



# Electric Vehicle Service Assistant (Two/Three wheeler, Four Wheeler and Electric Truck/Bus)

Electives: Four Wheeler Electric Vehicle Service Assistant/ Two/Three wheeler  
Electric Vehicle Service Assistant/ Electric Truck/Bus Service Assistant

QP Code: ASC/Q1435

Version: 1.0

NSQF Level: 2.5

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## ASC/Q1435: Electric Vehicle Service Assistant (Two/Three wheeler, Four Wheeler and Electric Truck/Bus)

### Brief Job Description

An Electric Vehicle Service Assistant is responsible for assisting the service technician in repair, routine servicing and maintenance(including electrical and mechanical aggregates) of Electric and Hybrid vehicles.

### Personal Attributes

An individual in this job must have good communication and interpersonal skills. The person should be patient, organised, team-oriented, customer centric and have the ability to work for long hours in adverse conditions. The individual should be a keen observer and have an eye for detail and quality.

### Applicable National Occupational Standards (NOS)

#### Compulsory NOS:

1. [ASC/N9801: Organize work and resources \(Service\)](#)
2. [ASC/N1454: Perform vehicle detailing work](#)
3. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

#### Electives(*mandatory to select at least one*):

##### Elective 1: Four Wheeler Electric Vehicle Service Assistant

This NOS unit is about assisting the technician and performing all tasks related to service, minor repair and diagnosis of the four wheeler electric or hybrid vehicles.

1. [ASC/N1455: Automotive Detailer Technician](#)

##### Elective 2: Two/Three wheeler Electric Vehicle Service Assistant

This NOS unit is about assisting the technician and performing all tasks related to service, minor repair and diagnosis on electric two/three wheeler electric vehicle.

1. [ASC/N1456: Perform routine service, repair and maintenance of bicycle](#)

##### Elective 3: Electric Truck/Bus Service Assistant

This NOS unit is about assisting the technician and performing all tasks related to service, minor repair and diagnosis on electric truck/bus.

1. [ASC/N1457: Carry out routine service or minor repairs on electric bicycles and assist in diagnosis](#)

**Qualification Pack (QP) Parameters**

<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Automotive Vehicle Service
<b>Occupation</b>	Technical Service & Repair
<b>Country</b>	India
<b>NSQF Level</b>	2.5
<b>Credits</b>	19
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/3115.0602
<b>Minimum Educational Qualification &amp; Experience</b>	8th Class with 1 Year of experience of relevant experience OR 8th Class (+ 2 years ITI) OR 9th Class OR Certificate-NSQF (Automotive Washer Level 1) with 2 Years of experience
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	NA
<b>NSQC Approval Date</b>	
<b>Version</b>	1.0

## ASC/N9801: Organize work and resources (Service)

### Description

This NOS unit is about implementing safety, planning work, adopting sustainable practices for optimising use of resources

### Scope

The scope covers the following :

- Maintain safe and secure working environment
- Perform work as per quality standards
- Health and hygiene
- Material/energy conservation practices
- Effective waste management practices

### Elements and Performance Criteria

#### *Maintain safe and secure working environment*

To be competent, the user/individual on the job must be able to:

- PC1.** organise work as per organisation's current health, safety and security policies and procedures
- PC2.** report any identified breaches in health, safety, and security policies and procedures to the designated person
- PC3.** identify the risks and hazards associated with work activities, their causes and prevention

#### *Perform work as per quality standards*

To be competent, the user/individual on the job must be able to:

- PC4.** ensure work area is clean and tidy
- PC5.** ensure that work is accomplished as per the requirements within the specified timeline
- PC6.** ensure team goals are given preference over individual goals

#### *Health and hygiene*

To be competent, the user/individual on the job must be able to:

- PC7.** sanitize workstation and equipment regularly
- PC8.** clean hands with soap, alcohol-based sanitizer regularly
- PC9.** avoid contact with ill people and self-isolate in a similar situation
- PC10.** wear and dispose PPEs regularly and appropriately
- PC11.** report advanced hygiene and sanitation issues to appropriate authority
- PC12.** follow stress and anxiety management techniques

#### *Material/energy conservation practices*

To be competent, the user/individual on the job must be able to:

- PC13.** identify ways to optimise usage of material in various tasks/activities/processes
- PC14.** use resources, including water, in a responsible manner
- PC15.** check for spills/leakages in various tasks/activities/processes

- PC16.** plug spills/leakages and escalate to appropriate authority if unable to rectify
- PC17.** carry out routine cleaning of tools, machines and equipment
- PC18.** check if the equipment/machine is functioning normally before commencing work and rectify wherever required
- PC19.** report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment
- PC20.** ensure electrical equipment and appliances are properly connected and turned off when not in use

#### *Effective waste management practices*

To be competent, the user/individual on the job must be able to:

- PC21.** identify recyclable and non-recyclable, and hazardous waste generated
- PC22.** segregate waste into different categories
- PC23.** dispose non-recyclable waste appropriately
- PC24.** deposit recyclable and reusable material at identified location
- PC25.** follow processes specified for disposal of hazardous waste

### **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** organisation procedures for health, safety and security, and individual role and responsibilities in this context
- KU2.** the organisations emergency procedures for different emergency situations and the importance of following the same
- KU3.** evacuation procedures for workers and visitors
- KU4.** how and when to report hazards as well as the limits of responsibility for dealing with hazards
- KU5.** potential hazards, risks and threats based on the nature of work
- KU6.** the implications of own work on the schedule and work of others
- KU7.** efficient utilisation of material and water
- KU8.** basics of electricity and prevalent energy efficient devices
- KU9.** ways to recognise common electrical problems
- KU10.** common practices of conserving electricity
- KU11.** common sources of pollution and ways to minimize it
- KU12.** categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- KU13.** usage of different colours of dustbins
- KU14.** waste management and methods of waste disposal
- KU15.** significance of greening
- KU16.** organisation's policies to maintain personal health and hygiene at workplace

### **Generic Skills (GS)**

User/individual on the job needs to know how to:

- GS1.** read instructions/guidelines/standard operating procedures
- GS2.** complete statutory documents relevant to safety and hygiene
- GS3.** modify work practices to improve them
- GS4.** ask for clarifications from superior about the job requirement
- GS5.** work with supervisors/team members to carry out work related tasks
- GS6.** complete tasks efficiently and accurately within stipulated time
- GS7.** inform/report to concerned person in case of any problem
- GS8.** make timely decisions for efficient utilization of resources
- GS9.** write in at least one language and complete written work with attention to detail
- GS10.** record data on waste disposal at workplace
- GS11.** be punctual, utilize time and manage workload efficiently
- GS12.** evaluate strategies to maintain, enhance or reduce the intensity of heightened emotional response



## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain safe and secure working environment</i>	<b>8</b>	<b>4</b>	-	<b>3</b>
<b>PC1.</b> organise work as per organisation's current health, safety and security policies and procedures	-	2	-	1
<b>PC2.</b> report any identified breaches in health, safety, and security policies and procedures to the designated person	3	1	-	-
<b>PC3.</b> identify the risks and hazards associated with work activities, their causes and prevention	5	1	-	2
<i>Perform work as per quality standards</i>	<b>12</b>	<b>8</b>	-	<b>6</b>
<b>PC4.</b> ensure work area is clean and tidy	4	2	-	-
<b>PC5.</b> ensure that work is accomplished as per the requirements within the specified timeline	6	4	-	2
<b>PC6.</b> ensure team goals are given preference over individual goals	2	2	-	4
<i>Health and hygiene</i>	<b>12</b>	<b>8</b>	-	<b>5</b>
<b>PC7.</b> sanitize workstation and equipment regularly	2	2	-	2
<b>PC8.</b> clean hands with soap, alcohol-based sanitizer regularly	2	1	-	-
<b>PC9.</b> avoid contact with ill people and self-isolate in a similar situation	2	1	-	-
<b>PC10.</b> wear and dispose PPEs regularly and appropriately	2	2	-	1
<b>PC11.</b> report advanced hygiene and sanitation issues to appropriate authority	2	2	-	2
<b>PC12.</b> follow stress and anxiety management techniques	2	-	-	-
<i>Material/energy conservation practices</i>	<b>10</b>	<b>4</b>	-	<b>3</b>
<b>PC13.</b> identify ways to optimise usage of material in various tasks/activities/processes	2	-	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> use resources, including water, in a responsible manner	2	-	-	-
<b>PC15.</b> check for spills/leakages in various tasks/activities/processes	-	1	-	-
<b>PC16.</b> plug spills/leakages and escalate to appropriate authority if unable to rectify	-	1	-	1
<b>PC17.</b> carry out routine cleaning of tools, machines and equipment	2	-	-	-
<b>PC18.</b> check if the equipment/machine is functioning normally before commencing work and rectify wherever required	-	1	-	1
<b>PC19.</b> report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment	2	1	-	-
<b>PC20.</b> ensure electrical equipment and appliances are properly connected and turned off when not in use	2	-	-	-
<i>Effective waste management practices</i>	<b>8</b>	<b>6</b>	-	<b>3</b>
<b>PC21.</b> identify recyclable and non-recyclable, and hazardous waste generated	2	-	-	1
<b>PC22.</b> segregate waste into different categories	-	2	-	-
<b>PC23.</b> dispose non-recyclable waste appropriately	2	2	-	1
<b>PC24.</b> deposit recyclable and reusable material at identified location	2	1	-	-
<b>PC25.</b> follow processes specified for disposal of hazardous waste	2	1	-	1
<b>NOS Total</b>	<b>50</b>	<b>30</b>	-	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9801
<b>NOS Name</b>	Organize work and resources (Service)
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	30/12/2021
<b>Next Review Date</b>	28/04/2025
<b>NSQC Clearance Date</b>	28/04/2022

## ASC/N1454: Perform vehicle detailing work

### Description

This NOS unit is about performing and supporting detailer assistant in all tasks related to vehicle detailing such as steam cleaning of vehicle interior and exterior, correction of paint defects and polishing of vehicle parts. This is also about applying protective coating like ceramic / nano coating / Paint Protection Film (PPF) etc. on the vehicle for body protection.

### Scope

The scope covers the following :

- Prepare for vehicle detailing work
- Perform steam cleaning of vehicle
- Perform polishing and correction of paint defects
- Perform post-vehicle detailing activities

### Elements and Performance Criteria

#### *Prepare for vehicle detailing work*

To be competent, the user/individual on the job must be able to:

- PC1.** determine work to be done and work requirements by obtaining required information from the job card and instructions received from supervisor
- PC2.** identify appropriate material, tools & equipment such as cleaning agent, polish, foam, brushes, mops, microfiber cloth, solvent sprayer, vacuum cleaner, buffers, hoses, steamers, protective coatings etc. required for work
- PC3.** check material, tools & equipment for any issues and required quality standards before use
- PC4.** report the defects/malfunctions if any, in the tools and equipment to the concerned person for rectification
- PC5.** inspect the vehicle interior & exterior for cleaning and detailing work
- PC6.** support the detailer assistant in removing detachable items, seats etc. and place them securely at specified location
- PC7.** support the detailer assistant in mixing cleaning solutions, abrasive compositions or other compounds as per requirement and SOP

#### *Perform steam cleaning of vehicle*

To be competent, the user/individual on the job must be able to:

- PC8.** follow safety precautions to avoid any hazard and accident during work
- PC9.** carry out steam cleaning of the vehicle interior & exterior components with the assistance of detailer assistant by following SOP/WI
- PC10.** ensure that all the segments and surfaces of the vehicle such as carpet, seats, trims, headlining, consoles, grill, vents, body panels, wheels, etc. are cleaned properly as per the SOP/WI
- PC11.** clean all exposed glass like windshield, side windows, side mirrors, rear window, headlight, fog light, taillight lenses etc. by using appropriate glass cleaner and microfiber cloths

#### *Perform polishing and correction of paint defects*

To be competent, the user/individual on the job must be able to:

- PC12.** perform polishing with appropriate abrasive compound and buffers on painted components of vehicle as per SOP/WI
- PC13.** identify minor paint imperfections such as scratches, swirl marks etc. and any remaining contamination on the vehicle parts/panels
- PC14.** ensure that detailer assistant covered the exterior parts/fittings adjacent to the painted panels with masking tape or paper to prevent their surface finish
- PC15.** remove the minor paint imperfections by applying appropriate paint compounds and pads on the panels with the assistance of detailer assistant by following SOP/WI
- PC16.** use sandpaper with a specific set of grids to sand a particular area for removal of the defects
- PC17.** remove any contaminants, overspray, or residue left by using clay bar with the assistance of detailer assistant after the cleaning and polishing
- PC18.** apply paint sealer/wax on the vehicle parts to give final glossy shine on the painted panels/parts of vehicle by following SOP/WI
- PC19.** apply protective coating like ceramic / nano coating / Paint Protection Film (PPF) etc. on the vehicle to protect the paint of vehicle by following SOP/WI

#### *Perform post vehicle detailing activities*

To be competent, the user/individual on the job must be able to:

