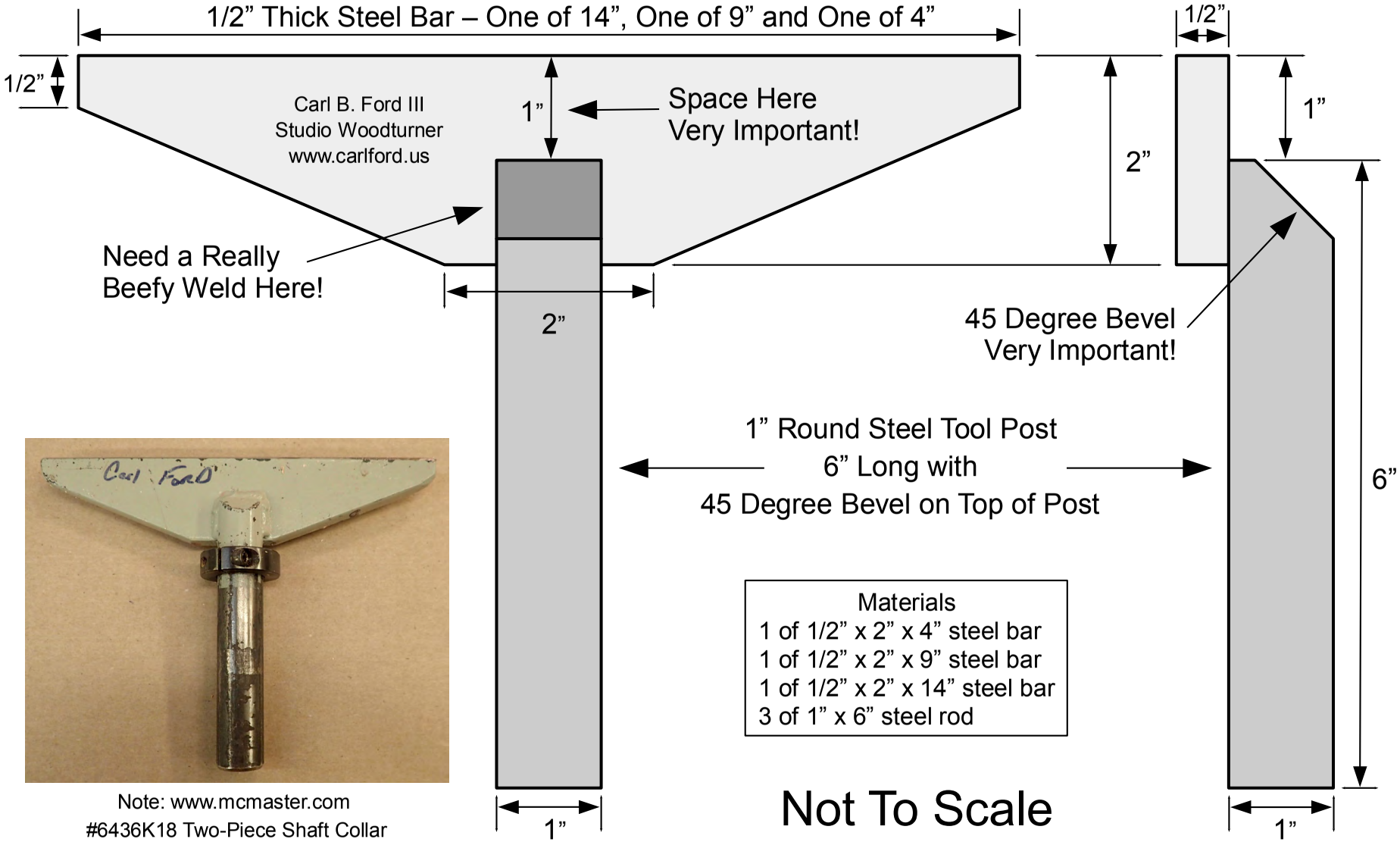
Carl's Tool Rests

Carl B. Ford III
Studio Woodturner
www.carlford.us

05/12/2020

http://carlford.info/blog/2020/05/carls-tool-rest-design

Front View



Side View

Note: www.mcmaster.com
#6436K18 Two-Piece Shaft Collar

Materials
1 of 1/2" x 2" x 4" steel bar
1 of 1/2" x 2" x 9" steel bar
1 of 1/2" x 2" x 14" steel bar
3 of 1" x 6" steel rod

