

Pearson BTEC Level 1 / Level 2 Tech Awards

Write your name here

Surname

Forename

Level

1/2

Learner Registration Number

Centre Number

Engineering

Set task: Responding to an Engineering Brief
Part 2

Part

2

Marks

Supervised
hours

1.5

Sample assessment material for first teaching
September 2017

Instructions

- This is Part 2 of the set task.
- This task and answer booklet contains material for the completion of Part 2 of the set task under supervised conditions.
- Part 2 of the set task is out of 30 marks.
- This task and answer booklet is specific to each series and this material must be issued only to learners who have been entered to take the task in the specified series.
- This booklet should be kept securely until the start of the 1.5 hour supervised assessment period. This set task should be undertaken in the period timetabled by Pearson.

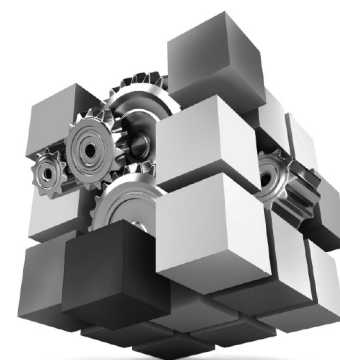
Paper reference

XXXX/XX

S58605A

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Pearson

Turn over



Instructions for teachers

This assessment is made up of two parts. **Part 1** consists of a practical process and associated activity. **Part 1** must be taken before **Part 2**. **Part 2** consists of two written activities.

Both parts of the set task are completed during a one week period timetabled by Pearson. **Part 1** is to be completed in one session of 2 hours within the first four days of the timetabled period. **Part 2** is to be completed in one session on the Friday of the timetabled period.

This task and answer booklet contains **Part 2** of the set task. Learners do not need to make any notes from **Part 1** to **Part 2**.

Part 2 must be completed under supervised conditions within a 1.5 hour supervised session.

Learners must complete **Part 2** of the set task using this task and answer booklet. Learners should take calculators into the supervised session.

This is a formal external assessment and must be conducted with reference to the instructions in this task and answer booklet and the *Information for Conducting External Assessments (ICEA)* document, to ensure that the supervised session is conducted correctly and that learners have the opportunity to carry out the required activities independently.

Teachers are responsible for maintaining security and for reporting issues to Pearson.

In particular:

- only permitted materials can be brought into the supervised environment
- during any permitted break and at the end of the session, materials must be kept securely and no items removed from the supervised environment.

After the session, the teacher will confirm that all learner work has been completed independently as part of the authentication submitted to Pearson.

Outcomes for submission

Part 1 and Part 2 task and answer booklets should be submitted to Pearson at the same time.

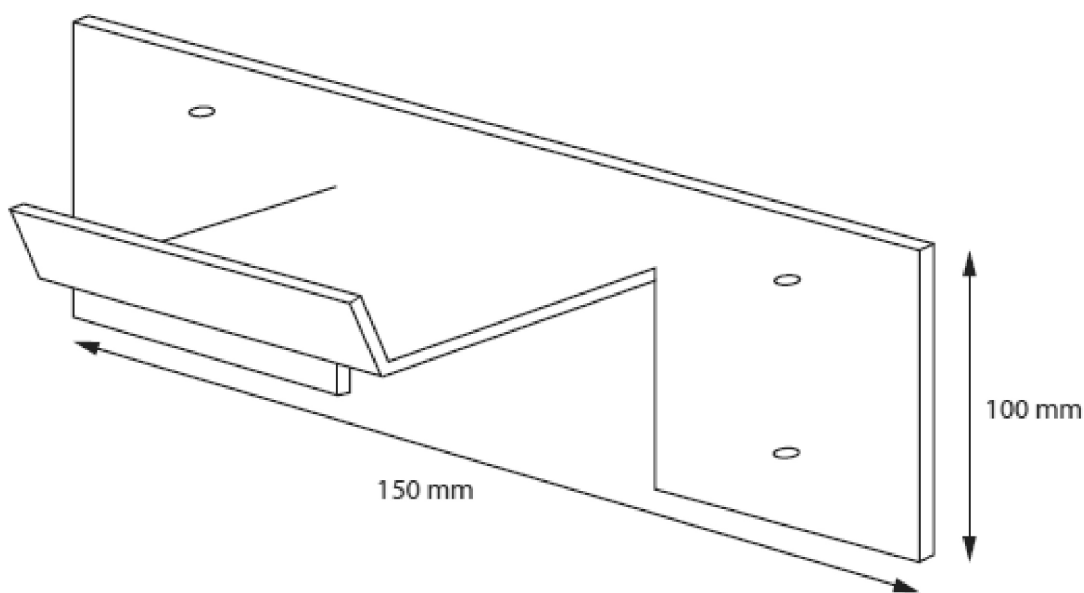
Each learner must complete an authentication sheet.

