Wood-Mizer®

Industrial Sharpener

Safety, Operation, Maintenance

BMS500	**rev. A1.10**
BMS600	**rev. A1.10**

Safety is our #1 concern! Read and understand all safety information and instructions before operating, setting up and/or maintaining this machine.

Form # 943

This is the original language for the manual.

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Table of Contents Section-Page

SECTION 1 SAFETY & GENERAL INFORMATION

This symbol calls your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions. This symbol accompanies a signal word.
The word **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. **WARNING** suggests a potentially hazardous situation which, if not avoided, could result in death or serious injury. **CAUTION** refers to potentially hazardous situations which, if not avoided, may result in minor or moderate injury to persons or equipment. Read all safety instructions before operating this equipment and observe all safety warnings!

Warning stripes are placed on areas where a single decal would be insufficient. To avoid serious injury, keep out of the path of any equipment marked with warning stripes.

Read and observe all safety instructions before operating the sharpener! Also read any additional manufacturer's manuals and observe any applicable safety instructions including dangers, warnings, and cautions.

Always be sure that all safety decals are clean and readable. Replace all damaged safety decals to prevent personal injury or damage to the equipment. Contact your local distributor, or call your Customer Service Representative to order more decals.

Always properly dispose of all by-products, including debris, coolant and oil.

Safety instructions are listed in this section by the following operations:

- Electrical Safety
- Blade Handling
- Machine Operation

1.1 Electrical Safety

DANGER! Make sure all electrical installation, service and/or maintenance work is performed by a qualified electrician and is in accordance with applicable electrical codes.

DANGER! HAZARDOUS VOLTAGE can cause shock, burns, or death. SHUT OFF & LOCK OUT POWER before performing service in any area of this machine. DO NOT restore power until all access panels are replaced and secured.

WARNING! Before performing any service to the machine, always turn off power supply using the disconnect switch on the electrical box and remove the plug from the power socket.

1.2 Blade Handling

WARNING! Always wear gloves and eye protection when handling bandsaw blades. Keep all persons away from area when coiling or carrying a blade (4 meters at least).

1.3 Machine Operation

DANGER! Make sure all guards and covers are in place and secured before operating the sharpener. Failure to do so may result in serious injury.

DANGER! Keep all persons at a safe distance from moving parts when operating this machine. Failure to do so may result in serious injury.

DANGER! Always keep hands away from moving bandsaw blade. Failure to do so will result in serious injury.

WARNING! Always wear eye, ear, respiration, and foot protection when operating this machine. Failure to do so may result in serious injury.

WARNING! Secure all loose clothing and jewelry before operating this machine. Failure to do so may result in serious injury or death.

WARNING! The sharpener should not be operated by persons allergic to ACP-1 oil or its vapors.

1.4 Sharpener Components

See Figure 1-1. The major components of the BMS500/BMS600 Industrial Sharpener are shown below.

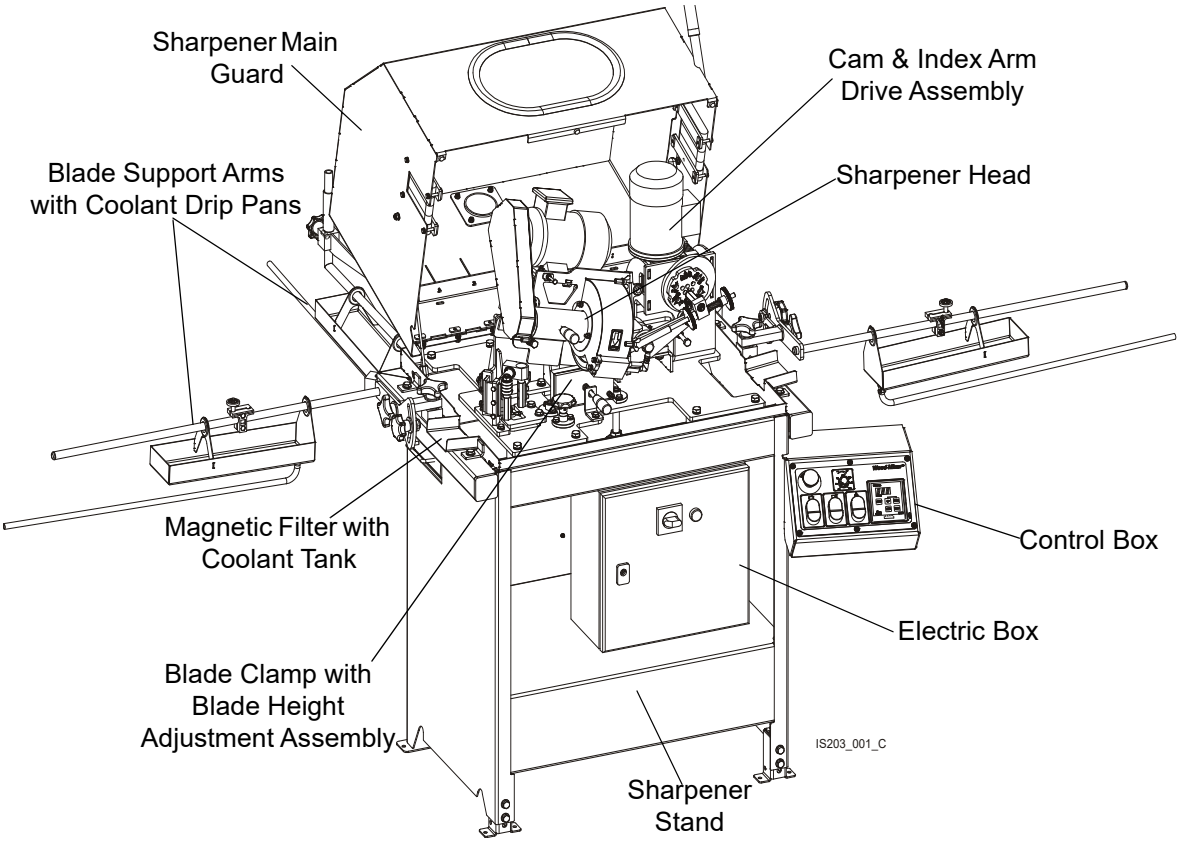


FIG. 1-1

1.5 Overall Dimensions

See Table 1-1. The overall dimensions of the BMS500/BMS600 sharpener (without the blade support arms) are listed below.

Model	Length	Width	Height
BMS500/BMS600	865mm (34")	1202mm (47.32")	1476mm (58.11")

TABLE 1-1

See Figure 1-2. The figure below shows overall dimensions of the BMS500/BMS600 sharpener with the blade support arms installed.

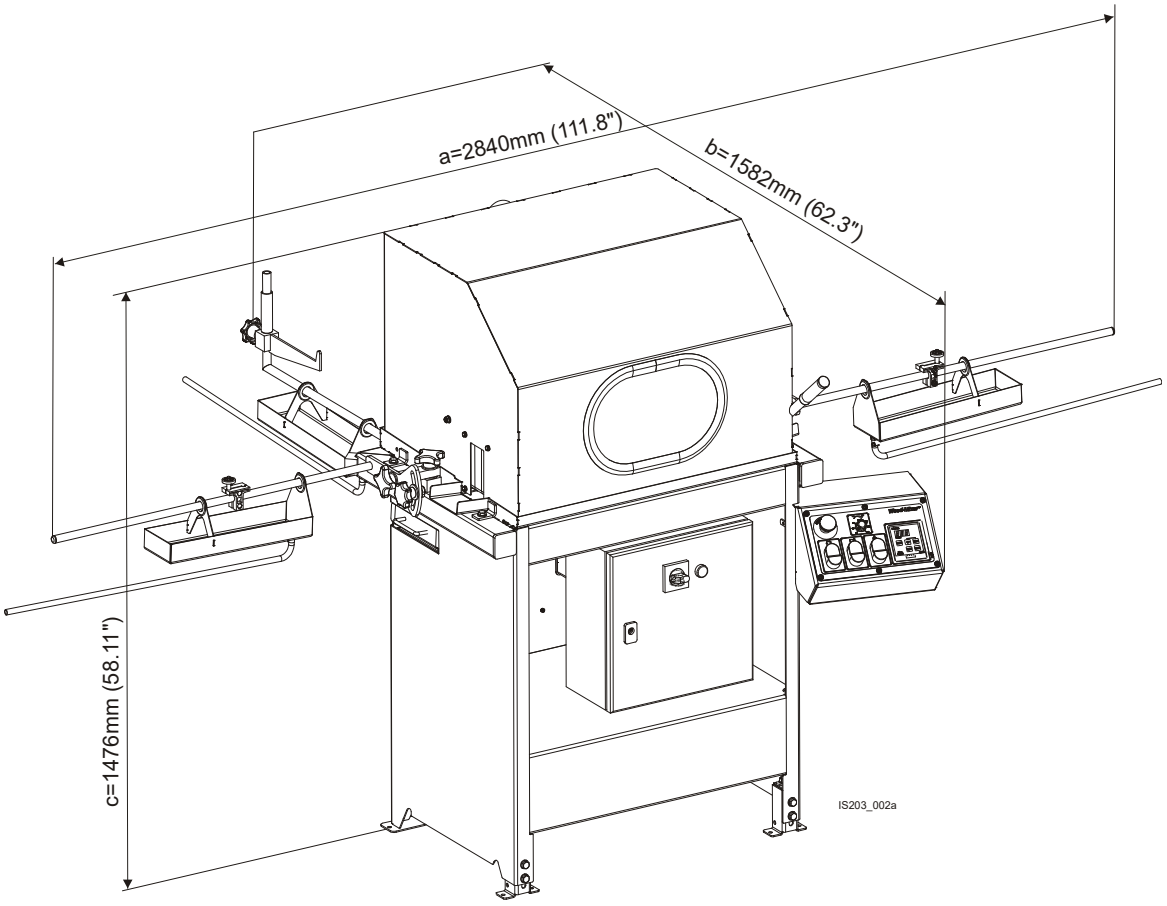


FIG. 1-2

1.6 Noise Level

See Table 1-2. The level of noise generated by the BMS500/BMS600 sharpener is given in the table below[1].

	Max. Noise Level
BMS500/BMS600	80 dB (A)

TABLE 1-2

1.7 Motor Specifications

See Table 1-3. The grinder motor specifications are listed below.

Type	Manufacturer	Model	Power	Other Data
Electric Motor	Besel, Poland	Sh7IX-2C	.75 kW	2820 r.p.m.

TABLE 1-3

See Table 1-4. See the table below for the supply voltage specifications.

Sharpener Type	Voltage	Current/Frequency
BMS500AU BMS600AU	**1 x 230V [L1+N (L1=230V, N-neutral)] 1 x 230V [L1+L2 (230V phase-to-phase voltage)]**	**18A @ 50/60Hz 22A @ 50/60Hz**
BMS500B(S/U) BMS600B(S/U)	**3 x 230V**	**12A @ 50/60Hz 16A @ 50/60Hz**
BMS500C(S/U) BMS600C(S/U)	**3 x 460V**	**5,5A @ 50/60Hz 8,5A @ 50/60Hz**
BMS500H(S/U) BMS600H(S/U)	**3 x 400V**	**10,5A @ 50/60Hz 11,5A @ 50/60Hz**

TABLE 1-4

1. The measured values refer to emission levels, not necessarily to noise levels in the workplace. Although there is a relation between emission levels and exposure levels, it is not possible to determine with certainty if preventives are needed or are not needed. The factors affecting a current level of noise exposure during work are inter alia room characteristics and characteristics of other noise sources, e.g. number of machines and machining operations nearby. Also, the permissible exposure level value may vary depending on country. This information enables the machine's user to better identify hazards and a risk.

1.8 Technical Data

See Table 1-5. See the table below for technical data on the BMS500/BMS600 sharpener.

Maximum Blade Width	76 mm (3")
Grinding Wheel Main Shaft Speed	4280 rpm
Feed Rate	0-64 teeth / min
Coolant Tank Capacity	15 l (3 gallon)
Cam Motor Power	.25 kW
Total Power	1.2 kW
Sharpener Weight	270 kg (595 lb)

TABLE 1-5

See Table 1-6. See the table below for coolant specifications.

Oil Type	Manufac-turer	Freezing Point	Flash Point	Autoignition Point	Viscosity
ACP-1E [1]	Orlen [2]	-20° C (-4° F)	Above 140° C (284° F)	250° C (482° F)	18-20 cST (1,8-2*10^{-5} m^2/s) at 40°C (5.905 ft/s at 104° F)

TABLE 1-6

[1] Waste oil must be disposed of in compliance with applicable national and local regulations.
[2] You may use oil of different manufacturer, but it must meet specification shown above.

1.9 Control Panel Components

See Figure 1-3. The control panel components and their descriptions are given below.

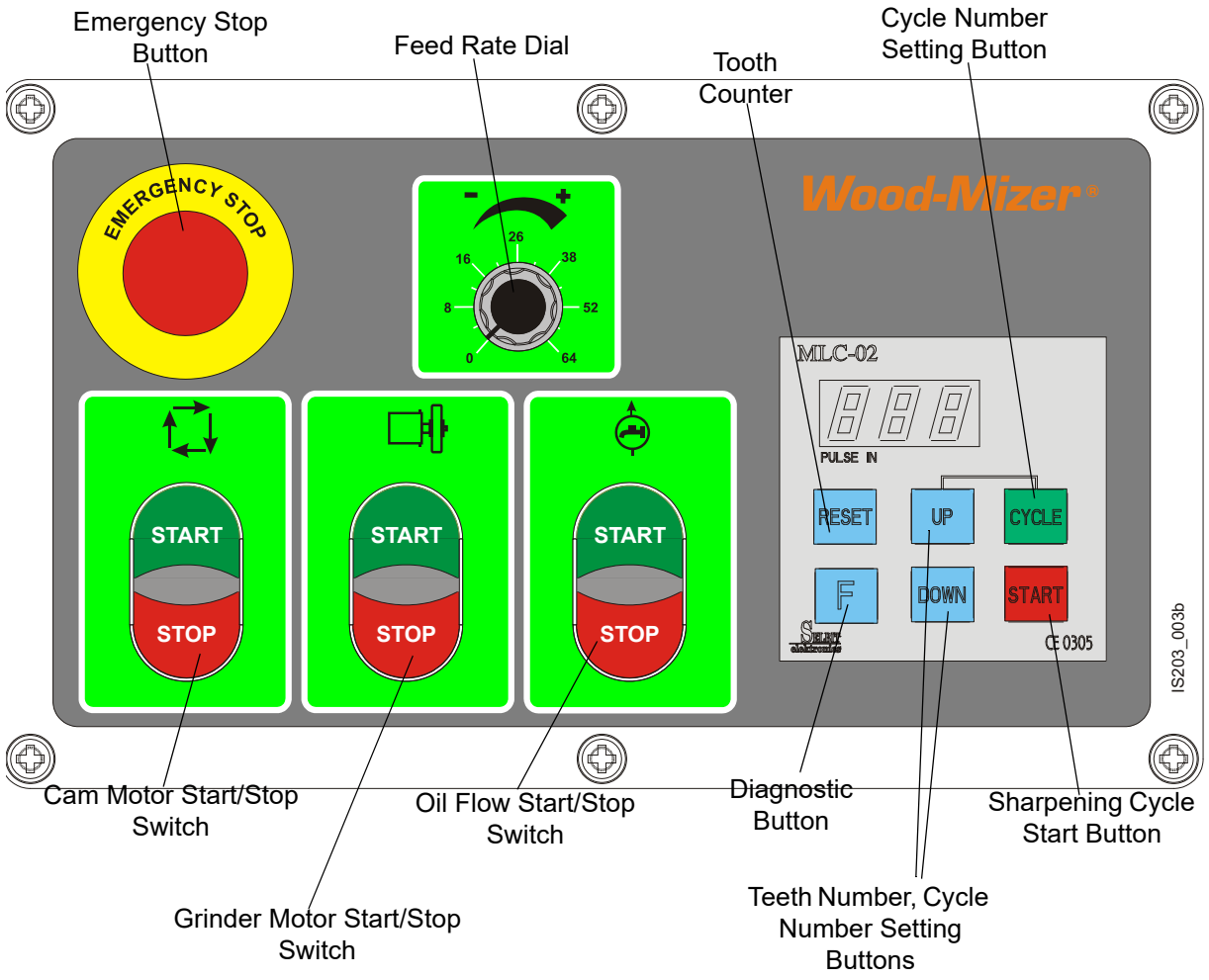


FIG. 1-3

- ***Emergency Stop Button shuts off all sharpener operations.***

- Press this button to shut off all machine operations. **NOTE**: After being activated, the emergency stop button must be reset before the sharpener can be operated again. To reset, rotate the button counterclockwise and release.

- ***Feed Rate Dial Controls cam rotational speed, i.e. number of sharpened teeth per minute.***

  Rotate the dial as necessary to increase or decrease the cam speed.

- ***Cam Motor Start/Stop Switch***

- Press "START" on the Cam Motor Start/Stop Switch to start the cam and index arm motor. **NOTE:** Before starting the cam motor, place the Feed Rate Dial in the "0" position.

To turn off the cam motor and unclamp the blade, press "STOP" on the Cam Motor Start/Stop Switch.

- **Grinder Motor Start/Stop Switch starts/stops the grinder motor.**

- **Oil Flow Start/Stop Switch starts/stops the coolant pump motor.**

- ***Tooth Counter sets/keeps track of number of teeth to be sharpened and sharpening cycyles.***

  The display shows a preset number of blade teeth to be sharpened. To set this number, use the "UP" and "DOWN" buttons located under the display window. When sharpening cycle is started (with the Sharpening Cycle Start Button), the dispay will be showing current number of teeth that have been sharpened. After reaching the set number of teeth, "End" will be diplayed and the tooth counter has to be reset before the sharpener can be operated again. To reset, press the "RESET" button.

