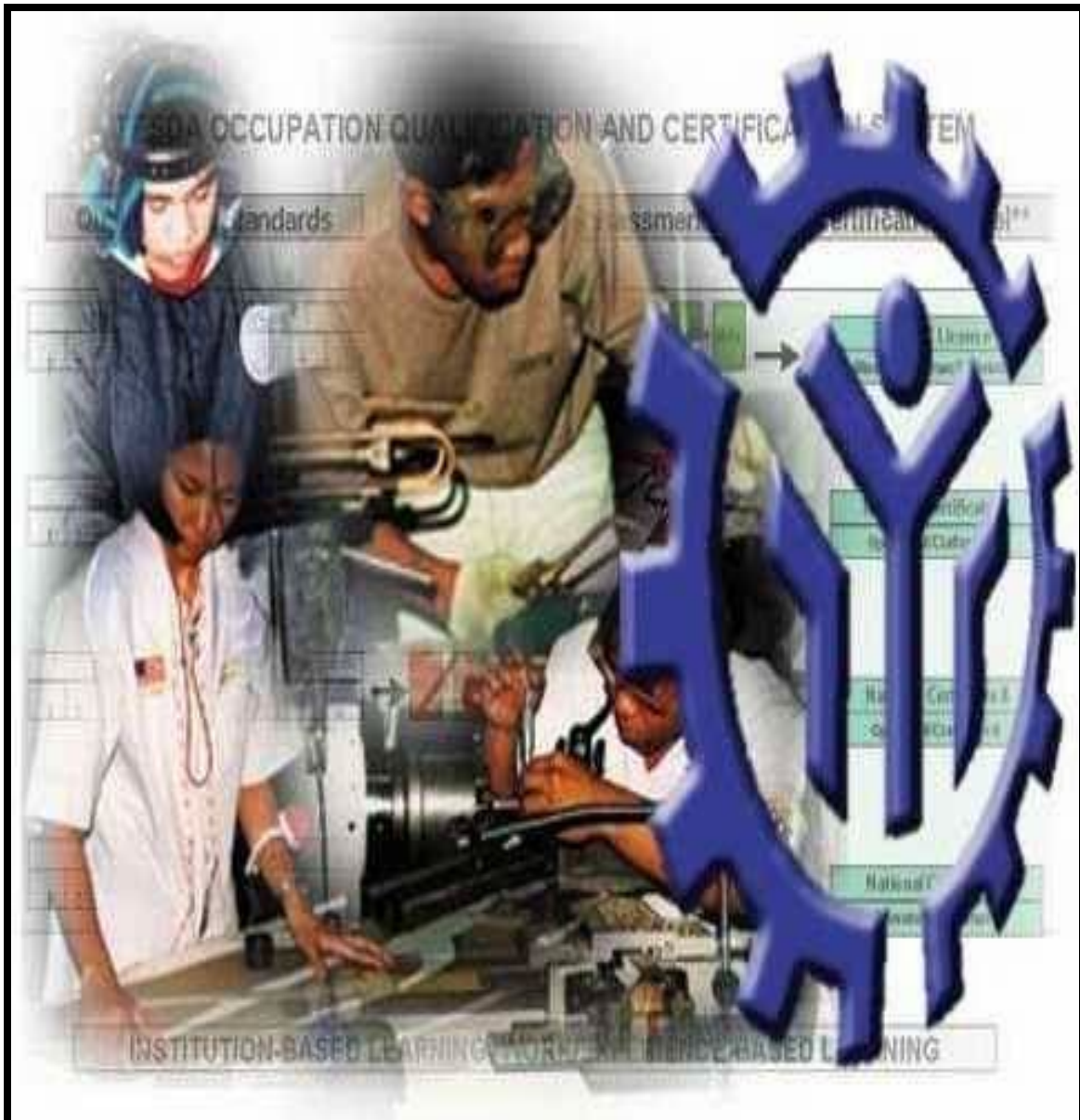


TRAINING REGULATIONS

AUTOMOTIVE BODY PAINTING/FINISHING NC I



AUTOMOTIVE SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY

East Service Road, South Superhighway, Taguig City, Philippines

*Technical Education and Skills Development Act of 1994
(Republic Act No. 7796)*

Section 22, “Establishment and Administration of the National Trade Skills Standards” of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.

The Training Regulations (TR) serves as basis for the:

1. Competency assessment and certification;
2. Registration and delivery of training programs; and
3. Development of curriculum and assessment instruments.

Each TR has four sections:

- Section 1 Definition of Qualification - refers to the group of competencies that describes the different functions of the qualification.
- Section 2 Competency Standards - gives the specifications of competencies required for effective work performance.
- Section 3 Training Standards - contains information and requirements in designing training program for certain Qualification. It includes curriculum design, training delivery; trainee entry requirements; tools, equipment and materials; training facilities; trainer's qualification; and institutional assessment.
- Section 4 National Assessment and Certification Arrangements - describe the policies governing assessment and certification procedure

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TRAINING REGULATIONS FOR AUTOMOTIVE BODY PAINTING/FINISHING NC I

SECTION 1 AUTOMOTIVE BODY PAINTING/FINISHING NC I QUALIFICATIONS

The AUTOMOTIVE BODY PAINTING/FINISHING NC I Qualification consists of competencies that a person must achieve to paint or repaint new automotive body panels, which do not have any damage using solid color paints. It also includes competency in polishing the painted panels.

This Qualification is packaged from the competency map of the Automotive Industry (Service Sector) as shown in Annex A.

The Units of Competency comprising this Qualification include the following:

| CODE NO. | BASIC COMPETENCIES |
|-----------|---|
| 500311101 | Received and respond to workplace communication |
| 500311102 | Work with others |
| 500311103 | Demonstrate work values |
| 500311104 | Practice basic housekeeping procedures |

| CODE | COMMON COMPETENCIES |
|-----------|--|
| ALT723201 | Apply appropriate sealant/adhesive |
| ALT723202 | Move and position vehicle |
| ALT311202 | Perform mensuration and calculation |
| ALT723203 | Read, interpret and apply specifications and manuals |
| ALT723204 | Use and apply lubricants/coolants |
| ALT723205 | Perform shop maintenance |

| CODE | CORE COMPETENCIES |
|-----------|--|
| ALT714301 | Prepare undamaged surface for painting |
| ALT714302 | Apply and remove masking |
| ALT714303 | Spray solid color paints |
| ALT714304 | Perform polishing |

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

- **Automotive painter (single stage painting)**
- **Automotive paint finisher (single stage painting)**

SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common and core units of competency required in Automotive Body Painting/Finishing NC I.

BASIC COMPETENCIES

DEFINITION:

The **BASIC COMPETENCIES** refer to non-technical skills (knowledge, skills and attitudes) that everybody will need in order to perform satisfactorily at work and in society and are considered portable and transferable irrespective of jobs and industrial settings.

UNIT OF COMPETENCY : **RECEIVE AND RESPOND TO WORKPLACE COMMUNICATION**

UNIT CODE : **500311101**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to receive, respond and act on verbal and written communication.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|---|---|
| 1. Follow routine spoken messages | 1.1 Required information is gathered by listening attentively and correctly interpreting or understanding information/instructions 1.2 Instructions/information are properly recorded 1.3 Instructions are acted upon immediately in accordance with information received 1.4 Clarification is sought from workplace supervisor on all occasions when any instruction/information is not clear |
| 2. Perform workplace duties following written notices | 2.1 Written notices and instructions are read and interpreted correctly in accordance with organizational guidelines 2.2 Routine written instruction are followed in sequence 2.3 Feedback is given to workplace supervisor based on the instructions/information received |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|-------------------------------------|---|
| 1. Written notices and instructions | It refers to : 1.1 Handwritten and printed material 1.2 Internal memos 1.3 External communications 1.4 Electronic mail 1.5 Briefing notes 1.6 General correspondence 1.7 Marketing materials 1.8 Journal articles |
| 2. Organizational Guidelines | It may include: 2.1 Information documentation procedures 2.2 Company policies and procedures 2.3 Organization manuals 2.4 Service manual |

EVIDENCE GUIDE

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|--|--|
| <p>1. Critical aspects of competency</p> | <p>Assessment requires evidence that the candidate:</p> <p>1.1 Demonstrated knowledge of organizational procedures for handling verbal and written communications</p> <p>1.2 Received and acted on verbal messages and instructions</p> <p>1.3 Demonstrated competency in recording instructions/information</p> |
| <p>2. Underpinning knowledge and attitudes</p> | <p>2.1 Knowledge of organizational policies/guidelines in regard to processing internal/external information</p> <p>2.2 Ethical work practices in handling communications</p> <p>2.3 Communication process</p> |
| <p>3. Underpinning skills</p> | <p>3.1 Conciseness in receiving and clarifying messages/information/communication</p> <p>3.2 Accuracy in recording messages/information</p> |
| <p>4. Resource implications</p> | <p>The following resources MUST be provided:</p> <p>4.1 Pens</p> <p>4.2 Note pads</p> |
| <p>5. Method of assessment</p> | <p>Competency may be assessed through:</p> <p>5.1 Direct Observation</p> <p>5.2 Oral interview</p> <p>5.3 Written Evaluation</p> <p>5.4 Third Party Report</p> |
| <p>6. Context of assessment</p> | <p>6.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions</p> |

UNIT OF COMPETENCY : **WORK WITH OTHERS**

UNIT CODE : **500311102**

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes required to develop workplace relationship and contribute in workplace activities.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|---|---|
| 1. Develop effective workplace relationship | 1.1 <i>Duties and responsibilities</i> are done in a positive manner to promote cooperation and good relationship 1.2 Assistance is sought from <i>workgroup</i> when difficulties arise and addressed through discussions 1.3 <i>Feedback</i> provided by others in the team is encouraged, acknowledged and acted upon 1.4 Differences in personal values and beliefs are respected and acknowledged in the development |
| 2. Contribute to work group activities | 2.1 <i>Support is provided to team members</i> to ensure workgroup goals are met 2.2 Constructive contributions to workgroup goals and tasks are made according to <i>organizational requirements</i> 2.3 Information relevant to work is shared with team members to ensure designated goals are met |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|--------------------------------------|--|
| 1. Duties and responsibilities | 1.1 Job description and employment arrangements 1.2 Organization's policy relevant to work role 1.3 Organizational structures 1.4 Supervision and accountability requirements including OHS 1.5 Code of conduct |
| 2. Work group | 2.1 Supervisor or manager 2.2 Peers/work colleagues 2.3 Other members of the organization |
| 3. Feedback on performance | 3.1 Formal/Informal performance appraisal 3.2 Obtaining feedback from supervisors and colleagues and clients 3.3 Personal, reflective behavior strategies 3.4 Routine organizational methods for monitoring service delivery |
| 4. Providing support to team members | 4.1 Explaining/clarifying 4.2 Helping colleagues 4.3 Providing encouragement 4.4 Providing feedback to another team member 4.5 Undertaking extra tasks if necessary |
| 5. Organizational requirements | 5.1 Goals, objectives, plans, system and processes 5.2 Legal and organization policy/guidelines 5.3 OHS policies, procedures and programs 5.4 Ethical standards 5.5 Defined resources parameters 5.6 Quality and continuous improvement processes and standards |

