MiTek®
SERVICE BULLETIN

Document ID:

SB291-B

Title:

Installing Additional Guards

Affected machinery: Hornet II™ saw (LTR)

Distribution: All customers with affected machinery

Applies to: All machines prior to frame 33 that do not have the guards installed

Sensitivity: INTERNAL USE ONLY

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.

MiTek Automation
Phone: 800-523-3380
Fax: 636-328-9218
www.mitek-us.com

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Purpose and Scope

This service bulletin instructs how to install additional guarding for a Hornet II saw (left-to-right). See SB291-A for a saw that is right-to-left orientation.

Overview

Guard Overview

Figure 1: Guard Assembly Overview (LTR Shown)
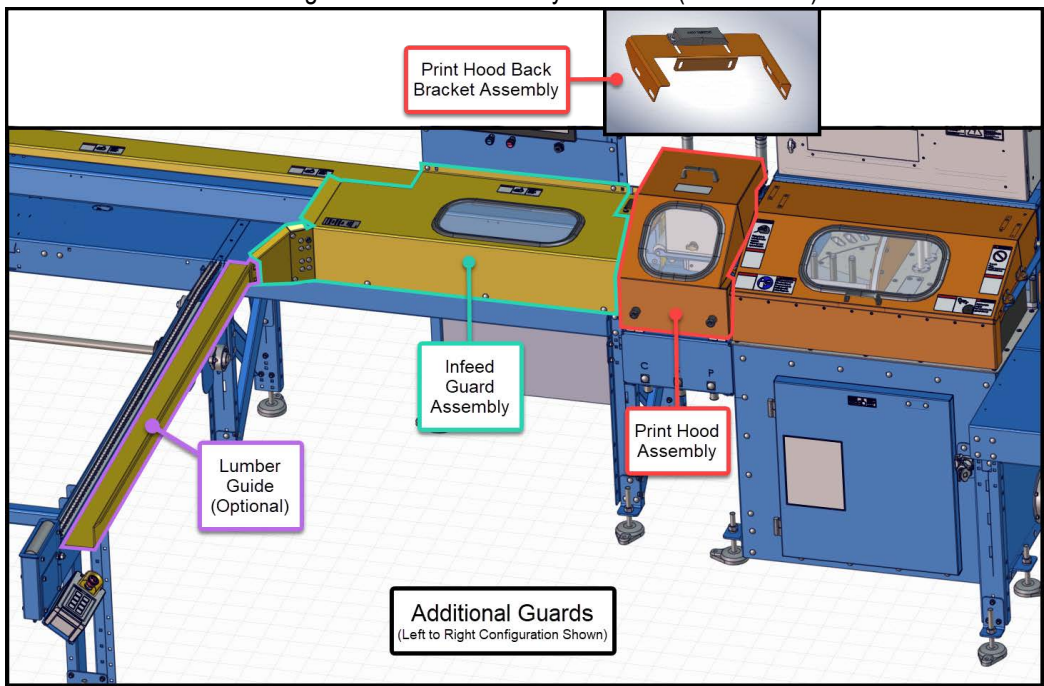
Parts Included

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

Note that some parts will come pre-assembled. See the relevant section for parts needed for the specific guard.

Table 1: Parts in SB291KIT

Quantity	Description	Part #
1	Print hood assembly, LTR	76021-502

Quantity	Description	Part #
1	Print hood back bracket assembly	76012-501
1	Infeed guard assembly, LTR	76028-502
1	Auto loading live deck lumber guide, LTR	76024-102
1	5-Pin Cable - 98"	515996*
1	5-Pin Male Connector*	515768*
8	#10 Washer	365109
7	Serrated hex nut, 3/8-16	361008
4	1/4-20, UNCx1/2 GR5	327153
4	WSHR,LOCK,1/4	364034
2	*Serrated hex nut, 16-18* **(EXTRA)****	361009
5	3/8-16X1 Bolt	314131
4	#10-32 flange nut	361011
2	3/18-16x 3/4 Bolt	314135
2	*5/16-18X1 Bolt* **(EXTRA)****	314134
1	Cable Grommet (Auto-Loading Live Deck version)	511766
1	Cable Grommet (Standard version)	511762
4	#10-32x5/8" socket cap screw	321149
4	1/4 flat washer	365115
4	#10-32x1/2" socket cap screw	321148
2	Lift-off hinges w/holes (LTR)	275016
2	10-24 bolt	321083
5	#10-32 Tap	176007
5	#10-24 Tap	176008
3	#21 Drill Bit	176004
3	#25 Drill Bit	176005
1	4oz bottle of tap fluid	176006
1	Service bulletin document	SB291-B

*Combined to make the Sensor Cable for PRS1316

**There may be extra parts included for redundancy. See the individual installation sections for parts necessary for that assembly.

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

Supplies Needed

- **10-32 Tap***
- **10-24 Tap***
- **#21 Drill Bit***
- **#25 Drill Bit***
- **Tap Fluid***
- Punch Tool
- Pencil

- Power Drill
- 1/8" Hex Key
- TT15 Torx Screwdriver
- 7/16 Wrench
- 1/2" Socket
- Level
- 9/16" Socket

- 3mm Hex Key
- 11/32 Wrench
- Ruler
- Hammer

*Supplies in **BOLD** are included in the SB Kit. See Table 1 on page 2 for all included parts.

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 .

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 2.

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 2: Disconnect Switch

Pneumatic System Lockout/Tagout Procedure

The lockout/tagout instructions for the pneumatic 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.**

1. 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 Figure 3.

