

JOB NAME Lathe Center

BLUE PRINT NUMBER: 01-A-14

INFORMATION: The accuracy of a lathe center determines the accuracy of the lathe. Always check the center in the spindle end for runout.

PRIMARY SKILL LEARNED:

1. Turn taper with taper attachment.
2. Mount tool post grinder.
3. Grind centers.

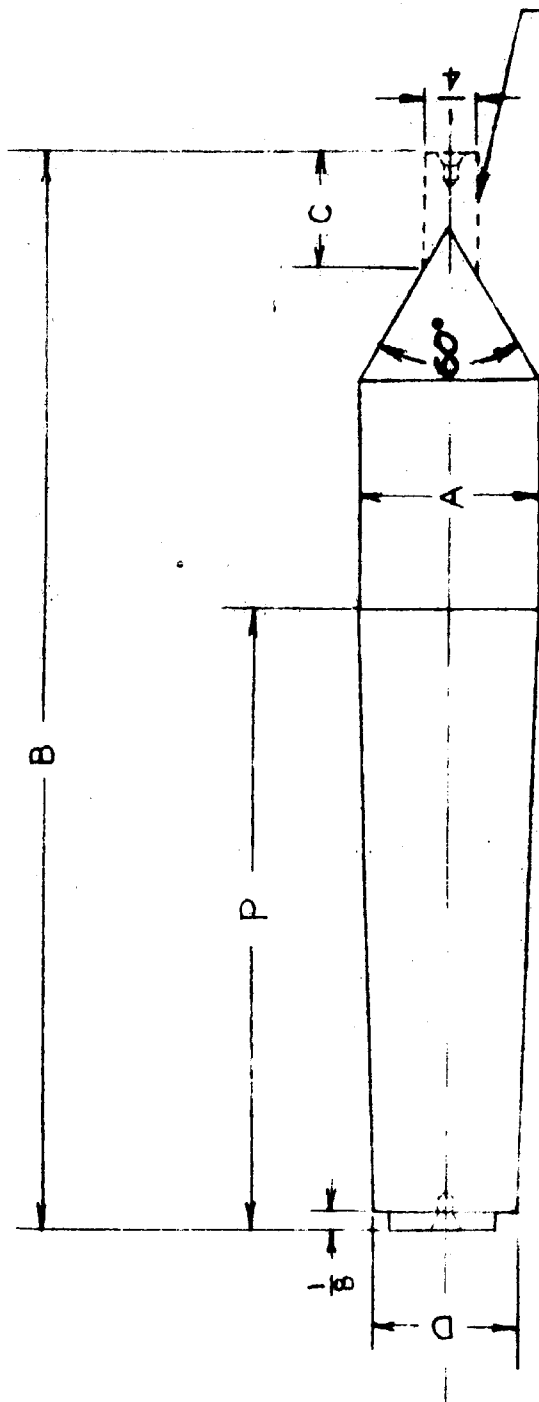
PRECAUTIONS:

1. Allow $1/32$ " for grinding after hardening.
2. Lap center holes before grinding.
3. Check for runout before grinding point.
4. Protect ways on lathe when grinding.
5. Check speed on tool post grinder before turning on grinder.

STOCK: High Speed Steel (Size according to taper required)

OPERATIONS:

1. Cut off stock to size.
2. Face off and center drill.
3. Turn taper to required dimension.
4. Turn "A" dimension.
5. Turn $1/4$ " diameter.
6. Turn 60 degree angle.
7. Harden.
8. Lap center holes.
9. Grind "A" dimension.
10. Grind taper to fit taper gage.
11. Grind 60 degree angle.



REMOVE
AFTER HARDENING AND
GRINDING

| MORRIS TAPER | P | D | A | B | C | T.P.I. |
|-----------------|------------------|-------|------|-----------------|---------------|--------|
| 2 | $2 \frac{9}{16}$ | .572 | .700 | $4 \frac{1}{2}$ | $\frac{1}{2}$ | 04985 |
| 3 | $3 \frac{3}{16}$ | .778 | .938 | $5 \frac{3}{4}$ | $\frac{1}{2}$ | 05019 |
| 4 | $4 \frac{1}{16}$ | 1.020 | 1.23 | $7 \frac{1}{8}$ | $\frac{1}{2}$ | 05193 |
| | | | | | | |
| | | | | | | |

BREAK ALL UNNECESSARY CORNERS

DO NOT SCALE DRAWING

ELI WHITNEY REGIONAL TECHNICAL SCHOOL

PART NAME
LATHE CENTER

DIMENSIONAL TOLERANCE
Fractional $\pm .001$
Decimal $\pm .002$
Angles $\pm 1'$
Surface Flatness $\pm .001$

Date

DWG. NO.
01-A-34

HEAT TREAT

Scale

LATHE CENTERS (2)

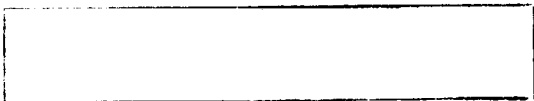


Fig. 1

Use 1 1/8" diameter tool steel, cut off to the proper length. Face and center drill both ends in a three jaw chuck. Fig. 1

Place on centers and turn the taper using the taper attachment. Allow for grinding. Turn the step on the tapered end. Fig. 2

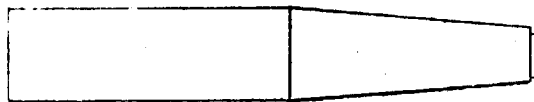


Fig. 2

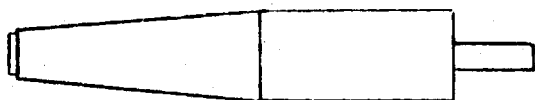


Fig. 3

Reverse the piece on centers, protect the turned portion with soft copper, and turn the outside diameter. Allow for grinding. Turn the 1/4" diameter, 1/2" long. Fig. 3

Set the compound rest to 30° and turn, from the 1/4" diameter out, the 60° angle. Fig. 4



Fig. 4

Harden and temper.

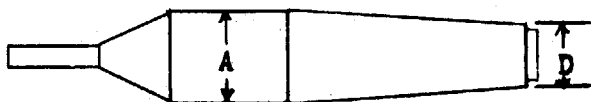


Fig. 5

Grind the "A" dimension to the print size, in the cylindrical grinder. Next, grind the taper to the "D" dimension. To fit the taper gage. Fig. 5

Rough grind the excess metal on the front. Finish grind the point to 60° in the lathe. The point must fit the center gage.



Fig. 6