EVIDENCE GUIDE

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|-----------------------------------|---|
| 1. Critical aspects of competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Provided support to team members to ensure goals are met 1.2 Acted on feedback from clients and colleagues 1.3 Accessed learning opportunities to extend own personal work competencies to enhance team goals and outcomes |
| 2. Underpinning knowledge | <ul style="list-style-type: none"> 2.1 The relevant legislation that affects operations, especially with regards to safety 2.2 Reasons why cooperation and good relationships are important 2.3 Knowledge of the organization's policies, plans and procedures 2.4 Understanding how to elicit and interpret feedback 2.5 Knowledge of workgroup member's responsibilities and duties 2.6 Importance of demonstrating respect and empathy in dealings with colleagues 2.7 Understanding of how to identify and prioritize personal development opportunities and options |
| 3. Underpinning skills | <ul style="list-style-type: none"> 3.1 Ability to read and understand the organization's policies and work procedures 3.2 Write simple instructions for particular routine tasks 3.3 Interpret information gained from correspondence 3.4 Communication skills to request advice, receive feedback and work with a team 3.5 Planning skills to organized work priorities and arrangement 3.6 Technology skills including the ability to select and use technology appropriate to a task 3.7 Ability to relate to people from a range of social, cultural and ethnic backgrounds. |
| 4. Resource implications | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2 Materials relevant to the proposed activity or task |
| 5. Method of assessment | <p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Direct observations of work activities of the individual member in relation to the work activities of the group 5.2 Observation of simulation and/or role play involving the participation of individual member to the attainment of organizational goal 5.3 Case studies and scenarios as a basis for discussion of issues and strategies |
| 6. Context of assessment | <ul style="list-style-type: none"> 6.1 Competency assessment may occur in workplace or any appropriately simulated environment 6.2 Assessment shall be observed while task are being undertaken whether individually or in group |

UNIT OF COMPETENCY : **DEMONSTRATE WORK VALUES**

UNIT CODE : **500311103**

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitude in demonstrating proper work values.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|---|--|
| 1. Define the purpose of work | 1.1 One's unique sense of purpose for working and the why's of work are identified, reflected on and clearly defined for one's development as a person and as a member of society. 1.2 Personal mission is in harmony with company's values |
| 2. Apply work values/ethics | 2.1 Work values/ethics/concepts are classified and reaffirmed in accordance with the transparent company ethical standards, policies and guidelines. 2.2 Work practices are undertaken in compliance with industry work ethical standards, organizational policy and guidelines 2.3 Personal behavior and relationships with co-workers and/or clients are conducted in accordance with ethical standards, policy and guidelines. 2.4 Company resources are used in accordance with transparent company ethical standard, policies and guidelines. |
| 3. Deal with ethical problems | 3.1 Company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct are accessed and applied in accordance with transparent company ethical standard, policies and guidelines. 3.2 Work incidents/situations are reported and/or resolved in accordance with company protocol/guidelines. 3.3 Resolution and/or referral of ethical problems identified are used as learning opportunities. |
| 4. Maintain integrity of conduct in the workplace | 4.1 Personal work practices and values are demonstrated consistently with acceptable ethical conduct and company's core values. 4.2 Instructions to co-workers are provided based on ethical, lawful and reasonable directives. 4.3 Company values/practices are shared with co-workers using appropriate behavior and language. |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|------------------------------------|---|
| 1. Work values/ethics/ concepts | May include but are not limited to: 1.1 Commitment/ Dedication 1.2 Sense of urgency 1.3 Sense of purpose 1.4 Love for work 1.5 High motivation 1.6 Orderliness 1.7 Reliability 1.8 Competence 1.9 Dependability 1.10 Goal-oriented 1.11 Sense of responsibility 1.12 Being knowledgeable 1.13 Loyalty to work/company 1.14 Sensitivity to others 1.15 Compassion/Caring attitude 1.16 Balancing between family and work 1.17 Pakikisama 1.18 Bayanihan spirit/teamwork 1.19 Sense of nationalism |
| 2. Work practices | 2.1 Quality of work 2.2 Punctuality 2.3 Efficiency 2.4 Effectiveness 2.5 Productivity 2.6 Resourcefulness 2.7 Innovativeness/Creativity 2.8 Cost consciousness 2.9 5S 2.10 Attention to details |
| 3. Incidents/situations | 3.1 Violent/intensed dispute or argument 3.2 Gambling 3.3 Use of prohibited substances 3.4 Pilferages 3.5 Damage to person or property 3.6 Vandalism 3.7 Falsification 3.8 Bribery 3.9 Sexual Harassment 3.10 Blackmail |
| 4. Company resources | 4.1 Consumable materials 4.2 Equipment/Machineries 4.3 Human 4.4 Time 4.5 Financial resources |
| 5. Instructions | 5.1 Verbal 5.2 Written |

EVIDENCE GUIDE

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|--|---|
| <p>1. Critical aspects of competency</p> | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Defined one's unique sense of purpose for working 1.2 Clarified and affirmed work values/ethics/concepts consistently in the workplace 1.3 Demonstrated work practices satisfactorily and consistently in compliance with industry work ethical standards, organizational policy and guidelines 1.4 Demonstrated personal behavior and relationships with co-workers and/or clients consistent with ethical standards, policy and guidelines 1.5 Used company resources in accordance with company ethical standard, policies and guidelines. 1.6 Followed company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct/behavior |
| <p>2. Underpinning knowledge</p> | <ul style="list-style-type: none"> 2.1 Occupational health and safety 2.2 Work values and ethics 2.3 Company performance and ethical standards 2.4 Company policies and guidelines 2.5 Fundamental rights at work including gender sensitivity 2.6 Work responsibilities/job functions 2.7 Corporate social responsibilities 2.8 Company code of conduct/values 2.9 Balancing work and family responsibilities |
| <p>3. Underpinning skills</p> | <ul style="list-style-type: none"> 3.1 Interpersonal skills 3.2 Communication skills 3.3 Self awareness, understanding and acceptance 3.4 Application of good manners and right conduct |
| <p>4. Resource implications</p> | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace or assessment location 4.2 Case studies/Scenarios |
| <p>5. Method of assessment</p> | <p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Portfolio Assessment 5.2 Interview 5.3 Third Party Reports |
| <p>6. Context of assessment</p> | <ul style="list-style-type: none"> 6.1 Competency may be assessed in the work place or in a simulated work place setting |

UNIT OF COMPETENCY : **PRACTICE HOUSEKEEPING PROCEDURES**

UNIT CODE : **500311104**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to apply the basic housekeeping procedures.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|--|--|
| 1. Sort and remove unnecessary items | 1.1 Reusable, recyclable materials are sorted in accordance with company/office procedures 1.2 Unnecessary items are removed and disposed of in accordance with company or office procedures |
| 2. Arrange items | 2.1 Items are arranged in accordance with company/office housekeeping procedures 2.2 Work area is arranged according to job requirements 2.3 Activities are prioritized based on instructions. 2.4 Items are provided with clear and visible identification marks based on procedure 2.5 Safety equipment and evacuation passages are kept clear and accessible based on instructions |
| 3. Maintain work area, tools and equipment | 3.1 Cleanliness and orderliness of work area is maintained in accordance with company/office procedures 3.2 Tools and equipment are cleaned in accordance with manufacturer's instructions/manual 3.3 Minor repairs are performed on tools and equipment in accordance with manufacturer's instruction/manual 3.4 Defective tools and equipment are reported to immediate supervisor |
| 4. Follow standardized work process and procedures | 4.1 Materials for common use are maintained in designated area based on procedures 4.2 Work is performed according to standard work procedures 4.3 Abnormal incidents are reported to immediate supervisor |
| 5. Perform work spontaneously | 5.1 Work is performed as per instruction 5.2 Company and office decorum are followed and complied with 5.3 Work is performed in accordance with occupational health and safety (OHS) requirements |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|-------------------------|---|
| 1. Unnecessary items | May include but are not limited to: 1.1 Non-recyclable materials 1.2 Unserviceable tools and equipment 1.3 Pictures, posters and other materials not related to work activity 1.4 Waste materials |
| 2. Identification marks | 2.1 Labels 2.2 Tags 2.3 Color coding |
| 3. Decorum | 3.1 Company/ office rules and regulations 3.2 Company/ office uniform 3.3 Behavior |
| 4. Minor repair | Minor repair include but not limited to: 4.1 Replacement of parts 4.2 Application of lubricants 4.3 Sharpening of tools 4.4 Tightening of nuts, bolts and screws |

EVIDENCE GUIDE

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|---|--|
| 1. Critical aspects of competency | Assessment requires evidence that the candidate: 1.1 Practiced the basic procedures of 5S |
| 2. Underpinning knowledge and attitudes | 2.1 Principles of 5S 2.2 Work process and procedures 2.3 Safety signs and symbols 2.4 General OH&S principles and legislation 2.5 Environmental requirements relative to work safety 2.6 Accident/Hazard reporting procedures |
| 3. Underpinning skills | 3.1 Basic communication skills 3.2 Interpersonal skills 3.3 Reading skills required to interpret instructions 3.4 Reporting/recording accidents and potential hazards |
| 4. Resource implications | The following resources MUST be provided: 4.1 Facilities, materials tools and equipment necessary for the activity |
| 5. Method of assessment | Competency must be assessed through: 5.1 Third party report 5.2 Interview 5.3 Demonstration with questioning |
| 6. Context of assessment | 6.1 Competency may be assessed in the work place or in a simulated work place setting |

