MiTek®
SERVICE BULLETIN

Document ID:
SB209

Title:
Replacing Linear Guide Bearings

Affected machinery: BLADE II™ and BLADE™ saws

Distribution: Customers upon order

Applies to: All BLADE II and BLADE (Gen 1) saws that use the linear guide bearings listed in Table 4.

Sensitivity: Approved for customer

CAUTION:
MiTek recommends printing this document in high resolution using color ink. Many of the graphics may be unclear and may create an unsafe condition if this recommendation is not followed.

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Purpose and Scope

This service bulletin instructs how to replace the linear bearings used in the BLADE II and BLADE (Gen 1) saws. Please note that SB209KIT-A and B include bearings that are used in both saws and SB209KIT-C contains a bearing that is used only in the BLADE II saw. See Table 4 for a list of the different bearing types used in each machine.

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 SB209KIT-A: APPLIES TO BLADE II AND BLADE (Gen 1)

Quantity	Description	Part #
1	Linear bearing block (Size 25) with grease fitting	416103
1	Service bulletin document	SB209

Table 2: Parts in SB209KIT-B: APPLIES TO BLADE II AND BLADE (Gen 1)

Quantity	Description	Part #
1	Linear bearing block (Size 20) with grease fitting	416104
1	Service bulletin document	SB209

Table 3: Parts in SB209KIT-C: APPLIES TO BLADE II ONLY

Quantity	Description	Part #
1	Linear bearing block (Size 25) with grease fitting - For BLADE II Infeed Rail Only	416167
1	Service bulletin document	SB209

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

Supplies Needed

- Hex key set
- Grease described on page 8.
- Grease gun described on page 8.

Lockout/Tagout Instructions

Electrical Lockout/Tagout Procedure

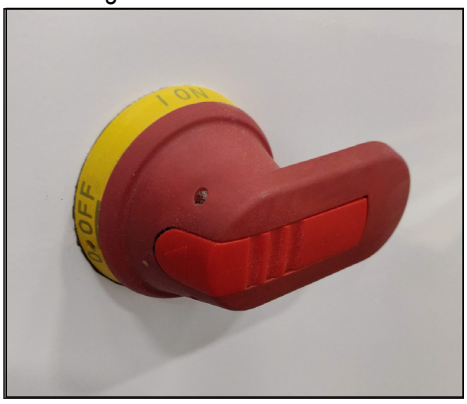
The lockout/tagout instructions for the electrical systems will be referenced as necessary in this document. Service Bulletin instructions start on page 5.

Working on a Machine Outside the Machine's Main Electrical Enclosure

	⚠ 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 personal 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.**

1. If applicable, close machine software and shut down the PC using the **Power** > **Shut down** method in Windows.
2. Engage an E-stop on the machine.
3. Turn the disconnect switch handle to the Off position. See Figure 1.
4. Attach a lock and tag that meet OSHA requirements for lockout/tagout to the electrical service entry panel.
5. Open the door to the enclosure to which you need access. Using a multimeter, verify that the power is off.

Figure 1: Disconnect Switch



Pneumatic or Hydraulic System Lockout/Tagout Procedure

The lockout/tagout instructions for the pneumatic or hydraulic systems will be referenced as necessary in this service bulletin.

	⚠ 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. See your machine manual (BLADE II or BLADE) for specific pneumatic lockout/tagout instructions..

Procedure

Type and Location of Linear Bearings in BLADE II and BLADE saws

Table 4 shows which bearing type is installed at each axis in both saws.

Table 4: Bearing Type and Location with Part Number

Axis	BLADE II	BLADE (Gen 1)
Elevation	Size 25 (416103)	Size 25 (416103)
Infeed Rail Gripper	Size 25 (416167)	Size 20 (416104)
Infeed Side Clamp	Size 20 (416104)	Size 20 (416104)
LASM	N/A	Size 25 (416103)
Outfeed Clamp	Size 20 (416104)	Size 20 (416104)
Stroke	Size 25 (416103)	Size 25 (416103)
Top Clamp	Size 20 (416104)	Size 20 (416104)

Please see the maintenance chapter of your manual for graphics that show the exact location of the bearings at each axis.

