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| Title | **Install and repair charging system of a vehicle** |
| Level | **2** | **Credits** | **15** |

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| Purpose | This Competency Standard identifies the competencies required toinstall and Repair Charging System of Vehicle byAuto Electrician in accordance with the organization’s approved guidelines and procedures. Trainee will be expected toidentify chargingsystem’s common problems and to figure out possible solutions, either by repairing or replacing the parts of the charging system of the vehicle. Trainee’sunderpinning knowledge regarding tools, techniques, methods and procedures for installation and repairing charging system of a vehicle will be sufficient to provide Trainee the basis for his/ her work. |

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| Classification ISCED | 0716 Motor vehicles, ships and aircraft |

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| Available grade | Competent / Not yet competent |

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| Modification history | N/A |

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| **Unit of Competency** | **Performance Criteria** | **Knowledge** | **Tools & Equipment** |
| E1: Diagnose faults in Charging system of vehicle | *TraineeMust be able to:*P1. Carry out tests on following to determine faults:* Check battery warning light
* Alternator output voltage and ampere
* Check tension of belt

P2. Use proper tooling and techniques to perform diagnostic tests.P3. Adopt a method for diagnosing faults in charging system without causing damage.P4. Identify faults and determine repair actions to relevant person.P5. Carry out tests according to guidelines and organization’s procedures/policies.P6. Follow Repair manual for diagnosing fault in charging systemP7. Report the diagnose fault to the concerned department. | *Traineemust be able to know and understand:*K1. Method of using multi-meter.K2. Components and functions of charging system of vehicle.K3. Different types faults in charging system of vehicles.K4. Techniques and procedures of diagnosing faults in charging system.K5. Specific safety precautions and guidelines.K6. Reporting procedures of faults and possible repair actions.K7. Guidelines, procedures and policies of the organization.K8. Read and interpret repair manual. | Multi-meter, Scanner Tool kit ,Spanner set, Screw driver, Pliers,Tester. |

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| **Unit of Competency** | **Performance Criteria** | **Knowledge** | **Tools & Equipment** |
| E2. Replace Faulty Components of Alternator | *TraineeMust be able to:*P1. Select relevant tools and method for the job.P2. Follow repair manual in replacing the faulty components of alternator.P3. Dismantle components of alternator according to repair manual.P4. Check resistance of Integrated Circuit (IC) with multi-meter.P5. Replace faulty components (bearings, stator, carbon brushes, rotor, rectifier, compotator, IC regulator, alternator shaft gear etc) according to procedure.P6. Assemble components of alternator according to repair manual. | *Traineemust be able to know and understand:*K1. Method of using tools and equipment for replacing components of alternator.K2. Procedure of dismantling and assembling the components of alternator.K3. Procedure and methods for replacing different components of alternator according to repair manual.K4. Method of checking resistance of IC with multi-meter.K5. Safety precautions and guidelines. | Multi-meter, Vernier caliper, spanners, sockets. |
| E3. Adjust Tension of Fan Belt | *TraineeMust be able to:*P1. Select Special Service Tool (SST) for adjusting tension of fan belt.P2. Inspect fan belt to identify cracks and replace it.P3. Adopt method for adjusting tension of fan belt according to repair manual.P4. Observe safety precautions and guidelines at all times.P5. Check tension of fan belt using SST and verify the tension of belt with specifications mentioned in repair manual. | *Traineemust be able to know and understand:*K1. Functions and method of using special services tools.K2. Procedure of replacing fan belt safely.K3. Method and techniques for adjusting tension of fan belt.K4. Safety precautions and guidelines.K5. Procedure of checking tension of fan belt using SST.K6. Specifications for tension of fan belts according to repair manual. | Special Services Tools (SST), Spanners, Socket Set, Hammer. |