QUALIFICATION HANDBOOK

City & Guilds Level 2 Certificate / Diploma in Vehicle Fitting Principles (4290-52)

September 2025 Version 3.5

Qualification at a glance

Subject area	**Vehicle Fitting**
City & Guilds number	4290
Age group approved	16+
Entry requirements	There are no entry requirements
Assessment	Online multiple choice tests (graded Pass, Merit, Distinction) and assignments (graded Pass)
Grading	Pass/Fail
Fast track	Not available; automatic approval applies in some cases
Support materials	Centre handbook Practical assessment workbook
Registration and certification	See online catalogue/Walled Garden for last dates.

Title and level	GLH	TQT	City & Guilds number	Accreditation number
City & Guilds Level 2 Diploma/Certificate in Vehicle Fitting Principles	426	510	4290-52	501/0748/3
City & Guilds Level 2 Certificate in Vehicle Fitting Principles	306	360	4290-52	600/1448/9
City & Guilds Level 2 Diploma/Certificate in Vehicle Specialist Tyre Fitting Principles	390	460	4290-52	600/1449/0

Version and date	Change detail	Section
1.0 May 2011	Initial version	**All**
1.1 Oct 2012	Correct unit numbering - group H in Structure table	**Structure**
2.0 Feb 2013	Amendment to assessment information	**Assessment**
	Corrected typographical errors	**All**

2.1 Oct 2013	Unit supporting information updated with introductory text	**Units**
3.0 Dec 2013	Additional RoCs added	**Structure**
	Additional Units (224, 225, 555, 556) added	**Units**
3.1 Feb 2013	Added Certificate to structure details	**Structure /All/Title**
3.2		
3.3 August 2017	Added TQT details Deleted QCF	**Qualification at a glance, Structure** **Throughout**
3.4 October 2018	Structure corrected for Level 2 Diploma / certificate in Vehicle Specialist Tyre Fitting - units 003&053 added	**Qualification structure for Level 2 Diploma / certificate in Vehicle Specialist Tyre Fitting**
3.5 September 2025	City & Guilds title and logo added Grading information added (Pass/Fail) Access arrangements information added Sustainability and CASS information added Sources of general information updated	**Front cover** **Qualification at a glance** **Section 2** **Section 3** **Appendix 1**

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Unit 510	Skills in inspection, testing and replacement of vehicle batteries and related components	80
Unit 511	Skills in inspection and replacement of light vehicle suspension dampers and springs	82
Unit 512	Skills in inspection and replacement of light vehicle braking systems & components	84
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Unit 552	Knowledge of inspection, repair and replacement of high performance light vehicle tyres	88
Unit 553	Knowledge of inspection, repair and replacement of commercial vehicle tyres	93
Unit 554	Knowledge of inspection, repair and replacement of motorcycle tyres	99
Unit 555	Knowledge of Inspection, Repair and Replacement of Plant Equipment Tyres	106
Unit 556	Knowledge of Inspection, Repair and Replacement of Industrial Equipment Tyres	109
Unit 557	Knowledge of light vehicle four wheel alignment	114
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1 Introduction

This document tells you what you need to do to deliver the qualification:

Area	Description
Who is the qualification for?	This Level 2 Diploma / certificate in tyre fitting principles is for anyone developing a career in the motor industry who wants to develop practical skills in and broaden their understanding of motor vehicle systems. Successful candidates will have the skills needed to apply for an automotive Advanced Apprenticeship or similar engineering pathway.
What does the qualification cover?	It allows candidates to learn, develop and practise the skills required for employment and/or career progression in the automotive industry.
Are the qualifications part of a framework or initiative?	These qualifications are part of the Automotive Maintenance and Repair Advanced Apprenticeship Framework (framework 1) which will replace current framework 4 from April 2011.
Who did we develop these qualifications with?	These qualifications were developed in collaboration with the Institute of the Motor Industry (IMI) the sector skills council for the automotive retail industry and other awarding organisations.
What opportunities for progression are there?	It allows candidates to progress into employment or to the following City & Guilds qualifications: 4290–53 City & Guilds Level 3 Diploma in Vehicle Fitting Supervisory ILM management and leadership qualifications.

Structure

Qualification	Credits
City & Guilds Level 2 Diploma / Certificate in Vehicle Fitting Principles (4290-52)	The total credit value required is **51** credits
	29 credits from **mandatory** units
	Group A: 001, 003, 004, 051, 053, 054
	22 credits from **optional** units
	a minimum of 7 credits from optional group 1 ensuring both knowledge and skills units are achieved Group C (008 and 058) or Group D (502 and 552) or Group E (503 and 553) or Group F (504 and 554) or Group G (603 and 653) plus a minimum of 15 credits from optional group 2 ensuring both knowledge and skills units are achieved Group H (101 and 151) or Group I (507 and 557) or Group J (508 and 558) or Group K (509 and 559) or Group L (510 and 560) or Group M (511 and 561) or Group N (512 and 562) or Group O (513 and 563)

Unit accreditation number	City & Guilds unit	Unit title	Credit value
Mandatory	**Group A**		
Y/601/7254	001	Skills in health, safety and good housekeeping in the automotive environment	7
J/601/6262	003	Skills in supporting job roles in the automotive work environment	5
Y/601/6279	004	Skills in materials, fabrication, tools and measuring devices used in the automotive environment	7
D/601/6171	051	Knowledge of health, safety and good housekeeping in the automotive environment	3
T/601/6175	053	Knowledge of support for job roles in the automotive work environment	3
K/601/6237	054	Knowledge of materials, fabrication, tools and measuring devices used in the automotive environment	4
Optional	**Group C**		
M/601/6286	008	Skills to identify and agree motor vehicle customer service needs	5

Unit accreditation number	City & Guilds unit	Unit title	Credit value
R/601/6247	058	Knowledge of how to identify and agree motor vehicle customer service needs	5
Optional	**Group D**		
K/601/6092	502	Skills in inspection, repair and replacement of high performance light vehicle tyre	4
T/601/6032	552	Knowledge of inspection, repair and replacement of high performance light vehicle tyres	3
Optional	**Group E**		
M/601/6093	503	Skills in inspection repair and replacement of commercial vehicle tyres	5
L/601/6036	553	Knowledge of inspection, repair and replacement of commercial vehicle tyres	3
Optional	**Group F**		
T/601/6094	504	Skills in inspection, repair and replacement of motorcycle tyres	4
R/601/6040	554	Knowledge of inspection, repair and replacement of motorcycle tyres	3
Optional	**Group G**		
F/601/7409	603	Skills in assessing and securing the roadside situation	5
A/601/7408	653	Knowledge in assessing and securing the roadside situation	6
Optional	**Group H**		
H/601/3871	101	Skills in routine light vehicle maintenance	2
F/601/3716	151	Knowledge of routine light vehicle maintenance	3
Optional	**Group I**		
F/601/6745	507	Skills in light vehicle four wheel alignment	4
F/601/6051	557	Knowledge of light vehicle four wheel alignment	3
Optional	**Group J**		
D/601/6753	508	Skills in inspection and repair of light vehicle clutches	4
H/601/6060	558	Knowledge of inspection and repair of light vehicle clutches	2
Optional	**Group K**		

Unit accreditation number	City & Guilds unit	Unit title	Credit value
A/601/6842	509	Skills in inspection and replacement of light vehicle exhaust components	3
Y/601/6072	559	Knowledge of inspection and replacement of light vehicle exhaust components	2
Optional	**Group L**		
K/601/8179	510	Skills in inspection, testing and replacement of vehicle batteries and related components	3
F/601/6082	560	Knowledge of inspection, testing and replacement of vehicle batteries and related components	2
Optional	**Group M**		
F/601/6857	511	Skills in inspection and replacement of light vehicle suspension dampers and springs	3
J/601/6083	561	Knowledge of inspection and replacement of light vehicle suspension dampers and springs	2
Optional	**Group N**		
L/601/6862	512	Skills in inspection and replacement of light vehicle braking Systems & components	4
L/601/6084	562	Knowledge of inspection, adjustment and replacement of light vehicle braking systems and components	2
Optional	**Group O**		
M/601/6868	513	Skills in safe use of oxy-acetylene in automotive applications	2
R/601/6085	563	Knowledge of safe use of oxy-acetylene in automotive applications	3

Qualification	Credits
City & Guilds Level 2 Certificate in Vehicle Fitting Principles (4290-52)	The total credit value required is **36** credits
	21 credits from **mandatory** units
	Mandatory Group: 001, 004, 051, 054
	15 credits from **optional** units
	From a minimum of 3 groups Group A (502 and 552) or Group B (504 and 554) or Group C (507 and 557) or Group D (508 and 558) or Group E (509 and 559) or Group F (510 and 560) or Group G (511 and 561) or Group H (512 and 562) or Group I (101 and 151)

Unit accreditation number	City & Guilds unit	Unit title	Credit value
Mandatory	**Group**		
Y/601/7254	001	Skills in health, safety and good housekeeping in the automotive environment	7
Y/601/6279	004	Skills in materials, fabrication, tools and measuring devices used in the automotive environment	7
D/601/6171	051	Knowledge of health, safety and good housekeeping in the automotive environment	3
K/601/6237	054	Knowledge of materials, fabrication, tools and measuring devices used in the automotive environment	4
Optional	**Group A**		
K/601/6092	502	Skills in inspection, repair and replacement of high performance light vehicle tyre	4
T/601/6032	552	Knowledge of inspection, repair and replacement of high performance light vehicle tyres	3
Optional	**Group B**		
T/601/6094	504	Skills in inspection, repair and replacement of motorcycle tyres	4
R/601/6040	554	Knowledge of inspection, repair and replacement of motorcycle tyres	3
Optional	**Group C**		
F/601/6745	507	Skills in light vehicle four wheel alignment	4

Unit accreditation number	City & Guilds unit	Unit title	Credit value
F/601/6051	557	Knowledge of light vehicle four wheel alignment	3
Optional	**Group D**		
D/601/6753	508	Skills in inspection and repair of light vehicle clutches	4
H/601/6060	558	Knowledge of inspection and repair of light vehicle clutches	2
Optional	**Group E**		
A/601/6842	509	Skills in inspection and replacement of light vehicle exhaust components	3
Y/601/6072	559	Knowledge of inspection and replacement of light vehicle exhaust components	2
Optional	**Group F**		
K/601/8179	510	Skills in inspection, testing and replacement of vehicle batteries and related components	3
F/601/6082	560	Knowledge of inspection, testing and replacement of vehicle batteries and related components	2
Optional	**Group G**		
F/601/6857	511	Skills in inspection and replacement of light vehicle suspension dampers and springs	3
J/601/6083	561	Knowledge of inspection and replacement of light vehicle suspension dampers and springs	2
Optional	**Group H**		
L/601/6862	512	Skills in inspection and replacement of light vehicle braking Systems & components	4
L/601/6084	562	Knowledge of inspection, adjustment and replacement of light vehicle braking systems and components	2
Optional	**Group I**		
H/601/3871	101	Skills in routine light vehicle maintenance	2
F/601/3716	151	Knowledge of routine light vehicle maintenance	3

Qualification	Credits
City & Guilds Level 2 Diploma / certificate in Vehicle Specialist Tyre Fitting (4290-52)	The total credit value required is **46** credits
	18 credits from **mandatory** units
	Mandatory Group: 001, 003, 053, 054
	28 credits from **optional** units
	Group A (008 and 058) or Group B (502 and 554) or Group C (503 and 553) or Group D (504 and 554) or Group E (224 and 555) or Group F (225 and 556) or Group G (507 and 557) or Group H (603 and 653)

Unit accreditation number	City & Guilds unit	Unit title	Credit value
Mandatory	**Group**		
Y/601/7254	001	Skills in health, safety and good housekeeping in the automotive environment	7
J/601/6262	003	Skills in supporting job roles in the automotive work environment	5
D/601/6171	051	Knowledge of health, safety and good housekeeping in the automotive environment	3
T/601/6175	053	Knowledge of support for job roles in the automotive work environment	3
Optional	**Group A**		
M/601/6286	008	Skills to identify and agree motor vehicle customer service needs	5
R/601/6247	058	Knowledge of how to identify and agree motor vehicle customer service needs	5
Optional	**Group B**		
K/601/6092	502	Skills in inspection, repair and replacement of high performance light vehicle tyre	4
T/601/6032	552	Knowledge of inspection, repair and replacement of high performance light vehicle tyres	3
Optional	**Group C**		
M/601/6093	503	Skills in inspection repair and replacement of commercial vehicle tyres	5

Unit accreditation number	City & Guilds unit	Unit title	Credit value
L/601/6036	553	Knowledge of inspection, repair and replacement of commercial vehicle tyres	3
Optional	**Group D**		
T/601/6094	504	Skills in inspection, repair and replacement of motorcycle tyres	4
R/601/6040	554	Knowledge of inspection, repair and replacement of motorcycle tyres	3
Optional	**Group E**		
A/601/6100	224	Skills in Inspection Repair and Replacement of Plant Equipment Tyres	4
M/601/6045	555	Knowledge of Inspection, Repair and Replacement of Plant Equipment Tyres	3
Optional	**Group F**		
K/601/6741	225	Skills in Inspection Repair and Replacement of Industrial Equipment Tyres	4
J/601/6049	556	Knowledge of Inspection, Repair and Replacement of Industrial Equipment Tyres	3
Optional	**Group G**		
F/601/6745	507	Skills in light vehicle four wheel alignment	4
F/601/6051	557	Knowledge of light vehicle four wheel alignment	3
Optional	**Group H**		
F/601/7409	603	Skills in assessing and securing the roadside situation	5
A/601/7408	653	Knowledge in assessing and securing the roadside situation	6

Total Qualification Time

Total Qualification Time (TQT) is the total amount of time, in hours, expected to be spent by a Learner to achieve a qualification. It includes both guided learning hours (which are listed separately) and hours spent in preparation, study and assessment.

Title and level	GLH	TQT
City & Guilds Level 2 Diploma/Certificate in Vehicle Fitting Principles	426	510
City & Guilds Level 2 Certificate in Vehicle Fitting Principles	306	360
City & Guilds Level 2 Diploma/Certificate in Vehicle Specialist Tyre Fitting Principles	390	460

2 Centre requirements

Approval

Centres already approved to offer the City & Guilds Level 2 Certificate/Diploma in Vehicle Fitting – General Vehicle Fitting (4101-65) or City & Guilds Level 2 Certificate Diploma in Vehicle Fitting – Specialist Tyre Fitting (4101-66) will be automatically approved to register and certificate candidates on the City & Guilds Level 2 Diploma in Vehicle Fitting Principles (4290-52) (unless the centre is already subject to sanctions).

For all other cases, centres will need to gain both centre and qualification approval. Please refer to the *Centre Manual - Supporting Customer Excellence* for further information. Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualifications before designing a course programme.

Resource requirements

Physical resources and site agreements

Centres must have access to sufficient equipment in the college, training centre or workplace to ensure candidates have the opportunity to cover all of the practical activities.

Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

be occupationally competent or technically knowledgeable in the area(s) for which they are delivering training and/or have experience of providing training. This knowledge must be to the same level as the training being delivered

have recent relevant experience in the specific area they will be assessing

have credible experience of providing training.

Centre staff may undertake more than one role, eg tutor and assessor or internal verifier, but cannot internally verify their own assessments.

Assessor and verifiers

While the Assessor/Verifier (A/V) units are valued as qualifications for centre staff, they are not currently a requirement for these qualifications.

Continuing professional development (CPD)

Centres must support their staff to ensure that they have current knowledge of the occupational area, that delivery, mentoring, training, assessment and verification is in line with best practice, and that it takes account of any national or legislative developments.

Quality assurance

Approved centres must have effective quality assurance systems to ensure optimal delivery and assessment of qualifications. Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance. All external quality assurance processes reflect the minimum requirements for verified and moderated assessments, as detailed in the Centre Assessment Standards Scrutiny (CASS), section H2 of Ofqual's General Conditions. For more information on both CASS and City & Guilds quality assurance processes visit the What is CASS? and **Quality Assurance Standards** documents on the City & Guilds website.

Standards and rigorous quality assurance are maintained by the use of:

- internal quality assurance
- City & Guilds external quality assurance.

In order to carry out the quality assurance role, Internal Quality Assurers (IQAs) must:

- have appropriate teaching and vocational knowledge and expertise
- have experience in quality management/internal quality assurance
- hold or be working towards an appropriate teaching/training/assessing qualification
- be familiar with the occupation and technical content covered within the qualification.

External quality assurance for the qualification will be provided by City & Guilds. External Quality Assurers (EQAs) are appointed by City & Guilds to approve centres, and to monitor the assessment and internal quality assurance carried out by centres. External quality assurance is carried out to ensure that assessment is valid and reliable, and that there is good assessment practice in centres.

The role of the EQA is to:

- provide advice and support to centre staff
- ensure the quality and consistency of assessments and marking/grading within and between centres by the use of systematic sampling
- provide feedback to centres and to City & Guilds.

