

FS 1500 Underpinner

Owner's Manual

Volume 516



Know your FS 1500 Underpinner

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FS 1500 Underpinner

Congratulations on your choice of framingsupplies.com's FS 1500 underpinner. Prior to shipping, your FS 1500 was completely tested to ensure that you receive a perfectly functioning underpinner. (See enclosed test documents.)

For your safety and satisfaction, please take the necessary time to read and understand this manual before using the FS 1500. It will answer many of your questions and help avoid possible problems.

While this manual should give you a good understanding of how to use your FS 1500, it is not meant to be a complete education on joining frames. If you are a novice, it may serve you well to gather additional information before beginning to use your FS 1500.

Note: Our websites, framingsupplies.com and framingsupplies-shop.com have many useful videos on the care and use of your new FS 1500.

WARRANTY INFORMATION

framingsupplies.com has made a partnership with an old and venerable Chinese/Korean company known for quality and integrity to bring you the FS 1500.

Your FS 1500 has a 1 year warranty. If you ever experience problems, call 800-334-9060. In the unlikely event that the FS 1500 must be returned to us for service, please call for a RMA number and details about shipping it back.

For your records, please keep a copy of your receipt and record the following information below. The serial number can be located on the back left of your FS 1500.

Serial Number _____ Date of Purchase _____

You are very important to us. Our success depends on your satisfaction. If you are having any problems or have any comments, please call us at 828-388-5782.

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FS 1500 SAFETY

The FS 1500 is an extremely powerful machine. When operating it, your safety and the safety of those around you should be your first thought.

- Wear safety glasses and protective clothing during operation and maintenance.
- Educate yourself by reading and understanding this manual. Gather additional educational materials if you are unfamiliar with joining frames. Also, provide thorough education and instruction to new users.
- Take your time. Moving too quickly and not paying attention can cause mistakes and injuries.
- Keep your feet away from the foot pedal until you are ready to activate the clamps. This pedal is sensitive and can be easily engaged.
- Disconnect the air supply any time you will be performing routine maintenance tasks on your FS 1500 unless otherwise instructed.
- When you have finished using your FS 1500, disconnect the air to the machine.

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UNPACKING YOUR MACHINE

Your FS 1500 weighs over 200 lbs, please take appropriate safety precautions when removing it from the shipping crate and anytime you are moving it.

INCLUDED PARTS:

- FS 1500 Underpinner
- Stand
- Air regulator/oiler unit
- Foot pedal unit and connecting hoses
- Drive head sleeves – 5mm, 7mm, 10mm, 12mm, 15mm
- Horizontal Clamp
- Vertical Clamp Assembly
- #5 Metric Ball-head Allen Wrench
- Magnetic Rod
- Support Wings and Brackets
- Tool Caddy
- Joined corner sample from your new FS 1500
- Owner's manual/warranty card
- Test documents

ADDITIONAL REQUIRED EQUIPMENT AND SUPPLIES (not included)

- Air compressor, capable of at least 65 PSI and 4.5 CFM's
- Air hose and coupler (1/4")
- Pneumatic Tool Oil (we recommend Marvel Mystery Oil®)
- V-nails (universal stick type)

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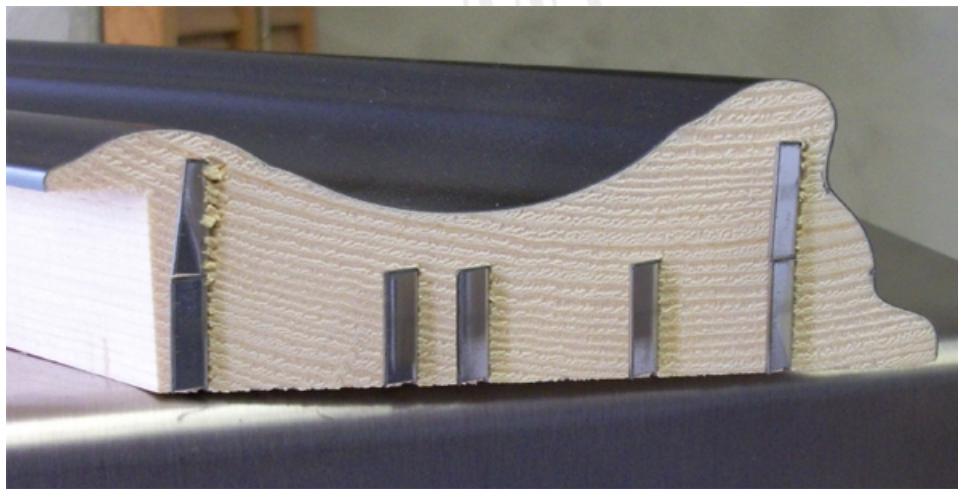
INTRODUCTION TO YOUR FS 1500

The FS 1500 is a powerful pneumatic underpinner built for an industrial environment. It comes mounted on a base that has the ability to tilt if desired.