  If you need to sharpen the blade more than once, before sharpening set the cycle number with the "CYCLE" button (for ex. if you want to set three cycles, press "CYCLE" button three times). **HINT:** We advise to not change the cycle number from 1 cycle. If the blade needs to go around the sharpener more than once, complete first cycle and readjust for blade height and face grind to ensure you are grinding the full profile.

  The diagnostic button "F" is used to check the outputs of the counter. Press and hold the "F" button to start the diagnostic proces. When it is finished, the counter will go back to normal operation.

- ***Disconnect Switch (located on the main electric box) disconnects/connects power to the machine.***

  Turn the switch to the horizontal position ("0" - OFF) to lock out all electrical power during service or when the sharpener is not in use. **NOTE:** Place the disconnect switch in the "0" position before opening the electric box door.

- To reconnect power to the machine, turn the switch to the vertical position ("1" - ON).

See Figure 1-4. The disconnect switch on the sharpener electric box is shown below.

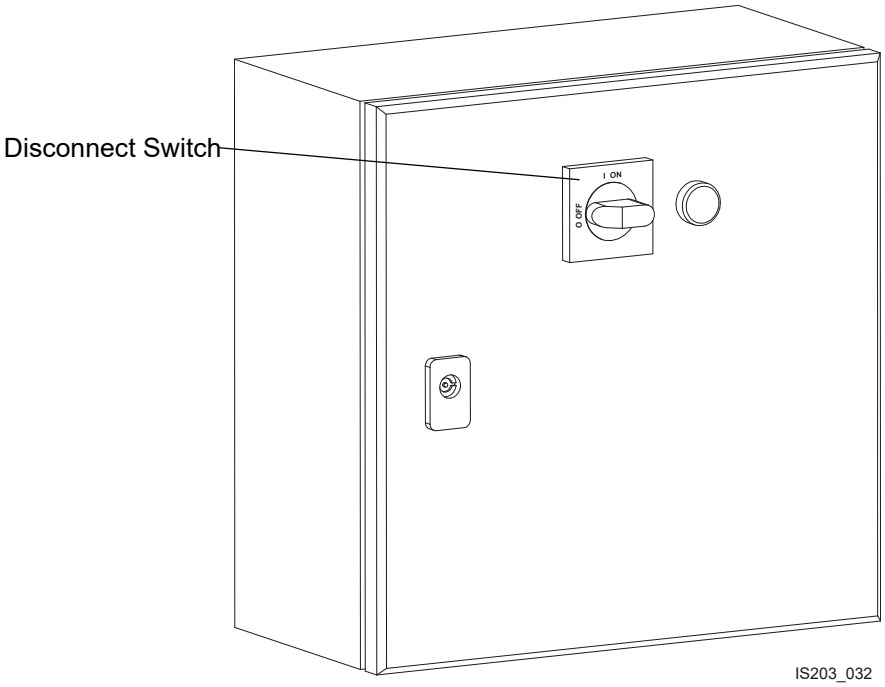


FIG. 1-4

1.10 Safety Decals Description

See Table 1-7. See the table below for descriptions of the pictographic warning and informative decals placed on the BMS500/BMS600 sharpener.

TABLE 1-7

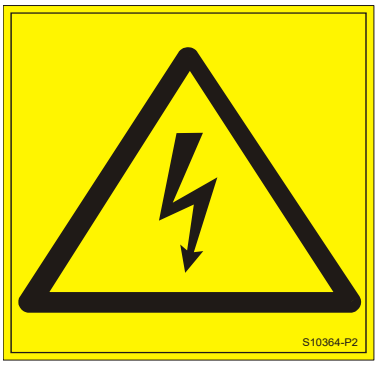
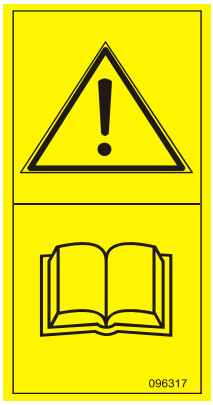
Decal View	Decal No.	Description
	S10364-P2	"Hazardous voltage"
	086362	General warning symbol
	096317	CAUTION! Read thoroughly the manual before operating the machine. Observe all safety instructions and rules when operating the sharpener.

TABLE 1-7

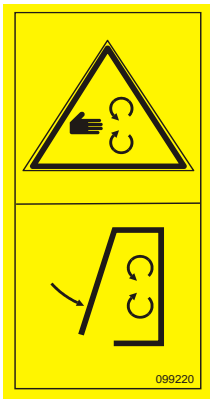
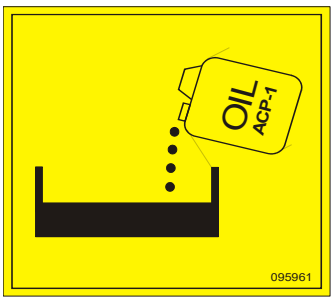
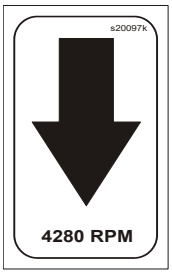
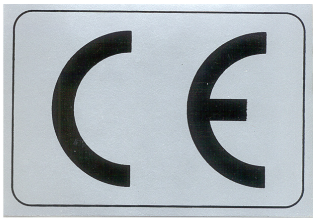
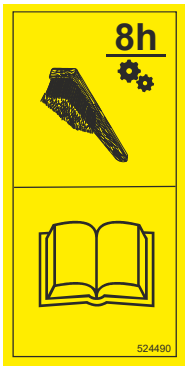
	099220	Close all guards and covers before starting the machine.
	095961	Use ACP-1 oil.
	S12004G-1	Always wear safety goggles when operating the sharpener!
	512107	CAUTION! Always wear protective gloves when operating the sawmill
	501467	Point of lubrication.

TABLE 1-7

	S20097K	Direction of motor revolutions - 4280 r.p.m.
	P85070	CE safety certification
	524490	Clean the sharpener every 8 hours of operation.

SECTION 2 SETUP & OPERATION

2.1 Starting the Machine

IMPORTANT! Before starting to use the sharpener, perform the following steps:

- Remove the machine from the pallet.

See Figure 2-1.

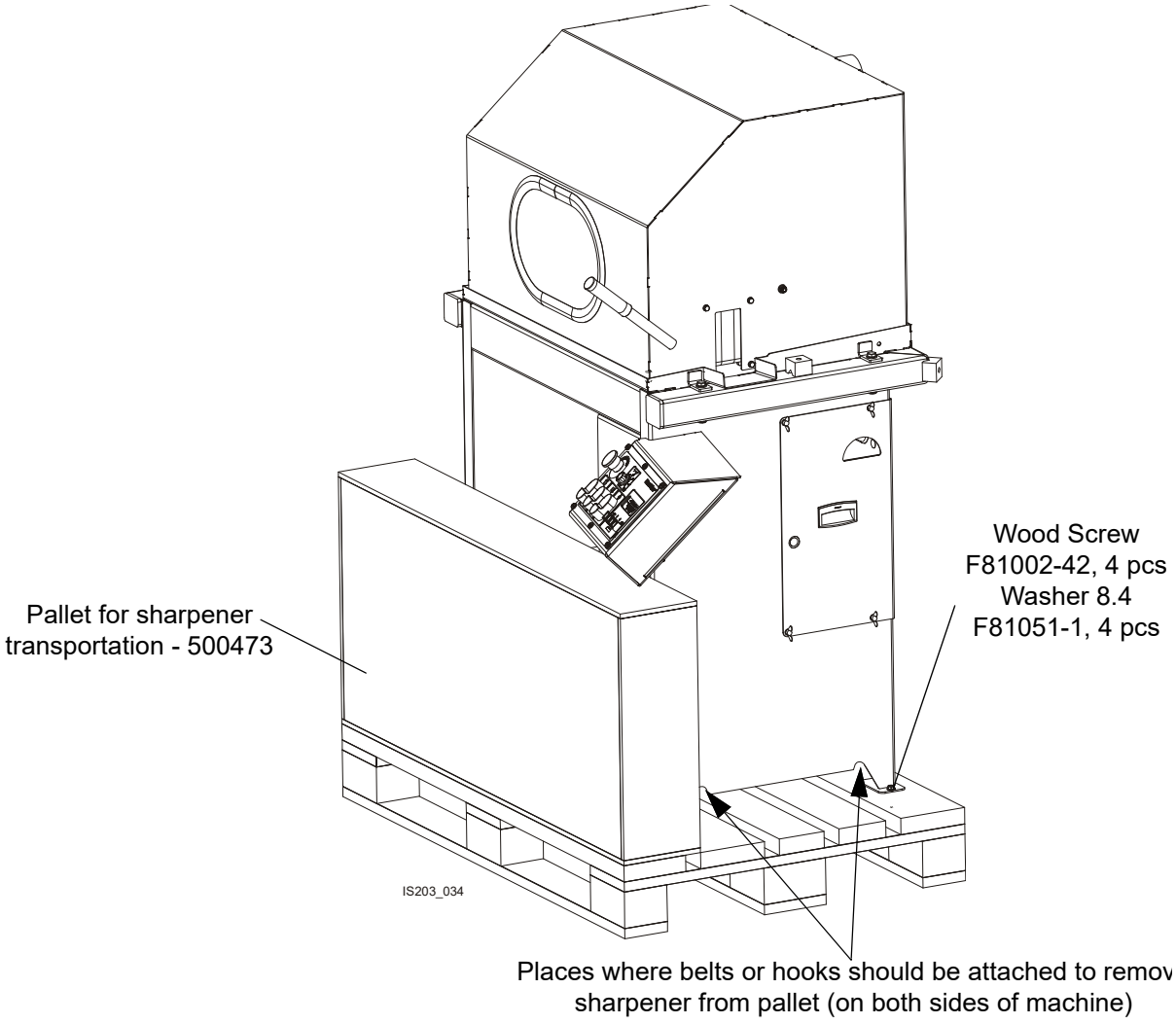


FIG. 2-1

- Fasten the sharpener to the floor using the mounting holes in the feet.
- The sharpener can be operated with an oil mist exhaust system only.
- The machine can be operated under roof only.

- The machine can be operated at the temperature range of 5° C to 40° C (41°F to 104°F)and at the humidity of up to 80 percent.
- For cooling the grinding wheel, use only oil meeting the specifications: *See table 1-6*. Do not use any other liquids, e.g. water.
- The position of the sharpener operator is shown below.

See Figure 2-2.

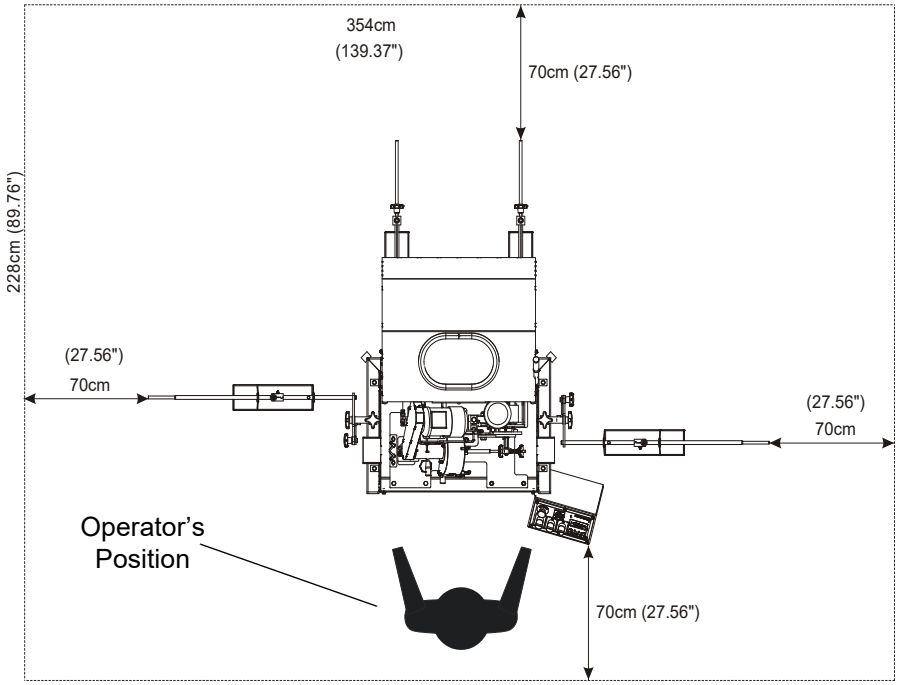


FIG. 2-2

- The operator must always wear safety goggles and protective gloves when operating the sharpener.
- There must be at least 70cm (27.56") of free space around the sharpener.
- Have a qualified electrician install the power supply. The power supply should meet the specifications given in the table below.

Sharpener Type	Voltage	Fuse Disconnect [A]	Recommended Wire Size
BMS500AU **BMS600AU**	**230V [L1+N (L1=230V, N-neutral)]** **230V [L1+L2 (230V phase-to-phase voltage)]**	10 Amp	minimum 1.5 mm^2 (min. 15 AWG)
BMS500B(S/U) **BMS600B(S/U)**	**3 x 230V**	10 Amp	minimum 1.5 mm^2 (min. 15 AWG)
BMS500C(S/U) **BMS600C(S/U)**	**3 x 460V**	10 Amp	minimum 1.5 mm^2 (min. 15 AWG)

TABLE 2-1

BMS500H(S/U) **BMS600H(S/U)**	**3 x 400V**	10 Amp	minimum 1.5 mm^2 (min. 15 AWG)

TABLE 2-1

DANGER! It is recommended that a 30mA GFI (Ground Fault Interrupter) be used.

2.2 Blade Support Arms Installation

The industrial sharpener is equipped with two side blade support arms with blade support guide assemblies.

To install the support arms, first apply grease to their threaded ends. Then insert the arms into the threaded holes on both sides of the sharpener.

1. Each guide assembly includes a blade support with post, a blade support without post, two bolts, a locking nut and a wing nut.

   See Figure 2-3. To install the blade support guide assemblies, join each of them around one blade support arm. Face the post outward as shown. Connect the both parts of the assembly using the provided hex head bolts. Bolt from the hexed side of the blade support guide assembly (these hex-shaped holes will keep the bolts from turning once in place). Secure the bottom bolt with a locking nut. Secure the top bolt with a wing nut.

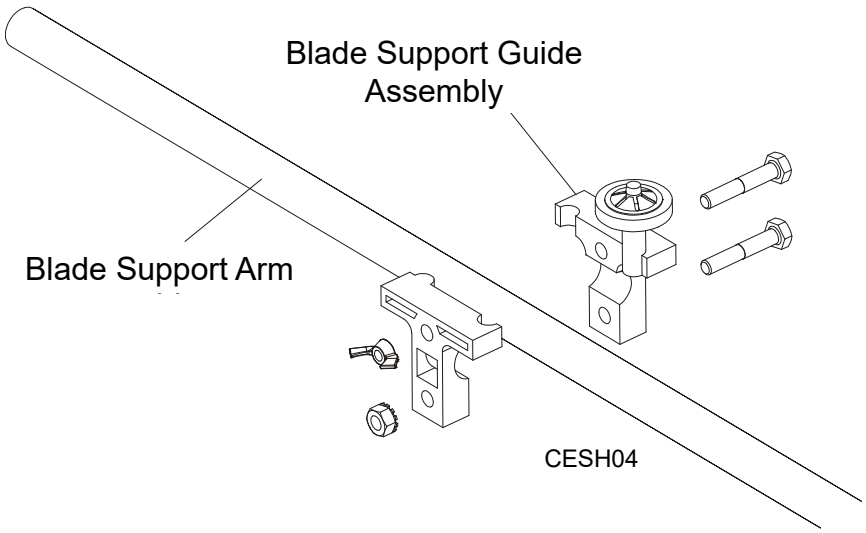


FIG. 2-3

2. Tilt the guides on the left blade support arm slightly backward, toward the rear of the sharpener. Tilt the guides on the right support arm slightly forward, toward the front of the sharpener.

3. The blade support guide assembly can be positioned at any location on the blade support arm, depending on the blade length. The side blade support arms can be adjusted horizontally if necessary. All blade support arms can be adjusted up or down, depending on the blade width.

See Figure 2-4.

