

# REFURBISHING AND TUNING HAND PLANES THE “WEBSTER METHOD”

Part 1 (07/18/2020)

## My planes HOBBY, NOT A MACHINIST

Starter planes not for collectors

Goal

High performing

Well taken care of... but not “brand new” looking

## Getting starter planes.

I look for Types 6-15 prefer Types 9-15

Avoid:

Hairline crack on sides, or at ends of throat toss

Deep pitting

Pitting on back of iron

Reasonable thickness on sides allows cosmetic adjustments

Shipping is often much higher than necessary and a killer.

## When Plane arrives

Save packing material

Inspect for hairline cracks sides and mouth

1 Showing rip at mouth <https://www.instagram.com/p/CAfxM1PiYY-/>

Microscope or penetrant testing

Correct parts for Type?

## GENERAL CLEANUP

### Removing Rust dirt and Paint/Japanning

Electrolysis

Evaporust

Wire wheel

Bead blaster most efficient

Harbor Freight floor standing blast cabinet. It has been upgraded using

2 Tacoma Co upgrade kits [https://www.instagram.com/p/B\\_1Us6Cjw9m/](https://www.instagram.com/p/B_1Us6Cjw9m/)

I have installed foot pedals for light and vacuum

### Frog and Body

Stripping

No7 glass bead

150G fractured glass.

<= 40 lbs.

Pre-scrape if difficult

½” chisel (sharp and careful not to scratch with corners.)

Avoid areas that will not be painted with 150G and higher pressure.

Follow w/ No 7 glass bead 20-30 lbs

Soften painted surfaces, and de-rust / clean all areas

3 Showing stripped bodies <https://www.instagram.com/p/CBj13gcjx2x/>

### Unpainted larger parts:

Lever cap, iron, cap iron  
20-30 lbs No 7 glass bead - de-rust and clean  
Wire wheel after

4 Completed parts after blast and wire wheel  
[https://www.instagram.com/p/B\\_z-R1fjft-/](https://www.instagram.com/p/B_z-R1fjft-/)

### Small parts –

5 Holder with threads [https://www.instagram.com/p/B\\_5FOWLDi1x/](https://www.instagram.com/p/B_5FOWLDi1x/)  
Helps clean screw slots  
20-30 lbs No 7 bead

### Fine wire wheel also Cone

Machined surfaces  
Posts for wood,  
vice grips for small post and hold large post in hand  
brass nuts held on large post  
Screws  
Do tops with plyers then flip and vice grips holding tops to do threads  
Horseshoe clip and washers  
plyers

### Brass depth adjuster

Low pressure glass bead to clean or walnut shells  
“Jig” Special threaded rod and steel nut, and hand drill  
6 Showing knobs and “jig” <https://www.instagram.com/p/B7kYXPjnZSl/>  
7 Fixture in action <https://www.instagram.com/p/B7kYgHiHke-/>  
8 Applying Brasso <https://www.instagram.com/p/B7kYy4EnrOI/>  
9 Applying Brasso <https://www.instagram.com/p/B7kY3dcHEzz/>  
10 0000 steel wool and abrasive wheel on drill (not using cloth any more)  
<https://www.instagram.com/p/B7kZUcbyjz/>  
11 Spinning away <https://www.instagram.com/p/B7kZZAQn7Ah/>  
12 Paper towel to clean and buff <https://www.instagram.com/p/B7kZrgFHwYJ/>  
13 All done <https://www.instagram.com/p/B7kZvsfncDv/>  
14 All done <https://www.instagram.com/p/B7kZzsgniQO/>

### MASK AND PRIME BODY

#### Priming only here

Prevents rust during refurb process. Newly exposed metal can rust quickly.  
Avoid damaging final finish  
Frog primed later  
Minimize Frog washer damage

Rust less likely on the frog  
Will describe masking, primer and finishing techniques later

## **INITIAL FLATTENING OF PLANE BOTTOMS**

### **Modified Belt sander**

15 Showing modified Sander and lapping plate

[https://www.instagram.com/p/B97EN5-g5\\_G/](https://www.instagram.com/p/B97EN5-g5_G/)

