

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR AUTOMOTIVE INDUSTRY

What are Occupational Standards (OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Qualifications Pack-Auto Service Technician Level 5

SECTOR: AUTOMOTIVE

SUB-SECTOR: AUTOMOTIVE VEHICLE SERVICE

OCCUPATION: TECHNICAL SERVICE & REPAIR

JOB ROLE: AUTOMOTIVE SERVICE TECHNICIAN LEVEL 5

REFERENCE ID: ASC/ Q 1403

ALIGNED TO: NCO-2004/7231.50

Auto Service Technician Level 5 is also known as Senior Technician, Technical Specialist, Master Mechanic, Master Technician and Mystery

Brief Job Description: An Auto Service Technician Level 5 is responsible for managing range of diagnosis and repairs with a wide range of specialised repair of mechanical, electrical and electronic faults.

Personal Attributes: An individual on this job must have good communication and interpersonal skills in addition to being a team player, as the job requires coordination with other technicians during diagnosis. The individual must have a technical bend of mind to understand the technical aspects related to various aggregates (including both mechanical & electrical) in a vehicle, which would also assist in the fault diagnosis in the vehicle. The individual should be proactive, process and customer centric with ability to guide junior technicians and strong sense to seek judgement from superiors in very complicated cases. Keeping oneself abreast of the latest developments and newer technologies used in the mechanical systems of engine aggregates is highly desirable.

Job Details	Qualifications Pack Code	ASC/ Q 1403		
	Job Role	Auto Service Technician Level 5		
	Credits(NSQF)	TBD	Version number	1.0
	Industry	Automotive	Drafted on	12/06/13
	Sub-sector	Automotive Vehicle Service	Last reviewed on	12/06/13
	Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15
	NSQC Clearance on	20/07/15		

Job Role	Auto Service Technician Level 5
Role Description	Responsible for managing a range of diagnosis (across the mechanical and electrical/ electronic aggregates) and repairs and guiding junior technicians in their work
NSQF level	5
Minimum Educational Qualifications	Diploma in Mechanical/ Automobile Engineering
Maximum Educational Qualifications	Bachelors in Mechanical/Electrical/Automobile Engineering
Training	<p>On the job training:</p> <ul style="list-style-type: none"> Desirable for ASDC Auto Service Technician Level 5 Certificate OR Bachelor's in Mechanical/ Electrical/ Automobile Engineering Compulsory for all other qualifications
Minimum Job Entry Age	<p>1 ASDC recommends that candidates should seek full employment not before attaining an age of 18 years.</p> <p>2 However, as per Factories Act 1948 and Shops & Establishment Act 1953:</p> <p>- No one can be employed before attaining the age of 14</p> <p>3 Please note that under the Factories Act 1948, and Shops & Establishment Act 1953 different States may have slightly varying provision, which need to be adhered to.</p>
Experience	<ul style="list-style-type: none"> 1-2 years if ASDC Auto Service Technician Level 5 Certificate or Bachelor's in Mechanical/ Electrical/ Automobile Engineering 3-7 years for other qualifications

<p>Occupational Standards (OS)</p>	<p>Compulsory:</p> <p>ASC/ N 1404: Carry out diagnosis of vehicle for routine repairs requirements</p> <p>ASC/ N 1405: Carry out service and major repairs in mechanical aggregate and overhauling of a vehicle</p> <p>ASC/ N 1406: Carry out service and repairs of electrical and electronic faults in a vehicle</p> <p>ASC/ N 0001: Plan and organise work to meet expected outcomes</p> <p>ASC/ N 0002: Work effectively in a team</p> <p>ASC/ N 0003: Maintain a healthy, safe and secure working environment</p> <p>Optional: N.A.</p>
<p>Performance Criteria</p>	<p>As described in the relevant NOS units</p>

Keywords /Terms	Description
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.
Dealership	A business established or operated under an authorisation to sell or distribute an automotive company's goods and services
Description	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 NOS they are looking for.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Knowledge and Understanding	Knowledge and Understanding 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.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Organisational Context	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.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the 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 the quality of performance required.
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.

Sub-Sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Unit Code	Unit Code is a unique identifier for an NOS unit, which can be denoted with an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vehicle	Mode of personal transport including 2-wheelers, 3-wheelers and 4-wheelers (including passenger vehicles and commercial vehicles). This includes gasoline, petrol, CNG, electrical and hybrid vehicles
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Keywords /Terms	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
OEM	Original Equipment Manufacturer
OS	Occupational Standard(s)
QP	Qualifications Pack

Acronyms

National Occupational Standards



Overview

This Occupational Standard describes the knowledge, understanding and skills required of an individual to diagnose a wide range of faults and troubleshoot problems in a vehicle (of both mechanical and electrical aggregates) and take necessary repair action post the root cause analysis. The diagnosis would include diesel, petrol, CNG, electrical and hybrid vehicles across 2-wheelers, 3-wheelers and 4-wheelers (including passenger vehicles and commercial vehicles).

ASC/ N 1404

Carry out diagnosis of vehicle for repair requirements

National Occupational Standard	Unit Code	ASC/ N1404
	Unit Title (Task)	Carry out diagnosis of vehicle for repair requirements
	Description	This NOS unit is about troubleshooting problems and fault diagnosis of the vehicle (including both mechanical and electrical aggregates)
	Scope	This unit/task covers the following: <ul style="list-style-type: none"> • identify the fault responsible for vehicle trouble • diagnosis of the operational faults to identify the root cause of the trouble • take necessary action post the root cause analysis to repair the vehicle
	Performance Criteria (PC) w.r.t. the Scope	
	Element	Performance Criteria
	Carry the diagnosis of the vehicle identify the root cause of the trouble	To be competent, the user/individual on the job must be able to:
		PC1. understand the auto component manufacturer specifications related to the various components/ aggregates in the vehicle
		PC2. understand the functioning of each system, component and aggregate (including both mechanical and electrical aggregates) of a vehicle
		PC3. follow standard operating procedures for using workshop tools and equipment for fault diagnosis or troubleshoot problem in a vehicle
PC4. obtain sufficient information from customer/ service advisor to make an assessment of service and repair needs of the vehicle		
PC5. review the job card and understand customer complaints		
PC6. follow standard operating procedure set out for diagnosing faults (in case of complex faults take the assistance of the senior diagnosis technician/ technical manager)		
PC7. use checklists and standard OEM operating procedures to understand if the fault is because of improper servicing, or low levels of oils, coolants, grease etc. or poor quality oil/ air filter set.		
PC8. conduct inspection of the engine and aggregates to diagnose need for repairs or adjustment in various engine aggregates		
PC9. conduct inspection of mechanical, electrical and electronic systems to diagnose need for repairs, adjustment or part replacement		
PC10. dismantle and reassemble aggregates of a vehicle (with help from other technicians and helper)		
PC11. conduct routine and non-routine inspections for pre-purchase assessment, vehicle fitness assessment, emission testing, safety assessment, post-accident diagnostic assessment, post-repair serviceability assessment and manufacturer recall assessment		
PC12. compare results of diagnostic inspections and tests against vehicle specifications and any regulatory requirements		
PC13. finalise the list all the service, repair and replacement requirements of the vehicle post the diagnosis in consultation with service advisor/ supervisor		
PC14. follow standard operating procedures for using workshop tools and equipment		
PC15. ensure all workshop tools, equipment and workstations are adequately		

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Carry out diagnosis of vehicle for repair requirements

	<p>maintained by carrying out scheduled checks, calibration and timely repairs where necessary</p> <p>PC16. ensure any malfunctions observed in tools and equipment are reported to the concerned persons</p> <p>PC17. understand the various precautions to be taken to avoid damage to the vehicle and its components while working on diagnosis or troubleshooting the vehicle for any faults</p> <p>PC18. request assistance from a superior when required(esp. in cases where the complex diagnosis needs to be done and is out of scope)</p> <p>PC19. assist junior technicians in their work</p> <p>PC20. ensure that trainings organized by the OEM from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)</p> <p>PC21. drive a relevant 2/3/4 wheeler vehicle which is an important part of the diagnosis of the type of vehicle that is dealt by the relevant OEM</p>
Knowledge and Understanding (K) w.r.t. the scope	
Element	Knowledge and Understanding
<p>A. Organisational Context (Knowledge of the Company/ Organisation and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. standard operating procedures of the organisation/ dealership for inspection and diagnosis of faults in a vehicle as prescribed by the OEM/ components manufacturer</p> <p>KA2. standard operating procedures recommended by the dealership/ suppliers/OEM for using tools and equipment for diagnosis or troubleshooting of various aggregates</p> <p>KA3. safety requirements for equipment and components during the diagnosis or troubleshooting the various aggregates for root cause analysis of the fault</p> <p>KA4. documentation requirements for each procedure carried out as part of roles and responsibilities as specified by OEM/ auto component manufacturer for the diagnosis of troubleshooting the vehicle for faults</p> <p>KA5. organisational and professional code of ethics and standards of practice</p> <p>KA6. safety, health, environmental policies and regulations for the workplace as well as for automotive trade in general (e.g. safe practices while working in pits/ under vehicles)</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. the basic technology used in and functioning of various components and aggregates of the vehicle including:</p> <ul style="list-style-type: none"> • Engines and fuel system (diesel, petrol, electrical, gas, hybrid etc.) • cooling system • air supply systems • emission and exhaust system • ignition systems • clutch assembly

