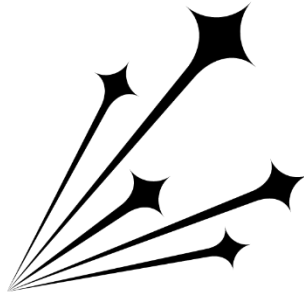


# HYPER-DISC MANUAL

Hyper-Disc Bench Grinder Setup, Maintenance and  
Troubleshooting



# AmeriBrade

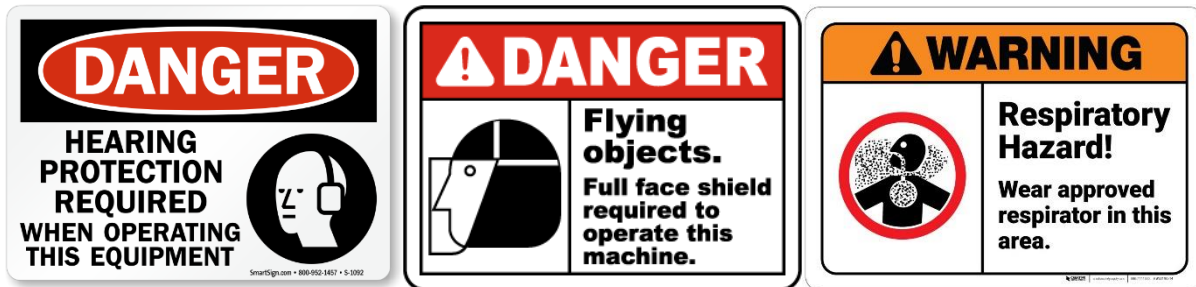
AmeriBrade LLC  
Rev-A2 09/14/2023

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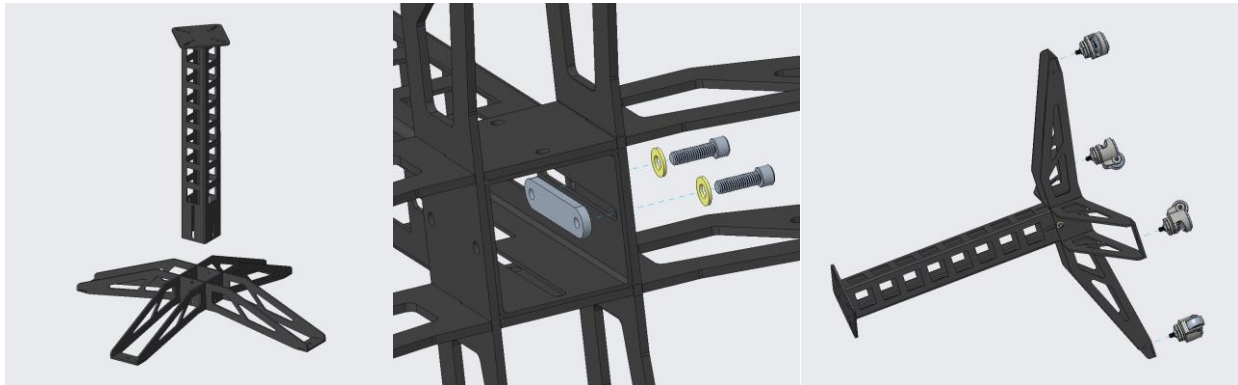
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## 1. WARNING: DANGER

- a. Rotating abrasive equipment can be extremely dangerous if used without proper training or if best safety practices are not strictly adhered to.
- b. Specifically, due to the versatile nature of the Hyper-Disc Bench Grinder, the operator needs to pay close attention to the proper use of the full variety of abrasives he attaches. The operator must make sure it is being ran in the proper rotation direction, at a safe speed, while presenting the workpiece in a safe and stable position to avoid death, serious injury, or property damage. Sharp objects being thrown by misused high-speed abrasives can easily impale the operator or anyone in the rotation plane of the machine.
- c. Make sure to use appropriate personal protection equipment for eyes, ears, feet, lungs, etc.
- d. Grinding dust can be harmful to your health. Make sure to wear proper respiratory protection while grinding based on the materials being used.
- e. Secure long hair and do not wear loose clothing or dangling jewelry while operating the machine.



2. Assemble the Pedestal Stand. Skip to Step 3 if you did not order a Pedestal Stand.



- a. Hardware and feet will be included in a small white box labeled as follows:

**Caster Pedestal Kit**

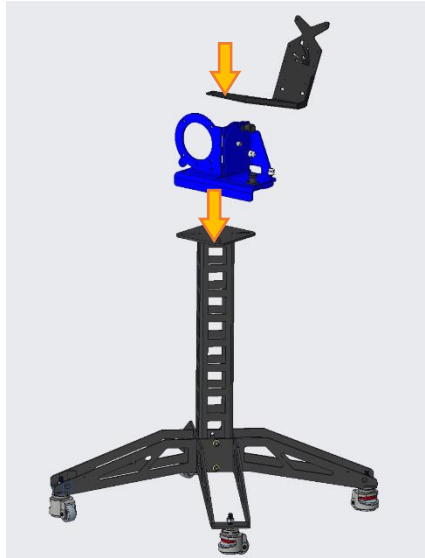
Qty 4: Leveling Casters  
Qty 4: Threaded Bars  
Qty 8: 3/8 Cap Screws  
Qty 8: 3/8 Washers  
Qty 1: 3/8 Carriage Bolt Kit

- b. The 3/8 cap screws require a 5/16 allen wrench  
c. The leveling casters use a 3/4 wrench or socket  
d. Watch this video to see more details about Pedestal Stand Assembly:

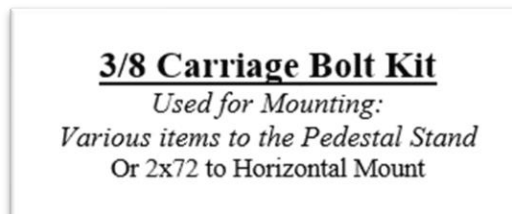
<https://youtu.be/IMoHw2YIHoQ>



3. Mount the Dual-Swivel Mount and VFD bracket to your bench top or to your Pedestal Stand. If you did not order a Dual-Swivel Mount, Skip to Step 4.



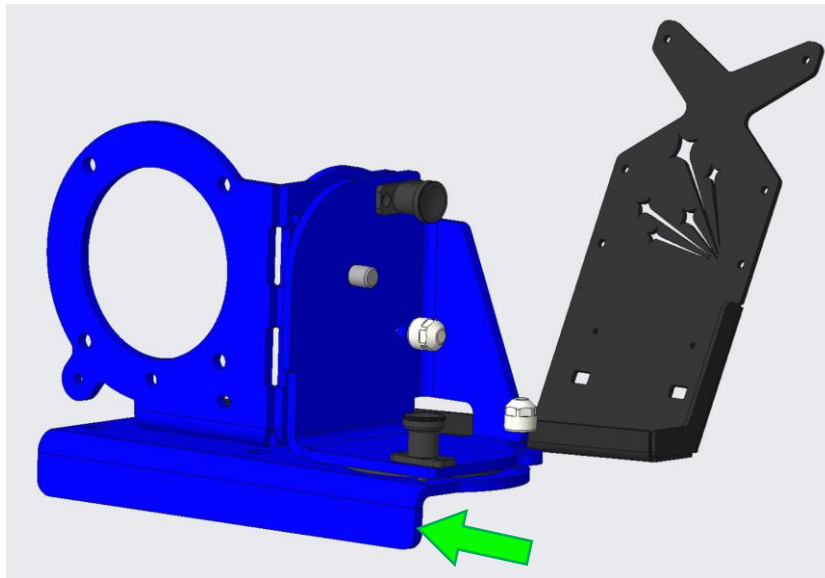
- a. Where to find the Hardware:
  - i. Bench-top mounting: If you are mounting the Dual-Swivel Mount to your own platform, you will need to provide the appropriate length hardware based on the thickness of your mounting surface. Use 3/8" diameter carriage bolts. (Save the **56C Face Mount Kit** of hardware for Step 3)
  - ii. Pedestal Stand mounting: the hardware can be found with the rest of the pedestal hardware in a small bag labeled as shown:



- b. The carriage bolts should be installed from the top and the nuts installed from the bottom.

