

TURNING SECTION

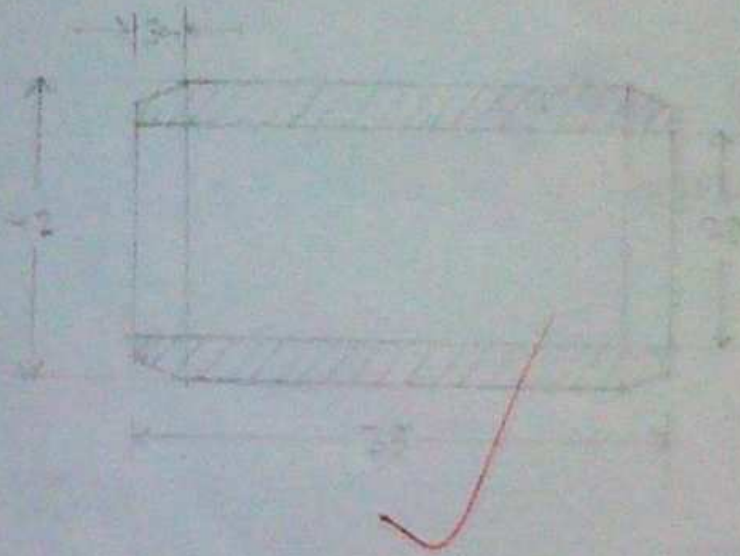
Aim - perform following operations on a solid cylindrical metal of dimension $(35 \times 45 \phi)$ cm and give the required shape

- i) facing
- ii) Turning
- iii) Drilling
- iv) Boring
- v) Internal thread cutting

Equipment Required:

- i) Chuck key
- ii) Marking block
- iii) Vernier calliper
- iv) Packings
- v) Tool post spinner
- vi) Cutting tool
- vii) Brush
- viii) 25 mm twist taper shank drill-bit
- ix) Boring tool
- x) Internal thread cutting tool

Theory: Lathe is a machine tool which has practically given shape to our present day civilization by building machines and industries. The main function of a lathe is to remove metal from a piece of work to give it the required shape and size this is accomplished by holding the work securely and rigidly on the machine and then turning it against cutting tool which will remove metal from the work in the form of chips.



SME-Kiit

The basic part of a geared head lathe following are the principal parts.

- 1) Bed
- 2) Carriage
- 3) Head stock
- 4) Feed mechanism
- 5) Tail stock
- 6) Screw cutting mechanism

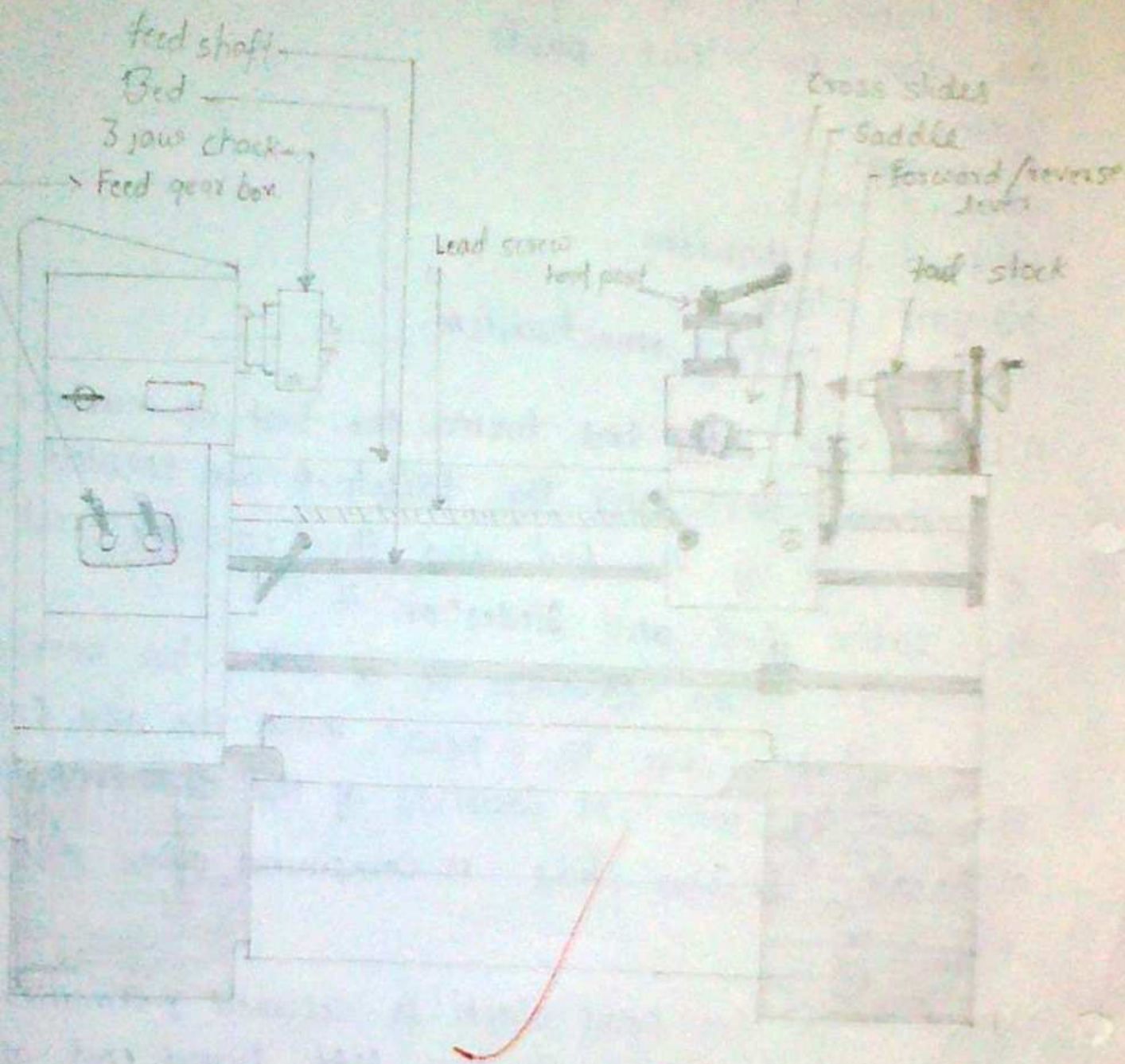
1) Bed: The lathe bed forms the bed of machine the head stock and the tailstock are located at the either end of the bed and the carriage rest over the lathe bed and slides on it