Figure 3: Pneumatic System Shut-Off Valve
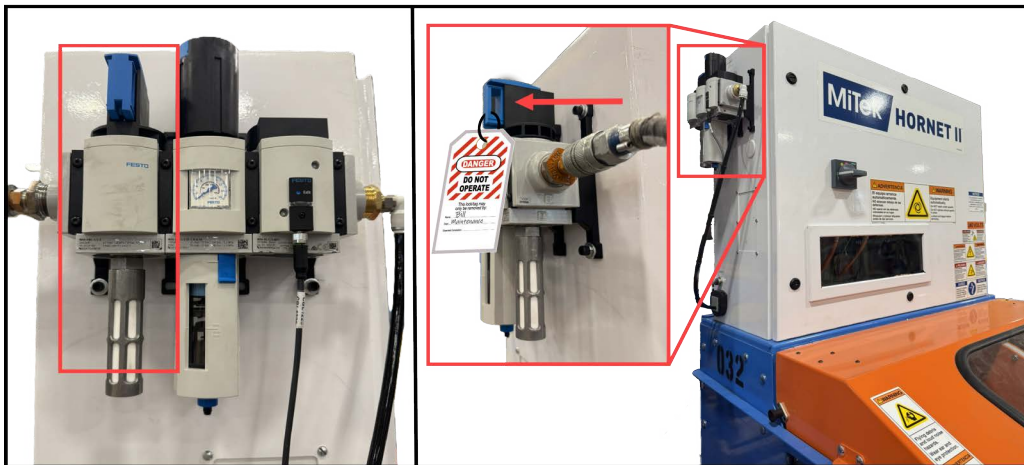

Procedure

Preparing the Saw

1. Ensure the infeed pusher is at the home position. Adjust using the CutBuilder software if necessary.

2. Lockout/tagout the electrical and pneumatic systems of the machine using the Lockout/Tagout Instructions on page 5.

Installing the Print Hood Assembly

The print hood assembly (76021-50X), back bracket assembly (76012-501), and the sensor cable for PRS 1316 will ship pre-assembled. See Table 2 for reference.

Figure 4: Print Hood Assembly Views
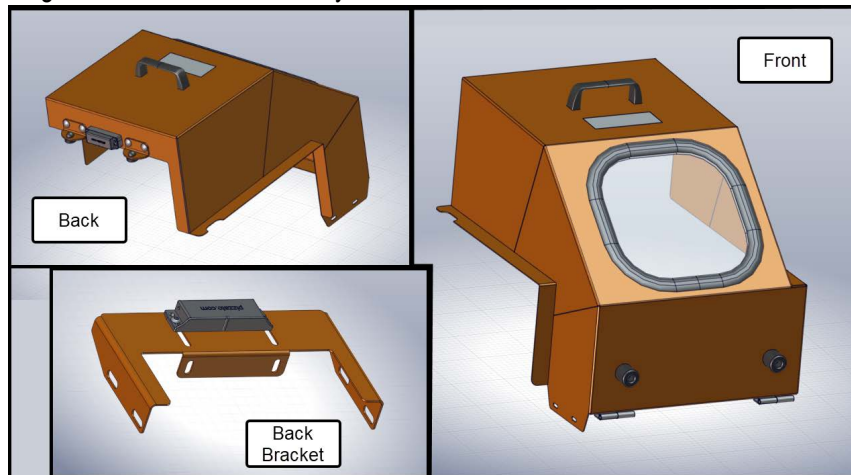
Supplies Needed for Installing the Print Hood Assembly

- 10-32 Tap
- 10-24 Tap
- #21 Drill Bit
- #25 Drill Bit
- Tap Fluid
- Punch Tool
- Pencil
- Ruler

- Power Drill
- 1/8" Hex Key
- T15 Torx Screwdriver
- 7/16 Wrench
- 1/2" Socket
- Level
- 9/16" Socket
- Hammer

Table 2: Print Hood Assembly Parts

Quantity	Description	Part #
1	Print hood assembly, LTR (Pre-assembled)	76021-502
1	Print hood back bracket assembly (Pre-assembled)	76012-501
1	Sensor Cable for PRS1316 (Pre-assembled)	N/A
8	#10 Flat Washer	365109
8	#10-32 flange nut	361011
4	#10-32x5/8" socket cap screw	321149
2	Lift-off hinges w/holes (LTR)	275016
4	WSHR,LOCK,1/4	364034
4	1/4-20x1/2"	327153
2	5/16-18X1 Bolt	314132
2	Screw, 8-32 X1 IN LG	369819
4	1/4" flat washer	365115
4	#10-32x1/2" socket cap screw	321148

Quantity	Description	Part #
2	NUT, LOCK, ESNA, #8-32	361915
For saws equipped with an Auto-Loading Live Deck:		
1	Two-hole grommet	511766
For saws NOT equipped with an Auto-Loading Live Deck:		
1	One-hole grommet	511762

1. Gather the parts listed in Table 2 and the items listed in Installing the Print Hood Assembly on page 6.

    • All parts listed in Table 2 are included in a separate bag from the rest of the service bulletin kit.

Installing the Hinges

1. Using a ruler and a pencil, place guide marks on the gatekeep for the 4 holes for both hinges.

    • Use the measurements shown in inset A in Figure 5 to determine where to place the guide marks.

Figure 5: Hinge Placement
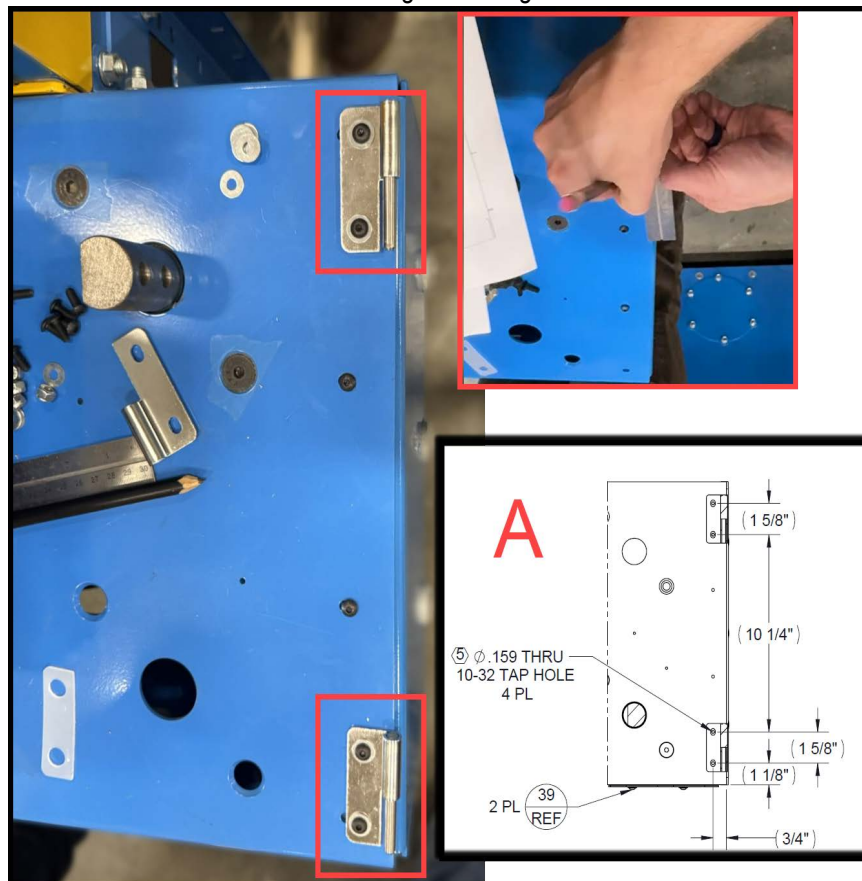
• Drawing 76673 Rev. D+ may also be referenced.