- PC20.** inspect surface finish of vehicle parts/panels after vehicle detailing activities and report to supervisor in case of any discrepancy
- PC21.** ensure that all the cleaning and detailing activities are completed before releasing the vehicle
- PC22.** dispose off materials such as debris, old masking paper, empty cans/tube, etc. as per organization's policies
- PC23.** return leftover consumable/parts, tools and equipment after completion of work
- PC24.** record the details of various treatment and washing activities done on the vehicle in job card as per organizational procedures

### **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures followed in the organization
- KU2.** SOPs regarding receiving vehicles, opening job card, allocation of work, invoicing, vehicle delivery, handling complaints etc.
- KU3.** identification, nomenclature, manufacturer's specifications of various consumable/material (abrasives, solvent, masking paper, cloth etc.
- KU4.** various interior & exterior segments such as seat (fabric/PU/leathered), dash panel, engine compartment, bonnet, dickey etc. and detachable items such as foot-mats, mobile charger etc. of the vehicle
- KU5.** Standard Operating Procedures of the dealership for vehicle washing, cleaning and detailing
- KU6.** SOP recommended by manufacturer for using cleaning agents, material, tools and equipment during work
- KU7.** different types of grime such as scuff marks, soil, dust, oil, grease, dried food and other stains

- KU8.** methods like steam cleaning, brushing, water/air spray, use of chemicals, manual or machine assisted cleaning for cleaning various grime
- KU9.** application method of various polish & abrasive, on different surfaces such as dashboard, seats, door trim, tyre, bumper, front grill etc. using buffer/polisher
- KU10.** methods of using different squeegees, mops, cloth, vacuum cleaner, steamer, buffing machine, buffing pads, etc.
- KU11.** various types of paint protection coatings like ceramic / nano coating / Paint Protection Film (PPF) and how to apply them
- KU12.** safety, health and environmental policies and regulations of the workplace as well as for automotive trade in general (e.g. safe practices while working in pits/under vehicles)

### **Generic Skills (GS)**

User/individual on the job needs to know how to:

- GS1.** read and interpret workplace related documentation
- GS2.** interpret the needs of customers by understanding the key issues
- GS3.** communicate using terms, names, grades and other nomenclature pertaining to the automotive trade
- GS4.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS5.** identify potential workplace problem and take suitable action
- GS6.** write in English/regional language

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for vehicle detailing work</i>	<b>8</b>	<b>10</b>	-	<b>4</b>
<b>PC1.</b> determine work to be done and work requirements by obtaining required information from the job card and instructions received from supervisor	2	1	-	-
<b>PC2.</b> identify appropriate material, tools & equipment such as cleaning agent, polish, foam, brushes, mops, microfiber cloth, solvent sprayer, vacuum cleaner, buffers, hoses, steamers, protective coatings etc. required for work	2	2	-	1
<b>PC3.</b> check material, tools & equipment for any issues and required quality standards before use	2	1	-	1
<b>PC4.</b> report the defects/malfunctions if any, in the tools and equipment to the concerned person for rectification	-	1	-	1
<b>PC5.</b> inspect the vehicle interior & exterior for cleaning and detailing work	-	2	-	1
<b>PC6.</b> support the detailer assistant in removing detachable items, seats etc. and place them securely at specified location	-	1	-	-
<b>PC7.</b> support the detailer assistant in mixing cleaning solutions, abrasive compositions or other compounds as per requirement and SOP	2	2	-	-
<i>Perform steam cleaning of vehicle</i>	<b>6</b>	<b>12</b>	-	<b>6</b>
<b>PC8.</b> follow safety precautions to avoid any hazard and accident during work	2	3	-	2
<b>PC9.</b> carry out steam cleaning of the vehicle interior & exterior components with the assistance of detailer assistant by following SOP/WI	2	5	-	2
<b>PC10.</b> ensure that all the segments and surfaces of the vehicle such as carpet, seats, trims, headlining, consoles, grill, vents, body panels, wheels, etc. are cleaned properly as per the SOP/WI	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> clean all exposed glass like windshield, side windows, side mirrors, rear window, headlight, fog light, taillight lenses etc. by using appropriate glass cleaner and microfiber cloths	1	2	-	1
<i>Perform polishing and correction of paint defects</i>	<b>10</b>	<b>18</b>	-	<b>6</b>
<b>PC12.</b> perform polishing with appropriate abrasive compound and buffers on painted components of vehicle as per SOP/WI	1	3	-	-
<b>PC13.</b> identify minor paint imperfections such as scratches, swirl marks etc. and any remaining contamination on the vehicle parts/panels	2	2	-	1
<b>PC14.</b> ensure that detailer assistant covered the exterior parts/fittings adjacent to the painted panels with masking tape or paper to prevent their surface finish	1	2	-	-
<b>PC15.</b> remove the minor paint imperfections by applying appropriate paint compounds and pads on the panels with the assistance of detailer assistant by following SOP/WI	2	3	-	1
<b>PC16.</b> use sandpaper with a specific set of grids to sand a particular area for removal of the defects	1	2	-	1
<b>PC17.</b> remove any contaminants, overspray, or residue left by using clay bar with the assistance of detailer assistant after the cleaning and polishing	1	2	-	1
<b>PC18.</b> apply paint sealer/wax on the vehicle parts to give final glossy shine on the painted panels/parts of vehicle by following SOP/WI	1	2	-	1
<b>PC19.</b> apply protective coating like ceramic / nano coating / Paint Protection Film (PPF) etc. on the vehicle to protect the paint of vehicle by following SOP/WI	1	2	-	1
<i>Perform post vehicle detailing activities</i>	<b>6</b>	<b>10</b>	-	<b>4</b>
<b>PC20.</b> inspect surface finish of vehicle parts/panels after vehicle detailing activities and report to supervisor in case of any discrepancy	1	2	-	1



Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC21.</b> ensure that all the cleaning and detailing activities are completed before releasing the vehicle	1	2	-	-
<b>PC22.</b> dispose off materials such as debris, old masking paper, empty cans/tube, etc. as per organization's policies	2	2	-	1
<b>PC23.</b> return leftover consumable/parts, tools and equipment after completion of work	1	2	-	1
<b>PC24.</b> record the details of various treatment and washing activities done on the vehicle in job card as per organizational procedures	1	2	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N1454
<b>NOS Name</b>	Perform vehicle detailing work
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Automotive Vehicle Service
<b>Occupation</b>	Technical Service & Repair
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Next Review Date</b>	NA

## DGT/VSQ/N0101: Employability Skills (30 Hours)

### Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

### Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

### Elements and Performance Criteria

#### *Introduction to Employability Skills*

To be competent, the user/individual on the job must be able to:

**PC1.** understand the significance of employability skills in meeting the job requirements

#### *Constitutional values – Citizenship*

To be competent, the user/individual on the job must be able to:

**PC2.** identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

#### *Becoming a Professional in the 21st Century*

To be competent, the user/individual on the job must be able to:

**PC3.** explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

#### *Basic English Skills*

To be competent, the user/individual on the job must be able to:

**PC4.** speak with others using some basic English phrases or sentences

#### *Communication Skills*

To be competent, the user/individual on the job must be able to:

**PC5.** follow good manners while communicating with others

**PC6.** work with others in a team

#### *Diversity & Inclusion*

To be competent, the user/individual on the job must be able to:

**PC7.** communicate and behave appropriately with all genders and PwD

**PC8.** report any issues related to sexual harassment

*Financial and Legal Literacy*

To be competent, the user/individual on the job must be able to:

**PC9.** use various financial products and services safely and securely

**PC10.** calculate income, expenses, savings etc.

**PC11.** approach the concerned authorities for any exploitation as per legal rights and laws

*Essential Digital Skills*

To be competent, the user/individual on the job must be able to:

**PC12.** operate digital devices and use its features and applications securely and safely

**PC13.** use internet and social media platforms securely and safely

*Entrepreneurship*

To be competent, the user/individual on the job must be able to:

**PC14.** identify and assess opportunities for potential business

**PC15.** identify sources for arranging money and associated financial and legal challenges

*Customer Service*

To be competent, the user/individual on the job must be able to:

**PC16.** identify different types of customers

**PC17.** identify customer needs and address them appropriately

**PC18.** follow appropriate hygiene and grooming standards

*Getting ready for apprenticeship & Jobs*

To be competent, the user/individual on the job must be able to:

**PC19.** create a basic biodata

**PC20.** search for suitable jobs and apply

**PC21.** identify and register apprenticeship opportunities as per requirement

## **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

**KU1.** need for employability skills

**KU2.** various constitutional and personal values

**KU3.** different environmentally sustainable practices and their importance

**KU4.** Twenty first (21st) century skills and their importance

**KU5.** how to use basic spoken English language

**KU6.** Do and dont of effective communication

**KU7.** inclusivity and its importance

**KU8.** different types of disabilities and appropriate communication and behaviour towards PwD

**KU9.** different types of financial products and services

**KU10.** how to compute income and expenses

**KU11.** importance of maintaining safety and security in financial transactions

- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

### **Generic Skills (GS)**

User/individual on the job needs to know how to:

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC1.</b> understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values – Citizenship</i>	<b>1</b>	<b>1</b>	-	-
<b>PC2.</b> identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	<b>1</b>	<b>3</b>	-	-
<b>PC3.</b> explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	<b>2</b>	<b>3</b>	-	-
<b>PC4.</b> speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC5.</b> follow good manners while communicating with others	-	-	-	-
<b>PC6.</b> work with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>1</b>	-	-
<b>PC7.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC8.</b> report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>3</b>	<b>4</b>	-	-
<b>PC9.</b> use various financial products and services safely and securely	-	-	-	-
<b>PC10.</b> calculate income, expenses, savings etc.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	<b>4</b>	<b>6</b>	-	-
<b>PC12.</b> operate digital devices and use its features and applications securely and safely	-	-	-	-
<b>PC13.</b> use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	<b>3</b>	<b>5</b>	-	-
<b>PC14.</b> identify and assess opportunities for potential business	-	-	-	-
<b>PC15.</b> identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	<b>2</b>	<b>2</b>	-	-
<b>PC16.</b> identify different types of customers	-	-	-	-
<b>PC17.</b> identify customer needs and address them appropriately	-	-	-	-
<b>PC18.</b> follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>1</b>	<b>3</b>	-	-
<b>PC19.</b> create a basic biodata	-	-	-	-
<b>PC20.</b> search for suitable jobs and apply	-	-	-	-
<b>PC21.</b> identify and register apprenticeship opportunities as per requirement	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0101
<b>NOS Name</b>	Employability Skills (30 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	2
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/08/2023
<b>Next Review Date</b>	31/08/2026
<b>NSQC Clearance Date</b>	31/08/2023



## ASC/N1455: Automotive Detailer Technician

### Description

This NOS unit is about performing and supporting detailer assistant in all tasks related to vehicle detailing such as steam cleaning of vehicle interior and exterior, correction of paint defects and polishing of vehicle parts. This is also about applying protective coating like ceramic / nano coating / Paint Protection Film (PPF) etc. on the vehicle for body protection.

### Scope

The scope covers the following :

- Prepare for vehicle detailing work
- Perform steam cleaning of vehicle
- Perform polishing and correction of paint defects
- Perform post-vehicle detailing activities

### Elements and Performance Criteria

#### *Prepare for vehicle detailing work*

To be competent, the user/individual on the job must be able to:

- PC1.** determine work to be done and work requirements by obtaining required information from the job card and instructions received from supervisor
- PC2.** identify appropriate material, tools & equipment such as cleaning agent, polish, foam, brushes, mops, microfiber cloth, solvent sprayer, vacuum cleaner, buffers, hoses, steamers, protective coatings etc. required for work
- PC3.** check material, tools & equipment for any issues and required quality standards before use
- PC4.** report the defects/malfunctions if any, in the tools and equipment to the concerned person for rectification
- PC5.** inspect the vehicle interior & exterior for cleaning and detailing work
- PC6.** support the detailer assistant in removing detachable items, seats etc. and place them securely at specified location
- PC7.** support the detailer assistant in mixing cleaning solutions, abrasive compositions or other compounds as per requirement and SOP

#### *Perform steam cleaning of vehicle*

To be competent, the user/individual on the job must be able to:

- PC8.** follow safety precautions to avoid any hazard and accident during work
- PC9.** carry out steam cleaning of the vehicle interior & exterior components with the assistance of detailer assistant by following SOP/WI
- PC10.** ensure that all the segments and surfaces of the vehicle such as carpet, seats, trims, headlining, consoles, grill, vents, body panels, wheels, etc. are cleaned properly as per the SOP/WI
- PC11.** clean all exposed glass like windshield, side windows, side mirrors, rear window, headlight, fog light, taillight lenses etc. by using appropriate glass cleaner and microfiber cloths

#### *Perform polishing and correction of paint defects*

To be competent, the user/individual on the job must be able to:

- PC12.** perform polishing with appropriate abrasive compound and buffers on painted components of vehicle as per SOP/WI
- PC13.** identify minor paint imperfections such as scratches, swirl marks etc. and any remaining contamination on the vehicle parts/panels
- PC14.** ensure that detailer assistant covered the exterior parts/fittings adjacent to the painted panels with masking tape or paper to prevent their surface finish
- PC15.** remove the minor paint imperfections by applying appropriate paint compounds and pads on the panels with the assistance of detailer assistant by following SOP/WI
- PC16.** use sandpaper with a specific set of grids to sand a particular area for removal of the defects
- PC17.** remove any contaminants, overspray, or residue left by using clay bar with the assistance of detailer assistant after the cleaning and polishing
- PC18.** apply paint sealer/wax on the vehicle parts to give final glossy shine on the painted panels/parts of vehicle by following SOP/WI
- PC19.** apply protective coating like ceramic / nano coating / Paint Protection Film (PPF) etc. on the vehicle to protect the paint of vehicle by following SOP/WI

