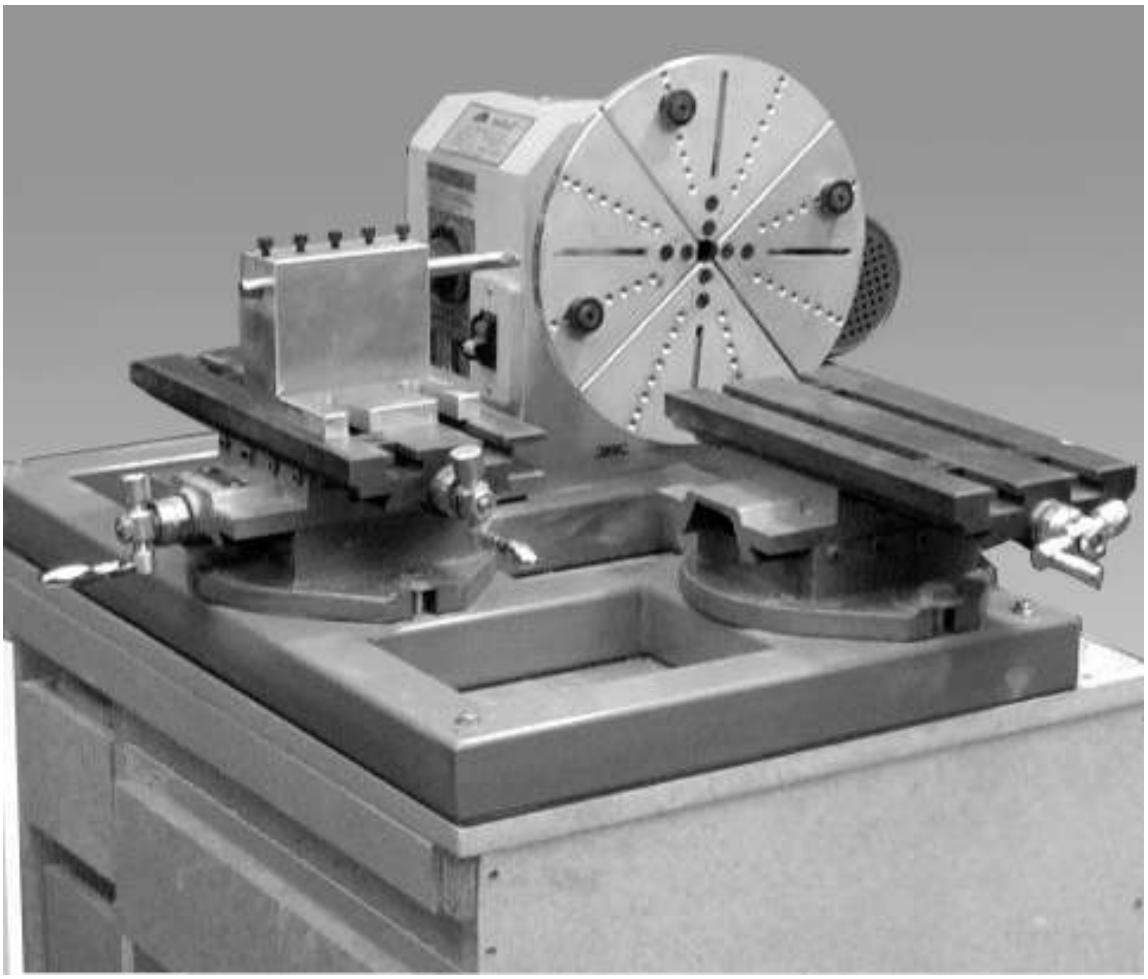
Banjo Technology
for the Small Shop

# Volume I:
# Plans and Resources



Version 1.0

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# Introduction

The Rim Lathe was designed with the small shop and the moderate budget in mind. This booklet lists suppliers for the parts that can be bought and plans for that which the individual must make or have made.