The legs for the base on the FS 1500 act as an air reservoir or surge air tank, keeping air ready so v-nails can be pushed into your frame with constant pressure. This is a great feature, especially if you are using the machine for high production.

The FS 1500 comes equipped with horizontal and vertical clamps. The horizontal clamp presses the mitered molding pieces against the fence allowing them to be correctly held at a 90° angle. The vertical clamps apply pressure from above giving an opposite force to the v-nails being driven into the molding.

The FS 1500 can drive v-nails in different positions between 10mm and 138mm (about ½ in and 5 ½ in) using a joystick on the right side of the machine. Because the position of these v-nails is chosen manually, you may determine the amount and spread that is appropriate for each style of molding that you use.



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SETTING UP YOUR FS 1500

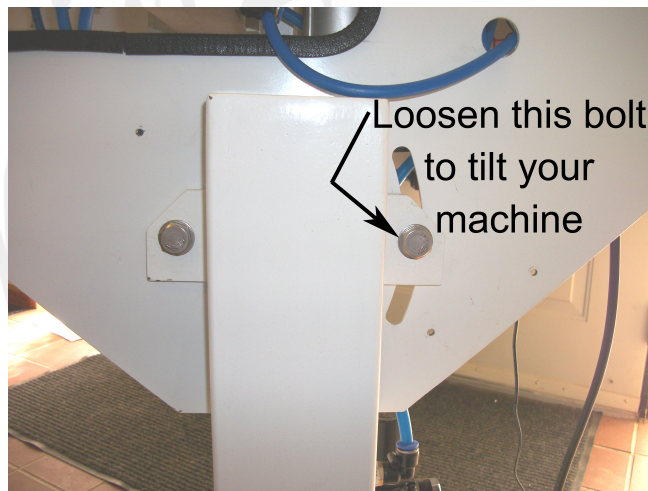
Before your FS 1500 was crated and shipped to you, it was assembled and fully tested. When you unpack it from the crate, very little needs to be done before the FS 1500 can be fully operational.

Because it is a pneumatic underpinner, you will need to connect an air compressor, with hose and coupler, to the FS 1500 before it can be used. Also, before using your FS 1500, you will need to add pneumatic tool oil to the air regulator/oiler unit. We recommend using Marvel Mystery Oil®. For further instruction, see page 9.

Your FS 1500 includes support wings and a tool caddy. The support wings add additional support to frame molding when it is being joined. The tool caddy allows you to keep tools and drive heads organized and available when needed. For further instruction, see page 8.

The FS 1500 comes mounted on a base that has the ability to tilt if you desire to do so. Some users like to work from the back of the machine and tilt the machine so that gravity will act as another force to hold the molding in place.

If you would like to tilt your machine, please get an assistant to help you safely accomplish this task. Locate the bolts on both sides of the FS 1500 where the machine is attached to the base. While someone holds the back of the machine steady, loosen the bolt in the channel on both sides of the FS 1500. Tilt to your desired angle and while someone holds the machine in place at that angle, tighten both bolts.

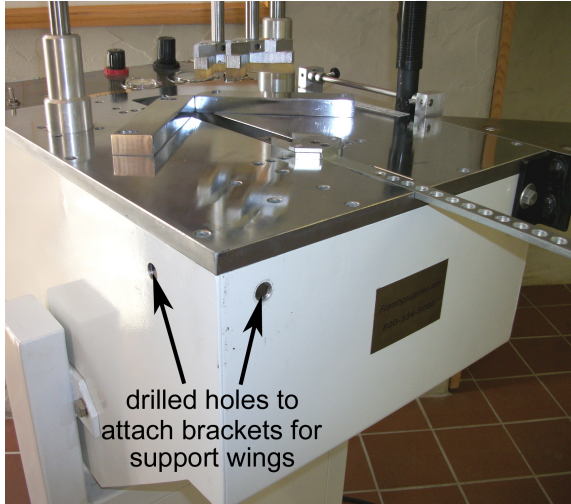


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SUPPORT WINGS AND TOOL CADDY

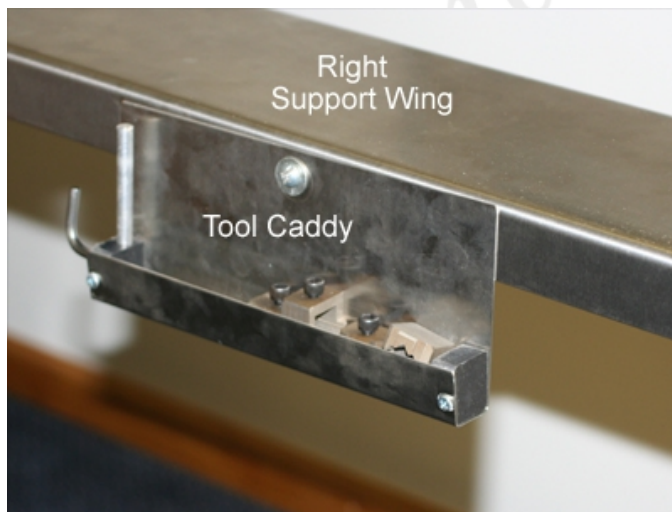
Your FS 1500 purchase includes support wings and a tool caddy. These accessories are not necessary for the machine to function. However, using them is recommended.