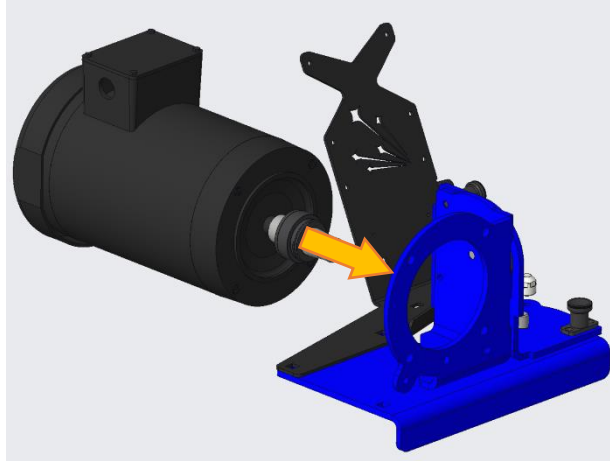
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- c. The VFD is mounted by sharing the rear 2 of the 4 carriage bolts fastening the Dual-Swivel mount to the Pillar. Refer to the image below for how to orient the VFD mount relative to the Dual-Swivel Mount.
- d. Orientation:
  - i. Bench-top mounting: the bent flange of the dual swivel mount (indicated with an arrow in the image below) should hang over the front-edge of your work bench on the side you will be standing while using the machine.



- ii. Pedestal-mounting: All 4 sides of the pedestal pillar are the same, so it doesn't matter which way you decide to attach the dual-swivel mount to the pillar.

4. Mount the Motor to the Dual-Swivel Mount, or to your bench-top (whichever is applicable for the items you purchased) Dual-Swivel shown below:



- a. Motor Orientation:
- Without Dual-Swivel Mount: the motor foot will face down flat on the mounting surface.
  - With Dual-Swivel Mount: Make sure the motor's electrical box is oriented to the top of the machine as shown above.
- b. Where to find the hardware:
- For mounting to Bench-Top: If you are mounting the motor to your own platform, you will need to provide the appropriate length hardware based on the thickness of your mounting surface. We suggest 5/16" diameter carriage bolts.
  - For mounting motor directly to a Pedestal Stand (no Dual-Swivel Mount): Contact AmeriBrade for this special case. We will need to provide an adapter to allow the motor foot to bolt to the pedestal stand.
  - For mounting to a Dual-Swivel Mount: the hardware will be plastic wrapped to the Dual-Swivel Mount in a small bag labeled as follows:

**56C Face Mount Kit**

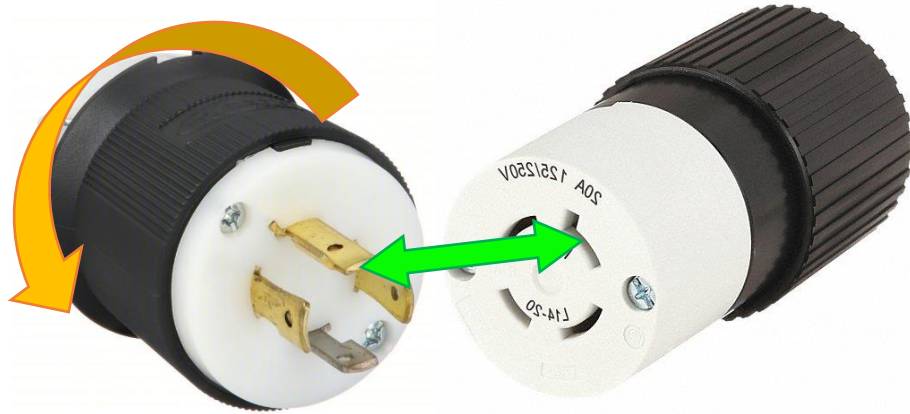
*For Motor to Dual-Swivel Mount*

*Qty 4: 3/8-16x3/4 Screw*

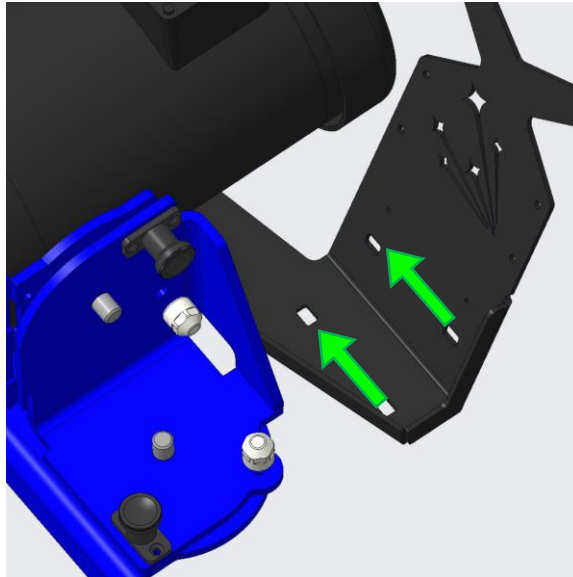
*Qty 4: 3/8 Flat Washer*

## 5. Plug Motor into VFD and Secure Plug

- a. Plug the male cord on the motor into the female receptacle coming from the VFD. Make sure to align the **indicated L-shaped pin** of the plug with the **L-shaped slot** of the receptacle. Twist the plug in the direction shown to secure the connection.