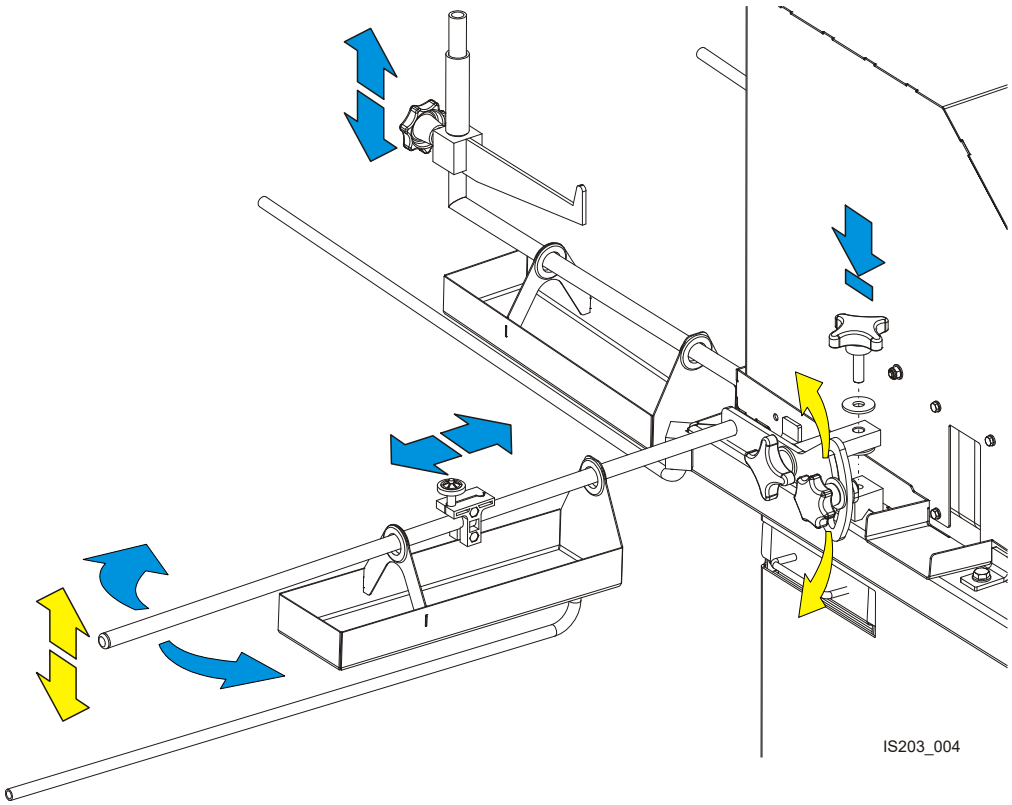


FIG. 2-4

2.3 Blade Height Adjustment

The BMS500/BMS600 sharpener is equipped with a blade height adjustment assembly that allows smooth height adjustment of 1”(25 mm), 1 1/4” (31.25 mm), 1 1/2” (37.5 mm), 1 3/4" (43.75 mm), 2" (50mm) and 3" (75mm) wide blades.

To install the blade, release the blade clamp by pushing the clamp handle down.

See Figure 2-5. Position the blade on the pins of the blade height adjustment screws as shown below. Use the blade height adjustment knob to adjust the blade height.

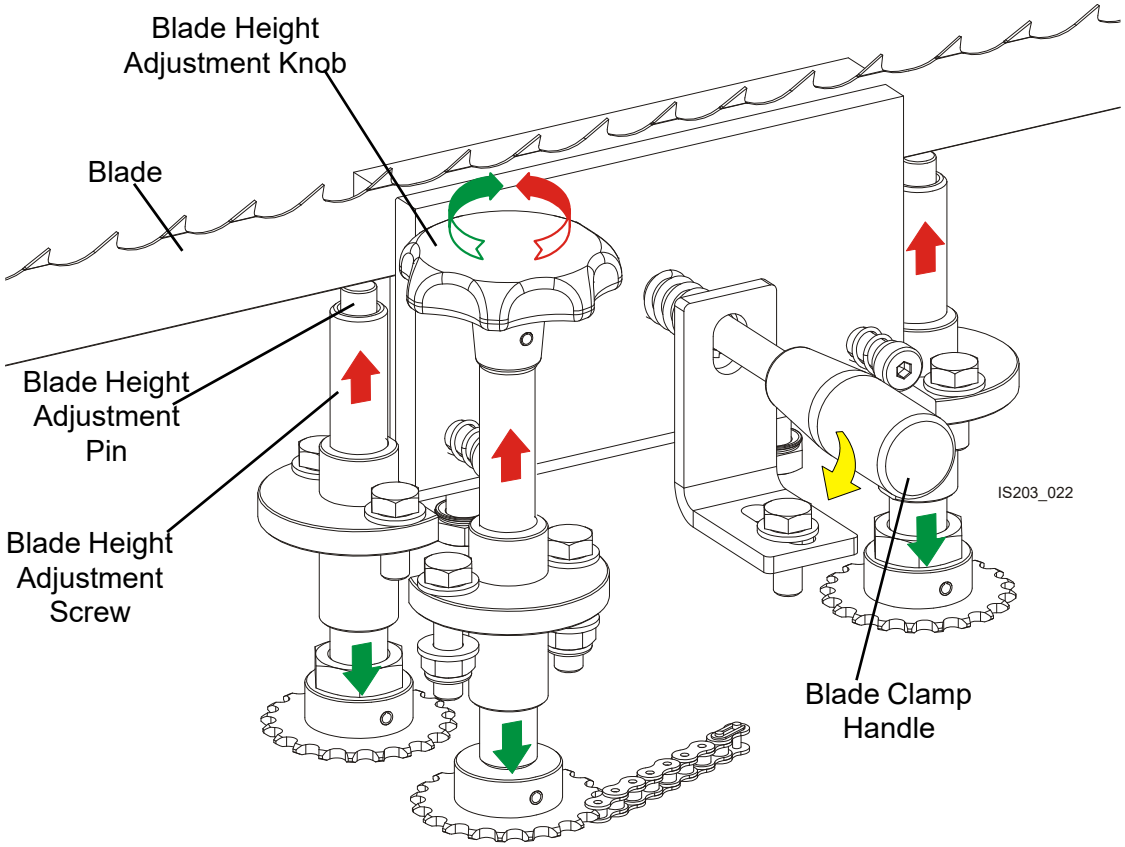


FIG. 2-5

IMPORTANT! After adjusting the blade height, adjust the blade support arms in the vertical plane as necessary so the blade will remain level around its complete length.

2.4 Sharpener Alignment

Use the provided alignment tool as necessary to achieve accurate alignment between the blade clamp and the grinding wheel.

IMPORTANT! Do not attempt to adjust the set screws of the tool. They have been adjusted at the factory to ensure accurate alignment

results.

CAUTION! Make sure the grinder motor is OFF.

1. Cycle the cam until the grinding wheel is at the tip of the tooth (about to begin face grind).

2. Remove the grinding wheel side guard and the grinding wheel mounting nut. Dismount the oiler. Remove the grinding wheel.

3. Remove the moving blade clamp plate.

4. Install the alignment tool to the spindle main shaft (Nr WM#505190) as shown below.

   See Figure 2-6. Position the tool so that all three set screws touch the fixed blade clamp plate. Reinstall the grinding wheel mounting nut and tighten to secure in place.

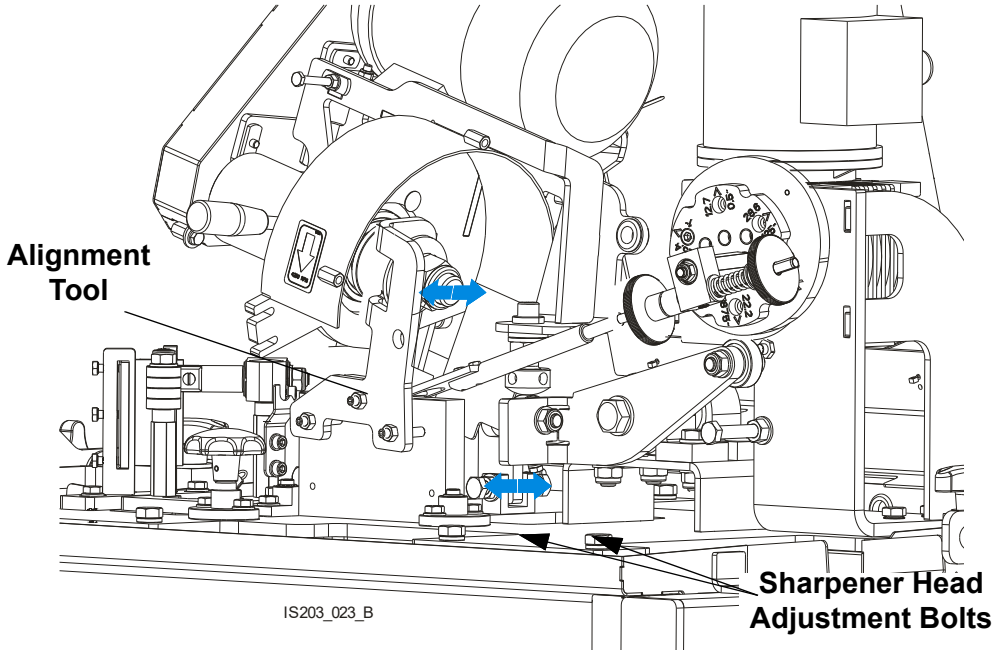


FIG. 2-6

5. If any of the tool set screws does not touch the fixed clamp plate, loosen the sharpener head mounting bolts shown in the figure below.

6. Using the adjustment bolts, adjust the sharpener head in the horizontal plane so that all three alignment tool set screws touch the fixed clamp plate. Secure in position by tightening the sharpener head mounting bolts.

See Figure 2-7.

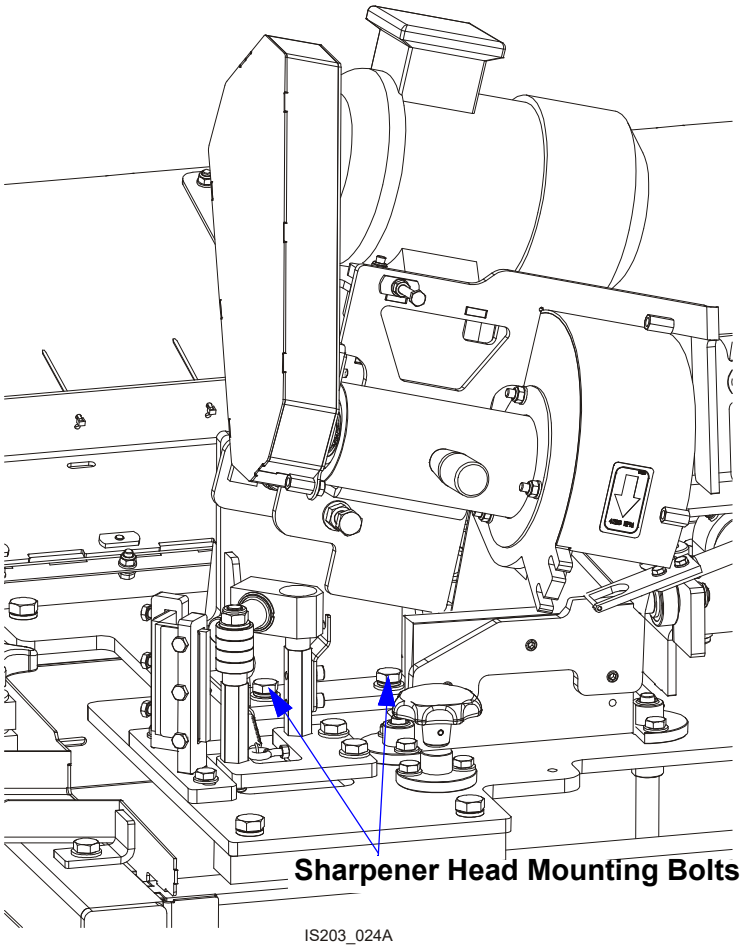


FIG. 2-7

7. Remove the grinding wheel mounting nut and the alignment tool.

8. Install the moving blade clamp plate.

9. Install the grinding wheel and secure in place with the mounting nut.

10. Mount the oiler. Install the grinding wheel side guard.

2.5 Drive Belt Tension

The drive belt should be deflected 0.33" (8.5 mm) deflection with a 4.5 lbs (20N) deflection force.

See Figure 2-8.

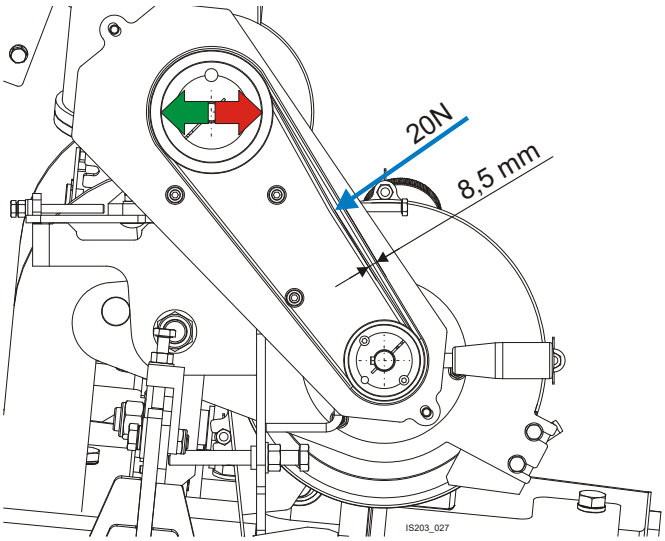


FIG. 2-8

See Figure 2-9. Loosen the nuts on the grinder motor mounting bolts. Turn the lower tensioning bolt clockwise and the upper tensioning bolt counterclockwise to tighten the drive belt. Turn the upper tensioning bolt clockwise and the lower tensioning bolt counterclockwise to loosen the drive belt.

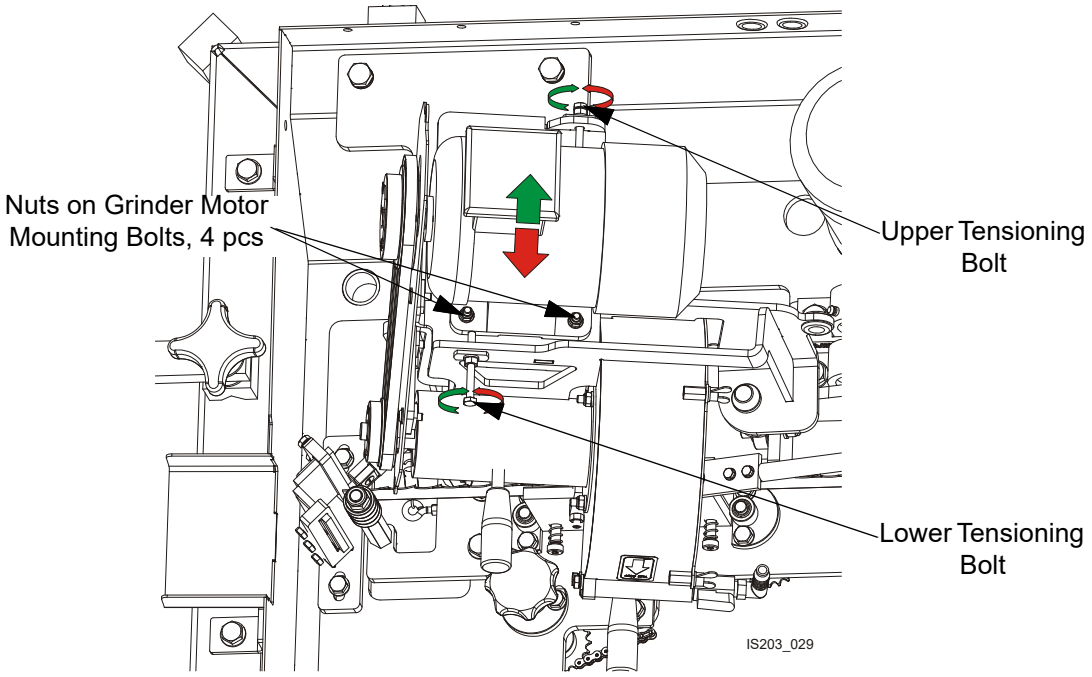


FIG. 2-9

2.6 Grinding Wheel Installation

Use a Wood-Mizer approved grinding wheel. To install the grinding wheel, perform the following steps:

1. Push the START button  on the control box and turn the feed rate dial clockwise to rotate the cam.
2. Rotate the cam until the sharpener head is raised all the way up. Turn the feed rate dial all the way down and push the STOP button  .
3. Dismount the oiler.
4. Remove the grinding wheel side guard.
5. Remove the nut and the grinding wheel clamping plate from the spindle shaft.
6. Slide a grinding wheel onto the spindle shaft.
7. Install the grinding wheel clamping plate.
8. Tighten the nut to 44.2 ft-lbs (60Nm) torque.
9. Install the grinding wheel side guard.
10. Mount the oiler.

DANGER! Make sure all guards and covers are in place and secured before operating the sharpener. Failure to do so may result in serious injury.

2.7 Blade Installation

1. Uncoil a blade and position it on the inside of the rear support arms and on the outside of the blade support guide assemblies located on the side support arms.
2. Place the blade between the blade wiper plates and the blade clamp plates.
3. Make any final adjustments to the support arms and guide assemblies to ensure the blade band rests evenly on both, the right and left blade height asjustment pins. Make sure the blade does not touch the bottom of either side guide assembly.

   Make sure the guide assemblies lean slightly in the direction the blade travels through them.
4. Rotate the pivot arm of the deburr assembly so that the carbide cutting plate touches the blade.

2.8 Face Grind Adjustment

As you operate the sharpener, the cam will rotate causing the index arm to contact a tooth and push it to a position under the grinding wheel. The index arm can be adjusted to leave the tooth closer to or further from the grinding wheel so the tooth face is ground lighter or heavier.

1. Before adjusting the face grind, make sure the cam and grinder motors are off and the feed rate dial is set at "0".

2. Manually raise the sharpener head.

3. Turn on the cam motor. Slowly increase the FEED RATE until the next tooth is underneath the grinding wheel.

4. Lower the sharpener head and make sure the grinding wheel lightly contacts the entire face of the tooth all the way up to the tip.

5. Turn on the grinder motor.

   See Figure 2-10. If the face grind is too light, turn the face grind adjustment knob out, away from the other knob. If the face grind is too heavy, turn the adjustment knob in, toward the other knob.