Candidate entry requirements

City & Guilds does not set entry requirements for these qualifications. However, centres must ensure that candidates have the potential and opportunity to gain the qualifications successfully.

Please note that for funding purposes, candidates should not be entered for a qualification of the same type, content and level as that of a qualification they already hold.

Age restrictions

These qualifications is accredited for candidates aged 16 years or older.

Access arrangements, reasonable adjustments and special consideration

City & Guilds has considered the design of these qualifications and the assessments in order to best support accessibility and inclusion for all learners. order to best support accessibility and inclusion for all learners. City & Guilds understands however that individuals have diverse learning needs and may require reasonable adjustments to fully participate. Reasonable adjustments, such as additional time or alternative formats, may be provided to accommodate learners with disabilities and support fair access to assessment.

Access arrangements are adjustments that allow candidates with disabilities, special educational needs, and temporary injuries to access the assessment and demonstrate their skills and knowledge without changing the demands of the assessment. These arrangements must be made before assessment takes place.

The Equality Act 2010 requires City & Guilds to make reasonable adjustments where a disabled person would be at a substantial disadvantage in undertaking an assessment.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Special consideration is a post examination adjustment to a candidate's mark or grade to reflect temporary injury, illness or other indisposition at the time of the examination/assessment.

Please refer to the documents 'Joint Council for Qualifications (JCQ) Access Arrangements and Reasonable Adjustments', 'JCQ – A Guide to the special consideration process' and 'Access arrangements – When and how applications need to be made to City & Guilds' for more information. All of these are available on the City & Guilds website

3 Delivering the qualification

Initial assessment and induction

An initial assessment of each candidate should be made before the start of their programme to identify:

- if the candidate has any specific training needs, support and guidance they may need when working towards their qualification.
- any units they have already completed, or credit they have accumulated which is relevant to the qualification.
- the appropriate type and level of qualification.

We recommend that centres provide an induction programme so the candidate fully understands the requirements of the qualification, their responsibilities as a candidate, and the responsibilities of the centre. This information can be recorded on a learning contract.

Inclusion and diversity

City & Guilds is committed to improving inclusion and diversity within the way we work and how we deliver our purpose which is to help people and organisations develop the skills they need for growth. More information and guidance to support centres in supporting inclusion and diversity through the delivery of City & Guilds qualifications can be found here:

Inclusion and diversity | City & Guilds (cityandguilds.com)

Sustainability

City & Guilds are committed to net zero. Our ambition is to reduce our carbon emissions by at least 50% before 2030 and develop environmentally responsible operations to achieve net zero by 2040 or sooner if we can. City & Guilds is committed to supporting qualifications that help our customers to consider sustainability and their environmental footprint.

More information and guidance to support centres in developing sustainable practices through the delivery of City & Guilds qualifications can be found here:

Our Pathway to Net Zero | City & Guilds (cityandguilds.com)

Centres should consider their own carbon footprint when delivering these qualifications and consider reasonable and practical ways of delivering these qualifications with sustainability in mind. This could include:

- reviewing purchasing and procurement processes (such as buying in bulk to reduce the amount of travel time and energy and considering and investing in the use of components that can be reused, instead of the use of disposable or single use consumables)
- reusing components wherever possible
- waste procedures (ensuring that waste is minimised and recycling of components is in place wherever possible)
- minimising water use and considering options for reuse/salvage as part of activities wherever possible.

Artificial Intelligence (AI)

City & Guilds has published a **Position Statement on AI** including guidance on its use. This is designed to help learners, tutors and assessors to complete Non-Exam Assessments (NEAs), coursework and other internal assessments successfully. Staff delivering these qualifications must ensure familiarity with the statement.

Support materials

The following resources are available for these qualifications:

Description	How to access
Centre handbook	**www.cityandguilds.com/automotive**
Practical assessment workbook	**www.cityandguilds.com/automotive**

4 Assessment

Assessment of the qualification

City & Guilds has written the following assessments to use with these qualifications:

Assignments (practical assessment workbooks) comprising of practical tasks and knowledge based questions to cover all learning outcomes graded Pass only. Assignments can be downloaded from **www.cityandguilds.com/automotive**. These assessments are carried out in centres and must be completed to current industry standards and practice. It is important to note that although the units within these qualifications bear a close relationship to the VCQ units, they do not imply occupational competence.

Multiple choice tests

Assessment requirements for all skills units are shown in full in our assessment documentation.

Full details of the assessment requirements relating to these qualifications can be obtained directly from the Institute of the Motor Industry (IMI) **http://www.motor.org.uk**

Time constraints

The following must be applied to the assessment of these qualifications:

- Candidates must complete their assessments within their registration period.

Recognition of prior learning (RPL)

Proxy units / credit transfer

Learners transferring from City & Guilds 4101 NQF qualifications or from another awarding organisation may be exempt from taking the 4290/4270/4291/4271 online multiple choice tests, on production of a valid certificate of equivalent units achieved. Proxy units are available in these circumstances. Please note that a certificate of unit credit (CUC) is not available when claiming a proxy unit. For more information on credit transfer please refer to our 9420 Automotive Apprenticeship Framework centre guide available from www.cityandguilds.com

Test specifications

Summary test specifications for all 4290 online tests can be found in the *Automotive online test specifications* document, downloadable from the 4290 website.

City & Guilds Level 2 Diploma in Vehicle Fitting Principles

Unit	Level	Unit title	Credit value	Assessment method
001	2	Skills in health, safety and good housekeeping in the automotive environment	7	Assignment
003	3	Skills in supporting job roles in the automotive work environment	5	Assignment
004	2	Skills in materials, fabrication, tools and measuring devices used in the automotive environment	7	Assignment
008	3	Skills to identify and agree motor vehicle customer service needs	5	Assignment
051	2	Knowledge of health, safety and good housekeeping in the automotive environment	3	Assignment
053	3	Knowledge of support for job roles in the automotive work environment	3	Assignment
054	2	Knowledge of materials, fabrication, tools and measuring devices used in the automotive environment	4	Assignment
058	3	Knowledge of how to identify and agree motor vehicle customer service needs	5	Assignment
101	2	Skills in routine light vehicle maintenance	2	Assignment
151	2	Knowledge of routine light vehicle maintenance	3	Multiple choice
502	2	Skills in inspection, repair and replacement of high performance light vehicle tyre	4	Assignment
503	1	Skills in inspection repair and replacement of commercial vehicle tyres	5	Assignment
504	2	Skills in inspection, repair and replacement of motorcycle tyres	4	Assignment
507	2	Skills in light vehicle four wheel alignment	4	Assignment
508	2	Skills in inspection and repair of light vehicle clutches	4	Assignment

Unit	Level	Unit title	Credit value	Assessment method
509	2	Skills in inspection and replacement of light vehicle exhaust components	3	Assignment
510	2	Skills in inspection, testing and replacement of vehicle batteries and related components	3	Assignment
511	2	Skills in inspection and replacement of light vehicle suspension dampers and springs	3	Assignment
512	2	Skills in inspection and replacement of light vehicle braking systems & components	4	Assignment
513	2	Skills in safe use of oxy-acetylene in automotive applications	2	Assignment
552	2	Knowledge of inspection, repair and replacement of high performance light vehicle tyres	3	Multiple choice
553	1	Knowledge of inspection, repair and replacement of commercial vehicle tyres	3	Multiple choice
554	2	Knowledge of inspection, repair and replacement of motorcycle tyres	3	Multiple choice
557	2	Knowledge of light vehicle four wheel alignment	3	Multiple choice
558	2	Knowledge of inspection and repair of light vehicle clutches	2	Multiple choice
559	2	Knowledge of inspection and replacement of light vehicle exhaust components	2	Multiple choice
560	2	Knowledge of inspection, testing and replacement of vehicle batteries and related components	2	Multiple choice
561	2	Knowledge of inspection and replacement of light vehicle suspension dampers and springs	2	Multiple choice

Unit	Level	Unit title	Credit value	Assessment method
562	2	Knowledge of inspection, adjustment and replacement of light vehicle braking systems and components	2	Multiple choice
563	2	Knowledge of safe use of oxy-acetylene in automotive applications	3	Multiple choice
603	2	Skills in assessing and securing the roadside situation	5	Assignment
653	2	Knowledge in assessing and securing the roadside situation	6	Multiple choice

5 Units

Structure of units

These units each have the following:

- City & Guilds reference number
- unit accreditation number (UAN)
- title
- level
- credit value
- unit aim
- relationship to NOS
- learning outcomes which are comprised of a number of assessment criteria
- unit range.

Unit 001 Skills in health, safety and good housekeeping in the automotive environment

UAN:	**Y/601/7254**
Level:	2
Credit value:	7
GLH:	60
Relationship to NOS:	This unit is linked to G1 Contribute to Housekeeping in Motor Vehicle Environment and G2 Reduce Risks to Health and Safety in the Motor Vehicle Environment.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will enable the learner to develop the skills required to: carry out day to day work area cleaning, clearing away, dealing with spillages and disposal of waste, used materials and debris. identify hazards and risks in the automotive environment and complying with relevant legislation and good practice. work safely at all times within the automotive environment, both as an individual and with others.

Learning outcome	**The learner will:**
1.	be able to use correct personal and vehicle protection within the automotive work environment
Assessment criteria	
The learner can:	
1.1	select and use personal protective equipment throughout activities. To include appropriate protection of: a. eyes b. ears c. head d. skin e. feet

f. hands g. lungs 1.2 select and use vehicle protective equipment throughout all activities.

Learning outcome	**The learner will:**
2.	be able to carry out effective housekeeping practices in the automotive work environment
Assessment criteria	
The learner can: 2.1 select and use cleaning equipment which is of the right type and suitable for the task 2.2 use utilities and appropriate consumables, avoiding waste 2.3 use materials and equipment to carry out cleaning and maintenance duties in allocated work areas, following automotive work environment policies, schedules and manufacturers' instructions 2.4 perform housekeeping activities safely and in a way which minimizes inconvenience to customers and staff 2.5 keep the work area clean and free from debris and waste materials 2.6 keep tools and equipment fit for purpose by regular cleaning and keeping tidy 2.7 dispose of used cleaning agents, waste materials and debris to comply with legal and workplace requirements.	

Learning outcome	**The learner will:**
3.	be able to recognise and deal with dangers in order to work safely within the automotive workplace
Assessment criteria	
The learner can: 3.1 name and locate the responsible persons for health and safety in their relevant workplace 3.2 identify and report working practices and hazards which could be harmful to themselves or others 3.3 carry out safe working practices whilst working with equipment, materials and products in the automotive environment 3.4 rectify health and safety risks encountered at work, within the scope and capability of their job role.	

Learning outcome	**The learner will:**
4.	be able to conduct themselves responsibly
Assessment criteria	
The learner can: 4.1 show personal conduct in the workplace which does not endanger the health and safety of themselves or others 4.2 display suitable personal presentation at work which ensures the health and safety of themselves and others at work.	

Unit 003 Skills in supporting job roles in the automotive work environment

UAN:	**J/601/6262**
Level:	3
Credit value:	5
GLH:	40
Relationship to NOS:	This unit is linked to G3 Maintain Working Relationships in the Motor Vehicle Environment.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner develop the skills required to keep good working relationships with all colleagues and customers in the automotive work environment by using effective communication and support.

Learning outcome	**The learner will:**
1. be able to work effectively within the organisational structure of the automotive work environment	
Assessment criteria	
The learner can 1.1 respond promptly and willingly to requests for assistance from customers and colleagues 1.2 refer customers and colleagues to the correct person should requests fall outside their responsibility and capability.	

Learning outcome	**The learner will:**
2. be able to obtain and use information in order to support their job role within the automotive work environment	
Assessment criteria	
The learner can 2.1 select and use legal and technical information, in an automotive work environment.	

Learning outcome	The learner will:
3.	be able to communicate with and support colleagues and customers effectively within the automotive work environment
Assessment criteria	
The learner can 3.1 use methods of communication with customers and colleagues which meet their needs 3.2 give customers and colleagues accurate information 3.3 make requests for assistance from or to customers and colleagues clearly and courteously.	

Learning outcome	The learner will:
4.	be able to develop and keep good working relationships in the automotive work environment
Assessment criteria	
The learner can 4.1 contribute to team work by initiating ideas and co-operating with customers and colleagues 4.2 treat customers and colleagues in a way which shows respect for their views and opinions 4.3 make and keep achievable commitments to customers and colleagues 4.4 inform colleagues promptly of anything likely to affect their own work.	

Unit 004 Skills in materials, fabrication, tools and measuring devices used in the automotive environment

UAN:	**Y/601/6279**
Level:	2
Credit value:	7
GLH:	60
Relationship to NOS:	This unit is linked to G4 Use of hand tools and equipment in motor vehicle engineering.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit helps the learner to develop the skills required for: the correct selection, care and use of key hand tools and measuring devices for modification, fabrication and repair in the automotive environment the correct preparation and use of common work environment equipment the correct selection and fabrication of materials used when modifying and repairing the correct application of automotive engineering fabrication and fitting principles.

Learning outcome	**The learner will:**
1.	be able to select, maintain and use hand tools and measuring devices in the automotive environment
Assessment criteria	
The learner can:	
1.1	select, maintain and use suitable hand tools safely when fabricating and fitting in the automotive workplace
1.2	select, maintain and use suitable measuring devices safely when fabricating and fitting in the automotive environment
1.3	select, maintain and use suitable PPE for fabrication, repair and fitting in the automotive environment
1.4	select, maintain and use suitable electrical measuring tools

safely when repairing vehicles and components.

Learning outcome	**The learner will:**
2.	be able to prepare and use common workshop equipment
Assessment criteria	
The learner can: 2.1 use suitably maintained workshop equipment safely 2.2 use correct interpretation of 'safe working load' on lifting and supporting equipment 2.3 report any faulty or damaged tools and equipment to the relevant persons clearly and promptly 2.4 store work tools and equipment in a safe manner which permits ease of access and identification for use.	

Learning outcome	**The learner will:**
3.	be able to select materials when fabricating, modifying and repairing vehicles and fitting components
Assessment criteria	
The learner can: 3.1 select and use appropriate materials whilst constructing, fitting, modifying or repairing vehicles and components.	

Learning outcome	**The learner will:**
4.	be able to apply automotive engineering, fabrication and fitting principles when modifying and repairing vehicles and components
Assessment criteria	
The learner can: 4.1 use correct procedures when: a. filing b. tapping threads c. cutting plastics and metals d. drilling plastics and metals e. fitting 4.2 use appropriate techniques when fabricating, repairing and modifying vehicles and components 4.3 select and use: a. gaskets b. seals c. sealants d. fittings and fasteners 4.4 apply modification and repair techniques to automotive electrical circuits 4.5 select and use locking, fixing and fastening devices.	

Unit 008 Skills to identify and agree motor vehicle customer service needs

UAN:	**M/601/6286**
Level:	3
Credit value:	5
GLH:	40
Relationship to NOS:	This unit is linked to G8 Identify and agree the motor vehicle customer needs.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit is about the skills required to gain information from customers on their perceived needs; give advice and information and agree a course of action; contract for the agreed work and complete all necessary records and instructions.

Learning outcome	**The learner will:**
1.	be able to obtain relevant information from the customer
Assessment criteria	
The learner can: 1.1 obtain and interpret sufficient, relevant information, from the customer to make an assessment of their needs 1.2 clarify customer and vehicle needs by referring to vehicle data and operating procedures.	

Learning outcome	**The learner will:**
2.	be able to provide relevant information to the customer
Assessment criteria	
The learner can: 2.1 provide customers with accurate, current and relevant advice and information, in a form that the customer will understand 2.2 demonstrate techniques which encourage customers to ask questions and seek clarification during conversation.	

Learning outcome	The learner will:
3. be able to agree work undertaken with the customer	
Assessment criteria	
The learner can: 3.1 summarise and record work agreed with the customer, before accepting the vehicle 3.2 implement confirmation of the agreement by ensuring customer understanding.	

Learning outcome	The learner will:
4. be able to ensure recording systems are implemented correctly	
Assessment criteria	
The learner can: 4.1 use recording systems which are accurate and complete, in the required format and signed by the customer where necessary 4.2 perform the next stage in the process by passing on completed records to the correct person promptly 4.3 demonstrate correct procedures for customer approval where the contracted agreement is likely to be exceeded.	

Unit 051 Knowledge of health, safety and good housekeeping in the automotive environment

UAN:	**D/601/6171**
Level:	2
Credit value:	3
GLH:	30
Relationship to NOS:	This unit is linked to G1 Contribute to Housekeeping in Motor Vehicle Environment and G2 Reduce Risks to Health and Safety in the Motor Vehicle Environment.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of: routine maintenance and cleaning of the automotive environment and using resources economically health and safety legislation and duties of everyone in the motor vehicle environment. It will provide an appreciation of significant risks in the automotive environment and how to identify and deal with them. Once completed the learner will be able to identify hazards and evaluate and reduce risk.