Modified the platen

Graphite removed

3/16" glass

carpet tape fiberglass

Belts

Zirconia alumina

Norton Blaze coral ceramic

Best belts

Zirconia 15 min

Blaze 50 min

Use minutes with sharpie on belt

Pressure helps

80G and 120G

Dust control

Foot pedal

Prevents dipping

16 Foot pedal and general setup <https://www.instagram.com/p/B97KQ0ugmNQ/>

Foot pedal to control on and off

220V discussion

### **Initial flattening process**

Frog attached (to pre-flatten and lap)

17 Showing effect of frog paws pushing down when tightened.

<https://www.instagram.com/p/B97PVwcgkic/>

Plane on belt - foot pedal on

Cover entire belt, plane parallel long axis

Diagonal NO

Warming up... peddle off

THEN remove plane. Reduces dips

18 Showing plane on sander <https://www.instagram.com/p/B97Mhr3gDO0/>

Safety risk using Pedal

Don't over heat

Rotate bodies

Table saw heat sink

### **Clean up Plane sides**

Need enough material

90° sides? get a shooting plane. Originals not really 90°

120G Zirconia

Final hand sand  
 CRC 3-36 to paper towel then plane

**PRECISION LAPPING**

**Setup**

- Lapping Plate
  - Granite flat
  - 3/8" glass
  - Aluminum on glass
- Make sure your flat
  - Precision straight edge
  - Support surface for the plate. Shims?
- Sandpaper
  - 3M Stikit Gold
    - Best but expensive
    - Easy removal glass or granite
  - Klingspor
    - Cheaper
    - Glue too aggressive on glass or granite

	Length	80G		Cost w	Cost
	Yrds	Price	shipping	Shipping	/Yrd
Klingspor retail	10	\$10.95	\$7.99	\$18.94	\$1.89
3M Stikit Gold	25	\$52.96	\$0.00	\$52.96	\$2.12
Norton Gold	25	\$28.99	\$4.99	\$33.98	\$1.36
Porter Cable	10	\$12.99	\$0.00	\$12.99	\$1.30
Rhynostick	27.5	\$19.75	\$10.00	\$29.75	\$1.08

\$0 shipping is with Prime  
 I have not used Norton Gold or Porter Cable. Evaluating Rynostick

Links for the sandpaper above:

Klingspor

<https://www.woodworkingshop.com/search.aspx?q=AR51344>

3M Stikit Gold

[https://www.amazon.com/gp/product/B000PESIXW/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o02\\_s00?ie=UTF8&psc=1](https://www.amazon.com/gp/product/B000PESIXW/ref=ppx_yo_dt_b_asin_title_o02_s00?ie=UTF8&psc=1)

Norton Gold

[https://www.amazon.com/Norton-2-3-Sheet-Roll-NTN-6153/dp/B00BI28PBU/ref=sr\\_1\\_2?dchild=1&keywords=norton+psa+80+Grit+sandpaper+roll&qid=1594247159&s=lawn-garden&sr=8-2](https://www.amazon.com/Norton-2-3-Sheet-Roll-NTN-6153/dp/B00BI28PBU/ref=sr_1_2?dchild=1&keywords=norton+psa+80+Grit+sandpaper+roll&qid=1594247159&s=lawn-garden&sr=8-2)

Porter-Cable

[https://www.amazon.com/PORTER-CABLE-740000801-2-Inch-Adhesive-Backed-Sanding/dp/B0000223SI/ref=sr\\_1\\_9?dchild=1&keywords=Porter+Cable+740000801+4+1%2F2%22+80+Grit+PSA+Roll&qid=1594248823&s=hi&sr=1-9](https://www.amazon.com/PORTER-CABLE-740000801-2-Inch-Adhesive-Backed-Sanding/dp/B0000223SI/ref=sr_1_9?dchild=1&keywords=Porter+Cable+740000801+4+1%2F2%22+80+Grit+PSA+Roll&qid=1594248823&s=hi&sr=1-9)

Indasa WhiteLine Rhynostick

[https://www.smsdistributors.com/products/whiteline-rhynostick-long-board-rolls?fbclid=IwAR27rw4\\_v8aWqkGCbNMze381LITmO5gN9-zGiOMukkbHlxala6vx2YPCiLE&variant=210045353](https://www.smsdistributors.com/products/whiteline-rhynostick-long-board-rolls?fbclid=IwAR27rw4_v8aWqkGCbNMze381LITmO5gN9-zGiOMukkbHlxala6vx2YPCiLE&variant=210045353)

Mods to allow using Klingspor

**19** Lapping plate set up <https://www.instagram.com/p/B8FJekzAgUD/>

Klingspor is manageable on aluminum + paste wax

Paste wax aluminum every other strip.

