



SERVICE BULLETIN

Document ID:

SB252

Title:

Replacing the Saw Blade Hub and Bushing

Affected machinery: BLADE II and BLADE wood processing systems

Distribution: Customers upon order

Applies to: All machines that use the new 1-Piece hub with 5 bolt saw blade pattern (previous saw blade used 6 bolts)

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Approved By	R. Tucker



CAUTION: The document should only be printed in color with adequate resolution.
Graphics may be unclear and could create an unsafe condition if this recommendation is not followed.

Purpose and Scope

This service bulletin instructs how to install a hub and bushing in the BLADE II and BLADE wood processing systems

Overview

Parts Included

The parts included in this kit are shown in Table 1. Please make sure all parts and supplies are present before starting the procedure.

Table 1: Parts in SB252KIT

Quantity	Description	Part #
1	Blade hub	76228
1	Bushing (includes hardware)	547258
1 box of 25	Saw blade bolts, 1" long	325188
1	Service bulletin instructions for saw blade installation	SB251
1	Service bulletin document for hub replacement	SB252
<i>If a new motor is needed, order 474176.</i>		

If you have any questions, call MiTek Automation Support at 1-800-523-3380.



Supplies Needed

- Socket Wrench
- Torque wrench with capacity up to 220 in-lbs
- T40 Torx™ driver for socket and torque wrenches referred to in SB251 (also called star or hexalobular internal shaped driver)
- 5-mm hex key socket for socket and torque wrenches
- Snap ring pliers
- Large screwdriver or small pry bar

Lockout/Tagout Procedure

Electrical Lockout/Tagout

	 WARNING
	ELECTROCUTION HAZARD. All electrical work must be performed by a qualified electrician. Verify that all power to the machine has been turned off and follow approved lockout/tagout safety procedures before performing any maintenance. If it is absolutely necessary to troubleshoot an energized machine, follow NFPA 70E for proper procedures and person protective equipment. When the disconnect switch is off, there is still live power within the disconnect switch's enclosure. Always turn off the power at the building's power source to the equipment before opening this electrical enclosure.

Before performing maintenance on any machine with electrical power, lockout/tagout the machine properly. When working on a machine outside of the machine's main electrical enclosure, not including work on the electrical transmission line to the machine, follow your company's approved lockout/tagout procedures which should include, but are not limited to the steps include in this service bulletin.

Figure 1: Example of a Disconnect Switch in the Off Position



Pneumatic or Hydraulic System Lockout/Tagout

	 WARNING
	HIGH PRESSURE HAZARD. Bleed pneumatic lines before performing any maintenance on the system. Working on pressurized lines may cause injury.

After lockout/tagout of the electrical power, turn off or close the system's air shut-off valve and attach a lock and tag.

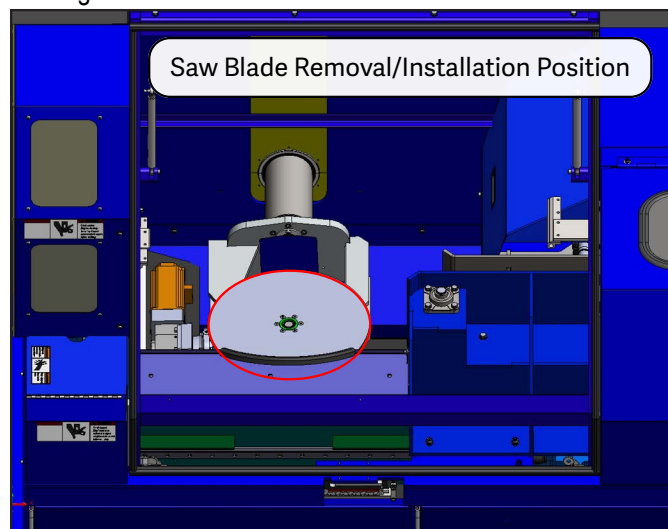
Procedure

Replacing the Hub and Bushing

	 WARNING
	MOVING PARTS CAN CRUSH AND CUT. Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.