COMMON COMPETENCIES

UNIT OF COMPETENCY : **APPLY APPROPRIATE SEALANT/ADHESIVE**

UNIT CODE : **ALT723201**

UNIT DESCRIPTOR : This unit covers the outcomes required in the selection, use and application of sealant/adhesives.

| ELEMENT | PERFORMANCE CRITERIA |
|--|--|
| | <i>Italicized terms</i> are elaborated in the Range of Variables |
| 1. Identify appropriate sealant/adhesive | 1.1 Sealant/adhesive selected in line with job requirements and manufacturer's specification 1.1 Sealant/adhesive checking is performed to ensure that product is fit for use. |
| 2. Prepare surface for sealant/adhesive | 2.1 Surface materials are identified as per construction 2.2 Surface is cleaned and free of moisture, dust and other foreign matters to ensure maximum adhesion or seal. |
| 3. Apply sealant/adhesive evenly | 3.1 Sealant/adhesive is applied evenly on the surface in line with manufacturer's specification 3.2 Excess sealant/adhesive is removed by sanding or scrapping 3.3 Tools and equipment used to apply sealant/adhesive are appropriate to job requirements 3.1 Safety are observed and PPE are worn in accordance with industry SOP 3.2 Hazards associated with the use of sealant and adhesives are identified. |
| 4. Store/Dispose of sealant/adhesive | 4.1 Sealant/adhesive are stored as per prescribed procedure 4.2 Waste are disposed as per workshop SOP |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|------------------------------|---|
| 1. Sealant/Adhesive | Sealant/adhesive includes: <ul style="list-style-type: none"> 1.1 Form in Place Gasket (FIPG) 1.2 Ribbon Sealer 1.3 Hametite 1.4 Silicon Body sealer 1.5 Prestite for Auto and Auto Aircon |
| 2. Tools and equipment | Tools and equipment include: <ul style="list-style-type: none"> 2.1 Putty knife 2.2 Scraper 2.3 Compressor 2.4 Steel brush 2.5 Paint brush 2.6 Rubber hammer 2.7 Hand tools Personal protective equipment include: <ul style="list-style-type: none"> 2.8 Gloves 2.9 Apron 2.10 Safety shoes 2.11 Goggles 2.12 Gas mask |
| 3. Safety | Safety includes: <ul style="list-style-type: none"> 3.1 Ventilation 3.2 Handling of Flammable/Irritating substances 3.3 Use of Personal Protective Equipment |
| 4. Hazards | Hazard includes: <ul style="list-style-type: none"> 4.1 Fumes 4.2 Skin irritation 4.3 Burns |
| 5. Adhesive/Sealant checking | Adhesive/Sealant checking includes: <ul style="list-style-type: none"> 5.1 Expiry date 5.2 Free of contamination 5.1 Cap/Covers 5.2 Tightly closed 5.3 Concentration |

EVIDENCE GUIDE

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| <p>1. Critical aspects of competency</p> | <p>Assessment requires evidence that the candidate:</p> <p>1.1 Identified appropriate sealant/adhesives</p> <p>1.2 Prepared surface for sealant/adhesive</p> <p>1.3 Applied sealant/adhesive</p> <p>1.4 Stored unused or dispose of used sealant/adhesive</p> |
| <p>2. Underpinning knowledge</p> | <p>2.1 OH & S regulations</p> <p>2.2 Safe handling of sealant/adhesive</p> <p>2.3 Industry code of practice</p> <p>2.2 Procedures in sealant/adhesive application</p> <p>2.3 Procedures in interpreting manuals</p> |
| <p>3. Underpinning skills</p> | <p>3.1 Handling sealant/adhesive</p> <p>3.2 Applying sealant/adhesive</p> <p>3.3 Sanding the surface</p> <p>3.4 Use of tools, equipment</p> <p>3.5 Mixing of body filler and epoxy base and hardener</p> |
| <p>4. Resource implications</p> | <p>The following resources MUST be provided:</p> <p>4.1 Materials relevant to the activity</p> <p>4.2 Appropriate tools and equipment</p> <p>4.3 Real or simulated workplace</p> |
| <p>5. Method of assessment</p> | <p>Competency MUST be assessed through</p> <p>5.1 Observation with questioning</p> <p>5.2 Interview related to:</p> <ul style="list-style-type: none"> • Safe and correct use of tools and equipment • Application of adhesive/sealant |
| <p>6. Context of assessment</p> | <p>6.1 Competency elements must be assessed in a safe working environment</p> <p>6.2 Assessment may be done in a workplace or simulated environment</p> |

UNIT OF COMPETENCY : **MOVE AND POSITION VEHICLE**

UNIT CODE : **ALT723202**

UNIT DESCRIPTOR : This competency unit covers the knowledge, skills and attitude needed to move and position vehicle in a workshop before and after servicing.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|--------------------------------|--|
| 1. Prepare vehicle for driving | 1.1 Check-up procedures is performed based on vehicle manufacturer standard |
| 2. Move and position vehicle | 2.1 Select vehicle to be moved or re-position. 2.2 Drive the vehicle to appropriate location 2.3 Park vehicle following parking safety techniques and procedure |
| 3. Check the vehicle | 3.1 Vehicle position is checked as per required 3.2 Vehicle is checked for external damages |

RANGE OF VARIABLE

| VARIABLE | RANGE |
|------------------------------|---|
| 1. Check up procedure | Check up procedures include the following: 1.1 Oil level 1.2 Brake fluid 1.3 Clutch fluid 1.4 Coolant level 1.5 Battery (electrolyte) 1.6 Tire pressure 1.7 Position of driving gear 1.8 Lighting and warning devices |
| 2. Vehicles | 2.1 Vehicles with automatic transmission 2.2 Vehicles with manual transmission |
| 3. Parking safety techniques | 3.1 Engaging of Park brake 3.2 Vehicle parking position 3.3 Front wheel position |

EVIDENCE GUIDE

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|----------------------------------|--|
| 1. Critical aspect of competency | Assessment requires evidence that the candidate: 1.1 Prepared vehicle for driving. 1.2 Moved and positioned vehicle 1.3 Checked the vehicle. |
| 2. Underpinning knowledge | 2.1 Driver's Code of conduct 2.2 Workshop signs and symbols 2.3 Driving skills 2.4 Vehicle accessories for safe driving and parking |
| 3. Underpinning skills | 3.1 Ability to handle vehicle/maneuver vehicle the easiest way 3.2 Immediate response to accident 3.3 Preparing vehicle for driving 3.4 Parking Downhill, Uphill, Parallel 3.5 Shifting Gears 3.6 Maneuvering |
| 2. Resource implications | The following resources MUST be provided: 4.1 Driving range/area 4.2 Appropriate vehicle for driving 4.3 Vehicle accessories |
| 5. Method of assessment | Competency MUST be assessed through: 5.1 Observation with questioning 5.2 Written or oral examination |
| 6. Context of assessment | 6.1 Assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 6.2 Assessment of practical skills must be done in a workplace or simulated environment. |

UNIT OF COMPETENCY : **PERFORM MENSURATION AND CALCULATION**

UNIT CODE : **ALT311202**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in measuring and calculating using tools and measuring instruments. It also covers care and handling of measuring instruments.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|---|---|
| 1. Select measuring instruments | 1.1 Object or component to be measured is identified 1.2 Correct specifications are obtained from relevant source 1.3 Appropriate <i>measuring instrument</i> is selected according to job requirements |
| 2. Carry out measurements and calculation | 2.1 Measuring tools are selected in line with job requirements 2.2 Accurate measurements are obtained to job 2.3 <i>Calculation</i> needed to complete work tasks are performed using the four fundamental operation of addition (+), subtraction (-), multiplication (x) and division (/). 2.4 Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks. 2.5 Numerical computation is self-checked and corrected for accuracy 2.6 Instruments are read to the limit of accuracy of the tool. |
| 3. Maintain measuring instruments | 3.3 Measuring instruments are kept free from corrosion 3.4 Measuring instruments are not dropped to avoid damage 3.5 Measuring instruments are cleaned before and after using. |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|--------------------------|---|
| 1. Measuring instruments | Measuring instruments includes: 1.1 Multitester 1.2 Micrometer (In-out, depth) 1.3 Vernier caliper (Out, inside) 1.4 Dial Gauge with Mag. Std. 1.5 Plastigauge 1.6 Straight Edge 1.7 Thickness gauge 1.8 Torque Gauge 1.9 Small Hole gauge 1.10 Telescopic Gauge 1.11 Try square 1.12 Protractor 1.13 Combination gauge 1.14 Steel rule |
| 2. Calculation | Includes calculation of the following: 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 Oil clearance 2.12 End play/thrust clearance |

EVIDENCE GUIDE

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| 1. Critical aspect of competency | Assessment requires evidence that the candidate: 1.1 Selected measuring instruments 1.2 Carried-out measurements and calculations. 1.3 Maintained measuring instruments |
| 2. Underpinning knowledge | 2.1 Types of Measuring instruments and its uses 2.2 Safe handling procedures in using measuring instruments 2.3 Four fundamental operation of mathematics 2.4 Formula for Volume, Area, Perimeter and other geometric figures |
| 3. Underpinning skills | 3.1 Caring and Handling measuring instruments 3.2 Calibrating and using measuring instruments 3.1 Performing calculation by Addition, Subtraction, Multiplication and Division 3.2 Visualizing objects and shapes 3.3 Interpreting formula for volume, area, perimeter and other geometric figures |
| 4. Resource implications | The following resources MUST be provided: 4.1 Workplace location 4.2 Measuring instrument appropriate to servicing processes 4.3 Instructional materials relevant to the propose activity |
| 5. Method of assessment | Competency may be assessed through: 5.1 Observation with questioning 5.2 Written or oral examination 5.3 Interview 5.4 Demonstration with questioning |
| 6. Context of assessment | 6.1 Competency elements must be assessed in a safe working environment 6.2 Assessment may be conducted in a workplace or simulated environment |