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Carry out diagnosis of vehicle for repair requirements

	<ul style="list-style-type: none"> • clutch operating system • gearbox (manual and automatic) • drivelines and hubs • drive-train assembly and transmission systems (manual, automatic etc.) • steering system • suspension system • brake system (including regenerative braking systems) • tyres and wheels (including wheel alignment) • radiator • batteries and power storage system • power-generating systems (including charging systems especially for electrical and hybrid vehicles) • electrical wire harness, lighting, ignition, electronic and air-conditioning systems etc. • energy recuperation systems, if applicable (e.g. in electric, gas and hybrid vehicles) • electronic systems including active and passive safety, media, comfort and convenience, supplementary restraint systems (SRS), networking and other systems • electronic control unit • hydraulic and pneumatic system • various lubrication systems <p>KB2. the tools used to assess and confirm technical faults that cannot be determined through a visual inspection, including use of:</p> <ul style="list-style-type: none"> • organic light emitting displays — anti-lock braking system abs/air bag scan tools, automotive scanners, graphing scanners, modular diagnostic information systems • pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges • measuring equipment: Vernier caliper, micrometer, feeler gauges, multi-metre, flow metre, temp gauge, dial gauge etc. • electrical and electronic testing equipment: volt meters, ammeters, ohmmeters, battery testing equipment, dedicated and computer based diagnostic equipment, oscilloscopes etc. • other tools: laptops <p>KB3. the various sources of information available for assessing service and repair requirements of the vehicle including:</p> <ul style="list-style-type: none"> • diagnostic displays • visual inspections • test drives • vehicle/equipment manufacturer specifications
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	<ul style="list-style-type: none"> • standard operating procedures for diagnosis <p>KB4. typical symptoms of common technical faults in a vehicle including fluid levels, leaks, wear and tear, damage to a part/ aggregate and need for adjustments(e.g. HEOC- High Engine Oil Consumption, oil leakage, tyre wear etc,)</p> <p>KB5. the various values and tolerance limits of various components across the mechanical/ electrical aggregates (e.g. within the engine assembly the following sub-aggregates : bore diameter, Liner fitment, piston height and butt clearance of piston rings, permissible imbalance in crankshaft (main and BE journal), axial and radial play in the camshaft etc.)</p> <p>KB6. basic computer skills including the following:</p> <ul style="list-style-type: none"> • OEM specific computer applications • basic computer based tasks (e.g. use of productivity tools such as word, excel etc.) • basic internet based tasks (e.g. accessing and responding to emails etc.)
Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing skills
	The user/ individual on the job needs to know and understand how to:
	<p>SA1. create documentation required on the job (including diagnosis cards, work sheets, etc.) regarding the basic diagnosis and of various fault identification tests performed using various equipment as per the OEM/ auto component and aggregate guidelines</p> <p>SA2. complete and maintain workplace record son inspection, diagnosis and repair activities</p> <p>SA3. record all diagnostic inspections and tests carried out on a vehicle</p> <p>SA4. write any additional work to be done (on the job card) basis the diagnosis of the vehicle (in major mechanical & electrical aggregates) and convey it to the service advisors and other technicians to carry out the work</p> <p>SA5. write in at least one language</p>
	Reading skills
	The user/individual on the job needs to know and understand how to:
	<p>SA6. read and interpret workplace related documentation including job cards, safety instructions, OEM guidelines etc. from supervisors and the service advisor basis the information conveyed by the customer on the issue/ fault faced</p> <p>SA7. read various sources of information available for vehicle diagnosis including service manual and diagnostic and visual displays put up in the workshop</p> <p>SA8. read the technical brochures, new service schedules, service bulletins (refresher and new) released by the OEM/ auto components manufacturer related to</p>

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	<p>diagnosis of the various faults across vehicle aggregates</p> <p>SA9. read policies and regulations pertinent to the job, including OEM guidelines, health and safety instructions etc.</p>
	<p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA10. clearly communicate workplace information and ideas with workplace colleagues (verbal and non-verbal)</p> <p>SA11. use terms, names, grades, and other nomenclature pertaining to the automotive trade, tools, specific workshop equipment etc.</p> <p>SA12. communicate with colleagues to handle verbal enquiries, such as clarifying indicated faults and problems indicated on a job card which would lead to the proper diagnosis of the issue to do an effective root cause analysis</p> <p>SA13. communicate to the juniors technicians on the changes in technical brochures, new service schedules, service bulletins (refresher and new) released by the OEM/ auto components manufacturer related to diagnosis of the various faults across vehicle aggregates</p> <p>SA14. communicate to the customer through the service advisor, the results of the test performed and appropriate values to find the root case of the problem (e.g. in case of HEOC – High Engine Oil Consumption issue, post the dismantled engine convey the appropriate condition of piston ring, crank shaft and cylinder block etc.)</p>
B. Professional Skills	<p>Decision making</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. analyse information and evaluate results to choose the best solution and solve problems</p> <p>SB2. decide on the repair/ replacement of any aggregate (including those in the electrical and mechanical sub- assemblies) post the diagnosis (with help from a superior technical manager in case of complex diagnosis)</p> <p>SB3. judge when to ask for help from a superior</p>
	<p>Plan and Organise</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB4. plan work according to the required schedule and location</p> <p>SB5. organize schedule to complete diagnosis on the vehicle so that repair/ replacement of aggregates/ components post diagnosis can start and vehicle can be delivered in a timely and cost effective manner</p> <p>SB6. organise the workplace and work according to the principles of 5S</p>
	<p>Customer centricity</p>

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Carry out diagnosis of vehicle for repair requirements

	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB7. interpret the needs of customers understanding the key issue plaguing the poor performance of the vehicle and doing a proper diagnosis consulting the service advisor to minimise the repeat complaints</p> <p>SB8. ensure that the service provided is of the highest order to ensure customer satisfaction</p> <p>SB9. follow up with the Service Advisor on any unfavourable feedback received from customer on the complaints reported on the vehicle</p>
	<p>Problem solving</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB10. recognise a workplace problem or a potential problem and take action prior to diagnosis (e.g. during diagnosis of the engine, ensure that engine aggregates are placed in proper place so that it doesn't cause any hindrance to other vehicles parked near the vehicle which is being diagnosed)</p> <p>SB11. determine problems needing priority action</p> <p>SB12. refer complex diagnosis outside area of responsibility to superior</p>
	<p>Analytical thinking</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB13. analyse the complexity of work to determine if it can be successfully carried out(e.g. refer a vehicle to a superior in case of complex diagnosis for any fault which has not occurred before)</p> <p>SB14. analyse the different components for the tolerance values post the diagnosis to understand the root cause of the issue</p>
	<p>Critical thinking</p>
<p>The user/individual on the job needs to know and understand how to:</p> <p>SB15. analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently</p> <p>SB16. use the diagnosis results to take an appropriate decision on repair/ replacement of an aggregates (including mechanical and electrical sub-assemblies) in consultation with the supervisor/ service advisor</p>	

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Carry out diagnosis of vehicle for repair requirements

NOS Version Control

NOS Code	ASC/ N 1404		
Credits(NSQF)	TBD	Version number	1.0
Industry	Automotive	Drafted on	12/06/13
Industry Sub-sector	Automotive Vehicle Service	Last reviewed on	12/06/13
Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15

ASC/ N 1405

Carry out service and major repairs in mechanical aggregates & overhauling of a vehicle

National Occupational Standards



Overview

This Occupational Standard describes the knowledge, understanding and skills required of an individual to carry out servicing, repairs & overhauling of mechanical systems of a vehicle, including 2-wheelers, 3-wheelers and 4-wheelers (including passenger vehicles and commercial vehicles). This also includes diesel, petrol, CNG, electrical and hybrid vehicles.

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Carry out service and major repairs in mechanical aggregates & overhauling of a vehicle

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Unit Code	ASC/ N 1405
Unit Title (Task)	Carry out service and major repairs in mechanical aggregates and overhauling of a vehicle
Description	This NOS unit is about an individual carrying out repairs and overhauling of mechanical systems of a vehicle.
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • servicing and major repairs of a mechanical aggregates in a vehicle • repair and overhauling of engine and its related aggregates • repair and overhauling of other mechanical aggregates and systems
Performance Criteria (PC) w.r.t the Scope	
Element	Performance Criteria
Service and major repairs in mechanical aggregates	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Understand the auto component manufacturer specifications related to the various components/ aggregates in the vehicle (including major aggregates like engine. gear box, transmission systems like propeller shaft etc.)</p> <p>PC2. follow standard operating procedures for using workshop tools and equipment for service and repairs of various vehicle aggregates</p> <p>PC3. review the job card and understand service and repair work to be carried out in the various aggregates(including overall of various aggregates like engine)</p> <p>PC4. ensure that the correct spare parts, lubricants, tools and other materials required have been obtained</p> <p>PC5. service, repair and overhaul:</p> <ul style="list-style-type: none"> • Engines and fuel system (diesel, petrol, electrical, CNG, LPG etc.) • cooling system • radiator • emission and exhaust system • brake system • clutch assembly • gearbox, drive-train assembly and transmission systems (manual, automatic etc.) • steering system • suspension system • tyres and wheels • hydraulic and pneumatic system • various lubrication systems <p>PC6. conduct routine and non-routine inspections for vehicle fitness assessment, emission testing, safety assessment and post-repair serviceability assessment</p> <p>PC7. dismantle, assess, repair, clean, replace, adjust and reassemble the vehicle mechanical aggregates/ components</p> <p>PC8. identify and change vehicle components requiring change due to continuous</p>

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Carry out service and major repairs in mechanical aggregates & overhauling of a vehicle

	<p>wear and tear(including oil and air filters in the engine aggregate)</p> <p>PC9. ensure all dismantled components and aggregates are cleaned and conditioned prior to reassembly</p> <p>PC10. carry out service, repair and overhauling activities safely to ensure:</p> <ul style="list-style-type: none"> • no damage to the vehicle or other vehicles • no damage to vehicle components and systems • no contact with hazardous materials <p>PC11. ensure disposal of materials (including waste oil, scrap of failed parts/ aggregates)in accordance with the organisation’s policies</p> <p>PC12. ensure, in consultation with the service advisor, approval of the customer on all repairs carried out</p> <p>PC13. record all service and repairs carried out and ensure completeness of tasks assigned before releasing vehicle for the next procedure</p> <p>PC14. ensure any other repair requirements observed in the other components/ aggregates systems (like engine, gear box etc.) while repairing/ overhauling of braking systems are communicated to service advisor</p> <p>PC15. follow standard operating procedures for using workshop tools and equipment</p> <p>PC16. ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs where necessary</p> <p>PC17. ensure any malfunctions observed in tools and equipment are reported to the concerned persons</p> <p>PC18. inform the relevant persons where repairs/ overhauling of the aggregates are economically or technically infeasible</p> <p>PC19. request assistance from a senior technician when required</p> <p>PC20. assist junior technicians in their work</p> <p>PC21. ensure that trainings organized by the OEM from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)</p>
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Knowledge and Understanding (K) w.r.t. the scope

Element	Knowledge and Understanding
<p>A. Organisational Context (Knowledge of the Company/ Organisation and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. standard operating procedures for servicing, repair and replacement of parts in various aggregates of the vehicle</p> <p>KA2. standard schedules and checklists recommended by the OEM for servicing and repair of various components and aggregates in the vehicle</p> <p>KA3. safety requirements for equipment and components prescribed by the OEM (e.g. preventing/ dealing with oil spillage and inflammable materials)</p> <p>KA4. identification codes, nomenclature of various components and aggregates</p> <p>KA5. correct and appropriate grade of engine oil, coolant or lubricant grease to be used for the corresponding engine and other aggregates as specified by the</p>

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Carry out service and major repairs in mechanical aggregates & overhauling of a vehicle

	<p>OEM and auto component manufacturer</p> <p>KA6. standard operating procedures recommended by the dealership/ suppliers/ OEM for using tools and equipment to be followed related to various aggregates and components in a vehicle as per the tool manufacturer instructions</p> <p>KA7. standard operating procedures for rectification of errors in information (e.g. rectification of job card, reissue of correct tools and equipment etc.)</p> <p>KA8. documentation requirements for each procedure carried out as part of roles and responsibilities as specified by OEM/ auto component manufacturer</p> <p>KA9. organisational and professional code of ethics and standards of practice</p> <p>KA10. safety, health and environmental policies and regulations for the workplace and automotive trade in general(e.g. safe working practices inside pits/ under vehicles)</p> <p>KA11. regulatory requirements for vehicles including road safety, refrigerant handling, fuel storage and other requirements</p> <p>KA12. operating specifications provided by the OEM for limits, fits and tolerances relating to engine mechanical, hydraulic and fluid systems for the vehicle</p>
<p>B Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. the basic technology used in and functioning of various components and aggregates of the vehicle including:</p> <ul style="list-style-type: none"> • engines and fuel system (diesel, petrol, electrical, gas etc.) • radiator • emission and exhaust system • brake system • clutch assembly • gearbox, drive-train assembly and transmission systems (manual, automatic etc.) • steering system • suspension system • electrical wire harness, lighting, ignition, electronic and air-conditioning systems etc. • electronic active and passive safety, media, comfort and convenience, supplementary restraint systems (SRS), networking and other systems • electronic control unit • tyres and wheels • cooling system • hydraulic and pneumatic system • various lubrication systems

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Carry out service and major repairs in mechanical aggregates & overhauling of a vehicle

	<p>KB2. basic principles of:</p> <ul style="list-style-type: none"> • Ohms Law, voltage, power, current (AC/DC) resistance, magnetism, electromagnetism and electromagnetic induction etc. • vehicle earthing and earthing methods • vehicle engine systems (e.g. types, applications and operation of sensors, actuators, etc.) • types of circuit protection and their use • electrical safety procedures • the operation of warning, charging and starter circuits • symbols, units and terms associated with electric systems and components • battery charging • electrical/electronic control systems • operation of electronic and electric engine systems (including electrical component function, electrical inputs, outputs, voltages and oscilloscope patterns, digital and fiber optics principles) <p>KB3. the tools used to assess and confirm technical faults that cannot be determined through a visual inspection, including use of:</p> <ul style="list-style-type: none"> • organic light emitting displays — anti-lock braking system abs/air bag scan tools, automotive scanners, graphing scanners, modular diagnostic information systems • pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges • pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers • specialty wrenches: alignment wrenches, chain wrenches, locking wrenches, lug wrenches • trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons • measuring equipment: Vernier calipers, micrometer, feeler gauges, multi-metre, flow metre, temp gauge, dial gauge etc. • other tools: hand tools, power tools, lifting and jacking equipment, tensioning equipment, laptops, brake roller tester, chassis dynamometer, suspension activation, security activator etc. • tools for other tasks such as cleaning of vehicles, tools, equipment and workshop <p>KB4. how to select the right materials for the job such as seals, sealants, fittings, gaskets, joints, fasteners etc.</p> <p>KB5. how to carry out routine maintenance including:</p> <ul style="list-style-type: none"> • checking vehicle condition against OEM specifications to identify damage, corrosion, wear and tear, fluid levels, leaks and other problems in serviceability
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ASC/ N 1405

Carry out service and major repairs in mechanical aggregates & overhauling of a vehicle