2. Use the punch tool and hammer to make guide divots where the pencil marks are to prepare for drilling.

3. Drill all 4 holes using the #21 drill bit and the power drill.

4. Thread all 4 holes using the 10-32 tap.
   - For steps 4 and 5, use tap fluid as needed.

5. Using four of the 10-32x5/8" screws, washers, and nuts listed in Table 3 and a 1/8" hex key, attach both bottom hinge plates to the gatekeep via the holes created in Steps 1 through 4.
   - See Figure 6 to help identify the BOTTOM hinge plates and for the correct hinge orientation. The top hinge should always slide in the direction of the saw chamber when attaching the hood.

Table 3: Print Hood Hinge Parts

Quantity	Description	Part #
8	#10 Washer	365109
8	#10-32 flange nut	361011
4	#10-32x5/8" socket cap screw (bottom hinge plates)	321149
4	#10-32x1/2" socket cap screw (top hinge plates)	321148

Figure 6: Hinge Orientation
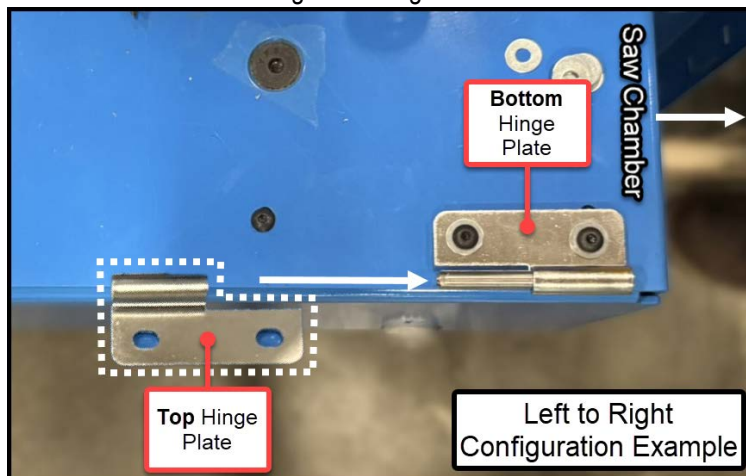
6. Using the four of the #10-32x1/2" screws, washers, and nuts listed in Table 3 and a 1/8" hex key, attach the TOP hinge plates to the print hood assembly in the correct orientation. See Figure 6 and Figure 7.
   - Note that the top hinges may have come pre-installed on the print hood. If so, proceed to Step 7.

Figure 7: Installing Both Hinges
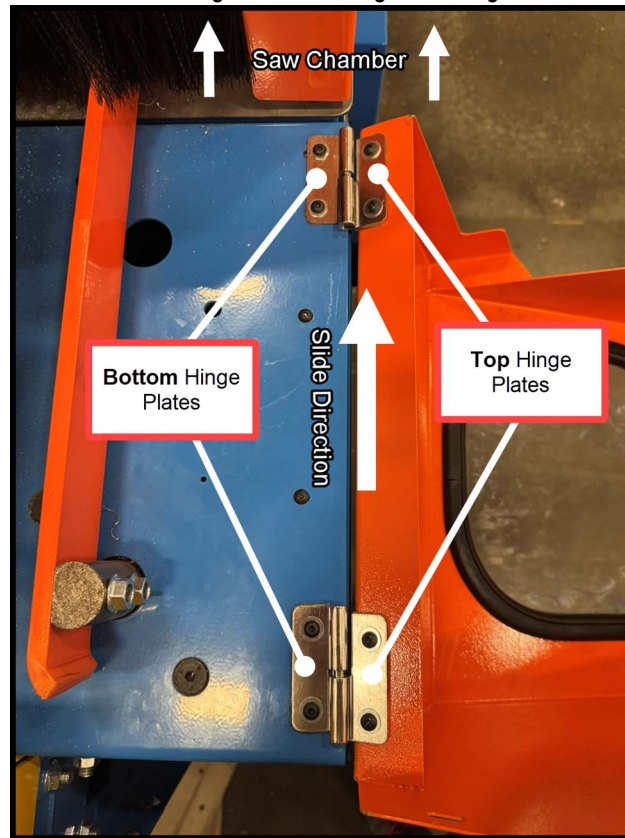
7. After the bottom hinges are attached to the gatekeep and the top hinges are attached to the print hood, attach the print hood to the gatekeep by sliding the top hinges over the bottom hinges.

    • Slide the top hinges over the bottom hinges in the direction of the saw chamber to attach the hood, and away from the saw chamber to remove.

Installing the Print Hood Back Bracket
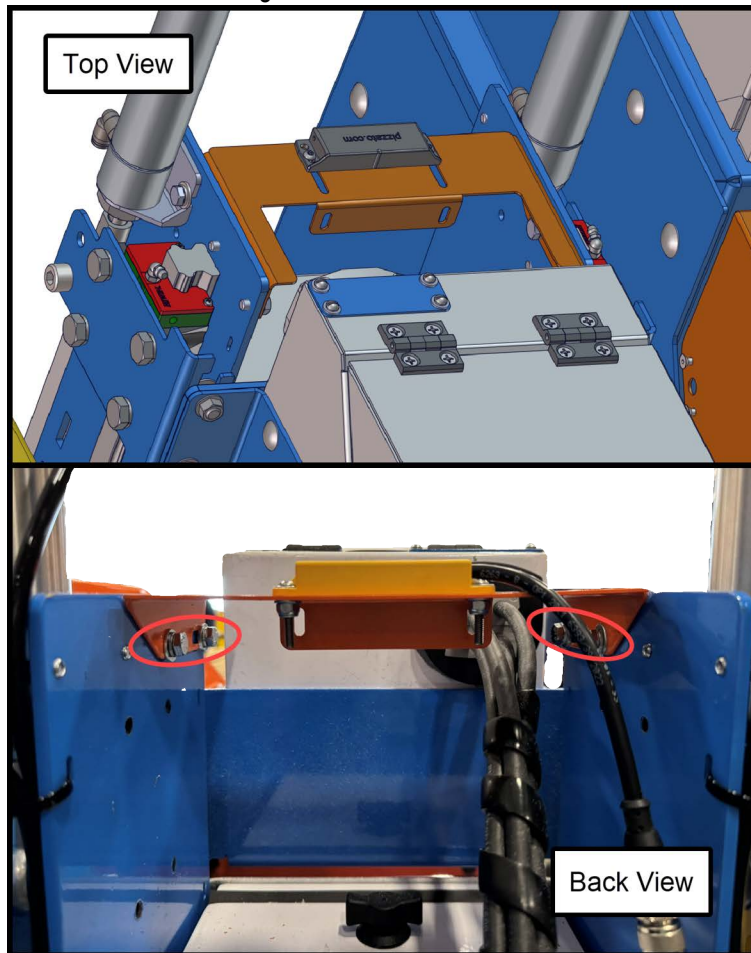
Figure 8: Back Bracket Placement

