



MLS-12 v2.0

Spacer Driven

Multiple Slitter

Please read these instructions completely before operating the machine. Under no circumstances should you or anyone else begin operating this machine until you understand and are comfortable with these operating instructions.

Specifications Subject to Change without Notice

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Specifications

Model # [MLS-12 v2.0](#)

Date Manufactured:

Serial Number:

Purchased By:

Factory Throat Configuration: 8 ea 1.5" cuts

Second Spacer Set Up 6ea 1.875 cuts

Feed Speed: 40 fpm

Power: 1 hp 230v single phase , totally enclosed, fan cooled gearmotor with an integrally mounted gearcase assembly having steel helical type pinions and gears

Customer Service Number: 727-251-4056

or contact us at www.marbel.com

PREFACE

Please read these instructions completely before operating the machine. Under no circumstances should you or anyone else begin operating this machine until you understand and are comfortable with these operating instructions.

Every attempt has been made to make these instructions as complete and thorough as possible. If you note either a discrepancy or omission, we would appreciate your alerting us at our toll free number (800-749-8821) or our website (www.marbel.com).

SAFETY

As an employer, your attention is called to R408.12411 “Employer Responsibility” and any other promulgated laws, rulings, and industry standards which may relate to the operation of this machine. R 408.12411 reads in part as follows:

Rule 2411.

(1) The employer shall train and instruct the operator in the safe method of work before starting work on any operation covered by this part. The employer shall insure, by adequate supervision, that correct operating procedures are being followed and that all required safeguards are installed, are functional, and are being used.

(2) The employer shall insure the original and continuing competence of maintenance personnel caring for, inspecting and maintaining presses. (and by inference, any other machinery having cutting and pinch points-MarBel language addition).

SAFETY (Cont'd)

(3) The employer shall provide clearance between machines so that movement of one operator does not interfere with the work of another. Ample room for cleaning machines and handling material, work pieces, and scrap shall also be provided. All surrounding floors shall be kept in good condition and free from obstructions, grease, oil and water.

FEATURES

The MLS-12 is designed to provide its owner with maximum throughput of material - whether laminate or veneer - over a variety of thicknesses and without needing adjustment for a change in thickness. In other words, the MLS-12 will easily slit vertical grade and then countertop grade without you having to make any adjustments to the machine. This particular model is designed for relatively long runs of the same cutting widths.

FLEXIBLE: Different size spacer configurations and related table slot spacers can be made or ordered from Mar-Bel to allow customized ganging over the 12" throat. The throats are open ended which allows you to size material from a larger sheet and so permits your drop to also be an additional cut to a predetermined width.

EFFICIENT: Straight banding with smooth edges is produced with the ease of a paper shredder.

FEATURES (Cont'd)

COST EFFECTIVE: The repeat passes on a table saw or single cut splitter are avoided, resulting in significant labor savings. The MLS-12 owner will also experience noticeable economies in sharpening costs: due to the unique nature of the die used to slit the laminate (see patent#3,496,812), wear is minimal and this, combined with the materials engineering incorporated into the manufacture of the blade set itself, assures that the tooling will have a long life before sharpening. Unless the tooling is abused, it can be resharpened at least once before requiring replacement. The “advantage” of a two bladed shear / splitter having no kerf is easily outweighed by relatively rapid deterioration of cut quality, shorter tool life, beveled edges and difficulty in sharpening. In addition, there is a marked inability to cut vertical and countertop grades with the same ease and quality.

FEATURES (Cont'd)

TOLERANCE: The unit is capable of cutting edges within 1/32" of a straightedge over an 8' length. The machine is not recommended for butting or inlaying without additional work for this reason.

SELF FEEDING: **The operator must properly align the material with the fence.** Once the material is engaged by the slitter blades, the machine will feed itself but pressure must be maintained against the fence. Operator must be careful not to cut hands on edge of laminate-use of gloves is strongly recommended.