Learning outcome	**The learner will:**
1.	understand the correct personal and vehicle protective equipment to be used within the automotive environment
Assessment criteria	
The learner can	
1.1	explain the importance of wearing the types of PPE required for a range of automotive repair activities
1.2	identify vehicle protective equipment for a range of repair activities
1.3	describe vehicle and personal safety considerations when working at the roadside.

Learning outcome	The learner will:
2. understand effective housekeeping practices in the automotive environment	
Assessment criteria	
The learner can 2.1 describe why the automotive environment should be properly cleaned and maintained 2.2 describe requirements and systems which may be put in place to ensure a clean automotive environment. 2.3 describe how to minimise waste when using utilities and consumables 2.4 state the procedures and precautions necessary when cleaning and maintaining an automotive environment 2.5 describe the selection and use of cleaning equipment when dealing with general cleaning, spillages and leaks in the automotive environment 2.6 describe procedures for correct disposal of waste materials from an automotive environment 2.7 describe procedures for starting and ending the working day which ensure effective housekeeping practices are followed.	

Learning outcome	The learner will:
3. understand key health and safety requirements relevant to the automotive environment	
Assessment criteria	
The learner can 3.1 list the main legislation relating to automotive environment health and safety 3.2 describe the general legal duties of employers and employees required by current health and safety legislation 3.3 describe key, current health and safety requirements relating to the automotive environment 3.4 describe why workplace policies and procedures relating to health and safety are important.	

Learning outcome	The learner will:
4. understand about hazards and potential risks relevant to the automotive environment	
Assessment criteria	
The learner can 4.1 identify key hazards and risks in an automotive environment 4.2 describe policies and procedures for reporting hazards, risks, health and safety matters in the automotive environment 4.3 state precautions and procedures which need to be taken when working with vehicles, associated materials, tools and equipment 4.4 identify fire extinguishers in common use and which types of fire they should be used on 4.5 identify key warning signs and their characteristics that are found in the vehicle repair environment 4.6 state the meaning of common product warning labels used in an automotive environment.	

Learning outcome	The learner will:
5. understand personal responsibilities	
Assessment criteria	
The learner can 5.1 explain the importance of personal conduct in maintaining the health and safety of the individual and others 5.2 explain the importance of personal presentation in maintaining health safety and welfare.	

Unit 051 Knowledge of health, safety and good housekeeping in the automotive environment

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Economic use of resources

a. Consumable materials eg grease, oils, split pins, locking and fastening devices.

Requirement to maintain work area effectively

a. Cleaning tools and equipment to maximise workplace efficiency.
b. Requirement to carry out the housekeeping activities safely and in a way that minimises inconvenience to customers and staff.
c. Risks involved when using solvents and detergents.
d. Advantages of good housekeeping.

Spillages, leaks and waste materials

a. Relevance of safe systems of work to the storage and disposal of waste materials.
b. Requirement to store and dispose of waste, used materials and debris correctly.
c. Safe disposal of special / hazardous waste materials.
d. Advantages of recycling waste materials.
e. Dealing with spillages and leaks.

Basic legislative requirements

a. Provision and Use of Work Equipment Regulations 1992.
b. Power Presses Regulations 1992.
c. Pressure Systems and Transportable Gas Containers Regulations 1989.
d. Electricity at Work Regulations 1989.
e. Noise at Work Regulations 1989.
f. Manual Handling Operations Regulations 1992.
g. Health and Safety (Display Screen Equipment) Regulations 1992.
h. Abrasive Wheel Regulations.
i. Safe Working Loads.
j. Working at Height Regulations.

Routine maintenance of the workplace

a. Trainee's personal responsibilities and limits of their authority with regard to work equipment.
b. Risk assessment of the workplace activities and work equipment.
c. Workplace person responsible for training and maintenance of workplace equipment.
d. When and why safety equipment must be used.
e. Location of safety equipment.
f. Particular hazards associated with their work area and equipment.
g. Prohibited areas.
h. Plant and machinery that trainees must not use or operate.
i. Why and how faults on unsafe equipment should be reported.
j. Storing tools, equipment and products safely and appropriately.
k. Using the correct PPE.
l. Following manufacturers' recommendations.
m. Location of routine maintenance information e.g. electrical safety check log.

Legislation relevant to Health and Safety

a. HASAWA.
b. COSHH.
c. EPA.
d. Manual Handling Operations Regulations 1992.
e. PPE Regulations 1992.

General regulations to include an awareness of:

a. Health and Safety (Display Screen Equipment) Regulations 1992.
b. Health and Safety (First Aid) Regulations 1981.
c. Health and Safety (Safety Signs and Signals) Regulations 1996.
d. Health and Safety (Consultation with Employees) Regulations 1996.
e. Employers Liability (Compulsory Insurance) Act 1969 and Regulations 1998.
f. Confined Spaces Regulations 1997.
g. Noise at Work Regulations 1989.
h. Electricity at Work Regulations 1989.
i. Electricity (Safety) Regulations 1994.
j. Fire Precautions Act 1971.
k. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985.
l. Pressure Systems Safety Regulations 2000.
m. Waste Management 1991.
n. Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002.
o. Control of Asbestos at Work Regulations 2002.

Legislative duties

a. The purpose of a Health and Safety Policy.
b. The relevance of the Health and Safety Executive.

c. The relevance of an initial induction to Health and Safety requirements at your workplace.
d. General employee responsibilities under the HASAWA and the consequences of non-compliance.
e. General employer responsibilities under the HASAWA and the consequences of non-compliance.
f. The limits of authority with regard to Health and Safety within a personal job role.
g. Workplace procedure to be followed to report Health and Safety matters.

Precautions to be taken when working with vehicles, workshop materials, tools and equipment including electrical safety, pneumatics and hydraulics

a. Accessing and interpreting safety information.
b. Seeking advice when needed.
c. Seeking assistance when required.
d. Reporting of unsafe equipment.
e. Storing tools, equipment and products safely and appropriately.
f. Using the correct PPE.
g. Following manufacturers' recommendations.
h. Following application procedures e.g. hazardous substances.
i. The correct selection and use of extraction equipment.

PPE to include:

a. Typical maintenance procedures for PPE equipment to include:
    i. typical maintenance log
    ii. cleaning procedures
    iii. filter maintenance
    iv. variation in glove types
    v. air quality checks.
b. Choice and fitting procedures for masks and air breathing equipment.
c. Typical workplace processes which would require the use of PPE to include:
    i. welding
    ii. sanding and grinding
    iii. filling
    iv. panel removal and replacement
    v. drilling
    vi. cutting
    vii. chiselling
    viii. removal of broken glass
    ix. removal of rubber seals from fire damaged vehicles
    x. removal of hypodermic needles
    xi. servicing activities
    xii. roadside recovery.
d. Unserviceable PPE.
e. PPE required for a range automotive repair activities. To include appropriate protection of:
    i. eyes

ii. ears
iii. head
iv. skin
v. feet
vi. hands
vii. lungs.

Fire and extinguishers

a. Classification of fire types.
b. Using a fire extinguisher effectively.
c. Types of extinguishers:
    i. foam
    ii. dry powder
    iii. CO2
    iv. water
    v. fire blanket.

Action to be taken in the event of a fire to include:

a. the procedure as:
    i. raise the alarm
    ii. fight fire only if appropriate
    iii. evacuate building
    iv. call for assistance.

Product warning labels to include:

a. reasons for placing warning labels on containers.
b. warning labels in common use:
    i. toxic
    ii. corrosive
    iii. poisonous
    iv. harmful
    v. irritant
    vi. flammable
    vii. explosive.

Warning signs and notices

a. Colours used for warning signs:
    i. red
    ii. blue
    iii. green.
b. Shapes and meaning of warning signs:
    i. round
    ii. triangular
    iii. square.
c. The meaning of prohibitive warning signs in common use.
d. The meaning of mandatory warning signs in common use.
e. The meaning of warning notices in common use.
f. General design of safe place warning signs.

Hazards and risks to include:

a. The difference between a risk and a hazard.
b. Potential risks resulting from:
    i. the use and maintenance of machinery or equipment
    ii. the use of materials or substances
    iii. accidental breakages and spillages
    iv. unsafe behaviour
    v. working practices that do not conform to laid down policies
    vi. environmental factors
    vii. personal presentation
    viii. unauthorised personnel, customers, contractors etc entering the work premises
    ix. working by the roadside
    x. vehicle recovery.
c. The employee's responsibilities in identifying and reporting risks within their working environment.
d. The method of reporting risks that is outside own limits of authority.
e. Potential causes of:
    i. fire
    ii. explosion
    iii. noise
    iv. harmful fumes
    v. slips
    vi. trips
    vii. falling objects
    viii. accidents whilst dealing with broken down vehicles.

Personal responsibilities

a. The purpose of workplace policies and procedures on:
    i. the use of safe working methods and equipment
    ii. the safe use of hazardous substances
    iii. smoking, eating , drinking and drugs
    iv. emergency procedures
    v. personal appearance.
b. The importance of personal appearance in the control of health and safety

Action to be taken in the event of colleagues suffering accidents

a. The typical sequence of events following the discovery of an accident such as:
    i. make the area safe
    ii. remove hazards if appropriate i.e. switch off power
    iii. administer minor first aid
    iv. take appropriate action to re-assure the injured party
    v. raise the alarm
    vi. get help
    vii. report on the accident.
b. Typical examples of first aid which can be administered by persons at the scene of an accident:
    i. check for consciousness
    ii. stem bleeding

iii. keep the injured person’s airways free
iv. place in the recovery position if injured person is unconscious
v. issue plasters for minor cuts
vi. action to prevent shock i.e. keep the injured party warm
vii. administer water for minor burns or chemical injuries
viii. wash eyes with water to remove dust or ingress of chemicals (battery acid)
ix. need to seek professional help for serious injuries.

c. Examples of bad practice which may result in further injury such as:
i. moving the injured party
ii. removing foreign objects from wounds or eyes
iii. inducing vomiting
iv. straightening deformed limbs.

Unit 053 Knowledge of support for job roles in the automotive work environment

UAN:	**T/601/6175**
Level:	3
Credit value:	3
GLH:	20
Relationship to NOS:	This unit is linked to G3 Maintain Working Relationships in the Motor Vehicle Environment.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of how to keep good working relationships with all colleagues in the automotive work environment by using effective communication and support skills.

Learning outcome	**The learner will:**
1.	understand key organisational structures, functions and roles within the automotive work environment
Assessment criteria	
The learner can: 1.1 identify the purpose of the different sections of a typical automotive work environment 1.2 explain organisational structures and lines of communication within the automotive work environment 1.3 explain levels of responsibility within specific job roles in an automotive workplace. To include: a. trainee b. skilled technician c. supervisor d. manager.	

Learning outcome	The learner will:
2. understand the importance of obtaining, interpreting and using information in order to support their job role within the automotive work environment	
Assessment criteria	
The learner can: 2.1 explain the importance of different sources of information in an automotive work environment 2.2 explain how to find, interpret and use relevant sources of information 2.3 describe the main legal requirements relating to the vehicle, including road safety requirements 2.4 explain the importance of working to recognised procedures and processes 2.5 explain when replacement units and components must meet the manufacturers' original equipment specification 2.6 explain the purpose of how to use identification codes.	

Learning outcome	The learner will:
3. understand the importance of different types of communication within the automotive work environment	
Assessment criteria	
The learner can: 3.1 explain where different methods of communication would be used within the automotive environment 3.2 explain the factors which can determine their choice of communication 3.3 explain how the communication of information can change with the target audience to include informed and uninformed people.	

Learning outcome	The learner will:
4. understand communication requirements when carrying out vehicle repairs in the automotive work environment	
Assessment criteria	
The learner can: 4.1 explain how to report using written and verbal communication 4.2 explain the importance of documenting information relating to work carried out in the automotive environment 4.3 explain the importance of working to agreed timescales.	

Learning outcome	The learner will:
5.	understand how to develop good working relationships with colleagues and customers in the automotive workplace
Assessment criteria	
The learner can: 5.1 describe how to develop positive working relationships with colleagues and customers 5.2 explain the importance of developing positive working relationships 5.3 explain the importance of accepting other peoples' views and opinions 5.4 explain the importance of making and honouring realistic commitments to colleagues and customers.	

Unit 053 Knowledge of support for job roles in the automotive work environment

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

The structure of a typical vehicle repair business

a. How these areas relate to each other within the business:
    i. body shop
    ii. vehicle repair workshop
    iii. paint shop
    iv. valeting
    v. vehicle parts store
    vi. main office
    vii. vehicle sales
    viii. reception.

Sources of information

a. Other staff.
b. Manuals.
c. Parts list.
d. Computer software and the internet.
e. Manufacturer.
f. Diagnostic equipment.

Communication requirements when carrying out vehicle repairs

a. Locating and using correct documentation and information for:
    i. recording vehicle maintenance and repairs
    ii. vehicle specifications
    iii. component specifications
    iv. oil and fluid specifications
    v. equipment and tools
    vi. identification codes.
b. Procedures for:
    i. referral of problems
    ii. reporting delays
    iii. additional work identified during repair or maintenance
    iv. keeping others informed of progress.
c. Methods of communication:
    i. verbal
    ii. signs and notices

iii. memos
iv. telephone
v. electronic mail
vi. vehicle job card
vii. notice boards
viii. SMS text messaging
ix. letters.

d. Organisational and customer requirements:
    i. importance of time scales to customer and organization
    ii. relationship between time and costs
    iii. meaning of profit.
e. Choice of communication
    i. distance
    ii. location
    iii. job responsibility.
f. Importance of maintaining positive working relationships:
    i. morale
    ii. productivity
    iii. company image
    iv. customer relationships
    v. colleagues.

Unit 054 Knowledge of materials, fabrication, tools and measuring devices in the automotive environment

UAN:	**K/601/6237**
Level:	2
Credit value:	4
GLH:	40
Relationship to NOS:	This unit is linked to G4 Use of hand tools and equipment in Motor Vehicle Engineering.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop and understanding of: the correct selection, care and use of key hand tools and measuring devices for modification, fabrication and repair in the automotive environment the correct preparation and use of common work environment equipment the correct selection and fabrication of materials used when modifying and repairing the correct application of automotive engineering fabrication and fitting principles.

Learning outcome	**The learner will:**
1.	understand how to select, use and care for hand tools and measuring devices in the automotive environment
Assessment criteria	
The learner can:	
1.1	identify and explain the use of common types of hand tools used for fabricating and fitting in the automotive environment
1.2	identify and explain the use of common measuring devices used for fabrication and fitting in the automotive environment
1.3	describe, within the scope of their responsibilities, how to select, prepare and maintain hand tools, measuring devices

	and PPE used for fabrication, repair and fitting in the automotive environment
1.4	state the limitations of common hand tools and measuring devices used for fabricating, repair and fitting in the automotive workplace
1.5	explain how common hand tools and measuring devices used for fabricating, repair and fitting in the automotive environment should be stored and maintained
1.6	identify common electrical measuring tools used in the repair of vehicles and components
1.7	explain the preparation and safe and correct use of common electrical tools when measuring voltage, current and resistance.

Learning outcome	**The learner will:**
2.	understand how to prepare and use common workshop equipment
Assessment criteria	
The learner can:	
2.1	describe the preparation and safe use of workshop equipment
2.2	explain the term: safe working load.

Learning outcome	**The learner will:**
3.	understand how to select materials when fabricating, modifying and repairing vehicles and fitting components
Assessment criteria	
The learner can:	
3.1	describe the properties, application and limitations of ferrous and non-ferrous metals, including their safe use
3.2	describe the properties, application and limitations of common non-metallic materials, including their safe use
3.3	define common terms relating to the properties of materials.

Learning outcome	**The learner will:**
4.	understand how to apply automotive engineering, fabrication and fitting principles when modifying and repairing vehicles and components
Assessment criteria	
The learner can:	
4.1	describe how to tap threads, file, cut and drill plastics and metals when modifying or repairing vehicles
4.2	describe how to measure, mark out, shape and join materials when fabricating
4.3	describe the selection and fitting procedures of the following: a. gaskets and seals b. sealants and adhesives c. fittings and fasteners d. electrical circuit components

4.4	identify locking, fastening and fixing devices
4.5	state the importance of current operating specifications for limits, fits and tolerances in the automotive environment.

Unit 054 Knowledge of materials, fabrication, tools and measuring devices in the automotive environment

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Common types of hand tools used for fabricating and fitting in the automotive workplace to include:

a. Files.
b. Hacksaws and snips.
c. Hammers.
d. Screwdrivers.
e. Pliers.
f. Spanners.
g. Sockets.
h. Punches.
i. Types of drill and drill bits.
j. Taps and dies.
k. Stud removers.
l. Marking out tools.

Common measuring devices used for fabrication and fitting in the automotive environment. To include:

a. Rule or tape.
b. Callipers.
c. Feeler gauge.
d. Volume measures.
e. Micrometer.
f. Dial gauges.
g. Torque wrenches.
h. Depth gauges.