If you will be using the support wings included with your FS 1500, and we recommend that you do, these will need to be installed. First, attach the steel brackets using the large screws and washers provided. Holes have been drilled in the FS 1500 where the brackets should be attached. There is one bracket for each side of the FS 1500.



Once the brackets are secured you can attach the support wings. Holes are drilled in the brackets and support wings to assist with this process. There are three screws and washers to secure the top of each support wing and one screw and washer for each side of each wing. The screws on the sides of the support wings allow for adjustability.

Each support wing measures about 6" wide. When attached, the distance from the fence to the end of the support wing is about 45".



If you will be using the tool caddy included with your FS 1500, and we recommend that you do, this will need to be attached. To attach it, simply screw the tool caddy into the drilled hole on the front side of the right support wing using the provided screw.

Once attached, the tool caddy can be used to conveniently hold the magnetic rod, ball-head allen wrench and extra drive head sleeves when they are not in use.

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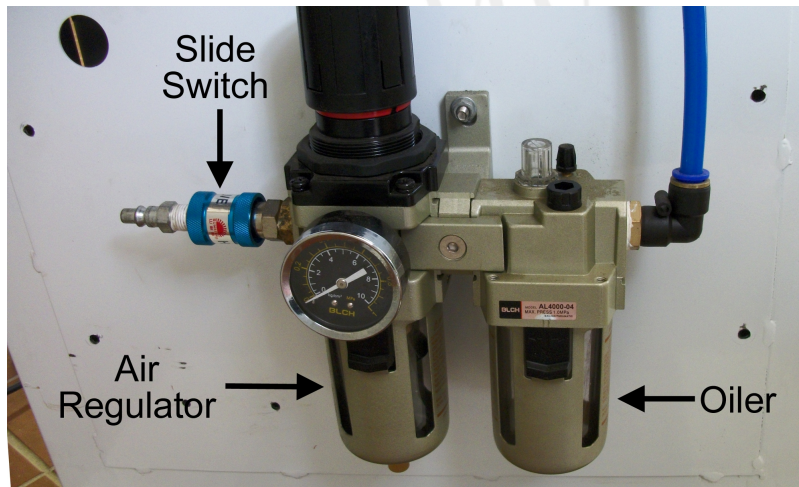
AIR COMPRESSOR

To use your FS 1500, it needs to be connected to an air compressor. The air supply will be connected via air hose and coupler to the left side of the air regulator at the slide switch. When you purchase your air compressor, choose one that is capable of at least 0.45MPa (65 PSI).

AIR REGULATOR AND OILER UNIT

On the back of your FS 1500, you will find the air regulator and oiler unit. This unit does exactly as the name suggests, it regulates air flow and oils the machine.

As you look at the unit, the left side is the air regulator. This has been factory set at 0.34 MPa (50 PSI). On the left side of the air regulator is a slide switch. When pushed to the right, the switch turns on the air. When pulled to the left, this switch turns off the air to the FS 1500. You will hear the release of air when this is done correctly. You will want to turn off the air when you are finished using the FS 1500 and when you perform routine maintenance on your machine (unless otherwise instructed). The right side of the unit is the oiler. This has been factory set to deliver about 1 drop of oil for every 20 v-nails driven.



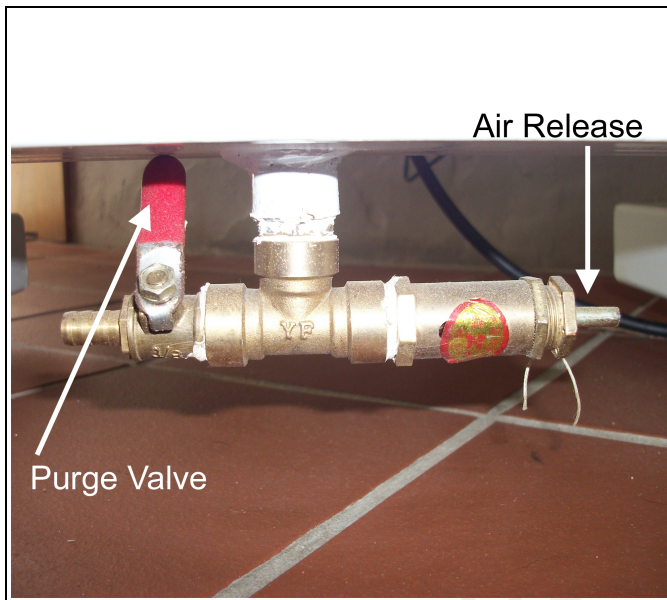
Before using your FS 1500, you will need to add pneumatic oil to the air regulator/oiler unit. We recommend using Marvel Mystery Oil®.