3/8 Glass + 1/4" aluminum plate 4" x 36"

<https://www.midweststeelsupply.com/store/6061aluminumplate> \$37

with shipping

Carpet tape

Flat support surface

Confirm flat

Precision straight edge

Reverse lapped aluminum No 7 LN + 3M Stikit

Confirmed end point with precision straight edge and

0.0015" feeler gauge

Cleaned No 7 afterwards 😊

## Lapping

**20** Showing actual lapping <https://www.instagram.com/p/CAjnVgBD6SZ/>

Sharpie Grid pattern on bottom PENCIL may be good alternative still evaluating

80G 5 sets of 30 laps

After 30 use magnet remove iron grit

Once flat 120 180 (220) grits. Scotch-brite Maroon pad  
Fine file sharp edges then 220G  
CRC-3-36

## **FROG PART ONE**

### **Loose lateral adjuster Fix**

Jig

**21** Shows detail of jig and basic use <https://www.instagram.com/p/B8zrgpnAdcT/>

### **Tune bedding surface for plane iron**

Sandpaper and granite flat

**22** Shows process of lapping <https://www.instagram.com/p/B9C5xn4Agr1/>

### **Will come back to frog later**

Need tuned iron first

## **PLANE IRON**

### **Flat?**

hammer tap on ¾" birch ply or twist it straight in vise. Parallel clamps  
Verify flat on granite flat

### **Pre-flatten back**

Flat and damage free

120 G on sander w/ glass platen

Jigs for this

**23** Jigs for initial flattening on sander

<https://www.instagram.com/p/B7oZDyCHJR/>

**24** Getting ready to present iron to sander

<https://www.instagram.com/p/B7oZKKfnhAW/>

**25** Jig on the sander <https://www.instagram.com/p/B7oZPkvHEGk/>

### **Procedure**

Place jig/iron

Foot pedal on run few seconds

Foot pedal off

Once stopped remove iron.

This avoids dip

Rotate the irons so they will cool between bursts of sanding.

**26** Initial flattening complete <https://www.instagram.com/p/B7oZagRHqNA/>

## Square iron and add new bevel

Flatten reference side of iron before marking right angle

**27 Shows from making a reference edge to grinding bevel**

<https://www.instagram.com/p/B9x4WMmgUDP/>

Mark 90° from Reference side low enough to remove damage and old bevel

Oneway Wolverine grinding stands (versus Veritas)

Steel not aluminum (wear)

More stable

Bevels

01                                      25° primary and 30° secondary

A2 and PMV-11                      25° or 30° primary and 33°-35° secondary

**28 Showing Geiger's Tru N Dress** <https://www.instagram.com/p/B8rkJSNAIKD/>

## FROG PART TWO

### Does the frog sit properly?

**29 Shows jig and checking for improper bedding angle**

<https://www.instagram.com/p/CAq1njCiCOY/>

Skewed iron with everything centered

File new bedding angle on frog bottom

Frog needs to be lower on the side where the iron is projecting less

Jig used to keep paws co-planer to rear machined flat Types 9+

### Procedure

**30 Shows filing frog and resulting correction**

<https://www.instagram.com/p/CAq4QBfjQj/>

Set up jig adding shims to bring sandpaper to touch paws that establishes original relationship between 2 planes. (Not hand planes here) ha ha

Sharpie the machined flats

Using parallel clamps file lowering appropriate side on the flats

Clean up rear flat on granite flat with 80 grit

Use jig to finish paws

Recheck in plane

repeat until iron projects evenly

**31 Shows diagram for jig** <https://www.instagram.com/p/CArc4t5j32F/>

### DO NOT OVER TIGHTEN FROG SCREWS

**32 Shows plane cross section** <https://www.instagram.com/p/CBUB5cMD5mW/>

## **FINISH THE IRON**

### **Final flatten back**

**33 Shows flattening on granite flat to 320G**  
<https://www.instagram.com/p/B9w44Qmj8LW/>

Lap at 80G or 120G until flat, sharpie  
Single direction lapping  
Once flat 120, 180 220, 320 removing scratch patterns for each.