UNIT OF COMPETENCY : **READ, INTERPRET AND APPLY SPECIFICATION AND MANUAL**

UNIT CODE : **ALT723203**

UNIT DESCRIPTOR : This unit deals with identifying, interpreting and applying service specification manuals, maintenance procedure manuals and periodic maintenance manual.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|--|---|
| 1. Identify and access manual/ specification | 1.1 Appropriate <i>manuals</i> are identified and accessed as per job requirements. 1.2 Version and date of manual is checked to ensure correct specification and procedure are identified. |
| 2. Interpret manuals | 2.1 Relevant sections, chapters of manuals/specifications are located in relations to the work to be conducted 2.2 Information and procedure in the manual are interpreted in accordance to industry practices |
| 3. Apply information in manual | 3.1 Manual is interpreted according to job requirements 3.2 Work steps are correctly identified in accordance with manufacturer specification 3.3 Manual data is applied according to the given task 3.4 All correct sequencing and adjustments are interpreted in accordance with information contained on the manual or specifications |
| 4. Store manuals | 4.1 Manual or specification are stored appropriately to ensure prevention of damage, ready access and updating of information when required in accordance with company requirements |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|------------|--|
| 1. Manuals | Kinds of manuals: 1.1 Manufacturer's specification manual 1.2 Repair manual 1.3 Maintenance Procedure Manual 1.4 Periodic Maintenance Manual |

EVIDENCE GUIDE

| | |
|-----------------------------------|---|
| 1. Critical aspects of competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Identified and accessed manual/specification 1.2 Interpreted manuals 1.3 Applied information in manuals 1.4 Stored manuals |
| 2. Underpinning knowledge | <ul style="list-style-type: none"> 2.1 Types of manuals used in automotive industry 2.2 Identification of symbols used in the manuals 2.3 Identification of units of measurements 2.4 Unit conversion |
| 3. Underpinning skills | <ul style="list-style-type: none"> 3.1 Reading and comprehension skills required to identify and interpret automotive manuals and specifications 3.2 Accessing information and data |
| 4. Resource implications | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 All manuals/catalogues relative to Automotive 4.2 Job order, requisitions 4.3 Actual vehicle or simulator |
| 5. Method of assessment | <p>Competency MUST be assessed through:</p> <ul style="list-style-type: none"> 5.1 Observation with questioning 5.2 Interview |
| 6. Context of assessment | <ul style="list-style-type: none"> 6.1 Assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 6.2 Assessment may be conducted in the workplace or in a simulated environment. |

UNIT OF COMPETENCY : **USE AND APPLY LUBRICANTS/COOLANTS**

UNIT CODE : **ALT723204**

UNIT DESCRIPTOR : This unit covers the outcomes required to select and apply different types of lubricants and coolants in using and maintaining tools, equipment and vehicles.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|--|--|
| 1. Identify types of lubricants/ coolant | 1.1 Correct information on <i>lubrication schedule</i> is accessed and interpreted from appropriate manufacturers specifications <i>manuals</i> 1.2 Type and quantity of <i>lubricants/coolant</i> is identified as per job requirements |
| 2. Use and apply lubricants/coolants | 2.1 Correct procedure for change of lubricant is identified following manufacturer's specification or manual 2.1 Correct tools and equipment are selected and used in line with job requirements 2.3 Existing lubricants is removed and replaced with specified types and quantity of new materials in line with manufacturer's specification 2.4 Safe procedure and use of <i>PPE</i> is observed when removing or replacing lubricant 2.5 Used lubricants are disposed in accordance with environmental guidelines 2.6 Work is checked in line with company SOP. |
| 3. Perform housekeeping activities | 3.1 <i>Tools, equipment</i> and materials are properly stored as per company SOP 3.2 Workplace is free from waste materials |

RANGE OF VARIABLES

| VARIABLE | RANGE | | | | | | | | |
|---|---|---|--|-----------------------|--|-------------------|--|------------------|--|
| 1. Manuals | 1.1 Manufacturer's specification manual 1.2 Periodic Maintenance manual 1.3 Service Manual | | | | | | | | |
| 2. Lubricants/ Coolants | Kinds of lubricants include: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> 2.1 Engine oil: <ul style="list-style-type: none"> • Diesel engine oil • Gasoline engine oil 2.2 Automatic Transmission Fluid <ul style="list-style-type: none"> • Destro II • T4 2.3 Gear oil lubricants: <ul style="list-style-type: none"> • Oil #90 • Oil #140 • Oil #30 • Oil #40 2.4 Grease <ul style="list-style-type: none"> • Special (velocity joint) Molybdenum disulfate) • Ordinary • Multi-purpose oil • Contact point lubricant (grease) </td> <td style="width: 50%; vertical-align: top;"> 2.5 Brake/Clutch System <ul style="list-style-type: none"> • Brake fluid • DOT3 2.6 Power Steering Fluid <ul style="list-style-type: none"> • Hydraulic Fluid 2.7 Radiator Coolant <ul style="list-style-type: none"> • Long last coolant 2.8 A/C Compressor Oil <ul style="list-style-type: none"> • PAG oil </td> </tr> </table> | 2.1 Engine oil: <ul style="list-style-type: none"> • Diesel engine oil • Gasoline engine oil 2.2 Automatic Transmission Fluid <ul style="list-style-type: none"> • Destro II • T4 2.3 Gear oil lubricants: <ul style="list-style-type: none"> • Oil #90 • Oil #140 • Oil #30 • Oil #40 2.4 Grease <ul style="list-style-type: none"> • Special (velocity joint) Molybdenum disulfate) • Ordinary • Multi-purpose oil • Contact point lubricant (grease) | 2.5 Brake/Clutch System <ul style="list-style-type: none"> • Brake fluid • DOT3 2.6 Power Steering Fluid <ul style="list-style-type: none"> • Hydraulic Fluid 2.7 Radiator Coolant <ul style="list-style-type: none"> • Long last coolant 2.8 A/C Compressor Oil <ul style="list-style-type: none"> • PAG oil | | | | | | |
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| 3. Lubricant schedule | Schedule for changing oil: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">3.1 Kilometers traveled used</td> <td style="width: 50%;"></td> </tr> <tr> <td>3.2 No. of Hours used</td> <td></td> </tr> <tr> <td>3.3 Monthly</td> <td></td> </tr> </table> | 3.1 Kilometers traveled used | | 3.2 No. of Hours used | | 3.3 Monthly | | | |
| 3.1 Kilometers traveled used | | | | | | | | | |
| 3.2 No. of Hours used | | | | | | | | | |
| 3.3 Monthly | | | | | | | | | |
| 4. Tool and equipment | Tools used includes: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">4.1 Hand tools</td> <td style="width: 50%;"></td> </tr> <tr> <td>4.2 Oiler</td> <td></td> </tr> <tr> <td>4.3 Oil Dispenser</td> <td></td> </tr> <tr> <td>4.4 Grease gun</td> <td></td> </tr> </table> | 4.1 Hand tools | | 4.2 Oiler | | 4.3 Oil Dispenser | | 4.4 Grease gun | |
| 4.1 Hand tools | | | | | | | | | |
| 4.2 Oiler | | | | | | | | | |
| 4.3 Oil Dispenser | | | | | | | | | |
| 4.4 Grease gun | | | | | | | | | |
| 5. Personal protective equipment (PPE) | PPE include: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">5.1 Apron</td> <td style="width: 50%;"></td> </tr> <tr> <td>5.2 Gloves</td> <td></td> </tr> <tr> <td>5.3 Goggles</td> <td></td> </tr> <tr> <td>5.4 Safety shoes</td> <td></td> </tr> </table> | 5.1 Apron | | 5.2 Gloves | | 5.3 Goggles | | 5.4 Safety shoes | |
| 5.1 Apron | | | | | | | | | |
| 5.2 Gloves | | | | | | | | | |
| 5.3 Goggles | | | | | | | | | |
| 5.4 Safety shoes | | | | | | | | | |

EVIDENCE GUIDE

| | |
|-----------------------------------|---|
| 1. Critical aspects of competency | Assessment requires evidence that the candidate: 1.1 Identified types of lubricants and lubrication schedule. 1.2 Used and applied lubricants. 1.3 Performed housekeeping |
| 2. Underpinning knowledge | 2.1 Types/Classification of Lubricants 2.2 Identifying lubrication schedule 2.3 Cause and Effects of Gear Oil Dilution 2.4 Purpose of Lubrication (Problem and effects) 2.5 Hazard associated with lubrication |
| 3. Underpinning skills | 3.1 Handling of oils (Gear, oil, engine oil) 3.2 Familiarization/Classification of Lubricants 3.3 Lubrication Procedure |
| 4. Resource implication | The following resources MUST be provided: 4.1 Workplace: Real or simulated work area 4.2 Appropriate tools and equipment 4.3 Materials relevant to activity |
| 5. Method of assessment | Competency MUST be assessed through 5.1 Demonstration with questioning 5.2 Written/Oral examination |
| 6. Context of assessment | 6.1 Competency elements must be assessed in a safe working environment 6.2 Assessment must be undertaken in accordance with the endorsed industry assessment guidelines 6.3 Assessment of underpinning knowledge and skills may be assessed on or off the job |

UNIT OF COMPETENCY : **PERFORM SHOP MAINTENANCE**

UNIT CODE : **ALT723305**

UNIT DESCRIPTOR : This unit deals with inspecting and cleaning of work area including tools, equipment and facilities. Storage and checking of tools/ equipment and disposal of used materials are also incorporated in this competency.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|---|--|
| 1. Inspect/clean tools and work area | 1.1 Cleaning solvent used as per workshop/tools <i>cleaning requirement</i> 1.2 <i>Work area</i> is checked and cleaned 1.3 Wet surface/spot in work area is wiped and dried |
| 2. Store/arrange tools and shop equipment | 2.1 Tools/equipment are checked and stored in their respective shelves/location 2.2 Corresponding labels are posted and visible 2.3 Tools are safely secured and logged in the records |
| 3. Dispose wastes/used lubricants | 3.1 Containers for used lubricants are visibly labeled 3.2 Wastes/used lubricants are disposed as per workshop SOP |
| 4. Report damaged tools/equipment | 4.1 Complete inventory of tools/equipment is maintained 4.2 Damaged tools/equipment/facilities are identified and repair recommendation is given 4.3 Reports prepared has no error/discrepancy |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|---|--|
| 1. Work Area | Work areas include: 1.1 Workshop areas for servicing/repairing light and/or heavy vehicle and/or plant transmissions and/or outdoor power equipment 1.2 Open workshop/garage and enclosed, ventilated office area 1.3 Other variables may include workshop with: <ul style="list-style-type: none"> • Mess hall • Wash room • Comfort room |
| 2. Cleaning requirement | 2.1 Cleaning solvent 2.2 Inventory of supplies, tools, equipment, facilities 2.3 List of mechanics/technicians 2.4 Rags 2.5 Broom 2.6 Mop 2.7 Pail 2.8 Used oil container 2.9 Oiler 2.10 Dust/waste bin |
| 3. Manuals | 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 Customer requirements 3.6 Industry Occupational Health & Safety |
| 4. Company standard operating procedure | Wearing of personal protective equipment include: 4.1 Gloves 4.2 Apron 4.3 Goggles 4.4 Safety shoes |

