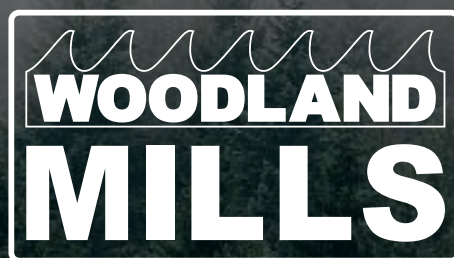


# BANDSAW BLADE SHARPENER



## OPERATOR'S MANUAL



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## INTRODUCTION

This operator's manual describes in detail how the bandsaw blade sharpener is used and maintained and how servicing is to be carried out. It also describes the measures to be taken for maximum safety and how the safety features are designed and function, as well as how they are inspected, maintained, and repaired if necessary.

**Note: The section dealing with safety must be read and understood by all those who install, use, or repair the sharpener.**

The operator's manual comprises installation, usage, and the maintenance procedures to be performed by the operator. More comprehensive servicing or troubleshooting should not be performed unless instructed by a service technician.

The operator's manual describes all the requisite safety features and should be read and understood by the user before the sharpener is assembled.

Symbols and warning signs shown on this page can be found in this operator's manual and on the sharpener. If a decal on the sharpener has been damaged or is worn, a new warning decal must be applied as soon as possible in order to ensure the greatest possible safety when using the sharpener.

The bandsaw blade sharpener shall only be used for bandsaw blades with hardened teeth. The bandsaw blade width shall be 1.25 in [32 mm].

## KEY SYMBOLS

### MANDATORY ACTIONS

The symbols below used in this operator's manual:



Read the manual carefully before attempting to use the bandsaw blade grinder.



Wear protective gloves.



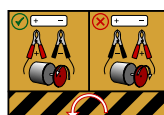
Wear protective eyewear.

### WARNINGS

The decal with the symbols below are found on the bandsaw blade grinder:



Exercise caution.



Battery polarity warning.



## SAFETY REGULATIONS



The following safety regulations apply to the sharpener:

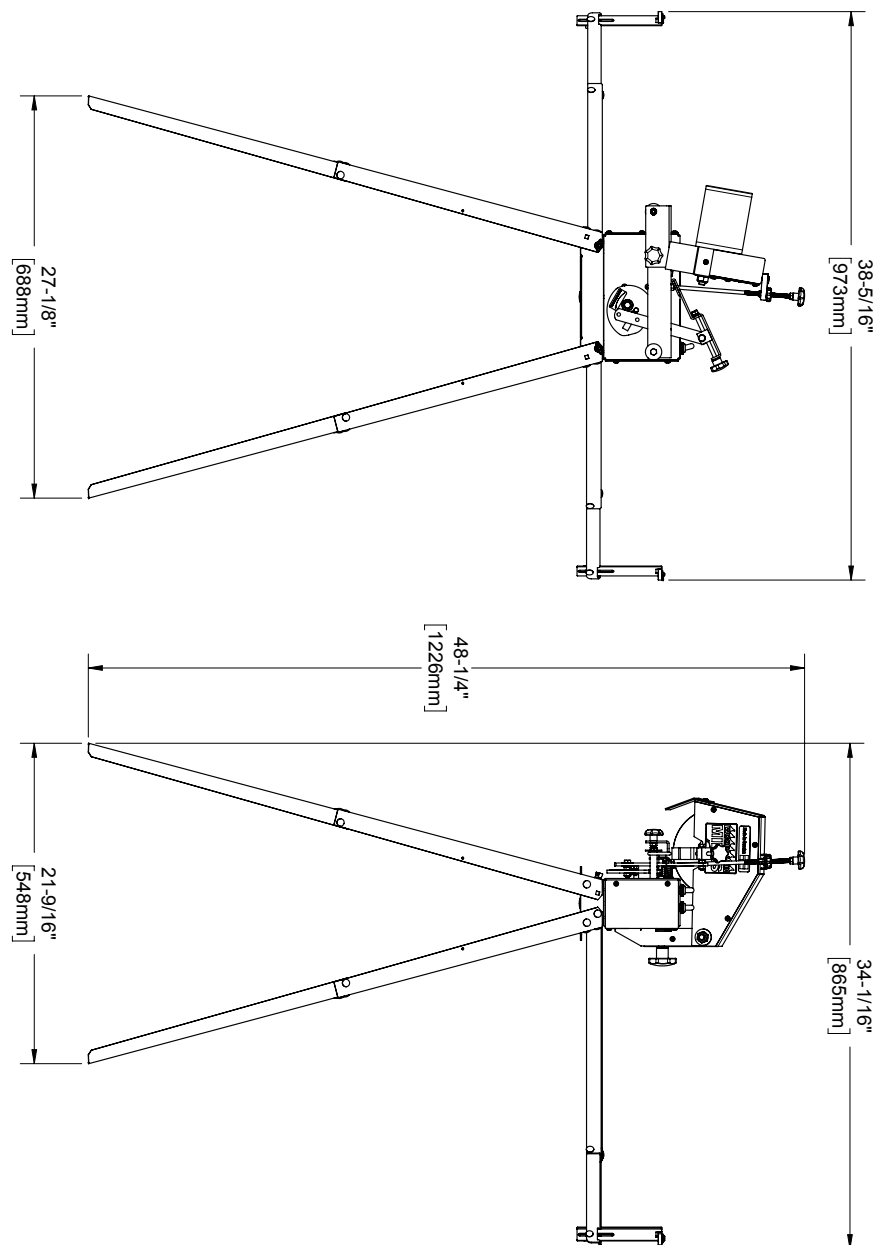
- Do not store gasoline/petrol in the vicinity of the sharpener. Sparks from the grinding disc or the electrical connection could ignite it.
- The bandsaw blade is sharp and can cause injury. Always wear protective gloves when handling blades.
- The grinding disc must be turned off when adjusting the sharpener.
- Ensure the battery polarity connections are correct. The grinding disc could come loose and cause personal injury if it rotates in the wrong direction.
- Ensure the grinding disc shows no signs of cracking and is secured tightly to the spindle. Stop the grinding disc immediately if abnormal vibration occurs.
- Always wear protective eyewear while grinding!

## TECHNICAL SPECIFICATIONS

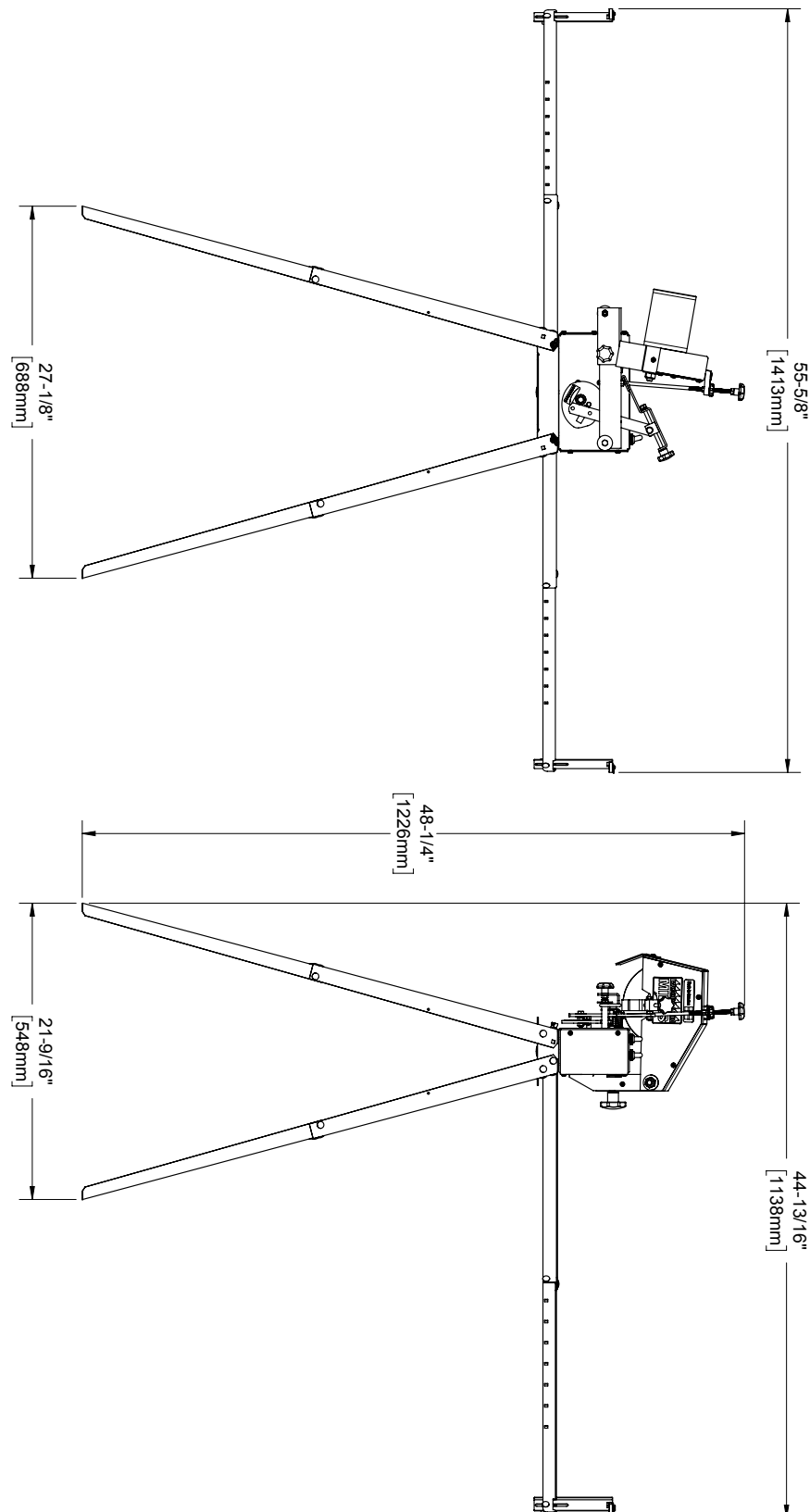
Item	Sharpener Specification
Motor	12 VDC
Power Source	12 V Battery (Customer-Supplied)
Blade Width Range	1-¼ to 1-½ in [32 to 38 mm]
Blade Pitch Range	¾ to 1-¼ in [19 to 32 mm]
Blade Thickness Range	0.035 to 0.055 in [0.89 to 1.4 mm]
Preset Blade Angles	7°, 10°, 14°
Shipping Weight	29 lb [13.2 kg]

## OVERALL DIMENSIONS

### SHORTEST SUPPORT ARM POSITION



## LONGEST SUPPORT ARM POSITION

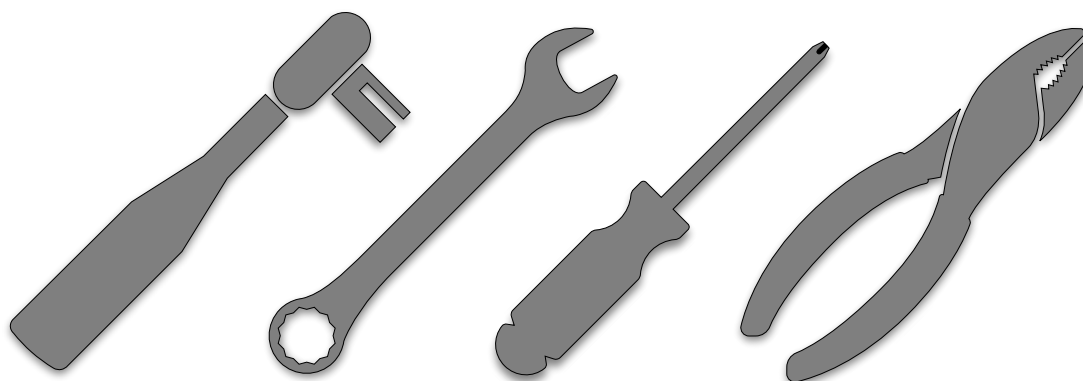


# ASSEMBLY



## 1. TOOLS REQUIRED

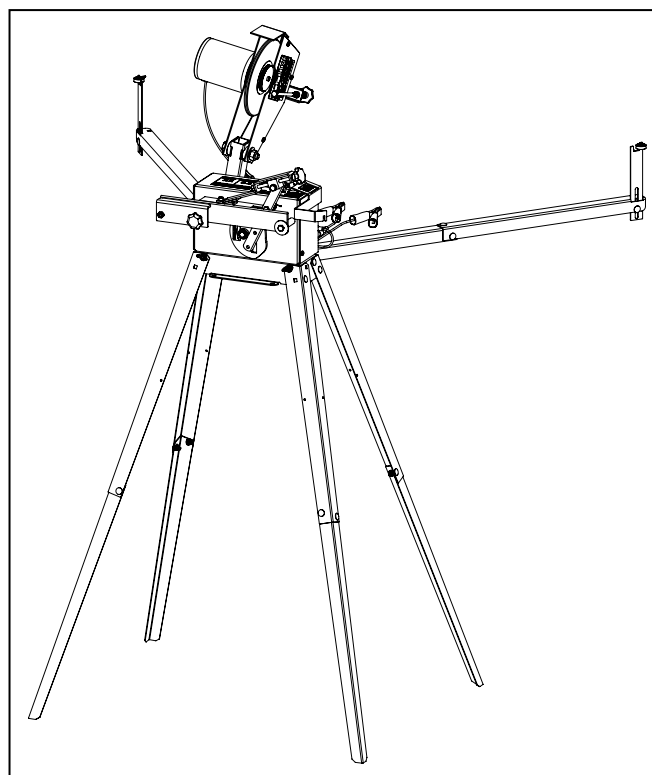
Tool	Specification
Screwdriver	T20 Torx
Wrench/Socket	8 mm
Wrench/Socket	10 mm
Pliers	Min. 2 in [50 mm] grip dia



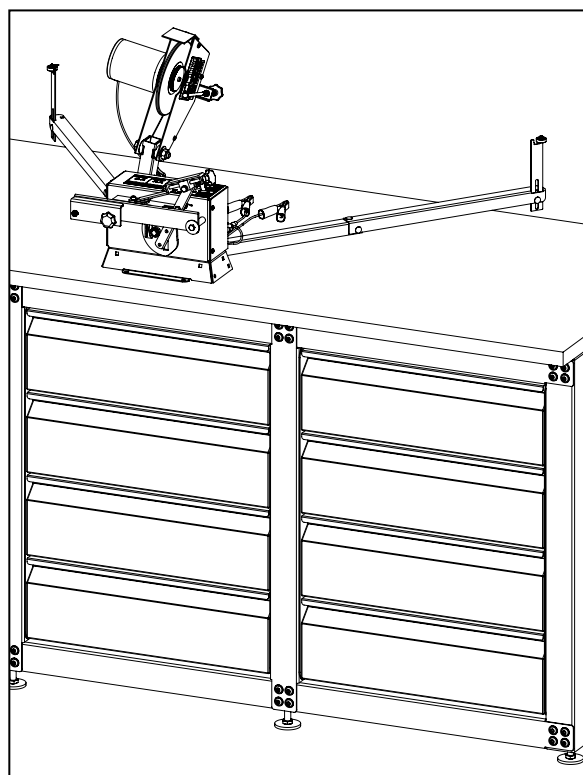
## 2. MOUNTING STYLE

Before starting the assembly decide how the sharpener will be mounted when in use. If utilizing the stand is desirable from a portability standpoint, proceed to the next section, **STAND**.

However, if the sharpener would be better utilized secured to a workbench, skip over the **STAND** section and start at assembly step, **CONTROL BOX**.



**STAND MOUNT**

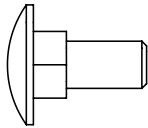
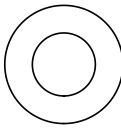
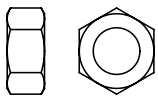
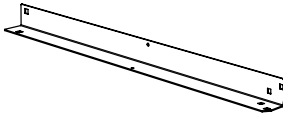
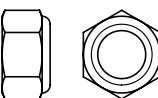

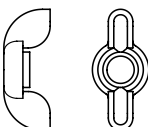
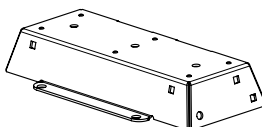


**WORKBENCH MOUNT**

**\*\*Note: The graphics in the manual assume a stand-mount installation but the instructions will note the assembly differences where applicable.\*\***

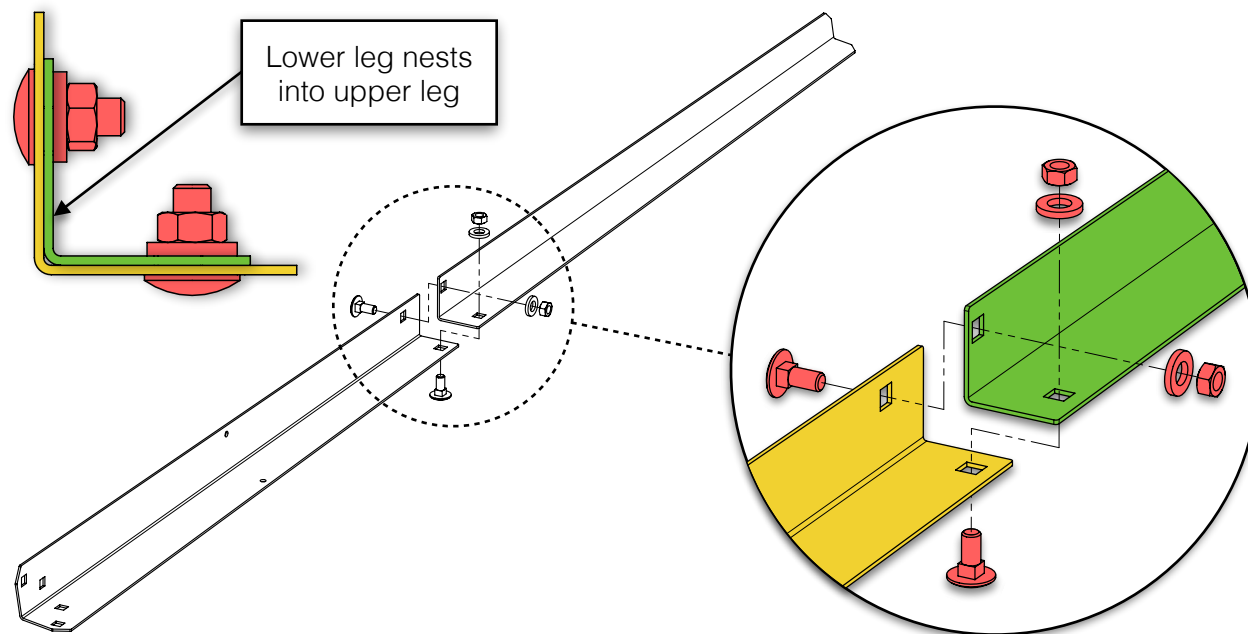
### 3. STAND

Using the hardware and components listed below, assemble the stand. If the sharpener will be mounted directly to a workbench, skip this assembly step and proceed to the next **section**.

16x	M5 X 12 mm Carriage Bolt		16x	M6 Flat Washer	
16x	M5 Hex Nut		4x	Upper Leg	
16x	M5 Lock Nut		4x	Lower Leg	
16x	M5 Wing Nut		1x	Mounting Base	

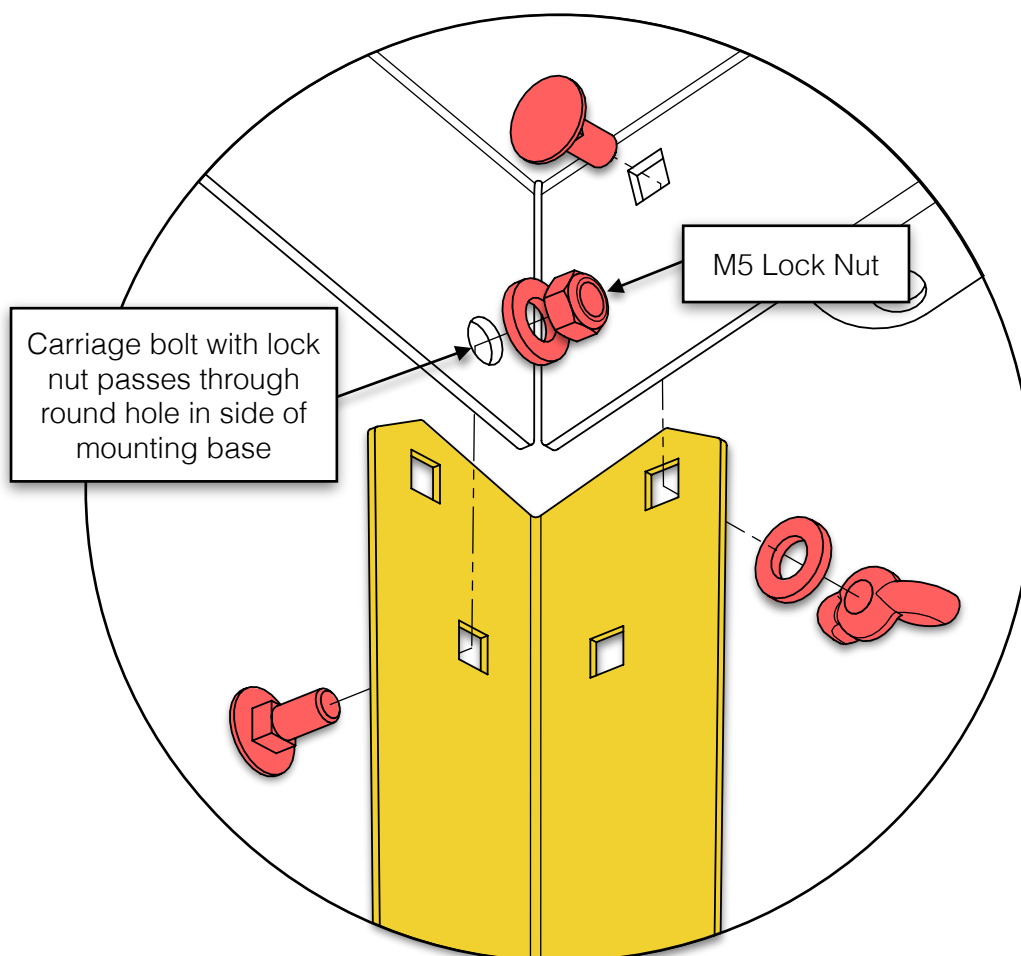
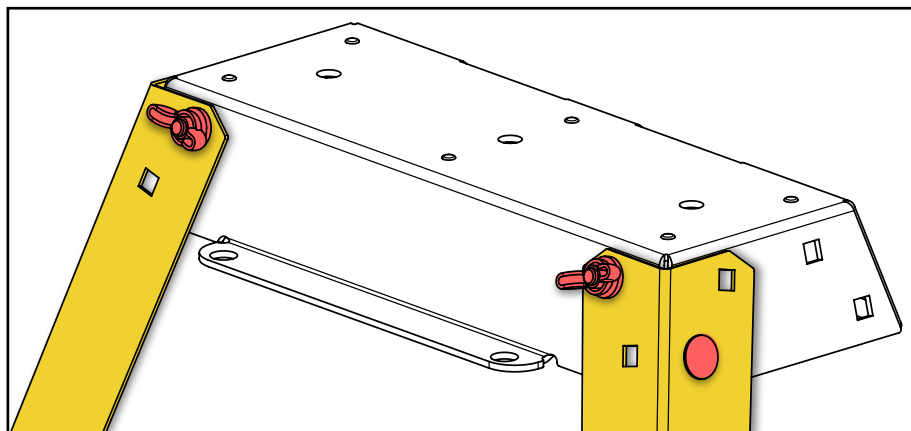
#### A. LEGS

Assemble the lower leg to the upper leg using two (2) M5 X 12 mm carriage bolts, two (2) M6 flat washers, and two (2) M5 hex nuts. Repeat this for all four (4) legs.