6. Check the face grind on the next tooth and adjust as needed.

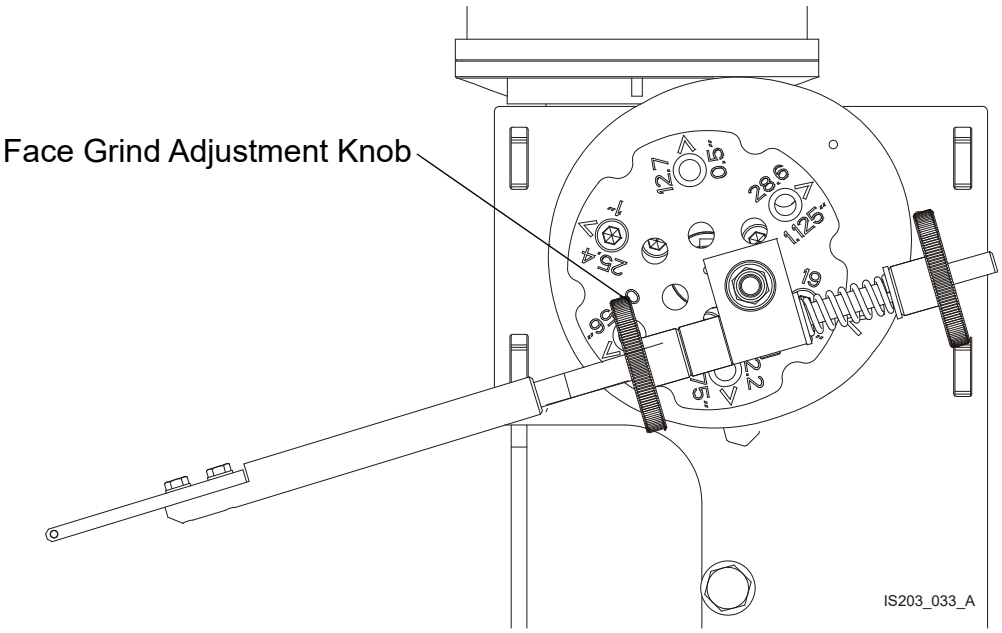


FIG. 2-10

See Figure 2-11. The figure below shows proper position of the grinding wheel in relation to the blade being sharpened.

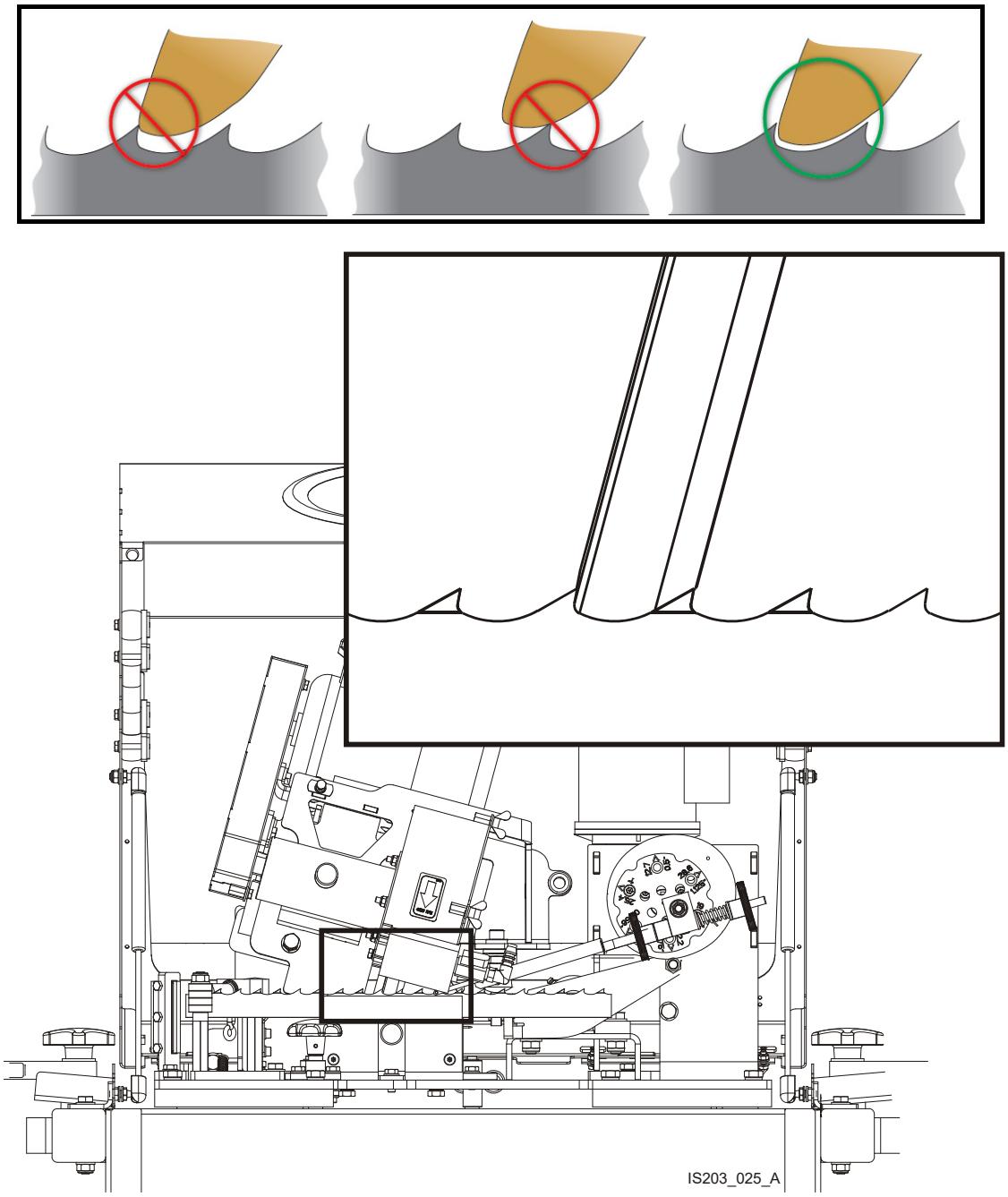


FIG. 2-11

2.9 Grind Depth Adjustment

Tooth height is determined by how much material is removed from the gullet of the blade. The sharpener head is factory-set so that the grinding wheel is at the height of **2.0 to 3.0 mm** (**0.079" - 0.12"**) above the blade clamp. To adjust the gullet grind depth, use the blade height adjustment knob shown below.

See Figure 2-12.

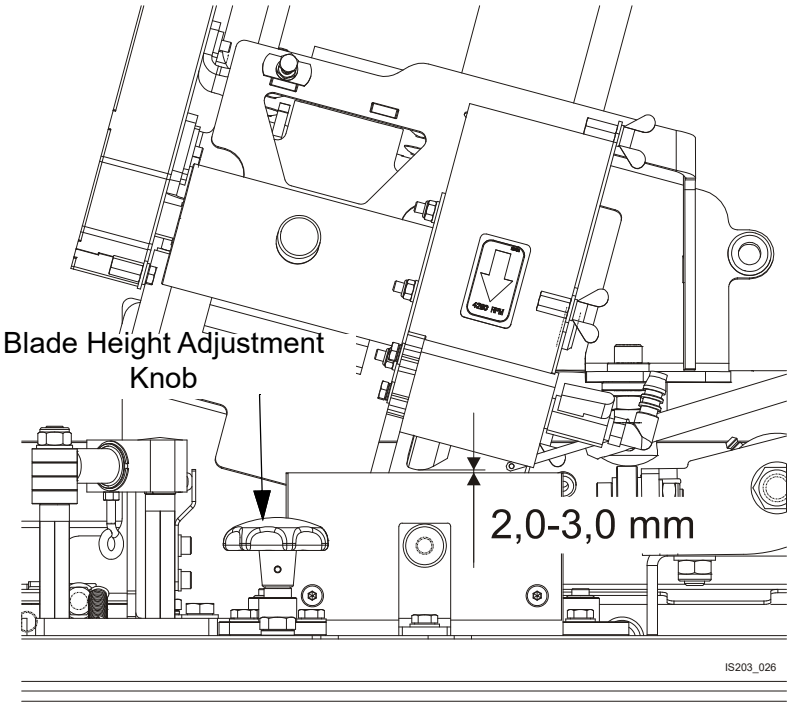


FIG. 2-12

During initial sharpening set-up, inspect the gullet depth two or three times. You should see clean metal across the entire gullet of the sharpened tooth. If you do not see clean metal, stop the sharpener operation and adjust the grind depth as necessary.

NOTE: If the blade is “burning” or you notice discoloration, you will need to lighten the grind and make 2 passes, readjusting for blade height and face grind.

IMPORTANT! After any adjustment, always restart the blade and sharpen in its entirety to ensure symmetry.

NOTE: The grind depth may be affected as the grinding wheel passes through a blade weld.

2.10 Index Arm Stroke Adjustment

The sharpener indexer can be adjusted depending on the tooth spacing of the blade. To perform this adjustment, position appropriately the stroke adjustment plate located on the sharpener cam. Unscrew the hex socket head screws mounting the plate to the cam, unscrew the indexer shaft, rotate the cam so that a given indicator on the plate is aligned with the indicator on the cam, replace the stroke adjustment plate mounting screws and install the indexer shaft in the hole nearest to the stroke indicator/adjustment plate mounting screw. The index arm can be adjusted for the following tooth spacings:

Tooth Spacing
.5" / 12.7mm
.656" / 16.7mm
.75" / 19mm
.875" / 22.2mm
1" / 25.4mm
1.125" / 28.6mm - 1.250"/31.75mm

TABLE 2-2

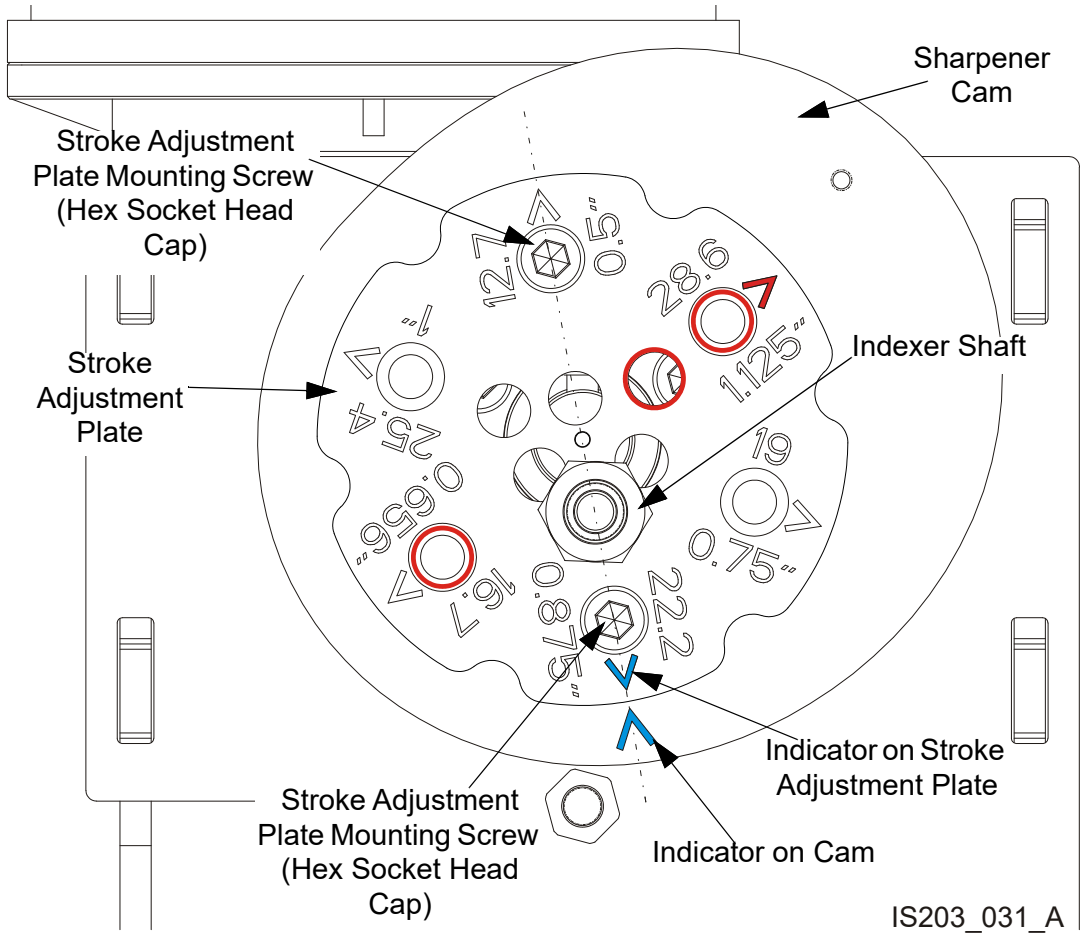


FIG. 2-13

The figure above shows proper positioning of the stroke adjustment plate for blades with .875" (22.2 mm) tooth spacing. (The indicator on the adjustment plate is in line with the indicator on the cam.) The exemplary indicator and holes marked with red should be used for blades with 1.125" (28.6 mm) tooth spacing.

CAUTION! The indicator located on the cam is a reference point for setting the stroke adjustment plate on the cam depending on tooth spacing of the blade.

2.11 Oil Flow Adjustment

To start oil flow to the blade, use the Oil Flow Start/Stop Switch.

2.12 Feed Rate Adjustment

The cam speed can be adjusted with the Feed Rate Dial located on the control panel (Table 1-3 on page 5). During the sharpening cycle, adjust the cam speed so that it is as high as possible without "burning" the blade.

NOTE: All machines should be adjusted by maintenance to a maximum speed of 40 revolutions per minute.

2.13 Blade Rejection

Sometimes blades cannot be resharpened. Reasons to reject blades for resharpening include:

- the blade is coil set (the blade is over-stressed and will fold on itself),
- the blade is missing two or more teeth in a row,
- the blade band has been twisted,
- the blade band is too low for the sharpener (the blade has been sharpened too many times/too much material has already been ground from the blade),
- the blade has no set on one of its sides,
- severe rust is present,
- the blade has tooth spacing uncommon to Wood-Mizer blades (i.e., a competitor’s blade).

2.14 Sharpener Operation

Before starting the sharpening cycle, perform the following steps:

1. Adjust the blade clamp for the blade you will be sharpening.
2. Install a grinding wheel if necessary and then install a blade.
3. Using the Teeth Number Setting Buttons, set the number of teeth in the blade and number of cycles you will be sharpening.
4. Adjust face grind and gullet grind.
5. Be sure to reset the preset number of teeth (by pressing the tooth counter reset button).
6. Turn on the oil flow.
7. Increase the feed rate to a moderate speed. How fast you can grind will be determined by how much material you are removing from the blade. If a heavy grind is required, it is best to go around the blade lightly twice rather than try to grind heavily once.
8. Check the gullet grind two or three times during sharpening. Adjust as necessary.

IMPORTANT! After any adjustment, always restart the blade and sharpen in its entirety to ensure symmetry.

IMPORTANT! After adjustment always close the guard.

2.15 Shutoff

The sharpener will automatically shut off when the blade has been entirely sharpened.

Inspect the blade. Repeat the sharpening process if necessary. Blades with a bad profile or those which are badly in need of sharpening may have to be ground more than once.

2.16 3" Blade Support Setup (Option)

1. Install the 3" blade guide assembly (1) on the sharpener mount plate (2) using the washers (3,4) and the bolts shown below (5).

   See Figure 2-14.

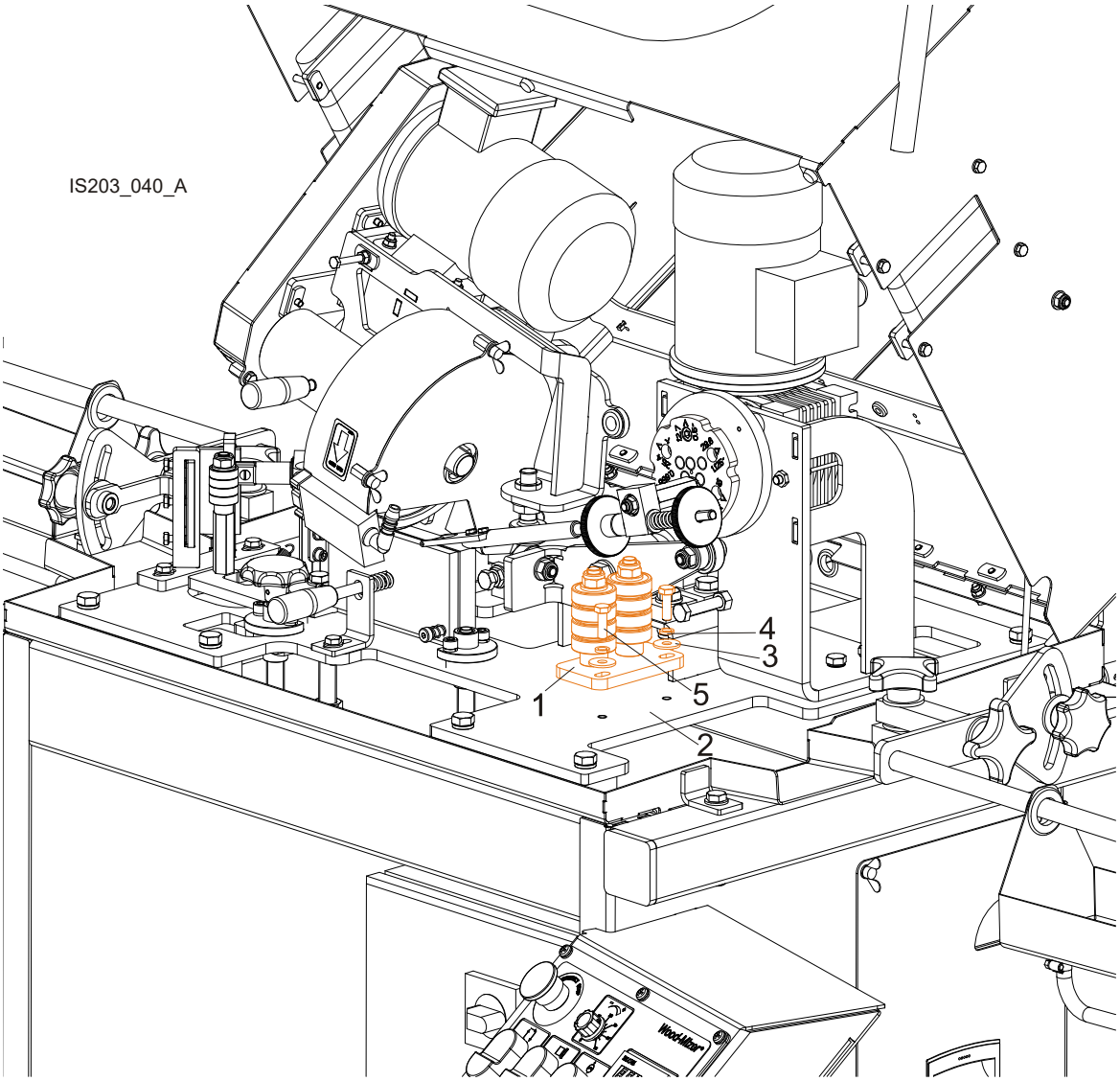


FIG. 2-14

2. Position the blade supports on the right and left side of the sharpener. Using the connector (1), connect the blade support equipped with three rollers with the sharpener.

