

**Pearson
Edexcel Level 3 NVQ Diploma
in Bus and Coach Engineering and
Maintenance (Body) (QCF)**

**Pearson
Edexcel Level 3 NVQ Diploma
in Bus and Coach Engineering and
Maintenance (Electrical) (QCF)**

**Pearson
Edexcel Level 3 NVQ Diploma
in Bus and Coach Engineering and
Maintenance (Mechanical) (QCF)**

**Pearson
Edexcel Level 3 NVQ Diploma
in Bus and Coach Engineering and
Maintenance (Mechelec) (QCF)**

Specification

NVQ/Competence-based qualification

First registration August 2014

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ISBN 978 1 446 90999 7

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Purpose of this specification

This specification sets out:

- the objectives of the qualifications
- any other qualifications that a learner must have completed before taking these qualifications
- any prior knowledge, skills or understanding which the learner is required to have before taking these qualifications
- the combination of units that a learner must have completed before the qualifications will be awarded and any pathways
- any other requirements that a learner must have satisfied before they will be assessed or before the qualifications will be awarded
- the knowledge, skills and understanding that will be assessed as part of the qualifications
- the method of any assessment and any associated requirements relating to it
- the criteria against which a learner's level of attainment will be measured (such as assessment criteria)
- assessment requirements and/or evidence requirements required as specified by the relevant Sector Skills Council/Standards Setting Body
- assessment requirements/strategy as published by the relevant Sector Skills Council/Standards Setting Body
- the Apprenticeship Frameworks in which the qualifications are included, where appropriate.

1 Introducing Pearson Edexcel NVQ/Competence-based qualifications

What are NVQ/Competence-based qualifications?

National Vocational Qualifications (NVQs) or Competence-based qualifications reflect the skills and knowledge needed to do a job effectively. They are work-based qualifications that give learners the opportunity to demonstrate their competence in the area of work or job role to which the qualification relates.

NVQs/Competence-based qualifications are outcomes-based with no fixed learning programme, allowing flexibility in their delivery to meet the individual learner's needs. The qualifications are based on the National Occupational Standards (NOS) for the sector, which define what employees, or potential employees, must be able to do and know, and how well they should undertake work tasks and work roles.

Most NVQ/Competence-based qualifications form the competence component of Apprenticeship Frameworks. They are suitable for those in employment or those who are studying at college and have a part-time job or access to a substantial work placement.

Most learners will work towards their qualification in the workplace or in settings that replicate the working environment as specified in the assessment requirements/strategy for the sector. Colleges, training centres and/or employers can offer these qualifications provided they have access to appropriate physical and human resources.

There are three sizes of NVQ/Competence-based qualification in the QCF:

- Award (1 to 12 credits)
- Certificate (13 to 36 credits)
- Diploma (37 credits and above).

Every unit and qualification in the QCF has a credit value.

The credit value of a unit specifies the number of credits that will be awarded to a learner who has met the learning outcomes of the unit.

The credit value of a unit is based on:

- one credit for those learning outcomes achievable in 10 hours of learning
- learning time – defined as the time taken by learners at the level of the unit, on average, to complete the learning outcomes of the unit to the standard determined by the assessment criteria.

2 Qualification summary and key information

Qualification title	Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Body) (QCF)
QCF Qualification Number (QN)	600/9780/2
Qualification framework	Qualifications and Credit Framework (QCF)
Regulation Start date	18/06/2013
Operational Start date	01/07/2014
Approved age ranges	16-18 19+ Please note that sector-specific requirements or regulations may prevent learners of a particular age from embarking on this qualification. Please refer to the assessment requirements/strategy.
Credit value	57
Assessment	Portfolio of Evidence (internal assessment)
Guided learning hours	353-384
Grading information	The qualification and units are graded pass/fail.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Edexcel Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>). Centres must also follow the Pearson Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>).
Funding	For details on funding availability, please check the Learning Aims Reference Services (LARS), which replaces the Learning Aims Reference Applications (LARA).

Qualification title	Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Electrical) (QCF)
QCF Qualification Number (QN)	600/9583/0
Qualification framework	Qualifications and Credit Framework (QCF)
Regulation Start date	05/06/2013
Operational Start date	01  /2014
Approved age ranges	16-18 19+ Please note that sector-specific requirements or regulations may prevent learners of a particular age from embarking on this qualification. Please refer to the assessment requirements/strategy.
Credit value	48
Assessment	Portfolio of Evidence (internal assessment)
Guided learning hours	312-358
Grading information	The qualification and units are graded pass/fail.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Edexcel Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>). Centres must also follow the Pearson Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>). 
Funding	For details on funding availability, please check the Learning Aims Reference Services (LARS), which replaces the Learning Aims Reference Applications (LARA).

Qualification title	Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechanical) (QCF)
QCF Qualification Number (QN)	600/9782/6
Qualification framework	Qualifications and Credit Framework (QCF)
Regulation Start date	18/06/2013
Operation Start date	01/07/2014
Approved age ranges	16-18 19+ Please note that sector-specific requirements or regulations may prevent learners of a particular age from embarking on this qualification. Please refer to the assessment requirements/strategy.
Credit value	52
Assessment	Portfolio of Evidence (internal assessment)
Guided learning hours	317-363
Grading information	The qualification and units are graded pass/fail.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Edexcel Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>). Centres must also follow the Pearson Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>).
Funding	For details on funding availability, please check the Learning Aims Reference Services (LARS), which replaces the Learning Aims Reference Applications (LARA).

Qualification title	Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechelec) (QCF)
QCF Qualification Number (QN)	600/9584/2
Qualification framework	Qualifications and Credit Framework (QCF)
Regulation Start date	05/06/2013
Operation Start date	01/07/2014
Approved age ranges	16-18 19+ Please note that sector-specific requirements or regulations may prevent learners of a particular age from embarking on this qualification. Please refer to the assessment requirements/strategy.
Credit value	70
Assessment	Portfolio of Evidence (internal assessment)
Guided learning hours	430-476
Grading information	The qualification and units are graded pass/fail.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before learners register for this qualification. However, centres must follow the Edexcel Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>). Centres must also follow the Pearson Access and Recruitment policy (see <i>Section 9, Access and Recruitment</i>).
Funding	For details on funding availability, please check the Learning Aims Reference Services (LARS), which replaces the Learning Aims Reference Applications (LARA).

QCF qualification number and qualification title

Centres will need to use the QCF Qualification Number (QN) when they seek public funding for their learners. As well as a QN, each unit within a qualification has a QCF unit reference number (URN).

The qualification title, unit titles and QN will appear on each learner's final certificate. Centres should tell learners this when recruiting them and registering them with Pearson. There is more information about certification in our *Information Manual*, available on our website: www.edexcel.com

Qualifications objectives

The following Pearson Edexcel qualifications are qualifications for learners who work in, or want to work in the Passenger Transport Sector:

- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Body) (QCF)
- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Electrical) (QCF)
- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechanical) (QCF)
- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechelec) (QCF)

They give learners the opportunity to:

- demonstrate competence in job roles in the passenger transport sector, such as a bus and coach maintenance and repair technician, a bus and coach electrical maintenance and repair technician, a bus and coach body builder and repairer or a bus and coach diagnostic technician.
- develop knowledge and skills related to the specified job roles in the passenger transport sector
- have existing skills recognised
- achieve a nationally-recognised Level 3 qualification
- develop their own personal growth and engagement in learning

Relationship with previous qualifications

These qualifications are replacements for the following EDI qualifications:

- EDI Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Body) (QCF)
- EDI Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Electrical) (QCF)
- EDI Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechanical) (QCF)
- EDI Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechelec) (QCF).

Apprenticeships

People 1st include the following Pearson Edexcel qualifications as components for the Advanced Apprenticeship in Bus and Coach Engineering and Maintenance:

- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Body) (QCF)
- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Electrical) (QCF)
- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechanical) (QCF)
- Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechelec) (QCF).

Progression opportunities

Learners can progress to the following related technical certificates at Level 3, available in the Body, Electrical and Mechanical pathways which, together with these qualifications, form part of the Advanced Apprenticeship for Bus and Coach Engineering and Maintenance:

- Pearson Edexcel Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Body)
- Pearson Edexcel Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Electrical)
- Pearson Edexcel Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechanical)
- Pearson Edexcel Level 3 Diploma in Principles of Bus and Coach Engineering and Maintenance (Mechelec).

Industry support and recognition

These qualifications are supported by People 1st, the Sector Skills Council for hospitality, passenger transport and travel and tourism.

Relationship with National Occupational Standards

These qualifications are based on the National Occupational Standards (NOS) in Bus and Coach Engineering and Maintenance, which were set and designed by People 1st (Go Skills), the Sector Skills Council for the sector.

3 Qualification structures

Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Body) (QCF)

The learner will need to meet the requirements outlined in the table below before the qualification can be awarded.

Minimum number of credits that must be achieved	57
Minimum number of credits that must be achieved at level 3 or above	36
Number of mandatory credits that must be achieved	50
Number of optional credits that must be achieved	7

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/6302	Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance	2	4	34
2	H/502/6304	Contribute to Safe Housekeeping Practices in Bus/Coach Engineering and Maintenance	2	10	56
9	D/502/6365	Complete Thermal Joining of Bus/Coach Components	3	5	29
22	K/502/6319	Carry Out Scheduled Body Maintenance on Buses/Coaches	3	6	33
23	H/502/6321	Set Out and Assemble Bus/Coach Body Components	3	11	73
24	T/502/6324	Assess Body Damage to Buses/Coaches	3	6	37
25	A/502/6325	Repair Damage to Bus/Coach Body Components	3	8	57

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
3	K/502/6305	Achieve Effective Working Relationships with Colleagues in Bus/Coach Engineering and Maintenance	2	4	27
4	M/502/6306	Use Hand Tools and Equipment in Bus/Coach Engineering and Maintenance	2	4	29
5	J/502/6313	Identify and Locate Mechanical Faults in Bus/Coach Systems and Components	2	8	46
6	L/502/6314	Identify and Locate Electrical Faults in Bus/Coach Systems and Components	2	8	46
7	H/502/6318	Rectify Electrical Faults in Bus/Coach Systems and Components	2	8	49
10	D/502/6317	Rectify Mechanical Faults in Bus/Coach Systems and Components	2	7	49
11	Y/502/6364	Conduct Inspections of Buses/Coaches	3	6	26
14	F/502/6326	Prepare and Treat Surfaces and Apply Paint Coats to Bus/Coach Body Panels and Components	3	10	65
26	R/502/6329	Install Ancillary Systems and Components in Buses/Coaches	3	7	49
29	R/502/6332	Establish Customer Technical Requirements for Buses/Coaches	3	4	14
30	Y/502/6333	Improve the Service Provided to Customers of Buses/Coaches	2	5	36
32	T/502/6114	Plan and Organise Work of Self and Others	3	5	40
34	R/502/6119	Support Learners by Mentoring in the Workplace	3	3	20
35	K/502/6336	Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment	3	6	30

Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Electrical) (QCF)

The learner will need to meet the requirements outlined in the table below before the qualification can be awarded.

Minimum number of credits that must be achieved	48
Minimum number of credits that must be achieved at Level 3 or above	27
Number of mandatory credits that must be achieved	41
Number of optional credits that must be achieved	7

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/6302	Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance	2	4	34
2	H/502/6304	Contribute to Safe Housekeeping Practices in Bus/Coach Engineering and Maintenance	2	10	56
16	F/502/6312	Carry Out Scheduled Electrical Maintenance on Buses/Coaches	3	8	58
18	Y/502/6316	Diagnose Electrical Faults in Bus/Coach Systems and Components	3	11	76
19	F/502/6360	Repair Electrical Faults in Bus/Coach Systems and Components	3	8	54
Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
3	K/502/6305	Achieve Effective Working Relationships with Colleagues in Bus/Coach Engineering and Maintenance	2	4	27
4	M/502/6306	Use Hand Tools and Equipment in Bus/Coach Engineering and Maintenance	2	4	29
5	J/502/6313	Identify and Locate Mechanical Faults in Bus/Coach Systems and Components	2	8	46

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
6	L/502/6314	Identify and Locate Electrical Faults in Bus/Coach Systems and Components	2	8	46
9	D/502/6365	Complete Thermal Joining of Bus/Coach Components	3	5	29
10	D/502/6317	Rectify Mechanical Faults in Bus/Coach Systems and Components	2	7	49
11	Y/502/6364	Conduct Inspections of Buses/Coaches	3	6	26
12	J/502/6327	Drive the Bus/Coach for Testing and Vehicle Recovery	2	6	36
13	L/502/6328	Provide Roadside Assistance for Broken Down Buses/Coaches	2	7	46
21	L/502/6362	Recondition Electrical Components in Buses/Coaches	3	7	58
26	R/502/6329	Install Ancillary Systems and Components in Buses/Coaches	3	7	49
27	J/502/6330	Diagnose Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	3	13	76
28	L/502/6331	Repair Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	3	11	80
29	R/502/6332	Establish Customer Technical Requirements for Buses/Coaches	3	4	14
30	Y/502/6333	Improve the Service Provided to Customers of Buses/Coaches	2	5	36
31	D/502/6334	Carry Out Roadside Recovery of Buses/Coaches	3	8	31
32	T/502/6114	Plan and Organise Work of Self and Others	3	5	40
33	L/502/6118	Support Learners by Coaching in the Workplace	3	4	26
34	R/502/6119	Support Learners by Mentoring in the Workplace	3	3	20
35	K/502/6336	Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment	3	6	30

Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechanical) (QCF)

The learner will need to meet the requirements outlined in the table below before the qualification can be awarded.

Minimum number of credits that must be achieved	52
Minimum number of credits that must be achieved at Level 3 or above	31
Number of mandatory credits that must be achieved	45
Number of optional credits that must be achieved	7

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/6302	Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance	2	4	34
2	H/502/6304	Contribute to Safe Housekeeping Practices in Bus/Coach Engineering and Maintenance	2	10	56
8	L/502/6359	Repair Mechanical Faults in Bus/Coach Systems and Components	3	7	44
11	Y/502/6364	Conduct Inspections of Buses/Coaches	3	6	26
15	A/502/6311	Carry Out Scheduled Mechanical Maintenance on Buses/Coaches	3	7	47
17	R/502/6315	Diagnose Mechanical Faults in Bus/Coach Systems and Components	3	11	76
Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
3	K/502/6305	Achieve Effective Working Relationships with Colleagues in Bus/Coach Engineering and Maintenance	2	4	27
4	M/502/6306	Use Hand Tools and Equipment in Bus/Coach Engineering and Maintenance	2	4	29
5	J/502/6313	Identify and Locate Mechanical Faults in Bus/Coach Systems and Components	2	8	46

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
6	L/502/6314	Identify and Locate Electrical Faults in Bus/Coach Systems and Components	2	8	46
7	H/502/6318	Rectify Electrical Faults in Bus/Coach Systems and Components	2	8	49
9	D/502/6365	Complete Thermal Joining of Bus/Coach Components	3	5	29
12	J/502/6327	Drive the Bus/Coach for Testing and Vehicle Recovery	2	6	36
13	L/502/6328	Provide Roadside Assistance for Broken Down Buses/Coaches	2	7	46
18	Y/502/6316	Diagnose Electrical Faults in Bus/Coach Systems and Components	3	11	76
20	J/502/6361	Recondition Mechanical Components in Buses/Coaches	3	8	60
23	H/502/6321	Set Out and Assemble Bus/Coach Body Components	3	11	73
26	R/502/6329	Install Ancillary Systems and Components in Buses/Coaches	3	7	49
27	J/502/6330	Diagnose Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	3	13	76
28	L/502/6331	Repair Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	3	11	80
29	R/502/6332	Establish Customer Technical Requirements for Buses/Coaches	3	4	14
30	Y/502/6333	Improve the Service Provided to Customers of Buses/Coaches	2	5	36
31	D/502/6334	Carry Out Roadside Recovery of Buses/Coaches	3	8	31
32	T/502/6114	Plan and Organise Work of Self and Others	3	5	40
33	L/502/6118	Support Learners by Coaching in the Workplace	3	4	26

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
34	R/502/6119	Support Learners by Mentoring in the Workplace	3	3	20
35	K/502/6336	Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment	3	6	30

Pearson Edexcel Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechelec) (QCF)

The learner will need to meet the requirements outlined in the table below before the qualification can be awarded.

Minimum number of credits that must be achieved	70
Minimum number of credits that must be achieved at Level 3 or above	49
Number of mandatory credits that must be achieved	63
Number of optional credits that must be achieved	7

Unit	Unit reference number	Mandatory units	Level	Credit	Guided learning hours
1	Y/502/6302	Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance	2	4	34
2	H/502/6304	Contribute to Safe Housekeeping Practices in Bus/Coach Engineering and Maintenance	2	10	56
8	L/502/6359	Repair Mechanical Faults in Bus/Coach Systems and Components	3	7	44
11	Y/502/6364	Conduct Inspections of Buses/Coaches	3	6	26
17	R/502/6315	Diagnose Mechanical Faults in Bus/Coach Systems and Components	3	11	76
18	Y/502/6316	Diagnose Electrical Faults in Bus/Coach Systems and Components	3	11	76
19	F/502/6360	Repair Electrical Faults in Bus/Coach Systems and Components	3	8	54
35	K/502/6336	Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment	3	6	30

Unit	Unit reference number	Optional units	Level	Credit	Guided learning hours
3	K/502/6305	Achieve Effective Working Relationships with Colleagues in Bus/Coach Engineering and Maintenance	2	4	27
4	M/502/6306	Use Hand Tools and Equipment in Bus/Coach Engineering and Maintenance	2	4	29
9	D/502/6365	Complete Thermal Joining of Bus/Coach Components	3	5	29
12	J/502/6327	Drive the Bus/Coach for Testing and Vehicle Recovery	2	6	36
13	L/502/6328	Provide Roadside Assistance for Broken Down Buses/Coaches	2	7	46
15	A/502/6311	Carry Out Scheduled Mechanical Maintenance on Buses/Coaches	3	7	47
16	F/502/6312	Carry Out Scheduled Electrical Maintenance on Buses/Coaches	3	8	58
20	J/502/6361	Recondition Mechanical Components in Buses/Coaches	3	8	60
21	L/502/6362	Recondition Electrical Components in Buses/Coaches	3	7	58
26	R/502/6329	Install Ancillary Systems and Components in Buses/Coaches	3	7	49
27	J/502/6330	Diagnose Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	3	13	76
28	L/502/6331	Repair Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches	3	11	80
29	R/502/6332	Establish Customer Technical Requirements for Buses/Coaches	3	4	14
30	Y/502/6333	Improve the Service Provided to Customers of Buses/Coaches	2	5	36
31	D/502/6334	Carry Out Roadside Recovery of Buses/Coaches	3	8	31
32	T/502/6114	Plan and Organise Work of Self and Others	3	5	40
33	L/502/6118	Support Learners by Coaching in the Workplace	3	4	26
34	R/502/6119	Support Learners by Mentoring in the Workplace	3	3	20

4 Assessment

These qualifications are assessed through an externally verified Portfolio of Evidence that consists of evidence gathered during the course of the learner's work.

To achieve a pass for the full qualification, the learner must achieve all the required units in the stated qualification structure. Each unit has specified learning outcomes and assessment criteria. To pass each unit the learner must:

- achieve **all** the specified learning outcomes
- satisfy **all** the assessment criteria by providing sufficient and valid evidence for each criterion
- prove that the evidence is their own.

The learner must have an assessment record that identifies the assessment criteria that have been met, and it should be cross-referenced to the evidence provided. The assessment record should include details of the type of evidence and the date of assessment. The unit specification or suitable centre documentation can be used to form an assessment record.

It is important that the evidence provided to meet the assessment criteria of the unit and learning outcomes is:

Valid	relevant to the standards for which competence is claimed
Authentic	produced by the learner
Current	sufficiently recent to create confidence that the same skill, understanding or knowledge persist at the time of the claim
Reliable	indicates that the learner can consistently perform at this level
Sufficient	fully meets the requirements of the standards.

Learners can provide evidence of occupational competence from:

- **current practice** where evidence is generated from a current job role
- a **programme of development** where evidence comes from assessment opportunities built into a learning programme, whether at or away from the workplace. The evidence provided must meet the requirements of the Sector Skills Council's assessment requirements/strategy.
- the **Recognition of Prior Learning (RPL)** where a learner can demonstrate that they can meet the assessment criteria within a unit through knowledge, understanding or skills they already possess without undertaking a course of development. They must submit sufficient, reliable, authentic and valid evidence for assessment. Evidence submitted based on RPL should provide confidence that the same level of skill/understanding/knowledge exists at the time of claim as existed at the time the evidence was produced. RPL is acceptable for accrediting a unit, several units, or a whole qualification. Further guidance is available in the policy document *Recognition of Prior Learning Policy and Process*, available on our website
- a **combination** of these.

Assessment requirements/strategy

The assessment requirements/strategy for these qualifications has been included in *Annexe A*. It sets out the overarching assessment principles and the framework for assessing the qualifications to ensure that they remain valid and reliable. It has been developed by People 1st (Go Skills) in partnership with employers, training providers, awarding organisations and the regulatory authorities.

Types of evidence

To achieve a unit, the learner must gather evidence that shows that they have met the required standard specified in the assessment criteria as well as the requirements of the People 1st assessment strategy. As stated in the assessment strategy, the evidence for these qualifications can take a variety of forms as indicated below:

- direct observation of the learner's performance by their assessor (O)
- outcomes from oral or written questioning (Q&A)
- products of the learner's work (P)
- personal statements and/or reflective accounts (RA)
- outcomes from simulation (S)
- professional discussion (PD)
- assignment, project/case studies (A)
- authentic statements/witness testimony (WT)
- expert witness testimony (EWT)
- evidence of Recognition of Prior Learning (RPL).

Learners can use the abbreviations for cross-referencing purposes in their portfolios.

Learners can also use one piece of evidence to prove their knowledge, skills and understanding across different assessment criteria and/or across different units. It is not necessary for learners to have each assessment criterion assessed separately. They should be encouraged to reference evidence to the relevant assessment criteria. Evidence must be available to the assessor, internal verifier and Pearson standards verifier.

Any specific evidence requirements for individual units are stated in the unit introduction for the units in *Section 11*.

There is further guidance about assessment on our website. Please see *Section 12* for details.

Credit transfer

Credit transfer describes the process of using a credit or credits awarded in the context of a different qualification or awarded by a different awarding organisation towards the achievement requirements of another qualification. All awarding organisations recognise the credits awarded by all other awarding organisations that operate within the QCF.

If learners achieve credits with other awarding organisations, they do not need to retake any assessment for the same units. The centre must keep evidence of unit achievement.

5 Centre resource requirements

As part of the approval process, centres must make sure that the resource requirements below are in place before offering these qualifications.