## B. LEGS-TO-MOUNTING BASE (FRONT)

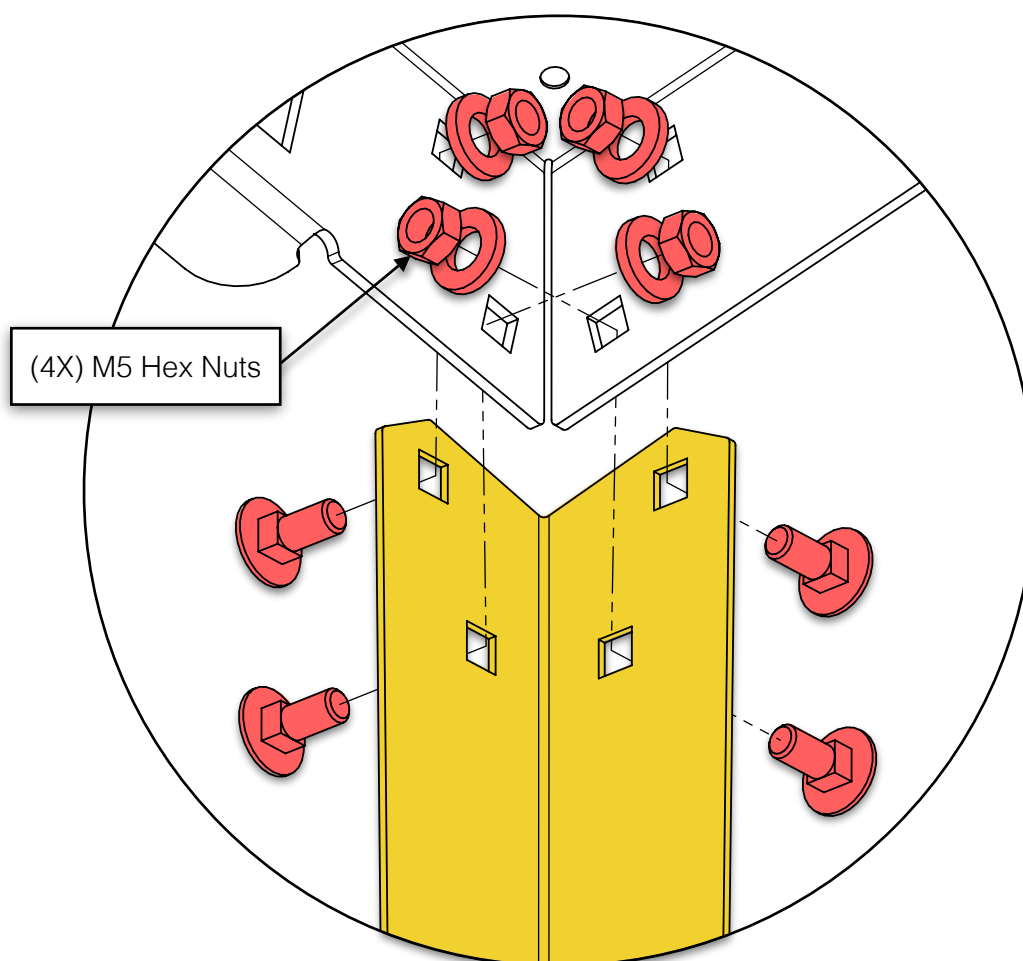
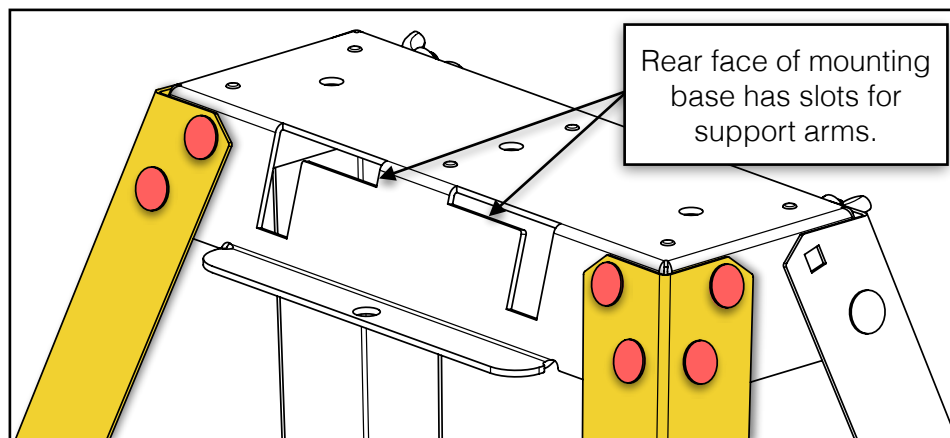
With all the legs assembled, fasten the front legs to the mounting base using the following hardware on each leg: two (2) M5 X 12 mm carriage bolts, two (2) M6 flat washers, one (1) M5 lock nut, and one (1) M5 wing nut.



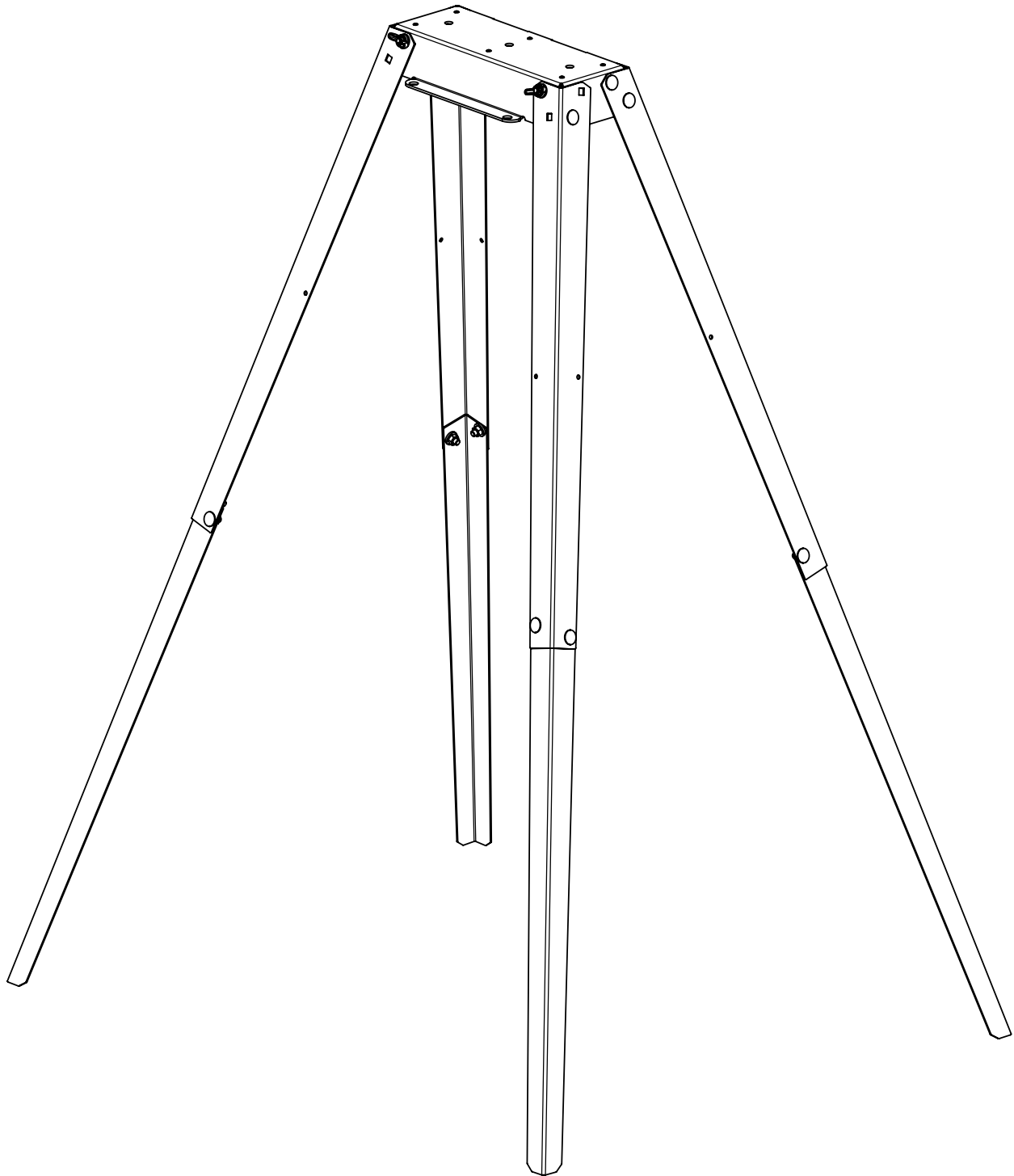


## C. LEGS-TO-MOUNTING BASE (REAR)

Fasten the rear legs to the mounting base using the following hardware on each leg: four (4) M5 X 12 mm carriage bolts, four (4) M6 flat washers, four (4) M5 hex nuts.

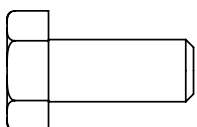
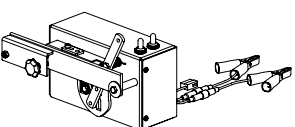
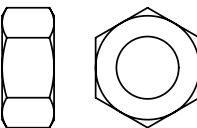
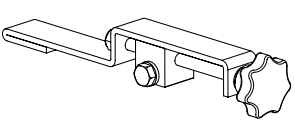


The completed stand should now look as shown:



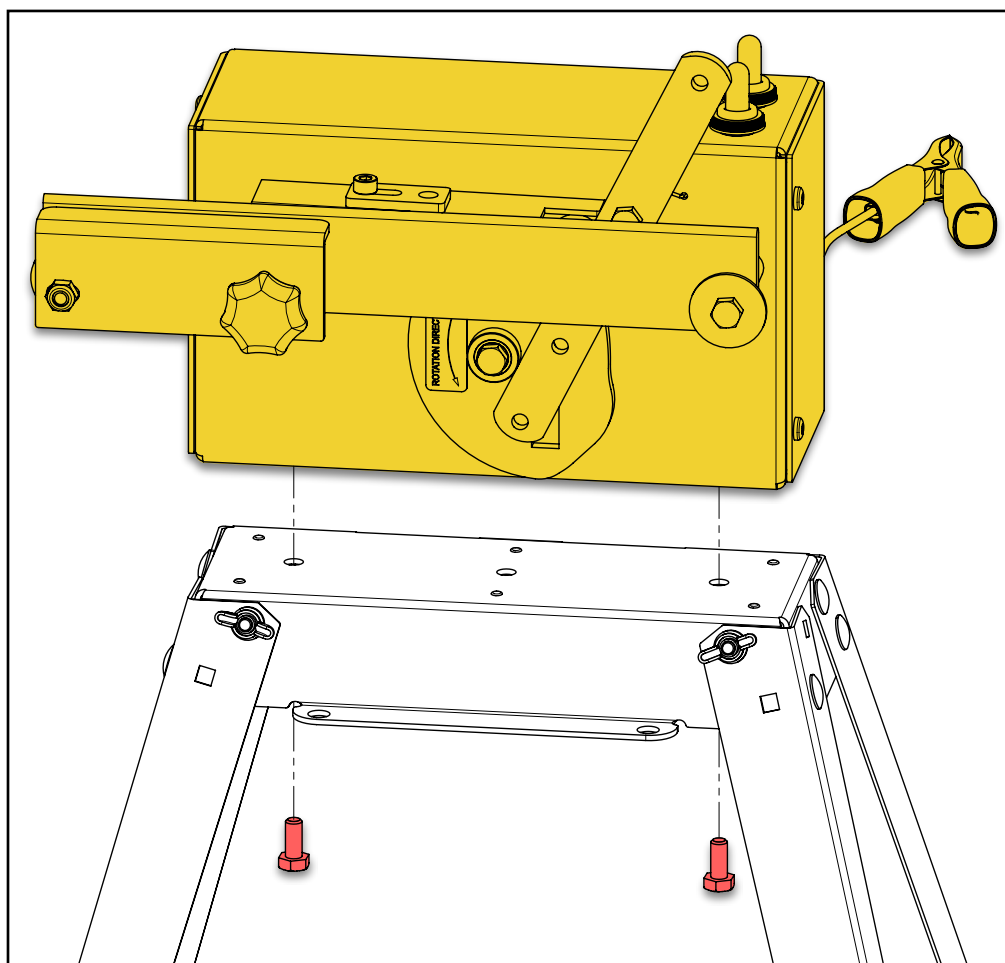
## 4. CONTROL BOX

Using the hardware and components listed below, assemble the control box to the stand and the advancer to the control box.

2x	M6 X 14 mm Hex Bolt		1x	Control Box Sub-Assembly	
1x	M6 Hex Nut		1x	Advancer Sub-Assembly	

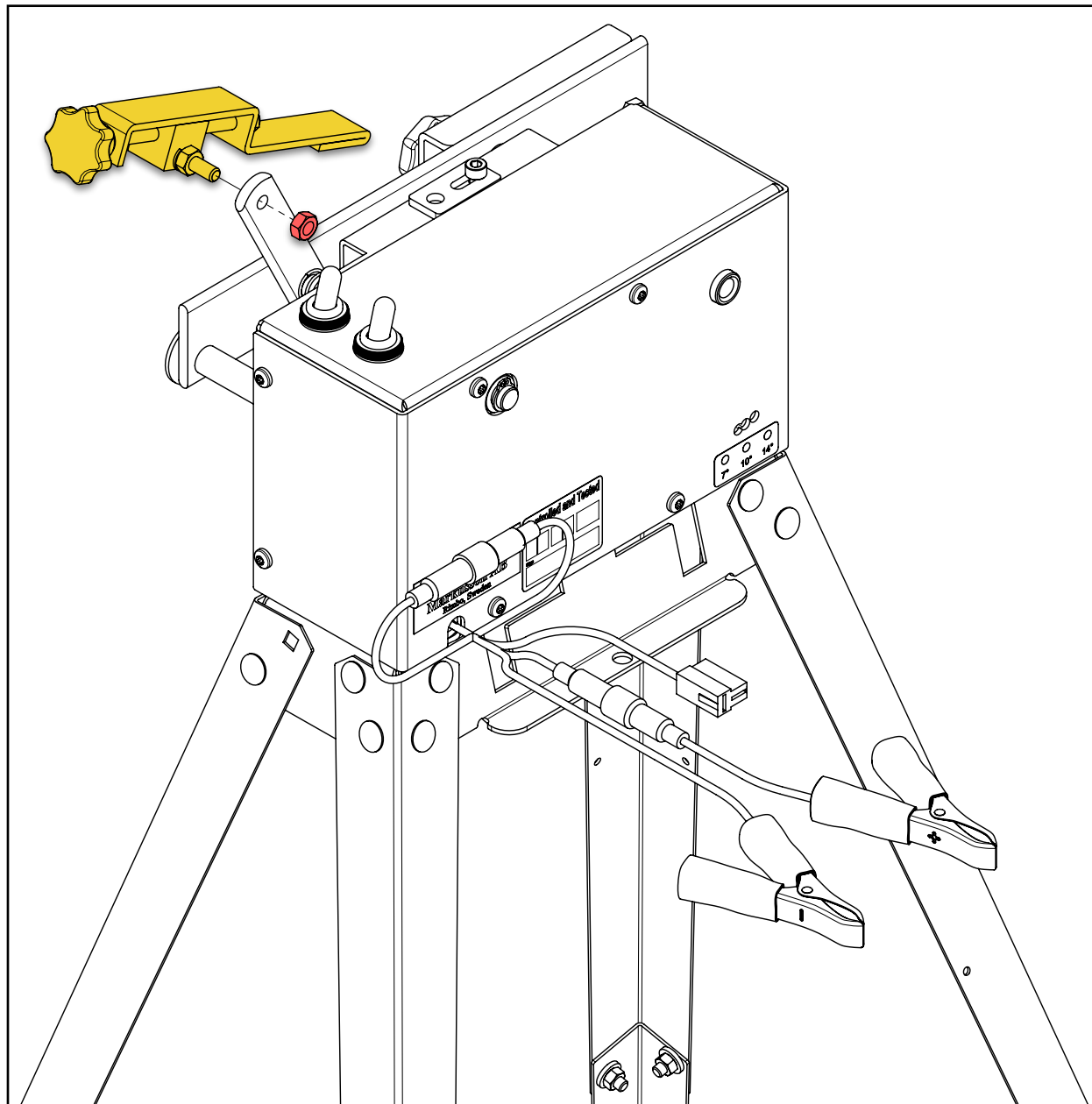
### A. CONTROL BOX-TO-STAND

Assemble the control box to the stand using the two (2) M6 X 14 mm hex bolts as shown.



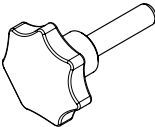
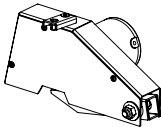
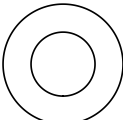
## B. ADVANCER

Then assemble the advancer sub-assembly to the connecting arm on the control box using one (1) M6 hex nut. Snug the nut but do not over-tighten.



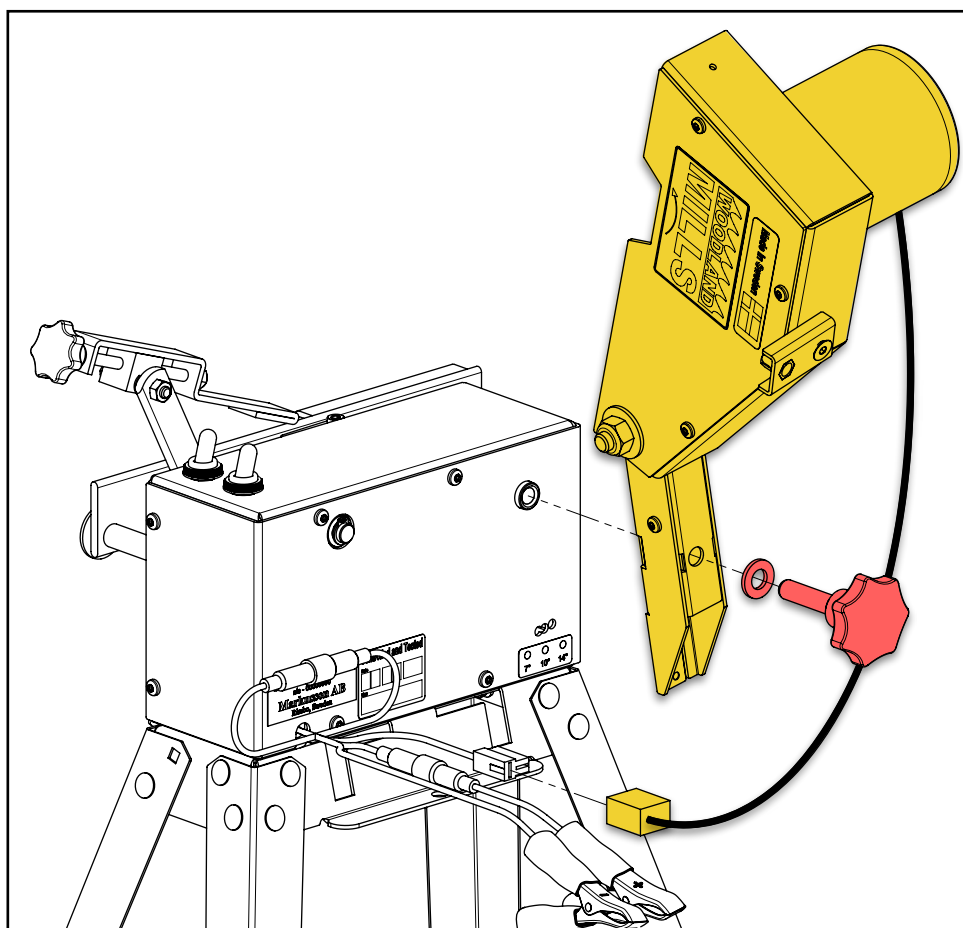
## 5. GRINDING HEAD

Begin the grinding head assembly by using the hardware listed below to assemble the grinding head sub-assembly to the control box.

1x	M10 X 40 mm Knob		1x	Grinding Head Sub-Assembly	
1x	M10 Flat Washer				

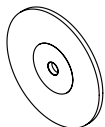
### A. GRINDING HEAD-TO-CONTROL BOX

Assemble the grinding head to the rear of the control box using the M10 X 40 mm knob and M10 flat washer. Then connect the motor cable to the wiring harness.

