COMPETENCY STANDARDS

ROLLING STOCK MAINTENANCE
LEVEL II

AUTOMOTIVE AND LAND TRANSPORTATION

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
TESDA Complex East Service Road, South Luzon Expressway (SLEX),
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AUTOMOTIVE AND LAND TRANSPORTATION SECTOR

ROLLING STOCK MAINTENANCE LEVEL II

COMPETENCY STANDARDS FOR
ROLLING STOCK MAINTENANCE LEVEL II

Section 1 ROLLING STOCK MAINTENANCE LEVEL II QUALIFICATIONS

The **ROLLING STOCK MAINTENANCE LEVEL II** Qualification consists of competencies that a person must achieve to perform planned light maintenance and planned heavy maintenance.

The units of competency comprising this qualification include the following:

Code	BASIC COMPETENCIES
400311210	Participate in workplace communication
400311211	Work in team environment
400311212	Solve/address general workplace problems
400311213	Develop career and life decisions
400311214	Contribute to workplace innovation
400311215	Present relevant information
400311216	Practice occupational safety and health policies and procedures
400311217	Exercise efficient and effective sustainable practices in the workplace
400311218	Practice entrepreneurial skills in the workplace
Code	**COMMON COMPETENCIES**
ALT723211	Validate vehicle specification
ALT723212	Move and position vehicle
ALT723213	Utilize vehicle tools
ALT723214	Perform mensuration and calculation
ALT723215	Utilize workshop facilities and equipment
ALT723216	Prepare servicing parts and consumables
ALT723217	Prepare vehicle for servicing and releasing
Code	**CORE COMPETENCIES**
AB-ALT1380900313301	Perform planned light maintenance for rolling stock
AB-ALT1380900313302	Perform planned heavy maintenance for rolling stock

A person who has achieved this Qualification is competent to be:

- **Rolling Stock Technician**

SECTION 2 COMPETENCY STANDARDS

These guidelines are set to provide the Technical Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **Rolling Stock Maintenance Level II.**

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 400311210

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources*** 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information 1.3 Appropriate ***medium*** is used to transfer information and ideas 1.4 Appropriate non-verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and ***storage*** of information are Used 1.7 Personal interaction is carried out clearly and concisely	1.1 Effective verbal and nonverbal communication 1.2 Different modes of communication 1.3 Medium of communication in the workplace 1.4 Organizational policies 1.5 Communication procedures and systems 1.6 Lines of Communication 1.7 Technology relevant to the enterprise and the individual's work responsibilities 1.8 Workplace etiquette	1.1Following simple spoken language 1.2Performing routine workplace duties following simple written notices 1.3Participating in workplace meetings and discussions 1.4Preparing work-related documents 1.5Estimating, calculating and recording routine workplace measures 1.6Relating/ Interacting with people of various levels in the workplace 1.7Gathering and providing basic information in response to workplace requirements 1.8Basic business

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
			writing skills 1.9 Interpersonal skills in the workplace 1.10 Active-listening skills
2. Perform duties following workplace instructions	2.1 Written notices and instructions are read and interpreted in accordance with organizational guidelines 2.2 Routine written instructions are followed based on established procedures 2.3 Feedback is given to workplace supervisor-based instructions/ information received 2.4 ***Workplace interactions*** are conducted in a courteous manner 2.5 Where necessary, clarifications about routine workplace procedures and matters concerning conditions of employment are sought and asked from ***appropriate sources*** 2.6 Meetings outcomes are interpreted and implemented	2.1 Effective verbal and non-verbal communication 2.2 Different modes of communication 2.3 Medium of communication in the workplace 2.4 Organizational/ workplace policies 2.5 Communication procedures and systems 2.6 Lines of 2.7 communication 2.8 Technology relevant to the enterprise and the individual's work responsibilities 2.9 Effective questioning techniques (clarifying and probing) Workplace etiquette	2.1 Following simple spoken instructions 2.2 Performing routine workplace duties following simple written notices 2.3 Participating in workplace meetings and discussions 2.4 Completing work- related documents 2.5 Estimating, calculating and recording routine workplace measures 2.6 Relating/ Responding to people of various levels in the workplace 2.7 Gathering and providing information in response to workplace requirements 2.8 Applying basic questioning/ querying 2.9 Applying skills in reading for information 2.10 Applying skills in locating
3. Complete relevant work-related documents	3.1 Range of ***forms*** relating to conditions of employment are completed accurately and legibly 3.2 Workplace data is recorded on standard	3.1 Effective verbal and non-verbal communication 3.2 Different modes of communication 3.3 Workplace forms and documents	3.1 Completing work- related documents 3.2 Applying operations of addition, subtraction,

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	workplace forms and documents 3.3 Errors in recording information on forms/ documents are identified and acted upon 3.4 Reporting requirements to supervisor are completed according to organizational guidelines	3.4 Organizational/ Workplace policies 3.5 Communication procedures and systems 3.6 Technology relevant to the enterprise and the individual's work responsibilities	division and multiplication 3.3 Gathering and providing information in response to workplace requirements 3.4 Applying Effective record keeping skills

RANGE OF VARIABLES

VARIABLES	RANGE
1. Appropriate sources	May include: 1.1. Team members 1.2. Supervisor/Department Head 1.3. Suppliers 1.4. Trade personnel 1.5. Local government 1.6. Industry bodies
2. Medium	May include: 2.1. Memorandum 2.2. Circular 2.3. Notice 2.4. Information dissemination 2.5. Follow-up or verbal instructions 2.6. Face-to-face communication 2.7. Electronic media (disk files, cyberspace)
3. Storage	May include: 3.1. Manual filing system 3.2. Computer-based filing system
4. Workplace interactions	May include: 4.1. Face-to-face 4.2. Telephone 4.3. Electronic and two-way radio 4.4. Written including electronic means, memos, instruction and forms 4.5. Non-verbal including gestures, signals, signs and diagrams
5. Forms	May include: 5.1. HR/Personnel forms, telephone message forms, safety reports

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Prepared written communication following standard format of the organization 1.2. Accessed information using workplace communication equipment/systems 1.3. Made use of relevant terms as an aid to transfer information effectively 1.4. Conveyed information effectively adopting formal or informal communication
2. Resource Implications	**The following resources should be provided:** 2.1. Fax machine 2.2. Telephone 2.3. Notebook 2.4. Writing materials 2.5. Computer with Internet connection
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Demonstration with oral questioning 3.2. Interview 3.3. Written test 3.4. Third-party report
4. Context for Assessment	4.1. Competency may be assessed individually in the actual workplace or through an accredited institution

UNIT OF COMPETENCY : WORK IN A TEAM ENVIRONMENT

UNIT CODE : 400311211

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify one's roles and responsibilities as a member of a team.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Describe team role and scope	1.1 The ***role and objective of the team*** is identified from available ***sources of information*** 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources	1.1 Group structure 1.2 Group development 1.3 Sources of information	1.1 Communicating with others, appropriately consistent with the culture of the workplace 1.2 Developing ways in improving work structure and performing respective roles in the group or organization
2. Identify one's role and responsibility within a team	2.1 Individual roles and responsibilities within the team environment are identified 2.2 Roles and objectives of the team are identified from available ***sources of information*** 2.3 Team parameters, reporting relationships and responsibilities are identified based on team discussions and appropriate external sources	2.1 Team roles and objectives 2.2 Team structure and parameters 2.3 Team development 2.4 Source of 2.5 information	2.1 Communicating with others, appropriately consistent with the culture of the workplace 2.2 Developing ways in improving work structure and performing respective roles in the group or organization

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Work as a team member	3.1 Effective and appropriate forms of communications are used and interactions undertaken with team members based on company practices. 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on ***workplace context*** 3.3 Protocols in reporting are observed based on standard company practices. 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives	3.1 Communication Process 3.2 Workplace communication protocol 3.3 Team planning and decision making 3.4 Team thinking 3.5 Team roles 3.6 Process of team development 3.7 Workplace context	3.1 Communicating appropriately, consistent with the culture of the workplace 3.2 Interacting effectively with others 3.3Deciding as an individual and as a group using group think strategies and techniques 3.4Contributing to Resolution of issues and concerns

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	May include: 1.1. Work activities in a team environment with enterprise or specific sector 1.2. Limited discretion, initiative and judgement maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	May include: 2.1. Standard operating and/or other workplace procedures 2.2. Job procedures 2.3. Machine/equipment manufacturer's specifications and instructions 2.4. Organizational or external personnel 2.5. Client/supplier instructions 2.6. Quality standards 2.7. OHS and environmental standards

VARIABLE	RANGE
3. Workplace context	May include: 3.1. Work procedures and practices 3.2. Conditions of work environments 3.3. Legislation and industrial agreements 3.4. Standard work practice including the storage, safe handling and disposal of chemicals 3.5. Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Worked in a team to complete workplace activity 1.2. Worked effectively with others 1.3. Conveyed information in written or oral form 1.4. Selected and used appropriate workplace language 1.5. Followed designated work plan for the job
2. Resource Implications	**The following resources should be provided:** 2.1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2. Materials relevant to the proposed activity or tasks
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Role play involving the participation of individual member to the attainment of organizational goal 3.3. Case studies and scenarios as a basis for discussion of issues and strategies in teamwork 3.4 Socio-drama and socio-metric methods 3.5 Sensitivity techniques 3.6 Written Test
4. Context for Assessment	4.1. Competency may be assessed in workplace or in a simulated workplace setting 4.2. Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY : **SOLVE/ADDRESS GENERAL WORKPLACE PROBLEMS**

UNIT CODE : **400311212**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to apply problem-solving techniques to determine the origin of problems and plan for their resolution. It also includes addressing procedural problems through documentation, and referral.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify routine problems	1.1 Routine **problems or procedural problem** areas are identified 1.2 Problems to be investigated are defined and determined 1.3 Current conditions of the problem are identified and documented	1.1 Current industry hardware and software products and services 1.2 Industry maintenance, service and helpdesk practices, processes and procedures 1.3 Industry standard diagnostic tools 1.4 Malfunctions and resolutions	1.1 Identifying current industry hardware and software products and services 1.2 Identifying current industry maintenance, services and helpdesk practices, processes and procedures. 1.3 Identifying current industry standard diagnostic tools 1.4 Describing common malfunctions and resolutions. 1.5 Determining the root cause of a routine malfunction

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Look for solutions to routine problems	2.1 Potential Solutions to problem are identified 2.2 Recommendations about possible solutions are developed, **documented**, ranked and presented to ***appropriate person*** for decision	2.1 Current industry hardware and software products and services 2.2 Industry service and helpdesk practices, processes and procedures 2.3 Operating systems 2.4 Industry standard diagnostic tools 2.5 Malfunctions and resolutions. 2.6 Root cause analysis	2.1 Identifying current industry hardware and software products and services 2.2 Identifying services and helpdesk practices, processes and procedures. 2.3 Identifying operating system 2.4 Identifying current industry standard diagnostic tools 2.5 Describing common malfunctions and resolutions. 2.6 Determining the root cause of a routine malfunction
3. Recommend solutions to problems	3.1 Implementation of solutions are **planned** 3.2 Evaluation of implemented solutions are planned 3.3 Recommended solutions are documented and submit to appropriate person for confirmation	3.1 Standard procedures 3.2 Documentation produce	3.1 Producing documentation that recommends solutions to problems 3.2 Following established procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Problems/Procedural Problem	May include: 1.1 Routine/non – routine processes and quality problems 1.2 Equipment selection, availability and failure 1.3 Teamwork and work allocation problem 1.4 Safety and emergency situations and incidents 1.5 Work-related problems outside of own work area
2. Appropriate person	May include: 2.1 Supervisor or manager 2.2 Peers/work colleagues 2.3 Other members of the organization
3. Document	May include: 3.1 Electronic mail 3.2 Briefing notes 3.3 Written report 3.4 Evaluation report
4. Plan	May include: 4.1 Priority requirements 4.2 Co-ordination and feedback requirements 4.3 Safety requirements 4.4 Risk assessment 4.5 Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Determined the root cause of a routine problem 1.2 Identified solutions to procedural problems. 1.3 Produced documentation that recommends solutions to problems. 1.4 Followed established procedures. 1.5 Referred unresolved problems to support persons.
2. Resource Implications	2.1. Assessment will require access to a workplace over an extended period, or a suitable method of gathering evidence of operating ability over a range of situations.