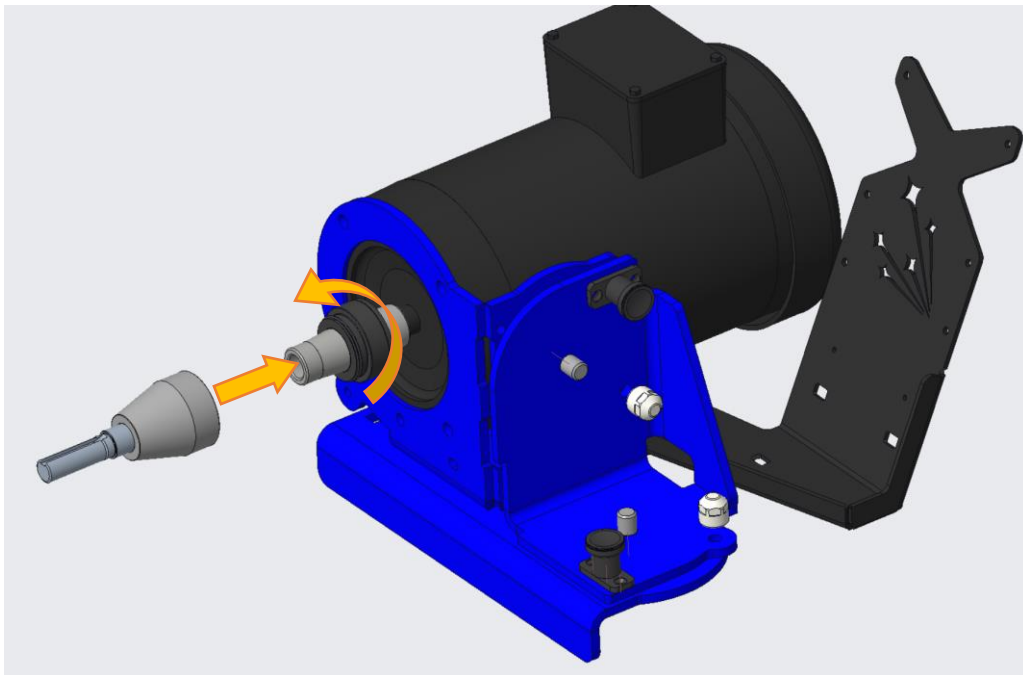
- b. Find the included plastic tie-strap (i.e. zip-tie) taped to the front of the VFD. Pass it over the plug and through the **indicated rectangular holes** in the VFD mount(see below). Tighten the plastic tie-strap to keep the plug in place while the motor pivots on the Dual-Swivel Mount.





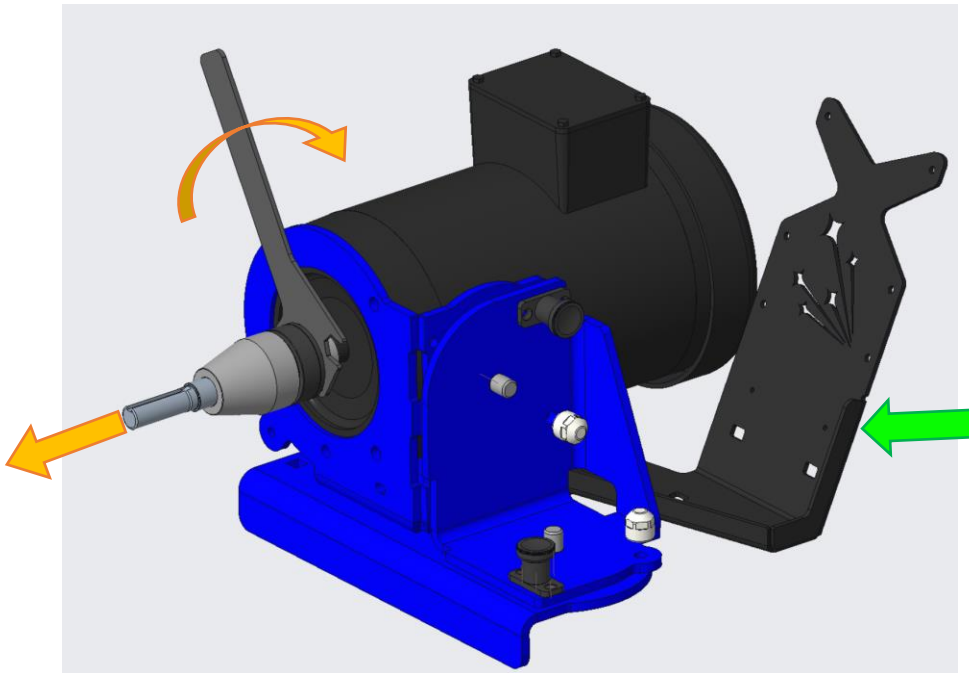
## 6. Set-Up Accessories

- a. Accessories are installed by sliding the female accessory coupler onto the male shaft coupler and tightening the knurled draw-nut with one hand while holding the accessory from spinning with the other hand. Once the draw-nut seats the taper, the accessory can be driven either forward or reverse without coming loose. **HOWEVER**, use caution for each accessory to make sure it is being run in the correct rotation direction and speed for the application. Each abrasive has its own unique limitations and must be fully understood before use to avoid death, serious injury, or property damage. Contact the abrasive supplier if you are not sure of the maximum speed or proper use procedures. Sharp objects being thrown by a misused high-speed abrasive can easily impale an operator or anyone in the rotation plane of the machine.



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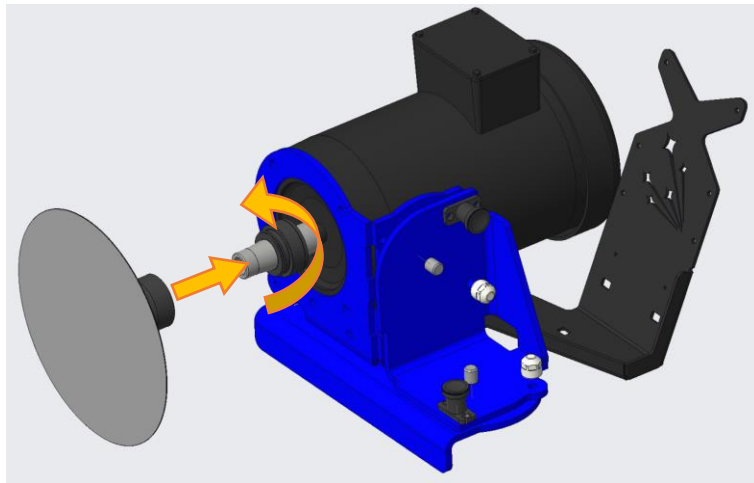
- b. Accessories are removed by using one hand to turn the draw-nut the opposite direction as before and the other hand to keep the accessory from turning. If your hand strength is not sufficient to loosen the draw-nut, use the provided multi-spanner wrench on the back of the draw-nut to break it loose (shown below). The multi-spanner wrench can be stored on the magnets behind the VFD in the **approximate area indicated below.**



Specific Accessory Setup Continued on Following Pages:

c. Discs

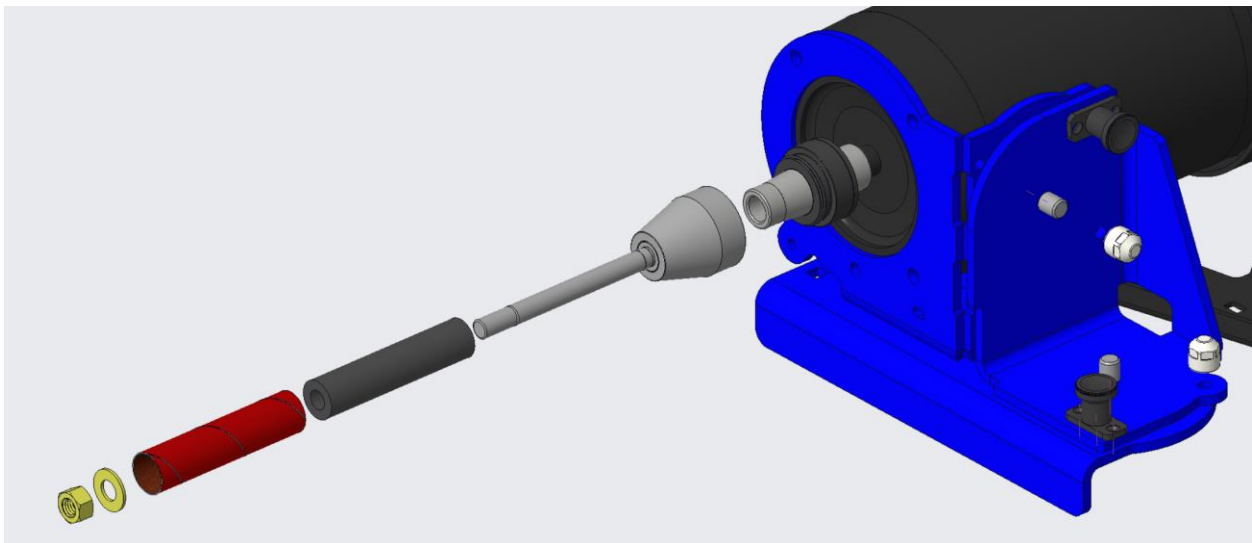
- i. Flat and Tapered discs will come pre-assembled to the female Disc-Coupler. Simply install the female disc-coupler on the male shaft-coupler as described in section 6a and adhere an abrasive sheet before use. Peel and Stick Adhesive (PSA) discs can be used for a very strong bond. Alternatively, basic sandpaper can be adhered using 3M-Super-77-adhesive-spray or 3m-Feathering-Adhesive for a less aggressive bond that is more easily replaced. Cleaning of excess adhesive should be done with an appropriate solvent for that adhesive. Wear appropriate personal protective equipment while handling solvents.