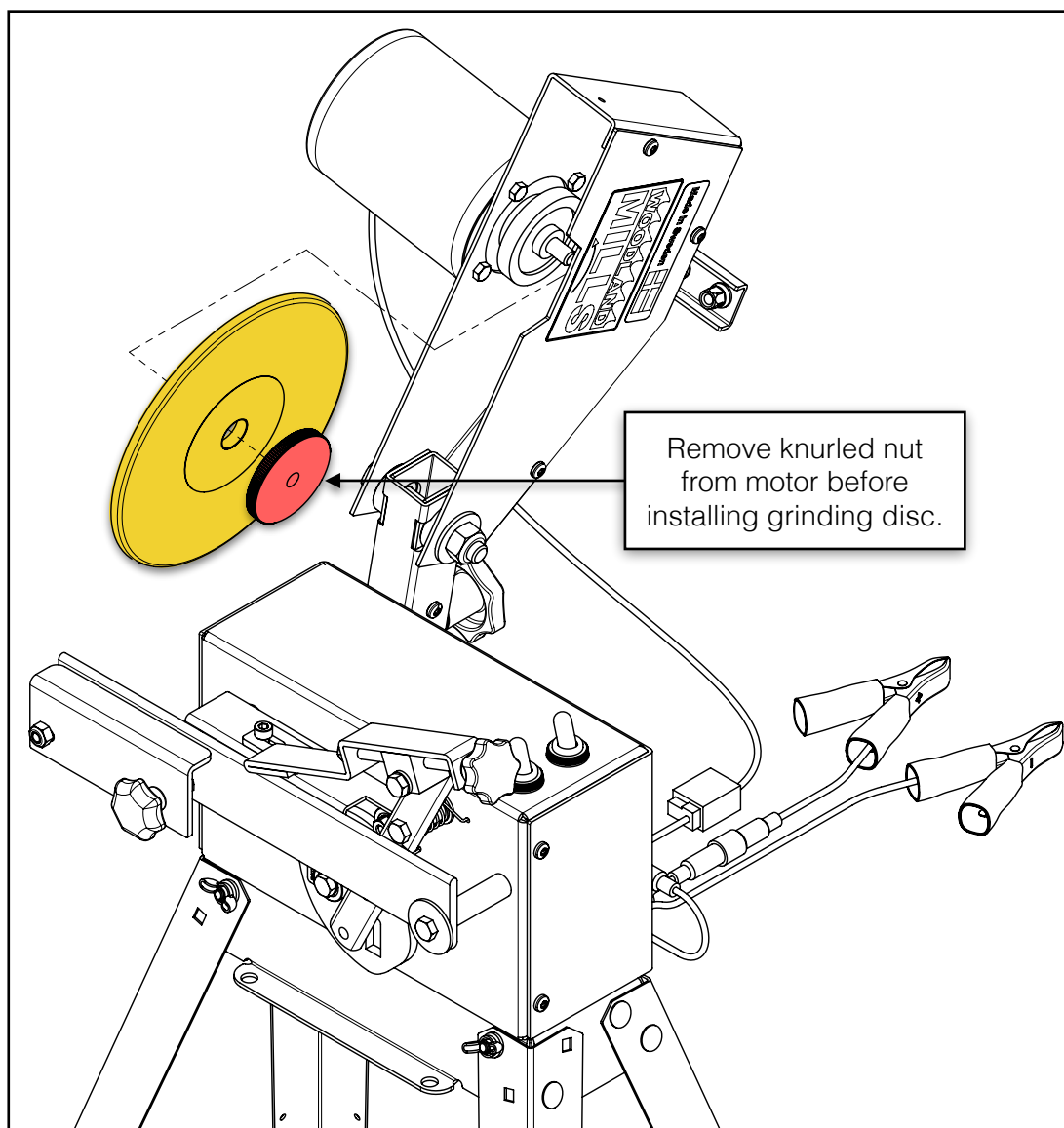


## B. GRINDING DISC

Next, assembly the grinding disc to the grinding head sub-assembly.

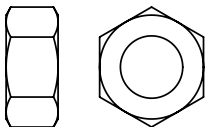
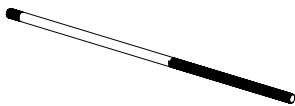
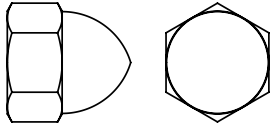

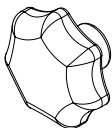
1x	Grinding Disc	
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Remove the knurled nut from the electric motor and slide the grinding disc onto the shaft. Replace the nut and tighten it securely using pliers.

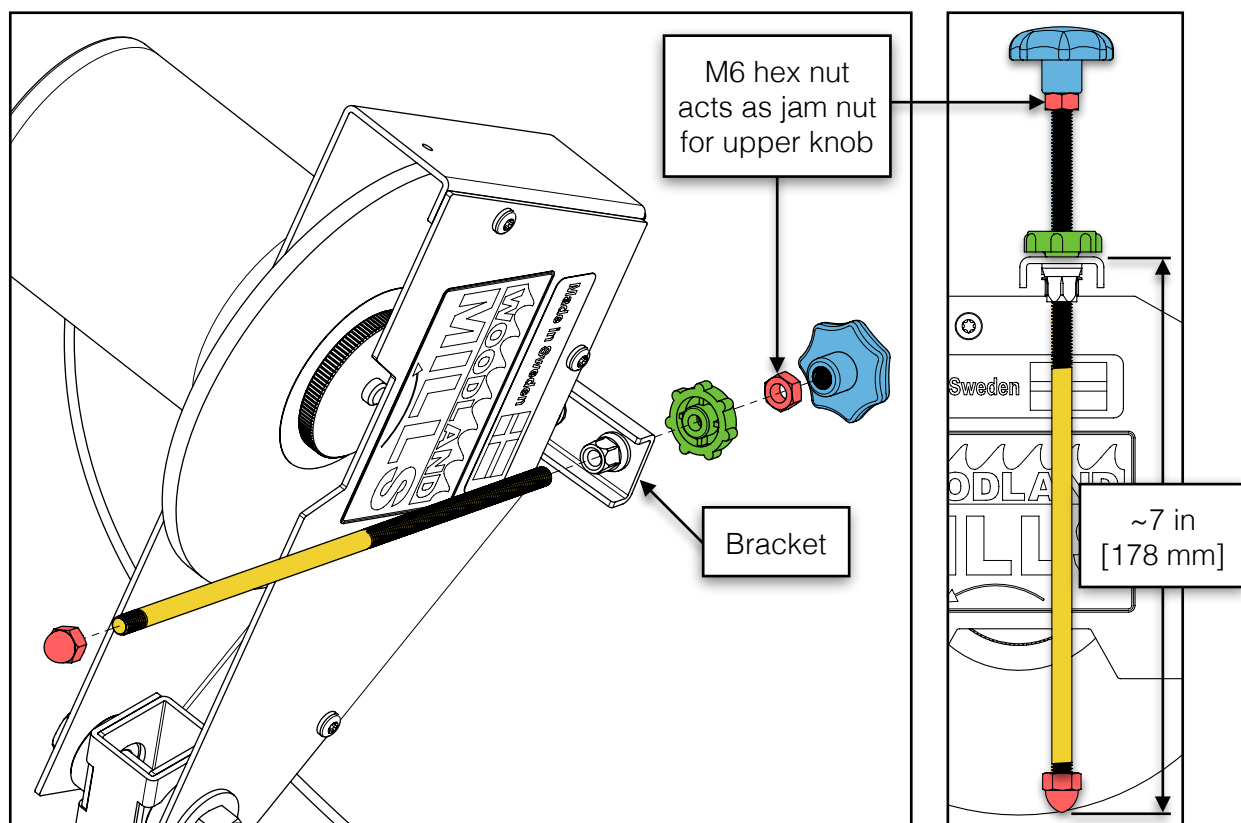


## C. DEPTH ADJUSTMENT ROD

Using the hardware listed below, assemble the depth adjustment rod to the grinding head.

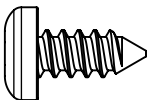
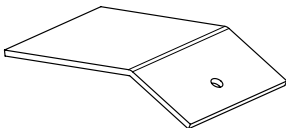
1x	M6 Hex Nut		1x	Depth Adjustment Rod	
1x	M6 Acorn Nut		1x	M6 Thru-Hole Lock Knob	
			1x	M6 Threaded Knob	

Thread the long-threaded end of the rod up through the bracket on the grinding head. Then thread the thru-hole lock knob, the M6 hex nut, and the upper knob to the top of the rod. Finally, thread the acorn nut onto the bottom end of the rod. Ensure the distance from the top of the bracket to the tip of the acorn nut is approx. 7 in [178 mm] for ease of adjustment later.

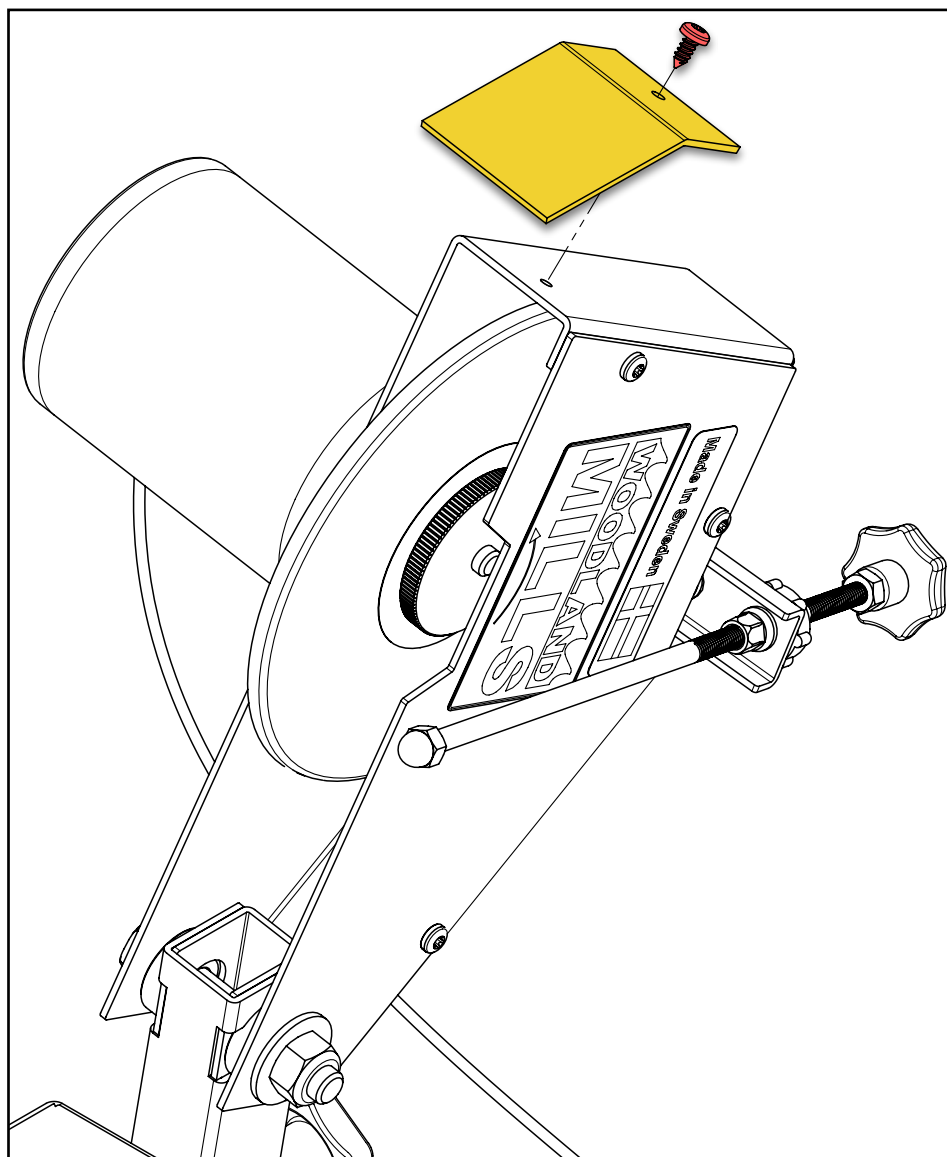


## D. GRINDING SHIELD

To finalize the grinding head assembly, secure the grinding shield to the grinding head using the hardware listed below.

1x	#8 X 0.375 Torx Self- Tapping Screw		1x	Grinding Shield	
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Using a T20 Torx screwdriver, secure the shield to the grinding head as shown.

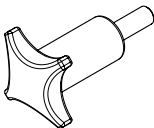
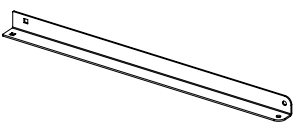




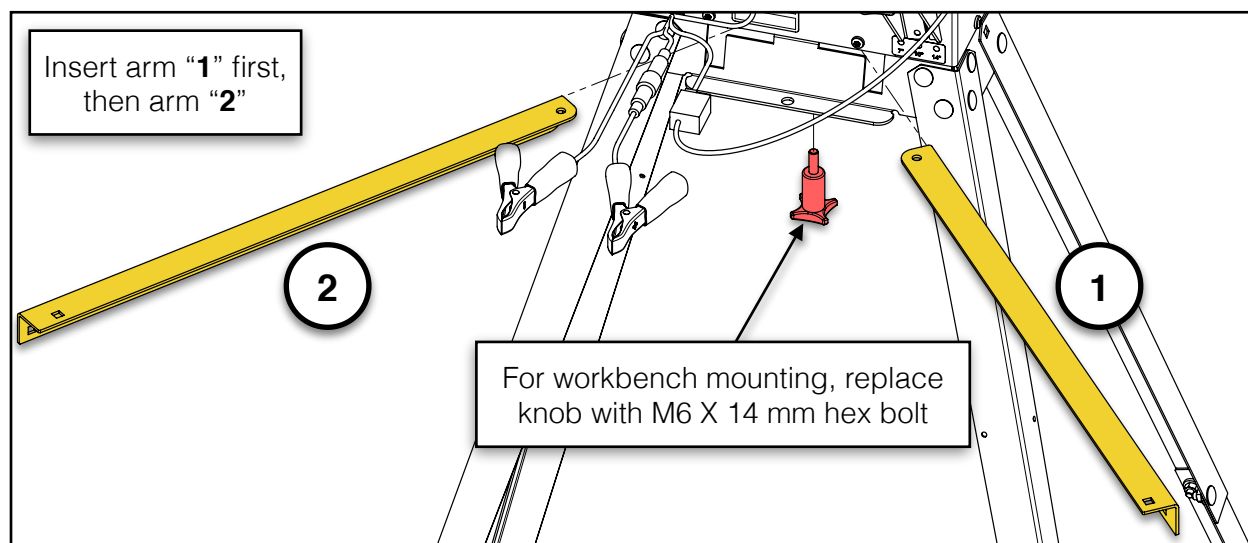
## 6. SUPPORT ARMS

### A. INNER SUPPORT ARMS

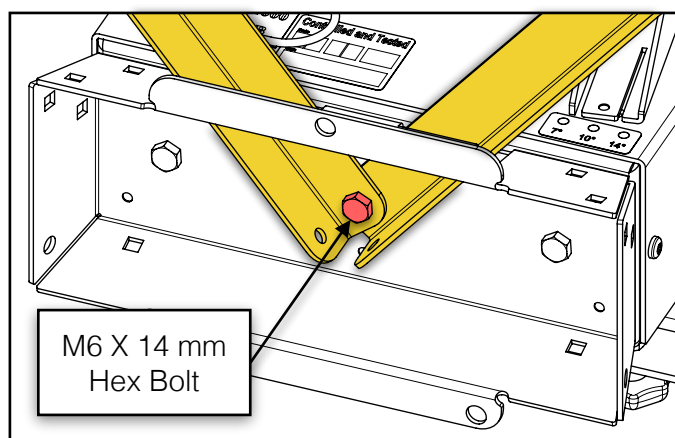
Using the hardware and components listed below, assemble the inner support arms to the sharpener.

1x	M6 4-Lobe Knob		2x	Inner Support Arm	
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Facing the rear of the sharpener, slide the right inner support arm into the cutout in the mounting base. Then slide the left support arm into the other cutout ensuring the left arm is below the right arm. Secure both arms to the base and control box using the M6 4-lobe knob.



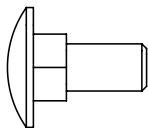
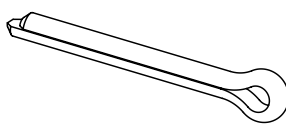
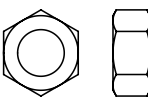

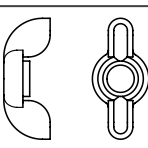
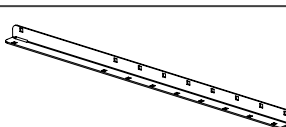
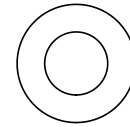
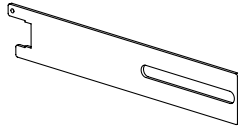
Note: If mounting the sharpener to a workbench, fasten the inner support arms to the mounting base using the extra M6 X 14 mm hex bolt instead of the M6 4-lobe knob. See section, **WORKBENCH MOUNTING**, for more information.



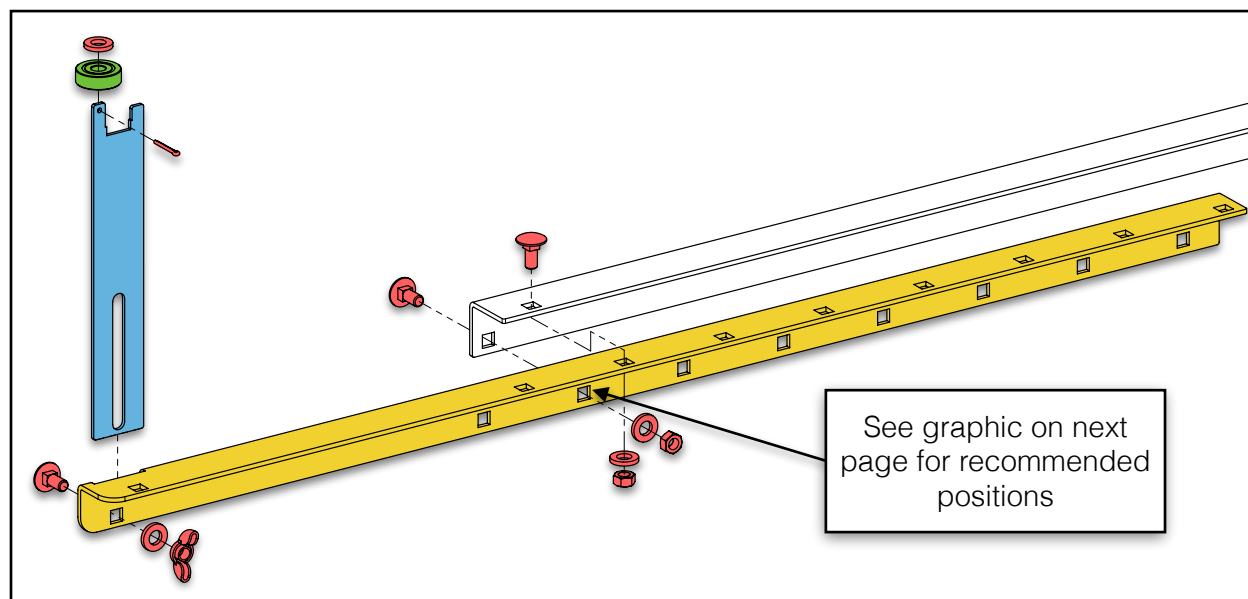
**WORKBENCH MOUNTING ONLY**

## B. ADJUSTABLE OUTER SUPPORT ARMS

Using the hardware and components listed below, assemble the adjustable outer support arms to the sharpener.

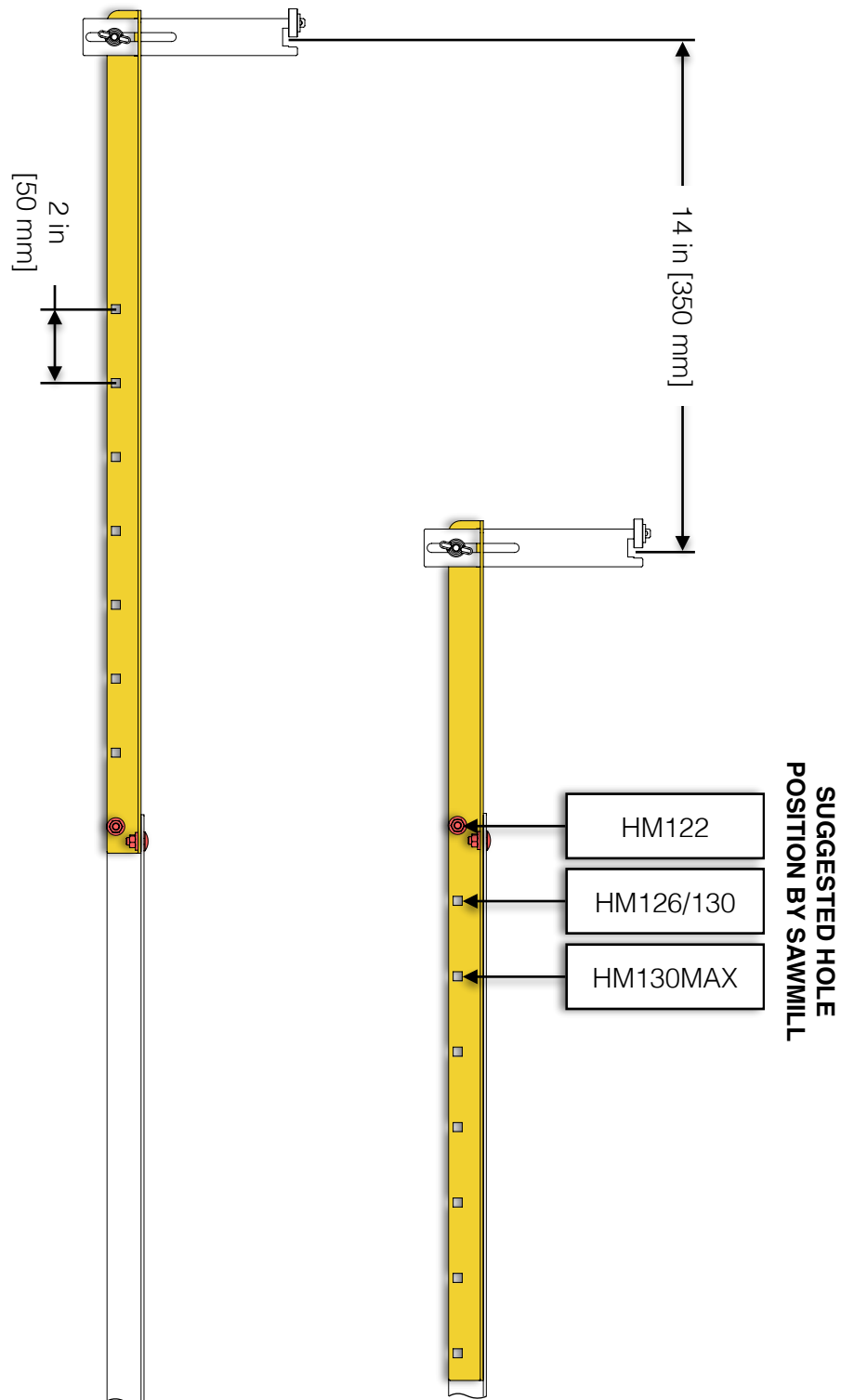
6X	M5 X 12 mm Carriage Bolt		2x	Cotter Pin	
4X	M5 Hex Nut		2x	626-2RS Bearing	
2x	M5 Wing Nut		2x	Adjustable Outer Support Arm	
8X	M6 Flat Washer		2x	Blade Support	

Assemble an outer support arm to both of the inner support arms using two (2) carriage bolts, two (2) M6 flat washers, and two (2) M5 hex nuts. Slide the blade support through the slots in the ends of the outer supports and secure them with a carriage bolt, flat washer, and wing nut.



