



TRAINSMART B17 Training Booklet

PREPARED UNDER THE DIRECTION
— OF —
PRO-CUT BRAKE SOLUTIONS

UNITED STATES OF AMERICA
NEW HAMPSHIRE : 2022

Welcome to TrainSmart

Welcome to the Pro-Cut print training module for the B17.

Over time and after thousands of miles, pads and rotors wear out. Replacing the pads and rotors can be a relatively simple and inexpensive task. However, servicing rotors properly requires skilled hands, precision equipment and practice. This Pro-Cut TrainSmart course will explain the skills required to produce superb rotor surfaces using the B17 Mobile Combination Lathe.

Please follow along as we take you through the proper and safe use of the B17 from Pro-Cut, then take the quiz at the end to print your certificate. Next, attend a hands on training as soon as possible after this on-line course to cement what you've learned.

STEP 1: B17 Mobile Combination Lathe Key Specs

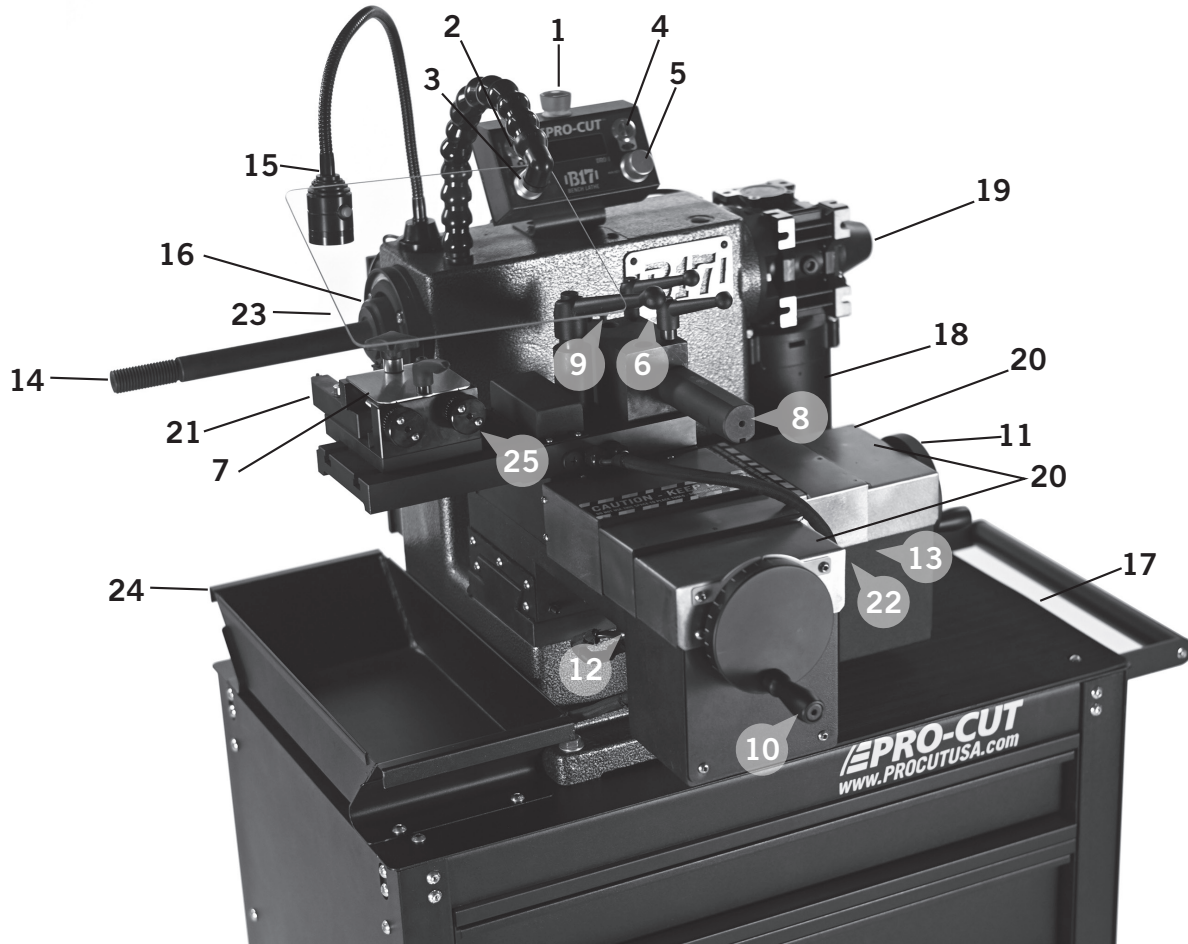
- Machine brake rotors up to 19.5" (495mm) in diameter
- Machine a brake rotor with max thickness of 2" (50.8mm)
- Machine a brake drum with up to 26.4" (670mm) in diameter
- Machine a brake rotor or drum with a center hole up to 4.5" (115mm) (5.75" or 146mm with Quick Chuck)
- Machine some flywheels without raised clutch plate pins
- Machine a brake rotor with a friction surface up to 3.62" (92mm)
- Maximum weight of adapters and workpiece on standard 1" arbor = 150lbs
- Maximum weight of adapters and workpiece on 1 7/8ths" arbor = 200lbs
- 3 Spindle Speeds: Lo (80 rpm), Med (140 rpm), Hi (180 rpm)
- 11 Feed Speeds: 1 (.0016" per rev) through 11 (.0039" per rev)

