

ABC Awards

SEG Awards ABC Level 1 Award, Certificate and Diploma in Motor Vehicle Studies

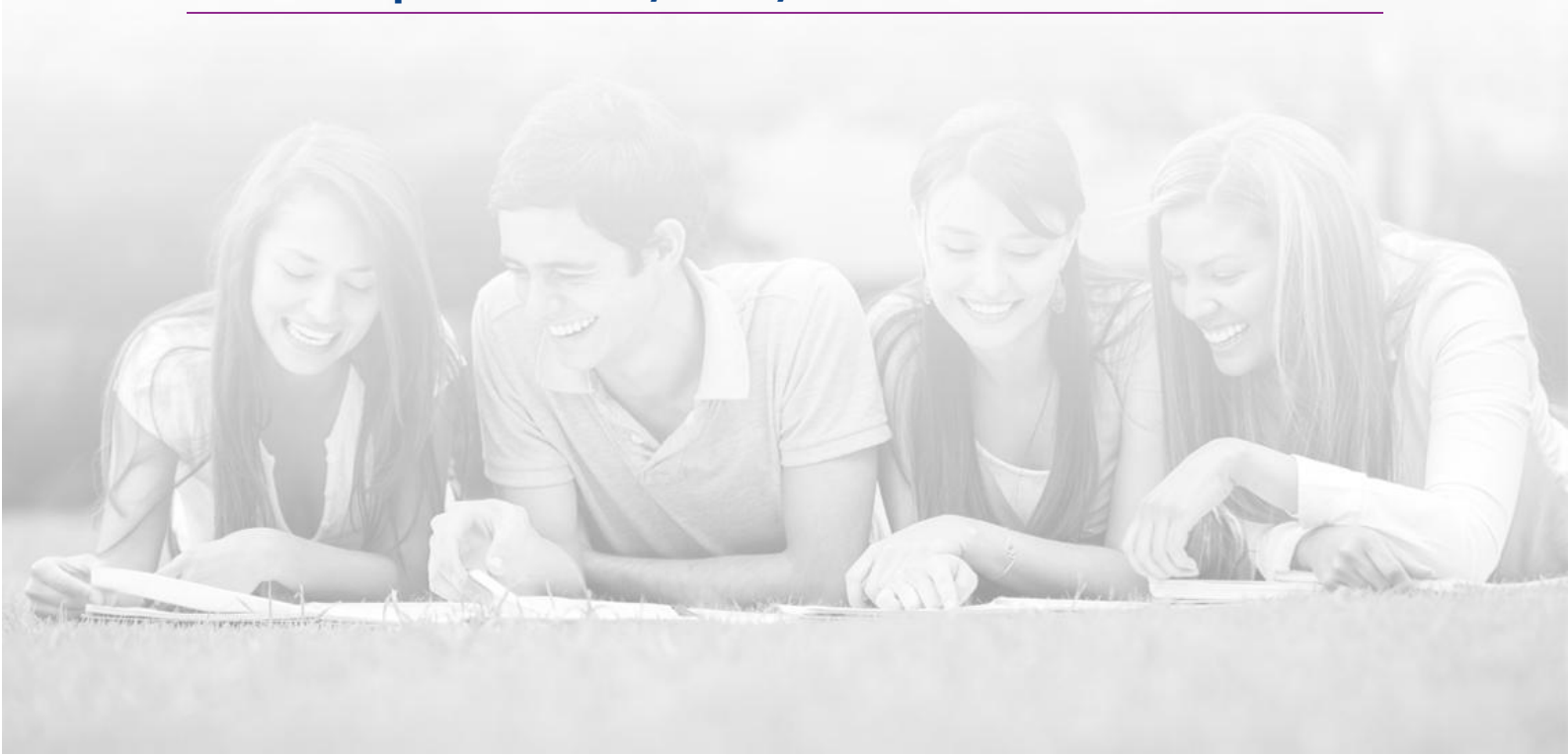
Qualification Guidance

England

Level 1 Award – 500/4242/7

Level 1 Certificate – 500/4220/8

Level 1 Diploma – 500/4209/9



About Us

At the Skills and Education SEG Awards (ABC)¹ we continually invest in high quality qualifications, assessments and services for our chosen sectors. As a UK leading sector specialist we continue to support employers and skills providers to enable individuals to achieve the skills and knowledge needed to raise professional standards across our sectors.

ABC has an on-line registration system to help customers register learners on its qualifications, units and exams. In addition it provides features to view exam results, invoices, mark sheets and other information about learners already registered.

The system is accessed via a web browser by connecting to our secure website using a username and password:

https://secure.ABCawards.co.uk/ors/secure_login.asp

Sources of Additional Information

The ABC website www.ABCawards.co.uk provides access to a wide variety of information.

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Specification Code, Date and Issue Number

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Contents

Introduction.....	5
Aims	5
Target Group	5
Progression Opportunities	6
Tutor/Assessor Requirements	7
Language.....	7
Qualification Summary.....	7
Level 1 Award in Motor Vehicle Studies	9
Level 1 Certificate in Motor Vehicle Studies	11
Level 1 Diploma in Motor Vehicle Studies	13
Unit Details.....	15
Health and Safety for Motor Vehicle Studies	16
Introduction to Engineering Equipment and Materials	20
Introduction to Compression Ignition Power Units	24
Introduction to Spark Ignition Power Units	28
Introduction to Engine Liquid Cooling and Engine Lubrication Systems	32
Introduction to Spark Ignition and Compression Ignition Fuel Systems	36
Introduction to Vehicle Transmission Systems	40
Introduction to Battery and Lighting Systems	44
Introduction to Steering and Suspension	49
Introduction to Vehicle Braking Systems	53
Introduction to Vehicle Inspection.....	57
Introduction to Vehicle Body Repair	62
Introduction to Vehicle Refinishing.....	67
Introduction to Customer Care	72
Introduction to Vehicle Wheels and Tyres.....	76
Introduction to Vehicle Exhaust Systems.....	81
Introduction to Vehicle Ignition Systems	85
Introduction to Vehicle Valeting.....	89

Introduction to Motorcycle Maintenance	93
Appendices	99
Recognition of Prior Learning (RPL), Exemptions, Credit Transfers and Equivalencies.....	99
Certification.....	100

This is a live document and as such will be updated when required. It is the responsibility of the approved centre to ensure the most up-to-date version of the Qualification Guide is in use. Any amendments will be published on our website and centres are encouraged to check this site regularly.

Qualification Overview

Introduction

The ABC Level 1 Award / Certificate / Diploma in Motor Vehicle Studies encourage and enable learners who have an interest in this area of study to acquire knowledge and skills to aid progression to further study or employment.

Aims

The aim of this qualification is to offer learners and centres a flexible bank of units that can be tailored into specialised learning packages in areas of interest that deliver an introduction to the motor vehicle industry providing an overview of potential occupations and job roles within. The overall aim is to provide both experience and knowledge on which to base future career and associated progression decisions, and to enhance employment prospects.

The ABC Level 1 Award and Certificate in Motor Vehicle Studies are also offered as Specialist Learning for the Engineering Diploma at level 1 and are included within the Foundation Learning Tier (FLT).

Target Group

These qualifications are designed for:

- The mature learner who is seeking re-entry into the employment market, but who has insufficient qualifications and/or experience to compete for work
- 16–19 year olds in post-school education or training, particularly those with limited previous achievement, who wish to pursue a vocational course as a foundation to employment
- School/FE link (14-16 year olds) learners who are looking for an introductory programme of a vocational type for progression into further education and/or employment
- Those in employment in the motor vehicle service and repair industry who need to acquire appropriate job-related qualifications
- Learners taking the Engineering Diploma who wish to take Specialist Learning in Motor Vehicle studies

The qualifications sit within the following Progression Pathways in the Foundation Learning Tier.

Level 1 Award in Motor Vehicle Studies

Independent Living / Supported Employment

14-16 Entry Level

Level 1 Certificate in Motor Vehicle Studies

Full Level 2

Skilled Employment including Apprenticeships

14-16 Entry Level

ABC expects approved centres to recruit with integrity on the basis of a learner's ability to contribute to and successfully complete all the requirements of a unit/s or the full qualification.

Progression Opportunities

Successful completion of the Level 1 Award in Motor Vehicle Studies provides learners with the opportunity to progress on to the ABC Level 1 Certificate or Diploma in Motor Vehicle Studies.