See Figure 2-15.

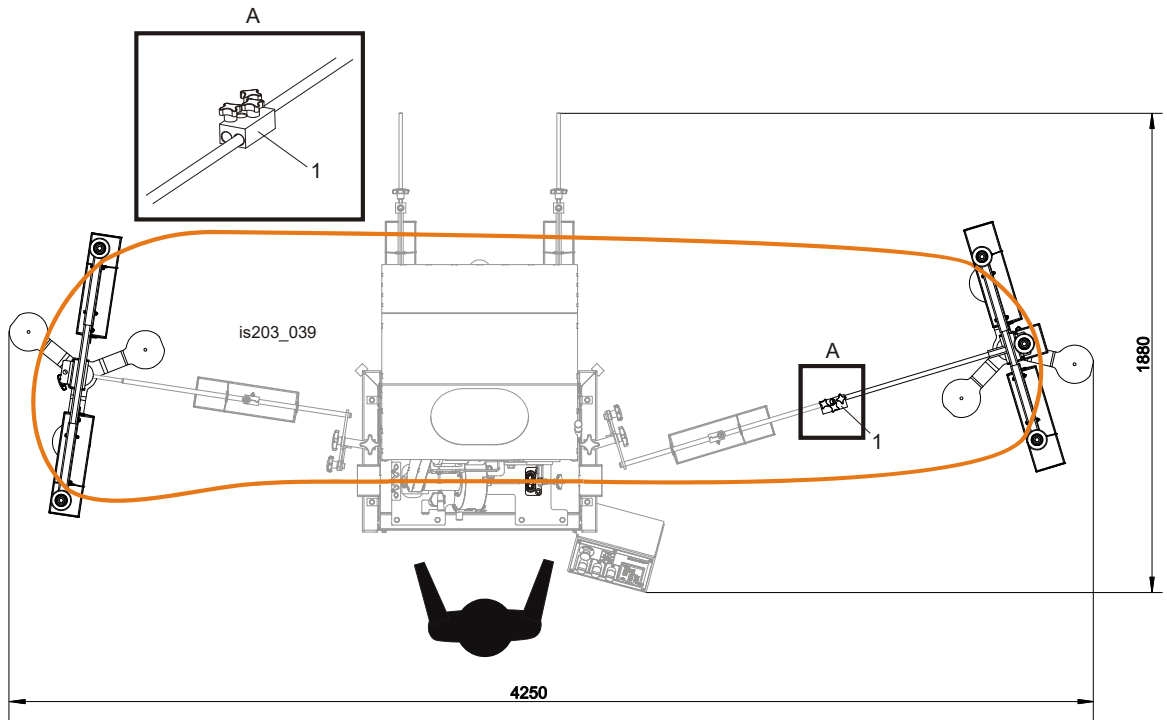


FIG. 2-15

3. Position the blade support kits so that the blade is not too loose and moves freely during the sharpening operation.

4. The blade supports should be adjusted vertically so that the bottom of the blade is at the same height along entire length of the blade.

SECTION 3 REPLACEMENT OF COMPONENTS

3.1 Grinding Wheel Replacement

Check the grinding wheel often and change as necessary. Wheels approved for use with the industrial sharpener are available from Wood-Mizer.

The grinding wheel should be in good condition. Replace if worn, the edges look shiny and/or the wheel is "burning" the blades. **NOTE:** The grinding wheels have a CBN (Cubic Boran Nitride) coating.

1. Before replacing the grinding wheel, shut down and lock out all power to the machine.
2. Raise the cutting head.
3. Remove the grinding wheel side guard.
4. Unscrew the oiler.
5. Remove the grinding wheel nut, washer and the grinding wheel.
6. Mount the new grinding wheel. Install the grinding wheel washer and nut and tighten to 44.2 ft-lbs (60Nm).
7. Install the oiler. **NOTE:** If the machine is equipped with a 1 1/4" (31.75 mm) wide grinding wheel, mount the oiler No. 101235. If it has a 1" (25.4 mm) wide grinding wheel, use the oiler No. 100805.
8. Install the grinding wheel side guard.

3.2 Oil Level

Periodically check the oil level. Add oil as necessary. The oil level should be kept between 8.5 and 10 litres. Use only Wood-Mizer approved oil.

Filter the oil to remove metal shavings before reusing.

3.3 Grinding Wheel Shaft Bearings

Periodically check the grinding wheel shaft bearings for wear and replace as necessary. To replace:

IMPORTANT! Before servicing, shut down and lock out the power supply.

See Figure 3-1.

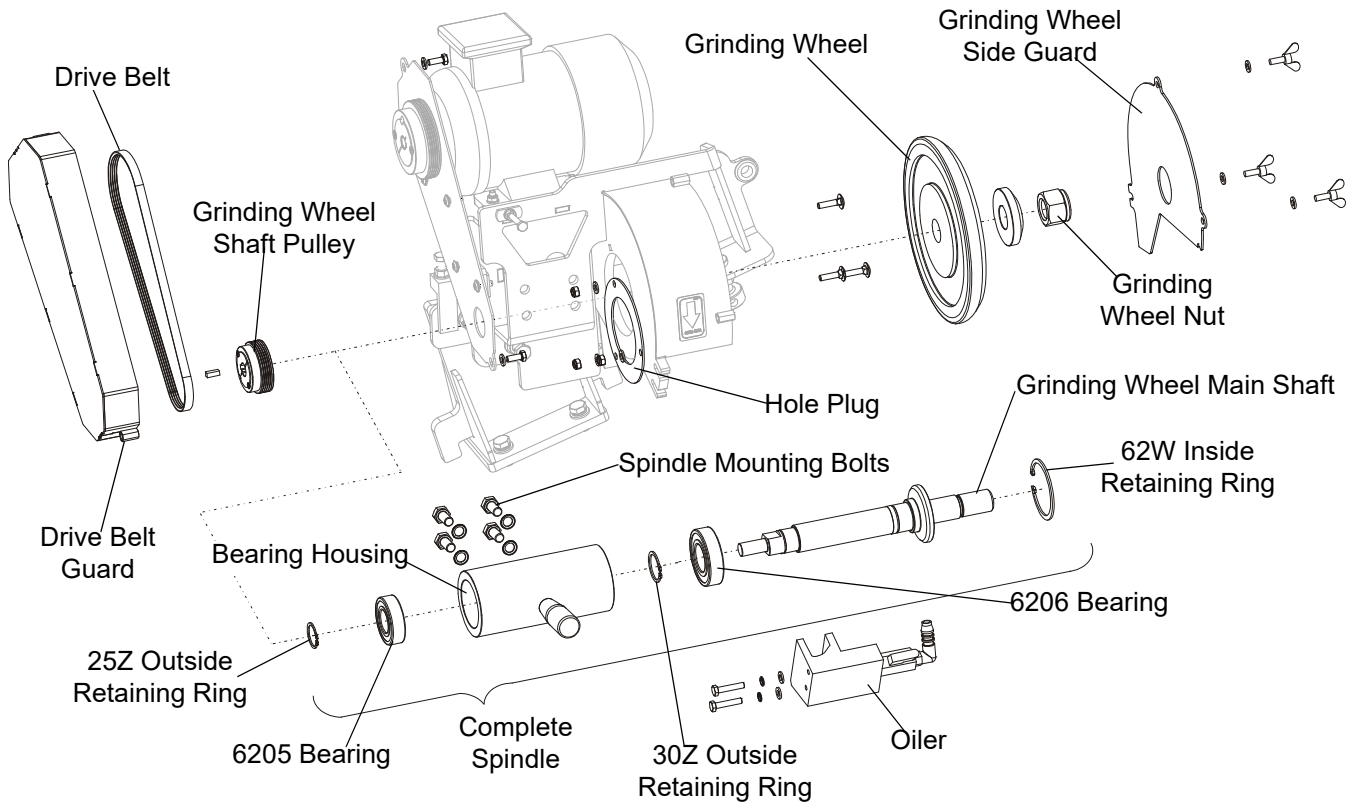


FIG. 3-1

TO DISMOUNT THE BEARINGS:

1. Remove the grinding wheel side guard.
2. Dismount the oiler.
3. Remove the grinding wheel nut.
4. Remove the grinding wheel.
5. Unbolt the drive belt guard.
6. Loosen the drive belt by moving the motor towards the spindle.
7. Remove the multi-groove drive belt.
8. Remove the pulley from the spindle.
9. Remove the hole plug mounting nuts.
10. Remove the bolts mounting the spindle to the machine body.
11. Dismount the complete sharpener spindle.

12. Remove the hole plug from the spindle.

13. Remove the 25Z outside retaining ring.

14. Remove the 62W inside retaining ring.

15. Dismount the main shaft from the bearing housing.

16. Remove the 6205 bearing.

17. Remove the 30Z outside retaining ring.

18. Remove the 6206 bearing from the main shaft.

TO INSTALL THE BEARINGS:

19. Mount the new 6206 bearing on the main shaft.

20. Install the 30Z outside retaining ring.

21. Mount the main shaft, along with the bearing, in the bearing housing.

22. Install the 62W inside retaining ring.

23. Install the 6205 bearing.

24. Secure with the 25Z outside retaining ring.

25. Slide the hole plug onto the bearing housing, from the grinding wheel's side.

26. Mount the complete spindle to the sharpener head. Tighten the spindle mounting bolts to 29.5 ft-lbs (40Nm) torque.

27. Secure the hole plug with the mounting nuts.

28. Install the pulley.

29. Install and tension the drive belt. *See Section 2.5.*

30. Mount the drive belt guard.

31. Install the grinding wheel and tighten the mounting nut to 44.2 fl-lbs (60Nm) torque.

32. Mount and set the oiler.

33. Mount the grinding wheel side guard.

Once bearing replacement is complete, be sure to check head alignment.

SECTION 4 PREPARING THE SHARPENER FOR SHARPENING VORTEX BLADES

DANGER! Before replacing any sharpener component, disconnect the power cord.

IMPORTANT! To increase the Vortex blade life, the time intervals between sharpenings should not be longer than one hour.

4.1 Grinding Wheel and Oiler Replacement

1. Unscrew the wing screws (B) and dismount the grinding wheel cover (A).

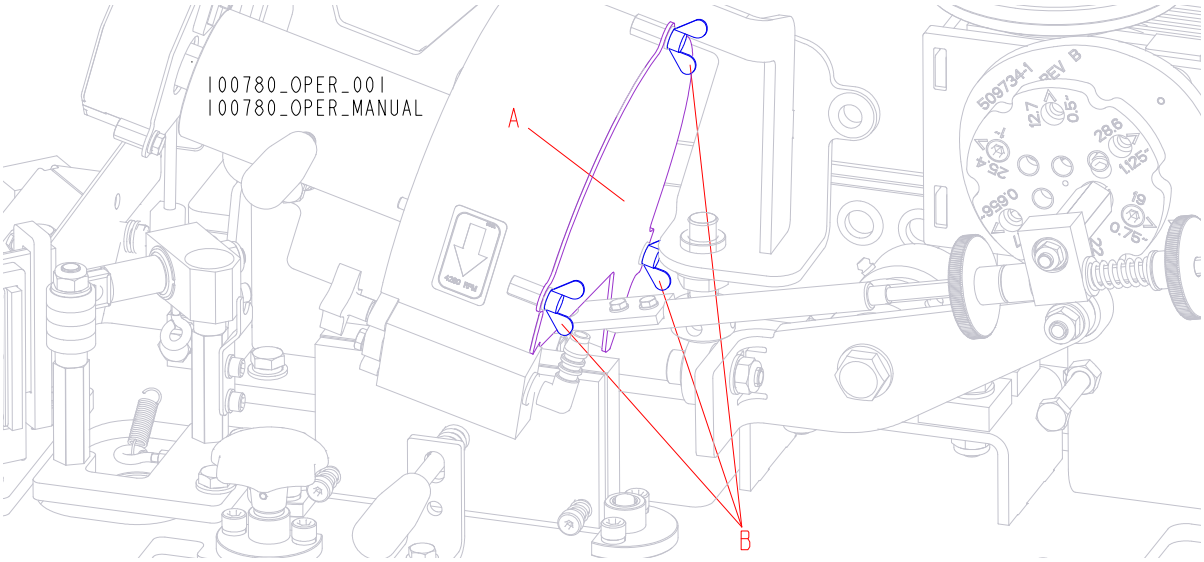


FIG. 4-1

2. **BMS500**: unbolt the mounting hardware (A) and remove the oiler (B).

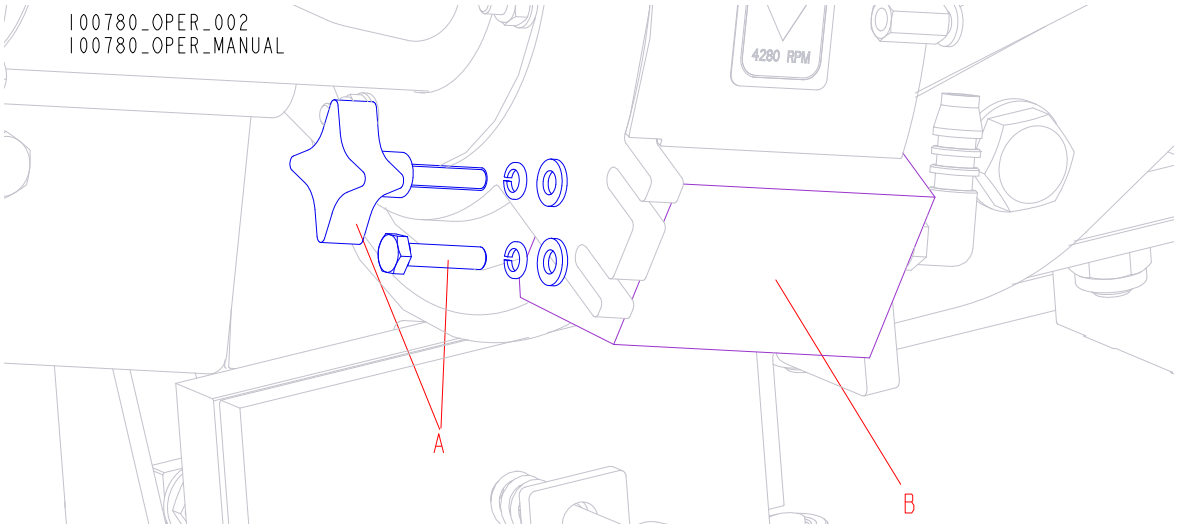


FIG. 4-2

3. **BMS600**: unbolt the mounting hardware (B) and dismount the oiler inside block (A).

