



National Unit Specification: general information

UNIT Automotive Skills: The Technician (SCQF level 4)

CODE F8MY 10

SUMMARY

This Unit has been designed as a mandatory Unit of the Skills for Work Automotive Skills Course at SCQF level 4 and can also be taken as a free-standing Unit.

The Unit introduces candidates to some of the tools and techniques used by technicians in the automotive industry.

The candidate will use a range of common hand tools as well as more specialised tools and equipment. Candidates will also learn the names, functions and serviceability of automotive components while engaging in practical activities as well as gaining basic knowledge of working safely in an automotive engineering environment.

To enrich the candidate's understanding and range of associated skills they will carry out engineering processes such as Spot welding, Soldering, Thread cutting and Brake pipe manufacture.

Candidates will have the opportunity to review and develop their own employability skills throughout the Unit.

This Unit is suitable for those who have no previous qualifications or experience and wish to gain an introductory award as part of a general education or to more specialised study.

OUTCOMES

- 1 Demonstrate knowledge of the function and serviceability of a selection of vehicle components.
- 2 Prepare for and carry out the removal and replacement of automotive assemblies and components.
- 3 Prepare for and carry out engineering processes relevant to the automotive industry.
- 4 Review and evaluate own employability skills profile.

Administrative Information

Superclass: XS

Publication date: April 2010

Source: Scottish Qualifications Authority

Version: 01

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National Unit Specification: general information (cont)

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RECOMMENDED ENTRY

While entry is at the discretion of the centre it would be advantageous for candidates to have attained or be working towards one or more of the following Skills for Work Units or equivalent:

F8MX 10 *Automotive Skills: The Car*
F8MW 10 *Automotive Skills: The Garage*

CREDIT VALUE

1 credit at SCQF level 4 (6 SCQF credit points at SCQF level 4*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes of this Unit Specification.

There is no automatic certification of Core Skills or Core Skill components in this Unit.

National Unit Specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME 1

Demonstrate knowledge of the function and serviceability of a selection of vehicle components.

Performance Criteria

- (a) Identify correctly a selection of vehicle components.
- (b) Describe correctly the function of the selected vehicle components.
- (c) Identify correctly faulty/worn components.

OUTCOME 2

Prepare for and carry out the removal and replacement of automotive assemblies and components.

Performance Criteria

- (a) Identify common automotive tools and equipment and clearly state their function.
- (b) Select and use an appropriate range of automotive tools and equipment correctly.
- (c) Remove and replace automotive components and assemblies correctly.
- (d) Complete a quality check of own work to ensure all components and fasteners are replaced correctly.
- (e) Adhere to safe working practices while carrying out all activities.

OUTCOME 3

Prepare for and carry out engineering processes relevant to the automotive industry.

Performance Criteria

- (a) Select and use a range of specialised tools correctly.
- (b) Complete a series of practical tasks applying to a range of automotive engineering processes.
- (c) Adhere to safe working practices while carrying out all activities.

OUTCOME 4

Review and evaluate own employability skills profile.

- (a) Identify own strengths and weaknesses.
- (b) Seek and record feedback from teacher/lecturer on own performance.
- (c) Identify action points for improvement in relation to employability skills.

National Unit Specification: statement of standards

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EVIDENCE REQUIREMENTS FOR THIS UNIT

Performance and written/oral recorded evidence which covers all the Outcomes and Performance Criteria is required for this Unit.

Performance evidence must be supported by assessor observation checklists. This evidence must be generated by the completion of supervised practical activities carried out in workshop conditions. A test will also be used to assess knowledge of the names and functions of tools and standard vehicle components.

Outcomes 1 and 2 — Written/oral evidence

Candidates will be tested in open-book, supervised conditions, on their knowledge of the components and tools specified. They must state the names and uses of 10 vehicle components and 10 common tools. 4 out of the 10 components should be faulty/worn. The candidate must identify the fault or wear.

Outcomes 1 and 2 — Performance evidence

Evidence for these Outcomes will be gathered throughout the Unit as the candidate carries out the practical tasks as listed below. Centres may integrate related tasks.