Set task information

Engineering brief

A customer wants to place an order with your engineering company to make 1000 small hooks to store insulated electrical cables. The cables will be wound around the hook.

An engineer at your company designs and makes the hook shown below as a possible solution. The hook is made from 1.6 mm thick aluminium.



To make the hook, the engineer:

- marked out the holes, the cuts and the bends
- drilled the holes
- cut the aluminium using tin snips
- bent the aluminium using formers and a mallet.

You must complete ALL activities in Part 2.

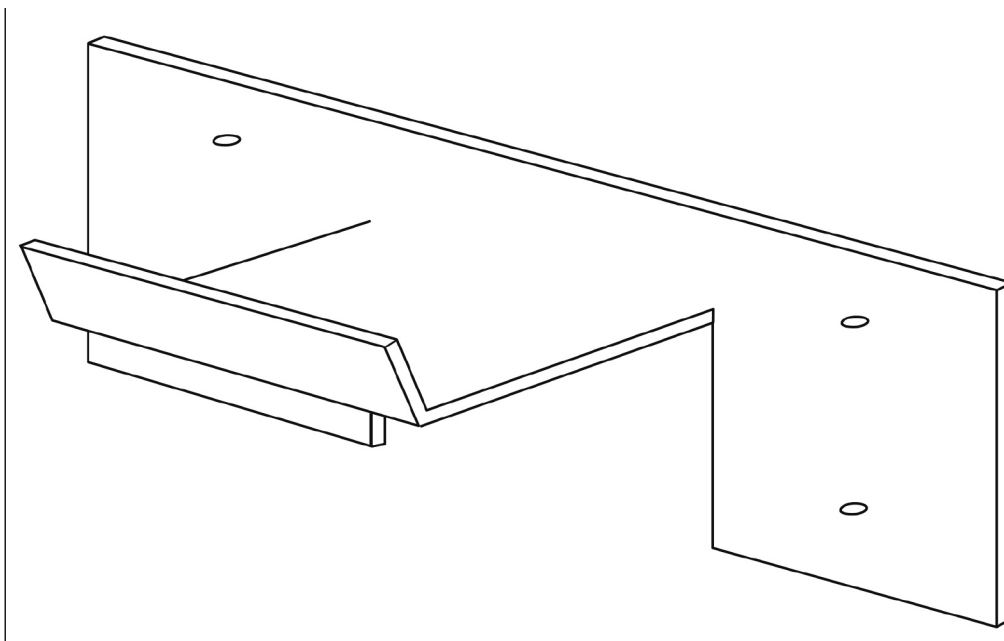
Activity 2a: Evaluation

Explain the issues with the design of the hook.

Think about how the hook is made and how it will be used.

Write your answer in the line space provided on the next page.

You may annotate the diagram to identify the issues with the design of the existing hook.



A large rectangular area containing ten horizontal dotted lines for writing.

Blank writing area with horizontal dotted lines.

You should spend 20 minutes completing Activity 2a.

Total for Activity 2a = 8 marks

Activity 2b: Redesign

Within your organisation you have been asked to consider different ways to manufacture these brackets. They would consider different designs and processes to make it.

Sketch a design idea for the hook that is an improvement on the existing hook.

Idea

Justify why your design idea is an improvement on the existing hook and explain which processes you would use to make your design idea.

Area for writing justification and processes.

You should spend 30 minutes completing Activity 2b.

