BICYCLE MECHANIC

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Reference Number: ST0622

Details of standard

Occupation summary

This occupation is found in the bicycle industry, which in the United Kingdom employs several thousand people. Bicycle mechanics may work in independent bicycle shops, hire centres, bicycle workshops and larger non-specialist retailers, as well as for sports clubs, race teams and bicycle-tour operators and other bicycle related organisations. Cycling is on the increase as a means of transport and as a leisure activity, with an increasing range of bicycles on offer – some with complex technology, making it an exciting and varied industry to work in.

The broad purpose of the occupation is to build, repair and service all kinds of bicycles – for example road, mountain, hybrid, recumbent, disabled adapted, electric and other human powered road and off-road vehicles. As a definition, bicycles are human powered road vehicles with a varying number of wheels; this can include uni-cycles, tricycles, quadricycles and so on. Electric bicycles are electrically assisted or adapted bicycles as opposed to electric motorcycles. They work in bicycle shops, dedicated workshops, in the field for bicycle racing teams or independently as mobile mechanics and other areas where bicycles play a prominent part.

When a bicycle is brought in for repair or service or when an ‘in-house’ bicycle needs to built, rebuilt or repaired, they run diagnostic tests to determine the cause of the problem, and then take the necessary steps to fix it. When parts aren't available to hand, they will instigate the order for them to be obtained from a distributor or manufacturer. Sometimes bicycle repairs can be as simple as replacing cables or tyres, but sometimes they can require more complicated procedures like adjusting a frame or repairing brakes and gears. They may build bicycles or wheels from scratch. Whether a repair or build they need to complete safety checks. They may or may not interact with customers depending on the workplace, this may include talking to the customer to help identify the fault, providing estimates – recommending when it is economically viable to repair and/or the handover of the built/repaired bicycle with an explanation of the work completed. They will need to complete documentation, for example relating to the work completed or warranty claims.

In their daily work, an employee in this occupation interacts with other bicycle mechanics (depending on size of operation) and suppliers; interacting with customers/clients is usually part of the role.

An employee in this occupation will be responsible for completing work under the supervision of a senior mechanic or other management structure depending on the organisation. The work can be physically demanding and involves using various tools and chemicals, like cleaning products and greasing agents. Working in a manner that ensures the health and safety of self and others is essential.
### Occupation duties

<table>
<thead>
<tr>
<th>Duty</th>
<th>Criteria for measuring performance</th>
<th>KSB</th>
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<tbody>
<tr>
<td><strong>D1</strong> Build a bicycle from scratch to a customer’s/client’s specification</td>
<td>Accuracy, especially safety</td>
<td>K1, K2, K3, K4</td>
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<td></td>
<td>Adherence to legislation, manufacturers manuals and employer procedures</td>
<td>S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S12, S13, S14, S15, S16, S17, S18, S19, S20, S25, B1, B2, B3, B4, B5, B6, B7, B8</td>
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<tr>
<td><strong>D2</strong> Identify problems with a bicycle and discuss solutions with the customer/client</td>
<td>Accuracy, especially safety</td>
<td>K1, K2, K4, K5, K6, K7, K8, K9, K10</td>
</tr>
<tr>
<td></td>
<td>Adherence to legislation, manufacturers manuals and employer procedures</td>
<td>S1, S19, S20, S21, S22, S23, S24</td>
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<tr>
<td></td>
<td>Customer Service Skills</td>
<td>B1, B2, B3, B4, B5, B6, B7, B8</td>
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<td></td>
<td>Operational Procedures and paperwork</td>
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<tr>
<td><strong>D3</strong> Estimate the cost of repairs and give quotes; advising on economic viability</td>
<td>Accuracy, especially safety</td>
<td>K4, K5, K11</td>
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<tr>
<td></td>
<td>Adherence to legislation, manufacturers manuals and employer procedures</td>
<td>S19, S20, S21, S22, S23, S24</td>
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<tr>
<td></td>
<td>Customer Service Skills</td>
<td>B1, B2, B3, B4, B5, B6, B7, B8</td>
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<td></td>
<td>Accuracy in terms of cost and time estimates</td>
<td></td>
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<tr>
<td><strong>D4</strong> Carry out a bicycle service and safety checks</td>
<td>Accuracy, especially safety</td>
<td>K1, K2, K3, K4, K12</td>
</tr>
<tr>
<td></td>
<td>Adherence to legislation, manufacturers manuals and employer procedures</td>
<td>S1, S2, S3, S4,</td>
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D5 Carry out repairs and replace parts, for example changing brake cables and chains