d. 1/4" Arbor

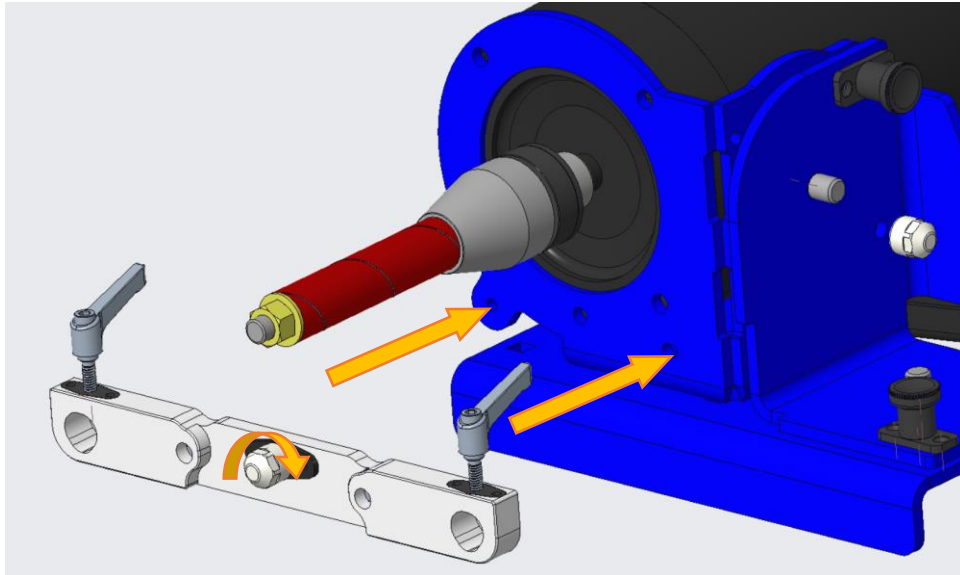
- i. Coming soon to run the "Super-Wheel" from Pops Knife Supply and any other abrasives that mount to a 1/4" diameter shaft.

- e. 1/2" Spindle Sanding Arbor
  - i. The 1/2" Spindle Sanding Arbor and included rubber sleeves pair with the Dual-Swivel mount to allow you to utilize the hyper-disc as a vertical spindle sander.
  - ii. Install the accessory coupler for the 1/2" Spindle Sanding Arbor as described in section 6a.
  - iii. Choose which size rubber sleeve you'd like to use and slide it on the arbor.
  - iv. Install an abrasive spiral band drum corresponding in size to the chosen rubber sleeve.
  - v. Install the 1/2" washer and nut, then tighten the nut sufficiently to bulge the rubber sleeve and grip the sanding drum internally.

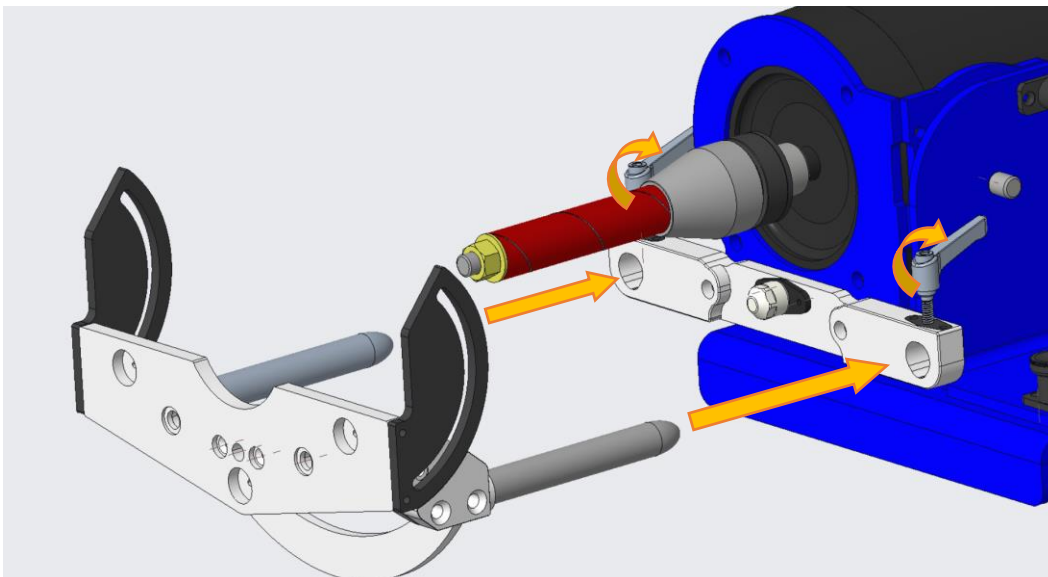


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- vi. Install the work rest receiver on the face of the dual swivel mount as shown below by aligning the rounded pins in their corresponding hole and slot, then tighten the captive thumb screw in the center. The multi-spanner can be used if hand strength doesn't seem sufficient:

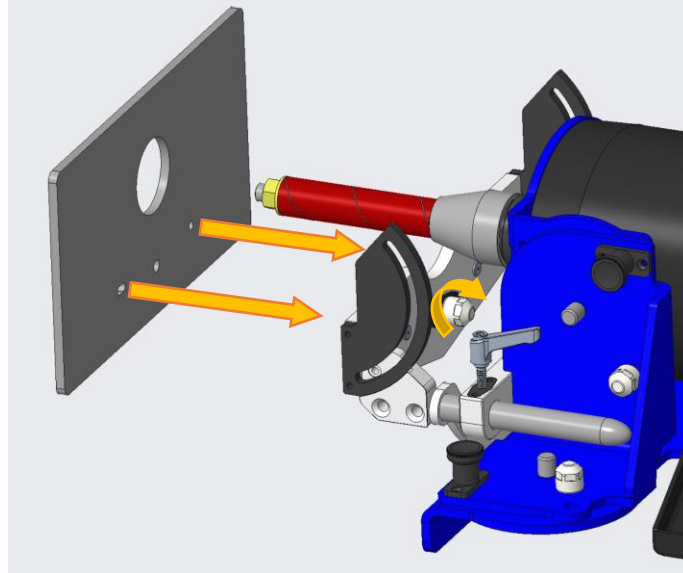


- vii. Install the work rest assembly into the receiver and tighten the adjustable handles as shown below:

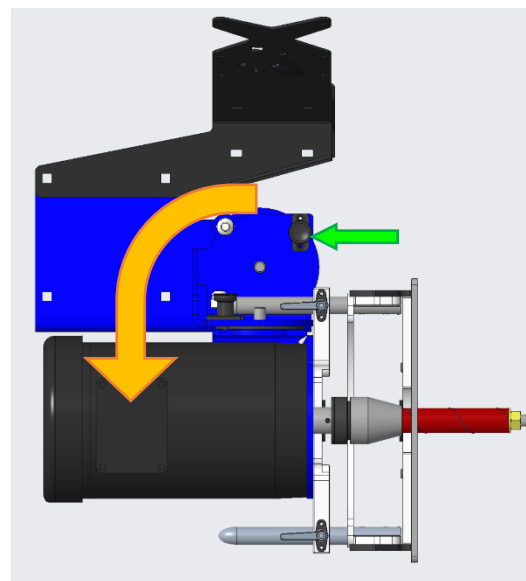
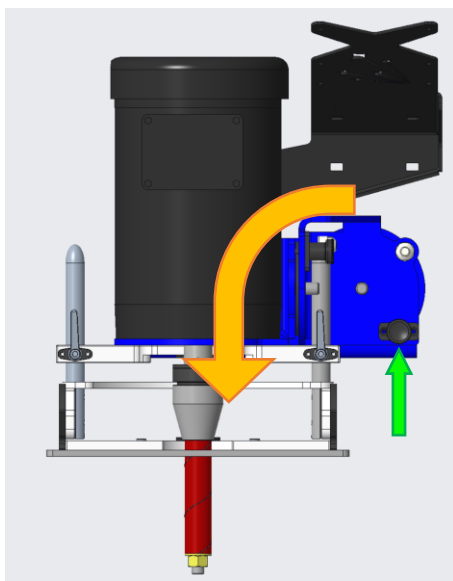


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- viii. Install the spindle sanding work rest plate on the magnetic work rest platform, as shown below, by aligning the rounded pins in their corresponding hole and slot, then tighten the captive thumb screw in the center. The multi-spanner can be used if hand strength doesn't seem sufficient:

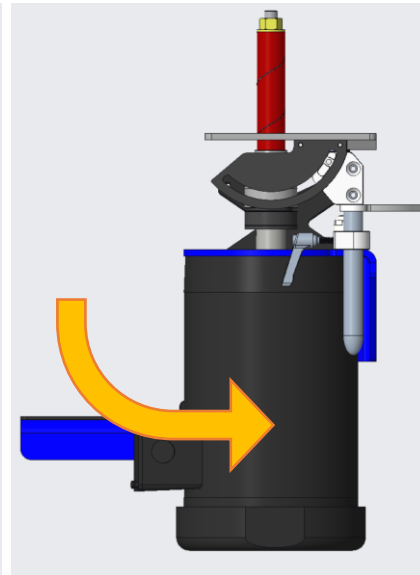
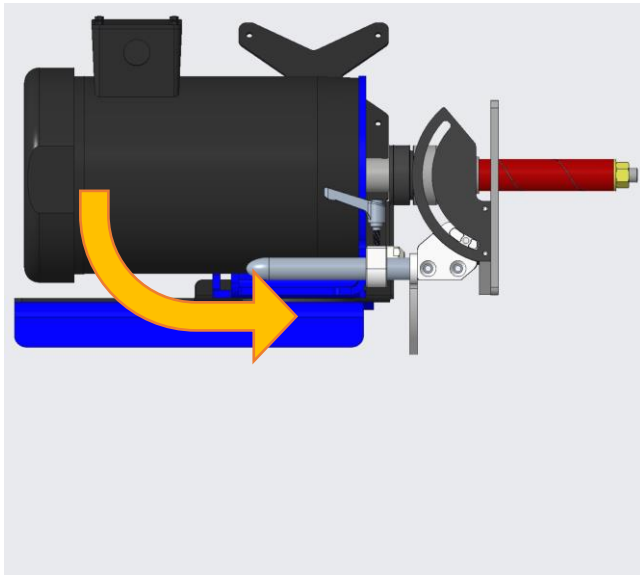
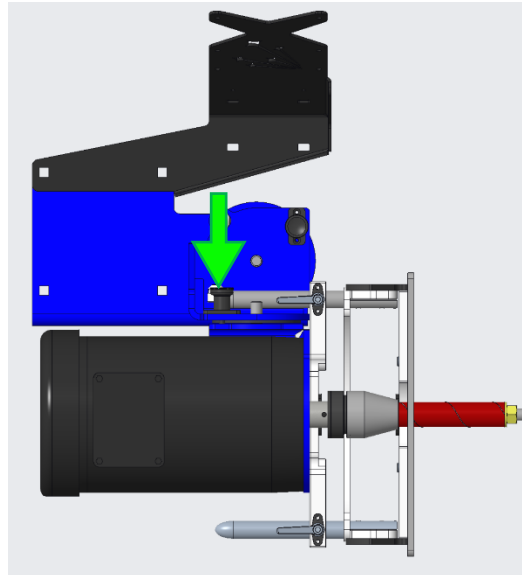


- ix. Rotate the dual swivel mount into the vertical orientation.
1. Start with the lower joint of the knuckle. Lift up on the **retractable pin (indicated below)** to rotate the motor 90 degrees as shown. Release the pin to allow it to lock into place. Continued on Next Page:



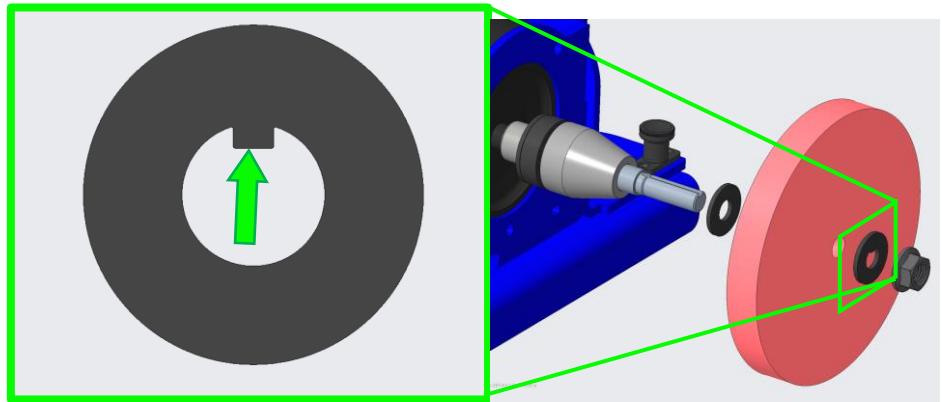


2. Next, rotate the upper joint of the knuckle. Pull on the **retractable pin (indicated below)** to rotate the motor 90 degrees as shown. The fan end of the motor will lower towards the floor and the spindle will point up. Release the pin to allow it to lock into place.

