ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Advanced Level

METAL TECHNOLOGY AND DESIGN 6040/02

PAPER 2 PRACTICAL (BENCH FITTING AND FABRICATION)

SPECIMEN PAPER **3 hours 10 minutes**

Additional materials:

Please see page 2

INFORMATION FOR CANDIDATES

Drawings are not scale.

This question paper consists of 5 printed pages and 3 blank pages.

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Instructions to candidates

A second supply of material is **not** allowed. If you make a mistake, do your best to work as close to the given measurements as possible.

All heated parts should **not** be quenched in water or oil but should be left to cool down slowly.

All dimensions not given are left to your own discretion.

Attempt to complete all the work, but remember that a partly completed piece of good quality work may gain more marks than a piece of work that is complete, but poorly finished and inaccurate.

Clean all pieces by draw filing the edges. Do **not** use emery cloth or similar material.

(a) From the materials supplied, you are required to make an **ADJUSTABLE TOOL CLAMP** as shown in the diagram in **Figure 1**. Adjustments have been made for examination purposes only.

(b) All dimensions are in millimetres.

(c) The following materials are required to make the Adjustable Tool Clamp:

PART 1 One piece BRIGHT Drawn Mild Steel (BDMS)/Black Mild Steel **(BMS) 110 x 25 x 12** (Both ends squared)

PART 2 One piece BRIGHT Drawn Mild Steel (BDMS) /Black Mild Steel **(BMS) 50 x 25 x 12** (Both ends squared)

PART 3 One piece BRIGHT Drawn Mild Steel (BDMS) /Black Mild Steel **(BMS) ∅15 x 112** long (one end faced)

PART 4 One piece BRIGHT Drawn Mild Steel (BDMS) /Black Mild Steel **(BMS)∅8 x 75** long (one end faced)

PART 5 One piece BRIGHT Drawn Mild Steel (BDMS) /Black Mild Steel **(BMS) 25 x 15 x 3** (both ends squared)

NB: Part 6 procured before the examination ready for use.

PART 6 Two piece BRIGHT Drawn Mild Steel (BDMS) **25 x 10 x 3** all ends squared

Accessories: **Four M5mm x 4C/sunk** head machine screws
One grub screw **∅4 x 8.5** mm long

NB: The following equipment is required for this examination:

- The centre lathe and its accessories
- A pillar drilling machine
- Oxy-acetylene equipment
- A milling machine (is optional)
- General measuring and marking out tools (steel rules, engineer's square, centre punch, spring dividers)
- Cutting tools (hacksaw, bastard file, second cut file)
- Drills **∅3.5 mm** drill bit
  ∅5 mm drill bit
  ∅8.0mm drill bit
  ∅8.1 mm drill bit
- Dies **M5 x 1**
  M5 x 1.25