Total for Activity 2b = 10 marks

Set task information

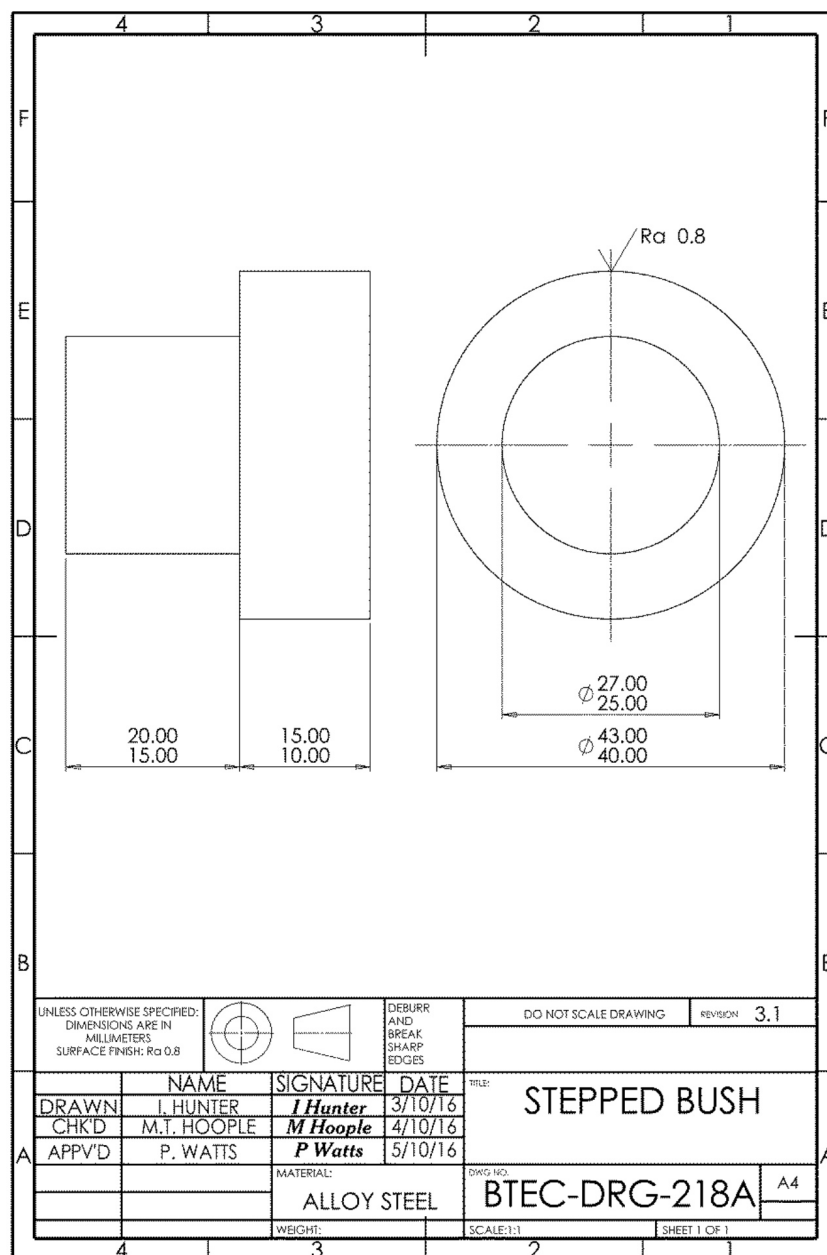
Engineering brief

Your engineering organisation is interested in quality assurance.

You have been asked to review a drawing and the production data to try to understand why issues have been occurring during the production of a turned component.

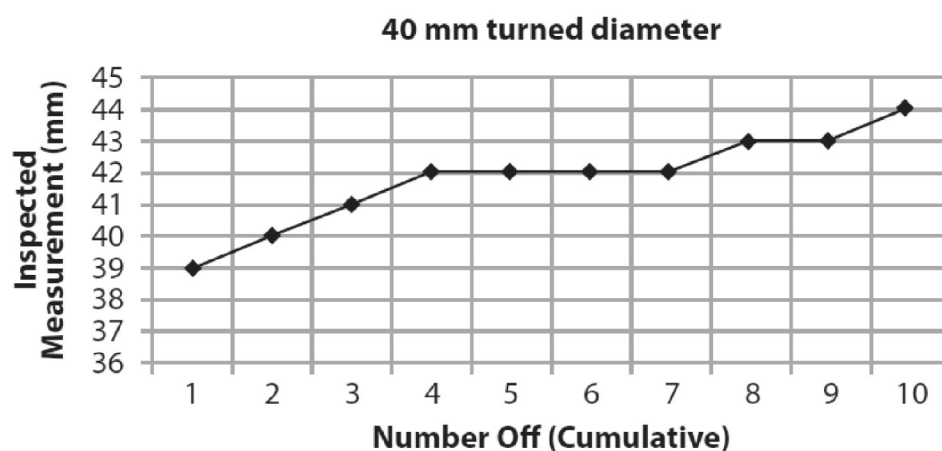
The component will be manufactured in batches of 100 and is made of titanium.

The drawing for the component is shown below.



The first ten components have been produced by an engineer.

The line graph gives inspected measurement data for the 40 mm turned diameter.



The table gives data for the surface roughness of the first ten components.

Sample number	Surface roughness (μm)
1	0.75
2	0.8
3	0.9
4	0.85
5	1.0
6	1.2
7	1.2
8	1.4
9	1.5
10	1.6

What should the quality assurance inspector suggest to resolve the issues?

Blank writing area with horizontal lines.

You should spend 40 minutes completing Activity 3.

Total for Activity 3 = 12 marks

END OF PAPER

TOTAL FOR PAPER = 60 MARKS