

# Booklet #PKSUPSET



## PRODUCTS

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## About Making Custom Pens

If you like the look and feel of fine polished wood as well as take pride and satisfaction in the creation of a beautiful project – then pen making is for you! We have made the process of making pens easy, requiring minimum equipment and producing a beautiful finished product in minutes. This starter pack includes everything you will need to make handcrafted writing instruments. Just follow these simple instructions and soon you'll be turning elegant wooden pens.

### You will need a lathe to turn your pen project

The modern mini and midi style lathes are both ideal for turning pens and other small projects. The variable speed option is a plus for fine tuning the lathe's RPM when turning, sanding and polishing pen projects.

This starter pack includes our KWL-1018VS Turncrafter™ Variable Speed Lathe with a #2 Morse Taper and live (rotating) tailstock center, ideal for pen making and larger projects.

### What is a pen kit?

A pen kit includes all of the visible metal components, such as a mechanism, inner brass tubes and any ink refill that get assembled to make your pen. The pen kit does not include the wood. The PSI Woodworking Products "Slimline" pen kit is a favorite with beginners. It uses tubes that fit into a drilled 7mm hole. Exposed pen kit parts have many finishes available including 24kt gold-plated, titanium nitride, black enamel, brushed satin, black titanium, chrome, gun metal and rhodium that give different looks to the same style pen. The pen tubes are central to any pen's assembly and may have different diameters to accommodate different style pen components. The most common diameters are 7mm, 8mm, 3/8" and 10mm. The Bolt Action kits included in this starter set uses 3/8" tubes. See pages 7 & 8 for illustrations of Slimline and Bolt Action Pen components.

### What materials should you use for your pen project?

Many different materials can be used to produce impressive pen projects. The most common is a fine-grained tropical exotic or burl wood with good color definition. Although many domestic woods are readily available, they do not have the tight grain and eye-catching appearance that will make your pens "pop". Other choices for material are available to produce extraordinary pens such as: stabilized, dyed, and laminated wood, plus a wide variety of acrylic pen blanks which are also very popular choices. Many other natural materials may be used including horn, antler, and or coffee beans. This kit includes pre-cut pre-drilled EZ blanks for the Slimline project - undrilled exotic blanks for the Bolt Action pen project.

### About more advanced pen making projects

The Slimline and Bolt Action kits are provided in this starter pack because they are the easiest to learn, yet produce great looking functional pens. However, advanced and more uniquely designed kits are available that fill a wide range of choices and styles. Such kits include roller ball, fountain pen and twist or click ballpoints. Specialty pens with decorative bands and clips, wide barrels and other bullet cartridge themes are also very popular. In general, every pen kit requires a specific set of bushings and drill bit sizes to accommodate the particular mechanism and profile for each specific kit. Even though components, styles and accessories may vary, every kit is made using a similar process that includes: drilling blanks, gluing & inserting tubes, mounting to a lathe, turning, sanding, finishing and final assembly. See page 4 for instructions.

