

MANUAL



This instruction manual is intended to be a guide when operating the 112 Extreme Seam welder. To ensure optimal performance from your welder, please follow the recommendations and specifications precisely.

For more technical information regarding this machine call our Resolution Center at 1-855-888-WELD or email service@weldmaster.com.

You can also subscribe to Miller Weldmaster Insiders to stay updated on tech tips, machine maintenance updates, and more at www.weldmaster.com/insiders.



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1.0 Intended Use

The 112 is a rotary hot air welding machine intended to heat-seal weldable thermal plastics such as:

- Vinyl (PVC) laminated and coated fabrics
- Vinyl (PVC) and Polyurethane (PU) films
- Polyurethane (PU) and Polypropylene (PP) coated fabric
- Polyethylene (PE)
- Thermoplastic rubber (TPR) film and fabrics
- Non-woven Polyester and Polypropylene
- Various Fusing Tapes
- Weldable Webbing
- Rigid Extruded Products

The manufacturer does not approve of:

- Any other uses for these machines.
- The removal of any safety guards while in operation.
- Unauthorized modification of the machines.
- Using replacement parts that are not manufacturer-approved.



Only a properly-trained technician may operate and/or perform any routine maintenance or repairs to the machines.

NOTE: The manufacturer will not be held liable for any damage or injuries occurring from any inappropriate use of this machine.

2.0 Explanation of Warnings

There are several different warning symbols placed on the Miller Weldmaster 112. The symbols are to alert the operator of potentially hazardous areas on the machine. Familiarize yourself with their placement and meaning.



Caution: Laser Radiation

Do not stare into beam or view directly with optical instruments. The “Caution: Laser Radiation” symbol is placed just below all the lasers on the 112 Extreme. Do not look directly into the laser source. They are for fabric alignment only. Use caution when calibrating the lasers.



Caution: Hot

The “Caution: Hot” symbol is placed on a guard near-hot surfaces.



Danger: Pinch Points

The “Danger: Pinch Points” symbol is placed near any potential pinch points. Do not place any body parts near these sections of the machine while the machine is running.



Caution: Unplug Machine

The “Caution: Unplug Machine” sticker is placed near the opening of the cabinet and all access panels. To prevent electrocution, the machine should always have the power disconnected before the cabinet door is open.

2.0 Explanation of Warnings



Warning: Keep Hands Clear

The “Warning: Keep Hands Clear” sticker is placed on the Heater Assembly. To prevent any pinching or burns, be aware of the location of your hands at all times.



Warning: High Temperature Air

The “Warning: High Temperature Air” sticker is placed on the Heater Assembly.



Caution: Electricity

The “Caution: Electricity” sticker is placed near areas that contain electrical.

3.0 Electrical and Air Requirements

Warning! Only a qualified electrician may connect the electrical power.

Electrical Supply

Due to the number of different style outlets available, the cord will not be included. It is recommended that your electrician install a cord and plug that is comparable to your style power outlet. You may choose to have your power cord hard-wired into your Power Supply. It is recommended that your electrician use a Junction Box with an ON/OFF switch with short circuit protection as required by local electrical code to be suitable for the primary disconnect. The Miller Weldmaster 112 Extreme requires one of the following power supplies. Please reference the electrical schematic for which power supply your machine requires.

- 80 Amperes - Single phase - 230 Volts
- 80 Amperes - 3 phases - 230 Volts
- 50 Amperes - 3 phases - 400 Volts

Shop Air Supply

The Miller Weldmaster 112 Extreme includes an In-Shop Air Supply Valve that allows quick connects and disconnects to your shop air supply. Due to the number of different style airline connectors, a male quick-connect is not included. You will want to select a male quick-connect with a ¼ inch NPT (National Pipe Thread) to match your female quick-connect. The Miller Weldmaster 112 Extreme requires the following shop air requirements:

- Minimum of 12 cfm at 120 psi
- Not to exceed 340 liters/min at 8.2 Bar
- An in-line water and dirt separator

4.0 Principals of Heat Sealing

Heat: The Heat required for the welding operation is created electrically by two heating elements located inside the Heat Element Housing. The Internal Air Compressor pumps air over the heat elements and carries the heat through the Hot Air Nozzle, applying the heat to the material to be welded. The hot air temperature ranges from 25 to 730 Degrees Celsius (100 to 1350 Degrees Fahrenheit).