For your safety, disconnect the air supply to the FS 1500. To add oil, remove the metal oiler cover by sliding the black plastic slide downward. Next, pull down on the clear plastic oil cup, rocking from side to side, causing the cup to release. Fill the cup about half way with pneumatic oil. Do not fill past the max fill line. Replace the clear plastic oil cup by pushing gently upward, rocking from side to side, until it is firmly in place. To return the metal oiler cover, place the cover over the clear plastic oil cup (make sure the plastic protrusion fits inside the metal oiler cover), push up on the metal oiler cover and turn counter-clockwise until the black plastic slide snaps into place.

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As you use the FS 1500, you will want to watch the level of oil in the oiler and refill as needed. The frequency of refill depends on volume of use.

On the bottom of the FS 1500 main cabinet you will see a small metal unit. If you are looking from the front of the machine, the piece on the right (with the pin and ring) is an air release. Generally you will not need to use this. The piece on the left (with the handle) is a purge valve.

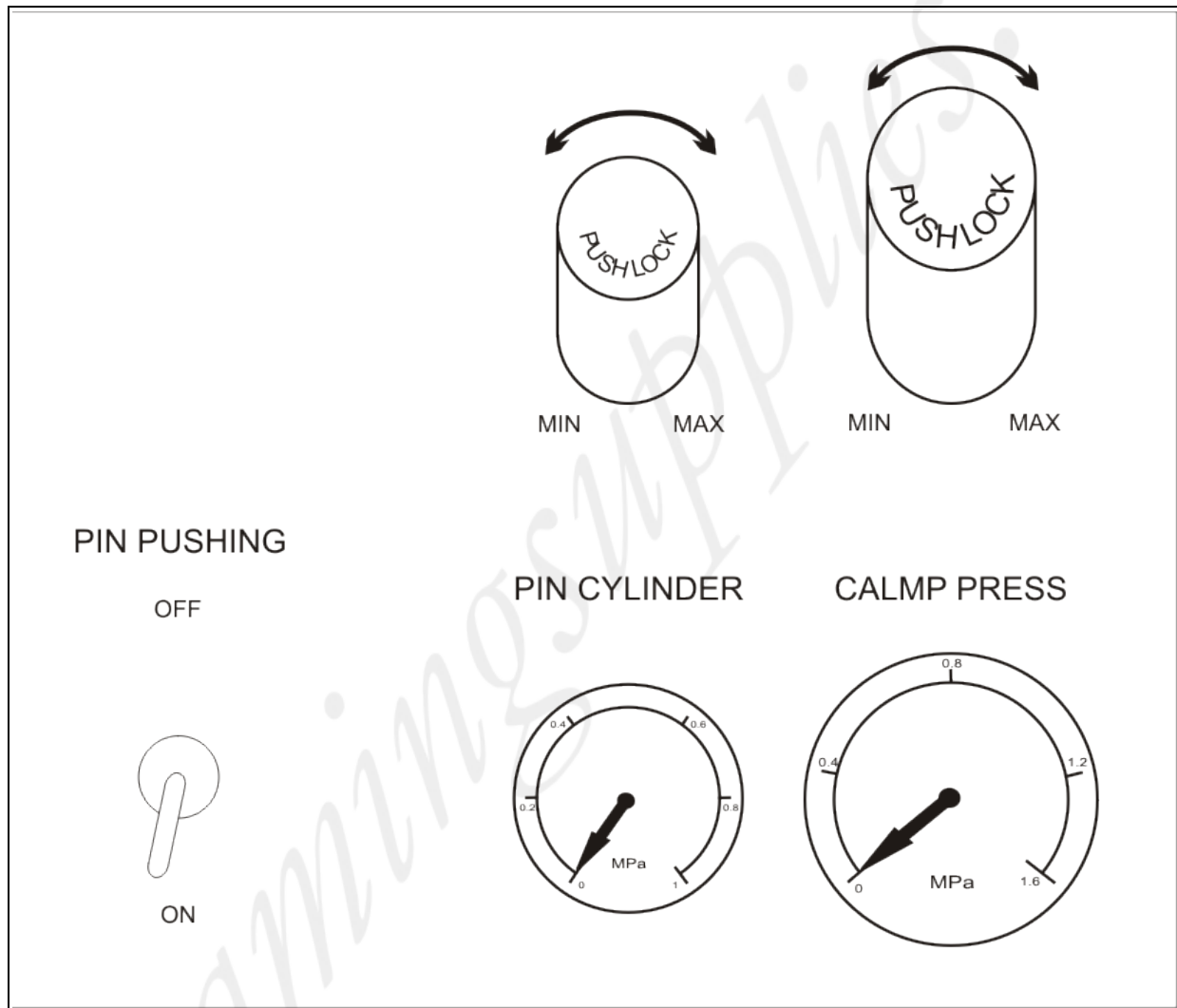


Turning this handle releases moisture that may build up in the air lines and surge tank frame. As part of the routine maintenance of your FS 1500, you will want to occasionally release this moisture. A specific time period for performing this task cannot be given since it varies based on the level of humidity at your location. For example, if your FS 1500 is in Mississippi you will need to purge moisture from the lines much more frequently than in Arizona.