### **Polish the back**

On freshly flattened stones.  
**34 Moving through the stones** <https://www.instagram.com/p/B9xAkNsAMHw/>  
Lap both directions keep flat  
Go through thought 1000, 1200, 2000, 5000, 8000. Removing abrasive patterns of previous grits.  
1200 and 2000 are added here to speed process, not used in daily sharpening.  
Back should not touch earlier stones once polished unless there is damage.

### **Final primary Bevel**

**35 Finetune primary and hone secondary bevel**  
<https://www.instagram.com/p/B9x9LHXAp8D/>

To control getting a straight uncambered edge

**36 Showing problem w center wheel guides**  
<https://www.instagram.com/p/CBPotIYDpuw/>

Avoiding wheel track to insure flat edge

**37 Showing solution for center wheel (reusing lapping sandpaper here)**  
<https://www.instagram.com/p/CBPnPFzDUXR/>

**38 Showing a nice secondary bevel** <https://www.instagram.com/p/B7hsIFpHUgx/>

### **Camber or no camber**

I don't follow traditional philosophy about fine tuning or not based on plane size. I highly tune all the same.

Minute camber on No 5 and smaller. No camber on 6 and up

I use Chris Schwarz's method for cambering. See at end of this document.

## **TUNING THE CAP IRON**

**39 Showing tuning the cap iron** <https://www.instagram.com/p/B9yDceOjlai/>

## **SET UP PLANE AND TEST**

If plane is performing well... then final mask and paint



## **MASKING AND FINISHING**

Wash and rinse primer--- washing soda

Blow completely dry

**40** Showing washing <https://www.instagram.com/p/CCPXOP1jI3m/>

### **Masking**

Single edge razors

#11 blades for X-Acto knives

Tweezers

Scissors

Scotch Blue Original masking tape, ½" ¾" 2"

Masking pre-Type 9

**41** Show technique for frog flats <https://www.instagram.com/p/B79CLtCg4jK/>

Masking Type 10 and later

**42** Technique frog top <https://www.instagram.com/p/B79VIqpAMeb/>

**43** More <https://www.instagram.com/p/B79Tnc2AY3/>

**44** Technique frog bottom <https://www.instagram.com/p/B79U2Z1ghMf/>

**45** More <https://www.instagram.com/p/B79UaS0gmv7/>

Masked bodies

**46** Eye candy masked bodies <https://www.instagram.com/p/B77pJYmgi2h/>

Masked frogs

**47** Eye candy masked frogs <https://www.instagram.com/p/B7fRhEoHHVN/>

## **SPRAYING**

Turn-table easier

**48** Showing video of using turn table during spaying a coat of primer  
<https://www.instagram.com/p/CCcoNmjDMRB/>

Prime frog (hand held) Flop the Y adjusting lever back and forth

Mix cans of matt 3 mins (or greenish)

1 coat Primer

2 coats Matt Black

1 coat Matt Clear

30-60 mins between coats

Remove masking 1-2 hrs

Next day remove paint from top edges of sides

Cure 2 weeks

## Finishing materials Links

Primer

[https://www.amazon.com/Rust-Oleum-249418-Automotive-12-Ounce-Sandable/dp/B003CT4AMU/ref=sr\\_1\\_2?crid=1YMY4NQWBDOAO&dchild=1&keywords=rustoleum+sandable+primer&qid=1590677240&s=hi&srefix=rustoleum+san%2Ctools%2C249&sr=1-2](https://www.amazon.com/Rust-Oleum-249418-Automotive-12-Ounce-Sandable/dp/B003CT4AMU/ref=sr_1_2?crid=1YMY4NQWBDOAO&dchild=1&keywords=rustoleum+sandable+primer&qid=1590677240&s=hi&srefix=rustoleum+san%2Ctools%2C249&sr=1-2)