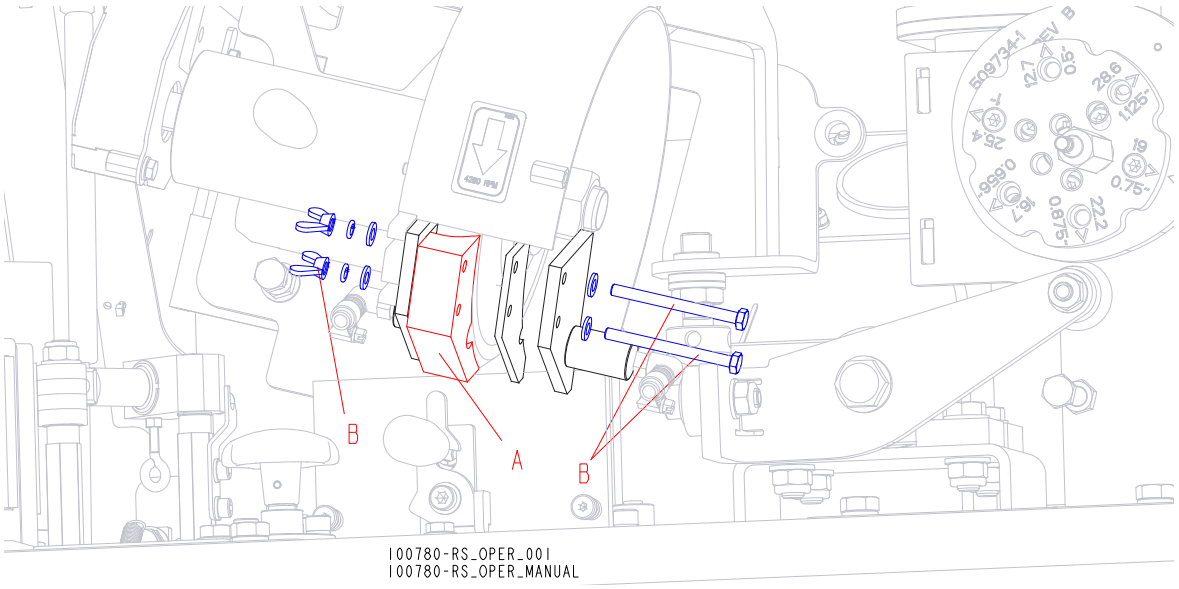


FIG. 4-3

4. Remove the nut (B) and dismount the grinding wheel (A). Then install the grinding wheel No. 077700.

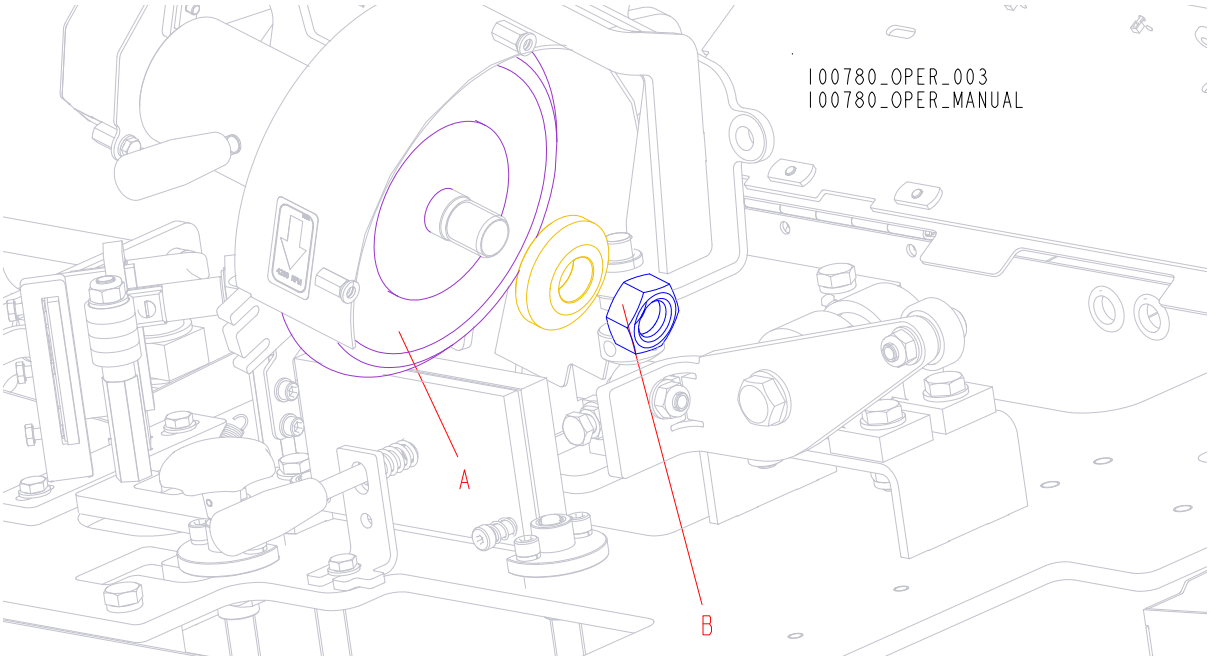


FIG. 4-4

5. **BMS500**: install the oiler No. 522705 (585707 for a new version of the grinding wheel) (B) using the mounting hardware (A).

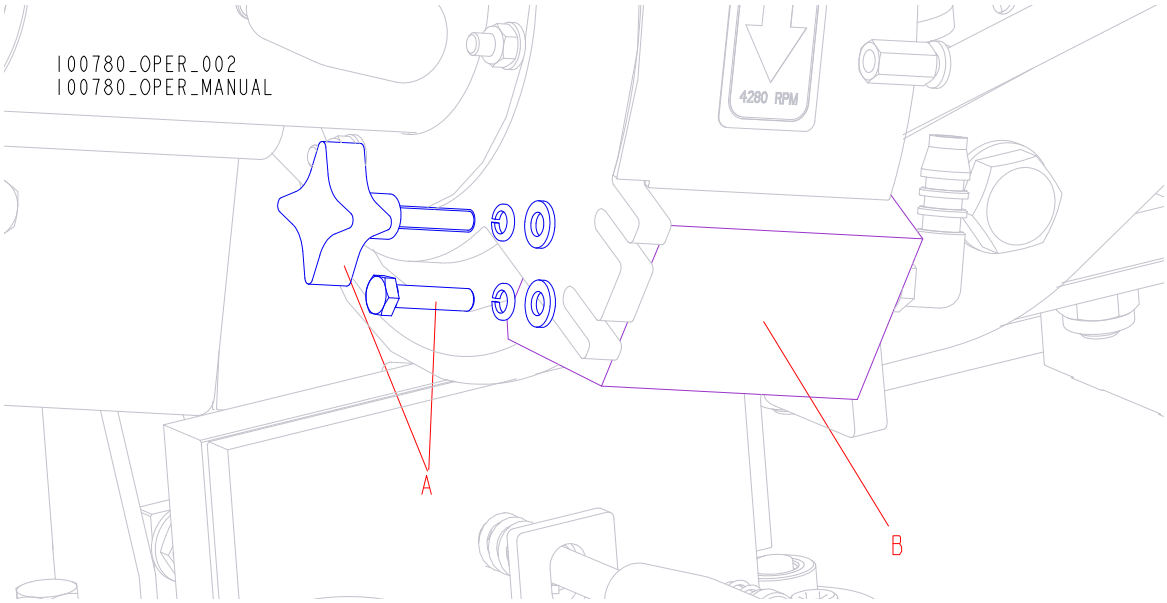


FIG. 4-5

6. **BMS600**: mount the oiler inside block - Part No. 523669 (A) using the mounting hardware (B).

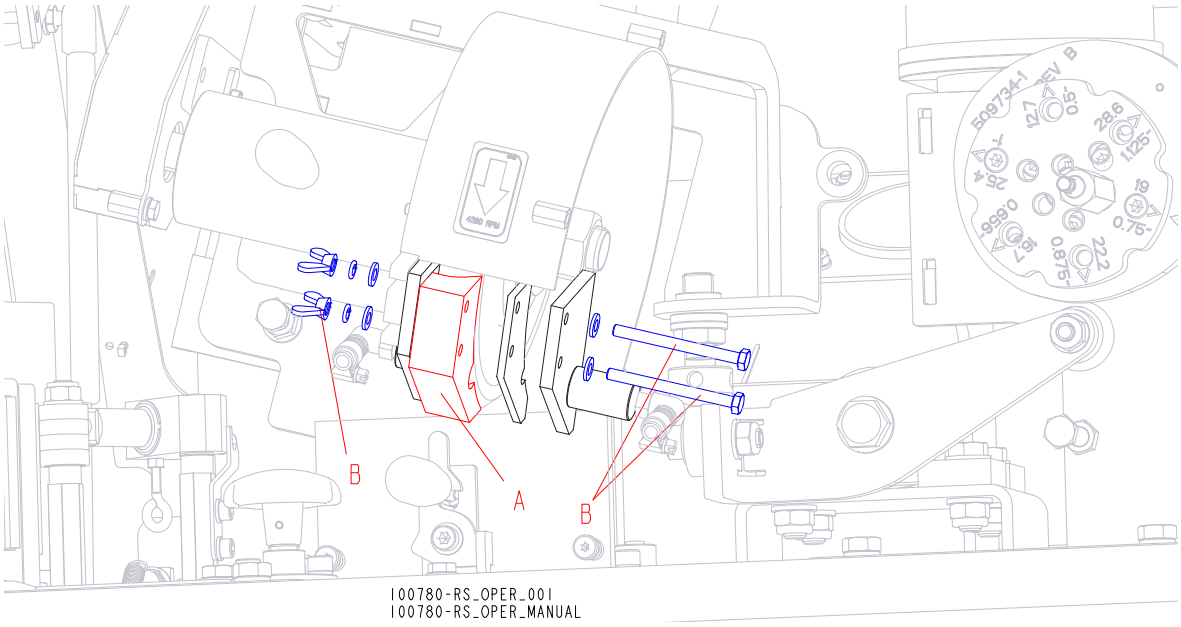


FIG. 4-6

7. Using the wing screws (B), install the grinding wheel cover (A).

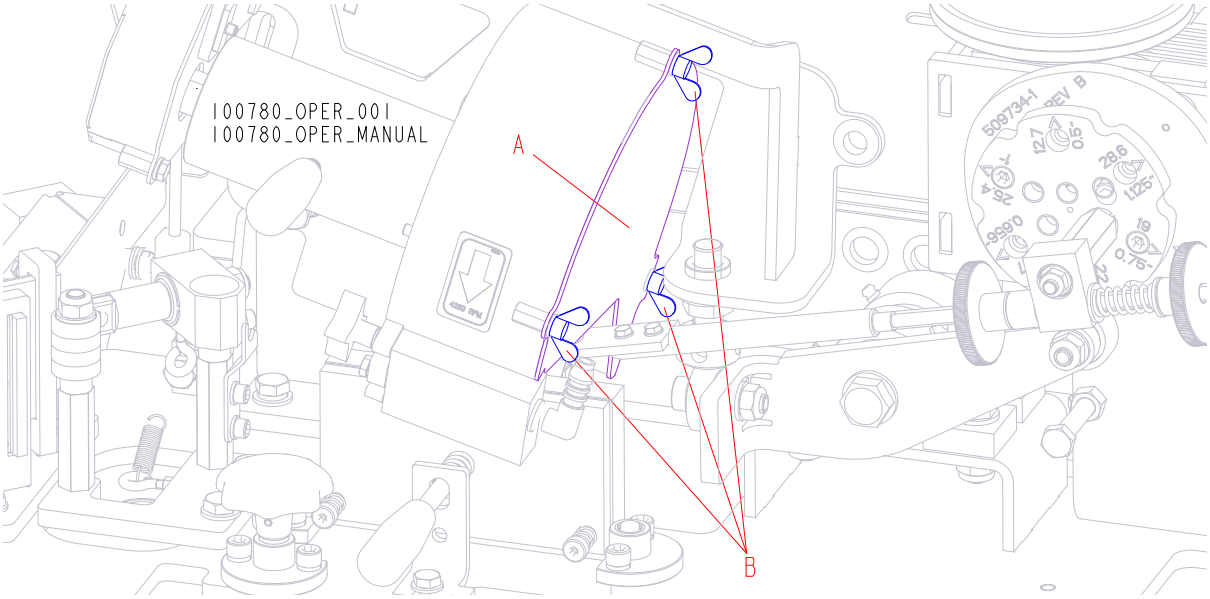


FIG. 4-7

4.2 Cam Replacement

1. Dismount the pusher (B) by removing the pusher shaft (A) from the cam.

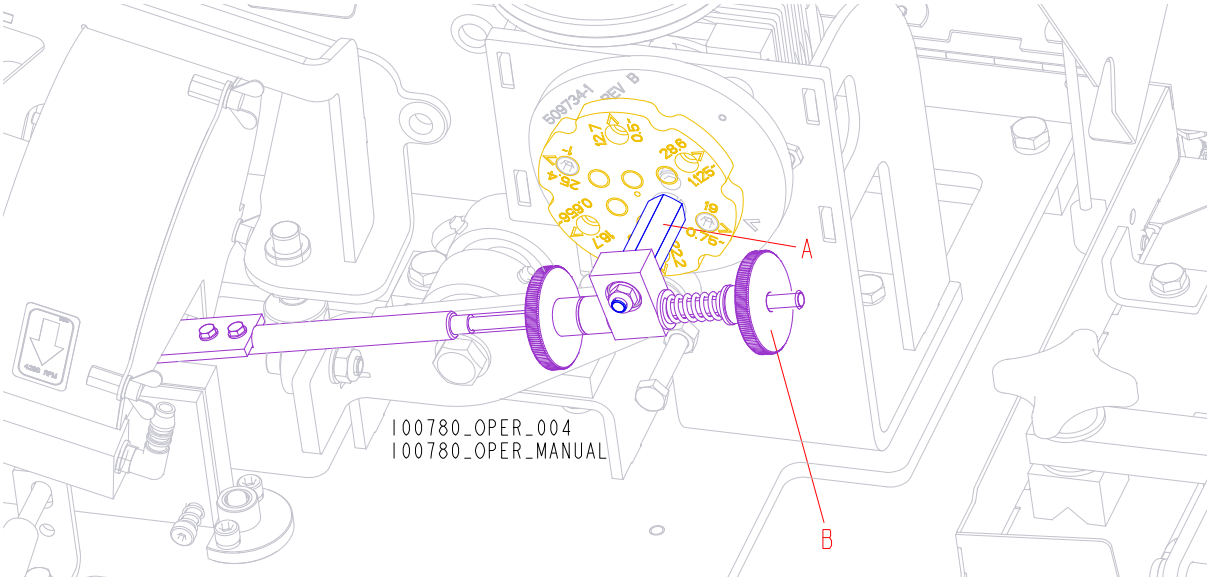


FIG. 4-8

2. Unscrew the three screws shown below (B) and remove the stroke adjustment plate (A).

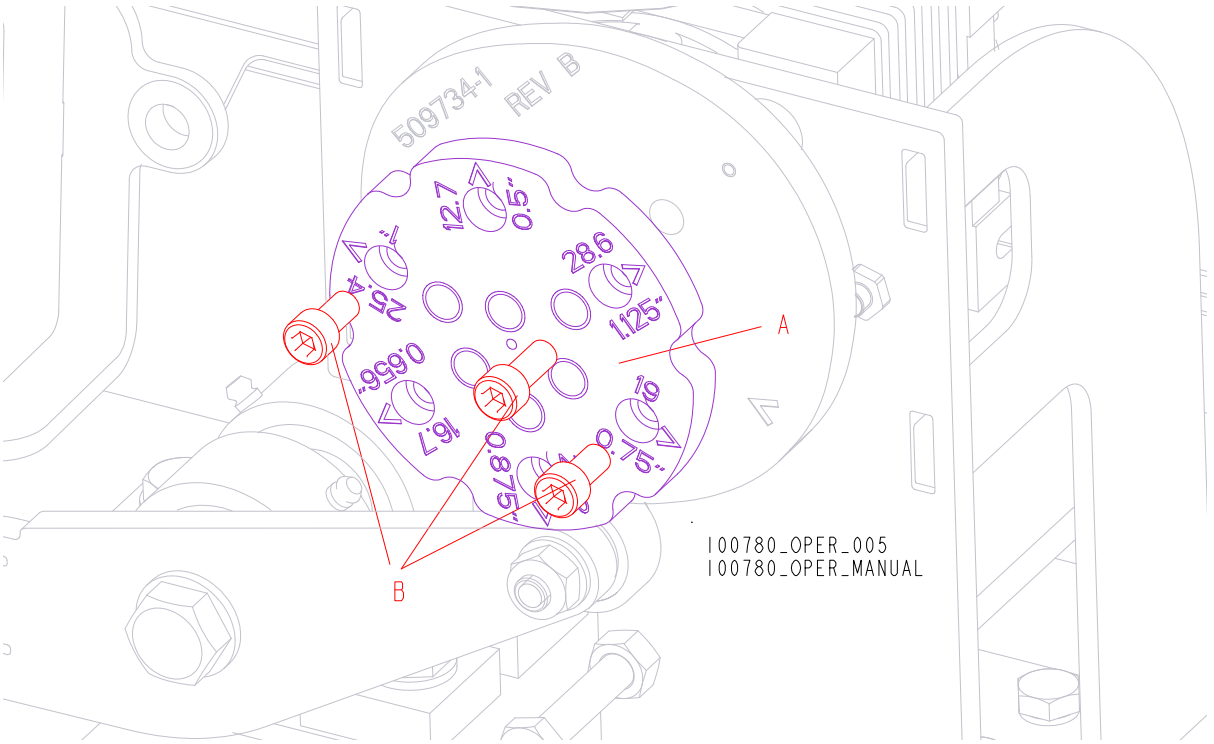


FIG. 4-9

3. Dismount the cam (A) by removing the two bolts shown below (B). Next, remove the magnet (C) from the cam and fasten it to the new cam (Part No. 509734-1 Rev. B). Install the new cam with the magnet.