Speed

The Speed of the Weld Rollers determines the amount of time the heat is applied to the material being welded. The slower the speed setting, the more the material will be heated. The faster the speed setting, the less the material will be heated. To achieve the best weld, a minimal amount of heat should be applied to the material while still achieving a full weld. Too much heat will cause distortion of the material; while not enough heat will prevent the material from welding.

Pressure

The pressure of the weld roller is the final step when creating a weld. The pressure of the weld roller compresses the heated material together completing the welding process.

Summary

When heat sealing, the correct combination of heat, speed, and pressure will allow you to achieve a properly welded seam.

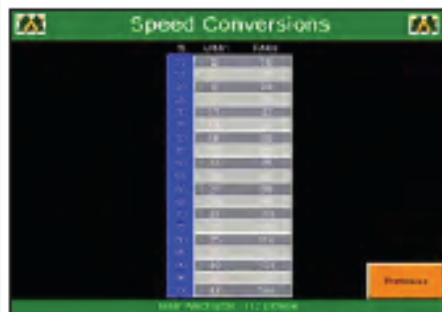
5.0 Definition of Controls



(fig.8) Main Menu



(fig.09) Help Menu



(fig.10) Speed Conversions

Main Menu

1. **Alarms:** The alarm button will take the operator to the alarm screen. This allows a technician to see any alarms the 112 Extreme may have encountered.
2. **Maintenance Configuration:** The Maintenance Configuration button will take the operator to the Maintenance Configuration screen. To enter this screen, the operator will be prompted to enter a user name and password. User name: _____ Password: _____. This screen will take the operator to a screen similar to the Operator Configuration screen. The difference is that the Maintenance Configuration screen will allow the operator to tune the temperature controller.
3. **Help:** Will take the operator to a screen to view an assortment of how to videos and a speed chart to easily convert speed number to feet or meters per minute.
4. **Operator Control:** Will take the operator to the screen for operation of 112.

Help Menu

1. **Hem:** to see a video demonstration of a Hem.
2. **Hem & Rope:** to see a video demonstration of a Hem & Rope.
3. **Overlap:** to see a video demonstration of an Overlap.
4. **Speed Chart:** to see a graph which tells how fast the 112 Extreme is operating in meters per minute and feet per minute.
5. **Previous:** to take you back to previous screen.

Speed Conversions

This screen illustrates the speed of the 112 in meters per minute and feet per minutes. In the right column is the speed of the 112 extreme. This number is represent by the percentage the motor will drive the head carriage.

5.0 Definition of Controls



(fig.11) Operator Control

Operator Control

Laser-Overlap: The purpose of this button is when depressed, it will turn green and turn on the overlap laser and turn off the butt laser.

Laser-Butt: The purpose of this button is when depressed, it will turn green and turn on the butt laser and turn off the overlap laser.

Weld/Cut: In this box, if weld is showing, the 112 extreme is in the weld mode. By touching the box it will switch the mode to cut and the 112 will be in the cut mode.

Seam Select: When this box is selected, a bigger box with all seam selections will pop up and the operator can choose which seam to select.

Temperature SP: The purpose of this box is to show the set point for the temperature and also allow the operator to manually change the temperature without going into the recipes.

Temperature PV: The purpose of this box is to show the operator what the actual temperature is reading at the elements.

Machine Speed: The purpose of Machine Speed is to control the speed of the carriage assembly during the welding process. The machine speed number is a percentage of how fast the 112 extreme head carriage will run. **Note: To convert to feet per minute or meter per minute, go to help page under Speed Chart.**

Clutch Pressure: The purpose of clutch pressure is to vary the amount of clutch pressure on the weld roller. This helps eliminate any wrinkling of material. Increasing the clutch pressure will allow the weld roller to spin faster in relation to the head carriage speed. Decreasing the clutch pressure will spin the weld roller slower than the head carriage.

Return: The purpose of the Return is to give a means of returning the head carriage to the home position. This can only be depressed at the end of a weld or cut run.

