# Tradesman DC Variable Speed Bench Grinder

## Operator's Manual


Tradesman Woodturner


Tradesman Edge


Tradesman Machinist

CUTTERMASTERS

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Revised May 31 2021

# INTRODUCTION

## Forward

Congratulations on your purchase of the Tradesman DC Variable Speed Bench Grinder. All Tradesman Grinders feature the same 400W DC Motor and control and plug in to regular household 110V AC current (220V available).

We have a patent on low speed high feed grinding with the Tradesman (variable speed, high torque and super abrasive wheels). The Tradesman is the only grinder designed to run plated-bond wheels. It is not like using other grinders, period. With the Tradesman you can grind carbide tools or Teflon on the same wheel because at 500 RPM, there's nothing threatening about it: you can take heavy cuts while keeping the heat down.

Enjoy your new grinding experience. Give us a call if you have any questions.

## Contact Info

If you have any comments regarding this manual, service questions or parts requests, please contact us at the address below

Cuttermasters
2353 Ridgecrest Place
Ottawa ON K1H7V4
(800) 417-2171
(613) 523-8265 fax
sales@cuttermasters.com
info@tradesmangrinder.com

Toycen Corporation
808 Proctor Avenue
Ogdensburg NY 13669
(800) 417-2171
(613) 523-8265 fax

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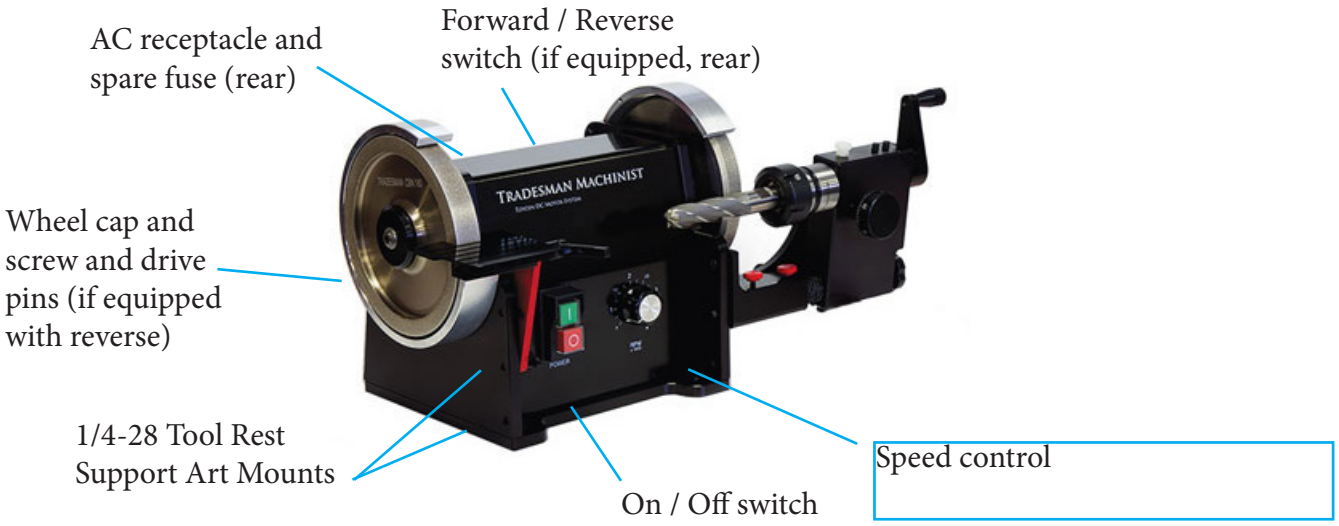
# Quick Start Guide




**ON/OFF**

The ON/OFF power switch is located on the front of the grinder. It has a safety feature to default to the Off position when every power is disconnected.

1. Turn the speed dial to minimum setting before turning the grinder on.
2. Press the green button marked with a vertical bar to turn the grinder on.
3. Press the red button marked with a circle to turn the grinder off.

**Reverse (if equipped)**

The reverse switch is a three position rocker switch where up is forwards, down is reverse and the middle position cuts power to the motor ie. the grinder will appear to be off (on switch will remain engaged) and wheels will not turn. **Important: Do not go from forwards to reverse or vice versa while wheels are turning, this could damage the circuit board.** Wait for wheels to stop turning before you change wheel direction. See page 7.

**Wheel Guards**

Wheel guards are precision machined and secured to the grinder with two socket head cap screws. These screws can be loosened to readjust the guard if it is rubbing on the grinding wheel, or removed to reposition the guard to it's open-at-top position for Tormek. Resin cut off wheels are initially too large for the 6" wheel guard. Guards generally aren't included when a belt sander is the accessory on that side.

**Drive Pins**

Tradesman Grinders equipped with reverse feature drive pins (3/16" diameter pins) that fit through the wheel cap and into a receiving hole in the motor shaft. This ensures that hub caps and screw don't loosen during operation. If you have a reverse machine, always check that these pins are in place before you start. See page 6.

**Fuses**

The Tradesman Grinder uses a 8A Slow Blow fuse. It is located at the back of the machine inside the AC receptacle. It can be accessed by removing the power cord and prying the drawer out. The grinder ships with a spare fuse also in this location. See page 7.

# WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine.

Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.

The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

# DUST

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

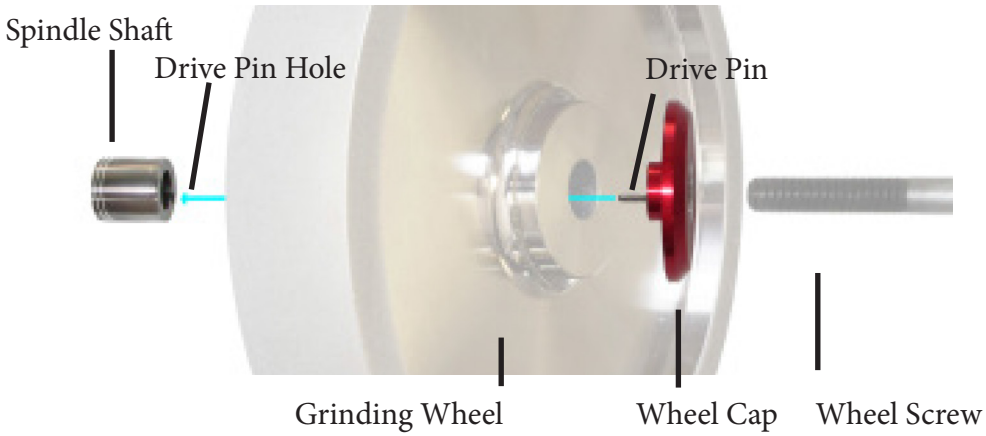
Lead from lead based paints
Crystalline silica from bricks, cement and other masonry products
Arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as dust masks designed to filter microscopic particles.

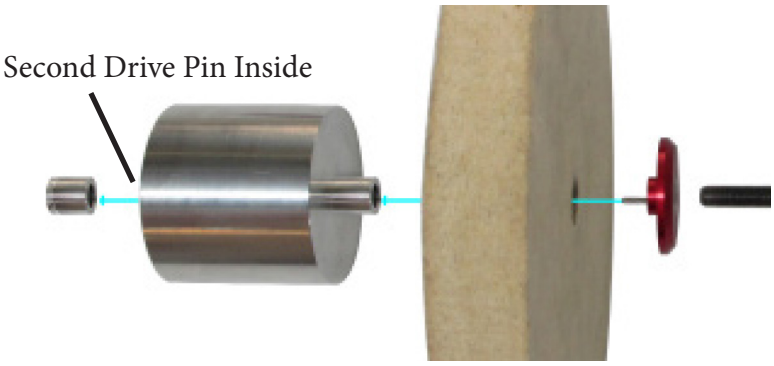
# DRIVE PINS ⚠

**Drive Pins:** On all Tradesman Grinders with Reverse capability (have a reverse switch on rear of machine - see following page) drive pins are employed to secure the wheels to the shaft.

They pass through the cap and in to the shaft and stop the cap from accidentally unscrewing resulting in a wheel coming off during operation. Before use make sure that each wheel and cap has it's drive pin installed. The end of the pin should be flush with the face of the cap. Do not operate the grinder without drive pins installed. Failure to do so could result in a grinding wheel coming off during operation. See the below diagram for a review of the drive pin operation.

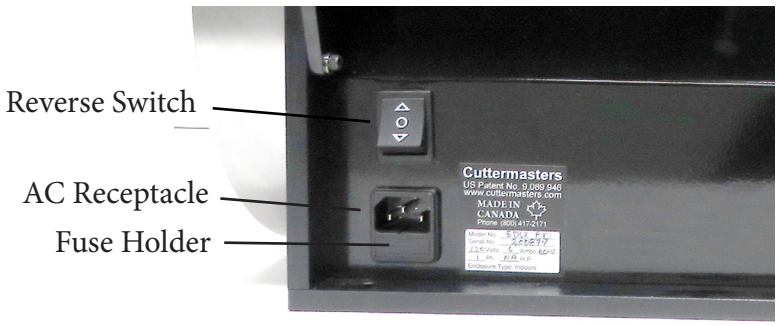



When using the shaft extension, two drive pins are employed: one that locks the cap the extension and one that locks the extension to the spindle shaft.



