

Beam Saw Pusher Fence Alignment Procedure

1.0 Maintenance Objective & Frequency

The objective of this procedure is to calibrate the pusher fence on a beam saw to ensure it is parallel to the saw blade within 0.005 inches over the full travel length. Proper alignment prevents binding, reduces blade wear, and ensures square cuts on panels. This PM is to be performed every 500 operating hours or whenever cut quality degrades.

2.0 Lockout/Tagout (LOTO) & Safety

- Electrical Isolation: Disconnect main power to the beam saw at the disconnect switch and apply a personal lock and tag.
- Pneumatic Isolation: Close the air supply valve to the pusher cylinder and bleed residual pressure by actuating the manual release valve.
- Mechanical Lockout: Ensure the saw blade is fully stopped and the blade guard is locked in the raised position.
- Mandatory PPE: Safety glasses, steel-toed boots, and cut-resistant gloves.

3.0 Required Tools, Parts & Lubricants

- 0-6 inch digital caliper (0.001 inch resolution)
- Precision machinist square (12 inch, 90 degree)
- Feeler gauge set (0.001 to 0.020 inches)
- 10mm combination wrench
- 13mm combination wrench
- Torque wrench (10-50 Nm range)
- ISO 32 hydraulic oil (for linear guides)
- Clean lint-free rags
- Permanent marker

4.0 Step-by-Step Maintenance Procedure

1. Perform LOTO as per Section 2.0. Verify zero energy state by attempting to start the saw and actuate the pusher.
2. Clean the linear guide rails and the pusher fence contact surface with a lint-free rag to remove sawdust and debris.
3. Manually move the pusher fence to the fully retracted (home) position. Inspect the linear bearings for smooth travel; if rough, lubricate with ISO 32 oil.
4. Place the precision square against the saw blade (not the teeth, but the body of the blade) and the pusher fence. Check for a gap at the top and bottom of the square using the feeler gauge. Record the gap.
5. If the gap exceeds 0.005 inches, loosen the four M10 bolts securing the pusher fence bracket using the 10mm wrench. Do not remove them completely.

6. Adjust the fence alignment by tapping the bracket gently with a rubber mallet or using the adjustment screws (if equipped) until the feeler gauge shows less than 0.002 inches gap along the full height of the square.
7. Tighten the M10 bolts to 35 Nm using the torque wrench in a cross pattern to prevent distortion.
8. Re-check the alignment with the square and feeler gauge. If still out of spec, repeat steps 5-7.
9. Move the pusher fence to the fully extended position (maximum travel). Repeat the square check at this position. The gap must remain within 0.005 inches.
10. If the gap changes significantly at the extended position, the linear guide rails may be worn or misaligned. Inspect the rail mounting bolts and tighten to 25 Nm if loose. If wear is visible, schedule rail replacement.
11. Lubricate the linear guide rails with ISO 32 oil using a manual oiler. Apply 2-3 drops per bearing block and cycle the pusher by hand to distribute.
12. Remove all tools and rags from the machine. Verify no loose items remain on the saw table.

5.0 Verification & Return to Service

1. Remove LOTO devices and restore electrical and pneumatic power.
2. Perform a dry cycle: jog the pusher fence through its full travel range without material. Listen for binding or unusual noise.
3. Cut a test panel (approximately 24 x 24 inches) and measure the diagonal dimensions. The difference must be less than 1/32 inch to confirm squareness.
4. Inspect the cut edge for burn marks or tear-out, which indicate alignment issues.
5. Record the alignment measurements and test results in the PM work order in ServiceGrid. Sign off and close the work order.

Regulatory Disclaimer: This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.