Common electrical measuring tools used in the repair of vehicles and components. To include:

a. Ammeter.
b. Voltmeter.
c. Ohmmeter.
d. Multi-meter.

Common electrical terms when measuring:

a. Voltage.
b. Current.
c. Resistance.

Workshop equipment (including appropriate PPE) to include:

a. Hydraulic jacks.
b. Axle stands.
c. Pillar drills.
d. Air tools.
e. Vehicle lifts.
f. Cranes.
g. Hoists.
h. Electrical power tools.

The properties, application and limitations to include safe use of ferrous and non-ferrous metals

Materials to include:

a. Carbon steels.
b. Alloy steels.
c. Cast iron.
d. Aluminium alloys.
e. Brass.
f. Copper.
g. Lead.

The properties, application and limitations to include safe use of non-metallic materials. Materials to include:

a. Glass.
b. Plastics (inc GRP).
c. Kevlar.
d. Rubber.

Terms relating to the properties of materials to include:

a. Hardness.
b. Toughness.
c. Ductility.
d. Elasticity.
e. Tenacity.
f. Malleability.
g. Plasticity.

Key fabrication principles to include:

a. Marking out.
b. Shaping and bending.
c. Joining.
d. Measuring.

Selection and fitting procedures to include:

a. Gaskets.

b. Seals.
c. Sealants.
d. Fittings and fasteners.
e. Electrical circuits.
f. Joining materials.

Unit 058 Knowledge of how to identify and agree motor vehicle customer service needs

UAN:	**R/601/6247**
Level:	3
Credit value:	5
GLH:	45
Relationship to NOS:	This unit is linked to G8 Identify and agree the motor vehicle customer needs.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of how to gain information from customers on their perceived needs; give advice and information and agree a course of action; contract for the agreed work and complete all necessary records and instructions.

Learning outcome	**The learner will:**
1.	understand legislative and organisational requirements and procedures
Assessment criteria	
The learner can:	
1.1	describe the fundamental legal requirements of current consumer legislation and the consequences of their own actions in respect of this legislation
1.2	describe the content and limitations of company and product warranties for the vehicles dealt with by their company
1.3	explain the limits of their own authority for accepting vehicles
1.4	explain the importance of keeping customers informed of progress
1.5	describe their workplace requirements for the completion of records
1.6	explain how to complete and process all the necessary documentation.

Learning outcome	The learner will:
2. understand how to communicate and care for customers	
Assessment criteria	
The learner can: 2.1 explain how to communicate effectively with customers 2.2 describe how to adapt their language when explaining technical matters to non-technical customers 2.3 explain how to use effective questioning techniques 2.4 describe how to care for customers and achieve customer satisfaction.	

Learning outcome	The learner will:
3. understand company products and services	
Assessment criteria	
The learner can: 3.1 describe the range of options available to resolve vehicle problems 3.2 describe the range and type of services offered by their company 3.3 explain the effect of resource availability upon the receipt of customer vehicles and the completion work 3.4 explain how to access costing and work completion time information.	

Unit 058 Knowledge of how to identify and agree motor vehicle customer service needs

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Organisational requirements

a. Explain the organisation's terms and conditions applicable to the acceptance of customer vehicles.
b. Explain the content and limitations of vehicle and component warranties for the vehicles dealt with by your organisation.
c. Detail what, if any, limits there are to the authority for accepting vehicles.
d. Detail why it is important to keep customers advised of progress and how this is achieved within the organisation.
e. Detail the organisation's procedures for the completion and processing of documentation and records, including payment methods and obtaining customer signatures as applicable.

Principles of customer communication and care

a. First impressions.
b. Listening skills – 80:20 ratio.
c. Eye contact and smiling.
d. Showing interest and concern.
e. Questioning techniques and customer qualification.
f. Giving clear non-technical explanations.
g. Confirming understanding (statement/question technique, reflective summary).
h. Written communication – purpose, content, presentation and style.
i. Providing a high quality service – fulfilling (ideally exceeding) customer expectations within agreed time frames.
j. Obtaining customer feedback and corrective actions when dissatisfaction expressed.
k. Dealing with complaints.

Company products and services

a. Service standards:
    i. national
    ii. manufacturer
    iii. organisational.
b. The range and type of services offered by the organisation:
    i. diagnostic

ii. servicing
iii. repair
iv. warranty
v. MOT testing
vi. fitment of accessories/enhancements
vii. internal.

c. The courses of action available to resolve customer problems:
   i. the extent and nature of the work to be undertaken
   ii. the terms and conditions of acceptance
   iii. the cost
   iv. the timescale
   v. required payment methods.
d. The effect of resource availability upon the receipt of customer vehicles and the completion of work:
   i. levels and availability of equipment
   ii. levels and availability of technicians
   iii. workshop loading systems.
e. How to access costing and work completion time information:
   i. manuals
   ii. computer based.

Vehicle information systems, servicing and repair requirements

a. Accessing technical data including diagnostics.
b. Servicing to manufacturer requirements/standards.
c. Repair/operating procedures.
d. MOT standards/requirements.
e. Quality controls – interim and final.
f. Requirements for cleanliness of vehicle on return to customer.
g. Handover procedures.

Consumer legislation to include:

a. Consumer protection.
b. Sale of goods.
c. Data protection.
d. Product liability.
e. Health and safety.
f. Discrimination.

Unit 101 Skills in routine light vehicle maintenance

UAN:	**H/601/3871**
Level:	2
Credit value:	2
GLH:	20
Relationship to NOS:	This unit is linked to LV01.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit allows the learner to demonstrate they can carry out light vehicle routine maintenance, adjustments and replacement activities as part of the periodic servicing of vehicles.

Learning outcome	**The learner will:**
1. be able to work safely when carrying out light vehicle routine maintenance	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings throughout all light vehicle routine maintenance activities 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to use relevant information to carry out the task	
Assessment criteria	
The learner can: 2.1 select suitable sources of technical information to support light vehicle routine maintenance activities including: a. vehicle technical data b. maintenance procedures c. legal requirements 2.2 use technical information to support light vehicle inspection activities.	

Learning outcome	The learner will:
3. be able to use appropriate tools and equipment	
Assessment criteria	
The learner can: 3.1 select the appropriate tools and equipment necessary for carrying out routine maintenance 3.2 ensure that equipment has been calibrated to meet manufacturers' and legal requirements 3.3 use the correct tools and equipment in the way specified by manufacturers when carrying out routine maintenance.	

Learning outcome	The learner will:
4. be able to carry out light vehicle routine maintenance	
Assessment criteria	
The learner can: 4.1 carry out light vehicle maintenance using prescribed methods, adhering to the correct specifications and tolerances for the vehicle and following: a. the manufacturer's approved inspection methods b. recognised researched inspection methods c. health and safety requirements 4.2 carry out adjustments, replacement of vehicle components and replenishment of consumable materials following the manufacturer's current specification 4.3 ensure the examination methods identify accurately any vehicle system and or component problems falling outside the maintenance schedule are specified. 4.4 ensure any comparison of the vehicle against specification accurately identifies any: a. differences from the vehicle specification b. vehicle appearance and condition faults c. variation from legal requirements 4.5 use suitable testing methods to evaluate the performance of all replaced and adjusted components and systems accurately.	

Learning outcome	The learner will:
5. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 5.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 5.2 make suitable and justifiable recommendations for cost effective repairs 5.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 151 Knowledge of routine light vehicle maintenance

UAN:	**F/601/3716**
Level:	2
Credit value:	3
GLH:	20
Relationship to NOS:	This unit is linked to LV01
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of conducting routine maintenance, adjustment and replacement activities as part of the periodic servicing of light vehicles

Learning outcome	**The learner will:**
1.	understand how to carry out routine light vehicle maintenance
Assessment criteria	
The learner can:	
1.1	explain how to conduct a scheduled light vehicle routine examination and assessment against the vehicle manufacturers specification
1.2	identify the assessment methods used to check for conformity
1.3	identify the different systems to be inspected while carrying out light vehicle routine maintenance a. engine b. chassis c. wheels and tyres d. transmission and driveline e. electrical and electronic f. exterior vehicle body g. vehicle interior
1.4	describe the procedures used for checking the condition and serviceability of light vehicle units and components
1.5	describe the procedures for checking and replenishing fluid levels
1.6	describe the procedures for checking and replacing lubricants
1.7	identify adjustments that need to be carried out on a light vehicle routine maintenance

1.8	explain the procedure for reporting cosmetic damage to vehicle components and units outside normal service items
1.9	identify the operating specifications for the systems being checked while carrying out light vehicle routine maintenance.

Learning outcome	**The learner will:**
2.	understand the importance of carrying out light vehicle maintenance
Assessment criteria	
The learner can:	
2.1	describe the requirements of correct maintenance in order to maintain the vehicle in a roadworthy and legal condition
2.2	describe the importance of correct maintenance for warranty purposes.

Unit 151 Knowledge of routine light vehicle maintenance

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

a. Vehicle maintenance, inspection and adjustment and record findings.
b. Vehicle inspection techniques used in routine maintenance including:
    i. aural
    ii. visual and functional assessments on engine
    iii. engine systems
    iv. chassis systems
    v. wheels and tyres
    vi. transmission system
    vii. electrical and electronic systems
    viii. exterior vehicle body
    ix. vehicle interior.
c. The procedures used for inspecting the condition and serviceability of the following:
    i. filters
    ii. drive belts
    iii. wiper blades
    iv. brake linings
    v. pads
    vi. tyres
    vii. lights.
d. Preparation and use appropriate use of equipment to include:
    i. test instruments
    ii. emission equipment
    iii. wheel alignment
    iv. beam setting equipment
    v. tyre tread depth gauges.
e. Procedures for checking and replenishing fluid levels:
    i. oil
    ii. water
    iii. hydraulic fluids.
f. Procedures for checking and replacement of lubricants:
    i. replace oil filters
    ii. check levels
    iii. types of oil

iv. cleanliness
v. disposal of old oil and filters.

g. Procedures for carrying out adjustments on vehicle systems or components:
   i. clearances
   ii. settings
   iii. alignment
   iv. operational performance (engine idle, exhaust gas)

h. Procedures for checking electrical systems:
   i. operation
   ii. security
   iii. performance

i. Importance and process of detailed inspection procedures:
   i. following inspection checklists
   ii. checking conformity to manufacturer's specifications
   iii. UK and European legal requirements.

j. Importance and process of completing all relevant documentation relating to routine maintenance:
   i. inspection records
   ii. job cards
   iii. vehicle repair records
   iv. in-vehicle service history

k. The need to use vehicle protection prior to repair. Requirements and methods used for protecting:
   i. vehicle body panels
   ii. paint surfaces
   iii. seats
   iv. carpets and floor mats

l. The need to check the vehicle following routine maintenance

m. The need to inspect the vehicle following routine maintenance:
   i. professional presentation of vehicle
   ii. customer perceptions

n. The checks of vehicle following routine maintenance:
   i. removal of oil and grease marks
   ii. body panels
   iii. paint surfaces
   iv. seats
   v. carpets and floor mats
   vi. re-instatement of components

Unit 224 Skills in Inspection Repair and Replacement of Plant Equipment Tyres

UAN:	**A/601/6100**
Level:	2
Credit value:	4
GLH:	36
Relationship to NOS:	This unit is linked to VF05S
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.

Aim:

Learning outcome	**The learner will:**
1. be able to work safely when carrying out removal and replacement activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to inspect plant equipment wheels and tyres	
Assessment criteria	
The learner can: 2.1 Inspect plant equipment wheels and tyres using correct techniques, suitable tools, equipment, technical information and manufacturers instructions where relevant. To include: a. visual inspection b. measurement of tread depth c. tyre pressures.	

Learning outcome	The learner will:
3. be able to carry out the repair and replacement of plant equipment tyres, wheels and tubes	
Assessment criteria	
The learner can: 3.1 carry out repair activities within appropriate timescales using: a. suitable tools and equipment b. correct repair and replacement techniques c. correct type and size of replacement components d. correct materials 3.2 carry out replacement activities within appropriate timescales 3.3 carry out final checks to ensure that replaced and refitted tyres and valves are fitted and conform to legal requirements prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 225 Skills in Inspection Repair and Replacement of Industrial Equipment Tyres

UAN:	**K/601/6741**
Level:	2
Credit value:	4
GLH:	36
Relationship to NOS:	This unit is linked to VF06S
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.

Aim:

Learning outcome	**The learner will:**
1. be able to work safely when carrying out removal and replacement activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to inspect industrial equipment wheels and tyres	
Assessment criteria	
The learner can: 2.1 be able to inspect industrial equipment wheels and tyres.	

Learning outcome	The learner will:
3. be able to carry out the repair and replacement of industrial equipment tyres, wheels and tubes	
Assessment criteria	
The learner can: 3.1 carry out repair activities within appropriate timescales using: a. suitable tools and equipment b. correct repair and replacement techniques c. correct type and size of replacement components d. correct materials 3.2 carry out replacement activities within appropriate timescales 3.3 carry out final checks to ensure that replaced and refitted tyres and valves are fitted and conform to legal requirements prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 502 Skills in Inspection, Repair and Replacement of High Performance Light Vehicle Tyre

UAN:	**K/601/6092**
Level:	2
Credit value:	4
GLH:	36
Relationship to NOS:	This unit is linked to VF02S
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.

Aim:

Learning outcome	**The learner will:**
1. be able to work safely when carrying out removal and replacement activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to inspect high performance light vehicle tyres	
Assessment criteria	
The learner can: 2.1 Inspect light vehicle wheels and tyres using suitable tools, sources of information, and equipment. To include: a. visual inspection b. measurement of tread depth c. tyre pressures d. balance	

Learning outcome	The learner will:
3. be able to repair and replace high performance light vehicle tyres	
Assessment criteria	
The learner can: 3.1 carry out tyre repair activities within appropriate timescales, using: a. suitable tools and equipment b. correct repair and replacement techniques c. correct type and size of replacement components d. correct materials 3.2 carry out tyre replacement activities within appropriate timescales	

Learning outcome	The learner will:
4. be able to balance wheels and tyres and carry out final checks on high performance light vehicles	
Assessment criteria	
The learner can: 4.1 carry out wheel balancing to within acceptable limits 4.2 carry out final vehicle safety checks in the workshop, prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
5. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 5.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 5.2 make suitable and justifiable recommendations for cost effective repairs 5.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 503 Skills in inspection repair and replacement of commercial vehicle tyres

UAN:	**M/601/6093**
Level:	1
Credit value:	5
GLH:	44
Relationship to NOS:	This unit is linked to VF03
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to inspect, fit, repair and maintain tyres on medium and large commercial vehicles (3500kg gross vehicle mass and above).

Learning outcome	**The learner will:**
1. be able to work safely when carrying out removal and replacement activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to inspect commercial vehicle wheels and tyres	
Assessment criteria	
The learner can: 2.1 inspect commercial vehicle wheels and tyres using appropriate techniques, suitable tools, equipment, technical information and manufacturers instructions where relevant. To include: a. visual inspection b. measurement of tread depth c. tyre pressures.	

Learning outcome	The learner will:
3.	be able to carry out the repair and replacement of commercial vehicle tyres, wheels and tubes
Assessment criteria	
The learner can: 3.1 carry out tyre repair activities within appropriate timescales using: a. suitable tools and equipment b. correct repair techniques c. correct type and size of replacement components d. correct materials 3.2 carry out tyre replacement activities within appropriate timescales 3.3 carry out final checks to ensure that replaced and refitted tyres and valves are correctly fitted and conform to legal requirements prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4.	be able to carry out tread regrooving on commercial vehicle tyres
Assessment criteria	
The learner can: 4.1 carry out tread re-grooving on suitable tyres, complying with legal requirements using: a. suitable tools and equipment b. correct re-grooving techniques c. suitable personal protection 4.2 carry out final checks to ensure that re-grooved tyres meet manufacturer's and legal requirements prior to release to the customer.	

Learning outcome	The learner will:
5.	be able to record information and make suitable recommendations
Assessment criteria	
The learner can: 5.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 5.2 make suitable and justifiable recommendations for cost effective repairs 5.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 504 Skills in inspection, repair and replacement of motorcycle tyres

UAN:	**T/601/6094**
Level:	2
Credit value:	4
GLH:	36
Relationship to NOS:	This unit is linked to VF04
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to inspect, fit, repair and maintain motorcycle, quad bike, tricycle, scooter, moped and sidecar combination tyres.

Learning outcome	**The learner will:**
1.	be able to work safely when carrying out removal and replacement activities
Assessment criteria	
The learner can:	
1.1	use suitable personal protective equipment and vehicle coverings when working on vehicles
1.2	work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.

Learning outcome	**The learner will:**
2.	be able to inspect motorcycle tyres
Assessment criteria	
The learner can:	
2.1	inspect motorcycle wheels and tyres using suitable tools, sources of information, and equipment. To include: a. visual inspection b. measurement of tread depth c. tyre pressures d. balance.