#### *Perform post vehicle detailing activities*

To be competent, the user/individual on the job must be able to:

- PC20.** inspect surface finish of vehicle parts/panels after vehicle detailing activities and report to supervisor in case of any discrepancy
- PC21.** ensure that all the cleaning and detailing activities are completed before releasing the vehicle
- PC22.** dispose off materials such as debris, old masking paper, empty cans/tube, etc. as per organization's policies
- PC23.** return leftover consumable/parts, tools and equipment after completion of work
- PC24.** record the details of various treatment and washing activities done on the vehicle in job card as per organizational procedures

### **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures followed in the organization
- KU2.** SOPs regarding receiving vehicles, opening job card, allocation of work, invoicing, vehicle delivery, handling complaints etc.
- KU3.** identification, nomenclature, manufacturer's specifications of various consumable/material (abrasives, solvent, masking paper, cloth etc.
- KU4.** various interior & exterior segments such as seat (fabric/PU/leathered), dash panel, engine compartment, bonnet, dicky etc. and detachable items such as foot-mats, mobile charger etc. of the vehicle
- KU5.** Standard Operating Procedures of the dealership for vehicle washing, cleaning and detailing
- KU6.** SOP recommended by manufacturer for using cleaning agents, material, tools and equipment during work
- KU7.** different types of grime such as scuff marks, soil, dust, oil, grease, dried food and other stains

- KU8.** methods like steam cleaning, brushing, water/air spray, use of chemicals, manual or machine assisted cleaning for cleaning various grime
- KU9.** application method of various polish & abrasive, on different surfaces such as dashboard, seats, door trim, tyre, bumper, front grill etc. using buffer/polisher
- KU10.** methods of using different squeegees, mops, cloth, vacuum cleaner, steamer, buffing machine, buffing pads, etc.
- KU11.** various types of paint protection coatings like ceramic / nano coating / Paint Protection Film (PPF) and how to apply them
- KU12.** safety, health and environmental policies and regulations of the workplace as well as for automotive trade in general (e.g. safe practices while working in pits/under vehicles)

### **Generic Skills (GS)**

User/individual on the job needs to know how to:

- GS1.** read and interpret workplace related documentation
- GS2.** interpret the needs of customers by understanding the key issues
- GS3.** communicate using terms, names, grades and other nomenclature pertaining to the automotive trade
- GS4.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS5.** identify potential workplace problem and take suitable action
- GS6.** write in English/regional language

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for vehicle detailing work</i>	<b>8</b>	<b>10</b>	-	<b>4</b>
<b>PC1.</b> determine work to be done and work requirements by obtaining required information from the job card and instructions received from supervisor	2	1	-	-
<b>PC2.</b> identify appropriate material, tools & equipment such as cleaning agent, polish, foam, brushes, mops, microfiber cloth, solvent sprayer, vacuum cleaner, buffers, hoses, steamers, protective coatings etc. required for work	2	2	-	1
<b>PC3.</b> check material, tools & equipment for any issues and required quality standards before use	2	1	-	1
<b>PC4.</b> report the defects/malfunctions if any, in the tools and equipment to the concerned person for rectification	-	1	-	1
<b>PC5.</b> inspect the vehicle interior & exterior for cleaning and detailing work	-	2	-	1
<b>PC6.</b> support the detailer assistant in removing detachable items, seats etc. and place them securely at specified location	-	1	-	-
<b>PC7.</b> support the detailer assistant in mixing cleaning solutions, abrasive compositions or other compounds as per requirement and SOP	2	2	-	-
<i>Perform steam cleaning of vehicle</i>	<b>6</b>	<b>12</b>	-	<b>6</b>
<b>PC8.</b> follow safety precautions to avoid any hazard and accident during work	2	3	-	2
<b>PC9.</b> carry out steam cleaning of the vehicle interior & exterior components with the assistance of detailer assistant by following SOP/WI	2	5	-	2
<b>PC10.</b> ensure that all the segments and surfaces of the vehicle such as carpet, seats, trims, headlining, consoles, grill, vents, body panels, wheels, etc. are cleaned properly as per the SOP/WI	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> clean all exposed glass like windshield, side windows, side mirrors, rear window, headlight, fog light, taillight lenses etc. by using appropriate glass cleaner and microfiber cloths	1	2	-	1
<i>Perform polishing and correction of paint defects</i>	<b>10</b>	<b>18</b>	-	<b>6</b>
<b>PC12.</b> perform polishing with appropriate abrasive compound and buffers on painted components of vehicle as per SOP/WI	1	3	-	-
<b>PC13.</b> identify minor paint imperfections such as scratches, swirl marks etc. and any remaining contamination on the vehicle parts/panels	2	2	-	1
<b>PC14.</b> ensure that detailer assistant covered the exterior parts/fittings adjacent to the painted panels with masking tape or paper to prevent their surface finish	1	2	-	-
<b>PC15.</b> remove the minor paint imperfections by applying appropriate paint compounds and pads on the panels with the assistance of detailer assistant by following SOP/WI	2	3	-	1
<b>PC16.</b> use sandpaper with a specific set of grids to sand a particular area for removal of the defects	1	2	-	1
<b>PC17.</b> remove any contaminants, overspray, or residue left by using clay bar with the assistance of detailer assistant after the cleaning and polishing	1	2	-	1
<b>PC18.</b> apply paint sealer/wax on the vehicle parts to give final glossy shine on the painted panels/parts of vehicle by following SOP/WI	1	2	-	1
<b>PC19.</b> apply protective coating like ceramic / nano coating / Paint Protection Film (PPF) etc. on the vehicle to protect the paint of vehicle by following SOP/WI	1	2	-	1
<i>Perform post vehicle detailing activities</i>	<b>6</b>	<b>10</b>	-	<b>4</b>
<b>PC20.</b> inspect surface finish of vehicle parts/panels after vehicle detailing activities and report to supervisor in case of any discrepancy	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC21.</b> ensure that all the cleaning and detailing activities are completed before releasing the vehicle	1	2	-	-
<b>PC22.</b> dispose off materials such as debris, old masking paper, empty cans/tube, etc. as per organization's policies	2	2	-	1
<b>PC23.</b> return leftover consumable/parts, tools and equipment after completion of work	1	2	-	1
<b>PC24.</b> record the details of various treatment and washing activities done on the vehicle in job card as per organizational procedures	1	2	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N1455
<b>NOS Name</b>	Automotive Detailer Technician
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Automotive Vehicle Service
<b>Occupation</b>	Technical Service & Repair
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Next Review Date</b>	NA

## **ASC/N1456: Perform routine service, repair and maintenance of bicycle**

### **Description**

This NOS unit is about performing routine service, repair and maintenance activities of various aggregates/systems of a bicycle.