# FUSES and REVERSE ⚠

**Fuses:** All Tradesman grinders are equipped with a fuse inside the AC receptacle at the rear of the machine. If a power surge is experienced this fuse is designed to blow at 10A (10A Slow Blow). If your grinder isn't turning on when plugged in to a good power source this is the first place to look. The fuse can be accessed by unplugging the power cord from the grinder and finding it in a small drawer inside the receptacle. The drawer can be levered out with a small flat head screw driver. The drawer also contains a spare fuse.




**Reverse Switch:** If your grinder is equipped with a reverse switch note that it is a three position rocker switch where up is forwards, down is reverse and the middle position cuts power to the motor ie. the grinder will appear to be off and wheels will not turn.

**Important:** Do not go from forwards to reverse or vice versa while wheels are turning, this could damage the circuit board. Wait for wheels to stop turning before you change wheel direction.

# GENERAL GRINDING SAFETY ⚠

## For your own safety, read this instruction manual before operating this machine.

1. Always use ANSI approved safety glasses when operating machinery. Everyday eyeglasses only have impact resistant lenses - they are not safety glasses.

2. Always wear a NIOSH approved respirator when operating machinery that produces dust. Most types of dust (wood, metal, etc.) can cause severe respiratory illnesses.

3. Always use hearing protection. Machinery noise can cause permanent hearing loss.

4. Wear proper apparel. Do not wear loose clothing, gloves, neckties, rings, or jewelery that can catch in moving parts. Wear protective hair covering to contain long hair and wear noon-slip footwear.

5. Never operate machinery when tired or under the influence of drugs or alcohol. Be mentally alert at all times when running chicanery.

6. Do not over-tighten spindle nuts. Over-tightening these may cause the wheel to run out. Caps should be snug.

7. Adjust tool rests whenever necessary to maintain a distance of 1/8" (3.2mm) from the grinding wheel.

8. Keep wheel guards in place and working properly

9. During each start up, stand to one side of the grinder and switch it 'On'. Let the grinder run for 60 seconds to detect any flaws.

10. Always ensure that the work area is clear of any flammable materials, liquids or gases, because the use of this tool may create sparks.

No list of safety guidelines is complete. Every shop is different. Always consider safety first, as it applies to your individual working conditions. Use this machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

# GENERAL ELECTRICAL SAFETY

## Before You Start - Electrical

In the event of a malfunction or short circuit, grounding provides the path of least resistance for electrical current, and reduces the risk of electric shock for the operator. This tool is equipped with an electric cord that has an equipment grounding conductor and a grounding plug. The plug MUST be plugged into a matching outlet that is properly installed and grounded in accordance with ALL local codes and ordinances.

DO NOT MODIFY THE PLUG PROVIDED. If it will not fit the outlet, have the proper outlet installed by an electrician.

IMPROPER CONNECTION of the equipment grounding conductor can result in increased risk of electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment grounding conductor. If repair or replacement of the electric cord or plug is necessary, DO NOT connect the equipment grounding conductor to a live terminal.

CHECK with a qualified electrician or service personnel if you do not completely understand the grounding instructions, or if you are not sure if the tool is properly grounded.

## Use of Extension Cords

USE ONLY THREE-WIRED EXTENSION CORDS that have 3-prong plugs and 3-holed outlets that accept the tool's plug. Repair or replace damaged or worn cords immediately.

Be sure your extension cord is properly wired and in good condition. Do not use damaged extension cords. Always replace a damaged extension cord.

When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage, resulting in loss of power and overheating. The table below shows the correct size to use according to the cord length and the amperage draw of the tool (specified on the nameplate). When in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord. (AWG = American Wire Gauge).

# Before You Start - Electrical (continued)

Use a separate electrical circuit for your tools. This circuit should not be less than a #12 gauge wire, and should be protected with a 15A time-lag fuse or breaker. Before connecting the motor to the power line, ensure the switch is in the OFF position and the electric current is rated the same as the current stamped on the motor's nameplate. Running at a lower voltage will damage the motor, and this damage is not covered' by warranty.

| Extension Cord Amps Ratings | | | | |
|---|---|---|---|---|
| **Length in Feet** | 16 AWG | 14 AWG | 12 AWG | 10 AWG |
| 25 | 13 A | 15 A | 15 A | 30 A |
| 50 | 13 A | 15 A | 15 A | 20 A |
| 100 | 10 A | 13 A | 15 A | 20 A |

# KNOW YOUR GRINDER

## Tradesman Machinist

Tradesman Machinist 6" Single or Dual Wheeled Bench Grinder designed for machinists: tool modifications like carbide cut off, neck reduction, Weldon set screw flats, carbide corner prep.



## Tradesman Woodturner

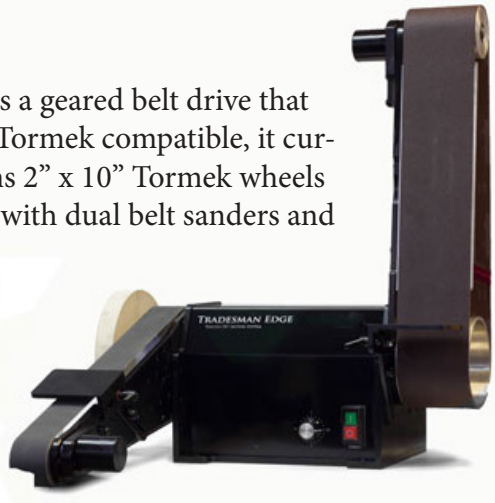
Tradesman Woodturner 8" Grinder for woodturners and woodworkers. Designed to run 8" and 6" wheels and is compatible with popular jigs like the Wolverine jig and the Tormek jigs.


## Tradesman Edge

The Tradesman Edge differs from other Tradesman Grinders because it has a geared belt drive that increases the torque and lowers the minimum speed. Also Wolverine and Tormek compatible, it currently has two versions: Edge 810 runs 8", 10" wheels or belts; Edge 12 runs 2" x 10" Tormek wheels with 12 mm shafts and water bath or belt sanders; Both can be configured with dual belt sanders and felt wheel.

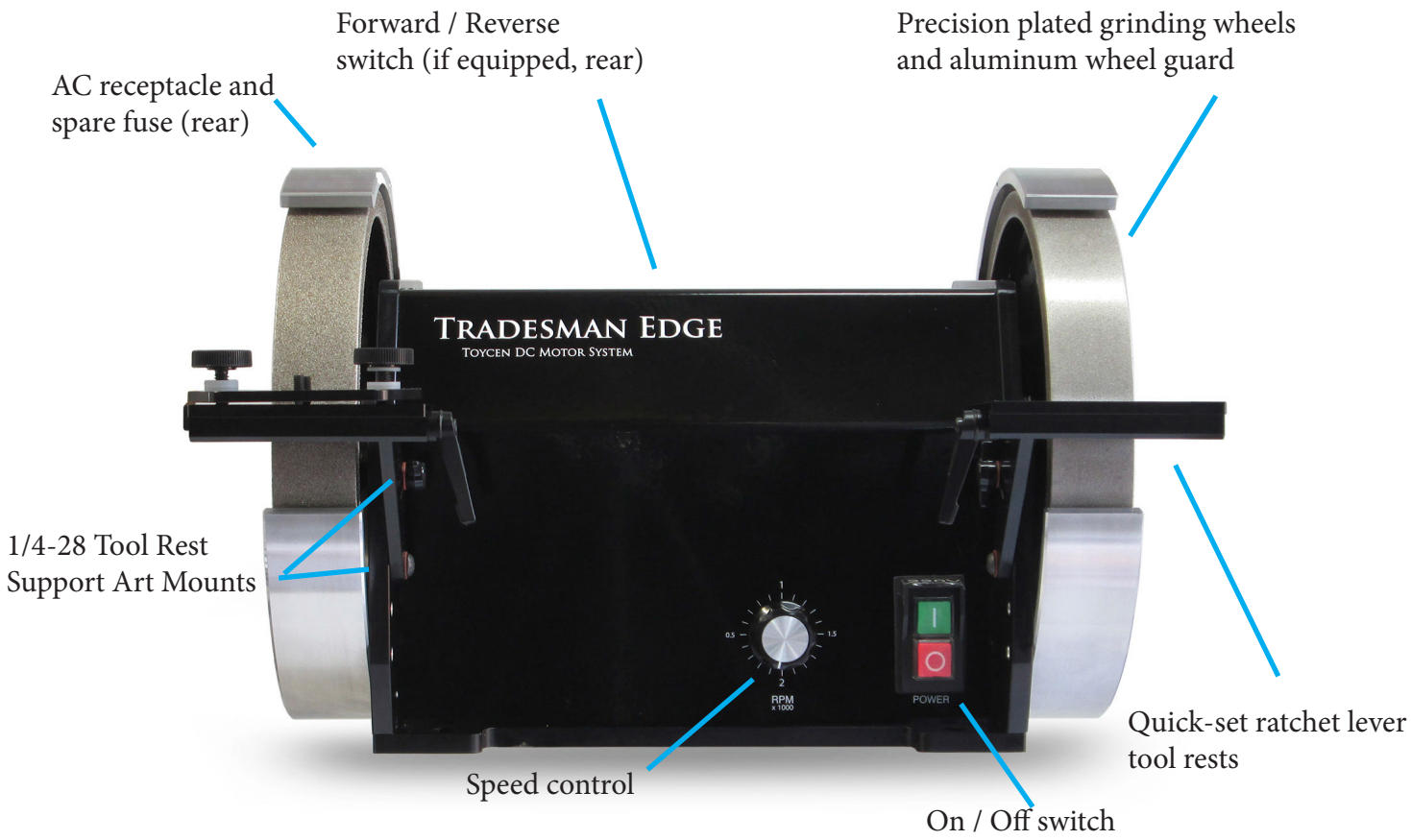

8" and 10" Wheels

Tormek Water Bath Kit




Dual Belt Felt

# KNOW YOUR GRINDER

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**Reverse (if equipped)**

As mentioned earlier, the reverse switch is a three position rocker switch where up is forwards, down is reverse and the middle position cuts power to the motor ie. the grinder will appear to be off and wheels will not turn. **Important:** Do not go from forwards to reverse or vice versa while wheels are turning, this could damage the circuit board. Wait for wheels to stop turning before you change wheel direction.