Successful completion of the Level 1 Certificate in Motor Vehicle Studies provides a sound preparation for further vocational training, such as continuing onto the Level 1 Diploma in Motor Vehicle Studies or Apprenticeships at Level 2 in:

- Vehicle Fitting
- Vehicle Maintenance and Repair
- Vehicle Body and Paint Operations
- Roadside Assistance and Recovery
- Vehicle Parts Operations
- Vehicle Sales

Successful completion of the Level 1 Diploma in Motor Vehicle Studies provides a sound preparation for further vocational training, such as continuing onto other related qualifications at Level 2 or Apprenticeships at Level 2 in:

- Vehicle Fitting
- Vehicle Maintenance and Repair
- Vehicle Body and Paint Operations
- Roadside Assistance and Recovery
- Vehicle Parts Operations

- Vehicle Sales

Centres should be aware that Reasonable Adjustments which may be permitted for assessment may in some instances limit a learner's progression into the sector. Centres must, therefore, inform learners of any limits their learning difficulty may impose on future progression.

Tutor/Assessor Requirements

We require those involved in the assessment process to be suitably experienced and / or qualified. In general terms, this usually means that the assessor is knowledgeable of the subject / occupational area to a level above that which they are assessing.

Assessors should also be trained and qualified to assess or be working towards appropriate qualifications.

Language

These specifications and associated assessment materials are in English only.

Qualification Summary

Qualifications	
Level 1 Award in Motor Vehicle Studies – 500/4242/7 Level 1 Certificate in Motor Vehicle Studies – 500/4220/8 Level 1 Diploma in Motor Vehicle Studies – 500/4209/9	
Regulated	The qualifications identified above are all regulated by Ofqual.
Assessment	Internal assessment, internal and external moderation
Grading	Pass
Progression	Successful completion of the Level 1 Award in Motor Vehicle Studies provides learners with the opportunity to progress on to the ABC Level 1 Certificate or Diploma in Motor Vehicle Studies. Successful completion of the Level 1 Certificate in Motor Vehicle Studies provides a sound preparation for further vocational training, such as continuing onto the Level 1 Diploma in Motor Vehicle Studies or appropriate Apprenticeships at Level 2 such as: • Vehicle Fitting • Vehicle Maintenance and Repair • Vehicle Body and Paint Operations • Roadside Assistance and Recovery • Vehicle Parts Operations • Vehicle Sales Successful completion of the Level 1 Diploma in Motor Vehicle Studies provides a sound preparation for further vocational training, such as continuing onto other related qualifications at Level 2 or appropriate Apprenticeships at Level 2 such as: • Vehicle Fitting • Vehicle Maintenance and Repair • Vehicle Body and Paint Operations • Roadside Assistance and Recovery

	• Vehicle Parts Operations • Vehicle Sales Centres should be aware that reasonable Adjustments which may be permitted for assessment may in some instances limit a learner's progression into the sector. Centres must, therefore, inform learners of any limits their learning difficulty may impose on future progression
Operational Start Date	01/07/2008
Review Date	31/8/2028
ABC Sector	Engineering and Manufacturing Technologies
Ofqual SSA Sector	4.3 Transportation Operations and Maintenance
Stakeholder support	IMI / Automotive Skills
Contact	See ABC website for the Centre Support Officer responsible for this qualification

Level 1 Award in Motor Vehicle Studies

Learners must achieve a minimum of 12 credits. 4 credits must come from Mandatory Group A and a further 8 credits from Optional Units in Group B.

Unit	Level	Credit Value	GLH
Mandatory Unit - Group A			
Health and safety for motor vehicle studies [H/501/7005]	1	4	40
Optional Units - Group B			
Introduction to engineering equipment and materials [A/501/7009]	1	4	40
Introduction to compression ignition power units [M/501/7010]	1	4	40
Introduction to spark ignition power units [T/501/7011]	1	4	40
Introduction to engine liquid cooling and engine lubrication systems [A/501/7012]	1	4	40
Introduction to spark ignition and compression ignition fuel systems [F/501/7013]	1	4	40
Introduction to vehicle transmission systems [J/501/7014]	1	4	40
Introduction to battery and lighting systems [L/501/7015]	1	4	40
Introduction to steering and suspension [R/501/7016]	1	4	40
Introduction to vehicle braking systems [Y/501/7017]	1	4	40
Introduction to vehicle inspection [D/501/7018]	1	4	40
Introduction to vehicle body repair [H/501/7019]	1	4	40
Introduction to vehicle refinishing [Y/501/7020]	1	4	40
Introduction to customer care [D/501/7021]	1	1	10
Introduction to vehicle wheels and tyres [H/501/7022]	1	2	20
Introduction to vehicle exhaust systems [M/501/7024]	1	2	20
Introduction to vehicle ignition systems	1	2	20

[A/501/7026]			
Introduction to vehicle valeting [J/501/7028]	1	4	40
Introduction to motorcycle maintenance [L/501/7029]	1	4	40

Numbers in box brackets indicate unit number.

If learners achieve credits from units of the same title (or linked titles) at more than one level, they cannot count credits achieved from both units towards the credit target of a qualification.

Qualification Purpose	B. Prepare for further learning or training and/or develop knowledge and/or skills in a subject area. B1. Prepare for further learning or training, B2. Develop knowledge and/or skills in a subject area					
Entry Requirements	Learners who are 14+ who have an interest in Motor Vehicle Studies					
Age Range	Pre 16	✓	16 – 18	✓	19 +	✓
LARS Reference	50042427					
Recommended GLH²	120					
Recommended TQT³	120					
Credit Value	12					
Type of Funding Available	See LARS (Learning Aims Database)					
Qualification Fee / Unit Fee	See ABC web site for current fees and charges					
Additional Information	See ABC website for resources available for this qualification					

² See Glossary of Terms

³ See Glossary of Terms

Level 1 Certificate in Motor Vehicle Studies

Learners must achieve a minimum of 24 credits. 4 Credits must come from Mandatory Group A. A minimum of 20 credits must come from Optional Units in Group B.

Unit	Level	Credit Value	GLH
Health and safety for motor vehicle studies [H/501/7005]	1	4	40
Optional Units - Group B			
Introduction to engineering equipment and materials [A/501/7009]	1	4	40
Introduction to compression ignition power units [M/501/7010]	1	4	40
Introduction to spark ignition power units [T/501/7011]	1	4	40
Introduction to engine liquid cooling and engine lubrication systems [A/501/7012]	1	4	40
Introduction to spark ignition and compression ignition fuel systems [F/501/7013]	1	4	40
Introduction to vehicle transmission systems [J/501/7014]	1	4	40
Introduction to battery and lighting systems [L/501/7015]	1	4	40
Introduction to steering and suspension [R/501/7016]	1	4	40
Introduction to vehicle braking systems [Y/501/7017]	1	4	40
Introduction to vehicle inspection [D/501/7018]	1	4	40
Introduction to vehicle body repair [H/501/7019]	1	4	40
Introduction to vehicle refinishing [Y/501/7020]	1	4	40
Introduction to customer care [D/501/7021]	1	1	10
Introduction to vehicle wheels and tyres [H/501/7022]	1	2	20
Introduction to vehicle exhaust systems [M/501/7024]	1	2	20
Introduction to vehicle ignition systems [A/501/7026]	1	2	20

Introduction to vehicle valeting [J/501/7028]	1	4	40
Introduction to motorcycle maintenance [L/501/7029]	1	4	40
Numbers in box brackets indicate unit number. If learners achieve credits from units of the same title (or linked titles) at more than one level, they cannot count credits achieved from both units towards the credit target of a qualification.			
Qualification Purpose	B. Prepare for further learning or training and/or develop knowledge and/or skills in a subject area. B1. Prepare for further learning or training, B2. Develop knowledge and/or skills in a subject area		
Entry Requirements	Learners who are 14+ who have an interest in Motor Vehicle Studies		
Age Range	Pre 16	✓	16 – 18 ✓ 19 + ✓
LARS Reference	50042208		
Recommended GLH⁴	240		
Recommended TQT⁵	240		
Credit Value	24		
Type of Funding Available	See LARS (Learning Aim Rates Service)		
Minimum Qualification Fee	See ABC web site for current fees and charges		
Unit Fee	Unit fees are based upon a unit's individual credit value. Please see the ABC web site for the current fee charged per credit.		
Additional Information	See ABC website for resources available for this qualification		

⁴ See Glossary of Terms

⁵ See Glossary of Terms

Level 1 Diploma in Motor Vehicle Studies

Learners must achieve a minimum of 38 credits. 4 Credits must come from Mandatory Group A. A minimum of 34 credits must come from Optional Units in Group B.