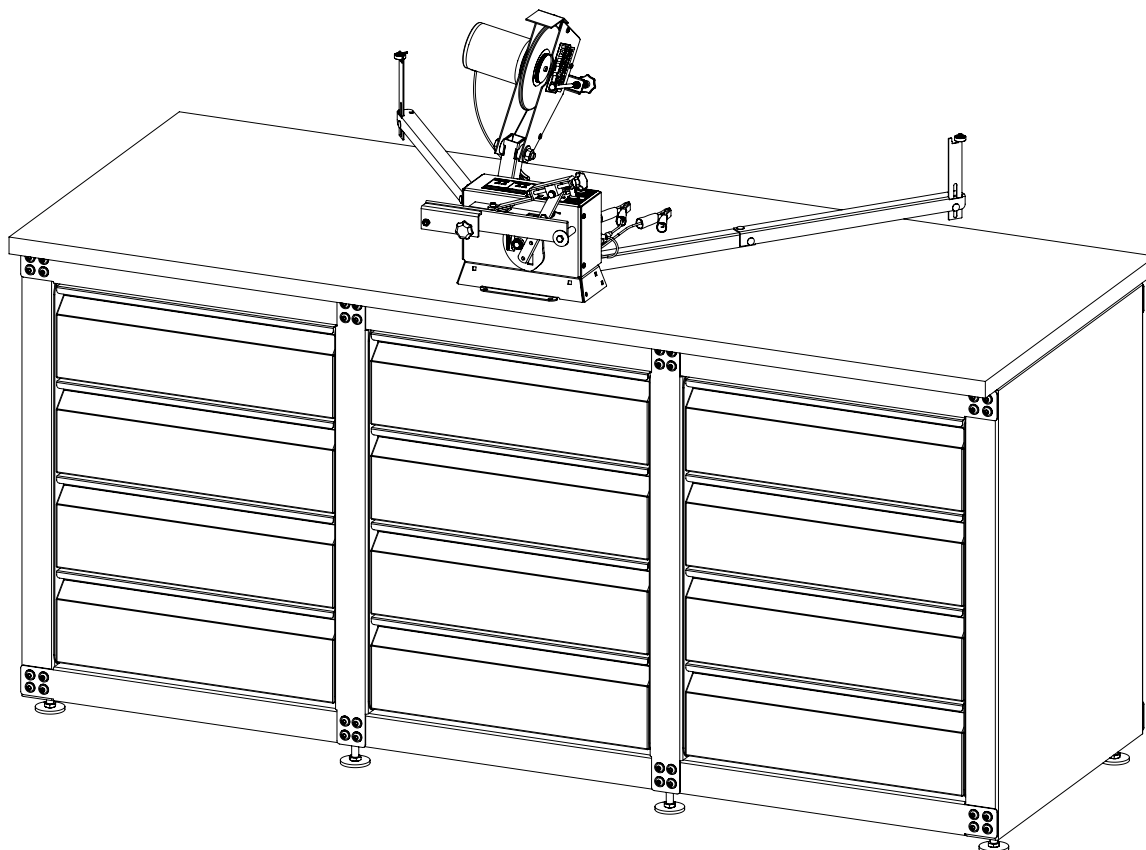


The adjustable outer support arms each contain eight (8) square holes—spaced 2 in [50 mm] apart—that allow the sharpener to accommodate a wide range of blade lengths.

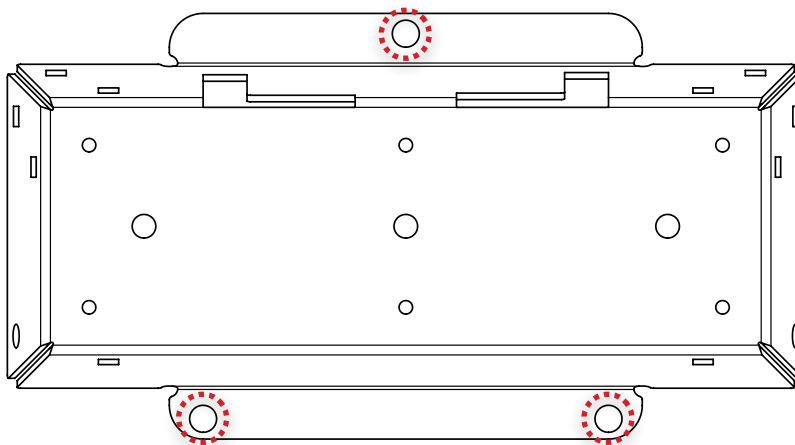


## 7. WORKBENCH MOUNTING (OPTIONAL)

If it is desirable to mount the sharpener to a workbench instead of utilizing the stand, be sure the M6 X 14 mm hex bolt was used in place of the the 4-lobe knob in step, **INNER SUPPORT ARMS**, on page 16.

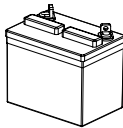


No workbench-mounting hardware is included with the sharpener and must be provided by the customer. The mounting holes will accept hardware no larger than 5/16 in [8 mm].

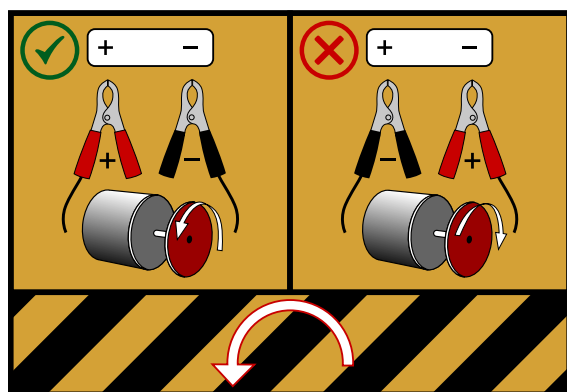


## BATTERY

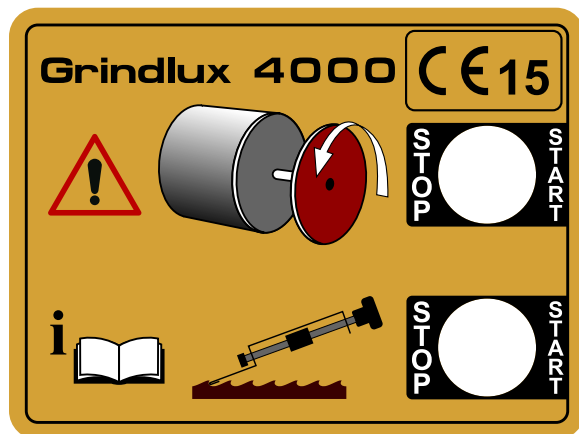
The customer is required to purchase their own 12 Volt battery.

1x	12 V Battery	
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Follow the battery polarity label on top of the control box: connect the **POSITIVE** clamp (+ red) to the positive battery terminal and the **NEGATIVE** clamp (— black) to the negative battery terminal.

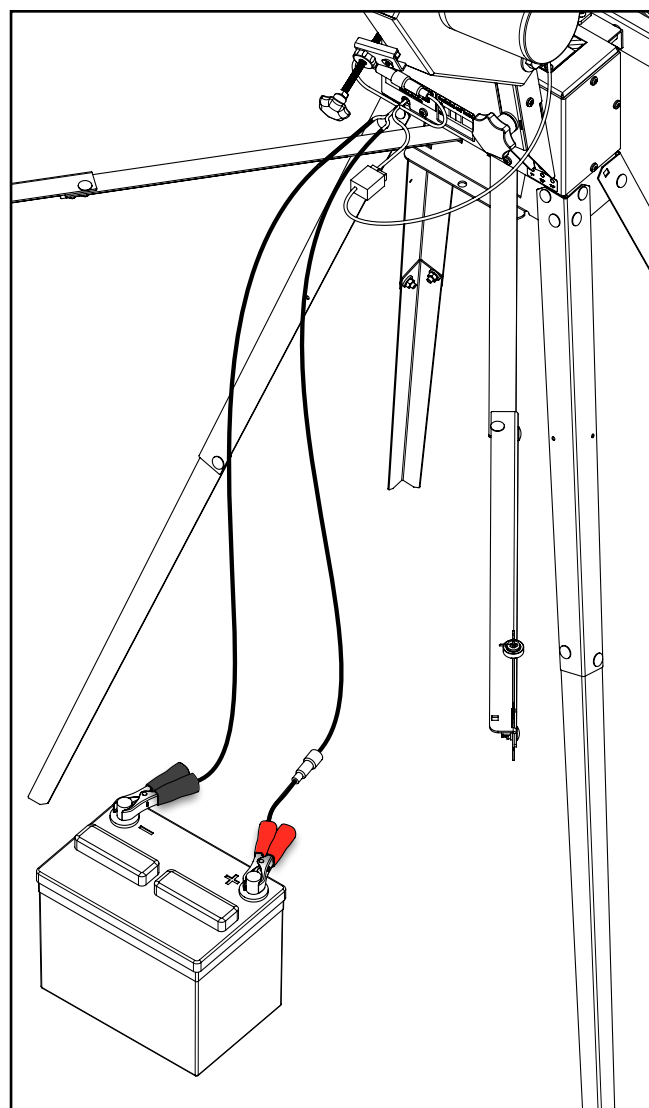


BATTERY POLARITY LABEL



TOGGLE SWITCH LABEL

**\*\*Always remember to check that the toggle switches are in the STOP position before connecting the battery.\*\***



## MAINTENANCE

The bandsaw blade should be set and sharpened regularly for optimal performance. During normal sawing of most wood species this should be done at intervals of approximately 2 hours of effective cutting time (*effective cutting time* refers to the time the bandsaw blade was actually cutting). The bandsaw blade should be sharpened more frequently when cutting those species of wood with a high sand content.

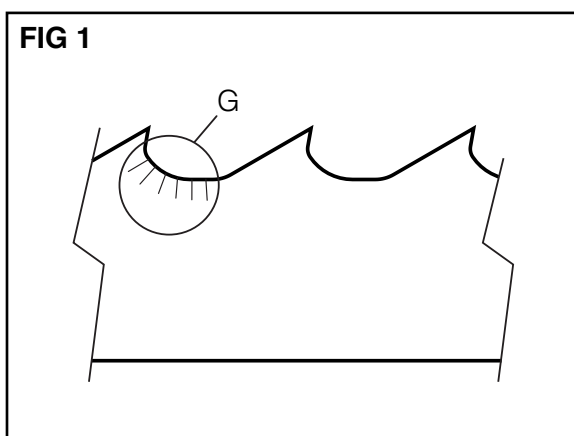
## CLEANING AND INSPECTION



Clean sawdust and any coating from the bandsaw blade.

Check whether there are cracks in the gullets (**FIG 1**). Small cracks can be ground away when sharpening the blade. If the cracks are so large that they cannot be ground away, the bandsaw blade should be discarded.

Cracks in the gullets “**G**” are the most common cause of bandsaw blade breakage.



### WARNING!

The bandsaw blade is sharp and can cause injury. Always wear protective gloves when handling the bandsaw blade.



### WARNING!

Never use a damaged bandsaw blade.

## SHARPENING GUIDELINES

The more accurate the sharpening, the straighter and smoother the bandsaw blade runs when cutting the log.



### GULLET RADII

The radius in the gullet area “**R**” (**FIG 2**) should be 0.04 to 1/8 in [1 to 3 mm].

A radius under 0.04 in [1 mm] increases the risk of cracking. A radius over 1/8 in [3 mm] means that the chips are not broken.

### BACK AND HOOK ANGLES

The back angle is normally between 10-12° (**FIG 3**) and the hook angle “**A**” (**FIG 4**) varies depending on the species of wood as shown in the table below:

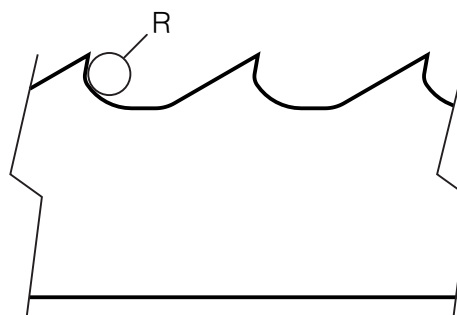
Hardwoods/Frozen Timber	7°
General	10°
Softwoods	14°



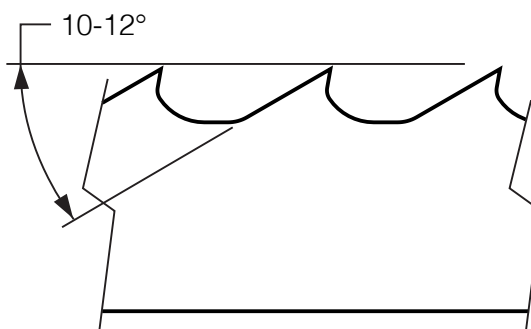
#### WARNING!

The bandsaw blade is sharp and can cause injury. Always wear protective gloves when handling the bandsaw blade.

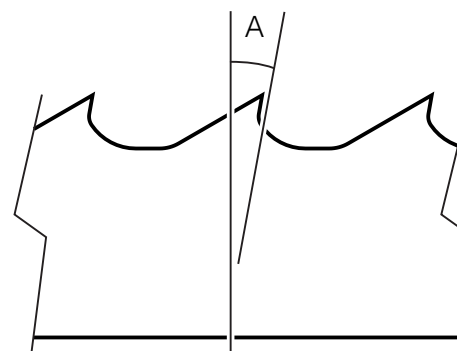
**FIG 2**



**FIG 3**



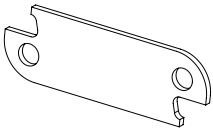
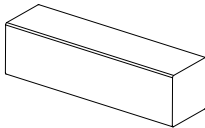
**FIG 4**



## PROFILING THE GRINDING DISC

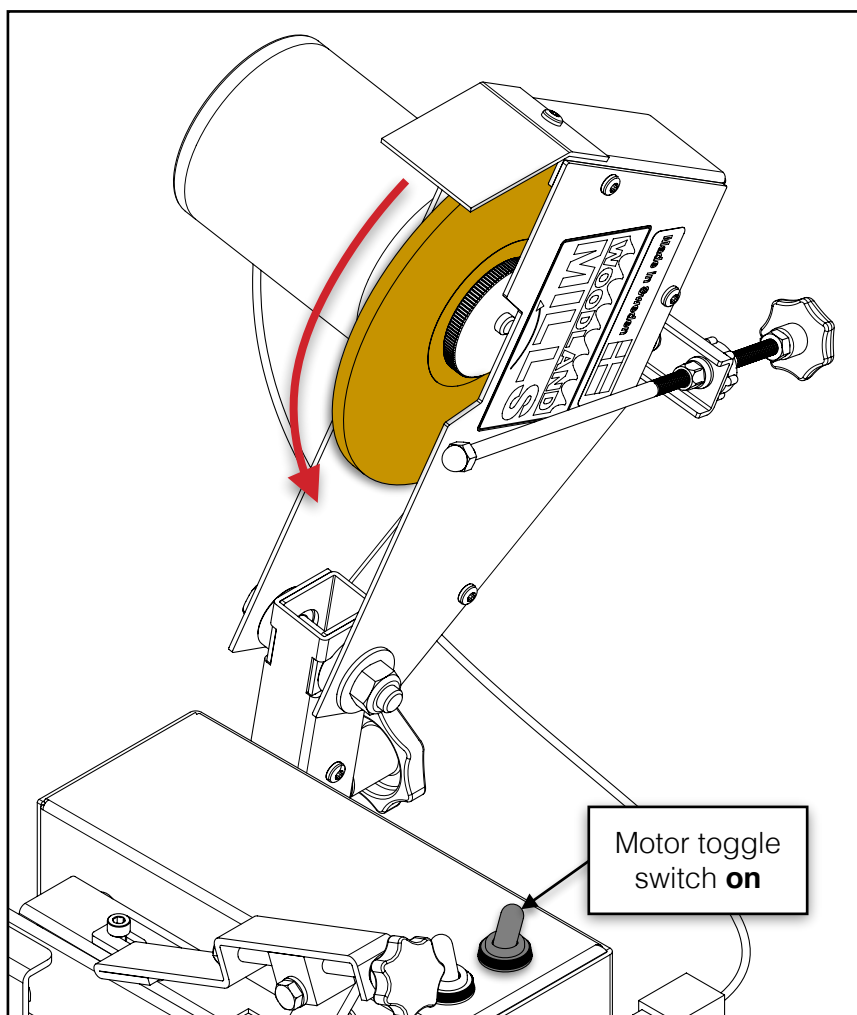


The grinding disc must have the correct profile *prior* to sharpening a blade. Use the grinding disc profile template and whetstone shown in the table below to shape the disc.

1x	Grinding Disc Profiling Template		1x	Whetstone	
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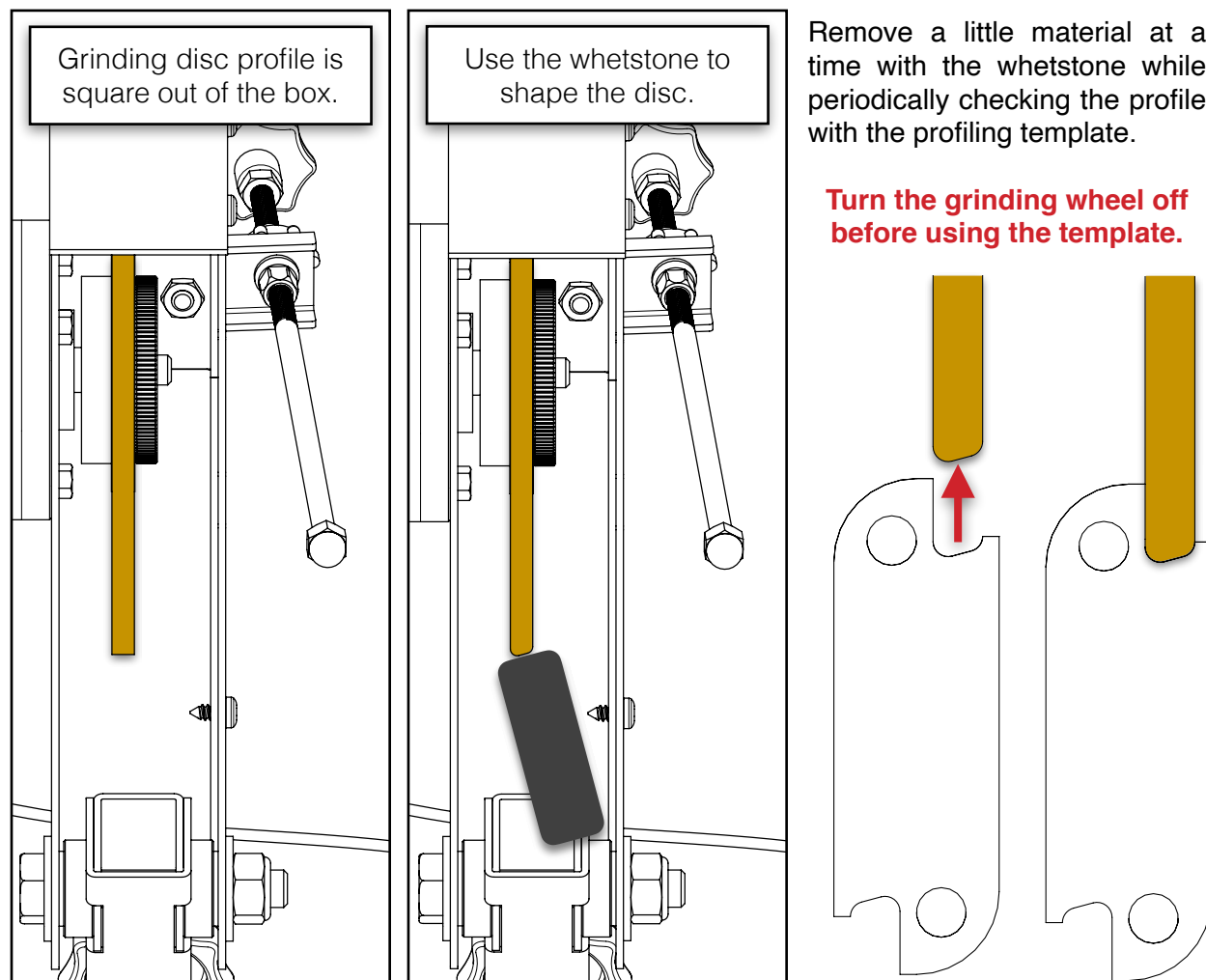
**\*\*Note: do not shape the grinding disc using the profiling template. The profiling template is only used to check the disc profile after it has been shaped using the whetstone.\*\***

Connect the sharpener to a 12 V battery. Then flip the grinding head all the way up and start the motor using the toggle switch.





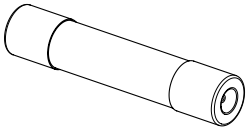
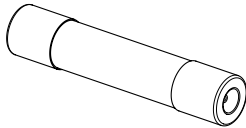
The sharpener ships with a new grinding disc with a square profile. This and any replacement discs will require profiling before sharpening a blade.



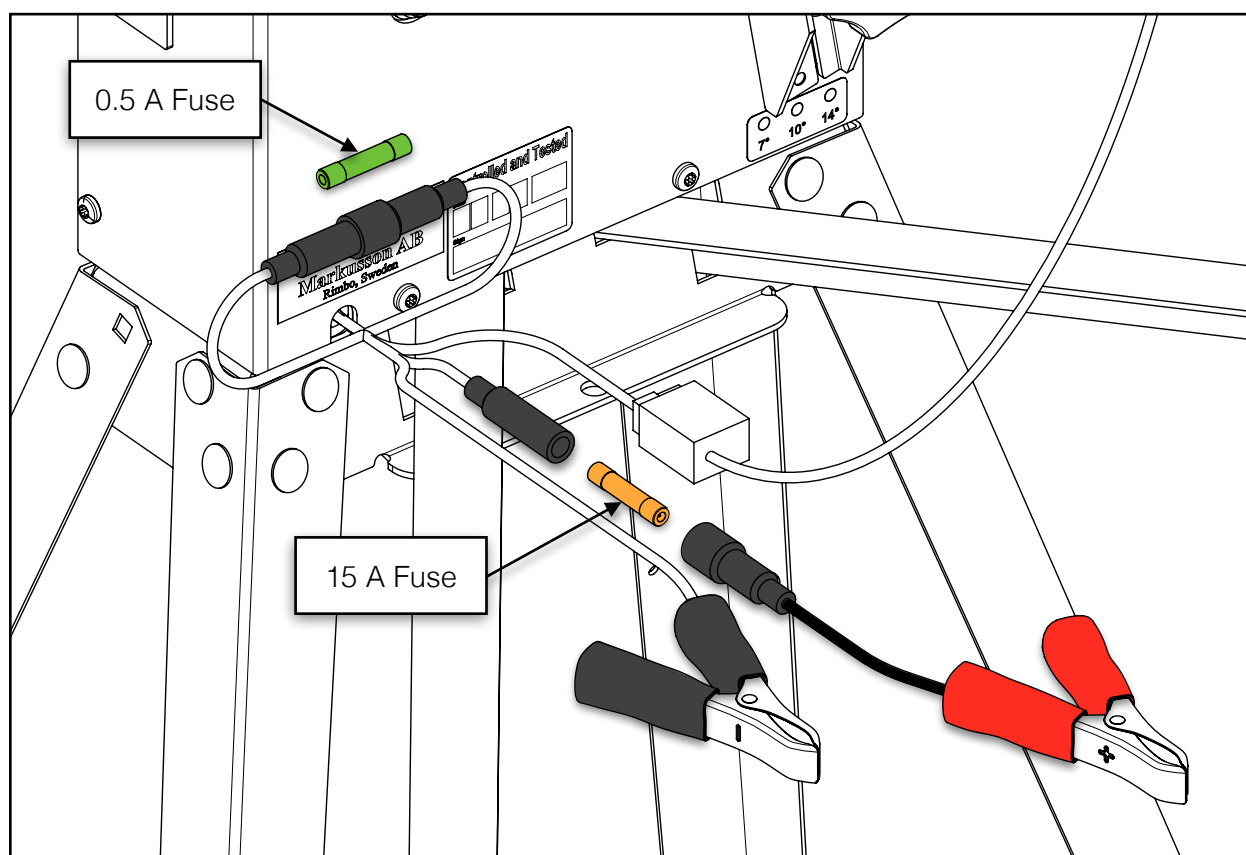
**\*\*The profiling template should only be used as a guide. Tooth profiles from different blade manufacturers can vary and, therefore, custom grinding disc profiles may need to be made.\*\***

## FUSES

The sharpener uses two (2) fuses of differing amperage: 0.5 A and 15 A. A spare for each is provided.