3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Case Formulation 3.2 Life Narrative Inquiry 3.3 Standardized test The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY : DEVELOP CAREER AND LIFE DECISIONS

UNIT CODE : 400311213

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes in managing one's emotions, developing reflective practice, and boosting self-confidence and developing self-regulation.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Manage one's emotion	1.1 **Self-management strategies** are identified 1.2 Skills to work independently and to show initiative, to be conscientious, and persevering in the face of setbacks and frustrations are developed 1.3 Techniques for effectively handling negative emotions and **unpleasant situation i**n the workplace are examined	1.1 Self-management strategies that assist in regulating behavior and achieving personal and learning goals (e.g. Nine self-management strategies according to Robert Kelley) 1.2 Enablers and barriers in achieving personal and career goals 1.3 Techniques in handling negative emotions and unpleasant situation in the workplace such as frustration, anger, worry, anxiety, etc.	1.1 Managing properly one's emotions and recognizing situations that cannot be changed and accept them and remain professional 1.2 Developing self-discipline, working independen tly and showing initiative to achieve personal and career goals 1.3 Showing confidence, and resilience in the face of setbacks and frustrations and other negative emotions and unpleasant situations in the workplace

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Develop reflective practice	2.1 Personal strengths and achievements, based on self-assessment strategies and teacher feedback are contemplated 2.2 Progress when seeking and responding to feedback from teachers to assist them in consolidating strengths, addressing weaknesses and fulfilling their potential are monitored 2.3 Outcomes of personal and academic challenges by reflecting on previous problem solving and decision-making strategies and feedback from peers and teachers are predicted	2.1 Basic SWOT analysis 2.2 Strategies to improve one's attitude in the workplace 2.3 Gibbs' Reflective Cycle/Model (Description, Feelings, Evaluation, Analysis, Conclusion, and Action plan)	2.1 Using the basic SWOT analysis as self-assessment strategy 2.2 Developing reflective practice through realization of limitations, likes/ dislikes; through showing of self-confidence 2.3 Demonstrating self-acceptance and being able to accept challenges
3. Boost self-confidence and develop self-regulation	3.1 Efforts for continuous self-improvement are demonstrated 3.2 Counter-productive tendencies at work are eliminated 3.3 Positive outlook in life are maintained.	3.1 Four components of self-regulation based on Self-Regulation Theory (SRT) 3.2 Personality development concepts 3.3 Self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psycho-spiritual concepts)	3.1 Performing effective communication skills – reading, writing, conversing skills 3.2 Showing affective skills – flexibility, adaptability, etc. 3.3 Self-assessment for determining one's strengths and weaknesses

RANGE OF VARIABLES

VARIABLE	RANGE
1. Self-management strategies	May include: 1.1 Seeking assistance in the form of job coaching or mentoring 1.2 Continuing dialogue to tackle workplace grievances 1.3 Collective negotiation/bargaining for better working conditions 1.4 Share your goals to improve with a trusted co-worker or supervisor 1.5 Make a negativity log of every instance when you catch yourself complaining to others 1.6 Make lists and schedules for necessary activities
2. Unpleasant situation	May include: 2.1 Job burn-out 2.2 Drug dependence 2.3 Sulking

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Express emotions appropriately 1.2 Work independently and show initiative 1.3 Consistently demonstrate self-confidence and self- discipline
2. Resource Implications	**The following resources should be provided:** 2.1. Access to workplace and resource s 2.2. Case studies
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Demonstration or simulation with oral questioning 3.2. Case problems involving work improvement and sustainability issues 3.3. Third-party report
4. Context for Assessment	4.1. Competency assessment may occur in workplace or any appropriately simulated environment

UNIT OF COMPETENCY : CONTRIBUTE TO WORKPLACE INNOVATION

UNIT CODE : 400311214

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to make a pro-active and positive contribution to workplace innovation.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify opportunities to do things better	1.1 ***Opportunities for improvement*** are identified proactively in own area of work. 1.2 ***Information*** are gathered and reviewed which may be relevant to ideas and which might assist in gaining support for idea.	1.1 Roles of individuals in suggesting and making improvements. 1.2 Positive impacts and challenges in innovation. 1.3 Types of changes and responsibility. 1.4 Seven habits of highly effective people.	1.1 Identifying opportunities to improve and to do things better. Involvement. 1.2 Identifying the positive impacts and the challenges of change and innovation. 1.3 Identifying examples of the types of changes that are within and outside own scope of responsibility
2. Discuss and develop ideas with others	2.1 ***People who could provide input*** to ideas for improvements are identified. 2.2 Ways of approaching people to begin sharing ideas are selected. 2.3 Meeting is set with relevant people. 2.4 Ideas for follow up are review and selected based on feedback. 2.5 ***Critical inquiry method*** is used to discuss and develop ideas with others.	2.1 Roles of individuals in suggesting and making improvements. 2.2 Positive impacts and challenges in innovation. 2.3 Types of changes and responsibility 2.4 Seven habits of highly effective people.	2.1 Identifying opportunities to improve and to do things better. Involvement. 2.2 Identifying the positive impacts and the challenges of change and innovation. 2.3 Providing examples of the types of changes that are within and outside own scope of responsibility 2.4 Communicating ideas for change through small group discussions and

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
			meetings.
3. Integrate ideas for change in the workplace.	3.1 Critical inquiry method is used to integrate different ideas for change of key people. 3.2 Summarizing, analyzing and generalizing skills are used to extract salient points in the pool of ideas. 3.3 ***Reporting skills*** are likewise used to communicate results. 3.4 ***Current Issues and concerns*** on the systems, processes and procedures, as well as the need for simple innovative practices are identified.	3.1 Roles of individuals in suggesting and making improvements. 3.2 Positive impacts and challenges in innovation. 3.3 Types of changes and responsibility. 3.4 Seven habits of highly effective people. 3.5 Basic research skills.	3.1 Identifying opportunities to improve and to do things better. Involvement. 3.2 Identifying the positive impacts and the challenges of change and innovation. 3.3 Providing examples of the types of changes that are within and outside own scope of responsibility. 3.4 Communicating ideas for change through small group discussions and meetings. 3.5 Demonstrating skills in analysis and interpretation of data.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Opportunities for improvement	May include: 1.1 Systems. 1.2 Processes. 1.3 Procedures. 1.4 Protocols. 1.5 Codes. 1.6 Practices.
2. Information	May include: 2.1 Workplace communication problems. 2.2 Performance evaluation results. 2.3 Team dynamics issues and concerns. 2.4 Challenges on return of investment 2.5 New tools, processes and procedures. 2.6 New people in the organization.
3. People who could provide input	May include: 3.1 Leaders. 3.2 Managers. 3.3 Specialists. 3.4 Associates. 3.5 Researchers. 3.6 Supervisors. 3.7 Staff. 3.8 Consultants (external) 3.9 People outside the organization in the same field or similar expertise/industry. 3.10 Clients
4. Critical inquiry method	May include: 4.1 Preparation. 4.2 Discussion. 4.3 Clarification of goals. 4.4 Negotiate towards a Win-Win outcome. 4.5 Agreement. 4.6 Implementation of a course of action. 4.7 Effective verbal communication. See our pages: Verbal Communication and Effective Speaking. 4.8 Listening. 4.9 Reducing misunderstandings is a key part of effective negotiation. 4.10 Rapport Building. 4.11 Problem Solving. 4.12 Decision Making. 4.13 Assertiveness. 4.14 Dealing with Difficult Situations.

VARIABLES	RANGE
5. Reporting skills	May include: 5.1 Data management. 5.2 Coding. 5.3 Data analysis and interpretation. 5.4 Coherent writing. 5.5 Speaking.

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified opportunities to do things better. 1.2 Discussed and developed ideas with others on how to contribute to workplace innovation. 1.3 Integrated ideas for change in the workplace. 1.4 Analyzed and reported rooms for innovation and learning in the workplace.
2. Resource Implications	**The following resources should be provided:** 2.1 Pens, papers and writing implements. 2.2 Cartolina 2.3 Manila papers
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Psychological and behavioral Interviews 3.2 Performance Evaluation 3.3 Life Narrative Inquiry 3.4 Review of portfolios of evidence and third-party workplace reports of on-the-job performance. 3.5 Sensitivity analysis 3.6 Organizational analysis 3.7 Standardized assessment of character strengths and virtues applied
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY : PRESENT RELEVANT INFORMATION

UNIT CODE : 400311215

UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to present data/information appropriately.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Gather data/ information	1.1 Evidence, facts and information are collected 1.2 Evaluation, terms of reference and conditions are reviewed to determine whether data/information falls within project scope	1.1 Organizational protocols 1.2 Confidentiality 1.3 Accuracy 1.4 Business mathematics and statistics 1.5 Data analysis techniques/procedures 1.6 Reporting requirements to a range of audiences 1.7 Legislation, policy and procedures relating to the conduct of evaluations 1.8 Organizational values, ethics and codes of conduct	1.1 Describing organizational protocols relating to client liaison 1.2 Protecting confidentiality 1.3 Describing accuracy 1.4 Computing business mathematics and statistics 1.5 Describing data analysis techniques/ procedures 1.6 Reporting requirements to a range of audiences 1.7 Stating legislation, policy and procedures relating to the conduct of evaluations 1.8 Stating organizational values, ethics and codes of conduct

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Assess gathered data/ information	2.1 Validity of data/ information is assessed 2.2 Analysis techniques are applied to assess data/ information. 2.3 Trends and anomalies are identified 2.4 ***Data analysis techniques*** and procedures are documented 2.5 Recommendations are made on areas of possible improvement.	2.1 Business mathematics and statistics 2.2 Data analysis techniques/ procedures 2.3 Reporting 2.4 requirements to a range of audiences 2.5 Legislation, policy and procedures relating to the conduct of evaluations 2.6 Organizational values, ethics and codes of conduct	2.1 Computing business mathematics and statistics 2.2 Describing data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Stating legislation, policy and procedures relating to the conduct of evaluations 2.5 Stating organizational values, ethics and codes of conduct
3. Record and present information	3.1 Studied data/information are recorded. 3.2 Recommendations are analyzed for action to ensure they are compatible with the project's scope and terms of reference. 3.3 Interim and final reports are analyzed and outcomes are compared to the criteria established at the outset. 3.4 Findings are presented to stakeholders.	3.1 Data analysis techniqu es/ procedu res 3.2 Reporting requirements to a range of audiences 3.3 Legislation, policy and procedures relating to the conduct of evaluations 3.4 Organization al values, ethics and codes of conduct	3.1 Describing data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Stating legislation, policy and procedures relating to the conduct of evaluations 3.4 Stating organizational values, ethics and codes of conduct practices