EVIDENCE GUIDE

| | |
|---|---|
| 1. Critical aspects of competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Cleaned workshop tools/facilities 1.2 Maintained equipment, tools and facilities 1.3 Disposed wastes and used lubricants/fluid as per required procedure |
| 2. Underpinning knowledge and attitudes | <ul style="list-style-type: none"> 2.1 5S or Total Quality Management 2.2 Service procedures 2.3 Relevant technical information 2.4 Safe handling of Equipment and tools 2.5 Vehicle safety requirements 2.6 Workshop policies 2.7 Personal safety procedures 2.8 Fire Extinguishers and prevention 2.9 Storage/Disposal of Hazardous/flammable materials 2.10 Positive Work Values (Perseverance, Honesty, Patience, Attention to Details) |
| 3. Underpinning skills | <ul style="list-style-type: none"> 3.1 Handling/Storing of tools/equipment/supplies and material 3.2 Cleaning grease/lubricants 3.3 Disposing of wastes and fluid 3.4 Preparing inventory of s/m and tools and equipment 3.5 Monitoring of s/m and tools/equipment |
| 4. Resource implications | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace: Real or simulated work area 4.2 Appropriate Tools & equipment 4.3 Materials relevant to the activity |
| 5. Method of assessment | <p>Competency MUST be assessed through:</p> <ul style="list-style-type: none"> 5.1 Written/Oral Questioning 5.2 Demonstration |
| 6. Context of assessment | <ul style="list-style-type: none"> 6.1 Competency must be assessed on the job or simulated environment. 6.2 The assessment of practical skills must take place after a period of supervised practice and repetitive experience. |

CORE COMPETENCIES

This section gives the details of the contents of the core units of competency required in AUTOMOTIVE BODY PAINTING/FINISHING NC I.

UNIT OF COMPETENCY: **PREPARE UNDAMAGED SURFACE FOR PAINTING**

UNIT CODE: **ALT714301**

UNIT DESCRIPTOR: This unit identifies the competence required to remove surface rust/scale and prepare application of primers, sealers and sealant for painting and refinishing.

| ELEMENT | PERFORMANCE CRITERIA |
|--|--|
| | <i>Italicized terms</i> are elaborated in the Range of Variables |
| 1. Remove body accessories | 1.1 All detachable parts from panel/ surface to be repainted are removed as per procedure and without damage using required tools, equipment, supplies and materials 1.2 All detachable parts are placed on secured containers with complete label and identification. |
| 2. Sand Surface | 2.1 Adjacent panels or areas not to be sanded are applied with masking materials. 2.2 Sanding is performed as per procedure. 2.3 Sanded area is assessed using visual, touch, gauges assessment methods 2.4 Dual action or orbital sander is used as per manufacturer operation instruction |
| 3. Clean the spray gun | 3.1 Paint cup is cleaned with thinner before and after use 3.2 Paint passage is cleaned with back-flush technique 3.3 Nozzle cap is removed and fluid tip is cleaned 3.4 Thinner is ensured clear after repetitive back-flush cleaning method |
| 4. Apply primers for strip to metal painting job | 4.1 Cleaning of panel is performed using pressurized air with air dryer to remove sanded particles 4.2 Degreasing performed as per standard operating procedure 4.3 Tack cloth is used to wipe off remaining particles 4.4 Primers mixed according to paint manufacturer specifications 4.5 Spraying air pressure is maintained as per paint manufacturer specification 4.6 Spraying distance maintained as per manufacturer specification 4.7 Flash off time is observed as per paint manufacturer specifications 4.8 Drying time is observed as per paint manufacturer specifications. 4.9 Personal protective equipment and devices appropriate to the application processes are worn and used as per specification |
| 5. Apply sealant when replacing with new panel | 5.1 Cleaning and degreasing is performed on the area to be applied with sealant 5.2 Sealant applicator nozzle is trimmed/cut according to application necessity/requirements 5.3 Sealant is applied as per procedure 5.4 Applied sealant is checked and excess sealant is removed and cleaned properly |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|---|--|
| 1. Equipment, tools, supplies and materials | Equipment used includes: For removing paints/Feather edging 1.1 Sander single action with dust extractor 1.2 Sander Dual action or Orbital with dust extractor For applying surfacer 1.3 Air compressor 1.4 Spray gun 1.5 Air lines and accessories 1.6 Air dryer/filter Tools include: 1.7 Scraper 1.8 Basic handtools Supplies and Materials 1.9 Sand paper 1.10 Paint remover 1.11 Degreaser 1.12 Primer 1.13 Thinner 1.14 Surfacer 1.15 Sealant 1.16 Masking materials |
| 2. Surfaces | Types of surfaces include: 2.1 Metal 2.2 Plastic 2.3 Fiberglass |
| 3. Protective clothing and equipment | Personal protective clothing and safety devices may include: 3.1 Gloves – cotton and solvent resistant 3.2 Safety shoes or boots 3.3 Dust mask, gas mask or respirator or particle mask 3.4 Shop uniform 3.5 Apron 3.6 Eye spectacle or goggles |
| 4. Primer | Kinds of primers may include: 4.1 Wash primer 4.2 Epoxy primer 4.3 Urethane primer 4.4 Acrylic primer |

EVIDENCE GUIDE

| | |
|---|--|
| 1. Critical aspects of competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Removed body accessories 1.2 Sanded surfaces 1.3 Mixed primer according to manufacturer's specifications 1.4 Applied sealant when replacing with new panel |
| 2. Underpinning knowledge and attitudes | <ul style="list-style-type: none"> 2.1 Necessary cleaning and degreasing agents 2.2 Surface preparation procedures for primers/sealers (including minor dents/surface blemish repair) 2.3 Relevant technical information 2.4 Workplace safety procedures 2.5 Vehicle safety requirements 2.6 Equipment safety requirements 2.7 Wet sanding procedure preparation for refinishing 2.8 Primer/sealed surface preparation for refinishing 2.9 Correct operating procedures of relevant equipment for surface preparation 2.10 Personal safety requirements 2.10 Dedication to work 2.11 Patience and perseverance |
| 3. Underpinning skills | <ul style="list-style-type: none"> 3.1 Accessing, interpreting and applying technical information 3.2 Use relevant tools and equipment 3.3 Cleaning bare metal, plastic, fiberglass surfaces for primer application 3.4 Performing surfaces for surfacer application 3.5 Applying primers/sealers and surfacer |
| 4. Resource implications | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace: Real or simulated work area 4.2 Appropriate Tools & equipment 4.3 Materials relevant to the activity |
| 5. Method of assessment | <p>Competency MUST be assessed through:</p> <ul style="list-style-type: none"> 5.1 Demonstration and Questioning 5.2 Written examination 5.3 Portfolio |
| 6. Context of assessment | <ul style="list-style-type: none"> 6.1 Competency elements must be assessed on the job or in a simulated environment 6.2 The assessment of practical skills must take place after a period of supervised practice and repetitive experience 6.3 The required outcome must be able to be achieved without direct supervision |

UNIT OF COMPETENCY : **APPLY AND REMOVE MASKING**

UNIT CODE : **ALT714302**

UNIT DESCRIPTOR : This unit covers the competency required in applying and removing materials in preparation for spray painting.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|--|---|
| 1. Remove detachable parts for panel to be painted | 1.1 All <i>detachable parts</i> from panel to be repainted are removed as per procedure and without damage. 1.2 All detachable parts are placed on secured containers with complete label and identification. |
| 2. Clean and degrease panel for masking | 2.1 Cleaning is performed using pressurized air with air dryer to remove dust particles. 2.2 Panel is washed with car shampoo and water 2.3 Degreasing is performed as per company standard operating procedure |
| 3. Apply masking materials | 3.1 Type of <i>masking materials</i> to be used is accurately determined based on the panel to be repainted 3.2 Masking materials is applied as per <i>masking procedures</i> depending on the panel to be repainted 3.3 Improperly applied or loose ends masking materials are re-checked and corrected upon applying pressurized air as per company standard operating procedure. |
| 4. Remove masking materials | 4.1 Remove masking materials as per paint job requirements 4.2 Masking materials removed as per sequence of layers 4.3 Masking materials are disposed as per company standard operating procedures. |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|-----------------------|---|
| 1. Detachable parts | Example of detachable parts of automotive body include but not limited to: 1.1 Mouldings 1.2 Door handles 1.3 Clearance lights 1.4 Logo, emblem or stickers |
| 2. Masking materials | Masking materials may include but not limited to; 4.4 Masking paper/plastics 4.5 Masking tapes for auto use 4.6 Mouldings tapes 4.7 Fine line tapes 4.8 Spray –type masking |
| 3. Masking procedures | Masking procedures may include the following: 3.1 Reverse masking 3.2 Masking non-removable parts 3.3 Masking curved or complex areas or surfaces 3.4 Masking for block or whole panel painting 3.5 Masking for spot repairs |