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FS 1500 GAUGE PANEL

The following diagram illustrates the gauge panel of the FS 1500. It has four main functions which will be discussed in this section of the manual.



FS 1500 Gauge Panel

To use the FS 1500 you will need to connect and turn on an air supply.

The switch, labeled “pin pushing”, holds pressure on the v-nails in the v-nail feed ramp. Functionality of this switch will be discussed in further detail in the “Loading V-Nails” section on page 20 of this manual.

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The “Pin Cylinder” gauge indicates the amount of pressure that will be used to drive v-nails into your frame molding. You might make adjustments to the pressure depending on the hardness or softness of your wood molding.

The “Clamp Press” gauge indicates the amount of pressure that will be applied by the vertical clamps to the face of your frame molding. You can make adjustments to this pressure if your frame molding has a delicate design or is a composite material.

Both gauges will only show a reading if your FS 1500 is connected to an air supply and the air is turned on.

The amount of pressure used for the pin cylinder or clamps can be adjusted using the push-lock knobs directly above each gauge.

IMPORTANT: To unlock a push-lock knob, pull the knob upward until you hear a click. You can then turn the knob to adjust the pressure. Turn to the left to decrease the pressure or to the right to increase it. When you are finished making your adjustments, push down on the knob until you hear a click to re-lock it.

Note: Do not set the pressure for the pin cylinder or clamps at a higher amount than the setting of the main air regulator.

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HORIZONTAL AND VERTICAL CLAMPS

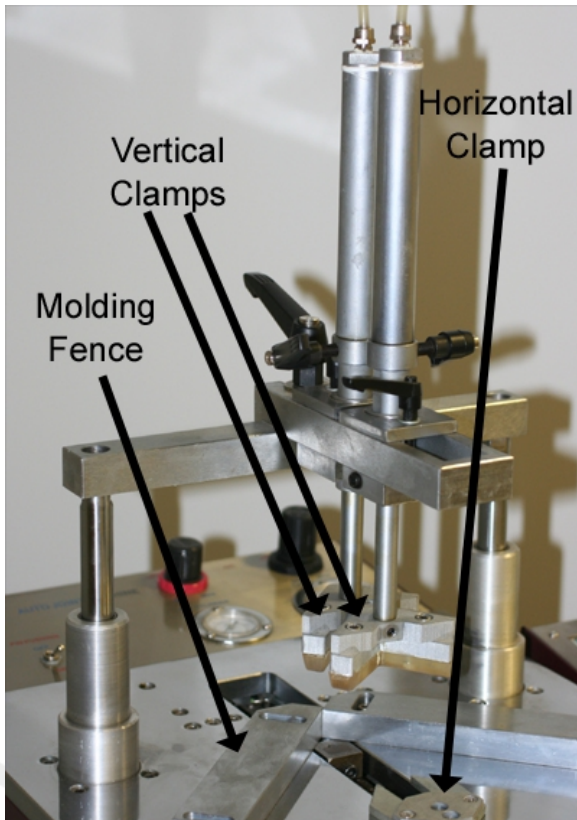
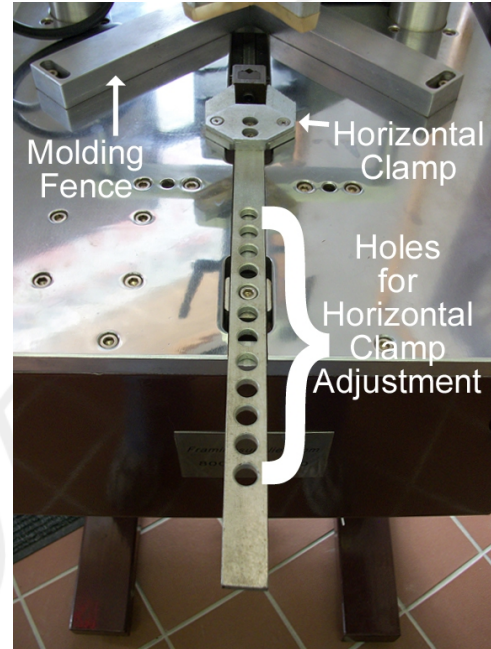
The FS 1500 comes equipped with horizontal and vertical clamps.

The horizontal clamp presses the mitered molding pieces against the molding fence allowing them to be correctly held at a 90° angle.

To correctly set this clamp, determine which hole holds the clamp closest to the frame molding. When you activate the clamps, the horizontal clamp will move up to 13mm (about 1/2") to securely hold the frame molding.

Using the horizontal clamp is optional and there may be times when you choose not to use it. For example, if you are using a molding that is not flat on the outside edge, the horizontal clamp may prohibit the molding from being

held flush against the molding fence and flat on the surface of the FS 1500.

