Turning reel seat components in the lathe

Making seat hardware from drawn cups,
insert turning methods

The reel seat making workshop

given at
The 10th annual Catskill Rodmakers Gathering
The Catskill Fly Fishing Center and Museum
Livingston Manor, New York
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Gary Dabrowski
Workshop Synopsis

1. Opening Comments

Before starting to machine rod components in the lathe, be sure to become acquainted with basic machinist lathe working skills. Seek the advice of a known competent individual. Take a course at your local adult education center or trade school. Read texts intended to teach these skills and practice them before attempting to make parts for use on rods. In short, be informed. An engine lathe can injure you before you know what is happening.

Be sure to always wear your safety glasses.

Sharp tools not only produce better work with less effort but also are safer to use. Learn what sharp tools look like. Learn how proper tools are ground.

Keep your hair and clothes under control when near rotating machinery. The lathe does not care if you are just going to “make one cut”. It will STILL grab your hair or loose clothing and pull you into the rotating work.

If you are not using the lathe, shut it off.

Never leave a chuck key in the chuck after tightening work into the jaws. A key thrown by a lathe can blind you or severely injure you. It is at the very least the behavior of a rank amateur who has no business even being near an engine lathe.

If you truly pursue craftsmanship, you are obliged to know your tools, cutters and machinery.

2. Workshop content

The following pages describe the making of reel seat hardware from drawn cups. It is just one method of making such parts and is presented here as it is the method I employ on my own shop. Certainly one may turn such parts from solid bar or tube and enjoy success. I prefer the cup method as it requires far less time on machine.

Among the following pages are:

- The drawn cup blank and finished part machining guidelines.
- Insert blank and turned mortise tools
- Machining process sketches.
- Tools and workholding fixtures.

3. Questions and review.
Rodmakers Findings™ are economical drawn metal cups and semi-finished parts from which fishing rod reel seat components may be constructed.

Rodmakers Findings™ permit the rod craftsman with his own machining capability the opportunity to form a reel seat to suit his own view of style and functionality. Using a basic part, a simple drawn cup or a semi-finished component, numerous options may be had merely by making changes to machining and the position of the part in the reel seat assembly. Style and decoration is entirely under the control of the rodmaker. Rodmakers findings™ are made from 18% nickel silver, aluminum or jewelers bronze.

A web catalog is available at: http://brooksiderod.tripod.com/components.htm

The Brookside Rod Co.
37 Brook Street
Naugatuck, CT. 06770-3101
(203)729-1505
3. THE HEIGHT DIMENSION OF 3/4 INCH CUPS IS +/- .094 INCH.

NOTES CONTINUED:

PART NUMBER DESCRIPTION DIMENSION "A"
000619-CR1 11/16 ID REF DIA .685 +/- .004
000619-CR2 5/8 ID REF DIA .620 +/- .004
000619-CR3 21/32 ID REF DIA .656 +/- .004
000619-CR4 23/32 ID REF DIA .718 +/- .004
000619-CR5 3/4 ID REF DIA .756 +/- .004

SEE NOTE 3

NOTES:

1. MATERIAL: NICKEL SILVER 65-18 PER UNS C75200. THICKNESS .031 BEFORE FORMING.
2. FOLDS, CREASES OR SCRATCHES DEEPER THAN .010 ARE NOT PERMITTED.
MACHINE HEIGHT TO SUIT
SEE NOTE 3

TURN EXTERIOR
SEE NOTE 2

KNURL AS DESIRED

NOTES:

1. ALWAYS USE SAFETY GLASSES WHEN OPERATING POWER TOOLS.
2. TURN EXTERIOR REMOVING <.005 TO CLEAN UP O.D. SURFACE. POLISH AS REQUIRED.
3. DETERMINE YOUR DESIRED PART HEIGHT BEFORE MACHINING O.D. AND HEIGHT.
4. POLISH EXTERIOR FOR BEST RESULTS.
Machine top of cup before establishing width of ring. See note 3

Turn exterior to clean up surface

Knurl as desired

Notes:
1. Always use safety glasses when operating power tools.
2. Turn exterior removing .005 to .007 to clean up O.D. surface. Polish as required.
3. Determine your desired part height before machining O.D. and height.
4. Polish exterior for best results.
The successful conversion of purchased nickel silver cups into visually and technically acceptable nut/nut end components requires personal technical skill in machine operation, knowledge of strength of material issues and of general manufacturing technology. The supplier declares no guarantee that any individual can successfully do so and is specifically not responsible for any injury or damage that may arise from use or as a result of machining or finishing in attempting to machine or finish purchased cups. Nothing said is inherently dangerous.