Table 4: Back Bracket Parts

Quantity	Description	Part #
4	WSHR,LOCK,1/4	364034
4	1/4" Flat Washer	365115
2	SCREW, 8-32 X1 IN LG,	369819
4	1/4-20, UNCx1/2 GR5	327153
2	NUT,LOCK,ESNA,#8-32	361915

1. Using a 7/16" wrench and the 1/4-20 fasteners, washers, and nuts listed in Table 4, attach the print hood back bracket behind the bottom plate printer in the area indicated in Figure 8.

   • Do NOT tighten the sensor on top of the bracket yet. See Installing and Adjusting the Print Hood Sensor on page 13 for further information.

Leveling and Adjusting the Print Hood

While not necessary, the infeed guard assembly can be installed before the print hood if preferred. See the Installing the Infeed Guard Assembly on page 17 section for more information.

1. It is critical to ensure the print hood is level and that there is enough clearance between the print hood and saw chamber so both may open freely without making contact.
   - Figure 9 and Figure 11 are examples of a properly leveled print hood.
   - Adjust the installation position of both hinges and the rear bumpers in Figure 10 as needed to level the hood.

2. Only proceed with adjusting the print hood sensor after the print hood is level. Ensure all fasteners are tightened appropriately once the hood is level.
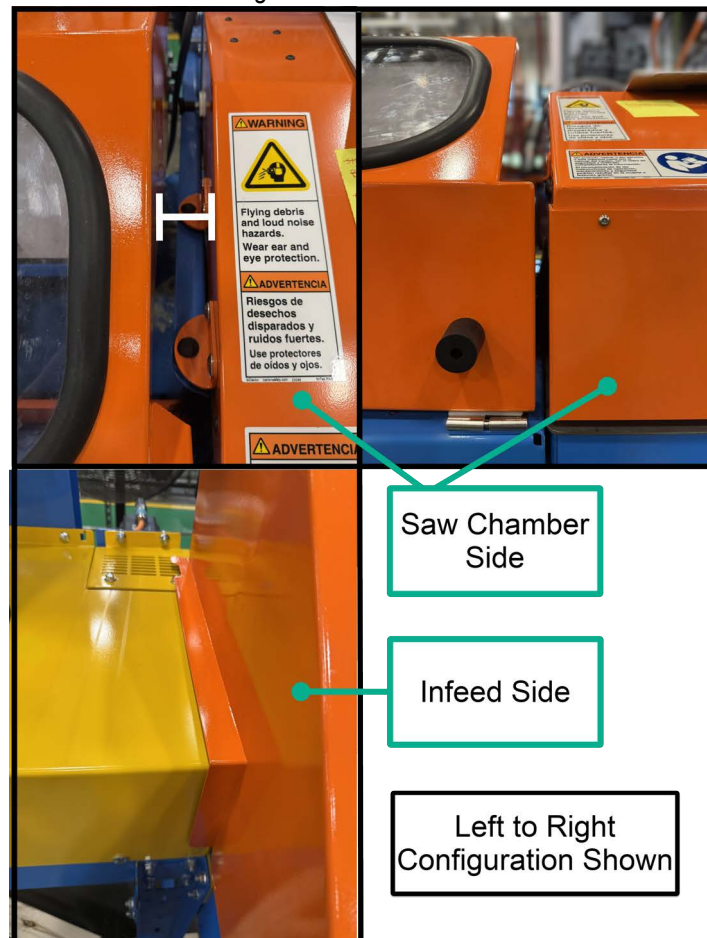
Figure 9: Print Hood Clearance
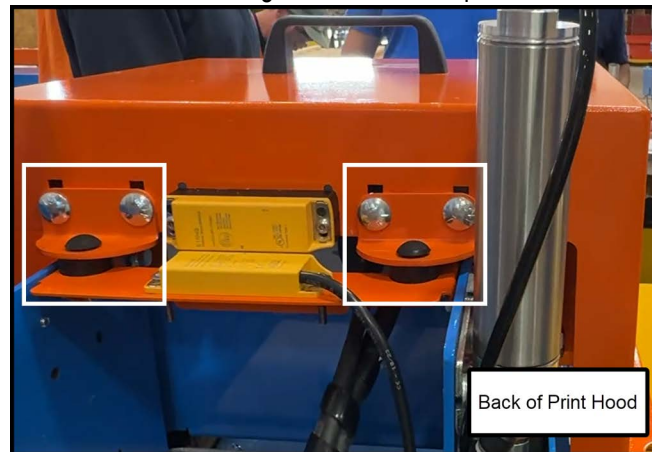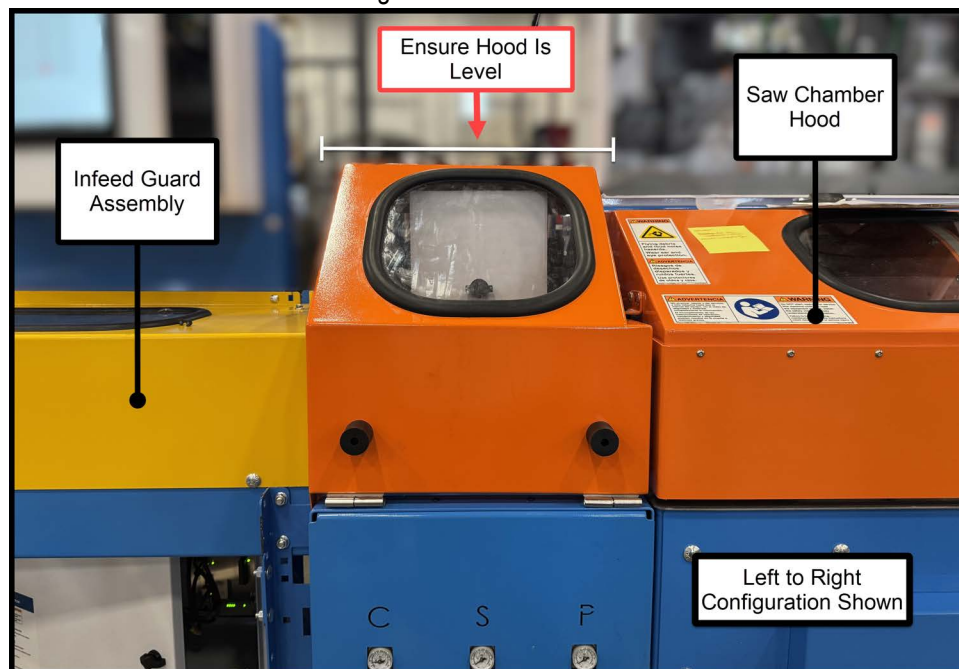
Figure 10: Rear Bumpers

