

Getting the Most from Your Underpinner

by Margery Schwartz

Whether you are a beginner, intermediate or advanced user it is important to know the ins and outs of underpinner application and care. PFM polled some underpinner experts to find out the secrets of keeping your machine ready, willing and able. Jana Hunt, Technical Service Manager for Larson-Juhl, Jim Burke of Frameshop Marketing Co., Bahadir Sarian, Export Manager of Cassese, and Mark Butwinski, General Manager of M & M Distributors all contributed their expertise and advice.

All four experts consider the owners manual a most fundamental tool. It tells you everything you need to know about the machine's upkeep and functionability. Like any other piece of equipment, keeping it "like new" is just a matter of being on a maintenance schedule. In fact, a maintenance schedule is key to an underpinner's longevity. Everyone wants to minimize—even eliminate—down time in the back room. To make sure your underpinner is always functional, Hunt suggests keeping extra parts on hand that may need to be changed or replaced periodically.

Cleaning the machine is also important: glue and debris can clog it and cause problems. Hunt suggests spraying a paper towel (do not spray directly on the machine) with mat cutter lubricant and buff that into the surface table of the joining

machine. Do this after cleaning to make the next cleaning easier. Burke likes using WD-40 or an equivalent to soften the glue that accumulates on the machine surface and around the nail driver assembly. Soaking the glue for about 15 minutes softens it so it is easily wiped away.

The best trick is to determine the right amount of glue so the excess doesn't ooze onto the machine at all. Hunt suggests leaving a small amount of the frame edge, about $\frac{1}{8}$ ", uncoated. This way when the glue squeezes down as the two rails are pressed together, it will have a place to go other than the top of the machine.

In addition to cleaning up the glue, the parts of the machine have to be treated as well. Burke stresses the importance of having the cables adjusted so they are tight on foot operated machines, and to make sure pulleys or pivot points of levers are greased lightly to reduce wear. Air operated machines should have the compressors checked once a week to drain the excess water from the tank. (Humid areas of the country should check the drain two to three times per week.) This will prevent excess water from getting into the air lines.

Additionally, a light-weight silicone-based oil should be applied to the machine's air line to help displace the water that may enter the valves. Most air cylinders use grease for lubrication and would only be

re-greased when they are rebuilt. Burke reminds us that, in general, it is better to under-lubricate than over-lubricate the inner parts of the underpinner.

He also suggests that knobs, handles and shafts on the machine be monitored on a monthly basis, depending upon the amount of use the machine gets. Burke also cautions that knobs' or handles' threads may wear out faster if they haven't been greased regularly. To keep the torque up, unscrew a handle or knob far enough to expose most of the threads, grease them, retighten it, and clean off any excess grease. Keep your sliding shafts debris-free by cleaning them with a lightly oiled paper towel. Shafts with ball-bearings need not be oiled; just wipe them clean.

Sarian emphasizes the importance of checking the abilities of the machine, noting that since joining moulding is the step directly after cutting it, the underpinner must be able to adapt to the cutting angle of the chopper or saw. The more versatile the underpinner, the better your joining will be.

To make sure you always get the best join possible, Sarian suggests framers check their adjustments when going from one moulding to the next. All mouldings are different: one may be small softwood and the next hardwood, for example. On most underpinners, the height and pressure of the top presser and the

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wedge insertion mechanism are all factors that determine the quality of the joint.

For example, Sarian insists framers check the wedge they are using for each joint. Some framers use hardwood wedges for all woods, but Sarian says this may not be in their best interest. There are different wedges for different kinds of wood. He suggests making a trial joint with cut-off waste using standard and hardwood wedges to see which will give you the best end result for the particular wood you are currently working with.

Hunt offered these directions from Larson-Juhl's training manual for joining wood mouldings with underpinners: (1) Check moulding rails for correct length and imperfections. (2) Separate mouldings by lengths, putting long to your left and short to your right. (It's easy to remember: long and left begin with "L.") (3) Using a strong framing glue, apply to corner of moulding (after coloring the miter). (4) Insert one short and one long rail into the 90° angle fence. (5) Adjust sliding rabbet clamp for moulding width. (6) Set the wedge placement stops. (7) Set plunger within 2" from top of moulding by using quick release handle. (8) Depress mechanism for firing wedges into bottom of moulding. (9) Repeat for all four corners.