- BLADE II Manual: **Maintenance** > **Bearings (Lubrication)**
- BLADE (Gen 1) Manual: **Maintenance** > **Bearings (Lubrication)**

Replacing a Linear Bearing

	⚠ 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. Lockout/tagout the electrical and pneumatic systems of the machine using the Lockout/Tagout Instructions on page 3.
2. If replacing a size 25 or size 20 bearing intended for any axis other than the infeed rail on the BLADE II, see Installing a Size 25 or 20 Bearing - BLADE II AND BLADE (GEN 1).

   If installing a size 25 bearing on the BLADE II infeed rail, see Installing a Size 25 Bearing (for BLADE II Infeed Rail Only)

Installing a Size 25 or 20 Bearing - BLADE II AND BLADE (GEN 1)

1. With power locked out as previously described, remove the previously used bearing block:

a) Unscrew the 4 screws from the plate. Keep the screws to use later.

b) Slide the bearing off of the rail. Be sure to keep the bearing level to prevent the ball bearings from falling out.

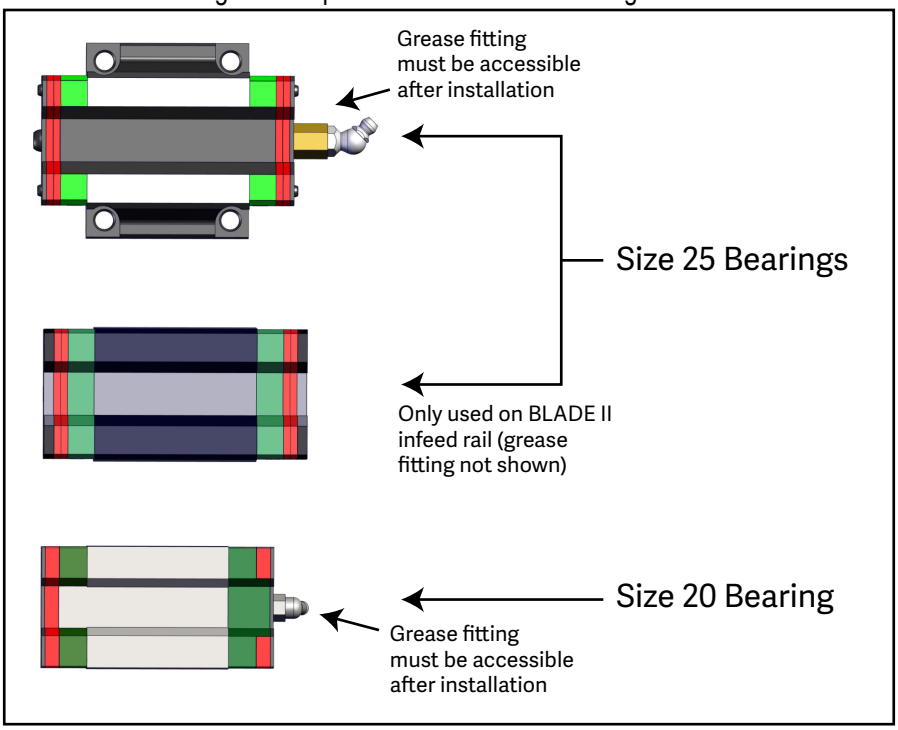
2. Discard the previously used bearing, but NOT the screws.

3. Examine the new bearing block. The grease fitting must be securely attached to the bearing block. If it is loose in the box, connect it using these steps:

a) Clean dust, metal shavings, and oil off the hole threads. Use a standard brake cleaner or anything that removes lubrication.

b) Screw the fitting into the bearing block as shown in Figure 2. Ensure the fitting is facing a direction that allows it to be easily accessed later. The direction the fitting should face depends on its location on the saw, so visualize its location carefully before installing the fitting.

Figure 2: Important Parts of Each Bearing Block



4. Clean oil and debris off of the parts listed below. A standard brake cleaner or anything that removes lubrication will work.

a) On the new bearing, with the block insert in place to protect the ball bearings, carefully clean the threaded screw holes. Do not get cleaner in the ball bearing area.

b) Clean the screws that were removed from the old bearing block.

c) Install the new bearing block, with the fitting facing out, so it will be accessible to grease in the future.

d) Slide the bearing block onto its rail, allowing the rail to push the block insert completely out of the bearing block.

e) Slide the bearing block down until it is behind the linear guide plate and the holes are aligned.