Learning outcome	The learner will:
3.	be able to repair and replace motorcycle tyres and tubes
Assessment criteria	
The learner can:	
3.1	remove front and rear wheels from motorcycles to facilitate tyre removal and refitment
3.2	carry out tyre repair activities using: a. suitable tools and equipment b. correct repair and replacement techniques c. correct type and size of replacement components d. correct materials
3.3	carry out tyre replacements activities within appropriate timescales
3.4	use suitable equipment to align front and rear wheels following wheel refitment.

Learning outcome	The learner will:
4.	be able to balance wheels and tyres as part of final checks on motorcycles
Assessment criteria	
The learner can:	
4.1	carry out wheel balancing to manufacturers' tolerances
4.2	carry out final vehicle safety checks in the workshop, prior to releasing the motorcycle to the customer.

Learning outcome	The learner will:
5.	be able to record information and make suitable recommendations
Assessment criteria	
The learner can:	
5.1	produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required
5.2	make suitable and justifiable recommendations for cost effective repairs
5.3	record and report any additional faults noticed during the course of their work promptly in the format required.

Unit 507 Skills in light vehicle four wheel alignment

UAN:	**F/601/6745**
Level:	2
Credit value:	4
GLH:	36
Relationship to NOS:	This unit is linked to VF07
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to carry out testing and adjustment of basic four wheel alignment on light vehicles.

Learning outcome	**The learner will:**
1. be able to work safely when carrying out testing and adjustment activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to check light vehicle four wheel alignment	
Assessment criteria	
The learner can: 2.1 perform four wheel alignment pre-checks to vehicle and equipment prior to testing 2.2 carry out light vehicle four wheel alignment using suitable tools and equipment, carrying out calibration as appropriate 2.3 use vehicle data relating to working tolerances. To include: a. technical information b. manufacturers instructions where relevant.	

Learning outcome	The learner will:
3. be able to adjust light vehicle four wheel alignment	
Assessment criteria	
The learner can: 3.1 carry out adjustment activities within appropriate timescales. To include: a. suitable tools and equipment b. correct adjustment techniques c. calibration of equipment as appropriate 3.2 carry out final checks to ensure that adjustments and settings are within the tolerances allowed for the vehicle and conform to legal requirements, prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 508 Skills in inspection and repair of light vehicle clutches

UAN:	**D/601/6753**
Level:	2
Credit value:	4
GLH:	32
Relationship to NOS:	This unit is linked to VF08
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to inspect, repair and replace light vehicle clutches and components

Learning outcome	**The learner will:**
1. be able to work safely when carrying out removal and replacement activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to inspect light vehicle clutches and components	
Assessment criteria	
The learner can: 2.1 inspect light vehicle clutches and components using suitable tools, sources of information and equipment.	

Learning outcome	The learner will:
3.	be able to replace light vehicle clutches and components
Assessment criteria	
The learner can: 3.1 carry out replacement of clutch within appropriate timescales, using: a. suitable equipment and technical information b. correct repair and replacement techniques c. correct type and size of replacement components d. correct materials 3.2 adjust clutch if required and carry out final vehicle safety checks in the workshop, prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4.	be able to record information and make suitable recommendations
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 509 Skills in inspection and replacement of light vehicle exhaust components

UAN:	**A/601/6842**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF09.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to inspect exhaust components for replacement or continued serviceability and removing and replacing components identified as being faulty, damaged, deteriorated or where the customer has requested replacement.

Learning outcome	**The learner will:**
1. be able to work safely when carrying out removal and replacement activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicle exhaust systems and components 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to inspect exhaust components	
Assessment criteria	
The learner can: 2.1 inspect exhaust systems and components to identify faults using suitable tools, sources of information and equipment.	

Learning outcome	The learner will:
3. be able to repair and replace exhaust components	
Assessment criteria	
The learner can: 3.1 carry out repair and replacement of exhaust components within appropriate timescales, using: a. suitable equipment and technical information b. suitable repair and replacement techniques c. suitable type and size of replacement components and fixings d. suitable materials 3.2 carry out final adjustments and checks in the workshop, prior to releasing the vehicle to the customer. To include: a. correct fitment b. correct alignment c. leakage.	

Learning outcome	The learner will:
4. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 510 Skills in inspection, testing and replacement of vehicle batteries and related components

UAN:	**K/601/8179**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF10.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to carry out tests which identify faulty batteries, and then the removal and replacement of them. This can be on light vehicles, medium and large goods vehicles, motorcycles, mopeds and scooters.

Learning outcome	**The learner will:**
1. be able to work safely when carrying out testing and replacement activities	
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2. be able to inspect and test batteries and components	
Assessment criteria	
The learner can: 2.1 inspect and test batteries, charging systems and associated components using suitable tools, sources of information and equipment.	

Learning outcome	The learner will:
3. be able to remove and replace batteries and components	
Assessment criteria	
The learner can: 3.1 perform battery removal and replacement activities within appropriate timescales, using: a. suitable equipment and technical information b. suitable removal and replacement techniques c. suitable type and size of replacement components and fixings 3.2 perform final battery and component checks in the workshop, prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 511 Skills in inspection and replacement of light vehicle suspension dampers and springs

UAN:	**F/601/6857**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF11.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to carry out of the inspection, testing and replacement of suspension dampers and springs using a variety of equipment and testing techniques.

Learning outcome	**The learner will:**
1.	be able to work safely when carrying out removal and replacement activities
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicle suspension systems and components 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2.	be able to inspect and test light vehicle suspension dampers and springs
Assessment criteria	
The learner can: 2.1 inspect and test suspension dampers and springs using suitable tools, sources of information and equipment.	

Learning outcome	The learner will:
3. be able to remove and replace light vehicle suspension dampers and springs	
Assessment criteria	
The learner can: 3.1 perform removal and replacement activities within appropriate timescales, using: a. suitable equipment and technical information b. suitable removal and replacement techniques c. suitable type and size of replacement components and fixings 3.2 carry out wheel alignment checks and adjustments as appropriate before release to the customer 3.3 perform final suspension damper and spring function checks in the workshop, prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required.	

Unit 512 Skills in inspection and replacement of light vehicle braking systems & components

UAN:	**L/601/6862**
Level:	2
Credit value:	4
GLH:	32
Relationship to NOS:	This unit is linked to VF12.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to carry out the inspection of light vehicle braking systems and the replacement and adjustment of braking system components.

Learning outcome	**The learner will:**
1.	be able to work safely when carrying out removal and replacement activities
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when working on vehicles 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2.	be able to inspect and test light vehicle braking systems
Assessment criteria	
The learner can: 2.1 inspect and test braking systems using suitable tools, sources of information and equipment.	

Learning outcome	The learner will:
3. be able to replace light vehicle braking system components	
Assessment criteria	
The learner can: 3.1 carry out removal and replacement activities within appropriate timescales, using: a. suitable equipment and technical information b. suitable removal and replacement techniques c. suitable type and size of replacement components and fixings 3.2 carry out final braking system function checks in the workshop, prior to releasing the vehicle to the customer.	

Learning outcome	The learner will:
4. be able to record information and make suitable recommendations	
Assessment criteria	
The learner can: 4.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required 4.2 make suitable and justifiable recommendations for cost effective repairs 4.3 record and report any additional faults noticed during the course of their work promptly in the format required 4.4 give advice on procedures for bedding in new brakes before release to the customer.	

Unit 513 Skills in safe use of oxy-acetylene in automotive applications

UAN:	**M/601/6868**
Level:	2
Credit value:	2
GLH:	20
Relationship to NOS:	This unit is linked to VF13.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop the skills required for the safe use of Oxy-acetylene in automotive applications.

Learning outcome	**The learner will:**
1.	be able to work safely when carrying out oxy-acetylene activities
Assessment criteria	
The learner can: 1.1 use suitable personal protective equipment and vehicle coverings when using oxy-acetylene equipment 1.2 work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.	

Learning outcome	**The learner will:**
2.	be able to set up hand held oxy-acetylene equipment
Assessment criteria	
The learner can: 2.1 select and use special personal protective equipment 2.2 select and set up oxy-acetylene equipment, carry out relevant checks and confirm equipment is safe to use 2.3 remove and replace empty gas cylinders observing health and safety procedures. To include removal and replacement : a. from storage b. from the equipment 2.4 carry out necessary checks to the vehicle and surrounding area prior to cutting or heating.	

Learning outcome	**The learner will:**
3. be able to use hand held oxy-acetylene equipment	
Assessment criteria	
The learner can: 3.1 safely light, set the flame and shut down the equipment as required 3.2 manipulate heating equipment in line with operational procedures 3.3 perform thermal cutting procedures to the appropriate standard.	

Unit 552 Knowledge of inspection, repair and replacement of high performance light vehicle tyres

UAN:	**T/601/6032**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF02.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop and understanding of inspection, fitting, repairing and maintaining high performance light vehicle tyres.

Learning outcome	**The learner will:**
1.	understand high performance light vehicle wheel and tyre construction, legislation and special workplace procedures
Assessment criteria	
The learner can: 1.1 describe the purpose, function and construction of high performance light vehicle wheels and tyres 1.2 describe the types and functions of pressure monitoring systems 1.3 describe the current legal requirements for high performance light vehicle tyres 1.4 describe the relevant parts of the British and European Standard for the repair of high performance light vehicle tyres 1.5 give examples of how to deal with specialist waste materials in their workplace.	

Learning outcome	**The learner will:**
2.	understand the tools and equipment used when working with high performance light vehicle tyres
Assessment criteria	
The learner can: 2.1 give examples of how to select, prepare, and use tools and equipment appropriate to working with high performance light	

vehicle tyres 2.2 describe specialist maintenance requirements of wheel balancing and tyre removal and refitting machinery.

Learning outcome	**The learner will:**
3.	understand the materials used in the repair of high performance light vehicle tyres
Assessment criteria	
The learner can: 3.1 describe the types of repair materials available and when it is permissible for them to be used.	

Learning outcome	**The learner will:**
4.	understand how to inspect, remove, repair and replace high performance light vehicle tyres
Assessment criteria	
The learner can: 4.1 describe the different types of valve construction used with high performance light vehicle tyres and their installation techniques 4.2 give examples of the meanings of markings used on standard and high performance light vehicle tyres and where these can be found 4.3 describe the inspection and fault identification methods and procedures associated with high performance light vehicle tyres 4.4 give examples of the common faults associated with high performance light vehicle tyres and wheels 4.5 describe high performance light vehicle tyre and wheel removal, replacement and refitting methods and procedures 4.6 describe the principles of wheel balancing. To include: a static balancing b dynamic balancing.	

Unit 552 Knowledge of inspection, repair and replacement of high performance light vehicle tyres

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Tyres are

a. Directional tread
b. Asymmetric tread
c. Composite tread
d. High speed ratings (V,W,Y or ZR ratings)
e. An aspect ratio of 55% or below
f. Run flat capability

Main function of tyres

a. Interaction between tyres, other components and vehicle handling
b. Steering, drive and suspension
c. Passenger comfort

Types of standard and high performance light vehicle wheel and rim construction

a. Light alloy, pressed steel and wire wheels
b. Standard and safety rims (runflat)
c. Asymmetric rims
d. Space saver rims

Markings on standard light vehicle tyres

a. Speed rating
b. Size Markings
c. Aspect ratio
d. Load handling
e. Ply rating
f. Tread wear indicators
g. EC markings and specialist application markings e.g. ‘M&S’

Inspection and fault identification methods and procedures

a. Inspection:
    i. on the rim visual (external)
    ii. removed from wheel (internal)

b. Use of tread depth indicators, tyre probes and pressure gauges
c. Information sources including tyre and vehicle manufacturers' technical data and the importance of accurate measurements, the importance of accurate fault identification, the importance of accurate adjustments

Limits of standard light vehicle tyre wear and serviceability

a. Tread depth and tyre damage
b. Limitations under BS159 and Construction & Use Regulations
c. Tyre pressure and maintenance requirements
d. Suitability for minor repairs

Common faults associated with standard light vehicle tyres and wheels.

a. Excessive tyre wear and abnormal tread wear patterns (centre, outer edges, worn patches)
b. Damage to tread or side walls
c. Bulging, separation of tread, carcass distortion
d. Impact damage, wheels running out of true, buckled wheels
e. Incorrect tyre pressure
f. Wrong tyre for vehicle or run flat

Methods and materials used in the repair of standard light vehicle tyres

a. Tyre inspection
b. Damage limitation
c. Accurate measurement
d. Repair techniques and methods:
    iii. preparation of tyre
    iv. mechanical and chemical buffing
e. Repair materials:
    i. plug patch
    ii. patch and filler
    iii. solutions and chemicals
f. Economic use of materials
g. Correct storage of materials (including shelf life)

Principles of interchanging tyres/wheels

a. Over sizing tyre and wheel fitment
b. Longitudinal and diagonal
c. Mixing radial, cross-ply and bias-belted tyres on same axle or different axles
    i. lifting and supporting equipment
    ii. tyre fitting and removal tools and machinery
    iii. hand tools
    iv. tyre repair tools
    v. measuring equipment
    vi. wheel balancing equipment
    vii. inflation equipment

Dealing with waste materials including

a. Scrapped tyres
b. Wheel weights
c. Waste repair materials

Removal and fitting methods to include:

a. Tyre sidewall fitting instructions
b. Vehicle protection
c. Use of hand and impact tools
d. Correct tyre inflation
e. Final inspection

Legal requirements to include:

a. Tread depth
b. Tyre wall and casing damage
c. Tyre pressure
d. Mixing of tyre types
e. Correct fitting

Unit 553 Knowledge of inspection, repair and replacement of commercial vehicle tyres

UAN:	**L/601/6036**
Level:	1
Credit value:	3
GLH:	26
Relationship to NOS:	This unit is linked to VF03
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop and understanding of inspecting, fitting, repairing and maintaining tyres on medium and large commercial vehicles (3500kg gross vehicle mass and above)

Learning outcome	**The learner will:**
1.	understand commercial vehicle wheel and tyre construction, legislation and special workplace procedures
Assessment criteria	
The learner can:	
1.1	state the purpose, function and construction of commercial vehicle wheels and tyres
1.2	state the current legal requirements for commercial vehicle tyres
1.3	state the relevant parts of the prevailing British and European Standard for the repair of commercial vehicle tyres
1.4	give examples of how to deal with specialist waste materials in their workplace
1.5	outline manufacturers' recommendations on the 'repairability' of their tyres.

Learning outcome	The learner will:
2.	understand the tools and equipment used when working with commercial vehicle tyres
Assessment criteria	
The learner can:	
2.1	give examples of how to select, prepare and use tools and equipment appropriate to working with commercial vehicle tyres
2.2	state specialist maintenance requirements of commercial vehicle wheel and tyre removal and refitting machinery.

Learning outcome	The learner will:
3.	understand the construction of, and the materials used in the manufacture and repair of commercial vehicle tyres
Assessment criteria	
The learner can:	
3.1	state the types of repair materials available and when they should be used
3.2	state the difference between a ‘remould’ and a ‘recut’ when applied to commercial vehicle tyre.

Learning outcome	The learner will:
4.	understand how to inspect, remove, repair and replace of commercial vehicle tyres
Assessment criteria	
The learner can:	
4.1	state the different types of commercial vehicle tyre valve and their installation techniques
4.2	state the meaning of markings on commercial vehicle tyres and where these can be found
4.3	state the inspection and fault identification methods and procedures associated with commercial vehicle tyres
4.4	give examples of the common faults associated with commercial vehicle tyres and wheels
4.5	describe commercial vehicle tyre, tube and wheel and rim removal and refitting methods and procedures
4.6	outline the principles of wheel balancing. To include: a static balancing b dynamic balancing
4.7	state the process to re-groove a commercial vehicle tyre.

Unit 553 Knowledge of inspection, repair and replacement of commercial vehicle tyres

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Tyre construction

a. Radial.
b. Diagonal (cross) ply.
c. Tube type.
d. Tubeless.
e. Tread designs (e.g. traction, steer, universal).

Types of commercial vehicle wheel and rim construction

a. 15º Drop centre rims with diameter codes of 17.5, 19.5, 22.5.
b. 15º EVA/EVH Drop centre rims.
c. 15º Wide single drop centre rims..
d. Wide base or semi drop centre split rims.
e. British Standard conical, DIN spherical and ISO Metric wheel fixings.
f. Heavy commercial valves.

Tools and equipment used to identify faults or serviceability

a. Tyre safety inflation equipment (e.g. safety cages, portable 'H' cages and 'bag-it' type devices).
b. Tyre tread depth gauges.
c. Tyre probes.
d. Bead spreaders.
e. Tyre pressure gauges.
f. Hand lamps or torches.
g. Stud hole gauges.

Re-fitting and removal methods and procedures for commercial tyres, tubes, wheels and rims

a. Fitting instructions.
b. Vehicle protection.
c. Use of impact tools.
d. Correct tyre safety inflation.
e. Final inspection.

