

Automotive Skills Development Council



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 4

SECTOR: AUTOMOTIVE

SUB-SECTOR: AUTOMOTIVE VEHICLE SERVICE

OCCUPATION: TECHNICAL SERVICE & REPAIR

JOB ROLE: AUTO SERVICE TECHNICIAN LEVEL 4

REFERENCE ID: ASC/ Q 1402

ALIGNED TO: NCO-2004/7231.40

Auto Service Technician Level 4 is also known as Mechanic, Technician, Automobile Mechanic, Repair and Maintenance Technician.

Brief Job Description: An Auto Service Technician Level 4 is responsible for the repair and routine servicing& maintenance (including electrical and mechanical aggregates) of vehicles.

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 as well. 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 help in understanding the fault diagnosis in the vehicle. The individual must know how to drive a vehicle to practically test drive and identify any additional repair or service requirements in the vehicle or any of components or aggregates.





Job Details

Qualifications Pack Code	ASC/ Q 1402		
Job Role	Auto Service Technician Level 4		
Credits(NSQF)	TBD	Version number	1.0
Industry	Automotive	Drafted on	10/06/13
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
NSQC Clearance on	20/07/15		

Job Role	Auto Service Technician Level 4	
Role Description	Carry out minor repairs and routine service and maintenance of vehicles	
NSQF level	4	
Minimum Educational Qualifications	Class X	
Maximum Educational Qualifications	ITI or Diploma in Mechanical/ Electrical /Automobile Engineering	
Minimum Job Entry Age	 1 ASDC recommends that candidates should seek full employment not before attaining an age of 18 years. 2 However, as per Factories Act 1948 and Shops & Establishment Act 1953: No one can be employed before attaining the age of 14 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. 	
Training (Suggested but not mandatory)	 On the job training: Desirable for ASDC Auto Service Technician Level 4 Certificate or Diploma in Automotive Repair Compulsory for all other qualifications 	
Experience	 1-2years if ASDC Auto Service Technician Level 4 Certificate or Diploma in Automotive Repair 3-5 years for other qualifications 	
Occupational Standards (OS)	Compulsory: 1. ASC/N 1402:Assist in performing diagnosis of vehicle for repair requirements	



Qualifications Pack For Auto Service Technician Level 4



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	2. ASC/N 1403:Carry out routine service and minor repairs of	
	mechanical& electrical aggregates	
	3. ASC/N 0001:Plan and organise work to meet expected	
	<u>outcomes</u>	
	4. ASC/N 0002:Work effectively in a team	
	5. ASC/N 0003:Maintain a healthy, safe and secure working	
	<u>environment</u>	
	Optional: N.A.	
Performance Criteria	As described in the relevant NOS units	







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 organization.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational 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 organization 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 a 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









Assist in performing diagnosis of vehicle for repair requirements

National Occupational Standards



Overview

This Occupational Standard describes the knowledge, understanding and skills required of an individual to assist in diagnosis of faults and troubleshooting 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).









Assist in performing diagnosis of vehicle for repair requirements

Unit Code	ASC/ N 1402			
Unit Title (Task)	Assist in performing diagnosis of vehicle for repair requirements			
Description	This NOS unit is about assisting in troubleshooting problems and fault diagnosis of the vehicle (including both mechanical and electrical aggregates)			
Scope	 This unit/task covers the following: assist the senior technician in identifying & diagnosis of the operational fault responsible for the root cause of the vehicle trouble assist in taking necessary action post the root cause analysis to repair the vehicle 			
Performance Criteria (P	Performance Criteria (PC) w.r.t. the Scope			
Element	Performance Criteria			
Assist in the diagnosis of the root cause of the vehicle	to be competent, the user/individual on the job must be able to: PC1 understand the auto component manufacturer specifications related to the			
cause of the vehicle trouble	 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. conduct test drives to assist the Senior Technician in finding the fault basis the performance of the vehicle during the test drive PC5. review the job card and understand customer complaints PC6. follow standard operating procedure set out for diagnosing faults under the supervision of a Senior Technician PC7. follow instructions of seniors for specific tasks related to diagnosing faults in the various sub-assemblies and aggregates in a vehicle PC8. 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 filters etc. PC9. dismantle and assemble aggregates 			
	 PC10. ensure any malfunctions observed in tools and equipment are reported to the concerned persons PC11. ensure any malfunctions or repair requirements observed in vehicles (and beyond own scope of work) are reported to the concerned person PC12. 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 PC13. ensure safe movement and parking of the vehicle in the workshop especially in case some aggregate to be diagnosed had been disassembled PC14. 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) PC15. 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 			









Assist in performing diagnosis of vehicle for repair requirements

Knowledge and Understanding(K) w.r.t. the scope		
Element	Knowledge and Understanding	
A. Organisational Context	The user/individual on the job needs to know and understand:	
(Knowledge of the Company/ Organisation and its processes)	 KA1. standard operating procedures of the Organisation/ Dealership for inspection and diagnosis of faults in a vehicle as prescribed by the OEM/ Components Manufacturer KA2. standard operating procedures recommended by the Dealership/ Suppliers/OEM for using tools and equipment for diagnosis or troubleshooting of various aggregates KA3. standard operating procedures for rectification of errors in information (e.g. rectification of job card, reissue of correct tools and equipment etc. during the diagnosis) KA4. safety requirements for equipment and components during the diagnosis or troubleshooting the various aggregates for root cause analysis of the fault KA5. 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 KA6. organisational and professional code of ethics and standards of practice KA7. 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) 	
B. Technical Knowledge	 The user/individual on the job needs to know and understand: KB1. the basic technology used in and functioning of various components and aggregates of the vehicle including: engines and fuel system (diesel, petrol, electrical, gas, hybrid etc.) cooling system air supply systems emission and exhaust system ignition systems clutch assembly clutch operating system gearbox (manual and automatic) 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 	



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ASC/ N 1402	Assist in performing diagnosis of vehicle for repair requirements
	 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 and other systems electronic control unit hydraulic and pneumatic system various lubrication systems KB2. the tools used to assess and confirm technical faults that cannot be determined through a visual inspection, including use of: pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges measuring equipment: vernier callipers, micrometer, feeler gauges, multimetre, flow metre, temp gauge, dial gauge etc. electrical and electronic testing equipment: volt meters, ammeters, ohmmeters, battery testing equipment, dedicated and computer based diagnostic displays visual inspections test drives vehicle/equipment manufacturer specifications standard operating procedures for diagnosis KB4. typical symptoms of common technical faults in a vehicle KB5. the various and tolerance limits of various components across the mechanical/ electrical agregates (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.)
Skills (S) w.r.t. the sco	pe
Element	Skills
A. Core Skills/ Generic Skills	Writing skills The user/ individual on the job needs to know and understand how to:
	 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 SA2. complete and maintain workplace records on inspection, diagnosis and repair



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ASC/ N 1402	Assist in performing diagnosis of vehicle for repair requirements
	 activities SA3. 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 superiors SA4. write in at least one language Reading skills
	The user/individual on the job needs to know and understand how to:
	 SA5. read and interpret workplace related documentation including job cards, safety instructions, OEM guidelines etc. from senior technicians, supervisors and service advisor SA6. read various sources of information available for vehicle diagnosis including service manual and diagnostic and visual displays put up in the
	workshop SA7. read policies and regulations pertinent to the job, including OEM guidelines, health and safety instructions etc.
	Oral Communication (Listening and Speaking skills)
	 The user/individual on the job needs to know and understand how to: SA8. clearly communicate workplace information and ideas with colleagues (verbal and non-verbal) SA9. use terms, names, grades, and other nomenclature pertaining to the Automotive trade, tools, specific workshop equipment etc. SA10. communicate with colleagues and customers 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 SA11. communicate to the supervisor and service advisor, the results of the test performed and appropriate values to find the root case of the problem (e.g. in case of High Engine Oil Consumption (HEOC) issue, post the dismantled engine convey the appropriate condition of piston ring, crank shaft and cylinder block etc.)
B. Professional Skills	Decision making
	 The user/individual on the job needs to know and understand how to: SB1. analyse information and evaluate results to choose the best solution and solve problems 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 in case required) SB3. judge when to ask for help from a superior Plan and Organise The user/individual on the job needs to know and understand how to:
	SB4. plan work according to the required schedule and location