2x	0.5 A Fuse		2x	15 A Fuse	
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The 0.5 A fuse is located inside the connector that is inline with the wiring harness and the 15 A fuse is inside connector on the positive (red) battery clamp cable.

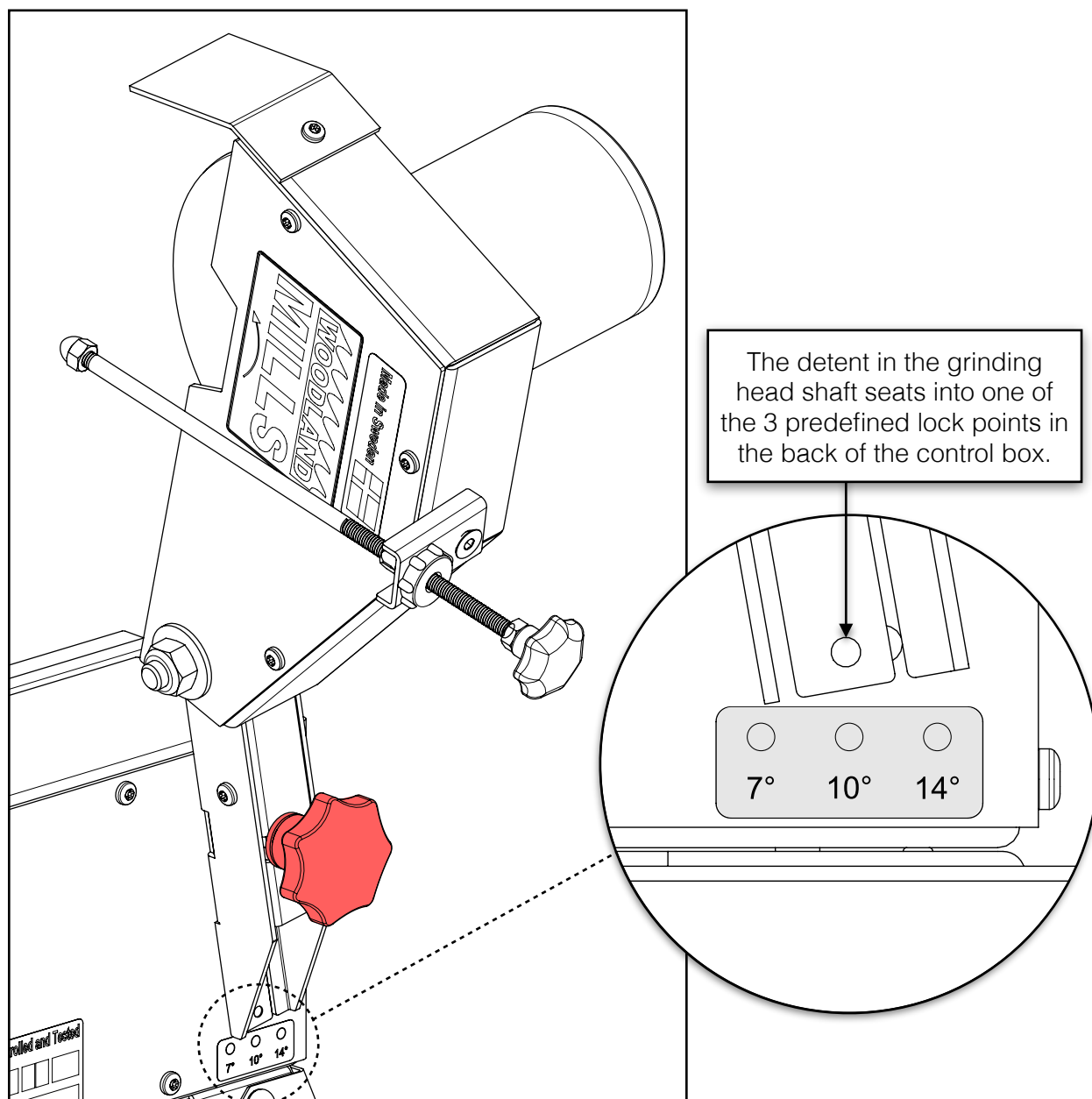


**\*\*Always be sure to connect the sharpener to an approved 12 V power source. Higher voltages could waste fuses and possibly damage the machine.\*\***

## OPERATION

### 1. SETTING THE HOOK ANGLE

Loosen the large knob on the back of the control box and rotate the grinding head to set the appropriate hook angle for the blade to be sharpened. Once set, tighten the locking knob.



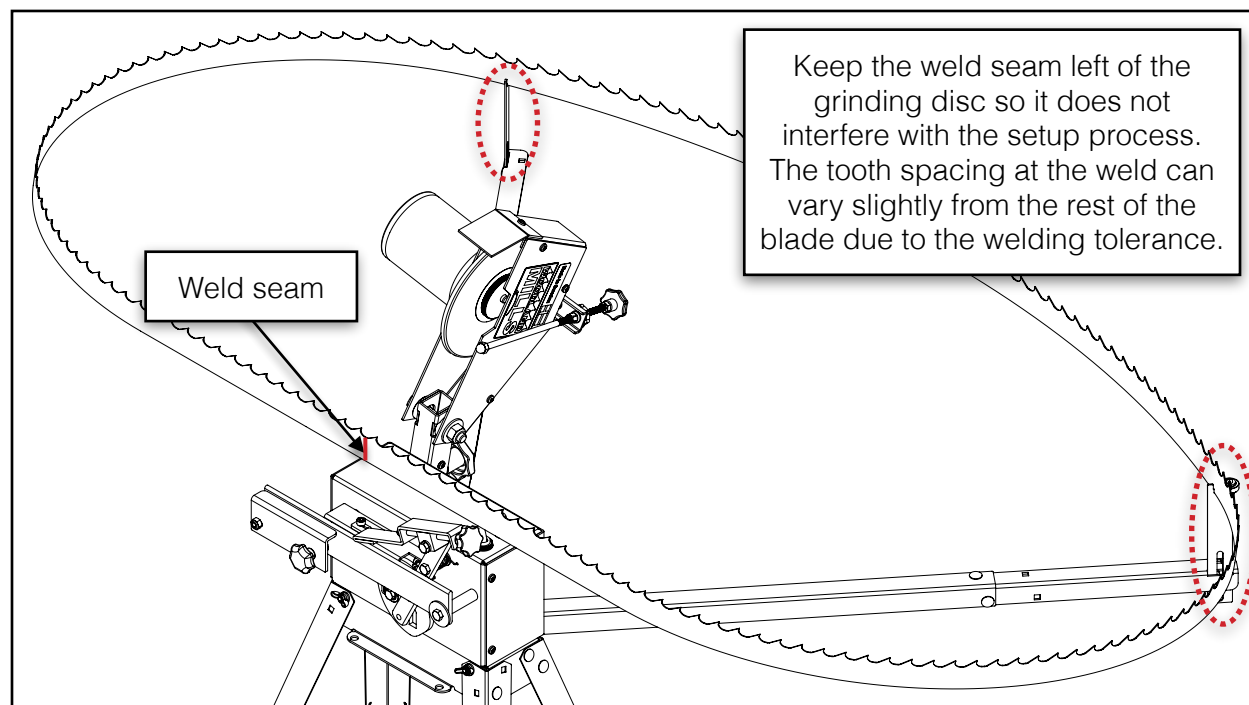
Note that the grinding head can be set to custom angles other than the three (3) predefined angles shown. Simply rotate the head as desired and lock it in place with the knob.



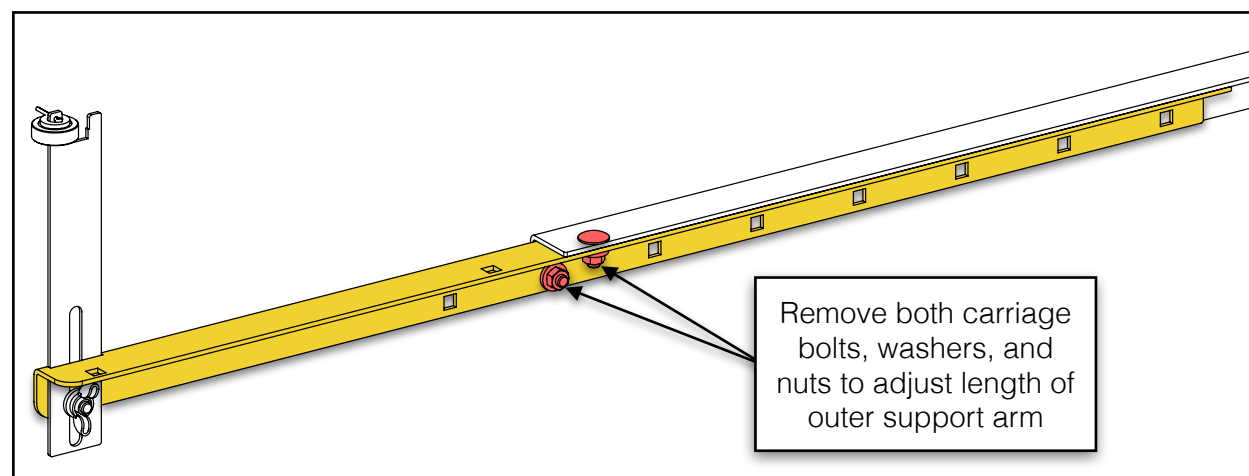
## 2. INSTALLING THE BLADE

### A. BLADE SUPPORTS

First, seat the far side of the blade into the notches on each of the blade supports.

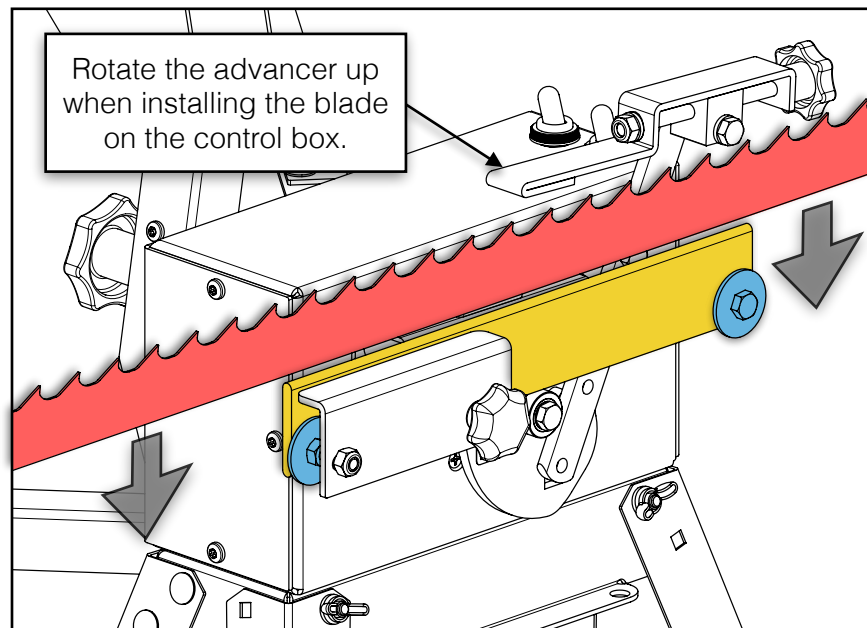


Note: adjust the position of both the outer support arms to suit the blade length if necessary. The blade should ride against the bearings at the end of each blade support. See section, ***ADJUSTABLE OUTER SUPPORT ARMS***, for more information.



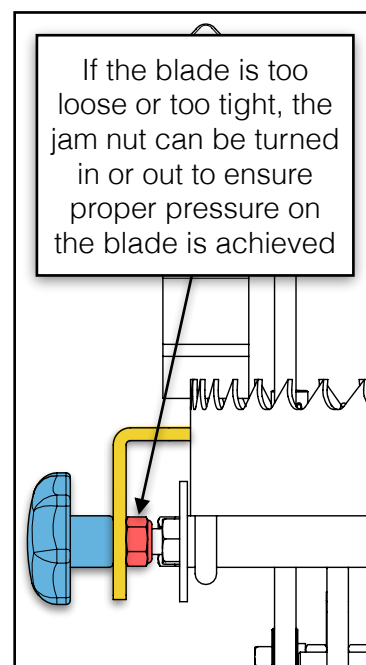
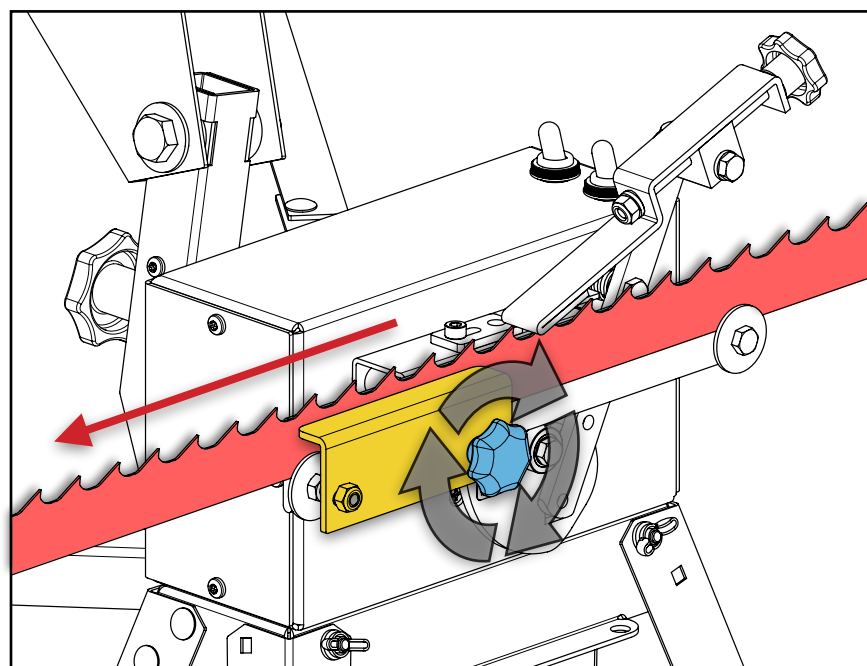
## B. BACK REST

Position the near side of the blade so it slides down between the back rest and large washers.



## C. PRESSURE PLATE

Tighten the knob on the pressure plate until it bottoms out. The blade should slide left-but not move in or out (forwards or backwards).

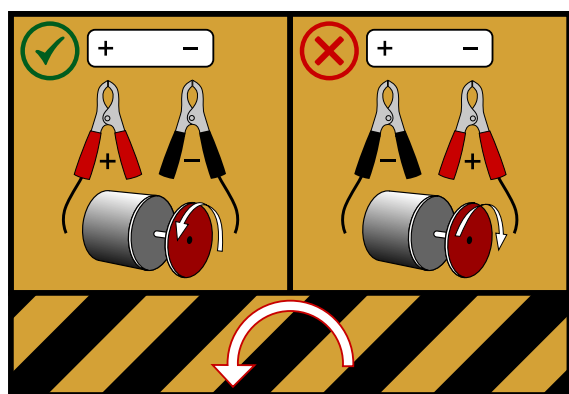


### 3. CALIBRATING THE ADVANCEMENT

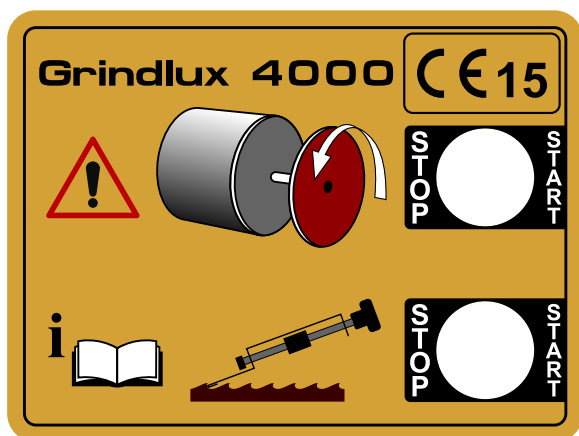
#### A. CONNECT THE BATTERY

Before connecting the battery ensure both toggle switches are set to **STOP**.

Follow the battery polarity label on top of the control box: connect the **POSITIVE** clamp (+ red) to the positive battery terminal and the **NEGATIVE** clamp (— black) to the negative battery terminal.

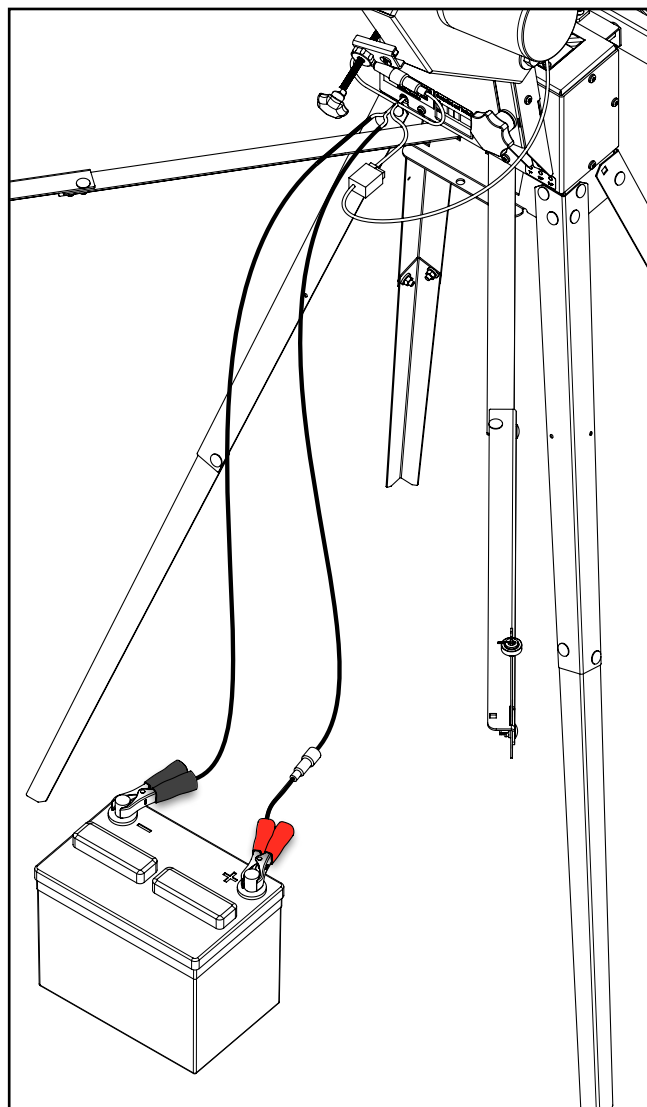


BATTERY POLARITY LABEL



TOGGLE SWITCH LABEL

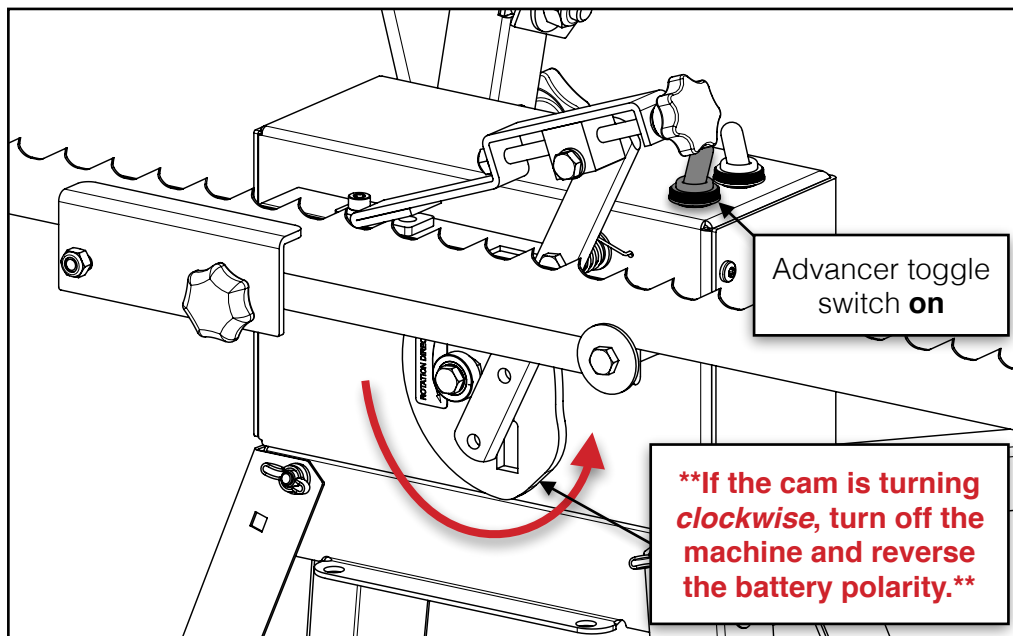
**\*\*Always remember to check that the toggle switches are in the STOP position before connecting the battery.\*\***



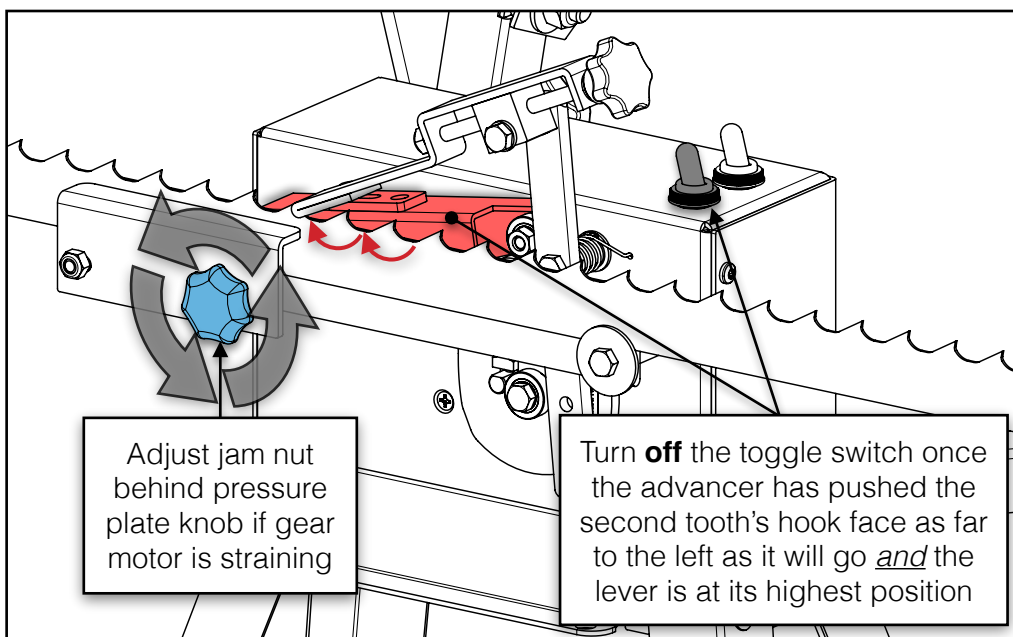
## B. ADVANCE THE BLADE



Turn the advancer control on and allow the advancer to move the blade by two (2) teeth.