Tools, equipment and information used for removal and replacement of commercial wheels, tyres and tubes

a. Technical information relating to safe jacking points and wheel torque/tyre pressure data.
b. Equipment for securing the vehicle and making the area safe (e.g. wheel chocks, traffic cones, 'Do Not Move' signs).
c. Jacks, axle/chassis stands, loading boards.
d. Sockets, extensions, 'L' bars, pneumatic impact wrenches, torque wrenches.
e. Bead unseating tools inc specialist tools for EVA/EVH rims, tyre levers, lock-ring levers, bead lubricant, and tyre stands.
f. Tyre inflation equipment, safety inflation equipment (e.g. safety cages, portable 'H' cages and 'bag-it' type devices).

Tools and equipment used:

a. Tyre re-grooving equipment.
b. Tyre safety inflation equipment.
c. Specialist bead and unseating tools for external valve aperture (EVA) and hole (EVH).

Inspection and fault identification methods and procedures

a. Fault identification coverage,.
b. Accurate measurement.
c. Adjustments to acceptable tolerances for the vehicle.
d. Inspection:
    i. on the rim visual (external)
    ii. removed from wheel (internal).
e. Use of tread depth indicators, tyre probes and pressure gauges.
f. Information sources including tyre and vehicle manufacturers' technical data.

Common faults associated with commercial vehicle tyres and wheels.

a. Worn tread through normal use.
b. Abnormal wear (e.g. camber, wheel misalignment, incorrect twinning, worn dampers, braking flatspots over/under-inflation).
c. Carcass damage (e.g. lumps/bulges, cuts, exposed cords, run-flat damage, penetrations, chemical damage).
d. Incorrect fitment (e.g. load rating, speed rating, size, construction).
e. Worn or damaged wheels and components (e.g cracks, elongated or worn stud holes, deformations).
f. Worn, damaged or incorrect wheel fixings.
g. Worn or damaged valves.
h. Worn, damaged or incorrect tubes and flaps.

Tools, equipment and information used for minor repairs to tyres and tubes

a. Technical information relating to minor repair areas, repair unit application instructions and injury limitations.

b. Suitable personal protective equipment for tyre and inner tube repairing.
c. Measuring equipment for determining repairable areas.
d. Reamers, buffers and tyre bead spreaders.
e. Plug patch applicators, tyre probes, cover scrapers, roller stitchers, pliers and side cutters.
f. Liquid buffing solutions, chemical vulcanising fluids, liner seal solutions and tyre talc (French Chalk)
g. Combination plug/patches, patch and filler materials, inner tube patches.

Methods and materials used in the repair of commercial vehicle tyres

a. Internal inspection of tyre for secondary damage.
b. Preparation of the tyre for application of repair materials.
c. Preparation of inner tube for application of repair materials.
d. Inspection of tyre and tube after repair.
e. Correct storage of materials (including shelf life).
f. Inflation of tyre and tube to check for leaks.
g. Repair Materials:
    i. rubber only plug patch
    ii. rubber only patch and filler material
    iii. solutions and chemicals.

Tools and equipment used for regrooving of heavy commercial tyres

a. Technical information relating to heavy commercial vehicle tyre regrooving.
b. Suitable personal protective equipment for regrooving.
c. Measuring equipment for determining tread depths and blade settings.
d. Tyre probes, regrooving equipment, tyre regrooving stand.
e. Cutting blades.

Methods used to carry out regrooving to heavy commercial tyres.

a. Inspection of tyre for damage and suitability for regrooving.
b. Tread measurement to determine blade depth setting.
c. Preparation of tyre for regrooving.
d. Regrooving following manufacturer's instructions and legal requirements.
e. Inspection of tyre following regrooving.

Dealing with waste materials including:

a. Scrapped tyres.
b. Repair materials.
c. Wheel weights.

Legal Requirements to include:

a. Tread depth.

b. Tyre wall and casing damage.
c. Tyre pressure.
d. Mixing of tyre types.
e. Re-grooving legislation.

Unit 554 Knowledge of inspection, repair and replacement of motorcycle tyres

UAN:	**R/601/6040**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF04.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop and understanding of inspection, fitting, repairing and maintaining motorcycle, quad bike, tricycle, scooter, moped and sidecar combination tyres.

Learning outcome	**The learner will:**
1.	understand motorcycle tyre construction, legislation and special workplace procedures
Assessment criteria	
The learner can:	
1.1	describe the purpose, function and construction of motorcycle wheels and tyres
1.2	describe the current legal requirements for motorcycle tyres
1.3	describe the relevant parts of the British and European Standard for the repair of motorcycle tyres
1.4	give examples of how to deal with specialist waste materials in their workplace.

Learning outcome	**The learner will:**
2.	understand the tools and equipment used when working with motorcycle tyres
Assessment criteria	
The learner can:	
2.1	give examples of how to select, prepare and use tools and equipment appropriate to working with motorcycle wheels and tyres
2.2	describe specialist maintenance requirements of wheel

balancing and tyre removal and refitting machinery.

Learning outcome	**The learner will:**
3.	understand the materials used in the repair of motorcycle tyres
Assessment criteria	
The learner can:	
3.1	understand the materials used in the repair of motorcycle tyres
3.2	describe the types of repair materials available and when it may be permissible for them to be used.

Learning outcome	**The learner will:**
4.	understand how to inspect, remove, repair and replace motorcycle tyres
Assessment criteria	
The learner can:	
4.1	describe the types of valve used in motorcycle tyres and their removal and installation techniques
4.2	give examples of the meanings of markings used on motorcycle tyres and tubes and where these can be found
4.3	describe the inspection and fault identification methods and procedures associated with motorcycle tyres, rims and valves
4.4	give examples of the common faults associated with motorcycle tyres, wheels and valves
4.5	describe motorcycle wheel, tyre and tube removal and refitting methods and procedures
4.6	describe the principles of wheel balancing. To include: a static balancing b dynamic balancing.

Unit 554 Knowledge of inspection, repair and replacement of motorcycle tyres

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Note the term 'motorcycle' also refers to: quad bike, tricycle, scooter, moped and sidecar combination tyres.

Describe the purpose, function and construction of Motorcycle wheels and construction

a. Tubed.
b. Tubeless.
c. Radial.
d. Bias belted cross ply.
e. Two compound technology.
f. Directional.
g. Spoke wheels.
h. Cast wheels.
i. Composite wheels.
j. Split rims.

Identify the different types of Motorcycle tyre construction

a. Radial.
b. Bias and bias belted.
c. Tube type.
d. Tubeless.
e. Tread and sidewall designs (for example, high speed, rotational, off road).

Identify the different types of Motorcycle wheel drive arrangements

a. Shaft drive.
b. Chain drive.

Identify sidewall markings on Motorcycle tyres

a. Service description (load and speed markings).
b. Size designations.
c. Aspect ratios.
d. Construction markings (bias and bias belted, radial, tube type, tubeless).
e. Type approval markings.

f. Date of manufacture markings.
g. Tread wear indicators.
h. Sidewall fitting instructions.
i. Special service markings.

Inspection and fault identification methods and procedures

a. Inspection:
    i. on the rim visual (external)
    ii. removed from wheel (internal).
b. Use of tread depth indicators, tyre probes and pressure gauges.
c. Information sources including tyre and vehicle manufacturers' technical data.
d. The importance of accurate measurements.
e. The importance of accurate fault identification.
f. The importance of accurate adjustments.

Identify the tools and equipment used to identify faults relating to Motorcycle tyres and wheels and confirm them safe to use

a. Tyre tread depth gauges.
b. Tyre probes.
c. Bead spreaders.
d. Tyre pressure gauges.
e. Hand lamps or torches.

Identify the faults relating to Motorcycle tyres and wheels

a. Suitable personal protective equipment for conducting Motorcycle tyre and rim inspections.
b. Worn tread through normal use.
c. Abnormal wear (wheel misalignment, over and under-inflation, incorrect application and adjustment).
d. Carcass damage (lumps and bulges, cuts, exposed cords, run-flat damage, penetrations, chemical damage).
e. Incorrect fitment (load rating, speed rating, size, construction, tread design, sidewall information).
f. Worn or damaged wheels and components (cracks, deformations).
g. Worn, damaged or incorrect wheel fixings and axle.
h. Worn or damaged valves.
i. Worn, damaged or incorrect tubes.

Make recommendations relating to Motorcycle tyres and wheels

a. Suitability for fitting.
b. Suitability for minor repair.
c. Isolate scrapped tyres for correct disposal.
d. Isolate scrapped wheel rims and components for correct disposal.
e. Consequences of improper disposal of scrap tyres and wheels.

Identify the tools and equipment used for the removal and fitting of Motorcycle wheels and tyres and confirm them safe to use

a. Technical information relating to safe lifting points and wheel torque and tyre pressure data.
b. Motorcycle stands.
c. Hand tools and torque wrenches.
d. Bead unseating tools, tyre levers, bead lubricant.
e. Tyre inflation equipment.
f. Wheel balancing equipment.

Remove and fit motorcycle tyres and wheels

a. Manufacturer and sidewall fitting instructions.
b. Protecting the motorcycle during wheel and tyre removal and fitting.
c. Suitable personal protective equipment for motorcycle tyre and wheel removal and fitting.
d. Use and positioning of lifting and supporting devices.
e. Wheel removal and fitting using hand tools.
f. Tyre removal and fitting using hand or powered tools.
g. Valve replacement for wheel rims.
h. Safe tyre inflation.
i. Wheel balancing.
j. Wheel alignment.
k. Informing relevant persons of anticipated delays.
l. Keeping relevant persons informed of progress.
m. The relationship between time and cost.

Methods and materials used in the repair of Motorcycle tyres

a. Repair Materials:
    i. rubber only plug patch
    ii. rubber only patch and filler material
    iii. solutions and chemicals.

Identify the tools and equipment used for the minor repair of Motorcycle tyres and inner tubes and confirm them safe to use

a. Technical information relating to minor repair areas, repair unit application instructions and injury limitations
b. Suitable personal protective equipment for tyre and inner tube repairing.
c. Measuring equipment for determining repairable areas.
d. Reamers, buffers and tyre bead spreaders.
e. Plug patch applicators, tyre probes, cover scrapers, roller stitchers, pliers and side cutters.
f. Liquid buffing solutions, chemical vulcanising fluids, liner seal solutions and tyre talc (French Chalk)
g. Combination plug/patches, patch and filler materials, inner tube patches.

Carry out minor repairs to Motorcycle tyres and inner tubes

a. Internal inspection of tyre for secondary damage.
b. Preparation of the tyre for application of repair materials.
c. Preparation of inner tube for application of repair materials.

d. Inspection of tyre and tube after repair.
e. Inflation of tyre/tube to check for leaks.

Main function of tyres

a. Interaction between tyres, other components and handling.
b. Steering, drive and suspension.
c. Passenger comfort.
d. Lifting and supporting equipment.
e. Tyre fitting and removal tools and machinery.
f. Hand tools.
g. Tyre repair tools.
h. Measuring equipment.
i. Wheel balancing equipment.
j. Tyre inflation equipment.

Dealing with Waste Materials including:

a. Scrapped tyres.
b. Wheel weights.
c. Waste repair materials.

Legal Requirements to include:

a. Tread depth.
b. Tyre wall and casing damage.
c. Tyre pressure.
d. Mixing of tyre types.
e. Correct fitting.

Unit 555 Knowledge of Inspection, Repair and Replacement of Plant Equipment Tyres

UAN:	**M/601/6045**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF05K
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.

Aim:

Learning outcome	**The learner will:**
1. understand plant equipment tyre construction, legislation and special workplace procedures	
Assessment criteria	
The learner can: 1.1 describe the purpose, function and construction of plant equipment wheels and tyres. 1.2 describe the legal requirements for plant equipment tyres. 1.3 describe the relevant parts of the british and european standard for the repair of plant equipment tyres 1.4 give examples of how to deal with specialist waste materials in their workplace 1.5 give examples of how to calculate dynamic rolling radius in order to select the correct replacement tyres 1.6 describe how to adjust wheel track to widen or reduce wheel position 1.7 describe how to improve traction by the use of ballast 1.8 explain how to make a vehicle safe for work in an outdoor plant environment.	

Learning outcome	The learner will:
2. understand the tools and equipment used when working with plant equipment tyres	
Assessment criteria	
The learner can: 2.1 give examples of how to select, prepare and use tools and equipment appropriate to working with plant equipment tyres. 2.2 describe specialist maintenance requirements of plant tyre removal and refitting machinery.	

Learning outcome	The learner will:
3. understand the materials used in the repair of plant equipment tyres	
Assessment criteria	
The learner can: 3.1 describe and give examples of the types of repair materials available and when they should be used.	

Learning outcome	The learner will:
4. understand how to inspect, remove, repair and replace plant equipment tyres	
Assessment criteria	
The learner can: 4.1 describe the types of valve used in plant equipment tyres and their removal and installation techniques 4.2 give examples of the meaning of markings on plant equipment tyres and where these can be found. 4.3 describe the inspection and fault identification methods and procedures associated with plant equipment tyres, rims and valves. to include: a the importance of accurate measurements b the importance of accurate fault identification c the importance of accurate adjustments 4.4 give examples of the common faults associated with plant equipment tyres, wheels and valves. 4.5 describe plant equipment wheel, tyre and tube removal, replacement and refitting methods and procedures. to include: a tyre sidewall fitting instructions b vehicle protection c use of impact tools d correct tyre inflation e final inspection.	

Unit 555 Knowledge of Inspection, Repair and Replacement of Plant Equipment Tyres

Supporting information

Unit 556 Knowledge of Inspection, Repair and Replacement of Industrial Equipment Tyres

UAN:	**J/601/6049**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF06K
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.

Aim:

Learning outcome	**The learner will:**
1. understand industrial equipment tyre construction, legislation and special workplace procedures	
Assessment criteria	
The learner can: 1.1 describe the purpose, function and construction of industrial equipment wheels and tyres. 1.2 describe the legal requirements for industrial equipment tyres 1.3 describe the relevant parts of the british and european standard for the repair of industrial equipment tyres 1.4 give examples of how to deal with specialist waste materials in their workplace 1.5 describe how to improve traction by the use of ballast 1.6 explain specific safety requirements and how to make wheeled equipment safe in an outdoor industrial environment.	

Learning outcome	The learner will:
2. understand the tools and equipment used when working with industrial equipment tyres	
Assessment criteria	
The learner can: 2.1 give examples of how to select, prepare and use tools and equipment appropriate to working with industrial equipment tyres 2.2 describe specialist maintenance requirements of tyre removal and refitting machinery.	

Learning outcome	The learner will:
3. understand the materials used in the repair of industrial equipment tyres	
Assessment criteria	
The learner can: 3.1 describe the types of repair materials available and when they should be used.	

Learning outcome	The learner will:
4. understand how to inspect, remove, repair and replace industrial equipment tyres	
Assessment criteria	
The learner can: 4.1 describe the types of valve used in industrial equipment tyres and their removal and installation techniques 4.2 give examples of the meaning of markings on plant equipment tyres and tubes and where these can be found. 4.3 describe the inspection and fault identification methods and procedures associated with industrial equipment tyres, rims and valves 4.4 give examples of the common faults associated with industrial equipment tyres, wheels and valves. 4.5 describe industrial equipment wheel, tyre and tube removal and refitting methods and procedures.	

Unit 556 Knowledge of Inspection, Repair and Replacement of Industrial Equipment Tyres

Supporting information

Unit 502Skills in inspection, repair and replacement of high performance light vehicle tyre

UAN:	**K/601/6092**
Level:	2
Credit value:	4
GLH:	36
Relationship to NOS:	This unit is linked to VF02.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit will help the learner to develop the skills required to inspect, fit, repair and maintain high performance light vehicle tyres.

Learning outcome	**The learner will:**
1.	be able to work safely when carrying out removal and replacement activities
Assessment criteria	
The learner can:	
1.1	use suitable personal protective equipment and vehicle coverings when working on vehicles
1.2	work in a way which minimises the risk of damage or injury to the vehicle, people and the environment.

Learning outcome	**The learner will:**
2.	be able to inspect high performance light vehicle tyres
Assessment criteria	
The learner can:	
2.1	inspect light vehicle wheels and tyres using suitable tools, sources of information, and equipment. To include: a. visual inspection b. measurement of tread depth c. tyre pressures d. balance.

Learning outcome	The learner will:
3.	be able to repair and replace high performance light vehicle tyres

Assessment criteria

The learner can:

3.1 carry out tyre repair activities within appropriate timescales, using:
- a. suitable tools and equipment
- b. correct repair and replacement techniques
- c. correct type and size of replacement components
- d. correct materials

3.2 carry out tyre replacement activities within appropriate timescales.

Learning outcome	The learner will:
4.	be able to balance wheels and tyres and carry out final checks on high performance light vehicles

Assessment criteria

The learner can:

4.1 carry out wheel balancing to within acceptable limits

4.2 carry out final vehicle safety checks in the workshop, prior to releasing the vehicle to the customer.