Matt Black

<https://www.amazon.com/Rust-Oleum-263422-Automotive-Enamel-Matte/dp/B00F87S5KM>

Matt Clear

[https://www.amazon.com/Rust-Oleum-249087-6-PK-Painters-Touch/dp/B002BWORZE/ref=sr\\_1\\_3?crid=2NU3K8YIZ8VJ2&dchild=1&keywords=rustoleum%2Bmatte%2Bclear&qid=1590677130&s=hi&srefix=rustoleum%2Bmat%2Ctools%2C218&sr=1-3&th=1](https://www.amazon.com/Rust-Oleum-249087-6-PK-Painters-Touch/dp/B002BWORZE/ref=sr_1_3?crid=2NU3K8YIZ8VJ2&dchild=1&keywords=rustoleum%2Bmatte%2Bclear&qid=1590677130&s=hi&srefix=rustoleum%2Bmat%2Ctools%2C218&sr=1-3&th=1)

## Part 2 (07/25/2020)

### From last week

Reference for Screw sizes

<https://handtoolmanual.com/screw-sizes-of-the-stanley-record-bench-planes/>

Victor Machinery is now Wholesale Tool the old phone # will work 800-723-5359

[WWW.WTTOOL.COM](http://WWW.WTTOOL.COM)

**Lever cap screw** 9/32-24 Tap #0307-1015,

They don't sell die

Here is place in Canada

[https://www.newmantools.com/price/taps\\_ns\\_pr.html](https://www.newmantools.com/price/taps_ns_pr.html)

**Cap iron Screw** 5/16-18 Tap #0329-0041

5/16-18 Die #0535-0115

**Brass adjusting nut** LH 9/32-24 die and tap

They don't sell, I had mine custom made from Tapco

<https://www.tapcotaps.com/>

**Frog screws** 12-20 Tap #0307-0796 They have 200 on B.O since Jan

12-20 Die #0536-0086 They have 200 on B.O since Jan

**Frog adjusting screw** 1/4-24 Tap #0307-0003

1/4-24 Die #0504-0185

**Handle toe screw** 12-20

**Handle and knob bolt** 12-20

**Frog adjusting plate** 7/32-24 Tap #0307-0915

**Screw** 7/32-24 Die #0504-2570

*Some feel you can use 7/32"-20Tpi Whitworth form instead of a 12-20. I have not tried it.*

## Discuss camber

Chris Schwarz's method at bottom of this document.

No 3,4,5 very minor

No 6,7 no camber

## Finishing:

Spraying frog.... flop Y back and forth

Removing tape in a couple of hours so not brittle

## Pre-flattening

Writing time used on belts with sharpie

Keep track of belt use

## Hand lapping:

Spay blue vs sharpie vs pencil

Another sandpaper thanks Sean updated above comparison.

Rhynostick 80 Grit. \$1.08/Yrd including shipping

Good price

Trying... ok so far

[https://www.smsdistributors.com/products/whiteline-rhynostick-long-board-rolls?fbclid=IwAR27rw4\\_v8aWqkGCbNMze381LITmO5gN9-zGiOMukkbHlxala6vx2YPCiLE&variant=210045353](https://www.smsdistributors.com/products/whiteline-rhynostick-long-board-rolls?fbclid=IwAR27rw4_v8aWqkGCbNMze381LITmO5gN9-zGiOMukkbHlxala6vx2YPCiLE&variant=210045353)

## Grinding wheels

Norton 3x blue 80 grit

<https://www.woodturnerscatalog.com/p/97/2651/norton-3X-8-Inch-Grinding-Wheel?term=grinding+wheel&term=grinding%20wheel>

Inserts for grinding wheel

<https://www.woodturnerscatalog.com/p/97/6196/raptor-R3X-Grinding-Wheel-Bushing-2-Piece-Set>

Grinding at 90° to reduce length of iron

Holding machinists squares to evaluate the end of the cutting iron for squareness

Structural Difference between planes Type 8 and earlier versus Type 9 and later (Cut away side views)

Showing how frog interfaces to body

49 <https://www.instagram.com/p/CC2tdSnD4Az/>

50 Tapping out the pin and repairing a lateral adjuster

<https://www.instagram.com/p/B80R3z0gnKI/>

Classic view of plane size and level of fine tuning. All mine the same.