1. Use the machine software to position the saw head to prepare for saw blade removal:
 - a) Rotate the angle of the saw blade so it is in a horizontal position (flat surface on top).
 - b) Adjust the elevation and stroke to a comfortable position for removing the blade.

Figure 2: Saw Head Position for Saw Blade Removal



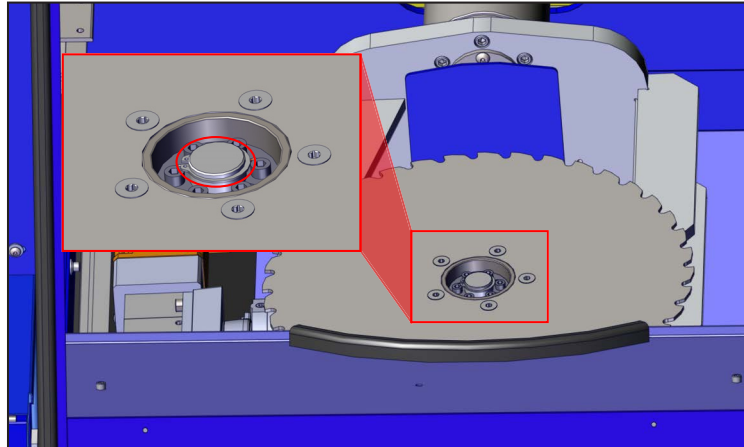


2. Activate an E-stop on the machine.
3. After blade motion has stopped, press the **Request to Unlock** button next to the saw chamber door and open the door.
4. Turn the disconnect switch handle on the main electrical enclosure to the OFF position and lockout/tagout the machine. See Figure 1.

 CAUTION	
 	CUT HAZARD. Saw blades are sharp. Wear gloves and eye protection when handling blade.

5. Remove the saw blade according to SB251 and retain two screws to be used in a later step. Discard all other screws. The screws require a T40 Torx driver.
6. Use snap ring pliers to carefully remove the snap ring. Keep for reuse.

Figure 3: Remove Snap Ring



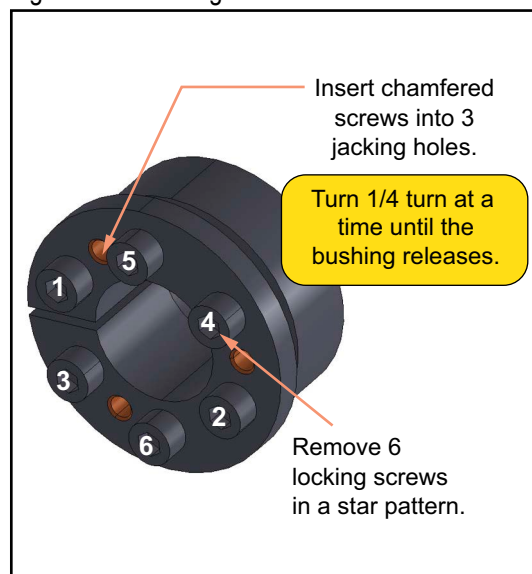
7. Remove your current hub and bushing as described below and in Figure 4 using a 5-mm hex key socket:



Failure to follow the loosening instructions carefully will result in the bushing not releasing from the motor shaft, causing motor and/or shaft damage.

- a) Remove all 6 locking screws from the bushing as shown on Figure 4. Retain 3 screws for future use.
- b) Ensure the bushing is not restricted from forward movement.
- c) Place the locking screws into the 3 jacking holes and finger tighten.
- d) Tighten 1/4 turn each and repeat until bushing releases.

Figure 4: Loosening the screws on the hub



Damage to the shaft includes anything that will prevent it from making constant contact with the hub and bushing. Deep scratches and nicks, bends, or out-of-round shape may cause the bushing to fail and costly damage to the machine.