Back of Print Hood

Figure 11: Print Hood Position

Ensure Hood Is Level

Saw Chamber Hood

Infeed Guard Assembly

Left to Right Configuration Shown

Installing and Adjusting the Print Hood Sensor

Only finalize the installation of the print hood sensor AFTER the print hood has been leveled and secured. See Leveling and Adjusting the Print Hood on page 12 for more information.

1. Using a T15 Torx screwdriver to adjust the fasteners for the bottom sensor as needed, adjust the position of the bottom sensor so the triangle marks (see Figure 12) on the top and bottom sensors are as closely aligned as possible while still maintaining the position of the print hood to be level with the necessary side clearance.

• See Leveling and Adjusting the Print Hood on page 12 for more information regarding proper hood positioning.

Figure 12: Print Hood Sensor Adjustment
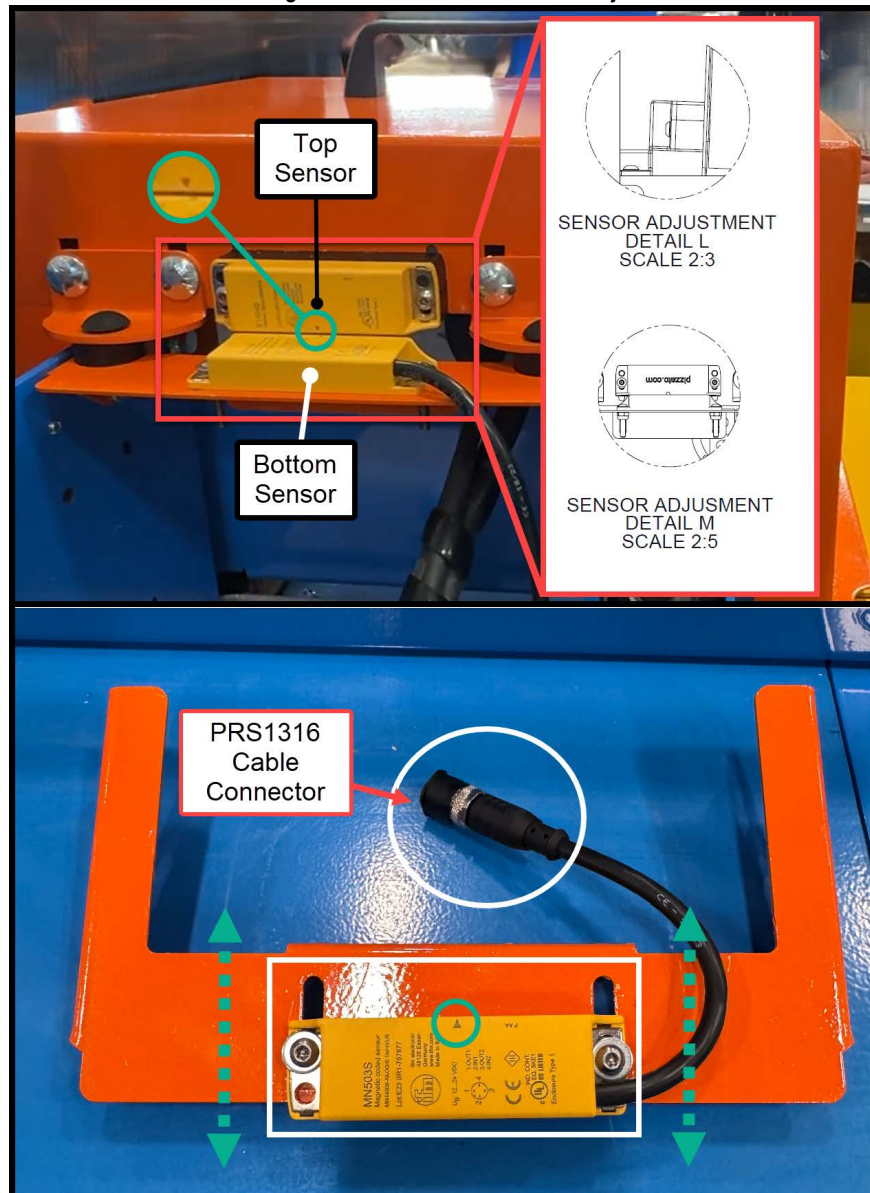
2. Tighten the bolts on either side of the bottom sensor using the T15 Torx screwdriver once the proper positioning is reached.

3. Open the rear saw chamber door using the key (PN 520195).

4. Remove and replace the necessary grommet in the area highlighted in Figure 13.

   • If the saw is equipped with an Auto Loading Live deck, replace a one-hole grommet grommet with the two-hole grommet (PN 511766).

   • For standard saws, replace the grommet blank with a one-hole grommet (PN 511762).

5. In the saw chamber, on the remote I/O block, remove the jumper from the M12 connector receptacle highlighted in inset A on Figure 13.