	<ul style="list-style-type: none"> • make adjustments to settings, alignment, pressures, tension, speeds and levels relevant to: <ul style="list-style-type: none"> - engine and aggregates (including fuel injection pump, ignition, intake and exhaust systems) - steering system - clutch and brake assembly - transmission system (including gearbox, differential, propeller shaft and axles) - other components (including tyres and body fittings) <p>KB6. the various sources of information available for assessing serviceability of the vehicle including:</p> <ul style="list-style-type: none"> • diagnostic displays • visual inspections • test drives • vehicle/equipment manufacturer specifications • standard operating procedures <p>KB7. how to repair and replace engine and its components including overhauling of the aggregates</p> <p>KB8. how to dismantle, assess, repair, clean, condition, replace, adjust, reassemble and test mechanical components for correct operation</p> <p>KB9. the method to correctly tag, seal and package checked engine components and aggregates</p> <p>KB10. how to troubleshoot faults and document the causes in engines and other allied components</p> <p>KB11. how to dispose of replaced components in accordance with safety, health and environmental policies and regulations</p> <p>KB12. how to measure/ inspect the machining or any other repair done from an outside source/ local machining garages on the various aggregates (like machining of the piston, cylinder head, cylinder block in the engine aggregate)</p> <p>KB13. how to carry out the full overhaul of the engines (with support from the other technicians and machine shops from local garages)</p> <p>KB14. precautions to be taken to ensure the following while working (including specific precautions to be taken when working with alternative fuel/ hybrid vehicles):</p> <ul style="list-style-type: none"> • no damage to the vehicle or other vehicles • no damage to vehicle components and systems • no contact with hazardous materials
Skills (S) w.r.t. the Scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to:

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	<p>SA1. create documentation required on the job (including job cards, work sheets, etc.) regarding the basic details of repair , maintenance and service performed on the various aggregates (including engine and other aggregates overhauling)</p> <p>SA2. complete and maintain workplace record son inspection, diagnosis and repair activities</p> <p>SA3. write any additional requirement of work on the vehicle for service, maintenance or repair found during the work done as specified in the job card (e.g. while working on the engine overhauling, if the clutch/ pressure plate is worn off, then convey to the superiors and service advisor)</p> <p>SA4. write in at least one language</p>
	<p>Reading skills</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. read job cards and instructions from service advisor regarding the repair and service of various vehicle aggregates</p> <p>SA6. read various sources of information available for assessing service and repair requirements of vehicle aggregates including service manual and diagnostic and visual displays put up in the workshop</p> <p>SA7. read policies and regulations pertinent to the job, including OEM guidelines, health and safety instructions etc. while working on the vehicle aggregates</p> <p>SA8. read the technical brochures, new service schedules, service bulletins (refresher and new) released by the OEM/ auto components manufacturer related to service and maintenance of various vehicle aggregates</p>
	<p>Oral Communication (Listening and Speaking skills)</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA9. clearly communicate workplace information and ideas with workplace colleagues(verbal & non-verbal)</p> <p>SA10. use terms, names, grades, and other nomenclature pertaining to the automotive trade, tools, specific workshop equipment etc.</p> <p>SA11. communicate with colleagues and customers to handle verbal enquiries, such as clarifying instructions on a job card and responding to requests for information</p> <p>SA12. interact with the customer through service advisor/ supervisor in case any additional repair and service needs to be done on the vehicle aggregates</p> <p>SA13. communicate to the juniors technicians on the changes in technical brochures, new service schedules, service bulletins (refresher and new) released by the OEM/ auto components manufacturer related to service and maintenance of various vehicle aggregates</p>
<p>B. Professional Skills</p>	<p>Decision making</p>

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	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. analyse information and evaluate results to choose the best solution and solve problems</p> <p>SB2. be proactive and creative in responding to workplace problems, changes and challenges</p> <p>SB3. decide on the repair/ replacement of any engine aggregate post the diagnosis (with help from a technical manager in case required)</p> <p>SB4. decide on whether the whole aggregate (gear box or engine overhaul) needs to be overhauled or some components/ parts needs to be changed</p>
	<p>Plan and Organise</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. plan work according to the required schedule and location</p> <p>SB6. plan the assigned aggregate repair work (including the specific engines or other aggregate that needs to be overhauled) on a daily basis and provide estimates of time required for each piece of work (e.g. by evaluating work assigned on a job card and providing time estimates for each service/ repair activity)</p> <p>SB7. organise the workplace and work according to the principles of 5S</p> <p>SB8. Prioritise actions to achieve required outcomes</p> <p>SB9. plan the assigned engine repair work (including the specific engines that needs to be overhauled) and provide estimates of time required for each engine over haul repair</p> <p>SB10. organise the schedule to complete work on the engine aggregate timely in case other aggregate repairs/ maintenance work is also required to be done</p>
	<p>Customer centricity</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB11. interpret the needs of customers by evaluating job cards and talking to Service Advisor and superiors</p> <p>SB12. ensure that customer needs are assessed and satisfactory service is provided</p> <p>SB13. follow up with the Service Advisor on any unfavourable feedback received from customer</p>
	<p>Problem solving</p>
<p>The user/individual on the job needs to know and understand how to:</p> <p>SB17. recognise a workplace problem or a potential problem and take action</p> <p>SB18. determine problems needing priority action</p> <p>SB19. refer problems outside area of responsibility to appropriate person (e.g. unavailability of required spare parts or materials in the workshop)</p> <p>SB20. gather information and provide assistance as required to solve problems</p> <p>SB21. use a range of problem-solving techniques</p> <p>SB22. develop practical responses to common breakdowns in workplace systems and procedures</p>	

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	Analytical thinking
	The user/individual on the job needs to know and understand how to:
	SB23. analyse the complexity of work to determine if they can successfully carry them out and if required, escalate to a superior
	Critical thinking
	The user/individual on the job needs to know and understand how to:
	SB24. analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

NOS Version Control

NOS Code	ASC/ N 1405		
Credits(NSQF)	TBD	Version number	1.0
Industry	Automotive	Drafted on	12/06/13
Industry Sub-sector	Automotive Vehicle Service	Last reviewed on	12/06/13
Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15

National Occupational Standards



Overview

This Occupational Standard describes the knowledge, understanding and skills required of an individual to carry out service and repairs within the electrical and electronic systems of a vehicle. This also includes petrol, diesel, CNG, electrical and hybrid vehicles.

ASC/ N 1406

Carry out service and repairs of electrical and electronic faults in a vehicle

National Occupational Standard	Unit Code	ASC/ N 1406
	Unit Title (Task)	Carry out service and repairs of electrical and electronic faults in a vehicle
	Description	This NOS unit is about an individual carrying out service and repairs within the electrical and electronic systems of a vehicle.
	Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • identify the need for any repairs in the aggregates having any electrical or electronic sub-systems (including electronics within the engines, gear box etc.) • repair electrical and electronic systems fault within the aggregate affecting the overall performance of the vehicle • service any electrical/ electronic part within an aggregate
	Performance Criteria (PC) w.r.t the Scope	
Element	Performance Criteria	
Service and repairs in electrical & electronic aggregates	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand the auto component manufacturer specifications related to the various electrical and electronic components and allied aggregates</p> <p>PC2. follow standard operating procedures for using workshop tools and equipment for repair of electrical/ electronic components in a vehicle</p> <p>PC3. review the job card and understand work to be carried out in the electrical/ electronic aggregates as indicated by the supervisor or service advisor</p> <p>PC4. ensure that the correct spare parts tools and other materials required for service and repair of the electrical/ electronic components have been obtained</p> <p>PC5. repair and overhaul:</p> <ul style="list-style-type: none"> • stability/steering/ suspension systems (including electronic stability systems, vehicle dynamic control, closed loop electronic steering and multi-class Bus systems) • electric over hydraulic systems (including garbage compactors, crane rams, steering control, excavator bucket control, steering rudder control etc.) • engine management systems (including fuel cell technology/hydrogen, on line maintenance and remote diagnostics, common rail diesel direct injection, drive by wire, multi-class Bus systems and closed loop diesel engine management systems) • transmission/driveline systems (including clutches, torque converters, mechanical and automatic transmissions, drive and power take-off shafts and differentials, mechatronic modules and multi-class Bus systems) • braking systems (including ABS, engine brakes, electric retarders, electric trailer brakes, brake by wire and multi-class Bus systems) • safety systems (including fire suppressing, work load detecting, tyre pressure control, speed/load limiting, traction control, seat belt pre-tensioning, roll over protection, object detection, navigation aids, intelligent transport systems, intelligent SRS systems, adaptive cruise control, multi-class Bus 	

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Carry out service and repairs of electrical and electronic faults in a vehicle