Clear All: The purpose of this is to give a simpler means to turn off all vacuums and fabric clamps by touching one spot.

Vacuum Left: The purpose of this function is to turn on or off the left vacuum.

Vacuum Right: The purpose of this function is to turn on or off the right vacuum.

Clamp Left: The purpose of this function is to open or close the left clamp.

Clamp Right: The purpose of this function is to open or close the right clamp.

5.0 Definition of Controls

Weld Roller: The purpose of this function is to lift the weld roller up or down.

Main: The function of this is to take the operator to the Main Menu.

Recipe: The function of this is to take the operator to the recipe page to allow the operator to change seams or the option to go to the Recipe Management screen.

Configuration: The function of this is to take the operator to the Operator Configuration screen.

Jog: The function of this is to move the head carriage forward or reverse without welding.

Active Recipe

Temp	Drive Delay	Speed	Weld Roller	Clutch Pres
000	0.45	50	15	15
25	0.45	5	15	15
50	0.50	0	0	0
000	0.45	25	15	15
000	0.45	25	15	40
000	0.45	25	15	10
000	0.45	25	15	10
000	0.45	25	15	15
0	0.50	0	0	0
0	0.50	0	0	0

(fig.12) Active Recipe

On this screen the operator can change the weld seam for one particular weld and save.

Recipe Management: By touching Recipe Management the operator will be taken to a screen to adjust the welding settings for up to 25 Fabrics as well as 10 different welds.

Previous: Will take the operator back to the Operator Controls.

Recipe Management

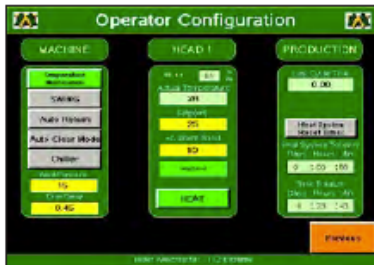
This screen will allow the operator to set and record settings for 25 fabrics and 10 weld seams per fabrics.

To set a Recipe, first push any box and a word or number pad will pop up. To start, touch the number the operator would like to set (0-24). When this number is pressed, a number pad will pop up and the operator can pick the number. Then to name the recipe, push the recipe and a word and number pad will pop up and the operator can set the recipe name. Finally the operator can set the weld settings by touching the appropriate seam. For example, if the operator would like to set the settings for an overlap. The operator would touch any box in the row of overlap to set the settings for weld temp, drive delay, speed, weld roller psi, and clutch pressure. Once set, the operator should press Recipe Save to save recipe and Activate to activate recipe.

Temp	Drive Delay	Speed	Weld Roller	Clutch Pres
000	0.45	50	15	15
25	0.45	5	15	15
50	0.50	0	0	0
000	0.45	25	15	15
000	0.45	25	15	40
000	0.45	25	15	10
000	0.45	25	15	10
000	0.45	25	15	15
0	0.50	0	0	0
0	0.50	0	0	0

(fig.13) Recipe Management

5.0 Definition of Controls



(fig.14) Operator Configuration

Operator Configuration: In this screen, the operator has control over different configurations.

1. **Temperature Notification:** When this is selected, the 112 Extreme will notify the operator to check nozzle placement when the temperature controller is changed +/- 160 F.
2. **Swing:** When this is selected, it will turn green and the nozzle will swing in. If Swing is not selected, the nozzle will not swing in.
3. **Auto Return:** When this is selected, it will turn green and the carriage will return on its own when the stop ramp is used.
4. **Auto Clear Mode:** When this is selected, it will turn green and at the end of a run, when using the stop ramp, the vacuums and fabric clamp will turn off.
5. **Weld Pressure:** When this is selected, the operator can adjust the weld pressure. The purpose of Weld Pressure is to vary the amount of pneumatic pressure between the weld roller and the welding track.
6. **Drive Delay:** When this is selected, the operator can adjust the drive delay. The purpose of the drive delay is to stall the weld roller temporarily and allow the hot air nozzle to swing into place. If the drive delay is set to high, it will cause the material to burn at the start. If the drive delay is set to low, it will leave a spot not welded at the start.