**Wheel Guards**

Wheel guards are precision machined and secured to the grinder with two socket head cap screws. These screws can be loosened to readjust the guard if it is rubbing on the grinding wheel, or removed to reposition the guard to it's open-at-top position for Tormek.

# 2. GENERAL SET UP

## 2.1 Mounting the Grinder to the Workbench

Before attempting to use this grinder, it should be properly mounted to a workbench or grinding stand.
CAUTION Bench grinders vibrate. Grinder movement during high-speed rotation may cause Injury or damage to the workpiece or operator. Mount the grinder securely to a sturdy workbench or grinding stand.

1. Position the grinder on the workbench.
2. Mark the workbench through the two mounting holes located in the grinder base.
3. Drill holes in the workbench at the marks.
4. Using two long bolts, washers, locking washers and nuts (not supplied), secure the grinder to the workbench.

## 2.2 Mounting the Wheels

**Wheels are mounted using a 3/8-24 button head cap screw. That screw is a left hand thread on the left side (turn clockwise to loosen), and right hand thread on the right side.**

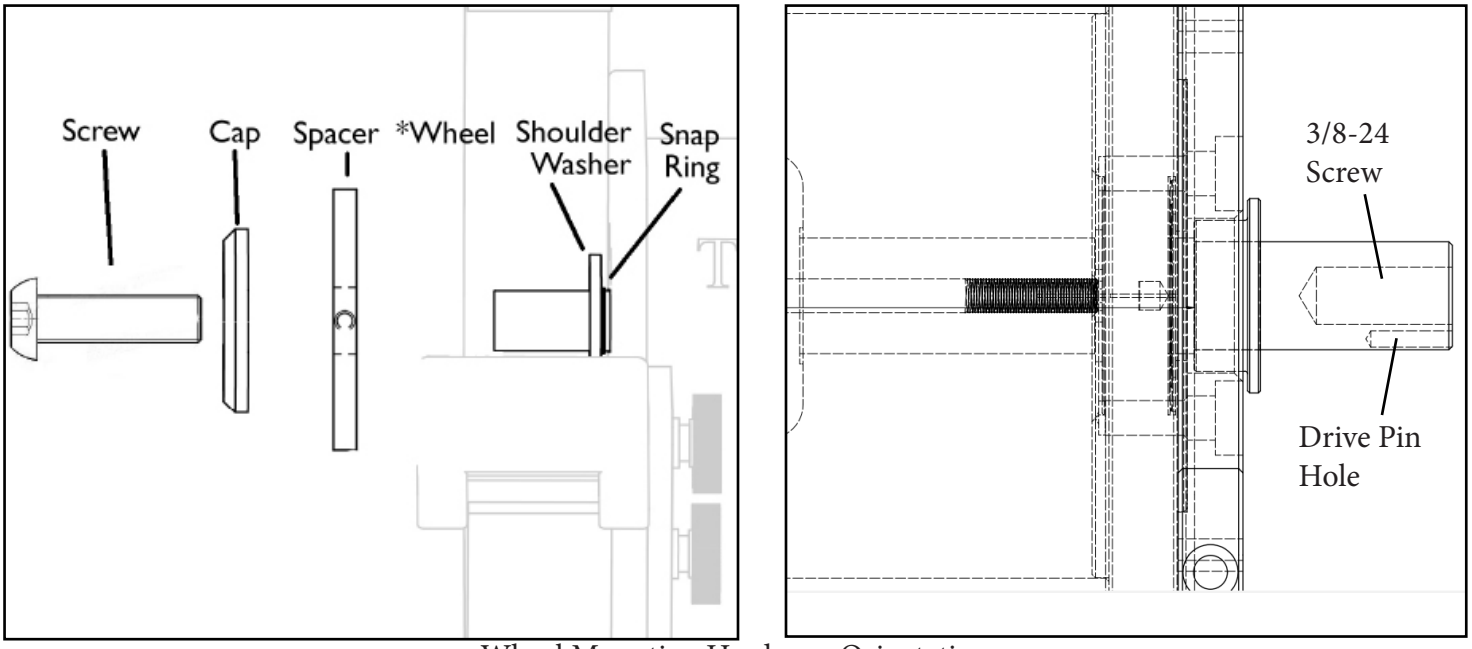
Be sure that the flat 5/8" washer is always used between the wheel and the snap ring. This washer prevents the wheel from pushing the snap ring over and contacting the grinder (see following diagram). Some models use a thrust flange against a shoulder in the motor shaft instead of the washer and snap ring set up.

Your Tradesman has the largest possible shaft that can be fit into a motor this diameter and still have room for brushes. The shaft diameter internally is 0.6875" and ground down at final assembly to 0.6248" for a 5/8" arbor and close-to-zero runout.

Given this engineering circumstance, the shaft mounts an extra heavy duty snap ring in place of a shoulder. This snap ring is good for 1400 lbs of shear when shouldered with a strong, precise bore that is just slightly larger than the shaft by 0.0004". There is NO countersink on the face that bears against the snap ring allowing it to develop maximum shear. See the following diagram.

Care should be taken to ensure that only factory certified washers come in contact with the snap ring. The 3/8"-24 button head wheel bolts are designed to apply the appropriate resisting force to drive the wheels on your grinder.

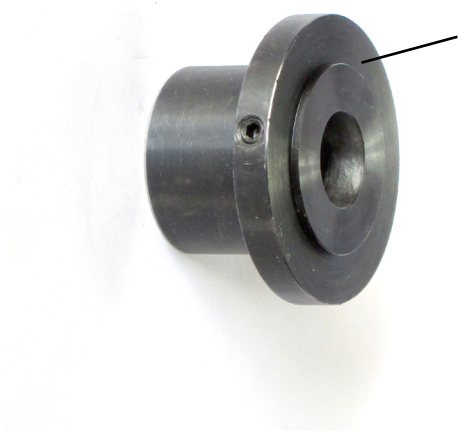
Tightening and loosening the wheels: sometimes the wheel screw will turn with the shaft instead of tightening or loosening (threading in or out). Te remedy this hold the opposite wheel that you are working on (grinder is off). If it is tight, that will give you good control of the motor shaft. If you have a single wheeled grinder, hold the wheel you are working on, use the hex key in a rapid motion to use the weight of the motor assembly to your advantage.




Wheel Mounting Hardware Orientation

# Tool Grinder Hub

This hub is used to adapt the 5/8" shaft of the Tradesman to a 1.25" tool grinder hub to mount our machinist and specialty wheels. The hub is reversible: mount thicker wheels with the hub oriented with the flange inside, and thinner wheels like the cut off wheels, with the flange outside. This exposes the shorter 1.25" hub. Set screws (shown) are not included or needed in the tool grinder hub, although there is a set screw hole.

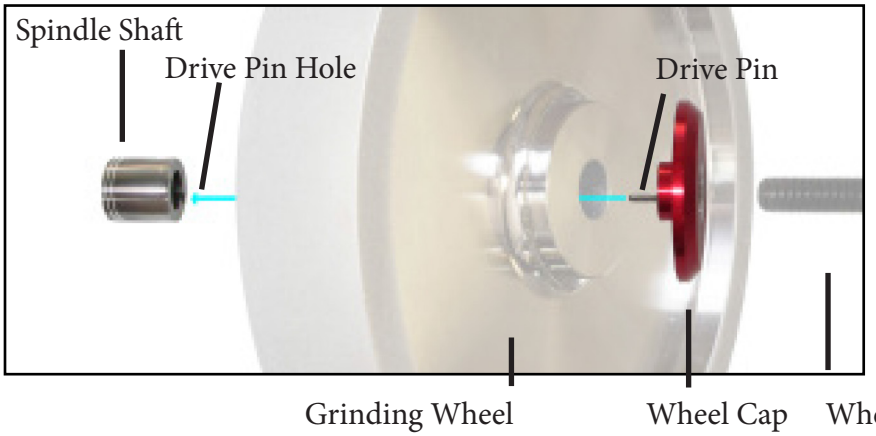


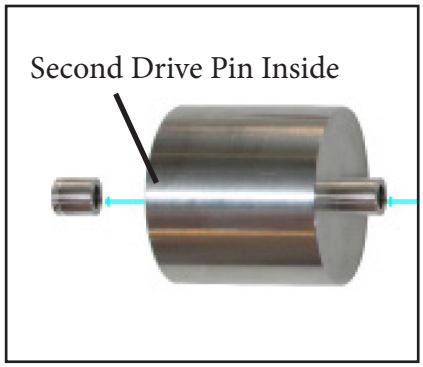
# DRIVE PINS ⚠

## 2.3 Drive Pins

On all Tradesman Grinders with Reverse capability (have a reverse switch on rear of machine - see page 7) drive pins are employed to secure the wheels to the shaft.