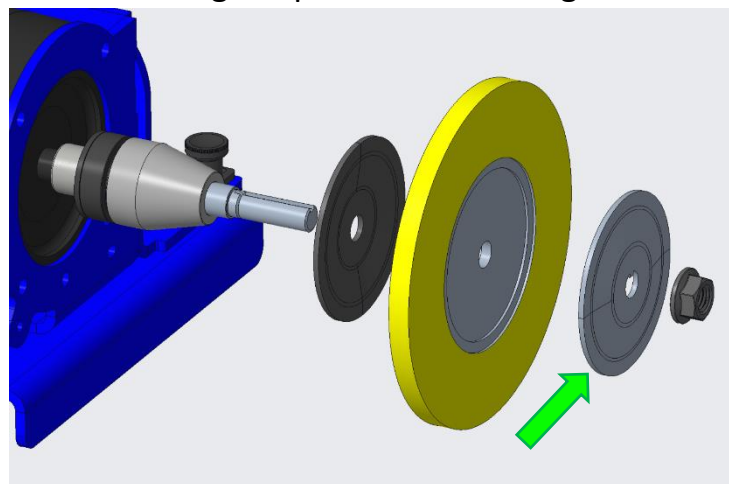


f. 5/8" Arbor

- i. The 5/8" arbor is a very universal attachment for running things such as wire wheels, buffing wheels, or any other abrasive designed for a traditional bench grinder. Since the Hyper-Disc allows you to run in forward or reverse, make sure to install the **keyed lock washer (indicated below)** between the abrasive and the arbor nut to prevent the grinding torque from loosening the nut.



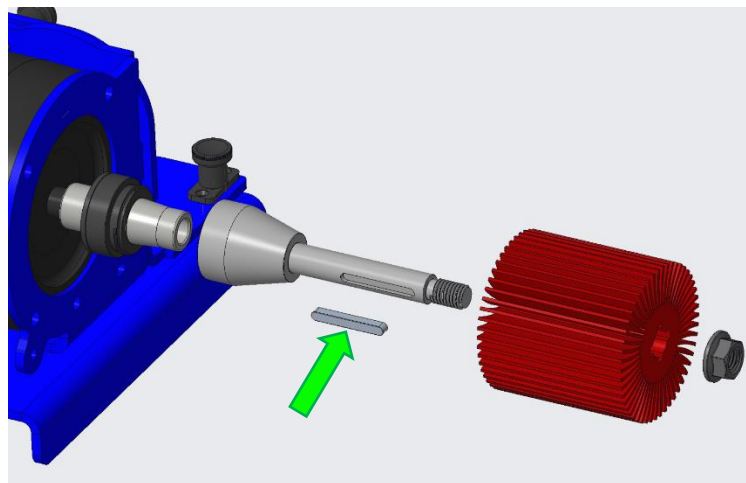
- ii. While using airway buffing wheels, make sure to use safety flanges inside and outside of the buff to keep the rim of the crimped hub from coming apart during use. If you want to be able to use the buffing wheels in forward or reverse, you must use the **keyed safety flange (indicated below)** from AmeriBrade to prevent the buffing torque from loosening the arbor nut.





g. Keyed 3/4" Arbor

- i. The Keyed 3/4" Arbor allows you to run 4" wide unmounted abrasive wheels with a quad-keyed or smooth-bore hub. This style of wheel can be purchased as non-woven flap wheels, wire wheels, nylon brushes and more. An example is shown below. Install the piece of **key stock(indicated below)** in the arbor before installing the abrasive wheel if the hub of the wheel can accept it. This will allow for extra driving torque without spinning on the arbor. Clamp the wheel onto the arbor with the provided flange nut. In our experience, this style of wheel varies in bore diameter considerably. Depending on your abrasive supplier, the hub may be a tight or a loose fit on the arbor.

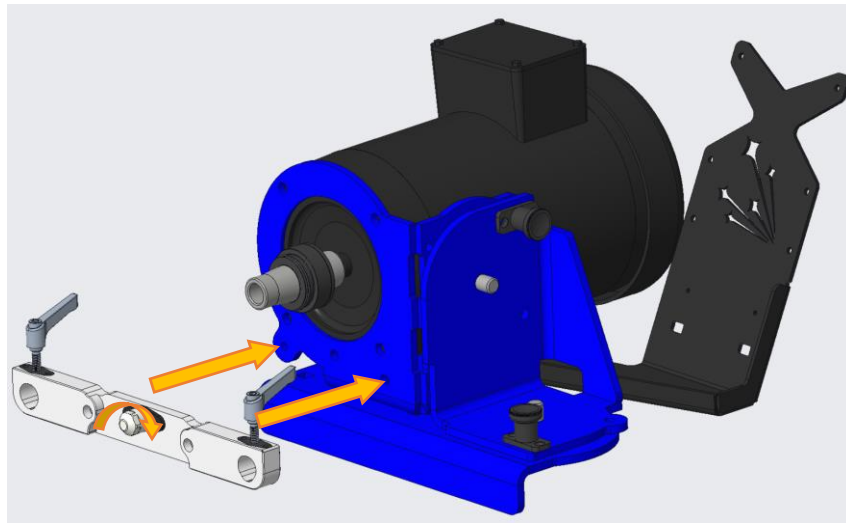


h. Leather Slicker/Edge Burnishing Arbor

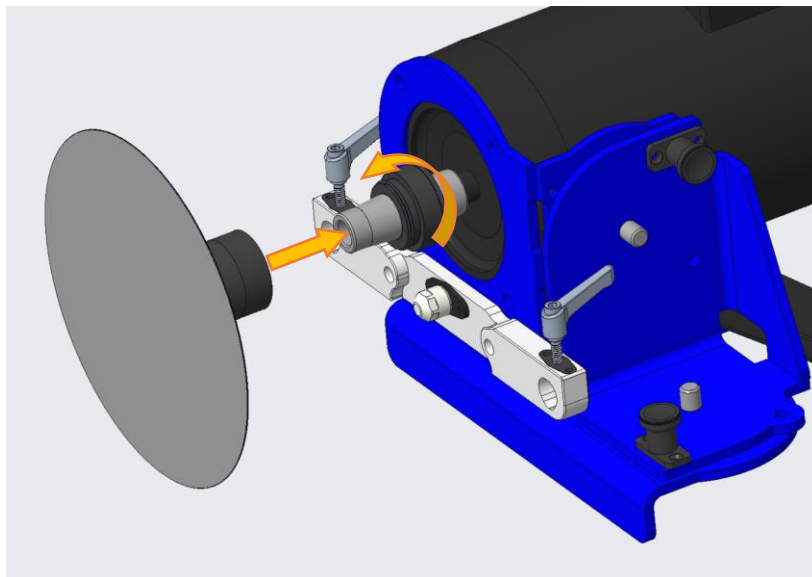
- i. Coming Soon

## 7. Install Work-Rest

- a. Install the work rest receiver on the face of the dual swivel mount as shown below by aligning the rounded pins in their corresponding hole and slot, then tighten the captive thumb screw in the center. The multi-spanner can be used if hand strength doesn't seem sufficient:

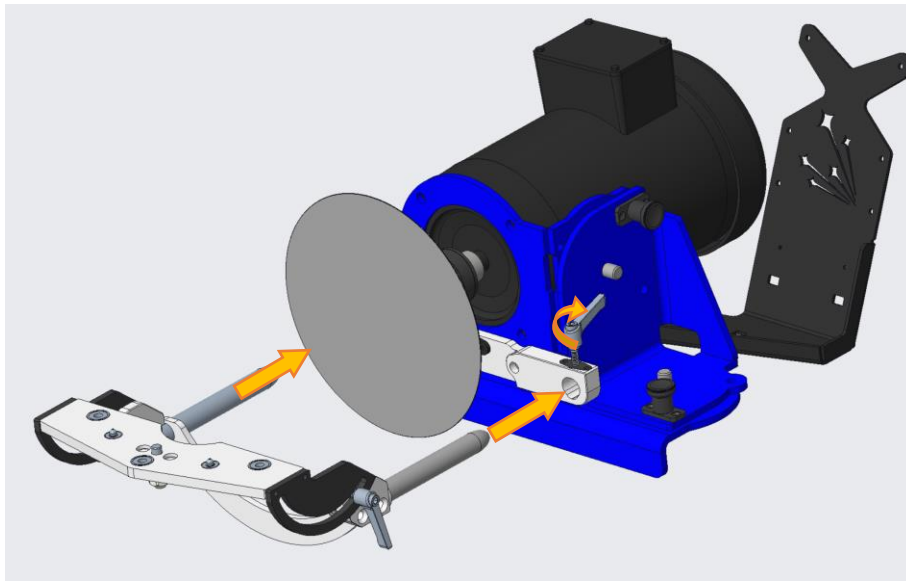


- b. Install the accessory you plan to use, such as a disc:

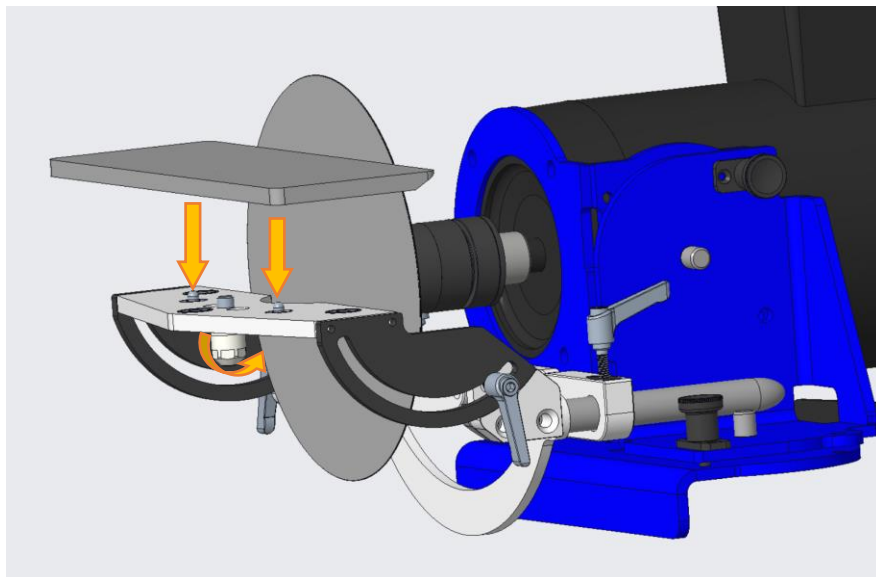


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- c. Install the work rest assembly into the receiver and tighten the adjustable handles as shown below:

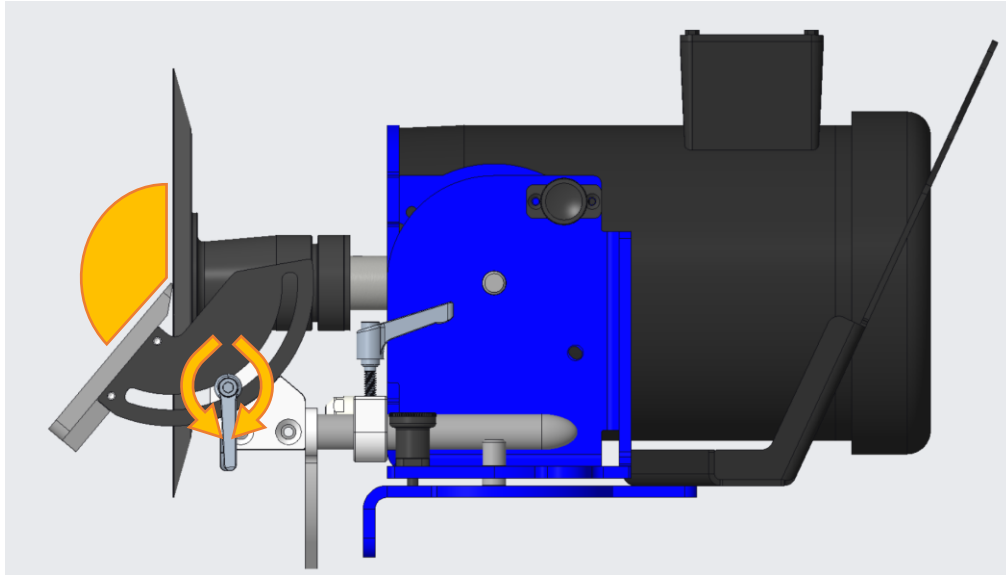


- d. Install the desired work rest plate on the magnetic work rest platform, as shown below, by aligning the rounded pins in their corresponding hole and slot, then tighten the captive thumb screw in the center. The multi-spanner can be used if hand strength doesn't seem sufficient:



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- e. Adjust the work rest angle by loosening the adjustable handles on each end, repositioning the work rest, then re-tightening the adjustable handles.



## 8. Shut Down

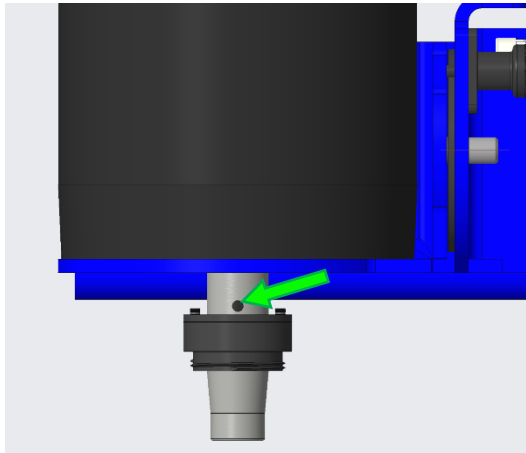
- a. Push the Start/Stop switch down to shut down the machine and wait for the grinder to slow to a stop. Do not leave the Fwd/Stop/Rev switch in the center Stop position for extended periods of time without shutting off the Start/Stop switch. This may shorten the life of your motor and/or controller.

## 9. Maintenance

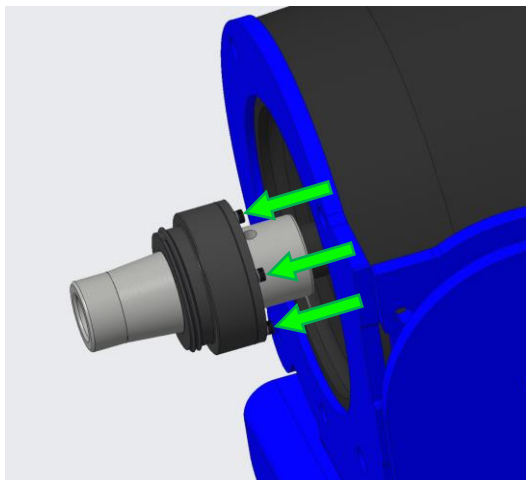
- a. If the grinder will not be in use for extended periods of time:
  - i. Unplug the machine from power
  - ii. Apply anti-seize to the threads of the Draw-Nut to prevent seizing to accessory couplers.
  - iii. Apply wax or oil to the male shaft coupler to prevent it from seizing in the bore of the mating female accessory coupler.
- b. Do not leave the male motor shaft coupler exposed longer than is necessary to change accessories. The grinder should be stored with an accessory installed in order to protect the precision shaft coupler from damage.