It is the hope of the author that in the future, the design will become standardized, but for now those who undertake the creation of a rim lathe may have to resort to some creative solutions. In particular, the lathe head chosen to power the lathe will have a variety of ways to be mounted on the base depending on the model you purchase.

### DISCLAIMER REGARDING THE PLANS CONTAINED IN THIS BOOK

*The author has made a good faith effort to provide enough information in the illustrations in this document so that professional metal workers (machinists or welders) may create appropriate tooling for the rim lathe. However, these plans may be incomplete. Any person commissioning professional services such as machining or welding based on these plans bears the responsibility for such commissions. The author of this book does not represent these plans as complete, but as helpful guidance to any person who wishes to create a rim lathe. Therefore any material loss associated with the production or commission of parts, jigs, tool holders and the like shall in no way be considered the responsibility of the author if this document.*

### ASK YOUR MACHINIST FOR ADVICE

*I have decided to document the tooling as it stands. There is a lot of room for improvement The tooling described in this document was created from scrap aluminum in a variety of arrangements. In some cases, I bartered lutherie services for machinist services, In some cases I was able to use a friend's machine shop. I am not a machinist or engineer. A machinist may have advice about how to make these items cheaper. In some cases, notably the boring bar tool holder, the dimensions are very generous. You could say "overbuilt." use the critical dimensions, but let your machinist suggest cheaper ways to create the parts.*

# The Base

The base connects all the parts of the rim lathe. It is made of welded square steel tube and a small amount of steel plate. The dimensions listed will support all of the lathe heads recommended in the Appendix.