Figure 13: Remote I/O Block
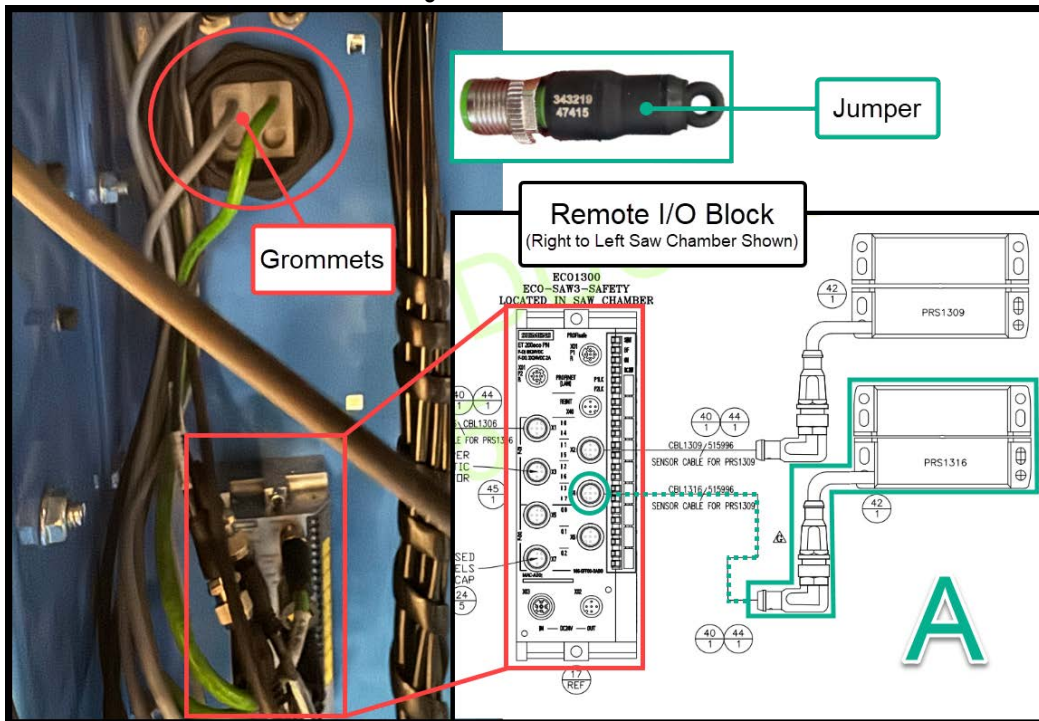
- The remote I/O block is on the right side of the saw chamber when facing the rear door.

6. Insert the PRS1316 cable into the M12 connector receptacle that the jumper was removed from.

7. Route the other end of the PRS1316 cable out of the saw chamber via the grommet that was installed in Step 4.

8. Install the end of the PRS1316 cable that is outside the saw chamber into the connector on the bottom sensor, highlighted in Figure 12.

   - Depending on the orientation of the saw, there may be significant slack in the PS1316 cable. Ensure the cable slack is secured and completely clear of the saw blade assembly.

⚠	**CAUTION**
⚠	**ENTAGLEMENT HAZARD.** **Ensure the PRS1316 cable is routed clear of the saw blade assembly to prevent snagging and potential damage to the saw.** **Depending on the orientation of the saw, there may be significant slack in the PRS1316 cable.**

Testing Print Hood Sensor Functionality

1. Close and secure the rear saw chamber door. Remove all lockout/tagout devices and power on the saw.

2. Once the saw is powered on, prepare the saw for normal operation. Ensure there are no errors related to the print hood sensor (PRS1316).

   • If there is an error related to PRS1316, lockout/tagout the saw and adjust the position of the sensor as needed by repeating Steps 1 and 2 in Installing and Adjusting the Print Hood Sensor on page 13

3. If there are no errors related to PRS1316, open the print hood. Ensure the machine goes into an E-stop state with an error related to the print hood sensor.

4. Close the hood and return the machine to an operational state by resetting the E-stop condition.

Finalizing the Print Hood Assembly

Only proceed with finalizing the print hood assembly if the following criteria is met:
   • The print hood is secured and level with the proper clearance as described in Leveling and Adjusting the Print Hood on page 12.
   • The print hood sensor (PRS1316) has been secured, tested, and is working without issue as described in Testing Print Hood Sensor Functionality on page 15.

1. Lockout/tagout the electrical and pneumatic systems of the machine using the Lockout/Tagout Instructions on page 5.

2. With the print hood closed, locate the holes on the HMI-side of the print hood. These indicate the proper location for the tap holes. See Figure 14.

3. Using a pencil, mark the desired location on the gatekeep to tap the holes for the fasteners to secure the print hood.

   • See inset A on Figure 14.

Figure 14: Tapping Holes For Securing the Print Hood
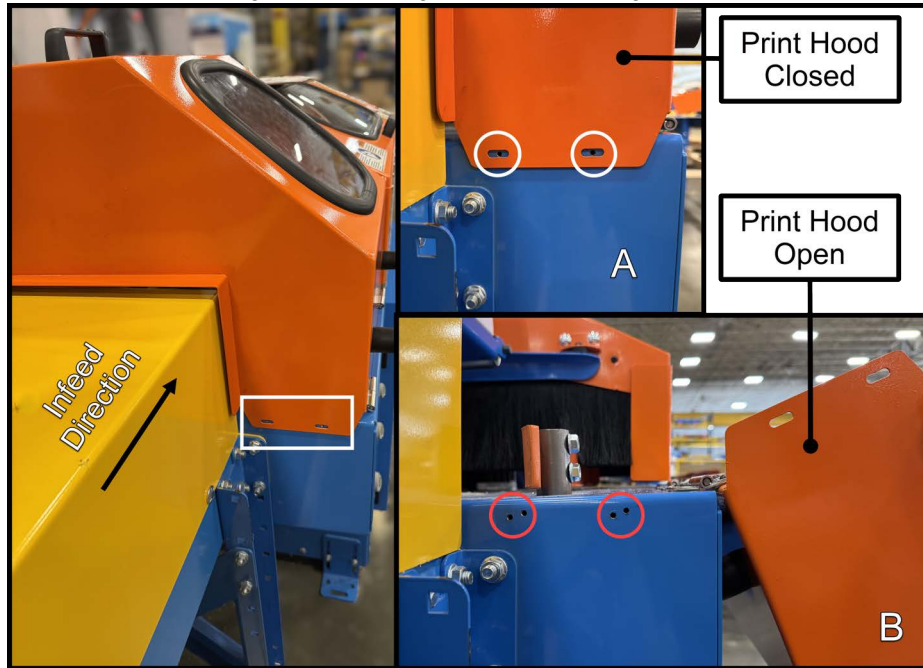
4. Open the print hood.