Unit	Level	Credit Value	GLH
Health and safety for motor vehicle studies [H/501/7005]	1	4	40
Optional Units - Group B			
Introduction to engineering equipment and materials [A/501/7009]	1	4	40
Introduction to compression ignition power units [M/501/7010]	1	4	40
Introduction to spark ignition power units [T/501/7011]	1	4	40
Introduction to engine liquid cooling and engine lubrication systems [A/501/7012]	1	4	40
Introduction to spark ignition and compression ignition fuel systems [F/501/7013]	1	4	40
Introduction to vehicle transmission systems [J/501/7014]	1	4	40
Introduction to battery and lighting systems [L/501/7015]	1	4	40
Introduction to steering and suspension [R/501/7016]	1	4	40
Introduction to vehicle braking systems [Y/501/7017]	1	4	40
Introduction to vehicle inspection [D/501/7018]	1	4	40
Introduction to vehicle body repair [H/501/7019]	1	4	40
Introduction to vehicle refinishing [Y/501/7020]	1	4	40
Introduction to customer care [D/501/7021]	1	1	10
Introduction to vehicle wheels and tyres [H/501/7022]	1	2	20
Introduction to vehicle exhaust systems [M/501/7024]	1	2	20
Introduction to vehicle ignition systems [A/501/7026]	1	2	20

Introduction to vehicle valeting [J/501/7028]	1	4	40
Introduction to motorcycle maintenance [L/501/7029]	1	4	40
Qualification Purpose	B. Prepare for further learning or training and/or develop knowledge and/or skills in a subject area. B1. Prepare for further learning or training, B2. Develop knowledge and/or skills in a subject area		
Entry Requirements	Learners who are 14+ who have an interest in Motor Vehicle Studies		
Age Range	Pre 16	✓	16 – 18 ✓ 19 + ✓
LAD Aim Reference	50042099		
Recommended GLH⁶	380		
Recommended TQT⁷	380		
Credit Value	38		
Type of Funding Available	See LARS (Learning Aim Rates Service)		
Minimum Qualification Fee	See ABC website for current fees and charges		
Unit Fee	Unit fees are based upon a unit's individual credit value. Please see the ABC website for the current fee charged per credit.		
Additional Information	See ABC website for resources available for this qualification		

⁶ See Glossary of Terms

⁷ See Glossary of Terms

Unit Details

Health and Safety for Motor Vehicle Studies

Unit Reference	H/501/7005
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this mandatory unit learners will explore the responsibility of the employer and employee and the requirements of basic health and safety legislation. They will identify workshop hazards and basic safety procedures
Learning Outcomes (1 to 5) <i>The learner will</i>	Assessment Criteria (1.1 to 5.2) <i>The learner can</i>
1. Know health and safety procedures and the responsibilities of employers and employees	1.1 Identify personal responsibilities and the responsibilities of others in the working environment 1.2 Identify and use correctly equipment and procedures provided for health and safety in the workplace 1.3 Demonstrate good housekeeping routines in the working environment
2. Know about PPE	2.1 Select and use correct Personal Protective Equipment

3. Know about COSHH	3.1 Identify four substances hazardous to health according to current regulations 3.2 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
4. Know about safe manual handling	4.1 Know the principles of safe manual handling 4.2 Demonstrate safe manual handling using appropriate equipment
5. Know about fire prevention and emergency procedures	5.1 Identify the principles of fire prevention 5.2 Identify the type and location of fire extinguisher(s) in the working area 5.3 State the procedure to follow in the event of an emergency evacuation
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 G1: (EK: 1, 2, 3, 4, 5, 6. PO: a, b, c, d, e, f, g, h, I, j, k) G2: (EK: 1, 2, 3, 4, 5, 10, 12, 13, 14, 15. PO: a, b, c, d, h, I, k, l, o) Unit 44: (EK: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 18. PO: a, b, c, e, g, h, I, j, k)	

Supporting Unit Information

Health and Safety for Motor Vehicle Studies - H/501/7005 - Level 1

Indicative Content

The learner should understand

Health and Safety procedures

- The basic principles of employer and employee responsibilities
- The basic provision of (Health and Safety) statutory requirements and the penalties that can be enforced by legislation
- The provision of equipment and facilities provided for Health and Safety
- Where and how medical help can be obtained and reporting procedures

PPE

- The reasons for and the importance of Personal Protective Equipment

COSHH

- The safe use and Control of Substances Hazardous to Health used in vehicle workshops

Manual handling

- Manual handling techniques used in a vehicle workshop
- Safe use of lifting equipment

Fire prevention and emergency procedures

- Types of fire extinguishers and their application
- The procedures to be followed in the event of an emergency evacuation

Teaching Strategies and Learning Activities

The practical aspects of the unit are usually delivered as an integral part of other units within the qualification.

The learning activities could include assignments, projects, workshop investigations, or a combination of these.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced.

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. Sample evidence checklists are available on the ABC website.

Additional Information

This unit is an integral part of all the units in the qualification. Evidence for the learning outcomes will come from a variety of sources depending on the other units selected.

Introduction to Engineering Equipment and Materials

Unit Reference	A/501/7009
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will identify different materials and their properties. They will learn how to select and correctly use hand and power tools
Learning Outcomes (1 to 2) <i>The learner will</i>	Assessment Criteria (1.1 to 2.2) <i>The learner can</i>
1. Know about engineering materials	1.1 Identify vehicle components manufactured from: • Steel • Alloy steel • Non-ferrous metals • Thermo setting plastic materials • Thermo plastic materials 1.2 Identify on a vehicle where the following are used: • Sealing compounds • Adhesives
2. Know how to use engineering tools	2.1 Identify and use appropriate engineering hand and power tools for

	• Measuring and marking out • Metal cutting and forming • Drilling • Thread forming 2.2 Use these tools safely to produce a vehicle accessory or hand tool
Mapping to National Occupational Standards No Mapping	

Supporting Unit Information

Introduction to Engineering Equipment and Materials - A/501/7009 - Level 1

Indicative Content

Content may include:

Materials

- How to identify the components and materials listed in Learning Outcome 2.1

Hand tools and power tools

- How to identify the tools listed in Learning Outcome 2.1
- How to identify hand tools and the safety requirements for their use
- How to identify power tools and the safety requirements for their use

Teaching Strategies and Learning Activities

The materials section of this unit can be achieved by the learner investigating vehicle components and their composition. Further investigation into the properties of the materials give an insight into the reasons for their selection.

When the learner manufactures a vehicle accessory or tool from plans, most of the hand and power tools listed will have been used. Careful selection of the accessory/tools will maximise the tools used.

Sealing and locking devices may be covered by identification of samples, or identification of actual components in situ when this naturally occurs in other study, e.g. Locking devices and sealants used in engines.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range,

balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. Methods of assessment must include practical tasks.

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes. Sample evidence checklists are available on the ABC website.

Introduction to Compression Ignition Power Units

Unit Reference	M/501/7010
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit learners will investigate the main components of an engine, the operating principles of the four stroke compression ignition engine and the function of gaskets, seals and locking devices
Learning Outcomes (1 to 4) <i>The learner will</i>	Assessment Criteria (1.1 to 4.2) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on compression ignition power units
2. Know about components of a compression ignition engine	2.1 Identify the major components of the compression ignition engine 2.2 Using methodical procedures, dismantle and reassemble the main components of a four stroke compression ignition engine
3. Know about sealing and locking devices used upon compression ignition engines	3.1 Identify the most common sealing devices used on compression ignition engines to seal • Oil • Water • Gas

	• Fuel 3.2 Identify from samples the main types of locking devices used on compression ignition engines
4. Know about specialist engine tools used with compression ignition engines	4.1 Give examples of specialist engine tools used with compression ignition engines 4.2 Select and use specialist workshop tools for appropriate purpose, to include: • Torque wrench • Piston ring clamp
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR02 (EK: 2, 19, 20, 21, 24, 29. PO: a, b, c, d, e, f, g, h, i.)	