DUST FREE: No dust collection required. 1/16" kerf is disposed of via the free floating extractor blades and kerf chute to the drop side of the machine.

FEATURES (Cont'd)

Minimal Installation Requirements:

240v single phase 3/4 hp motor supplied with plug. You must provide any disconnects or other requirements of your electrical code. Infeed and outfeed tables suitable to your plant's production line configuration are recommended.

Instructions Regarding Delivery of Your Machine

Read all instructions accompanying your machine

Inspect your machine for concealed damage (obvious external damage should have already been noted on your freight bill). Every effort is made to properly crate and protect your machine. We ship machinery to all points in the US and some international destinations. Although we make these efforts, there are infrequent instances of freight damage. When shipped, all machines are encased in plastic: check to ensure that the plastic is intact. Even if you are not planning on installing the machine until some future date, uncrate and examine it now. Even if the plastic is intact, there could be damage. Remove the plastic and look for any signs of collision, forklift damage, or damage arising from improper stacking during shipment. If concealed damage is found, notify your carrier immediately! Advise the nature of the damage, ask for an inspection and note the name of who you

Instructions Regarding Delivery of Your Machine(Cont'd)

spoke with and the date and time. Stop the uncrating process and save all crating materials until the inspection has been made. With inspector there, finish uncrating and examine your machine thoroughly. Promptly file your claim and if you require costs on replacement parts, etc. contact us.

After you have positioned your machine and are ready to operate it, your final step is to check your fence alignment. Despite the factory settings that were used to test the machine before shipping, fence alignment will need to be checked after shipping. Make sure that the punch mark on your alignment mechanism is centered on the alignment decal. (*See Figure #1 Fence alignment mechanism punchmark and decal*)

Daily Operation

On a daily basis, the operation of the machine is relatively trouble free, however the following checks should be made before beginning operation of the machine.

- 1 Be sure that the infeed , blade and outfeed areas are clear of debris, tools and any other obstructions.**
- 2 Ensure that all guards are in place-with particular concern for the the infeed side.**
- 3 Do a visual examination of the blades, look for nicks or “shiners”. Make sure the kerf chute is clear and that old kerf material has been disposed of. Failure to periodically clean the kerf chute will cause kerf to “birdnest” in the area around your machine’s motor.**
- 4 Turn the machine on and confirm there are no new noises indicating a change in the machines’ operation.**

Daily Operation(cont'd)

- 5 Place the material to be slit against the fence and move the material toward the blades. When the blades are new, countertop grade will balk at the blade pinch point due to a combination of the protective coating on the blades and the completely smooth ground surface on the blade O.D. After several cuts, the blades cure and this ceases to be a problem. If possible, cut vertical grade first and follow with countertop material.**

- 6 Every three months, check the level of oil in your gearmotor if there is a means on your particular unit.**

To Change Blades and/or Spacers

Preliminaries

Before beginning, examine the machine and become familiar with its appearance and construction.

Although the instructions and accompanying pictures are intended to be thorough, things will go smoother if you have an overview of what the unit looked like before you begin disassembly. Also, besides ensuring that this manual is at hand, your job will be much easier if you view the accompanying videotape. If this video has been misplaced, a replacement can be ordered from Mar-Bel for a nominal charge.

Be careful that your tools do not strike the tooling/ blades when, for example, a stubborn bolt suddenly comes loose. Also have a work table near at hand on which you can layout the parts as they are removed. The more orderly the layout, the easier reassembly will be. Also make provision for “chocks” that you can use to keep the blades and shaft from rolling off the table.

Orientation

For purposes of these instructions, the following conventions will be used in the directions:

Chain or Drive side: This refers to the side of the machine where the chain drive is located.

Open End or Drop side: This is the side of the machine opposite to the Chain side: it is open ended and the side through which oversized material would pass as material is slit in the throat of the machine.

Infeed Side: the side of the machine from which material is fed to the throat of the machine.