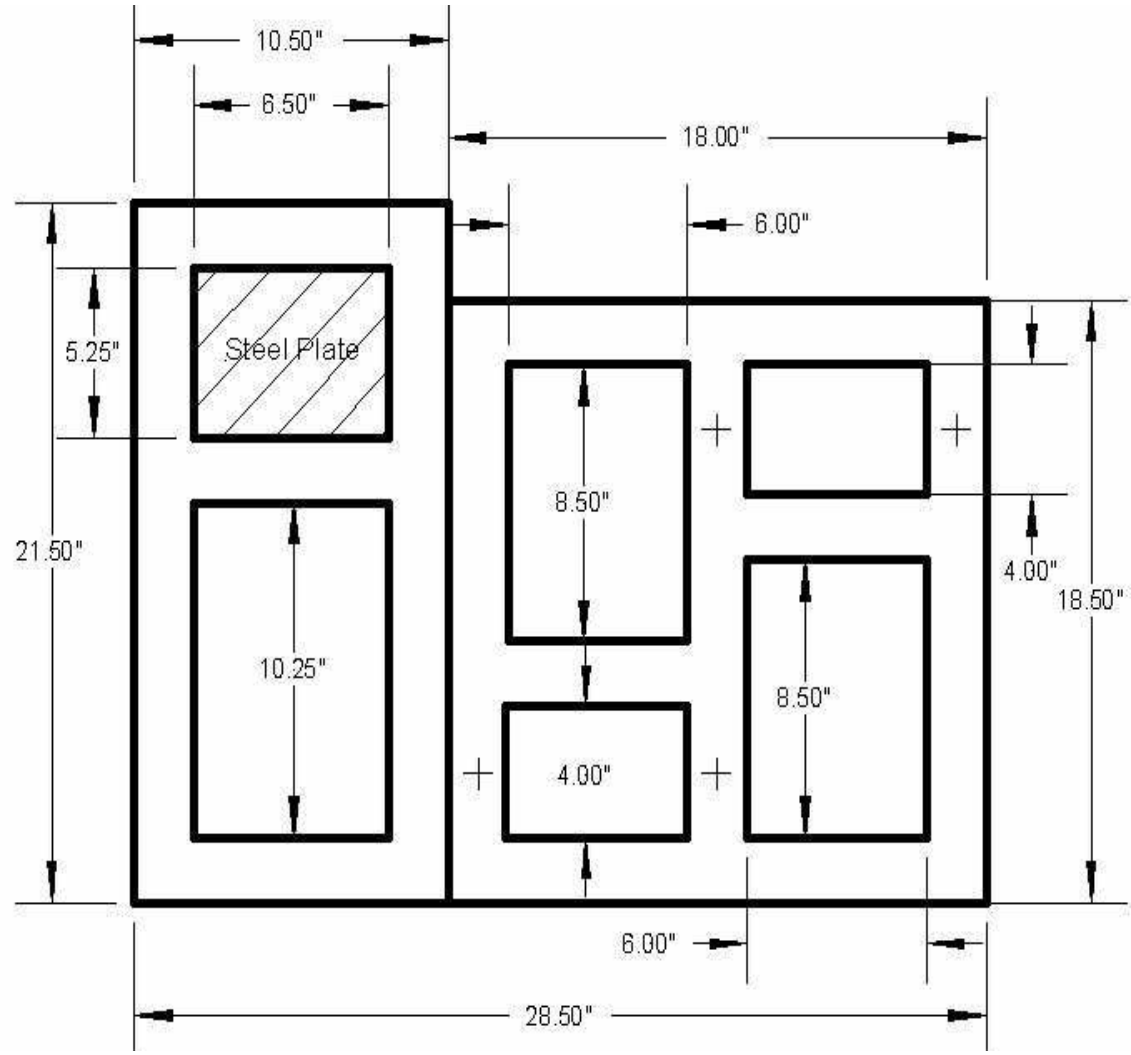


Figure 1 - Steel Base Dimensions

There are four holes that must be drilled and tapped to accommodate the bolts that mount the cross slides to the base.