### **Scope**

The scope covers the following :

- Prepare for work
- Perform routine service, repair or maintenance of bicycle
- Perform post service/repair activities

### **Elements and Performance Criteria**

#### *Prepare for work*

To be competent, the user/individual on the job must be able to:

- PC1.** interact with customer to understand their requirement of routine service, minor repairs, maintenance and warranty replacement of bicycle
- PC2.** collect tools/measuring devices/equipment required for the job and check their condition/calibration
- PC3.** prepare the bicycle for service, repair and maintenance as per SOP
- PC4.** wear PPE according to nature of job to be performed
- PC5.** conduct visual inspection of the bicycle to identify defects in systems/components
- PC6.** assess mechanical aggregates of the bicycle for any external impact/bend/incorrect level/wear & tear/fault
- PC7.** provide cost and time estimate to the customer for the service and repair work
- PC8.** get the customer's consent and proceed to the work

#### *Perform routine service, repair or maintenance of bicycle*

To be competent, the user/individual on the job must be able to:

- PC9.** perform routine service/maintenance of various parts and aggregates including drive chain ring, steering system, brakes, suspension, pedals etc.
- PC10.** collect the correct spare parts and appropriate grade of lubricants, coolant, oils and grease for routine maintenance and service
- PC11.** inspect the components requiring adjustment or replacement due to continuous wear and tear such as bell, tires, reflectors, brake pads, chain ring, cassettes and freewheels etc.
- PC12.** check that tire pressure is as per the manufacturer's specifications by using pressure gauge, refill the air (if required)
- PC13.** check that brake is tightly gripping the wheel when the brake levers are squeezed, adjust the brake pads as per the requirement
- PC14.** adjust spoke tension and replace any damaged spokes/ true up the wheel
- PC15.** check the socket and bolt for rust and worn out threads, replace the sockets if required
- PC16.** clean and condition dismantled parts/components, prior to reassembly



- PC17.** overhaul hub, steering system (handlebars, stem and headset), headrest, pedals, crank arm and bottom bracket as per the need
- PC18.** perform lubrication or greasing of chain, freewheel or cassette and other parts as per the requirement
- PC19.** carry out re-assembling of bicycle parts/ aggregates as per SOP
- PC20.** adjust the saddle fore, aft and height as per the requirement
- PC21.** seek assistance from the specialist in case of structural repairs

*Perform post service/repair activities*

To be competent, the user/individual on the job must be able to:

- PC22.** check the performance of bicycle/aggregate post repair before releasing it to customer
- PC23.** dispose-off materials such as waste oil, scrap of failed parts/aggregates, as per environmental policies
- PC24.** perform scheduled checks, calibration and timely repairs for workshop tools and equipment after completion of work

## **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** the automotive industry in India, workshop structure and role and responsibilities of different people in the workshop
- KU2.** various brands of bicycles available in the market
- KU3.** types of bicycles
- KU4.** different components/aggregates and systems i.e. drive train, steering system, suspension system, brakes, wheels, structural members as well as component manufacturer's specifications of the bicycle
- KU5.** basic technology used in and functioning of various systems and components of the bicycle
- KU6.**
  - different types of braking system
  - Types of brakes: Rod actuated brakes, caliper brake, cantilever brake, V brake safety features provided in a bicycle Band brake, Drum or hub brake, Backpedal or coaster brake, Disc brake and Roller brake
- KU7.**
  - safety features provided in a bicycle
  - Safety Features: Bell, reflector, brake, chain guard etc.
- KU8.** standard schedules and checklists recommended by the OEM/auto component manufacturer for servicing of bicycles
- KU9.** typical symptoms of common faults and failures in bicycle
- KU10.** Standard Operating Procedures (SOPs) for inspection and diagnosis of faults in a bicycle as prescribed by the OEM/components manufacturer
- KU11.** SOP recommended by OEM for using tools/equipment for diagnosis or troubleshooting
- KU12.** how to replace tire and tube
- KU13.** how to install front and rear wheels
- KU14.** how to find a puncture, patch the tube and attach the wheel
- KU15.** method of wheel truing
- KU16.** how to repair dents in the rim
- KU17.** types of head rest i.e. Threaded and thread less

- KU18.** types of suspension i.e. Coil and air suspension system
- KU19.** chain and sprocket mechanism- drive mechanism
- KU20.** how to calculate Mechanical Advantage or Velocity Ratio
- KU21.** how to remove / replace/ reassemble a chain
- KU22.** how to clean the freewheel or cassette
- KU23.** styles of hub i.e. cup and cone, sealed bearing
- KU24.** how to adjust a hub centering and tensioning of brakes
- KU25.** how to replace brake cables
- KU26.** how to angle the saddle
- KU27.** names of structural members of a frame i.e. Head tube, Top tube, Down tube, Seat tube, bottom
- KU28.** use and application of bearings
- KU29.** types of frame materials
- KU30.** Occupational Safety and Health (OSH) measures required for working on bicycles

### **Generic Skills (GS)**

User/individual on the job needs to know how to:

- GS1.** read and interpret workplace related documentation
- GS2.** interpret the needs of customers by understanding the key issues
- GS3.** communicate using terms, names, grades and other nomenclature pertaining to the automotive trade
- GS4.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS5.** identify potential workplace problem and take suitable action
- GS6.** read various sources of information available for assessing service and repair requirements
- GS7.** write any work-related information
- GS8.** write in English/regional language