Continued on Next Page:

- c. Keep threaded components clear of grinding dust to extend their life.
- d. Store unused accessories in a manner that keeps the precision bore and threads of the accessory couplers safe from scratches, dings, and debris-buildup.
- e. Occasionally check the joints of the dual-swivel mount to make sure they move freely without noticeable free-play. If the joints wobble, tighten the locknut on the sloppy joint.
- f. Occasionally make sure the motor shaft coupler has not slid off the motor shaft and the **indicated set screw** is tight. If the set screw has come loose, remove it to apply medium strength thread locking compound, then re-install with an 1/8" Allen wrench.



- g. Occasionally check the **6 small screws(indicated below)** holding the draw-nut of the shaft coupler together. They are assembled with thread locking compound, but if one comes loose, remove it to apply medium strength thread locking compound, then re-install with a 3/32" Allen wrench.



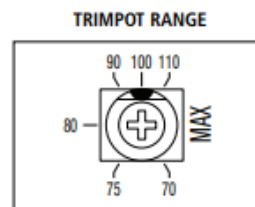
## 10. Troubleshooting

### Trips Breaker

- *Possible Causes*
  - There is a GFI/GFCI somewhere in the circuit. Variable Frequency Drives should not be run on a circuit with a GFI/GFCI anywhere in line.
    - Solution: plug into a circuit that does not contain a GFI/GFCI
  - Too long of a run for the wire size supplying the power
    - Solution: Eliminate extension cords and/or use larger wire
  - Too small of a circuit breaker. Typically, this is only an issue if the trip is occurring during heavy grinding. Trips during motor startup are a sign of a different problem.
    - Solution: Use a minimum 15 amp breaker for 110V units and minimum 20 amp breaker for 220V units. Also, make sure no other equipment is using excessive power simultaneously on the same circuit.

### Bogs Down Easily Under Load

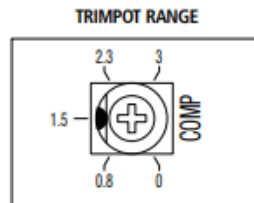
- *Possible Causes*
  - Maximum Speed is set too high
    - Solution: Turn the MAX trimpot counterclockwise to the 11 o'clock position. It is very sensitive and sometimes the default 12 o'clock position is too high: *Always make sure the machine is disconnected from power before opening the speed controller or motor.*



(Shown Factory Set to 100% of Frequency Setting)

Continued on Next Page:

- Slip Compensation Trimpot needs tuning
  - Solution: Adjust the COMP trimpot in 1/8<sup>th</sup> turn increments (maximum ¼ turn each way from original setting). First clockwise, then counterclockwise. *Always make sure the machine is disconnected from power before opening the speed controller or motor*

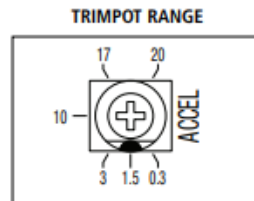


(Shown Factory Set to 1.5 Volts/Hz)

- Poor Wiring Connections.
  - Solution: Double check wire connections are tight and making good contact in the following locations: *(note- Always make sure the machine is disconnected from power before opening the speed controller or motor)*
    - Wires inside the speed controller coming from the motor or power cord. (Make sure screw terminals are tight and wires do not pull out of crimped terminal ends)
    - Wires inside motor conduit box. (Make sure wires do not easily pull out of crimped connectors)
    - Inside male and female ends of twist-lock-plug between motor and speed controller. (Open the plug and make sure individual wires do not easily pull out and make sure the screws securing the wires are clamping directly on the copper instead of the outer insulation. Clamping on the insulation will result in a poor connection)

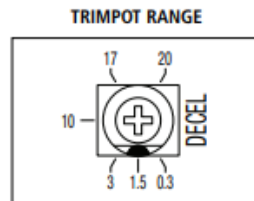
## Slows Down and Speeds Up Spontaneously

- Possible Causes
  - Acceleration Setting needs tuning
    - Solution: Adjust the ACCEL trimpot in 1/8<sup>th</sup> turn increments (maximum ¼ turn each way from original setting). First clockwise, then counterclockwise. *Always make sure the machine is disconnected from power before opening the speed controller or motor*



(Shown Factory Set to 1.5 Seconds)

- Deceleration Setting needs tuning
  - Solution: Adjust the DECEL trimpot in 1/8<sup>th</sup> turn increments (maximum ¼ turn each way from original setting). First clockwise, then counterclockwise. *Always make sure the machine is disconnected from power before opening the speed controller or motor*



(Shown Factory Set to 1.5 Seconds)



## Won't Start

- *Possible Causes*
  - Breaker is Tripped
    - Solution: Reset Breaker. If problem persists, see “Trips Breaker” section above
  - Fwd/Stop/Rev switch is set in the center “Stop” position
    - Solution: Make sure a direction is selected by pushing the Forward/Reverse Switch up for forward or down for reverse
  - Start/Stop switch is not being pushed all the way into the start position
    - Solution: Push the Start/Stop switch up once the fwd/stop/rev switch is in either forward or reverse.

## Other VFD Errors

### KBMA-24D 1hp DRIVE OPERATING CONDITION AND STATUS LED INDICATOR

*LED INDICATORS ARE ONLY VISIBLE WITH THE COVER REMOVED*

Drive Operating Condition	LED and Flash Rate <sup>1</sup> Information	
	ST (Green)	OL (Red)
Normal operation	Slow Flash	Off
Overload (120% – 160% Full Load)	Off	On <sup>2</sup>
I <sup>2</sup> t (Drive Timed Out)	Off	Quick Flash
Short Circuit	Off	Slow Flash
Undervoltage	Quick Flash <sup>3</sup>	On
Overvoltage	Slow Flash <sup>3</sup>	On
Stop	On	On

**Notes:** **1.** Slow Flash = 1 second on and 1 second off. Quick Flash = 0.25 second on and 0.25 second off. **2.** When the Overload is removed, before the I<sup>2</sup>t times out and trips the drive, the “ST” LED will flash green and the “OL” LED will turn off. **3.** In Manual Restart Mode, when the Undervoltage or Overvoltage condition is cleared, the “ST” and “OL” LEDs will flash red / (red and green) / green.

## Vibration

- *Diagnosis/isolation*
  - Make sure dual-swivel mount is locked out with the retractable pins fully seated in a catch-slot.
  - Run the motor without an accessory to see if the source is the motor or accessory.

Continued on Next Page:



- If the motor is not the issue, try using a different grinding accessory to help diagnose the source.
- If the vibration is isolated to a specific accessory, remove the abrasive and run the arbor without the abrasive to determine if it is the arbor or the abrasive that is out of balance.
- If the source is the abrasive, try using an abrasive from a different batch or different supplier.
- If the source is the motor or arbor itself, contact AmeriBrade to discuss solutions (760)998-9602

### Broken Components

Contact AmeriBrade to replace damaged components.

Call: (760)998-9602

Email: [info@ameribrade.com](mailto:info@ameribrade.com)

Warranty information: [ameribrade.com/warranty](http://ameribrade.com/warranty)



Shipping:  
AmeriBrade LLC  
6988 Bandicoot Trl  
18-682  
Oak Hills CA, 92344