RANGE OF VARIABLES

VARIABLES	RANGE
1. Data analysis techniques	May include: 1.1. Domain analysis 1.2. Content analysis 1.3. Comparison technique

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Determine data / information 1.2 Studied and applied gathered data/information 1.3 Recorded and studied studied data/information These aspects may be best assessed using a range of scenarios what ifs as a stimulus with a walk-through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Resource Implications	**Specific resources for assessment** 2.1. Evidence of competent performance should be obtained by observing an individual in an information management role within the workplace or operational or simulated environment.
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Written Test 3.2. Interview 3.3. Portfolio The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
4. Context for Assessment	4.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : PRACTICE OCCUPATIONAL SAFETY AND HEALTH POLICIES AND PROCEDURES

UNIT CODE : 400311216

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to identify OSH compliance requirements, prepare OSH requirements for compliance, perform tasks in accordance with relevant OSH policies and procedures.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify OSH compliance requirements	1.1 Relevant ***OSH requirements, regulations, policies and procedures*** are identified in accordance with workplace policies and procedures 1.2 OSH activity non-conformities are conveyed to ***appropriate personnel*** 1.3 ***OSH preventive and control requirements*** are identified in accordance with OSH work policies and procedures	1.1. OSH preventive and control requirements 1.2. Hierarchy of Controls 1.3. Hazard Prevention and Control 1.4. General OSH principles 1.5. Work standards and procedures 1.6. Safe handling procedures of tools, equipment and materials 1.7. Standard emergency plan and procedures in the workplace	1.1. Communication skills 1.2. Interpersonal skills 1.3. Critical thinking skills 1.4. Observation skills
2. Prepare OSH requirements for compliance	2.1 OSH work activity material, tools and equipment requirements are identified in accordance with workplace policies and procedures 2.2. Required OSH materials, tools and equipment are acquired in accordance with workplace policies and procedures 2.3. Required OSH materials, tools and equipment are arranged/ placed in	2.1. Resources necessary to execute hierarchy of controls 2.2 General OSH Principles 2.3 Work standards and procedures 2.4 Safe handling procedures of tools, equipment and materials 2.5 Different OSH control measures	2.1. Communication skills 2.2. Estimation skills 2.3. Interpersonal skills 2.4. Critical thinking skills 2.5. Observation skills 2.6. Material, tool and equipment identification skills

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	accordance with OSH work standards		
3. Perform tasks in accordance with relevant OSH policies and procedures	3.1 Relevant OSH work procedures are identified in accordance with workplace policies and procedures 3.2 Work Activities are executed in accordance with OSH work standards 3.3 ***Non-compliance work activities*** are reported to *appropriate personnel*	3.1 OSH work Standards 3.2 Industry related work activities 3.3 General OSH principles 3.4 OSH Violations Non-compliance work activities	3.1 Communication skills 3.3 Interpersonal skills 3.4 Troubleshooting skills 3.5 Critical thinking skills 3.6 Observation skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. OSH Requirements, Regulations, Policies and Procedures	May include: 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Permit to Operate 1.6 Philippine Occupational Safety and Health Standards 1.7 Department Order No. 13 (Construction Safety and Health) 1.8 ECC regulations
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself

VARIABLE	RANGE
3. OSH Preventive and Control Requirements	May include: 3.1 Resources needed for removing hazard effectively 3.2 Resources needed for substitution or replacement 3.3 Resources needed to establishing engineering controls 3.4 Resources needed for enforcing administrative controls 3.5 Personal Protective equipment
4. Non-OSH-Compliance Work Activities	May include non-compliance or observance of the following safety measures: 4.1 Violations that may lead to serious physical harm or death 4.2 Fall Protection 4.3 Hazard Communication 4.4 Respiratory Protection 4.5 Power Industrial Trucks 4.6 Lockout/Tag-out 4.7 Working at heights (use of ladder, scaffolding) 4.8 Electrical Wiring Methods 4.9 Machine Guarding 4.10 Electrical General Requirements 4.11 Asbestos work requirements 4.12 Excavations work requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Convey OSH work non-conformities to appropriate personnel 1.2. Identify OSH preventive and control requirements in accordance with OSH work policies and procedures 1.3. Identify OSH work activity material, tools and equipment requirements in accordance with workplace policies and procedures 1.4. Arrange/Place required OSH materials, tools and equipment in accordance with OSH work standards 1.5. Execute work activities in accordance with OSH work standards 1.6. Report OSH activity non-compliance work activities to appropriate personnel
2. Resource Implications	**The following resources should be provided:** 2.1 Facilities, materials tools and equipment necessary for the activity
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Observation/Demonstration with oral questioning 3.2 Third party report
4. Context for Assessment	4.1 Competency may be assessed in the workplace or in a simulated workplace setting

UNIT OF COMPETENCY : **EXERCISE EFFICIENT AND EFFECTIVE SUSTAINABLE PRACTICES IN THE WORKPLACE**

UNIT CODE : **400311217**

UNIT DESCRIPTOR : This unit covers knowledge, skills and attitude to identify the efficiency and effectiveness of resource utilization, determine causes of inefficiency and/or ineffectiveness of resource utilization and convey inefficient and ineffective environmental practices

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify the efficiency and effectiveness of resource utilization	1.1 Required resource utilization in the workplace is measured using appropriate techniques 1.2 Data are recorded in accordance with workplace protocol 1.3 Recorded data are compared to determine the efficiency and effectiveness of resource utilization according to established ***environmental work procedures***	1.1. Importance of Environmental Literacy 1.2. Environmental Work Procedures 1.3. Waste Minimization 1.4. Efficient Energy Consumptions	1.1 Recording Skills 1.2 Writing Skills 1.3 Innovation Skills
2. Determine causes of inefficiency and/or ineffectiveness of resource utilization	2.1 Potential causes of inefficiency and/or ineffectiveness are listed 2.2 Causes of inefficiency and/or ineffectiveness are identified through deductive reasoning 2.3 Identified causes of inefficiency and/or ineffectiveness are validated thru established environmental procedures	2.1 Causes of environmental inefficiencies and ineffectiveness	2.1 Deductive Reasoning Skills 2.2 Critical thinking 2.3 Problem Solving 2.4 Observation Skills

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Convey inefficient and ineffective environmental practices	3.1 Efficiency and effectiveness of resource utilization are reported to *appropriate personnel* 3.2 Concerns related resource utilization are discussed with appropriate personnel 3.3 Feedback on information/ concerns raised are clarified with appropriate personnel	3.1 Appropriate Personnel to address the environmental hazards 3.2 Environmental corrective actions	3.1 Written and Oral Communication Skills 3.2 Critical thinking 3.3 Problem Solving 3.4 Observation Skills 3.5 Practice Environmental Awareness

RANGE OF VARIABLES

VARIABLE	RANGE
1. Environmental Work Procedures	May include: 1.1 Utilization of Energy, Water, Fuel Procedures 1.2 Waste Segregation Procedures 1.3 Waste Disposal and Reuse Procedures 1.4 Waste Collection Procedures 1.5 Usage of Hazardous Materials Procedures 1.6 Chemical Application Procedures 1.7 Labeling Procedures
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Measured required resource utilization in the workplace using appropriate techniques 1.2. Recorded data in accordance with workplace protocol 1.3. Identified causes of inefficiency and/or ineffectiveness through deductive reasoning 1.4. Validate the identified causes of inefficiency and/or ineffectiveness thru established environmental procedures 1.5. Report efficiency and effective of resource utilization to appropriate personnel 1.6. Clarify feedback on information/concerns raised with appropriate personnel
2. Resource Implications	**The following resources should be provided:** 2.1 Workplace 2.2 Tools, materials and equipment relevant to the tasks 2.3 PPE 2.4 Manuals and references
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Demonstration 3.2 Oral questioning 3.3 Written examination
4. Context for Assessment	4.1 Competency assessment may occur in workplace or any appropriately simulated environment 4.2 Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY : PRACTICE ENTREPRENEURIAL SKILLS IN THE WORKPLACE

UNIT CODE : 400311218

UNIT DESCRIPTOR : This unit covers the outcomes required to apply entrepreneurial workplace best practices and implement cost-effective operations

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Apply entrepreneurial workplace best practices	1.1 ***Good practices*** relating to workplace operations are observed and selected following workplace policy. 1.2 Quality procedures and practices are complied with according to workplace requirements. 1.3 Cost-conscious habits in ***resource utilization*** are applied based on industry standards.	1.1 Workplace best practices, policies and criteria 1.2 Resource utilization 1.3 Ways in fostering entrepreneurial attitudes: -Patience -Honesty -Quality-consciousness -Safety-consciousness -Resourcefulness	1.1 Communication skills 1.2 Complying with quality procedures
2.Communicate entrepreneurial workplace best practices	2.1 Observed good practices relating to workplace operations are communicated to **appropriate person**. 2.2 Observed quality procedures and practices are communicated to appropriate person 2.3 Cost-conscious habits in resource	2.1 Workplace best practices, policies and criteria 2.2 Resource utilization 2.3 Ways in fostering entrepreneurial attitudes: -Patience -Honesty -Quality - consciousness -Safety-consciousness 2.4 Resourcefulness	2.1 Communication skills 2.2 Complying with quality procedure 2.3 Following workplace communication protocol

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	utilization are communicated based on 1.4 industry standards.		
3. Implement cost-effective operations	3.1 Preservation and optimization of workplace resources is implemented in accordance with enterprise policy 3.2 Judicious use of workplace tools, equipment and materials are observed according to manual and work requirements. 3.3 Constructive contributions to office operations are made according to enterprise requirements. 3.4 Ability to work within one's allotted time and finances is sustained.	3.1 Optimization of workplace resources 3.2 5S procedures and concepts 3.3 Criteria for cost-effectiveness 3.4 Workplace productivity 3.5 Impact of entrepreneurial mindset to workplace productivity 3.6 Ways in fostering entrepreneurial attitudes: -Quality-consciousness -Safety-consciousness	3.1 Implementing preservation and optimizing workplace resources 3.2 Observing judicious use of workplace tools, equipment and materials 3.3 Making constructive contributions to office operations 3.4 Sustaining ability to work within allotted time and finances

RANGE OF VARIABLES

VARIABLE	RANGE
1.Good practices	May include: 1.1 Economy in use of resources 1.2 Documentation of quality practices
2.Resources utilization	May include: 2.1 Consumption/ use of consumables 2.2 Use/Maintenance of assigned equipment and furniture 2.3 Optimum use of allotted /available time