	<p>systems, active and passive collision avoidance, infrared vision, lighting and windscreen wipers control)</p> <ul style="list-style-type: none"> • monitoring/protection systems (including display types such as LCD, VFD, CRT, HUD, re-configurable systems, electronic analogue display, on board diagnostics, remote/wireless monitoring systems and multi-class Bus systems) • convenience and entertainment systems (including audio and visual units, compact disks, analogue tapes, radio, speaker types, amplifiers, crossovers, balancers, aerials and multi-class Bus systems) • theft deterrent systems (including remote keyless entry (RKE), immobiliser system design, passive entry systems, two way RKE, fingerprint technologies, rolling codes, transmitter and receiver operation, satellite systems) • electric and hybrid vehicle systems (including battery technology, motor drive systems, motor controllers, air conditioning systems, electronic protection systems and multi-class Bus systems) • climate control systems (including air conditioning, heating, blending systems and multi-class Bus systems) • gearbox, drive-train assembly and transmission systems (manual, automatic etc.) • electrical wire harness, lighting, ignition, electronic and air-conditioning systems etc. • electronic active and passive safety, media, comfort and convenience, supplementary restraint systems (SRS), networking and other systems • electronic control unit • hydraulic and pneumatic system <p>PC6. repair all electrical and electronic faults including direct faults in:</p> <ul style="list-style-type: none"> • input sensors • output actuators • wiring harnesses • computer systems • calibration/adjustment specifications • component specifications • component assembly • component damage • system modifications <p>PC7. repair indirect faults caused on the major mechanical or other aggregates by the influence of electrical and electronic aggregate (e.g. influence of improper working on the ECU might have damaged the charging of the alternator</p> <p>PC8. remove, refit and test electrical components for normal operation following major/ minor body repair activities</p> <p>PC9. dismantle, assess, repair, clean, replace, adjust and reassemble vehicle electric</p>
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Carry out service and repairs of electrical and electronic faults in a vehicle

	<p>and electronic units</p> <p>PC10. ensure all dismantled components (other than the electrical or electronic components) are cleaned and conditioned prior to reassembly</p> <p>PC11. ensure disposal of materials (including scrap of failed parts/ aggregates) in accordance with the organisation’s policies</p> <p>PC12. understand the various precautions to be taken to avoid damage to other components/ aggregates of a vehicle while working on electrical/ electronic aggregates</p> <p>PC13. record all service and repairs carried out and ensure completeness of tasks assigned before releasing vehicle for the next procedure</p> <p>PC14. ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs where necessary</p> <p>PC15. ensure any malfunctions observed in tools and equipment are reported to the concerned persons</p> <p>PC16. request assistance from a senior technician or aggregate specialist when required</p> <p>PC17. inform the relevant persons where repairs are economically or technically infeasible</p> <p>PC18. ensure that trainings organized by the OEM from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)</p>
Knowledge and Understanding (K) w.r.t. the scope	
Element	Knowledge and Understanding
<p>A. Organisational Context (Knowledge of the Company/ Organisation and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. standard operating procedures for servicing, repair and replacement of electrical/ electronic parts (including those related to various mechanical aggregates)</p> <p>KA2. standard operating procedures recommended by the dealership/manufacturer/OEM for using tools and equipment for electrical/ electronic components</p> <p>KA3. safety requirements for equipment within the tolerance limits used for service/ repair of electrical/ electronic components as prescribed by the OEM</p> <p>KA4. identification codes, nomenclature of various electrical/ electronic components and aggregates</p> <p>KA5. standard operating procedures for rectification of errors in information (e.g. rectification of job card, reissue of correct tools and equipment etc.)</p> <p>KA6. documentation requirements for each procedure carried out as part of roles and responsibilities as specified by OEM/ auto component manufacturer</p> <p>KA7. organisational and professional code of ethics and standards of practice</p> <p>KA8. safety, health and environmental policies and regulations for the workplace as well as for automotive trade in general(e.g. safe working practices inside pits/ under vehicles)</p> <p>KA9. regulatory requirements for vehicles including road safety, refrigerant handling,</p>

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	<p>fuel storage and other requirements</p> <p>KA10. operating specifications provided by the OEM for limits, fits and tolerances relating to engine electrical, electronic and hydraulic and fluid systems for the vehicle</p>
<p>B Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. the basic technology used in and functioning of various components and aggregates of the vehicle including:</p> <ul style="list-style-type: none"> • engines and fuel system (diesel, petrol, electrical, gas etc.) • radiator • emission and exhaust system • brake system • clutch assembly • gearbox, drive-train assembly and transmission systems (manual, automatic etc.) • steering system • suspension system • electrical wire harness, lighting, ignition, electronic and air-conditioning systems etc. • electronic active and passive safety, media, comfort and convenience, supplementary restraint systems (SRS), networking and other systems • electronic control unit • tyres and wheels • cooling system • hydraulic and pneumatic system • various lubrication systems <p>KB2. basic principles of:</p> <ul style="list-style-type: none"> • ohms Law, voltage, power, current (AC/DC) resistance, magnetism, electromagnetism and electromagnetic induction etc. • vehicle earthing and earthing methods • vehicle engine systems (e.g. types, applications and operation of sensors, actuators, etc.) • types of circuit protection and their use • electrical safety procedures • the operation of warning, charging and starter circuits • symbols, units and terms associated with electric systems and components • battery charging • electrical/electronic control systems • operation of electronic and electric engine systems (including electrical component function, electrical inputs, outputs, voltages and oscilloscope

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Carry out service and repairs of electrical and electronic faults in a vehicle

	<p>patterns, digital and fiber optics principles)</p> <ul style="list-style-type: none"> • electrical theory and operation covering automotive digital computers, networked vehicles, voltage, current, resistance, power, capacitance, electrostatics, magnetic, inductance, discrete electronic components, logic families, and radio frequency <p>KB3. the tools used to assess and confirm technical faults that cannot be determined through a visual inspection, including use of:</p> <ul style="list-style-type: none"> • organic light emitting displays — anti-lock braking system abs/air bag scan tools, automotive scanners, graphing scanners, modular diagnostic information systems • pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges • pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers • specialty wrenches: alignment wrenches, chain wrenches, locking wrenches, lug wrenches • trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons • measuring equipment: vernier callipers, micrometer, feeler gauges, flow metre, temp gauge, dial gauge, analogue and digital multi-meters, lab oscilloscopes, data scanners, test lights, test LEDs, pulse generators etc. • electrical and electronic testing equipment: volt meters, ammeters, ohmmeters, battery testing equipment, dedicated and computer based diagnostic equipment, oscilloscopes etc. • other tools: hand tools, power tools, lifting and jacking equipment, tensioning equipment, laptops, brake roller tester, chassis dynamometer, suspension activation, security activator etc. • tools for other tasks such as cleaning of vehicles, tools, equipment and workshop <p>KB4. how to modify and repair electric and electronic systems to correct faults including:</p> <ul style="list-style-type: none"> • varying the performance of DC motors to meet changes in operational requirements • varying the performance of alternators to meet changes in operational requirements • changing the electrical sequenced operating order of electric over hydraulic systems • converting vehicle from ground to insulated return • external modification (not within the computer) to a digital computer management system that enhances the system performance(e.g. modification to an electronic engine management system, improving the performance of an ECU controlled engine cooling fan system that
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Carry out service and repairs of electrical and electronic faults in a vehicle

	<p>necessitates changes to relay circuitry)</p> <ul style="list-style-type: none"> • external modification (not within the computer) to a digital computer management system, utilizing electronic circuit design, development, manufacture, trial, evaluation, improvement, and commissioning, that enhances the system performance (e.g. development of an electronic control unit to delay engine crank whilst sounding an alarm warning of impending start of hazardous equipment) • internal modification (within the computer) to a digital computer management system, utilizing electronic circuit design, reprogramming, development, manufacture, trial, evaluation, improvement, and commissioning that enhances the system performance (e.g. rectifying an original internal computer design/operating deficiency, disabling a function no longer required by customer etc.) <p>KB5. the various sources of information available for assessing serviceability of the vehicle including:</p> <ul style="list-style-type: none"> • diagnostic displays • visual inspections • vehicle/equipment manufacturer specifications • standard operating procedures <p>KB6. how to dismantle, assess, repair, clean, condition, replace, adjust and reassemble and test electronic and electric components for correct operation</p> <p>KB7. the functioning of the vehicle battery and its schedule for change of water (as indicated by the battery manufacturer) and ensure that overcharging of the battery is avoided</p> <p>KB8. how to dispose off replaced failed electrical/ electronic components in accordance with safety, health and environmental policies and regulations</p> <p>KB9. precautions to be taken to ensure the following while working (including specific precautions to be taken when working with alternative fuel/ hybrid vehicles):</p> <ul style="list-style-type: none"> • no damage to the electrical / other advanced systems (in case of hybrid/ electrical vehicles) • no damage to the vehicle on which work is being done along with other vehicles parked besides • no damage to vehicle component sub-assemblies and other systems • no contact with hazardous materials
Skills (S) w.r.t. the Scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing Skills
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. create documentation required on the job (including job cards, work sheets, etc.) regarding the basic details of repair and maintenance done on the</p>