5. Use the punch tool and hammer to make guide divots where the pencil marks are to prepare for drilling.

6. Drill both holes using the #25 drill bit and the power drill.

7. Thread both holes using the 10-24 tap.
    • For steps 6 and 7, use tap fluid as needed.

8. Close the print hood.

9. Using two #10-24 button head socket cap screw, 1/2" and a 5/32" hex key, secure the print hood via the threaded holes created in Step 7.

Installing the Infeed Guard Assembly

Supplies Needed for the Infeed Guard Assembly

• 1/2" Socket
• Level
• 9/16" Socket

Table 5: Infeed Guard Assembly Parts

Quantity	Description	Part #
1	Infeed Guard Assembly	76028-502
2	5/16-18X1 Bolt **(EXTRA)**	314134
2	#10 Washer **(EXTRA)**	361009

| Quantity	Description	Part #
3	3/8-16X1 Bolt	314131
3	Serrated hex nut, 3/8-16	361008

- Note that the infeed guard assembly (76025-502) will come pre-assembled.

1. Gather the supplies listed in Table 5 and the tools listed in Supplies Needed for the Infeed Guard Assembly on page 17.

2. With the saw locked out as previously described, remove the infeed pusher guard located below the HMI by removing the fasteners highlighted in Figure 15 using a 1/2" socket. Retain both bolts and nuts for later use.

Figure 15: Infeed Guard Below HMI
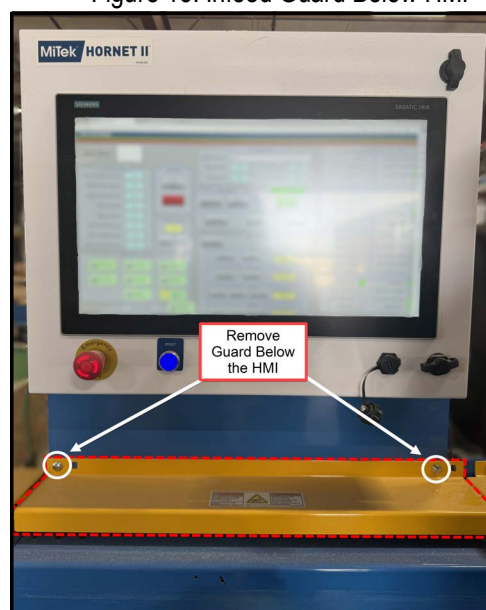
3. With the print hood open, position the infeed guard assembly as seen in Figure 16.The top of the assembly should be in the same position as the infeed pusher guard removed in Step 1.

Figure 16: Infeed Guard Assembly Position
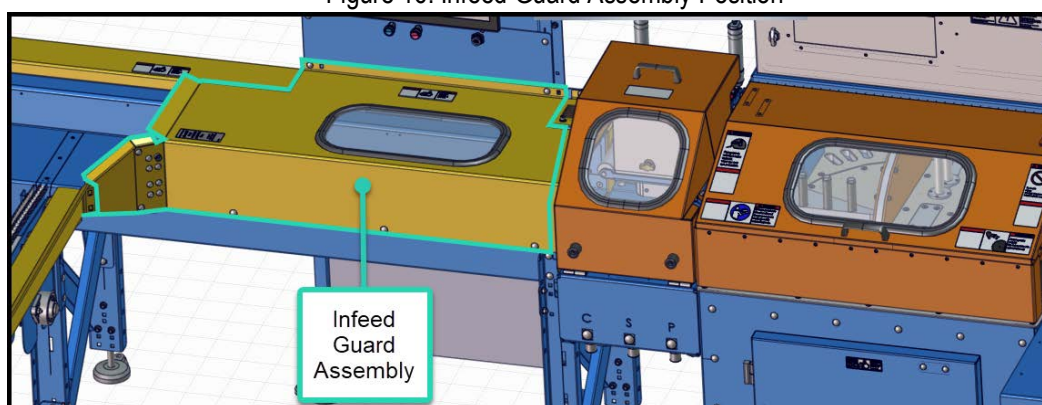
4. Using the fasteners retained from Step 1 and a 1/2" socket, fasten the infeed guard below the HMI using the holes highlighted in Figure 15.

5. Using the three 3/8"-16 x1" bolts, 3/8-16 nuts, and a 9/16" socket, further fasten the infeed guard assembly via the three holes highlighted in Figure 17 on the infeed pan below the HMI.

   • Ensure the infeed guard assembly is completely level before completely securing all five bolts.

Figure 17: Infeed Guard Lower Bolts
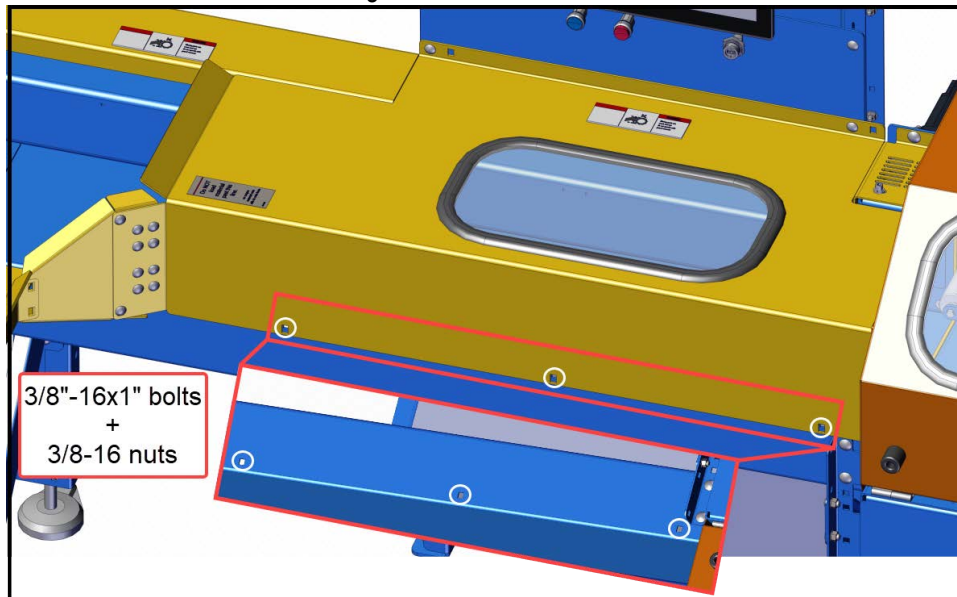
Installing the Lumber Guide (Auto Loading Live Deck Equipped Saws Only)

The lumber guide is only necessary for saws equipped with an auto loading live deck. Complete installation of the infeed guard before proceeding with the installation of the lumber guide. See Installing the Infeed Guard Assembly on page 17 for more information.