Not To Scale

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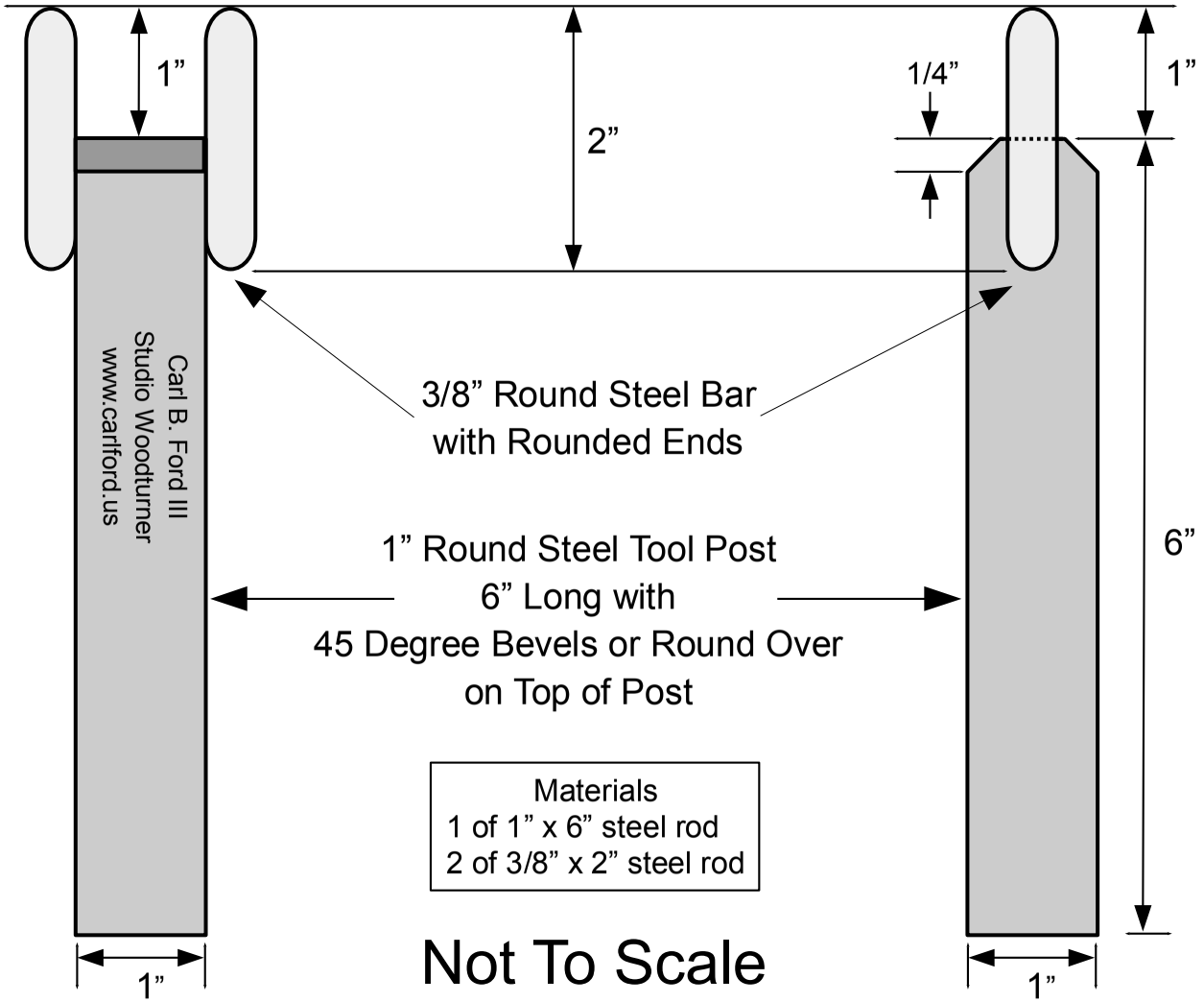

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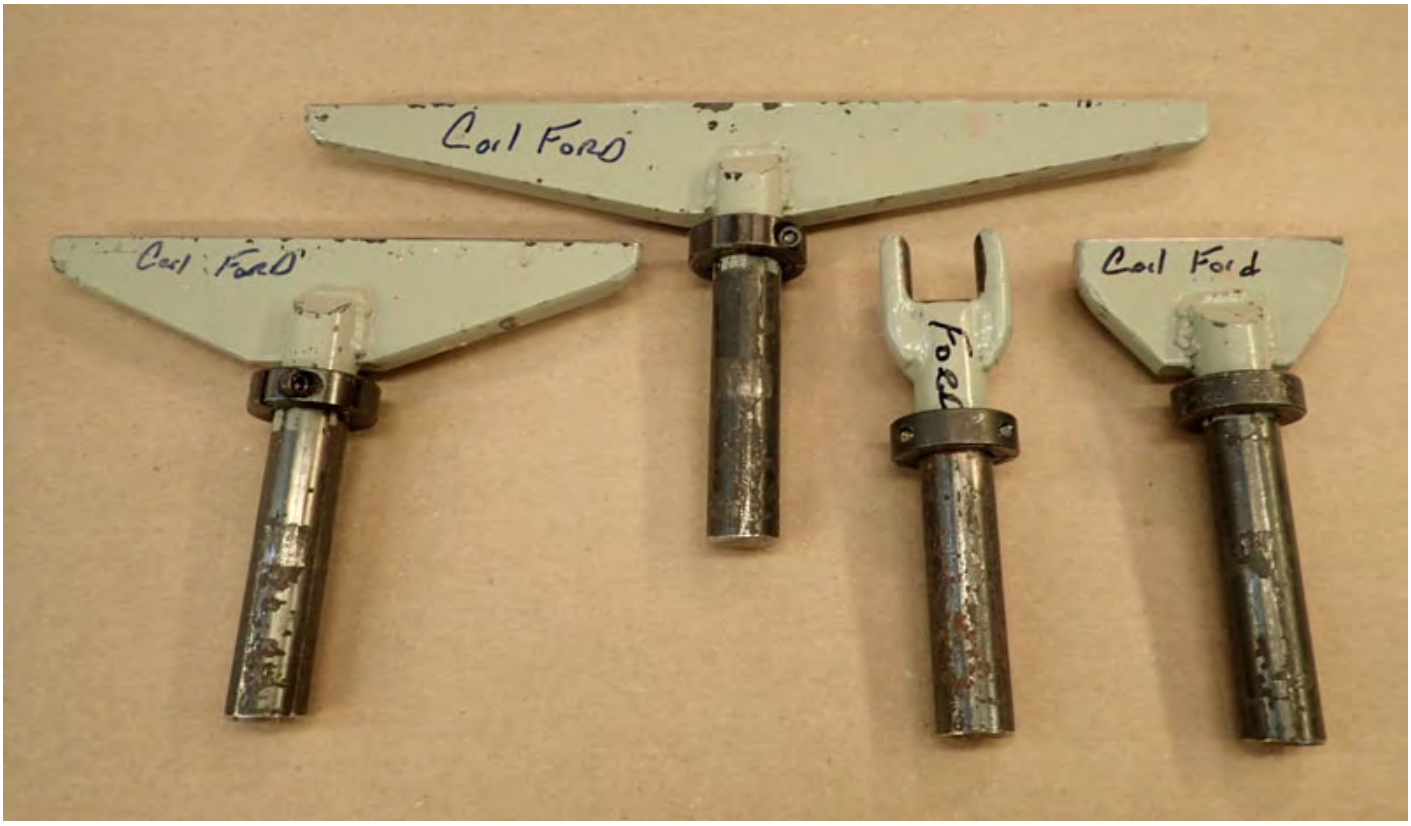
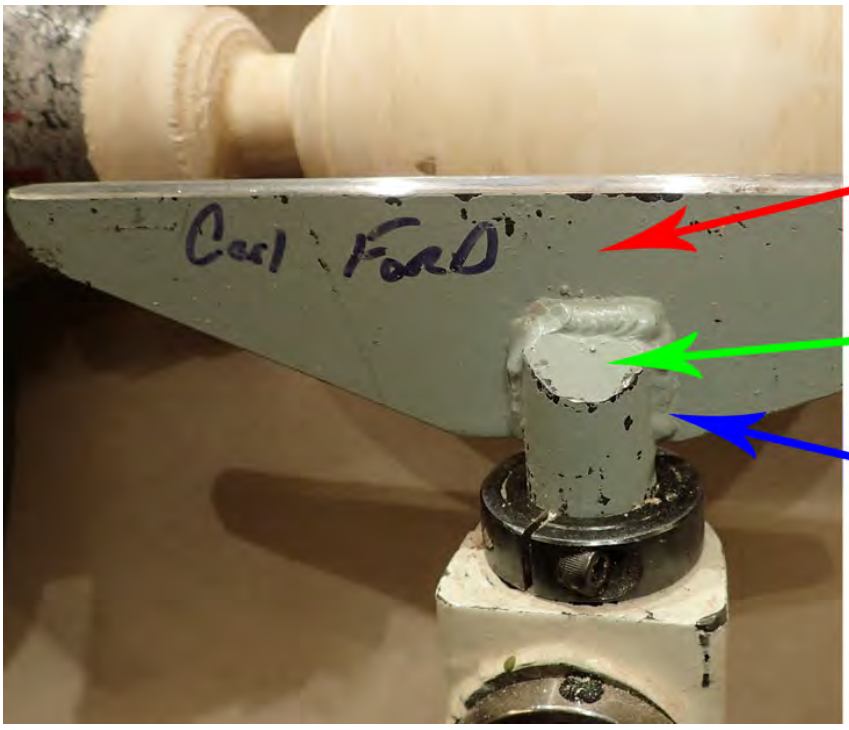