- Centres must have the appropriate physical resources to support both the delivery and assessment of the qualifications. For example, a workplace in line with industry standards, or a Realistic Working Environment (RWE), where permitted, as specified in the assessment strategy for the sector, equipment, IT, learning materials, teaching rooms.
- Where permitted, RWE must offer the same conditions as the normal day-to-day working environment, with a similar range of demands, pressures and requirements for cost-effective working.
- Centres must meet any specific human and physical resource requirements outlined in the assessment strategy in *Annexe A*. Staff assessing learners must meet the occupational competence requirements within the overarching assessment strategy for the sector.
- There must be systems in place to ensure the continuing professional development for staff delivering the qualifications.
- Centres must have appropriate health and safety policies, procedures and practices in place for the delivery of the qualifications.
- Centres must deliver the qualifications in accordance with current equality legislation. For further details on Pearson's commitment to the Equality Act 2010, please see *Section 9 Access and recruitment* and *Section 10 Access to qualifications for learners with disabilities or specific needs*. For full details on the Equality Act 2010, please go www.legislation.gov.uk

Core recognition

Centres that have not previously offered Pearson Edexcel accredited vocational qualifications need to apply for and **be granted centre recognition and approval as part of the process for approval to offer individual qualifications.** 

Existing centres will be given 'automatic approval' for a new qualification if they are already approved for a qualification that is being replaced by a new qualification and the conditions for automatic approval are met.

Guidance on seeking approval to deliver Pearson Edexcel vocational qualifications is available at www.pearsonwbl.edexcel.com/qualifications-approval.

Approvals agreement

All centres are required to enter into an approval agreement, which is a formal commitment by the head or principal of a centre, to meet all the requirements of the specification and any associated codes, conditions or regulations. Pearson will act to protect the integrity of the awarding of qualifications. If centres do not comply with the agreement, this could result in the suspension of certification or withdrawal of approval.

7 Quality assurance of centres

Quality assurance is at the heart of vocational qualifications. Centres will internally assess NVQs/Competence-based qualifications using internal quality assurance procedures to ensure standardisation of assessment across all learners. Pearson uses external quality assurance procedures to check that all centres are working to national standards. It gives us the opportunity to identify and provide support, if needed, to safeguard certification. It also allows us to recognise and support good practice.

For the qualifications in this specification, the Pearson quality assurance model is as described below.

Centres offering Pearson Edexcel NVQs/Competence-based qualifications will usually receive two standards verification visits per year (a total of two days per year). The exact frequency and duration of standards verifier visits must reflect the centre's performance, taking account of the number:

- of assessment sites
- and throughput of learners
- and turnover of assessors
- and turnover of internal verifiers.

For centres offering a full Pearson BTEC Apprenticeship (i.e. all elements of the Apprenticeship are delivered with Pearson through registration of learners on a Pearson BTEC Apprenticeship framework) a single standards verifier will be allocated to verify all elements of the Pearson BTEC Apprenticeship programme. If a centre is also offering stand-alone NVQs/Competence-based qualifications in the same sector as a full Pearson BTEC Apprenticeship, the same standards verifier will be allocated.

In order for certification to be released, confirmation is required that the National Occupational Standards (NOS) for assessment, verification and for the specific occupational sector are being consistently met.

Centres are required to declare their commitment to ensuring quality and to providing appropriate opportunities for learners that lead to valid and accurate assessment outcomes.

For further details, please go to the *UK NVQ Quality Assurance Centre Handbook* and the *Edexcel NVQs, SVQs and competence-based qualifications – Delivery Requirements and Quality Assurance Guidance* on our website, at www.pearsonwbl.edexcel.com/NVQ-competence-based.

8 Programme delivery

Centres are free to offer the qualifications using any mode of delivery (for example full time, part-time, evening only, distance learning,) that meets learners' needs. However, centres must make sure that learners have access to the resources identified in the specification and to the sector specialists delivering and assessing the units. Centres must have due regard to Pearson's policies that may apply to different modes of delivery.

Those planning the programme should aim to address the occupational nature of the qualification by:

- engaging with learners, initially, through planned induction, and subsequently through the involvement of learners in planning for assessment opportunities
- using naturally occurring workplace activities and products to present evidence for assessment against the requirements of the qualification
- developing a holistic approach to assessment by matching evidence to different assessment criteria, learning outcomes and units, as appropriate, thereby reducing the assessment burden on learners and assessors
- taking advantage of suitable digital methods to capture evidence.

9 Access and recruitment

Pearson's policy regarding access to its qualifications is that:

- they should be available to everyone who is capable of reaching the required standards
- they should be free from any barriers that restrict access and progression
- there should be equal opportunities for all wishing to access the qualifications.

Centres must ensure that their learner recruitment process is conducted with integrity. This includes ensuring that applicants have appropriate information and advice about the qualification to ensure that it will meet their needs.

Centres should review applicants' prior qualifications and/or experience, considering whether this profile shows that they have the potential to achieve the qualification.

For learners with disabilities and specific needs, this review will need to take account of the support available to them during the delivery and assessment of the qualification. The review must take account of the information and guidance in *Section 10 Access to qualifications for learners with disabilities or specific needs*.

10 Access to qualifications for learners with disabilities or specific needs

Equality and fairness are central to our work. Pearson's Equality Policy requires that all learners should have equal opportunity to access our qualifications and assessments and that our qualifications are awarded in a way that is fair to every learner.

We are committed to making sure that:

- learners with a protected characteristic (as defined by the Equality Act 2010) are not, when they are undertaking one of our qualifications, disadvantaged in comparison to learners who do not share that characteristic
- all learners achieve the recognition they deserve from undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

Learners taking a qualification can be assessed in British sign language or Irish sign language where it is permitted for the purpose of reasonable adjustments.

Further information on access arrangements can be found in the Joint Council for Qualifications (JCQ) document Access Arrangements, Reasonable Adjustments and Special Consideration for General and Vocational qualifications.

Further details on how to make adjustments for learners with protected characteristics are given in the Supplementary Guidance for Reasonable Adjustment and Special Consideration in Vocational Internally Assessed Units.

These documents are on our website at: www.edexcel.com/policies

11 Unit format

Each unit has the following sections.

Unit title

The unit title is on the QCF and this form of words will appear on the learner's Notification of Performance (NOP).

Unit reference number

Each unit is assigned a unit reference number that appears with the unit title on the Register of Regulated Qualifications.

QCF level

All units and qualifications within the QCF have a level assigned to them. There are nine levels of achievement, from Entry to level 8. The QCF Level Descriptors inform the allocation of the level.

Credit value

All units have a credit value. When a learner achieves a unit, they gain the specified number of credits. The minimum credit value is 1 and credits can be awarded in whole numbers only.

Guided learning hours

Guided learning hours are the times when a tutor, trainer or facilitator is present to give specific guidance towards the learning aim for a programme. This definition includes workplace guidance to support the development of practical job-related skills, tutorials and supervised study in, for example, open learning centres and learning workshops. It also includes the time spent by staff assessing learners' achievements, for example in the assessment of competence for NVQs/Competence qualifications.

Unit aim

This gives a summary of what the unit aims to do.

Unit assessment requirements/evidence requirements

The SSC/B set the assessment requirements. Learners must provide evidence according to each of the requirements stated in this section.

Learning outcomes

The learning outcomes of a unit set out what a learner knows, understands or is able to do as the result of a process of learning.

Assessment criteria

The assessment criteria specify the standard required by the learner to achieve the learning outcome.

Evidence requirements

Learners must provide evidence according to each of the requirements stated in this section. Not all units have Evidence requirements.

Additional Guidance

Some of the units in this qualification contain additional information guidance, this section outlines any additional requirements learners must complete to achieve the unit as set by the SSC/B.

Unit 1: Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance

Unit reference number: Y/502/6302

QCF level: 2

Credit value: 4

Guided learning hours: 34

Unit aim

The aim of this unit is for learners to demonstrate occupational competence in contributing to safe working practices in engineering and maintenance in the bus/coach industry for the welfare of self and others.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and professional discussion are all sources of evidence which can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of use of personal and vehicle protection, cleaning the work environment and disposal of waste on **four separate occasions**.

Be observed by an approved assessor carrying out the above on at least **one** occasion.

Produce evidence of identifying risks that may result from at least **two** of the items listed below:

- The use and maintenance of machinery or equipment
- The use of materials or substances
- Working practices which do not conform to laid down policies
- Unsafe behaviour
- Accidental breakages and spillages
- Environmental factors

Produce evidence of identifying risks on at least **two** occasions.

Produce evidence of following at least **four** of the workplace policies listed below:

- The use of safe working methods and equipment
- The safe use of hazardous substances
- Smoking, eating, drinking and drugs
- What to do in the event of an emergency
- Personal presentation

Produce evidence of following workplace policies on at least **two** occasions.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to contribute to safe working practices in engineering and maintenance of bus/coaches	1.1	Observe relevant statutory health and safety regulations and organisational procedures in the workplace				
		1.2	Identify appropriate personal protective clothing to wear and relevant equipment to use to carry out the task				
		1.3	Undertake an inspection of the required safety equipment to ensure that it is fit for purpose and is used in accordance with suppliers', manufacturers' and organisational recommendations and instructions				
		1.4	Safely isolate electrical, hydraulic and pneumatic equipment before making any adjustments				
		1.5	Demonstrate how to lift and handle equipment and materials safely ensuring where appropriate that the requirements for the licensed use of lifting equipment is adhered to				
		1.6	Implement the relevant controls for substances which are hazardous to self, other employees and the general public in accordance with COSHH regulations and manufacturer's and organisational recommendations and instructions				
		1.7	Undertake safe working practices within limits of own responsibility				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	1.8	Clearly and effectively communicate health and safety issues			
	1.9	Clearly and accurately report potential hazards to the appropriate person			
	1.10	In accordance with organisational policies and procedures report any accidents, incidents and emergencies			
	1.11	Within own area of responsibility correctly use emergency equipment			
	1.12	Take action to ensure that the fire alarm and evacuation procedures are followed			
	1.13	Accurately report where replenishment of used safety equipment is required			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know the safe working practices in engineering and maintenance of bus/coaches	2.1 Describe the relevant safe working procedures when working with equipment, materials and tools which are covered by the following: <ul style="list-style-type: none"> • Health and Safety at Work Act (HASWA) • organisational health and safety policy and procedures • Control of Substances Hazardous to Health (COSHH regulations) • Personal Protective Equipment (PPE regulations) • codes of practice relevant to vehicle maintenance activities • role of safety representatives 			
	2.2 Describe the different types of personal protective clothing and equipment available including protection for the head, skin, hands and feet, visibility, noise protection, respiratory and facial protection			
	2.3 Explain what safety equipment is available to protect individuals, work colleagues and/or the general public			
	2.4 Explain the relevant supplier and manufacturer instructions for the safe use and storage of tools, equipment, materials and products			
	2.5 Explain the correct safe lifting and handling techniques for the size, mass and shape of the load			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.6 Explain the importance of removing pollution safely including toxic gases and waste			
	2.7 Clarify the concept and definition of a hazard and risk			
	2.8 Explain the importance of reporting hazards and risks			
	2.9 Explain the differences between an incident, accident and emergency			
	2.10 Explain the importance of communicating health and safety matters and the different methods which can be used to do this			
	2.11 Explain where different types of emergency equipment, including alarms, extinguishers and first aid equipment can be located			
	2.12 Explain the procedures for emergencies and evacuation			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

It is recommended that the following are covered when teaching and assessing this unit:

The range of safety equipment available to protect individuals should include the following:

- Exhaust and fume extraction
- Dust extraction
- Safety guards
- Containment stores
- Insulation
- Welding screens
- Walkways and guard rails
- Machine isolators

Lifting and handling techniques should include as appropriate:

- Hoists
- Cranes
- Trolleys
- Jacks
- Manual lifting

Learners should use a range of equipment, machinery and materials, including gases in accordance with statutory regulations and manufacturers' and organisational recommendations and instructions.

Unit 2: **Contribute to Safe Housekeeping Practices in Bus/Coach Engineering and Maintenance**

Unit reference number: H/502/6304

QCF level: 2

Credit value: 10

Guided learning hours: 56

Unit aim

The aim of this unit is for learners to demonstrate occupational competence in carrying out safe working practices in engineering and maintenance in the bus/coach industry.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and professional discussion are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce **three** pieces of evidence of keeping the immediate work area in a clean, tidy and hazard free state and that all emergency exits and designated walkways in immediate work area are free from obstructions at all times- reporting where appropriate any hazards which need to be dealt with.

Produce **three** pieces of evidence of how to deal with spillages safely, promptly and effectively, and by using appropriate cleaning agents and equipment.

Produce **three** pieces of evidence of checking and storing materials, tools and equipment safely in approved locations - reporting faults accurately and promptly.

Produce **three** pieces of evidence of isolating machines and equipment from the power source ensuring that moving parts are stopped prior to cleaning operations in accordance with manufacturers' recommendations, guidelines and instructions.

Produce three pieces of evidence of disposing of waste material, used cleaning agents and debris safely and in line with relevant legislation and workshop procedures.

Be observed by an approved assessor carrying out **each** of the above on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to contribute to safe housekeeping practices	1.1	Demonstrate how to keep immediate work area in a clean, tidy and hazard free state reporting where appropriate any hazards which need to be dealt with		
	1.2	Take action to ensure that all emergency exits and designated walkways in immediate work area are free from obstructions at all times, reporting obstructions where appropriate		
	1.3	Demonstrate how to deal with spillages promptly and effectively		
	1.4	Take action to store materials, tools and equipment safely in approved locations		
	1.5	Assess all tools and equipment to ensure they are fit for purpose in line with manufacturer guidelines		
	1.6	Report faults to tools and equipment accurately and promptly in accordance with organisational procedures and in line with manufacturer guidelines		
	1.7	Under supervision isolate machines and equipment from the power source ensuring that moving parts are stopped prior to cleaning operations in accordance with manufacturers' recommendations, guidelines and instructions		

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	1.8	Using the appropriate cleaning agents and cleaning equipment in accordance with manufacturers' instructions			
	1.9	Dispose of waste material, used cleaning agents and debris safely and in line with relevant legislation and workshop procedures			
	1.10	Establish substances and discharges which are hazardous to health and ensure that they are stored or disposed of safely and in accordance with COSHH regulations and workshop procedures			
	1.11	Implement housekeeping practices within limits of own responsibility			

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
2	Know how to contribute to housekeeping practices	2.1	Explain the importance of cleaning, servicing, storing and maintaining tools and equipment				
		2.2	Illustrate how to detect tool and equipment defects				
		2.3	Explain the importance of storing expensive, fragile and vulnerable tools and equipment safely				
		2.4	Explain why it is important to report defects and discrepancies to tools and equipment				
		2.5	Explain the reporting procedure for tool and equipment defects				
		2.6	Explain why it is important to keep all emergency exits and walkways clear from obstructions				
		2.7	Explain the cleaning schedules and the types of warnings which are appropriate for cleaning operations				
		2.8	Explain why it is important to deal promptly with spillages				
		2.9	Explain the range and limitations of cleaning methods, materials and equipment available				
		2.10	Describe the hazards associated with particular cleaning materials and the reporting procedures associate with them				
		2.11	Explain the organisational procedures for isolating machinery				
		2.12	Explain organisational and statutory requirements for the storage, disposal, discharge or containment of substances used in vehicle engineering and maintenance workshops				
		2.13	Explain the relevant supplier and manufacturer instructions for the safe cleaning of tools, equipment, materials and products				

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Unit 3: Achieve Effective Working Relationships with Colleagues in Bus/Coach Engineering and Maintenance

Unit reference number: K/502/6305

QCF level: 2

Credit value: 4

Guided learning hours: 27

Unit aim

The aim of this unit is for learners to demonstrate occupational competence in achieving effective working relationships with colleagues in bus/coach engineering and maintenance.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, written and product evidence are all sources of evidence which can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of dealing with requests from colleagues on at least **two** occasions.

Be observed by an approved assessor on at least **one** occasion.

Produce a witness testimony from your peers **and** supervisor that you have worked well with others.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to achieve effective working relationships with colleagues	1.1	Deal with a request from colleagues without disrupting own work				
		1.2	Take action to carry out work within agreed timescales				
		1.3	Record and report back accurately and promptly information required by colleagues				
		1.4	Where difficulties in working relationships or work practices arise follow company procedures				
		1.5	Identify where appropriate potential areas of conflicts with colleagues				
		1.6	Identify a solution in dealing with a potential conflict situation with colleagues				

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
2	Know the importance of effective working relationships with colleagues	2.1	Explain the need for effective working relationships and goodwill in the workplace				
		2.2	Describe organisational standards and guidelines relating to behaviour in the workplace				
		2.3	Outline how to balance giving help to colleagues with undertaking own workload				
		2.4	Describe the limits of own responsibilities and those of colleagues				
		2.5	Illustrate an awareness of the learning needs of colleagues who are being trained				
		2.6	Explain organisational procedures for dealing with and discussing difficulties in working relationships				
		2.7	Explain organisational procedures for dealing with conflict in the workplace				
		2.8	Describe the skills that could be used to resolve conflicts and aggressive behaviour in the workplace				

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
3	Be able to achieve effective communications with colleagues	3.1	Obtain information required from colleagues using organisational procedures				
		3.2	Present colleagues with relevant information that will meet their needs				
		3.3	Communicate effectively with colleagues giving information in a format that is appropriate				
		3.4	Take action to confirm that the information provided is given by an authorised person				
		3.5	Gain the necessary help where there is difficulty in communicating effectively with colleagues				

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
4	Know how to achieve effective communications with your colleagues	4.1	Describe the importance of providing accurate and relevant information to be communicated within the workplace				
		4.2	Describe the methods of receiving and giving information between colleagues				
		4.3	Define limits of own authority relating to providing information				
		4.4	Describe the different formats that can be used to communicate information and their uses				
		4.5	Explain the importance of providing colleagues with opportunities to communicate freely and openly				
		4.6	Describe ways to provide colleagues with opportunities to communicate freely and openly				
		4.7	Describe organisational procedures for dealing with and reporting difficulties in communicating freely and openly				
		4.8	Outline how to identify and deal with weaknesses with own communication skills				
5	Be able to promote equality and diversity in the workplace	5.1	Take action to ensure that all behaviour, words and actions promote equality and diversity in the workplace				
		5.2	Identify personal responsibilities and liabilities under equality legislation and relevant codes of practice				
		5.3	Take action to identify prejudice, discrimination and bullying in the workplace				

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
6	Know how to promote equality and diversity in the workplace	6.1	Explain why equality and diversity in the workplace is important				
		6.2	Explain what can cause prejudice and discrimination in the workplace				
		6.3	Explain organisational policy on equality and diversity				
		6.4	Explain relevant legislation and codes of conduct aimed at achieving equality and diversity				
		6.5	Describe own responsibility regarding equality and diversity in the workplace				

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Unit 4: Use Hand Tools and Equipment in Bus/Coach Engineering and Maintenance

Unit reference number: M/502/6306

QCF level: 2

Credit value: 4

Guided learning hours: 29

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in identifying, selecting and using a range of hand tools and equipment commonly used in bus/coach engineering and maintenance workshops.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony and questioning are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of undertaking basic routine checks of hand tools, measuring devices and workshop equipment on at least **four** occasions covering all of those listed below:

- Electrical
- Mechanical
- Pneumatic
- Hydraulic.

Be observed carrying out the above by an approved assessor on at least **one** occasion.

Produce evidence of using, maintaining, cleaning and storing tools and equipment on at least **four** occasions.

Be observed carrying out the above by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to identify and use a range of hand tools and equipment	1.1	Identify the relevant tools and equipment needed to undertake duties				
		1.2	Assess tools and equipment for safe operation in accordance with manufacturing specifications				
		1.3	Carry out the task required, selecting and safely using the correct tool or item of equipment				
		1.4	Accurately record and interpret data from a range of measuring tools				
		1.5	Demonstrate how to clean and store tools and equipment for future use or operation in accordance with company and manufacturer guidelines				
		1.6	Use hand tools and equipment within limits of own responsibility				
		1.7	Maintain tools and equipment within limits of own responsibility				
		1.8	Take action to clean the work area and safely dispose of waste materials in accordance with safe working practices and organisational procedures				
		1.9	Clearly and accurately complete work records relevant to using hand tools and equipment as required				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to identify and use a range of hand tools and equipment	2.1 Describe how to select and use the correct hand tools and equipment for relevant jobs in a bus/coach engineering and maintenance workshop			
	2.2 Describe a range of hand tools and equipment used in a bus/coach engineering and maintenance workshop			
	2.3 Explain how to use a range of measuring tools and equipment to determine: <ul style="list-style-type: none"> • length • diameter • depth • ovality • taper • run-out • angles • deviation • tolerance • volts • amps • ohms • watts • airflow • volume 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.4 Explain how to check tools and equipment to ensure they operate to specification			
	2.5 Describe how to clean and safely store basic hand tools and equipment for relevant bus/coach engineering and maintenance workshop in accordance with company and manufacturer guidelines			
	2.6 Explain the importance of disposing of waste materials safely and the consequences of not doing so to others and the environment when working with hand tools and equipment			
	2.7 Describe how to read, calculate and interpret data from hand tools and equipment used in a bus/coach maintenance workshop			
	2.8 Explain the importance of reporting defects and discrepancies to tools and equipment			
	2.9 Describe how to maintain the tools and equipment used within limits of own level of responsibility			
	2.10 Know the extent of own responsibility and identify who to report to if there are problems that cannot be resolved			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must be able to carry out a range of visual safety checks under supervision to ensure that the tools and equipment are fit for the purpose intended. Learners should use a range of tools and equipment, it can include:

- General workshop tools
- Jacks
- Stands
- Cranes
- Lifts
- Hoists
- Presses
- Pullers
- Punches
- Drifts
- Installers
- Platforms
- Grinders
- Saws.

Assessment criterion 2.2

The range should include tools and equipment used for the following:

- Measuring
- Removal and replacement
- Fixing and securing
- Cutting
- Forming
- Fabrication
- Shaping
- Joining
- Assembly/disassembly
- Welding
- Sealing
- Bonding
- Cleaning
- Preparing
- Finishing
- Lifting and supporting.

Assessment criterion 2.4

The range of specifications to be covered should include:

- Calibration
- Accuracy
- Tension
- Torque
- Grip
- Balance
- Adjustment
- Cutting – sharpness.

Unit 5:

Identify and Locate Mechanical Faults in Bus/Coach Systems and Components

Unit reference number: J/502/6313

QCF level: 2

Credit value: 8

Guided learning hours: 46

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in identifying and locating faults across a range of bus/coach mechanical systems and components. Learners will be required to interpret instructions, select the correct procedures and tools, and diagnose the presented fault using methods that could include as appropriate:

- visual
- aural
- odour
- measuring instruments
- gauges
- kinethstatic
- indicators
- a range of diagnostic equipment and manufacturer's software
- multi media
- approved test equipment.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the identification of faults from engine mechanical units and components from **four different systems out of the five listed below**:

- Engine mechanical systems
- Cooling systems
- Air supply and exhaust systems
- Fuel systems
- Lubrication systems

Be observed by an approved assessor on at least **one** occasion.

Produce evidence of carrying out the identification of faults on at least **four** occasions covering all **three different** systems. Your evidence must include demonstration of skill **in each** aspect of mechanical and hydraulic and/or pneumatic unit or component removal and replacement:

- Steering
- Suspension
- Braking

Be observed by an approved assessor on at least **one** occasion.

