







# **CNG Kit Fitment Technician**

QP Code: ASC/Q1430

Version: 1.0

NSQF Level: 4

Automotive Skills Development Council || 153, GF, Okhla Industrial Area, Phase 3 New Delhi 110020







# **Contents**

ASC/Q1430: CNG Kit Fitment Technician	3
Brief Job Description	
Applicable National Occupational Standards (NOS)	
Compulsory NOS	
Qualification Pack (QP) Parameters	
ASC/N9801: Organize work and resources (Service)	5
ASC/N9802: Interact effectively with colleagues, customers and others	. 11
ASC/N1448: Install and fit CNG Kit in the vehicle	. 15
Assessment Guidelines and Weightage	. 20
Assessment Guidelines	
Assessment Weightage	21
Acronyms	22
Glossary	23







# ASC/Q1430: CNG Kit Fitment Technician

### **Brief Job Description**

The individual in this job is responsible for fitting and installation of various mechanical, electronic and electrical components related CNG kit on/in the vehicle.

#### **Personal Attributes**

The person should be patient, organised, team-oriented and have the ability to work for long hours in adverse conditions. They should be keen observers and have an eye for detail and quality

# Applicable National Occupational Standards (NOS)

#### **Compulsory NOS:**

- 1. ASC/N9801: Organize work and resources (Service)
- 2. ASC/N9802: Interact effectively with colleagues, customers and others
- 3. ASC/N1448: Install and fit CNG Kit in the vehicle

### Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Automotive Vehicle Service
Occupation	Technical Service & Repair
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3115.0602







Minimum Educational Qualification & Experience	10th Class + 2 years ITI (Mechanic Motor Vehicle/Diesel Mechanic/Mechanic Auto Electrical and Electronics) OR 10th Class pass with 2 years relevant experience OR 12th Class pass with 1 year relevant experience OR Certificate-NSQF (Four-Wheeler Service Assistant Level 3) with 2 Years of experience of relevant experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	30/12/2021
Next Review Date	30/12/2024
NSQC Approval Date	30/12/2021
Version	1.0
Reference code on NQR	2021/AUT/ASDC/04782
NQR Version	1.0







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

### **Description**

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

#### Scope

The scope covers the following:

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

#### Elements and Performance Criteria

#### Maintain safe and secure working environment

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

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

#### Perform work as per quality standards

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

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

# Health and hygiene

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

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

#### Material/energy conservation practices

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

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







- PC15. check for spills/leakages in various tasks/activities/processes
- PC16. plug spills/leakages and escalate to appropriate authority if unable to rectify
- PC17. carry out routine cleaning of tools, machines and equipment
- PC18. check if the equipment/machine is functioning normally before commencing work and rectify wherever required
- PC19. report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment
- PC20. ensure electrical equipment and appliances are properly connected and turned off when not in use

#### Effective waste management practices

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

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

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

#### Generic Skills (GS)







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

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







# **Assessment Criteria**

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







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







# National Occupational Standards (NOS) Parameters

NOS Code	ASC/N9801
NOS Name	Organize work and resources (Service)
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/12/2021
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021







# ASC/N9802: Interact effectively with colleagues, customers and others

### **Description**

This NOS unit is about communicating with customers and colleagues/superiors, either in own work group or in other work groups within organisation.

#### Scope

The scope covers the following:

- Communicate effectively with colleagues, customers and others
- Interact with supervisor or superior

#### **Elements and Performance Criteria**

#### Communicate effectively with colleagues, customers and others

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

- PC1. maintain clear communication with colleagues, customers and others, wherever needed, through all means i.e. face-to-face, telephonic or written
- PC2. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity
- PC3. work in a way that shows respect for colleagues and others
- PC4. follow the organisation's policies and procedures while working in a team
- PC5. respect personal space of colleagues and customers

#### Interact with supervisor or superior

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

- PC6. identify work requirements by receiving instructions from reporting supervisor
- PC7. escalate problems to supervisors that cannot be handled including repairs and maintenance of machine
- PC8. report the completed work
- PC9. rectify errors as per feedback

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- **KU1.** the importance of effective communication and establishing good working relationships with colleagues and supervisor
- KU2. different methods of communication as per the circumstances
- KU3. gender based concepts, issues and legislation

### Generic Skills (GS)

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







- GS1. read instructions/guidelines/procedures
- GS2. listen effectively and orally communicate information
- GS3. ask for clarification and advice from the concerned person
- GS4. maintain positive and effective relationships with colleagues and customers
- GS5. evaluate the possible solution(s) to the problem
- GS6. deliver consistent and reliable service to customers
- GS7. complete written work with attention to detail
- **GS8.** check that the work meets customer requirements