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ASC/ N 1402	Assist in performing diagnosis of vehicle for repair requirements
	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.
	Customer centricity
	The user/individual on the job needs to know and understand how to:
	SB6. interpret the needs of customers by understanding the key issue plaguing the poor performance of the vehicle and doing a proper diagnosis consulting the Service Advisor, supervisor and senior technicians to minimise the repeat complains
	SB7. ensure that the service provided is of the highest order to ensure higher levels of customer satisfaction
	SB8. follow up with the Service Advisor on any unfavourable feedback received from customer on the complaints reported on the vehicle
	Problem solving
	The user/individual on the job needs to know and understand how to:
	SB9. 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)
	SB10. determine problems needing priority action while diagnosis of the vehicle SB11. refer problems outside area of responsibility to appropriate person
	Analytical thinking
	The user/individual on the job needs to know and understand how to:
	SB12. analyse the complexity of work to determine if it can be successfully carried out (e.g. refer a vehicle to a Superior or specialist in case of diagnosis for any critical fault is required)
	Critical thinking
	The user/individual on the job needs to know and understand how to:
	SB13. analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
	SB14. 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/ aggregate specialist/ service advisor









Assist in performing diagnosis of vehicle for repair requirements

NOS Version Control

NOS Code	ASC/ N 1402		
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











3 Carry out routine service and minor repairs of mechanical and electrical aggregates

National Occupational Standards

Overview

This Occupational Standard describes the knowledge, understanding and skills required of an Automotive Service Technician to carry out routine service and repairs (including electrical and mechanical aggregates) of a vehicle, including 2-wheelers, 3-wheelers and 4-wheelers (including passenger vehicles and commercial vehicles). This includes diesel, petrol, CNG, electrical and hybrid vehicles.









Carry out routine service and minor repairs of mechanical and electrical aggregates

Unit Code	ASC/ N 1403
Unit Title (Task)	Carry out routine service and minor repairs of mechanical and electrical aggregates
Description	This NOS unit is about an Automotive Service Technician carrying out service, repairs and maintenance activities of various aggregates (including electrical and mechanical aggregates).
Scope	 This unit/task covers the following: carry out routine and schedule servicing of various aggregates in a vehicle (including free and paid service) carry out other maintenance activities in a vehicle which are not a part of schedule maintenance (e.g. oil, lubricant, coolant change and greasing) carry out minor service and repair in a vehicle (including mechanical and electrical aggregates)
Performance Criteria (P	PC) w.r.t. the Scope
Element Carry out routine service and minor repairs of mechanical & electrical aggregates	 Performance Criteria 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. follow standard operating procedures for using workshop tools and equipment for service and minor aggregate repairs in the vehicle PC3. conduct test drives to assess need for repairs, calibration or any other adjustments in the electrical/ mechanical aggregates in the vehicle PC4. review the job card and understand work to be carried out PC5. ensure OEM recommended procedure and checklist is followed for routine servicing in case of non-routine service or repair, confirm tasks to be carried out with superior PC6. calibrate, align and adjust settings, alignment and other routine service and maintenance of various parts and aggregates including: engine and aggregates other engine sub-assemblies like turbocharger, radiator etc. gear box and it aggregates propeller shafts and other transmission systems clutch and brake systems and sub-assemblies chassis electrical and electronic components steering systems suspension system other components (including to valves, ignition, fuel and emissions, transmission, lights, tyres, steering and body fittings) PC7. ensure that for routine maintenance and service, the correct spare parts and appropriate grade of lubricants, coolant, oils and grease required have been