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	<p>electrical/ electronic components</p> <p>SA2. record all diagnostic performed on the electrical/ electronic components in vehicle</p> <p>SA3. write in at least one language</p> <p>SA4. write any additional requirement of work on the vehicle other than the one mentioned in the job card</p>
	<p>Reading skills</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. read job cards and instructions from supervisors and the service advisor related to the work on the electrical/ electronic faults in a vehicle</p> <p>SA6. read various sources of information available regarding the service and repair requirements of the electrical/ electronic sub-systems of the vehicle including service manual and diagnostic and visual displays put up in the workshop</p> <p>SA7. read policies and regulations pertinent to the job, including OEM guidelines, health and safety instructions etc. related to work on the electrical/ electronic components and equipment</p>
	<p>Oral Communication (Listening and Speaking skills)</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA8. clearly communicate workplace information and ideas with colleagues (verbal & non-verbal)</p> <p>SA9. use terms, names, grades and other nomenclature pertaining to the automotive trade, tools, specific workshop equipment etc.</p> <p>SA10. communicate with colleagues and customers to handle verbal enquiries, such as clarifying instructions and responding to requests for information</p> <p>SA11. interact with the customer through service advisor/ supervisor in case any additional work needs to be done related to the electrical/ electronic components which may not have been indicated in the job card</p>
B. Professional Skills	Decision making
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. analyse information and evaluate results to choose the best solution and solve problems</p> <p>SB2. decide on whether to repair or replace any electrical/ electronic aggregate post the diagnosis</p> <p>SB3. judge when to ask for help from a colleague (Eq. regarding BS-3engine, taking help from an engine specialist to solve the electrical issues related to the engine electronics)</p>
	Plan and Organise
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB4. plan work according to the required schedule and location</p> <p>SB5. organise the schedule to complete work on the vehicle timely in case other aggregate repairs/ maintenance work is also required to be done</p>

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Carry out service and repairs of electrical and electronic faults in a vehicle

	Customer centricity
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB6. interpret the needs of customers by evaluating job cards and talking to service advisor and superiors</p> <p>SB7. ensure that the service provided is of the highest order to ensure higher levels of customer satisfaction</p> <p>SB8. ensure timely communication of the additional requirements in a vehicle related to the electrical/ electronic components (including battery, headlight bulb change etc.) to the service advisor who in turn communicates it to the customer</p> <p>SB9. follow up with the Service Advisor on any unfavourable feedback received from customer</p>
	Problem solving
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. recognise a workplace problem or a potential problem and take action (e.g. open wires while getting the battery charged)</p> <p>SB2. determine problems needing priority action (e.g. any short circuit in any of the electrical circuit which may impact the performance of other aggregates esp. in a BS-3/ BS-4 vehicle which is entirely driven by electronic circuits)</p> <p>SB3. refer problems outside area of responsibility to appropriate person (e.g. some defect in the ECU itself which would require special diagnosis by the senior technician/ supervisor)</p> <p>SB4. gather information while working on electrical/ electronic aggregates and take appropriate action by consulting superiors (if needed)</p>
	Analytical thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. assess repairs required based on technical faults identified as specified in the job card/ supervisor notes</p> <p>SB6. refer complex problems (outside the current scope of work) to a superior in case any additional work requirement comes up</p>
	Critical thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB7. analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently</p> <p>SB8. use the diagnosis results to take an appropriate decision on repair/ replacement of an electrical/ electronic aggregates</p>

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Carry out service and repairs of electrical and electronic faults in a vehicle

NOS Version Control

NOS Code	ASC/ N 1406		
Credits(NSQF)	TBD	Version number	1.0
Industry	Automotive	Drafted on	12/06/13
Industry Sub-sector	Automotive Vehicle Service	Last reviewed on	12/06/13
Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15



ASC/ N 0001

Plan and organise work to meet expected outcomes

National Occupational Standards



Overview

This unit is about planning and organising an individual's work in order to complete it to the required standards, on time and within budget in terms of cost and material.

ASC/ N 0001

Plan and organise work to meet expected outcomes

National Occupational Standard

Unit Code	ASC/ N 0001
Unit Title (Task)	Plan and organise work to meet expected outcomes
Description	This NOS unit is about planning and organising an individual's work in order to complete it to the required standards on time.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • work requirements including various activities, deliverables or work output required in the given time, maintain set quality standards • appropriate use of resources (both material / equipment's and manpower)
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Work requirements including various activities within the given time and set quality standards	To be competent, the user/individual on the job must be able to: <p>PC1. keep immediate work area clean and tidy</p> <p>PC2. treat confidential information as per the organisation's guidelines</p> <p>PC3. work in line with organisation's policies and procedures</p> <p>PC4. work within the limits of job role</p> <p>PC5. obtain guidance from appropriate people, where necessary</p> <p>PC6. ensure work meets the agreed requirements</p>
Appropriate use of resources	PC7. establish and agree on work requirements with appropriate people
	PC8. manage time, materials and cost effectively
	PC9. use resources in a responsible manner
Knowledge and Understanding (K) w.r.t. the scope	
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/Organisation and its processes)	The user/individual on the job needs to know and understand: <p>KA1. the organisation's policies, procedures and priorities for area of work, role and responsibilities in carrying out that work</p> <p>KA2. the limits of responsibilities and when to involve others</p> <p>KA3. specific work requirements and who these must be agreed with</p> <p>KA4. the importance of having a tidy work area and how to do this</p> <p>KA5. how to prioritize workload according to urgency and importance and the benefits of this</p> <p>KA6. the organisation's policies and procedures for dealing with confidential information and the importance of complying with these</p> <p>KA7. the purpose of keeping others updated with the progress of work</p> <p>KA8. who to obtain guidance from and the typical circumstances when this may be required</p>

ASC/ N 0001

Plan and organise work to meet expected outcomes

	KA9. the purpose and value of being flexible and adapting work plans to reflect change	
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. how to complete tasks accurately by following standard procedures KB2. technical resources needed for work and how to obtain and use these	
Skills (S) w.r.t. the scope		
Element	Skills	
A. Core Skills/ Generic Skills	Writing Skills	
	The user/individual on the job needs to know and understand how to: SA1. write in at least one language	
	Reading Skills	
	The user/individual on the job needs to know and understand how to: SA2. read instructions, guidelines/procedures	
	Oral Communication (Listening and Speaking skills)	
	The user/individual on the job needs to know and understand how to: SA3. ask for clarification and advice from appropriate persons SA4. communicate orally with colleagues	
	B. Professional Skills	Decision Making
		The user/individual on the job needs to know and understand how to: SB1. make a decision on a suitable course of action appropriate for accurately completing the task within resources
		Plan and Organise
		The user/individual on the job needs to know and understand how to: SB2. agree objectives and work requirements SB3. plan and organise work to achieve targets and deadlines
Customer Centricity		
The user/individual on the job needs to know and understand how to: SB4. deliver consistent and reliable service to customers SB5. check own work and ensure it meets customer requirements		
Problem Solving		
The user/individual on the job needs to know and understand how to: SB6. refer anomalies to the concerned persons		
Analytical Thinking		
The user/individual on the job needs to know and understand how to:		

ASC/ N 0001

Plan and organise work to meet expected outcomes

	SB7. analyse problems and identify work –around taking help from concerned persons where required
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB8. apply own judgment to identify solutions in different situations



ASC/ N 0001

Plan and organise work to meet expected outcomes

NOS Version Control

NOS Code	ASC/ N 0001		
Credits(NSQF)	TBD	Version number	1.0
Industry	Automotive	Drafted on	10/06/13
Industry Sub-sector	Automotive Vehicle Service	Last reviewed on	10/06/13
Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15

National Occupational Standards



Overview

This unit is about working effectively with colleagues, either in own work group or in other work groups within organisation.

ASC/ N 002

Work effectively in a team

National Occupational Standard	Unit Code	ASC/ N 002
	Unit Title (Task)	Work effectively in a team
	Description	This NOS unit is about working effectively within a team, either in individual's own work group or in other work groups outside the organisation.
	Scope	This unit/task covers the following: Colleagues: <ul style="list-style-type: none"> Interact & communicate effectively with colleagues including member in the own group as well as other groups
	Performance Criteria (PC) w.r.t. the Scope	
	Element	Performance Criteria
	Interact & communicate effectively with colleagues including member in the own group as well as other groups	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> PC1. maintain clear communication with colleagues (by all means including face-to-face, telephonic as well as written) PC2. work with colleagues to integrate work PC3. pass on information to colleagues in line with organisational requirements both through verbal as well as non-verbal means PC4. work in ways that show respect for colleagues PC5. carry out commitments made to colleagues PC6. let colleagues know in good time if cannot carry out commitments, explaining the reasons PC7. identify problems in working with colleagues and take the initiative to solve these problems PC8. follow the organisation's policies and procedures for working with colleagues
	Knowledge and Understanding (K) w.r.t. the scope	
	Element	Knowledge and Understanding
	A. Organisational Context (Knowledge of the Company/Organisation and its processes)	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> KA1. the organisation's policies and procedures for working with colleagues, role and responsibilities in relation to this KA2. the importance of effective communication and establishing good working relationships with colleagues KA3. different methods of communication and the circumstances in which it is appropriate to use these KA4. the importance of creating an environment of trust and mutual respect KA5. the implications of own work on the work and schedule of others

ASC/ N 002

Work effectively in a team

B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. different types of information that colleagues might need and the importance of providing this information when it is required</p> <p>KB2. the importance of helping colleagues with problems, in order to meet quality and time standards as a team</p>
Skills (S)w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing Skills
	The user/individual on the job needs to know and understand how to:
	SA1. complete written work with attention to detail
	Reading Skills
	The user/individual on the job needs to know and understand how to:
	SA2. read instructions, guidelines/procedures
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:
	SA3. listen effectively and orally communicate information
	SA4. ask for clarification and advice from the concerned person
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to:
	SB1. make decisions on a suitable course of action or response keeping in view resource utilization while meeting commitments
	Plan and Organise
	The user/individual on the job needs to know and understand how to:
	SB2. plan and organise work to achieve targets and deadlines
	Customer Centricity
	The user/individual on the job needs to know and understand how to:
	SB3. check that the work meets customer requirements
	SB4. deliver consistent and reliable service to customers
Problem Solving	
The user/individual on the job needs to know and understand how to:	
SB5. apply problem solving approaches in different situations	
Critical Thinking	
The user/individual on the job needs to know and understand how to:	
SB6. apply balanced judgements to different situations	

ASC/ N 0002

Work effectively in a team

NOS Version Control

NOS Code	ASC/ N 0002		
Credits(NSQF)	TBD	Version number	1.0
Industry	Automotive	Drafted on	10/06/13
Industry Sub-sector	Automotive Vehicle Service	Last reviewed on	10/06/13
Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15

ASC/ N 0003

Maintain a healthy, safe and secure working environment

National Occupational Standards



Overview

This unit is about monitoring work place practices and making sure they meet requirements for health, safety, security and environmental concerns.

ASC/ N 0003

Maintain a healthy, safe and secure working environment

National Occupational Standard

Unit Code	ASC/ N 0003
Unit Title (Task)	Maintain a healthy, safe and secure working environment
Description	This NOS unit is about monitoring the working environment and making sure it meets requirements for health, safety and security.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> Resources (both material & manpower) needed to maintain a safe working environment as per the prevalent norms & government policies including emergency procedures for illness, accidents, fires or any other reason which may involve evacuation of the premises
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Resources needed to maintain a safe, secure working environment	To be competent, the user/individual on the job must be able to: <p>PC1. comply with organisation’s current health, safety and security policies and procedures</p> <p>PC2. report any identified breaches in health, safety, and security policies and procedures to the designated person</p> <p>PC3. Coordinate with other resources at the workplace to achieve the healthy, safe and secure environment for all incorporating all government norms esp. for emergency situations like fires, earthquakes etc.</p> <p>PC4. identify and correct any hazards like illness, accidents, fires or any other natural calamity safely and within the limits of individual’s authority</p> <p>PC5. report any hazards outside the individual’s authority to the relevant person in line with organisational procedures and warn other people who may be affected</p> <p>PC6. follow organisation’s emergency procedures for accidents, fires or any other natural calamity</p> <p>PC7. identify and recommend opportunities for improving health, safety, and security to the designated person</p> <p>PC8. complete all health and safety records are updates and procedures well defined</p>
Knowledge and Understanding (K) w.r.t. the scope	
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/Organisation and its processes)	The user/individual on the job needs to know and understand: <p>KA1. legislative requirements and organisation’s procedures for health, safety and security and individual’s role and responsibilities in relation to this</p> <p>KA2. what is meant by a hazard, including the different types of health and safety hazards that can be found in the workplace</p>

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Maintain a healthy, safe and secure working environment

	<p>KA3. how and when to report hazards</p> <p>KA4. the limits of responsibility for dealing with hazards</p> <p>KA5. the organisation’s emergency procedures for different emergency situations and the importance of following these</p> <p>KA6. the importance of maintaining high standards of health, safety and security</p> <p>KA7. implications that any non-compliance with health, safety and security may have on individuals and the organisation</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. different types of breaches in health, safety and security and how and when to report these</p> <p>KB2. evacuation procedures for workers and visitors</p> <p>KB3. how to summon medical assistance and the emergency services, where necessary</p> <p>KB4. how to use the health, safety and accident reporting Procedures and the importance of these</p>
Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing Skills
	The user/individual on the job needs to know and understand how to:
	SA1. complete accurate, well written work with attention to detail
	Reading Skills
	The user/individual on the job needs to know and understand how to:
	SA2. read instructions, guidelines/procedures/rules
B. Professional Skills	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:
	SA3. listen to and orally communicate information with all concerned
	Decision Making
	The user/individual on the job needs to know and understand how to:
	SB1. make decisions on a suitable course of action or response
B. Professional Skills	Plan and Organise
	The user/individual on the job needs to know and understand how to:
	SB2. plan and organise work to achieve targets and deadlines
	Customer Centricity
	The user/individual on the job needs to know and understand how to:
	SB3. build and maintain positive and effective relationships with colleagues and customers
B. Professional Skills	Problem Solving

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Maintain a healthy, safe and secure working environment

	The user/individual on the job needs to know and understand how to: SB4. apply problem solving approaches in different situations
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB5. analyse data and activities
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB6. apply balanced judgments to different situations



ASC/ N 0003

Maintain a healthy, safe and secure working environment

NOS Version Control

NOS Code	ASC/ N 0003		
Credits(NSQF)	TBD	Version number	1.0
Industry	Automotive	Drafted on	10/06/13
Industry Sub-sector	Automotive Vehicle Service	Last reviewed on	10/06/13
Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15

Qualification Pack for Auto Service Technician Level 5

Criteria for assessment of Trainees
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JOB ROLE	Auto Service Technician L5
Qualification Pack	ASC/Q 1403
No. Of NOS	3 Role specific ,3 generic

NOS Title/ NOS Elements	NOS & Performance Criterion Description	Marks allocation		
		Theory	Viva	Practical
ASC/N 1404	Carry out diagnosis of vehicle for routine repairs requirements			
Carry the diagnosis of the vehicle identify the root cause of the trouble	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand the auto component manufacturer specifications related to the various components/ aggregates in the vehicle</p> <p>PC2. understand the functioning of each system, component and aggregate (including both mechanical and electrical aggregates) of a vehicle</p> <p>PC3. follow standard operating procedures for using workshop tools and equipment for fault diagnosis or troubleshoot problem in a vehicle</p> <p>PC4. obtain sufficient information from customer/ service advisor to make an assessment of service and repair needs of the vehicle</p> <p>PC5. review the job card and understand customer complaints</p> <p>PC6. follow standard operating procedure set out for diagnosing faults (in case of complex faults take the assistance of the senior diagnosis technician/ technical manager)</p> <p>PC7. use checklists and standard OEM operating procedures to understand if the fault is because of improper servicing, or low levels of oils, coolants, grease etc. or poor quality oil/ air filtered.</p> <p>PC8. conduct inspection of the engine and aggregates to diagnose need for repairs or adjustment in various engine aggregates</p> <p>PC9. conduct inspection of mechanical, electrical and electronic systems to diagnose need for</p>	30	50	