Produce evidence of carrying out the identification of **three** faults on three different vehicles **from at least two of the areas** as listed below:

- Clutch or fluid coupling
- Gearbox (manual or automatic)
- Drive line (shafts, couplings, hubs and bearings)
- Final drive

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to identify and find mechanical faults	1.1	Assess and review all the relevant information on the symptoms and problems associated with the products or assets				
		1.2	Investigate and establish the causes of the faults				
		1.3	Take action to select the appropriate techniques, tools and aids to locate faults				
		1.4	Assess the implications of the fault for other work and for safety considerations				
		1.5	Assess the evidence gained about the probable cause of the fault and draw a valid conclusion				
		1.6	In the appropriate format accurately record details on the extent and location of the faults				

Learning outcomes	Assessment criteria			Evidence type	Portfolio reference	Date
2 Know how to identify and locate mechanical faults	2.1	Explain the possible reasons for breakdowns including continual and intermittent faults				
	2.2	Describe the relevant aids available to diagnose a range of faults based on an accurate interpretation of work instructions				
	2.3	Describe the possible causes of mechanical faults in bus/coach systems and how these relate to the most logical method of fault diagnosis				
	2.4	Explain the preparation procedures required to ensure accuracy of diagnosis, including: <ul style="list-style-type: none"> • the accuracy of test instruments • calibration • operating temperature • component or system access 				
	2.5	Describe the methods employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations, touch kinesthetic				
	2.6	Describe how to analyse and determine results which could include comparisons of efficiency and safety implications				
	2.7	Explain the risk assessment procedures that have to be adopted when undertaking a diagnostic task				
	2.8	Explain how to report different forms of information ensuring clarity of detail and understanding				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	2.9	Explain why it is important to report accurately diagnostic conclusions including: <ul style="list-style-type: none"> • safety implications • potential follow-up work • purchase requests • time and cost implications • good customer service 			
	2.10	Describe the operation and care of workshop test equipment used to diagnose mechanical faults			
	2.11	Explain why it is important to leave workshop equipment in a clean and workable condition			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

The evidence should relate to a range of systems which could include:

- Engine, lubrication and cooling systems and their associated components
- Fuel systems and their associated components
- Transmission, automatic/manual, final drive and their associated components
- Foundation brakes and their associated components
- Suspension and steering and their associated components.

The tasks will be mainly routine and carried out under supervision. Learners will be required to locate faults and use the chosen method and diagnostic tool for the perceived fault. These methods could include:

- Visual
- Aural
- Odour
- Measuring instruments
- Gauges
- Indicators
- A range of diagnostic equipment and manufacturer's software
- Multi-meter
- Approved test equipment.

Unit 6: Identify and Locate Electrical Faults in Bus/Coach Systems and Components

Unit reference number: L/502/6314

QCF level: 2

Credit value: 8

Guided learning hours: 46

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in identifying and locating faults across a range of bus/coach electrical systems and components. Learners will be required to interpret instructions, select the correct diagnostic procedure and tools, and diagnose the presented fault using methods that could include as appropriate:

- visual
- aural
- odour
- measuring instruments
- gauges
- kinethstatic
- indicators
- a range of diagnostic equipment and manufacturer's software
- multi-meter
- approved test equipment.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the identification and rectification of **five** faults from at least **three different systems out of the seven listed below**:

- lighting systems
- wiper systems
- security and alarm systems
- comfort and convenience systems
- infotainment/communication systems
- engine starting systems
- engine charging systems

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to identify and find electrical faults	1.1	Assess and review all the relevant information on the symptoms and problems associated with the products or assets				
		1.2	Investigate and establish the causes of the faults				
		1.3	Take action to select the appropriate techniques, tools and aids to locate faults				
		1.4	Assess the implications of the fault for other work and for safety considerations				
		1.5	Assess the evidence gained about the probable cause of the fault and draw a valid conclusion				
		1.6	In the appropriate format accurately record details on the extent and location of the faults				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to identify and locate electrical faults	2.1	Explain the possible reasons for breakdowns including continual and intermittent faults			
	2.2	Describe the relevant diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work instructions			
	2.3	Describe the possible causes of electrical faults in bus/coach systems and how these relate to the most logical method of fault diagnosis			
	2.4	Explain the preparation procedures required to ensure accuracy of diagnosis, including: <ul style="list-style-type: none"> • the accuracy of test instruments • calibration • operating temperature • component or system access 			
	2.5	Describe the methods employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations, touch kinesthatic			
	2.6	Describe how to analyse and determine diagnostic results which could include comparisons of efficiency and safety implications			
	2.7	Explain the risk assessment procedures that have to be adopted when undertaking a diagnostic task			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.8 Explain how to report different forms of diagnostic information ensuring clarity of detail and understanding			
	2.9 Explain why it is important to report accurately diagnostic conclusions including: <ul style="list-style-type: none"> • safety implications • potential follow-up work • purchase requests • time and cost implications • good customer service 			
	2.10 Describe the operation and care of workshop test equipment used to diagnose electrical faults			
	2.11 Explain why it is important to leave workshop equipment in a clean and workable condition			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional information

The evidence should relate to a range of systems which could include:

- Battery and charging systems and their associated components
- Engine starting systems and their associated components
- Lighting systems and their associated components
- Body electrical systems and their associated components
- Electrical controls and driver controls and their associated components
- Information systems and their associated components
- Transmission and braking electronic systems and their associated components
- Hydraulic and pneumatic systems.

The tasks will be mainly routine and carried out under supervision. Learners will be required to locate faults and use the chosen method and diagnostic tool for the perceived fault. These methods could include:

- Visual
- Aural
- Odour
- Measuring instruments
- Gauges
- Indicators
- A range of diagnostic equipment and manufacturer's software
- Multi-meter
- Approved test equipment.

Unit 7: Rectify Electrical Faults in Bus/Coach Systems and Components

Unit reference number: H/502/6318

QCF level: 2

Credit value: 8

Guided learning hours: 49

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in rectifying a range of electrical faults in bus/coach systems and components in accordance with approved procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the rectification of **five** faults from at least **three different systems out of the seven listed below**:

- Lighting systems
- Wiper systems
- Security and alarm systems
- Comfort and convenience systems
- Infotainment/communication systems
- Engine starting systems
- Engine charging systems.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to rectify electrical faults in bus/coach systems and components	1.1	Obtain all the required components in order to carry out a replacement ensuring that they are in a suitable condition and fit for purpose		
	1.2	Assess all replacement components used ensuring that they meet the required specification to include operational soundness and warranty		
	1.3	Take action to prevent damage to components, tools and equipment during replacement		
	1.4	Using the appropriate tools and techniques replace the components in the correct sequence		
	1.5	Identify any necessary settings to components and make the necessary adjustments to ensure that they will function correctly		
	1.6	Within own area of control deal promptly with problems, reporting those that cannot be solved to line supervisor		
	1.7	Complete all relevant documentation in accordance with organisational requirements		

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to rectify electrical faults in bus/coach systems and components	2.1	Explain how to obtain the relevant information and specifications from suppliers and manufacturers		
	2.2	Explain how to source components and how to ensure they are fit for purpose		
	2.3	Describe the methods and techniques used to remove and replace components		
	2.4	Explain how to safely remove and replace components and units from a range of bus/coach systems taking into consideration the location, mass, robustness, fragility and sequence of disassembly and assembly		
	2.5	Explain the safe working practices used to remove and replace components and units including: <ul style="list-style-type: none"> • preparing the area • working safely • avoiding contamination and damage to adjacent areas • positioning • stabilising • aligning • joining • fixing • testing • evaluating • repairing 		

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.6 Explain the importance of why a rectified component must meet the manufacturers' specifications for operational soundness and warranty			
	2.7 Explain the safe working methods and techniques that should be used when using tools and equipment designed to aid the rectification process preventing damage to components			
	2.8 Explain the importance of reporting the progress and completion of the rectification including information on the parts used, follow-up work and potential problems			
	2.9 Describe the extent of own responsibility and to whom any unsolved problems should be reported			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners will be able to interpret the instructions, select the correct workshop tools and equipment and rectify the presented fault or faults by component replacement, taking responsibility for the tasks performed and working to a specification.

The evidence could relate to any of the following systems:

- Body electrical systems and their associated components
- Battery and charging systems and their associated components
- Engine starting systems and their associated components
- Lighting systems and their associated components
- Electrical controls and driver information systems and their associated components
- Transmission and braking electronic systems and their associated components
- Hydraulic and pneumatic systems

Unit 8: Repair Mechanical Faults in Bus/Coach Systems and Components

Unit reference number: L/502/6359

QCF level: 3

Credit value: 7

Guided learning hours: 44

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in repairing mechanical faults on bus/coach systems and components in accordance with organisational procedures. Learners will be required to carry out a range of previously identified repair activities that on completion meet organisational and regulatory standards.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the repair of **eight** mechanical units and components from at least **four** different vehicles covering **eight different systems out of the 12 listed below**:

- Engine mechanical systems
- Cooling systems
- Air supply and exhaust systems
- Fuel systems
- Lubrication systems
- Clutch or fluid coupling
- Gearbox (manual or automatic)
- Drive line (shafts, couplings, hubs and bearings)
- Final drive
- Steering
- Suspension
- Braking.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to repair mechanical faults in systems and components	1.1	Identify and agree with supervisor the relevant specifications for the component to be repaired				
		1.2	Take the appropriate action to prepare the component for repair				
		1.3	Within the agreed timescale carry out the repairs using the approved materials, components, methods and procedures				
		1.4	Assess the work undertaken and ensure that the repaired component meets the specified operating conditions				
		1.5	Accurately complete the relevant records of the repair work undertaken				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to repair mechanical faults in systems and components	2.1	Explain the different types of constraints which can influence the repair method chosen		
	2.2	Explain the layout and operation of bus/coach systems and their associated components		
	2.3	Explain how to repair faults in bus/coach systems and components		
	2.4	Describe the different methods undertaken for repairing the main bus/coach systems		
	2.5	Explain what checks need to be carried out on a completed repair to ensure the repair meets organisational and regulatory standards		
	2.6	Explain how to operate workshop equipment and tools used to repair mechanical faults		
	2.7	Explain why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects		
	2.8	Describe how the different types of repair activities are reported and presented to ensure clarity and accuracy of detail		
	2.9	Explain the importance of reporting the progress and completion of a repair which should include the provision of information on the parts used, follow up work and potential problems		
	2.10	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported		

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the repair activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If in the course of the repair this specification requires changing or modifying, the learner will need to initiate an alternative route without compromising the quality of the repair.

A repair is defined in this unit as one which may involve interaction between two or more vehicle systems and components. A range of repair tools are to be used to include as appropriate:

- Hand tools
- General workshop equipment
- Removers and replacers
- Joining equipment
- Electrical and electronic testers
- Brake testing equipment
- Emissions tester
- Measuring equipment.

Unit 9: Complete Thermal Joining of Bus/Coach Components

Unit reference number: D/502/6365

QCF level: 3

Credit value: 5

Guided learning hours: 29

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in completing thermal joining activities in accordance with organisational procedures. Applying safe working practices will be a key issue throughout.

At all times learners must comply with organisational policy and procedures and legal requirements for the activities undertaken.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Practical assessment of this unit should be completed by observation on at least one occasion. Other evidence could come from product evidence or questioning.

Assessment should cover as a minimum:

- **Two** welding methods from:
 - MIG
 - TIG
 - MMA
 - Gas.
- **Three** different joints from:
 - Butt
 - Lap
 - Fillet
 - Plug.
- **Two** different welding positions from:
 - Down hand
 - Horizontal vertical
 - Vertical up
 - Vertical down
 - Overhead.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to complete thermal joining	1.1	Identify and interpret relevant joining procedures and job instructions including the correct selection and use of personal protective equipment (PPE)		
	1.2	Assess the joint preparation and check that it complies with the specifications		
	1.3	Inspect the joining and related equipment and consumables and check that they are as specified and fit for purpose		
	1.4	Apply the thermal joining techniques and produce the joints as specified to the required quality and dimensional accuracy		
	1.5	Implement the shut-down of the equipment to a safe condition on completion of the joining activities		
	1.6	Deal promptly with excess waste materials and temporary attachments in line with organisational procedures		
	1.7	Complete all work records accurately and as required		

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to complete thermal joining	2.1	Describe what specific precautions should be taken when working with thermal joining equipment, materials and consumables to include: <ul style="list-style-type: none"> • the safe use of gas cylinders • the safe way of working with flammable substances • the correct selection and use of personal protective equipment (PPE) • the safe disposal of hazardous materials 			
	2.2	Explain the different techniques used to make typical welding joints which are required in bus/coach maintenance and repair activities			
	2.3	Describe what the different welding processes are and the equipment used within own trade area in bus/coach maintenance and repair			
	2.4	Explain the methods that are used to set up and hold materials and components during welding to include the preparation required, the sequences used to minimise or control distortion, and any post welding treatments required.			
	2.5	Describe what the welding characteristics are of the different materials used within own trade area in motor vehicle maintenance and repair			
	2.6	Explain how to set up, adjust and use the welding equipment for the type and gauge/thickness of materials used in own trade area			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.7 Explain how to carry out basic maintenance and adjustments to the welding equipment used in own trade area			
	2.8 Explain how to identify and rectify typical visual faults and defects associated with welding processes to include: <ul style="list-style-type: none"> • burn through • incomplete fusion undercutting • excessive spatter • cracking • distortion • oxidation • inconsistent weld pattern • uneven leg length • surface expulsion • porosity 			
	2.9 Describe the hazards that can occur during joining occupations			
	2.10 Describe the destructive and non-destructive personal approval tests			
	2.11 Explain what cannot be welded unless by an approved welder			
	2.12 Explain the reasons for setting up equipment and materials for sample runs prior to carrying out welds on the bus/coach or its components			
	2.13 Explain the procedures for shutting down the joining equipment in a safe manner			

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional guidance

Learners should be able to demonstrate how to be able to visually inspect the work to ensure a minimum of 75 per cent of the weld length:

- Is linear, uniform and has ripples of a consistent form and width
- Is free from blowholes, excessive arcing marks, spatter, porosity, oxidation and excessive distortion
- Has a good toe blend
- Butt welds have good root penetration

Unit 10:

Rectify Mechanical Faults in Bus/Coach Systems and Components

Unit reference number: D/502/6317

QCF level: 2

Credit value: 7

Guided learning hours: 49

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in rectifying a range of mechanical faults in bus/coach systems and components in accordance with approved procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the rectification of faults from engine mechanical and components from **four different systems out of the five listed below**:

- Engine mechanical systems
- Cooling systems
- Air supply and exhaust system
- Fuel systems
- Lubrication systems.

Be observed by an approved assessor on at least **one** occasion.

Produce evidence of carrying out the rectification of faults on at least **four** occasions covering **all three** different systems. Your evidence must include demonstration of skill in each aspect of mechanical and hydraulic and/or pneumatic unit or component removal and replacement:

- Steering
- Suspension
- Braking.

Be observed by an approved assessor on at least **one** occasion.

Produce evidence of carrying out the rectification of **three** faults on three different vehicles **from at least two of the areas** as listed below:

- Clutch or fluid coupling
- Gearbox (manual or automatic)
- Drive lines (shafts, couplings, hubs and bearings)
- Final drive.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to rectify mechanical faults in bus/coach systems and components	1.1	Obtain all the required components in order to carry out a replacement ensuring that they are in a suitable condition and fit for purpose				
		1.2	Assess all replacement components used ensuring that they meet the required specification to include operational soundness and warranty				
		1.3	Take action to prevent damage to components, tools and equipment during replacement				
		1.4	Using the appropriate tools and techniques replace the components in the correct sequence				
		1.5	Identify any necessary settings to components and make the necessary adjustments to ensure that they will function correctly				
		1.6	Within own area of control deal promptly with problems reporting those that cannot be solved to line supervisor				
		1.7	Complete all relevant documentation in accordance with organisational requirements				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to rectify mechanical faults in bus/coach systems and components	2.1	Explain how to obtain the relevant information and specifications from suppliers and manufacturers		
	2.2	Explain how to source components and how to ensure they are fit for purpose		
	2.3	Describe the methods and techniques used to remove and replace components		
	2.4	Explain how to safely remove and replace components and units from a range of bus/coach systems taking into consideration the location, mass, robustness, fragility and sequence of disassembly and assembly		
	2.5	<p>Explain the safe working practices used to remove and replace components and units including:</p> <ul style="list-style-type: none"> • preparing the area • working safely • avoiding contamination and damage to adjacent areas • positioning • stabilising • aligning • joining • fixing • testing • evaluating • repairing 		

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.6	Explain the importance of why a rectified component must meet the manufacturers' specifications for operational soundness and warranty		
	2.7	Explain the safe working methods and techniques that should be used when using tools and equipment designed to aid the rectification process preventing damage to components		
	2.8	Explain the importance of reporting the progress and completion of the rectification including information on the parts used, follow-up work and potential problems		
	2.9	Describe the extent of own responsibility and to whom any unsolved problems should be reported		

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners will be able to interpret the instructions, select the correct workshop tools and equipment, and rectify the presented fault or faults by component replacement, taking responsibility for the tasks performed and working to a specification.

The evidence could relate to any of the following systems:

- Engine, lubrication and cooling systems and their associated components
- Fuel systems and their associated components
- Transmission, automatic/manual, final drive and their associated components
- Foundation brakes and their associated components
- Suspension and steering and their associated components

Unit 11: Conduct Inspections of Buses/Coaches

Unit reference number: Y/502/6364

QCF level: 3

Credit value: 6

Guided learning hours: 26

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in conducting a complete inspection of the full range of buses/coaches and their associated systems in accordance with organisational procedures. Learners will be required to compile reports and records of the inspection activities undertaken ensuring the conditions of the operator's licence ('O' licence) are complied with.

Learners will carry out bus/coach inspections and checks that may include:

- pre-delivery requirements
- first use
- maintenance inspections
- pre-MOT inspection
- safety inspections
- post-repair checks.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out **five** inspections on at least four different vehicles covering all **three** types of inspection:

- Pre-MOT inspection
- Scheduled safety inspections (PMI)
- Daily vehicle checks.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to carry out bus/coach inspections	1.1	Identify and follow the correct specification for the product or equipment being inspected				
		1.2	Identify and confirm which inspection checks are to be made and what acceptance criteria needs to be used				
		1.3	Using the correct equipment carry out the inspection as specified				
		1.4	Identify any variations from the specification and prioritise these				
		1.5	Record accurately the inspection undertaken in the correct format				
		1.6	Pass on information to the appropriate user				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date	
2 Know how to carry out bus/coach inspections	2.1	Explain the range of inspection techniques which can be used			
	2.2	Explain the critical tolerances, standards and specifications contained within relevant sources of information to include: <ul style="list-style-type: none"> • the VOSA tester’s manual • categorisation of VOSA defects manual • group or company engineering manual • VOSA guide to maintaining roadworthiness • manufacturers’ workshop manuals • detailed engineering drawings 			
	2.3	Explain how to carry out vehicle inspections for the full range of passenger carrying vehicles determined by the conditions of the ‘O’ licence using efficient and safe methods			
	2.4	Explain how inspection standards are maintained including: <ul style="list-style-type: none"> • VOSA examiners • technical assessments • spot checks 			
	2.5	Explain what the prohibition notices used by the police and VOSA inspectorate are used for			
	2.6	Describe what is meant by prohibitions, exemptions, discretions and impounding when inspecting a vehicle and how they are used			
	2.7	Explain what actions and responsibilities are required to maintain vehicle roadworthiness			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.8 Explain why specialised equipment is calibrated prior to a test to include: <ul style="list-style-type: none"> • brake tester • exhaust emissions tester • headlamp aligner • torque wrench 			
	2.9 Explain what the authorisation procedures are for specialised equipment			
	2.10 Describe what measures are in place to ensure that inspection tools, equipment and facilities are maintained and serviced prior to inspections			
	2.11 Explain what measuring equipment is available to verify the vehicle standard to include brake tester, emissions tester and headlamp aligner			
	2.12 Explain how to conduct inspections on bus/coach systems			
	2.13 Describe the visual and test operations to support the inspection activity			
	2.14 Explain the importance of critical tolerances to pass/fail testable items			
	2.15 Describe the method used to record inspection items			
	2.16 Explain the importance of clear and accurately completed paperwork in relation to maintaining the 'O' licence			

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Unit 12: Drive the Bus/Coach for Testing and Vehicle Recovery

Unit reference number: J/502/6327

QCF level: 2

Credit value: 6

Guided learning hours: 36

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in driving all bus and coach vehicle types maintained in the workshop particularly for testing and vehicle recovery purposes but not for carrying fare-paying passengers.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in Annexe A or accessed via the People 1st website: www.people1st.co.uk

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date	
1 Be able to drive the bus/coach for testing and vehicle recovery in a safe manner	1.1 Adhere to the statutory and medical requirements to drive a bus/coach				
	1.2 Assess and confirm the bus/coach is in a safe condition for the journey and that all its documentation meets current legislation				
	1.3 Implement the pre-drive checks to the bus/coach in line with approved procedures				
	1.4 Identify any potential and actual bus/coach defects and promptly report these to the relevant person				
	1.5 Drive the bus/coach in a way that is without risk to self or others in accordance with the requirements of the Highway Code taking into account the following conditions: <ul style="list-style-type: none"> • road traffic • environmental conditions • other road users 				
	1.6 Park or hand over the bus/coach in accordance with agreed procedures ensuring the driver's area is left clean and free from hazards				
	1.7 Drive the bus/coach within own limits of responsibility				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to drive the bus/coach for testing and vehicle recovery in a safe manner	2.1	Describe the different types of buses and coaches maintained in the workshop			
	2.2	Explain the relevant legislation and operating procedures for driving all types of buses or coaches maintained in the workshop			
	2.3	Explain the medical fitness and licensing requirements to drive a bus/coach			
	2.4	Explain what documentation is required for driving on the bus/coach			
	2.5	Explain the importance for pre-use checks for the bus/coach and how to undertake these			
	2.6	Explain the restrictions on reversing			
	2.7	Describe the parking and hand-over procedures			
	2.8	Explain the procedures for reporting accidents, defects or problems and why it is important to do this			
	2.9	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

The range of driving situations could include:

- Motorways
- Single and dual carriageways
- Rural and urban locations
- Depots, in particular driving on and off pits
- Forward drive and reversing
- Night-time driving
- Day-time driving
- Rolling road.

Learners will also need to show that they can drive the bus/coach in a variety of weather conditions such as:

- Rain
- Snow
- Mist/fog
- Dry
- High winds
- Ice
- Bright light
- Low sun.