Learning outcome	The learner will:
5.	be able to record information and make suitable recommendations

Assessment criteria

The learner can:

5.1 produce work records that are accurate, complete and passed to the relevant person(s) promptly in the format required

5.2 make suitable and justifiable recommendations for cost effective repairs

5.3 record and report any additional faults noticed during the course of their work promptly in the format required.

Unit 557 Knowledge of light vehicle four wheel alignment

UAN:	**F/601/6051**
Level:	2
Credit value:	3
GLH:	24
Relationship to NOS:	This unit is linked to VF07
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of testing and adjusting light vehicle basic four wheel alignment.

Learning outcome	**The learner will:**
1.	understand steering and suspension system principles
Assessment criteria	
The learner can:	
1.1	describe the Ackerman principle
1.2	describe the principles of steering and suspension and their effects on tyre wear and vehicle handling
1.3	describe the purpose, function and location of steering and suspension components and how wear can affect wheel alignment
1.4	give examples of abnormal tyre wear associated with misalignment.

Learning outcome	**The learner will:**
2.	understand how to measure four wheel alignment
Assessment criteria	
The learner can:	
2.1	describe appropriate specialist tools, their selection and calibration when measuring four wheel alignment
2.2	describe pre-checks to be applied to the vehicle prior to measuring four wheel alignment
2.3	describe how to find and use vehicle data relating to working tolerances on four wheel alignment
2.4	explain the importance of and how to take and record accurate measurements.

Learning outcome	The learner will:
3. understand how to adjust four wheel alignment	
Assessment criteria	
The learner can: 3.1 describe the use of appropriate specialist tools, when adjusting four wheel alignment 3.2 describe four wheel alignment adjustment techniques, including the use of weights, how to apply them and record adjustments 3.3 describe the importance of ensuring any adjustments are within acceptable tolerances for the vehicle and the possible consequences of inaccurate adjustment.	

Learning outcome	The learner will:
4. understand the importance of testing completed adjustments	
Assessment criteria	
The learner can: 4.1 describe how to check that the adjusted items function correctly 4.2 explain the importance of checking the operation of adjusted items prior to return to the customer and the implications for safety and customer satisfaction 4.3 describe the impact of adjustment on electronic systems.	

Unit 557 Knowledge of light vehicle four wheel alignment

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Principles of steering and suspension and their effects on tyre wear and vehicle handling including**:**

a. Caster.
b. Camber.
c. King pin or swivel axis inclination.
d. Toe out on turns.
e. Thrust angle.
f. Set back.
g. Wheel run out.
h. Axle alignment.

Four wheel alignment pre-checks cover:

a. Tyre pressures.
b. Wheel bearing and ball joint condition.
c. Suspension condition and ride height.
d. Vehicle loading.
e. Tyre size and condition.

Four wheel alignment covers:

a. Individual toe.
b. Combined toe.
c. Steering wheel position.
d. Thrust angle.

Abnormal tyre wear

a. Edge wear.
b. Feathering.
c. Tread wear pattern due to incorrect inflation pressures.

Equipment and tools

a. Hand tools.
b. Lifting and supporting equipment.
c. Specialist alignment measuring equipment.
d. Turn plates (turntables).
e. Steering clamp.

The impact of adjustment on electronic systems to include:

a. Tyre pressure monitoring systems (tpms).
b. Steering wheel angle sensor.
c. Electronic stability programme.

Unit 558 Knowledge of inspection and repair of light vehicle clutches

UAN:	**H/601/6060**
Level:	2
Credit value:	2
GLH:	14
Relationship to NOS:	This unit is linked to VF08
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of the inspection, repair and replacement of light vehicle clutches and components.

Learning outcome	**The learner will:**
1.	understand the specialist tools and equipment used when inspecting and replacing clutches
Assessment criteria	
The learner can:	
1.1	describe the types, function and use of clutch removal, alignment and replacement tools and equipment.

Learning outcome	**The learner will:**
2.	understand the different types of light vehicle clutches
Assessment criteria	
The learner can:	
2.1	describe different types of clutch and operating systems and how they and their associated components operate.

Learning outcome	The learner will:
3.	understand how to inspect and replace light vehicle clutches
Assessment criteria	
The learner can:	
3.1	describe different types of clutch inspection techniques and how to carry them out
3.2	explain how to make checks and adjustments to clutches
3.3	describe the common faults associated with clutch systems, their causes and how to identify and rectify them
3.4	describe removal and replacement procedures associated with clutch systems
3.5	describe how to adjust clutch working tolerances.

Unit 558 Knowledge of inspection and repair of light vehicle clutches

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Tools and equipment used in the repair and maintenance of manual clutches

a. Hand tools.
b. Lifting equipment.
c. Ramps, jacks and axle stands.
d. Specialist tools: alignment tools.
e. Use, maintenance storage and cleaning.
f. Safety procedures to be observed while carrying out work.
g. General workshop equipment.

The purpose and basic function and layout of manual clutches

a. Front wheel drive and rear wheel drive.
b. Types of clutches (single plate dry clutch – spring and diaphragm applications).
c. Clutch operating mechanisms (mechanical and hydraulic) adjustments.
d. Hydraulic fluids.
e. DOT classification.

Removal and refitting procedures associated with manual clutches

a. Safe use of equipment and PPE.
b. Vehicle protection.
c. Sequence: logical, manufacturer recommended methods (FWD and RWD)
d. Disposal of removed parts, materials, solutions and chemicals.
e. Final inspection and component adjustment.

Checks and adjustments to systems and components to include:

a. Clutch operating systems.
b. Clutch assemblies.
c. Flywheel.
d. Oil leaks.

Clutch inspection techniques including:

a. Visual.
b. Aural.
c. Measurement.
d. Functional test.

Clutch components

a. Clutch assembly (drive plate, pressure plate and release bearing).
b. Spigot bearing.
c. Flywheel.
d. Operating cable.
e. Hydraulic clutch components.
f. Automatic and manual adjusters.
g. Clutch fork.
h. Oil seals.
i. Input shaft.
j. Inspection cover.
k. Clutch pedal.
l. Bell housing.
m. Gear box.
n. Driveshaft.
o. Prop-shaft.

Type of clutch and operating system

a. Single plate.
b. Multi-plate.
c. Centrifugal.
d. Spring and diaphragm type pressure plates (covers).
e. Cable.
f. Hydraulic.
g. Electronic.

Common faults associated with clutch systems, their causes and how to identify and rectify them. To include:

a. Slip.
b. Drag.
c. Judder.
d. Noise.

The removal and replacement procedures associated with clutch systems including:

a. The effective sequence of working.
b. Workplace requirements for recording.
c. Measurements taken and adjustments made.

Adjusting clutch working tolerances to include:

a. Finding and using data.
b. Importance of accurate measurement.
c. Importance of adjusting to acceptable tolerances.

Unit 559 Knowledge of inspection and replacement of light vehicle exhaust components

UAN:	**Y/601/6072**
Level:	2
Credit value:	2
GLH:	14
Relationship to NOS:	This unit is linked to VF09.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of the inspecting exhaust components for replacement or continued serviceability and removing replacing components identified as being faulty, damaged, deteriorated or where the customer has requested replacement.

Learning outcome	**The learner will:**
1. understand the specialist tools and equipment used when inspecting and replacing exhaust components	
Assessment criteria	
The learner can: 1.1 describe the types, selection, safety checks and safe use of tools and equipment for the removal and replacement of exhausts 1.2 describe how to use oxy-acetylene equipment when working on exhausts.	

Learning outcome	**The learner will:**
2. understand about exhaust system components	
Assessment criteria	
The learner can: 2.1 describe the purpose, function, construction and layout of exhaust system components 2.2 describe exhaust related emission control systems 2.3 describe the legal requirements relating to exhaust systems.	

Learning outcome	The learner will:
3. understand how to inspect and replace exhaust systems	
Assessment criteria	
The learner can: 3.1 describe inspection techniques for exhaust system faults and how to carry them out 3.2 describe common faults associated with exhaust systems 3.3 describe the effective sequence of working when removing and replacing exhaust systems 3.4 describe how to remove, replace or re-thread broken, damaged or seized exhaust fixings 3.5 describe how to check exhaust system components are functioning correctly after refitting or replacement.	

Unit 559 Knowledge of inspection and replacement of light vehicle exhaust components

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Tools and equipment

a. Oxy-acetylene cutting equipment
b. Lifting and supporting equipment
c. Hand tools
d. Special purpose tools – exhaust chain cutter, exhaust flaring dolly, thread cutting taps and dies, stud removal toolset, steering clamp

Exhaust system components

a. Front pipe and fittings
b. Silencers - composite, absorption, expansion, baffles
c. Intermediate and tail pipe - materials used in exhaust system construction: mild steel, aluminium coated, stainless steel. packing materials, joints, flexible, rigid, welded, fixings, studs, brackets, mountings
d. Catalytic converter
e. Lambda sensor materials used in exhaust system construction: mild steel, aluminium coated, stainless steel, packing materials
f. Exhaust mountings and clamps
g. Heat shields

Legal requirements associated with vehicle exhaust systems

a. MOT test requirements
b. Emissions
c. Noise

Use of oxy-acetylene equipment when working on exhausts, to include:

a. Straight through cuts
b. Female from male cuts
c. Male from female cuts
d. Removal of seized components

The purpose, function, construction and layout of exhaust system components, to include:

a. Exhaust system as a complete unit

b. Individual components
c. Catalytic converter
d. Lambda sensor

Inspection techniques for exhaust systems to include:

a. Visual
b. Aural
c. Functional test

Check exhaust system components functionality after refitting or replacement to include the importance of:

a. Doing so before release to the customer
b. Ensuring customers are advised of any running in procedures for new exhausts
c. Checking that replacement components are of the correct type and quality for the vehicle and conform to legal requirements where relevant

Unit 560 Knowledge of inspection, testing and replacement of vehicle batteries and related components

UAN:	**F/601/6082**
Level:	2
Credit value:	2
GLH:	18
Relationship to NOS:	This unit is linked to VF10
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of carrying out tests which identify faulty batteries, and then the removal and replacement of them. This can be on light vehicles, medium and large goods vehicles, motorcycles, mopeds and scooters.

Learning outcome	**The learner will:**
1.	understand the tools and equipment used when inspecting, testing and replacing vehicle batteries
Assessment criteria	
The learner can: 1.1 explain the selection, function and safe use of battery testing equipment 1.2 describe code saving devices and how and when to use them.	

Learning outcome	**The learner will:**
2.	understand the different types of vehicle battery and charging system
Assessment criteria	
The learner can: 2.1 describe the purpose, function and layout of automotive batteries and charging systems 2.2 describe battery ratings and the circumstances in which differently rated batteries should be fitted 2.3 describe legal requirements relating to storage, selection and	

disposal of vehicle batteries and components.

Learning outcome	**The learner will:**
3.	understand how to inspect, test and replace light vehicle batteries
Assessment criteria	
The learner can: 3.1 describe fault identification methods and procedures and safe testing techniques associated with batteries and components 3.2 describe the common faults associated with batteries and charging systems 3.3 describe safe removal and replacement procedures associated with batteries and components 3.4 describe how to check drive belt adjustment 3.5 describe how to check that batteries and components are: a. functioning correctly after refitting or replacement. b. of the correct type and quality for the vehicle and conform to legal requirements where relevant.	

Unit 560 Knowledge of inspection, testing and replacement of vehicle batteries and related components

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

The selection, function and safe use of battery testing equipment, to include:

a. Voltmeter.
b. Multi-meter.
c. Hydrometer.
d. Battery condition tester.

Batteries and components are:

a. Automotive batteries.
b. Battery connections.
c. Battery supports.
d. Battery hold down devices.
e. Generators.
f. Drive belts.

Types of batteries are:

a. Standard batteries.
b. Low maintenance batteries.
c. Maintenance free batteries.
d. Gel filled batteries.
e. Smart charging.

Generators can be:

a. Alternators.
b. Dynamos.
c. Magnetos.

Tools used for testing and maintenance to include:

a. Hydrometer.
b. Volt meter.
c. Ammeter.
d. High rate discharge meter.
e. Battery chargers.
f. Battery savers.

Testing of batteries and charging systems

a. Electrolyte level low.
b. Terminal connections loose or corroded.
c. Drive belt slipping.
d. Alternator or generator not charging at the correct output (meter check).
e. Faulty alternator or voltage regulator.
f. Specific gravity low or high.
g. Health and safety equipment Personal protection.
h. Electrolyte filling and health and safety requirements.
i. Correct disposal of waste.
j. Working to agreed timescales.
k. Keeping others informed of progress and referral of problems.
l. Storage and maintenance of battery stock.
m. Logical sequence for disconnecting and connecting.

Fault identification methods and procedures for batteries and components, to include:

a. Visual.
b. Aural.
c. Use of hand held test equipment.
d. Use of battery manufacturer's test equipment.

Common faults associated with batteries and charging systems, to include:

a. Internal battery faults.
b. Charging faults.
c. Drive belt faults.
d. Wiring or connection faults.
e. Battery mounting faults.
f. Battery terminal and casing faults.

Unit 561 Knowledge of inspection and replacement of light vehicle suspension dampers and springs

UAN:	**J/601/6083**
Level:	2
Credit value:	2
GLH:	14
Relationship to NOS:	This unit is linked to VF11.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of the inspection and replacement of suspension dampers and springs using a variety of equipment and testing techniques.

Learning outcome	**The learner will:**
1. understand the tools and equipment used when inspecting and replacing light vehicle suspension dampers and springs	
Assessment criteria	
The learner can 1.1 describe the selection, safety checks and safe use of tools and equipment for the replacement of suspension dampers and springs.	

Learning outcome	**The learner will:**
2. understand the different types of suspension dampers and springs	
Assessment criteria	
The learner can 2.1 describe the types, purpose, function and location of light vehicle suspension dampers and springs 2.2 describe legal requirements relating to light vehicle dampers and springs.	

Learning outcome	The learner will:
3. understand how to inspect, test and replace suspension dampers and springs	
Assessment criteria	
The learner can 3.1 describe safe testing techniques and procedures associated with suspension dampers and springs 3.2 describe the common faults associated with light vehicle suspension dampers and springs 3.3 describe safe removal and replacement procedures associated with light vehicle suspension dampers and springs. 3.4 describe how to check camber setting and road wheel alignment 3.5 describe how to check that components are: a. functioning and adjusted correctly after refitting or replacement. b. of the correct type and quality for the vehicle and conform to legal requirements where relevant.	

Unit 561 Knowledge of inspection and replacement of light vehicle suspension dampers and springs

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Tools and equipment:

a. Hand tools.
b. Lifting and supporting equipment.
c. Specialist tools.

Fault identification methods and procedures for suspension dampers and springs, to include:

a. Visual.
b. Aural.
c. Damper operation (bounce test).

Suspension may include:
To include:

a. Telescopic.
b. Lever arm.
c. Semi strut and MacPherson strut.
d. Gas assisted.
e. Coil spring.
f. Leaf spring.
g. Torsion bar.
h. Rubber.
i. Hydragas.
j. Torsion bar.
k. Hydromatic.

Special purpose tools may include:

a. Spring compressors.
b. Strut guide.
c. Strut insert retainer tools.
d. Ball joint separators.

Purpose and function of light vehicle suspension dampers.

a. Damping effect.
b. Passenger comfort.
c. Road holding.
d. Personal protection.
e. Dangers and precautions to be taken when using spring compressors.
f. Correct disposal of waste.
g. Working to agreed timescales.
h. Keeping others informed of progress and referral of problems.
i. Priming of dampers.

Common faults associated with light vehicle suspension dampers and springs, including:

a. Wear.
b. Leakage.
c. Damage.
d. Corrosion.
e. Deterioration (rubber components).

Unit 562 Knowledge of inspection, adjustment and replacement of light vehicle braking systems and components

UAN:	**L/601/6084**
Level:	2
Credit value:	2
GLH:	18
Relationship to NOS:	This unit is linked to VF12
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of the inspection of light vehicle braking systems and replacing and adjusting braking system components.

Learning outcome	**The learner will:**
1.	understand the tools and equipment used when inspecting, adjusting and replacing light vehicle braking system components
Assessment criteria	
The learner can:	
1.1	describe the selection, safety checks and safe use of tools and equipment for the inspection, adjustment and replacement of light vehicle braking system components.

Learning outcome	**The learner will:**
2.	understand the different types of light vehicle braking systems and components
Assessment criteria	
The learner can:	
2.1	describe the purpose, function and layout of typical light vehicle braking systems
2.2	describe legal requirements relating to light vehicle braking systems
2.3	describe how to identify electronic braking systems..