Supporting Unit Information

Introduction to Compression Ignition Power Units - M/501/7010 - Level 1

Indicative Content

The learner must understand:

Engine Construction

- The function of the main components of a multi cylinder compression ignition engine
- Types of seals and their application on an engine
- Engine layout including
 - - Cylinder configuration
 - - Camshaft configuration

Compression Ignition (Diesel) Engine

- The operating principles of a compression ignition engine
- The constructional differences between a spark ignition and a compression ignition engine

Engine Terminology

The meaning of engine

- Bore
- Stroke
- Capacity
- Top Dead Centre (TDC)
- Bottom Dead Centre (BDC)

Engine Operation

- Engine firing orders
- The basic principles of engine timing
 - Fuel injection timing (compression ignition)
 - Camshaft timing

Teaching Strategies And Learning Activities

It is intended that this unit be delivered in a practical setting using engines that are fairly basic and removed from the vehicle.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Spark Ignition Power Units

Unit Reference	T/501/7011
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will find out about the main components of an engine, the operating principles of the four stroke spark ignition engine and the function of gaskets, seals and locking devices
Learning Outcomes (1 to 4) <i>The learner will</i>	Assessment Criteria (1.1 to 4.2) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on spark ignition power units
2. Know about components of a spark ignition engine	2.1 Identify the major components of the spark ignition engine 2.2 Using methodical procedures, dismantle and reassemble the main components of a four stroke spark ignition engine
3. Know about sealing and locking devices used upon spark ignition engines	3.1 Identify the most common sealing devices used on spark ignition engines to seal: • Oil • Water • Gas

	• Fuel 3.2 Identify from samples the main types of locking devices used on spark ignition engines
4. Know about specialist engine tools used with spark ignition engines	4.1 Give examples of specialist engine tools used with spark ignition engines 4.2 Select and use specialist workshop tools for appropriate purpose, to include: • Torque wrench • Piston ring clamp
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR02 (EK: 2, 19, 20, 21, 24, 29. PO: a, b, c, d, e, f, g, h, i.)	

Supporting Unit Information

Introduction to Spark Ignition Power Units – T/501/7011 - Level 1

Indicative Content

The learner must understand:

Engine Construction

- The operating principles of the four-stroke spark ignition cycle
- The function of the main components of a multi cylinder spark ignition engine
- Types of seals and their application on an engine
- Engine layout including
 - - Cylinder configuration
 - - Camshaft configuration

Spark Ignition Engines

- The operating principles of a spark ignition engine

Engine Terminology

The meaning of engine

- Bore
- Stroke
- Capacity
- Top Dead Centre (TDC)
- Bottom Dead Centre (BDC)

Engine Operation

- Engine firing orders
- The basic principles of engine timing
 - Ignition timing (spark ignition)
 - Fuel injection timing
 - Camshaft timing

Teaching Strategies and Learning Activities

It is intended that this unit be delivered in a practical setting using engines that are fairly basic and removed from the vehicle.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Engine Liquid Cooling and Engine Lubrication Systems

Unit Reference	A/501/7012
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit learners will investigate the main components of liquid cooling and lubrication systems and the reasons for each. They will learn about maintenance procedures and the precautions to be taken when working on each system
Learning Outcomes (1 to 6) <i>The learner will</i>	Assessment Criteria (1.1 to 6.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on engine cooling and lubrication systems
2. Know about cooling systems	2.1 Identify the major components of the engine cooling system 2.2 Using methodical procedures • Drain and flush a vehicle liquid cooling system • Remove and replace a thermostat • Bleed a vehicle cooling system

3. Know how to use antifreeze	3.1 Demonstrate how to mix and install antifreeze solution for a given percentage and system capacity 3.2 Test percentage of antifreeze solution
4. Be able to pressure test a cooling system	4.1 Demonstrate how to use a cooling system pressure tester, to test a vehicle's system for leaks
5. Know about engine lubrication systems	5.1 Identify the major components of the engine lubrication system 5.2 Using methodical procedures • Change engine oil and filter • Check oil and top up oil level • Check for leakage • Check operation of engine oil warning light(s)
6. Be aware of environmental considerations	6.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR01 (EK: 1, 3, 12, 16, 17, 18, 19, 21. PO: a, b, e, f, g, h, i.)	

Supporting Unit Information

Introduction to Engine Liquid Cooling and Engine Lubrication Systems -
A/501/7012 - Level 1

Indicative Content

The learner must understand:

System Principles (Cooling Systems)

- Safety factors to be observed when working on vehicle cooling systems
- Why a cooling system is required
- How an increase in system pressure increases the boiling point of the coolant
- The components and basic principles of operation including
 - Radiator and Pressure cap
 - Thermostat
 - Water pump
 - Overflow tanks

Cooling System Protection

- How ice can damage a liquid cooling system
- Why antifreeze is used in a cooling system
- The effects of different coolant solution percentages
- The precautions to be taken when using antifreeze, to prevent
 - Personal Injury
 - Damage to vehicle

Engine Lubrication Systems

- Why an engine lubrication system is required
- The layout and main components in a wet sump lubrication system
- The function of the main components in a wet sump lubrication system
- The types of engine oil and the importance of correct selection

Teaching Strategies and Learning Activities

This unit would be best delivered using a complete vehicle but where this is not possible an engine rig would be suitable.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Additional Information

Essential resources for this unit include an operational engine and adequate quantities of consumable materials, e.g. antifreeze, water engine oil and oil filters. Suitable disposal facilities are required with reference to current legal requirements and testing equipment.

Introduction to Spark Ignition and Compression Ignition Fuel Systems

Unit Reference	F/501/7013
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will find out about the main components and the operating principles of vehicle fuel systems including routine maintenance procedures required for effective engine operation
Learning Outcomes (1 to 4) <i>The learner will</i>	Assessment Criteria (1.1 to 4.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on engine fuel systems
2. Know the components of fuel systems	2.1 Identify the major parts of the fuel system of both the spark ignition and compression ignition engines, to include • Fuel tank • Fuel line • Fuel filter • Fuel pressurising system • Fuel metering system • Fuel delivery system • Air intake and filtration

3. Be able to change fuel and air filters	3.1 Change an engine air filter element 3.2 Change a spark ignition engine fuel filter 3.3 Change a compression ignition engine fuel filter and bleed system 3.4 Perform visual check for fuel leakage
4. Be aware of environmental considerations	4.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR02 (EK: 1, 12, 15, 17, 18, 22. PO: a, b, e, f, g, h, i.)	

Supporting Unit Information

Introduction to Spark Ignition and Compression Ignition Fuel Systems - F/501/7013 - Level 1

Indicative Content

The learner must understand:

Fuel Systems

- The safety factors to be considered when working with fuels
- On **both** spark ignition engines and compression ignition engines, the purpose and function of the:
 - Fuel tank
 - Fuel line
 - Fuel filter
 - Fuel pressurising system
 - Fuel metering system
 - Air filter

Teaching Strategies And Learning Activities

It is strongly recommended that this unit be delivered in a practical setting. Changing fuel and air filters are best achieved on a complete vehicle or running engine rig.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as

appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Additional Information

Essential equipment for this unit includes operational Spark Ignition engine and Compression Ignition engine and suitable replacement filters. An acceptable method for the disposal of fuel contaminated materials is also required.

Introduction to Vehicle Transmission Systems

Unit Reference	J/501/7014
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit learners will learn about common vehicle transmission arrangements, the main component parts of manual and automatic systems and the lubricants used
Learning Outcomes (1 to 7) <i>The learner will</i>	Assessment Criteria (1.1 to 7.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on vehicle transmission systems
2. Know vehicle transmission layouts	2.1 Identify vehicle transmission layouts as • Front engine front wheel drive • Front engine rear wheel drive • Mid engine rear wheel drive • Front engine four wheel drive
3. Know the units of a manual transmission system	3.1 Identify the location of the clutch, gearbox and final drive on a vehicle
4. Know the units of	4.1 Identify the location of the torque converter,

an automatic transmission system	gear box and final drive on a vehicle
5. Know the components of a manual clutch assembly	5.1 Identify, from samples, the main components of a manual clutch assembly as: • Clutch plate • Cover assembly • Thrust bearing 5.2 Correctly assemble and align a manual clutch assembly onto an engine flywheel
6. Know how manual and automatic transmission systems are lubricated	6.1 Identify from appropriate data the lubricants used in manual transmission systems 6.2 Identify from appropriate data the lubricant used in automatic transmission systems 6.3 Perform a check and top up lubricant level/s in a manual transmission system
7. Be aware of environmental considerations	7.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR12 (EK: 2, 3, 8, 10, 15, 17, 18, 23, 24. PO: a, b, e, f, g, h, i.) Vehicle Fitting 2005 VF08 (EK: 1, 9, 12, 13, 14. PO: a, b, c, f, g, j, k.)	