Outfeed Side: the side of the machine where the slit material exits

Tools and Other Items Required

1 Hand Tools

Wrenches:

Open End:

a. 7/16"

b 9/16"

Allen/Hex:

Ninety (90) Degree:

a 3/8"

b 1/8"

c 7/64"

Socket:

9/16" with a minimum 10" extension

An optional "mechanical finger" (see video) to replace the drive side bearing mounting bolts is a real time saver.

2 A small vise with soft jaws

3 Gloves.

4 Work surface/table and chocks for blade arbors

Blade Changing Steps

- 1. DISCONNECT POWER TO THE MACHINE AND FOLLOW APPLICABLE LOCKOUT PROCEDURES TO ENSURE THAT POWER CANNOT BE INADVERTENTLY PROVIDED TO THE MACHINE WHILE YOU ARE WORKING ON IT.**
- 2. Make sure you have the items from items required checklist at hand.**
- 3. Clean out all kerf waste underneath the machine so that if you drop any small parts, you will be able to find them more easily.**
- 4. Remember to lay out removed items in order on the worksurface.**
- 5. Remove the top cover shroud with a 7/16 wrench on the 1/4-20 screws.**
- 6. Remove the front guard with a 7/16 wrench on the 1/4-20 screws.**
- 7. Use 3/8" allen to turn top shaft till the shaft lug is at the top so the shaft can be lifted vertically. Both top and bottom capscrews are right hand turn (RHT). Now use the same 3/8"**

Blade Changing Steps(cont'd)

allen to break loose the top shaft capscrews with a sharp counter-clockwise movement while the chain drive is connected. If done correctly, the shafts will not have turned and the lug is still vertical. (*see Figure #3 View of proper drive shaft joint orientation for removing a shaft*). If the shaft has rotated, move it back to the vertical position.

8. Use the 9/16" socket wrench to loosen the mounting bolts at the drive and open end sides of the machine. **DO NOT LOOSEN THE MOUNTING BOLTS IN THE PILLOW BLOCK BEARING CLOSEST TO THE CHAIN!**
9. Lift out top shaft taking care not to ding the blades against other parts of the machine. Put the top shaft in a vise with the joint end in the vise jaws. Use the 3/8" allen to remove the shaft retaining bolt.

Blade Changing Steps(cont'd)

10. Use compressed air to blow/clean off shaft. If adhesives or other debris remain, use an appropriate solvent to remove foreign materials.
11. Label blades and spacers so they can be replaced in the same order to the extent the configuration is not changing. Use the spacers to push/lift off the blade sets: This keeps the blade arbors from slanting and digging into or galling on the shaft.
12. After the blades have been sharpened, replace in the same order.
13. If you are reconfiguring the top shaft, start from the fixed (welded) spacer and add spacers equal to the measurement of the cut you wish to make. For example, if you wish a 1" cut, use 1" of spacers next to the fixed spacer before adding a top blade. Note: the fewer spacers you use to make your gap the better: a 1" spacer is preferable to two 1/2" spacers, four 1/4" spacers, etc. **THIS FORMULA OF GAP = WIDTH OF DESIRED CUT IS ONLY GOOD FOR THE TOP SHAFT!**

Blade Changing Steps(cont'd)

14. When doing the BOTTOM SHAFT the following formulas are used: For firstcut (closest to chain drive)

$$\text{Spacer gap} = \text{cut} - 1/8''$$

For all succeeding cuts on the bottom shaft the formula is:

$$\text{Spacer gap} = \text{cut} - 1/4''$$

Thus if we wanted to make a series of 1'' cuts, the spacer configuration would be as follows:

Top shaft: 1'' spacers all the way

Bottom Shaft: Cut closest to fence: 7/8'' spacer

All succeeding cuts: 1/4'' spacer

15. If the blades have just been removed for sharpening, there is no need to loosen the set screws in the race of the outfeed side pillow blocks.