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ASC/ N 1403 Carry out routine service and mi	nor repairs of mechanical and electrical aggregates
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Carry out routine service and minor repairs of mechanical and electrical aggregates

	 and mechanical aggregates) as per the tool manufacturer instructions KA5. standard operating procedures for rectification of errors in information (e.g. rectification of job card, reissue of correct tools and equipment etc.) KA6. safety requirements for equipment and components prescribed by the OEM (e.g. preventing/ dealing with oil spillage and inflammable materials) KA7. documentation requirements for each procedure carried out as part of roles and responsibilities as specified by OEM/ auto component manufacturer KA8. organisational and professional code of ethics and standards of practice KA9. 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)
B. Technical Knowledge	 The user/individual on the job needs to know and understand: KB1. the basic technology used in and functioning of various components and component systems of the vehicle including: engines and fuel system (diesel, petrol, electrical, gas etc.) other engine allied aggregates (e.g. radiator, turbocharger etc.) emission and exhaust system clutch assembly gear box assembly and aggregates (manual, automatic etc.) propeller shaft and other allied transmission systems hydraulic and pneumatic system brake system drive-train assembly steering system tyres and wheel alignment cooling system electrical, ignition, electronic and air-conditioning system etc. KB2. the tools used to assess deviations from specifications during routine servicing, including use of: Pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc. Pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers etc. Specialty wrenches: alignment wrenches, chain wrenches, locking wrenches, lug wrenches etc. Trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons etc. Measuring equipment: vernier caliper, micrometre, feeler gauges, multi-









metre, flow metre, temp gauge, dial gauge etc.
 other tools: hand tools, power tools, lifting and jacking equipment,
tensioning equipment, brake roller tester, chassis dynamometer, suspension
activation, security activator etc.
 tools for other tasks such as cleaning of vehicles, tools, equipment and
workshop
KB3. How to select the right materials for the job such as seals, sealants, fittings,
gaskets, joints, fasteners etc.
KB4. how to carry out routine maintenance including:
 checking vehicle condition against OEM specifications to identify damage,
corrosion, wear and tear, fluid levels, leaks and other problems in
serviceability
 make adjustments to settings, alignment, pressures, tension, speeds and
levels relevant to:
- 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)
- electrical and electronic components (including alternator, wiper motor,
lights, wire harness etc.)
 other components (including tyres and body fittings)
KB5. the various sources of information available for assessing service and repair
requirements of the vehicle including:
diagnostic displays
visual inspections
test drives
vehicle/equipment manufacturer specifications
standard operating procedures
KB6. procedures recommended by the OEM and Dealership to be used during
routine servicing
KB7. the type and quality of components specified by the OEM for use as
replacement parts
KB8. the grade of lubricants, oils, coolants and grease as specified by the OEM for
use
KB9. typical causes and symptoms of operational faults and failures of a vehicle
KB10. corrective action to be taken for common engine and aggregate system faults
and failures
KB11. faults and failures that necessitate replacement of components/ aggregates
Refer additional and fanales that necessitate replacement of components/ aggregates