Supplies Needed for Installing the Lumber Guide

• 9/16" Socket
• Level

Table 6: Auto Loading Live Deck Lumber Guide Parts

Quantity	Description	Part #
1	Auto Loading Live Deck Lumber Guide Assembly	76028-502
2	3/8-16x 3/4" Bolt (two right side)	314135
4	Serrated hex nut, 3/8-16 (two right side)	361008
2	3/8-16x 1" Bolt (two left side)	314131

1. Gather the parts listed in Table 6 and the tools listed in Supplies Needed for Installing the Lumber Guide on page 19.

2. With the saw locked out as previously described, position the lumber guard flush against the first chain assembly towards the HMI.

    • Position the long piece on the infeed side of the lumber guide flush with the infeed guard. See Figure 18.

    • The holes on the bottom of the guard should align with the holes on the respective leg of the auto loading live deck. See Figure 19.
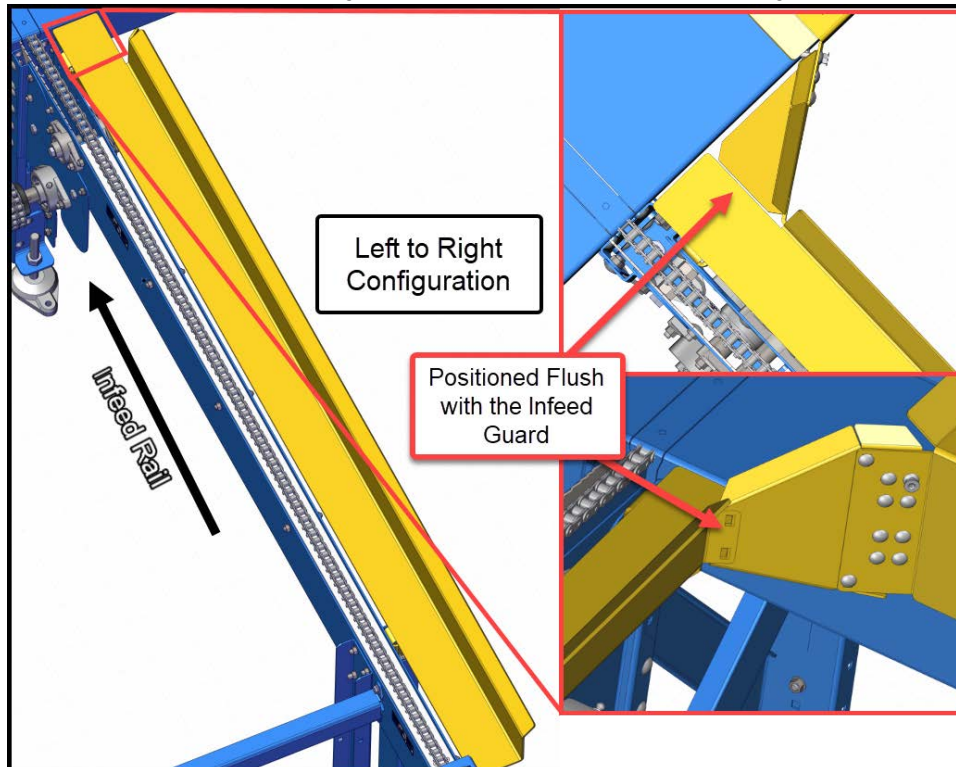
Figure 18: Lumber Guide Guard Positioning

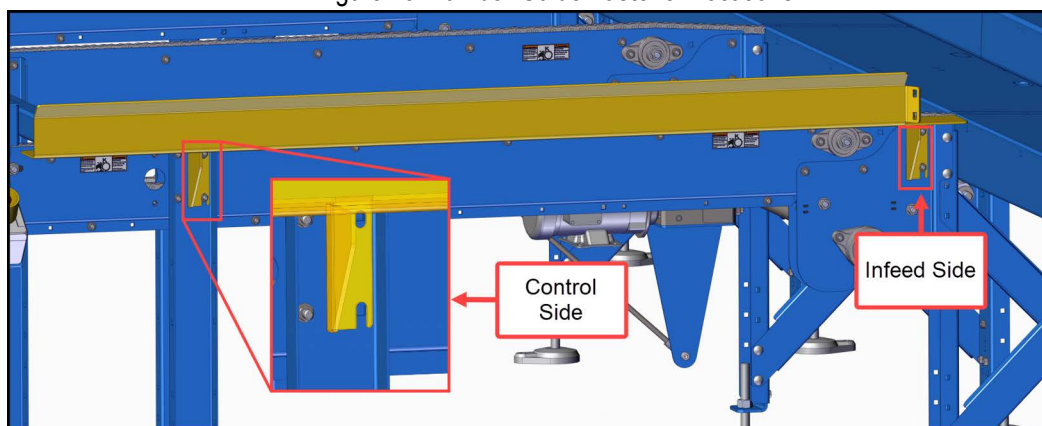Figure 19: Lumber Guide Fastener Locations

3. Fasten the lumber guide using a 9/16" socket and the fasteners listed in Table 6.

    • Use the 1" length bolts to fasten the side of the lumber guide that is closest to the auto loading live deck control panel (opposite of the infeed tables).

    • Use the 3/4" length bolts to fasten the side of the lumber guide that is closest to the infeed tables and infeed guard.

    • Ensure the lumber guide is level before completely fastening the lumber guide to the auto loading live deck.

4. Remove all lockout/tagout devices and restore power to the saw. Prepare the saw for normal observation and observe there are no errors related to the print hood sensor.

    • Note that the CutBuilder software must be version 3.0.0 or higher for the print hood sensor to function properly.

    • If the firmware version is lower than 3.78, the sensor will display on the HMI as "Optional Field EStop", but will properly function.

        • If the saw has been equipped with *SB283 - Printing Speed Retrofit*, it will have a compatible software version and a firmware version of 3.78+.

    • If there are errors related to the print hood sensor, see Testing Print Hood Sensor Functionality on page 15 for troubleshooting information.

END OF SERVICE BULLETIN