

## Qualification Pack



# Intermediate Concepts of Commercial vehicle service and repair

QP Code: ASC/N1317

Version: 1.0

NSQF Level: 4

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## Qualification Pack

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## Qualification Pack

### ASC/N1317: Intermediate Concepts of Commercial vehicle service and repair

#### Brief Job Description

This NOS unit is about assisting senior technician and performing all tasks related to service, diagnosis and repair of faults and issues in light, medium and heavy-duty vehicles.

#### Personal Attributes

undefined

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [ASC/N1317: Intermediate Concepts of Commercial vehicle service and repair](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Automotive
<b>Sub-Sector</b>	
<b>Occupation</b>	Automotive Service & Repair
<b>Country</b>	
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Aligned to NCO/ISCO/ISIC Code</b>	

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<b>Minimum Educational Qualification &amp; Experience</b>	<p>12th grade Pass OR Pursuing 2nd year of 3-year regular Diploma (after 10th) OR 11th grade pass with 1.5 years of experience OR 10th grade pass plus 2-year NTC (or NAC) OR 9th grade pass with 4.5 years of experience OR Previous relevant Qualification of NSQF Level ( 3.5- Basic Concept in vehicle service and Repair) with 1.5 years of experience</p>
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	18/02/2028
<b>NSQC Approval Date</b>	18/02/2025
<b>Version</b>	1.0
<b>Reference code on NQR</b>	NG-04-AU-03742-2025-V1-ASDC
<b>NQR Version</b>	1.0

## Qualification Pack

### ASC/N1317: Intermediate Concepts of Commercial vehicle service and repair

#### Description

This NOS unit is about assisting senior technician and performing all tasks related to service, diagnosis and repair of faults and issues in light, medium and heavy-duty vehicles.

#### Scope

The scope covers the following :

- Prepare for servicing and repairing of vehicles.
- Assist and perform servicing and repairing of various components and systems of vehicle
- Perform post-servicing and repairing activities

#### Elements and Performance Criteria

##### *Prepare for servicing and repairing of heavy vehicle*

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

- PC1.** Review the job card and understand work to be carried out
- PC2.** Identify the auto components related to the various aggregates in the vehicle
- PC3.** Collect workshop tools/measuring devices/equipment required for the job and check their condition/calibration
- PC4.** Prepare the vehicle according to nature of job to be performed: general and mechanical job on the vehicle
- PC5.** Diagnose the faults in the various sub-assemblies of the vehicle, using workshop tools, equipment, checklists and standard OEM operating procedures
- PC6.** Perform engine pre-removal checks /non-invasive diagnostics or using special tools and overhauling methods
- PC7.** Wear PPE according to nature of job to be performed

##### *Assist and perform servicing and repairing of various components and systems of vehicle*

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

- PC8.** Use appropriate tools, equipment and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organization
- PC9.** Ensure that correct spare parts and appropriate grade of lubricants, coolant, oils and grease for service and repair work
- PC10.** Perform dismantling and assembling of various aggregates/systems of engine, suspension system, steering system, cooling system, engine gearbox etc
- PC11.** Inspect and diagnose the engine for mechanical complaint diagnosis i.e. honing marks, valve clearance adjustment requirement, injector removal and fitment, timing setting, injector checking using test bench, cylinder head overhauling for overheating complaint handling, checking of loosening torque and tightening torque, engine timing / UPCR pump setting, compression measurement, oversize piston selection and bore measurement etc. under the guidance of senior technician

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- PC12.** Inspect and diagnose the engine (in case of CNG engine i5 / i6) for faults and issues i.e. CNG vehicle not starting, CNG vehicle misfiring, etc
- PC13.** Perform coils spark plug and sleeve service process, components replacement of CNG engine (Oil drain from filters, filter replacement / CNG coil boot by following SOP
- PC14.** Use appropriate engine overhauling kit according to type of engine for diagnosing the issues in the engine
- PC15.** Perform repair/replacement/calibration/ of mechanical system/aggregate of vehicle engine as per the faults and issues diagnosed under the guidance of senior technician
- PC16.** Perform injector replacement procedure / injector removal fitment/ injector protection caps usage, injector back leak and bleeding process under the guidance of senior technician
- PC17.** Inspect and diagnose clutch and transmission system of the vehicle for issues and faults and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician
- PC18.** Perform clutch bleeding and pressure plate adjustment by following SOP
- PC19.** Inspect and diagnose brake system of the vehicle for issues and faults i.e. Brakes Jam, grabbing and Brake overheating, Brake drum run out checking, Air ABS fault, Hydraulic Disk brake - Brake booster complaint etc. and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician
- PC20.** Inspect and diagnose chassis, axle and suspension system of the vehicle for issues and faults and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician
- PC21.** Perform troubleshooting and repairing of faults in the Electromagnetic retarder of the vehicle
- PC22.** Inspect and diagnose faults and issues in other systems/aggregates such as tyres, drive line, Lift axle, HVAC systems - electrical and mechanical, steering systems, Telematics systems etc. and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician
- PC23.** Test electrical/electronic components performance wherever applicable as per OEM SOP
- PC24.** Inspect and diagnose Vehicle Electrical and Electronics system for issues and faults i.e. CAN EMS Power & Cranking circuit faults, Dosing injector & dosing Pump faults, ECU issues, accelerator pedal pin back out and injector short circuit, etc. and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician
- PC25.** Use diagnostic tools like OBDII, DA Lite tool etc. to diagnose the issues in vehicle
- PC26.** Clean and condition dismantled mechanical and electrical components prior to assembly