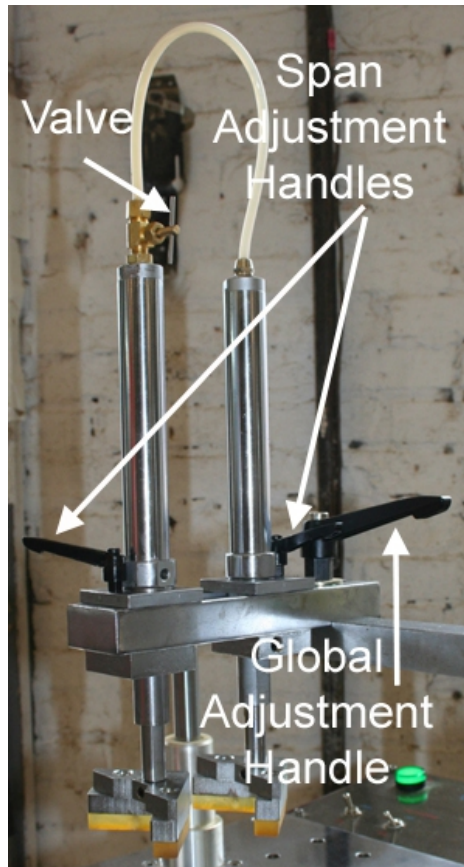


The two vertical clamps apply pressure from above, giving an opposite force to the v-nails being driven into the molding. These clamps are housed in what is called the vertical clamp assembly and can be adjusted in different ways to suit the needs of each individual molding.

When looking at the vertical clamp assembly, you will notice three different handles. Each of these handles is used to adjust the vertical clamps in some fashion.

To loosen the handles, turn gently counter-clockwise. To tighten the handles, turn gently clockwise. There is no need to use great force or overtighten these handles. If the position of the handle itself is not convenient for you, simply lift up gently on the handle and rotate it to a better position, then release.

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The large handle allows for a global adjustment of the vertical clamp assembly. To make adjustments to the clamp assembly, loosen the handle and move the assembly forward or backward to the desired position. Then, tighten the handle.

This large handle also allows you to remove the vertical clamp assembly from the FS 1500. If you need to remove it, loosen the handle and slide the assembly out of position. Under normal circumstances, you will not want to operate the FS 1500 without the vertical clamp assembly in place.

The two small handles adjust the span of the vertical clamps. These handles work individually so you can move one clamp forward or backward independently of the other. To make adjustments to the span of the vertical clamps, loosen the clamps and move them as desired. Then, tighten the clamps.

There is a hydraulic valve located at the top of the vertical clamp assembly that allows for easy adjustment of the vertical clamp height. Simply turn the valve counter-clockwise (toward you if you are standing in front of the machine) one full turn to open it. Then, with your molding

in place, press the right foot pedal. This causes the vertical clamps to automatically adjust to the contours of your molding. While you still have the foot pedal depressed, turn the hydraulic valve clockwise (away from you if you are standing in front of the machine) one full turn to close it.

If the molding you are using is wide enough so that both clamps will be in contact with the molding, the hydraulic valve should be left in the open position.

If the molding is too narrow to utilize both clamps, you will make adjustments and then close the hydraulic valve. While standing in front of your machine, put a small piece of 2x4 under the vertical clamp that is closest to you and depress the foot pedal with the hydraulic valve open. This will cause that vertical clamp to rise out of the way and the vertical clamp farthest from you will extend. Then close the hydraulic valve and you will be ready to use only this vertical clamp to hold your narrow molding.

You may notice from time to time that the vertical clamp feet seem loose. This is not uncommon and does happen over time with use. They can be easily tightened. Use a 3mm allen wrench to perform this routine maintenance.

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V-NAILS AND DRIVE HEAD SLEEVES

v-nails = wedges = staples = pins

There are three main types of v-nails and they are not interchangeable. The FS 1500 uses stick type universal v-nails. You may find them in different brands but only use stick type universal v-nails in the FS 1500.

V-nails are available in 5mm, 7mm, 10mm, 12mm and 15mm sizes for hardwood/MDF and softwood moldings. You will choose the size and hardness of v-nail according to your frame molding.

The FS 1500 comes with drive head sleeves in 5mm, 7mm, 10mm, 12mm and 15mm sizes. When operating your FS 1500, use the same size drive head sleeve and v-nails.

If you use the wrong type of v-nail or the wrong size v-nail for your drive head sleeve, your underpinner will not work properly and you can cause damage to the drive head.