STEP 2: Important Things to Remember

- Never remove more material from a rotor or drum than is specified by the OEM (see spec guide for minimum thickness specs)
- Only Pro-Cut original equipment cutting tips pn# 50-778 should be used to avoid chatter and poor surface finish results
- Lateral run-out is a specification that must be adhered to for an effective repair and to avoid a comeback for brake pedal pulsation. Please follow OEM specs in the brake spec guide, or another trusted source. The final LRO should be checked once the rotor is installed and secured evenly on the hub of the vehicle with a dial indicator. Phase match the rotor if the 1st position is not with specification (ie. try 4 other positions until LRO is at or under specification).

STEP 3: Getting to Know Your B17

Suggested Video: <https://youtu.be/6QZQfwGIhx8>



COMPONENTS

- | | | | |
|-----|---------------------------------------|-----|-----------------------------|
| 1. | Emergency Stop | 14. | 1" Arbor |
| 2. | Spindle Start/Stop | 15. | LED Task Lamp |
| 3. | Spindle Speed Select Knob | 16. | Spindle Ring Lamp |
| 4. | Feed Start/Stop | 17. | Tool Cabinet Base |
| 5. | Feed Quality Select Knob | 18. | Motor |
| 6. | Disc/Drum Cutting Plate Lock Lever | 19. | Draw Bar Cover |
| 7. | Disc Cutting Head | 20. | Way Covers |
| 8. | Drum Boring Bar | 21. | Disc Insert holder |
| 9. | Drum Insert Holder | 22. | Drum feed lock-out |
| 10. | Disc Feed & Drum Depth Crank | 23. | Chip Guard |
| 11. | Drum Feed & Disc Axial Position Crank | 24. | Chip Tray |
| 12. | Disc Feed Motor | 25. | Disc Depth Adjustment Knobs |
| 13. | Drum Feed Motor (Hidden From View) | | |

STANDARD ACCESSORIES INCLUDED WITH THE B17 BENCH LATHE



- 1 Draw Bar with Hex Nut
- 2 Large Bell Clamp
- 2 Small Bell Clamp
- 4 Centering Cones
- 3 Silencers
- 6 Double Taper Radius Adapters
- 1 Standard 1" Arbor
- 1 Arbor Nut
- 1 1" Spacer
- 1 Set of Alignment Washers
- 1 Spring

- 1 Match Mark Crayon
- 1 Chip brush
- 1 T-8 Tip Screw Wrench
- 1 3mm Gib Screw Wrench
- 1 8/10mm Gib Nut Wrench
- 1 Safety Glasses
- 1 Way Oil w/Brush
- 1 Performance Plus Inserts
- 1 35mm Arbor Nut Wrench

