



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

GEOMETRICAL AND MECHANICAL DRAWING

7040/02

Paper 2

October/November 2008

2 hours 40 minutes

Additional Materials: A2 Drawing Paper (1 sheet)
 Standard Drawing Equipment



READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name at the bottom right-hand corner of your Drawing Paper.

Use both sides of the paper.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **both** questions.

The insert contains Fig. 2 for Section 2.

You should spend 10 minutes reading carefully the text of Section 2 before answering the questions.

Arcs of less than 5 mm radius may be drawn freehand.

All dimensions are in millimetres unless otherwise stated.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **4** printed pages and **1** insert.



Section 1

Candidates are advised to spend not more than 20 minutes on this Section.

- 1 Fig. 1 shows orthographic views of an alloy footlifter in first angle projection. The dimensioning of the views is only a guide to the general proportions of the casting.

Sketch freehand, approximately full-size and in good proportion, a pictorial view of the footlifter with the end **F** in the foreground of the view.

The use of instruments, including any form of straight-edge, when constructing the view or when lining-in, will be heavily penalised.

Faint construction lines and points used when constructing the view should not be erased. [16]

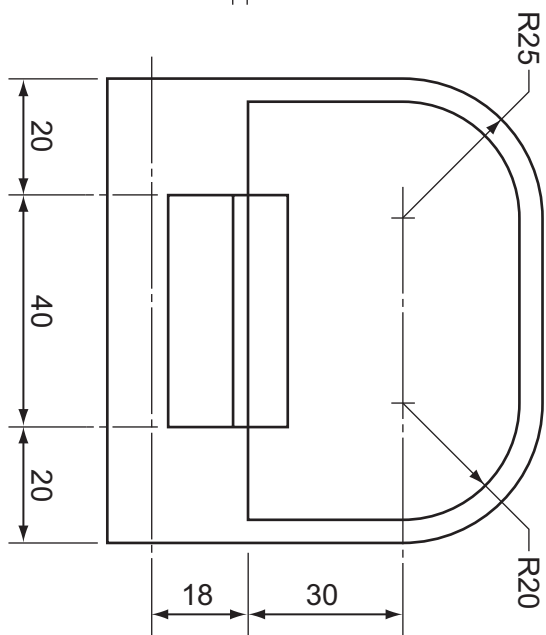
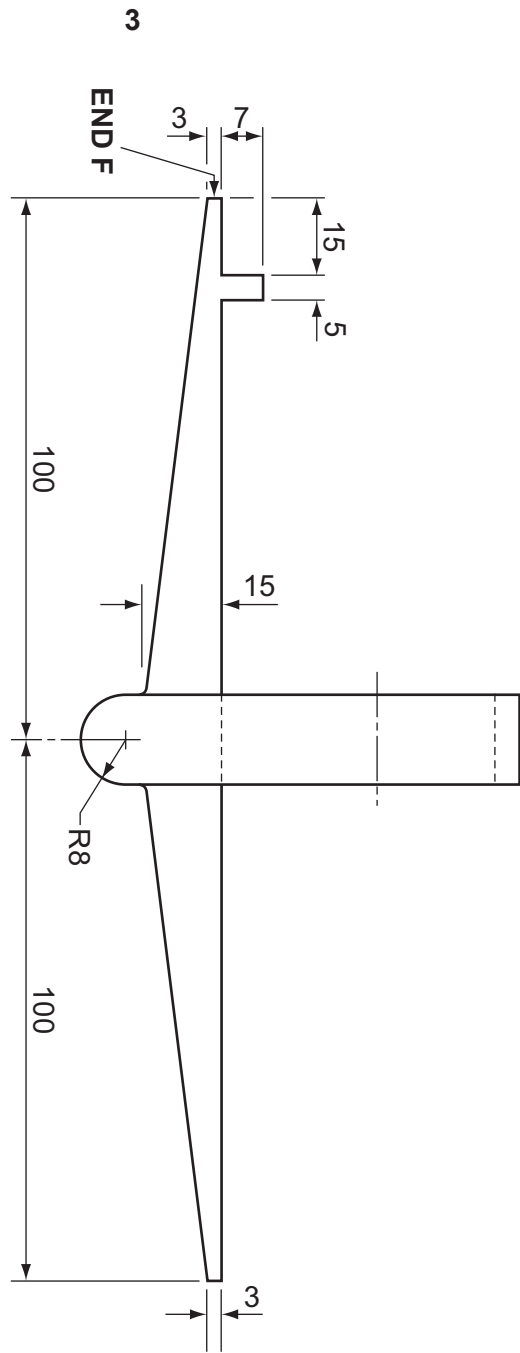


Fig. 1

Section 2

- 2 Fig. 2 on the insert shows details of the main components of a Hobbyists Gem Stone Saw. (For the purpose of this examination the motor and guide have been omitted).

The Bush ④ is pressed into the 30 mm diameter hole in the Body ① until its flange makes contact with the 46 mm diameter face **F**.

The 16 mm diameter end of the Spindle ⑤ is inserted into the Bush from the flanged end until its 36 mm diameter portion is in contact with the flange of the Bush.

The Key ⑦ is inserted into the keyway of the Spindle.

The Pulley ⑥, with its shorter boss towards the Bush and with the Key and keyway in alignment, is fitted onto the Spindle until it reaches the 22 mm diameter shoulder. The Key ensures that the Pulley and Spindle rotate together and the pulley is secured by the two Grub Screws ⑧.

The Diamond Wheel ③ is positioned between the recessed faces of the two Spacer Collars ⑪ and fitted onto the 14 mm diameter portion of the Spindle. The Plain Washer ⑨ fits onto the M14 thread of the Spindle and the Diamond Wheel is clamped firmly between the Spacer Collars using the M14 Nut ⑩.

The Table ② is positioned horizontally over the top of the Body, with the Diamond Wheel located in the 4 mm slot and the 160 mm long lug aligned with the two lugs in the body. It is secured in position by inserting the Pivot Pin ⑫ through the 8 mm diameter holes in the lugs and screwing its M8 threaded end into the threaded lug of the body.

Draw, FULL SIZE, the following views of the assembled components in either first or third angle projection.

- (a) A sectional elevation, the plane of the section and the required view as indicated by the **SS** line on the sectional side view of the Body. [52]
- (b) An end view of the assembly, looking in the direction of arrow **E**, as shown in the details of the Body. [21]
- (c) Insert the following dimensions in accordance with BS308/PD7308 recommendations.
- a horizontal length
 - a vertical length
 - a diameter
 - a radius
 - the size of a screw thread
- [5]

Suitable dimensions should be estimated where not provided.

Hidden detail is not required in any view.

- (d) On the side of your Drawing Paper showing these views, draw a title block. Print into this block the title and scale used. Indicate by the BS308/PD7308 recommended symbol the method of projection you have used. [6]

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