The space here between the top of the post and top of bar is really important! Must be 1”

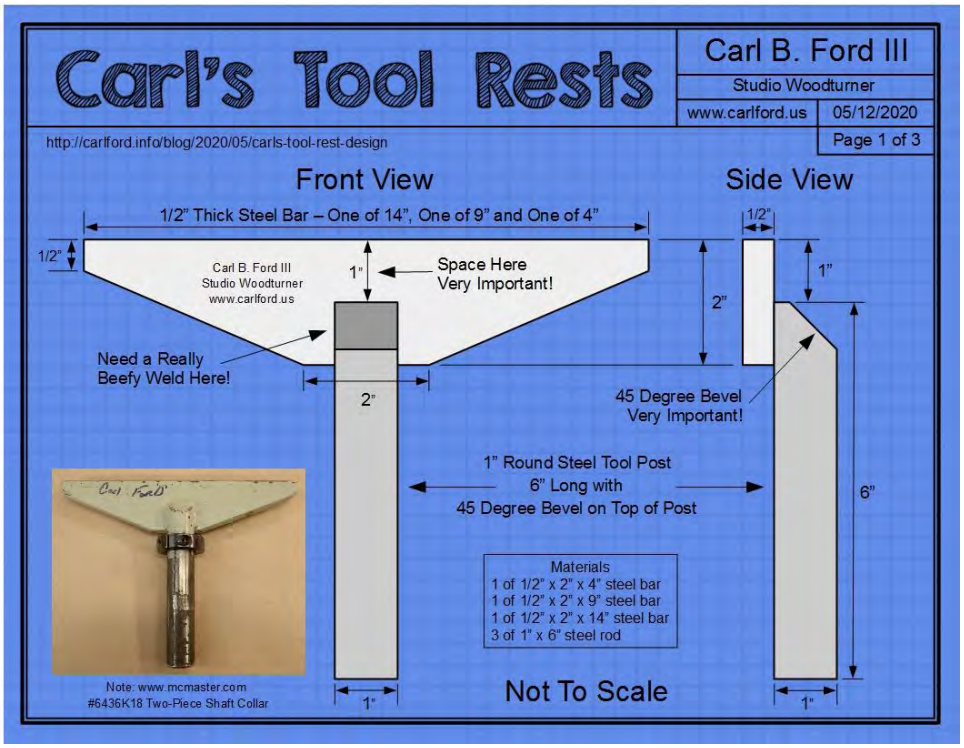
This 45 degree bevel on top of post is really important!

Need a really beefy weld here.