Microscopic views of cutting edge after using sandpaper

51 <https://www.instagram.com/p/CC9BmbyDlLg/>

Side view of frog, iron, cap iron and lever cap showing pressure points

52 <https://www.instagram.com/p/CDA85ZoDP6v/>

How long does it take to hone frog bedding surface

53 <https://www.instagram.com/p/CDB-01ejeMO/>

Discussed method for removing depth adjuster bolt.

Could sacrifice a nut shorten and split.

Loctite, (heat if have to remove)

### **TOTES AND KNOBS**

Strip w/ lacquer thinner and maroon Scotch-brite pads wear gloves

Cracks partial breaks .... finish the break

Glues

54 Oily wood epoxy for areas to receive stress

<https://www.instagram.com/p/B7hFPKLnp-R/>

<http://www.glueoakandteak.com/>

2 Ton Epoxy for lower stress like replacing tops

5 min for cosmetic

Mix with rosewood dust if gaps

### **TOTES**

#### **Severely broken tops**

55 Eye candy of broken tops <https://www.instagram.com/p/B7fSDsNHhK/>

Remove tops on table saw (safer on bandsaw)

Base against fence

Cut at front point

56 Eye candy tops removed <https://www.instagram.com/p/B7fSHChHacc/>

57 Matching color and grain for tops <https://www.instagram.com/p/B7fSSjczwX/>

I use Brazilian Rosewood if I have it, also Indian, Bolivian and Honduran. Turning blanks is a source 1.5"x 1.5 x 3" increments.

This wood is toxic wear breathing protection

58 Showing gluing on new tops <https://www.instagram.com/p/B9mZegyD-0m/>

59 Showing using patterns shaping tops <https://www.instagram.com/p/B9nhl46g45c/>

60 Eye candy lots of patterns <https://www.instagram.com/p/B7hFCvGHtYV/>

61 Showing making new hole for nut <https://www.instagram.com/p/B9nqUUeiHc3/>

- 62 Showing drilling post hole and more shaping  
<https://www.instagram.com/p/B9nuxwxDE65/>
- 63 Showing more shaping sanding and filling  
<https://www.instagram.com/p/B9o4yHADCUh/>
- 64 Showing blending color and finishing adjusting nut  
<https://www.instagram.com/p/B9pjKVDAayb/>
- 65 Eye candy repaired totes ready for finishing  
<https://www.instagram.com/p/B7fTSM9Hot8/>

### **Clean Middle Breaks**

Clean surfaces with lacquer thinner and brass brush  
Glue with oily wood epoxy

- 66 Adding support dowels <https://www.instagram.com/p/CAVsa1jjoCb/>

### **Old or Ragged Middle Breaks**

- 67 Showing Part 1 of repair..... patterns, removing section on bandsaw and gluing new section <https://www.instagram.com/p/CCXjSdljwK9/>
- 68 Showing Part 2 of repair to completion <https://www.instagram.com/p/CCXi6KCjal4/>
- 69 Showing finished repair <https://www.instagram.com/p/CCXmwIKDi2H/>