Blade Changing Steps(cont'd)

If the blade configuration is to be changed then these set screws (**chute or open side only**) need to be loosened so that the bearing can snug to the new take-up distance.

16. Using the 1/8" allen, remove the three bolts on the spacer retaining bar located at the infeed side of the table spacers. Slide out the retaining bar and remove the individual table spacers. With the 9/16" socket on a 10" extension, remove the lower shaft bearing bolts on the pillow block located between the table and drive joint.
17. Using the 3/8" allen, turn bottom shaft till shaft lug at drive joint is vertical. (*see Figure #3 View of proper drive shaft joint orientation for removing a shaft*)
18. Loosen the lower shaft capscrew with a sharp counter-clockwise turn.
19. Again be careful not to damage the tooling while working with tightened bolts.
20. use a 9/16" open end on the lower shaft front pillow block to loosen and remove the mounting bolts.
21. After removing all lower shaft pillow block

Blade Changing Steps(cont'd)

bolts (infeed and drive ends) then, wearing gloves, remove the lower shaft arbor assembly - preferably with two people - being careful not to strike it against the machine or other objects.

22. Put the drive end of the shaft in the soft jawed vice and remove the previously loosened cap screw. **If the configuration is not being changed, do not loosen the bearing race set screws.**

23. If the blade configuration is to change, then loosen the bearing race set screws. See step #14 for bottom shaft spacer change formulas.

24. The positioning of the bottom blade cutter assembly is as follows (hopefully you made note of it during disassembly)

Parts in order from the drive side:

Bottom Blade (0.125 x 0.075 x 5.5)

Spacer (0.0625 x 0.075 x 2.5)

Extractor Blade - **FITS OVER SPACER
NOT NEXT TO IT! (0.038 x 4.5 x 5.5)**

Bottom Blade (0.125 x 0.075 x 5.5)

Blade Changing Steps(cont'd)

- 25. If you are changing the blade configuration, it would be a good idea to roll the top and bottom shaft assemblies next to each other to see if they match up and the respective gap formulas were used correctly.**
- 26. If the configuration has changed, there is one additional step involved in reassembly than in disassembly: the take up spacer gap on each shaft between the last cut (closest to open end) and the shaft endcap (and capscrew) will have increased or decreased. Whether you have to change your previous take up spacer will depend on whether the spacer hangs over the shaft so there will be enough spacer material for the endcap to snug against. The other possible consequences would be the spacer overhanging the shaft shoulder so much that the end cap and capscrew cannot catch enough threads for a secure fastening. In this case, a shorter shaft take up spacer will be required. Additional shaft spacers can be ordered from Mar-Bel - specify # and width desired.**

Blade Changing Steps(cont'd)

27. Once it is established that an appropriate shaft takeup spacer is on the respective shafts, snug up the endcap bolts. Once the shaft is reinstalled, tighten the end cap bolts and then tighten the set screws in the race bearings.
28. The fingers are a critical part of your MLS-12 v2.0. If the cut configuration is not changing, the fingers can be left alone. Although shifting fingers along the arbor as cut configurations change is not a problem, adding or removing fingers or performing other operations that involve manipulating the finger alignment bar must be done with great care. To simply move the finger to center it up on a new cut use 7/64 allen to loosen finger set screws and retighten after have slid finger to new position. **As all units are now provided with the maximum of 10 fingers for 10 cuts, there should be no need to remove or change anything on the fingers but their lateral position as cut configurations change.**

Blade Changing Steps(cont'd)

If for some reason you need to manipulate the finger alignment bar, **BE CAREFUL TO NOTE FINGER POSITIONING IN RELATION TO THE TABLE BEFORE YOU MOVE ANY FINGERS UP OR DOWN IN RELATION TO THE TABLE.** Extra fingers not needed for a cut configuration can be “hangared” out of the way until they are needed.