They pass through the cap and in to the shaft and stop the cap from accidentally unscrewing resulting in a wheel coming off during operation. Before use make sure that each wheel and cap has it's drive pin installed. Do not operate the grinder without drive pins installed. Failure to do so could result in a grinding wheel coming off during operation. See the below diagram for a review of the drive pin operation.

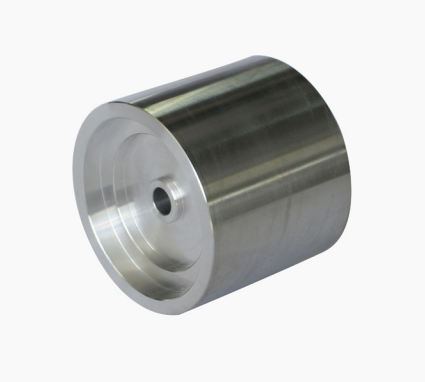


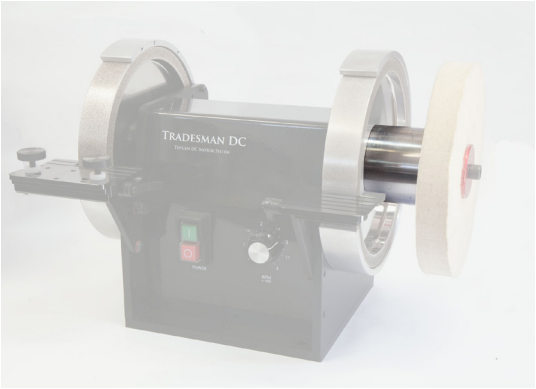




When using the shaft extension, two drive pins are employed: one that locks the cap the extension and one that locks the extension to the spindle shaft.

## 2.4 Shaft Extension T-SE

The 2-1/2" long spindle extension can be used for felt buffing wheels. It is designed to fit over inner profile of an 8" Tradesman Plated Grinding Wheel. It can be used on either side and requires a long 3/8-24 screw to reach through the extension to the motor shaft and that would be a left hand thread on the left side of the grinder. To install remove wheel cap and screw from wheel and place the extension securely over the wheel. Mount felt or paper wheel with long wheel screw.





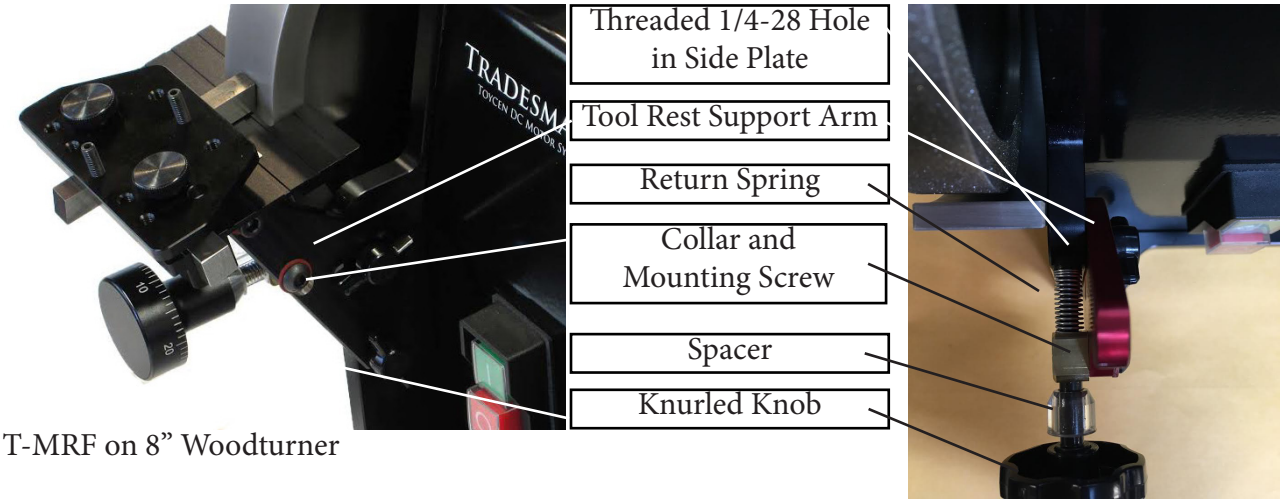
# 2.5 Tool Rest Adjustments and Installation

Tool rest adjustment is achieved using thumb screw and or button head cap screw and included hex key. Before tightening the screws, adjust the gap between the grinding wheel and the work rest to a maximum of 1/8th" (3.2 mm). Tighten securely. To prevent the workpiece from being pulled and caught between the tool rest and the wheel, readjust the tool rest position whenever necessary to maintain the 1/8th" (3.2 mm) distance.

The Tradesman Grinders feature 1/4-28 mounting holes in the side plates for mounting various attachments. Your Tradesman is supplied with four 1/4-28 Socket Head Cap Screws with dual-lobed thumb screws for tool-less use. These can be replaced with any 1/4-28 screw. The bottom one is a pivot post while the top one is used to lock the arm at a certain swing position. Tighten each according to your needs.

## Standard Rest, Mitre Rest Jig Plate (T-MRJ) and Mitre Rest Jig Plate with Feed (T-MRF)

The standard rest, the Mitre Rest and the Mitre Rest with y Axis Feed all mount similarly to a tool rest support arm with a ratchet lever arm. **Note:** On the Tradesman Machinist the support arm is red to show it is shorter than the Tradesman 8, due to the smaller wheel diameter on the Machinist.
**T-MRF** uses a unique tool rest support arm that mounts a 1/4-28 lead screw assembly. The T-MRF is the T-MRJ with the addition of the feed assembly. This unit may ship with a placeholder feed screw to protect the knurled knob during shipping.




T-MRF on 8" Woodturner

## V-Block for Flats (T-WF)

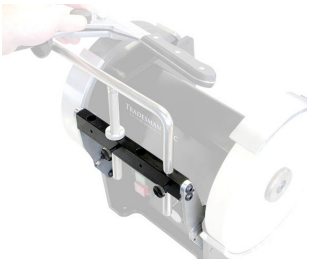
The V-Block is mounted like the other rests using the 1/4-28 lever ratchet. It is designed to quickly put Weldon set screw flats into carbide end mills. Care should be taken to secure the tool to the V-Block with a clamp so that it doesn't shift during grinding. Tension the pivot screw and swing screw on the support arm sufficiently so that there is minimal play while allowing the tool rest to swing the V-Block forward to make the flat. The V-Block isn't designed for carbide cut off so be sure to clamp the tool if performing this operation.

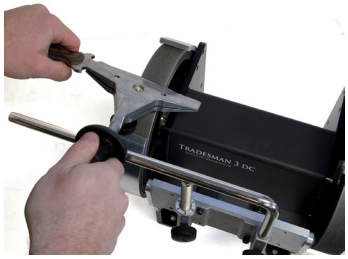
# 2.6 Tormek

## Tormek Bracket (T-TB, TE-TB for Edge)

Remove the standard tool rest support arms to mount the Tormek Bracket which has its own longer support arms. You can use the same mounting screws as used on the standard rests.

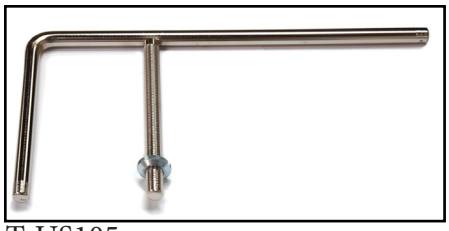
**Note:** For most Tormek jigs the wheel guards probably need to be repositioned so that the opening is at the top of the wheel. If not equipped with thumb screws, the wheel guard is mounted with two socket head cap screws and your grinder should be supplied with a 9/64ths hex key for these screws.



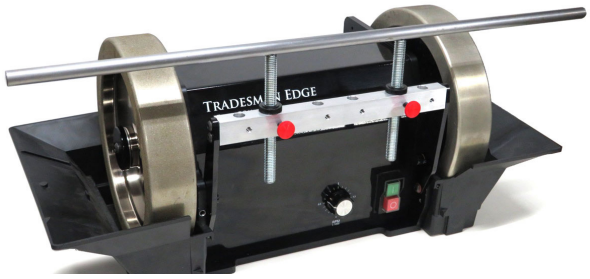


## Universal Rest for Tormek Attachments

There are several options for your tool rest for Tormek attachments that are set the same way, with red locking set screws in the bracket. Use your official Tormek US-105 Support, The similar Tradesman support (T-US105), the 26" Tradesman Edge Twin Support (TE-US105), or the short 6" bar rest (T-BR) which mounts without the Tormek Bracket using a 1/4-28 screw. The 26" rail has 1/2" dia. bar, not 12mm like the T- US-105, this means it is good for the Tormek knife jigs but won't fit the sleeve-type Tormek jigs



T-US105





T-BR Bar Rest

## Water Bath Kit

The Tradesman Edge can be equipped with a water bath kit similar to that used on the Tormek machines. These water baths are machined to hook on the side of grinder and lift off for easy removal. This requires that the grinder be sitting on a riser to provide the clearance to drop the water bath. Wheel guard is removed. RPM should be kept to minimum.

# 2.7 Belt Sanders

Tradesman Belts Sanding Attachments are precision machined for the best belt sanding experience. These attachments are compatible with all models of Tradesman grinder and are designed to be easy to use in both directions. The Belt over wheel attachment is unique because it uses a Tradesman 8" CBN plated wheel as the drive wheel. Tensioning, adjustments and belt installation are similar for all of the belt sanding attachments.