LATHES, TOOLS

CARL'S TOOL REST DESIGN

MAY 29, 2020 | CARL FORD | LEAVE A COMMENT



Here are some pictures and drawings of the tool rests that I prefer. They are NOT commercially available. You have to find someone to make them for you.

I prefer a tool rest that has a nice 1/2" wide almost flat area on top of the rest. I like to be able to feel when my turning tool is horizontal across the rest. I round over the top of the tool rest a little with a belt sander. I like the top to be slightly crowned. Like a crowned road.

I also like my tool rests to ONLY be 1/2" high at the tips. This allows my straight tool rests to work on the inside of bowls.

See photos of my tool rests below and plan above.

Click on the photo or here for a printer friendly PDF file.

Note: In my plan the tool post is 1" in diameter by 6" long. This should work ok on most full size lathes. If to long then you can hacksaw it off. You should make the tool post 1" longer (1" diameter by 7" long) for Powermatic 3520 lathe with the PM banjo. The top of the PM banjo is lower than most.

Tool Rest Length

I like to have 3 tools rests on each of my teaching lathes. See photos and drawings.

- A 4" long one. I use this one for finishing the bottom of bowls and hollow forms. I also use it when turning small things like bottle stoppers, etc.

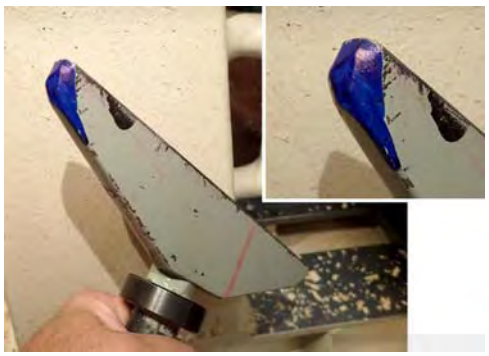
- A 9" long one. I use this one on medium sized things. This one gets the most use.

- A 14" long one. I use this one on large sized things.

I also like to have a special parting off (or hollowing) rest that is only 1" wide with side posts. i.e. A poor mans version of a "Kelton Hollowing Gate". I use this one when parting off bowls or hollow forms. It's not for everyone! It works well for me, given the way I do things!

Note: In some cases it might be nice to have a tool rest longer than 14". Maybe a 16" one. It's just not doable. 14" is pretty much the limit with a 2" tall steel bar and a 1" tool post. Anything longer than 14" will flex to much. Over the long run you will learn that 12" is to short, 16" is often to long, 14" is just right.

Round Over ALL The Corners



I round over ALL the corners on ALL of my tool rests with a belt sander. I don't want any sharp edges that can catch my hands or clothes and suck me into a running lathe. I don't want any sharp edges when I accidently run into a tool rest and it pokes me in the stomach, etc.

I do this on ALL tool rests. The ones I make and any tool rests that I purchase or come with a lathe. For safety reasons you should NEVER use the very end of a tool rest! Thus you don't need a sharp end on a tool rest!

On any tool rest that I might use inside of a bowl I grind off the bottom back side so it will not dig in and leave a mark if tool rest accidentally runs into the bowl. See area highlighted in blue in photo.

Any Steel Will Do

You may notice that the tool rest bars and posts in my photos look a little rough. When I go to my steel supplier I just purchase what ever they have in the scrap bin. I am not fussy. Any steel that is not rusted all to hell will do.

I have 2 sets of tool rests made out of "cold rolled" steel and a third set made out of nice "chrome moly" steel. The chrome moly ones look better. But, in action they all work the same. No difference.

No "Stainless Steel" for me. Cutting and welding stainless requires special tools. I don't want to pay extra for the steel or fabrication cost. A little paint and WD40 is a lot cheaper and easier.

Shaft Collars

I have Two-Piece shaft collars on ALL of my tool rests. I use them to ALWAYS set the tool rest height to the SAME height!

Over time the height, what ever it is, will become the right height for you! i.e. you will get use to it. You will known that if you are using a 1/2" gouge, rather than a 5/8" gouge then you need to lower the back of

the tool a little to cut on center. Etc, etc.

Note: For me the the CORRECT tool rest height is when the tool rest will just barely slip UNDER the threads on the Oneway Live Center.