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	KB12. how to dispose -off replaced failed components and changed oil, lubricant, grease etc. in accordance with safety, health and environmental policies and regulations
	KB13. precautions to be taken to ensure the following while working (including specific precautions to be taken when working with alternative fuel/ hybrid vehicles):
	 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 components sub-assemblies and other systems no contact with hazardous materials
Skills (S) w.r.t. the sc	KB14. when to ask for assistance from a superior ope
Element	Skills
A. Core Skills/	Writing skills
Generic Skills	The user/ individual on the job needs to know and understand how to:
	SA1. create documentation required on the job (including job cards, work sheets,
	 etc.) regarding the basic details of repair , maintenance and service performed SA2. write any additional requirement of work on the vehicle reported for service, maintenance or repair found during the work done as specified in the job card (for e.g. while working on the engine and transmission system, if low level of engine oil/ greasing, then convey to the superiors)
	SA3. write in at least one language
	Reading skills
	The user/individual on the job needs to know and understand how to:
	 SA4. read job cards and instructions from supervisors and the service advisor SA5. read various sources of information available for assessing service and repair requirements of the vehicle including service manual and diagnostic and visual displays put up in the workshop
	SA6. read policies and regulations pertinent to the job, including OEM guidelines, health and safety instructions etc.
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:
	SA7. clearly communicate workplace information and ideas with colleagues (verbal & non-verbal)
	SA8. use terms, names, grades and other nomenclature pertaining to the automotive trade, tools, specific workshop equipment etc.
	SA9. communicate with colleagues to handle verbal enquiries, such as clarifying









ASC/ N 1403 Carry out routine service and minor repairs of mechanical and electrical aggregates

	instructions and upper adius to upper state for information		
	instructions and responding to requests for information		
	SA10. interact with the customer through Service Advisor/ Supervisor in case any		
	additional work needs to be done on the vehicle which may not have been		
	indicated in the job card and found during the work being carried out as per		
	the job card		
B. Professional Skills	Decision making		
	The user/individual on the job needs to know and understand how to:		
	SB1. analyse information and evaluate results to choose the best solution and solve		
	problems		
	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 in case required)		
	SB3. judge when to ask for help from a superior		
	Plan and Organise		
	The user/individual on the job needs to know and understand how to:		
	SB4. plan work according to the required schedule and location		
	SB5. organise the schedule to complete work on the vehicle timely in case other		
	aggregate repairs/ maintenance work is also required to be done		
	Customer centricity		
	The user/individual on the job needs to know and understand how to:		
	SB6. interpret the needs of customers by evaluating job cards and talking to Service		
	Advisor and Superiors		
	SB7. ensure that the service provided is of the highest order to ensure higher level		
	of customer satisfaction		
	SB8. ensure timely communication of the additional requirements in a vehicle to the		
	Service Advisor who in turn communicates it to the customer		
	SB9. follow up with the Service Advisor on any unfavourable feedback received from		
	customer		
	Problem solving		
	The user/individual on the job needs to know and understand how to:		
	SB10. recognise a workplace problem or a potential problem and take action (e.g.		
leaks or oil spills in the workshop)			
	SB11. determine problems needing priority action (e.g. while working on the engine,		
	crank / pistons require machining as they have been worn out, inform the		
	service advisor or supervisor for urgent action)		
	SB12. refer problems outside area of responsibility to appropriate person (e.g.		
	unavailability of required spare parts or materials in the workshop)		
	SB13. gather information while working on an aggregate/ components and take		
	appropriate action, by consulting superiors		
	Analytical thinking		



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K-TOP



ASC/ N 1403	Carry out routine service and minor repairs of mechanical and electrical aggregates

The user/individual on the job needs to know and understand how to:
SB14. assess repairs required based on technical faults identified as specified in the job card/ supervisor notes
SB15. refer complex problems (outside the current scope of work) to a superior in
case any additional work requirement comes up Critical thinking
The user/individual on the job needs to know and understand how to:
SB16. analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
SB17. 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/ Aggregate Specialist/ Service Advisor









ASC/ N 1403 Carry out routine service and minor repairs of mechanical and electrical aggregates

NOS Version Control

NOS Code	ASC/ N 1403	ASC/ N 1403	
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
		Start A	S. A









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.