29. Before re-installing the bottom shaft assembly look at the drive joint in machine at the drive end so you know which way to orient the bottom shaft when you insert it.
30. This step is best done by two people but it is possible using one person if they are very careful. All personnel assisting should be wearing sturdy work gloves also. The pillow blocks have been assembled such that they can only be successfully mounted the correct way.
31. Return the lower shaft assembly to the unit making sure the shaft spline nests in the drive joint. Again take care not to ding the assembly - particularly the extractors against the lower spreader bar.

Blade Changing Steps(cont'd)

32. Put the mounting bolts in the front and rear pillow blocks. Before tightening **MAKE SURE BOTH BEARINGS ARE SEATED FLUSH:** If they are crooked/not seated, the bearing casting may break as the bolts are tightened. If you have changed the blade configuration, it is recommended you don't completely tighten the lower front pillow block until the top shaft is re-installed, properly meshing with the bottom shaft and the top bearing mounting bolts are tightened down.
34. Replace table slot spacers. If you have changed the cut configuration, make sure your spacers meet the tolerances discussed below. When you are trying to fill all the gap space with table spacers, it is permissible to use multiple table spacers as long as the parameters outlined below are met. Additional table slot spacers can be ordered at any time. The table slot spacers should be 1/16" - 1/4" smaller in width than the gap they are fit into. (*See Fig #4 Cross section of table slot spacer showing difference between infeed and outfeed sides and Fig #5 showing*

Blade Changing Steps(cont'd)

overhead view of table slot spacers) note the spacers are different on the infeed and outfeed ends and can only be installed one way. The infeed side sports a “tongue” and the outfeed side is flush with the table surface while the infeed side is recessed for the spacer retainer bar.

35. Replace the table slot spacer bar and its three mounting bolts.

36. Installing the top shaft arbor assembly.

Confirm drive joint orientation is such that shaft spline can be inserted vertically from above. At this point, the bottom shaft assembly has been reinstalled, fingers and table slot spacers have been replaced as previously discussed.

37. Wearing gloves, ease the top arbor blades into the groove between the two bottom blades. Rock the shaft back and forth to help blades seat. Sharp blades are more difficult to mesh as they want to catch on bottom blades if they are not meshed. If the pillow blocks are flush in their

Blade Changing Steps(cont'd)

mounts, it implies the blades are properly meshed. This is also the case if the inside and outside blade sets are meshed.

38. Put bolts in top shaft pillow blocks and snug tight.
39. Tighten up both shaft endcap screws with a clockwise motion. Tighten top shaft capscrew, then bottom shaft.
40. Finish tightening all pillow block bearing mounting bolts (4 bearings, 8 bolts)
41. If you have changed the cut configuration, tighten the set screws in the bearing races of open end pillow blocks top and bottom shafts. **NEVER LOOSEN SET SCREWS IN BEARINGS ON THE DRIVE END OF THE SHAFT.** You may have to rotate the tightened shaft endcap screws to get at the set screws in the bearing races.
42. Replace cover and front guard.
43. Reconnect power to the machine.
44. After making sure the blades are clear and confirming they are properly meshed, turn the unit

Blade Changing Steps(cont'd)

on and feed laminate and confirm all cuts are to your specifications.

Remember that your chance to align the material along the fence is before the blades engage the material.

MAINTENANCE

The machine is trouble free and requires little in the way of maintenance except for the daily checklist described in the normal operations section, general housekeeping-particularly of the scrap kerf, and a check of gearbox fluid levels every three months.

Keep the arbors and blades reasonably clean using an air hose and solvent to remove stubborn solids. This is especially recommended before and during the removal of the arbors for a blade sharpening or reconfiguration.

If you begin to experience cracking, “sergeant stripes” or rough edges, the most likely cause is dull blades. Call Mar-Bel to arrange a scheduled rapid turnaround on your gang slit blades.

TROUBLESHOOTING

As noted in the maintenance section, if you begin to experience cracking/unsatisfactory cuts among the majority of the cutters, the likely diagnosis is dull tooling. If just one or two of the cuts are not satisfactory, remove the top shroud and examine the related tooling: look for any dissimilarities in appearance, etc. between the tooling providing good cuts versus the bad cut tooling.