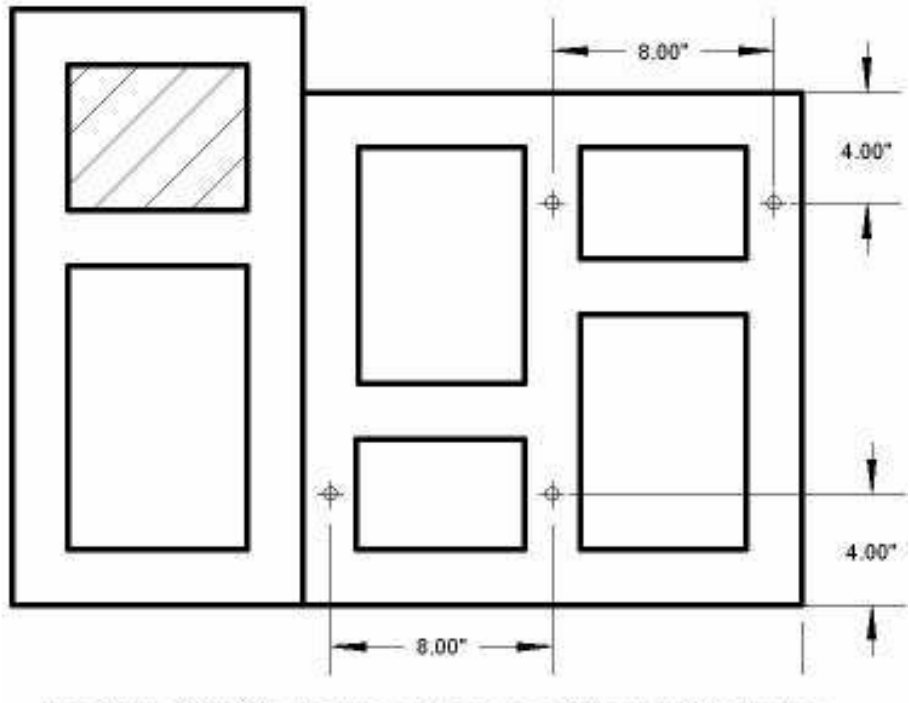


Figure 2 - Location of Cross Slide Mounting Holes

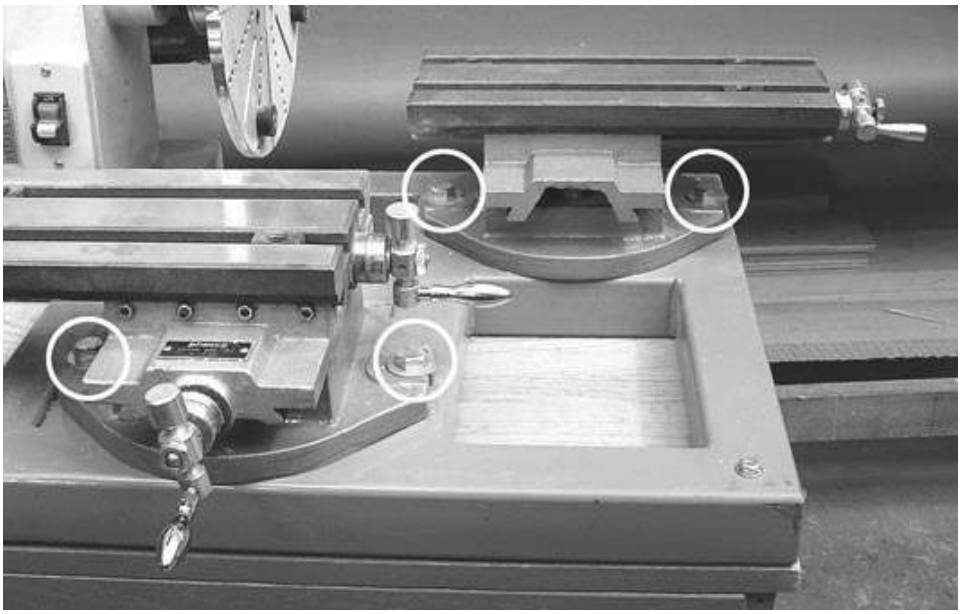

Figure 3 - Photograph of Bolts Used to Secure Cross Slides to Base

In addition to the cross slide bolt holes there are four non-threaded holes in each corner of the base to accommodate lag bolts which bolt the base to a cabinet top.

# Typical Mounting for Lathe Head

The lathe heads recommended for the rim lathe have a mounting system similar to the one pictured below. The mounting ring allows the head to rotate and the bolt that goes through the center of the mounting ring from the bottom of the steel plate holds the lathe head in position. The threaded holes labeled in the illustration are original with the lathe. You will have to locate and drill matching holes in the steel plate and use the lathe's original mounting screws to screw the mounting ring onto the steel plate from the bottom.

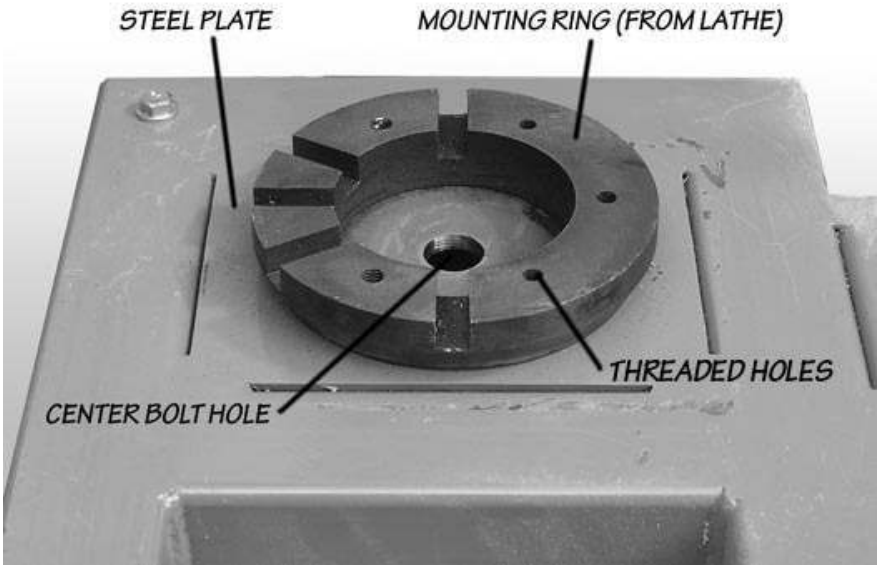


Figure 4 - Typical Lathe Head Mounting Ring

The following photograph illustrates a typical lathe head as seen from the bottom. This configuration varies according to the manufacturer.