Qualification Pack for Auto Service Technician Level 5

	<p>repairs, adjustment or part replacement</p> <p>PC10. dismantle and reassemble aggregates of a vehicle (with help from other technicians and helper)</p> <p>PC11. conduct routine and non-routine inspections for pre-purchase assessment, vehicle fitness assessment, emission testing, safety assessment, post-accident diagnostic assessment, post-repair serviceability assessment and manufacturer recall assessment</p> <p>PC12. compare results of diagnostic inspections and tests against vehicle specifications and any regulatory requirements</p> <p>PC13. finalise the list all the service, repair and replacement requirements of the vehicle post the diagnosis in consultation with service advisor/ supervisor</p> <p>PC14. follow standard operating procedures for using workshop tools and equipment</p> <p>PC15. ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs where necessary</p> <p>PC16. ensure any malfunctions observed in tools and equipment are reported to the concerned persons</p> <p>PC17. understand the various precautions to be taken to avoid damage to the vehicle and its components while working on diagnosis or troubleshooting the vehicle for any faults</p> <p>PC18. request assistance from a superior when required(esp. in cases where the complex diagnosis needs to be done and is out of scope)</p> <p>PC19. assist junior technicians in their work</p> <p>PC20. ensure that trainings organized by the OEM from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)</p> <p>PC21. drive a relevant 2/3/4 wheeler vehicle which is an important part of the diagnosis of the type of vehicle that is dealt by the relevant OEM</p>		30	50
	subtotal		60	100

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	<p>PC7. dismantle, assess, repair, clean, replace, adjust and reassemble the vehicle mechanical aggregates/ components</p> <p>PC8. identify and change vehicle components requiring change due to continuous wear and tear(including oil and air filters in the engine aggregate)</p> <p>PC9. ensure all dismantled components and aggregates are cleaned and conditioned prior to reassembly</p> <p>PC10. carry out service, repair and overhauling activities safely to ensure:</p> <ul style="list-style-type: none"> • no damage to the vehicle or other vehicles • no damage to vehicle components and systems • no contact with hazardous materials <p>PC11. ensure disposal of materials (including waste oil, scrap of failed parts/ aggregates)in accordance with the organisation’s policies</p> <p>PC12. ensure, in consultation with the service advisor, approval of the customer on all repairs carried out</p> <p>PC13. record all service and repairs carried out and ensure completeness of tasks assigned before releasing vehicle for the next procedure</p> <p>PC14. ensure any other repair requirements observed in the other components/ aggregates systems (like engine, gear box etc.) while repairing/ overhauling of braking systems are communicated to service advisor</p> <p>PC15. follow standard operating procedures for using workshop tools and equipment</p> <p>PC16. ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs where necessary</p> <p>PC17. ensure any malfunctions observed in tools and equipment are reported to the concerned persons</p> <p>PC18. inform the relevant persons where repairs/ overhauling of the aggregates are economically or technically infeasible</p> <p>PC19. request assistance from a senior technician when required</p> <p>PC20. assist junior technicians in their work</p> <p>PC21. ensure that trainings organized by the OEM</p>		<p>10</p> <p>10</p>	<p>30</p> <p>---</p>
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	from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)			
	subtotal		60	110
ASC/N 1406	Carry out service and repairs of electrical and electronic faults in a vehicle			
Service and repairs in electrical & electronic aggregates	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand the auto component manufacturer specifications related to the various electrical and electronic components and allied aggregates</p> <p>PC2. follow standard operating procedures for using workshop tools and equipment for repair of electrical/ electronic components in a vehicle</p> <p>PC3. review the job card and understand work to be carried out in the electrical/ electronic aggregates as indicated by the supervisor or service advisor</p> <p>PC4. ensure that the correct spare parts tools and other materials required for service and repair of the electrical/ electronic components have been obtained</p> <p>PC5. repair and overhaul:</p> <ul style="list-style-type: none"> • stability/steering/ suspension systems (including electronic stability systems, vehicle dynamic control, closed loop electronic steering and multi-class Bus systems) • electric over hydraulic systems (including garbage compactors, crane rams, steering control, excavator bucket control, steering rudder control etc.) • engine management systems (including fuel cell technology/hydrogen, on line maintenance and remote diagnostics, common rail diesel direct injection, drive by wire, multi-class Bus systems and closed loop diesel engine management systems) 		10	10
			15	30

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	<ul style="list-style-type: none"> • transmission/driveline systems (including clutches, torque converters, mechanical and automatic transmissions, drive and power take-off shafts and differentials, mechatronic modules and multi-class Bus systems) • braking systems (including ABS, engine brakes, electric retarders, electric trailer brakes, brake by wire and multi-class Bus systems) • safety systems (including fire suppressing, work load detecting, tyre pressure control, speed/load limiting, traction control, seat belt pre-tensioning, roll over protection, object detection, navigation aids, intelligent transport systems, intelligent SRS systems, adaptive cruise control, multi-class Bus systems, active and passive collision avoidance, infrared vision, lighting and windscreen wipers control) • monitoring/protection systems (including display types such as LCD, VFD, CRT, HUD, re-configurable systems, electronic analogue display, on board diagnostics, remote/wireless monitoring systems and multi-class Bus systems) • convenience and entertainment systems (including audio and visual units, compact disks, analogue tapes, radio, speaker types, amplifiers, crossovers, balancers, aerials and multi-class Bus systems) • theft deterrent systems (including remote keyless entry (RKE), immobiliser system design, passive entry systems, two way RKE, fingerprint technologies, rolling codes, transmitter and receiver operation, satellite systems) • electric and hybrid vehicle systems (including battery technology, motor drive systems, motor controllers, air 			
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	<p>than the electrical or electronic components) are cleaned and conditioned prior to reassembly</p> <p>PC11. ensure disposal of materials (including scrap of failed parts/ aggregates) in accordance with the organisation's policies</p> <p>PC12. understand the various precautions to be taken to avoid damage to other components/ aggregates of a vehicle while working on electrical/ electronic aggregates</p> <p>PC13. record all service and repairs carried out and ensure completeness of tasks assigned before releasing vehicle for the next procedure</p> <p>PC14. ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs where necessary</p> <p>PC15. ensure any malfunctions observed in tools and equipment are reported to the concerned persons</p> <p>PC16. request assistance from a senior technician or aggregate specialist when required</p> <p>PC17. inform the relevant persons where repairs are economically or technically infeasible</p> <p>PC18. ensure that trainings organized by the OEM from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)</p>			
	Subtotal		55	110
ASC/N 0001	Plan & organize work to meet expected outcome		Viva	Practical
Work requirements including various activities within the given time and set quality standards	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. keep immediate work area clean and tidy</p> <p>PC2. treat confidential information as per the organisation's guidelines</p> <p>PC3. work in line with organisation's policies and procedures</p> <p>PC4. work within the limits of job role</p> <p>PC5. obtain guidance from appropriate people, where necessary</p> <p>PC6. ensure work meets the agreed requirements</p>		15	30
Appropriate use of resources	PC7. establish and agree on work requirements			

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	with appropriate people PC8. manage time, materials and cost effectively PC9. use resources in a responsible manner		10	20
	Subtotal		25	50
ASC/N 0002	Work effectively in a team	Theory	Viva	Practical
Interact & communicate effectively with colleagues including member in the own group as well as other groups	To be competent, the user/individual on the job must be able to: PC1. maintain clear communication with colleagues (by all means including face-to-face, telephonic as well as written) PC2. work with colleagues to integrate work PC3. pass on information to colleagues in line with organisational requirements both through verbal as well as non-verbal means PC4. work in ways that show respect for colleagues PC5. carry out commitments made to colleagues PC6. let colleagues know in good time if cannot carry out commitments, explaining the reasons PC7. identify problems in working with colleagues and take the initiative to solve these problems PC8. follow the organisation's policies and procedures for working with colleagues		20	50
	Subtotal		20	50
ASC/N 0003	Maintain a healthy, safe and secure working environment	Theory	Viva	Practical
Resources needed to maintain a safe, secure working environment	To be competent, the user/individual on the job must be able to: PC1. comply with 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. Coordinate with other resources at the workplace to achieve the healthy, safe and secure environment for all incorporating all government norms esp. for emergency situations like fires, earthquakes etc. PC4. identify and correct any hazards like illness, accidents, fires or any other natural calamity safely and within the limits of individual's authority PC5. report any hazards outside the individual's		20	40

Qualification Pack for Auto Service Technician Level 5

	<p>authority to the relevant person in line with organisational procedures and warn other people who may be affected</p> <p>PC6. follow organisation’s emergency procedures for accidents, fires or any other natural calamity</p> <p>PC7. identify and recommend opportunities for improving health, safety, and security to the designated person</p> <p>PC8. complete all health and safety records are updates and procedures well defined</p>			
	Subtotal		20	40
	Total	360	240	460