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate:** 1.1 Demonstrated ability to identify and sustain cost-effective activities in the workplace 1.2 Demonstrated ability to practice entrepreneurial knowledge, skills and attitudes in the workplace.
2. Resource Implications	**The following resources should be provided:** 2.1 Simulated or actual workplace 2.2 Tools, materials and supplies needed to demonstrate the required tasks 2.3 References and manuals 2.3.1 Enterprise procedures manuals 2.3.2 Company quality policy
3. Methods of Assessment	**Competency in this unit should be assessed through:** 3.1 Interview 3.2 Third-party report
4.Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group

COMMON COMPETENCIES

UNIT OF COMPETENCY : VALIDATE VEHICLE SPECIFICATION

UNIT CODE : ALT723211

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitude to check body type of the vehicle, check vehicle engine type, check vehicle specifications and complete validation of vehicle specification.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Check body type of the vehicle	1.1 ***Kind of vehicle*** is determined according to job order. 1.2 ***Vehicle dimensions*** are determined according to manual. 1.3 ***Vehicle weight*** is determined according to the manual. 1.4 ***Body shape*** is determined according to the manual. 1.6 ***Power train*** is determined according to the manual. 1.7 Safety practices are applied following OSHS.	1.1 Kind of vehicle 1.1.1 Aerodyna-mics 1.1.2 Vehicle Dynamics 1.1.3 Body shapes 1.1.4 Power train 1.1.5 Major dimensions 1.2 Vehicle specifications 1.2.1 Vehicle performance 1.2.2 Weight & Measurements 1.3 Automotive history 1.4 Documentation/ Accomplishing checklist 1.5 Resources information 1.5.1 Bulletin 1.5.2 Shop manual 1.6 OSHS 1.7 PPEs 1.8 Attitude: 1.8.1 Patience 1.8.2 Attention to details	1.1 Identifying kind of vehicle, dimensions, weight, body shape, and power train 1.2 Accomplishing checklist 1.3 Estimating visually dimensions and masses 1.4 Utilizing resource information 1.5 Wearing PPEs 1.6 Applying safety practices
2. Check vehicle engine type	2.1 ***Engine type*** is identified according	2.1 Principles of internal combustions	2.1 Identifying engine type,

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	to industry standards. 2.2 Engine ***fuel/energy system*** is identified according to manual. 2.3 ***Engine components*** are identified following manual.	2.2 Principles of Electricity and motors 2.3 History of engines 2.4 Hybrid technology 2.5 Resources information 2.5.1 Bulletin 2.5.2 Shop manual	parts & components 2.2 Identifying fuel systems or energy systems 2.3 Utilizing resource information
3. Check vehicle specifications	3.1 VIN plate is inspected for specification of vehicle according to manual. 3.2 Vehicle specification is verified according to ***vehicle reference materials***. 3.3 Vehicle modifications and conversions are checked following the manual. 3.3 Vehicle conversions are inspected following the manual.	3.1 Fundamentals of Automotive engineering: 3.1.1 Understan-ding of power & torque 3.1.2 Gear Ratios 3.1.3 Vehicle Regulations 3.1.4 Knowledge of vehicle performance 3.1.5 Knowledge in Vehicle manufactu-ring process 3.1.6 Knowledge of vehicle use 3.1.7 Automotive history 3.2 Knowledge in specifications 3.3 Reading of brochure, owner's manuals 3.4 Reading of Resources information 3.4.1 Bulletin 3.4.2 Shop manual	3.1 Reading vehicle reference materials 3.2 Conducting vehicle inspection for modification and conversion 3.3 Comparing actual vehicle and specification sheets 3.4 Utilizing resource information
4. Complete validation of vehicle specification	4.1 Vehicle ownership is verified using repair order and vehicle reference materials.	4.1 Reporting to immediate superior 4.2 Documentation/ Accomplishing checklist	4.1 Verifying vehicle ownership 4.2 Accomplishing dealers check sheet 4.3 Reporting skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	4.2 ***Dealers check sheet*** is accomplished following industry standards. 4.3 ***Dealers check sheet*** is submitted to immediate superior following industry standards.	4.3 Attitude: 4.3.1 Accuracy	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Kind of Vehicle	May include: 1.1 Motorized 1.2 Not Motorized 1.3 On-Road 1.4 Off-Road 1.5 Passenger 1.6 Commercial 1.7 Utility 1.8 Manned 1.9 Unmanned 1.10 Remote control 1.11 Automated/Self Driving 1.12 Guided
2. Vehicle Dimensions	May include: 2.1 Overall length 2.2 Overall width 2.3 Overall height 2.4 Wheelbase 2.5 Tread 2.6 Minimum running ground clearance 2.7 Room Length 2.8 Room Width 2.9 Room Height 2.10 Overhang front 2.11 Overhang rear 2.12 Angle of approach 2.13 Angle of departure
3. Vehicle Weight	May include: 3.1 Gross weight 3.2 Curb weight 3.3 Tare weight 3.4 Net weight

VARIABLE	RANGE
4. Body Shape	May include: 4.1 Sedan 4.2 Coupe 4.3 Hardtop 4.4 Convertible 4.5 Multipurpose vehicle (MPV) 4.6 Sports utility vehicle (SUV) 4.7 Truck 4.8 Tractor Head 4.9 Trailer 4.10 Special Utility Truck 4.11 Bus 4.12 Minibus 4.13 Articulated bus 4.14 Asian Utility Vehicle (AUV)
5. Power Train	May include: 5.1 Front Wheel Drive 5.2 Rear Wheel Drive 5.3 4x2 5.4 4x4 5.5 Limited Slip Differential (LSD) 5.6 Manual Transmission 5.7 Automatic Transmission Continuously Variable Transmission
6. Engine Type	May include: 6.1 Internal Combustion Engine Electric Motor
7. Fuel/Energy System	May include: 7.1 Diesel Fuel 7.2 Gasoline Fuel 7.3 Compressed Natural Gas (CNG) 7.4 Liquefied Petroleum Gas (LPG) 7.5 Methanol 7.6 Hydrogen 7.7 Biodiesel 7.8 Solar Cell Fuel Cell
8. Engine Components	May include: 8.1 Intake System 8.2 Electrical System 8.3 Cooling System 8.4 Exhaust System 8.5 Valve Train System 8.6 Cylinder Head 8.7 Engine Block Lubricating System

VARIABLE	RANGE
9. Vehicle reference materials	May include: 9.1 Warranty booklet 9.2 Brochure of the vehicle Vehicle registration
10. Dealers check sheet	May include: 10.1 Vehicle mileage 10.2 Owner's information Damage

EVIDENCE GUIDE

1. Critical Aspects of Competency	sessment requires evidence that the candidate: 1.1 Checked body type of the vehicle 1.2 Checked vehicle engine type 1.3 Checked vehicle specifications 1.4 Completed validation of vehicle specification
2. Resource Implications	e following resources should be provided: 2.1 Workplace: Real or simulated work area 2.2 Appropriate vehicle or model equivalent 2.3 Materials relevant to the activity 2.4 Resource information, references, and manual
3. Method of Assessment	mpetency in this unit may be assessed through: 3.1 Direct Observation 3.2 Interview 3.3 Third Party Report 3.4 Written exam 3.5 Demonstration with Oral questioning
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution.

UNIT OF COMPETENCY : MOVE AND POSITION VEHICLE

UNIT CODE : ALT723212

UNIT DESCRIPTOR : This unit involves the skills and knowledge and attitudes required to move and position vehicle safely including systematic and efficient control of all vehicle functions.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare vehicle for operation	1.1 Vehicle ***multi point inspection*** is conducted according to industry practice. 1.2 ***Cockpit Drill*** is performed according to industry practice. 1.3 Vehicle is start-up following owner's manual. 1.4 Parking brake is engaged according to industry practice.	1.1 Revolutions per minute during idle 1.2 Manual, automatic and CVT Transmission 1.3 Vehicle parts, components and functions 1.4 Inspection procedures 1.5 Owner's manual 1.6 Safety procedures	1.1 Performing Cockpit Drill 1.2 Conducting Vehicle Multi point inspection 1.3 Starting the engine 1.4 Using owner's manual
2. Position vehicle	2.1 ***Workshop hazards*** are identified and avoided as per standard operating procedures. 2.2 Vehicle is moved according to Occupational Health and Safety Standards. 2.3 Workshop rules and regulations are recognized according to standard procedures.	2.1 Revolutions per minute in running condition 2.2 Kilometer per hour 2.3 Estimation/ timing 2.4 Manual, automatic and CVT Transmission 2.5 Diesel, Gasoline and EV engines 2.6 Vehicle parts, components and functions 2.7 Defensive driving 2.8 Owner's Manual 2.9 Safety procedures	2.1 Skills in positioning vehicle 2.2 Vehicle positioning estimation skill 2.3 Identifying workshop signs and markings
3. Park and stop the vehicle	3.1 Vehicle is positioned according to ***parking rules and regulations***.	3.1 Vehicle parts, components and functions 3.2 Inspection procedures	31 Vehicle positioning estimation skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.2 Parking brake is engaged according to industry practice. 3.3 ***Electrical devices*** are turned off based on manufacturer's specification. 3.4 Vehicle is shut-off following owner's manual.	3.3 Owner's Manual 3.4 Procedure in shutting-off vehicle 3.5 Safety procedures 3.6 Parking rules and regulations	3.2 Identifying parking signs and markings

RANGE OF VARIABLES

VARIABLE	RANGE
1. Multi point inspection	May include: 1.1 Check for any obstruction 1.2 Check external condition 1.3 Check internal condition 1.3.1 Manual transmission 1.3.2 Automatic transmission 1.4 Check vehicle drivability
2. Cockpit Drill	May include: 2.1 Car mirror adjustments 2.2 Steering the car 2.3 How to change gears 2.4 Use of parking brake 2.5 Doors, Seat, Steering, Seat belt and Mirrors 2.6 Foot controls 2.7 Hand controls 2.8 Auxiliary controls (indicators)
3. Workshop hazards	May include: 3.1 Workshop tools and materials 3.2 Workshop equipment 3.3 Other vehicles 3.4 Other people 3.5 Oil spills 3.6 Loose parts
4. Parking rules and regulation	May include: 4.1 Parallel parking 4.2 Horizontal parking 4.3 Park facing the wall
5. Electrical devices	May include: 5.1 Lights 5.2 Air conditioning 5.3 Wiper 5.4 Radio

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Prepared vehicle for operation 1.2 Positioned the vehicle 1.3 Parked and stopped the vehicle 1.4 Used owner's manual
2. Resource implication	The following resources MUST be provided: 2.1 Workshop range/area 2.2 Service working bay 2.3 Appropriate vehicle for moving and positioning 2.4 Owner's manual
3. Method of assessment	Competency MUST be assessed through: 3.1 Demonstration with oral questioning 3.2 Written exam 3.3 Interview 3.4 Direct observation
4. Context of assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution.