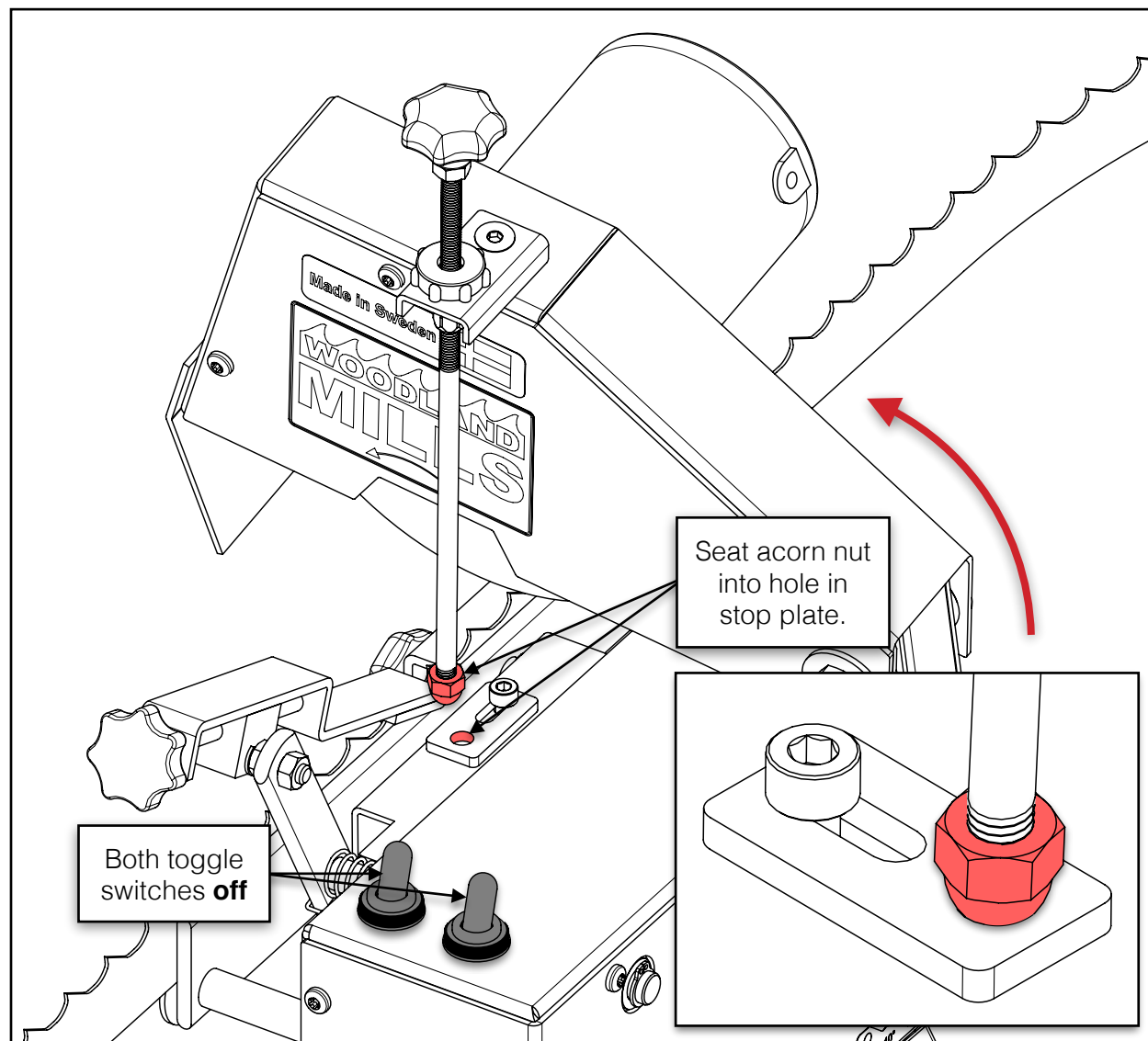
Turn off the toggle switch once the advancer has pushed the second tooth's hook face as far to the left as it will go and the lever is at its highest position.



**\*\*Listen to the gear motor as the blade advances. If it gets loud and sounds like it is straining, the blade is too tight. Adjust the jam nut behind the pressure plate knob.\*\***

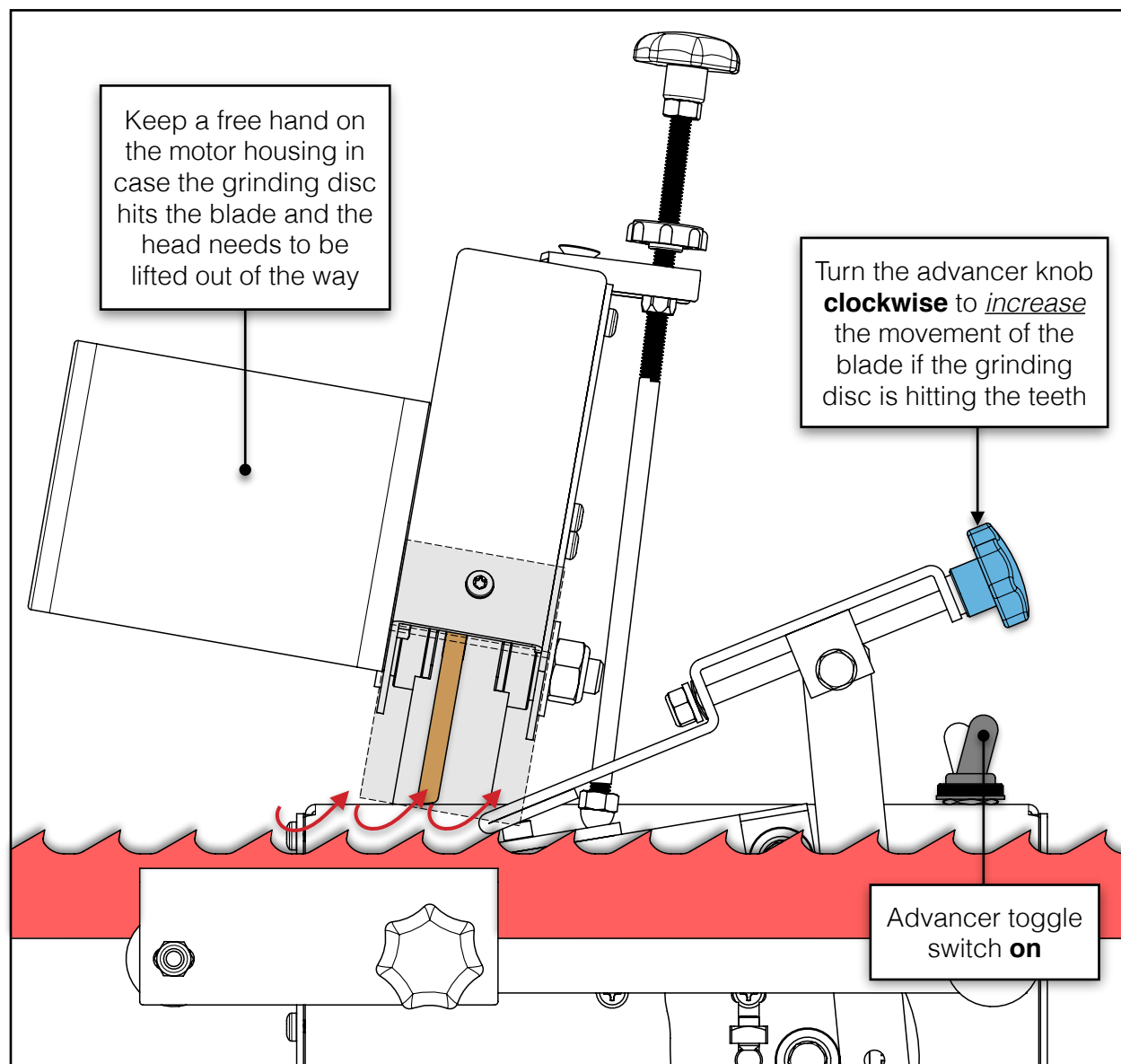
## C. ROTATE THE GRINDING HEAD DOWN

Manually rotate the grinding head down—do not turn it on. Seat the acorn nut at the end of the depth adjustment rod into the hole in the stop plate.





Turn the advancer on and observe the movement of the grinding disc relative to the tooth profile. Do not turn the grinding head on.



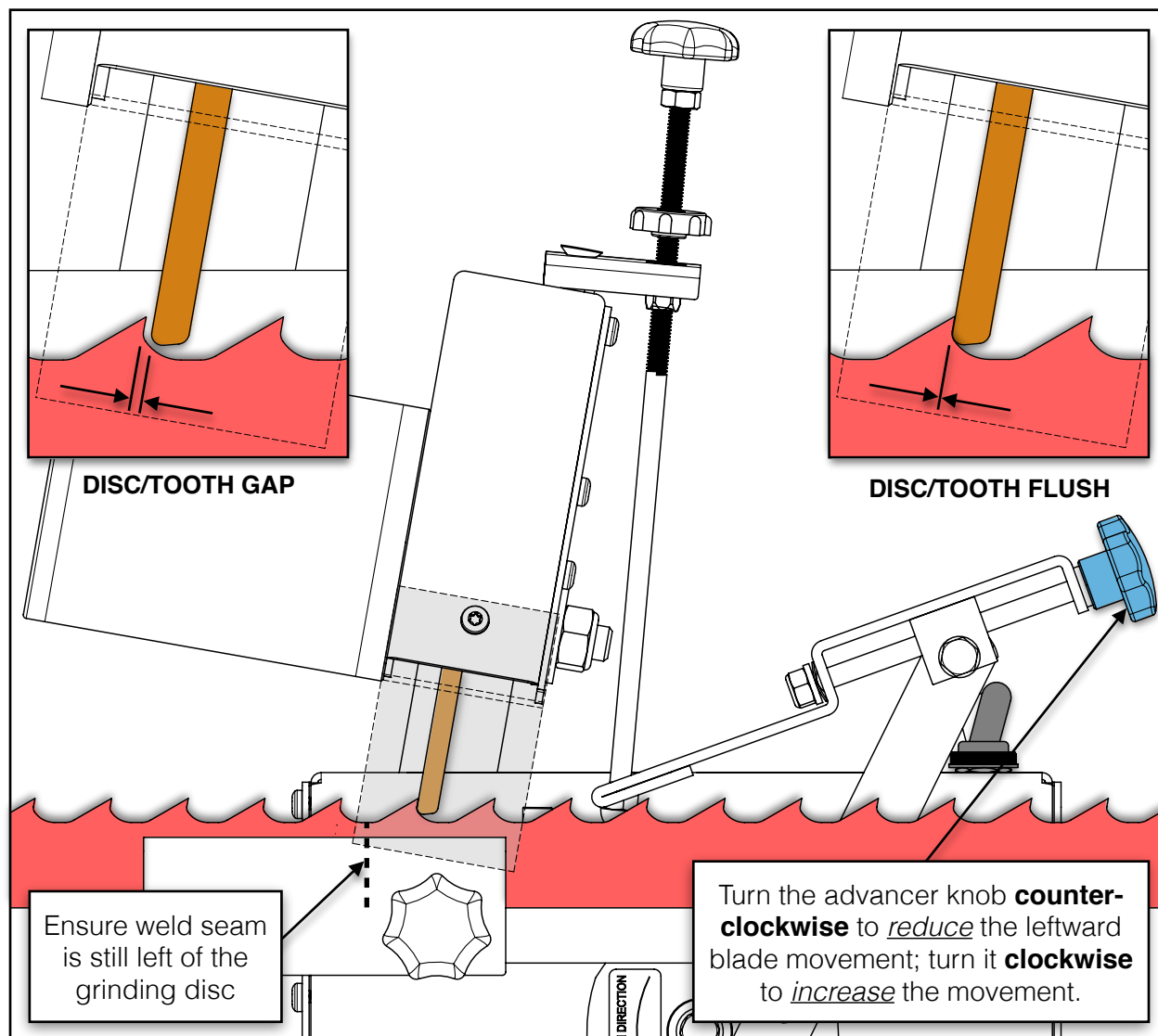
**\*\*Keep a free hand on the motor housing and be ready to lift the grinding head on the chance the grinding disc hits the blade.\*\***

## D. FINE-TUNE THE ADVANCEMENT



One half of the adjustment setting is fine-tuning the advancement so that the left face of the grinding disc is flush with the hook face of the tooth.

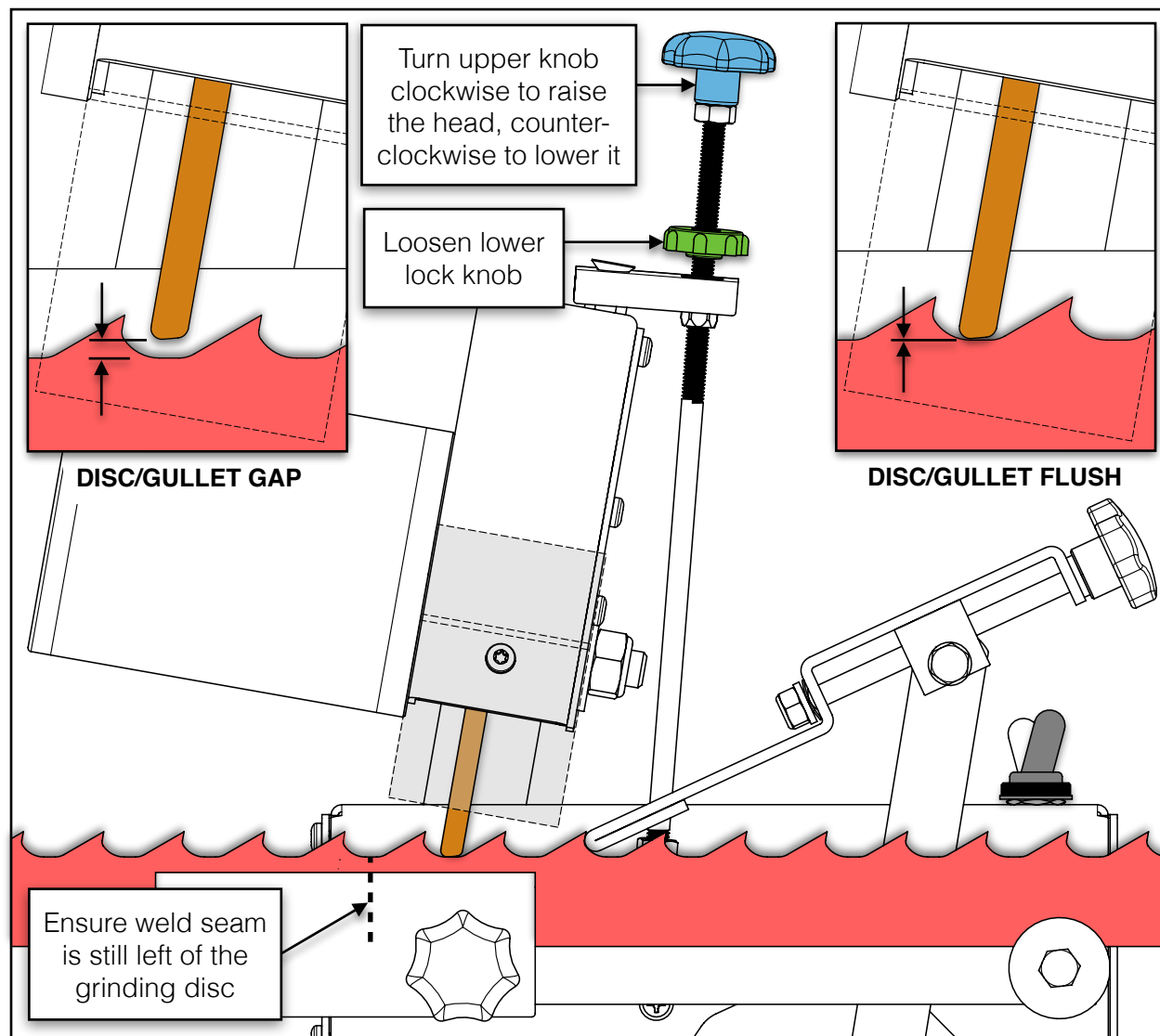
Use the advancer knob to adjust how far the blade is pushed to the left. Turning it *clockwise* will push the blade farther to the left while *counter-clockwise* will back off the advancer and reduce the blade's leftward movement.



**\*\*Setting up a blade for sharpening requires a combination of both the advancement adjustment and the grinding head movement steps. Read and understand both sections before starting to fine-tune the sharpener.\*\***

## E. FINE-TUNE THE GRINDING HEAD MOVEMENT

The other half of the adjustment setting is fine-tuning the grinding head height so that the bottom of the grinding disc touches the bottom of the tooth gullet.



Loosen the lower lock knob counter-clockwise so the depth adjustment rod can move freely. This knob simply acts as a locking mechanism for the rod once the proper depth has been set.

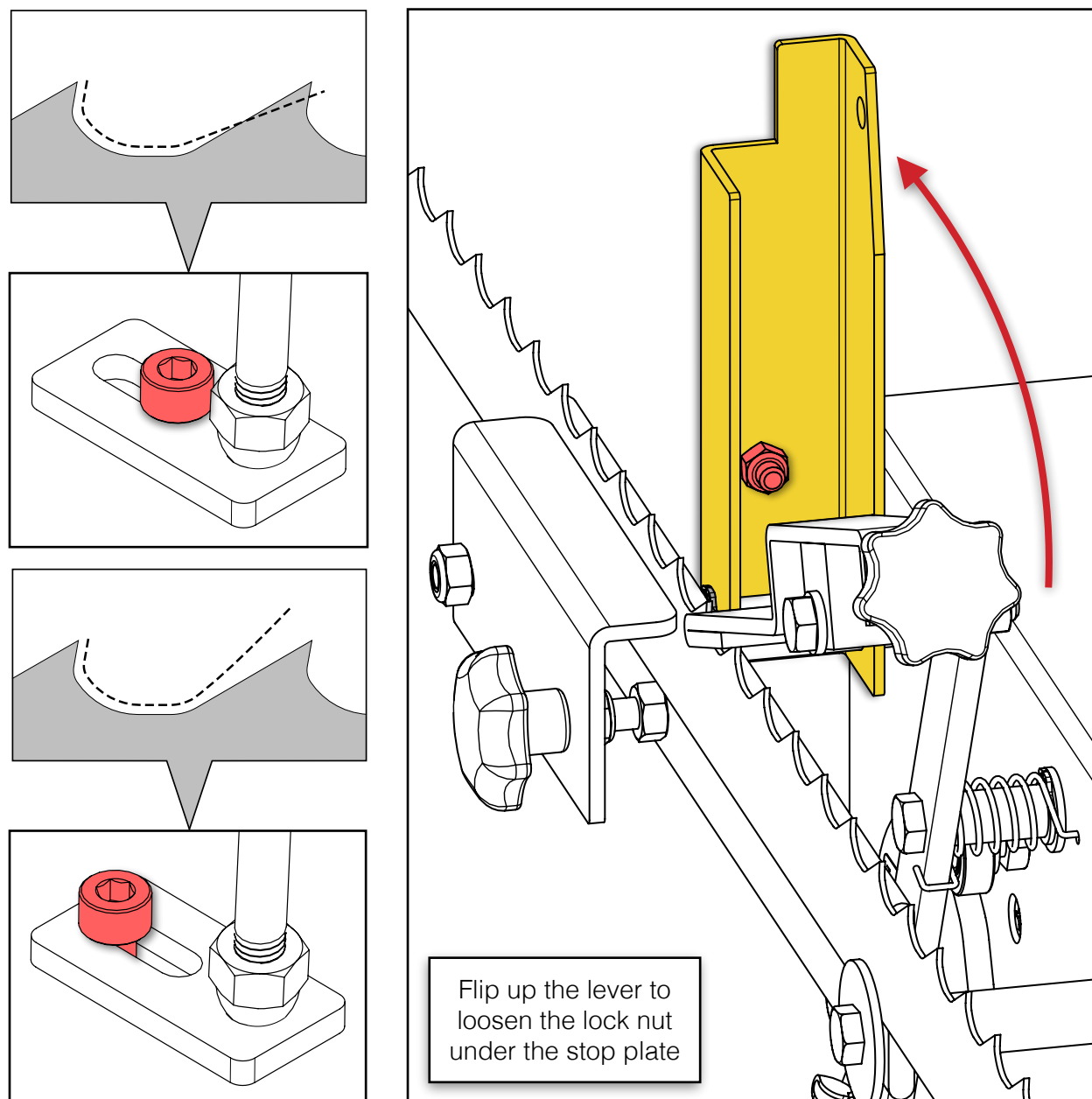
Turn the upper knob to adjust the depth of the grinding head. Clockwise raises the head; counter-clockwise lowers it. Tighten the lock knob once the depth has been set.

**\*\*Setting up a blade for sharpening requires a combination of both the advancement adjustment and the grinding head movement steps. Read and understand both sections before starting to fine-tune the sharpener.\*\***

As the disc leaves the gullet it should completely clear the next tooth's back angle profile.

If the blade tooth profile has a steep back angle, adjust the position of the stop plate by flipping up the lever and loosening the M5 socket head cap screw and lock nut. This adjustment will allow the grinding disc to clear the tooth as it exits the gullet.

Retighten the cap screw and lock nut after moving the stop plate.