Accuracy, especially safety

Adherence to legislation, manufacturers manuals and employer procedures K1, K2, K3, K4, K12

Adherence to health and safety policies S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23, S24, S25

Accurately, especially safety

Adherence to costing both internally and with the client B1, B2, B3, B4, B5, B6, B7, B8

Delivery within a timescale suitable to the employer and the client B1, B2, B3, B4, B5, B6, B7, B8

D6 Clean, degrease and lubricate bicycle parts

Accuracy, especially safety

Adherence to legislation, manufacturers manuals and employer procedures K1, K2, K4, K8, K13

Adherence to hazardous materials legislation B1, B2, B3, B4, B5, B6, B7, B8

Adherence to extant recycling rules and regulations B1, B2, B3, B4, B5, B6, B7, B8

D7 Give advice to customers/clients, including the sale of bikes, parts and accessories

Accuracy, especially safety

Adherence to legislation, manufacturers manuals and employer procedures K1, K2, K3, K4, K6, K10, K13, K14, K15

Adherence to and knowledge of extant recycling rules and regulations S19, S20, S21, S22, S23, S24

Advice delivered clearly and succinctly B1, B2, B3, B4, B5, B6, B7, B8

D8 Take bookings for repairs and

Accuracy, especially safety
process paperwork via paper or computerised systems

Adherence to legislation, manufacturers manuals and employer procedures

Adherence to employer policies and procedures

D9 Support retail/contractual processes and warranty claims

Accuracy, especially safety

Adherence to legislation, manufacturers manuals and employer procedures

Adherence to employer policies and procedures

Knowledge and understanding of health and safety

Maintaining a positive attitude

D10 Maintain and adhere to the industry standards and/or best practice for quality control over their own work and take an active role in general workshop quality control.

Accuracy, especially safety

Adherence to legislation, manufacturers manuals and employer procedures

Knowledge and understanding of health and safety

Maintaining a positive attitude

D11 Maintain bicycle mechanic tools and equipment; and workshop tidiness

Accuracy, especially safety

Adherence to legislation, manufacturers manuals and employer procedures

Knowledge and understanding of health and safety

Maintaining a positive attitude

KSBs

Knowledge

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K1 The types, applications and unique characteristics of all types of bicycles, tricycles, recumbent and other pedal, hand and electrically-assisted powered bicycles (e-bikes), other derivatives and the associated technology

K2 Diagnostic and assessment principles required to service, repair and modify the mechanical aspects of bicycles to meet manufacturer specifications and customers'/clients' requirements

K3 The latest developments to bicycles, bicycle components and tools and equipment

K4 Legislation and required compliance within the bicycle industry, including bicycle Regulations (e.g. BS ISO 4210.2 (2015), standard for electric bikes EN15194 (2015), and all future modifications/updates; the safe disposal/recycling of associated waste (including waste oils, cleaning fluids, batteries, tyres, etc.))

K5 Bicycle repair shop operations including ordering, stock control, correct use of documentation such as receipts, order forms, repair forms

K6 Types of customer interaction and customer service techniques including when to contact the customer, the tone that should be adopted, appropriately timed and follow up communication – both verbal and well written; adjusting approach to take account of customers'/clients' needs including cultural requirements

K7 Principles of selling and upselling bicycle and bicycle products and calculating discounts

K8 Health & Safety legislation, policy and practice; manual handling, Control of Substances Hazardous to Health (COSHH); how to ensure the safety of customers and mechanics (risk/hazard identification); correct use of Personal Protective Equipment (PPE)

K9 Operation of manual/computer booking systems and EPOS (Electronic Point Of Sale) systems

K10 The rights and responsibilities of an employee and employer, including awareness of Equality and Diversity Legislation

K11 Costing principles, cost hierarchy of appropriate parts, assessment of component compatibility, time required to fix; summarising in a quote

K12 Manufacturer specifications - when and where to use them

K13 Principles of handling hazardous goods including Lithium ion batteries, their safe handling, storage & shipping of damaged items, emergency procedures, knowing when to ask for third party advice