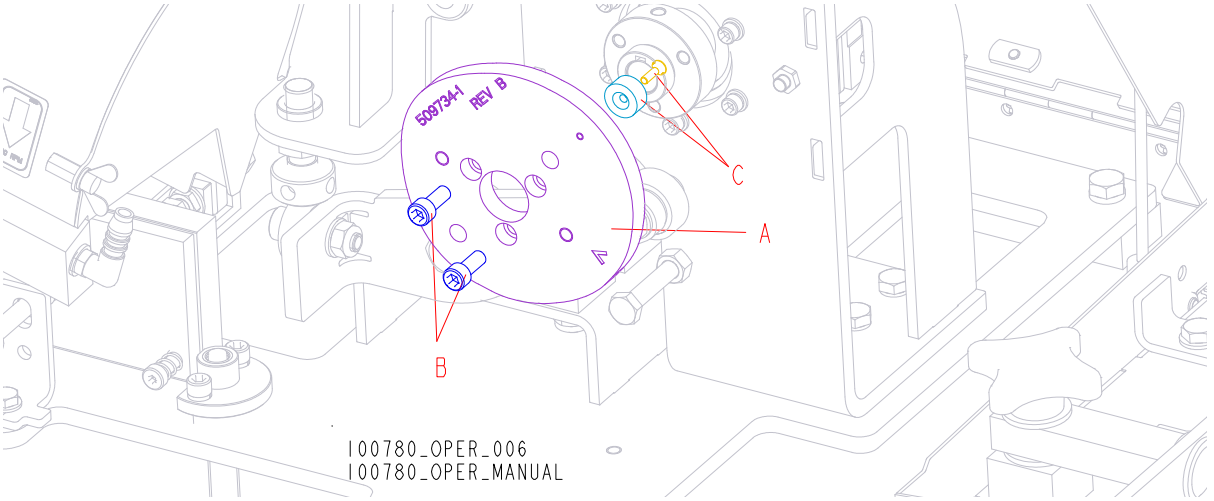


FIG. 4-10

4. Fasten the stroke adjustment plate (A) to the cam using the three screws shown below (B).

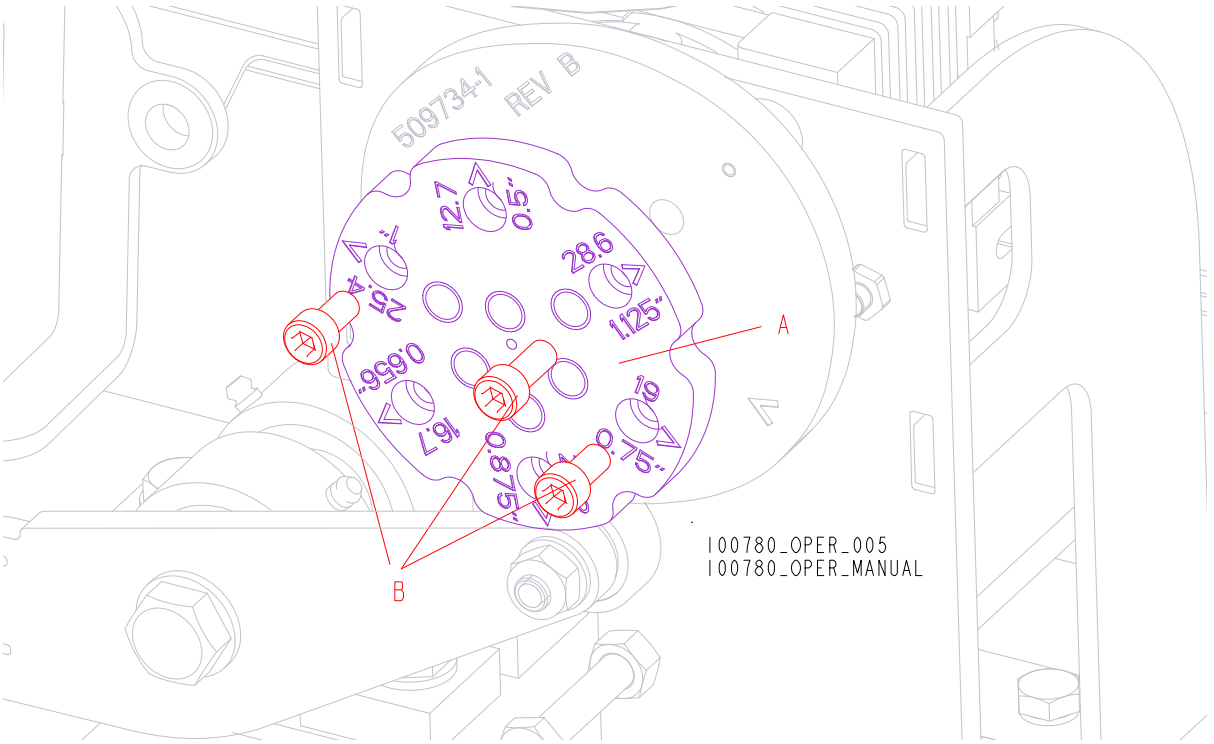


FIG. 4-11

1. Install the pusher (B) by screwing the pusher shaft (A) into the cam.

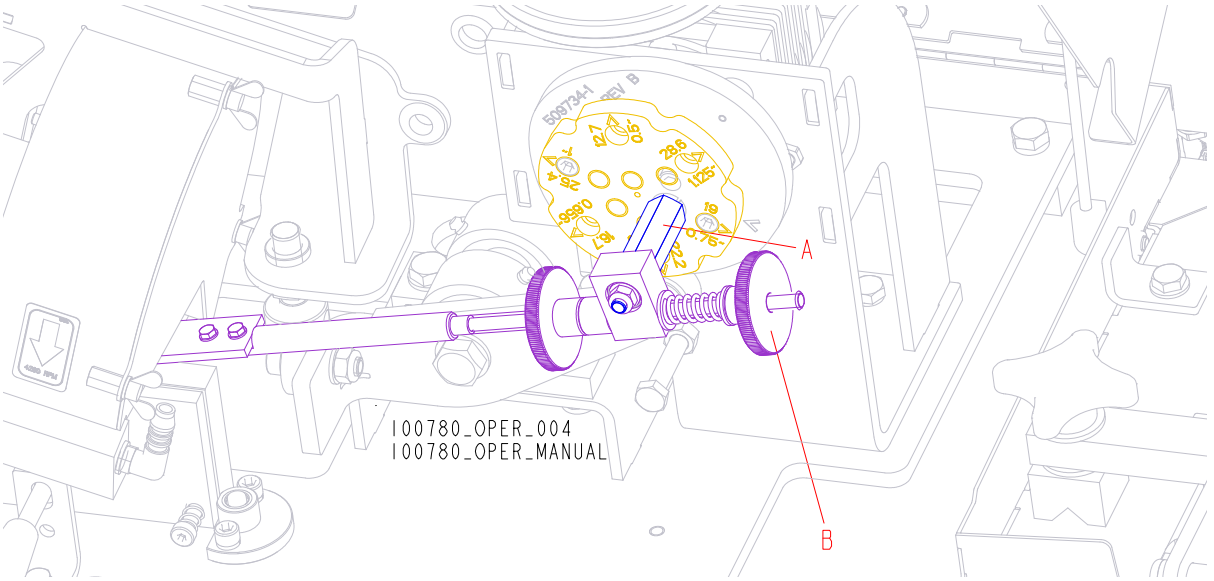


FIG. 4-12

4.3 Blade Pusher Adjustment

Using the adjustment nuts (A), adjust the blade pusher (B) so that it pushes the next tooth after the tooth to be sharpened.

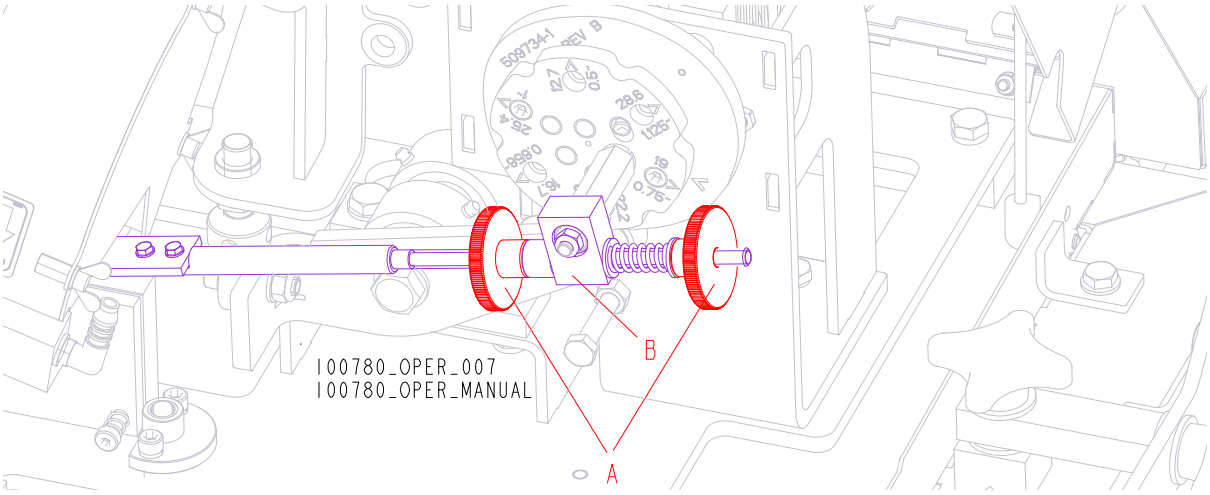


FIG. 4-13

4.4 Sharpener Head Adjustment

Use the bolt shown below (A) to raise the sharpener head (B) by 3 to 4 mm.

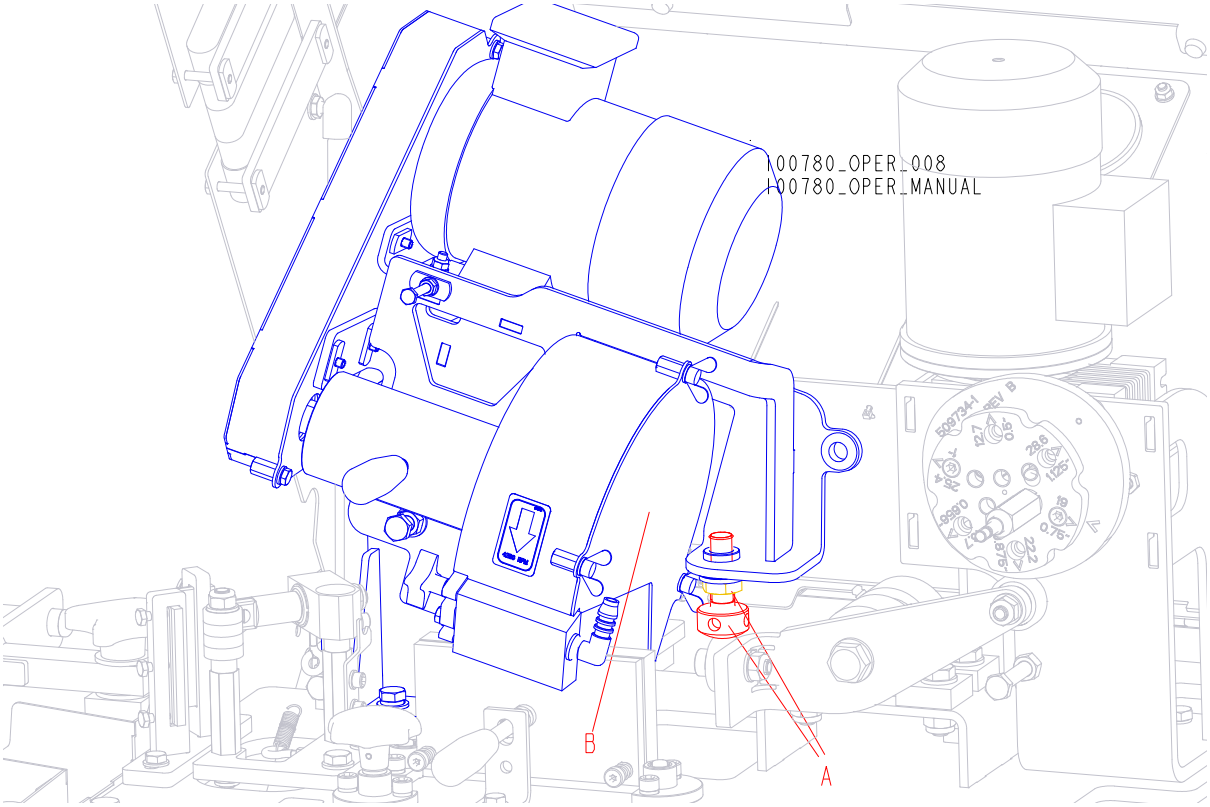


FIG. 4-14

SECTION 5 MAINTENANCE & TROUBLESHOOTING

5.1 Sharpener Maintenance

DANGER! Swarf (metal filings) must be cleaned and removed from the oil pan and filter magnets every 8 hours of operation to avoid possible fire. Failure to do so may result in death or serious injury.

Daily (after end of the shift):

- Remove the blade, wipe the sharpener dry, lower the head, close the guard and unplug the machine after each day's use.
- Clean the sharpener. Remove any rust and metal filings. Clean sediment from the oil pan and filter magnets.
- Regularly unbolt the moving clamp plate and clean out any buildup that might cause the clamp to not clamp the blade firmly.

Weekly:

- Clean the viewfinder window and the diode lamp.
- Remove any buildup and metal filings from the oil filter pan and magnets.
- Clean any sediment from the coolant drip pans.
- Keep the oil at such a level that the pump strainer is completely covered with the oil. The oil level should be 120-150mm (4.724" - 5.905") measured from the bottom of the tank. Replace the oil completely every six months. Dispose of worn-out oil in compliance with applicable regulations.
- Check the sharpener head stop function (stop bolt). *See Section 6.2.*

Monthly:

- Inspect the bearings of the grinder motor, spindle, cam and indexer drive assembly, sharpener head lever.
- Check motor and indexer brushes.
- Check all plugs and switches.
- Check the radial run-out and the axial run-out of the spindle shaft at the location where the grinding wheel is mounted. Do it once a month with a dial indicator mounted on a magnetic stand. The maximum allowable run-out must be no greater than +/- .01mm (0.000393").
- Inspect the carbide cutting plate of the deburr assembly.

CAUTION! Regularly clean or replace the filter of the oil vapours exhaust system (according to the manufacturer's recommendations).

5.2 Blade Sharpening Tips

This section covers some of the common problem areas of blade sharpening.

Before removing from the sawmill, clean the blade by running the water lube on it for 15 seconds. This will remove most of the sap buildup that would otherwise have to be scraped off when it dries. Then wipe the blade with a clean, dry rag.

Make sure the flow of oil through the oiler assembly is strong.

Sharpen the blade when it first shows signs of dullness. If the blade is extremely dull, due to hitting a rock or some form of foreign matter, sharpen the blade twice lightly instead of trying to remove much in one grind. Grinding too much material at once may cause the circuit breaker in the control box to kick out. If this happens, wait 15 seconds. Then turn the circuit breaker on (push it down).

5.3 Drive Belt Tension

The drive belt should be tightened to 0.33" (8.5 mm) deflection with 4.5 pounds (20N) of deflection force.

See Figure 5-1.

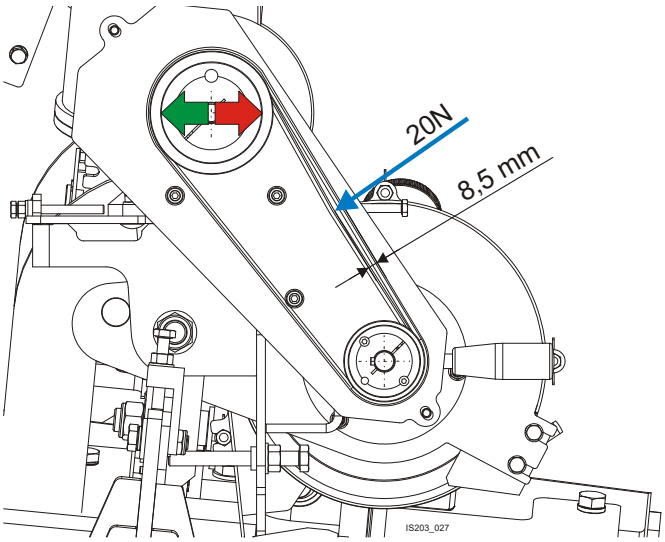


FIG. 5-1

See Figure 5-2. Loosen the nuts on the grinder motor mounting bolts. Turn the lower tensioning bolt clockwise and the upper tensioning bolt counterclockwise to tighten the drive belt. Turn the upper tensioning bolt clockwise and the lower tensioning bolt counterclockwise to loosen the drive belt.

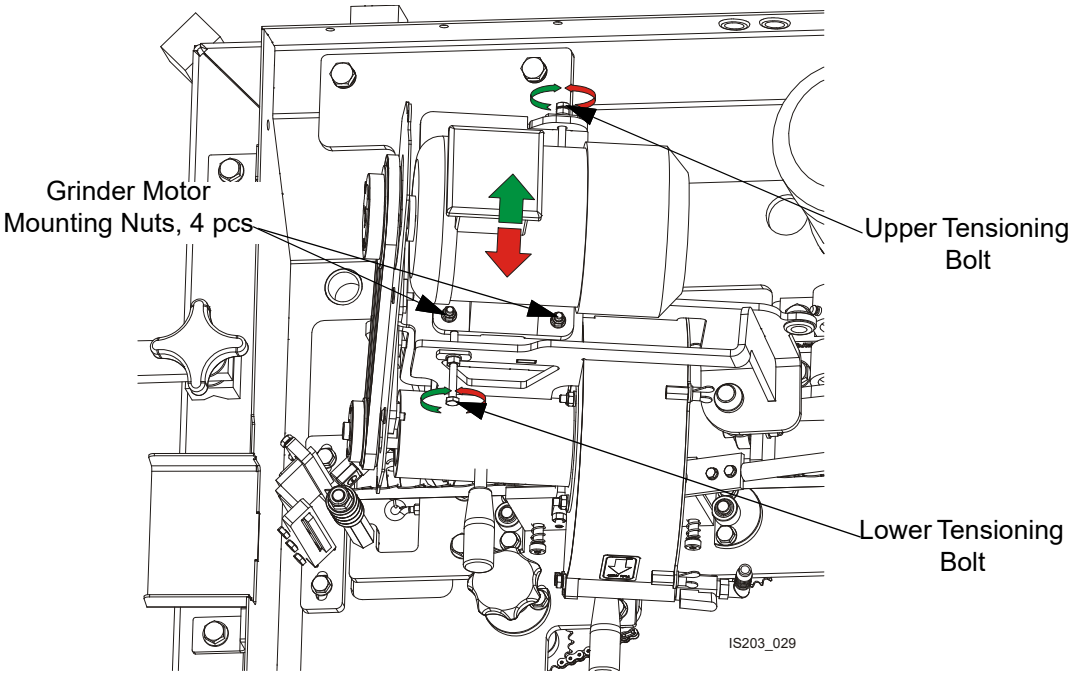


FIG. 5-2

5.4 Counter Troubleshooting

PROBLEM	*CAUSE*	*SOLUTION*
"POWER DEFAULT" message appears on the display	Power supply interruption	Press the START button; the counter will resume counting the interrupted sharpening cycle. Press the RESET button; the counter will restore the last saved number of teeth and cycles.
"IMPULSES DEFAULT" message appears on the display	Malfunction of the induction sensor or its circuit.	After repairing the induction sensor, press RESET button.