Supporting Unit Information

Introduction to Vehicle Transmission Systems - J/501/7014 - Level 1

Indicative Content

Transmission Layouts

The driveline of the following vehicle layouts

- Front engine, front wheel drive
- Front engine, rear wheel drive
- Front engine, four wheel drive

Clutches

- The functions of a clutch
- The main components of a clutch as
 - Clutch plate
 - Cover assembly
 - Thrust bearing
- The two basic methods of clutch operation as hydraulic and cable
- The components parts and operation of each

Gearboxes

- The purpose of a gearbox
- How to recognise manual and automatic gearboxes

Final Drive Units

- The functions of the final drive unit

Teaching Strategies And Learning Activities

It is considered that this unit would be best delivered in a practical setting using components removed from a vehicle. A complete vehicle may over complicate the identification of transmission components.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment

methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Battery and Lighting Systems

Unit Reference	L/501/7015
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will explore the function, operation and routine procedures required on the vehicle battery and lighting system. They will explore the main components of the lighting, driver information and circuit protection systems
Learning Outcomes (1 to 7) <i>The learner will</i>	Assessment Criteria (1.1 to 7.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on vehicle battery and lighting systems
2. Know about vehicle batteries	2.1 Identify the correct battery for a specified vehicle, e.g. diesel, petrol 2.2 Using methodical procedures • locate a vehicle battery • remove a vehicle battery • refit a vehicle battery observing polarity connections 2.3 Test vehicle battery voltage at • Engine off no load • Engine cranking

	• Engine running at 3000 revs 2.4 Identify key findings from vehicle battery voltage tests
3. Know about external vehicle lighting systems	3.1 Locate the components of an vehicle external lighting system to include • Side lights • Head lamps • Direction indicators • Hazard warning lights • Stop lights • Reverse lights • Fog lights • Number plate lamps 3.2 Perform a vehicle external lighting check 3.3 Identify key findings from vehicle lighting check 3.4 Replace the bulbs/lamps for at least one of the following: • Side lamps • Rear lamps • Direction indicator lamps
4. Know about internal vehicle lighting systems	4.1 Locate the components of a vehicle internal lighting system to include • Courtesy lights • Dashboard illumination lights • Driver information lights
5. Know about driver information warning lights	5.1 Locate and check the operation of at least six driver information warning lights to include • Oil Pressure Warning Light • No Charge Warning Light • Brake Warning Light

6. Know about vehicle circuit protection	6.1 Identify lighting circuit fuse location and value 6.2 Locate, remove, test and replace a lighting circuit fuse
7. Be aware of environmental considerations	7.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 AE01 (EK: 1, 2, 9, 10, 11, 15, 16, 17, 18, 21, 23, 24, 25, 26, 29. PO: a, b, c, d, e, f, g, h, I, j, k, l.)	

Supporting Unit Information

Introduction to Battery and Lighting Systems - L/501/7015 - Level 1

Indicative Content

The learner must understand:

Batteries

- The external parts of a battery as fitted to a vehicle
- The general and personal safety precautions related to batteries
- The composition of and hazards associated with battery electrolyte
- Battery polarity and its importance when fitting a battery
- The dangers associated with battery charging
- The types of battery connectors
- The importance of securing a battery into position on the vehicle

Lighting systems

- The existence of regulations regarding
 - Side lamps
 - Headlamps
 - Rear lamps
 - Stop lamps
 - Direction indicators
- Identification of driver information warning lamps
- The need for circuit protection
- The purpose of a fuse and why a fuse blows

Teaching Strategies And Learning Activities

It is not expected that all the learning outcomes will be achieved using a complete vehicle as the battery tasks could be carried out on a suitable engine rig. All the outcomes, however, would be best delivered in a practical setting.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment

methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Additional Information

For this unit a vehicle with an operational lighting circuit is required.

Introduction to Steering and Suspension

Unit Reference	R/501/7016
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will find out about the layout of basic steering and suspension systems and the performing of routine maintenance tasks for these systems, following all relevant safety precautions
Learning Outcomes (1 to 5) <i>The learner will</i>	Assessment Criteria (1.1 to 5.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on vehicle steering and suspension systems
2. Know how to remove and replace road wheels	2.1 Remove and replace road wheels with special attention to: • Safe jacking procedure • Use of correct jacking points • Use of axle stands • Use of torque wrench
3. Know about steering systems	3.1 Identify and locate main components of a non-power-assisted vehicle steering system 3.2 Identify and locate main components of a

	power assisted vehicle steering system 3.3 Check steering systems for excessive wear and identify key findings 3.4 Remove and replace track rod end 3.5 Check and adjust front wheel alignment 3.6 Check power assisted steering systems for leaks 3.7 Follow correct procedure to check and top-up power assisted steering fluid level
4. Know about suspension systems	4.1 Identify and locate the main components of a vehicle suspension system 4.2 Check suspension system for excessive wear and identify key findings 4.3 Remove and refit front or rear suspension damper
5. Be aware of environmental considerations	5.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Fitting 2005 VF01 (EK: 1, 3, 4, 12, 15, 16, 22. PO: a, b, c, d, e, f, g, j, k)	

Supporting Unit Information

Introduction to Steering and Suspension - R/501/7016 - Level 1

Indicative Content

The learner must understand

Steering Systems

- The need for a steering system
- The main components of manual and power assistance steering systems
-

Suspension Systems

- The need for a suspension system
- The main components of modern suspension systems

Teaching Strategies And Learning Activities

It is expected that all the learning outcomes will be achieved using a complete vehicle.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Additional Information

For this unit a vehicle with operational steering and suspension systems is required.

Introduction to Vehicle Braking Systems

Unit Reference	Y/501/7017
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will explore the layout of basic braking systems and the performing of routine maintenance tasks for these systems, following all relevant safety precautions
Learning Outcomes (1 to 4) <i>The learner will</i>	Assessment Criteria (1.1 to 4.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working on vehicle braking systems
2. Know how to remove and replace wheels	2.1 Remove and replace road wheels with special attention to: • safe jacking procedure • use of correct jacking points • use of axle stands • use of torque wrench
3. Know about braking systems	3.1 Identify and locate the main components of a vehicle braking system to include • Master cylinder • Brake servo • Disc brakes

	• Drum brakes • Parking brake • Warning lights 3.2 Identify the wheels that the parking brake operates 3.3 Remove and replace disc pads and report on the condition of: • Brake pads • Brake discs • Brake calliper • Flexible brake hose 3.4 Remove and replace brake drum and report on condition of: • Brake drum • Brake shoes • Brake wheel cylinders 3.5 Perform checks on condition of: • Brake fluid • Operation of brake warning lights 3.6 Check and top-up brake fluid reservoir
4. Be aware of environmental considerations	4.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR01 (EK: 14, 17, 18, 19. PO: a, b, c, f, g, i, j.)	

Supporting Unit Information

Introduction to Vehicle Braking Systems - Y/501/7017 - Level 1

Indicative Content

The learner must understand:

Braking Systems

- The purpose of the braking system
- The main components in a hydraulic braking system
- The basic construction and operation of
 - Disc brakes
 - Drum brakes
- The purpose of the servo
- The type of fluid used in a braking system and why it must be changed periodically

Teaching Strategies And Learning Activities

This unit is best delivered in a practical setting using a complete vehicle with an operational braking system.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced.

Methods of assessment must include practical tasks.

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Vehicle Inspection

Unit Reference	D/501/7018
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will learn the different types of vehicle inspections and how to carry out each to a specification. They will find out about the reasons for using and completing service records
Learning Outcomes (1 to 3) <i>The learner will</i>	Assessment Criteria (1.1 to 3.4) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when undertaking routine vehicle inspection
2. Know about periodic vehicle inspections	2.1 Identify key periodic inspections that should be performed on a vehicle and the main reasons for carrying them out. 2.2 Perform straightforward periodic maintenance to include checking and reporting on: • Engine oil level • Coolant level • Tyre condition, pressure and tread depth • Operation of all external lights • Screen washer fluid level • Brake/clutch fluid reservoir level

	• Condition of seatbelts • Foot pedal and handbrake lever travel • Driver information warning lights
3. Know about professional pre-sale vehicle inspection schedules	3.1 Identify key pre delivery inspections that would be undertaken by a professional vehicle retailer on a new vehicle and the main reasons for carrying them out 3.2 Identify key pre delivery inspections that would be undertaken by a professional vehicle retailer on a used vehicle and the main reasons for carrying them out 3.3 Perform straightforward pre-sale inspection on a used vehicle to include checking and reporting on • Engine oil level • Coolant level • Tyre condition, pressure and tread depth • Operation of all external lights • Screen washer fluid level • Brake/clutch fluid reservoir level • Condition of seatbelts • Foot pedal and handbrake lever travel • Driver information warning lights • Condition of interior and exterior body, paint and trim • Operation and condition of in car entertainment • Vehicle and passenger comfort systems • Vehicle security system • Vehicle documentation 3.4 Employ industry standard documentation to identify findings of vehicle inspections
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005	

MR05 (EK: 10. PO: a, c, d.)

MR01 (EK: 17, 19. PO: k, i.)