***IMAGES NOT TO SCALE**

STEP 5: Preparing to Make Your First Cut

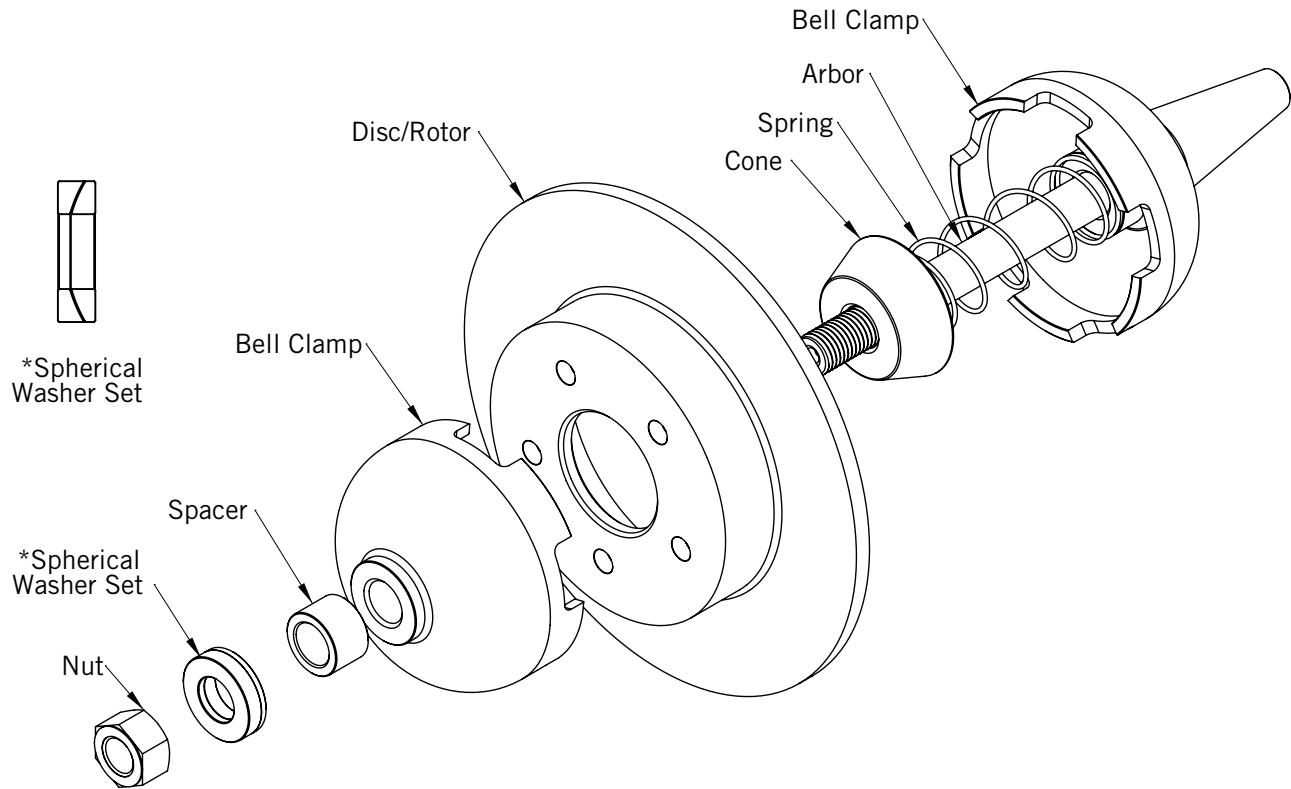
INSPECTION OF BRAKE DRUMS AND ROTORS BEFORE MACHINING

IMPORTANT: The maximum amount of metal removed from the finished work piece should never exceed the manufacturer's machine to/minimum specifications. It is dangerous to operate a vehicle with a drum, rotor or flywheel, which has had more material removed than is allowed. Proper operation cannot be established if these specifications have been exceeded. Pro-Cut International recommends that each work piece be checked for size before mounting on the lathe and after machining.

MOUNTING HUB-LESS DRUMS OR ROTORS

1. Clean and check all surfaces for flatness, especially those that will come in contact with centering cones and/or bell clamps to ensure solid mounting.
2. Cleaning and properly mounting the drum or rotor prior to machining will ensure a minimum of stock removal, better surface finish and optimum braking efficiency.
3. Excessive run out or wobble of the drum or rotor after it has been properly cleaned and mounted on the arbor may indicate severe damage to the drum or rotor. These drums or rotors should not be used for further service.
4. If arbor appears distorted, check for rust, burrs or chips on cones, drum or rotor, bell clamps, spacers, arbor or other mating surfaces.