4" x 48"

2" x 48"

2" x 36"

1.25" x 48" Belt Over Wheel

## Belt Sander Diagram


## Tensioning the Belt Sanding Attachment Frame

The drive wheel of the belt sanding attachment has three holes used to pass the hex key through to the tensioning screws on the inner belt assembly. Tighten each screw incrementally until desired tension is reached. Belt-Over-Wheel adjustment is the same but necessary to remove grinding wheel.

# 2.7 Belt Sanders (Continued)

## Installing an Abrasive Belt

Check to see if your belt has directional arrows and observe any manufacturer recommendations. Turn the grinder off. With one hand, grasp the tensioning handle, opposite the upper pulley and rotate it towards you. This will release tension on the belt for installation. With your other hand center the belt over both pulleys and release the tension handle. Roll the belt in your desired direction by hand to check the tracking before you turn on the grinder. Once the belt tracking is set so that the belt stays on the pulleys over several rotations it is safe to turn on the grinder in your desired direction.

If static electricity is experienced around the belt, try applying foil tape to the smart platen. Remove Teflon tape before applying the foil tape.


Use of foil tape to reduce static

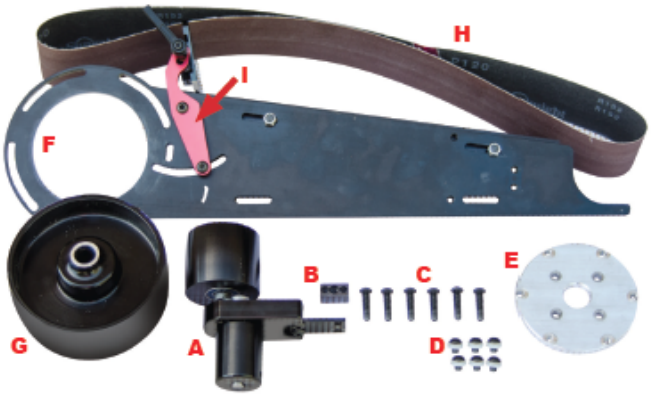
## Tracking the Belt Sanding Attachment

Use the supplied hex key to adjust the tracking set screw. See belt sander diagram, page 18. Tracking should be checked with the power off before starting your work, with a new belt or change of direction.

## Reversing the Belt Sanding Attachment

If your grinder is equipped with the reverse feature --- Check to see if your belt has directional arrows. Turn off the grinder and run the belt in the reverse direction by hand to see if the tracking needs to be adjusted. If so, use the supplied hex key to adjust the tracking set screw. Once the belt tracking is set so that the belt stays on the pulleys over several rotations by hand it is safe to turn on the grinder in your desired direction. Fine tune tracking using 1/8 turns of the set screw.

# 2.7 Belt Sanders (Continued)

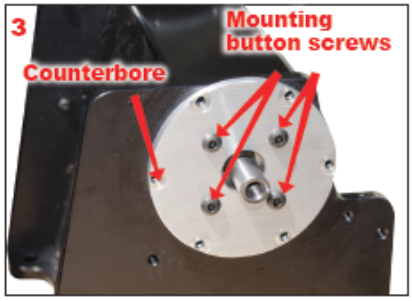



Parts:
A. Upper pulley wheel assembly
B. Upper pulley spacer
C. 6 long button head screws
D. 6 angle adjustment screws
E. Mounting plate
F. Side plate
G. Lower pulley wheel
H. Sanding belt
I. Steady rest arm



1. Remove grinding wheel from left side of unit. Grinder left side screw is a left handed reverse thread, turn clockwise to loosen.

2. Remove grinding wheel guard from left side of grinder by removing the two screws holding the guard in place.

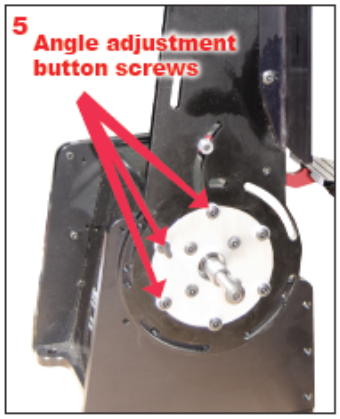




3. Mount the supplied mounting plate to the grinder with the counterbore f acing outward, using the 4 long button screws supplied with the belt sander.

4. Tighten securely.

Note that some Tradesman grinders have a 2mm step after the snap ring. If yours has a step, remove the snap ring and use the provided spacer.



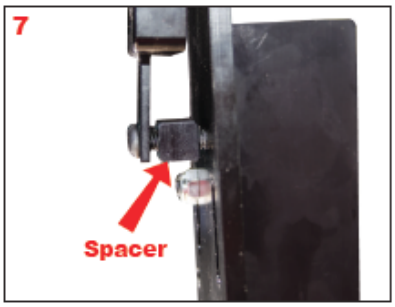


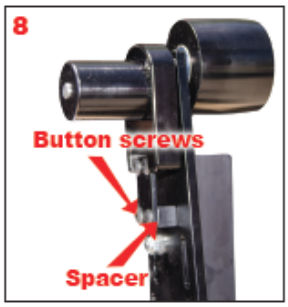
5. Lightly snug the side plate to the grinder using the 6 angle adjustment button screws with nylon washers supplied with the belt sander. Do not tighten.

6. Adjust to desired angle and snug to a secure fit. Do not overtighten.

Note that we use three adjustment screws instead of six, step 5.

# 2.7 Belt Sanders (Continued)



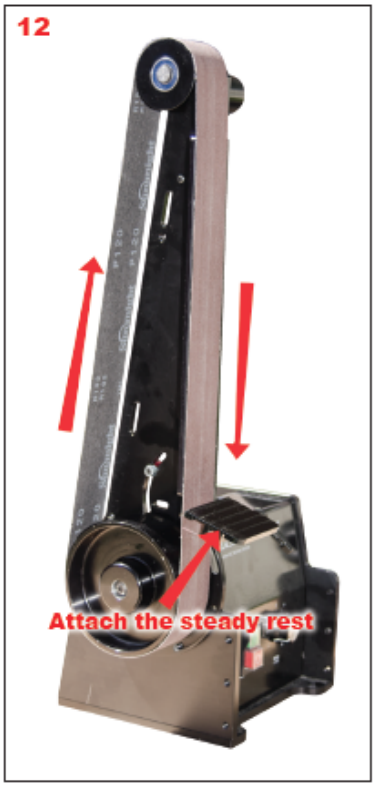

7. While holding spacer between top pulley and side plate, screw a button screw through the pulley bracket, spacer, and into the side plate.

8. Insert second button screw and secure the top pulley wheel to side plate.



9. Slide the lower pulley wheel on to grinder shaft, be sure to rotate pulley wheel until the wheel seats all the way in and locks into place on the set pin on the shaft.

10. Secure lower pulley wheel with large button screw that was used to hold on previous grinding wheel. Grinder left side button screw is left hand reverse thread. Hold the lower pulley with one hand and tighten button screw counterclockwise to secure the lower pulley. Do not over-tighten. Overtightening can cause runout.


11. Mounting the sanding belt around both pulleys: First look on inside of belt for directional arrows. Make sure the arrows match the illustration on left. Place belt over lower pulley wheel first and then with other hand twist outer handle on upper pulley assembly counterclockwise, slide belt over upper pulley wheel and release outer handle for tension.

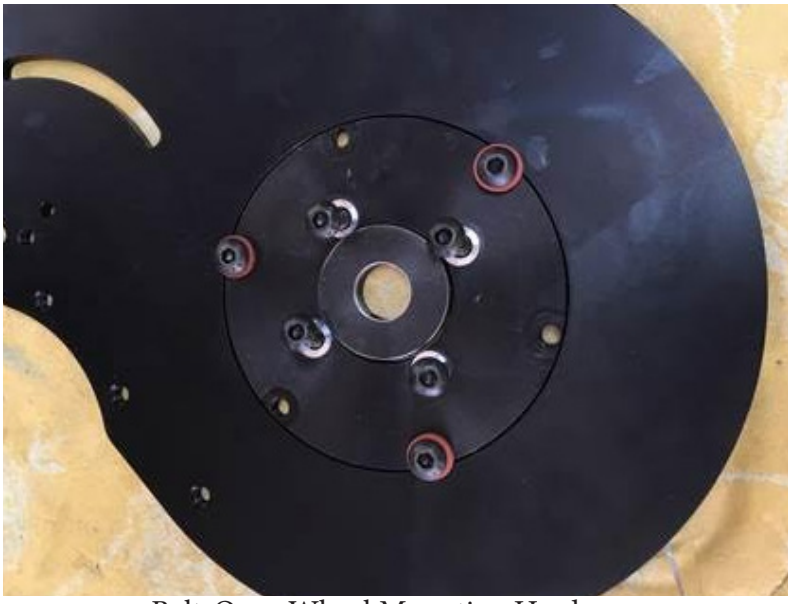
12. Using the two included screws, attach the steady rest in your desired location on the side plate.

Your belt sander is now ready to use.

# 2.8 Belt-Over-Wheel Belt Sander Assembly

To install the Belt-Over-Wheel Attachment you will need:

- four 1/4"-20 x 3/4" button head cap screws to mount the pivot plate (4" diameter round plate) to the grinder
- three 1/4"-28 x 3/8" each with two red fiber washers to secure the main sander plate to the pivot plate
- the belt spacer 1-1/2" diameter, 3/8" thick, 5/8" arbor (shown in the very middle).



