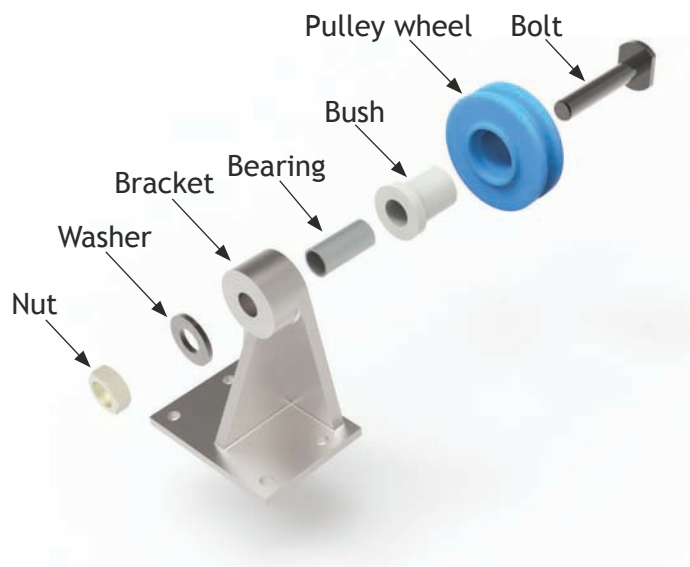


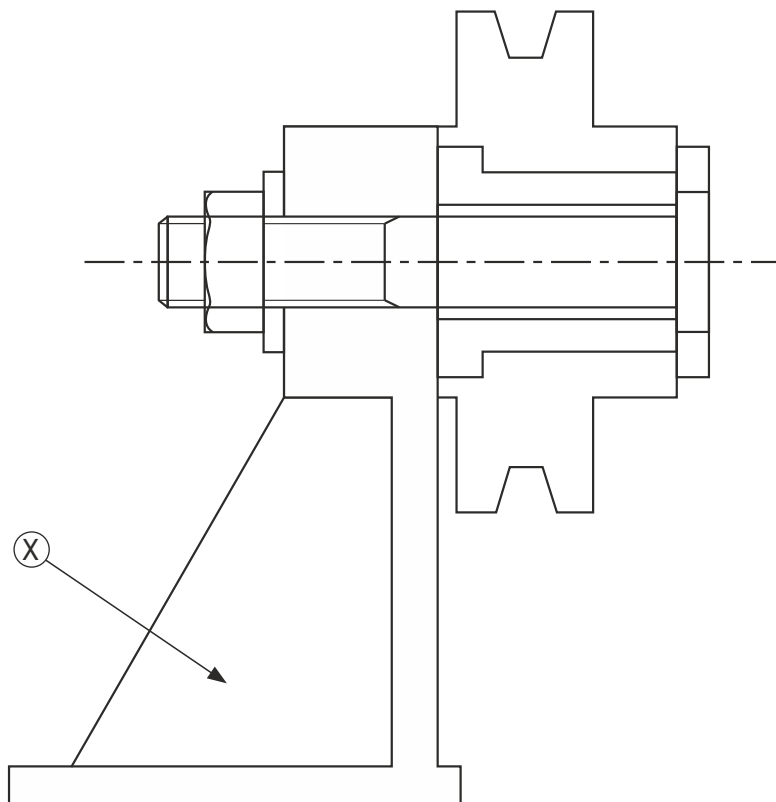
4. Components that make up a pulley wheel assembly are shown below as an exploded view.



An incomplete sectional elevation, cut along a central vertical plane, is shown below.

- (a) (i) Apply hatching to the assembled elevation to show the different components taking account of British Standards. You may sketch the section lines on the view and you can use a straight edge if you wish.

3



- (ii) State the name for the feature shown at X.

1

---

4. (a) (continued)

The bolt used in the assembly has flat sections on the end for a spanner to fit.

- (iii) Apply the British Standards convention for this flat on the bolt shown below (Figure 1).

1

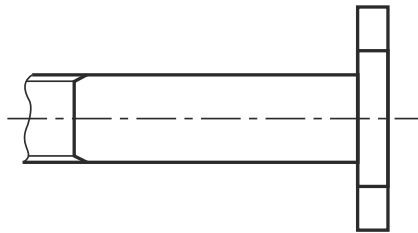


Figure 1



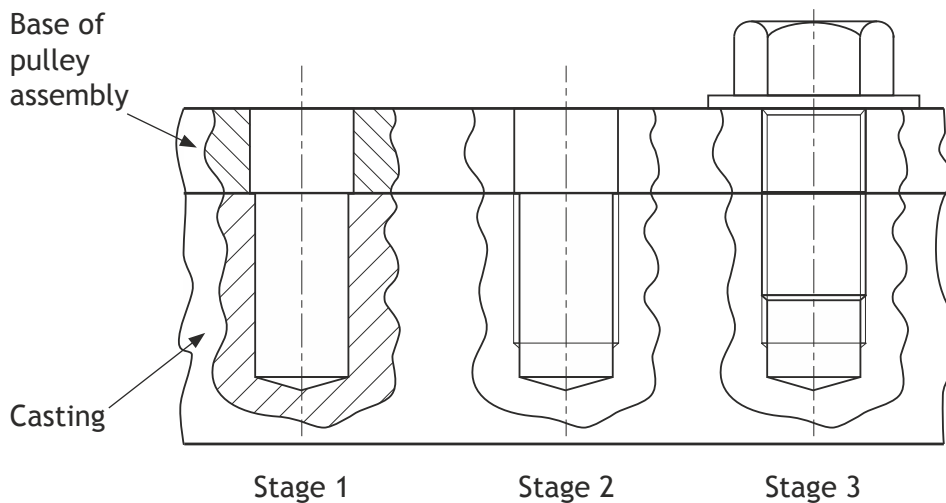
Figure 2

The 3D view in Figure 2 shows the pulley assembly bolted by the base to another component. The drawing below shows the three stages.