Unit 13: Provide Roadside Assistance for Broken Down Buses/Coaches

Unit reference number: L/502/6328

QCF level: 2

Credit value: 7

Guided learning hours: 46

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in assisting drivers in a roadside breakdown. The roadside repairs could include temporary repairs, part and component replacements, investigations and rectifications, and accident damage.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of providing roadside assistance for broken down buses/coaches on **four** occasions, **one** of which must include a repair at the roadside.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to assist drivers whose bus/coach has broken down at the roadside	1.1 Effectively communicate with the customer/colleague to establish the circumstances in relation to the breakdown including: <ul style="list-style-type: none"> • oral questioning • written report • telephone • radio control 			
	1.2 Take control and operate a roadside breakdown vehicle			
	1.3 Assess the repair action and make preparatory arrangements			
	1.4 Select the correct tooling and equipment for roadside working			
	1.5 Carry out a range of roadside repairs to systems and components including: <ul style="list-style-type: none"> • electrical • fuel • transmission • engine and cooling • wheels and tyres • brakes 			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	1.6	Take the appropriate action to work with others to maintain safety at the roadside to include the police and emergency services			
	1.7	Take action to warn and protect all persons who may be affected by roadside work activities			
	1.8	Undertake the roadside repair ensuring it is carried out in a planned and controlled environment in accordance with HASWA guidelines			
	1.9	Effectively communicate the progress of work to the relevant people			
	1.10	Accurately record and pass details of the work undertaken to the relevant authority			
	1.11	Take the appropriate action to leave the site of the roadside repair in a safe and controlled manner			
	1.12	Ensure that the site is cleared, debris is removed, tools, equipment and cones are secured and stored, all vehicles exit the site safely			

Learning outcomes	Assessment criteria			Evidence type	Portfolio reference	Date
2 Know how to provide assistance to drivers whose bus/coach has broken down at the roadside	2.1	Describe the equipment and facilities required for safe roadside working				
	2.2	Describe the equipment, tools and consumables required for carrying out safe and successful temporary and permanent repairs at the roadside				
	2.3	Explain the personal qualities required for roadside working				
	2.4	Explain the different communication techniques used before, during and after the roadside activity				
	2.5	Explain the importance of working with the traffic police and their agents to maintain road safety and to minimise traffic disruption				
	2.6	Explain how to assess and clarify the details of the roadside situation to include: <ul style="list-style-type: none"> • roadside position • vehicle symptoms and status • hazard and hazardous substances 				
	2.7	Describe how to secure the roadside situation in a safe and controlled manner				
	2.8	Describe the essential skills required to operate a roadside breakdown vehicle and rectify faults in a timely and efficient manner				
	2.9	Explain the documentation and reports required to record the assistance given				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	2.10	Explain the relevant organisational procedures and policies and legal requirements			
	2.11	Know the extent of own responsibility and identify who to report to if there are problems that cannot be resolved			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

The situations that have resulted in the need for assistance could include the following:

- Breakdowns
- Accidents
- Damage
- Component failure
- Injury.

Unit 14: Prepare and Treat Surfaces and Apply Paint Coats to Bus/Coach Body Panels and Components

Unit reference number: F/502/6326

QCF level: 3

Credit value: 10

Guided learning hours: 65

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in preparing and treating surfaces in accordance with organisational procedures. Learners will be required to source and interpret relevant information for planning and progressing work.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Practical assessment of this unit should be completed by observation on at least one occasion of preparation and application of paint coats (under and top). Other evidence could come from product evidence, witness testimony, a report or questioning.

Assessment should cover as a minimum:

- **One** flat and **one** curved/shaped panel
- **One** metal and **one** plastic panel
- **One** repaired and **one** new panel.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to prepare and treat surfaces and apply paint coats to panels and components	1.1	Take action to prepare the material surfaces to be treated for the finishing operations in accordance with HASWA regulations and manufacturer guidelines				
		1.2	Assess the paint application equipment and work area to ensure that it is set up and maintained at satisfactory operating conditions and levels				
		1.3	Implement the painting process in accordance with operational procedures and the requirements of the component specifications				
		1.4	Ensure that the treated panels or components achieve the required characteristics and meet the finishing specification				
		1.5	Shut down and return the painting equipment and work area to a safe condition on completing the painting activities				
		1.6	Clean the work area and safely dispose of waste materials in accordance with safe working practices and organisational procedures				
		1.7	Accurately complete required work records				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to prepare and treat surfaces and apply paint coats to panels and components	2.1 Describe the different techniques used to apply paint coats and to complete painting activities to include the following: <ul style="list-style-type: none"> • new panels/components • repaired panels/components • plastic panels/components • metal panels/components • glazing and rubber 			
	2.2 Explain how to prepare materials and surrounding bodywork prior to application of paint materials, including: <ul style="list-style-type: none"> • cleaning and protecting the surrounding bodywork/vehicle to reduce the likelihood of contamination • identifying substrates to ensure paint materials will not react • applying masking materials to ensure adequate protection to the surrounding bodywork/vehicle 			
	2.3 Explain the methods used to prepare panels and components prior to accepting foundation materials			
	2.4 Explain the methods used to prepare paint materials to meet the specifications required for colour match and viscosity			
	2.5 Explain the methods used to prepare foundation materials prior to the application of subsequent coats			
	2.6 Explain the methods used to prepare, test, adjust and use paint application and preparation equipment			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.7	Describe how to identify and rectify the faults associated with painting body panels and components		
	2.8	Explain the procedures for shutting down the painting equipment in a safe manner		
	2.9	Know the extent of own responsibility and identify who to report to if there are problems that cannot be resolved		

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

The evidence should relate to a range of techniques that could include:

- Preparing, testing and adjusting equipment prior to use
- Key/preparing body panels and components
- Etching body panels and components
- Priming body panels and components
- Top coating body panels and components
- Polishing body panels and components.

Learners will be required to identify the materials and substrates, to prepare materials and equipment, and to apply paint coats to body panels and components, including the following:

- New panels/components
- Repaired panels/components
- Plastic panels/components
- Metal panels/components
- Glazing/rubber.

They will prepare materials and surrounding bodywork prior to the application of paint materials, including as appropriate:

- Cleaning and protecting the surrounding bodywork/vehicle to reduce the likelihood of contamination
- Identifying substrates to ensure paint materials will not react
- Applying masking materials to ensure adequate protection to the surrounding bodywork/vehicle.

Unit 15: Carry Out Scheduled Mechanical Maintenance on Buses/Coaches

Unit reference number: A/502/6311

QCF level: 3

Credit value: 7

Guided learning hours: 47

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in carrying out scheduled bus/coach mechanical maintenance activities in accordance with approved procedures. Learners will be required to interpret the requirements of the maintenance schedule, carry out maintenance to the standards required and record results of the maintenance activities to comply with organisational and regulatory procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out scheduled mechanical maintenance on **four different systems from the five listed below:**

- Engine compartment
- Cab area
- Vehicle interior
- Vehicle exterior
- Under floor.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to carry out scheduled mechanical maintenance on buses and coaches	1.1	Identify the maintenance schedules which are required to carry out the required work				
		1.2	Within the limits of own personal authority undertake the maintenance activities required in the sequence specified and within the agreed timescales				
		1.3	Take action to report to the relevant people any instances where the maintenance activities cannot be met or where defects have been identified outside the planned schedule				
		1.4	Safely dispose of waste materials in accordance with safe working practices and organisational procedures				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to carry out scheduled mechanical maintenance on buses and coaches	2.1	<p>Explain the different types of critical tolerances, standards and specifications contained within relevant sources of information to include:</p> <ul style="list-style-type: none"> • service bulletins • technical data sheets • vehicle records and history • charts and tables • VIN and plate details • manufacturers' workshop manuals • manufacturers' bulletins 			
	2.2	Describe how the relevant suppliers' and manufacturers' information can be accessed and how the correct specifications are chosen			
	2.3	Explain how to carry out scheduled mechanical maintenance using an efficient safe route within the agreed timescales			
	2.4	<p>Explain how mechanical/electrical maintenance is carried out on systems and components to include:</p> <ul style="list-style-type: none"> • cab area • engine compartment • vehicle interior • vehicle exterior • under floor 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>2.5 Explain how checks are carried out to maintained mechanical components to ensure compliance with specification in the following areas:</p> <ul style="list-style-type: none"> • correct operation and performance • critical tolerances • capacity • efficiencies • component replacement • visual • quality/volume • pressures • emissions 			
	<p>2.6 Describe how to calibrate and check specified service tools and why this is important</p>			
	<p>2.7 Explain what checks need to be carried out and how to make service adjustments following these checks</p>			
	<p>2.8 Describe how routine service components and materials are replenished and replaced</p>			
	<p>2.9 Describe how inspections of mechanical systems and components are carried out checking for safety, operation, condition, appearance, security, wear, leaks, adjustments and lubrication</p>			
	<p>2.10 Explain how to operate workshop equipment which is used for scheduled mechanical maintenance</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.11 Explain why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.12 Explain the maintenance authorisation procedures			
	2.13 Explain why it is important to report the progress and completion of the maintenance undertaken and why information on parts used, follow-up work and potential problems should be reported			
	2.14 Describe the relevant statutory and contractual obligations used to record the completed service and maintenance records			
	2.15 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must understand the factors governing the planning and application of scheduled mechanical maintenance activities and know the statutory and company standards in adequate depth in order to take responsibility to carry out the tasks to the required specification. Applying safe working practices will be a key issue throughout.

Unit 16: Carry Out Scheduled Electrical Maintenance on Buses/Coaches

Unit reference number: F/502/6312

QCF level: 3

Credit value: 8

Guided learning hours: 58

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in carrying out scheduled bus/coach electrical maintenance activities in accordance with approved procedures. Learners will be required to interpret the requirements of the maintenance schedule, carry out maintenance to the standards required and record the results of the maintenance activities to comply with organisational and regulatory procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out scheduled electrical maintenance on:

- at least **one different system** from the **two** listed below:
 - Battery charging
 - Starting systems
- at least **two different systems** from the **five** listed below:
 - Lighting systems
 - Auxiliary systems
 - Instrumentation and warning systems
 - On-board diagnostic systems
 - Electrical and electronic transmission.

Be observed by an approved assessor on at least **two** occasions: **once** for battery charging or starting systems and **once** for one of the other five systems.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to carry out scheduled electrical maintenance on buses and coaches	1.1	Identify the maintenance schedules which are required to carry out the required work				
		1.2	Within the limits of own personal authority undertake the maintenance activities required in the sequence specified and within the agreed timescales				
		1.3	Take action to report to the relevant people any instances where the maintenance activities cannot be met or where defects have been identified outside the planned schedule				
		1.4	Safely dispose of waste materials in accordance with safe working practices and organisational procedures				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to carry out scheduled electrical maintenance on buses and coaches	2.1	<p>Explain the different types of critical tolerances, standards and specifications contained within relevant sources of information including:</p> <ul style="list-style-type: none"> • service bulletins • technical data sheets • vehicle records and history • charts and tables • VIN and plate details • manufacturers' workshop manuals • manufacturers' bulletins 			
	2.2	Describe how the relevant suppliers' and manufacturers' information can be accessed and how the correct specifications are chosen			
	2.3	Explain how to carry out scheduled electrical maintenance using an efficient safe route within the agreed timescales			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>2.4 Explain how electrical maintenance is carried out on systems and components including:</p> <ul style="list-style-type: none"> • battery charging and starting systems • lighting systems • ABS • instrumentation and warning systems • body electrical • electronic controls • electrical and electronic transmission 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>2.5 Explain how checks are carried out to maintained electrical components to ensure compliance with specification in the following areas:</p> <ul style="list-style-type: none"> • correct operation and performance • critical tolerances • capacity • efficiencies • component replacement • visual • quality/volume • pressures • emissions • loadings • ampage • current • fusing • wiring specifications 			
	<p>2.6 Describe how to calibrate and check specified service tools and why this is important</p>			
	<p>2.7 Explain what checks need to be carried out and how to make service adjustments following these checks</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.8	Describe how routine service components and materials are replenished and replaced		
	2.9	Describe how inspections of electrical systems and components are carried out, checking for damage, wear and corrosion		
	2.10	Explain how to operate workshop equipment which is used for scheduled electrical maintenance		
	2.11	Explain why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects		
	2.12	Explain the maintenance authorisation procedures		
	2.13	Explain why it is important to report the progress and completion of the maintenance undertaken and why information on parts used, follow up work and potential problems should be reported		
	2.14	Describe the relevant statutory and contractual obligations used to record the completed service and maintenance records		
	2.15	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to.		

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must understand the factors governing the planning and application of scheduled electrical maintenance activities and know the statutory and company standards in adequate depth in order to take responsibility to carry out the tasks to the required specification. Applying safe working practices will be a key issue throughout. Simulation is not permitted.

Learners will be required to check maintained electrical systems to ensure compliance with specification in the following areas as appropriate:

- Correct operation and performance
- Critical tolerances
- Capacity
- Efficiencies
- Component replacement
- Visual
- Quality/volume
- Pressures
- Emissions.

Unit 17: Diagnose Mechanical Faults in Bus/Coach Systems and Components

Unit reference number: R/502/6315

QCF level: 3

Credit value: 11

Guided learning hours: 76

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in diagnosing a range of mechanical faults on bus/coach systems and components in accordance with organisational procedures. Learners will be required to interpret instructions, select the correct diagnostic procedure and tools, diagnose faults, and report their findings and recommended repair procedures to the supervisor.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the diagnosis of **eight** mechanical units and components from at least **four** different vehicles covering **eight different systems out of the 12 listed below**:

- Engine mechanical systems
- Cooling systems
- Air supply and exhaust systems
- Fuel systems
- Lubrication systems
- Clutch or fluid coupling
- Gearbox (manual or automatic)
- Drive line (shafts, couplings, hubs and bearings)
- Final drive
- Steering
- Suspension
- Braking.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to diagnose mechanical faults in systems and components	1.1	Assess and review the information on the problems associated with the products or assets				
		1.2	Undertake an investigation to establish the cause of the faults				
		1.3	Select and apply diagnostic techniques, tools and aids to locate faults				
		1.4	Undertake the fault diagnosis within the time limits laid down in organisational procedures and inform the appropriate people if the time limit cannot be achieved				
		1.5	Identify what implications the fault may cause with other work and with safety				
		1.6	Summarise the evidence gained to make valid conclusions about the nature and probable cause of the fault				
		1.7	Accurately record details of the extent and location of the fault				

Learning outcomes	Assessment criteria			Evidence type	Portfolio reference	Date
2 Know how to diagnose mechanical faults in systems and components	2.1	Explain the different types of diagnostic aids available to diagnose a range of faults				
	2.2	Describe what the possible causes of systems faults are and the best method used to diagnose these				
	2.3	Explain how faults will be diagnosed in the following systems including: <ul style="list-style-type: none"> • engines, lubrication and cooling systems and their associated components • fuel management and their associated components • transmission systems and their associated components • braking systems and their associated components • steering and suspension and their associated components 				
	2.4	Explain the preparation procedures required to ensure accuracy of the diagnosis				
	2.5	Describe the different diagnostic methods and techniques which can be employed to diagnose faults to include the use of systematic testing using visual, aural, measurement readings and simulations				
	2.6	Explain how diagnostic results are determined and analysed				
	2.7	Explain how workshop test equipment is operated to diagnose mechanical faults and why it is important to leave it after use in a clean and workable condition				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	2.8	Explain the control procedures for reporting defects of the test equipment			
	2.9	Explain the risk assessment procedures that have to be adopted when undertaking a diagnostic task			
	2.10	Explain why it is important to complete fault diagnosis within the agreed time and to report the conclusions accurately including: <ul style="list-style-type: none"> • safety implications • potential follow-up work • purchase requests • time and cost implications • good customer service 			
	2.11	Describe the way each different form of diagnostic is reported and presented to ensure clarity of detail and understanding including: <ul style="list-style-type: none"> • comparative results • written reports • oral reports • visual evidence • faults cleared 			
	2.12	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional guidance

Learners must understand the factors governing the planning and application of scheduled mechanical maintenance activities and know the statutory and company standards in adequate depth to carry out the activities to the required specification. Applying safe working practices will be a key issue throughout.

A diagnosis can be defined in this unit as one that may involve interaction between two or more vehicle systems and components.

Assessment criterion 1.3

The range of evidence should include:

- Visual
- Aural
- Odour
- Tactile
- Measuring
- Instruments
- Analysers
- Computer laptops
- Logic probe
- Brake tester
- Multi-meters.

Unit 18: Diagnose Electrical Faults in Bus/Coach Systems and Components

Unit reference number: Y/502/6316

QCF level: 3

Credit value: 11

Guided learning hours: 76

Unit aim

This unit covers the skill and knowledge required to investigate faults in bus and coach electrical, engine and chassis systems and components. This includes locating and diagnosing faults by using appropriate tools, aids and techniques, and analysing and recording findings as necessary.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the diagnosis of **four** electrical faults on at least **four** different vehicles covering at least **three different systems out of the six listed below**:

- Heating and ventilation systems
- Security and alarm systems
- Comfort and convenience systems
- Infotainment/communication systems
- Engine starting and charging systems
- Multiplexing systems.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to diagnose electrical faults in systems and components	1.1	Assess and review the information on the problems associated with the products or assets				
		1.2	Undertake an investigation to establish the cause of the faults				
		1.3	Select and apply diagnostic techniques, tools and aids to locate faults				
		1.4	Undertake the fault diagnosis within the time limits laid down in organisational procedures and inform the appropriate people if the time limit cannot be achieved				
		1.5	Identify what implications the fault may cause with other work and with safety				
		1.6	Summarise the evidence gained to make valid conclusions about the nature and probable cause of the fault				
		1.7	Accurately record details of the extent and location of the fault				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to diagnose electrical faults in systems and components	2.1	Explain the different types of diagnostic aids available to diagnose a range of faults			
	2.2	Describe what the possible causes of systems faults are and the best method used to diagnose these			
	2.3	Explain how faults will be diagnosed in the following systems including: <ul style="list-style-type: none"> • battery and charging systems and their associated components • engine starting systems and their associated components • engine electrical systems and their associated components • body electrical systems and their associated components • chassis electrical systems and their associated components • advanced electronic systems and their associated components • braking • transmission • suspension • electrical control systems 			
	2.4	Explain the preparation procedures required to ensure accuracy of the diagnosis			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 Describe the different diagnostic methods and techniques which can be employed to diagnose faults to include the use of systematic testing using visual, aural, measurement based readings and simulations			
	2.6 Explain how diagnostic results are determined and analysed			
	2.7 Explain how workshop test equipment is operated to diagnose electrical faults and why it is important to leave it after use in a clean and workable condition			
	2.8 Explain the control procedures for reporting defects of the test equipment			
	2.9 Explain the risk assessment procedures that have to be adopted when undertaking a diagnostic task			
	2.10 Explain why it is important to complete fault diagnosis within the agreed time and to report the conclusions accurately including: <ul style="list-style-type: none"> • safety implications • potential follow-up work • purchase requests • time and cost implications • good customer service 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.11 Describe the way each different form of diagnostic is reported and presented to ensure clarity of detail and understanding including: <ul style="list-style-type: none"> • comparative results • written reports • oral reports • visual evidence • faults cleared 			
	2.12 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____ Date: _____
 Learner signature: _____ Date: _____
 Assessor signature: _____ Date: _____
 Internal verifier signature: _____ Date: _____
 (*if sampled*)

Unit 19: Repair Electrical Faults in Bus/Coach Systems and Components

Unit reference number: F/502/6360

QCF level: 3

Credit value: 8

Guided learning hours: 54

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in repairing electrical faults on bus/coach systems and components in accordance with organisational procedures. Learners will be required to carry out a range of previously identified repair activities that on completion meet organisational and regulatory standards.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of carrying out the repair of **four** electrical faults on at least **four** different vehicles covering at least **three different systems out of the six listed below:**

- Heating and ventilation systems
- Security and alarm systems
- Comfort and convenience systems
- Infotainment/communication systems
- Engine starting and charging systems
- Multiplexing systems.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to repair electrical faults in systems and components	1.1	Identify and agree with supervisor the relevant specifications for the component to be repaired				
		1.2	Take the appropriate action to prepare the component for repair				
		1.3	Within the agreed timescale carry out the repairs using the approved materials, components, methods and procedures				
		1.4	Assess the work undertaken and ensure that the repaired component meets the specified operating conditions				
		1.5	Accurately complete the relevant records of the repair work undertaken				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to repair electrical faults in systems and components	2.1	Explain the different types of constraints which can influence the repair method chosen			
	2.2	Explain the layout and operation of bus/coach systems and their associated components			
	2.3	Explain how to repair faults in bus/coach systems and components			
	2.4	Describe the different methods undertaken for repairing the main bus/coach systems			
	2.5	Explain what checks need to be carried out on a completed repair to ensure the repair meets organisational and regulatory standards			
	2.6	Explain how to operate workshop equipment and tools used to repair mechanical faults			
	2.7	Explain why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.8	Describe how the different types of repair activities are reported and presented to ensure clarity and accuracy of detail			
	2.9	Explain the importance of reporting the progress and completion of a repair which should include the provision of information on the parts used, follow up work and potential problems			
	2.10	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional information

Learners must comply with organisational policy and procedures and statutory requirements for the repair activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If in the course of the repair this specification requires changing or modifying, the learner will need to initiate an alternative route without compromising the quality of the repair.

A repair is defined in this unit as one that may involve interaction between two or more vehicle systems and components. A range of repair tools are to be used to include as appropriate:

- Hand tools
- General workshop equipment
- Removers and replacers
- Joining equipment
- Electrical and electronic testers
- Brake testing equipment
- Emissions tester
- Measuring equipment.

Unit 20: Recondition Mechanical Components in Buses/Coaches

Unit reference number: J/502/6361

QCF level: 3

Credit value: 8

Guided learning hours: 60

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in reconditioning mechanical components on buses/coaches in accordance with approved procedures. Learners will be required to dismantle, inspect, test, refurbish and assemble a range of mechanical components to organisational and manufacturers' standards.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence which can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of overhauling **three units** including at least one of the following:

- Engine
- Gearbox
- Final drive
- Chassis system unit.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to recondition mechanical components	1.1 Undertake an inspection of the components and ascertain the level of reconditioning required including: <ul style="list-style-type: none"> • performance • function • emissions • wear patterns • scuffing • vibration • looseness • noise • odours 			
	1.2 Identify the relevant specifications for the component to be reconditioned			
	1.3 Prepare the component and associated components for reconditioning			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	1.4	Within the agreed timescale and using the correct methods and procedures, carry out the reconditioning using approved materials and components; this should include using a range of reconditioning tools and equipment and a range of measuring tools and equipment			
	1.5	Assess the reconditioned component ensuring that it meets the specified operating conditions			
	1.6	Accurately complete the relevant records of all reconditioning work carried out			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to recondition mechanical components	2.1	Explain the different types of constraints which could influence reconditioning			
	2.2	Describe the layout and operation of mechanical systems and their associated components			
	2.3	Describe the different methods of reconditioning in the main mechanical components including: <ul style="list-style-type: none"> • assessment • reconditioning requirement • refurbishment • dismantling • overhaul • reassembly 			
	2.4	Describe the methods, techniques and procedures used in reconditioning mechanical components, to include the checks required to a completed reconditioned component to ensure it meets organisational and regulatory standards			
	2.5	Explain how to operate workshop equipment and tools and why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.6	Explain how different types of reconditioning activities are reported and presented to ensure clarity and accuracy of detail			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	2.7	Explain the importance of reporting the progress and completion of a repair which should include the provision of information on the parts used, follow up work and potential problems			
	2.8	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to.			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the reconditioning activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the work activity this specification requires changing or modifying, it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the reconditioning procedure.

The range of reconditioning tools and equipment to be used could include:

- General workshop equipment
- Specialised manufacturers' equipment
- Removers and installers
- Joining equipment and lathe
- Hand tools.

The range of measuring tools and equipment could include:

- Micrometers
- Voltmeter
- Ammeter
- Ohmmeter
- Multi-meter
- Continuity tester
- Dial test indicators
- Depth gauges
- Callipers
- Torque gauges and growler
- Pressure gauge
- Thickness gauges.