UNIT OF COMPETENCY : UTILIZE AUTOMOTIVE TOOLS

UNIT CODE : ALT723213

UNIT DESCRIPTOR : This unit covers the knowledge and skills in selecting and using automotive power tools, hand tools and tool keeping.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare automotive tools	1.1 ***Automotive tools*** are identified according to their classification and specification. 1.2 ***Automotive tools and attachments*** are selected according to job requirements. 1.3 ***Automotive tools and attachments*** are inspected for ***defects and damages*** according to manufacturers and work place procedures. 1.4 Safety practices are applied following OSHS.	1.1 Understanding power to size ratio 1.2 Leverage 1.3 Types of power tools and hand tools 1.4 Uses of automotive power tools and hand tools 1.5 Defects and damages of automotive tools and attachments 1.6 Handling of tools 1.7 Interpretation of contents of users manuals 1.8 Safety procedures 1.9 Wearing of PPE	1.1 Identifying defects or damages of tools before use 1.2 Knowledgeable in proper handling of tools 1.3 Identifying tools required for the job 1.4 Inspecting the area were power tools will be use
2. Use automotive tools	2.1 ***Attachments*** are mounted to ***automotive tools*** according to job requirements. 2.2 Power tools are connected to ***power sources*** according to operation's manual. 2.3 Power tools are operated according to operation's manual. 2.4 ***Hand tools*** are utilized according to operation's manual.	2.1 Use of automotive tools 2.2 Application of Torque and pressure 2.3 Unit conversion of torque 2.4 English and metric system 2.5 Types of hand tools 2.6 Types of power tools 2.7 Fundamentals of automotive hand tools and power tools	2.1 Analytical skills 2.2 Technical literacy 2.3 Mounting attachments to automotive tools 2.4 Connecting power tools to power sources 2.5 Operating power tools 2.6 Utilizing hand tools 2.7 Wearing PPEs 2.8 Applying safety practices

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.5 ***PPEs*** are worn in accordance to OSHS.	2.8 Interpretation of contents of users manuals 2.9 OSHS 2.10 Resources information 2.10.1 Bulletin 2.10.2 Shop manual	2.9 Following manuals
3. Maintain automotive tools	3.1 ***Automotive tools and attachments*** are cleaned according to user's manual. 3.2 ***Automotive tools and attachments*** are checked for serviceability according to workplace and manufacturers procedures. 3.3 ***Defects and damages*** are reported to immediate superior following industry standards. 3.4 ***Automotive tools and attachments*** are stored according to workplace procedures. 3.5 Safety practices are applied following OSHS. 3.6 ***Wastes*** are disposed following environmental law and regulations.	3.1 Different types of power tools and hand tools 3.2 Techniques in tool Arrangement 3.3 Fundamentals of automotive tools 3.4 Cleaning of automotive tools 3.5 Labeling and arranging of power tools and hand tools 3.6 Safety practices 3.7 Procedures in maintaining of power tools and hand tools 3.8 Tagging of damaged/ worn power tools and hand tools 3.9 Reporting damage power tools and hand tools 3.10 Proper disposal of damaged tools 3.11 Proper disposal of chemicals used for cleaning 3.12 OSHS 3.13 Environmental law and regulations 3.14 5S of good housekeeping 3.15 3Rs	3.1 Sorting of tools 3.2 Skills in creating reports 3.3 Cleaning of tools 3.4 Checking, cleaning and storing automotive tools and attachments 3.5 Reporting defects and damages 3.6 Disposing wastes 3.7 Practicing safety procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Automotive tools	May include: 1.1 Power tools 1.1.1 Electric power tools 1.1.1.1 Electric drill 1.1.2 Pneumatic tools 1.2 Basic tools 1.3 Special service tools (SST)
2. Power sources	May include: 2.1 Electric source 2.2 Pneumatic or air 2.3 Hydraulic
3. Basic tools	May include: 3.1 Wrenches 3.2 Pliers 3.3 Screw drivers 3.4 Power handle 3.5 Ratchet 3.6 Multitester 3.7 Flash light 3.8 Rubber mallet 3.9 Hammer 3.10 Jack 3.11 Jack stand 3.12 Choke
4. Attachments	May include: 4.1 Bits 4.2 Sockets 4.3 Extension
5. Defects and damages	May include: 5.1 Tools 5.1.1 Cracks 5.1.2 Breakage 5.1.3 Deformity 5.1.4 Looseness 5.1.5 Corrosions 5.1.6 Leaks 5.2 Attachments 5.2.1 Cracks 5.2.2 Breakage 5.2.3 Deformity 5.2.4 Looseness 5.2.5 Corrosions
6. Personal protective equipment (PPEs)	May include: 6.1 Goggles 6.2 Gloves 6.3 Hard hat

VARIABLE	RANGE
	6.4 Safety shoes 6.5 Dust mask
7. Wastes	May include: 7.1 Dead batteries 7.2 Deformed, cracked, broken bits/sockets/extensions 7.3 Used cleaning chemicals 7.4 Used oil 7.5 Contaminated cleaning materials

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment require evidence that the candidate understands the applications and guidelines specified by the manufacturer. 1.1 Prepared automotive tools 1.2 Used Power tools 1.3 Used Hand tools 1.4 Maintained and stored automotive tools 1.5 Disposed wastes 1.6 Applied safety measures
2. Resource implication	The following resource MUST be provided: 2.1 Appropriate power tools and hand tools 2.2 Tools and materials relevant for training 2.3 Proper place for storage and disposal 2.4 Work shop manuals
3. Method of assessment	Competency MUST be assessed through: 3.1 Written examination 3.2 Demonstrations with oral questioning 3.3 Direct observation 3.4 Third party report 3.5 Interview
4. Context of assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY : PERFORM MENSURATION AND CALCULATION

UNIT CODE : ALT723214

UNIT DESCRIPTOR : This unit covers the knowledge and skills on how to use automotive measuring tools.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Select measuring instruments	1.1 Component to be measured is identified based on job requirements. 1.2 ***Automotive measuring instrument*** is identified based on job requirements. 1.3 Correct specifications are obtained from repair manual. 1.4 Measuring tools are calibrated in line with job requirements. 1.5 Measuring instruments are checked for accuracy and adjusted according to manufacturer's manual. 1.6 Defective measuring instruments are reported and returned to toolkeeper following industry standards. 1.7 Safety practices are applied following OSHS.	1.1 Category of measuring instruments 1.2 Types and uses of measuring instruments 1.3 Shapes and Dimensions 1.4 Use of user's manual 1.5 Workshop procedures in reporting defective instruments 1.6 Characteristics of defective measuring instruments 1.7 Procedure in preparing report 1.8 OSHS in calibrating measuring instruments 1.9 Calibration of measuring tools 1.10 Inspection of measuring tools 1.11 Segregation and reporting of defective measuring instruments	1.1 Identifying and selecting measuring instruments 1.2 Visualizing objects and shapes 1.3 Calibration skills 1.4 Identifying defective measuring instruments 1.5 Reporting skills 1.6 Applying safety practices 1.7 Obtaining correct specifications 1.8 Checking measuring instruments for accuracy 1.9 Reporting and segregating defective measuring instruments
2. Carry out measurements and calculation	2.1 ***Automotive measuring instrument*** is selected to achieve required outcome in	2.1 Formulas for volume, areas, perimeters of plane and geometric figures	2.1 Performing calculation 2.2 Applying formulas for volume, areas, perimeters of

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	line with job requirements. 2.2 Accurate measurements are obtained in line with job requirements. 2.3 ***Calculation*** needed to complete work tasks are performed using ***mathematical operations***. 2.4 Numerical computation is self-checked and corrected for accuracy following manufacturer's workshop manual. 2.3 Tools' limit of accuracy are read following manufacturer's workshop manual. 2.4 Report is submitted to immediate supervisor following industry standard operating procedure. 2.5 Safety practices are applied following OSHS.	2.2 Different automotive measuring instruments 2.3 Calculation & measurement 2.4 Four fundamental operation 2.5 Linear measurement 2.6 Dimensions 2.7 Unit conversion 2.8 Ratio and proportion 2.9 Handling of measuring instruments 2.10 Tools' limit of accuracy 2.11 OSHS 2.12 PPEs	plane and geometric figures 2.3 Handling measuring instruments 2.4 Selecting automotive measuring instruments 2.5 Obtaining accurate measurements 2.6 Performing calculation 2.7 Self-checking and correcting numerical computation 2.8 Reading tools' limit of accuracy 2.9 Applying OSHS 2.10 Wearing of PPEs
3. Maintain measuring instruments	3.1 Measuring instruments are handled following manufacturer's manual. 3.2 Measuring instruments are cleaned following manufacturer's manual. 3.3 Instruments are stored according to manufacturer's specifications and standard operating procedures.	3.1 Types of measuring instruments and their uses 3.2 Safe handling procedures in using measuring instruments 3.3 Four fundamental operation of mathematics 3.4 Formula for volume, area, perimeter and other geometric figures	3.1 Handling and maintaining measuring instruments 3.2 Disposing wastes 3.3 Practicing good housekeeping 3.4 Applying safety practices

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.4 Safety practices are applied.	3.5 5S of good housekeeping 3.6 Waste management 3.7 Storing of measuring instruments 3.8 OSHS	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Automotive measuring instruments	May include: 1.1 Torque wrench 1.2 Vernier caliper 1.3 Micrometer (inside and outside) 1.4 Dial gauge 1.5 Feeler gauge 1.7 Pitch/thread gauge 1.8 Multi-tester (analog/digital) 1.9 Vacuum Gauge 1.10 Tire depth gauge 1.11 Battery tester 1.12 Steel tape 1.13 Ruler
2. Calculation	May include: 2.1 Volume 2.2 Area 2.3 Displacement 2.4 Inside diameter 2.5 Circumference 2.6 Length 2.7 Thickness 2.8 Outside diameter 2.9 Taper 2.10 Out of roundness 2.11 Voltage 2.12 Resistance 2.13 Current 2.14 Pressure 2.15 Clearance 2.16 Distortion/run-out 2.17 Torque conversion 2.18 Temperature

VARIABLE	RANGE
3. Mathematical operations	Includes: 3.1 Addition 3.2 Subtraction 3.3 Multiplication 3.4 Division 3.5 Fractions 3.6 Percentages 3.7 Mixed numbers

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate perform the following: 1.1 Selected measuring instruments 1.2 Performed measurements and calculation 1.3 Maintained measuring instruments 1.4 Applied safety practices
2. Resource implications	The following resources MUST be provided: 2.1 Workplace: Real or simulated work area 2.2 Appropriate Automotive Measuring Tools & equipment 2.3 Materials relevant to the activity 2.4 Training vehicle or simulators 2.5 User's manual 2.6 Repair manual
3. Method of assessment	Competency MUST be assessed through: 3.1 Written exam 3.2 Demonstration with oral questioning 3.3 Third party report 3.4 Interview
4. Context of assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution.