Variety of Pen Kits



1 Slimline Twist Pen

2 Bolt Action Pen

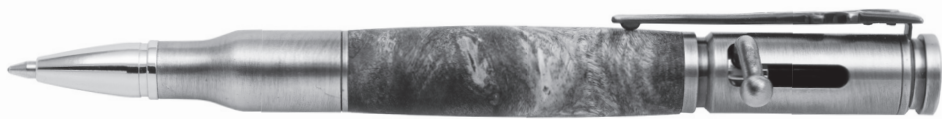
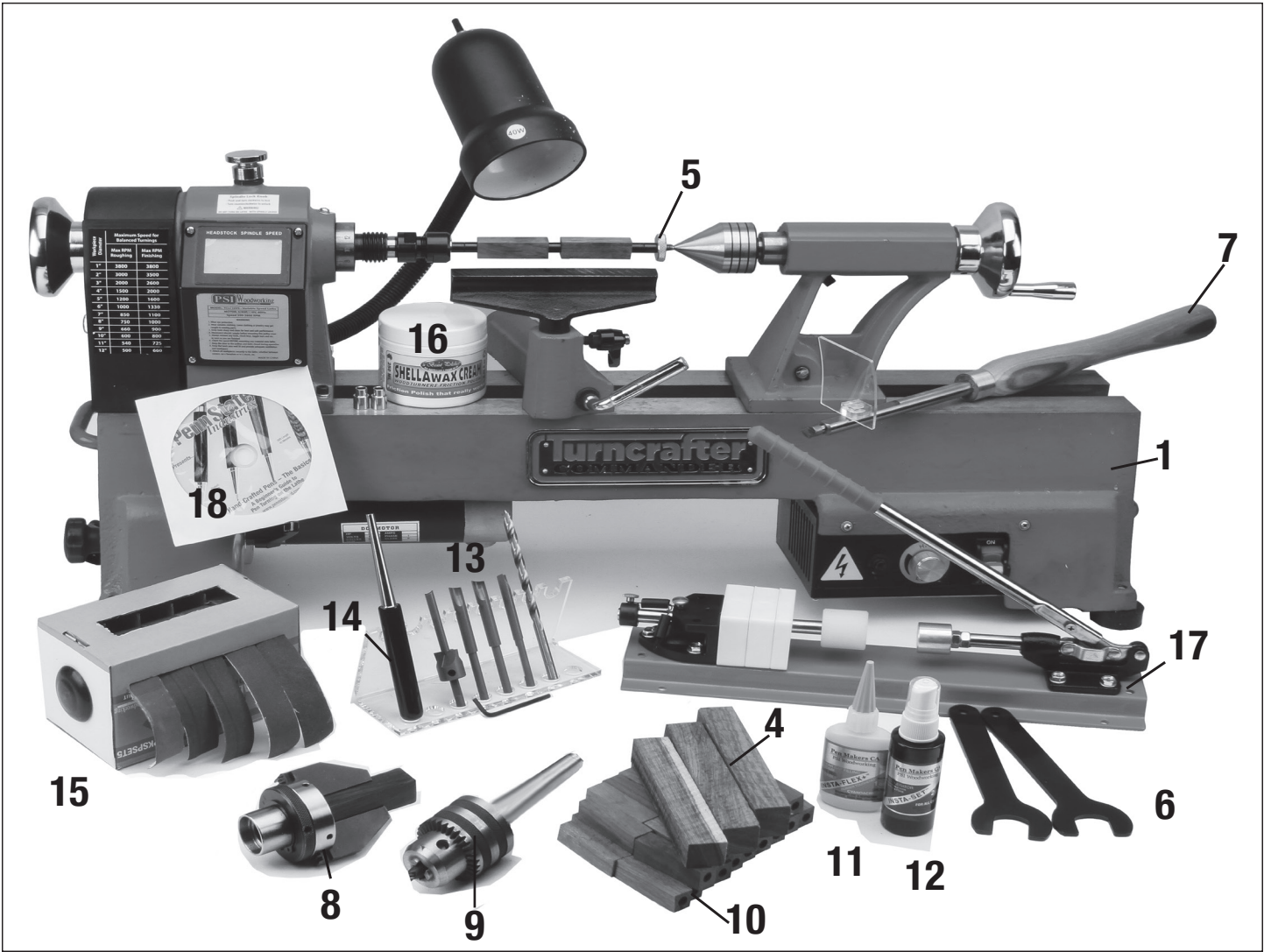
3 Vortex Click Pen



















4 Victorian High End Twist Pen

5 Majestic Rollerball Pen

6 Apollo Fountain Pen

Starter Set Components (Refer to pages 4 and 5)