### **KNOBS**

- 70 Eye Candy Knobs completed <https://www.instagram.com/p/B7fR790nLiN/>
- 71 Shows Knob side repair <https://www.instagram.com/p/B7 ivl1gVQU/>
- 72 Shows splits in knobs <https://www.instagram.com/p/B7hCH2tHL16/>
- 73 Shows punch to split <https://www.instagram.com/p/B7hCQAVnBAD/>
- 74 Shows result of punch <https://www.instagram.com/p/B7hCYN2nvHC/>
- 75 Shows often multiple splits <https://www.instagram.com/p/B7hCdZlnllq/>
- 76 Shows trimming acid brush <https://www.instagram.com/p/B7hCk7XnAsl/>
- 77 Shows taping multiple break <https://www.instagram.com/p/B7hC6tUHyqZ/>  
Glue in a series of steps, break glue...break at next crack glue and so on
- 78 Shows using zip tie on multiple breaks. <https://www.instagram.com/p/CCuFl2Pj7DM/>
- 79 Shows clamping single break <https://www.instagram.com/p/B7hDCmvnqjP/>
- 80 Eye candy glued knobs <https://www.instagram.com/p/B7hDWYgHgm1/>
- 81 Eye candy knobs using paper with numbers to keep track of which plane each knob belonged to <https://www.instagram.com/p/B7hDaeqHUly/>
- 82 "Jig" for sanding knob <https://www.instagram.com/p/B7hEHwKnZnJ/>
- 83 knob mounted on drill press I use the lathe now  
<https://www.instagram.com/p/B7hEOTIHOxD/>
- 84 Lath set up for knob <https://www.instagram.com/p/B7wS32nABAd/>
- 85 Video knob sawdust "Black Hole Dust Catcher"  
<https://www.instagram.com/p/B7wSsb AaBC/>

<https://www.woodturnerscatalog.com/p/89/6387/hc-Black-Hole-Dust-Catcher-System>

86 Aid for spraying knob [https://www.instagram.com/p/B7hEe7-H\\_Uq/](https://www.instagram.com/p/B7hEe7-H_Uq/)

87 Eye candy finished knobs <https://www.instagram.com/p/B7hEvH1HB4v/>

### **Nut height (Tote and knob)**

controlled with washer

88 Showing problem with deep nut holes

<https://www.instagram.com/p/B7r8x0tHnmZ/>

89 Showing after adding washers

<https://www.instagram.com/p/B7r8epCHlt3/>

90 Showing washers that fit

<https://www.instagram.com/p/B7r8XbxHuf2/>

91 Showing you have to drill out the hole a little

<https://www.instagram.com/p/B7r8Rbwn9Ft/>

92 If hole too deep make a plug

<https://www.instagram.com/p/CC-L8NsDWzN/>

### **FINISHING THE WOOD**

Blend repairs (if needed) with General Finishes Water Based Dyes. Med and Dark Brown.  
220G w/ grain

Knobs I use the lathe and go up to 320 and maroon scotch-brite

[https://www.amazon.com/3M-07447-Scotch-Brite-General-Purpose/dp/B0002SQYF0/ref=sr\\_1\\_16?dchild=1&keywords=scotch+bright+very+fine&qid=1594329157&sr=8-16](https://www.amazon.com/3M-07447-Scotch-Brite-General-Purpose/dp/B0002SQYF0/ref=sr_1_16?dchild=1&keywords=scotch+bright+very+fine&qid=1594329157&sr=8-16)

¼ dowel and blue tape to hold parts while spraying

4 coats of Deft Clear Wood Finish Satin

[https://www.amazon.com/12-25-Clear-Wood-Finish-Satin/dp/B009E0RAXW/ref=sr\\_1\\_2?crid=2GTJGC9DSII8P&dchild=1&keywords=deft+clear+wood+finish+satin&qid=1590677731&s=hi&sprefix=Deft+Clear%2Ctoo%2C228&sr=1-2](https://www.amazon.com/12-25-Clear-Wood-Finish-Satin/dp/B009E0RAXW/ref=sr_1_2?crid=2GTJGC9DSII8P&dchild=1&keywords=deft+clear+wood+finish+satin&qid=1590677731&s=hi&sprefix=Deft+Clear%2Ctoo%2C228&sr=1-2)

0000 Steel wool sheds.... Sand between coat with

<https://www.amazon.com/20Pk-Scotch-Brite-Gray-Ultra/dp/B000CQ6I7G>

Hand rub final coat

### **FINAL TUNE AND TEST**

When paint cured fit tote and knob

Final performance test

## Other Topics

### Repair of lazy lever cap

93 Showing removing original rivet <https://www.instagram.com/p/B8Nca89g0hk/>

Flatten and/or reverse the spring plate

94 Showing finishing repair <https://www.instagram.com/p/B8NcLjGgYLz/>

95 Showing final result <https://www.instagram.com/p/B8Nb7xggvi6/>

96 Showing adding glass to backs of stones for longer use ¼" thick glass cut to size. Silicon to back of dry stone <https://www.instagram.com/p/CCC0qvqDrCX/>