EVIDENCE GUIDE

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|--|--|
| <p>1. Critical aspects of competency</p> | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Removed detachable parts for panel to be painted 1.2 Cleaned and degreased panel for masking 1.3 Applied masking materials 1.4 Removed masking materials 1.5 Ensured proper masking to prevent over spray. |
| <p>2. Underpinning knowledge and attitudes</p> | <ul style="list-style-type: none"> 2.1 Necessary cleaning and degreasing agents 2.2 Relevant technical information 2.3 Workplace safety procedures 2.4 Vehicle safety requirements 2.5 Equipment safety requirements 2.6 Personal safety requirements 2.6 Masking Procedures 2.7 Kinds of Masking materials 2.8 Detachable Parts of automotive vehicle body 2.9 Proper use of masking materials 2.10 Procedure in removing detachable auto body parts and accessories 2.11 Open-mindedness, Trainable to new procedures, Dedication to work, Patience, Initiative, Orderliness and Cleanliness |
| <p>3. Underpinning skills</p> | <ul style="list-style-type: none"> 3.1 Accessing, interpreting and applying technical information 3.2 Use of relevant tools and equipment 3.3 Clean bare metal surfaces, plastic and fiberglass 3.4 Degreasing panel to be repainted 3.5 Applying and removing masking materials 3.6 Removing and Replacing auto body parts and accessories 3.7 Securing/storing of auto body parts and accessories |
| <p>4. Resource implications</p> | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace: Real or simulated work area 4.2 Appropriate Tools & equipment 4.3 Materials relevant to the activity |
| <p>5. Method of assessment</p> | <p>Competency MUST be assessed through:</p> <ul style="list-style-type: none"> 5.1 Demonstration with Questioning 5.2 Portfolio |
| <p>6. Context of assessment</p> | <ul style="list-style-type: none"> 6.1 Competency must be assessed on the job or in a simulated environment. 6.2 The assessment of practical skills must take place after a period of supervised practice and repetitive experience. |

UNIT OF COMPETENCY : **SPRAY SOLID COLOR PAINT**

UNIT CODE : **ALT714303**

UNIT DESCRIPTOR : This unit covers the competency required in spraying solid color paint to metal, plastic and direct gloss fiberglass surfaces. It also involves single stage paint spraying.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|---|--|
| 1. Clean and degrease panel/vehicle to be repainted | 1.1 Work area is properly cleaned as per recommended paint manufacturer and company standard. 1.2 Panel/Vehicle to be painted is positioned as per painting requirements 1.3 Cleaning of panel/vehicle is performed using pressurized air with air dryer to remove sanded particles 1.4 Degreasing of panel/vehicle is performed as per company standard operating procedure 1.5 Tack cloth is used to wipe off remaining particles |
| 2. Prepare paint mixture and spray gun | 2.1 Spray gun is set-up as per paint manufacturer specifications 2.2 Paint mixture is strained using fine paint strainer while transferring mixture to spray gun without spillage 2.3 Paint mixture is transferred to spray gun at least 70% of paint cup capacity and without spillage. 2.4 Spray pattern is checked by spray testing on separate test panel 2.5 Pattern, discharge, volume, air pressure of spray gun is adjusted as per job requirements. |
| 3. Apply solid color paint by spraying | 3.1 Solid color is applied using spray gun following and observing the factors in paint application : 3.4 Appropriate personal protective devices are used during painting 3.5 Flash-off time is observed as per paint manufacturer's specification 3.6 Drying time is observed as per manufacturer's specification. |
| 4. Clean the spray gun | 4.1 Paint cup is cleaned with thinner before and after use 4.2 Paint passage is cleaned with back-flush technique 4.3 Nozzle cap is removed and fluid tip is cleaned 4.4 Thinner is ensured clear after repetitive back-flush cleaning method |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|--------------------------------------|--|
| 1. Spray gun | Types of spray gun : <input type="checkbox"/> According to performance 1.1 Conventional type 1.2 HVLP (Hi volume low pressure) type <input type="checkbox"/> According to construction 1.3 Gravity fed type 1.4 Suction type |
| 2. Protective clothing and equipment | Personal Protective clothing and safety devices may include: 2.1 Gloves -cotton and solvent resistant 2.1 Safety shoes or boots 2.2 Dust mask, gas mask or respirator, particle mask 2.4 Shop uniform 2.3 Apron 2.4 Separate clothing for actual painting application 2.5 Eye spectacles or goggles |
| 3. Factors in paint application | Factors in paint application/handling techniques 3.1 Distance, normally 100-200 mm 3.2 Angle – Spray gun perpendicular to the panel 90 degrees 3.3 Speed – normally 800-1000 mm/sec. 3.4 Spray pattern overlap |
| 4. Paint mixture | Paint mixture includes substance such as: 4.1 Paint 4.1 Thinner 4.2 Hardener 4.3 Additives |
| 5. Solid color paint | Types of solid color paint are: 5.1 Single stage or direct gloss 5.2 Two stage base over clear |

EVIDENCE GUIDE

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|--|--|
| <p>1. Critical aspects of competency</p> | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Cleaned the work area before and after use. 1.2 Cleaned and degreased panel or vehicle to be repainted 1.3 Prepared paint mixture and spray gun 1.4 Applied solid color paint by spraying 1.5 Used tack cloth to wipe off remaining particles 1.6 Avoided touching surfaces after degreasing and after wiping of tack cloth 1.7 Disposed off left over paint as per company standard operating procedure. 1.8 Cleaned the spray gun before and after use |
| <p>2. Underpinning knowledge and attitudes</p> | <ul style="list-style-type: none"> 2.1 Necessary cleaning and degreasing agents 2.2 Relevant technical information 2.3 Workplace safety procedures 2.4 Vehicle safety requirements 2.5 Equipment safety requirements 2.6 Procedure in spraying solid color paint 2.7 Personal safety requirements 2.8 Color mixing and matching 2.9 Masking Procedures 2.10 Polishing procedures 2.11 Procedure in removing detachable auto body parts and accessories 2.12 Honesty, Sense of Quality in Work, Patience, Thoroughness, Dedication to Work and Trainable to New Procedures. |
| <p>3. Underpinning skills</p> | <ul style="list-style-type: none"> 3.1 Accessing, interpreting and applying technical information 3.2 Use of relevant tools and equipment 3.3 Clean bare metal, plastic and fiberglass surfaces 3.4 Preparing surfaces for application of primers 3.5 Communication skills specifically in dealing with customers, superior or peers 3.6 Reading and writing 3.7 Computation skills for volume, area, length, ratio and proportion 3.8 Preparing paint mixtures 3.9 Disposal of wastes and other residue materials |
| <p>4. Resource implications</p> | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace: Real or simulated work area 4.2 Appropriate Tools & equipment 4.3 Materials relevant to the activity |
| <p>5. Method of assessment</p> | <p>Competency MUST be assessed through:</p> <ul style="list-style-type: none"> 5.1 Demonstration with Questioning 5.2 Written examination 5.3 Portfolio |
| <p>6. Context of assessment</p> | <ul style="list-style-type: none"> 6.1 Competency must be assessed on the job or simulated environment. 6.2 The assessment of practical skills must take place after a period of supervised practice and repetitive experience. |

UNIT OF COMPETENCY : **PERFORM POLISHING**

UNIT CODE : **ALT714304**

UNIT DESCRIPTOR : This unit covers the competency in performing polishing for automotive body painting. It also involves skills in applying masking materials and handling of polishing equipment.

| ELEMENT | PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables |
|----------------------------------|--|
| 1. Assess painted surface | 1.1 Adequate lighting system is used in assessing painted surface 1.2 Appropriate repair procedure is accurately determined 1.3 Appropriate polishing procedure are selected as per selected repair procedure |
| 2. Prepare surface for polishing | 2.1 Workplace is properly cleaned as per polishing compound manufacturer specification 2.2 Masking materials are applied on necessary areas as per appropriate masking procedure 2.3 Panel/surface to polished is positioned as per company polishing requirements |
| 3. Polish painted surface | 3.1 Manual hand polishing is applied on surface as per job requirements 3.2 Sanding is applied on surface as per job requirements 3.3 Handling of polishing equipment , tools and materials is done as per procedures 3.4 Polishing is performed as per procedure 3.5 Polishing compound are applied as per polishing compound manufacturer standard 3.6 No over-polish or thin paint results |
| 4. Clean the polished surface | 4.1 Adequate tap water for washing and cleaning is used 4.2 Soft fine cloth or flannel cloth is used for wiping. 4.3 Surface is wiped-dried and cleaned |
| 5. Install body accessories | 5.1 Safety requirements are observed in installing automotive body parts and accessories 5.2 All body accessories are installed and are free from dirt 5.3 Final polished area is assessed before and after installation of body parts and accessories. |

RANGE OF VARIABLES

| VARIABLE | RANGE |
|-------------------------|--|
| 1. Lighting system | Lighting sources include illumination of 1.1 800-1000 lux 1.2 Natural sunlight |
| 2. Repair procedure | Different types of repair procedures include: 1.3 Sanding and repainting 1.4 A) Sanding B) Coarse Polishing C) Fine Polishing 1.5 A) Coarse Polishing B) Fine Polishing 2.4 Fine Polishing |
| 3. Polishing pads | Polishing pads include: 3.1 Wool 3.2 Foam |
| 4. Polishing compounds | Polishing compounds can be liquid or paste and include: 4.1 Fine 4.2 Medium 4.3 Coarse |
| 5. Masking materials | Masking materials may include but not limited to; 5.1 Masking paper/plastics 5.2 Masking tapes for auto use 5.3 Mouldings tapes 5.4 Fine line tapes 5.5 Spray-type masking |
| 6. Masking procedures | Masking procedures may include the following: 6.1 Reverse masking 6.2 Masking non-removable parts 6.3 Masking curved or complex areas or surfaces 6.4 Masking for block painting 6.5 Masking for spot repairs |
| 7. Handling of polisher | Handling of polisher must consider the following: 7.1 Angle of polishing 7.2 Direction of rotation 7.3 Strokes in polishing |

EVIDENCE GUIDE

| | |
|---|---|
| 1. Critical aspects of competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Assessed painted surface 1.2 Prepared surface for polishing 1.3 Polished painted surface 1.4 Cleaned the polished surface 1.5 Installed body accessories |
| 2. Underpinning knowledge and attitudes | <ul style="list-style-type: none"> 2.1 Types of polishing compounds 2.2 Procedure in using polisher 2.3 Procedure in polishing 2.4 Procedure in masking 2.5 Types of masking materials 2.6 Types of lighting sources 2.7 Kinds of Paint Repair procedures 2.8 Procedure in cleaning polished surface 2.9 Procedure in removing and installing automotive body parts and accessories 2.10 Kinds of polishing defects 2.11 Patience, Honesty, Sense of Quality in Work, Thoroughness, Dedication to Work, Attentive to details |
| 3. Underpinning skills | <ul style="list-style-type: none"> 3.1 Performing polishing 3.2 Applying different masking materials and techniques 3.3 Cleaning the polished surface. 3.4 Installing body parts and accessories 3.5 Using and Handling Polishing equipment and tools facilities 3.6 Using Polishing materials 3.6 Communication skills in dealing with customers, superiors and peers |
| 4. Resource implications | <p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Materials relevant to the activity 4.2 Appropriate tools, supplies and materials 4.3 Real or simulated workplace |
| 5. Method of assessment | <p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Observation in the workplace with questioning 5.2 Demonstration with questioning 5.3 Portfolio assessment 5.4 Written examination |
| 6. Context of assessment | <ul style="list-style-type: none"> 6.1 Competency must be assessed in a safe working environment 6.2 Assessment must be undertaken in accordance with the approved industry OH & S regulations |

SECTION 3 TRAINING STANDARDS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for Automotive Body Painting/Finishing NCI.