UNIT OF COMPETENCY : **UTILIZE WORKSHOP FACILITIES AND EQUIPMENT**

UNIT CODE : **ALT723215**

UNIT DESCRIPTOR : This unit deals with inspecting and cleaning of work area including tools, equipment and facilities. Storage of equipment, including operating of basic workshop equipment.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform pre-operation activities	1.1 ***Workshop facilities*** are prepared according to work requirements. 1.2 ***Equipment*** are prepared according to work requirements. 1.3 ***Equipment*** are calibrated following users' manual. 1.4 ***Minor repairs*** are carried out based on users' ***manual***. 1.5 Defective equipment are reported to immediate supervisor following company procedures. 1.6 Safety practices are applied following OSHS.	1.1 Different areas of an automotive service facilities 1.2 Preparation procedures of automotive service facilities 1.3 Different equipment in the automotive service facilities 1.4 Preparation procedures of automotive equipment 1.5 Minor repairs of automotive equipment 1.6 Report of defective equipment 1.7 Reporting procedures for defective equipment 1.8 OSHS practices related to the preparation of facilities and equipment 1.9 Workshop facilities and equipment	1.1 Preparing work area 1.2 Preparing equipment 1.3 Calibrating equipment 1.4 Repairing minor equipment issues 1.5 Reporting defective equipment 1.6 Applying safety practice 1.7 Following manuals

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Use facilities and equipment	2.1 Equipment is operated according to operation ***manual***. 2.2 Facilities are utilized according to workshop procedures. 2.3 Equipment performance is monitored following users' ***manual***. 2.4 Facilities functionalities are monitored following workplace procedures. 2.5 Safety practices are applied following OSHS.	2.1 Operate Equipment 2.2 Identify facilities required for task 2.3 Evaluate equipment operation 2.4 Inspect facility functionalities 2.5 OSHS practices related to operation of facilities and equipment 2.6 Manuals in utilizing facility and equipment 2.7 Monitoring procedure of equipment's performance 2.8 Evaluate equipment operation 2.9 Inspection of facility functionalities	2.1 Operating equipment 2.2 Utilizing facility 2.3 Monitoring equipment performance 2.4 Monitoring functionalities of facility 2.5 Practicing safety 2.6 Following manual
3. Conduct post-operation activities	3.1 Workshop facilities are restored according to 5S of good housekeeping. 3.2 ***Equipment*** are cleaned and stored according to good housekeeping. 3.3 Wastes are disposed following waste management procedure and OSHS. 3.4 ***PPEs*** and Safety practices are applied following OSHS. 3.5 Report is prepared based on workshop procedure.	3.1 5S of Good housekeeping 3.2 3Rs/ Waste segregation and disposal 3.3 Restoration of the facilities 3.4 Maintenance and storage of Equipment 3.5 OSHS 3.6 Preparation of report	3.1 Restoring workshop facilities properly 3.2 Cleaning Equipment 3.3 Storing equipment in proper location 3.4 Disposing waste materials 3.5 Reporting facilities and equipment condition 3.6 Practicing safety 3.7 Practicing 5S and 3Rs

RANGE OF VARIABLES

VARIABLE	RANGE
1. Equipment	May include: 1.1 Lifter (Two Post Lifter / Four Post Lifter/ Scissor type) 1.2 Crocodile Jack 1.3 Jack Stand 1.4 Air Compressor 1.5 Oil drain
2. Workshop facilities	May include: 2.1 Service Stall / Working Bay / Workshop areas for servicing/repairing light and/or heavy vehicle and/or plant transmissions and/or outdoor power equipment 2.2 Overhauling Room 2.3 Electrical / Air-con Room 2.4 Inspection Area 2.5 Open workshop/garage and enclosed, ventilated office area 2.6 Car wash area 2.7 Other variables may include workshop with: 2.7.1 Mess hall 2.7.2 Wash room 2.7.3 Comfort room 2.7.4 Storage Room 2.7.5 Training Room
3. Manuals	May include: 3.1 Vehicle/plant manufacturer specifications 3.2 Company operating procedures 3.3 Industry/Workplace Codes of Practice 3.4 Product manufacturer specifications 3.5 Industry Occupational Health &Safety 3.6 Equipment Operation Guidelines 3.7 Service/workshop/repair manual
4. PPEs	May include: 4.1 Gloves 4.2 Apron 4.3 Goggles 4.4 Safety shoes 4.5 Uniforms 4.6 Cap 4.7 Safety helmet
5. Minor repairs	May include: 5.1 Lubrication 5.2 Bolt tightening 5.3 Worn-out parts replacement

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Performed pre-operation activities 1.2 Used facilities and equipment 1.3 Conducted post-operation activities 1.4 Applied safety practices and good housekeeping 1.5 Disposed wastes
2. Resource implications	The following resources should be provided: 2.1 Workplace: Real or simulated work area 2.2 Appropriate Equipment 2.3 Materials relevant to the activity 2.4 Manuals/references 2.5 PPEs 2.6 Fire Extinguishers
3. Method of assessment	Competency in this unit may be assessed through: 3.1 Written exam 3.2 Demonstration with oral questioning 3.3 Direct observation
4. Context of assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution.

UNIT OF COMPETENCY : PREPARE SERVICING PARTS AND CONSUMABLES

UNIT CODE : ALT723216

UNIT DESCRIPTOR : This unit of competency covers the ability to prepare parts and consumables for gasoline and diesel engines in conducting preventive maintenance.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify parts and consumables	1.1 ***Parts and consumables*** are ***determined*** according to job requirements. 1.2 Availability of parts and consumables are confirmed based on stock. 1.3 ***Indirect materials*** are identified according to job requirements. 1.4 ***Hazardous parts and consumables*** are identified according International standards. 1.5 Safety practices are applied according to OSHS.	1.1 Job requirements 1.2 Safety practices 1.3 Understanding manuals 1.4 Hazardous parts and consumables 1.5 Solid waste management act (RA 6969) 1.6 Wearing of PPE's 1.7 OSHS 1.8 Proper storage of materials 1.9 Chemical contents of consumables 1.10 Composition of consumables 1.11 Quality of parts and consumables 1.12 Computation for quantity of parts and consumables 1.13 Vehicle specifications 1.14 Identifying Part no. 1.15 Awareness in part number 1.16 Updated type of parts and consumables	1.1 Determining parts and consumables 1.2 Reading and interpreting job requirements 1.3 Identifying required parts & consumables 1.4 Understanding safety practices 1.5 Determining quantity and quality of parts and consumables 1.6 Confirming availability of parts and consumables 1.7 Identifying indirect materials 1.8 Identifying hazardous parts and consumables 1.9 Applying safety practices 1.10 Understanding safety practices 1.11 Following manuals
2. Retrieve and withdraw parts and consumables	2.1 Requisition slip is prepared according to identified parts and consumables.	2.1 Job requirements 2.2 Safety practices 2.3 Understanding manuals	2.1 Reading and interpreting requisition slip

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.2 Withdrawal of parts and materials are recorded. 2.3 Quantity of parts and consumables are validated according to job requirements. 2.4 Parts and materials are handled following safety procedures.	2.4 Hazardous parts and consumables 2.5 Solid waste management act (RA 6969) 2.6 Wearing of PPE's 2.7 Updated types of parts & consumables for proper usage	2.2 Validating quantity of parts and materials 2.3 Handling parts and consumables
3. Complete work process	3.1 Used parts and consumables are labeled and segregated. 3.2 Used parts are packed and returned to customers. 3.3 Consumables are collected for recycling. 3.4 PPEs are worn following OSHS. 3.5 ***Wastes*** are disposed according to RA 6969.	3.1 Labeling and segregation of used parts and consumables 3.2 Job requirements 3.3 Safety practices 3.4 3Rs 3.5 Solid waste management act (RA 6969) 3.6 Wearing of PPE's	3.1 Waste segregation and disposal of parts & consumables according to RA 6969

RANGE OF VARIABLES

VARIABLE	RANGE
1. Parts and consumables	May include: 1.1 Engine oil 1.2 Clutch fluid 1.3 Transmission oil 1.4 Differential oil 1.5 Power steering fluid 1.6 Brake fluid 1.7 Engine coolant 1.8 Engine oil filter 1.9 Fuel filter 1.10 Air cleaner element 1.11 Feed pump strainer 1.12 Sparkplugs (Gasoline engine) 1.13 Battery 1.14 Air cleaner 1.15 Tire 1.16 Wiper blade 1.17 A/C pollen filter 1.18 Bulb 1.19 Brake pad/brake shoe 1.20 Clutch lining
2. Determining parts and consumables	May include: 2.1 Quantity 2.2 Quality
3. Indirect materials	May include: 3.1 Rags 3.2 Saw dust 3.3 Cleaning fluids 3.4 Sand paper
4. Hazardous parts consumables	May include: 4.1 Batteries 4.2 Used oil 4.3 Used fluids 4.4 Used coolant 4.5 Used parts 4.6 Used oil filter
5. Wastes	May include: 5.1 Contaminated consumables 5.2 Contaminated parts

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Identified parts and consumables 1.2 Retrieved and withdrawn parts and consumables 1.3 Completed work process 1.4 Applied safety practices
2. Resource implications	The following resources should be provided: 2.1 Workplace: Real or simulated work area 2.2 Materials relevant to the activity 2.3 Repair manuals and related reference materials
3. Method of assessment	Competency in this unit may be assessed through: 3.1 Direct observation 3.2 Interview 3.3 Written examination 3.4 Demonstration with oral questioning 3.5 Third party report
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution.

UNIT OF COMPETENCY : PREPARE VEHICLE FOR SERVICING AND RELEASING

UNIT CODE : ALT723217

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes needed in identifying and preparing the vehicle for servicing and releasing.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Receive vehicle	1.1 Vehicle is located following company standard. 1.2 Checklist is validated for exterior and interior items in accordance with ***vehicle checklist***. 1.3 Job Order is checked for proper assignment according to ***work classification***. 1.4 ***Work bay*** for vehicle is designated based from Job Order. 1.5 Vehicle is moved on the designated ***work bay***.	1.1 Identification of basic vehicle components 1.2 Types of defects 1.3 Read & understand Job Order 1.4 Flat rate time 1.5 Use of PPEs 1.6 Adherence to safety procedures 1.7 Vehicle checklist 1.8 Work classification 1.9 Work bay 1.10 Attitudes 1.10.1 Patient 1.10.2 Attention to details 1.10.3 Honest 1.10.4 Time Conscious	1.1 Completing vehicle checklist 1.2 Classifying work to be performed 1.3 Assigning work bay 1.4 Validating checklist for exterior and interior items 1.5 Checking job order for proper assignment 1.6 Identifying vehicle 1.7 Moving vehicle to designated work bay
2. Prepare vehicle for servicing	2.1 ***Protective covers*** are installed prior to servicing based on workshop operating standards. 2.2 Vehicle is positioned and set- up for lifting according to repair order. 2.3 Vehicle is lifted for servicing following manufacturer's manual.	2.1 Familiarization on equipment & facilities 2.2 Time estimation of completion 2.3 Vehicle tagging 2.4 Types of protective covers 2.5 Setting-up of vehicle for lifting 2.6 Read & understand repair order 2.7 Use of PPEs 2.8 Use of safety gears	2.1 Understanding of vehicle status 2.2 Installation of protective covers 2.3 Positioning vehicle 2.4 Operating lifter 2.5 Moving vehicle 2.6 Setting-up vehicle for lifting 2.7 Practicing safety

