include:
 - i. alternators with an internal regulator
 - ii. alternators with an external regulator
 - iii. alternators with a separate regulator
 - iv. DC generators

The components and how they function within each type of generator

- a. Generators must include:
 - i. alternators with an internal regulator
 - ii. alternators with an external regulator
 - iii. alternators with a separate regulator
 - iv. DC generators
- b. Components must include:
 - i. rotors
 - ii. stators
 - iii. rectifiers
 - iv. regulator
 - v. slip rings
 - vi. bearings
 - vii. housings
 - viii. fans and pulleys
 - ix. armatures
 - x. field windings
 - xi. brushes and brush boxes
 - xii. surge protection diode

Test each component within each type of generator

- a. Generators must include:
 - i. alternators with an internal regulator
 - ii. alternators with an external regulator
 - iii. alternators with a separate regulator
 - iv. DC generators
- b. Components must include:
 - i. rotors
 - ii. stators
 - iii. rectifiers
 - iv. regulator
 - v. slip rings
 - vi. bearings

- vii. housings
 - viii. fans and pulleys
 - ix. armatures
 - x. field windings
 - xi. brushes and brush boxes
 - xii. surge protection diode
- c. Tools must include:
- i. voltmeters
 - ii. ammeters
 - iii. ohmmeters
 - iv. insulation testers
 - v. regulator testers

Symptoms and faults associated with basic generators

- a. Generators must include:
- i. alternators with an internal regulator
 - ii. alternators with an external regulator
 - iii. alternators with a separate regulator
 - iv. DC generators

Test procedures for the repaired generators and evaluate the results

- a. Generators must include:
- i. alternators with an internal regulator
 - ii. alternators with an external regulator
 - iii. alternators with a separate regulator
 - iv. DC generators
- b. Tools must include:
- i. voltmeters
 - ii. ammeters
 - iii. specialist test equipment

The various types of starter motor fitted to motor vehicles

- a. Starter motors must include:
- i. inertia starter motors
 - ii. pre-engaged starter motors
 - iii. axial starter motors
 - iv. co-axial starter motors

The operating principles of each type of starter motor

- a. Starter motors must include:
- i. pre-engaged starter motors
 - ii. axial starter motors
 - iii. co-axial starter motors
 - iv. gear reduction starters add

The components and how they function within each type of starter motors

- a. Starter motors must include:
- i. pre-engaged starter motors
 - ii. axial starter motors
 - iii. co-axial starter motors
 - iv. gear reduction starters add
- b. Components must include:
- i. armatures
 - ii. field windings
 - iii. brushes and brush boxes

- iv. bearings and bushes
- v. solenoids
- vi. drive gears and clutches
- vii. housings
- viii. fans and pulleys
- ix. reduction gears

Test each component within each type of starter motors

- a. Starter motors must include:
 - i. pre-engaged starter motors
 - ii. axial starter motors
 - iii. co-axial starter motors
 - iv. gear reduction starters. add
- a. Components must include:
 - i. armatures
 - ii. field windings
 - iii. brushes and brush boxes
 - iv. bearings and bushes
 - v. solenoids
 - vi. drive gears and clutches
 - vii. housings
 - viii. fans and pulleys
 - ix. reduction gears
- c. Tools must include:
 - i. voltmeters
 - ii. ammeters
 - iii. ohmmeters
 - iv. insulation testers

Symptoms and faults associated with starter motors

- a. Starter motors must include:
 - i. pre-engaged starter motors
 - ii. axial starter motors
 - iii. co-axial starter motors
 - iv. gear reduction. add

Tests and adjustment procedures for the repaired starter motors and evaluate the results

- a. Starter motors must include:
 - i. pre-engaged starter motors
 - ii. axial starter motors
 - iii. co-axial starter motors
 - iv. gear reduction add
- b. Tools must include:
 - i. voltmeters
 - ii. ammeters
 - iii. specialist test equipment
 - iv. lock torque testers