

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

GEOMETRICAL AND MECHANICAL DRAWING

7040/02

Paper 2

October/November 2004

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

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 circles less than 5 mm radius may be drawn freehand.

All dimensions are in millimetres unless otherwise stated.

This document consists of 3 printed pages, 1 blank page and an insert.



Section 1

Candidates are advised to spend not more than 20 minutes on this section of the paper.

- 1 Orthographic views of a support bracket are shown in third angle projection in Fig. 1. The dimensioning of the views is incomplete and is only a guide to the general proportions of the bracket.

Sketch, freehand and in good proportion, a pictorial view of the bracket, with face **P** of the barrel in the foreground of the view.

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

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

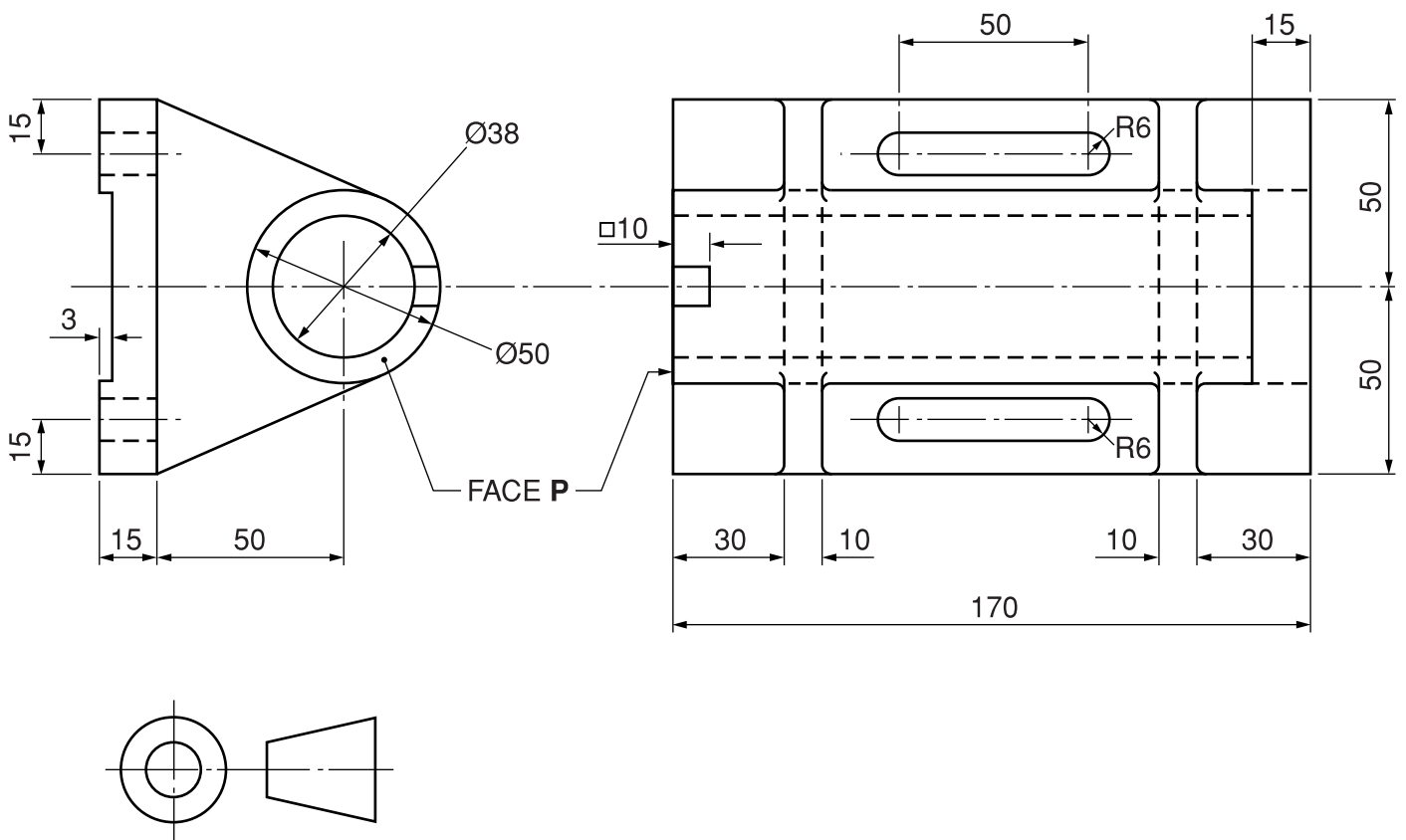


Fig. 1

Section 2

- 2 Fig. 2 on the insert shows details of the main components of a Model Makers' Disc Sander.

The components are assembled as follows:

The two Bushes ③ are a press fit into the two 28 mm diameter holes in the Body ① until their flanges make contact with the flat faces of the 40 mm diameter bosses. The M14 threaded end of the Spindle ② is slid through the two Bushes from the right hand side of the Body until its 34 mm diameter is in contact with the flange of the right hand Bush.

The Feather Key ⑩ is inserted into the keyway of the Spindle.

The Vee Pulley ⑤ with its boss towards the Body and with the Feather Key and keyway in alignment is slid onto the Spindle until it reaches the 22 mm diameter shoulder, the Feather Key ensuring that the Vee Pulley and Spindle rotate together. The Vee Pulley is secured by the Washer ⑨ and M14 Nut ⑩.

The threaded boss of the Face Plate ④ is screwed onto the corresponding M20 end of the Spindle until tight.

The Support Bar ⑥ is inserted into the 14 mm diameter hole in the Body leaving 60 mm of its length protruding and the flat portion facing the M8 threaded hole. It is secured in this position by the M8 Square Headed Bolt ⑧.

Finally, with edge **F** of the Table ⑦ towards the Face Plate, the Table is slid along the Support Bar and secured with the second Square Headed Bolt ⑧.

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

- (a) A half sectional elevation, the plane of the section and the required view as indicated by the **YY** line on the plan views of the Body, Vee Pulley, Face Plate and Table. That part of the assembly to the left of the **XX** centre line of the Body to be shown as an outside view and the part of the assembly to the right of this centre line to be shown in section. The surface of the Table should be in the horizontal plane and positioned so that edge **F** is 1 mm away from the flat face of the Face Plate. [54]
- (b) An outside end view of the assembly, looking in the direction of arrow **E**, as shown in the details of the Body. [20]
- (c) Insert the following Dimensions in accordance with BS 308/PD 7308 recommendations.
- a horizontal length
 - a vertical length
 - a diameter
 - the size of a screw thread. [4]

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 British Standard recommended symbol the method of projection you have used. [6]