Vehicle Fitting 2005

VF12 (EK: 3,8,10, 11, 16. PO: a, b, c.)

Supporting Unit Information

Introduction to Vehicle Inspection - D/501/7018 - Level 1

Indicative Content

The learner should understand the:

- Reasons for periodic maintenance
- Differences between time and mileage based maintenance
- Effects of **not** carrying out routine maintenance
- Reasons for following checklists when carrying out routine maintenance

Teaching Strategies And Learning Activities

This unit brings together many elements of other units and the evidence collected for this unit may be cross-referenced to the other units.

If taught in isolation it is best delivered in a practical setting using a complete vehicle.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Vehicle Body Repair

Unit Reference	H/501/7019
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will explore the materials used in vehicle construction and the main body components. They will learn about minor repair, bodywork preparation and welding techniques
Learning Outcomes (1 to 6) <i>The learner will</i>	Assessment Criteria (1.1 to 6.4) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when undertaking vehicle body repairs
2. Know about engineering materials used in body repair	2.1 Identify vehicle body components manufactured from: • Steel • Alloy steel • Non-ferrous metals • Thermo setting plastic materials • Thermo plastic materials • Glass 2.2 Identify anti-corrosive materials

3. Know about body damage to vehicles panels	3.1 Give examples of body damage to vehicle panels 3.2 Identify body damage that requires professional repair 3.3 Give examples of body damage that can be rectified by non-professionals
4. Know how to use appropriate tools, materials and techniques for minor body repair	4.1 Select and use panel beating tools to repair minor vehicle body damage (hammers, dollies, etc.) 4.2 Repair a damaged vehicle panel using plastic filler to achieve the correct contour
5. Know how to remove and refit body components	5.1 Remove and refit a vehicle door and one of the following body components • Bonnet • boot • hatch lid 5.2 Remove and refit front and rear plastic bumpers
6. Know about welding techniques	6.1 Produce a spot weld lap joint 6.2 Perform a destructive test on a spot weld 6.3 Remove a spot weld with an appropriate tool or drill bit 6.4 Replace a spot weld with a MIG plug
Mapping to National Occupational Standards Vehicle Body and Paint Operations 2005	

BP02 (EK: 1, 3, 4, 5, 8, 9. PO: a, b, c, d, e, f, i.)

BP05 (EK: 1, 5, 9, 11, 12, 13, 14, 18, 20. PO: a, b, e, I, k, l.)

BP06 (EK: 1, 5, 8, 9, 11, 12, 13, 15, 17, 18, 21, 22, 23, 24, 26. PO: a, b, e, f, g, h.)

Supporting Unit Information

Introduction to Vehicle Body Repair - H/501/7019 - Level 1

Indicative Content

The learner must understand:

Vehicle Body Structure

- Structural and non-structural vehicle body members (panels)
- How to correctly identify the various glazing techniques used in modern vehicle construction
- How to correctly identify methods of removing and replacing non-structural body components

Vehicle Body Repair

- Identification of minor panel damage
- Identification hand and specialist tools and how they are used in the repair of minor body damage
- Identification and correct use of types of abrasives
- How to correctly identify methods of preparing panels for the application of fillers and procedures used to 'feather' an edge in preparation for painting
- How to correctly identify anti-corrosion materials such as: cavity waxes and underbody coatings

Welding Techniques

- Examples of resistance spot welding techniques in body repair
- Examples of MIG / MAG welding techniques in body repair

Teaching Strategies and Learning Activities

This unit is best taught in a practical setting using a wide range of vehicles or vehicle panels.

The repair of panels could be carried out on panels removed from a vehicle or test piece(s).

It is expected that the welding content is carried out in an appropriate controlled environment using appropriate PPE, fume extraction and test pieces rather than in situ on a vehicle.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. Methods of assessment must include practical tasks.

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Vehicle Refinishing

Unit Reference	Y/501/7020
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit learners will investigate bodywork and materials preparation, using correct abrasives, masking materials and different refinishing techniques. Learners will also identify and rectify paint defects and carry out surface enhancement
Learning Outcomes (1 to 7) <i>The learner will</i>	Assessment Criteria (1.1 to 7.2) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when undertaking vehicle refinishing
2. Know about surface preparation	2.1 Select and use abrasives to prepare various substrates for the next operation 2.2 Demonstrate the safe use of power equipment with particular attention to correct PPE
3. Understand the procedure for bodywork preparation prior to refinishing	3.1 Identify substrate to be refinished 3.2 Demonstrate the correct methods and stages of surface preparation

	3.3 Demonstrate the correct methods of masking paintwork for the refinishing operation
4. Know how to mix and apply primers	4.1 Demonstrate the correct methods of preparing a range of primers for use 4.2 Demonstrate the correct and safe methods of painting with primer/s to an acceptable standard 4.3 Prepare primed surface to accept top coat
5. Know how to apply a top coat	5.1 Demonstrate the correct methods of preparing a range of top coats and application equipment for use 5.2 Demonstrate the correct safe method of painting panels with top coat 5.3 Demonstrate the correct and safe method of servicing equipment after use with the above painting techniques
6. Know how to identify and correct basic paint defects	6.1 Identify basic paint defects 6.2 Identify cause and rectification of paint defects
7. Know how to enhance paint finishes	7.1 Demonstrate the correct procedure for compounding, machine or hand glazing 7.2 Apply polishes to protect the refinished surface
Mapping to National Occupational Standards Vehicle Body and Paint Operations 2005	

BP07 (EK: 2, 3, 5, 6, 9, 10, 11, 12, 18, 24. PO: a, c, e, g, j, k, l.)

BP09 (EK: 1, 3, 6, 10, 13, 20. PO: a, b, f.)

BP08 (EK: 1, 3, 6, 10, 13, 15, 17, 19, 20, 21, 22, 26. PO: a, b, d, e, g, h, i, j.)

Supporting Unit Information

Introduction to Vehicle Refinishing - Y/501/7020 - Level 1

Indicative Content

The learner must understand:

Surface Preparation

- The correct method for preparation of different substrates i.e. metals, filler, existing paint and hazards associated with them
- The correct stages of surface preparation for painting as
 - Sanding
 - Filling
 - Featheredging

Bodywork Preparation

- How to correctly identify correct use of masking materials

Surface Refinishing

- How to correctly identify painting equipment/techniques for
 - Priming
 - Top coats in water and solvent based finishes – solid colour and clear over base
- How to correctly identify basic paint defects: runs, orange peel, dirt, etc.

Surface Enhancement

- Identification of the methods used to enhance paint finishes
 - Compounding
 - Polishing
 - Machine/hand glaze
 - Waxes

Teaching Strategies and Learning Activities

Owing to the Health and Safety, EPA and COSHH implications of vehicle refinishing it is expected that this unit will be delivered in a practical setting that has the required equipment to comply with statutory regulations.

The content in this unit could be carried out on panels removed from a

vehicle or test piece(s).

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. Methods of assessment must include practical tasks.

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Introduction to Customer Care

Unit Reference	D/501/7021
Level	1
Credit Value	1
Guided Learning Hours	10
Unit Summary	In this unit learners will learn about the importance in this field of customer relations and the adoption of correct workplace procedures in dealing with customers
Learning Outcomes (1 to 4) <i>The learner will</i>	Assessment Criteria (1.1 to 4.1) <i>The learner can</i>
1. Recognise the elements of positive customer experience	1.1 Give an example of a positive customer experience 1.2 Give an example of a negative customer experience
2. Understand the importance of the customer's experience to a business	2.1 Indicate how positive and negative customer experience could affect a business
3. Recognise own contribution to customer experience	3.1 Identify and demonstrate behaviours that would contribute to a positive customer experience when:

	• Greeting a customer • Answering customer questions • Relaying customer information or requests to the correct workplace person 3.2 Identify and demonstrate behaviours that would contribute to a negative customer experience when: • Greeting a customer • Answering customer questions • Relaying customer information or requests to the correct workplace person
4. Know how to promote customer safety	4.1 Identify and demonstrate customer safety procedures
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR10 (EK: 7, 10. PO: c.) Institute for Customer Service National Occupational Standards 2007 1.1.5, 1.2.2, 1.2.3, 1.2.4 2(a)1.1, 2(a)2.1, 2(a)2.2, 2(b)1.4, 2(b)2.5 3.1.8, 3.1.9 4.1.5, 4.1.8, 4.1.1, 5.2.1, 5.2.4	

Supporting Unit Information

Introduction to Customer Care - D/501/7021 - Level 1

Indicative Content

The learner should understand:

Customer Relations

- The importance of good customer relations to a business
- The types of customer experience is likely to be encountered
- Workplace requirements with regard to
 - Dress code
 - Greeting the customer
 - Answering customer questions
 - Limits of own authority
 - Relaying customer requests to correct person/s

Teaching Strategies and Learning Activities

This unit is best delivered with the learner dealing with customers or simulated customers to gain experience in communication.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. Methods of assessment must include practical tasks.