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.4 Safety practices are applied following safety procedures.	2.9 OSHS 2.10 Adherence to safety procedures 2.11 Attitudes: 2.11.1 Patient 2.11.2 Attention to details 2.11.3 Honest 2.11.4 Time Conscious	
3. Prepare vehicle for releasing	3.1 Job done is confirmed according to repair order. 3.2 Quality check is done based from repair order. 3.3 Transfer of vehicle to wash bay is coordinated according to SOP. 3.3 Vehicle is endorsed to quality control person following workplace procedure.	3.1 Familiarization of equipment & facilities 3.2 Read & understand repair order 3.3 Confirmation of job done 3.4 Quality standards checking 3.5 Coordination of transferring vehicle 3.6 Endorsement procedures for vehicle 3.7 Attitudes 3.7.1 Patient 3.7.2 Attention to details 3.7.3 Honest 3.7.4 Time Conscious	3.1 Confirming job done 3.2 Performing quality checking 3.3 Coordinating transfer of vehicle to wash bay 3.4 Endorsing and turning-over vehicle

RANGE OF VARIABLES

VARIABLE	RANGE
1. Vehicle checklist	May include: 1.1 External scratches, accessories, items, dents, damages and cracks 1.2 Internal items, scratches, noticeable damages, including spare tire, tools, and loose items 1.3 Standard items that are not present during inspection 1.4 Valuable/personal belongings
2. Work classification	May include: 2.1 Body and Paint repair 2.2 General Job repair 2.3 Periodic maintenance service (PMS)
3. Work bay	May include: 3.1 Service Stall / Working Bay / Workshop areas for servicing/repairing light and/or heavy vehicle and/or plant transmissions and/or outdoor power equipment 3.2 Overhauling Room 3.3 Electrical / Air-con Room 3.4 Inspection Area 3.5 Open workshop/garage and enclosed, ventilated office area
5. Protective covers	May include but not limited to: 5.1 Seat Cover 5.2 Steering Wheel Cover 5.3 Handbrake Cover 5.4 Shift Knob Cover 5.5 Fender Cover 5.6 Paper mat

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Received vehicle 1.2 Prepared vehicle for servicing 1.3 Prepared vehicle for releasing 1.4 Applied safety practices
2. Resource implications	The following resources MUST be provided: 2.1 Workplace: Real or simulated work area 2.2 Appropriate Tools & Equipment 2.3 Materials relevant to the activity 2.4 Manuals and references
3. Method of assessment	Competency may be assessed through: 3.1 Direct observation 3.2 Demonstration with Oral questioning 3.3 Interview 3.4 Written Evaluation 3.5 Third Party Report
4. Context of assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution.

CORE COMPETENCIES

UNIT OF COMPETENCY : **PERFORM PLANNED LIGHT MAINTENANCE FOR ROLLING STOCK**

UNIT CODE : **AB-ALT1380900313301**

UNIT DESCRIPTOR : This unit covers the knowledge, skills, attitudes and safety required to inspect rolling stock underbody equipment, perform minor repair /adjustments and replace line replaceable units and perform energization and functional testing.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Inspect rolling stock underbody equipment	1.1 ***Tools, equipment and materials*** are prepared according to work instruction and checklist. 1.2 Inspections of ***rolling stock underbody equipment*** are performed according to maintenance procedure. 1.3 ***Adjacent subparts*** of the rolling stock underbody equipment are examined for possible defect, abrasion or damage.	**Technology** 1.1 Parts and adjacent subparts of the rolling stock interior, exterior and underbody equipment **Engineering** 1.2 Functions of each identified rolling stock underbody equipment **Science** 1.3 Tools, equipment and materials used for inspecting underbody equipment **Health Safety and Environment** 1.4 R.A.11058, an act strengthening compliance with	1.1Electromechanical skills 1.2 Mathematical skills 1.3 Comprehension skills 1.4 Technical writing skills 1.5 Communication skills 1.6 Comprehend and following the standard of Health and safety and environment 1.7 Computer skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		Occupational safety and Health Standard and providing penalties for violations	
2. Perform minor repair /adjustments	2.1 ***Wearable bogie parts*** are measured according to parameters and tolerances prescribed in the checklist and manual. 2.2 Bogie parts with minor defects are repaired in accordance with the checklist and manual. 2.3 ***Out of tolerance parts*** are adjusted using the ***appropriate tools and equipment.*** 2.4 Maintenance Checklist is accomplished based on actual findings.	**Technology** 2.1 types of line replaceable units **Engineering** 2.2 Levels of repairs, adjustments and replacements 2.3 Tools, equipment and materials used for repair, adjustment and replacement **Communication** 2.4 Maintenance manuals and inspection checklists **Science** 2.5 Implications of findings	2.1 Analytical skills 2.2 Mechanical skills 2.3 Comprehension skills 2.4 Mathematical skills
3. Replace Line Replaceable Units (LRUs)	3.1 Defective line replaceable units are identified based on the parameters and tolerances prescribed in the checklist and manual.	3.1 Line Replaceable Units and its Functions 3.2 Tools and Techniques for diagnosing defective LRUs	3.1 Analytical skills 3.2 Mechanical skills 3.3 Comprehension skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.2 Worn out LRUs are replaced in accordance with the prescribed checklist and manual. 3.3 Functionality tests on the replaced LRUs are conducted as outlined in the checklist and manual.	3.3 Procedures for safely replacing worn-out LRUs	
4. Perform energization and functional testing	4.1 Vehicle diagnostic systems are checked for possible faults according to ***vehicle performance*** and ***monitoring device.*** 4.2 Rolling stock is energized according to the vehicle energization procedure. 4.3 Rolling Stock is tested for functionality in accordance with the maintenance checklist and manual. 4.4 Status report is prepared based on the result of the functional testing.	**Technology** 3.1 Functions and locations of the vehicle equipment 3.2 Vehicle system information **Communication** 3.3 Work Ethics **Engineering** 3.5 Energization and functional testing procedures **Health Safety and Environment** 3.5 R.A. 11058, an act strengthening compliance with Occupational safety and Health Standard and providing penalties for violations	3.1 Analytical skills 3.2 Electromechanical skills 3.3 Comprehension skills 3.4 Mathematical skills 3.5 Communication skills 3.6 Basic safety skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	4.5 Status report is submitted to authorized personnel upon completion.		

RANGE OF VARIABLES

VARIABLE	RANGE
1. Tools	Tools may include among others: 1.1 Multitester 1.2 Screwdriver 1.3 Combination Wrench 1.4 Vernier Caliper 1.5 Impact Wrench 1.6 Flashlight 1.7 Wheel Caliper 1.8 Insulation Tester 1.9 Pliers 1.10 Thermometer 1.11 Manometer 1.12 Ratchet 1.13 Heat gun 1.14 Filler gauge 1.15 Torque wrench 1.16 Spanner 1.17 Crimper 1.18 Clamp ammeter 1.19 Portable drill 1.20 Allen key 1.21 Cutter 1.22 Wire Stripper
2. Equipment	Equipment may include: 2.1. Pressure Lubricating Pump 2.2 Vacuum Cleaner 2.3 Dial Gauge 2.4 Grease Dispenser 2.5 Pressure Washer 2.6 Tension Meter 2.7 Power Supply 2.8 Grounding Cluster 2.9 Mobile Platform 2.10 Pallet 2.11 PPE
3. Materials	Materials may include:

VARIABLE	RANGE
	3.1 Electrical Tape 3.2 Lubricants 3.3 Rags 3.4 Gloves 3.5 Hand Cleaner 3.6 Hand Soap 3.7 Chemicals 3.8 Penetrating Oil 3.9 Contact Cleaner 3.10 Mop 3.11 Industrial Alcohol 3.12 Consumables
4. Rolling Stock Underbody Equipment	May include: 4.1 Wheel and Axle 4.2 Gearbox 4.3 Traction Motor 4.4 Bogie Frame 4.5 Inverter Unit 4.6 Chopper Unit 4.7 Variable Voltage Variable Frequency 4.8 Auxiliary Power System 4.9 Line Contactors 4.10 Coupler 4.11 Antenna 4.12 Disconnecting Switch 4.13 Battery 4.14 Brake Control Unit
5. Adjacent Subparts	Adjacent Subparts may include: 5.1 Current Return Device 5.2 Cables 5.3 Pneumatic Pipe 5.4 Track Brake 5.5 Contactors 5.6 Compressor 5.7 Electrical Boxes 5.8 Pulse Generator 5.9 Tachograph Sensor
6. Wearable Bogie Parts	Include but not limited to: 6.1 wheel and axle 6.2 gearbox 6.3 traction motor 6.4 suspensions 6.5 mechanical brake system 6.6 bolster
7. Appropriate Tools	Appropriate Tools may include: 7.1 Vernier Caliper 7.2 Multitester 7.3 Insulation Tester 7.4 Thermometer

VARIABLE	RANGE
	7.5 Manometer 7.6 Wheel Caliper 7.7 Filler gauge 7.8 Torque wrench 7.9 clamp ammeter
8. Equipment	Equipment may include: 8.1 Dial Gauge 8.2 Tension meter 8.3 power supply
9. Actual Findings	Actual Findings may include: 9.1 Checklist 9.2 Service and diagnostic report
10. Vehicle Performance	Vehicle Performance may include: 10.1 Maintenance Management System 10.2 Statistical Data 10.3 Key Performance Indicator Data
11. Monitoring Device	Monitoring Device includes but not limited to: 11.1 Digital Diagnostic System 11.2 Vehicle Logic Unit 11.3 Train Management System
12. Out of Tolerance Parts	May include: 12.1 Wheel and axle 12.2 Coupler 12.3 Switches and Contacts 12.4 Spring and absorber 12.5 Gear box 12.6 Track brake 12.7 Door mechanism 12.8 Traction Motor 12.9 Bolster 12.10 Shaft 12.11 Pantograph 12.12 Mechanical brake

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Inspected rolling stock underbody equipment 1.1.1 Prepared Tools, equipment and materials 1.1.2 Performed inspections of rolling stock underbody equipment 1.1.3 Examined Adjacent subparts of the rolling stock underbody equipment 1.2 Performed minor repair/adjustments 1.2.1 Measured wearable boogie parts 1.2.2 Repaired bogie parts with minor defects 1.2.3 Adjusted out of tolerance parts 1.2.4 Accomplished maintenance checklist 1.3 Replaced Line Replaceable Units (LRUs) 1.3.1 Identified defective LRUs 1.3.2 Replaced worn out LRUs 1.3.3 Conducted functionality tests on the replaced LRUs 1.4 Performed energization and functional testing 1.4.1 Checked vehicle diagnostic system 1.4.2 Energized rolling stock 1.4.3 Tested functionality of the rolling stock 1.4.4 Prepared Status Report 1.4.5 Submitted Status Report
2. Resource Implications	The following resources MUST be provided: 2.1 Actual and simulated workplace 2.2 Materials, tools, and equipment needed to perform the required task 2.3 References, manuals and checklists
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Practical demonstration/direct observation with oral questioning 3.3 Written examination 3.4 Portfolio
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA registered institutions

UNIT OF COMPETENCY : **PERFORM PLANNED HEAVY MAINTENANCE FOR ROLLING STOCK**

UNIT CODE : **AB-ALT1380900313302**

UNIT DESCRIPTOR : This unit covers the knowledge, skills, attitude and safety required to dismantle underbody equipment, maintain disassembled under body equipment, reassemble the underbody and perform energization and functional testing