STEP 6: Mounting hubless rotors or drums with standard adapters



5. A. Select two proper size bell clamps and slide one on the arbor.
B. Slide spring on the arbor.
C. Find the centering cone adapter that fits the center hole of the drum or rotor within the cone range and slide it on the arbor.
D. Slide the drum or rotor on the arbor and then mount the other bell clamp.
E. Add necessary spacers (double tapered radius adapters may be used as spacers), alignment washers (make sure they are installed concave to convex), M24x2 hexagonal nut, and tighten securely. Do not jerk or over tighten.
6. A. WRAP RUBBER SILENCER BAND AROUND DRUM, STARTING WITH THE PLAIN END AND MAINTAIN TENSION UNTIL THE CLIP IS SECURED. DO NOT ATTEMPT TO MACHINE DRUMS WITHOUT USING THE SILENCER BAND. Silencer should be nearest open side of drum.
B. Pro-Cut 50-703 or 50-744 silencer/chip deflector should be used for rotor machining, however the spring silencer can also be used on vented rotors. For solid thin rotors use a 50-754 red deflector.

PART 7: Preparing to Make Your First Cut

Disc/Drum Diameter	Max Speed	Max Feed	Max Recommended Cut Depth per Side
Up to 12" (305mm)	High	11	.010" (.254mm)
12" to 14" (305-355mm)	Medium	7	.010" (.254mm)
14" to 19.5" (356-495mm)	Low	4	.010" (.254mm)

SETTING UP FOR ROTOR OR DRUM CUTTING

The tool support plate can be rotated 90 degrees to disc or drum cutting position. The large lever in the center locks and unlocks the support plate. When the plate is in a valid position, you will see the spindle lamp illuminate. The position of this plate determines which axis will feed.

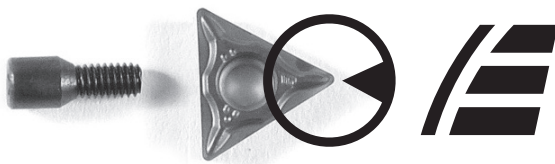
Suggested Videos: <https://youtu.be/2tETIexRkZk>



Basic Steps

1. Fit work piece to arbor and clamp in place
2. Choose disc or drum operation by rotating the cutter support plate to the desired location
3. Chose spindle speed (Low, Medium, High)
4. Choose surface quality 1 to 11 (fine to coarse)
5. Set rough tool positions with work piece not rotating
6. Turn on spindle
7. Set depth of cut
8. Turn off spindle
9. Install silencer(s)
10. Turn on spindle
11. Engage feed

Replacement carbide inserts have three cutting surfaces. When sufficient wear causes an inferior finish, rotate the carbide insert. Always begin on the single dot corner and rotate clockwise to 2 dots, then 3 dots. On *premium plus cutting tips the first corner is the brand icon.



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Suggested Video: <https://youtu.be/fjRuVRYwGKO>

STEP 8: Basic Rotor Machining with Quick-Chuck



Suggested Video: <https://youtu.be/nALH190ozpQ>



STEP 9: Mounting & Machining Hubbed Drums or Rotors



1. Select the double tapered radius adapter that properly fits the inside of the large bearing race. It should sit in the race similar to a bearing and move side to side in all directions easily. If it binds in any direction, this is an indication of an incorrect adapter selection or a damaged bearing race. Correct problem before proceeding.
2. Slide the double tapered radius adapter all the way onto the arbor. If the drum or rotor contacts the lathe, a spacer may be required between the double tapered adapter and lathe.
3. Using the same procedure as in Step 1, select the double tapered radius adapter for the outside race.
4. Install the drum or rotor and position it on the back double tapered radius adapter and then slide the front double tapered radius adapter on the arbor and into the front race.
5. Use adapters or spacers as necessary to space out to the end of the arbor (See example on Pages 34-35). Double tapered radius adapters may be used as spacers. Add alignment washers (make sure they are concave to convex) and hex nut or Pro-Cut speed nut, then tighten. Do not shock load, jerk or over tighten.
6. WRAP RUBBER SILENCER BAND AROUND DRUM, STARTING WITH THE PLAIN END AND MAINTAIN TENSION UNTIL THE CLIP IS SECURED. DO NOT ATTEMPT TO MACHINE DRUMS WITHOUT USING THE SILENCER BAND. Silencer should be nearest open side of drum. Pro-Cut disc silencers should also be used for rotor machining.
7. If arbor appears distorted, check for dirty or damaged mounting surfaces and/or adapters. Loosen and re-tighten arbor nut as described above in Step 5.