### *Perform post-servicing and repairing activities*

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

- PC27.** Check the performance of vehicle/aggregate post repair and report to supervisor/service advisor if further inspection is required by another specialist
- PC28.** Ensure completeness of tasks assigned before releasing the vehicle for the next procedure
- PC29.** Maintain the documentation related to inspections and troubleshooting performed on the vehicle
- PC30.** Dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization's policies
- PC31.** Return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned

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### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Different components/aggregates as well as auto component manufacturer's specifications of the light, medium and heavy duty vehicle
- KU2.** The various sources of information available for assessing service and repair requirements of the vehicle including repair, diagnostic, and wiring manuals etc.
- KU3.** Standard schedules and checklists recommended by the OEM/auto component manufacturer for servicing of vehicles
- KU4.** Standard Operating Procedures for servicing and minor repair of vehicles as prescribed by the OEM
- KU5.** Standard Operating Procedures recommended by OEM for using tools and equipment related to aggregates/components (including electrical and mechanical aggregates)
- KU6.** The tools used to assess deviations from specifications during routine servicing, maintenance and repair including use of pressure indicators: oil pressure gauges, tire pressure gauges etc., pullers: ball joint separators, bearing pullers, etc., gasket scrapers, etc., measuring equipment: Vernier callipers, micrometre, multi-metre, dial gauge etc., hand tools, power tools, lifting/jacking equipment, tools for other tasks such as wheel alignment, AC gas charging etc.
- KU7.** Construction and working of various components/systems and associated sub-systems of vehicle
- KU8.** Use of special diagnostic tools i.e. OBDII, DA Lite etc, for diagnosing the faults
- KU9.** Basic technology used in and functioning of various systems and components of the heavy vehicle such as engine, transmission, batteries, body management system, telematics, brake system, air-conditioning systems, active & passive safety system, media and other systems
- KU10.** Interconnection of systems with each other and effect of one system on other system
- KU11.** Impact of Fuel efficiency Factors affecting Vehicle FE
- KU12.** BSIV & BSVI engine complaints
- KU13.** Major factors influencing Tyre Life
- KU14.** How to use computer, on-line application and OEM technical information/assistance portals
- KU15.** Various types of engines i.e. petrol, diesel, CNG etc. in heavy vehicles
- KU16.** Vehicle electronic architecture
- KU17.** Advanced knowledge of voltage, current & resistance phenomena
- KU18.** Construction and functioning of various electronics components i.e. EMS ECU, Instrument Cluster, VECU, ABS ECU, ACM, TCU, Steering angle sensor, actuator, switches etc.
- KU19.** Typical symptoms of common faults and failures in vehicle mechanical, electrical and electronic systems
- KU20.** Standard Operating Procedures (SOPs) for inspection and diagnosis of faults in a vehicle as prescribed by the OEM/components manufacturer
- KU21.** Different types of errors or defects in the vehicle
- KU22.** Corrective actions for common faults and failures in engine, components/aggregates (including electrical and mechanical aggregates) and other units



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- KU23.** Documentation requirements for each procedure carried out as part of roles and responsibilities as specified by OEM/ auto component manufacturer
- KU24.** Safety requirements recommended by the OEM for equipment /vehicle components during diagnosis, troubleshooting and root cause analysis on various aggregates
- KU25.** Documentation required on the job (including job cards, work sheets, etc.) regarding the basic details of repair, maintenance and service performed