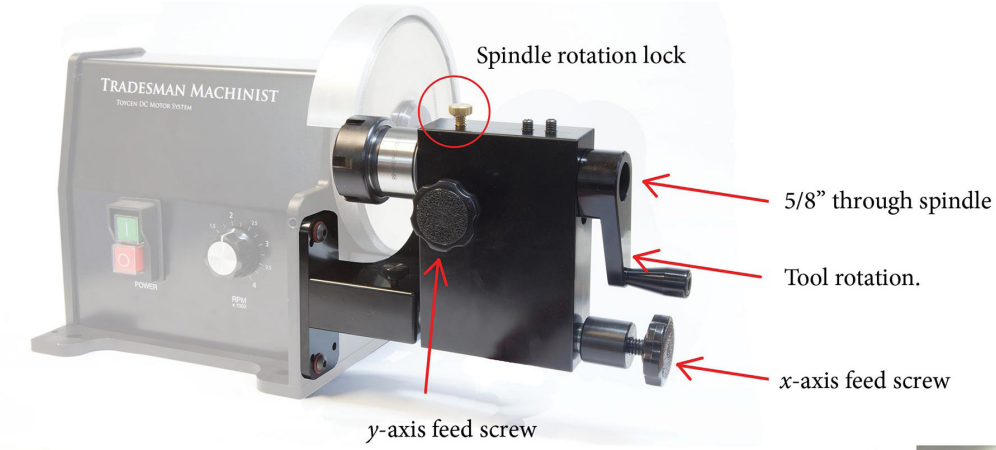
Belt-Over-Wheel Mounting Hardware

1. Remove the wheel guard, grinding wheel and snap ring from motor shaft (you might need a pair of snap ring pliers.
2. Remove the four 1/4"-20 socket head cap screws from the side plate of the grinder (these secure the motor to the grinder side plate and will be replaced with the four 1/4"-20 *button heads*). Keep the socket heads for reassembling the grinder without the belt sander.
3. Mount the pivot plate with the four button heads.
4. Install the spacer by sliding it on to the motor shaft.
5. Mount the main sander plate with the three 1/4"-28 button heads. These can be snugged to allow the belt to pivot while still rigid enough for sanding.

# 3. Tradesman Machinist Attachments

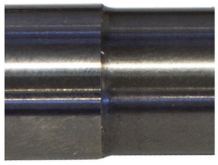
## 3.1 End Mill Workstation, T-ER32i

The T-ER32i is designed to grind neck reductions on the Tradesman Machinist. It is also a great tool for carbide cut off, sharpening reamers and grinding Weldon set screw flats. It can also be used for grinding corner rads on carbide tools - due to the precise requirements of this operation, corner rads require the grinder be specially set up at the factory. Remove the tool rest support arm on the side of the grinder you will install the T-ER32i. The T-ER32i mounts to these holes from the outside face of the side plate using supplied 1/4-28 button head cap screws.




Collet set and tool kit

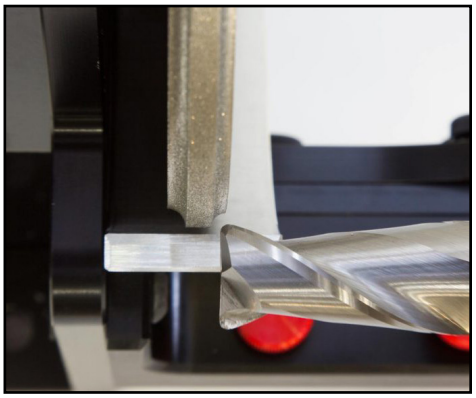
Set Screw Flat



Neck Reduction

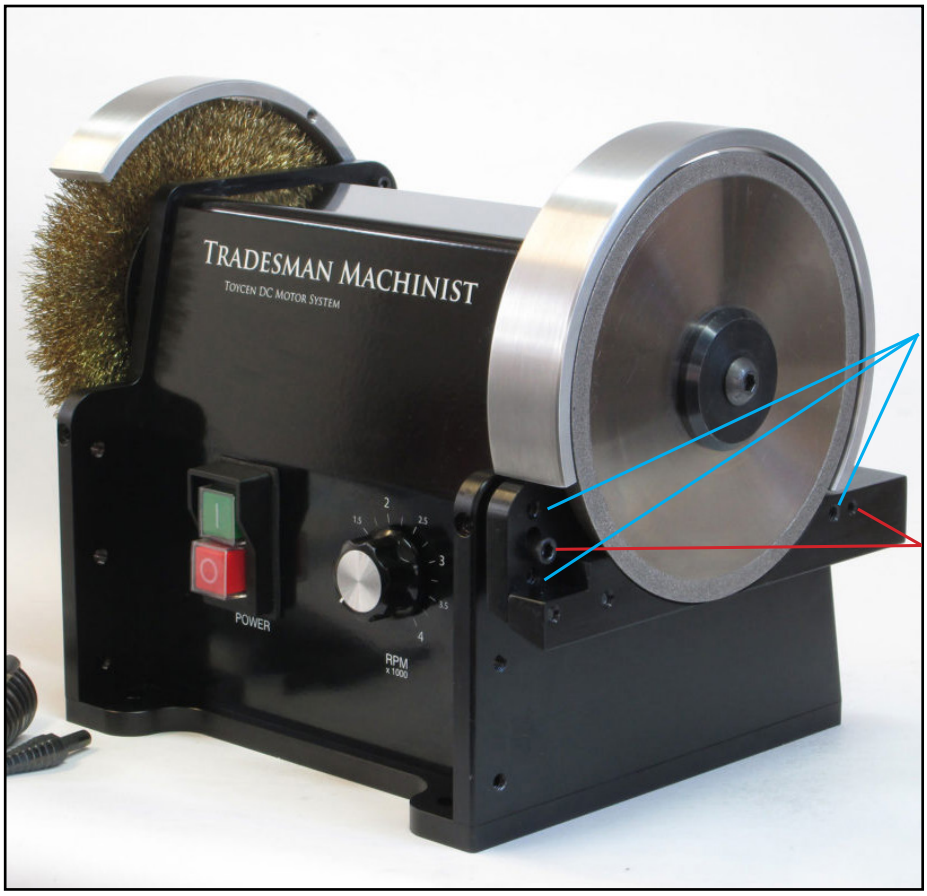
Carbide Cut Off

Spindle can be locked, spun freely or indexed to several positions around the tool using the upper set screws. Use the x-axis feed screw for positioning. Use the y-axis feed screw to feed in to the wheel for flats, cut off and neck reduction. Cuttermasters Chamfer Wheels are used for grinding Weldon set screw flats and can also be used for sharpening reamers. Use Cuttermasters shoulder wheels for neck reduction and creating T-slot cutters.



Carbide Corner Prep using Profiled Radius Wheel

# 3.2 Unibit Attachment, T-Unibit




The Tradesman Machinist can be configured to mount a fence ideal for sharpening unibits. It is used with the Tradesman Unibit Grinding Wheels.

1. Set depth of cut adjustment. Position three setscrews so that the unibit fence is at desired depth of cut.

2. Tighten the two mounting bolts to secure the unibit fence to Tradesman side plate.

3. Position the unibit. Away from the wheel, press and hold unibit against the bottom and outer face of the fence.

Tradesman 6" Machinist with T-Unibit Fence, T-6180U Unibit Wheel, Brass wire wheel

4. Grinding. While maintaining light pressure against the fence, slide the unibit back and forth past the wheel. Each pass should remove a couple of thousandths of an inch. Repeat until inside face of the unibit is evenly ground to the cutting lip - a few passes should do it.

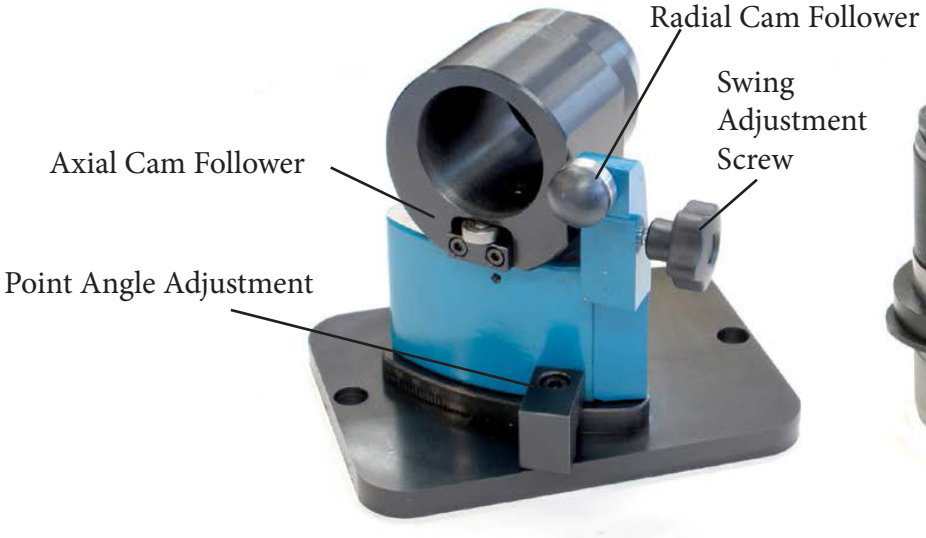
5. Removing the burr. This sharpening process will produce a small burr on the outside of the cutting lip. Remove this burr to complete the sharpening process. A quick pass of a wire brush works well.