Plan and organise work to meet expected outcomes

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: 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 ust be able to: PC1. keep immediate work area clean and tidy PC2. treat confidential information as per the organisation's guidelines		
	 PC2. In ear confidential mormation as per the organisation's guidennes PC3. work in line with organisation's policies and procedures PC4. work within the limits of job role PC5. obtain guidance from appropriate people, where necessary PC6. ensure work meets the agreed requirements 		
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 Understandin	ng (K) w.r.t. the scope		
Element	Knowledge and Understanding		
A. Organisational Context (Knowledge of the	The user/individual on the job needs to know and understand:		
Company/Organisation and its processes)	 KA1. the organisation's policies, procedures and priorities for area of work, role and responsibilities in carrying out that work KA2. the limits of responsibilities and when to involve others KA3. specific work requirements and who these must be agreed with KA4. the importance of having a tidy work area and how to do this KA5. how to prioritize workload according to urgency and importance and the benefits of this KA6. the organisation's policies and procedures for dealing with confidential information and the importance of complying with these KA7. the purpose of keeping others updated with the progress of work KA8. who to obtain guidance from and the typical circumstances when this may be required 		









Plan and organise work to meet expected outcomes

	KAQ the purpose and value of being flevible and adapting work plans		
	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	Writing Skills		
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		
	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		
	Packlass Calving		
	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 judgement to identify solutions in different situations











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





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ASC/ N 0002

Work effectively in a team

National Occupational Standards

Overview

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





Work effectively in a team





ASC/ N 0002

Unit Code	ASC/ N 0002		
Unit Title	Work effectively in a team		
(Task)			
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:		
	 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	To be competent, the user/individual on the job must be able to:		
effectively with colleagues	DC1 maintain also an annualization with called as a flat all		
including member in the	PC1. maintain clear communication with colleagues (by all means		
own group as well as other	including face-to-face, telephonic as well as written)		
groups	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 Understandi	ng (K) w.r.t. the scope		
Element	Knowledge and Understanding		
A. Organisational Context	The user/individual on the job needs to know and understand:		
(Knowledge of the			
Company/Organisation	KA1. the organisation's policies and procedures for working with		
and its processes)	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		
	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		
	and any measure of other of the normal defective of others		



-	NOS
National	Occupational Standards





ASC/ N 0002	Work effectively in a team
B. Technical Knowledge	 The user/individual on the job needs to know and understand: KB1. different types of information that colleagues might need and the importance of providing this information when it is required KB2. the importance of helping colleagues with problems, in order to meet quality and time standards as a team
Skills (S)w.r.t. the scope	
Element	Skills
A. Core Skills/	Writing Skills
Generic 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:
	The user/individual of the job needs to know and understand now 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
B. Professional Skills	SA4. ask for clarification and advice from the concerned person Decision Making
D. FIOIESSIONAL SKIIIS	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









Work effectively in a team

NOS Version Control

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Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version 31-Dec-15









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.



National Occupational Standard







ASC/ N 0003

Maintain a healthy, safe and secure working environment

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: 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.	
Element	Performance Criteria
Resources needed to maintain a safe, secure	To be competent, the user/individual on the job must be able to:
working environment	 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 authority to the relevant person in line with organisational procedures and warn other people who may be affected
	PC6. follow organisation's emergency procedures for accidents, fires or any other natural calamity
	PC7. identify and recommend opportunities for improving health, safety, and security to the designated person
	PC8. complete all health and safety records are updates and procedures well defined
Knowledge and Understanding	
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the	The user/individual on the job needs to know and understand:
Company/Organisation and its processes)	KA1. legislative requirements and organisation's procedures for health, safety and security and individual's role and responsibilities in relation to this
	KA2. what is meant by a hazard, including the different types of health and safety hazards that can be found in the workplace



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National	Occupational Standards





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Maintain a healthy, safe and secure working environment