# **Assessment Criteria**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Communicate effectively with colleagues, customers and others	36	11	-	14
PC1. maintain clear communication with colleagues, customers and others, wherever needed, through all means i.e. face-to-face, telephonic or written	8	-	-	4
PC2. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity	8	-	-	-
PC3. work in a way that shows respect for colleagues and others	7	4	-	3
PC4. follow the organisation's policies and procedures while working in a team	7	4	-	3
PC5. respect personal space of colleagues and customers	6	3	-	4
Interact with supervisor or superior	14	19	-	6
PC6. identify work requirements by receiving instructions from reporting supervisor	7	4	-	-
PC7. escalate problems to supervisors that cannot be handled including repairs and maintenance of machine	-	5	-	3
PC8. report the completed work	7	5	-	-
PC9. rectify errors as per feedback	-	5	-	3
NOS Total	50	30	-	20







# National Occupational Standards (NOS) Parameters

NOS Code	ASC/N9802
NOS Name	Interact effectively with colleagues, customers and others
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/12/2021
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021







#### ASC/N1448: Install and fit CNG Kit in the vehicle

### **Description**

This NOS unit is about fitting and installing the CNG kit components depending on the vehicle brand, model and engine type by following organizational procedures.

#### Scope

The scope covers the following:

- Prepare for installation of CNG Kit
- Install and fit CNG Kit
- Perform post-installation activities

#### **Elements and Performance Criteria**

#### Prepare for installation of CNG Kit

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

- PC1. identify the work to be done and work requirements for the installation of CNG kit by interpreting the job card, CNG Kit manufacturer specifications related to the various brand/model/engine type/variant of the vehicle etc.
- PC2. identify and arrange required tools, equipment and CNG kit component required for the job
- PC3. check tools, equipment and CNG kit component for any faults and required quality standards before use
- PC4. follow standard operating procedure to validate and diagnose faults in CNG kit components
- PC5. report the defects/malfunctions if any, in the tools, equipment & CNG kit components to the concerned person for rectification
- **PC6.** co-ordinate with the concerned vendor/supplier for the required CNG kit and its components, wherever applicable

#### Install and fit CNG Kit

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

- PC7. use appropriate Personal Protective Equipment (PPE) for safe working in workshop
- PC8. use appropriate fitting methods and perform fitting operations to fit the CNG kit in vehicle as per SOP/WI
- **PC9.** make holes/cuts on various surfaces such as metal sheet, plastic, fabric etc., to fit the CNG kit components in the vehicle
- PC10. remove dummy plugs, covers, old/damaged/defective parts etc. and clean the surrounding areas prior to installation of CNG kit components
- PC11. make wiring connections as specified by the manufacturer to fit the electrical/electronic components of CNG Kit
- PC12. assemble and secure all the components of the CNG Kit in vehicle in their correct positions by using appropriate assembly methods and techniques
- **PC13.** fasten components permanently by using appropriate fasteners, screws etc. as per SOP *Perform post-installation activities*







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

- PC14. ensure correct calibration/tuning of engine after installation of CNG kit
- PC15. ensure that all CNG kit components installed, fitted and functioning properly
- PC16. perform road trial of vehicle to check CNG kit functioning and engine performance on both petrol and CNG modes
- PC17. provide necessary information like features, functioning, precautions and maintenance requirements of CNG Kit to the customer
- PC18. return leftover consumable/parts, tools/equipment etc. after completion of work
- PC19. ensure that all the fitting and installation activities are completed before releasing the vehicle
- PC20. dispose off packing wraps/box/covers and other material as per organization's policies
- PC21. prepare and maintain documents and records related to the CNG Kit fitment in vehicle as per organizational procedures