The shaft collars get hard use ALL the time. Thus paying a few extra bucks for a 2 piece shaft collars makes a lot of sense. I strongly prefer Two-Piece (rather than One-Piece or Set Screw shaft collars) because they will work if the tool rest shaft is a little under or over size. If all else fails you can take the collars apart and grind them to fit.

The shaft collars that I like are www.Mcmaster.com #6436K18 "Two-Piece Shaft Collar, 1" Diameter, Black-Oxide 1215 Carbon Steel". $6 each on 5/28/2020.

4" Tool Rest in Action

Here is my 4" tool rest in action. I am using it to finish the bottom of bowl. I also use it when turning small things like bottle stoppers, etc.

In this case I could live with a longer tool rest. But, I would not be happy when it poked me in the stomach, etc.

9" Tool Rest in Action

Here is my 9" tool rest in action. I am using it to true up the bottom of a log. Getting ready to mount it on a faceplate.

In this case the 4" tool rest would be just barely long enough. Not acceptable from a safety point of view.

A 12" or 14" tool rest might flex to much when I got close to the tailstock and poke me in the stomach.

Note: You can't really see it in the photo. But, for safety reasons, there is NO space between the tool rest and the live center. Thus the turning gouge can NOT slide off the end of the tool rest.

14" Tool Rest in Action

Here is my 14" tool rest in action. I am using it to rough out a log for a hollow form. The 14" gives me a good safety margin on BOTH ends of the tool rest.

VB36 Tool Rest

My tool rest design above is basically a VB36 rest with a 1" post.

For reference, here is a photo of the 12" tool rest on my VB36 lathe. I really like it because the top edge is 5/8" inch wide and it is really heavy duty. Does not flex. But it has a 40mm post (1.5") and thus will not work in most lathes that require a 1" tool post.

Note: When you look at the side view the bent shape is NOT important. It just makes the top edge of the tool rest clear the tool post. Welding a rectangular steel bar to a round post would accomplish the same thing.

I also have a 16" rest for this lathe. It is massive. The 40mm post, etc is big enough to support it. It works good.

Curved Tool Rests

Here is what I have learned about curved tool rests. Often the hard way. i.e. after wasting money on them.

Internal "J" shaped curved tools rests are useful. They allow you to get the tool rest closer to the inside of a bowl. The tool post on J rests should be on or near the straight end of the tool rest. The "J-Rests" made by Robust are your best option. The Oneway "3037 – General Purpose Curved Toolrest" is ok for some things. The curved end on the Oneway rest needs to be bent around into a tighter curve. Like the Robust rest.

Non "J" shaped internal curved tool rests (anything with the tool post in the center) are NOT useful. You can never get them into the right position. They never closely match the shape of your bowl. Thus you have to put them into a comprise position. You can't get the rest close to your work in the comprise position. Thus, they often end up being no better than a straight rest.

External cured tool rests are NOT useful. Maybe a great idea. But, if the curve does not closely match your bowl (it never does) then they are a lot more pain to use then they are worth. If the curve does not match your bowl then a straight rest is just as good and less pain.

If the tips on your straight tool rests are only 1/2" tall, like they are on my tool rests, then you often, can get a straight tool rest in close to where you need it. Thus you can often make due with OUT a curved tool rest.

Little Round Hardened Bar Tool Tests

Lots of people like the Robust style tool rests with a little round hardened steel rod welled to the top. They were all the rage a few years back and continue to be very popular. If they float your boat then go for it.

I have a 9" Robust "Comfort Rest Overhand" and a Steve Sinner Advanced Lathe Tools 9" "Standard" rest. Most people who come to my studio, like the Sinner rest better than the Robust rest. It is easier to shear scrap with Steve's straight drop down profile. Steve Sinner is a really nice guy. I love doing business with Steve.

The idea behind using the little hardened bar on top of your tool rest is that it is really hard steel. Thus the top of your rest does not get dinged up. Thus you don't have to file the tool rest to remove the dings.

I don't get many dings in my tool rests and they just don't bother me. Thus, I don't care about having a harden steel bar on top of my rests. For me, having a rest with a almost flat surface out weights the hardened steel advantages. When the dings get really bad in my tool rests, I take my tool rests over to my big belt sander and clean them up in a few seconds.

The little round bars are also better for spindle turning. I turn mostly bowls and hollow forms. I don't do much spindle turning, thus I don't care.