Burke had some additional points to make about operating an underpinner. He feels the position of operation, (back vs. front) is one of personal preference (though some

machines might be easier to operate from one direction). Generally a machine used from the front will be mounted higher than one used from the back.

Burke points out that the top clamp pad is sometimes changeable. A v-shaped pad will usually work best for most profiles that have a shape to them (scoops, reverses, panels, etc.). For flat mouldings or round top shapes, a round pad works well. Some machines have rubber pads that conform to the moulding's shape as it's compressed. A poorly placed pad, can cause a gapped corner.

Burke says a reverse shoe is good to use for intricate moulding shapes. A shoe is made from the cutout of the moulding, when cut in a single or double miter saw (the scrap center piece). You can also make the two parts by turning the moulding around in the cutter and creating two short pieces, 2" to 3" long. The triangle formed by gluing these two pieces together provides a bridge between the moulding and the pad, creating even pressure along the profile.

Burke adds that is handy to have a 4" triangle made from hard material such as Plexiglas®, masonite or hardwood. This triangle can be set on top of a corner before the top pad comes down to displace and spread out the top clamp pressure on very soft woods. It also helps machines with round pads conform to the profile shape. If two pieces of moulding are not exactly the same height, the hard triangle allows the

machine to flush the top of the moulding while joining, instead of having the bottom of the corner flush (as when you use soft pads).

Another triangle, one with vertical sides applied to one surface, will help hold some irregular shapes when joining. The sides should be made from ¼" to ⅜" thick wood and be 1" to 1½" high, glued in a v-shape to the corner of the triangle on one surface, allowing it to hold the back side of some reverse mouldings during joining.

Burke also uses a small ¼" dowel or glue stick that works well when mouldings have narrow scoops that don't allow a top pad to sit in the recess. Cut the dowel at a 45° angle on one end and glue two of them together to form a v-shape, 3" to 4" long on each leg. (If you use a glue stick, heat the ends with a match shape and press them together.) These dowels are applied to the small scoop of the corner before the top pad comes down and spaces the machine pad above the moulding so the pressure is applied inside the scooped recess. Usually narrow mouldings only allow the pad to sit on the lip, which tends to break when you try to insert the nail.

Materials you use are just as important as the machine itself. Burke and Butwinski agree that the best thing to do is use nails that are meant for your particular machine model; incorrect nails create premature wear on the nail driver.

Nails for underpinners come sharpened in two formats: with a

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single bevel (30° to 35°) for soft woods and double bevel (40° to 45°) to reduce curling in hardwoods. Medium-wood nails are a compromise. Dull nails are a problem and will cause loose corners in very soft woods. Butwinski suggests you use extra sharp softwood nails for softwoods (such as those from South America and Asia) and plastic mouldings and hardwood nails for hardwoods.

Every nail is designed to work in medium density woods, but there is a limit to the degree of density it can work with. Poplar and bass are comfortable with this nail, but a blunt hardwood nail should be used with a

dense oak or ash.

Most machines accept nails of different height up to $\frac{5}{8}$ ". For soft, tall mouldings, you can stack the nails to help hold the face of the moulding together while the glue cures. For hardwoods, Burke suggests that you do not stack the nails. Use the tallest one for that moulding and the limits of your machine. Nails bend, so stacking is not necessarily favorable. Butwinski adds that nails should be always be loaded sharp side up.

According to Butwinski, nail placement is also important. Nails should be placed in or near the center of the profile for the best results.

Never join hardwoods closer than $\frac{1}{4}$ " from the back edge of the profile; it can open up the corner joint and split the wood.

Butwinski reminds framers that it is imperative to have the correct air pressure for the type of wood you are joining. Too little pressure on a hardwood will not put the nail in all the way. Too much pressure on softwoods may crush or damage the top of the profile.

Taking the time to learn how to use and care for your machine doesn't just make you more productive, it will protect your investment by insuring your underpinner also has a very long, productive life. ■