	KA2 how and where to report hereads		
	KA3. how and when to report hazards		
	KA4. the limits of responsibility for dealing with hazards		
	KA5. the organisation's emergency procedures for different		
	emergency situations and the importance of following these		
	KA6. the importance of maintaining high standards of health, safety		
	and security		
	KA7. implications that any non-compliance with health, safety and		
	security may have on individuals and the organisation		
B. Technical Knowledge	The user/individual on the job needs to know and understand:		
	KB1. different types of breaches in health, safety and security and how		
	and when to report these		
	KB2. evacuation procedures for workers and visitors		
	KB3. how to summon medical assistance and the emergency		
	services, where necessary		
	KB4. how to use the health, safety and accident reporting		
	Procedures and the importance of these		
Skills (S) w.r.t. the scope			
Element	Skills		
A. Core Skills/ Generic	Writing Skills		
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		
	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		
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		
	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:		
	The usery manual on the job needs to know and understand now to.		
	SB3. build and maintain positive and effective relationships with		
	colleagues and customers		
	Problem Solving		









ASC/ N 0003	C/ N 0003 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 judgements to different situations					











Maintain a healthy, safe and secure working environment

NOS Version Control

NOS Code	ASC/ N 0003		
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Occupation	Technical Service & Repair	Next review date	Under revision expected date of revised version)31-Dec-15





Qualification Pack for Auto service Technician L4

Criteria for assessment of Trainees						
JOB ROLE Auto Service Technician L4						
Qualification Pack	ASC/Q 1402					
No. Of NOS 2 Role specific ,3 generic						

NOS Title/ NOS Elements	NOS & Performance Criterion Description		Marks allocation	
ASC/N 1402	Assist in performing diagnosis of vehicle for	Theory	Viva	Practical
	repair requirements			
Assist in the	to be competent, the user/individual on the			
diagnosis of the root	job must be able to:			
cause of the vehicle				
cause of the vehicle trouble	 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. conduct test drives to assist the Senior Technician in finding the fault basis the performance of the vehicle during the test drive PC5. review the job card and understand 		15	30
	 customer complaints PC6. follow standard operating procedure set out for diagnosing faults under the supervision of a Senior Technician PC7. follow instructions of seniors for specific tasks related to diagnosing faults in the various sub-assemblies and aggregates in a vehicle PC8. 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 filters etc. 		30	40





Qualification Pack for Auto service Technician L4				
	 PC9. dismantle and assemble aggregates PC10. ensure any malfunctions observed in tools and equipment are reported to the concerned persons PC11. ensure any malfunctions or repair requirements observed in vehicles (and beyond own scope of work) are reported to the concerned person PC12. 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 PC13. ensure safe movement and parking of the vehicle in the workshop especially in case some aggregate to be diagnosed had been disassembled PC14. 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) PC15. drive a relevant 2/3/4 wheeler vehicle which is an important part of the diagnosis of the type of vehicle that is 		10	5
	dealt by the relevant OEM subtotal		55	75
ASC/N 1403	Carry out routine service and minor repairs of mechanical and electrical aggregates	Theory	Viva	Practical
Carry out routine service and minor repairs of mechanical & electrical aggregates	 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. follow standard operating procedures for using workshop tools and equipment for service and minor aggregate repairs in the vehicle PC3. conduct test drives to assess need for repairs, calibration or any other adjustments in the electrical/mechanical aggregates in the vehicle 		20	30

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Qualification Pack for Auto service Technician L4

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PC5.	work to be carried out ensure OEM recommended procedure and checklist is followed for routine servicing in case of non-routine service or repair, confirm tasks to be carried out with superior			
PC6.	 calibrate, align and adjust settings, alignment and other routine service and maintenance of various parts and aggregates including: engine and aggregates other engine sub-assemblies like turbocharger, radiator etc. 		15	10
	 gear box and it aggregates propeller shafts and other transmission systems clutch and brake systems and sub- 			
	assemblies • chassis			
	 electrical and electronic 			
	components		10	20
	 steering systems 			
	 suspension system 			
	 other components (including to 			
	valves, ignition, fuel and emissions,		10	20
	transmission, lights, tyres, steering and body fittings)			
PC7.	ensure that for routine maintenance and service, the correct spare parts and appropriate grade of lubricants, coolant, oils and grease required have been obtained			
PC8.	ensure all dismantled components (including mechanical and electrical aggregates) are cleaned and conditioned prior to reassembly			
PC9.				
	• belts			
	• wiper blades			
	 brake linings and pads 			





