

# Bus and coach engineering technician standard: Assessment Plan



**June 2019**

## Introduction

### Assessment plan for the bus and coach engineering technician apprenticeship

This document sets out the requirements and process for end point assessment of the bus and coach engineering technician apprenticeship standard. It is designed for employers, apprentices, education and training providers and assessment organisations. End point assessment occurs when the employer is satisfied the apprentice is working consistently at or above the standard set out in the bus and coach engineering technician apprenticeship standard, which has been developed into an Employer Occupational Brief (EOB).

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### Supporting documents

Employers, providers and assessment organisations must reference the employer occupational brief for a bus and coach engineering technician. The document is available freely from both People 1<sup>st</sup> and the Society of Operations Engineers and can be accessed at both [www.people1st.co.uk](http://www.people1st.co.uk) and [www.soe.org.uk](http://www.soe.org.uk).

## 1. Achieving full competence

This document sets out the requirements for independent end assessment of the bus and coach engineering technician standard. Employers, apprentices and training providers are able to define and develop their approach to the learning and development phase of the apprenticeship, however the trailblazer employers have made the following recommendation based upon examples of learning and development in practice across a number of organisations in the sector:

### 1.1 Who is involved in the learning and development and what will it involve?

The learning and development phase is where employers recruit an apprentice to work for them whilst completing their training towards the bus and coach engineering technician standard. Employers will normally partner with an education and training provider to purchase learning and development. Whilst qualifications are not a mandatory requirement of the bus and coach engineering technician standard some employers may choose to purchase these as part of the learning and development phase.

Employers should satisfy themselves that the qualifications selected are appropriate and relevant to the apprenticeship needs. As the new standard is an overview, an Employer Occupational Brief (EOB) has been produced to expand on the knowledge, skills and behaviours for the role. Independent End Assessment has been designed in conjunction with the EOB to ensure the consistent assessment against the breadth and depth of the standard's requirements.

### 1.2 What facilities and resources will be required?

Facilities and resources may differ between employers and education and training providers. When defining the learning and development journey for the apprenticeship employers and education and training providers should ensure that up to date vehicles, systems and other resources can be utilised, ensuring the bus and coach engineering technician is fully prepared for a modern workshop. Assessment centres must also ensure they have sufficient, valid vehicles and resources for independent end assessment. Employers must liaise with assessment organisations and collaboratively ensure that sufficient, appropriate vehicles are available during independent end assessment windows.

### 1.3 Gateway assessments

The bus and coach engineering apprenticeship will usually take three years to complete. During this time the employer, apprentice and education and training provider must regularly monitor and review progress, and assess on programme performance. These assessments are to satisfy the apprentice, employer and education and training provider of appropriate progress, they do not count towards the end assessment. Annex A provides an indicative expectation of competence at each gateway.

### 1.4 Annual evaluations

As part of the independent end assessment apprentices will be required to participate in a professional discussion. During this discussion the behaviours of the apprentice throughout the apprenticeship will be examined, in line with the requirements of the standard. In order to accurately reflect on past performance it is strongly recommended that apprentices complete regular evaluations throughout their learning and development journey, with input from their employer. These evaluations, which are

completed at least annually will be referenced in the professional discussion as part of the independent end assessment.

## 2. Readiness for end assessment

The independent end assessment is synoptic and takes place at the end of the apprentice's learning and development after a minimum of twelve months (typically 3 years) 'on-programme' training and development, equating to a minimum of 20% of the apprenticeship as 'off job' training. The end assessment should only commence once the employer is confident that the apprentice has developed all the knowledge, skills and behaviours defined in the apprenticeship standard. The independent end assessment ensures that all successful apprentices have achieved the industry set professional standard for a bus and coach engineering technician.

Once the apprentice has completed their training, development and on-programme assessment over a minimum twelve month (typically 3 year) period, demonstrated competence across the entire standard, a formal meeting will be held. This meeting must include the relevant people that have responsibility and accountability for the completion of the apprenticeship, for example: the line manager, on-programme assessor(s) and/or a senior manager as appropriate to the business. The purpose of this meeting is to confirm readiness for independent end assessment and plan the assessment activities. Prior to independent end assessment the English and maths components of the apprenticeship must be complete.

Once the employer is satisfied, the independent end assessment can be arranged with an independent end assessment organisation<sup>1</sup> in the next available assessment window. End point assessment cannot be administered by the delivery staff from the education and training provider who delivered the learning and development phase; however, it may be conducted on their premises if conducted by a separate assessment organisation. End point assessors must meet the criteria set out in Annex B.

Employers must work collaboratively to ensure that sufficient vehicles are available for independent end assessment. This may include conducting the practical observation assessments on an employer's premises if suitable assessment conditions can be met. This includes the assessment area being cordoned off from the wider workshop operations and no interaction with non-assessment personnel throughout the assessments.

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<sup>1</sup> Employers will select an assessment organisation from the Register of Apprenticeship Assessment Organisations (RoAAO)

### 3. Summary of independent end assessment activities

There are three independent end assessment activities, each with several component parts. To achieve the apprenticeship all assessment activities must be completed to at least pass level. Assessment organisations must prepare the assessment materials for each assessment window holistically to ensure the scope of the standard is covered across the activities. For example, practical and written exams shouldn't all focus on braking systems with no provision for assessment on transmission.

#### 3.1 Examinations

There are three parts to the exam section of the independent end assessment, full details of which are set out in Annexes C and D. These are:

- a) 2 hour paper based written exam, comprising:
  - i. Six short answer questions covering both the core and trade specific requirements of the standard
  - ii. Two extended answer questions requiring apprentices to accurately draw / describe specific engineering processes within their trade specific role
- b) 1 hour multiple choice exam on the core requirements of the standard, usually taken on-screen and marked automatically with validation from the assessment organisation
- c) 1 hour multiple choice exam on the trade specific requirements of the standard, usually taken on-screen and marked automatically with validation from the assessment organisation

#### 3.2 Practical task observations

There are two observed tasks an apprentice must complete during independent end assessment:

- a) A 30 minute 'walk and talk' around all vehicle systems EVERY apprentice should know about, regardless of the trade specific role. The apprentice is required to demonstrate understanding of how to complete a full visual safety check on the vehicle, describing which areas would be checked, how and why, in line with the requirements set out in Annex E covering:
  - i. General vehicle safety
  - ii. Basic mechanical, electrical and chassis systems inspection
- b) One 90-120 minute task, selected by the independent end assessor from 6 possible scenarios (separate list of scenarios for each trade specific role) found in Annex E. The scenarios set out a fault, issue or required repair and the assessment organisation must prepare the vehicle to allow the apprentice complete, as appropriate to the scenario, a diagnosis, repair or test. The potential scenarios together cover a range of competencies in the standard and the apprentice will not know which scenario they will receive until they arrive at the test vehicle.

#### 3.3 Professional discussion and review of behaviours

Apprentices are required to keep a log of progression throughout their apprenticeship to evidence their journey. This must particularly evidence their development of knowledge, skills and behaviours and must include the records of an annual review between the employer and apprentice of progress and evaluation against gateway targets. The education and training provider may participate in this review if desired. Neither the reviews or the log of progression form any part of the on programme assessment. This evidence must be supplied to the assessment organisation two weeks prior to the

assessment window opening and will form the basis of the professional discussion as detailed in Annexes F and G.

## 4. End assessment organisation requirements

### 4.1 Assessment windows

Assessment organisations may offer independent end assessment at any time, but must publish dates in advance for employers to prepare. There is a 90 day assessment window, commencing on the day of the first assessment activity, in which all assessment activities must be completed.

Assessment organisations are free to determine which order in which an apprentice completes the assessment activities.

### 4.2 Grading assessment activities

Every assessment activity must be completed to at least a pass in order for the apprentice to pass overall. Each assessment activity will be graded as follows:

Assessment activity	Expected grade boundaries
MCQ exam (Core) Mandatory questions answered, plus overall:	0-69% Fail
	70-89% Pass
	90-100% Distinction
MCQ exam (Trade) Mandatory questions answered, plus overall:	0-69% Fail
	70-89% Pass
	90-100% Distinction
Written exam	0-69% Fail
	70-89% Pass
	90-100% Distinction
Observation A	Pass / Distinction / Fail Ascertained through assessment criteria, articulated in Annex E
Observation B	Pass / Distinction / Fail Ascertained through assessment criteria, articulated in Annex E
Behaviours	Pass / Fail Ascertained through assessment criteria, articulated in Annex F
Professional discussion	Pass / Fail Ascertained through assessment criteria, articulated in Annex G

### 4.3 Retakes

If an apprentice fails an assessment activity, a retake assessment activity will afford the opportunity of a pass / fail grade only. When retesting any assessment activity questions / scenarios must be different to the previous attempt. Apprentices who fail the multiple choice tests may be scheduled for a retake once only in the week following the assessment window (i.e. week 4). If the retake is failed, the apprentice must undertake a period of further training and development and wait for the next assessment window to retake.

With all other assessment activities one attempt is permitted within each assessment window. An apprentice retaking any assessment activity must have different questions / practical scenarios to those

on the first attempt. Retests should only be taken after a further period of learning and development and a maximum of three attempts (original attempt plus two retests) on each assessment activity is permitted.

#### 4.4 Overall grade

In order to pass overall the apprentice must achieve at least a pass in every assessment activity.

In order to achieve a distinction overall an apprentice must, as a minimum

- Gain distinction in at least the written exam plus ONE of the two MCQ exams, with at least a pass in the other
- Gain distinction in both of the practical observations
- Gain a pass in the professional discussion, including gaining a pass on the behaviours section

Assessment organisations will supply a detailed grading sheet confirming the grade for every assessment activity at the end of the assessment window.

### 5. Consistency, reliability and validity

Independent end assessment is conducted by an independent end assessor appointed by an assessment organisation registered with the Skills Funding Agency (SFA). The assessment organisation is responsible for designing the tools and procedures for assessment and undertaking internal quality assurance and standardisation. The final decision on competence is made by the independent assessor, whose decisions are subject to moderation by the assessment organisation.

All assessment organisations are subject to external quality assurance to ensure consistent performance across all apprenticeship outcomes. Ofqual have been appointed to complete the external quality assurance of the standard. This means any organisation wishing to deliver end point assessment must register with Ofqual prior to applying to the RoAAO.

This flow of responsibility will ensure consistent, reliable and valid judgements across the industry. The assessment methods themselves are designed to produce apprenticeship outcomes that are consistent and reliable, ensuring fair and proper comparison between apprentices employed in different types and sizes of organisation. Consistent, secure standards will be achieved through:

- ✓ Strict requirement to plan the end point assessment, allowing planning of quality assurance by the assessment organisation
- ✓ Assessment tools and supporting materials designed by assessment specialists and quality assured by the assessment organisation to meet the requirements for fair, accurate and reliable assessment decisions against the bus and coach engineering technician apprenticeship standard and ensure best practice in assessment
- ✓ The mandating of both technical and assessment competence and continuing professional development (CPD) for independent end assessors to ensure that they have not only the right tools, but the right qualifications, training and experience to make reliable judgements
- ✓ The quality assurance of individuals conducting independent end assessments and of independent end assessment outcomes and results, by an SFA registered apprentice assessment organisation



- ✓ Requirements for standardisation of independent end assessments across assessment organisations
  - All independent end assessors must take part in standardisation activities on a regular basis (at least annually, or as defined by the assessment organisation).
  - Moderation of results across assessors will be conducted by the assessment organisation to ensure consistent use of the assessment tools and validity and reliability of all assessments
- ✓ The use of written exams prepared specifically for each assessment window combined with two multiple choice exams ensuring a consistent approach regardless of the apprentice's workplace
- ✓ Clear structure for the combination of assessment methods

## Appeals

All assessment organisations are required to have a robust appeals procedure in line with the Ofqual General Conditions of Recognition.

## Reasonable adjustments and extenuating circumstances

Assessment organisations are required to have policies and procedures for reasonable adjustments and extenuating circumstances in line with the Ofqual General Conditions of Recognition.

All policies and procedures must be freely available from the assessment organisation to apprentices, tutors and employers.

## Affordability and implementation

It is anticipated that the end point assessment will cost approximately 15% of the total available funding for the bus and coach engineering technician standard.

The trailblazer has worked closely with stakeholders who will potentially deliver the apprenticeships and an assessment organisation to ensure delivery partners are in place. It is recognised that development work is required to ensure effective implementation this plan, that is the development of assessment tools by assessment organisations and briefings to on-programme delivery providers, which the trailblazer employer group will activity support.



## Annex A – Competence expectations at gateways

There are three gateway competency points in the bus and coach engineering technician apprenticeship. It is expected that an apprentice will have demonstrated competence as prescribed in the employer occupational brief, which can be found at [www.people1st.co.uk](http://www.people1st.co.uk) and [www.soe.org.uk](http://www.soe.org.uk), for their relevant trade specific pathway, which is reviewed and agreed by the employer and education and training provider before progression to the next phase of learning and development.

- Gateway 1 will usually be at the end of the first year of learning and development and is common to all apprentices.
- Gateway 2 will usually be at the end of the second year of learning and development and is split into two sets of competencies, one for apprentices following the coach builder trade specific role and the other for apprentices following other trade specific roles.
- Gateway 3 is readiness for independent end assessment when an apprentice will be competent in the core and their trade specific role as dictated in this assessment plan.

## Annex B – Requirements for an Independent End Assessor

An independent end assessor assesses the observations, facilitates the professional discussion and may invigilate the multiple choice and extended answer tests required in the independent end assessment. They are appointed and approved for the purposes of conducting end-point assessment by an independent assessment organisation. This individual must be someone who has nothing to gain from the outcome of the assessment and must not have been involved in the training, on programme assessment or line management of the apprentice.

At any time the assessor is conducting independent end assessment they are acting on behalf of, and are subject to the procedures dictated by, the assessment organisation. To ensure consistent and reliable judgements are made, independent end assessors will be subject to rigorous quality assurance, proportionate to their experience and performance over time. Assessment organisations must develop a quality assurance model based around the White, Red, Amber, Green (WRAG) system to ensure new or poorly performing assessors have additional support and quality assurance checks, and those with a proven track record of high quality performance in assessment can be quality assured with a smaller sample of assessments. All assessors must take part in regular standardisation activities as laid out by the assessment organisation.

This section specifies the mandatory criteria for independent end assessors and includes:

- Assessment organisation will design and conduct training for independent end assessors. This will include requirements for current, appropriate vocational assessment qualifications, such as appropriate units of the Training Assessment Quality Assurance qualification
- Quality assurers must hold a relevant quality assurance qualification as prescribed by the assessment organisation, such as appropriate units of the Training Assessment Quality Assurance qualification
- Specific occupational competence of independent assessors, requirements for training and development including continuous professional development

### a) Occupational Expertise of Independent End Assessors

The requirements set out below relate to all bus and coach engineering technician independent end assessors. Independent end assessors must:

- Have excellent knowledge and understanding of the apprenticeship standard as set out in the industry set employer occupational brief
- Has been trained in independent end assessment to the standard required by the assessment organisation
- Have relevant occupational expertise and knowledge, at the relevant level of the occupational area(s) they are assessing, which has been gained through ‘hands on’ experience in the industry
- Practice standardised assessment principles
- Have sufficient resources to carry out the role of independent end assessor i.e. time and budget
- Hold qualifications, or have undertaken training, that has legislative and technical relevance to the bus and coach engineering technician standard

- Update their occupational expertise and industry knowledge in the areas being assessed through planned Continuous Professional Development

### b) Continuous Professional Development for Independent End Assessors

Independent end assessors also need to have occupational knowledge and skills, current and updated, to show they can understand up to date techniques and methods used in today's bus and coach engineering operations. In particular assessors must demonstrate their competence with emerging vehicle technologies.

It is necessary for independent end assessors to maintain a record of evidence of their continuous professional development (CPD). This is necessary to maintain currency of skills and understanding of the occupational area(s) being assessed, and can be achieved in a variety of ways. It should be a planned process, reviewed on an annual basis, for example as part of an individual's performance review.

Independent assessors should select CPD methods that are appropriate to meeting their development needs. The following provides an example of a variety of methods that can be utilised for CPD purposes.

#### Updating occupational expertise

- Internal and external work placements to gain 'hands on' experience
- Work experience and shadowing External visits to other organisations
- Updated and new training and qualifications
- Training sessions to update skills, techniques and methods
- Visits to educational establishments
- Trade fairs

#### Keeping up to date with sector developments and new legislation

- Relevant sector websites and twitter feeds
- Membership of professional bodies
- Papers and documents on legislative change
- Networking events
- Seminars, conferences, workshops, membership of committees/working parties
- Staff development days

#### Standardising and best practice in assessment

- Regular standardisation meetings with colleagues
- Sharing best practice through internal meetings, news-letters, email circulars, social media
- Comparison of assessment and verification in other sectors

## Annex C – Requirements for core exam – Multiple choice

There are three elements to the exams contained within the bus and coach engineering independent end assessment. There are two multiple choice exams, the first of which has a 'hurdle' section where apprentices must achieve 100% on seven safety critical questions. These will represent 25% of the exam marks available. The remainder of the questions must form a representative sample of the remainder of the criteria detailed below and in Annex D.

A question bank will be developed and piloted by assessment organisations in conjunction with employers and education and training providers. It is strongly recommended that in line with Ofqual mandatory requirements for vocational qualifications, questions are developed in consultation with a representative employer group. If an assessment organisation employs subject matter / technical experts, questions should still be consulted upon with a representative sample of employers to ensure they are up to date and fit for purpose for end assessment. The questions will include some which will be scenario based requiring the apprentice to demonstrate reasoning and joined up thinking and reaching an answer to a sequential problem.

It is expected that the pass mark will be set at 70% with an expected pass range of 70-89%. The pass mark must not be below 70%, but minor flexibility to increase the pass mark and adapt the grade range to allow for effective test design by assessment organisations is permitted. Evidence of employer consultation during question and grading design.

The assessments will be an objective on demand test and will be in multiple-choice and 'drag and drop' or 'correctly label the diagram from these options' (to allow for automated marking). Some questions will require the apprentice to consider a course of action or solution to a situation / problem based on a 'real-life' workplace activity in line with the identified requirements of the standard.

Questions will be written using the language and tone expected for the level of standard. Apprentices taking the tests will be given a proportional sample of these questions which reflect general coverage of the standards to demonstrate competence within the given time constraints.

Each on demand test will last for 60 minutes. Apprentices will complete their tests on-screen unless individual assessment needs dictate a suitable alternative method, such as paper based, or extra time allowance, away from the day to day pressures of work and in a 'controlled' environment, which may be on or off the employers' premises, usually in an assessment centre. The definition of a 'controlled environment' will be clearly defined and explained by the independent end assessor in line with arrangements prescribed by the assessment organisation, prior to scheduling the test and will include environmental requirements such as lighting, space, privacy and the requirements for an invigilator.

Provisional results should ideally be provided instantly when the test is taken online, and immediately upon reconnection if taken offline. The final grade will be confirmed on the grading transcript with the overall result. Any tests taken in an alternative format should have results be provided within 21 working days.

## MCQ exam – Core

EVERY apprentice must complete the MCQ exam (core). The assessment content for the exam is as follows, from which a sample will be selected for the multiple choice test:

Section of MCQ exam	Assessment criteria
<b>Mandatory questions – apprentices must correctly answer questions on:</b>	<ul style="list-style-type: none"> <li>• The importance of working within the health and safety and industry regulations and tolerances when diagnosing and maintaining:               <ul style="list-style-type: none"> <li>• Braking systems</li> <li>• Suspension</li> <li>• Fuel (including hybrid and gas)</li> <li>• Electrical systems</li> <li>• Common rail system</li> <li>• Steering</li> </ul> </li> <li>• Safety of people in the workplace</li> </ul>
<b>Representative sample of questions from:</b>	<ul style="list-style-type: none"> <li>• The relevant safe working procedures which may be covered by:               <ul style="list-style-type: none"> <li>▪ HASWA</li> <li>▪ your organisation's health and safety policy and procedures</li> <li>▪ COSHH regulations</li> <li>▪ PPE regulations</li> <li>▪ codes of practice relevant to vehicle maintenance activities</li> <li>▪ role of safety representatives</li> </ul> </li> <li>• What personal protective clothing and/or equipment is available, this may include protection for the head, skin, hands and feet as well as visibility and noise protection</li> <li>• The safe use of personal protective clothing and/or equipment</li> <li>• What safety equipment is available and whether it is designed to protect individual, work colleagues and/or the general public, including as appropriate:               <ul style="list-style-type: none"> <li>▪ exhaust and fume extraction</li> <li>▪ dust extraction</li> <li>▪ safety guards</li> <li>▪ containment stores</li> <li>▪ insulation</li> <li>▪ welding screens</li> <li>▪ walkways and guard rails</li> <li>▪ machine isolators</li> </ul> </li> <li>• The relevant supplier and manufacturer instructions for the safe use and storage of tools, equipment, materials and products</li> <li>• The correct safe lifting and handling techniques for the size, mass and shape of the load, including as appropriate:               <ul style="list-style-type: none"> <li>▪ hoists</li> <li>▪ cranes</li> <li>▪ trolleys</li> <li>▪ jacks</li> <li>▪ manual lifting</li> </ul> </li> <li>• The importance of removing pollution including toxic gases and waste</li> <li>• The concept and definition of a hazard and risk</li> </ul>

- The importance of reporting hazards and risks
- The differences between an incident, accident and emergency
- The importance of communicating health and safety matters and the methods used to do this, including:
  - verbal
  - written
  - electronic
  - hazard reports
  - risk assessments
  - work records
  - instructions
  - safety audits
  - data sheets
- The importance of cleaning, servicing, storing and maintaining tools and equipment
- How to recognise tool and equipment defects
- The importance of storing expensive, fragile and vulnerable tools and equipment safely
- The reporting procedures for tool and equipment defects
- The importance of dealing promptly with spillages
- The range and limitations of cleaning methods, materials and equipment available
- The hazards associated with particular cleaning materials and their reporting procedures
- Statutory requirements for storage, disposal, discharge or containment of substances used in vehicle engineering and maintenance workshops
- How to achieve effective working relationships with colleagues
- How to achieve effective communications with colleagues
- how to select and use the correct hand tools and equipment for relevant jobs in a bus/coach engineering and maintenance workshop
- The range of hand tools and equipment used in a bus/coach engineering and maintenance workshop
- The range of tools and equipment used in common joining and locking methods
- How to use a range of measuring tools and equipment to determine:
  - length
  - diameter
  - depth
  - ovality
  - taper
  - run-out
  - angle
  - deviation
  - tolerance
  - volts
  - amps
  - ohms

- watts
- how to check tools and equipment to ensure they operate to specification
- How to clean and safely store basic hand tools and equipment for relevant jobs in a bus/coach engineering and maintenance workshop
- The importance of disposing of waste materials safely and the consequences of not doing so to others and the environment
- How to read, calculate and interpret data from hand tools and equipment used in a bus/coach maintenance workshop
- The importance of reporting defects and discrepancies to tools and equipment
- The operating principles of basic bus/coach systems and their associated components including:
  - vehicle layout
  - chassis and body
  - engine and cooling system
  - fuel and lubrication system
  - exhaust and air supply
  - transmission
  - brakes
  - suspension
  - steering
  - electrical systems
- The purpose and use of the facilities that are available, for example, vehicle hoist, pit, bay
- The purpose and use of the tools and equipment available for the repair, including:
  - general hand tools
  - measuring instruments
  - joining tools
  - removal and replacement tools
- How to recognise tool and equipment defects
- The reporting procedures for tool and equipment defects
- Why materials are selected for particular vehicle repairs
- The methods used to join, seal and secure
- How to carry out basic checks on the vehicle
- The basic checks of systems and components required to identify damage, wear, corrosion and security
- The range of activities relevant to bus / coach servicing
- the equipment and facilities required for safe roadside working,
- the equipment, tools and consumables required for carrying out safe and successful temporary and permanent repairs at the roadside
- the personal qualities required for roadside working
- how to use and maintain communication techniques before, during and after the roadside activity
- the importance of working with the traffic police and/or their agents to maintain road safety and minimise traffic disruption
- how to clarify and assess the details of the roadside



- how to secure the roadside situation in a safe and controlled manner
- the essential technical skills required to operate a roadside breakdown vehicle and to rectify bus/coach faults in a timely and efficient manner
- the importance of reporting defects and discrepancies to tools and equipment
- the range of inspection techniques
- the critical tolerances, standards and specifications contained within relevant sources of information
- how to source and use relevant information for planning and progressing your work
- how to carry out of vehicle inspections for the full range of passenger carrying vehicles determined by the conditions of the 'O' licence using efficient and safe methods
- how inspection standards are maintained
- the prohibition notices used by the police and the Vehicle Inspectorate
- what is meant by prohibitions, exemptions, discretions and obstructions and how they are used
- the actions and responsibilities required to maintain vehicle roadworthiness
- how to calibrate specialised equipment prior to test
- how to ensure that inspection tools, equipment and facilities are maintained and serviced prior to inspections
- the measuring equipment available to verify the vehicle standard including brake tester, emissions tester and headlamp aligner
- how to conduct inspections on bus/coach systems
- the visual and test operations to support the inspection activity
- the importance of critical tolerances to pass/fail testable items
- how to record inspection items

## Annex D – Requirements for examinations – Multiple choice specialist function and Written

The written exam will comprise six short answer questions and two extended answer questions.

The short answer questions will require answers of approximately one or two sentences, but will not be limited on word count and should include context based questions requiring the apprentice to demonstrate reasoning and joined up thinking against the standard.

The extended answer questions will require the apprentice to consider a course of action or solution to a situation / problem based on a 'real-life' workplace activity in line with the identified requirements of the standard and accurately describe a process, using diagrams to support their answer. Marks should be allocated for the process as well as the correct solution to the given scenario.

Questions will be written using the language and tone expected for the level of standard. Apprentices taking the tests will be given a proportional sample of these questions which reflect general coverage of the standards to demonstrate competence within the given time constraints.

The written exam will last for 2 hours. Exams will be scheduled for 10:00 on the first day of each assessment window. Exams may only be used once. Apprentices will complete their tests in an assessment centre, away from the day to day pressures of work and in a 'controlled' environment, which may be on or off the employers' premises. The definition of a 'controlled environment' will be clearly defined and explained by the independent end assessor in line with arrangements prescribed by the assessment organisation, prior to scheduling the test and will include environmental requirements such as lighting, space, privacy and the requirements for an invigilator.

Results should be provided within 35 working days of the exam being administered by the assessment organisation.

Should an apprentice fail an exam they must be given a different set of questions upon retake.

## Trade specific Multiple Choice and Written exam – Trade specific role: Mechanical

The assessment content for the trade specific (Mechanical) exam is as follows, from which a sample will be selected for the multiple choice test and written paper:

### Assessment criteria

- the possible reasons for breakdowns including continual and intermittent faults
- the relevant diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work
- the appropriate diagnostic tool for the perceived fault
- how to source relevant information for planning and progressing your work
- the possible causes of faults in bus/coach systems and their relationship to the most logical method of fault diagnosis
- the preparation procedures required to ensure accuracy of the diagnosis
- the diagnostic methods and techniques employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations
- how to analyse and determine diagnostic results which could include comparisons of efficiency and safety implications
- the risk assessment procedures that have to be adopted when undertaking a diagnostic task
- how to report different forms of diagnostic information to ensure clarity of detail and understanding
- the importance of reporting accurately your diagnostic conclusions
- the operation and care of workshop test equipment used to diagnose mechanical faults
- the importance of leaving workshop equipment in a clean and workable condition
- the procedures for reporting defects to workshop tools and equipment
- how to source relevant information for planning and progressing your work
- the relevant information and specifications from suppliers and manufacturers
- the ways to source components and ensure that they are fit for purpose
- the methods and techniques used to remove and replace components
- the way to safely remove and replace components and units from a variety of bus/coach systems taking into consideration the location, mass, robustness, fragility and sequence of disassembly/assembly
- the safe working practices to remove and replace components and units
- the way to use relevant information for planning and progressing your work
- the importance of a rectified component meeting the manufacturers' specifications for operational soundness and/or warranty
- the tools and equipment available and relevant for the replacement
- the safe working methods and techniques when using tools and equipment designed to aid the rectification process and prevent damage to
- how to recognise tool and equipment defects
- the reporting procedures for tool and equipment defects
- the importance of leaving tools and equipment clean and secure
- the importance of disposing of the waste materials
- the importance of reporting the progress and completion of the rectification including, providing information on the parts used, follow-up work and potential problems
- the critical tolerances, standards and specifications contained within relevant sources of information
- the relevant suppliers' and manufacturers' information and specifications

- how to source and use relevant information for planning and progressing your work
- how to carry out scheduled bus/coach mechanical maintenance to an agreed timescale using an efficient and safe route
- how to carry out mechanical maintenance on systems and components related to, including as appropriate:
- how to check maintained mechanical components to ensure compliance with specification in the following areas
- how to calibrate and check specified service tools and the importance of this
- how to check and make service adjustments
- how to replenish and replace routine service components and materials
- how to inspect mechanical systems and components for damage, wear and corrosion
- how to operate workshop equipment used for scheduled mechanical maintenance and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects
- how to dispose of the waste materials produced as a result of mechanical maintenance activities in accordance with safe working practices and approved procedures
- the importance of reporting the progress and completion of the maintenance to include providing information on the parts used follow up work and potential problems
- the relevant statutory and contractual obligations to record and safely document completed service and maintenance records
- the diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work
- how to source and use relevant information for planning and progressing your work
- the possible causes of faults in bus/coach systems and their relationship to the most logical method of fault diagnosis
- how to diagnose faults in the following systems
- the preparation procedures required to ensure accuracy of the diagnosis
- the diagnostic methods and techniques employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations
- how to analyse and determine diagnostic results: this should include understanding the implications of the fault for other work and safety implications
- the operation and care of workshop test equipment used to diagnose mechanical faults and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects
- the risk assessment procedures that have to be adopted when undertaking a diagnostic task
- the importance of completing fault diagnosis within the agreed time and the accurate reporting of your diagnostic conclusions
- the way different forms of diagnostic information is reported and presented to ensure clarity of detail and understanding

## Trade specific Multiple Choice and Written exam – Trade specific role: Electrical

The assessment content for the trade specific (Electrical) exam is as follows, from which a sample will be selected for the multiple choice test and written paper:

### Assessment criteria

- the possible reasons for breakdowns including continual and intermittent faults
- the relevant diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work
- the appropriate diagnostic tool for the perceived fault
- how to source relevant information for planning and progressing your work
- the possible causes of faults in bus/coach systems and their relationship to the most logical method of fault diagnosis
- the preparation procedures required to ensure accuracy of the diagnosis
- the diagnostic methods and techniques employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations
- how to analyse and determine diagnostic results; this could include comparisons of efficiency and safety implications
- the risk assessment procedures that have to be adopted when undertaking a diagnostic task
- how to report different forms of diagnostic information to ensure clarity of detail and understanding
- the importance of reporting accurately your diagnostic conclusions
- the operation and care of workshop test equipment used to diagnose mechanical faults
- the importance of leaving workshop equipment in a clean and workable condition
- the procedures for reporting defects to workshop tools and equipment
- how to source relevant information for planning and progressing your work
- the information and specifications from relevant suppliers and manufacturers
- the ways to source components and ensure that they are fit for purpose
- the methods and techniques used to remove and replace components
- the way to safely remove and replace components and units from a variety of bus/coach systems taking into consideration the location, mass, robustness, fragility and sequence of disassembly/assembly
- the safe working practices to remove and replace components and units
- the way to use relevant information for planning and progressing your work
- the importance of a rectified component meeting the manufacturers' specifications for operational soundness and/or warranty
- the tools and equipment available and relevant for the replacement
- the safe working methods and techniques when using tools and equipment designed to aid the rectification process and prevent damage to
- how to recognise tool and equipment defects
- the importance of leaving tools and equipment clean and secure
- the importance of disposing of the waste materials
- the importance of reporting the progress and completion of the rectification including, providing information on the parts used, follow-up work and potential problems
- the critical tolerances, standards and specifications contained within relevant sources of information
- how to source and use relevant information for planning and progressing your work
- how to carry out scheduled bus/coach electrical maintenance to an agreed timescale using an

- efficient and safe route how to carry out scheduled electrical maintenance to the following
- systems and components, including as appropriate:
    - battery, charging and starting systems
    - lighting systems
    - auxiliary systems
    - instrumentation and warning systems
    - electrical/electronic diagnostics
    - electrical and electronic transmission
  - how to check maintained electrical systems to ensure compliance with specification
  - how to calibrate and check specified service tools and to know the importance of this
  - how to check and make service adjustments in accordance with relevant data
  - how to replenish and replace routine service components and materials
  - how to inspect electrical systems and components for damage, wear and corrosion
  - how to operate workshop equipment used for scheduled electrical maintenance and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects
  - how to dispose of the waste materials produced as a result of electrical maintenance activities in accordance with safe working practices and approved procedures
  - the importance of reporting the progress and completion of the maintenance to include providing information on the parts used, follow up work and potential problems
  - the relevant statutory and contractual obligations to record and safely document completed service and maintenance records
  - the diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work instructions
  - how to source and use relevant information for planning and progressing your work
  - the possible causes of faults in bus/coach systems and their relationship to the most logical method of fault diagnosis
  - how to diagnose faults in the following systems, including as appropriate:
    - 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
  - the preparation procedures required to ensure the accuracy of the diagnosis
  - the diagnostic methods and techniques employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations
  - how to analyse and determine diagnostic results which should include understanding the implications of the fault for other work and safety implications
  - the operation and care of workshop test equipment used to diagnose electrical faults and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects
  - the importance of completing fault diagnosis within the agreed time and the accurate reporting of your diagnostic conclusions

- the way different forms of diagnostic information are reported and presented to ensure clarity of detail and understanding
- the type of constraints which influence the repair method chosen
- how to source and use relevant information for planning and progressing your work
- the layout and operation of bus/coach electrical systems and their associated components
- how to repair faults in bus/coach electrical systems and components
- the methods undertaken for repair in the main bus/coach systems
- the checks on a completed repair to ensure they meet company and regulatory standards
- how to operate workshop equipment and tools used to repair electrical faults and to leave them after use in a clean and workable condition and to know the control procedures for reporting defects
- how different types of repair activities are reported and presented to ensure clarity and accuracy of detail
- the importance of reporting the progress and completion of the complex repair including the provision of information on the parts used follow up work and potential problems



## Trade specific Multiple Choice and Written exam – Trade specific role: Coach Builder

The assessment content for the trade specific (Coach Builder) exam is as follows, from which a sample will be selected for the multiple choice test and written paper:

### Assessment criteria

- how to source relevant information for planning and progressing your work
- the methods used to check damaged and potentially damaged components for compliance
- the techniques to repair bus/coach body components
- the factors which determine whether a damaged component should be repaired or replaced
- how to compare and report on the methods used for the repair of bus/coach body components to enable an informed assessment to be made taking into account the constraints which apply
- the factors which influence the repair methods and techniques used including legislation, quality standards and manufacturers' warranties
- how to source relevant information for planning and progressing your work
- the ways to source components and ensure that they are fit for purpose
- body repair techniques
- the best repair methods for a bus/coach body repair activity considering the type of vehicle construction, materials used, anticipated loading, warranty and legislation
- the way to use relevant information for planning and progressing your work; this could include for example, electronically stored information and/or manufacturer's workshop manuals
- the importance of ensuring the completed repair meets the required organisational, manufacturer and regulatory expectations
- the purpose and use of the tools and equipment used for repairing bus/coach body components
- how to apply safe working methods and techniques
- how to recognise tool and equipment defects
- the reporting procedures for tool and equipment defects
- the importance of leaving tools and equipment clean and secure
- the importance of disposing of waste materials safely and the consequences of not doing so to others and the environment
- the importance of reporting the progress and completion of the repair
- activity to include providing information on the parts used, follow-up work and potential problems
- the techniques used to apply paint coats and to complete painting
- activities
- how to prepare materials and surrounding bodywork prior to the application of paint materials
- the methods used to prepare panels and components prior to accepting foundation materials
- how to source and use relevant information for planning and progressing your work
- the methods used to prepare paint materials to meet the specifications required for colour match and viscosity
- the methods used to prepare foundation materials prior to the application of subsequent coats
- the methods used to prepare, test, adjust and use paint application and preparation equipment
- how to identify and rectify the faults associated with painting body panels and components
- the procedures for shutting down the painting equipment in a safe manner
- the importance of disposing of waste materials safely and the consequences of not doing so to others and the environment
- the importance of leaving workshop equipment in a clean and workable condition

- the procedures for reporting defects to workshop tools and equipment
- the critical tolerances, standards and specifications contained within
- relevant sources of information
- how to source and use relevant information for planning and progressing your work
- how to carry out scheduled bus/coach body maintenance to an agreed timescale using an efficient and safe route
- how to check maintained body systems to ensure compliance with
- specification
- how to calibrate and check specified service tools and the importance of this
- how to check and make service adjustments
- how to replenish and replace routine service components and materials
- how to inspect body systems and components for damage, wear and corrosion
- how to operate workshop equipment used for scheduled body maintenance and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects
- the importance of disposing of waste materials safely and the consequences of not doing so to others and the environment
- the importance of reporting the progress and completion of the maintenance to include providing information on the parts used, follow up work and potential problems
- the relevant statutory and contractual obligations to record and safely document completed service and maintenance records the permitted tolerances, limits and standards for the repair activity
- how to source and use relevant information for planning and progressing your work
- the methods used to check damaged and potentially damaged
- components for compliance
- the factors which determine whether a damaged component should be repaired or replaced
- how to determine the feasibility of body repairs
- how to use the information sources which are available to assist in determining the extent of body damage
- how to compare the methods used for the repair of bus/coach body components to enable an informed assessment to be made, taking into account the constraints which apply
- the factors which influence the repair methods and techniques used
- the methods and techniques used to repair bus/coach body components
- the type of constraints, which influence the repair methods used
- body repair activities including techniques involving repair by removal and replacement, fabrication and forming
- the best methods for a bus/coach body repair activity, considering the type of construction, materials used, anticipated loading, warranty and legislation
- how to carry out compliance checks of partially and fully completed repaired bus/coach body components
- the tools and equipment required to complete bus/coach body repairs to interior/exterior body components
- how to operate the workshop equipment and tools used to repair body damage and to leave them after use in a clean and workable condition and to know the control procedures for reporting defects
- how different types of repair activities are reported and presented to ensure clarity and accuracy of detail
- the importance of reporting the progress and completion of the repair including the provision of information on the parts used, follow up work and potential problems

## Trade specific Multiple Choice and Written exam – Trade specific role: Mechelec

The assessment content for the trade specific (Mechelec) exam is as follows, from which a sample will be selected for the multiple choice test and written paper:

### Assessment criteria

- the possible reasons for breakdowns including continual and intermittent faults
- the relevant diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work
- the appropriate diagnostic tool for the perceived fault
- how to source relevant information for planning and progressing your work
- the possible causes of faults in bus/coach systems and their relationship to the most logical method of fault diagnosis
- the preparation procedures required to ensure accuracy of the diagnosis
- the diagnostic methods and techniques employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations
- how to analyse and determine diagnostic results which could include comparisons of efficiency and safety implications
- the risk assessment procedures that have to be adopted when undertaking a diagnostic task
- how to report different forms of diagnostic information to ensure clarity of detail and understanding
- the importance of reporting accurately your diagnostic conclusions
- the operation and care of workshop test equipment used to diagnose mechanical faults
- the way to safely remove and replace components and units from a variety of bus/coach systems taking into consideration the location, mass, robustness, fragility and sequence of disassembly/assembly
- the safe working practices to remove and replace components and units
- the importance of a rectified component meeting the manufacturers' specifications for operational soundness and/or warranty
- the relevant suppliers' and manufacturers' information and specifications
- how to source and use relevant information for planning and progressing your work
- how to calibrate and check specified service tools and the importance of this
- how to check and make service adjustments
- the diagnostic aids available to diagnose a range of faults based on an accurate interpretation of work
- the possible causes of faults in bus/coach systems and their relationship to the most logical method of fault diagnosis
- the preparation procedures required to ensure accuracy of the diagnosis
- the diagnostic methods and techniques employed to diagnose faults including the use of systematic testing using visual, aural, measurement based readings and simulations
- how to analyse and determine diagnostic results: this should include understanding the implications of the fault for other work and safety implications
- the operation and care of workshop test equipment used to diagnose mechanical faults and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects
- the risk assessment procedures that have to be adopted when undertaking a diagnostic task
- the importance of completing fault diagnosis within the agreed time and the accurate reporting of your diagnostic conclusions

- the way different forms of diagnostic information is reported and presented to ensure clarity of detail and understanding
- how to check maintained electrical systems to ensure compliance with specification
- how to inspect electrical systems and components for damage, wear and corrosion
- how to dispose of the waste materials produced as a result of electrical maintenance activities in accordance with safe working practices and approved procedures
- the importance of reporting the progress and completion of the maintenance to include providing information on the parts used, follow up work and potential problems
- the relevant statutory and contractual obligations to record and safely document completed service and maintenance records
- how to diagnose faults in the following systems, including as appropriate:
  - 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
- the operation and care of workshop test equipment used to diagnose electrical faults and to leave it after use in a clean and workable condition and to know the control procedures for reporting defects
- the type of constraints which influence the repair method chosen
- the layout and operation of bus/coach electrical systems and their associated components
- how to repair faults in bus/coach systems and components
- the methods undertaken for repair in the main bus/coach systems
- the checks on a completed repair to ensure they meet company and regulatory standards
- how to operate workshop equipment and tools used to repair electrical faults and to leave them after use in a clean and workable condition and to know the control procedures for reporting defects
- how different types of repair activities are reported and presented to ensure clarity and accuracy of detail
- the importance of reporting the progress and completion of the complex repair including the provision of information on the parts used follow up work and potential problems

## Annex E – Observation requirements

There are two observations each apprentice must complete during their independent end assessment.

**Observation A** requires apprentices to walk around the vehicle with the assessor and describe how to perform a safety inspection. This activity should last 60 minutes, but must be completed within 90 minutes.

**Observation B** requires each apprentice to inspect, diagnose and repair on one scenario from a list of six relevant to their trade specific role. Each scenario will last between 90 and 120 minutes. A range of scenarios have been supplied below for each area of competence to ensure each apprentice is fully prepared for any eventuality.

Assessment organisations must ensure that the assessment activities combined cover the whole range of competencies in the employer occupational brief, for example if braking is covered in a long answer question on the written exam practical activities would be expected to focus more heavily on other competencies.

If multiple apprentices are being assessed on the same day at the same location assessment organisations must either:

- a) Provide secure, comfortable facilities for apprentices to wait prior to the test where they cannot become aware of the scenarios they will face, or
- b) Rotate scenarios across assessments so an apprentice does not know which scenario they will face until they are attending the vehicle

Assessors from the education and training provider may act as observers and recorders for the observations under the watch of an independent end assessor from the assessment organisation. Each observer/recorder can only observe one apprentice at a time, but the independent end assessor can monitor three observers.

## Observation A

### Observation A – Every apprentice, regardless of trade specific role, must:

<p><b>Task description</b></p>	<p>An observation of the apprentice conducting an inspection on a vehicle simulating the requirements for the DVSA test. The inspection will last approximately one hour and will be completed on a single deck or double deck, DDA compliant, commercially specified bus, and will be the same regardless of the apprentice’s specialist trade.</p> <p>A second person will be required to assist with specific elements of the test, such as checking the operation of lights. The observation must utilise a sample assessment checklist with identical requirements to the DVSA checklist, such as that in the ‘Guide to maintaining roadworthiness’</p> <p>The vehicle should have at least one DVSA ‘annual test fail’ defect for the test, e.g. a missing split pin from a steering joint, or a cut tyre with exposed cord.</p> <p>This observation does not include the road test, brake test or smoke test on the full DVSA test. An independent (competent) second person will be required for specific elements of the test. The second person can only respond to direct, appropriate instructions from the apprentice.</p>
<p><b>In order to pass an apprentice will:</b></p>	<ul style="list-style-type: none"> <li>• The apprentice will complete the inspection within 90 minutes</li> <li>• Every element required on the inspection will be completed</li> <li>• The ‘fail’ will be correctly identified and recorded</li> <li>• Complete all required documentation correctly and legibly</li> </ul>
<p><b>In order to achieve a distinction apprentices must, in addition to achieving all pass criteria:</b></p>	<ul style="list-style-type: none"> <li>• Communicate effectively with the second person, utilising their time efficiently</li> <li>• Inspect the vehicle logically, completing tasks in ‘groups’ to maximise time</li> </ul>

## Observations B - Trade specific role: Mechanical

<b>Observation B</b> <b>Apprentices must complete ONE of the following scenarios from section B</b>	
<b>Assessment organisations must set up a vehicle with a fault that would display one of the following symptoms. The fault must be one that would take 90-120 minutes to effectively diagnose. The apprentice will then describe the action they would take after correct identification of the fault.</b>	
<b>Scenarios</b>	<ul style="list-style-type: none"> <li>Air system not building air on a bus or coach</li> <li>Bus fails minimum DVSA standard for a brake test – inform of which wheel has been identified as the fail</li> <li>Report of heavy steering</li> <li>Suspension ride height in excess of specification (underlying cause is mechanical)</li> <li>Excessive noise from the engine – at least one valve clearance has been identified as incorrect</li> <li>Vibration reported whilst driving, road test has been conducted and a specific area of the vehicle has been identified (transmission – fault should only be within section IM57 of the DVSA manual)</li> </ul>
<b>In order to pass an apprentice will:</b>	<ul style="list-style-type: none"> <li>Work logically to diagnose the fault</li> <li>Correctly identify required replacement parts</li> <li>describe the process for obtaining the part(s)</li> <li>Describe how they would rectify the fault</li> <li>Describe the testing process to ensure the fault has been rectified</li> <li>Describe how the vehicle would be road checked (regardless of the fault / repair)</li> <li>Complete a job card (as if full repair and test had occurred – assuming no further faults)</li> </ul>
<b>In order to achieve a distinction apprentices must, in addition to achieving all pass criteria:</b>	<ul style="list-style-type: none"> <li>Identify best practice checks for associated parts and systems, and ancillary tests appropriate to the fault / repair selected</li> <li>State that a daily / first use vehicle check would be completed prior to the test drive to ensure vehicle was roadworthy</li> </ul>



## Observations B - Trade specific role: Electrical

<b>Observation B</b> <b>Apprentices must complete ONE of the following scenarios from section B</b>	
<b>Assessment organisations must set up a vehicle with a fault that would display one of the following symptoms. The fault must be one that would take 90-120 minutes to effectively diagnose. The apprentice will then describe the action they would take after correct identification of the fault.</b>	
<b>Scenarios</b>	<ul style="list-style-type: none"> <li>• Evidence of non-charging</li> <li>• Rear light not working, root cause must be related to no live feed or wiring fault</li> <li>• Following an accident, the full back of the bus is damaged, both rear light clusters and the rear number plate are severely damaged and have fallen off of the vehicle leaving exposed, unidentified wiring</li> <li>• Vehicle will not start (underlying cause is electrical system failure)</li> <li>• ABS warning light activates on the dashboard (fault on the ABS system)</li> <li>• Suspension ride height in excess of specification (underlying cause is electrical)</li> </ul>
<b>In order to pass an apprentice will:</b>	<ul style="list-style-type: none"> <li>• Work logically to diagnose the fault</li> <li>• Correctly identify required replacement parts</li> <li>• describe the process for obtaining the part(s)</li> <li>• Describe how they would rectify the fault</li> <li>• Describe the testing process to ensure the fault has been rectified</li> <li>• Describe how the vehicle would be road checked (regardless of the fault / repair)</li> <li>• Complete a job card (as if full repair and test had occurred – assuming no further faults)</li> </ul>
<b>In order to achieve a distinction apprentices must, in addition to achieving all pass criteria:</b>	<ul style="list-style-type: none"> <li>• Effectively use wiring diagrams and testing equipment when diagnosing faults and ensure that associated systems are checked as part of the repair</li> <li>• State that a daily / first use vehicle check would be completed prior to the test drive to ensure vehicle was roadworthy</li> </ul>

## Observations B - Trade specific role: Coach Builder

<b>Observation B</b> <b>Apprentices must complete ONE of the following scenarios from section B</b>	
<b>Assessment organisations must set up a vehicle requiring a repair that would take 90-120 minutes to effectively complete. The apprentice will then describe the action they would take after correct completion of the repair</b>	
<b>Scenarios</b>	<ul style="list-style-type: none"> <li>• Replace a complete floor section</li> <li>• Construct Fire Extinguisher holder to fit pre-defined orifice from technical drawing</li> <li>• Driver has reported door not closing properly – need to replace Ram assembly</li> <li>• Minor accident repair required to an exterior body panel</li> <li>• Small brush paint repair required to skirt / exterior panel following a shunt</li> <li>• Seat trim requires repair following customer damage</li> </ul>
<b>In order to pass an apprentice will:</b>	<ul style="list-style-type: none"> <li>• Work logically to plan the repair</li> <li>• Correctly identify required resources</li> <li>• describe the process for obtaining the resources(s)</li> <li>• Carry out the repair to the vehicle</li> <li>• Describe the testing process to ensure the repair has been carried out to the correct standard</li> <li>• Describe how the vehicle would be road checked (regardless of the fault / repair)</li> <li>• Complete a job card (as if full repair and test had occurred – assuming no further faults)</li> </ul>
<b>In order to achieve a distinction apprentices must, in addition to achieving all pass criteria:</b>	<ul style="list-style-type: none"> <li>• Take precautions to protect surrounding areas from repairs, ensuring repairs adhere to and promote the brand / organisation’s standards</li> <li>• State that a daily / first use vehicle check would be completed prior to the test drive to ensure vehicle was roadworthy</li> </ul>

## Observations B - Trade specific role: Mechelec

<b>Observation B</b> <b>Apprentices must complete ONE of the following scenarios from section B</b>	
<b>Assessment organisations must set up a vehicle with a fault that would display one of the following symptoms. The fault must be one that would take 90-120 minutes to effectively diagnose. The apprentice will then describe the action they would take after correct identification of the fault</b>	
<b>Scenarios</b>	<ul style="list-style-type: none"> <li>Doors not functioning, Multiplex light on</li> <li>Gearbox temperature warning light on</li> <li>Active Drive Line Multiplex Warning Light</li> <li>MIL Light and Emission / Engine Derate Fault (set up an appropriate mechanical or electrical fault)</li> <li>Failed injector (set up an appropriate mechanical or electrical fault)</li> <li>Fault with the accumulated pressure system (could be with the gear pump, cam housing, distributor, OCV or accumulator)</li> </ul>
<b>In order to pass an apprentice will:</b>	<ul style="list-style-type: none"> <li>Work logically to diagnose the fault</li> <li>Correctly identify required replacement parts</li> <li>describe the process for obtaining the part(s)</li> <li>Describe how they would rectify the fault</li> <li>Describe the testing process to ensure the fault has been rectified</li> <li>Describe how the vehicle would be road checked (regardless of the fault / repair)</li> <li>Complete a job card (as if full repair and test had occurred – assuming no further faults)</li> </ul>
<b>In order to achieve a distinction apprentices must, in addition to achieving all pass criteria:</b>	<ul style="list-style-type: none"> <li>Effectively use wiring diagrams and testing equipment when diagnosing faults and ensure that associated systems are checked as part of the repair</li> <li>Identify best practice checks for associated parts and systems, and ancillary tests appropriate to the fault / repair selected</li> <li>State that a daily / first use vehicle check would be completed prior to the test drive to ensure vehicle was roadworthy</li> </ul>

## Annex F – Log of behaviours

At each annual review the apprentice, on programme assessor and employer will discuss the apprentice's progress against their individual learning plan. As part of this review the behaviours must be evaluated.

During the professional discussion the apprentice will be required to revisit these reviews and demonstrate their behavioural performance over the course of the standard.

## Annex G – Professional discussion specification

The professional discussion is a structured discussion between the apprentice and their independent end assessor and an engineering manager<sup>2</sup> from another bus or coach operator. The employer may be invited to the meeting to assist in contextualising the discussion if required. Wherever possible the independent end assessor should be the same person who conducted the observations. It allows the independent end assessor to ask the apprentice questions in relation to:

- ✓ Behaviours
- ✓ The period of learning, development and continuous assessment
- ✓ Coverage of the standard
- ✓ Personal development and reflection

The apprentice will be informed of the requirements prior to the discussion, and will refer to any relevant work place evidence which they can provide, at least 10 days in advance, at the request of the independent end assessor. The discussion must be appropriately structured to draw out the best of the apprentice's energy, enthusiasm, competence and excellence. The first ten minutes of the professional discussion will focus on the evidence provided for the behaviours element of the standard as outlined in Annex F, the remaining 50 will focus on the whole standard, in relation to the assessment criteria set out below.

A standard template supplied by the assessment organisation which can be contextualised by the independent end assessor for each assessment will be used, to ensure that standards are secure but interviewers are able to focus on key areas for confirmation of performance and effective appraisal of the evidence base. This will ensure that consistent approaches are taken and that all key areas are appropriately explored. The professional discussion will be planned in advance to allow for quality assurance and the apprentice will be given the template in advance so they are able to prepare responses and additional evidence.

In order to achieve the professional discussion, the apprentice will demonstrate their competence against each of the assessment criteria below. The apprentice may explain how they have achieved these knowledge, skills and behaviours in their workplace, using supporting documentation as appropriate. Once the assessor is satisfied the apprentice knows, shows and lives these sections on a consistent basis they will conclude the discussion.

The professional discussion will last sixty minutes and will be scored by the independent assessor and the engineering manager using the standard template. The template will record full details of all marks applied (and evidence referenced) by the assessor. The professional discussion will be conducted in an assessment centre.

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<sup>2</sup> The employer panel member must currently, or have previously (within 5 years) been an engineering manager in a bus and coach operating environment. They must not have had any part in the learning and development or line management of the apprentice.

## Professional discussion assessment criteria

### Assessment requirements for professional discussion

In order to pass an apprentice will:

- The maintenance schedules required to comply with your organisation's policies and procedures as well as legal requirements; these may include first use inspection, daily, weekly, monthly and annual service
  - How to source and interpret relevant information for planning and progressing your work
  - How to complete servicing activities, including the methods, materials and tests used
  - The range of activities relevant to bus/coach servicing
  - The timescales allocated for checks and servicing and the procedures for obtaining authorisation to change or modify the laid down service specification
  - The importance of and procedures required for recording service activities
  - The extent of your own responsibility and to whom you should report if you have problems that you cannot solve
  - the range of inspection techniques
  - use of organisational checklists
  - the critical tolerances, standards and specifications contained within relevant sources of information, including:
    - the tester's manual
    - categorisation of defects manual
    - group or company engineering manual
    - DVSA guide to maintaining roadworthiness
    - manufacturers' workshop manuals
    - detailed engineering drawings
  - how to source and use relevant information for planning and progressing your work
  - how to carry out of vehicle inspections for the full range of passenger carrying vehicles determined by the conditions of the 'O' licence using efficient and safe methods
  - how inspection standards are maintained
  - the prohibition notices used by the police and the Vehicle Inspectorate
  - what is meant by prohibitions, exemptions, discretions and obstructions and how they are used
  - the actions and responsibilities required to maintain vehicle roadworthiness
  - how to calibrate specialised equipment prior to
  - how to ensure that inspection tools, equipment and facilities are maintained and serviced prior to inspections
  - the measuring equipment available to verify the vehicle standard including brake tester, emissions tester and headlamp aligner
  - the visual and test operations to support the inspection activity
  - the importance of critical tolerances to pass/fail testable items
  - how to record inspection items
- identify the knowledge, understanding and skills needed for your role

and evaluate your own performance against these

- identify relevant standards and competence frameworks and evaluate your performance
- identify relevant organisational, legal and licensing requirements and evaluate your working practices in relation to them
- identify any gaps in your work skills and/or knowledge and understanding
- draw up a personal development plan, including goals and/or targets and timelines, for developing your knowledge, understanding, skills and behaviours
- set objectives for the ongoing development of your knowledge, skills and understanding
- keep up to date on industry issues and be able to recognise how changes in the industry affect you and the changes you need to make to carry out your role
- discuss and agree where relevant with the appropriate person in your organisation how you will receive the development you need and get feedback
- the knowledge, understanding and skills you need to carry out your role
- the standards relevant to your role e.g. National Occupational Standards
- how to evaluate your own performance
- how to obtain feedback on your performance including feedback from learners and other professionals
- how to record and evaluate professional development activities in a reflective log as part of ongoing professional development
- how gaps in your own skills and knowledge can affect your performance and your organisation
- how to set and prioritise realistic personal goals and/or targets
- how to set personal learning objectives to meet goals and/or targets
- the types of development opportunities that are available including formal and informal opportunities
- relevant and current sources of information on the industry and on other professional initiatives e.g. training, business
- how to evaluate potential development opportunities
- the benefits of training and other forms of development and how to evaluate their impact
- how to monitor your progress against your development plans
- the bus/coach industry at local and national level, relevant to your role