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Vehicle Wheels and Tyres

Unit Reference	H/501/7022
Level	1
Credit Value	2
Guided Learning Hours	20
Unit Summary	In this unit the learner will learn how to identify modern types of road wheels and tyres, their construction and correct usage including the carrying out of practical activities regarding wheels and tyres
Learning Outcomes (1 to 7) <i>The learner will</i>	Assessment Criteria (1.1 to 7.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working with wheels and tyres
2. Know how to remove and replace road wheels	2.1 Remove and replace road wheels with special attention to: • Safe jacking procedure • Use of correct jacking points • Use of axle stands • Use of torque wrench
3. Know how to inspect road wheels	3.1 Give examples of common wheel faults 3.2 Perform visual inspection of road wheels for serviceability with particular attention to

	damage and attachment devices 3.3 Identify key findings of inspection
4. Know about tyre maintenance	4.1 Using methodical procedures, carry out routine tyre maintenance with regard to • Checking and adjusting tyre pressures • Measuring tread depth • Removing inclusions from tread area • Inspecting sidewalls for damage 4.2 Identify from samples common tyre faults
5. Know how to replace tyres	5.1 Remove a tyre (including valve assembly where appropriate) from a road wheel 5.2 Identify the correct replacement tyre for a specified vehicle 5.3 Fit a tyre in accordance with manufacturers guidance 5.4 Re-inflate to correct pressure
6. Know how to balance wheels	6.1 Explain the purpose of balancing a wheel and tyre assembly 6.2 Balance a wheel and tyre assembly in accordance with manufacturers guidance
7. Be aware of environmental considerations	7.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Fitting 2005	

VF01 (EK: 3,8,10, 11, 16, 22, 24. PO: a, b, c, d, j, k)

Supporting Unit Information

Introduction to Vehicle Wheels and Tyres - H/501/7022 - Level 1

Indicative Content

The learner must understand:

Wheels and Tyres

- How to recognise the types of road wheel as
 - Steel
 - Alloy
 - Run-flat
 - Space-saver
- The difference between the types of road wheel listed
- The construction of modern tyres used on road vehicles
- Tyre data with regard to
 - Size
 - Aspect ratio
 - Tread wear indicator
 - Speed rating
- The current legislation on light vehicle tyres with regard to
 - Minimum tread depth
 - Cuts and bulges
 - Permissible tread area for repair
- Identification of faults that make a tyre illegal
- The concept of wheel balance and the understanding of static and dynamic balance

Teaching Strategies and Learning Activities

It is strongly recommended that this unit be delivered in a practical setting. Changing wheels and tyres are best achieved on a complete vehicle.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment

methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Vehicle Exhaust Systems

Unit Reference	M/501/7024
Level	1
Credit Value	2
Guided Learning Hours	20
Unit Summary	In this unit the learner will learn about modern vehicle exhaust systems their construction and correct usage including the carrying out of practical activities regarding inspection and replacement
Learning Outcomes (1 to 5) <i>The learner will</i>	Assessment Criteria (1.1 to 5.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working with vehicle exhaust systems
2. Know the main components of a vehicle exhaust system	2.1 Identify and locate the main components of a vehicle exhaust system to include: • Manifold • Catalytic converter • Oxygen sensor • Front pipe • Silencer
3. Know how to inspect a vehicle exhaust system	3.1 Give examples of common exhaust faults 3.2 Perform visual inspection of exhaust system

	for serviceability with particular attention to leakage, corrosion, damage and security 3.3 Identify key findings of inspection
4. Know how to replace a vehicle exhaust component	4.1 Remove an exhaust component 4.2 Identify the correct replacement component for a specified vehicle 4.3 Fit an exhaust component in accordance with manufacturers guidance 4.4 Perform inspection to ensure correct alignment, security and sealing
5. Be aware of environmental considerations	5.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Fitting 2005 VF09 (EK: 1, 4, 8, 11, 12, 13, 14. PO: c, d, g, h, i.)	

Supporting Unit Information

Introduction to Vehicle Exhaust Systems - M/501/7024 - Level 1

Indicative Content

The learner must understand:

Exhaust Systems

- The main parts of an exhaust system as
 - Manifold
 - Rigid and flexible pipes
 - Silencers and expansion boxes
 - Flexible mountings
- Types of exhaust silencers and the function of each
- The purpose of a catalytic converter and its position in an exhaust system

Teaching Strategies and Learning Activities

It is strongly recommended that this unit be delivered in a practical setting. Changing exhaust systems are best achieved on a complete vehicle with an operating exhaust system.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. Methods of assessment must include practical tasks.

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Vehicle Ignition Systems

Unit Reference	A/501/7026
Level	1
Credit Value	2
Guided Learning Hours	20
Unit Summary	In this unit learners will learn about the main components of vehicle ignition systems their construction and correct usage including the carrying out of practical activities regarding inspection and replacement
Learning Outcomes (1 to 4) <i>The learner will</i>	Assessment Criteria (1.1 to 4.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working with vehicle ignition systems 1.2 Identify and avoid specific risks associated with high tension systems
2. Know the main components of a vehicle ignition system	2.1 Identify and locate the main components of a vehicle ignition system to include: • Ignition coils • Spark plug leads • Spark plugs 2.2 Identify the primary purpose of each

3. Know how to replace a vehicle ignition component	3.1 Remove and replace an ignition coil 3.2 Remove, inspect and measure the resistance of an HT lead using correct equipment 3.3 Replace the HT lead in the correct position 3.4 Remove and examine spark plugs to identify signs of wear 3.5 Replace spark plugs in accordance with manufacturers' guidance 3.6 Start engine to check correct engine operation and throttle response
4. Be aware of environmental considerations	4.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 AE03 (EK: 1. PO: d.) MR02 (EK: 11, 13, 22. PO: d.)	

Supporting Unit Information

Introduction to Vehicle Ignition Systems - A/501/7026 - Level 1

Indicative Content

The learner must understand:

Ignition Systems

- The need for an ignition system in spark ignition engines
- The function of the main ignition components
- The operation of the ignition coil
- The purpose of a sparking plug and the terms used in correct selection such as:
 - Reach
 - Diameter
 - Gap
 - Seat type
- How to assess the condition of high tension leads

Teaching Strategies and Learning Activities

It is strongly recommended that this unit be delivered in a practical setting. The replacement of ignition components is best achieved on a complete vehicle or running engine rig.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website

www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Vehicle Valeting

Unit Reference	J/501/7028
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit the learner will find out about the selection and application of correct materials when valeting the exterior, interior and engine bay of motor vehicles. They will learn about the correct handling and disposal of waste
Learning Outcomes (1 to 6) <i>The learner will</i>	Assessment Criteria (1.1 to 6.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when valeting vehicles
2. Know how to valet the exterior of vehicles	2.1 Valet vehicle exterior to include: • Selection and use of appropriate cleaning tools, materials and products for • Washing and drying vehicle exterior ensuring removal of dirt, detergent and water • Restoring surface finish to bodywork, bright work, exterior trim and glass • Protecting surface finish including bodywork, bright work and exterior trim
3. Know how to valet	3.1 Valet vehicle interior to include Selection and

the interior of vehicles	use of appropriate cleaning tools, materials and products for: • Carpets • Upholstery • Plastic trim • Glass
4. Know how to valet an engine bay	4.1 Demonstrate how to protect sensitive electronic components and the air intake prior and during an engine bay valet 4.2 Select and use appropriate cleaning tools, materials, methods and products to clean engine bay
5. Know how to inspect a valeted vehicle	5.1 Perform visual inspection of a valeted vehicle for cleaning residues and surface finish 5.2 Identify key findings of inspection and rectify any imperfections
6. Be aware of environmental considerations	6.1 Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Maintenance and Repair 2005 MR09 (EK: 1, 2, 8, 9, 10, 12, 13, 14, 16, 17. PO: a, b, c, e, f, i, j.)	

