

Machine shop

07/11/2019

FIRST session

Instructor: David Cooper

Aims for session

- Introduction session with a brief overview of the machine shop
- Start practical work on machines.

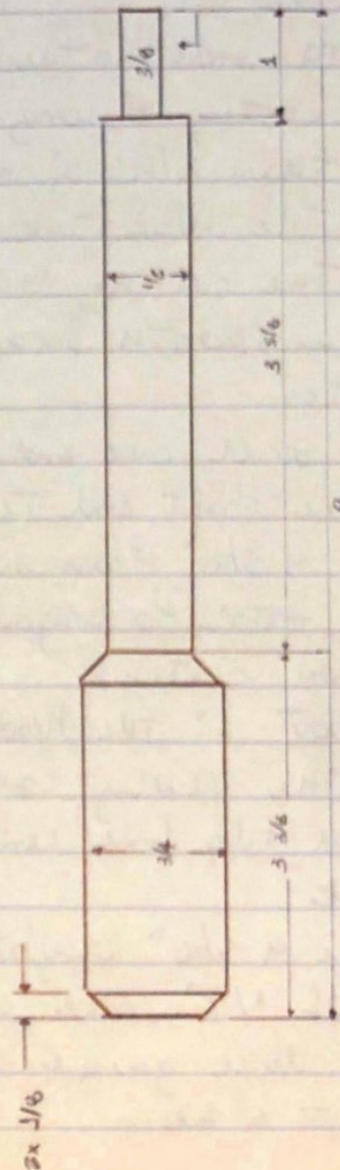
Machine shop safety rules

1. Wear proper clothing for the type of work being done.
2. Remove all jewelry
3. Safety glasses
4. Hair. Pull back long hair in a band and tuck it under your shirt collar
5. Food and drink are NOT permitted
6. DO NOT leave a machine running unattended.
7. Open-toed shoes are prohibited
8. Cell phones and other personal electronic devices must be NOT used when

- Working at my machine
- a) Short pants and skirts are prohibited.

Specific safety procedures and practices that are required use in the machine shop, not only because it makes good sense, also the uni requires it. Most importantly, failure to observe safety rules and regulations can endanger those around of the machine shop. In short, the machine shop can be dangerous place. The importance of knowing and following good safety practices cannot be over-emphasized, because this is the only way the dangerous situations can be avoided.

SHAFT



Procedure

- Cut $\phi 1\frac{1}{8}$ " inches of $\frac{3}{4}$ " hot rolled round steel.
- Face both ends on the lathe until length is exactly ϕ " long. No more than $\frac{3}{4}$ " of material extending through the headstock. Ensure the cutting bit centered so you get a smooth face with no dimples or 'outies'.
- Center drill one end. Choose the side where shaft and tenon will be made.
- Measure $4\frac{5}{8}$ " from one end and mark the metal to layout the shaft and tenon locations.
- Hold about 1" the headstock and support the newly center drilled end with the live center in the tailstock.
- Turn the $4\frac{5}{8}$ " length to a diameter of $\frac{1}{2}$ ". Use calipers and the $\frac{1}{2}$ " drill gauge hole to ensure the correct size.

- Measure 1" from the end to create the tenon.
- Turn tenon diameter down to $\frac{5}{8}$ ". Use the calipers and $\frac{5}{8}$ " hole on the drill gauge to ensure correct measurements.
- * ADVISE NP DO NOT make it smaller than $\frac{5}{8}$ ". *
- Flip material around tenon/skim off the dirty scale from the grip.

Achievements:

- Learning metal work lathe machine tool operation.