3.1 CURRICULUM DESIGN

Course Title: **AUTOMOTIVE BODY PAINTING/ FINISHING**

NC Level **NC I**

Nominal Training Duration: **120 Hours**

Course Description:

This course is designed to enhance the knowledge, skills and attitudes of an individual in the field of automotive body paint refinishing in accordance with industry standards. It covers specialized competencies such as: prepare undamaged surface for painting, apply and remove masking, spray solid color paints, and perform polishing.

BASIC COMPETENCIES (28 Hours)

| Unit of Competency | Learning Outcomes | Methodology | Assessment Approach |
|---|--|---|--|
| 1. Receive and respond to workplace communication | 1.1 Explain routinary speaking and messages in a workplace. 1.2 Follow routinary speaking and message 1.3 Perform work duties following written notices. | <ul style="list-style-type: none"> • Group discussion • Interaction | <ul style="list-style-type: none"> • Interviews/questioning • Observation |
| 2. Work with others | 2.1 Develop effective workplace relationship. 2.2 Contribute to work group activities. | <ul style="list-style-type: none"> • Group discussion • Interaction | <ul style="list-style-type: none"> • Interviews/questioning • Demonstration • Observation |
| 3. Demonstrate work values | 3.1 Define the purpose of work 3.2 Apply work values/ethics 3.3 Deal with ethical problems 3.4 Maintain integrity of conduct in the workplace | <ul style="list-style-type: none"> • Group discussion • Interaction | <ul style="list-style-type: none"> • Demonstration • Observation • Interviews/questioning |
| 4. Practice housekeeping procedures | 4.1 Sort and remove unnecessary items 4.2 Arrange items 4.3 Maintain work areas, tools and equipment 4.4 Follow standardize work process and procedures 4.5 Perform work spontaneously | <ul style="list-style-type: none"> • Group discussion • Interaction | <ul style="list-style-type: none"> • Demonstration • Observation • Interviews/questioning |

COMMON COMPETENCIES
(32 Hours)

| Unit of Competency | Learning Outcomes | Methodology | Assessment Approach |
|--|--|--|---|
| 1. Apply appropriate sealant/adhesive | 1.1 Identify appropriate sealant/adhesive 1.2 Prepare surface for sealant / adhesive application 1.3 Store unused and dispose used sealant/adhesive | <ul style="list-style-type: none"> • Lecture/ Demonstration • Dual training • Self-paced (modular) • Distance learning | <ul style="list-style-type: none"> • Written test • Oral questioning • Direct observation • Project method • Interview |
| 2. Move and position vehicle | 2.3 Prepare vehicle for driving 2.4 Move and position vehicle 2.5 Check the vehicle | <ul style="list-style-type: none"> • Lecture/ Demonstration • Dual training • Self-paced (modular) • Distance learning | <ul style="list-style-type: none"> • Written test • Oral questioning • Direct observation • Project method • Interview |
| 3. Perform mensuration and calculation | 3.5 Select measuring instrument and carry out measurement and calculations 3.6 Maintain measuring instruments | <ul style="list-style-type: none"> • Lecture/ Demonstration • Dual training • Self-paced (modular) • Distance learning | <ul style="list-style-type: none"> • Written test • Oral questioning • Direct observation • Project method • Interview |
| 4. Read, interpret and apply specifications and manual | 3.1 Identify/access manuals and interpret data and specification 3.2 Apply information accessed in manual 3.3 Store manual | <ul style="list-style-type: none"> • Lecture/ Demonstration • Dual training • Self-paced (modular) • Distance learning | <ul style="list-style-type: none"> • Written test • Oral questioning • Direct observation • Project method • Interview |
| 5. Use and apply lubricants/coolants | 5.1 Identify type of lubricants/coolants 5.2 Use and apply lubricants | <ul style="list-style-type: none"> • Lecture/ Demonstration • Dual training • Self-paced (modular) • Distance learning | <ul style="list-style-type: none"> • Written test • Oral questioning • Direct observation • Project method • Interview |
| 6. Perform shop maintenance | 6.1 Inspect/clean tools and work area 6.2 Store/arrange tools and shop equipment 6.3 Dispose waste/used lubricants 6.4 Report damaged tools/equipment | <ul style="list-style-type: none"> • Lecture/ Demonstration • Dual training • Self-paced (modular) • Distance learning | <ul style="list-style-type: none"> • Written test • Oral questioning • Direct observation • Project method • Interview |

CORE COMPETENCIES
(60 Hours)

| Unit of Competency | Learning Outcomes | Methodology | Assessment Approach |
|---|---|--|---|
| 1. Prepare undamaged surface for painting | 1.1 Remove body accessories 1.2 Sand surface to be painted 1.3 Identify kinds of primers and their applications 1.4 Apply epoxy primers to metal surface 1.5 Apply primer surfacer for coating 1.6 Apply sealant when replacing with new panel 1.7 Observe safety and cleanliness | <ul style="list-style-type: none"> • Discussion • Demonstration • Practical application | <ul style="list-style-type: none"> • Demonstration of practical skills • Written examination • Interview |
| 2. Apply and remove masking | 2.1 Remove detachable parts for panel to be painted 2.2 Clean and degrease panel for masking 2.3 Identify masking materials and their applications 2.4 Identify techniques in masking 2.5 Apply Masking materials 2.6 Remove masking materials 2.7 Observe safety and cleanliness | <ul style="list-style-type: none"> • Discussion • Demonstration • Practical application | <ul style="list-style-type: none"> • Demonstration of practical skills • Written examination • Interview |
| 3. Spray solid color paint | 3.1 Clean and degrease panel/vehicle to be repainted 3.2 Identify substances of paint mixture 3.3 Identify types of solid color paints 3.4 Identify types of spray gun and their application 3.5 Prepare paint mixture and spray gun 3.6 Explain factors to be considered in paint application 3.7 Apply solid color paint by spraying 3.8 Clean the spray gun 3.9 Observe safety and cleanliness | <ul style="list-style-type: none"> • Discussion • Demonstration • Practical application | <ul style="list-style-type: none"> • Demonstration of practical skills • Written examination • Interview |
| 4. Perform polishing | 4.1 Assess painted surface 4.2 Prepare surface for polishing 4.3 Polish painted surface 4.4 Clean the polished surface 4.5 Install body accessories | <ul style="list-style-type: none"> • Discussion • Demonstration • Practical application | <ul style="list-style-type: none"> • Demonstration of practical skills • Written examination • Interview |

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of competency-based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training is based both on and off-the-job components;
- Allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Approved training programs are nationally accredited.

The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Practical application System (DTS) Implementing Rules and Regulations.
- Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer facilitates the training delivery
- Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.
- Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.
- Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students should possess the following requirements:

- can communicate both oral and written;
- with good moral character; and
- can perform basic mathematical computation.

This list does not include specific institutional requirements such as educational attainment, appropriate work experience, and others that may be required of the trainees by the school or training center delivering the TVET program.

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS AUTOMOTIVE BODY PAINTING/FINISHING – NC I

Recommended list of tools, equipment and materials for the training of 25 trainees for Automotive Body Painting/ Finishing – NC I

| TOOLS | | EQUIPMENT | | MATERIALS | |
|----------|------------------------|-----------|--|-----------|---------------------|
| QTY | | QTY | | QTY | |
| 6 pairs | • Putty knife | 1 unit | • Sander (single action) w/ vacuum pump | 25 pcs. | • Sandpaper #120 |
| 4 pcs. | • Scraper | | | 25 pcs. | • Sandpaper #360 |
| 2 pcs. | • Spatula | 1 unit | • Sander (dual action) or orbital sander | 25 pcs. | • Sandpaper #600 |
| 2 sets | • Screw driver | | | 25 pcs. | • Sandpaper #1,200 |
| 2 sets | • Wrench (socket) | 1 unit | • Air compressor | 25 ltrs. | • Paint remover |
| | | | | 5 ltrs. | • Degreaser |
| 2 sets | • Wrench (combination) | 1 unit | • Spray gun (complete accessories) | 10 ltrs. | • Thinner |
| | | | | 5 ltrs. | • Epoxy reducer |
| 1 pc. | • Impact wrench | | | 10 ltrs. | • Surfacer |
| 2 sets | • Mechanic's hammer | | | 10 ltrs. | • Sealant |
| | | | | 5 ltrs. | • Flo / Retarder |
| 25 pcs. | • Goggle | | | 10 sets | • Masking materials |
| 25 pairs | • Gloves | | | 10 ltrs. | • Wash primer |
| 25 pcs. | • Dust mask | | | 10 ltrs. | • Epoxy primer |
| 2 pcs. | • Gas mask | | | 10 ltrs. | • Urethane primer |
| 25 pairs | • Safety shoes | | | 10 ltrs. | • Acrylic primer |
| 25 pcs. | • Shop uniform | | | 1 liter | • Penetrating oil |
| 2 sets | • S.S.T. | | | 5 ltrs. | • Color paint |
| | | | | 5 ltrs. | • Top coat clear |
| | | | | 2 kgs. | • Rags |

3.5 TRAINING FACILITIES AUTOMOTIVE BODY PAINTING/FINISHING – NC I

The workshop must be made of reinforced concrete or steel structure. The size must be suited on the requirements of the competencies. The facility should accommodate a minimum of 25 students/trainees.

| SPACE REQUIREMENT | SIZE IN METERS | AREA IN SQ. METERS | TOTAL AREA IN SQ. METERS |
|--|----------------|--------------------|--------------------------|
| Workshop Component Areas | | | |
| • Laboratory/Workshop Area | - | - | 100.00 |
| • Lecture Room | 5.00 x 5.00 | 25.00 | 25.00 |
| • Tool, Supply & Storage Room | 3.00 X 3.00 | 9.00 | 9.00 |
| • Learning Resource Center | 2.00 x 5.00 | 10.00 | 10.00 |
| • Wash Room and Toilet | 2.00 X 5.00 | 10.00 | 10.00 |
| Total (Workshop Component) | | | 154.00 |
| • Circulation Area (30% of Workshop Component Space) | | | 40.00 |
| Grand Total (Building Space) | | | 194.00 |

Note: The entries in the size in meters column are recommendations only. The grand total (building space) is the minimum space requirement for registration.