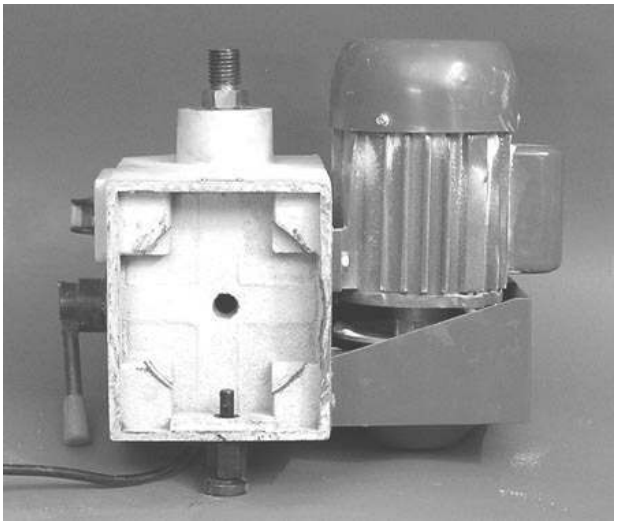

Figure 5 - Lathe Head, Bottom View

# Tool Holders

The rim lathe requires two types of tool holders: a holder for cutting tools made from square steel stock and another holder for a boring bar.

## Square-stock Tool Holder

You can grind a variety of cutting tools from square steel stock. The tool holder illustrated below accommodates 3/8” square stock.

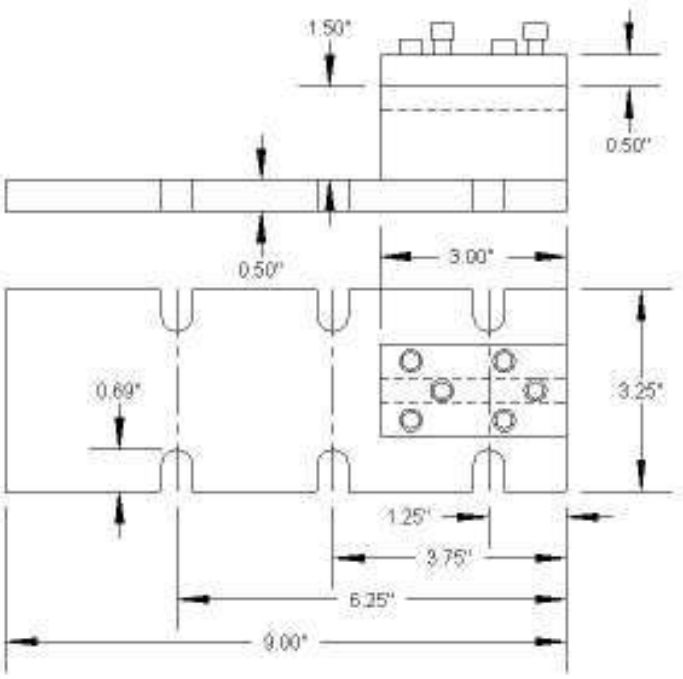


Figure 6 - Top and Side View of Square-stock Tool Holder

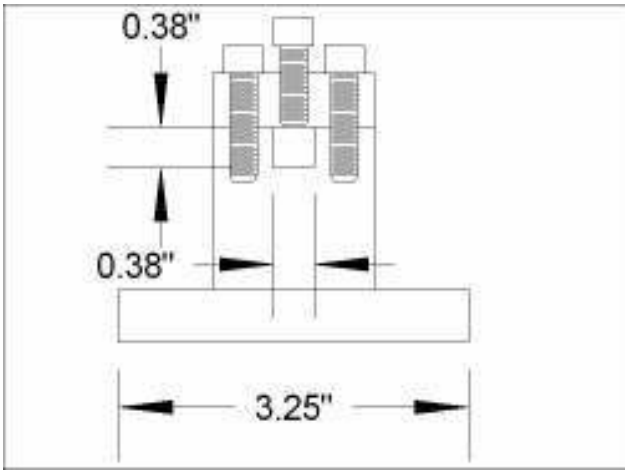


Figure 7 - Front View of the Square-stock Tool Holder

## Boring Bar Tool Holder

The boring bar recommended for the rim lathe is round in cross section. See Appendix for a description.