Item	Item#	Qty	Description
<b>1</b> 	KWL-1018VS	1	Turncrafter Commander 10" Swing Variable Speed Lathe
<b>2</b> 	PK-PENxx	20(Assorted)	Slimline Pens
<b>3</b> 	PKCPBAK	3 (Assorted)	Bolt Action Pen Kits with 3/8" drill bit, & bushings (starter set)
<b>4</b> 	PKWX7	3 each	3/4" x 5" Hardwood Pen Blanks for Bolt Action Pen Kits
<b>5</b> 	PKM-FLC	1 set	#2 MT Pen Mandrel w/7mm drill bit and Slimline bushings
<b>6</b> 	PKMWR	1 set	Pen Mandrel Wrench
<b>7</b> 	LXMSET	1 set	Multi Bit Carbide Chisel Set w/ 4 bits & Chip Deflector
<b>8</b> 	CSCPENCHK	1	Lathe mounted drilling chuck for drilling blanks on lathe
<b>9</b> 	TM32	1	Tailstock Drill Chuck for drilling blanks on lathe
<b>10</b> 	PK-EZx	40 (Assorted)	Pre-Drilled EZ Blanks - 40 blanks makes 20 slimline kits
<b>11</b> 	PKGLUE61	1	1oz Pen Maker's CA for gluing wood into barrels
<b>12</b> 	PKGLUE9		2oz CA accelerator
<b>13</b> 	PKTRIMKIT	1	Barrel Trimmer Set
<b>14</b> 	PKTINT2	1	Pen Tube Insertion Tool
<b>15</b> 	PKSPSET5	1	5 Grit Sandpaper Set
<b>16</b> 	PKSWAX250	1	250ml Shellawax Finish
<b>17</b> 	PENPRESS5	1	Pen Assembly Press
<b>18</b> 	DVD	1	Instructional Pen Making DVD



## Using Starter Set Components for Pen Making - General Pen Making Tutorial

Refer to the Pen Kit Instructions in this brochure, the included video (18) and instruction sheets for more information about preparation, assembly and turning the Slimline and Bolt Action Kits.

**1) Select a pen kit from the Starter Set** Remove the brass tubes from the package. We suggest starting with a Slimline pen kit. (2)

**2) Select your pen blanks.** If you are making Slimline pens, select a set of pre-drilled EZ blanks (10). If you are making a Bolt Action pen, you will have to drill one of the 3/4 x 3/4 x 5" blanks provided with the Starter Set. (4)

**3) Preparing blanks for Bolt action pens:** Refer to the blank sizes in the instruction sheet in this manual to cut the blanks to size. To Drill: Mount the Drilling Pen Blank chuck (8) onto the headstock of your lathe, mount the 3/8" Drill Chuck into the tailstock (9). Mount your blank in the Pen Blank Chuck, turn on your lathe to about 1000 RPM and advance the 3/8" drill bit into the blank. Refer to the instructions in the #CSCPENCHK manual.

**4) Glue in the tubes:** Use the tube insertion tool (14) to hold the pen tube while you spread the CA glue (11) even around the tube. Holding the drilled blank in one hand use the tube insertion tool to slide the glued up tube into the blank. Rotate the tube while inserting to completely spread the glue onto the inside surfaces of the hole in the wood. Center the tube end to end in the blank and set aside to set up and dry. Repeat for the second mini-blank (for Slimline). (12) Allow to set and dry. (Note, once you're familiar with this process, the glue will dry faster if you spray the Accelerator inside the drilled wood blank prior to insertion. - you must do this quickly before the glue dries inside the blank).

**5) Use the appropriate barrel trimmer** (13) to trim the wood ends square to the ends of the tubes on each end of both tubes. Trim only up to the brass tube, do not cut into the tube. This also cleans the excess glue from the inside of the tubes. Use the 7mm trimmer for Slimline, 3/8" for Bolt Action.

**6) Mount the mandrel** (5) into the headstock of your lathe. For Slimline, Slide a bushing, wood blank, middle bushing, the second wood blank then additional bushings onto the mandrel (refer to the appropriate pen kit instructions for proper sequence of bushings for the kit of your choice). For Bolt action you will only need 2 bushings - refer to the instructions for exact setup. Screw the lock nut lightly against the last bushing to secure the entire assembly.

**7) Bring the lathe's tailstock live center up**, to engage the center hole at the end of the mandrel. Turn the knurled nut snug but do not over tighten. Hand turn the mandrel freely to assure everything is secure.