3.6 TRAINERS' QUALIFICATION AUTOMOTIVE/LAND TRANSPORT SECTOR

AUTOMOTIVE BODY PAINTING/FINISHING – NC I

TRAINER QUALIFICATION (TQ I)

- Must be a holder of Automotive Body Painting/ Finishing NC II or equivalent qualification
- Must have undergone training on Training Methodology I (TM I) or equivalent in training/experience
- Must be computer literate
- *Must have at least 2 years job/industry experience
- Must be a civil service eligible (for government position) or holder of appropriate professional license issued by the Professional Regulatory Commission

* Optional. Only when required by the hiring institution.

Reference: TESDA Board Resolution No. 2004 03

3.7 INSTITUTIONAL ASSESSMENT

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

SECTION 4 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

- 4.1 To attain the National Qualification of Automotive Body Painting/Finishing NC I, the candidate must demonstrate competence in all the units of competency listed in Section 1. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General.
- 4.2 Individual aspiring to be awarded the qualification of Automotive Body Painting/Finishing NC I must acquire Certificate of Competency in all the following core units of the qualification. Candidates may apply for assessment in any accredited assessment center.

APPLY SOLID COLOR PAINT

- 4.2.1 Prepare Undamaged Surface for Painting
- 4.2.2 Apply and Remove Masking
- 4.2.3 Spray Solid Color Paints
- 4.2.4 Perform Polishing

Successful candidates shall be awarded Certificates of Competency (COC).

- 4.3 Accumulation and submission of all COC acquired for the relevant units of competency comprising a qualification, an individual shall be issued the corresponding National Certificate.
- 4.4 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.
- 4.5 The following are qualified to apply for assessment and certification:
 - 4.5.1 Graduates of formal, non-formal and informal including enterprise-based training programs.
 - 4.5.2 Experienced workers (wage employed or self employed)
- 4.6 The guidelines on assessment and certification are discussed in detail in the “Procedures Manual on Assessment and Certification” and “Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTOQCS)”.

COMPETENCY MAP- AUTOMOTIVE SECTOR

| | | | | | | | | |
|--|---|---|--|---|--|--|--|---|
| C O R E | Performs gas engine tune up | Perform diesel engine tune up | Service automotive battery | Service ignition system | Test & repair wiring/lighting system | Perform under-chassis preventive maintenance | Service starting system | Service suspension system |
| | Service charging system | Service engine mechanical system | Service clutch system | Service differential & front/rear axle | Service steering system | Overhaul manual transmission | Service brake system | Service electronics body management system |
| | Test & repair electrical security system/components | Service electronic engine management system | Service automatic transmission | Overhaul engines & associated components | Perform maintenance service check up & repair to AC | Install auto AC system | Service AC compressor & associated component | Service electronic drive management system |
| | Service diesel engine management system & component | Service diesel fuel components injection system | Service emission control system | Carry out pre-repair operation on engine components | Interpret technical manual specification of engine components | Disassemble engine block & sub-assemblies, check tolerances & components | Disassemble engine/sub-assemblies/cylinder head & check components | Inspect engine components & determined preferred action |
| | Carry out machining operations | Set, operate & monitor specialized machine | Use and maintain measuring instruments | Assemble engine block & sub-assemblies, check tolerances & components | Assemble engine sub-assemblies/cylinder heads and check components | Perform pearl color matching | Assess auto paint jobs | Prepare undamaged surface for painting |
| | Prepare damaged surface for painting | Apply and remove masking | Spray solid color paints | Repair solid color paints | Perform Polishing | Perform solid/metallic color mixing | Spray metallic color paint | Repair two-stage metallic color paint |
| | Spray three-stage pearl or mica color paint | Prepare vehicle body for repair | Repair body panel | Replace damaged panel/parts with pre-fabricated panel | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| C O M M O N | Perform mensuration and calculation | Move and position vehicle | Apply appropriate sealant/adhesive | Use and apply lubricant/ coolant | Perform shop maintenance | Read, interpret and apply specification and manuals | Interpret/draw technical drawing | Prepare job estimate/ costing |
| | Receive and respond workplace communication | Work with Other | Demonstrate work values | Practice basic housekeeping procedures | Lead in workplace communication | Develop and practice negotiation skills | Use relevant technologies | Solve problems related to work activities |
| | Participate in workplace communication | Work in team environment | Practice career professionalism | Practice occupational health and safety procedures | Lead small team | Use mathematical concepts and techniques | Develop team and individual | Apply problem solving techniques in the workplace |
| B A S I C | Plan and organize work | Utilize specialist communication skills | Promote environmental protection | Collect, analyze and organize information | | | | |
| | | | | | | | | |

Legend: Automotive Body Painting/Finishing NCI

DEFINITION OF TERMS

1. **Basecoat** The foundation paint layer of the basecoat / clearcoat automotive finish. Specifically the layer of densely pigmented paint (color) applied over the primer coat.
2. **D.A. Polisher/ Sander** Dual Action rotates with a double elliptical movement
3. **Degreasing** The removal from the substrate of contaminants which would otherwise give rise to surface defects and performance failures. e.g. poor adhesion
4. **Drying** The process of change of a coating from the liquid to the solid state by evaporation of solvent, chemical reaction of the binding medium, or a combination of these processes. When drying takes place during exposure to air at normal temperatures, it is called 'air-drying'; if it can be accelerated by the application of a moderate degree of heat it is called 'Force-drying' (or *Low-bake*), as distinct from High-bake.
Alternate Term(s): Binder, Air-drying, Force-drying, Stoving, Low-bake, High-bake
5. **Fish Eye** Complications which occur during repainting when paint is repelled from a spot due to the presence of grease, oil or silicone on the paint surface
6. **Flash-off Time** Dwell time for solvent to evaporate from the paint surface
7. **Masking** Temporary covering of areas not to be painted
8. **Metallic Paint** A type of automotive finish which contains metallic flakes that produce a glittery appearance
A term used for finishes incorporating fine metallic particles, usually aluminum, in the paint.
9. **Mica** A naturally occurring mineral, based on silica, which after treatment, is used as an effect pigment in coatings. Their special property is that light falling on a mica particle, depending on the angle of illumination, reflects the light with a change in colour. Because of this they are sometimes referred to as *pearls*.
Alternate Term(s): Pearl
10. **Mottling** Paint color appears streaked, with light and dark areas. Cause, heavier film thickness in some areas than in others. Excessive wetting of some areas when painted. Uneven disbursement of the metallic in the paint.
11. **Orange Peel** The nubby rough appearance of paint; looks much like the texture of an orange skin, surface lacks clarity or reflected image. Caused by paint applied too dry, resulting in poor flow-out.
12. **Overspray** Substance such as paint mist that settles out of the air onto automobile surface appearing as tiny specks.
13. **Paint Film Thickness** Measure of the amount of paint on the vehicle. Also known as film builds, and is measured in millimeters or thousandths of an inch.
14. **Polishing** Term is often used to describe the action of using a machine to buffer wheel a vehicle.

- 15. Primers** Material applied to the surface to seal, fill scratches and improve adhesion of paint.
- 16. Putty** A plastic material with a high mineral filler content – used for filling deep holes or wide gaps.
- 17. Sanding** An abrasive process used to level a coated surface prior to the application of a further coat.
Alternate Term(s): Flattening
- 18. Sealer/Sealant** A protective product applied by hand or machine to an automotive paint, which coats, seals and protects the surface. Normally contains silicones to maximize durability.
- 19. Skinning** The formation of a thin tough film on the surface of a liquid paint film. Usually due to reaction with the air or to rapid solvent loss.
- 20. Solid Color** A coating, which contains colored pigments only, i.e., does not contain pigments such as aluminum and micas.
- 21. Spray Gun** A typical painter will use a high-pressure spray gun to apply coatings. High-pressure guns are powered by compressed air. The purpose of the gun is to turn the liquid paint into a mist (atomize) and propel the paint toward the surface to be painted. When the wet mist contacts the surface, some of it sticks and some of it bounces off of the surface. Under ideal conditions, only about 30% of the paint sprayed stick or is transferred to the surface using a high pressure spray gun. This is termed transfer efficiency; high-pressure spray guns have a maximum transfer efficiency of 30%. This means that if a gallon of paint can coat 300 square feet, it will only coat 90 square feet if applied with a high-pressure spray gun.
- 22. Tack cloth** Cotton fabric, such as cheesecloth, lightly impregnated with a resin, used to remove dust from a surface after rubbing down and prior to further painting. Tack rags should be stored in an airtight container to conserve their tackiness.
- 23. Thinner** A blend of volatile organic solvents added to the paint to reduce it to the correct viscosity for application
- 24. Three-Stage Color** A topcoat colour, which consists of 3, parts, a basecoat, a midcoat and a clear.
Alternate Term(s): Tri-coat
- 25. VIN (Vehicle Identification Number)** Acronym for Vehicle Identification Number. This is a unique number that identifies your vehicle. Although its primary purpose is to identify your vehicle, it often contains important information concerning the equipment and options that were installed on your vehicle at the factory. This information allows the Repair Center to order the correct parts for your vehicle. Any professional estimate or Repair Order will have this number on it
- 26. Wet Sanding** A procedure of simultaneously sanding and rinsing an automotive finish to remove imperfections. Regarded as complicated and should only be attempted by professionals.

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**List of Published Training Regulations
AUTOMOTIVE / LAND TRANSPORT SECTOR**

- Automotive Body Painting/Finishing NC I**
 - Automotive Body Painting/Finishing NC II
- Automotive Body Painting/Finishing NC III
- Automotive Body Repairing NC II
- Automotive Servicing NC I
- Automotive Servicing NC II
- Automotive Servicing NC III
- Automotive Servicing NC IV
- Automotive Engine Rebuilding NC II
- Driving NC II
- Motorcycle / Small Engine Servicing NC II

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