Learning outcome	The learner will:
3. understand how to inspect, test, adjust and replace light vehicle braking systems and components	
Assessment criteria	
The learner can: 3.1 describe safe inspection and testing techniques and procedures associated with braking systems 3.2 describe the common faults associated with light vehicle braking systems 3.3 describe safe removal and replacement procedures associated with light vehicle braking system components referral of problems 3.4 describe how to make adjustments to braking systems 3.5 describe how to check that components are: a. functioning and adjusted correctly after refitting or replacement. b. of the correct type and quality for the vehicle and conform to legal requirements where relevant.	

Unit 562 Knowledge of inspection, adjustment and replacement of light vehicle braking systems and components

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Tools and equipment

a. Hand tools.
b. Special purpose tools.
c. Lifting and supporting equipment.
d. Brake bleeding equipment.
e. Measuring equipment.

Inspection and testing techniques for braking systems

a. Visual.
b. Aural.
c. Measurement.
d. Functional.

Common Faults with light vehicle braking systems, to include:

a. Wear.
b. Leakage.
c. Damage.
d. Corrosion.

Removal and replacement of light vehicle braking systems and components, to include:

a. Dangers and precaution to be taken when working with brake dust.
b. Correct disposal of waste.
c. Working to agreed timescales.
d. Keeping others informed of progress

Function and layout of braking systems

a. Hydraulic braking circuit.
b. Types of braking systems: disc/pad, drum/shoe, servo assisted, shoe/shoe, twin leading and leading trailing.
c. Components: master cylinders, servos, brake pads and shoes, calipers, wheel cylinders and backing plates.
d. Pipes, cables and servos.

e. Brake fluid (including testing).
f. Equalising valves, load sensing valves and vacuum/pressure pumps.
g. Warning lights.
h. How to identify ABS braking systems.

Hydraulic systems

a. Single line.
b. Multi line (diagonal, triangular and ‘H’).

Electronic braking systems:

a. Anti-skid (lock) braking systems.
b. Electronic brake distribution.
c. Parking brakes.

Special purpose tools:

a. Piston retracting tools.
b. Wind back tools.
c. Brake shoe horn (lifter).
d. Brake shoe clip remover.
e. Brake fluid testers.
f. Brake hose clamps.
g. Brake adjusting tools.
h. Brake bleeding equipment.

Braking system faults

a. Excessive pedal travel.
b. Brake judder.
c. Excessive pedal pressure.
d. Imbalance/pull.
e. Premature deterioration.
f. Brakes binding.
g. Brake fade.
h. Failed servo.
i. Air in system.

Fault identification

a. Inspection-visual, aural and measurement.
b. Test drive/roller brake test.
c. Questioning.
d. Dismantling.
e. Information sources (including manufacturers’ technical data).
f. Limits of wear and serviceability.

Unit 563 Knowledge of safe use of oxy-acetylene in automotive applications

UAN:	**R/601/6085**
Level:	2
Credit value:	3
GLH:	20
Relationship to NOS:	This unit is linked to VF13
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit enables the learner to develop an understanding of the safe use of Oxy-acetylene in automotive applications

Learning outcome	**The learner will:**
1.	understand how to work safely with oxy-acetylene equipment
Assessment criteria	
The learner can:	
1.1	describe the pre-checks that must be carried out to confirm that oxy-acetylene equipment used for heating and cutting is safe and fit for purpose
1.2	describe specific safety precautions to be taken when working with thermal cutting equipment
1.3	give examples of safe working practices and procedures for using thermal equipment in line with British Compressed Gas Association Codes of Practice
1.4	describe the effects of oil, grease, scale or dirt on the cutting process.

Learning outcome	**The learner will:**
2.	understand the theory of the thermal cutting process
Assessment criteria	
The learner can:	
2.1	describe the principles of the thermal cutting process and related equipment
2.2	describe thermal cutting techniques and their limitations
2.3	describe the gases used in thermal cutting.

Learning outcome	The learner will:
3.	understand how to set up thermal cutting equipment and carry out the process
Assessment criteria	
The learner can: 3.1 describe how to set up thermal cutting equipment 3.2 describe the preparations prior to cutting 3.3 describe flame control setting and the effects of mixtures and pressures associated with thermal cutting 3.4 explain the procedure for lighting and extinguishing the flame and the importance of following the procedure 3.5 describe the procedures for cutting specific materials and features and why these procedures must always be adhered to. To include: a. pipe sections straight through b. female from male cuts c. male from female cuts.	

Learning outcome	The learner will:
4.	understand the problems and defects associated with thermal cutting
Assessment criteria	
The learner can: 4.1 describe the problems of distortion associated with thermal cutting and how this can be controlled 4.2 explain the causes of cutting defects, how to recognise them and methods of correction and prevention.	

Unit 563 Knowledge of safe use of oxy-acetylene in automotive applications

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Specific safety precautions when working with thermal cutting equipment, to include:

a. Fire and explosion prevention.
b. Protection of others.
c. Working in confined spaces.
d. Fume control.
e. Personal protective equipment.
f. Movement of heavy and sharp materials.

Gases used in thermal cutting, including:

a. Gas identification and colour codes.
b. Particular characteristics.
c. Safety procedures.

Setting up thermal cutting equipment:

a. Connection of hoses.
b. Connection of regulators and flashback arrestors.
c. Selection of cutting torch and nozzle size.

The procedures for cutting specific materials and features, to include:

a. Pipe sections straight through.
b. Female from male cuts.
c. Male from female cuts.

Checks on equipment to confirm safety and fit for purpose

a. Regulators, hoses and valves are securely connected and free from leaks and damage.
b. Correct gas nozzle is fitted to the cutting torch.
c. Flashback arrestor is fitted to gas equipment.
d. Gas pressures are set and maintained as instructed.
e. Correct procedure is used for lighting, adjusting and extinguishing the cutting flame.
f. Hoses are safely routed and protected at all times.
g. Gas cylinders are handled and stored safely and correctly.

Specific personal protective equipment

a. Leather aprons.
b. Gloves.
c. Eye protection.
d. Safety helmet.
e. Skull cap.
f. Flame retardant overalls.
g. Safety boots.

Hazards associated with thermal cutting and how they can be minimized

a. Naked flames.
b. Fumes and gases.
c. Explosive gas mixtures.
d. Oxygen enrichment.
e. Spatter.
f. Hot metal.
g. Elevated working.
h. Enclosed spaces.

Safe working practices and procedures for using thermal equipment in line with British Compressed Gas Association (BCGA) codes of practice, to include:

a. Setting up procedures.
b. Permit-to-work procedures.
c. Emergency shutdown procedures.

Preparations prior to cutting

a. Checking connections for leaks.
b. Setting gas pressures.
c. Setting up material or work piece.
d. Checking cleanliness of materials used.

Unit 603 Skills in assessing and securing the roadside situation

UAN:	**F/601/7409**
Level:	2
Credit value:	5
GLH:	50
Relationship to NOS:	This unit is linked to RR03.
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit provides the learner with the skills to secure and protect incident sites. It covers assessing a site and passing information on to others while maintaining the safety of themselves and others at an incident site.

Learning outcome	**The learner will:**
1. be able to secure and protect an incident site	
Assessment criteria	
The learner can: 1.1 carry out roadside assessment and security activities wearing suitable personal protective equipment throughout 1.2 show how to secure and protect an incident site to comply with legal requirements, current industry codes of practice, prevailing weather conditions and the roadside situation.	

Learning outcome	**The learner will:**
2. be able to secure the safety of themselves and others	
Assessment criteria	
The learner can: 2.1 show how to secure the immediate safety of themselves and the driver and passengers of a casualty vehicle.	

Learning outcome	The learner will:
3.	be able to make an initial assessment of a site and provide information to others
Assessment criteria	
The learner can: 3.1 carry out their initial assessment of the incident identifying: a. The existence of any hazardous or potentially hazardous substances b. Any real or potential fire risks c. The use of beacons d. Relaxed sign layout e. Standard sign layout f. Road closure g. The need for any specialist assistance 3.2 provide information promptly and clearly to all relevant authorities and their control centre covering: a. The existence of any injured persons b. The prevailing weather conditions c. The location and roadside situation d. The nature of the incident e. Real and potential hazards 3.3 show how to seek assistance and guidance promptly from the relevant authorities when they believe that hazardous substances are present. 3.4 carry out an initial assessment of the vehicle to establish: a. The nature and extent of damage or breakdown b. The feasibility of a roadside repair 3.5 make justifiable decisions for a course of action based upon the information gained from their initial assessment of the situation.	

Unit 653 Knowledge in assessing and securing the roadside situation

UAN:	**A/601/7408**
Level:	2
Credit value:	6
GLH:	47
Relationship to NOS:	This unit is linked to RR03
Assessment requirements specified by a sector or regulatory body:	This unit was developed by the IMI, the sector skills council for the automotive retail industry. All assessments have been developed in accordance with the IMI Assessment Requirements for VRQs.
Aim:	This unit provides the learner with the skills to secure and protect incident sites. It covers assessing a site and passing information on to others while maintaining the safety of themselves and others at an incident site.

Learning outcome	**The learner will:**
1.	understand about organisational requirements and procedures
Assessment criteria	
The learner can:	
1.1	describe the range of services and resources within a typical roadside assistance/recovery organisation
1.2	explain operating, reporting and recording procedures for a typical roadside assistance/recovery organisation
1.3	explain how to complete records and the importance of doing so in a roadside assistance/ recovery context.

Learning outcome	**The learner will:**
2.	understand the legal requirements and codes of practice for site protection and recovery arrangements
Assessment criteria	
The learner can:	
2.1	describe the legal requirements and industry codes of practice governing site protection and recovery operations
2.2	explain the importance of wearing personal protective equipment.

Learning outcome	The learner will:
3. understand how to assess and secure a site	
Assessment criteria	
The learner can: 3.1 describe the difference in requirements for securing and protecting a breakdown site and an accident site 3.2 describe the sources of specialist advice and guidance 3.3 describe how weather conditions affect the assessment and security of the roadside situation 3.4 explain how to approach the scene of an incident 3.5 describe the circumstances in which to call for specialist assistance 3.6 describe how to secure and protect incident sites in line with current industry codes of practice 3.7 describe how to take steps to secure the safety of yourself and others 3.8 explain how to use electronic and radio communication methods 3.9 describe how to communicate with customers and relevant authorities 3.10 describe how to make an initial assessment of the extent of vehicle damage and or faults 3.11 explain how to identify vehicles carrying hazardous substances 3.12 describe the possible consequences of inaccurate roadside assessment.	

Unit 653 Knowledge in assessing and securing the roadside situation

Supporting information

Candidates will be assessed on the assessment criteria as specified within the unit. The following information has been provided by IMI SSC and is included to support centres in terms of teaching and delivery.

Organisational requirements and procedures
The range of services and resources within a typical roadside assistance/recovery organisation

a. Roadside Assistance-Service vans, light, commercial, motorcycle.
b. Recovery-Light, commercial, motorcycle, breakdown, accident.
c. Customer welfare-protection at the scene, welfare facilities at base-Toilets, refreshments etc.

Operating, reporting and recording procedures for a typical roadside assistance/recovery organisation

a. Receiving of work-Office, dedicated control centre.
b. Distribution of work-Types of communication methods.
c. Recording of work-Database, hand held devices, Job cards.

How to complete records and the importance of doing so in a roadside assistance/recovery context

a. Risk assessment-Generic, specific, dynamic-Difference, Importance.
b. Electronic records-Hand held device job completion, Damage reports.
c. Manual recording systems-Job cards, damage reports.

The legal requirements and codes of practice for site protection and recovery arrangements
The legal requirements and industry codes of practice governing site protection and recovery operations

a. HASAWA-Employers duties, employees duties, duty of care.
b. PAS 43-Industry guidance document.
c. Sector agreement-Life On The Edge 6, regarded as the code of practice for the recovery sector.

The importance of wearing personal protective equipment

a. Last resort-In many cases no other way of reducing the risk.
b. Personal safety-Operator safety paramount, Warns other road users.

How to assess and secure a site

The difference in requirements for securing and protecting a breakdown site and an accident site

a. The risk assessment-Increased hazards present at an accident scene.
b. Services present-police, HATO, other emergency services.
c. Casualty occupants-Time at scene, shocked from RTC, children and babies.
d. Welfare needs-Toilet facilities, refreshments, on-going journey arrangements.
e. Temporary Traffic Management-Beacons, relaxed sign layout(signs and cones carried on the recovery vehicle), standard sign layout(signs and cones laid out by a third party), road closure.

The sources of specialist advice and guidance

a. Company procedures and risk assessments.
b. The Life on the Edge series of films.
c. PAS 43.
d. Company management, line manager, control centre, incident manager.
e. Police-Officer on scene, control room.
f. Highways Agency-traffic officer on scene, control centre.

Why weather conditions affect the assessment and security of the roadside situation

a. Visibility-Heavy rain, snow, bright sunshine.
b. Extreme cold-Increased hazards due to ice, additional clothing required, use of gloves.
c. Extreme heat-Personal comfort, PPE.
d. High winds-Commercial vehicle risks.

Approaching the scene of an incident

a. Flow of traffic-Type of road, is there a hard shoulder? Is there a place of safety?
b. Slowing down to park at scene-Warnings, indicators, other means.
c. Parking position-in front of casualty, behind casualty.
d. Distance to casualty vehicle.
e. Beacons-Are they needed?
f. Personal protective equipment-Minimum requirements.
g. Exiting the recovery vehicle-Safety, checking for traffic, correct dismount.
h. Codes of Practice (PAS 43).
i. Communication and reporting to relevant people and organizations using appropriate method.

Circumstances in which to call for specialist assistance

a. Injuries to passengers-Not known to emergency services, who to call, unlikely event.

b. Disabled passengers-Cannot get in to the recovery vehicle, specialist vehicle not available.
c. Hazardous substances present- Who should be called.

Securing and protecting incident sites in line with current industry codes of practice

a. 'Fend' position.
b. Recovery vehicle conspicuousness.
c. Recovery vehicle beacons.
d. Relaxed sign layout-Cones and signs on the recovery vehicle.
e. Standard sign layout-Cones and signs laid out by a third party (Police or HA).
f. Road closure.

How to take steps to secure the safety of yourself and others

a. Personal safety-Watching, listening, using a lookout.
b. Passengers of casualty vehicles-Control of movement, safe waiting areas, type of road.
c. The public-Safe working zones, control methods, 3rd party control (i.e. Police).

Explain how to use electronic and radio communication methods

a. Types of communication equipment-Radio, Mobile telephone, Mobile Data Terminal, PDA.
b. Licence requirements.
c. Use of correct language.
d. On route.
e. On scene.
f. Delays.
g. Job completion.
h. Assistance needed.
i. At base or waiting area.

How to communicate with customers and relevant authorities

a. Customers-Respect, empathy, compassion, firmly.
b. Police-Officer in charge, recovery requirements
c. Highways Agency-Traffic officer on scene, recovery requirements.
d. Other-Other emergency services, EA, Utility managers/workers, Traffic management.

How to make an initial assessment of the extent of vehicle damage and or faults

a. Breakdown-What is the fault? Is a repair quicker than recovery? Are parts required? Do you have the correct recovery vehicle? Prestige vehicles, Safety issues.
b. Accident-How much damage is there? Does the casualty roll? How many casualties are there? Do you have the correct recovery vehicle? Are there special requirements by the Police? (Preservation of mechanical evidence etc).

How to identify vehicles carrying hazardous substances

a. Marker plates-Types, shapes, colours, numbering system.

Describe the possible consequences of inaccurate roadside assessment

a. Danger to recovery technician.
b. Danger to driver/passengers of casualty.
c. Danger to others.

Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to **www.cityandguilds.com** or click on the links below:

Centre handbook: quality assurance standards

This document is for all approved centres and provides guidance to support their delivery of our qualifications. It includes information on:

- centre quality assurance criteria and monitoring activities
- administration and assessment systems
- centre-facing support teams at City & Guilds/ILM
- centre quality assurance roles and responsibilities.

The centre handbook should be used to ensure compliance with the terms and conditions of the centre contract.

Centre assessment: quality assurance standards

This document sets out the minimum common quality assurance requirements for our regulated and non-regulated qualifications that feature centre-assessed components. Specific guidance will also be included in relevant qualification handbooks and/or assessment documentation.

It incorporates our expectations for centre internal quality assurance and the external quality assurance methods we use to ensure that assessment standards are met and upheld. It also details the range of sanctions that may be put in place when centres do not comply with our requirements or actions that will be taken to align centre marking/assessment to required standards. Additionally, it provides detailed guidance on the secure and valid administration of centre assessments.

Access arrangements: when and how applications need to be made to City & Guilds

This provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre document library** also contains useful information on such things as:

- conducting examinations
- registering learners
- appeals and malpractice.

Useful contacts

Please visit the **contact us** section of the City & Guilds website.

City & Guilds

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We partner with our customers to deliver work-based learning programmes that build competency to support better prospects for people, organisations and wider society. We create flexible learning pathways that support lifelong employability because we believe that people deserve the opportunity to (re)train and (re)learn again and again – gaining new skills at every stage of life, regardless of where they start.

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