Stage 1 — a blind hole is machined in the component

Stage 2 — a thread is cut into the blind hole

Stage 3 — an M10 bolt and washer is fitted to secure the pulley assembly



- (b) (i) Apply hatching to **Stage 2** and **Stage 3** above taking account of British Standards and conventions. You may sketch the section lines on the view and you can use a straight edge if you wish.

2

4. (b) (continued)

- (ii) Explain the term “blind hole” at Stage 1. 1

- (iii) What does the “M” stand for on the M10 bolt? 1

- (iv) Determine the depth of the hole for the thread cut at Stage 2. 1

- (v) State the type of section shown at Stages 1 to 3. 1

The holes on the base of the pulley assembly are 10.5 mm with a tolerance of  $-0.15$  and  $+0.15$  applied.

- (vi) Apply the dimensional tolerance to the hole in Stage 1 taking account of British Standards. 1

2.

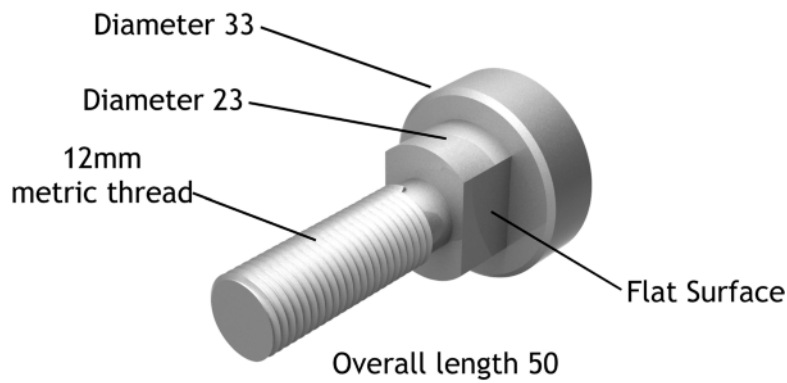


Threaded bolt

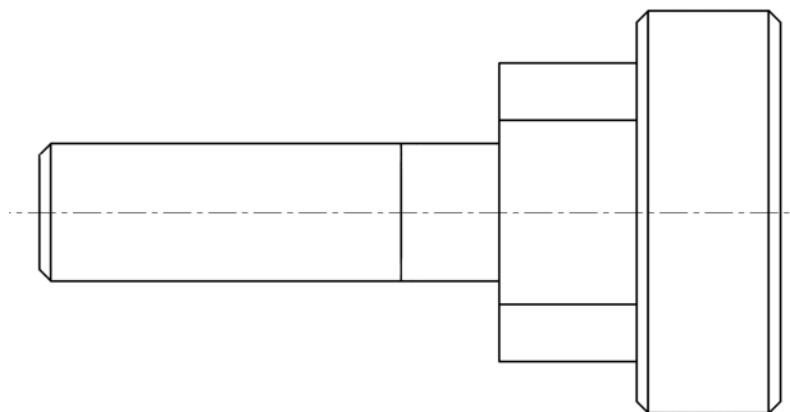
A threaded bolt is shown above.

Apply the following to the elevation below, taking account of British Standards conventions:

- (a) The lines to indicate a thread, at the correct location. 1
- (b) The four dimensions shown on the pictorial view, at their correct locations. 4
- (c) The symbol to indicate the flat surface, at the correct location. 1

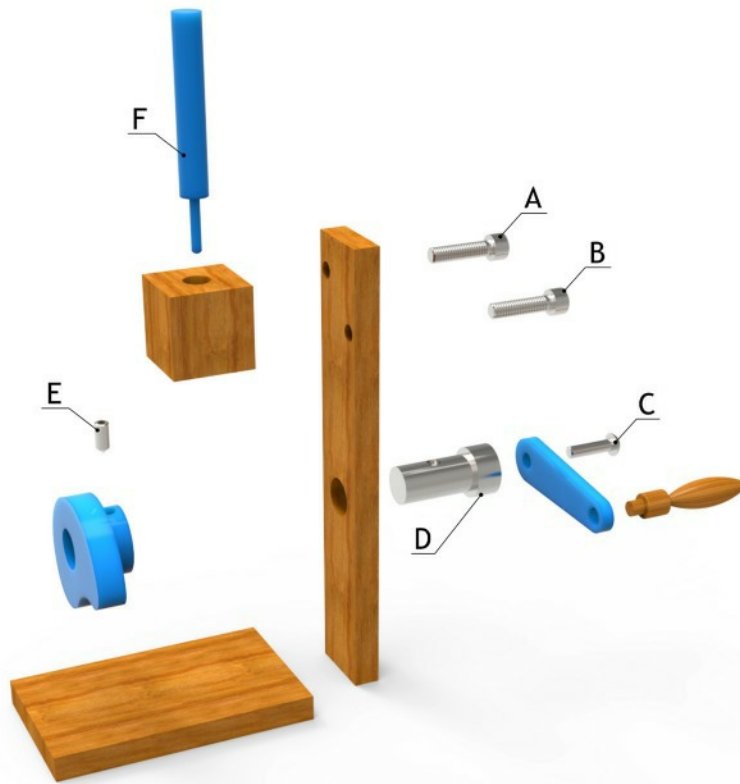


Pictorial view



Elevation

9.



Exploded model

An exploded model of a mechanical device is shown above.

9. (continued)

Apply hatching to section A-A on the drawing of the device, taking account of British Standards conventions. You should not section any component parts labelled A-F on the exploded 3D model shown opposite.

7