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. characteristics of CNG and advantages of using CNG as fuel
- KU3. difference in Petrol and CNG fitted vehicles
- KU4. CNG kit component's such as Pressure Regulator, Gas/Air Mixer, CNG filling valve and other Electrical/electronic, metal/plastic parts, wiring harness, etc. as specified by manufacturer suitable for different brand/vehicle type/ model/engine type
- KU5. basic technology used and functioning of various CNG kit components
- KU6. SOP recommended by manufacturer for using tools/equipment during work
- KU7. various methods to fit and install CNG Kit components
- **KU8.** process of fitment and installation of the latest CNG kit components w.r.t a particular brand/vehicle model/engine type
- KU9. various provisions in vehicles to install CNG kit
- KU10. SOP recommended by CNG Kit manufacturer to validate, diagnose and repair defect/faults in the vehicle relevant to CNG kit functioning
- KU11. various methods of calibration, safety checks pre and post CNG kit fitment
- **KU12.** safety, health and environmental policies and regulations for the workplace as well as for automotive trade in general
- **KU13.** SOPs regarding receiving vehicles, opening job card, allocation of work, invoicing, vehicle delivery, handling complaints etc.
- KU14. maintenance requirement of CNG Kit components
- **KU15.** 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. interpret the needs of customers by understanding the key issues
- **GS3.** communicate using terms, names, grades and other nomenclature pertaining to the automotive trade
- **GS4.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS5. identify potential workplace problems and take suitable action
- GS6. write in English/regional language







# **Assessment Criteria**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for installation of CNG Kit	8	13	-	6
PC1. identify the work to be done and work requirements for the installation of CNG kit by interpreting the job card, CNG Kit manufacturer specifications related to the various brand/model/engine type/variant of the vehicle etc.	1	2	-	1
PC2. identify and arrange required tools, equipment and CNG kit component required for the job	2	2	-	1
PC3. check tools, equipment and CNG kit component for any faults and required quality standards before use	2	2	-	1
PC4. follow standard operating procedure to validate and diagnose faults in CNG kit components	1	3	-	1
PC5. report the defects/malfunctions if any, in the tools, equipment & CNG kit components to the concerned person for rectification	1	2	-	1
PC6. co-ordinate with the concerned vendor/supplier for the required CNG kit and its components, wherever applicable	1	2	-	1
Install and fit CNG Kit	12	22	-	7
PC7. use appropriate Personal Protective Equipment (PPE) for safe working in workshop	1	2	-	1
PC8. use appropriate fitting methods and perform fitting operations to fit the CNG kit in vehicle as per SOP/WI	1	2	-	1
PC9. make holes/cuts on various surfaces such as metal sheet, plastic, fabric etc., to fit the CNG kit components in the vehicle	2	4	-	1
PC10. remove dummy plugs, covers, old/damaged/defective parts etc. and clean the surrounding areas prior to installation of CNG kit components	2	2	-	1







Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. make wiring connections as specified by the manufacturer to fit the electrical/electronic components of CNG Kit	2	5	-	2
PC12. assemble and secure all the components of the CNG Kit in vehicle in their correct positions by using appropriate assembly methods and techniques	2	5	-	1
PC13. fasten components permanently by using appropriate fasteners, screws etc. as per SOP	2	2	-	-
Perform post-installation activities	10	15	-	7
PC14. ensure correct calibration/tuning of engine after installation of CNG kit	1	2	-	-
PC15. ensure that all CNG kit components installed, fitted and functioning properly	1	2	-	1
PC16. perform road trial of vehicle to check CNG kit functioning and engine performance on both petrol and CNG modes	-	2	-	-
PC17. provide necessary information like features, functioning, precautions and maintenance requirements of CNG Kit to the customer	3	2	-	2
PC18. return leftover consumable/parts, tools/equipment etc. after completion of work	1	2	-	1
PC19. ensure that all the fitting and installation activities are completed before releasing the vehicle	-	1	-	1
PC20. dispose off packing wraps/box/covers and other material as per organization's policies	2	2	-	1
PC21. prepare and maintain documents and records related to the CNG Kit fitment in vehicle as per organizational procedures	2	2	-	1
NOS Total	30	50	-	20







### National Occupational Standards (NOS) Parameters

NOS Code	ASC/N1448
NOS Name	Install and fit CNG Kit in the vehicle
Sector	Automotive
Sub-Sector	Automotive Vehicle Service
Occupation	Technical Service & Repair
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/12/2021
Next Review Date	30/12/2024
NSQC Clearance Date	30/12/2021

# Assessment Guidelines and Assessment Weightage

#### **Assessment Guidelines**

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

Minimum Aggregate Passing % at QP Level: 70







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

# Assessment Weightage

# **Compulsory NOS**

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N9801.Organize work and resources (Service)	50	30	-	20	100	15
ASC/N9802.Interact effectively with colleagues, customers and others	50	30	-	20	100	10
ASC/N1448.Install and fit CNG Kit in the vehicle	30	50	-	20	100	75
Total	130	110	-	60	300	100







# **Acronyms**

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
PwD	Persons with Disability







# .

# Glossary

Sector	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.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	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.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	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.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
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 OS they are looking for.
Scope	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.







Knowledge and Understanding (KU)	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.
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.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	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.
Electives	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.
Options	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.