ADJUSTABLE CLAMP

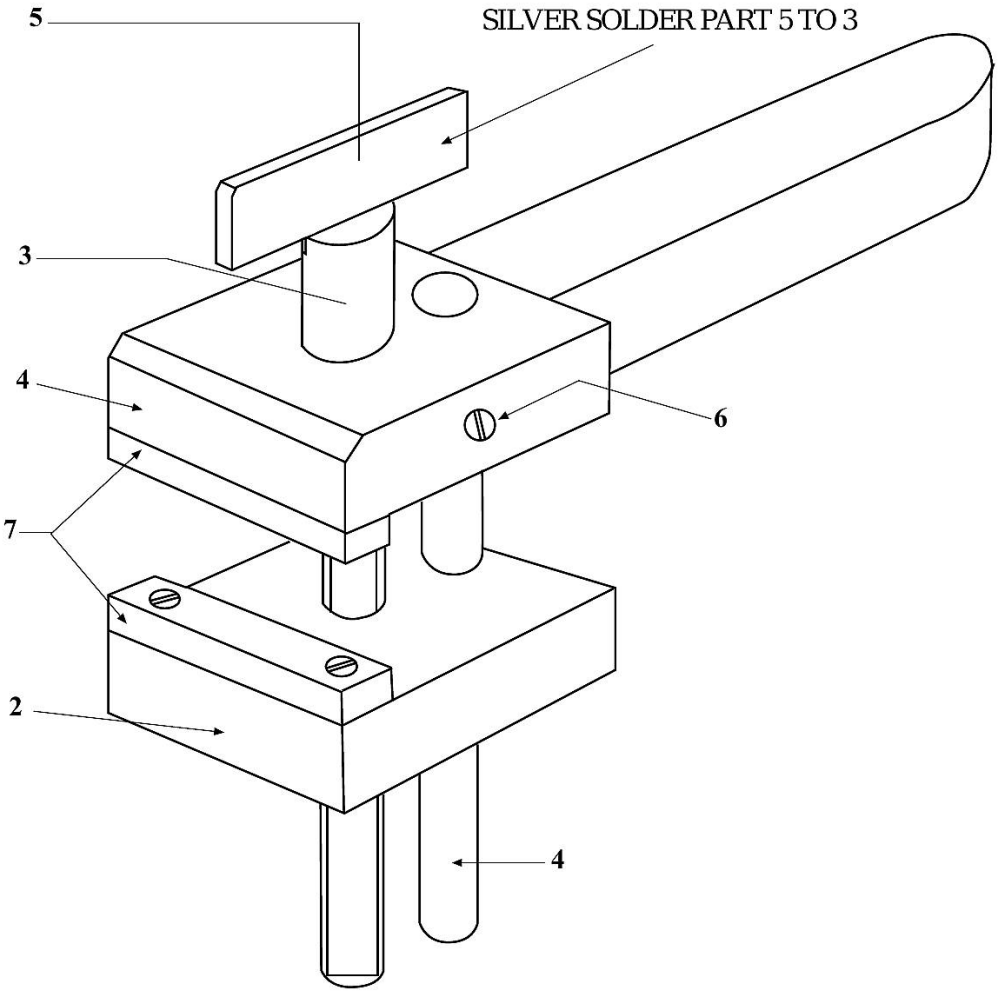
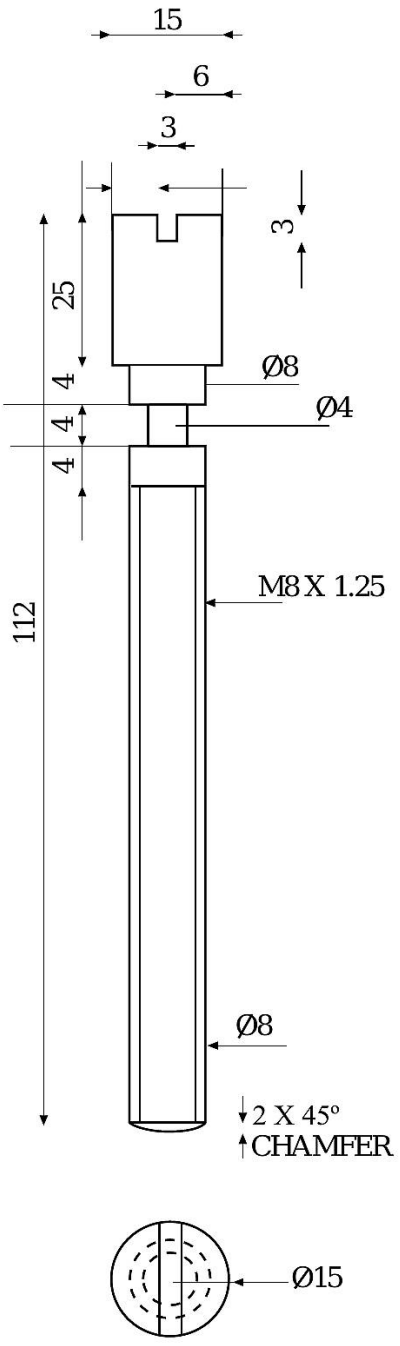


Figure 1

PART 3 SPINDLE



PART 4 MOVABLE JAW GUIDE

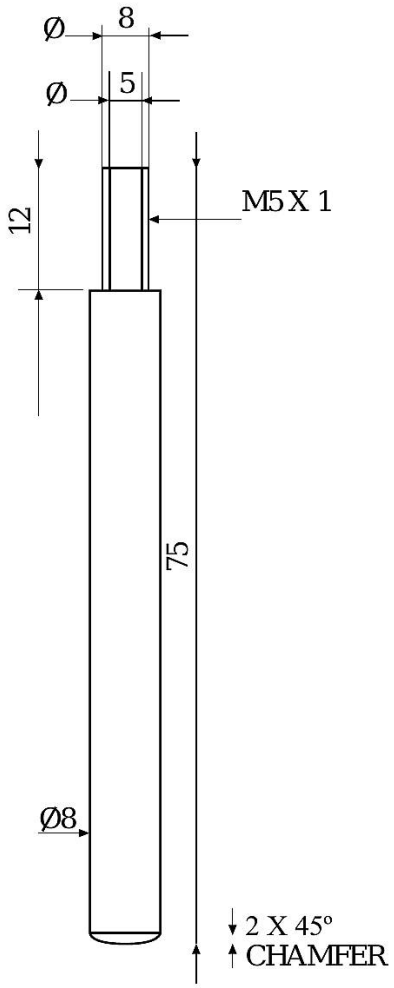


Figure 2

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