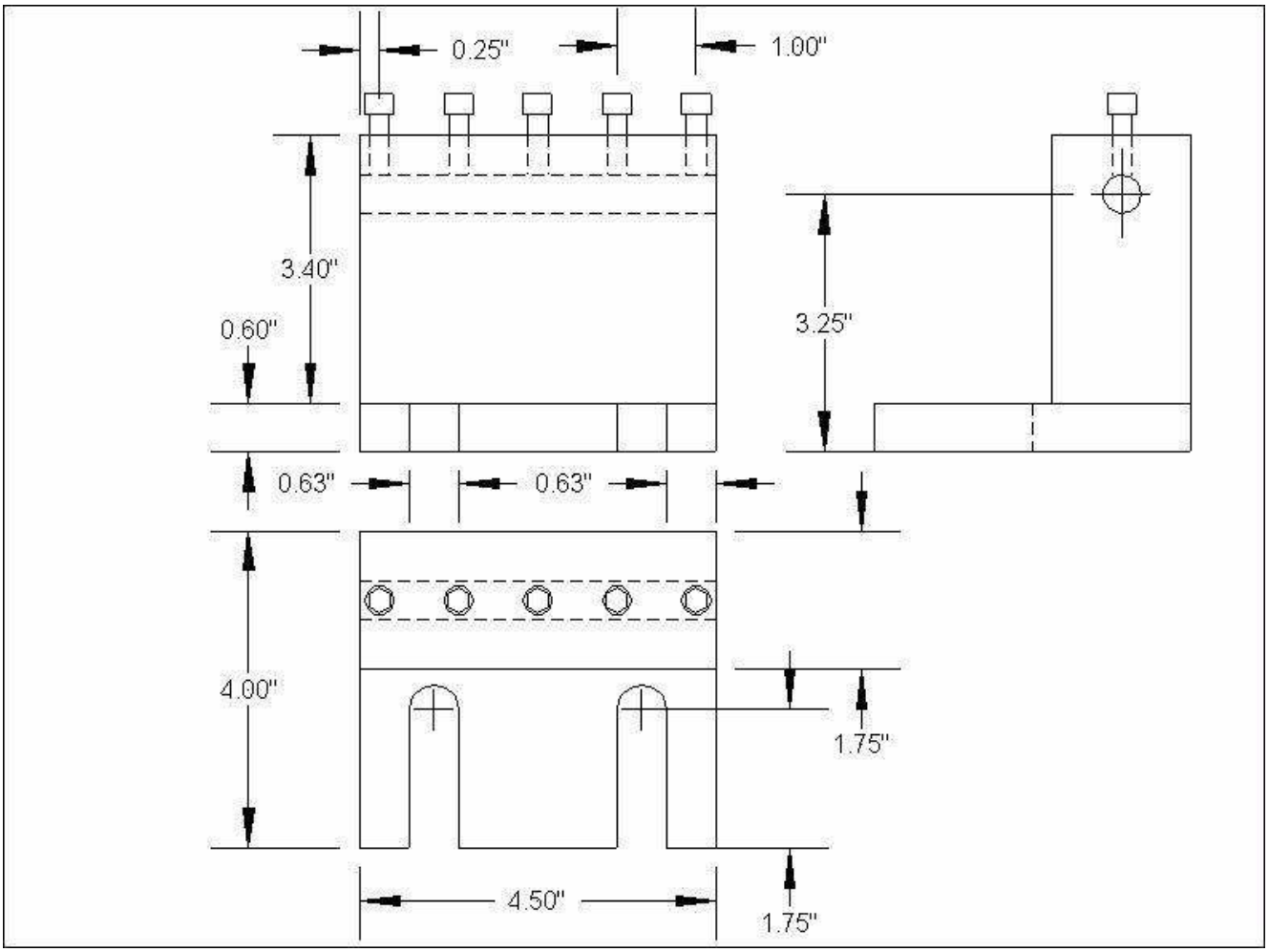


Figure 8 - Boring Bar Tool Holder

# Indexing Jig

## Striker Pin Assembly

The indexing jig is used for locating bracket shoe holes.