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for work</i>	<b>5</b>	<b>14</b>	-	<b>7</b>
<b>PC1.</b> interact with customer to understand their requirement of routine service, minor repairs, maintenance and warranty replacement of bicycle	-	1	-	1
<b>PC2.</b> collect tools/measuring devices/equipment required for the job and check their condition/calibration	1	2	-	1
<b>PC3.</b> prepare the bicycle for service, repair and maintenance as per SOP	1	2	-	1
<b>PC4.</b> wear PPE according to nature of job to be performed	-	1	-	1
<b>PC5.</b> conduct visual inspection of the bicycle to identify defects in systems/components	1	1	-	1
<b>PC6.</b> assess mechanical aggregates of the bicycle for any external impact/bend/incorrect level/wear & tear/fault	-	3	-	1
<b>PC7.</b> provide cost and time estimate to the customer for the service and repair work	1	3	-	1
<b>PC8.</b> get the customer's consent and proceed to the work	1	1	-	-
<i>Perform routine service, repair or maintenance of bicycle</i>	<b>21</b>	<b>31</b>	-	<b>11</b>
<b>PC9.</b> perform routine service/maintenance of various parts and aggregates including drive chain ring, steering system, brakes, suspension, pedals etc.	1	2	-	-
<b>PC10.</b> collect the correct spare parts and appropriate grade of lubricants, coolant, oils and grease for routine maintenance and service	2	2	-	1
<b>PC11.</b> inspect the components requiring adjustment or replacement due to continuous wear and tear such as bell, tires, reflectors, brake pads, chain ring, cassettes and freewheels etc.	2	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> check that tire pressure is as per the manufacturer's specifications by using pressure gauge, refill the air (if required)	2	3	-	-
<b>PC13.</b> check that brake is tightly gripping the wheel when the brake levers are squeezed, adjust the brake pads as per the requirement	1	2	-	-
<b>PC14.</b> adjust spoke tension and replace any damaged spokes/ true up the wheel	2	3	-	1
<b>PC15.</b> check the socket and bolt for rust and worn out threads, replace the sockets if required	1	2	-	1
<b>PC16.</b> clean and condition dismantled parts/components, prior to reassembly	1	1	-	-
<b>PC17.</b> overhaul hub, steering system (handlebars, stem and headset), headrest, pedals, crank arm and bottom bracket as per the need	3	5	-	1
<b>PC18.</b> perform lubrication or greasing of chain, freewheel or cassette and other parts as per the requirement	-	2	-	-
<b>PC19.</b> carry out re-assembling of bicycle parts/ aggregates as per SOP	2	2	-	2
<b>PC20.</b> adjust the saddle fore, aft and height as per the requirement	2	2	-	2
<b>PC21.</b> seek assistance from the specialist in case of structural repairs	2	2	-	1
<i>Perform post service/repair activities</i>	<b>4</b>	<b>5</b>	-	<b>2</b>
<b>PC22.</b> check the performance of bicycle/aggregate post repair before releasing it to customer	1	1	-	-
<b>PC23.</b> dispose-off materials such as waste oil, scrap of failed parts/aggregates, as per environmental policies	1	1	-	-
<b>PC24.</b> perform scheduled checks, calibration and timely repairs for workshop tools and equipment after completion of work	2	3	-	2
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N1456
<b>NOS Name</b>	Perform routine service, repair and maintenance of bicycle
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Automotive Vehicle Service
<b>Occupation</b>	Technical Service & Repair
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	30/06/2025
<b>NSQC Clearance Date</b>	30/06/2022

## **ASC/N1457: Carry out routine service or minor repairs on electric bicycles and assist in diagnosis**

### **Description**

This NOS unit is about performing all tasks related to service, minor repair and diagnosis of electric bicycles.

### **Scope**

The scope covers the following :

- Prepare for service and repair work
- Perform routine service and minor repairs
- Assist lead technician in diagnosis or troubleshooting the faults
- Post service/repair/diagnostic activities

### **Elements and Performance Criteria**

#### *Prepare for service and repair work*

To be competent, the user/individual on the job must be able to:

- PC1.** review the job card and understand work to be carried out
- PC2.** identify the auto components related to the various aggregates in the electric bicycle
- PC3.** collect workshop tools/measuring devices/equipment required for the job and check their condition/calibration
- PC4.** prepare the electric bicycle according to nature of job to be performed: general, mechanical or electrical job on the electric bicycle
- PC5.** wear PPE according to nature of job to be performed
- PC6.** conduct visual inspection of the electric bicycle to identify defects and indirect faults in electrical/electronic aggregate due to other system/component
- PC7.** assess mechanical aggregates such as gear shifter, handle, axles, paddles brakes, wheels, etc. of the electric bicycle for any external impact/bend/incorrect fitment/wear & tear
- PC8.** report the malfunctions/repairs in the electric bicycle beyond own scope to the concerned person

#### *Perform routine service and minor repairs*

To be competent, the user/individual on the job must be able to:

- PC9.** take precautions to avoid damage to the electric bicycle and its components while working on various aggregates
- PC10.** use appropriate tools, equipment, and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organization
- PC11.** test electrical/electronic components performance of electric bicycle wherever applicable as per OEM SOP
- PC12.** remove parts relevant to various mechanical aggregates and place them securely as specified by OEM
- PC13.** clean and condition dismantled mechanical and electrical components prior to assembly

- PC14.** perform minor repair/replacement/calibration of mechanical system/aggregate such as brake lever free play, drive chain, braking & steering systems adjustments, etc. as per SOP
- PC15.** apply appropriate grade of oil or other lubricant on the mechanical components of electric bicycle wherever applicable as per OEM guidelines
- PC16.** maintain the documentation related to inspection, servicing and minor repair of the electric bicycle

*Assist lead technician in diagnosis or troubleshooting the faults*

To be competent, the user/individual on the job must be able to:

- PC17.** conduct test ride of the e-bike to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any
- PC18.** follow lead technician instructions to choose and use the appropriate device/equipment to inspect/test electric bicycle/system/component performance to diagnose defects or faults in it
- PC19.** carry out inspection or test on electric bicycle mechanical and electrical systems according to lead technician instructions
- PC20.** interpret and compare results of diagnostic inspections/tests with vehicle specifications and regulatory requirements
- PC21.** maintain the documentation related to inspections and troubleshooting performed on the vehicle
- PC22.** report the results to lead technician and seek assistance if further tests or inspections are required to conclude the diagnosis or troubleshooting

*Perform post service/repair/diagnostic activities*

To be competent, the user/individual on the job must be able to:

- PC23.** check the performance of electric bicycle post repair and report to supervisor/service advisor if further inspection is required by another specialist
- PC24.** ensure completeness of tasks assigned before releasing the electric bicycle for the next procedure
- PC25.** dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization's policies
- PC26.** return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned

## **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

- KU1.** different components/aggregates as well as auto component manufacturer's specifications of the electric bicycle
- KU2.** road licensing requirements for electric bicycles in India
- KU3.** basic technology used in and functioning of various systems and components of the electric bicycle such as: brakes, suspension, steering, hub drive/chain drive, etc. including electrical machines and devices used in electric vehicles such as: charging system, charger, batteries, etc.
- KU4.** interconnection of systems with each other and effect of one system on other system
- KU5.** how to use computer, on-line application and OEM technical information/assistance portals