# 3.3 Countersink and Step Drill Attachment T-DCS

The T-DCS is designed to use the CM-06DCS Drill and Countersink Attachment on the Tradesman by mounting it on a feed plate that is mounted to the 1/4-28 attachment points on the side plate (remove tool rest support arms before installation).

The recommended wheel for drills and countersinks is the Cuttermasters 6" CBN Face Wheel.

Chuck capacity 3mm-21mm (1/8" - 7/8")
- Angle adjustment: 50° - (infinite on Journeyman)
- Unit size: 17cm x 13cm x 18cm x 10kg
- Grinds one and three flute countersinks
- Grinds drills and step drills





3-12mm Tool Holder


12-21mm Tool Holder

1-Flute 0.020" | 1-Flute 0.030" | 3-Flute 0.025" | 3-Flute 0.031" | 3-Flute 0.050"

# Countersink and Step Drill Attachment T-DCS (continued)

**Countersink Sharpening**
Radial cam follower is removed for countersink grinding. It is a plunge process only, that is governed by our slip-on cams. There is no swing.
The swing adjustment screw is used for fine angular adjustment.

**Drill Sharpening**
Remount the radial cam follower. Radial swing is used for drill grinding but is not needed for countersink grinding. Replace the cam follower and use the native cams that are on each chuck, when sharpening drills.

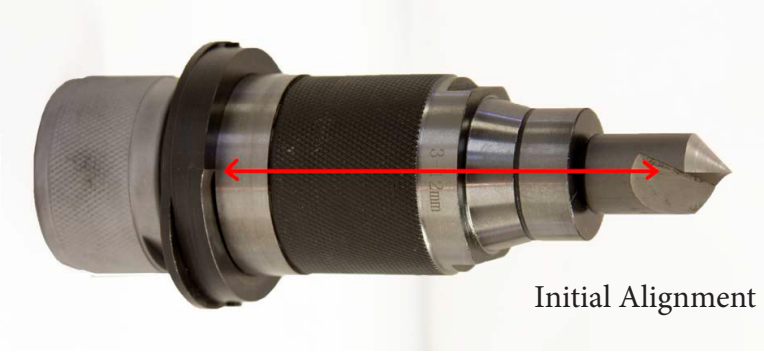
**Tool Length**
The tool should stick out far enough to clear everything during the grinding process, however not so far as to not be firmly placed in the chuck. The tool must be perfectly straight and tight in the jaws when grinding.

**Timing**
Hold the chuck in your hand with the tool inserted and facing you. Rotate it so that one of the cams is in the "twelve o clock" position.

**1-Flute Countersinks**
The cutting edge of 1- flute countersinks will be at about "40 degrees ahead of the cam lobe intersection" if the top of the cam is at "twelve o clock" (Figure 2). With 1-flute countersinks you should observe with the cam roller at the bottom of the plunge, or feed stroke (rotating it gently it will come to rest at the cam lobe intersection) the cutting edge of the tool is positioned around "seven thirty" (cam roller being at six o'clock) from the operators perspective .

As you continue to rotate clockwise the cam repositions the tool to bring the next cutting face to bear against the wheel. In other words, the full flute face ideally will be ground while not being so retarded that the full face does not clean during the swing and no so advanced that it takes the flute edge off at the point when entering the grind.

A different view Optimal Cutting Edge Position for 1-Flute Countersinks When Roller is at Bottom of Plunge



Initial Alignment

Figure 2

# Countersink and Step Drill Attachment T-DCS (continued)

**3-Flute Countersinks**
When viewing the correctly timed tool as shown in Figure x, each flute of a 3 flute countersink will bisected by the top of the cam. (Figure 5).
Not all countersinks are the same.

**Check your timing:**
Bring the tool into the wheel with the motor off for observation.
Rotate clockwise to the bottom of the plunge you should be able to observe that the flute that you are at the end of the heel (lowest point of the grind. If the tool is too advanced it will produce a flat or grind off the tool at the tip prematurely. If this happens loosen the chuck slightly and retard the tool slightly in the chuck. At the end of the rotational swing the heel of the grind should just be leaving the wheel. A small flat at the back edge of the heel is better than a dull tip.

**General operation and Timing:**
Select the Cam of your choice , the cams just drop over the chuck and replace the plunge and swing profile of the basic chuck , and with the use of the swing lift knob change the operation into that of a plunge only action.

**Timing the Tool**
The roller that rides in the cam is underneath the chuck, it determines the axial travel. Therefore, one must keep pressure on this during the grinding process. Tighten the tool in the chuck snug but so that you can rotate it .with the Side set screw adjusted so that the swing cam is just so the swing cam lobe doesn't hit the roller when the chuck is rotated.

Match up the angle to be ground, and check to see if there is feed using the feed knob.

Rotate the assembly with the roller and cam in contact with each other bring the tool/chuck so that it has completed a plunge cycle, the tool will draw back slightly.

Now time the tool, it has just finished the grinding stroke. At this point rotate the tool in the chuck so it is now entering the next flute and tighten in the chuck.

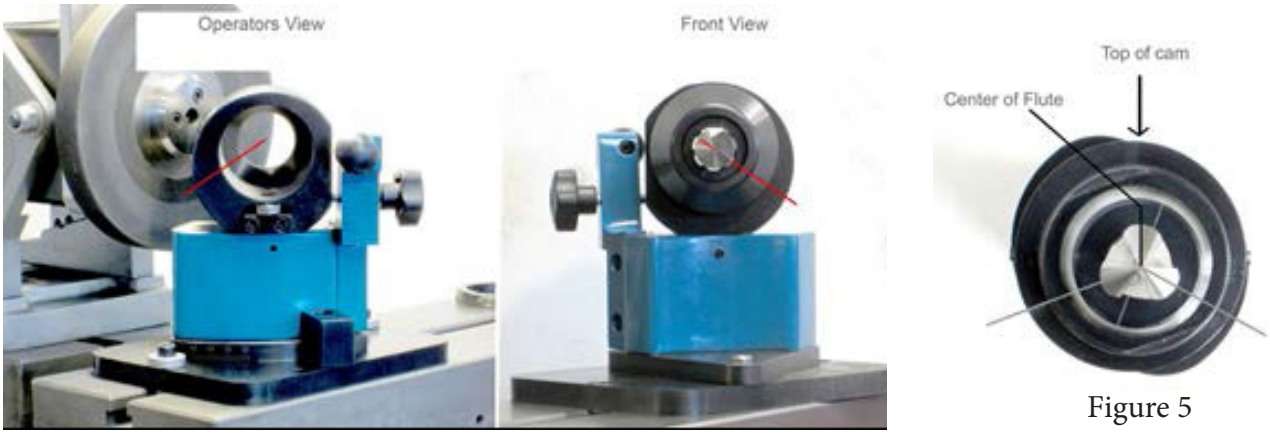



Figure 5

# Countersink and Step Drill Attachment T-DCS (continued)

Dry run the grinding cycle by rotating the chuck and observing the angle, entrance and exit point (with the motor off ) to see if you are getting the grind that you desire. Once you are satisfied with the cycle behavior turn on the grinder, remove the chuck and make sure it is tight and all settings are tight.

Proceed, light cuts, be sure to observe the original clearance angle and try and replicate your grind so it's a good match to the original , change cams if more or less lip clearance is needed.

**The Grinding Process**

It is important to realize if the cutting lip hits the wheel first , since there is not much material there it will over-grind if one is not careful. Therefore , always spend time removing material from the heel ( the area behind the cutting lip) and then only grind the lip as a light cu after all of the clearance work has been done.

All countersinks are different and there is usually some proprietary shape that we will never know the details of. The CM06 cams have been designed to be the best MEAN shape for sharpening most countersinks. It is always up to the operator to try and achieve or replicate what he feels is best.
The most common mistake is not achieving proper clearance. To that end always test the countersink location in the middle of the heel not the lip. Be aggressive when removing heel material.

# 4. Maintenance and Troubleshooting

**Maintenance**
WARNING! Turn the power switch to "OFF" and disconnect the plug from the outlet prior to adjusting or maintaining the grinder. DO NOT attempt to repair or maintain the electrical components of the motor. Take the grinder to a qualified service technician for this type of maintenance.

**Trouble Shooting**
**Grinder will not turn on.** Ensure there is power at the outlet and that your grinder is plugged in to it. Check that the fuse has not blown in the Tradesman. It is located in the socket of the AC receptacle at the back of the machine. First unplug the power cord and you'll see a drawer that will pull out with the aid of a small flathead screwdriver. The Tradesman is equipped with a spare fuse that can be found in this drawer as well. The fuses are 250V 8A slow-blow. Check reverse switch, if equipped, is not in middle (off) position.

**Wheels are not running true (running out).** This can be affected by loosening up the hub, rotating slightly (try ~70 degrees, or 1/5 of a rotation) on the shaft and re tightening the wheel. Over tightening may damage the shaft and may also contribute to the wheel running out. Repeat until you have gone around the entire wheel (360 degrees). If this does not fix it try flipping the wheel over, flipping the washer over, swapping left and right wheels.

**Wheel balance.** The wheels on the tradesman are balanced but they are large rotating masses that will vibrate the machine if minor mis-balances are aligned, or wheels are not running true. Loosen and alter the rotational relationship and re-tighten as described above for runnout.