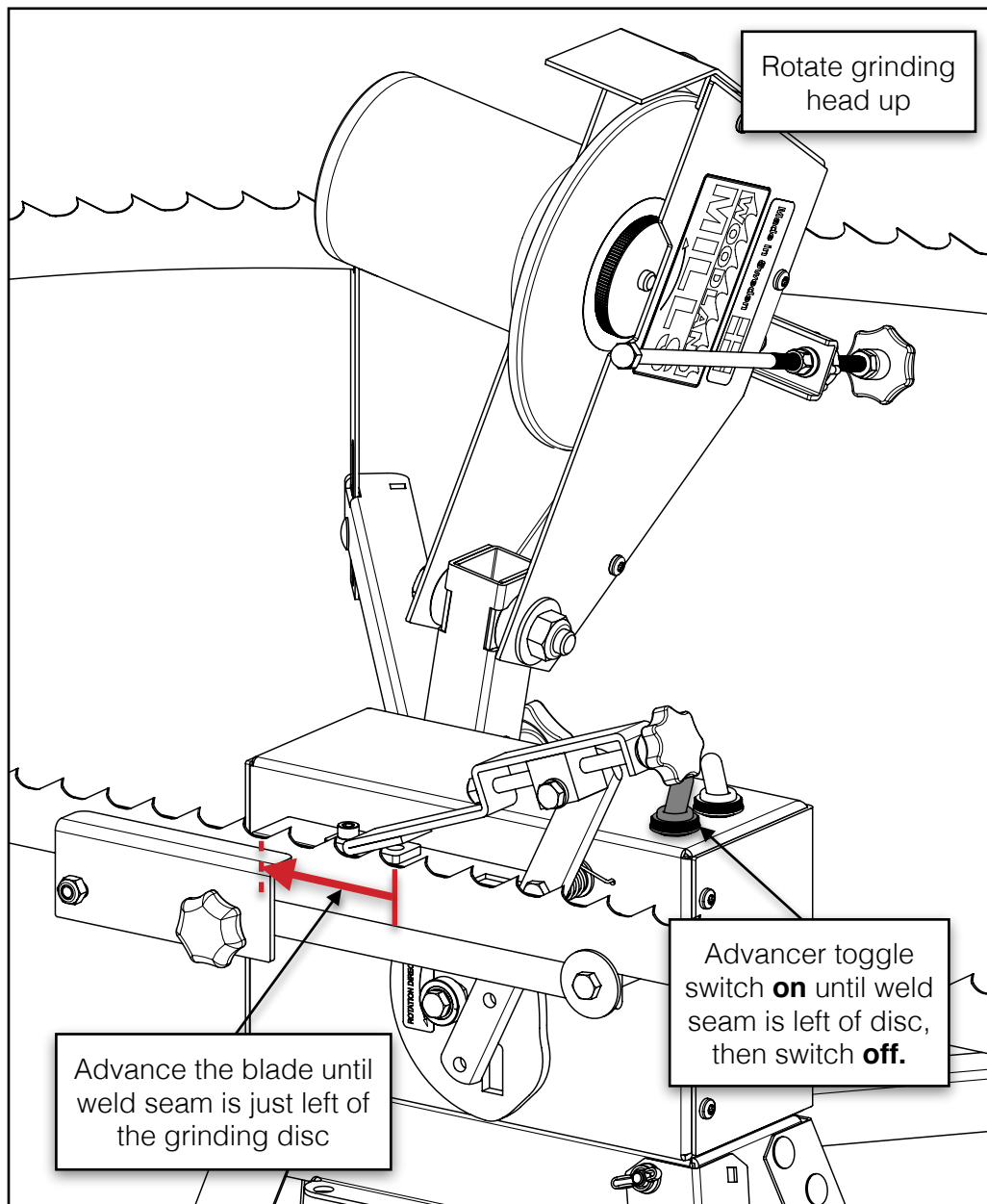
## 4. SHARPENING



With the machine now setup for the blade to be sharpened, follow the steps below to begin sharpening the teeth.

### A. ADVANCE THE BLADE

Lift the grind head and while holding the advancer up, manually pull the blade back through until the weld seam is right of the grinding disc. Turn on the advancer toggle switch, advance the blade through until the weld seam is just left of the grinding disc, and then turn the switch off.

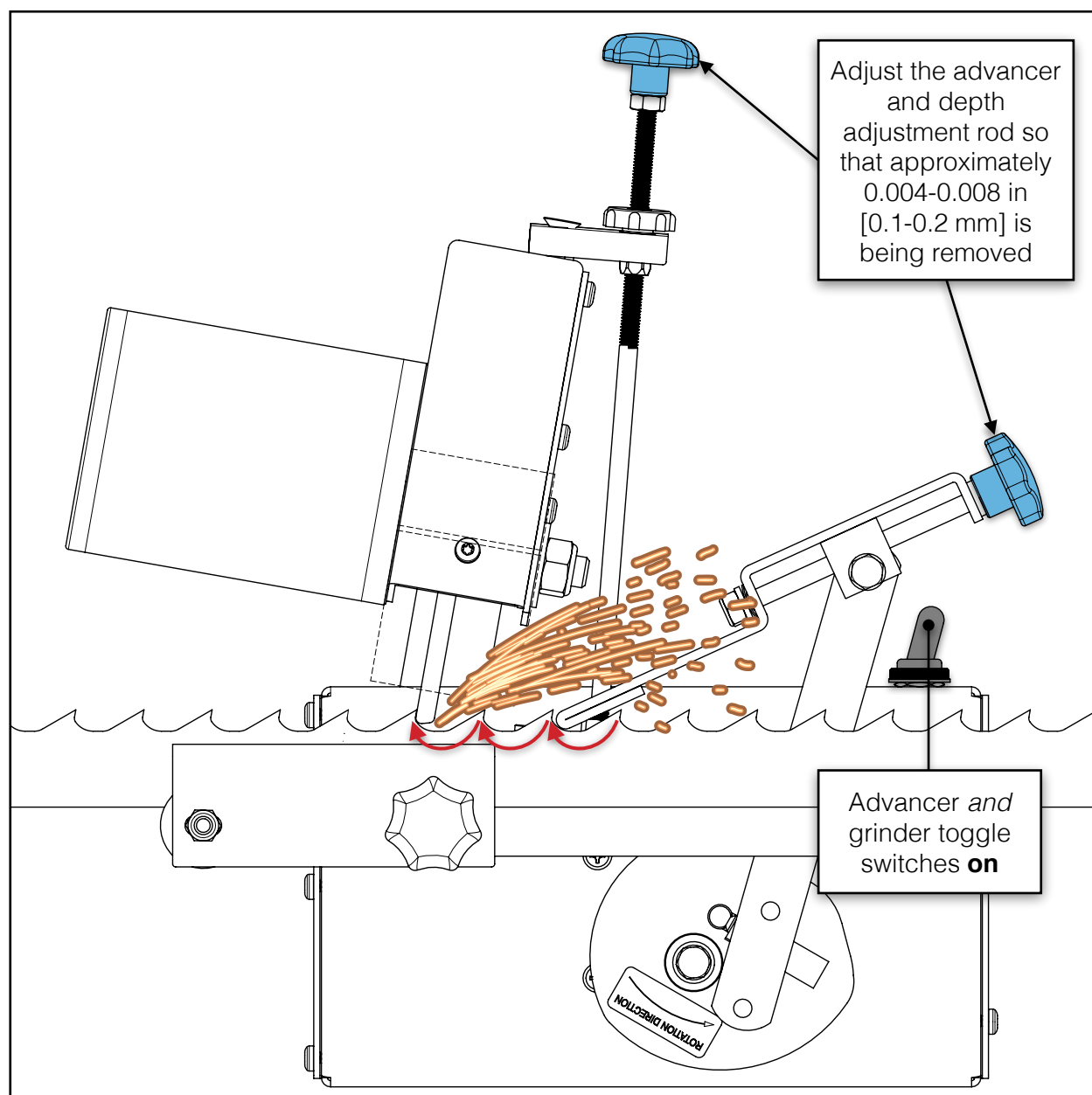


## B. SET GRIND DEPTH



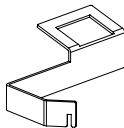
Rotate the grinding head down and seat the acorn nut in the stop plate hole. Turn on both the *advancer* *and* grinder toggle switches.

Make small adjustments to the advancer and depth adjustment rod to achieve a light grinding sound where approximately 0.004-0.008 in [0.1-0.2 mm] is being removed.



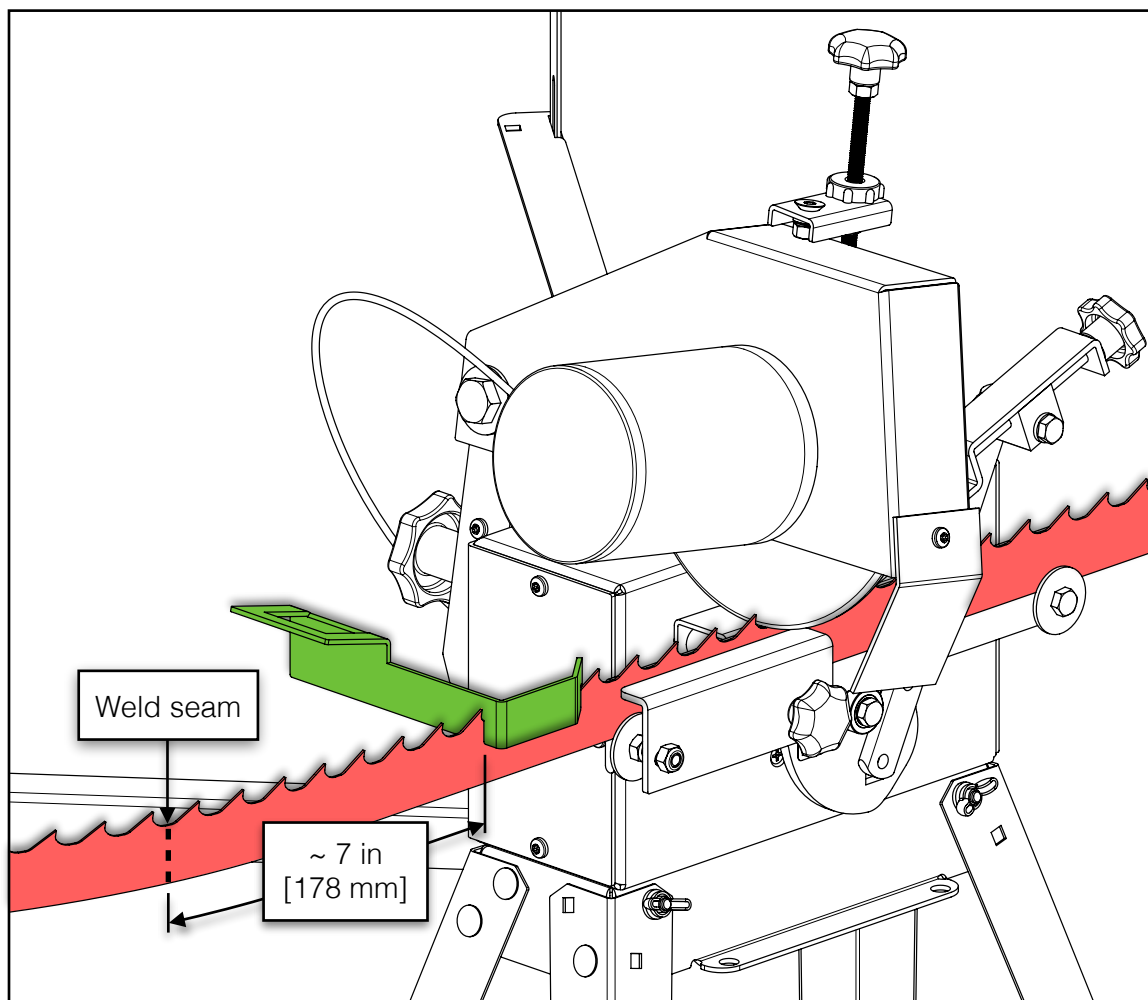
## C. POSITION THE AUTO-STOP

Attach the auto-stop to the blade to automatically stop the sharpener once all the teeth have been ground.

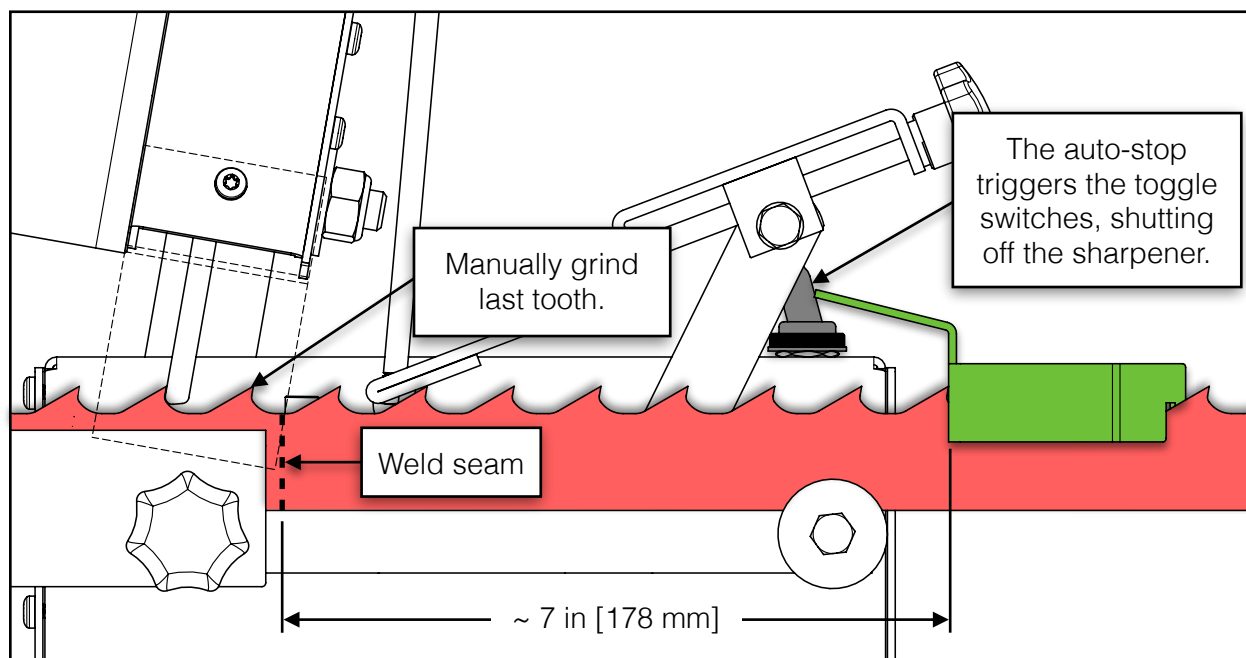
1x	Auto-Stop	
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It is important to correctly position the auto-stop in order to stop the sharpener before the blade weld seam reaches the grinding head. See “**Auto-Stop Activated**” graphic on next page.

Once the sharpener has ground 6-10 teeth (the number of teeth is dependant on the blade pitch), set the auto-stop on the closest blade tooth approximately 7 in [178 mm] right of the weld seam (e.g. 8 teeth from the weld on  $\frac{7}{8}$  in [22 mm] pitch blades).



When the auto-stop is positioned correctly it triggers the toggle switches just before the blade weld seam reaches the grinding disc.



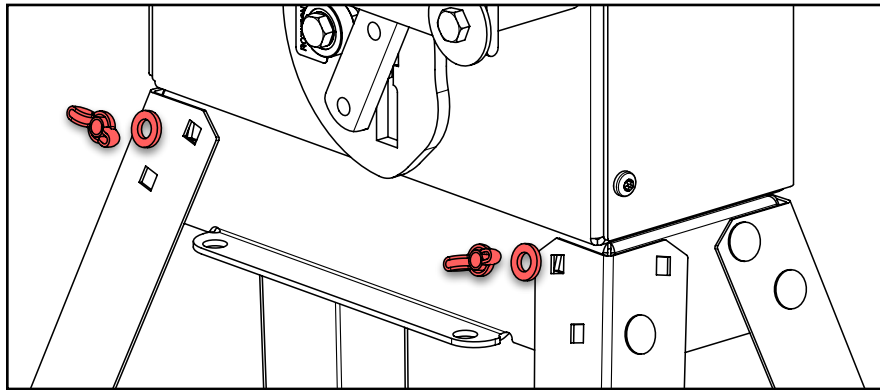
#### **AUTO-STOP ACTIVATED**

The last tooth can be ground manually by moving the blade and lowering the grinding head by hand to sharpen the hook face.

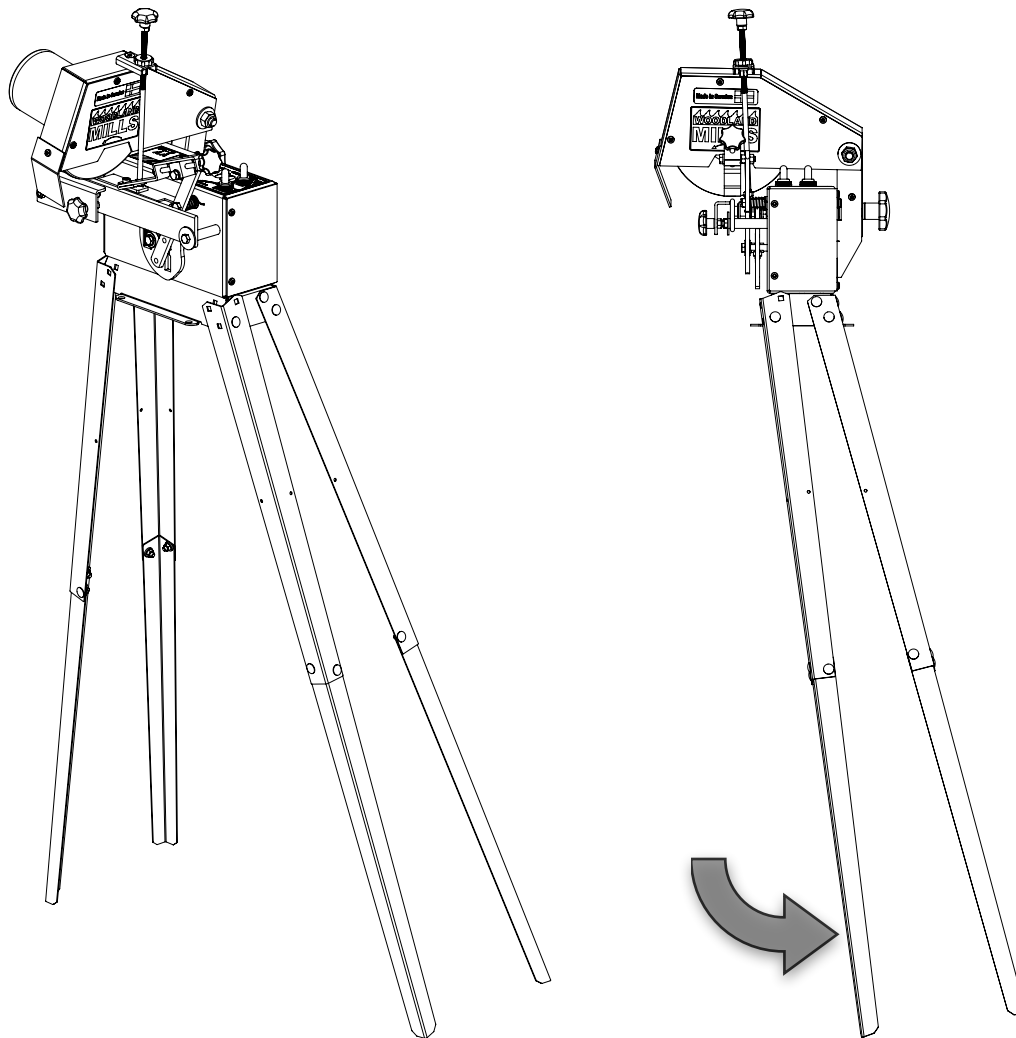


## STORAGE

The sharpener footprint can be reduced significantly by folding the front legs back. It can then be stored up against a wall or, hung from it, or fit in the back of a vehicle for easier transport.



Remove both support arms first. Then remove the wing nut, washer, and carriage bolt from the front of each leg. Push each leg backward and the mounting base will flex to accommodate the movement.