1. Using the screws removed from the previously used bearing block, apply blue *Loctite*™ thread adhesive to each screw and screw the plate and bearing block together.
2. Wait 10 minutes for the *Loctite* thread adhesive to dry before moving the assembly.
   - Use *Loctite* thread adhesive to prevent the bearings from coming loose, causing costly machine damage.
3. Proceed to Lubricating the New Linear Bearings.

Installing a Size 25 Bearing (for BLADE II Infeed Rail Only)

1. With power locked out as previously described, remove the bearing block (with bearings attached) from the infeed rail.
2. Remove the bearings from the bearing block.
   - MiTek recommends both infeed rail bearings are replaced at the same time to ensure consistent performance.
3. Install the new bearings with the machined surface against the reference edge of mating part. Position the fitting facing out, so it will be accessible to grease in the future.
1. Using the screws removed from the previously used bearing block, apply blue *Loctite*™ thread adhesive to each screw and screw the plate and bearing block together.
2. Wait 10 minutes for the *Loctite* thread adhesive to dry before moving the assembly.
   - Use *Loctite* thread adhesive to prevent the bearings from coming loose, causing costly machine damage.
3. Clean the entire infeed linear rail of old grease and debris. Inspect for wear and damage from old bearings.
4. Reinstall the bearings and bearing block onto the rail.
5. Proceed to Lubricating the New Linear Bearings.

Lubricating the New Linear Bearings

1. After the *Loctite* thread adhesive is dry, apply the correct amount of grease to the fitting.
   - The grease volume is listed in Lubrication Amount on page 9.
   - The correct grease is specified Grease Recommended on page 8.

- The recommended grease gun is described in Grease Gun Recommended on page 8

NOTICE

The bearings are shipped with NO grease in them. They MUST be greased before operating the saw!

2. Remove the lockout/tagout mechanisms.
3. Run the saw, then lockout/tagout again and look at the rail. Check to see if a lubricant film can be seen on the rail. If not, add more grease.

Lubricating the Linear Bearings for Preventive Maintenance

The following information applies lubrication of all linear bearings in your saw. This same information can also be found in the maintenance chapter of your manual.

Check the quality of the lubrication on the guide rails every week to determine when more grease is needed. The frequency of greasing depends on many factors including amount of use and dust. After enough time has passed to determine a pattern, document how often the bearings should be greased, but continue to inspect the rails every week.

NOTICE

Overgreasing will cause premature failure of bearing seals and excessive saw dust and dirt to stick to the guide rails, negating the benefits of the grease. Undergreasing may cause damage to components and affect the accuracy of the saw. A thin film of grease should be visible on the guide rails at all times

Because the linear bearings require frequent lubrication and can be damaged by overgreasing, MiTek recommends the following grease and grease gun be used.

Grease Recommended

***Mobilux*™ EP 2**

This is a general purpose, lithium-based Grade 2 grease that provides excellent protection against rust and corrosion and resists water wash-out, corrosion protection, low temperature pumpability, and high temperature service life.

Grease Gun Recommended

It is recommended to use the following grease gun to ensure the proper amount of grease is applied. If you do not have this grease gun available, it is recommended that you purchase one for future use. Understanding the number of pumps to use (the output of grease) will extend the life of the bearings and the accuracy of the saw.

Hiwin GN-80M

Output: 0.5-0.6 cm^3 per stroke

If you choose to use a different grease gun, document which gun is to be used for this procedure and ensure employees know the output per stroke. The output per stroke should be equal to or less than 0.5 cm^3 per stroke.

Lubrication Amount

Use a grease gun to apply the volume of grease listed in Table 5 or Table 6 to the matching bearing size.

Table 5: Grease Volume Per Bearing Size for BLADE II

Linear Bearing Size	Amount
Stroke, & Elevation (size 25)	0.8 cm^3
Gripper (size 25)	0.8 cm^3
Infeed Top Clamp, Infeed Side Clamp, and Outfeed Clamp (size 20)	0.5 cm^3

Table 6: Grease Volume Per Bearing Size for BLADE

Linear Bearing Size	Amount
Stroke, Elevation, and LASM (size 25)	0.8 cm^3
Gripper, Infeed Top Clamp, Infeed Side Clamp, and Outfeed Clamp (size 20)	0.5 cm^3

END OF SERVICE BULLETIN