- KU6.** various sources of information available for assessing service and repair requirements of the electric bicycle including diagnostic displays, visual inspections, test rides, vehicle/equipment manufacturer specifications, and tolerance limits of components
- KU7.** standard schedules and checklists recommended by the OEM/auto component manufacturer for servicing of electric bicycle
- KU8.** typical symptoms of common faults and failures in electric bicycle mechanical, electrical and electronic systems
- KU9.** Standard Operating Procedures (SOPs) of the organization/ dealership for inspection and diagnosis of faults in an electric bicycle as prescribed by the OEM/components manufacturer
- KU10.** different types of errors or defects in the tools/equipment
- KU11.** documentation requirements for each procedure carried out as part of roles and responsibilities as specified by OEM/ auto component manufacturer
- KU12.** safety requirements recommended by the OEM for equipment/vehicle components during diagnosis, troubleshooting and root cause analysis on various aggregates
- KU13.** legal regulations that need to be taken into account for handling an electric bicycle in the workshop
- KU14.** precautions need to follow during charging of electric bicycle battery
- KU15.** Occupational Safety and Health (OSH) measures are required for working on electric vehicle

## **Generic Skills (GS)**

User/individual on the job needs to know how to:

- GS1.** read and interpret workplace related documentation
- GS2.** interpret the needs of customers by understanding the key issues
- GS3.** communicate using terms, names, grades and other nomenclature pertaining to the automotive trade
- GS4.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS5.** identify potential workplace problem and take suitable action
- GS6.** read various sources of information available for assessing service and repair requirements
- GS7.** write any work-related information
- GS8.** write in English/regional language



## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for service and repair work</i>	<b>5</b>	<b>14</b>	-	<b>7</b>
<b>PC1.</b> review the job card and understand work to be carried out	-	1	-	1
<b>PC2.</b> identify the auto components related to the various aggregates in the electric bicycle	1	2	-	1
<b>PC3.</b> collect workshop tools/measuring devices/equipment required for the job and check their condition/calibration	1	2	-	1
<b>PC4.</b> prepare the electric bicycle according to nature of job to be performed: general, mechanical or electrical job on the electric bicycle	-	1	-	1
<b>PC5.</b> wear PPE according to nature of job to be performed	1	1	-	1
<b>PC6.</b> conduct visual inspection of the electric bicycle to identify defects and indirect faults in electrical/electronic aggregate due to other system/component	-	3	-	1
<b>PC7.</b> assess mechanical aggregates such as gear shifter, handle, axles, paddles brakes, wheels, etc. of the electric bicycle for any external impact/bend/incorrect fitment/wear & tear	1	3	-	1
<b>PC8.</b> report the malfunctions/repairs in the electric bicycle beyond own scope to the concerned person	1	1	-	-
<i>Perform routine service and minor repairs</i>	<b>12</b>	<b>18</b>	-	<b>5</b>
<b>PC9.</b> take precautions to avoid damage to the electric bicycle and its components while working on various aggregates	1	2	-	-
<b>PC10.</b> use appropriate tools, equipment, and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organization	2	2	-	1
<b>PC11.</b> test electrical/electronic components performance of electric bicycle wherever applicable as per OEM SOP	2	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> remove parts relevant to various mechanical aggregates and place them securely as specified by OEM	2	3	-	-
<b>PC13.</b> clean and condition dismantled mechanical and electrical components prior to assembly	1	2	-	-
<b>PC14.</b> perform minor repair/replacement/calibration of mechanical system/aggregate such as brake lever free play, drive chain, braking & steering systems adjustments, etc. as per SOP	2	3	-	1
<b>PC15.</b> apply appropriate grade of oil or other lubricant on the mechanical components of electric bicycle wherever applicable as per OEM guidelines	1	2	-	1
<b>PC16.</b> maintain the documentation related to inspection, servicing and minor repair of the electric bicycle	1	1	-	-
<i>Assist lead technician in diagnosis or troubleshooting the faults</i>	<b>8</b>	<b>10</b>	-	<b>5</b>
<b>PC17.</b> conduct test ride of the e-bike to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-
<b>PC18.</b> follow lead technician instructions to choose and use the appropriate device/equipment to inspect/test electric bicycle/system/component performance to diagnose defects or faults in it	2	2	-	2
<b>PC19.</b> carry out inspection or test on electric bicycle mechanical and electrical systems according to lead technician instructions	2	2	-	2
<b>PC20.</b> interpret and compare results of diagnostic inspections/tests with vehicle specifications and regulatory requirements	2	2	-	1
<b>PC21.</b> maintain the documentation related to inspections and troubleshooting performed on the vehicle	1	1	-	-
<b>PC22.</b> report the results to lead technician and seek assistance if further tests or inspections are required to conclude the diagnosis or troubleshooting	1	1	-	-
<i>Perform post service/repair/diagnostic activities</i>	<b>5</b>	<b>8</b>	-	<b>3</b>

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC23.</b> check the performance of electric bicycle post repair and report to supervisor/service advisor if further inspection is required by another specialist	2	3	-	1
<b>PC24.</b> ensure completeness of tasks assigned before releasing the electric bicycle for the next procedure	-	1	-	1
<b>PC25.</b> dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization's policies	1	2	-	1
<b>PC26.</b> return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned	2	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N1457
<b>NOS Name</b>	Carry out routine service or minor repairs on electric bicycles and assist in diagnosis
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Automotive Vehicle Service
<b>Occupation</b>	Technical Service & Repair
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	30/06/2025
<b>NSQC Clearance Date</b>	30/06/2022

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at

each examination/ training center based on these criteria.

6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

**Minimum Aggregate Passing % at QP Level : 70**

**(Please note:** Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

**Assessment Weightage**

Compulsory NOS

<b>National Occupational Standards</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>	<b>Total Marks</b>	<b>Weightage</b>
ASC/N9801.Organize work and resources (Service)	50	30	-	20	100	15
ASC/N1454.Perform vehicle detailing work	30	50	-	20	100	30
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
<b>Total</b>	<b>100</b>	<b>110</b>	<b>-</b>	<b>40</b>	<b>250</b>	<b>50</b>

Elective: 1 Four Wheeler Electric Vehicle Service Assistant

<b>National Occupational Standards</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>	<b>Total Marks</b>	<b>Weightage</b>
ASC/N1455.Automotive Detailer Technician	30	50	-	20	100	50
<b>Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>	<b>100</b>	<b>50</b>

Elective: 2 Two/Three wheeler Electric Vehicle Service Assistant

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N1456.Perform routine service, repair and maintenance of bicycle	30	50	-	20	100	50
<b>Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>	<b>100</b>	<b>50</b>

Elective: 3 Electric Truck/Bus Service Assistant

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N1457.Carry out routine service or minor repairs on electric bicycles and assist in diagnosis	30	50	-	20	100	50
<b>Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>	<b>100</b>	<b>50</b>

## Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training

## Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.



<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.