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Dismantle under body equipment	1.1 ***Tools, equipment and materials*** are prepared according to work instruction and checklist. 1.2 Personal Protective Equipment is worn according to the prescribed safety guidelines. 1.3 Maintenance areas are inspected and cleared of hazards according to Safety Task Analysis Risk Reduction Talk (STARRT) form. 1.4 Body stand and bogie hoist are checked for functionality according to the Equipment Maintenance Record. 1.5 Vehicle is positioned into the body stand and bogie hoist according to maintenance procedure	**Science** 1.1 Tools, equipment and materials used for dismantling underbody equipment **Technology** 1.2 Parts and adjacent subparts of the rolling stock interior, exterior and underbody equipment 1.3 Dismantling procedure **Engineering** 1.4 Functions of each identified rolling stock underbody equipment **Health Safety and Environment** 1.5 R.A. 11058, an act strengthening compliance with Occupational	1.1Electromechanical skills 1.2 Mathematical skills 1.3 Comprehension skills 1.4 Technical writing skills 1.5 Communication skills 1.6 Comprehend and following the standard of Health and safety and environment 1.7 Computer skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1.6 Bogies and other underbody equipment are disassembled according to work instruction	safety and Health Standard and providing penalties for violations	
2. Maintain disassembled under body equipment	2.1 Tools, equipment and materials are prepared according to work instruction and checklist. 2.2 Underbody equipment for installation is prepared based on maintenance checklist 2.3 Crack Test Powder is sprayed to cracks on bogie frames according to maintenance procedure. 2.4 Underbody frame is cleaned with compressed air according to Underfloor Inspection Checklist. 2.5 Lubrication and protection are applied according to maintenance checklist	**Science** 2.1 Tools, equipment and materials used for maintenance of the disassembled parts - 2.2 Application of lubricants and material safety data sheet and technical specifications **Technology** 2.3 Parts and adjacent subparts of the rolling stock interior, exterior and underbody equipment	2.1 Electromechanical skills 2.2 Mathematical skills 2.3 Comprehension skills 2.4 Technical writing skills 2.5 Comprehend and following the standard of Health and safety and environment
3. Reassemble underbody equipment	3.1 Underbody equipment components are prepared for reassembling in	**Science** 3.1 Tools, equipment and materials used for reassembling of the	3.1 Electromechanical skills 3.2 Analytical Skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	accordance with the work instruction. 3.2 Alignment of components of the underbody equipment are checked in accordance with the work instruction. 3.3 ***Fasteners and terminations*** of the underbody equipment are installed according to maintenance checklist. 3.4 Quality of installation and fixation are checked according to maintenance checklist. 3.5 ***Insulation resistance*** is tested according to ***low voltage testing*** checklist.	disassembled parts **Technology** 3.2 Quality of fixation installations **Engineering** 3.3 Proper use of testing equipment 3.4 Understanding of testing result	3.3 Comprehend and following the standard of Health and safety and environment 3.4 Technical writing skills
4. Perform Energization and functional testing	4.1 Pre inspection of vehicle is performed according to ***train preparation checklist.*** 4.2 Rolling Stock is energized based on the Vehicle Energization Procedure. 4.3 Rolling Stock is monitored for any	**Technology** 4.1 Functions and locations of the vehicle equipment 4.2 Vehicle system information **Communication** 4.3 Work Ethics **Engineering** 4.4 Energization and functional	4.1 Analytical skills 4.2 Electromechanical skills 4.3 Comprehension skills 4.4 Mathematical skills

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	abnormal signs in accordance with the Vehicle Energization Procedure. 4.4 Electronics Communication System is tested for functionality using the Driver's Diagnostic Panel. 4.5 Presence of traction current during forward and reverse driving is checked on the Driver's Diagnostic Panel. 4.6 Presence of any visible defect, wear, or any potential safety hazards after testing is checked according to work instruction. 4.7 Status Report is prepared and endorsed to authorized personnel according to planned schedule	testing procedures **Health Safety and Environment** 4.5 R.A. 11058, an act strengthening compliance with Occupational safety and Health Standard and providing penalties for violations -	4.5 Communication skills 4.6 Basic safety skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Tools	Tools may include among others: 1.1 Multitester 1.2 Screwdriver 1.3 Combination Wrench 1.4 Vernier Caliper 1.5 Impact Wrench 1.6 Flashlight 1.7 Wheel Caliper 1.8 Insulation Tester 1.9 Pliers 1.10 Thermometer 1.11 Manometer 1.12 Ratchet 1.13 Heat Gun 1.14 Filler Gauge 1.15 Torque Wrench 1.16 Spanner 1.17 Crimper 1.18 Clamp Ammeter 1.19 Portable Drill 1.20 Allen Key 1.21 Cutter 1.22 Wire Stripper
2. Equipment	Equipment may include: 2.1 Pressure Lubricating Pump 2.2 Vacuum Cleaner 2.3 Dial Gauge 2.4 Grease Dispenser 2.5 Pressure Washer 2.6 Tension Meter 2.7 Power Supply 2.8 Grounding Cluster 2.9 Mobile Platform 2.10 Pallet 2.11 PPE
3. Materials	Materials may include: 3.1 Electrical Tape 3.2 Lubricants 3.3 Rags 3.4 Gloves 3.5 Hand Cleaner 3.6 Hand Soap 3.7 Chemicals 3.8 Penetrating Oil 3.9 Contact Cleaner 3.10 Mop 3.11 Industrial Alcohol

VARIABLE	RANGE
4. Fasteners and Terminations	May include: 4.1 Bolts 4.2 Nuts 4.3 Clips 4.4 Terminals 4.5 Rings 4.6 Gears 4.7 Contacts 4.8 Rubber Seals
5. Range of Insulation Resistance	May include: 5.1 Injection of 500 volts 5.2 Injection of 1000 volts
6. Low Voltage Testing	May include: 6.1 24 volts 6.2 48 volts 6.3 480 volts
7. Train Preparation Checklist	May include: 7.1 Underbody Equipment 7.2 Electrical Equipment 7.3 Battery 7.4 Power Supply 7.5 Covers of Equipment 7.6 Fixations

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Dismantled under body equipment 1.1.1 Prepared tools, equipment and materials 1.1.2 Worn Personal protective Equipment 1.1.3 Inspected maintenance areas 1.1.4 Checked body stand and bogie hoist 1.1.5 Positioned vehicle 1.1.6 Disassembled bogies and other underbody equipment 1.2 Maintained disassembled under body equipment 1.2.1 Prepared tools, equipment and materials 1.2.2 Prepared underbody equipment for installation 1.2.3 Sprayed Crack Test Powder on bogie frames 1.2.4 Cleaned underbody frame 1.2.5 Applied lubrication and protection 1.3 Reassembled underbody equipment 1.3.1 Prepared underbody equipment components for reassembly 1.3.2 Checked alignment of components of the underbody equipment 1.3.3 Installed fasteners and terminations of the underbody equipment 1.3.2 Checked quality of installation and fixation 1.3.3 Tested insulation resistance 1.4 Performed energization and functional testing 1.4.1 Performed pre-inspection of vehicle 1.4.2 Energized rolling stock 1.4.3 Monitored rolling stock for any abnormal signs 1.4.4 Tested Electronics Communication System 1.4.5 Checked presence of traction current during forward and reverse driving 1.4.6 Checked presence of any visible defect, wear, or any potential safety hazards after testing
2. Resource Implications	The following resources MUST be provided: 2.1 Actual and simulated workplace 2.2 Materials, tools, and equipment needed to perform the required task 2.3 References, manuals and checklists
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Practical demonstration/direct observation with oral questioning 3.3 Written examination 3.4 Portfolio
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions

GLOSSARY OF TERMS

Adjacent Subparts - means a part of a larger part, which is close to or near to another equipment.

Authorized Personnel - are people who have been specifically granted permission to enter an area and/or work on a particular equipment.

Bogie - a structure underneath a railway vehicle (wagon, coach, or locomotive) to which axles (hence, wheels) are attached through bearings.

Car body - an all-metal welded structure, which is welded by four parts: the underframe, the sidewall, the roof, and the end-wall.

Checklist - a list of activities/tasks that need to be performed and need to be recorded.

Diagnostic - a test used to help figure out the condition of a system or equipment based on the parameters or data, signs and symptoms.

Dismantle - to take a machine or piece of equipment apart so that it is in separate pieces.

Energization - to put forth energy to machinery or equipment to undergo functional tests prior to resumption of operation.

Environment - a sum of all the living and non-living elements and their effects that influences human life.

Familiarization - the action or process of gaining knowledge or understanding of something.

Fastener - a device that attaches one thing to another or holds something in place.

Fault - a malfunction or error that the system or equipment is unable to perform the functions it is required to perform for the time being.

Findings - are facts that have been found, especially by academics studying something.

Functional testing - a type of testing that seeks to establish whether each application feature works as per the software requirements. Each function is compared to the corresponding requirement to ascertain whether its output is consistent with the end user’s expectations.

Health - a state of physical, mental, and social well-being.

Installation - the action or process of installing someone or something, or of being installed.

Inspection - the act of looking at something carefully, and to check that everything is correct.

Insulation testing - a commonly used technique allowing the user to monitor and determine the insulation integrity of a given system.

Line Replaceable Unit - modular components and usually sealed units, which are designed to be replaced within a short time without using very specialized tools.

Low Voltage - a voltage level below 1000 VAC and 1500 VDC.

Lubricant - a substance (such as grease) capable of reducing friction, heat, and wear when introduced as a film between solid surfaces.

Maintain - to keep in an appropriate condition or specified state, position, operation, or keep unimpaired.

Manual - a book that gives you practical instructions on how to do something or how to use something.

Minor Repair - an action of repairing, in a short time and economically, an unusable element to its usable state by performing a simple job.

Monitoring Device - the total equipment, required under the monitoring of operations sections in applicable subparts, used to measure and record (if applicable) process parameters.

Multimeter - an electronic device that measures voltage, current, and resistance.

Parameters - are numerical or other measurable factors forming one of a set that defines a system or sets the conditions of its operation.

Preventive maintenance - a strategic approach focused on regular maintenance tasks to prevent equipment failures and extend asset life. This proactive method involves scheduled inspections, adjustments, and repairs to ensure optimal performance and reliability of machinery.

Procedures - an established or official way of doing something in a certain order or manner.

Penalties - punishment imposed for breaking a law, rule, or contract.

Quality Inspection - involves measuring, examining, testing, or gauging and comparing those results with specified requirements to determine whether there is a conformity.

Raw Data - the data originally generated by a system, device, or operation, and has not been processed or changed in any way.

Reassemble - to assemble again and to bring or put together the parts again.

Rolling Stock - a generic term for trains that is used in the railroad industry to denote anything on rail wheels. It covers many different types of railway vehicles.

Status Report - a collection of information about the status of the system or equipment.

Safety - the condition of being protected from or unlikely to cause danger, risk, or injury.

Technology - the application of scientific knowledge for practical purposes or applications.

Underbody - the section of a vehicle that is underneath the main cabin of the vehicle.

Wearable Parts- any part that is designed to wear down or be replaced with general maintenance of the vehicle.

Work Ethics - a personal set of values that determines how any employee approaches their work.

Work Instruction - a set of guidelines and best practices that employees must follow when performing work processes to achieve desired results.

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