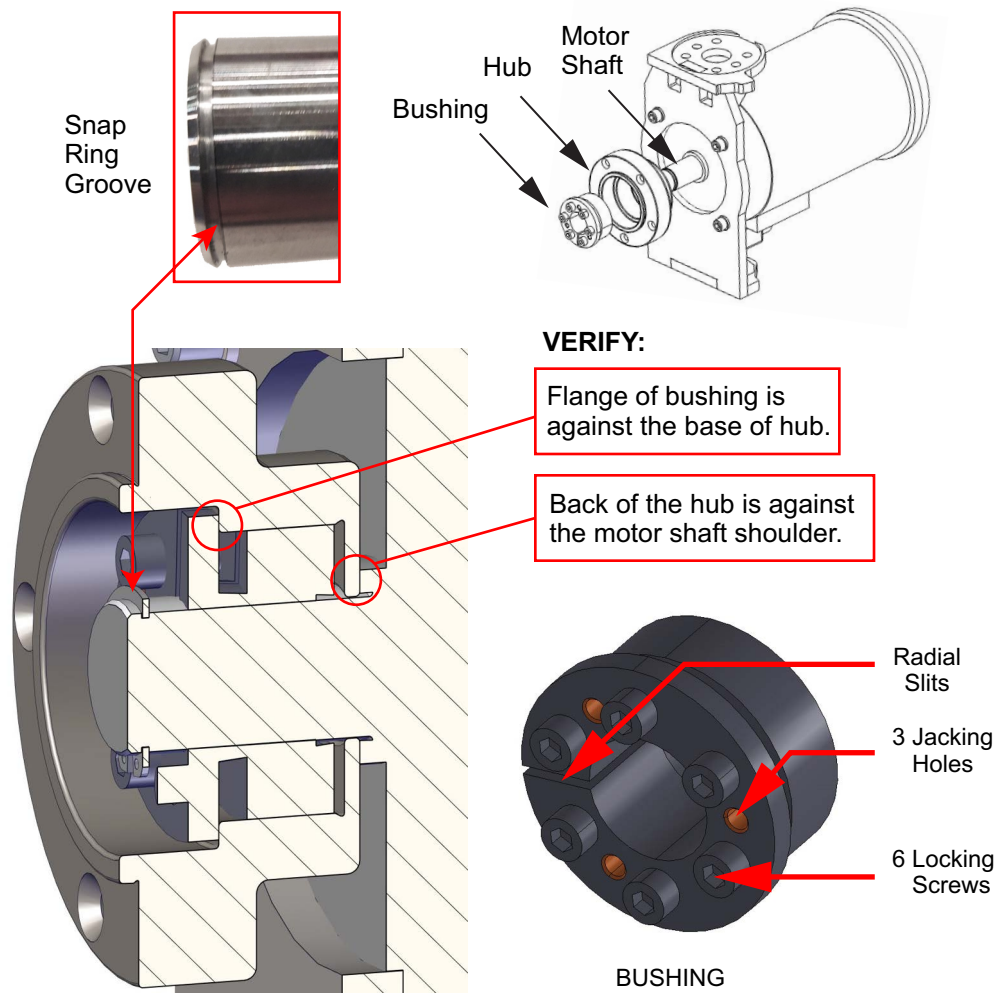
8. If bushing/hub assembly fails to release, perform these steps:
 - a) Add lubrication around the hub on the shaft.
 - b) Try walking/wiggling the hub off of the shaft.
 - c) Use a 2- or 3-jaw puller on the hub to pull straight out.
9. Pull the existing bushing and hub off of the shaft and discard.
10. Follow the below instructions to prepare for assembly of the hub and bushing:
 - a) Clean motor shaft and hub bore with a solvent. It must be clean and dry before proceeding.
 - b) Locate a clean surface / environment for the assembly of hub and bushing.