Candidates will be required to demonstrate by practical activity on one occasion that they are able to:

- ◆ select and use the following range of tools and equipment correctly:
 - socket sets (including common sizes of ratchets, extensions and spanners)
 - trolley jack
 - axle stands
 - torque wrench
 - screwdrivers
 - oil filter removal tool
 - vehicle hoist

- ◆ remove and replace correctly:
 - the oil filter
 - spark plugs
 - a road wheel
 - an inlet manifold on static engine
 - an exhaust manifold on static engine
 - wiper blades
 - brake pads
 - a brake disc
 - a light bulb
 - an air filter

National Unit Specification: statement of standards (cont)

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- ◆ assess the serviceability of the specified components
- ◆ complete a quality check of practical work
- ◆ adhere to safe working practices whilst carrying out all activities

An assessor observation checklist must be used to provide evidence of performance.

Outcome 3 — Performance evidence

Evidence for this Outcome will be gathered throughout the Unit as the candidate carries out the practical activities as listed below.

Candidates will be required to demonstrate by practical activity on one occasion that they are able to:

- ◆ select and use a range of specialised tools correctly
- ◆ complete the following practical tasks:
 - soldering connectors
 - brake pipe manufacture
- ◆ adhere to safe working practices while carrying out all activities

These practical tasks can be carried out as individual exercises or integrated to produce small practical projects.

An assessor observation checklist must be used to provide evidence of performance.

Outcome 4 — Candidate review

Candidates must identify their own strengths and weaknesses using a self evaluation review, and obtain feedback from their teacher/lecturer in relation to the specified list of employability skills. Candidates must also identify action points for improvement.

A signed record of the review must be retained by the assessor as assessment evidence.

The National Assessment Bank pack provided for this Unit illustrates the standard that should be applied. It includes oral/written questions for Outcomes 1 and 2 and assessor observation checklists for Outcomes 1–3 and a candidate self-evaluation record for Outcome 4. If a centre wishes to design its own assessments for this Unit they should be of a comparable standard.

National Unit Specification: support notes

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This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit is designed to help candidates gain an understanding of the types of activities, skills and environment associated with a technician's role in the automotive industry. Candidates will have the opportunity to work on vehicles and assemblies using a range of common tools and equipment. They will gain experience and confidence that will enable them to make informed choices for future study and employment. The Unit will also familiarise candidates with working practices and with Health and Safety issues relating to the automotive industry. The candidate will develop skills in the use of hand tools and equipment through practice, progressively learning to select and use the most appropriate tools and equipment for a given task.

During the process of practical work candidates will become accustomed to working with others and in groups, sharing equipment and being aware of the need to work cooperatively. Candidates will have the opportunity to develop good working practice which will include carrying out a quality check of their own work. They should also learn and become accustomed to using associated terminology.

The range of processes carried out to achieve Outcome 3 will help candidates develop knowledge of basic repair processes as well as construction methods used in the automotive industry. Centres may if they have the appropriate facilities/expertise wish to extend this to cover body repair and paint processes.

While carrying out the practical activities associated with Outcomes 1–3 candidates will gain experience of the workshop environment and roles of employees. The teacher/lecturer may allocate individuals/groups to team roles to enhance the candidate's knowledge of the different jobs within a working dealership/centre.

Time can also be spent developing the candidate's appreciation of the financial cost involved in service tasks as well as tools, service parts and equipment. Tool catalogues can be used to cost a basic tool kit and the use of freely available commercial websites would develop candidates' understanding of the cost of parts and how to select the correct replacement part.

The context for learning must include the requirement for appropriate PPE, appropriate conduct, and correct care of tools and equipment.

In addition to the vocational content, candidates should be encouraged to develop a positive approach to the employability skills identified by employers. These should be taught as an integral part of the Unit. Opportunities will arise while working in the workshop environment to highlight the value of a positive attitude, good timekeeping, appropriate appearance, good customer care, communication skills, teamwork, respect and consideration for others, time management and an understanding of current relevant health and safety legislation.

National Unit Specification: support notes (cont)

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The following list of employability skills and behaviours have been identified by employers in the automotive industry and are an important part of the content of this Unit.