**8) Turn your lathe on** to a speed of about 1000-1500 RPM. Using the Multi-Bit chisel (7) with the 2" radius bit installed to turn down the outside diameter of the wood blanks to just above the level of the bushings. Use light touch and slow traversing when cutting to prevent catching and splitting the blanks to insure a smooth finish. Keep the tool level on the toolrest as you proceed along the pen blank. Continue to turn down to slightly larger than the bushing diameter.

**9) Set the speed to about 2000 RPM.** Sand the turned blanks with strips of sandpaper (15) from course (150 grit) to fine (600 grit). Sand until the blanks are even with the bushings and smooth. Do not sand too aggressively; the diameter of the wood should be level with the bushing diameters when done. To eliminate the very fine swirl scratches from the sandpaper; rub the sandpaper lengthwise across the barrels a few passes with the lathe turned off.

**10) Finish your pen.** Turn off the lathe and with a soft cloth or paper towel, apply a thin coat of Shellawax (16) over all surfaces of the sanded barrels. Start to polish at a slow speed and with your fingers, squeeze the material around the blanks and rub completely side to side across both blanks until a low heat builds up. Increase the lathe's speed to 2000 RPM as you continue to polish but don't allow too much heat build up. Continue until the surface is dry. Use a second coat of Shellawax for a more polished gloss.

**11) Remove the finished tubes** from the mandrel and press the parts together with the pen assembly press (17). Insert the refill, slide on the band and assemble the top and bottom pen halves together per its instructions. See instructions for more details.

**12) Your pen is now finished.** Allow to set and dry for about 24 hours before handling.

## KIT FEATURES

- Heavy Plating with Epoxy Coating.
- Simplified construction, uses same tube lengths for both kits. (2-1/32" long).
- Pen Features a Locking Mechanism.
- Pencil Features a New Trouble Free 0.7mm Lead Mechanism \*
- A Variety of Clip and Band Styles are Available (see PSI catalog).
- Overall Length: Pen= 5-1/8", Pencil= 5-5/8"

**\*NOTE: Pencils not included in starter set**

## Step 1 - Cut Wood Blanks

From 1/2" to 5/8" square stock, cut blanks to the length of the tube plus 1/16". Grain should run length- wise.

**\*NOTE: (EZ Blanks do not require cutting or drilling)**

## Step 2 - Drill The Wood Blanks

Drill a 7mm centered hole lengthwise through each blank. Excessive pressure will cause the drill bit to wander and/ or split the blank. Slow the feed rate and back the bit out repeatedly for chip removal.

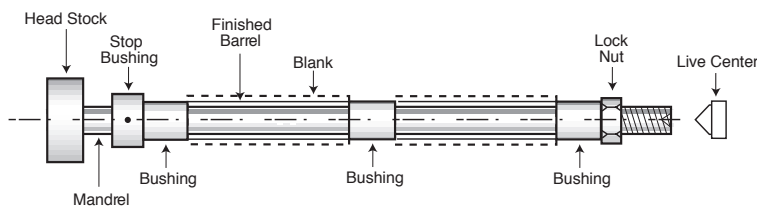
## Step 3 - Glue The Tubes Into The Blanks

Use epoxy or a gap filling cyanoacrylate. Spread the glue on the tube. Insert into the blank with a twisting motion to spread the glue evenly inside. Center each tube length- wise in the blank. Allow it to dry.

## Step 4 - Square The Ends

With a 7mm barrel trimmer #PK-TRIM or other sanding device, square the ends of the blanks 90 degrees flush to the ends of the brass tubes.

## Diagram A - Turning The Blanks



## Step 5 - Turning The Blanks

Place the stop bushing onto the mandrel hand tight. Next, place one of the other bushings onto the mandrel. Next, slide on either blank, then another bushing. Follow with the second blank then the last bushing. Thread on the lock nut hand tight. Bring the tail stock snug with the mandrel (do not over tighten, it could damage the mandrel) slide the stop bushing toward the blank. Adjust to remove the space then tighten set screw and lock nut.