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STEEL SUPPORT FOR CHUCKING
(NOT NEEDED IF COLLETTED)

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NOTES:

1. ALWAYS USE SAFETY GLASSES WHEN OPERATING POWER TOOLS.
2. HOLE TO BE .005 LARGER THAN INSERT.
Milled Mortise

Turned Mortise

Diameter to Suit

Notes:
1. Always use safety glasses when operating power tools.
2. Turn insert to fit previously made hardware. For cap and ring components, allow .010 min clearance between id of band and insert. For pbc components, turn to ref. dimension.
3. Apply finish to insert before mounting onto rod.
4. Do not mortise insert used with pocketed butt cap.

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TO ACCOMMODATE FIXTURE

NOSE RADIUS OF LATHE TOOL

FINISHED LENGTH

BLANK LENGTH AS TURNED

ECCENTRIC OR OFFSET

Disclaimer: The successful construction of visually and technically acceptable rod/reel seat components requires personal technical skill in machine operation, knowledge of strength of material issues and of general manufacturing technology. The BSC makes no guarantee that any individual can successfully do so to this sketch and is specifically not responsible for any injury or damage that may come about as a result of machining or finishing or attempting to machine or finish to this reference. Machining metal and wood is inherently dangerous.
STOPPED SLOT (2) PLACES

CHUCK JAWS REF.

INSERT DIAMETER
+/-.010 -.000

SLOT THRU

OFFSET TO SUIT HARDWARE

Φ 1.875 OR TO SUIT

HEIGHT OF JAWS PLUS A BIT TO CLEAR
1. PLACE CUP IN SPLIT BUSHING

2. PLACE THIS GROUP INTO THREE JAW CHUCK

3. MACHINE TO SIZE: FACE MOUTH TO DIMENSION .125 TO MAKE .563 HIGH CAP.

4. DEBURR OR CHAMFER EDGES.

5. REMOVE CUP AND TRANSFER TO EXPANDING MANDRILL.

SPLIT BUSHING
3/4 DIA END

11/16 I.D., CUP

BUTT CAP TURNING
ORDER OF OPERATIONS
PAGE 1 OF 2
10. CUT INSCRIBED LINE OR KNURL A DECORATIVE BAND

9. TURN OUTSIDE DIAMETER TO TRUE UP.

8. PLACE MANDRILL IN THREE JAW CHUCK AND GRIP SECURELY.

7. EXPAND TO GRIP FACED CUP FROM OPERATION 5

EXPANDING MANDRILL

6. PLACE CUP ON EXPANDING MANDRILL

11. POLISH, BUFF
1. Place cup in split bushing

2. Place this group into three jaw chuck and tighten securely.

3. Machine to size; face mouth to square up, deburr edges.

4. Remove fixture and faced cup, turn around and return to fixture. Return to chuck as before.
7/32 Part Off


8. Turn inscribed lines decoration or part off to move to expanding mandrill to knurl.

7. Turn O.D. to true up, deburr or chamfer edges.

6. Remove drilled cup, turn around and return to fixture with spacer.

5. Drill or bore hole, deburr.

Slide Band Turning Order of Operations Page 2 of 2
1. Apply check blank and compression spacer onto mandrel. Retain with AHCS.

2. Place mandrel in three-jaw chuck and grip securely.

3. Face end of check to desired size.

4. Apply inscribed line decoration or knurl.

CHECK MANDRILL

CHECK BLANK

1/4-20 AHCS
TOOL:  LATHE CHUCK FIXTURE
OPERATION:  HOLD DIA .688 ID
AND .75 ID CUP FOR END TRIM
REV:  8/29/05  G.P.D.
MAKE FROM 0-1 STEEL
EXPANDIBLE MANDRILL FOR
TURNING - KNURLING BUT CAPS
MADE FROM 11/16 OD 0-1 STEEL O.D. GROUND
REV 8-29-05  GPD
GRIP CHECK HOLDING FIXTURE
MAKE FROM STEEL
REV 8-21-05 G.P.D.