K14 Standard operating functions of bicycles in normal use, when failed or is not fit for purpose, such as parts that regularly break or go missing and need to be replaced, including chain wear features

K15 Duty care to customers e.g. Health & Safety

K16 Information technology applications used in the bicycle workshop environment, including excel, databases and search engines

K17 Manufacturers’ and organisations’ warranty policies, what they cover and what they don't and procedures that must be followed

K18 Project management techniques; planning and the importance of meeting project deadlines
K19 Investigating causes of defects and maintenance issues; problem solving

K20 Who to contact about common defects and how to address them

**Skills**

S1 Use specialist bicycle diagnostic equipment to identify fault and formulate a plan to solve the problems; identifying when it is uneconomical to proceed

S2 Use cycle workstand correctly to safely and securely hold a bicycle on the appropriate part of the frame

S3 Service a cup and cone type hub, identifying worn parts and correct replacements

S4 Remove and replace sealed cartridge bearings using appropriate tools

S5 Service cable operated brake systems, correctly sizing and routing cabling using the correct spare parts and torque settings

S6 Bleed open/closed hydraulic brake systems

S7 Service derailleur gear systems, correctly sizing and routing cabling using correct spare parts and torque settings; straighten a derailleur hanger

S8 Tap the crank arm threads

S9 Identify the different standards of cranks and bottom brackets; remove and replace crank arms, bottom brackets and tap and face the bottom bracket shell

S10 Identify chain wear; assess compatibility issues, taking account of chain line and correctly split and install a quick link based chain

S11 Tape road handlebars

S12 Remove and replace a set of forks, taking account of the correct way to cut a fork steering column to size. Hydraulic fork servicing, disassemble/clean stations and cartridges and re-grease properly

S13 Remove, replace and service a headset, taking account of sizing standards

S14 Perform alignment checks to a bicycle frame

S15 Hand-build a wheel of differing complexities (for example from simple 3-cross to manufacturer specific wheel systems) in the patterns required for non-disc, front disc and rear disc to the required tolerance and correctly dished and tensioned

S16 Set up, servicing and adjustment of internal hub gears

S17 Conduct quality assurance check of build/repair work completed

S18 Complete handover once of completed build/repair is finished, including advising on further and future work required, changes to operation, required on-going maintenance and complete paperwork as appropriate

S19 Serve customers/clients on any required area of the store; refer them on to a more senior colleague or to ask for help; seek after market sales

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S20 Communicate via suitable means with customers (telephone, text, email, social media) in order to ensure good service is maintained

S21 Use catalogues (hard copy and online) to identify parts and order to fulfil customers needs

S22 Use manual system and workshop diary and complete any associated paperwork

S23 Deal with complaints, following employer and manufacturers policies

S24 Identify when something has failed or is not fit for purpose

S25 Maintain proper tool maintenance and general workshop cleanliness and tidiness

### Behaviours

**B1** Have a safety first behaviour – always use appropriate safety equipment and PPE and has customers’ safety in mind

**B2** Work efficiently as a member of the workshop team; takes account of deadlines; takes responsibility to deal with or report issues

**B3** Behave in an manner that aligns with the company ethos, including prompt timekeeping, smart presentation of self and working area and good personal hygiene

**B4** Takes responsibility for keeping own knowledge and skills up to date

**B5** Act with integrity, honestly advising customers; demonstrates a passion for bicycles

**B6** Acts as a responsible advocate for the business

**B7** Results-driven attitude, working in an effective and efficient manner in order to comply with contractual terms and customer expectations

**B8** Receptive to constructive feedback from peers & management and proactive in giving appropriate feedback to others

### Qualifications

**English and Maths qualifications**

Apprentices without level 1 English and maths will need to achieve this level and apprentices without level 2 English and maths will need to take the tests for this level prior to taking the end-point assessment. For those with an education, health and care plan or a legacy statement, the apprenticeship’s English and maths minimum requirement is Entry Level 3. A British Sign Language (BSL) qualification is an alternative to the English qualification for those whose primary language is BSL.

### Additional detail

**Occupational Level:** 2  
**Duration (months):** 18
Review
This standard will be reviewed after three years.

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Version log

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