## REQUIRED ACCESSORIES

- 7mm Long Mandrel.
- 3 Piece Bushing Set #PKM-BUSH3\*.
- 7mm Drill Bit #PK-7MM\*.
- 7mm Barrel Trimmer #PK-TRIM (optional)
- 2 Part Epoxy Glue or Insta-Cure (cyanoacrylate).

**\* Included with mandrel**



Turn the blanks down to a diameter slightly larger than the bushings (about 11/32" O.D.). As you approach the final size be careful since the wood is only about 1/32" thick.

## Step 6 - Sand

As with any sanding, progress through a range of grits 150 thru 600 grit. Sand with blank spinning. Finally sand with the grain (lathe off). For initial shaping, stick some sandpaper on a board 2" wide to remove any hills or valleys. The center ring is 21/64" in dia. The final size for a flush finish is between 5/16" & 11/32". For a little heavier look, just form a little thicker barrel.

## Step 7 - Finish

Try a finish of your choice but be careful if brushing on a poly, etc. You can stick the tube, bushings, and mandrel together. PSI Shelawax<sup>TM</sup> works well on most woods. Apply with a rag or paper towel to the spinning barrel. Apply two coats.

## Step 8 - Touch Up

With tubes off mandrel, lay them end to end to decide which sets will look best when assembled. Remember, they will be 5/32" apart (due to center ring) so minor differences won't show. If necessary, a light sanding of the ends on a block will square the ends and improve the fit during assembly. Then repeat step 7.

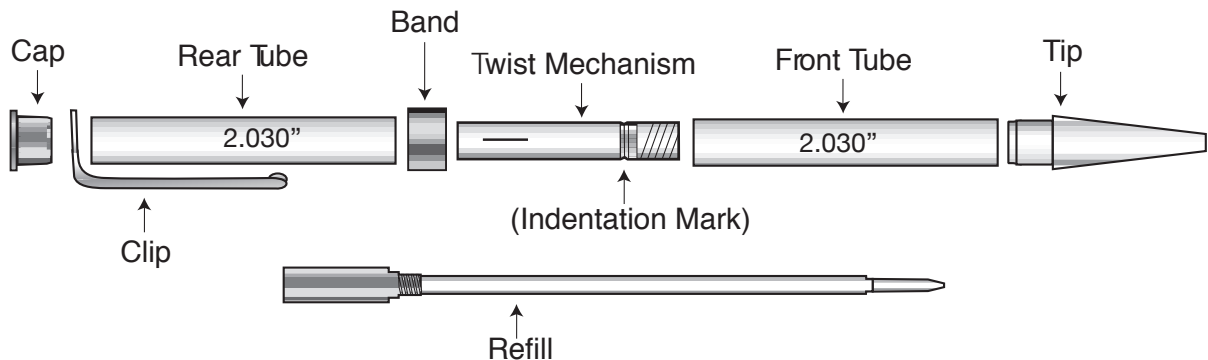
**Assembly instructions on next page**

## REQUIRED ACCESSORIES

- Use PSI #PENPRESS4 to press parts together.
- Front and rear tubes are identical on both pen and pencil kits and may be mixed and matched.
- 7mm Pen Disassembler Kit, #PKDISPEN is available.

### Diagram B - Assembly of Pen

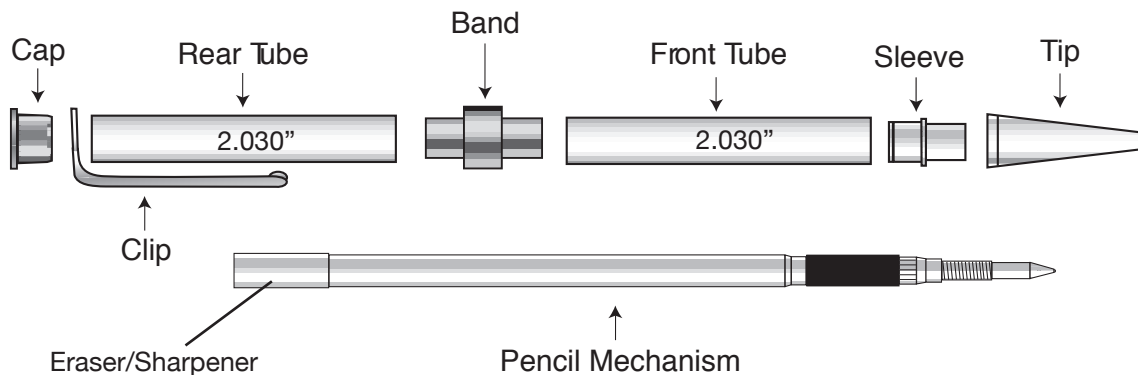
*Note: Line up parts according to layout below.*