Supporting Unit Information

Introduction to Vehicle Valeting - J/501/7028 - Level 1

Indicative Content

The learner must understand:

Valeting

- The need for valeting vehicles

Exterior Valet

- The correct detergent/cleaner required for particular exterior paint surfaces
- Methods of restoring surface finish to bodywork, exterior trim and glass

Interior Valet

- The correct detergent/cleaner for interior surfaces on cloth, leather, plastics and glass
- The correct polishes for interior trim and the areas to be applied or avoided

Engine Bay

- The precautions to be taken when cleaning the engine bay area with regard to
 - Electronic components
 - Personal safety
 - Use of hazardous materials

Teaching Strategies and Learning Activities

By virtue of the content of this unit, it will be best delivered in a practical setting with a variety of vehicles to valet.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment

methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Introduction to Motorcycle Maintenance

Unit Reference	L/501/7029
Level	1
Credit Value	4
Guided Learning Hours	40
Unit Summary	In this unit learners will explore motorcycle maintenance including: frame assembly, power units, transmission / drive line, brakes, wheels and tyres
Learning Outcomes (1 to 6) <i>The learner will</i>	Assessment Criteria (1.1 to 6.1) <i>The learner can</i>
1. Work safely	1.1 Use safe working practices when working with motor cycles
2. Know the main components of the frame assembly	2.1 Identify the main components of a motor cycle frame assembly
3. Know how to disassemble and reassemble major motor cycle components	3.1 Remove and refit: • Body panels • Fairing • Mudguards 3.2 Remove and refit fuel tank taking into account all necessary safety features

	3.3 Remove and refit rear damper unit 3.4 Remove and refit a head and barrel assembly 3.5 Perform a visual inspection of a head and barrel assembly to identify signs of excessive wear 3.6 Remove and replace either motor cycle disc pads or brake shoes
4. Know the purpose and operation of safety switches	4.1 Identify the location and purpose of: • Neutral starter switch • Side stand safety switch • Kill switch 4.2 Check correct operation of each
5. Know motor cycle maintenance procedures	5.1 Carry out straightforward periodic maintenance inspection of • Tyre pressures and condition • Brake lever travel • Suspensions for leakage and security • Lighting equipment condition and operation • Adjustment of final drive chain or belt • Condition and security of exhaust system • Engine / transmission assembly for oil leakage • Oil and fluid levels 5.2 Identify key findings of maintenance inspection
6. Be aware of	6.1 Demonstrate appropriate ways to dispose of

environmental considerations	waste products in accordance with environmental guidance
Mapping to National Occupational Standards Vehicle Body and Paint Operations 2005 BP03 (EK: 1, 7, 9. PO: a, c, e, j, i.) Vehicle Maintenance and Repair 2005 MR01 (EK: 14, 15, 17, 18, 20. PO: i.) MR04 (EK: 17, 18, 20, 26. PO: g.) MR05 (EK: 9, 10, 11, 14. PO: a, b, c, d.)	

Supporting Unit Information

Introduction to Motorcycle Maintenance - L/501/7029 - Level 1

Indicative Content

The learner must understand:

Frame Assembly

- The main components of the frame as:
 - Front forks and headstock
 - Rear suspension types
 - Engine / transmission location arrangements
 - Fuel tank
 - Body panels

Power Units

- The main parts of:
 - Two stroke engine
 - Four stroke engine
 - The operating cycles of (a) two stroke, (b) four stroke
- Common layout arrangements for motorcycle engines
- The basic principles of air and water cooling systems for motor cycle engines

Transmission / Drive Line

- The drive line components from the engine to the rear wheel
- The following clutch systems:
 - Manual
 - Automatic
 - Variomatic
- The functions of the motorcycle gear box
- The following types of final drive arrangement
 - Chain
 - Shaft
 - Belt

Brakes

- The arrangements and state the operation of the motorcycle braking systems as:
 - Mechanical
 - Hydraulic

Wheels

- Types of wheel as:
 - Spoked
 - Cast alloy
 - Composite (carbon fibre)
 - Split rim

Tyres

- Tyre construction used on the modern motorcycle
- The current legislation for motorcycle tyres

Routine Maintenance Inspection

- The essential routine safety inspections of:
 - Neutral select
 - Side stand cut out switch
 - Kill switch

Teaching Strategies and Learning Activities

This unit is best delivered in a practical setting using complete motorcycles or components.

Methods Of Assessment

This unit is internally assessed and externally moderated.

Providers are encouraged to use innovative and stimulating assessment methods and to ensure there is an appropriate and manageable range, balance and volume of assessment across units. A number of units can be assessed via integrative assessment methods but it is essential that the evidence of achievement is clearly signposted and referenced. **Methods of assessment must include practical tasks.**

Sample assessment tasks are provided that may be used or adapted as appropriate. These are available on the ABC website www.abcawards.co.uk. Centres may wish to develop their own assessments for individual units or a number of units.

Evidence Of Achievement

All evidence must be clearly signposted to individual unit learning outcomes.

Learners must provide evidence of achievement of **all learning outcomes** within the unit to the standard specified within the criteria for assessment in order to be awarded credit. All evidence must be clearly signposted to individual unit learning outcomes.

Sample evidence checklists are available on the ABC website.

Appendices

Recognition of Prior Learning (RPL), Exemptions, Credit Transfers and Equivalencies

ABC Awards policy enables learners to avoid duplication of learning and assessment in a number of ways:

- Recognition of Prior Learning (RPL) – a method of assessment that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning.
- Exemption - Exemption applies to any certificated achievement which is deemed to be of equivalent value to a unit within ABC qualification but which does not necessarily share the exact learning outcomes and assessment criteria. It is the assessor's responsibility, in conjunction with the Internal Moderator, to map this previous achievement against the assessment requirements of the ABC qualification to be achieved in order to determine its equivalence.

Any queries about the relevance of any certificated evidence, should be referred in the first instance to your centre's internal moderator and then to ABC.

It is important to note that there may be restrictions upon a learner's ability to claim exemption or credit transfer which will be dependent upon the currency of the unit/qualification and a learner's existing levels of skill or knowledge.

Where past certification only provides evidence that could be considered for exemption of part of a unit, learners must be able to offer additional evidence of previous or recent learning to supplement their evidence of achievement.

- Credit Transfer – ABC may attach credit to a qualification, a unit or a component. Credit transfer is the process of using certificated credits achieved in one qualification and transferring that achievement as a valid contribution to the award of another qualification. Units/Components transferred must share the same learning outcomes and assessment criteria along with the same unit number. Assessors must ensure that they review and verify the evidence through sight of:

- Original certificates OR
- Copies of certificates that have been signed and dated by the internal moderator confirming the photocopy is a real copy and make these available for scrutiny by the External Moderator.
- Equivalencies – opportunities to count credits from the unit(s) from other qualifications or from unit(s) submitted by other recognised organisations towards the place of mandatory or optional unit(s) specified in the rule of combination. The unit must have the same credit value or greater than the unit(s) in question and be at the same level or higher.

ABC encourages its centres to recognise the previous achievements of learners through Recognition of Prior Learning (RPL), Exemption, Credit Transfer and Equivalencies. Prior achievements may have resulted from past or present employment, previous study or voluntary activities. Centres should provide advice and guidance to the learner on what is appropriate evidence and present that evidence to the external moderator in the usual way.

Further guidance can be found in 'Delivering and Assessing ABC Awards Qualifications' which can be downloaded from <http://www.abcawards.co.uk/centres-grid-page-move/policies-procedures/>

Certification

Learners will be certificated for all units and qualifications that are achieved and claimed.

ABC's policies and procedures are available on the ABC website.

Glossary of Terms

GLH (Guided Learning Hours)

GLH is where the learner participates in education or training under the immediate guidance or supervision of a tutor (or other appropriate provider of education or training). It may be helpful to think – 'Would I need to plan for a member of staff to be present to give guidance or supervision?'

GLH is calculated at qualification level and not unit/component level.

Examples of Guided Learning include:

- Face-to-face meeting with a tutor
- Telephone conversation with a tutor
- Instant messaging with a tutor
- Taking part in a live webinar
- Classroom-based instruction
- Supervised work
- Taking part in a supervised or invigilated assessment
- The learner is being observed.

TQT (Total Qualification Time)

'The number of notional hours which represents an estimate of the total amount of time that could reasonably be expected to be required, in order for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.' The size of a qualification is determined by the TQT.

TQT is made up of the Guided Learning Hours (GLH) plus all other time taken in preparation, study or any other form of participation in education or training but not under the direct supervision of a lecturer, supervisor or tutor.

TQT is calculated at qualification level and not unit/component level.

Examples of unsupervised activities that could contribute to TQT include:

- Researching a topic and writing a report
- Watching an instructional online video at home/e-learning
- Watching a recorded webinar
- Compiling a portfolio in preparation for assessment
- Completing an unsupervised practical activity or work
- Rehearsing a presentation away from the classroom
- Practising skills unsupervised
- Requesting guidance via email – will not guarantee an immediate response