97 Showing making new posts for tote and knob <https://www.instagram.com/p/B89css5jkOE/>

98 Showing removing Y adjuster from frog <https://www.instagram.com/p/CAVuF3pDB34/>

For red Loctite, use heat to remove

99 Showing technique to reinforce area around front screw of Totes with a brass ring

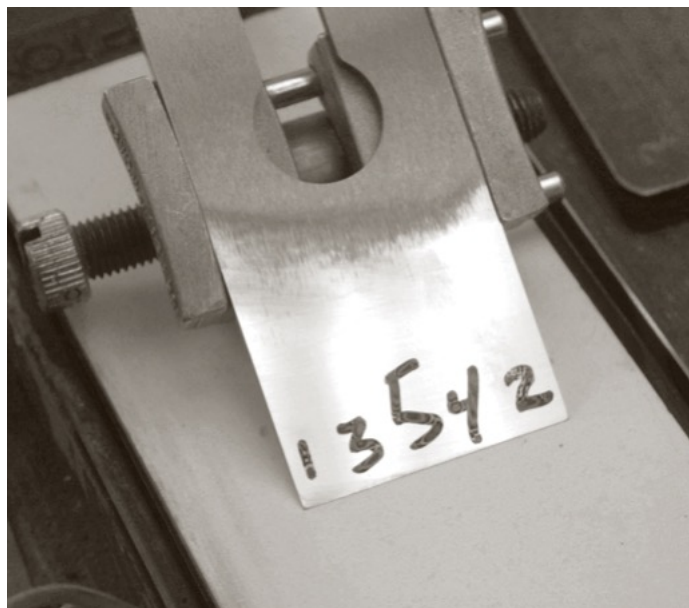
<https://www.instagram.com/p/B9FoQXZj8DF/>

Another repair is to cut slot out and insert wood

## CAMBER

I generally use Chris Schwarz's method to camber. From his book Handplane Essentials:

**With a Honing Guide Make curved cutting edges using finger pressure.**



A curved cutting edge is critical to most operations with your bench planes. The curve prevents the corners of the iron from digging into your work, and it allows you to correct the flatness of the face or edge of a board. But how do you create this curve, sometimes called a “camber” with a honing guide? There are lots of valid ways to create the curve. Here’s how I do it. I start with a #1,000-grit water stone. This stone cuts quickly enough to shape an edge or remove small nicks. Clamp your cutter in your honing guide and then (mentally) divide its edge into five “positions” (see the photo above). The trick to creating a curve is to put finger pressure at each position. At position “1,” put your fingers firmly against the corner and sharpen the corner for 10 strokes. Then move your fingers to the other corner (position “2”) and go for another 10 strokes. Then, at positions “3” and “4,” go for seven strokes. Then do a few strokes in the center at position “5.” Now check your work with a square. You need to learn what the curve should look like for each of your planes. Here are the basic principles: If the iron is bedded at a high angle greater than 45°, you need less curve. If the iron is bedded at a lower angle such as 12° or 20°, you need more curvature to get the same effect. And what is the desired effect? You want to take the widest shaving possible without the corners of the cutter digging in. There is math here. Having a .005" arc-to-chord curve at 45° results in a curve of .0035" being exposed out of the mouth. (If you have a bevel-up plane bedded at 12°, the same .005" arc-to-chord curve will result in .001" curve being exposed in the mouth – thanks to woodworker Rob Porcaro for the formulas.) The truth is you need to learn what the right curve looks like when you show the cutting edge to a straightedge. If there is too much curve, sharpen some more in the middle (position 5) to flatten the curve. If the curve is too flat, add more finger pressure or strokes at the corners. When you have a satisfactory curve, advance to the polishing grits (#4,000 and then #8,000) and repeat the same regimen. The polishing grits will remove less metal, but you definitely can increase or decrease the curvature while polishing. It takes a little practice to find the right curvature for your plane, but the rewards are enormous: Shimmering surfaces with a sensuous, scalloped and touchable texture. It’s worth the effort.



PUT FINGER PRESSURE AT EACH station and count your strokes.

Be sure to watch the sharpening stone –  
it will tell you where metal is being removed.