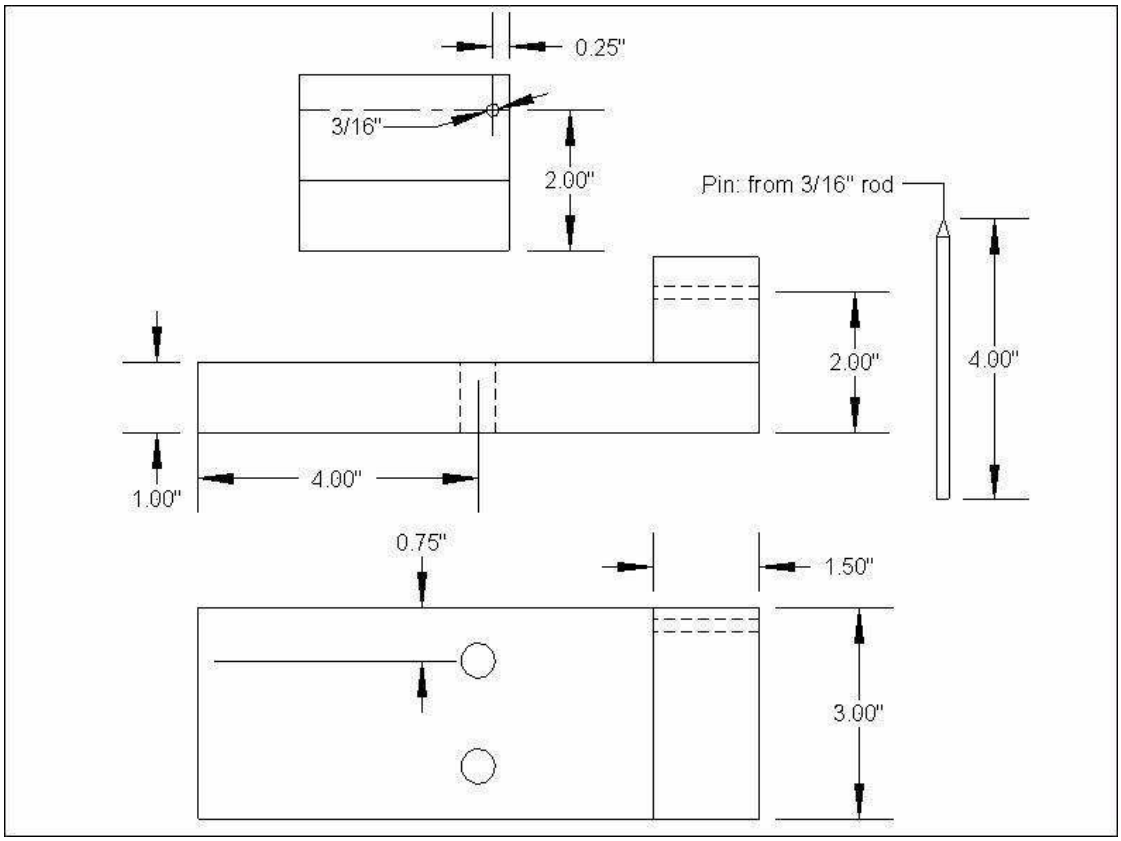


Figure 9 - Indexing Jig, Part A

## Indexing Pin Assembly

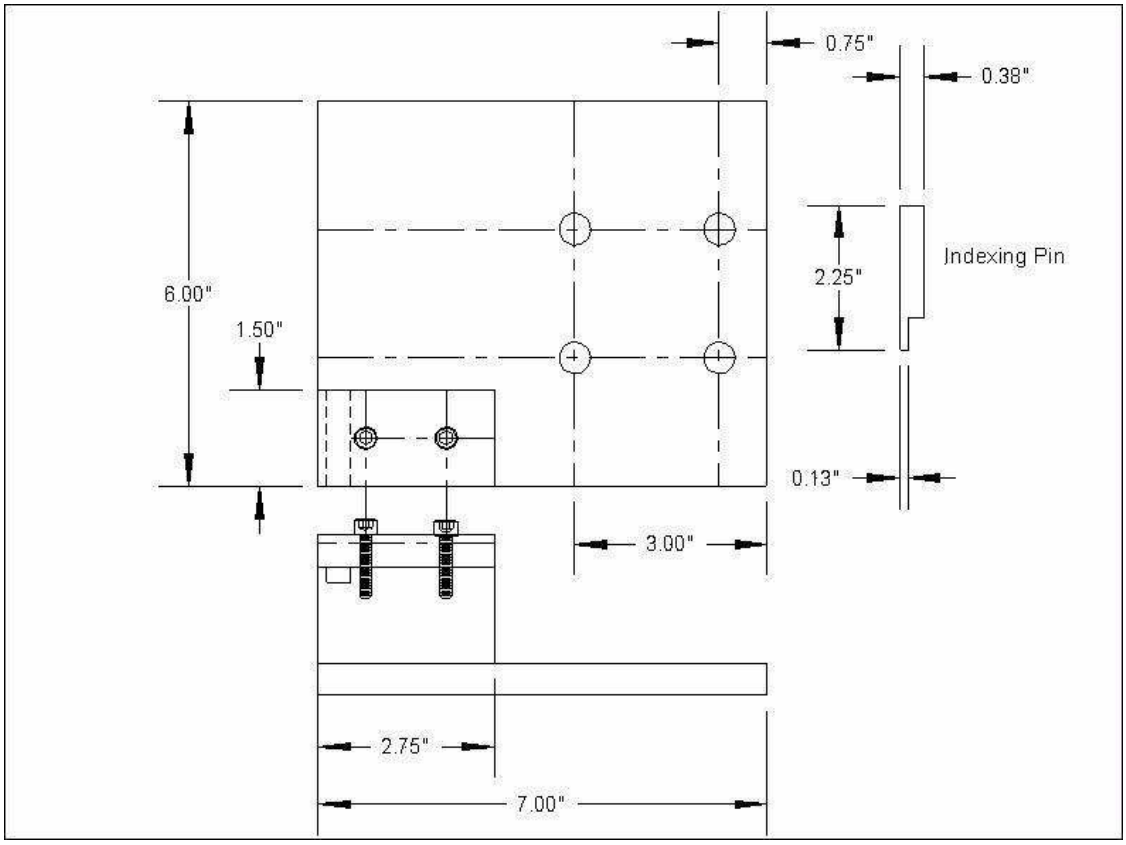


Figure 10 - Indexing Jig, Part B

# Appendix

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**Table 1: Suppliers**

| Supplier | Part Number | Description | Contact |
|---|---|---|---|
| Enco | Boring Bar | Boring Bar | www.use-enco.com |
| Enco | 68-002776613 | Black Face Indicator Set | www.use-enco.com |
| Enco | | 6” Calipers | www.use-enco.com |
| Enco | | 12” Calipers | www.use-enco.com |
| Enco | 201-2826 | Cross Slide Table | www.use-enco.com |
| Enco | | Steel Stock for Cutting Tools | www.use-enco.com |
| OneWay | 2895 | Talon Chuck | postbox@oneway.ca |
| OneWay | 2047 | Jumbo Jaws | postbox@oneway.ca |
| Grizzly | G0462 | Lathe for lathe head | www.grizzly.com |
| Miscellaneous | | Screws, Bolts, Nuts | your local hardware store |