**Blown fuses.** If the fuse is blowing when or shortly after the grinder is turned on it may be because the speed dial was at or above 75% (when using especially heavy wheels). This may also indicate an electrical problem, if it persists, and you should contact us to solve the problem for you.

Try turning the speed down to the minimum setting before turning the grinder on. The spare fuse is located in the socket of the AC receptacle at the back of the machine. First unplug the power cord and you'll see a drawer that will pull out with the aid of a small flathead screwdriver. The Tradesman is equipped with a spare fuse that can be found in this drawer as well. The fuses are 250V 8A slow-blow.

**Static electricity around belt sander**
If static electricity is experienced around the belt, try applying foil tape to the smart platen. Remove Teflon tape before applying the foil tape.

# 5. Terms of Use & Disclaimer – Toycen Industries, Toycen Corporation, and Affiliates (referred to below as "Toycen")

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This Toycen product is designed, and intended, solely for the purpose of the removal of metal by grinding though the use of a rotating, abrasive coated wheel. It is not intended or designed for any other purpose. The product buyer, assignee, transferee and or user agree to use the Product for its intended purpose and designed use. This product is warranted against any manufactured defect for a period of 12 months from the original date of purchase.

The user agrees to ensure, and is solely responsible for ensuring, the proper, legal, and safe use of the Product. Use of the Product is at the sole risk and discretion of the user. EXCEPT AS EXPRESSLY PROVIDED HEREIN , AND TO THE GREATEST EXTENT PROVIDED BY APPLICABLE LAW, THIS PRODUCT IS SOLD ON AN AS IS, WHERE AS, AND WITH ALL FAULTS BASIS, AND TOYCEN DISCLAIMS ANY AND ALL WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, RELATING TO THIS PRODUCT, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ANY WARRANTY AS TO THE SAFETY OF THE PRODUCT, OR ANY WARRANTY MADE BY ANY DISTRIBUTOR OR OTHER THIRD PARTY. ANY WARRANTY DETERMINED TO BE GIVEN BY TOYCEN IS CONDITIONED UPON THE USER'S COMPLIANCE WITH THIS TERMS OF USE & DISCLAIMER.

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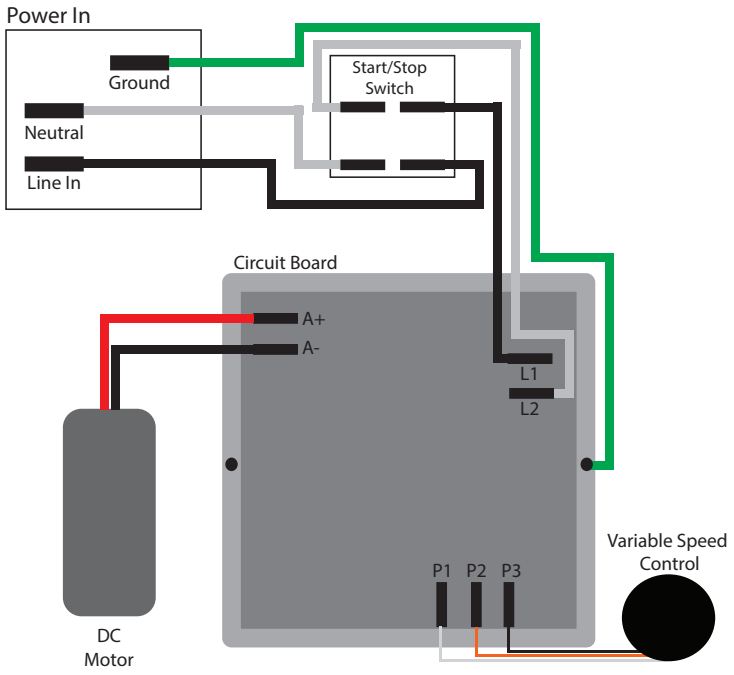
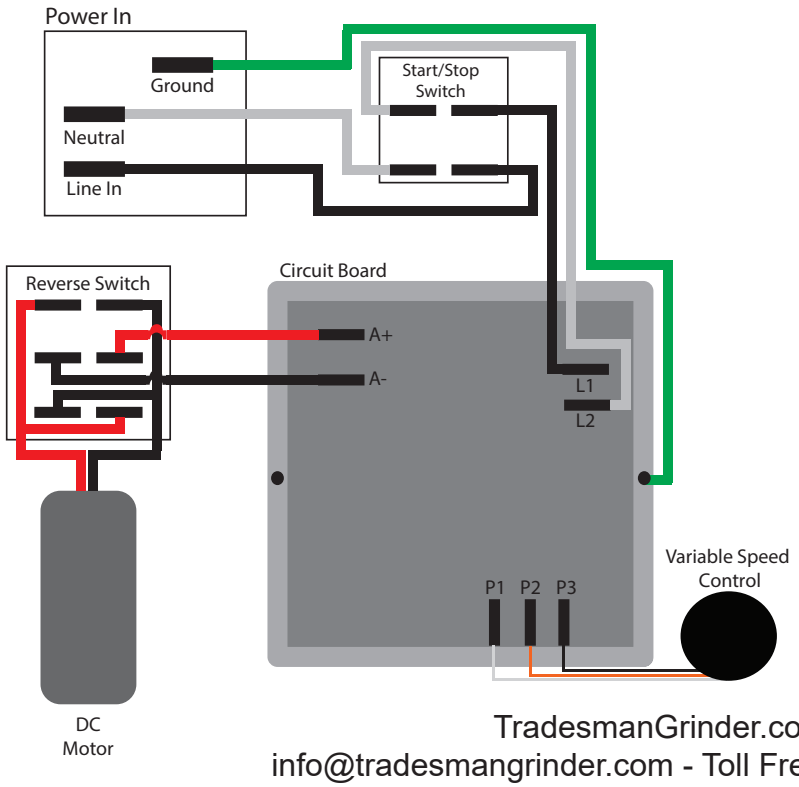
# 6. Wiring Diagrams

## Tradesman: Non Reversing




## Tradesman: Reversing



# Specifications

## Tradesman Machinist, T6 and T6NC

| | |
|---|---|
| Wheel Dimensions | 6" diameter, .75" width (to guard), 1.25" or 5/8" arbor |
| Voltage, Frequency, Power | 110V, 220V available, 60Hz, 400W, 1/3HP |
| Motor Type | Brushed DC, Single Phase |
| Switch | On/Off Push Button with Safety, 110V or 120V |
| Wheel Speed | 500 - 4000 RPM |
| Height at 6" Guard | 9.25" |
| Width at Outside of 6" Guard | 10.8" Dual, 10" single |
| Depth at Base | 8" |
| Wheel Center Height | 5.5" |
| Shaft Diameter | 5/8" , 1-1/4" hub |
| Shaft Concentricity | .0002" (5µm) nominal |
| Country of Origin | Canada, HTS#8460.39.0020 |
| Warranty | Two Years |

## Tradesman Woodturner, T8

| | |
|---|---|
| Wheel Dimensions | 8" diameter, 1.25" width (to guard), 5/8" arbor |
| Voltage, Frequency, Power | 110V, 220V available, 60Hz, 400W, 1/3HP |
| Motor Type | Brushed DC, Single Phase |
| Switch | On/Off Push Button with Safety, 110V or 120V |
| Wheel Speed | 500 - 4000 RPM |
| Height at 8" Guard | |
| Width at Outside of 6" Guard | |
| Depth at Base | |
| Wheel Center Height | |
| Shaft Diameter | 5/8" |
| Shaft Concentricity | .0002" (5µm) nominal |
| Country of Origin | Canada, HTS#8460.39.0020 |
| Warranty | Two Years |

# Specifications (continued)

## Tradesman Edge 810

| | |
|---|---|
| Wheel Dimensions | 8-10" dia., 2" width (to guard), 5/8" or 7/8" arbor |
| Voltage, Frequency, Power | 110V, 220V available, 60Hz, 400W, 1/3HP |
| Motor Type | Brushed DC, Single Phase |
| Switch | On/Off Push Button with Safety, 110V or 120V |
| Wheel Speed | 150 - 1500 RPM |
| Height at 6" Guard | |
| Width at Outside of 6" Guard | |
| Depth at Base | 8" |
| Wheel Center Height | 5.5" |
| Shaft Diameter | 5/8" , 1-1/4" hub |
| Shaft Concentricity | .0002" (5µm) nominal |
| Country of Origin | Canada, HTS#8460.39.0020 |
| Warranty | Two Years |

## Tradesman Edge 12

| | |
|---|---|
| Wheel Dimensions | 8-10" dia., 2" width (to guard), 5/8" or 7/8" arbor |
| Voltage, Frequency, Power | 110V, 220V available, 60Hz, 400W, 1/3HP |
| Motor Type | Brushed DC, Single Phase |
| Switch | On/Off Push Button with Safety, 110V or 120V |
| Wheel Speed | 150 - 1500 RPM |
| Height at 6" Guard | |
| Width at Outside of 6" Guard | |
| Depth at Base | |
| Wheel Center Height | |
| Shaft Diameter | 12mm for Tormek wheels |
| Shaft Concentricity | .0002" (5µm) nominal |
| Country of Origin | Canada, HTS#8460.39.0020 |
| Warranty | Two Years |

# KB Control Board Manual

The Tradesman is equipped with a control board that has an operators guide that can be found here https://tradesmangrinder.com/resources/