STEP 9: Continued

MACHINING HUB-LESS AND HUBBED DRUMS

1. Position the boring bar so that the 45-degree angle tool bit slot is toward the drum, with the cap screw to the top. BORING BAR EXTENSION SHOULD BE KEPT TO A MINIMUM.
2. For extra small diameter drums, set the boring bar at an angle towards the arbor while extending the boring bar outward from the boring bar holder.
3. Turn on the left spindle speed. Slowly advance the boring bar in the drum and contact the point of the greatest wear.
4. Note the reading on the calibrated hand wheel; back out one full turn and move to the rear of the drum.
5. Set hand wheel to .005" deeper than the noted reading; this should ensure a finished drum in one cut.
6. Select feed speed between 5-8 and engage feed.

STEP 10: Machining Small drums and E-brake shoe surface with B17



Suggested Video: <https://youtu.be/QQ1xiHzk3cl>



STEP 11: Periodic Maintenance

CLEANING

- w/Vacuum: weekly
- Clean adapters and check for dings monthly

LUBRICATION

- Lubricate ways by oiling felt wipers on the end of cross slide every week with Pro-Cut 50-376 way oil or equivalent.
- For other iron surfaces we recommend high quality rust prevention coating such as CRC brand 3-36 multi-purpose lubricant and corrosion inhibitor.



STEP 12: Standard Accessories and Optional upgrades



37-376
Chip Brush



37-377
Match Mark Crayon



37-4064
8/10mm open end wrench



30-4066
35mm Arbor nut wrench



37-4065
3mm gib screw wrench



50-4744
Band Silencer - drum



50-775
Disc spring silencer



50-4010
Double Taper Spacer (33.1-42.6mm)



50-4011 / QTY. 2
Double Taper Spacers (33.5-44mm)



50-4012
Double Taper Spacer (43.3-52.9mm)



50-4013
Double Taper Spacer (53.1-61.8mm)



50-4014
Double Taper Spacer (62.3-71.9mm)



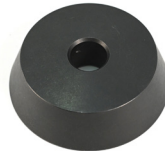
50-4015
Small Cone (62mm)



50-4016
Medium Cone (83mm)



50-4017
Large Cone (99mm)



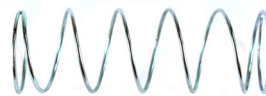
50-4035
Extra Large Cone (115mm)



50-4018
Arbor Thread Spacer



50-4019 / 50-4020
Matched concave/convex spherical washer set



50-4021
Spring



50-4022
Large Bell Clamps



50-4023
Small Bell Clamps



50-4025
Standard Arbor



36-4020
M24x2.0-LH threaded arbor nut



50-4049
Draw Bar

36-4005
Draw bar nut M12

STEP 12: Standard Accessories and Optional upgrades / Continued



50-376
Way oil with brush



50-778
Performance plus inserts



37-740
T8 Tip Screw Wrench



50-744
Thick green chip deflector



37-1900
Safety glasses



50-4745
Bolt on safety shield for B17. Attaches to existing threaded hole on top left of B17.



50-4148
Safety manual

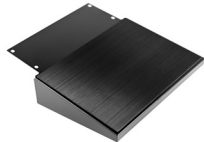


50-4149
Technical manual



50-4801
Quick-Tech Sheet

B17 Optional Upgrades



50-4720
Left Side Work Table



50-4260
1 7/8ths HD Arbor
Kit Includes:
5.5" cone & 6.5" cups



50-4250
Quick Chuck Kit
Kit Includes:
1x Quick chuck w/ truck jaws
1x Quick chuck w/car jaws
1x 4.75" backing plate
1x 5" backing plate
1x 6.25" backing plate
1x 7.25" backing plate
2x chuck keys



50-901
Brake Drum Micrometer



50-902
Brake Disc Micrometer



50-4280
Dust Containment System
Fits Pro-Cut B17 with mobile cart option only. Includes large removable chip tray, vacuum port, and side and top doors with viewing windows. Ships by truck freight.

STEP 13: Thank you for reviewing how to use the B17!

Please click the link to take the knowledge assessment and receive your certificate of completion for printing
Please contact Pro-Cut at 800-543-6618 option 2, or email service@procutusa.com should you have additional questions. Local on-site assistance can also be found by contacting your Pro-Cut representative.