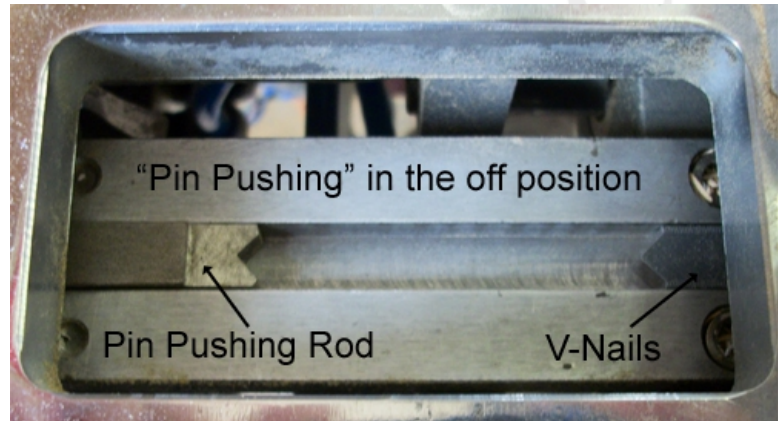


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LOADING V-NAILS IN THE FS 1500

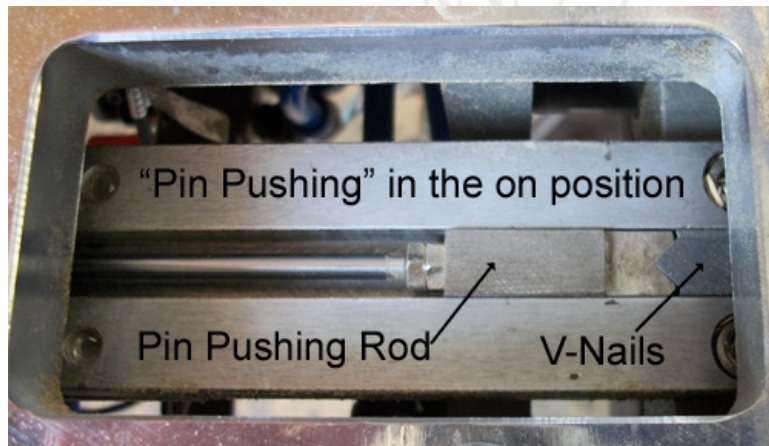
For your safety, wear safety glasses and protective clothing during the operation and maintenance of your FS 1500. For this task, the air to your FS 1500 must be on.

Locate the switch labeled “pin pushing” on the gauge panel of your FS 1500. Flip this switch to the off position. This allows you to have full access to the v-nail feed ramp and any v-nails that it currently holds. Use the provided magnetic rod to remove any v-nails from the v-nail feed ramp; double-check to make sure that ALL v-nails are removed.



Insert v-nails that correspond to the size of the drive head that is currently in use. When inserting v-nails, make sure that the point of the “v” faces the back of the machine (see image above). Also, insert them with the glue side up. This is the sharpened side.

Similarly to your common desktop stapler, every underpinner (FS 1500 included) functions best when the feed ramp is full of v-nails. When the amount of v-nails in the feed ramp gets low, it is recommended to remove the small amount of leftover v-nails using the magnetic rod and replace them with a full stick. Then later, you can combine partially used sticks to fill up the feed ramp.



Once you have finished loading your v-nails, return the “pin pushing” switch to the on position.

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CHANGING THE DRIVE HEAD SLEEVE ON THE FS 1500

For your safety, wear safety glasses and protective clothing during the operation and maintenance of your FS 1500. The air should not be on when changing the drive head sleeve.



Standing in front of your FS 1500, locate the drive head. Use the joystick to manually move the drive head to a position where you can access it easily. Use the provided #5 metric ball-head allen wrench to loosen the screw holding the drive head screw in place. Lift the existing drive head sleeve vertically off its position. Replace with the desired drive head sleeve and tighten the drive head screw using the #5 metric ball-head allen wrench. When you are finished, you may use the joystick to move the drive head back to the desired position.

Before you continue, remember to insert v-nails that correspond to the size of the drive head sleeve you will be using.

CLEARING A JAM ON THE FS 1500

Should v-nails become jammed in your FS 1500, you will need to clear the jam in order to restore appropriate function to your machine. For your safety, before you begin to resolve this issue make sure the air to the machine is not on. Also, remove any v-nails from the v-nail feed ramp.

The recommended method for clearing such a jam is to lift the drive head sleeve and use the provided magnetic rod to remove any excess v-nails from the drive head and surrounding areas. Use the

instructions above to safely remove/replace the drive head sleeve.

After you have cleared the jam, remember to put v-nails back into the v-nail feed ramp before you begin to join frames.