## Generic Skills (GS)

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

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



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for servicing and repairing of heavy vehicle</i>	<b>8</b>	<b>6</b>	-	<b>3</b>
<b>PC1.</b> Review the job card and understand work to be carried out	1	1	-	-
<b>PC2.</b> Identify the auto components related to the various aggregates in the vehicle	1	1	-	1
<b>PC3.</b> Collect workshop tools/measuring devices/equipment required for the job and check their condition/calibration	2	1	-	1
<b>PC4.</b> Prepare the vehicle according to nature of job to be performed: general and mechanical job on the vehicle	1	1	-	1
<b>PC5.</b> Diagnose the faults in the various sub-assemblies of the vehicle, using workshop tools, equipment, checklists and standard OEM operating procedures	1	1	-	-
<b>PC6.</b> Perform engine pre-removal checks /non-invasive diagnostics or using special tools and overhauling methods	1	1	-	-
<b>PC7.</b> Wear PPE according to nature of job to be performed	1	-	-	-
<i>Assist and perform servicing and repairing of various components and systems of vehicle</i>	<b>26</b>	<b>29</b>	-	<b>15</b>
<b>PC8.</b> Use appropriate tools, equipment and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organization	1	1	-	-
<b>PC9.</b> Ensure that correct spare parts and appropriate grade of lubricants, coolant, oils and grease for service and repair work	1	-	-	1
<b>PC10.</b> Perform dismantling and assembling of various aggregates/systems of engine, suspension system, steering system, cooling system, engine gearbox etc	2	1	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> Inspect and diagnose the engine for mechanical complaint diagnosis i.e. honing marks, valve clearance adjustment requirement, injector removal and fitment, timing setting, injector checking using test bench, cylinder head overhauling for overheating complaint handling, checking of loosening torque and tightening torque, engine timing / UPCR pump setting, compression measurement, oversize piston selection and bore measurement etc. under the guidance of senior technician	2	2	-	1
<b>PC12.</b> Inspect and diagnose the engine (in case of CNG engine i5 / i6) for faults and issues i.e. CNG vehicle not starting, CNG vehicle misfiring, etc	1	2	-	1
<b>PC13.</b> Perform coils spark plug and sleeve service process, components replacement of CNG engine (Oil drain from filters, filter replacement / CNG coil boot by following SOP	1	2	-	-
<b>PC14.</b> Use appropriate engine overhauling kit according to type of engine for diagnosing the issues in the engine	1	1	-	1
<b>PC15.</b> Perform repair/replacement/calibration/ of mechanical system/aggregate of vehicle engine as per the faults and issues diagnosed under the guidance of senior technician	2	2	-	1
<b>PC16.</b> Perform injector replacement procedure / injector removal fitment/ injector protection caps usage, injector back leak and bleeding process under the guidance of senior technician	1	2	-	1
<b>PC17.</b> Inspect and diagnose clutch and transmission system of the vehicle for issues and faults and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician	2	2	-	1
<b>PC18.</b> Perform clutch bleeding and pressure plate adjustment by following SOP	1	1	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC19.</b> Inspect and diagnose brake system of the vehicle for issues and faults i.e. Brakes Jam, grabbing and Brake overheating, Brake drum run out checking, Air ABS fault, Hydraulic Disk brake - Brake booster complaint etc. and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician	1	2	-	1
<b>PC20.</b> Inspect and diagnose chassis, axle and suspension system of the vehicle for issues and faults and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician	1	2	-	1
<b>PC21.</b> Perform troubleshooting and repairing of faults in the Electromagnetic retarder of the vehicle	2	2	-	1
<b>PC22.</b> Inspect and diagnose faults and issues in other systems/aggregates such as tyres, drive line, Lift axle, HVAC systems - electrical and mechanical, steering systems, Telematics systems etc. and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician	2	2	-	1
<b>PC23.</b> Test electrical/electronic components performance wherever applicable as per OEM SOP	1	1	-	-
<b>PC24.</b> Inspect and diagnose Vehicle Electrical and Electronics system for issues and faults i.e. CAN EMS Power & Cranking circuit faults, Dosing injector & dosing Pump faults, ECU issues, accelerator pedal pin back out and injector short circuit, etc. and repair/replace the faulty system/aggregate as per the requirement under the guidance of senior technician	2	2	-	1
<b>PC25.</b> Use diagnostic tools like OBDII, DA Lite tool etc. to diagnose the issues in vehicle	1	1	-	1
<b>PC26.</b> Clean and condition dismantled mechanical and electrical components prior to assembly	1	1	-	-
<i>Perform post-servicing and repairing activities</i>	<b>6</b>	<b>5</b>	-	<b>2</b>
<b>PC27.</b> Check the performance of vehicle/aggregate post repair and report to supervisor/service advisor if further inspection is required by another specialist	2	2	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC28.</b> Ensure completeness of tasks assigned before releasing the vehicle for the next procedure	1	-	-	-
<b>PC29.</b> Maintain the documentation related to inspections and troubleshooting performed on the vehicle	1	1	-	-
<b>PC30.</b> Dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization's policies	1	1	-	1
<b>PC31.</b> Return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned	1	1	-	-
<b>NOS Total</b>	<b>40</b>	<b>40</b>	<b>-</b>	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N1317
<b>NOS Name</b>	Intermediate Concepts of Commercial vehicle service and repair
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	
<b>Occupation</b>	Automotive Service & Repair
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	18/02/2025
<b>Next Review Date</b>	18/02/2028
<b>NSQC Clearance Date</b>	18/02/2025

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

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

## Qualification Pack

**Minimum Aggregate Passing % at QP Level : 50**

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

## Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N1317.Intermediate Concepts of Commercial vehicle service and repair	40	40	-	20	100	100
<b>Total</b>	<b>40</b>	<b>40</b>	<b>-</b>	<b>20</b>	<b>100</b>	<b>100</b>

## Qualification Pack

### Acronyms

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



## Qualification Pack

### Glossary

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

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