- c) Remove the bushing and hardware from its package. It is shipped pre-applied with a thin coating of machine oil. **DO NOT** remove or clean this oil as it is critical for proper functioning. If necessary, clean only with a clean, soft cloth. **Do NOT** use a solvent.
 - d) Verify that the radial slits in both sections of the bushing are in alignment (see Figure 5).
11. To prevent engagement during assembly of the hub and bushing, place 2 locking screws into the jacking holes and finger tighten (see Figure 5).
 12. Place the hub and bushing onto the motor shaft in the order shown in Figure 5.
 13. Remove the two locking screws inserted in step 11 from the jacking holes.

Figure 5: Assembling and Aligning the Hub and Bushing



If the new bushing does not fit inside the hub or over the shaft, do not force it. Loosen the screws and pry the bushing pieces apart and then try again



14. Tighten the 6 locking screws finger tight (see Figure 5).

15. Hold the hub still as shown in Figure 6.

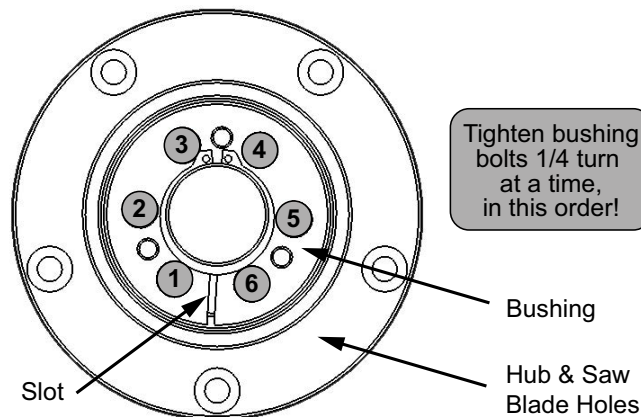
- a) To hold hub in position, fasten the two bolts (removed in step 5) to the saw hub. Do NOT reuse these bolts on a saw blade!
- b) Position a large screwdriver or small pry bar between the two bolts, as shown in Figure 6.
- c) Hold the hub in place with a screwdriver or small pry bar.

Figure 6: Holding the Hub Still
(motor / hub shown outside saw chamber)



16. Using a 5-mm hex socket, tighten the bushing bolts 1/4 turn at a time, using the phased method as described in Figure 7.

Figure 7: Tighten and Torque Bushing Bolts in This Order



- a) Set the torque wrench to **164 in-lbs** (13.7 ft-lbs or 18.5Nm)
- b) Beginning with bolt #1, tighten each bolt 1/4 turn in the order shown.
- c) Repeat until quarter turns can no longer be achieved.
- d) Complete the pattern two more times, torquing the bolts correctly.
- e) Reset the torque wrench to **156 in-lbs** (13 ft-lbs or 17.6 Nm).
- f) Repeat the pattern one more time and ensure that none of the bolts turn at this torque.
- g) If they do turn at the lower torque, reset the wrench to **164 in-lbs** (13.7 ft-lbs or 18.5Nm) and repeat the previous steps.

17. Use the snap ring pliers to install the snap ring (removed earlier) onto the motor shaft.



A torque wrench should be calibrated on a yearly basis to ensure accuracy.



How to check the torque after installation (between blade changes):

It is not necessary to re-torque the hub bushing bolts after initial installation unless the hub itself feels loose. If you feel it's necessary to check the torque on the hub bolts, only set the torque wrench to 156 in-lbs. If the bolts turn at 156 in-lbs, repeat all of step 16.

If the bolts do not turn at 156 in-lbs, no further action is needed.

18. Attach the saw blade to the hub using the SB251 instructions, supplied in this kit.
19. Close the saw chamber door.
20. Power on machine:
 - a) Remove lockout/tagout and switch the disconnect switch to the ON position. See Figure 1.
 - b) Release E-stop and press Reset switch on the HMI.
21. Use the machine software to start the saw blade rotation and observe its motion. It should not have any wobble or vibration when rotating.
22. Calibrate the stroke and LASM axes per your BLADE II or BLADE manual.

END OF SERVICE BULLETIN