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SETTING THE JOYSTICK STOPS

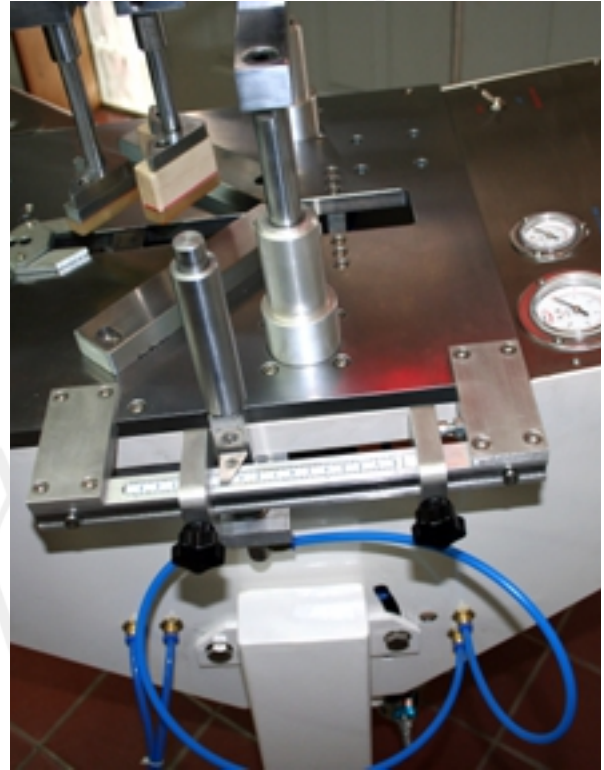
The FS 1500 uses a joystick to position the drive head and to drive v-nails. There are two stops included so you can set the correct parameters for the joystick for the molding you are currently using.

The stop in front on the joystick handle will set the position of the v-nail closest to the outside of your frame molding. The stop behind the joystick handle will set the position of the v-nail closest to the inside (rabbet) of your frame molding.

To move these stops, loosen the turning knob. Then move the stop to the desired position. Once the stop is in place, tighten the knob.

Take caution not to set the stop too close to the outside or inside edge of your molding or you may experience problems when you drive a v-nail into your molding at that position.

The best way to know where the stops should be placed is to practice on scrap wood or frame molding.



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DRIVING V-NAILS WITH THE FS 1500

Now that you have set up your FS 1500 and familiarized yourself with its parts and usage, you are ready to join frames. It is highly recommended to get scrap wood and practice before you use your expensive frame molding.

Once you have cut your chosen molding to the correct mitered size for your frame, arrange your frame molding face up on your FS 1500 so that the mitered corners meet and are flush against the molding fence. Lightly press the foot pedal to activate the horizontal and vertical clamps.

Before continuing, double-check that the frame is coming together as desired. If you need to make any adjustments, take your foot off the foot pedal to deactivate the clamps.

Once the vertical clamps have been activated, you may notice that the unclamped ends of your frame molding raise slightly off the surface of your FS 1500. This is normal. If you are using the support wings, you may be able to adjust them to account for this. However, since pressure is being applied to one end of the molding by the clamps, you may need to apply counter pressure to the other end of the molding by holding it down with your hand. When holding the molding with your hand, be careful to avoid the clamp and drive head area.

Use the joystick on the right side of your FS 1500 to move the drive head to the desired position to start driving v-nails. Once you are in position press the button on top of the joystick to drive a v-nail(s) in that location. If desired, you may press this button multiple times in the same position to “stack” the v-nails. When you are ready to move to a new position, use the joystick to manually change the position of the drive head then press the button on the top of the joystick to drive a v-nail(s) in that location. Follow this same procedure for all subsequent v-nails.

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ROUTINE MAINTENANCE FOR THE FS 1500

The FS 1500, as well as any other machinery, does require occasional routine maintenance to continue to function properly. When performing routine maintenance on your FS 1500, wear safety glasses and protective clothing. Before you begin the maintenance, ensure that the air is disconnected.

- To keep dust, sawdust and other particles from accumulating on your FS 1500, use compressed air to blow off the machine.
- Use the provided magnetic rod to remove any excess v-nails that may have fallen into the feed ramp or area around the drive head.
- Keep an eye on the level of pneumatic oil in the air regulator/oiler unit of your machine. Refill as needed. If you notice that the level of oil in the air regulator/oiler unit does not change over time, this could indicate that the oil delivery is set too low.
- Over time and with frequent use, screws in the vertical clamp foot and other areas may loosen. Tighten these screws as needed.
- Moisture from condensation can build up in the air lines over time. Turn the red handled valve on the bottom of the FS 1500 stand to purge this moisture.
- Remember that babies, air and hydraulics all leak. Leaks happen. Very small leaks can be tolerated, larger leaks need to be repaired. Repairing them will be your responsibility.

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TROUBLESHOOTING

Problem	Possible Solution
V-nail comes through the front of the molding	<ul style="list-style-type: none">• Decrease v-nail size• Use less v-nails in that position• Change the position where v-nail is shot
When driving v-nails, damage occurs to the face of the frame molding	<ul style="list-style-type: none">• Adjust the placement of the vertical clamp• Adjust the clamp pressure
The drive head appears jammed	<ul style="list-style-type: none">• Remove the drive head sleeve and clear the jam. (See page 17.)

FS 1500 Product Registration Card

Registering your FS 1500 Underpinner is necessary to validate your warranty and receive all the benefits of product ownership.

Date of Purchase _____

First Name _____

Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Phone Number _____

Serial Number _____

Please mail Product Registration Card along with proof of purchase to:

framingsupplies.com

1237 Shipp Street

Hendersonville, NC 28791