- Press the tip into the front tube.
- Press the twist mechanism (brass end first) into opposite end of same tube (to the indentation mark).
- Slide band over the exposed mechanism.
- Press cap into the clip then onto the rear tube (clip can be left off if desired).
- Push the two halves together aligning grain as desired. Pen is operated by twisting the halves in opposite directions to extend or retract point. Test the extension with the refill inserted. Uses Cross® type refills.

### Diagram C - Assembly of Pencil

*Note: Line up parts according to layout below.*



- Press the sleeve, recessed end first into the end of the front barrel until it hits the shoulder.
- Press the band into the opposite end of the barrel.
- Press the rear barrel onto the band.
- Press cap into the clip then onto the rear tube (clip can be left off if desired).
- Insert mechanism through the cap and out the opposite end.
- Screw the tip tightly onto the threaded end of the mechanism.
- The pencil operates by pushing down on the plunger. This clicks the lead out. The eraser and extra lead is located under the gold cap on the mechanism. Use 0.7mm lead.

**Note: If lead does not advance properly or retracts when writing, gently pull exposed short piece of lead out of mechanism. Continue to pump pencil plunger until a new piece of lead is exposed.**

# Bolt Action Pen Kit

## PKCP80XX

US PATENT  
#D682352S

### Kit Features:

- Easy to turn with single tube
- Minimum Parts to assemble
- Uses Parker® Style Refill
- Available Multiple finishes
- Overall length 5-1/4"
- Now with two Bolt positions

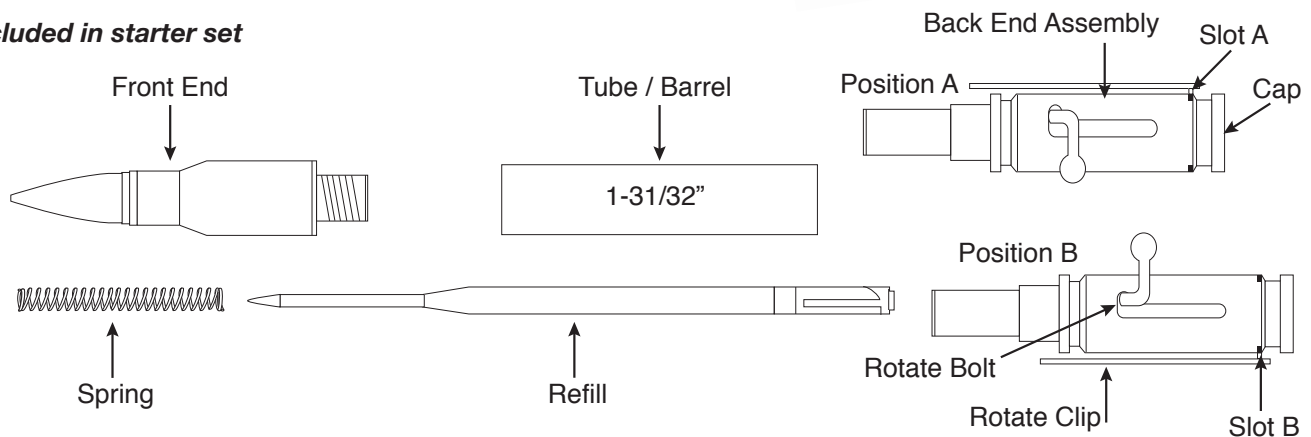
### Required Accessories:

- 7 mm, pen mandrel
- Drill bit 3/8" #PKEXEC-38\*
- PKCP3000BU bushing set (2 pc)\*
- PKTRIMKIT barrel trimming set, use 3/8" shaft
- Live Tailstock Center
- 2 part epoxy glue or insta-cure (cyanoacrylate) glue
- Minimum Blank size: 5/8" x 2-1/4"



### DIAGRAM A - Parts List

*\*Included in starter set*

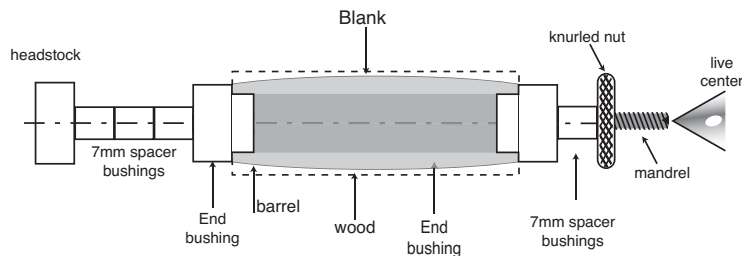


### Preparing the Blank

- Cut one pen blank to the length of the brass tube (add 1/16" for trimming).
- Drill a 3/8" hole lengthwise through the blank.
- Spread the glue over the tube. Insert the tube into the blank with a twisting motion to spread the glue evenly inside. Center the tube lengthwise in the blank.
- When the glue dries, Square the end of each blank. Use a Barrel trimmer with 3/8" shaft or a universal pen blank squaring jig with a power disc sander. Take the wood down to the brass tube. Do not trim beyond the length of the tube since this may interfere with operation of the mechanism and assembly. Use the barrel trimmer shaft to clean the inside of the tube.



## DIAGRAM B - Turning the Blanks



## Turning The Blanks

- Mount the bushings and blank according to Diagram B.
- Thread on the knurled nut and hand tighten to hold all components in place.
- Slide the tailstock up snugly against the mandrel shaft inserting the live center point into the mandrel dimple, lock in place.
- Hand tighten the quill adjustment to firm up the mandrel. (DO NOT overtighten, it could damage the mandrel).
- Using sharp tools, turn the blank down close to the bushing diameter. Turn the barrel (straight or to a profile of your choice).
- Sand the blank down to be flush with the bushings gradually increasing the sandpaper grits.
- Finish the barrel with your choice of polish. Allow sufficient time for the polish to cure. - refer to polish instructions.

## Assembly

- Position the bolt either in Position A or Position B. (Delivered in position A)
- Position A - Check to see if bolt is tightly in place. To tighten see Note 1
- Position B - Reverse the direction of the bolt. See Note 1 on loosening / tightening the bolt.
  - Rotate the clip to slot B (press into slot)- do this by Unscrewing the Cap and rotating the clip.
  - Re- attach the cap after re-positioned

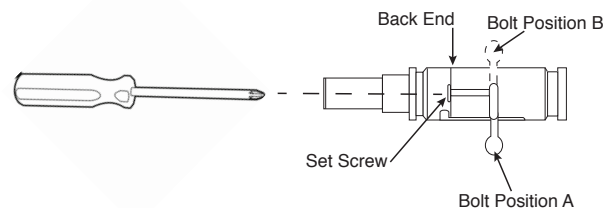
### NOTE: Layout Finished parts according to Diagram A

- Press the front end into either end of the barrel.
- Press the back end assembly into the opposite end of the barrel.
- Unscrew the tip and insert the refill into the opening at the front end.
- Insert the spring over the refill and replace the tip.
- Lock or unlock the bolt to extend or retract the refill tip.

### NOTE1:

Changing and tightening the bolt. To loosen or tighten the bolt, loosen or tighten the set screw as shown below in diagram C. Take a long phillips screw driver with a small head, insert into the back end as shown. Rotate the bolt as necessary and tighten the set screw.

## DIAGRAM C



## DIAGRAM D - Bushings

#PKCP3000BU