## PARTS LIST

Item	Qty	Part No.	Description
1	4	0001557	UPPER LEG
2	4	0001558	LOWER LEG
3	1	0001554	MOUNTING BASE
4	1	0003815	CONTROL BOX FRONT COVER
5	1	0003816	MOUNTING ARM SHAFT
6	2	0003817	BRONZE BUSHING, 12 mm OD, 10 mm BORE
7	1	0003818	CONNECTING ARM SHAFT
8	1	0003985	TORSION SPRING, HOOK ENDS, 0.575 in OD, 0.045 in DIA WIRE, 5 COILS
9	2	0003820	TOGGLE SWITCH, 15 A 250 VAC / 20 A 125 VAC
10	2	0003806	TOGGLE SWITCH CAP, M12 THD
11	1	0003682	WIRE HARNESS
12	2	0003807	FUSE, 0.5 A, 250 V
13	2	0003808	FUSE, 15 A, 250 V
14	1	0004104	BATTERY CLAMP, POSITIVE
15	1	0003814	CONTROL BOX REAR COVER
16	1	0001582	SPACER, 12 OD, 6 ID, 40mm LG
17	1	0001581	BLADE BACK REST
18	1	0001580	BLADE PRESSURE PLATE
19	2	0003981	KNOB, MULTI-LOBE, 32 mm OD, M6 X 1.0, 12 mm DP
20	1	0001585	LEVER SHAFT
21	1	0001584	LEVER
22	1	0001560	BLADE STOP
23	1	0001587	STOP PLATE
24	1	0003805	CAM
25	1	0001586	CONNECTING ARM
26	1	0003819	GEARMOTOR, 8 mm DIA SHAFT
27	1	0003988	OUTER MOUNTING ARM
28	1	0003989	INNER MOUNTING ARM
29	1	0003984	KNOB, MULTI-LOBE, 48 mm OD, M10 X 1.5, 40 mm LG
30	1	0001566	GRINDING WHEEL HOUSING
31	1	0003780	DC MOTOR, 12 VDC
32	1	0001553	GRINDING DISC, 152 mm OD, 6 mm THK
33	1	0001570	GRINDING DISC NUT
34	1	0003860	GRINDING WHEEL COVER PLATE
35	1	0001562	GRINDING SHIELD
36	1	0001569	DEPTH ADJUSTMENT ROD BRACKET
37	1	0001579	DEPTH ADJUSTMENT ROD, M6 X 1 THD
38	1	0003982	KNOB, CIRCULAR KNOBBED, M6 X 1.0, THRU
39	1	0001563	ADVANCER
40	1	0001564	ADVANCER ADJUSTMENT BLOCK
41	1	0003983	KNOB, MULTI-LOBE, 32 mm OD, M6 X 1.0, 90 mm LG
42	2	0004159	INNER BLADE SUPPORT ARM, 570 mm LG
43	2	0004158	OUTER BLADE SUPPORT ARM, ADJ, 570 mm LG
44	1	0003980	KNOB, 4 LOBE, 33 mm OD, M6 X 1.0, 16.5 mm LG
45	2	0001907	BLADE SUPPORT, BEARING MOUNT

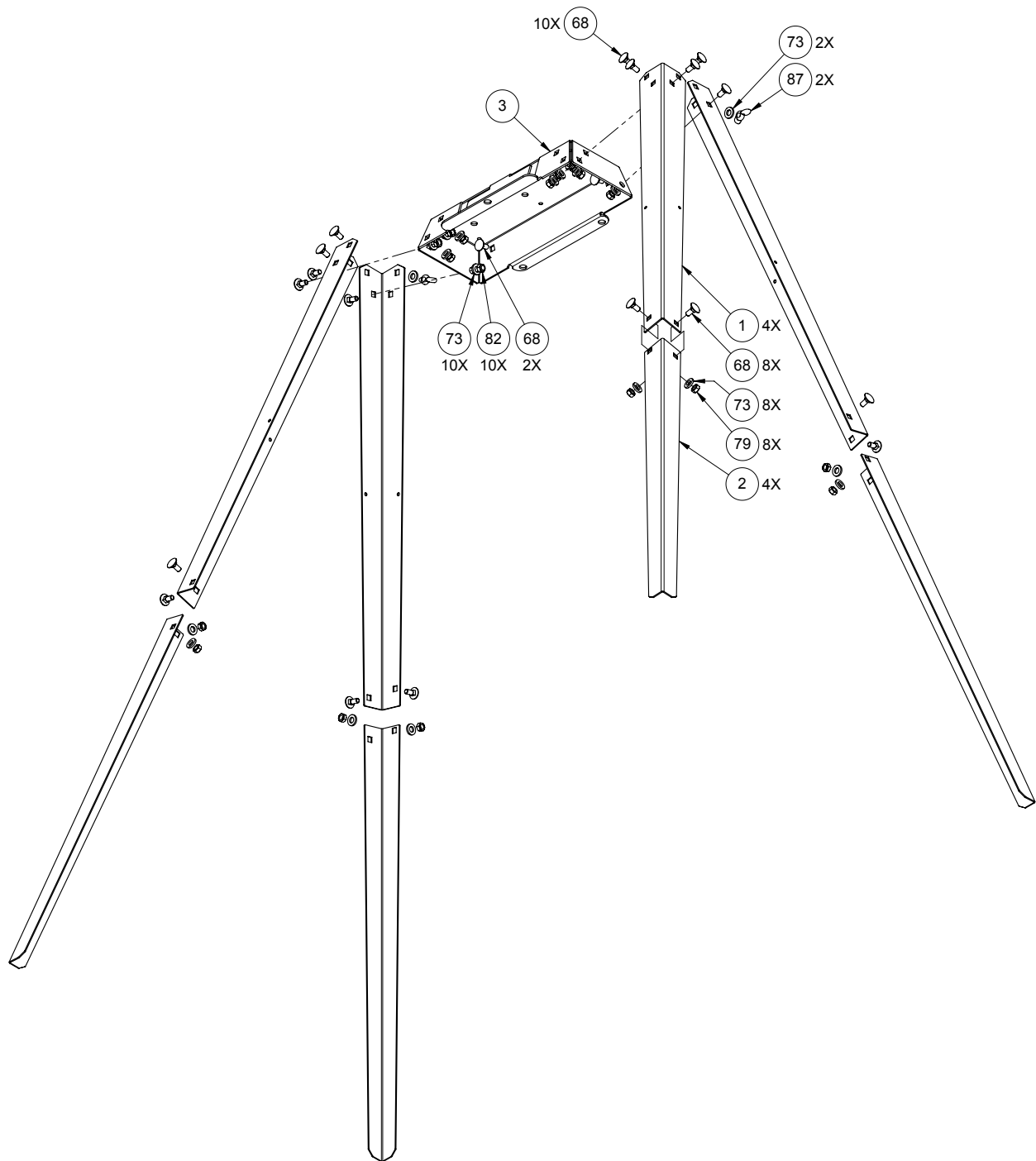


Item	Qty	Part No.	Description
46	1	0003132	WHETSTONE
47	1	0001561	GRINDING DISC PROFILE TEMPLATE
48	1	0004108	LABEL, TOGGLE SWITCH
49	1	0004109	LABEL, BATTERY POLARITY
50	1	0004110	LABEL, ROTATION DIRECTION
51	1	0004111	LABEL, BLADE ANGLE
52	1	0004112	LABEL, PRODUCT INFO
53	1	0004113	LABEL, QUALITY CONTROL
54	1	0004114	LABEL, WOODLAND MILLS W/ ROTATION ARROW
55	1	0004115	LABEL, MADE IN SWEDEN
56	4	626-2RS	BALL BEARING, SEALED, 626-2RS, 6mm BORE, 19mm OD, 6mm WIDE
57	2	6000-2RS	BALL BEARING, SEALED, 6000-2RS, 10 mm BORE, 26 mm OD, 8 mm WIDE
58	4	HDW	HEX BOLT, M5 X 0.8, 10 mm LG
59	4	HDW	HEX BOLT, M6 X 1, 15 mm LG
60	1	HDW	HEX BOLT, M6 X 1, 25 mm LG
61	2	HDW	HEX BOLT, M6 X 1, 30 mm LG
62	1	HDW	HEX BOLT, M6 X 1, 40 mm LG
63	1	HDW	HEX BOLT, M6 X 1, 60 mm LG, 18 mm LG THD
64	1	HDW	HEX BOLT, M10 X 1.5, 65 mm LG, 26 mm LG THD
65	1	HDW	SCREW, HFH, M6 X 1, 20 mm LG
66	1	HDW	SCREW, HFH, M6 X 1, 55 mm LG
67	1	HDW	SHCS, M5 X 0.8, 14 mm LG
68	22	HDW	CARRIAGE BOLT, SQ NECK, M5 X 0.8, 12 mm LG
69	1	HDW	SET SCREW, CUP POINT, M6 X 1, 10 mm LG
70	4	HDW	SCREW, PFH, M4 X 0.7, 8 mm LG
71	2	HDW	SCREW, TPH, T20 DRIVE, #8 [4.2 mm], 3/8 in [9.5 mm] LG
72	13	HDW	SCREW, TPH, T20 DRIVE, #8 [4.2 mm], 3/8 in [9.5 mm] LG, BLACK
73	32	HDW	FLAT WASHER, M6
74	3	HDW	FLAT WASHER, M10
75	2	HDW	FENDER WASHER, M6, 28 mm OD
76	2	HDW	FENDER WASHER, M10, 28 mm OD
77	3	HDW	WAVE WASHER, M6
78	1	HDW	CLIP, SIDE MOUNT, M6
79	20	HDW	HEX NUT, M5 X 0.8
80	9	HDW	HEX NUT, M6 X 1
81	1	HDW	HEX NUT, THIN, M6 X 1, 3.2 mm THK
82	1	HDW	LOCK NUT, M5 X 0.8
83	3	HDW	LOCK NUT, M6 X 1
84	1	HDW	LOCK NUT, M10 X 1.5
85	1	HDW	SQUARE NUT, M6 X 1, 10 mm SQ
86	1	HDW	ACORN NUT, M6 X 1
87	2	HDW	WING NUT, M5 X 0.8, STAMPED
88	2	HDW	COTTER PIN, 1/16 in DIA, 1/2 in LG
89	2	HDW	RETAINING RING, EXTERNAL, 10 mm SHAFT (9.6 mm GROOVE)
90	2	HDW	RETAINING RING, EXTERNAL, 12 mm SHAFT (11.5 mm GROOVE)
91	1	HDW	PUSH-IN GROMMET, 12 mm ID, 20 mm OD, 6 mm WIDE, 9.5 mm HOLE, 2 mm MAT'L

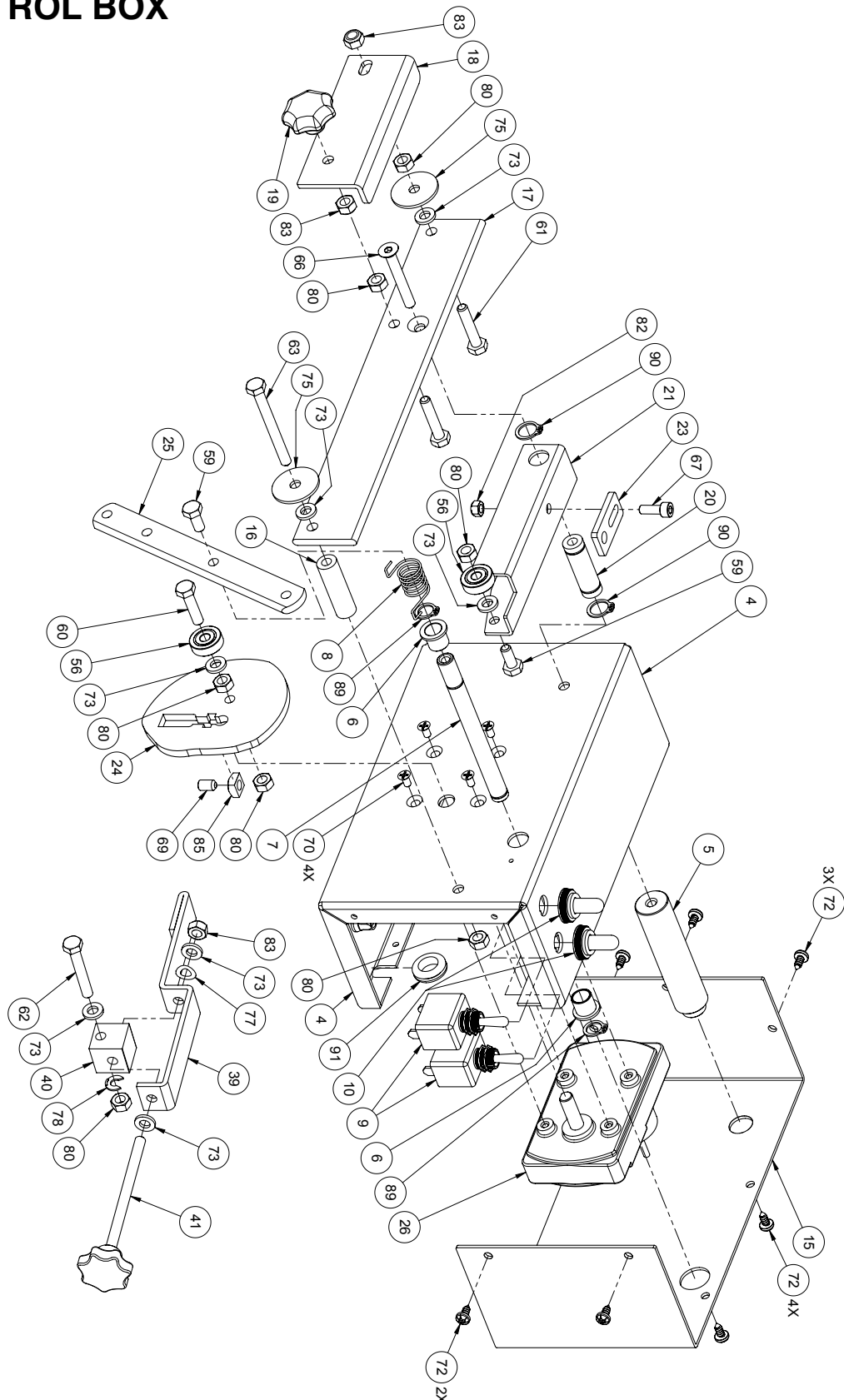


## EXPLODED ASSEMBLY VIEWS

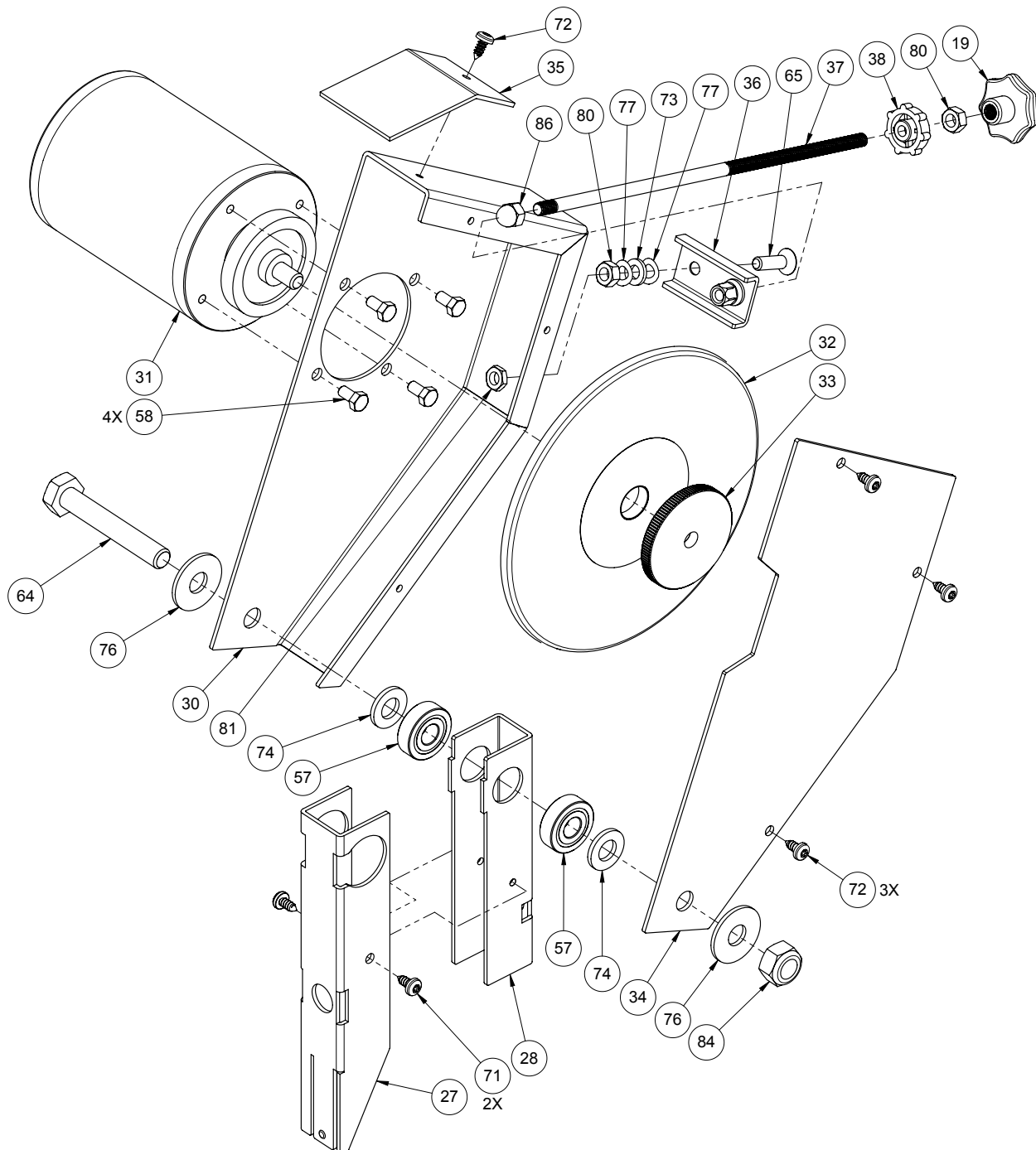
### STAND



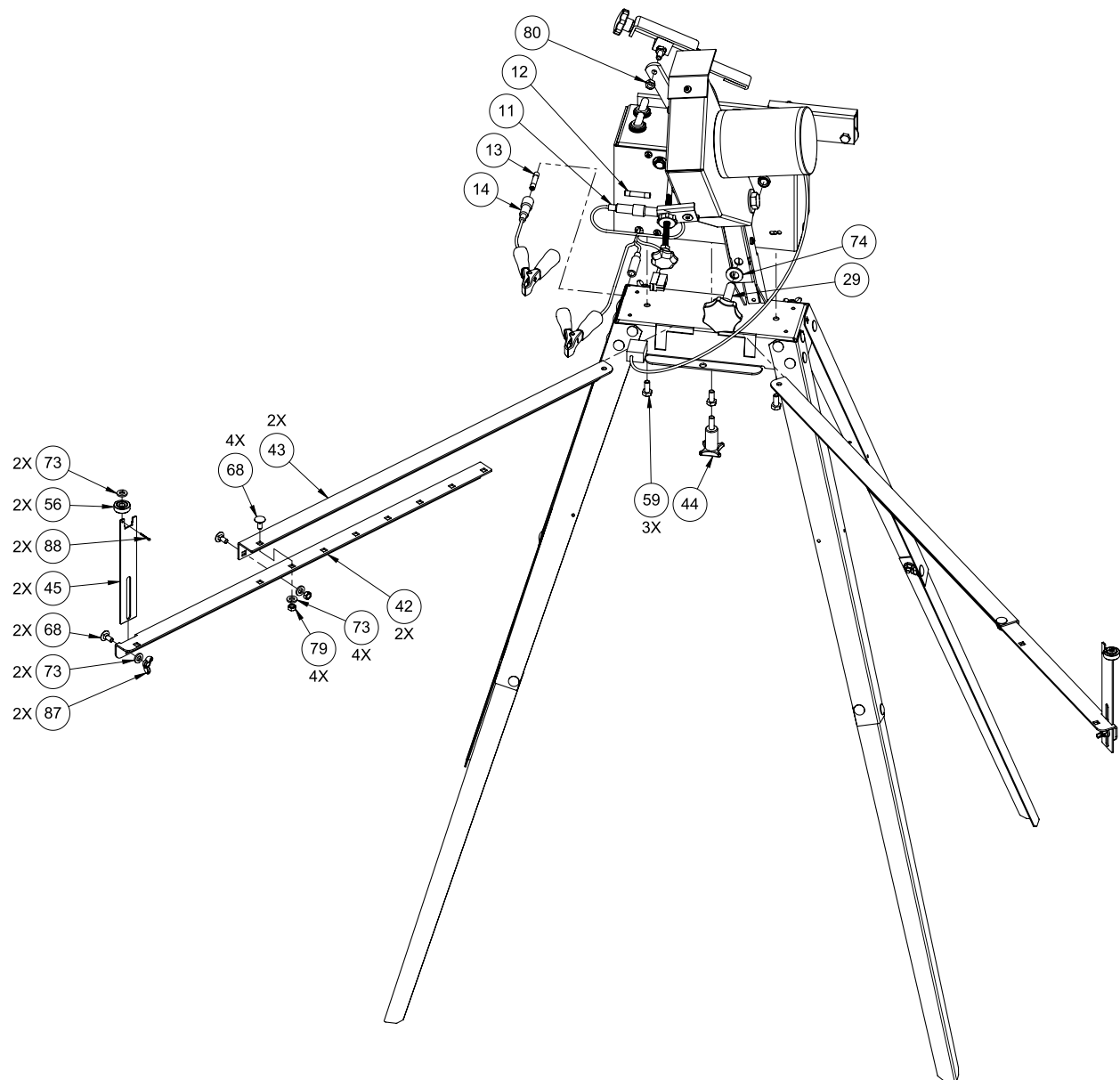
## CONTROL BOX



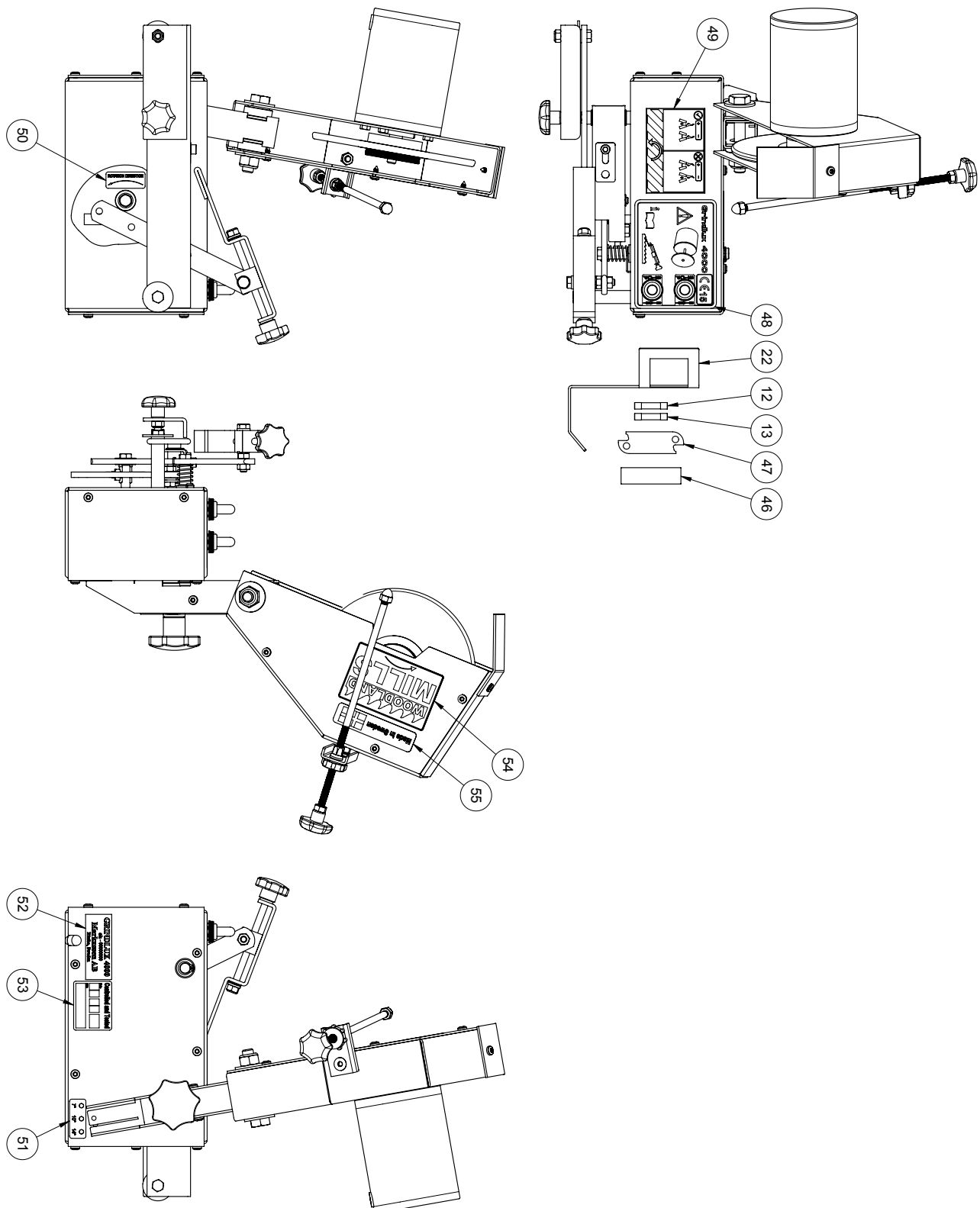
## GRINDING HEAD



## CONTROL HEAD TO STAND



## ACCESSORIES AND LABELS





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