Components and associated components can include:

- Engine and cooling systems
- Fuel systems
- Transmission systems
- Braking systems
- Steering and suspension systems
- Pre-engaged starter motor
- Sliding armature starter motor.

Unit 21: Recondition Electrical Components in Buses/Coaches

Unit reference number: L/502/6362

QCF level: 3

Credit value: 7

Guided learning hours: 58

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in reconditioning electrical components on buses/coaches in accordance with approved procedures. Learners will be required to dismantle, inspect, test, refurbish and assemble a range of electrical components to organisational and manufacturers' standards.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of overhauling **five different units** covering at least **two** different components from the list below:

- Starter
- Alternator
- Motor.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to recondition electric components	1.1	Undertake an inspection of the components and ascertain the level of reconditioning required including: <ul style="list-style-type: none"> • performance • insulation tests • resistance tests • dimensional sizes • wear patterns • vibration • looseness • noise • odours 		
	1.2	Identify the relevant specifications for the component to be reconditioned		
	1.3	Prepare the component and associated components for reconditioning		

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	1.4	Within the agreed timescale and using the correct methods and procedures carry out the reconditioning using approved materials and components; this should include using a range of reconditioning tools and equipment and a range of measuring tools and equipment			
	1.5	Assess the reconditioned component ensuring that it meets the specified operating conditions			
	1.6	Accurately complete the relevant records of all reconditioning work carried out			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to recondition electrical components	2.1	Explain the different types of constraints which could influence reconditioning			
	2.2	Describe the layout and operation of electrical systems and their associated components			
	2.3	Describe the different methods of reconditioning in the main electrical components including: <ul style="list-style-type: none"> • assessment • reconditioning requirement • refurbishment • dismantling • overhaul • reassembly 			
	2.4	Describe the methods, techniques and procedures used in reconditioning electrical components, to include the checks required to a completed reconditioned component to ensure it meets organisational and regulatory standards			
	2.5	Explain how to operate workshop equipment and tools and why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.6	Explain how different types of reconditioning activities are reported and presented to ensure clarity and accuracy of detail			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.7 Explain the importance of reporting the progress and completion of a repair which should include the provision of information on the parts used, follow up work and potential problems			
	2.8 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the reconditioning activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the work activity this specification requires changing or modifying, it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the reconditioning procedure.

The range of reconditioning tools and equipment to be used could include:

- General workshop equipment
- Specialised manufacturers' equipment
- Removers and installers
- Joining equipment
- Hand tools
- Cutters
- Lapping tools
- Honing tools
- Lathe

The range of measuring tools and equipment could include:

- Micrometers
- Voltmeter
- Ammeter
- Ohmmeter
- Multi-meter
- Continuity tester
- Dial test indicators
- Depth gauges
- Callipers
- Torque gauges and growler
- Pressure gauge
- Thickness gauges.

Components and associated components can include:

- Engine and cooling systems
- Charging systems
- Air conditioning
- Electric retarders
- Electric motors

- Sensors and actuators
- Passenger comfort and convenience systems
- Ticketing and interfaces.

Unit 22: Carry Out Scheduled Body Maintenance on Buses/Coaches

Unit reference number: K/502/6319

QCF level: 3

Credit value: 6

Guided learning hours: 33

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in carrying out scheduled bus/coach body maintenance activities in accordance with organisational procedures. Learners will be required to interpret the requirements of the maintenance schedule, carry out maintenance to the standards required, and record the results of the maintenance activities to comply with organisational and regulatory procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Practical assessment of this unit should be completed by observation on at least one occasion. Other evidence could come from product evidence, witness testimony, a report or questioning.

Assessment should cover as a minimum:

- The use of **two** different information sources from:
 - Operator's licence
 - VOSA
 - Service bulletins
 - Workshop manuals
 - Technical data.
- Covering **three** different areas of the vehicle from:
 - Cab
 - Under body
 - Interior
 - Exterior.
- Using **six** different compliance checks from:
 - Visual
 - Tactile
 - Operational
 - Measurement
 - Cleanliness
 - Alignment
 - Aesthetic
 - Condition
 - Security
 - Aural.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to carry out scheduled body maintenance on buses and coaches	1.1	Identify the maintenance schedules which are required to carry out the required work				
		1.2	Within the limits of own personal authority undertake the maintenance activities required in the sequence specified and within the agreed timescales				
		1.3	Take action to report to the relevant people any instances where the maintenance activities cannot be met or where defects have been identified outside the planned schedule				
		1.4	Take action to agree with relevant people effective and efficient alternatives where planned maintenance activities cannot be met				
		1.5	Accurately complete relevant maintenance records and pass them to the appropriate person				
		1.6	Safely dispose of waste materials in accordance with safe working practices and organisational procedures and clean the work area used				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to carry out scheduled body maintenance on buses and coaches	2.1 Explain the different types of critical tolerances, standards and specifications contained within relevant sources of information to include: <ul style="list-style-type: none"> • service bulletins • technical data sheets • vehicle records and history • charts and tables • VIN and plate details • manufacturers' workshop manuals • manufacturers' bulletins • Electronic information systems 			
	2.2 Describe how the relevant suppliers' and manufacturers' information can be accessed and how the correct specifications are chosen			
	2.3 Explain how to carry out scheduled body maintenance using an efficient safe route within the agreed timescales			
	2.4 Explain what checks to maintained body systems are carried out to ensure compliance			
	2.5 Describe how to calibrate and check specified service tools and why this is important			
	2.6 Explain what checks need to be carried out how to make service adjustments following these checks			
	2.7 Describe how routine service components and materials are replenished and replaced			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.8 Describe how inspections of body systems and components are carried out, checking for damage, wear and corrosion			
	2.9 Explain how to operate workshop equipment which is used for scheduled body maintenance			
	2.10 Explain why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.11 Explain the maintenance authorisation procedures			
	2.12 Explain why it is important to report the progress and completion of the maintenance undertaken and why information on parts used, follow up work and potential problems should be reported			
	2.13 Describe the relevant statutory and contractual obligations used to record the completed service and maintenance records			
	2.14 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to.			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must understand the factors governing the planning and application of scheduled body maintenance activities and know the statutory and company standards in adequate depth to carry out the activities to the required specification. Applying safe working practices will be a key issue throughout.

Unit 23: Set Out and Assemble Bus/Coach Body Components

Unit reference number: H/502/6321

QCF level: 3

Credit value: 11

Guided learning hours: 73

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in setting out and assembling bus/coach body components in accordance with organisational procedures. Learners will be required to carry out a range of joining methods in the assembly of body components or parts, ensuring all work activities comply with legislation and organisational policy and procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Practical assessment of this unit should be completed by observation of setting out and assembling two structural components. Other evidence could come from product evidence, witness testimony, a report or questioning.

Assessment should cover as a minimum:

- **Three** structural components from **three** of the **four** areas listed:
 - Main frame members
 - Brackets and frame support
 - Chassis components
 - Structural body panels
- **Three** non structural components
- **Six** different materials from:
 - Aluminium and its alloys
 - Carbon steel
 - Stainless steel
 - Timber and its composites
 - Trim materials
 - Safety glass
 - Natural and synthetic rubber
 - Thermoplastics
 - Thermosetting plastics
 - Reinforced plastics
 - Sealants
 - Adhesives
- Use of Pythagoras to check for 'square' and **seven** other different compliance checks from:
 - Visual
 - Tactile
 - Operational
 - Measurement
 - Cleanliness
 - Alignment
 - Aesthetic
 - Condition
 - Security
 - Aural.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to set out and assemble body components	1.1 Identify and agree with supervisor the relevant instructions, assembly drawings and any other specifications			
	1.2 Take the appropriate action to ensure that the specified components are available and fit for purpose			
	1.3 Using the appropriate methods and techniques and using the specified connectors and securing devices, assemble and secure the components in their correct positions including: <ul style="list-style-type: none"> • fasteners and retainers • adhesives • gaskets (e.g. indirect glazing) • lifting and supporting equipment • manual lifting and carrying • positioning and securing • setting out to include alignment and dimensional accuracy 			
	1.4 Identify and use the correct assembly sequence and include where appropriate using temporary fixing methods to allow other work to be carried out			

Learning outcomes	Assessment criteria			Evidence type	Portfolio reference	Date
	1.5	Identify and carry out relevant checks at critical/key stages of the assembly process				
	1.6	Within limits of own responsibility, take the appropriate action to deal with any unforeseen problems that occur during the assembly process				
	1.7	Discuss and agree with supervisor efficient alternatives where planned assembly activities cannot be achieved				
	1.8	Assess the work undertaken and ensure that the finished assembly meets the required specification				
	1.9	Take action to clean the work area and safely dispose of waste materials in accordance with safe working practices and organisational procedures				
	1.10	Accurately complete the relevant records of the repair work undertaken				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to set out and assemble body components	2.1 Explain the different assembly sequences that can be used, for example when repanelling a roof or body side and fitting main frame or structural members			
	2.2 Describe assembly techniques used in the following areas: <ul style="list-style-type: none"> • exterior claddings • interior claddings • frame and structural components • interior trim • exterior trim • body furniture and hardware • glazing and door units • parts 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	<p>2.3 Explain how efficient and effective assembly methods are selected taking into consideration:</p> <ul style="list-style-type: none"> • tolerance • quality • customer requirements • the type of loads acting on the components or parts • availability • maintenance requirements • the materials being joined • costs • vehicle downtime 			
	<p>2.4 Explain the methods used to check compliance with specification to include:</p> <ul style="list-style-type: none"> • checks for correct operation • accuracy • alignment and profile • security 			
	<p>2.5 Explain what methods can be used to support and protect large, heavy and fragile materials during the assembly process</p>			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.6 Describe the preparation methods required for the assembly methods used, for example substrate preparation when adhesive bonding and welding			
	2.7 Explain how to operate workshop equipment and tools and why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.8 Explain the importance of reporting the progress and completion of a repair which should include the provision of information on the parts used, follow up work and potential problems			
	2.9 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to.			
	2.10 Explain the system used for referring assembly tools and equipment outside of own responsibility for maintenance, including: <ul style="list-style-type: none"> • torque wrenches • electrically powered tools • riveting guns 			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the assembly activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If in the course of repair this specification requires changing or modifying, the learner will need to initiate an alternative route without compromising the quality of the assembly.

The assembly process may involve using more than two different joining techniques and the materials/components to be assembled may be non-standard, difficult to obtain or expensive. The type of work carried out would typically be assembly as part of a prototype build, repair, modification or conversion.

Unit 24: Assess Body Damage to Buses/Coaches

Unit reference number: T/502/6324

QCF level: 3

Credit value: 6

Guided learning hours: 37

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in assessing body damage to buses and coaches in accordance with organisational procedures. Learners will know about the information sources available to assist in the assessment of body damage and will be required to interpret instructions, assess the feasibility of repair and report their findings and recommended repair procedures to their supervisor.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Practical assessment of this unit should be completed by observation on at least one occasion of assessing damage to structural body components. Other evidence could come from product evidence, witness testimony, a report or questioning.

Assessment should cover as a minimum:

- Assessing one vehicle with at least **three** different damaged structural components
- Assessing one vehicle with at least **four** different damaged non-structural components
- At least **five** different materials from:
 - Aluminium and its alloys
 - Carbon steel
 - Stainless steel

- Timber and its composites
- Trim materials
- Safety glass
- Natural and synthetic rubber
- Thermoplastics
- Thermosetting plastics
- Reinforced plastics
- Sealants
- Adhesives
- At least **eight** principles of repair from:
 - Disassembly procedures
 - Material preparation
 - Assembly sequence
 - Fabrication and forming sequence
 - Rivet pitch
 - Edge distance
 - Grip range
 - Clamping and work holding
 - Relationship between material thickness and diameter/gauge of fastener
 - Relationship between diameter/gauge, head form, thread form and application
 - Stress relief in fabricated components
 - Controlling distortion
 - Methods used to strengthen joints
- Use of Pythagoras to check for 'square' and **six** other different compliance checks from:
 - Visual
 - Tactile
 - Operational
 - Measurement
 - Cleanliness
 - Alignment
 - Aesthetic
 - Condition
 - Security
 - Aural

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to assess body damage	1.1	Assess and establish the extent of the damage to the components and the effect on the surrounding bodywork				
		1.2	Identify the relevant specifications to be followed for the components to be repaired and ensure recommendations meet these				
		1.3	Assess the amount and level of wear or damage to the components and determine what techniques are required to bring the components back to the specified condition				
		1.4	Identify and recommend the most cost effective, efficient and safe way to complete the repair considering any conflicting requirements presented by the components, materials and techniques				
		1.5	Accurately report findings and conclusions on the feasibility and cost-effectiveness of repairs				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to assess body damage	2.1	Explain what the permitted tolerances, limits and standards are for the repair activity			
	2.2	Describe the methods used to check damaged and potentially damaged components for compliance to include: <ul style="list-style-type: none"> • visual and tactile checks • measurement, operational and performance checks 			
	2.3	Describe the factors which determine whether a damaged component should be repaired or replaced			
	2.4	Describe how to determine the feasibility of body repairs, including assessing the following areas: <ul style="list-style-type: none"> • exterior claddings • interior claddings • frame and structural components • interior trim • body furniture and hardware • glazing and door units 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 Explain how to use the information sources which are available to assist in determining the extent of the body damage to include: <ul style="list-style-type: none"> • workshop manuals • manufacturer's repair procedures • estimates • organisational procedures 			
	2.6 Describe how to compare the methods used for the repair of components to enable an informed assessment to be made, taking into account the constraints which apply to include: <ul style="list-style-type: none"> • time • availability of materials and equipment • properties and characteristics of the materials used 			
	2.7 Explain the factors which influence the repair methods and techniques used, to include: <ul style="list-style-type: none"> • legislation • quality standards • manufacturers' warranties 			
	2.8 Describe the methods and techniques used to repair body components			
	2.9 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to.			

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the assembly activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If in the course of the assessment this specification requires changing or modifying, it is expected that an alternative route will be taken without compromising the quality of the assessment. Applying safe working practices will be a key issue throughout.

A repair can be defined in this unit as one that would involve using more than two repair techniques including as appropriate:

- Fabrications
- Forming
- Welding
- Adhesive bonding
- Removal and replacement
- Painting.

Assessment conclusions should meet organisational, manufacturers' and regulatory expectations.

Unit 25: Repair Damage to Bus/Coach Body Components

Unit reference number: A/502/6325

QCF level: 3

Credit value: 8

Guided learning hours: 57

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in repairing damage to bus/coach body components in accordance with approved procedures. Learners will be required to carry out a range of previously identified repair activities that on completion meet organisational and regulatory standards.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Practical assessment of this unit should be completed by observation on at least one occasion of repairing damage to structural body components. Other evidence could come from product evidence, witness testimony, a report or questioning.

Assessment should cover as a minimum:

- Repairing **one** vehicle with at least **three** different damaged structural components
- Repairing **one** vehicle with at least **four** different damaged non structural components

Repairs should cover at least **five** different materials from:

- Aluminium and its alloys
- Carbon steel
- Stainless steel

- Timber and its composites
- Trim materials
- Safety glass
- Natural and synthetic rubber
- Thermoplastics
- Thermosetting plastics
- Reinforced plastics
- Sealants
- Adhesives

Repairs should cover at least **eight** principles of repair from:

- Disassembly procedures
- Material preparation
- Assembly sequence
- Fabrication and forming sequence
- Rivet pitch
- Edge distance
- Grip range
- Clamping and work holding
- Relationship between material thickness and diameter/gauge of fastener
- Relationship between diameter/gauge, head form, thread form and application
- Stress relief in fabricated components
- Controlling distortion
- Methods used to strengthen joints

Repairs should cover the use of Pythagoras to check for 'square' and **six** other different compliance checks from:

- Visual
- Tactile
- Operational
- Measurement
- Cleanliness
- Alignment
- Aesthetic
- Condition
- Security
- Aural

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to repair damage to body components	1.1	Interpret the relevant specifications for the component to be repaired				
		1.2	Take the appropriate action to prepare the component for repair				
		1.3	Within the agreed timescale carry out the repairs using the approved materials, components, methods and procedures				
		1.4	Undertake relevant checks at critical and key stages of the repair process				
		1.5	Take action to deal with any unforeseen problems that occur during the repair process within limits of own authority				
		1.6	Discuss and agree with supervisor efficient alternatives where planned repair activities cannot be achieved				
		1.7	Assess the work undertaken and ensure that the repaired component meets the specified operating conditions				
		1.8	Take action to clean the work area and safely dispose of waste materials in accordance with safe working practices and organisational procedures				
		1.9	Accurately complete the relevant records of the repair work undertaken				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to repair damage to body components	2.1	Explain the different types of restraints which can influence the repair method chosen			
	2.2	Explain the different body repair activities including techniques involving repair by removal and replacement, fabrication and forming			
	2.3	Describe how to repair the following areas: <ul style="list-style-type: none"> • exterior claddings • interior claddings • frame and structural components • interior trim • exterior trim • body furniture and hardware • glazing and door units 			
	2.4	Describe the best methods for a body repair activity, considering the type of construction, materials used, anticipated loading, warranty and legislation			
	2.5	Explain how to carry out compliance checks of partially and fully completed repaired body components			
	2.6	Explain the different tools and equipment that is required to complete body repairs to interior and exterior body components			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.7 Explain how to operate workshop equipment and tools and why it is important to leave workshop equipment in a clean and workable condition after use			
	2.8 Explain what the control procedures are for reporting defects on workshop equipment and tools			
	2.9 Describe how the different types of repair activities are reported and presented to ensure clarity and accuracy of detail			
	2.10 Explain the importance of reporting the progress and completion of a repair which should include the provision of information on the parts used, follow up work and potential problems			
	2.11 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to.			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the repair activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of repair this specification requires changing or modifying, the learner will need to initiate an alternative route without compromising the quality of the repair.

A repair is defined in this unit as one that may involve using more than two repair techniques and may involve the use of non-standard, fragile, difficult to obtain or expensive materials. The methods and procedures used may include:

- Fabrication
- Forming
- Welding
- Adhesive bonding
- Removal and replacement.

Unit 26: Install Ancillary Systems and Components in Buses/Coaches

Unit reference number: R/502/6329

QCF level: 3

Credit value: 7

Guided learning hours: 49

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in installing ancillary systems and components on buses/coaches in accordance with organisational procedures. Learners will be required to understand the electrical and electronic knowledge relating to the methods employed to plan and prepare the installation to the required specification.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations.

All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of installing and configuring **three of the following systems**:

- Safety and security
- On-board communication equipment
- Global Positioning System (GPS)
- Passenger comfort and convenience
- Ticketing systems
- Telematics.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to install ancillary systems and components	1.1 Identify the relevant ampage and installation instruction for the unit/component to be installed			
	1.2 Within the agreed timescale and using the correct methods and procedures carry out the installation			
	1.3 Assess the installed component ensuring that it meets the specified operating conditions			
	1.4 Take action to ensure that tools and equipment used for the installation are in good working order, used correctly and properly stored after use according to manufacturer's guidelines and procedures including: <ul style="list-style-type: none"> • hand tools • general workshop equipment • special service tools • specialised manufacturers' equipment • tooling and joining equipment 			
	1.5 Accurately complete the relevant records of all installation work carried out			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to install ancillary systems and components	2.1	Explain the different types of constraints which could influence the installation plan			
	2.2	Explain the installation procedures for a range of ancillary units and components including: <ul style="list-style-type: none"> • safety and security • on-board communications • global positioning • passenger comfort and convenience • ticketing systems • telematics 			
	2.3	Describe the different methods, techniques and procedures for installing ancillary units to include how to check and commission a completed installation to ensure that it meets company and regulatory standards			
	2.4	Explain how to operate workshop equipment and tools used to install ancillary units and why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.5	Explain how different types of installation activities are reported and presented to ensure clarity and accuracy of detail			
	2.6	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the installation activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the work activity this specification requires changing or modifying, it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the procedure.

The range of ancillary units and components to be installed could include:

- Security cameras
- Passenger facilities for safety, comfort and convenience
- Radio control
- Intelligent bus systems
- GPS (Global Positioning System)
- Digital recording systems
- Audio/visual equipment
- Ticketing machines
- Route information systems.

Unit 27: Diagnose Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches

Unit reference number: J/502/6330

QCF level: 3

Credit value: 13

Guided learning hours: 76

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in diagnosing mechanical/electrical faults in ancillary systems and components on buses/coaches in accordance with approved procedures. Learners will be required to interpret instructions, select the correct diagnostic procedure and tools, diagnose the fault, and report findings and recommended repair procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations. All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of diagnosing mechanical/electrical faults in **three of the following systems**:

- Safety and security
- On-board communication equipment
- Global Positioning System (GPS)
- Passenger comfort and convenience
- Ticketing systems
- Telematics.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to diagnose faults in ancillary systems and components	1.1	Identify the relevant information on the systems and problems associated with the products or assets				
		1.2	Take action to investigate and establish the most likely causes of the faults				
		1.3	Within the agreed timescales complete the fault diagnosis and inform the appropriate people when this cannot be achieved				
		1.4	Assess what implications there could be of the fault for other work and for safety considerations				
		1.5	Using the evidence gained draw valid conclusions about the nature and probable cause of the fault				
		1.6	Accurately record details on the extent and location of the faults in an appropriate format				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to diagnose faults in ancillary systems and components	2.1	Describe the different types of diagnostic aids available to diagnose a range of faults based on accurate interpretation of work instructions including: <ul style="list-style-type: none"> • technical data • test procedures • repair procedures • troubleshooting charts and tables • installation procedures 			
	2.2	Explain the possible faults in ancillary systems and their relationship to the most logical method of fault diagnosis			
	2.3	Explain the preparation procedures required to ensure accuracy of the diagnosis including: <ul style="list-style-type: none"> • checking the accuracy of test instruments • calibration • operating temperature • component or system access 			
	2.4	Describe the diagnostic methods and techniques that can be employed to diagnose faults to include the use of systematic testing using visual, aural, measurement based readings and simulations			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 Explain how to analyse and determine diagnostic results to include understanding the implications of the fault for other work and safety implications			
	2.6 Explain how to operate and care for workshop test equipment used to diagnose faults and why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.7 Explain what risk assessment procedures have to be adopted when undertaking a diagnostic task			
	2.8 Explain why it is important to complete fault diagnosis within the agreed time and to report accurately the diagnostic conclusions including: <ul style="list-style-type: none"> • safety implications • potential follow-up work • purchase requests • time and cost implications • good customer service 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.9 Explain the way different forms of diagnostic information are reported and presented to ensure clarity of detail and understanding including the following methods: <ul style="list-style-type: none"> • comparative results • written reports • oral reports • visual evidence • printouts • faults cleared • tactile 			
	2.10 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the complex diagnostic activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the diagnosis this specification requires changing or modifying, it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the diagnosis.

A diagnosis can be defined as one that may involve interaction between two or more vehicle systems and components. The range of systems could include:

- Security cameras/CCTV
- Digital recording systems
- Passenger facilities (safety, comfort and convenience)
- Audio/visual equipment
- Two-way radio
- Air conditioning units
- Intelligent bus systems
- Ticketing machines and cash vaults
- Route information systems as appropriate
- Global Positioning System (GPS).

Unit 28: Repair Mechanical/Electrical Faults in Ancillary Systems and Components in Buses/Coaches

Unit reference number: L/502/6331

QCF level: 3

Credit value: 11

Guided learning hours: 80

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in repairing mechanical/electrical faults in ancillary systems and components on buses/coaches in accordance with organisational procedures. Learners will be required to carry out a range of previously identified repair activities that on completion meet organisational, manufacturers' and regulatory standards.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Realistic workplace simulation may be used to assess areas that cover non-routine situations. All simulations using specially constructed environments need to be approved by the awarding organisation prior to use. Setting up or devising assessment situations does not need to be approved by the awarding organisation if it takes place in the normal workplace environment.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of repairing mechanical/electrical faults in **three of the following systems**:

- Safety and security
- On-board communication equipment
- Global Positioning System (GPS)
- Passenger comfort and convenience
- Ticketing systems
- Telematics.

Be observed by an approved assessor on at least **one** occasion.

Simulation **is** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date	
1 Be able to repair faults in ancillary systems and components	1.1 Perform duties working safely at all times complying with health and safety and other relevant regulations and guidelines				
	1.2 Obtain the relevant specifications to follow for the component to be repaired				
	1.3 Take action to prepare the component ready for repair				
	1.4 Within the agreed timescale carry out the repairs using the approved materials, components, methods and procedures including: <ul style="list-style-type: none"> • dismantling • assessment • replacement • refurbishment • reassembly • adjustments • testing 				
	1.5 Undertake an assessment of the repaired component to ensure that it meets the specified operating conditions				
	1.6 Accurately record details on the extent and location of the faults in an appropriate format				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to repair faults in ancillary systems and components	2.1 Explain the different types of constraints which could influence the repair method chosen			
	2.2 Explain the layout and operation of ancillary systems and their associated components			
	2.3 Describe the different methods undertaken for repair in the main bus/coach systems			
	2.4 Explain what checks have to be undertaken on a completed repair to ensure it meets organisational and regulatory standards			
	2.5 Explain how to operate and care for workshop test equipment used to diagnose faults and why it is important to leave workshop equipment in a clean and workable condition after use and what the control procedures are for reporting defects			
	2.6 Explain how different types of repair activities are reported and presented to ensure clarity and accuracy of detail			
	2.7 Explain why it is important to report the progress and completion of the repair including: <ul style="list-style-type: none"> • the provision of information on the parts used • follow up work • potential problems 			
	2.8 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements for the complex diagnostic activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the diagnosis this specification requires changing or modifying, it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the diagnosis.

Learners will use a range of tools and equipment, including as appropriate:

- Manufacturers' specialised equipment
- Hand tools
- General workshop equipment
- Removers and replacers
- Joining equipment
- Electrical and electronic testers
- Measuring equipment.

A repair can be defined as one which may involve interaction between two or more vehicle systems and components. The range of systems could include:

- Security cameras/CCTV
- Digital recording systems
- Passenger facilities (safety, comfort and convenience)
- Audio/visual equipment
- Two-way radio
- Intelligent bus systems
- Ticketing machines and cash vaults
- Route information systems as appropriate
- Global Positioning System (GPS).

Unit 29: Establish Customer Technical Requirements for Buses/Coaches

Unit reference number: R/502/6332

QCF level: 3

Credit value: 4

Guided learning hours: 14

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in establishing customer technical requirements for buses/coaches. Learners will be required to elicit information from a variety of customers to gauge or diagnose particular technical problems and queries. Taking the information from customers, the learner will clarify instructions and concerns and establish the technical requirements to progress the work.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to establish customer technical requirements	1.1	Perform duties working safely at all times, complying with health and safety and other relevant regulations and guidelines				
		1.2	Establish the most effective communication method to gain customer confidence and cooperation				
		1.3	Take action to communicate effectively and clearly with customers who have: <ul style="list-style-type: none"> • technical expertise • little or no technical expertise 				
		1.4	Deal with customers for whom English is not their first language and obtain the required support to do this				
		1.5	Find out customer requirements as appropriate in the following situations: <ul style="list-style-type: none"> • routine maintenance and inspection • bus/coach off the road • bus/coach breakdown • bus/coach system fault 				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	1.6	Offer advice to the customer and recommend the most appropriate repair action			
	1.7	Take the appropriate action to ensure that the customer is fully informed and is satisfied with the outcome of the service that has been provided			
	1.8	Accurately report and record the results of the customer's technical requirements in the relevant way including: <ul style="list-style-type: none"> • road test reports • diagnostic reports • repair orders • vehicle records 			
	1.9	Accurately record the details of the recommended repair action in the appropriate format			
	1.10	Within own limits of control deal promptly and effectively with problems and report those that cannot be solved			

Learning outcomes	Assessment criteria			Evidence type	Portfolio reference	Date
2 Know how to establish customer technical requirements	2.1	Explain the different personal skills needed to communicate with customers effectively				
	2.2	Explain the different courses of action available to solve specific technical problems including: <ul style="list-style-type: none"> • driver questioning • vehicle inspection • diagnostic tools • electronically stored information • fault-finding charts • road and brake testing 				
	2.3	Describe the different methods which can be used to communicate the results of investigations carried out in a clear and informative way				
	2.4	Explain how to correctly use different communication channels to inform customers, including the use of the phone, e-mail and fax, and what approaches can be used to deal with warranty and insurance claims				
	2.5	Explain the best way to utilise customer service skills to ensure that the customer's expectations are fully met to include: <ul style="list-style-type: none"> • advising on and progressing work • handovers and follow ups 				

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.6 Explain the extent of own responsibility and to whom problems that cannot be solved should be reported			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements when in contact with internal and external customers. The learner should maintain a high level of technical knowledge including relevant legal requirements and be able to talk with authority on a range of complex vehicle issues. The learner is expected to work with minimum supervision. The learner is expected to accurately interpret and clarify customer technical requirements and communicate this information clearly to enable repair and/or maintenance activities to proceed.

The types of customers are those that directly influence the nature of the work, for example drivers and inspectors. The learner must be able to elicit information from a variety of customers to gauge or diagnose particular problems and queries.

Unit 30: Improve the Service Provided to Customers of Buses/Coaches

Unit reference number: Y/502/6333

QCF level: 2

Credit value: 5

Guided learning hours: 36

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in monitoring, appraising and improving the service provided to customers of buses/coaches. Learners will be required to identify from investigations and research where improvements to the service provided can be made and promote those benefits both personally and within the team environment.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to improve the service provided to customers	1.1 Assess comments and customer feedback and actively use this data to ensure reliable quality of service is being provided to customers			
	1.2 Using a range of investigative and research tools determine the quality of service provided including: <ul style="list-style-type: none"> • direct comments • customer satisfaction surveys • quality audits • historical analysis • personal initiatives 			
	1.3 Analyse results of data to gauge how quality of service provision is affected by vehicle downtime due to: <ul style="list-style-type: none"> • planned vehicle maintenance activities • unplanned vehicle maintenance activities • standard repair/maintenance time being exceeded • warranty work • availability of parts and materials • non-conformity of repairs and maintenance activities • temporary unplanned external factors 			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	1.4	Using the results of the data collected to gauge how quality of service provision is affected by vehicle downtime, improve service standards by setting targets of achievement			
	1.5	Take action to use current procedures to establish improvements to customer service			
	1.6	Using the data collected from customer surveys and feedback, recommend service reliability improvements including: <ul style="list-style-type: none"> • procedural improvements • improving diagnostic skills • enhancing professional knowledge • customer interfacing skills • complaint handling • parts and materials availability • quality control measures • work environment 			
	1.7	Within own area of responsibility initiate improvements in performance			
	1.8	Communicate effectively to others about changes required to improve reliability of services provided to customers, ensuring that proposals are practical			
	1.9	Within limits of own responsibility improve service to companies			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.10 Monitor customer service responses in order to maintain service reliability improvements including: <ul style="list-style-type: none"> • customer and company feedback • customer satisfaction index • customer retention • bus/coach standards maintained 			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to improve the service provided to customers	2.1	Explain the importance of communications to include: <ul style="list-style-type: none"> • the benefits of surveys and audits to gauge customer opinion and service reliability • the practical measures required to carry out surveys and audits • the transportation of data into charts, table and graphs • the information available through study of completed charts, tables and graphs • the importance of internal communications to share technical expertise and experience 			
	2.2	Explain how to analyse data to include: <ul style="list-style-type: none"> • analysing data from charts, tables and graphs • defect reports • parts and materials costs • vehicle downtime costs 			
	2.3	Explain how a course of action can be developed from the analysis of data			
	2.4	Explain how to develop ideas from formal and informal discussions with colleagues and team members			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.5 Explain how the merits and costs of proposed action is determined to improve service to customers including how to present action plans and reports to show: <ul style="list-style-type: none"> • the particular benefits of the proposal • cost savings in terms of efficiency gains e.g. hours saved • direct and indirect costs • vehicle reliability and utilisation • customer satisfaction and retention 			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures and statutory requirements when in contact with internal and external customers. Learners must be able to work within the agreed boundaries. If in the course of the work activity these require changing or modifying, it is expected that the learner would use their knowledge, skills and experience to initiate an alternative route without compromising the quality of service provided.

The learner's knowledge and understanding of engineering activities and organisational procedures will enable them to analyse the products and services provided to customers in addition to providing an informed approach to investigating the nature of improvements and remedies. Learners must understand how to cost feasible, realistic and effective solutions to improve services, ensuring that any proposed solutions comply with current legislation and company standards and specifications. Applying relevant working practices will be a key issue throughout.

Customers are identified as colleagues, lines of report, drivers and passengers who use passenger transport services.

Unit 31: Carry Out Roadside Recovery of Buses/Coaches

Unit reference number: D/502/6334

QCF level: 3

Credit value: 8

Guided learning hours: 31

Unit aim

The aim of this unit is for learners to demonstrate occupational competency to safely remove and transport a bus/coach from the roadside or vicinity.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Evidence requirements

Produce evidence of removing and transporting buses/coaches using two of the following methods:

- Flat tow
- Suspend tow and total lift fixed tow
- Front lift
- Tow pole/straight bar
- 'A' frame recovery equipment or towing 'Dolly'.

Be observed by an approved assessor on at least **one** occasion.

Simulation is **not** allowed for this unit.

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to carry out roadside recovery of buses/coaches	1.1 Using a range of communication methods establish the customers' circumstances in relation to the bus/coach situation including: <ul style="list-style-type: none"> oral questioning written reports telephone or radio control 			
	1.2 Take action to prepare resources based on a recovery action plan including: <ul style="list-style-type: none"> personal protective equipment communication equipment rigid draw bar under lift bar spectacle winch crane 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.3 Undertake an assessment of the immediate recovery situation and make appropriate plans to secure, protect and clear the site to include the following situations: <ul style="list-style-type: none"> • bus/coach position upright • bus/coach position angled onto side • bus/coach damaged • spillages • hazards • traffic situation 			
	1.4 Take the appropriate action to work with others, particularly the police and emergency services, to maintain safety at the roadside			
	1.5 Take action to protect and warn all persons who may be affected by work activities			
	1.6 Take the appropriate action to ensure that the roadside recovery operation is carried out in a planned and controlled way in the following environments: <ul style="list-style-type: none"> • rural • urban • single carriageway • dual carriageway • motorway 			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	1.7			
	1.8			
	1.9			
	1.10			

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know how to carry out roadside recovery of buses/coaches	2.1	Describe the equipment and facilities required for safe roadside working			
	2.2	Explain how a roadside recovery vehicle is prepared and used to include the following vehicle checks: <ul style="list-style-type: none"> • complies with legal requirements • suitability for the incident involved • suitability for the type, condition and weight of the broken down bus/coach 			
	2.3	Describe the personal qualities required for roadside working			
	2.4	Explain how to use and maintain effective communication techniques before, during and after the roadside activity including: <ul style="list-style-type: none"> • questioning techniques • using telephone • using two-way radio • giving and receiving instructions • offering reassurance 			
	2.5	Explain why it is important to work with the police and the emergency services to maintain road safety and to minimise traffic disruption			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.6	Explain the process for clarifying and assessing the details of the roadside situation including: <ul style="list-style-type: none"> • roadside position • vehicle symptoms and status • potential hazards/substances 		
	2.7	Explain how to secure the roadside situation in a safe and controlled manner		
	2.8	Explain how to calculate the weight, mass and forces that are required in any lifting or winching procedure		
	2.9	Explain how to constitute safe lifting, supporting and transporting a broken down bus/coach		
	2.10	Describe the essential roadside skills that are required for safe bus/coach recovery		
	2.11	Explain what documentation and reports are required to record the recovery operation		
	2.12	Explain the extent of own responsibility and to whom problems that cannot be solved should be reported to.		

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners must comply with organisational policy and procedures. Learners will be required to work to a specification agreed with their supervisor. If in the course of the roadside recovery this specification requires changing or modifying, it is expected that the learner would use knowledge, skills and experience to initiate an alternative plan.

Learners will be required to conduct the roadside recovery operations to organisational, approved codes of practice and legal requirements. Learners may have to work with police and emergency services to ensure that other road users are informed and protected from work activities.

The work involved at the recovery site is potentially dangerous and the responsibility for health and safety will extend beyond the perimeter of the normal place of work.

The learner will need to prepare in advance the necessary recovery vehicle, equipment, tooling and safety items that will be needed to carry out a successful recovery operation and report any deficiencies to the relevant authority.

Unit 32: Plan and Organise Work of Self and Others

Unit reference number: T/502/6114

QCF level: 3

Credit value: 5

Guided learning hours: 40

Unit aim

The aim of this unit is for learners to demonstrate occupational competency to plan and organise work activities of self and others in accordance with organisational procedures.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to plan and organise work of self and others	1.1	Identify and plan work methods and activities which make optimum use of resources and record the details accurately				
		1.2	Effectively prioritise work activities to achieve objectives cost-effectively and efficiently				
		1.3	Take action to agree and record individual roles and group responsibilities				
		1.4	Give appropriate advice and guidance on technical matters as required				
		1.5	Look to others for advice to help resolve problems				
		1.6	Take action to show how changes to plans will be accommodated				
		1.7	Make a record of agreed work plans and effectively communicate the plans to the appropriate people				
		1.8	Within limits of own authority deal with any unforeseen problems				
		1.9	Discuss and agree with supervisor effective and efficient alternatives where planned activities cannot be achieved				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
2 Know and understand how to plan and organise work of self and others	2.1	Explain the different planning methods and techniques used including contingency planning and priority setting			
	2.2	Explain the technical feasibility of work methods used and the problems that can occur during planned maintenance activities and how these can be overcome			
	2.3	Explain the organisational information and documentation systems used			
	2.4	Explain the organisational monitoring and evaluation systems used			
	2.5	Explain the different negotiation techniques that can be used when allocating work			
	2.6	Explain the different communication methods and procedures that can be used when planning and organising work			
	2.7	Explain within limits of own responsibility and who problems that cannot be solved should be reported to			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners will be required to take responsibility for specific pieces of work and provide technical leadership where appropriate within the plan. Learners will understand planning methods and techniques and their application, and will know about the organisational structure, systems and procedures in sufficient depth to carry out the activities to the required specification. Applying safe working practices will be a key issue throughout.

Learners will work to an overall plan agreed with their supervisor. If, in the course of executing the plan it requires changing or modifying, it is expected that the learner would use their knowledge, skills and experience to initiate an alternative plan without compromising the quality of the outcome.

The learner must be able to plan the organisation of work in the following areas as appropriate:

- Shift handover of current work
- Modification
- Repair
- Maintenance
- Installation
- Calibration.

Learners must be able to plan work activities for a defined task that requires completion through two or more related actions.

Unit 33: Support Learners by Coaching in the Workplace

Unit reference number: L/502/6118

QCF level: 3

Credit value: 4

Guided learning hours: 26

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in supporting learners by coaching in the workplace. It covers the skills and competences required to provide the learners information and guidance on their work role. In particular it covers the provision of job-related coaching.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony and professional discussion are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to support learners by coaching in the workplace	1.1	Take action to identify learners' needs and the resources and facilities required, including IT-based resources, to undertake the coaching role to help them meet these needs				
		1.2	Identify what sources of information and support there are to help perform the role of coach				
		1.3	Take action to agree how progress and any problems will be reviewed during the coaching process				
		1.4	Within limits of own responsibility plan and maintain the coaching process				

Learning outcomes	Assessment criteria			Evidence type	Portfolio reference	Date
2 Know how to support learners by coaching in the workplace	2.1	Describe the role of a coach				
	2.2	Explain the coaching process, in particular how to: <ul style="list-style-type: none"> • provide appropriate coaching activities for particular situations including IT based programmes • provide opportunities in the workplace for learners to develop skills and increase confidence • plan and monitor coaching activity • support structures available to learners 				
	2.3	Explain the different techniques of coaching, including how to: <ul style="list-style-type: none"> • set goals and targets • analyse tasks • develop a plan • instruct by sharing knowledge and skills • communicate to learners in the most effective way, for example face-to-face, small groups • obtain and give feedback • analyse learners' strengths and weaknesses and help them to correct defects 				
	2.4	Describe the personal attributes of effective coaches				
	2.5	Explain the benefits that can be gained from coaching				

Learning outcomes	Assessment criteria		Evidence type	Portfolio reference	Date
	2.6	Explain the factors that can inhibit learning			
	2.7	Describe the different problems that can be experienced by all new entrants			
	2.8	Explain the extent of own responsibility and who problems that cannot be solved should be reported to			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners should be able to provide coaching activity to a range of individuals to include, as appropriate:

- New starters
- Individuals unfamiliar with a particular technical matter
- Individuals undertaking training to increase workplace skills
- Individuals experiencing difficulty in specific technical aspects of their work.

Learners should be able to communicate in the following ways:

- Face-to-face verbal communication
- Small group discussion
- Presentation on technical issues to small groups
- Written communication
- IT-based coaching programmes.

Examples of problems may include those from overseas needing for example language skills, as well as experienced staff requiring further development in workplace skills.

Unit 34: Support Learners by Mentoring in the Workplace

Unit reference number: R/502/6119

QCF level: 3

Credit value: 3

Guided learning hours: 20

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in supporting learners by mentoring in the workplace. It covers the skills and competences required to provide the learners information and guidance on their work roles and expectations together with giving them encouragement and support to stay motivated. In particular it covers planning the mentoring process, setting up and maintaining the mentoring relationship, and giving mentoring support.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony and professional discussion are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
1	Be able to support learners by mentoring in the workplace	1.1	Take action to identify learners' needs and the resources and facilities required to undertake the mentoring role to help them meet these needs				
		1.2	Identify what sources of information and support there are to help perform the role of mentor				
		1.3	Take action to agree how progress and any problems will be reviewed during the mentoring process				
		1.4	Within limits of own responsibility plan and maintain the mentoring process				

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
2	Know and understand how to support learners by mentoring in the workplace	2.1	Explain relevant health and safety legislation, regulations and working procedures relevant to the workplace				
		2.2	Describe the role of a mentor				
		2.3	Explain the mentoring procedures to include rules on confidentiality and their role in the training policy				
		2.4	Explain the mentoring process, including how to: <ul style="list-style-type: none"> • identify the benefits of a mentoring programme • provide opportunities in the workplace for learners to reflect on their performance, develop skills and increase confidence • plan and monitor mentoring activity 				
		2.5	Describe the personal attributes of effective mentors				
		2.6	Describe the different problems that can be experienced by all new entrants				
		2.7	Explain the extent of own responsibility and who problems that cannot be solved should be reported to				

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)

Additional guidance

Learners should be able to provide mentoring activity to a range of individuals to include, as appropriate:

- New starters
- Individuals unfamiliar with a particular technical matter
- Individuals undertaking training to increase workplace skills
- Individuals experiencing difficulty in specific technical aspects of their work
- Trainees and others on development programmes.

Learners should be able to communicate in the following ways:

- Face-to-face verbal communication
- Written communication.

Mentoring supports and encourages people to reflect on their performance and manage their own learning in order that they may maximise their potential, develop their skills and improve their performance.

Examples of problems may include those from overseas needing language skills, as well as experienced staff requiring further development in workplace skills.

Unit 35: Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment

Unit reference number: K/502/6336

QCF level: 3

Credit value: 6

Guided learning hours: 30

Unit aim

The aim of this unit is for learners to demonstrate occupational competency in evaluating and developing own knowledge, understanding and skills.

Unit assessment requirements

This unit should be assessed predominately in the workplace. Observation, witness testimony, questioning, professional discussion, and written and product evidence are all sources of evidence that can be used.

Simulation is not permitted.

As this unit is in a NVQ qualification linked to the GoSkills (People 1st) National Occupational Standards the overarching assessment strategy must be followed. This can be found in *Annexe A* or accessed via the People 1st website: www.people1st.co.uk

Learning outcomes and assessment criteria

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Be able to evaluate own performance	1.1 Identify what is required in the engineering and maintenance roles including: <ul style="list-style-type: none"> • knowledge, understanding and skills • standards and competence frameworks • organisational, legal and licensing requirements 			
	1.2 Evaluate own performance against the identified role and identify any gaps			
	1.3 Seek and analyse feedback from others on personal performance			
	1.4 Create and maintain a reflective log and use this to evaluate the outcome of own performance			
	1.5 Identify any gaps in work skills, knowledge and understanding and any training needs required to develop skills and knowledge			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
2 Know how to evaluate own performance	2.1 Explain the knowledge, understanding and skills needed to carry out role including: <ul style="list-style-type: none"> • training skills • communication skills • knowledge of regulations • understanding of organisation and how it operates 			
	2.2 List and describe the relevant standards of own job role			
	2.3 Describe organisational and legal requirements relevant to own job role			
	2.4 Explain what procedures are in place to evaluate own performance			
	2.5 Explain how to obtain feedback on own performance including feedback from learners and other professionals			
	2.6 Describe the use of a reflective log			
	2.7 Explain how gaps in skills and knowledge can affect own performance and that of the organisation			
	2.8 Explain the different types of development opportunities that are available within the organisation			

Learning outcomes		Assessment criteria			Evidence type	Portfolio reference	Date
3	Be able to plan for continuous professional development	3.1	Set own objectives for knowledge, understanding and skills				
		3.2	Draw up a personal development plan for developing knowledge, understanding and skills to meet own objectives				
		3.3	Change plan as industry changes occur				
		3.4	Identify learning opportunities				
		3.5	Establish a system for recording training and development activities				
		3.6	Discuss and agree how to get relevant development and feedback				
4	Know and understand how to plan for continuous professional development	4.1	Explain how to set realistic objectives and priorities				
		4.2	Describe the types of development opportunities that are available in the engineering and maintenance environment				
		4.3	Explain the sources of information on the industry and on other professional initiatives				
		4.4	Explain how to evaluate potential development opportunities				
		4.5	Explain how to evaluate the benefit of training and other forms of development				
		4.6	Explain how to monitor own progress against the development plan				
		4.7	Explain the relevant organisational and legal requirements				

Learner name: _____
Learner signature: _____
Assessor signature: _____
Internal verifier signature: _____
(if sampled)

Date: _____
Date: _____
Date: _____
Date: _____

Additional guidance

In identifying their development needs, learners will have to balance their needs with those of the organisation and comply with any organisational, legal and licensing requirements.

12 Further information and useful publications

To get in touch with us visit our 'Contact us' pages:

- Pearson Edexcel: www.edexcel.com/contactus
- Pearson BTEC: www.btec.co.uk/contactus
- Pearson Work Based Learning: www.pearsonwbl.com/contactus
- Books, software and online resources for UK schools and colleges: www.pearsonschools.co.uk/contactus

Other sources of information and publications available on our website include:

- *Pearson Equality Policy*
- *Pearson Work Based Learning Centre Guide*
- *Edexcel UK Information Manual – Chapter 9* (updated annually)
- *Recognition of Prior Learning Policy*.

Further information and publications on the delivery and quality assurance of NVQ/Competence-based qualifications is available on our website, at www.pearsonwbl.edexcel.com/NVQ-competence-based.

Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please go to www.edexcel.com/resources/publications.

13 Professional development and training

Pearson supports UK and international customers with training related to our qualifications. This support is available through a choice of training options and sector events, or through customised training at your centre.

The support we offer focuses on a range of issues, including:

- planning for the delivery of a new programme
- planning for assessment
- building your team and teamwork skills
- developing learner-centred learning and teaching approaches
- building functional skills into your programme
- building in effective and efficient quality assurance systems.

For more information on training options and upcoming events, please visit our website, www.pearsonwbl.edexcel.com/training-events. You can request customised training by completing the enquiry form on our website and we will contact you to discuss your training needs.

Support services

Face-to-face support: our team of Regional Quality Managers, based around the country, are responsible for providing quality assurance support and guidance to anyone managing and delivering NVQs/Competence-based qualifications. The Regional Quality Managers can support you at all stages of the standard verification process as well as in finding resolutions of actions and recommendations as required. A UK map showing the Regional Quality Managers' contact details can be found at www.btec.co.uk/support.

Online support: find the answers to your questions by browsing over 100 FAQs on our website or by submitting a query using our Work Based Learning Ask the Expert Service. You can search the database of commonly asked questions relating to all aspects of our qualifications in the work-based learning market. If you are unable to find the information you need, send us your query and our qualification or administrative experts will get back to you. The Ask the Expert service is available at www.pearsonwbl.edexcel.com/Our-support.

Online forum

Pearson Work Based Learning Communities is an online forum where employers, further education colleges and workplace training providers are able to seek advice and clarification about any aspect of our qualifications and services, as well as share knowledge and information with others. The forums are sector specific and cover Business Administration, Customer Service, Health and Social Care, Hospitality and Catering and Retail. The online forum is available at www.pearsonwbl.edexcel.com/Our-support.

14 Contact us

We have a dedicated Account Support team, based throughout the UK, to give you more personalised support and advice. To contact your Account Specialist you can use any of the following methods:

Email: wblcustomerservices@pearson.com

Telephone: 0844 576 0045

If you are new to Pearson and would like to become an approved centre, please contact us at:

Email: wbl@pearson.com

Telephone: 0844 576 0045

Complaints and feedback

We are working hard to provide you with excellent service. However, if any element of our service falls below your expectations, we want to understand why, so that we can prevent it from happening again. We will do all that we can to put things right.

If you would like to register a complaint with us, please email wblcomplaints@pearson.com.

We will formally acknowledge your complaint within two working days of receipt and provide a full response within seven working days.



Assessment Strategy

NVQ/QCF Qualifications

in Bus and Coach Engineering and

Maintenance

based on

GoSkills

National Occupational Standards

Final Version November 10

1. Introduction

GoSkills, as the Sector Skills Council for the Passenger Transport Sector, is responsible for developing an assessment strategy for the qualifications based on its national occupational standards. This assessment strategy includes the Additional Requirement for Qualifications that use the title NVQ within the QCF which appears as annex 2.

This responsibility means that GoSkills must:

- a) Recommend how external quality control of assessment will be achieved;
- b) Define which aspects of the national occupational standards must always be assessed through performance in the workplace;
- c) Define the extent to which simulated working conditions may be used to assess competence and any characteristics that simulations should have, including definitions (where appropriate) of what would constitute a 'realistic working environment' (RWE) for the qualifications concerned;
- d) Define the occupational expertise requirements for assessors and verifiers in consultation with industry and in agreement with awarding organisations.

This Assessment Strategy for the following NVQ QCF qualifications in Bus and Coach Maintenance listed below:

Level 2 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechanical)

Level 2 NVQ Diploma in Bus and Coach Engineering and Maintenance (Electrical)

Level 2 NVQ Diploma in Bus and Coach Engineering and Maintenance (Body)

Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mechanical)

Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Electrical)

Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Body)

Level 3 NVQ Diploma in Bus and Coach Engineering and Maintenance (Mech/Elec)

addresses the areas indicated above.

2. Review and Evaluation of this Strategy

GoSkills and awarding organisations will continually monitor the effectiveness of this strategy. It will be reviewed annually and revised where necessary every two years. GoSkills will therefore establish arrangements for awarding organisations to provide feedback which will assist in the evaluation and review of this strategy. This feedback will also be used to evaluate assessment and verification practices, identify and promulgate good practice and inform any improvements to be made to this strategy.

Awarding organisations and their approved centres will be encouraged to submit comments and suggestions for improvements. This will be through formal dialogue between GoSkills and the awarding organisations.

Final Version November 10

3. External Quality Control of Assessment

The quality of the assessment process is the responsibility of the awarding organisations.

GoSkills encourages flexibility and innovation of approach alongside robust systems to support quality control. However, awarding organisations must detail their approach to each of the following.

3.1 External Verification

External Verifiers (EVs) should verify assessments at approved centres. The normal frequency of external verification visits is two per year (a total of two days per year). However, the exact frequency should be determined by the risk assessment.

The verification should include inspection of the records of evidence and assessment. Awarding organisations should consider rotating their external verifiers in order to encourage standardisation, independence of assessment and the sharing of good practice.

3.2 Risk Assessment

In order to promote appropriate levels of monitoring of centres, GoSkills requires awarding organisations to adopt a risk management system. This approach is consistent with the approach taken by the regulatory authorities. Where there is a risk to the quality and consistency of assessment (eg as a result of commercial interests or as a result of relationships between candidates and assessors), awarding organisations should ensure that appropriate mechanisms are in place to ensure the reliability of the assessment.

Awarding organisations should show that a risk assessment has been carried out for each approved centre and that a strategy to minimise any identified risk has been implemented.

3.3 Awarding Body Forum

GoSkills will arrange regular awarding body meetings. The aim of the meetings will be to promote consistency in the assessment process. All awarding organisations offering NVQ QCF Qualifications in Bus and Coach Engineering and Maintenance will be required to attend the awarding organisation forum at least once per year.

4. Evidence

4.1 Evidence from Workplace Performance

Wherever possible, evidence of occupational competence should be generated and collected through performance under workplace conditions. These conditions would be those typical of the candidate's normal place of work. The evidence collected under these conditions should also be as naturally occurring as possible.

It is accepted that not all employees have identical work place conditions and therefore there cannot be assessment conditions that are identical for all candidates. However, assessors must ensure that, as far as possible, the conditions for assessment should be those under which the candidate usually works. Assessment of an individual against the qualification standard must not put that individual under more, or less, pressure than found normally in the workplace. It could be the case that the individual could feel more pressure simply because he or she is being assessed. However, it is the skill of the assessor to reduce this pressure to a minimum.

4.2 Use of Simulation in Assessments

As stated above, it is intended that learners should be assessed under normal workplace conditions. However, there are situations where the actual workplace may not be appropriate, or where waiting for naturally occurring evidence is impractical. Therefore, the setting up or devising of assessment situations will be allowed, when it can be demonstrated that the following circumstances require it in areas related to:

- safety
- legislation
- regulation
- contingency
- cost
- significant interruption to candidate's or employer's business

It is recognised that there may be other assessment situations where simulation would be appropriate. In such instances, awarding organisations should give consideration to the reliability and validity of the likely evidence. In all cases, the centre should agree its plans for simulation with the EV to ensure that it is satisfactory.

5. Competence of Assessment Personnel

GoSkills acknowledges the very important role and responsibility that assessors and verifiers have in maintaining the quality and integrity of NVQ QCF Qualifications. Awarding organisations and other stakeholders therefore have to have confidence in the actions and decisions of assessors and verifiers.

5.1 Competence of External Verifiers

A primary responsibility of the external verifier is to assure quality of internal verification and assessments across the centres for which they are responsible. External verifiers therefore need to have a thorough understanding of quality assurance and assessment practices as well as in-depth technical knowledge related to the qualifications that they are externally verifying.

It will be the responsibility of the awarding body to select and appoint external verifiers. Potential external verifiers should:

- hold (or be working towards) an appropriate qualification confirming their occupational competence to externally verify NVQ assessments.
- have an up to date and working understanding of the occupational area they are externally verifying together with a sound knowledge of the occupational standards.
- demonstrate their commitment to maintaining their industry knowledge by ongoing professional development eg through undertaking training courses and/or membership of industry organisations.

5.2 Competence of Internal Verifiers

A primary responsibility of the internal verifier is to assure the quality and consistency of assessments by the assessors for whom they are responsible. Internal verifiers therefore need to have a thorough understanding of quality assurance and assessment practices, as well as sufficient technical understanding related to the qualifications that they are internally verifying.

It will be the responsibility of the approved centre to select and appoint internal verifiers. Potential internal verifiers should:

- hold (or be working towards) an appropriate qualification confirming their occupational competence to internally verify NVQ assessments;
- hold (or be working towards) an appropriate qualification, as specified by the appropriate regulatory authority, confirming their competence to verify NVQ candidates;
- have the necessary and sufficient experience of the role for which they intend to verify assessments. This experience will have provided potential verifiers with detailed knowledge of the functions described by the occupational standards that comprise the qualification

5.3 Competence of Assessors

The primary responsibility of the assessor is to assess candidates to the required quality and consistency, against the national occupational standard. It is important that an assessor can recognise occupational competence as specified by the national standard. Assessors therefore need to have a thorough understanding of assessment and quality assurance practices, as well as have in depth technical understanding related to the qualifications for which they are assessing candidates.

It will be the responsibility of the approved centre to select and appoint assessors. Potential assessors should:

- hold (or be working towards) an appropriate qualification confirming their occupational competence to assess NVQ candidates.
- have the necessary and sufficient experience of the role for which they intend to undertake assessments and actual experience of the functions described by the occupational standards that comprise the qualification

5.4 Continued Personal and Professional Development

It is important that verifiers and assessors continue their own development to help them in their respective NVQ roles. It is expected that each approved centre will provide development programmes for its assessors and internal verifiers to maintain their technical or occupational expertise. Awarding organisations should provide development programmes, workshops, seminars, etc, to promote good practice, quality and consistent assessments.

Annex 1

Evidence requirements for the units of assessment in Bus and Coach Engineering and Maintenance are detailed at unit level. The list below indicates which units can be assessed through simulation:

Unit Name	Unit Number	Simulation allowed
Contribute to safe working practices in Bus/Coach Engineering and Maintenance	1	N
Contribute to safe housekeeping practices in Bus/Coach Engineering and Maintenance	2	N
Achieve effective working relationships with colleagues in Bus/Coach Engineering and Maintenance	3	N
Use hand tools and equipment in Bus/Coach Engineering and Maintenance	4	Y
Carry out basic vehicle checks and servicing in Bus/Coach Engineering and Maintenance	5	Y
Carry out Bus/Coach servicing	6	N
Carry out basic vehicle repairs in Bus/Coach Engineering and Maintenance	7	Y
Carry out scheduled mechanical maintenance on Buses/Coaches	8	N
Carry out scheduled electrical maintenance on Buses/Coaches	9	N
Identify and locate mechanical faults in Bus/Coach systems and components	10	Y
Identify and locate electrical faults in Bus/Coach systems and components	11	Y
Diagnose mechanical faults in Bus/Coach systems and components	12	N
Diagnose electrical faults in Bus/Coach systems and components	13	N
Rectify mechanical faults in Bus/Coach systems and components	14	Y
Rectify electrical faults in Bus/Coach systems and components	15	Y
Repair mechanical faults in Bus/Coach systems and components	16	N
Repair electrical faults in Bus/Coach systems and components	17	N
Recondition mechanical components in Buses/Coaches	18	N
Recondition electrical components in Buses/Coaches	19	N
Complete thermal joining of Bus/Coach components	20	Y
Conduct inspections of Buses/Coaches	21	N
Carry out scheduled body maintenance on Buses/Coaches	22	N

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Unit Name	Unit Number	Simulation allowed
Complete routine assembly of Bus/Coach body components	23	Y
Set out and assemble Bus/Coach body components	24	Y
Identify Bus/Coach damage and recommend suitable repair techniques	25	N
Rectify body damage on Bus/Coach vehicle body components	26	Y
Assess body damage to Buses/Coaches	27	N
Repair damage to Bus/Coach body components	28	N
Prepare and treat surfaces and apply paint coats to Bus/Coach body panels and components	29	Y
Drive the Bus/Coach for testing and vehicle recovery	30	N
Provide roadside assistance for broken down Buses/Coaches	31	N
Install ancillary systems and components in Buses/Coaches	32	Y
Diagnose Mechanical/Electrical faults in ancillary systems and components in Buses/Coaches	33	Y
Repair Mechanical/Electrical faults in ancillary systems and components in Buses/Coaches	34	Y
Establish Customer Technical Requirements for Buses/ Coaches	35	N
Improve the service provided to customers of Buses/Coaches	36	N
Carry out roadside recovery of Buses/Coaches	37	N
Plan and organise work of self and others	38	N
Support learners by coaching in the workplace	39	N
Support learners by mentoring in the workplace	40	N
Operate an IT system in a Bus/Coach Engineering and Maintenance Environment	41	Y
Evaluate and develop your own knowledge, understanding and skills in the Bus/Coach Engineering and Maintenance environment	42	N

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Annex 2

Additional Guidance as specified by the Sector

BACEM Unit 1 Contribute to safe working practices in Bus/Coach Engineering and Maintenance	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>It is recommended that the following are covered when teaching and assessing this unit:</p> <p>The range of safety equipment available to protect individuals should include the following:</p> <ul style="list-style-type: none"> • Exhaust and fume extraction • Dust extraction • Safety guards • Containment stores • Insulation • Welding screens • Walkways and guard rails • Machine isolators <p>Lifting and handling techniques should include as appropriate:</p> <ul style="list-style-type: none"> • Hoists • Cranes • Trolleys • Jacks • Manual lifting <p>Learners should use a range of equipment, machinery and materials including gases in accordance with statutory regulations and manufacturers and organisational recommendations and instructions.</p>
BACEM Unit 2 Contribute to safe housekeeping practices in Bus/Coach Engineering and Maintenance	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>It is recommended that the following are covered when teaching and assessing this unit:</p> <p>This unit is not a stand alone unit. This must be taken in conjunction with Unit 1 Contribute to Safe Working Practices in Bus/Coach Engineering and Maintenance and also along side any of the units related to Bus/Coach Engineering and Maintenance.</p>
BACEM Unit 3 Achieve effective working relationships with colleagues in Bus/Coach Engineering and Maintenance	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>This unit must be taken alongside the Health and Safety Units 1 – Contribute to the Safe Working Practices in Bus/Coach Engineering and Maintenance and Unit 2 Contribute to the Safe Housekeeping Practices in Bus/Coach Engineering and Maintenance.</p>

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BACEM Unit 4 Use hand tools and equipment in Bus/Coach Engineering and Maintenance	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must be able to carry out a range of visual safety checks under supervision to ensure that the tools and equipment are fit for the purpose intended. Learners should use a range of tools and equipment which can include:</p> <ul style="list-style-type: none"> • General workshop tools • Jacks • Stands • Cranes • Lifts • Hoists • Presses • Pullers • Punches • Drifts • Installers • Platforms • Grinders • Saws <p>Assessment criteria 2.2:</p> <p>The range should include tools and equipment used for the following:</p> <ul style="list-style-type: none"> • Measuring • Removal and replacement • Fixing and securing • Cutting • Forming • Fabrication • Shaping • Joining • Assembly/disassembly • Welding • Sealing • Bonding • Cleaning • Preparing • Finishing • Lifting and supporting <p>Assessment criteria 2.4:</p> <p>The range of specifications to be covered should include:</p> <ul style="list-style-type: none"> • Calibration • Accuracy • Tension • Torque • Grip • Balance • Adjustment • Cutting – sharpness

BACEM Unit 5 Carry out basic vehicle checks and servicing in Bus/Coach Engineering and Maintenance	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Realistic workplace simulation may be used to assess areas that cover non routine situations. All simulations using specially constructed environments need to be approved by the Awarding Organisation prior to use. The setting up or devising of assessment situations do not need to be approved by the Awarding Organisation if they take place in the normal workplace environment.
BACEM Unit 6 Carry out Bus/Coach servicing	
Assessment guidance specified by a sector or regulatory body (if appropriate)	The evidence could relate to any of the following: Cab area, engine compartment, vehicle interior, vehicle exterior, under floor, electrical. The range of examination tasks could include the following as appropriate: aural, visual, damage, function, wear, leaks, security, alignment/adjustment, tactile, position, movement, condition and serviceability, defect report.
BACEM Unit 7 Carry out basic vehicle repairs in Bus/Coach Engineering and Maintenance	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Assessment criteria 2.4: An example of facilities available could be vehicle lift, pit, bay.
BACEM Unit 8 Carry out scheduled mechanical maintenance on Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners must understand the factors governing the planning and application of scheduled mechanical maintenance activities and know the statutory and company standards in adequate depth in order to take responsibility to carry out the tasks to the required specification. Applying safe working practices will be a key issue throughout.
BACEM Unit 9 Carry out scheduled electrical maintenance on Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners must understand the factors governing the planning and application of scheduled electrical maintenance activities and know the statutory and company standards in adequate depth in order to take responsibility to carry out the tasks to the required specification. Applying safe working practices will be a key issue throughout. Simulation is not permitted. Learners will be required to check maintained electrical systems to ensure compliance with specification in the following areas as appropriate: <ul style="list-style-type: none"> • Correct operation and performance • Critical tolerances • Capacity • Efficiencies • Component replacement • Visual

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	<ul style="list-style-type: none"> • Quality/volume • Pressures • Emissions
BACEM Unit 10 Identify and locate mechanical faults in Bus/Coach systems and components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>The evidence should relate to a range of systems which could include:</p> <ul style="list-style-type: none"> • Engine, lubrication and cooling systems and their associated components • Fuel systems and their associated components • Transmission, automatic/manual, final drive and their associated components • Foundation brakes and their associated components • Suspension and steering and its associated components <p>The tasks will be mainly routine and carried out under supervision. Learners will be required to locate faults and use the chosen method and diagnostic tool for the perceived fault. These methods could include:</p> <ul style="list-style-type: none"> • Visual • Aural • Odour • Measuring instruments • Gauges • Indicators • A range of diagnostic equipment and manufacturer's software • Multi-meter • Approved test equipment
BACEM Unit 11 Identify and locate electrical faults in Bus/Coach systems and components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>The evidence should relate to a range of systems which could include:</p> <ul style="list-style-type: none"> • Battery and charging systems and their associated components • Engine, starting systems and their associated components • Lighting systems and their associated components • Body electrical systems and their associated components • Electrical controls and driver controls and their associated components • Information systems and their associated components • Transmission and braking electronic systems and their associated components • Hydraulic and pneumatic systems <p>The tasks will be mainly routine and carried out under supervision. Learners will be required to locate faults and use the chosen method and diagnostic tool for the perceived fault. These methods could include:</p> <ul style="list-style-type: none"> • Visual

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	<ul style="list-style-type: none"> • Aural • Odour • Measuring instruments • Gauges • Indicators • A range of diagnostic equipment and manufacturer's software • Multi-meter • Approved test equipment
BACEM Unit 12 Diagnose mechanical faults in Bus/Coach systems and components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must understand the factors governing the planning and application of scheduled mechanical maintenance activities and know the statutory and company standards in adequate depth to carry out the activities to the required specification. Applying safe working practices will be a key issue throughout.</p> <p>A diagnosis can be defined in this unit as one that may involve interaction between two or more vehicle systems and components.</p> <p>Assessment criteria 1.3:</p> <p>The range of evidence should include:</p> <ul style="list-style-type: none"> • Visual • Aural • Odour • Tactile • Measuring • Instruments • Analysers • Computer laptops • Logic probe • Brake tester • Multi-meters
BACEM Unit 13 Diagnose electrical faults in Bus/Coach systems and components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must understand the factors governing the planning and application of scheduled electrical maintenance activities and know the statutory and organisational standards in adequate depth to carry out the activities to the required specification. Applying safe working practices will be a key issue throughout.</p> <p>A diagnosis can be defined in this element as one that may involve interaction between two or more vehicle systems and components.</p> <p>Assessment criteria 1.3:</p> <p>The range of evidence should include:</p> <ul style="list-style-type: none"> • Visual • Aural • Odour

	<ul style="list-style-type: none"> • Tactile • Measuring • Instruments • Analysers • Computer laptops • Logic probe • Brake tester • Multi-meters
BACEM Unit 14 Rectify mechanical faults in Bus/Coach systems and components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners will be able to interpret the instructions, select the correct workshop tools and equipment and rectify the presented fault or faults by component replacement taking responsibility for the tasks performed and working to a specification.</p> <p>The evidence could relate to any of the following systems:</p> <ul style="list-style-type: none"> • Engine, lubrication and cooling systems and their associated components • Fuel systems and their associated components • Transmission, automatic/manual, final drive and their associated components • Foundation brakes and their associated components • Suspension and steering and its associated components
BACEM Unit 15 Rectify electrical faults in Bus/Coach systems and components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners will be able to interpret the instructions, select the correct workshop tools and equipment and rectify the presented fault or faults by component replacement taking responsibility for the tasks performed and working to a specification.</p> <p>The evidence could relate to any of the following systems:</p> <ul style="list-style-type: none"> • Body electrical systems and their associated components • Battery and charging systems and their associated components • Engine, starting systems and their associated components • Lighting systems and their associated components • Electrical controls and driver information systems and their associated components • Transmission and Braking electronic systems and their associated components • Hydraulic and pneumatic systems
BACEM Unit 16 Repair mechanical faults in Bus/Coach Systems and Components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must comply with organisational policy and procedures and statutory requirements for the repair activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the repair, this specification requires changing or modifying the learner will need to initiate an alternative route without compromising the quality of the repair.</p>

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	<p>A repair is defined in this unit as one which may involve interaction between two or more vehicle systems and components. A range of repair tools are to be used to include as appropriate: hand tools, general workshop equipment, removers and replacers, joining equipment, electrical and electronic testers, brake testing equipment, emissions tester, measuring equipment.</p>
<p>BACEM Unit 17 Repair electrical faults in Bus/Coach Systems and Components</p>	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>Learners must comply with organisational policy and procedures and statutory requirements for the repair activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the repair, this specification requires changing or modifying the learner will need to initiate an alternative route without compromising the quality of the repair.</p> <p>A repair is defined in this unit as one which may involve interaction between two or more vehicle systems and components. A range of repair tools are to be used to include as appropriate: hand tools, general workshop equipment, removers and replacers, joining equipment, electrical and electronic testers, brake testing equipment, emissions tester, measuring equipment.</p>
<p>BACEM Unit 18 Recondition mechanical components in Buses/Coaches</p>	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>Learners must comply with organisational policy and procedures and statutory requirements for the reconditioning activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the work activity this specification requires changing or modifying it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the reconditioning procedure.</p> <p>The range of reconditioning tools and equipment to be used could include:</p> <ul style="list-style-type: none"> • General workshop equipment • Specialised manufacturers' equipment • Removers and installers • Joining equipment • Hand tools • General workshop equipment • Specialised manufacturers equipment • Removers and installers • Joining equipment and lathe

	<p>The range of measuring tools and equipment could include:</p> <ul style="list-style-type: none"> • Micrometers • Voltmeter • Ammeter • Ohmmeter • Multi-meter • Continuity tester • Dial test indicators • Depth gauges • Callipers • Torque gauges and growler • Pressure gauge • Thickness gauges <p>Components and associated components can include:</p> <ul style="list-style-type: none"> • Engine and cooling systems • Fuel systems • Transmission systems • Braking systems • Steering and suspension systems • Pre-engaged starter motor • Sliding armature starter motor
BACEM Unit 19 Recondition electrical components in Buses/Coaches	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>Learners must comply with organisational policy and procedures and statutory requirements for the reconditioning activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the work activity this specification requires changing or modifying it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the reconditioning procedure.</p> <p>The range of reconditioning tools and equipment to be used could include:</p> <ul style="list-style-type: none"> • General workshop equipment • Specialised manufacturers' equipment • Removers and installers • Joining equipment • Hand tools • Cutters • Lapping tools • Honing tools • Lathe

	<p>The range of measuring tools and equipment could include:</p> <ul style="list-style-type: none"> • Micrometers • Voltmeter • Ammeter • Ohmmeter • Multi-meter • Continuity tester • Dial test indicators • Depth gauges • Callipers • Torque gauges and growler • Pressure gauge • Thickness gauges <p>Components and associated components can include:</p> <ul style="list-style-type: none"> • Engine and cooling systems • Charging systems • Air conditioning • Electric retarders • Electric motors • Sensors and actuators • Passenger comfort and convenience systems <p>Ticketing and interfaces</p>
<p>BACEM Unit 20 Complete thermal joining of Bus/Coach components</p>	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>Learners should be able to demonstrate how to be able to visually inspect the work to ensure a minimum of 75% of the weld length:</p> <ul style="list-style-type: none"> • Is linear, uniform and has ripples of a consistent form and width • Is free from blowholes, excessive arcing marks, spatter, porosity, oxidation and excessive distortion • Has a good toe blend and butt welds have good root penetration
<p>BACEM Unit 21 Conduct inspections of Buses/Coaches</p>	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>Vehicle inspection activities must be accurate and completed to a high standard as required by organisations', manufacturers' and regulatory expectations. They must be reported and presented for clarity, accuracy and safe storage of safety inspection data. The reporting procedure must include:</p> <ul style="list-style-type: none"> • Record identification section • Non-applicable items • Pass items • Defect items • Description of the repair • Record results, signature and dates <p>File and secure records</p>

BACEM Unit 22 Carry out scheduled body maintenance on Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners must understand the factors governing the planning and application of scheduled body maintenance activities and know the statutory and company standards in adequate depth to carry out the activities to the required specification. Applying safe working practices will be a key issue throughout.
BACEM Unit 23 Complete routine assembly of Bus/Coach body components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>The evidence should relate to a range of techniques which could include:</p> <ul style="list-style-type: none"> • Fasteners and retainers • Welding/Cutting • Adhesives/bonding • Gaskets (e.g. indirect glazing) • Lifting and supporting equipment • Manual lifting and carrying • Positioning and securing • Temporary fastening <p>Learners will be required to carry out routine assembly activities relating to buses/coaches covering the following areas as appropriate:</p> <ul style="list-style-type: none"> • Exterior claddings • Interior claddings • Frame and structural components • Interior trim • Exterior trim • Body furniture and hardware • Glazing • Door units
BACEM Unit 24 Set out and assemble Bus/Coach body components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must comply with organisational policy and procedures and statutory requirements for the assembly activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the repair, this specification requires changing or modifying the learner will need to initiate an alternative route without compromising the quality of the assembly.</p> <p>The assembly process may involve using more than two different joining techniques and the materials/components to be assembled may be non-standard, difficult to obtain or expensive. The type of work carried out would typically be assembly as part of a prototype build, repair, modification or conversion.</p>

BACEM Unit 25 Identify Bus/Coach damage and recommend suitable repair techniques	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners will be required to identify and assess the condition of the body damage and determine the feasibility of a repair to the following areas as appropriate: <ul style="list-style-type: none"> • Exterior claddings • Interior claddings • Frame and structural components • Interior trim • Exterior trim • Body furniture and hardware • Glazing • Door units
BACEM Unit 26 Rectify body damage on Bus/Coach vehicle body components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	The evidence should relate to a range of repairs which should include where appropriate: <ul style="list-style-type: none"> • Exterior claddings • Exterior trim • Interior claddings • Body furniture and hardware • Frame and structural components • Glazing • Interior trim • Door units • Flooring
BACEM Unit 27 Assess body damage to Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners must comply with organisational policy and procedures and the statutory requirements for the damage assessment activities undertaken and report any problems to the relevant authority. Learners will work to a specification agreed with their supervisor. If, in the course of the assessment, this specification requires changing or modifying it is expected that an alternative route will be taken without compromising the quality of the assessment. Applying safe working practices will be a key issue throughout. A repair can be defined in this element as one which would involve using more than two repair techniques including as appropriate: fabrications, forming, welding, adhesive bonding, removal and replacement, painting. Assessment conclusions should meet organisational, manufacturers' and regulatory expectations.
BACEM Unit 28 Repair damage to Bus/Coach body components	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners must comply with organisational policy and procedures and statutory requirements for the repair activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the

	<p>repair, this specification requires changing or modifying the learner will need to initiate an alternative route without compromising the quality of the repair.</p> <p>A repair is defined in this unit as one which may involve using more than two repair techniques and may involve the use of non-standard, fragile, difficult to obtain or expensive materials. The methods and procedures used may include:</p> <ul style="list-style-type: none"> • Fabrication • Forming • Welding • Adhesive bonding • Removal and replacement
<p>BACEM Unit 29 Prepare and treat surfaces and apply paint coats to Bus/Coach body panels and components</p>	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>The evidence should relate to a range of techniques which could include:</p> <ul style="list-style-type: none"> • Preparing, testing and adjusting equipment prior to use • Key/preparing body panels and components • Etching body panels and components • Priming body panels and components • Top coating body panels and components • Polishing body panels and components <p>Learners will be required to identify the materials and substrates and will be able to prepare materials and equipment, and apply paint coats to body panels and components including the following:</p> <ul style="list-style-type: none"> • New panels/components • Repaired panels/components • Plastic panels/components • Metal panels/components • Glazing/rubber <p>They will prepare materials and surrounding bodywork prior to the application of paint materials, including as appropriate:</p> <ul style="list-style-type: none"> • Cleaning and protecting the surrounding bodywork/vehicle to reduce the likelihood of contamination • Identifying substrates to ensure paint materials will not react • Applying masking materials to ensure adequate protection to the surrounding bodywork/vehicle

BACEM Unit 30 Drive the Bus/Coach for testing and vehicle recovery	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>The range of driving situations could include:</p> <ul style="list-style-type: none"> • Motorways • Single and dual carriageways • Rural and urban locations • Depots, in particular driving on and off pits • Forward drive and reversing • Night time driving • Day time driving • Rolling road <p>Learners will also need to show that they can drive the bus/coach in a variety of weather conditions such as:</p> <ul style="list-style-type: none"> • Rain • Snow • Mist/fog • Dry • High winds • Ice • Bright light • Low sun
BACEM Unit 31 Provide roadside assistance for broken down Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>The situations that have resulted in the need for assistance could include the following:</p> <ul style="list-style-type: none"> • Breakdowns • Accidents • Damage • Component failures • Injury
BACEM Unit 32 Install ancillary systems and components in Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must comply with organisational policy and procedures and statutory requirements for the installation activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the work activity this specification requires changing or modifying it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the procedure.</p> <p>The range of ancillary units and components to be installed could include:</p> <ul style="list-style-type: none"> • Security cameras • Passenger facilities for safety, comfort and convenience • Radio control • Intelligent bus systems

	<ul style="list-style-type: none"> • GPS (Global Position System) • Digital recording systems • Audio/visual equipment • Ticketing machines • Route information systems
BACEM Unit 33 Diagnose Mechanical/Electrical faults in ancillary systems and components in Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must comply with organisational policy and procedures and statutory requirements for the complex diagnostic activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the diagnosis this specification requires changing or modifying it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the diagnosis</p> <p>A diagnosis can be defined as one which may involve interaction between two or more vehicle systems and components. The range of systems could include:</p> <ul style="list-style-type: none"> • Security cameras, cctv • Digital recording systems • Passenger facilities (safety, comfort and convenience • Audio/visual equipment • Two way radio • Air conditioning units • Intelligent bus systems • Ticketing machines and cash vaults • Route information systems as appropriate • Global Position System (GPS)
BACEM Unit 34 Repair Mechanical/Electrical faults in ancillary systems and components in Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners must comply with organisational policy and procedures and statutory requirements for the complex diagnostic activities undertaken and report any problems to the relevant authority. The learner will work to a specification agreed with their supervisor. If, in the course of the diagnosis this specification requires changing or modifying it is expected that the learner will use their knowledge, skills and experience to initiate an alternative route without compromising the quality of the diagnosis.</p> <p>Learners will use a range of tools and equipment, including as appropriate:</p> <ul style="list-style-type: none"> • Manufacturers' specialised equipment • Hand tools • General workshop equipment • Removers and replacers • Joining equipment • Electrical and electronic testers • Measuring equipment

	<p>A repair can be defined as one which may involve interaction between two or more vehicle systems and components. The range of systems could include:</p> <ul style="list-style-type: none"> • Security cameras, cctv • Digital recording systems • Passenger facilities (safety, comfort and convenience) • Audio/visual equipment • Two way radio • Intelligent bus systems • Ticketing machines and cash vaults • Route information systems as appropriate • Global Position System (GPS)
<p>BACEM Unit 35 Establish Customer Technical Requirements for Buses/Coaches</p>	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>Learners must comply with organisational policy and procedures and statutory requirements when in contact with internal and external customers. The learner should maintain a high level of technical knowledge including relevant legal requirements and be able to talk with authority on a range of complex vehicle issues. The learner will be expected to work with minimum supervision. The learner will be expected to accurately interpret and clarify customer technical requirements and communicate this information clearly to enable repair and/or maintenance activities to proceed.</p> <p>The types of customers are those that directly influence the nature of the work, for example drivers and inspectors. The learner will must be able to elicit information from a variety of customers to gauge or diagnose particular problems and queries.</p>
<p>BACEM Unit 36 Improve the Service Provided to Customers of Buses/Coaches</p>	
<p>Assessment guidance specified by a sector or regulatory body (if appropriate)</p>	<p>Learners must comply with organisational policy and procedures and statutory requirements when in contact with internal and external customers. Learners must be able to work within the agreed boundaries. If, in the course of the work activity, these require changing or modifying it is expected that the learner would use their knowledge, skills and experience to initiate an alternative route without compromising the quality of service provided. The learner's knowledge and understanding of engineering activities and organisational procedures will enable them to analyse the products and services provided to customers in addition to providing an informed approach to investigating the nature of improvements and remedies. Learners must understand how to cost feasible, realistic and effective solutions to improve services ensuring that any proposed solutions comply with current legislation and company standards and specifications. Applying relevant working practices will be a key issue throughout.</p> <p>Customers are identified as colleagues, lines of report, drivers and passengers who use passenger transport services.</p>

BACEM Unit 37 Carry Out Roadside Recovery of Buses/Coaches	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners must comply with organisational policy and procedures. Learners will be required to work to a specification agreed with their supervisor. If, in the course of the roadside recovery this specification requires changing or modifying it is expected that the learner would use knowledge, skills and experience to initiate an alternative plan. Learners will be required to conduct the roadside recovery operations to organisational, approved codes of practice and legal requirements. Learners may have to work with police and emergency services to ensure that other road users are informed and protected from work activities. The work involved at the recovery site is potentially dangerous and the responsibility for health and safety will extend beyond the perimeter of the normal place of work. The learner will need to prepare in advance the necessary recovery vehicle, equipment, tooling and safety items that will be needed to carry out a successful recovery operation and report any deficiencies to the relevant authority.
BACEM Unit 38 Plan and Organise Work of Self and Others	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners will be required to take responsibility for specific pieces of work and provide technical leadership where appropriate within the plan. Learners will understand planning methods and techniques, and their application, and will know about the organisational structure, systems and procedures in sufficient depth to carry out the activities to the required specification. Applying safe working practices will be a key issue throughout. Learners will work to an overall plan agreed with their supervisor. If, in the course of executing the plan, it requires changing or modifying it is expected that the learner would use their knowledge skills and experience to initiate an alternative plan without compromising the quality of the outcome. The learner must be able to plan the organisation of work in the following areas as appropriate: <ul style="list-style-type: none"> • Shift handover of current work • Modification • Repair • Maintenance • Installation • Calibration Learners must be able to plan work activities for a defined task that requires completion through two or more related actions.

BACEM Unit 39 Support Learners by Coaching in the Workplace	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners should be able to provide coaching activity to a range of individuals to include, as appropriate:</p> <ul style="list-style-type: none"> • New starters • Individuals unfamiliar with a particular technical matter • Individuals undertaking training to increase workplace skills • Individuals experiencing difficulty in specific technical aspects of their work <p>Learners should be able to communicate in the following ways:</p> <ul style="list-style-type: none"> • Face-to-face verbal communication • Small group discussion • Presentation on technical issues to small groups • Written communication • IT based coaching programmes <p>Examples of problems may include, where relevant, those from overseas needing for example language skills, as well as experienced staff requiring further development in workplace skills</p>
BACEM Unit 40 Support Learners by Mentoring in the Workplace	
Assessment guidance specified by a sector or regulatory body (if appropriate)	<p>Learners should be able to provide coaching activity to a range of individuals to include, as appropriate:</p> <ul style="list-style-type: none"> • New starters • Individuals unfamiliar with a particular technical matter • Individuals undertaking training to increase workplace skills • Individuals experiencing difficulty in specific technical aspects of their work • Trainees and other on development programmes <p>Learners should be able to communicate in the following ways:</p> <ul style="list-style-type: none"> • Face-to-face verbal communication • Written communication <p>Mentoring is to support and encourage people to reflect on their performance and manage their own learning in order that they may maximise their potential, develop their skills and improve their performance.</p> <p>Examples of problems may include those from overseas needing language skills, as well as experienced staff requiring further development in workplace skills.</p>

BACEM Unit 41 Operate an IT System in a Bus/Coach Engineering and Maintenance Environment	
Assessment guidance specified by a sector or regulatory body (if appropriate)	Learners will be able to carry out the initial steps in using an IT system, operate systems in an effective way and close the systems down securely. Learners will be able to recognise faults in the system and correct common faults though importantly they will know when to obtain specialist help and advice. Learners will maintain work activity as far as possible during system failure and importantly be able to update the system when it is restored.
BACEM Unit 42 Evaluate and Develop Own Knowledge, Understanding and Skills in the Bus/Coach Engineering and Maintenance Environment	
Assessment guidance specified by a sector or regulatory body (if appropriate)	In identifying their development needs, learners will have to balance their needs with those of the organisation and comply with any organisational, legal and licensing requirements.



**Additional Requirements
for Qualifications that use the
title
NVQ within the QCF
September 2009**

This document has been produced by the Joint Awarding Body/SSC Working Practices Group which has been formed by the respective representative bodies to support and encourage effective working relationships between SSCs, submitting organisations and awarding organisations. The Group will update the document as necessary to make sure it is kept up to date and relevant and will consider developing additional guidance.

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Purpose of document

1. The purpose of this document is to make clear what additional requirements are needed to assess and quality assure qualifications that use the title NVQ within the QCF.
2. When an SSC/SSB and awarding organisation wants to use the title NVQ in the naming of a qualification within the QCF, the awarding organisation is required to make sure this qualification is assessed and quality assured in accordance with these additional requirements and other requirements described in the SSC/SSB assessment strategy.
3. The aims of these additional requirements are to
 - ensure that all competence based qualifications that use the title NVQ within the QCF are
 - o assessed consistently
 - o quality assured consistently
 - maintain the integrity of qualifications that use the title NVQ within the QCF
 - establish the NVQ brand within the QCF
 - keep bureaucracy associated with assessment and quality assurance of qualifications that use the title NVQ within the QCF to a minimum.

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Background

4. ¹At the heart of an NVQ is the concept of occupational competence; the ability to perform to the standards required in employment across a range of circumstances and to meet changing demands. NVQs are first and foremost about what people can do. They go beyond technical skills to include planning, problem solving, dealing with unexpected occurrences, working with other people and applying the knowledge and understanding that underpins overall competence’.
5. NVQs are based entirely on National Occupational Standards (NOS) developed by an SSC/SSB, which describe the competence needed in an occupational role.
6. Qualifications that use the title NVQ within the QCF must comply with the rules of combination determined by the SSC/SSB. Awarding organisations are not allowed to develop another qualification that does not use the title NVQ within the QCF, if it uses the same rules of combination as a qualification that does use the title NVQ within the QCF.
7. The QCF offers increased flexibility in the way occupational competence can be assessed and demonstrated.

Qualifications that use the title NVQ in the title within the QCF are just one way of assessing and demonstrating occupational competence. SSCs/SSBs are free to work with their awarding organisations to agree what qualifications will be used to assess occupational competence. Qualifications that use the title NVQ within the QCF, are not a preferred method for assessing occupational competence and all qualifications accredited through the QCF have equal status.

8. When developing a qualification for the QCF, including qualifications that use the title NVQ within the QCF, an awarding organisation must be a recognised awarding organisation and must meet the Qualification Requirements in the Regulatory Arrangements for the Qualifications and Credit Framework, published by

The Office of the Qualifications and Examinations Regulator (Ofqual) in August 2008.

9. The qualification regulators confirmed that a group of SSCs and SSBs would be free to develop specific, additional requirements about the way in which qualifications that use the title NVQ within the QCF will be assessed and quality assured. For those recognised awarding organisations that want to assess occupational competence through the use of qualifications that use the title NVQ within the QCF, it has been agreed by SSCs and SSBs that the following additional requirements must be met.

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¹ NCVQ's NVQ Criteria and Guidance 1995.

Additional requirements for qualifications that use the title NVQ within the QCF

Introduction

10. Qualifications that use the title NVQ within the QCF must be assessed and quality assured in accordance with the following additional requirements.

Assessment requirements

11. When a qualification uses the title NVQ within the QCF, awarding organisations are required to make sure their recognised assessment centres understand how learners are to be assessed.
12. Assessment methodologies must meet the assessment strategy developed in partnership between the relevant SSC or SSB and awarding organisations for the qualification. The assessment strategy must be published and made available separately and will include the requirements for assessment of qualifications that use the title NVQ within the QCF. The assessment criteria for each unit will be part of the units that make up the qualification.
13. Learners must complete real work activities in order to produce evidence to demonstrate they have met the NOS and are occupationally competent.
14. When a learner cannot complete a real work activity, simulation is allowed.
15. Simulation is allowed when
 - a learner is required to complete a work activity that does not occur on a regular basis and therefore opportunities to complete a particular work activity do not easily arise
 - a learner is required to respond to a situation that rarely occurs, such as responding to an emergency situation
 - the safety of a learner, other individuals and/or resources will be put at risk.
16. When simulation is used, assessors must be confident that the simulation replicates the workplace to such an extent that learners will be able to fully transfer their occupational competence to the workplace and real situations.
17. Units that must not be assessed by simulation must be identified by the SSC/SSB in the assessment strategy for the qualification or family of qualifications.

18. Learners must be assessed by assessors
- who are occupationally competent in the occupational areas they are assessing where they have sufficient and relevant technical/occupational competence in the unit, at or above the level of the unit being assessed and as defined by the assessment strategy for that qualification
 - ² who must hold or be working towards a suitable assessor qualification to confirm they understand assessment and how to assess learners
 - must be fully conversant with the unit(s) against which the assessments and verification are to be undertaken.
19. All assessors must carry out assessment to the standards specified in the A units.
20. All assessment decisions made by a trainee assessor must be checked by a qualified assessor or an assessor recognised by an awarding organisation.
21. Trainee assessors must have a plan, which is overseen by the recognised assessment centre, to achieve the relevant assessor qualification(s) within an agreed timescale.

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² Currently an assessor could hold unit A1 and/or unit A2. Or from the past unit D32 and/or unit D33. SSCs also identify other suitable equivalent qualifications.

Quality assurance requirements

22. When a qualification uses the title NVQ within the QCF, awarding organisations are required to make sure their recognised assessment centres understand how the qualification will be quality assured.
23. Qualifications that use the title NVQ within the QCF, must be verified
 - internally by an internal verifier, who is accountable to the assessment centre
 - externally by an external verifier, who is accountable to the awarding organisation or an agent of the awarding organisation.
24. With reference to internal verification, internal verifiers must
 - ³ hold or be working towards a suitable internal verifier qualification to confirm they understand how to internally verify assessments
 - have sufficient and relevant technical/occupational familiarity in the unit(s) being verified
 - be fully conversant with the standards and assessment criteria in the units to be assessed
 - understand the awarding organisation's quality assurance systems and requirements for this qualification.
25. Trainee internal verifiers must have a plan, which is overseen by the recognised assessment centre, to achieve the internal verifier qualification within an agreed timescale.
26. With reference to external verification, external verifiers must
 - ⁴ hold or be working towards a suitable external verification qualification to confirm they understand and are able to carry out external verification
 - have no connections with the assessment centre, in order to maintain objectivity
 - have sufficient and relevant technical/occupational understanding in the unit(s) being verified
 - be fully conversant with the standards and performance criteria in the units to be assessed
 - understand the awarding organisation's quality assurance systems for this qualification.
27. Trainee external verifiers must have a plan, which is overseen by the awarding organisation, to achieve the external verifier qualification within an agreed timescale.

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³ Currently an internal verifier needs to hold unit V1. Or from the past unit D34. SSCs also identify other suitable equivalent qualifications.

⁴ Currently an external verifier needs to hold unit V2. Or from the past unit D35.

28. Awarding organisations must decide the frequency of external monitoring activities. Any decision must be based on
- the risks associated with a qualification that is designed to help a learner demonstrate occupational competence
 - an evaluation of the centre's performance and past record.
29. Awarding organisations will have in place suitably constituted audit processes, which are supported by naturally occurring quality assurance and monitoring systems that already exist in workplace assessment environments.

Annexe B: Personal, Learning and Thinking Skills (PLTS) mapping

PLTS	Units										1 L2	2 L2	8 L3	9 L3	11 L3	15 L3	16 L3	17 L3	18 L3	19 L3	22 L3	23 L3	24 L3	25 L3	35 L3	
	1 L2	2 L2	8 L3	9 L3	11 L3	15 L3	16 L3	17 L3	18 L3	19 L3																22 L3
Independent enquirers																										
1	•			•	•			•	•									•								
2				•	•													•								
3		•			•													•								
4	•				•													•								
5																		•								
6	•																	•								
Creative thinkers																										
1																										
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Reflective learners																										
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February 2014

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