SECTION 6 ALIGNMENT

Align the sharpener monthly to ensure quality performance. Besides, realign the sharpener whenever it is necessary (i.e., after the grinding wheel has been impacted by the index arm).

6.1 Sharpener Alignment

Use the provided alignment tool as necessary to achieve accurate alignment between the blade clamp and the grinding wheel.

IMPORTANT! Do not attempt to adjust the set screws of the tool. They have been adjusted at the factory to ensure accurate alignment results.

CAUTION! Make sure the grinder motor is OFF.

1. Cycle the cam until the grinding wheel is at the tip of the tooth (about to begin face grind).
2. Remove the grinding wheel side guard and the grinding wheel mounting nut. Dismount the oiler. Remove the grinding wheel.
3. Remove the moving blade clamp plate.
4. Install the alignment tool to the spindle main shaft (Nr WM#505190) as shown below.

See Figure 6-1. Position the tool so that all three set screws touch the fixed blade clamp plate. Reinstall the grinding wheel mounting nut and tighten to secure in place.

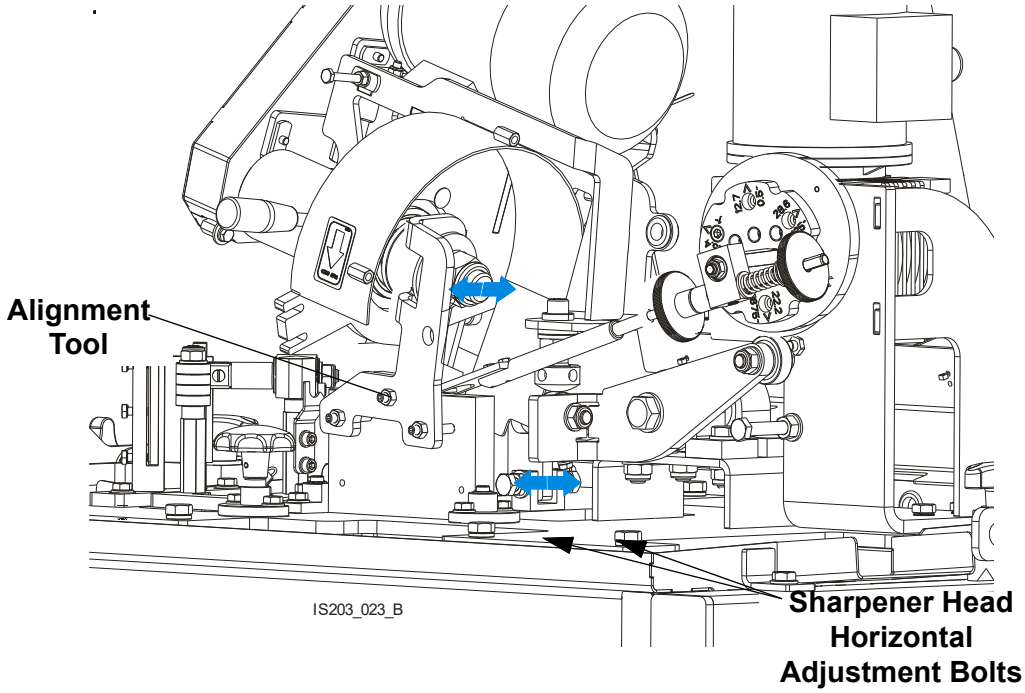


FIG. 6-1

5. If any of the tool set screws does not touch the fixed clamp plate, loosen the sharpener head mounting bolts shown in the figure below.

6. Using the adjustment bolts, adjust the sharpener head in the horizontal plane so that all three alignment tool set screws touch the fixed clamp plate. Secure in position by tightening the sharpener head mounting bolts.

See Figure 6-2.

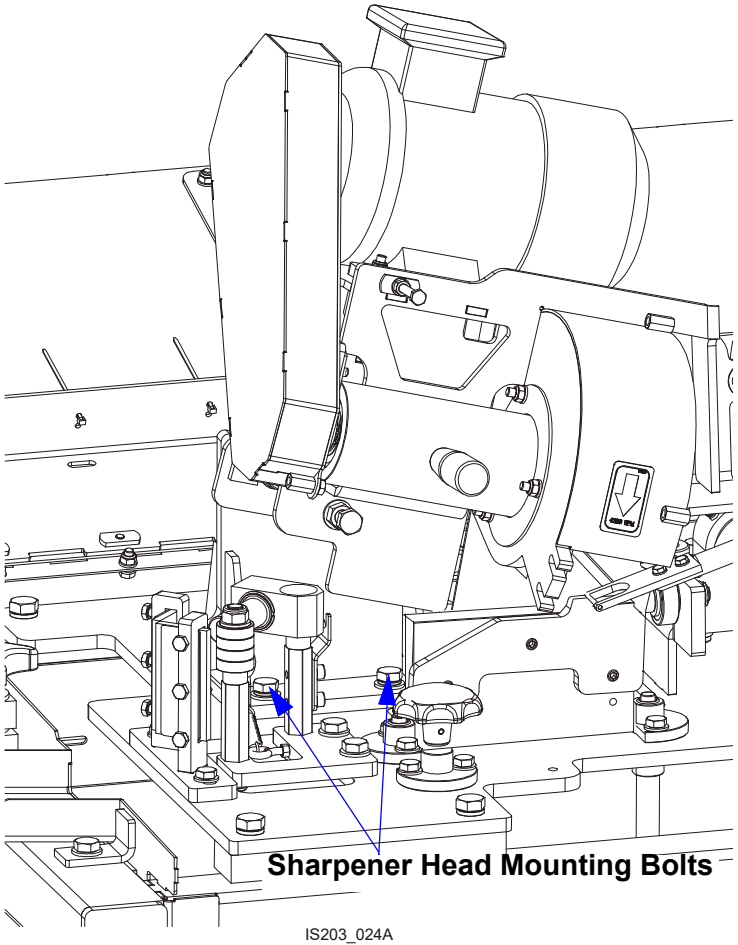


FIG. 6-2

7. Remove the grinding wheel mounting nut and the alignment tool.

8. Install the moving blade clamp plate.

9. Install the grinding wheel and secure in place with the mounting nut.

10. Install the oiler. Install the grinding wheel side guard.

6.2 Sharpener Head Stop Adjustment

To prevent the saw head from hitting the blade clamp, when there is not blade in the clamp, adjust the distance between the grinding wheel and the clamp. To do that, lower the sharpener head all the way down by rotating the cam. Then use the adjustment bolt shown below to perform the adjustment.

The distance from the grinding wheel to the clamp should be **2.0-3.0 mm (0.079" - 0.12")**.

Check this distance once a month and adjust if necessary.

See Figure 6-3. The figure below shows adjustment of the sharpener head stop bolt.

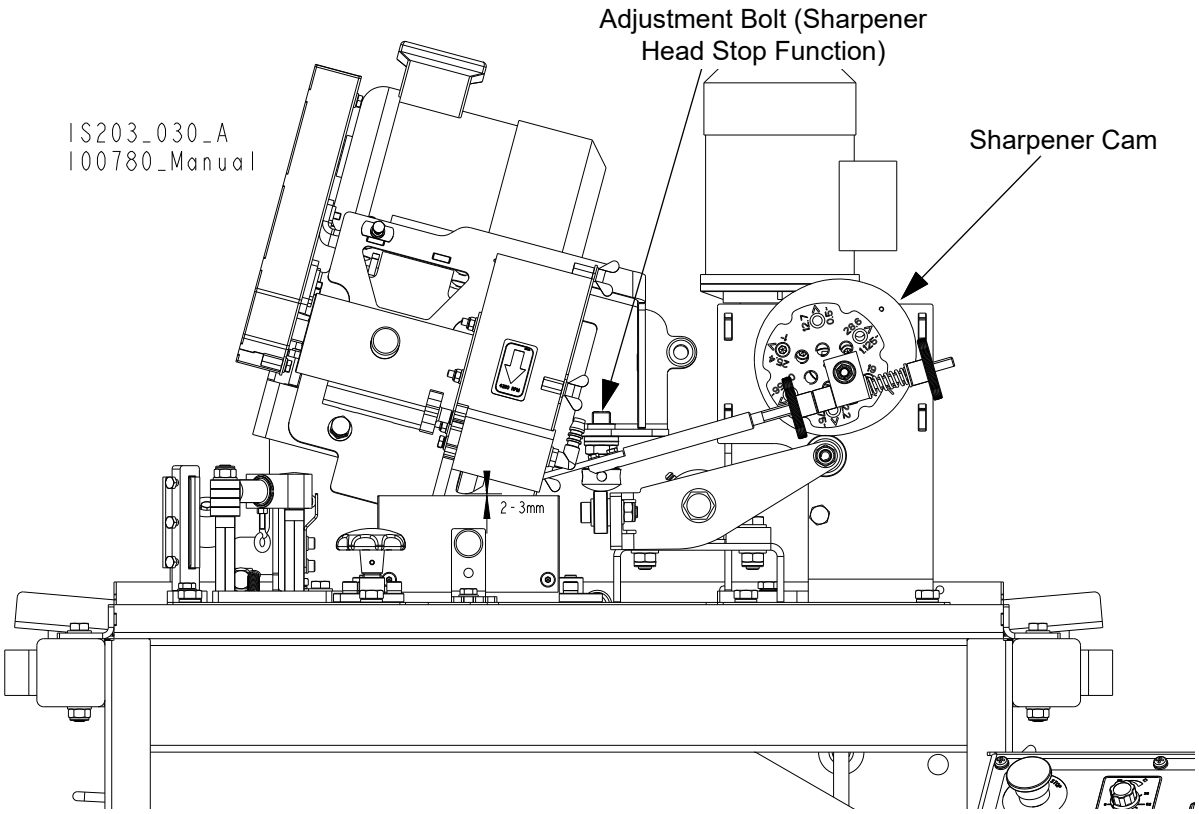


FIG. 6-3

SECTION 7 BLADE HANDLING

This section covers coiling the blade, uncoiling the blade and inverting the blade.

WARNING! Always wear gloves and eye protection when handling bandsaw blades. Keep people away from work area when coiling or moving blades.

7.1 Coiling The Blade

See Figure 7-1. Raise the blade in front of you, with the teeth pointed upward. (About 1/3 to 1/4 of the blade should be between your hands.) Hold your hands about shoulder-width apart. Place your thumbs on the outside of the blade and your fingers on the inside of the blade. Squeeze the blade inward, making it oval-shaped.

FIG. 7-1

See Figure 7-2. Keeping your wrists locked in position, turn your forearms upward and inward. (The teeth will rotate inward and the bottom of the blade will rotate outward.)

FIG. 7-2

See Figure 7-3. Bring your hands together. The blade will form three loops. Snap the bottom loop upward and catch the three-loop coil in your hands.

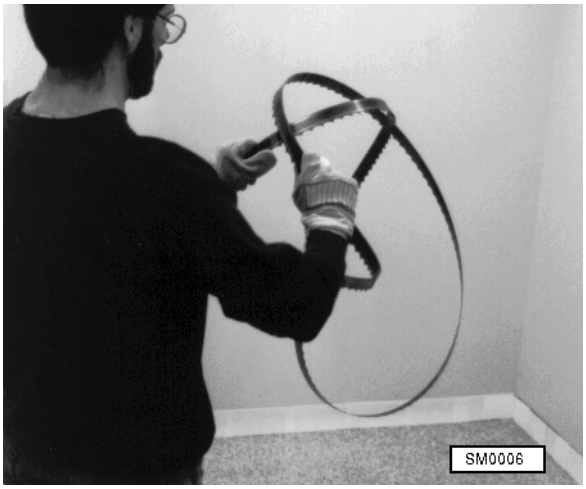


FIG. 7-3

7.2 Uncoiling The Blade

See Figure 7-4. Take the three-loop coil in your right hand. Place the band against your palm with the blade teeth pointing outward toward your fingers. Slide the top loop off and let drop.

FIG. 7-4

See Figure 7-5. The remaining two loops of the blade will form a cross. Hold this crossed section out in front of you with the blade teeth pointing toward you. If the right side is crossed OVER the left, hold the crossed section with your right hand. (If the left side of the blade is crossed OVER the right, hold the crossed section with your left hand.)

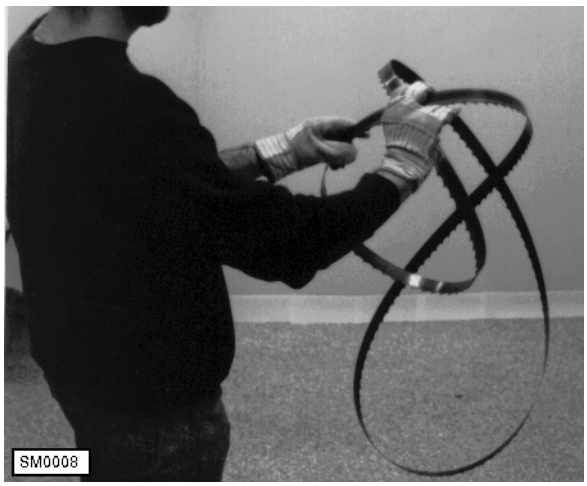


FIG. 7-5

See Figure 7-6. Keeping the blade in its crossed position, take hold of the side crossed UNDER with your other hand. Use your right (or left) hand to hold only the side crossed OVER. Place your thumbs on the top side of the blade. Put your fingers on the underneath side of the blade.

FIG. 7-6

See Figure 7-7. Hold the blade out and away from you. Slowly move your hands apart while rotating your forearms down and outward.

FIG. 7-7

7.3 Inverting The Blade

See Figure 7-8. Hold the blade in front of you. Let one side rest on the ground, teeth pointing toward you. Place you thumbs on the outside of the blade. Put your fingers on the inside of the blade.

FIG. 7-8

See Figure 7-9. Hold the blade with your hands a little farther than shoulder-width apart. Then bring your hands toward each other while rotating your thumbs downward. This causes the middle of the blade to curve downward.

FIG. 7-9

See Figure 7-10. Keeping your hands close together, rotate the curved section of the blade up and away from you. The blade will be in an oval shape, but twisted.

FIG. 7-10

See Figure 7-11. Slowly move your hands apart, allowing the blade to untwist.

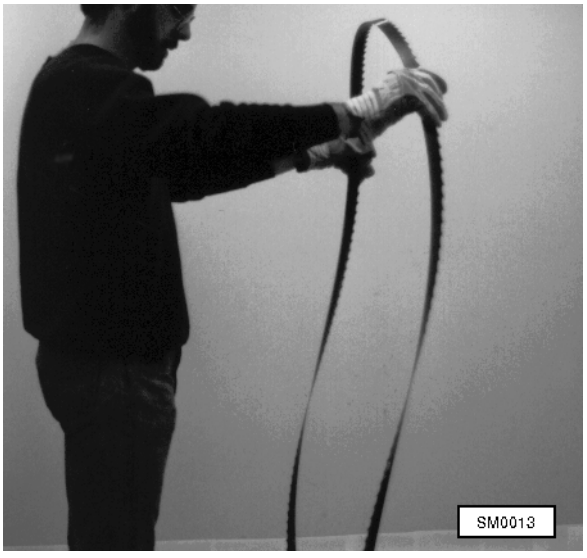


FIG. 7-11

7.4 Storing Blades

Use care when moving, storing, or handling blades. When blades are stacked or thrown together, the tips can be dulled or the set changed.

Stack two blades back-to-back using dividers between each set of blades to prevent the teeth from contacting each other.

Wood-Mizer
from forest to final form

EC declaration of conformity

according to EC Machinery Directive 2006/42/EC, Annex II, 1.A

Manufacturer:

Wood-Mizer Industries sp. z o.o.
Nagórna 114, 62-600 Koło; Poland
Tel. +48 63 26 26 000

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Following machine in our delivered version complies with the appropriate essential safety and health requirements of the EC Machinery Directive 2006/42/EC based on its design and type, as brought into circulation by us. In case of alteration of the machine, not agreed by us, this declaration is no longer valid.

We, the undersigned herewith declare, that:

Designation of the machine:	**INDUSTRIAL SHARPENER**
TYPE:	BMS500/600
No. of manufacturer:	……

Is in conformity with the following EC directives:

EC Machinery Directive 2006/42/EC
EC Electromagnetic Compatibility Directive 2014/30/EU

And is in conformity with the following Harmonized Standards:

PN-EN 12100:2010
PN-EN 894-1+A1:2010, PN-EN ISO 14118:2018-05,
PN-EN 894-2+A1:2010, PN-EN 60204-1:2010
PN-EN 894-3+A1:2010, PN-EN ISO 13849-1:2016-02
PN-EN 894-4:2010, PN-EN ISO 14120:2016-03,

Responsible for Technical Documentation:

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Tel. +48 63 26 26 000

Place/Date/Authorized Signature: Koło, 05.11.2012

Title : Engineering Manager