If your material is tailing or one strip at an end is not straight, ensure you are placing a straight or factory edge against the fence. If the edge is straight but the cut remains bad, measure the relationship of the fence to the first/inside tooling. Make sure that the fence has not been moved so that it is no longer parallel with the slitter blades.

If you experience other problems or the fixes described above don't apply, call Mar-Bel Associates at **800-749-8821 or contact us via our website (www.marbel.com) for technical support.**

Customer Notes



Figure #1 Fence alignment mechanism punchmark and decal



Figure #2 Overhead View Fence Alignment Mechanism



Figure #3 View of proper drive shaft joint orientation for removing a shaft

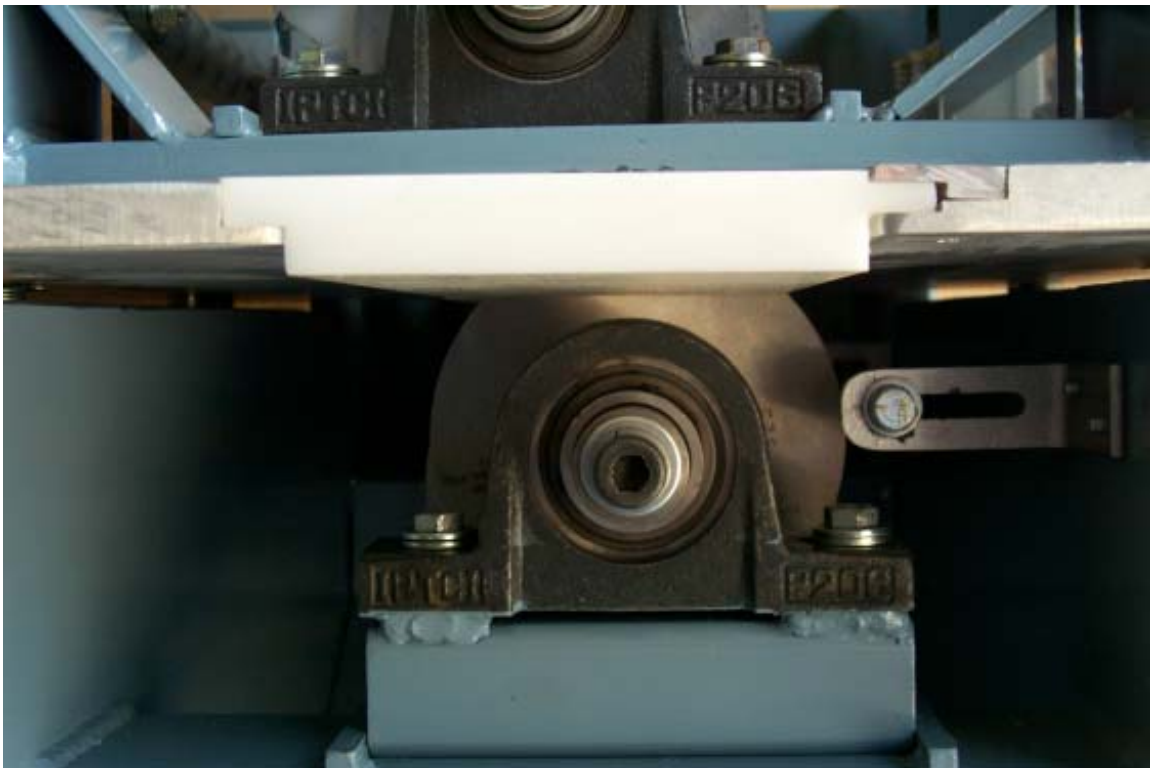


Fig #4 Cross section of table slot spacer showing difference between infeed and outfeed sides



Figure #5 showing overhead view of table slot spacers



Figure #6 Close up of flush mounted pillow block