- ◆ positive attitude towards learning:*
- showing commitment and flexibility
- showing an interest in the automotive industry
- showing a willingness to learn
- ◆ good timekeeping and attendance*
- ◆ following instructions*
- ◆ awareness of the implications of health and safety requirements*
- ◆ importance of appropriate dress code*
- ◆ good communication skills
- ◆ preparing and planning for work*
- ◆ awareness of the monetary value of the vehicles being worked on and their importance to the customer
- ◆ ability to work in a team
- ◆ flexible approach to solving problems
- ◆ adaptability to change
- ◆ confidence to provide and to seek feedback*
- ◆ understanding the workplace, the job roles and the career paths within it
- ◆ awareness of environmental issues affecting the automotive industry

Assessment activity for this Unit will clearly identify a number of employability skills (marked with an asterisk*). However there are opportunities throughout this Unit to develop the remaining skills.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

It is important that at the start of the Unit candidates are introduced to the workshop environment and that attention is drawn to relevant health and safety issues, eg Control of Substances Hazardous to Health (COSHH), Personal Protective Equipment (PPE), as well as the location of First Aid and fire fighting equipment. Time should be taken to discuss the implications arising for an employer/employee if these are ignored. The employability skills that will be developed throughout the Unit should be highlighted as well as the benefits of acquiring such skills.

The Unit will be largely experiential through the completion of practical tasks but it is vital that sufficient time is taken to explain the purpose of carrying out the task, the application of the skills being learned and in what situation each task would be required on a vehicle or in the workplace.

There is an ideal opportunity for reflection if at the end of each session the teacher/lecturer allocates time when candidates can review what went right and what didn't during the day's session.

The candidate should be made aware of the correct identification and selection of the replacement parts for the vehicle and the implications of the incorrect parts being fitted.

National Unit Specification: support notes (cont)

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Teaching and learning approaches should be varied and may include:

- ◆ Teacher/lecturer demonstrations
- ◆ Video presentations
- ◆ Visits to dealerships, garages, repair centres
- ◆ Visiting speakers
- ◆ Group and team work
- ◆ Self and peer evaluation
- ◆ Role play
- ◆ Discussions and opportunities to analyse problems

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

In this Unit candidates will carry out tasks that involve, listening, seeking advice, selecting and using correct tools and equipment, reporting and communicating their views and using ICT as a research tool. They will have to work cooperatively with others and develop skills that apply to a wide range of situations in everyday life and in employment. These are opportunities for developing aspects of the Core Skills of *Information and Communication Technology*, *Communication* and *Working with Others*.

Candidates will also be encouraged to take responsibility for improving their own performance through self evaluation, taking feedback from others, setting goals for improvement and evaluating progress made. These are opportunities for developing aspects of Core Skills in *Communication* and *Problem Solving*.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The Evidence Requirements are fully expressed in the mandatory section of this Unit Specification.

The candidate will work through the assigned tasks and the assessor will keep a record of the candidate's performance. It is likely that the candidate will need to complete some tasks on more than one occasion until they have gained confidence and experience prior to the assessment. Where candidates are required to demonstrate knowledge of tools/components names and uses, written tests oral interviews or ICT programs may be used.

Employability is assessed by the completion of a self evaluation review where the candidate reviews their performance over the course of the Unit against the employability skills as identified earlier. This is best completed towards the end of the Unit. The candidates identified action points should be kept and agreed by the candidate and assessor.

If candidates are working as a pair or team assessors must satisfy themselves that each candidate is competent in each aspect of the exercise. Candidates are also required to quality check their work and should do so prior to the assessor check.

Some tasks such as the removal and replacement of the road wheel, brake discs and brake pads can be approached as integrated activities.

National Unit Specification: support notes (cont)

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Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by information and communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

The National Assessment Bank pack provided for this Unit illustrates the standard that should be applied. It includes oral/written questions for Outcomes 1 and 2 and assessor observation checklists for Outcomes 1–3 and a candidate self-evaluation record for Outcome 4. If a centre wishes to design its own assessments for this Unit they should be of a comparable standard.

DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements