

# Heavy vehicle service and maintenance technician standard: Employer Occupational Brief



**July 2016**

## 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 on the following pages 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
- Gateway 2 will usually be at the end of the second year of learning and development
- 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 the assessment plans

Employers and education and training providers should utilise the content of this document to assist in the design of the learning and development phase of the apprenticeship.

References to National Occupational Standards (NOS) are included in the table below. NOS are held in an online database found here: <http://nos.ukces.org.uk/Pages/index.aspx>

## Commencement of programme

<b>Knowledge</b>  <b>Ref NOS:</b> <b>IMIARBG1</b> <b>IMIARBG2</b> <b>IMIARBG3</b> <b>IMIARBG4</b> <b>IMIHV01</b> <b>IMIHV04</b>	<ul style="list-style-type: none"> <li>• Understand the correct personal and vehicle protective equipment to be used within the automotive environment</li> <li>• Understand effective housekeeping practices in the automotive environment</li> <li>• Understand key health and safety requirements relevant to the automotive environment</li> <li>• Understand about hazards and potential risks relevant to the automotive environment</li> <li>• Understand personal responsibilities when working in the automotive environment</li> <li>• Understand key organisational structures, functions and roles within the automotive work environment</li> <li>• Understand the importance of obtaining, interpreting and using information in order to support their job role within the automotive work environment</li> <li>• Understand the importance of obtaining, interpreting and using information in order to support their job role within the automotive work environment</li> <li>• Understand communication requirements when carrying out vehicle repairs in the automotive work environment</li> <li>• Understand how to develop good working relationships with colleagues and customers in the automotive workplace</li> <li>• Understand how to select, use and care for hand tools and measuring devices in the automotive environment</li> <li>• Understand how to prepare and use common workshop equipment</li> <li>• Understand how to select materials when fabricating, modifying and repairing vehicles and fitting components</li> <li>• Understand how to apply automotive engineering, fabrication and fitting principles when modifying and repairing vehicles and components</li> <li>• Understand how to carry out routine heavy vehicle maintenance</li> <li>• Understand the legal requirements applicable to carrying out heavy vehicle maintenance</li> <li>• Understand how heavy vehicle steering systems operate</li> <li>• Understand how heavy vehicle suspension systems operate</li> <li>• Understand how heavy vehicle braking systems operate</li> <li>• Understand how heavy vehicle wheel and tyre systems operate</li> <li>• Understand the health and safety aspects when working on loaded vehicles</li> <li>• Understand how to check, replace and test heavy vehicle chassis units and components</li> </ul>	<b>Typically year 1</b>
<b>Skills</b>  <b>Ref NOS:</b> <b>IMIARBG1</b>	<ul style="list-style-type: none"> <li>• Be able to use correct personal and vehicle protection within the automotive environment</li> <li>• Be able to carry out effective housekeeping practices in the automotive environment</li> <li>• Be able to recognise and deal with dangers in order to work safely within the automotive workplace</li> <li>• Be able to conduct themselves responsibly</li> </ul>	

IMIARBG2	<ul style="list-style-type: none"> <li>• Be able to work effectively within the organisational structure of the automotive work environment</li> </ul>
IMIARBG3	<ul style="list-style-type: none"> <li>• Be able to obtain and use information in order to support their job role within the automotive work environment</li> </ul>
IMIARBG4	<ul style="list-style-type: none"> <li>• Be able to communicate with and support colleagues and customers effectively within the automotive work environment</li> </ul>
IMIHV01	<ul style="list-style-type: none"> <li>• Be able to develop and keep good working relationships in the automotive work environment</li> </ul>
IMIHV04	<ul style="list-style-type: none"> <li>• Be able to select, maintain and use hand tools and measuring devices in the automotive environment</li> <li>• Be able to prepare and use common workshop equipment</li> <li>• Be able to select materials when fabricating, modifying and repairing vehicles and fitting components</li> <li>• Be able to apply automotive engineering, fabrication and fitting principles when modifying and repairing vehicles and components</li> <li>• Be able to work safely when carrying out heavy vehicle routine maintenance</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out heavy vehicle routine maintenance</li> <li>• Be able to record information and make suitable recommendations</li> <li>• Be able to work safely when carrying out removal and replacement activities</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out removal and replacement of heavy vehicle chassis units and components.</li> <li>• Be able to record information and make suitable recommendations</li> </ul>
Behaviours	<ul style="list-style-type: none"> <li>• Apprentices should have a basic understanding of and be implementing the foundations of each of the behaviours from the standard</li> <li>• Behave in accordance with the values of the company they work for whether manufacturer or independent to treat customers and stakeholders with courtesy and respond quickly to their requirements to ensure an excellent experience</li> <li>• Operate effectively as a team member taking ownership and responsibility when required and be honest and accountable in all activities when things do not go as planned</li> <li>• To work at continuous development of both self, team and processes</li> </ul>

## Gateway 1

<b>Knowledge</b>	<ul style="list-style-type: none"> <li>• Understand how the main heavy vehicle engine mechanical systems operate</li> <li>• Understand how heavy vehicle engine lubrication systems operate</li> <li>• Understand how heavy vehicle engine cooling, heating and ventilation systems operate</li> <li>• Understand how to check, replace and test engine mechanical, lubrication and cooling systems system units and components</li> <li>• Understand how heavy vehicle engine fuel systems operate</li> <li>• Understand the legal requirements relating to European Emission Standards applicable to commercial vehicles</li> <li>• Understand how heavy vehicle exhaust emission control systems operate</li> <li>• Understand how heavy vehicle engine air supply and exhaust systems operate</li> <li>• Understand how to check, replace and test engine fuel, air supply and exhaust system units and components</li> <li>• Understand heavy vehicle electrical and electronic principles</li> <li>• Understand how heavy vehicle batteries, starting and charging systems operate</li> <li>• Understand how heavy vehicle auxiliary electrical systems operate</li> <li>• Understand how to check, replace and test heavy vehicle electrical systems and components</li> <li>• Understand how heavy vehicle clutch systems operate</li> <li>• Understand how heavy vehicle gearbox systems operate</li> <li>• Understand how heavy vehicle driveline systems operate</li> <li>• Understand how heavy vehicle gear selection mechanisms operate</li> <li>• Understand how to check, replace and test transmission and driveline units and components</li> </ul>
<b>Ref NOS:</b>	
<b>IMIHV02</b>	
<b>IMIHV03</b>	<ul style="list-style-type: none"> <li>• Be able to work safely when carrying out removal and replacement activities</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out removal and replacement of heavy vehicle engine units and components.</li> <li>• Be able to record information and make suitable recommendations</li> <li>• Be able to work safely when carrying out removal and replacement activities</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out removal and replacement of heavy vehicle electrical units and components.</li> <li>• Be able to record information and make suitable recommendations</li> <li>• Be able to work safely when carrying out heavy vehicle transmission and driveline system component removal and replacement activities</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out removal and replacement of heavy vehicle transmission and driveline units and components</li> </ul>
<b>IMIHV12</b>	
<b>Behaviours</b>	

Typically year 2

## Gateway 2

This could be a natural point to achieve a qualification such as the  
level 2 diploma in heavy vehicle maintenance

<b>Knowledge</b>  <b>Ref NOS:</b>  <b>IMIARBG8</b>  <b>IMIAEMEIO6</b>  <b>IMIHV05</b>  <b>IMIHV06</b>  <b>IMIHV07</b>  <b>IMIHV08</b>  <b>IMIHV11K</b>	<ul style="list-style-type: none"> <li>• Understand vehicle electrical and electronic principles</li> <li>• Understand how light vehicle auxiliary electrical systems operate</li> <li>• Understand how to diagnose and rectify faults in auxiliary electrical systems</li> <li>• Understand how to carry out inspections on heavy vehicles using prescribed methods</li> <li>• Understand how heavy vehicle engine systems operate</li> <li>• Understand how to diagnose and rectify faults in heavy vehicle engine systems</li> <li>• Understand how the heavy vehicle chassis systems operate</li> <li>• Understand how to diagnose and rectify faults in heavy vehicle chassis systems</li> <li>• Understand legislative and organisational requirements and procedures</li> <li>• Understand how to communicate and care for customers</li> <li>• Understand company products and services</li> <li>• Understand how to overhaul heavy vehicle engine units</li> </ul>	Typically year 3
<b>Skills</b>  <b>Ref NOS:</b>  <b>IMIARBG8</b>  <b>IMIAEMEIO6</b>  <b>IMIHV05</b>  <b>IMIHV06</b>  <b>IMIHV07</b>  <b>IMIHV08</b>	<ul style="list-style-type: none"> <li>• Be able to work safely when carrying out automotive vehicle auxiliary electrical diagnostic and rectification activities</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out automotive vehicle auxiliary electrical diagnosis, rectification and test activities</li> <li>• Be able to record information and make suitable recommendations</li> <li>• Be able to work safely when carrying out heavy vehicle inspections</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out heavy vehicle inspections</li> <li>• Be able to work safely when carrying out heavy vehicle engine diagnostic and rectification activities</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out heavy vehicle engine diagnosis, rectification and test activities</li> <li>• Be able to work safely when carrying out heavy vehicle chassis diagnostic and rectification activities</li> <li>• Be able to use relevant information to carry out the task</li> <li>• Be able to use appropriate tools and equipment</li> <li>• Be able to carry out heavy vehicle chassis diagnosis, rectification and test activities</li> <li>• Be able to obtain relevant information from the customer</li> <li>• Be able to provide relevant information to the customer</li> </ul>	

	<ul style="list-style-type: none"><li>• Be able to agree work undertaken with the customer</li><li>• Be able to ensure recording systems are implemented correctly</li></ul>
<b>Behaviours</b>	<ul style="list-style-type: none"><li>• At gateway 3 it is expected the behaviours from the apprenticeship standard are embedded into an apprentice's work and are naturally displayed at all times</li></ul>

**Gateway 3 – Ready for independent end assessment**

**This could be a natural point to achieve a qualification such as the level 3 diploma in heavy vehicle maintenance**