Qualification Pack for Auto service Technician L4				
	• drive			
	PC10. ensure disposal of materials (including			
	waste oil, scrap of failed parts/			
	aggregates) in accordance with the		15	45
	organisation's policies		_	_
	PC11. understand the various precautions to			
	be taken to avoid damage to the vehicle			
	and its components while working on			
	other aggregates			
	PC12. record all service and repairs carried out			
	and ensure completeness of tasks			
	assigned before releasing vehicle for the			
	next procedure			
	PC13. ensure all workshop tools, equipment			
	and workstations are adequately			
	maintained by carrying out scheduled			
	checks, calibration and timely repairs			
	where necessary PC14. ensure any malfunctions observed in			
	tools and equipment are reported to			
	the concerned persons			
	PC15. ensure any other repair requirements			
	observed in the other components/			
	• • •			
	aggregates systems (like engine, gear			
	box etc.) while repairing/ overhauling of			
	braking systems are reported to			
	supervisor/ service advisor for further			
	inspection by other specialists			
	PC16. measure/ inspect the machining or any			
	other repair done from an outside			
	source/ local machining garages			
	PC17. 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)			
	subtotal		70	125
ASC/N 0001	Plan and organise work to meet expected	Theory	Viva	Practical
	outcomes	Theory	vivd	FIALULAI
Work requirements	To be competent, the user/individual on the			
including various	job must be able to:			
activities within the	PC1. keep immediate work area clean and			

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		ialification Pack for Auto service Technic	an L4		
given time and set	t	idy			
quality standards	PC2.	treat confidential information as per			
		the organisation's guidelines			
	PC3.	work in line with organisation's		10	10
		policies and procedures			
	PC4.	work within the limits of job role			
		obtain guidance from appropriate			
		people, where necessary			
	PC6	ensure work meets the agreed			
	1 00.	requirements			
Appropriato uco of		requirements			
Appropriate use of	0.07				
resources	PC7.	establish and agree on work		4.0	20
		requirements with appropriate people		10	20
	PC8.	manage time, materials and cost			
		effectively			
	PC9.	use resources in a responsible manner			
		subtotal		20	30
ASC/N 0002		Work effectively in a team	Theory	Viva	Practical
Interact &	To be o	competent, the user/individual on the			
communicate	job m	ust be able to:			
effectively with	PC1.	maintain clear communication with			
colleagues including		colleagues (by all means including			
member in the own		face-to-face, telephonic as well as			
group as well as		written)			
other groups	PC2.	work with colleagues to integrate			
0 1		work			
	PC3.	pass on information to colleagues in			
		line with organisational requirements			
		both through verbal as well as non-		20	30
		verbal means		20	50
	PC4.				
	PC4.	, , ,			
	DCF	colleagues			
	PC5.	carry out commitments made to			
		colleagues			
	PC6.	5 5			
		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			
		subtotal		20	30
ASC/N 0003	Maint	ain a healthy, safe and secure working	Theory	Viva	Practical
		environment			
				•	

Qualification Pack for Auto service Technician L4





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Qualification Pack for Auto service Technician L4								
Resources needed		competent, the user/individual on the						
to maintain a safe,	Job mi	ust be able to:						
secure working								
environment	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.							
		workplace to achieve the healthy, safe						
		and secure environment for all						
		incorporating all government norms		25	50			
		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 authority to the relevant						
		person in line with organisational						
		procedures and warn other people						
		who may be affected						
	PC6.	follow organisation's emergency						
		procedures for accidents, fires or any						
		other natural calamity						
	PC7.	identify and recommend opportunities						
		for improving health, safety, and						
		security to the designated person						
	PC8.	complete all health and safety records						
		are updates and procedures well						
		defined						
		subtotal		25	50			
		Total	30	190	310			
	1			1				

Qualification Pack for Auto service Technician L4