2) Carriage: The carriage of a lathe has several part that serve to support move and control the cutting tool. It consists of the following parts

- a) Saddle
- b) Cross slide
- c) Compound slide
- d) Post
- e) apron

3) Head stock: The head stock is secured permanently on the innerways at the left hand end of the lathe bed and it provides mechanical means of rotating the work at multiple speeds. All the parts are housed within the head stock castings

4) Feed mechanism: The movement of the tool relative to the work is termed as 'feed'. A lathe tool may have three types of feed longitudinal cross and angular when the tool moves parallel to the lathe axis. The movement is termed as longitudinal feed and is effected by the movement of carriage



LATHE MACHINE

Similarly in case of perpendicular to the lathe axis termed as cross feed and at any angle termed as angular feed.

5) Tail stock: The tailstock is located on the inner ways at the right hand end of the bed

This has main two uses 1) It supports the other end of the work when is being machine b/w Centers

1) It holds as a tool for performing operations such as drilling reaming tapping etc.

6) Screw cutting mechanism:- So rotations of the lead screw is used to transverse the tool along the work to produce screw thread the half-nut mechanism makes the carriage to engage or disengage disengage with lead screw.

Operations which are performed in the lathe either by holding the workpiece b/w centre or by chuck are

- i) facing
- ii) chamfering
- iii) straight turning
- iv) Grooving
- v) Knurling

1) facing:- facing is the operations of machining the ends of piece of work to produce a flat surface this is also used to cut the work to the required length the operation involves feeding the tool perpendicular to the axis of rotation of workpiece

2) chamfering - chamfering in the operation of the beveling the extreme end of the workpiece this

is done to remove the burrs to protect the end of the workpiece from being damaged and to have better look.

ii) straight turning - The work is turned straight when it made to rotate about the lathe axis and tool is fed parallel to the lathe axis and the straight turning produces a cylindrical surface by removing excess metal from the workpiece.

Operation which are performed by holding the work by chuck or a faceplate or an angle plate are

i) Drilling: Drilling is the operation of producing a cylindrical hole in workpiece by the rotating cutting edge of cutter known as drill

ii) Boring: - Boring is the operations of enlarging the turning whole produced by drilling.

Punching - casting or forging. Boring can not originate the hole

iii) Internal thread cutting: - The principal of cutting internal threads is similar to that of an external thread. the only difference is the tool used the tool is similar to a boring tool with cutting edges ground to the shape conforming to the type of the thread to be cut

Procedure -

- i) first work is supported in chuck with the help of chuck key and marking block.
- ii) After this facing operation done
- iii) Drill of 25 mm diameter is marked with the help of twist tapes short drill bit.

After this boring operation was done to enlarge the hole.

Internal threading operation is done with the help of internal thread cutting tool.

Chamfering operation was done on both side with the help of cutting tool.

Precautions:-

Wear properly shoes and apron because hot chips of metal produce during operation.

Maintain proper distance b/w body and machine.

Safety goggles should wear in all operation.

Conclusion:- Finally a cylindrical job is required dimension has been prepared.

~~Anshu
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