Head 1

1. **Actual Temperature:** Is what the temperature is reading from the heat system.
2. **Set Point:** Is the desired setting for the heat system. The operator can change this by touching and entering a new number.
3. **+/- Alarm Band:** Is a number that can be set by the operator by touching and if the temperature changes +/- the setting an alarm will go off.
4. **Heat:** When this is selected and turns to green, the heat system will turn on. To turn the heat system off, press the Heat button and the button will go gray and the heat system will go through a cool down cycle of 3 minutes.

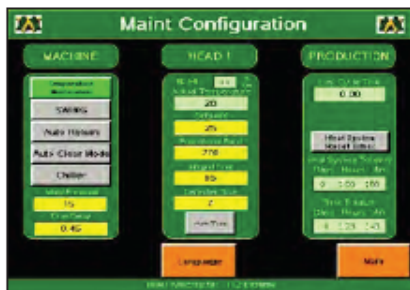


5.0 Definition of Controls

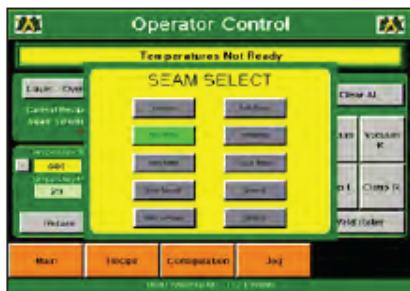
Production

- 1. Last Cycle:** Time calculates the time the 112 extreme takes to complete a seam. Note the stop ramp and auto return has to be turned on to allow this function to work.
- 2. Heat System Reset Times:** When this is selected the heat system totalizer will reset to 0:00:00.
- 3. Heat System Totalizer:** The purpose of the heat system totalizer is to monitor the hours on the heat elements. This setting is resettable every time the elements are changed by pressing and holding the heat system reset time in.
- 4. Time Totalizer:** The purpose of the time totalizer is to monitor the hours of use on the 112 extreme.

5.0 Definition of Controls



(fig.15) Maint Configuration



(fig.16) Operator Control Seam Select



(fig.17) Operator Control Nozzle Alert



(fig.18) Operator Control Move Cutter to Start

Maint Configuration

This screen is accessed with a password and is very similar to the operator configurations. The difference is this screen under the head 1 setting allows the operator to adjust the temperature controller and auto tune the temperature controller.

Main: By selecting this the operator will be taken to the main-screen.

Language: Press this to choose different languages of which the machine can be run.

Heat System Reset Times: When this selected the heat system totalizer will reset to 0:00:00.

Operator Control

Operator Control Seam Select: This screen is used to select the recipe of the seam type. Each seam type button, when pressed, will load the saved control settings to the weld temperature, drive delay, speed, weld roller pressure, and clutch pressure.

Nozzle Alert: This screen will appear when Temperature Notification is activated. The notification will appear when a temperature change has been made that exceeds 160°C in change. When the Nozzle Alert notification appears please make sure to adjust your nozzle for proper weld setup.

Cutter to start: Press this button to move carriage to cutter position. Cutter will also drop down to the weld track.

Return: Press this button to raise the cutter, and return carriage to home position.

Cutter Down: Press the button to drop the cutter to the weld track. When the cutter is down, this button will read Cutter Up. Press this button to raise the cutter.

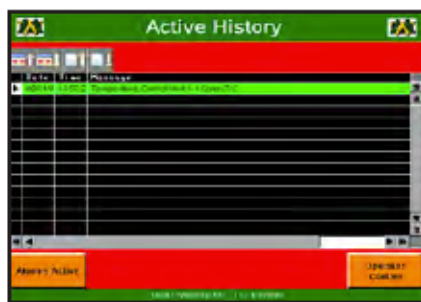
5.0 Definition of Controls



(fig.19) Language Selection



(fig.20) Active Alarms



(fig.21) Active History

Language Selection

Choose what language the operator wants to use. Example: (Press English to run machine in English).

Language: Press this button to choose different languages of which the machine can be run.

Active Alarms

This screen shows the operator the alarm that faulted out the machine.

ACK: Press this button to access the Alarms Active screen.

Alarms History: This button takes the operator to the Active History screen which shows any past alarms.

Operator Control: Press this button to return to the Operator Control screen.

Previous: Press this button to return to the previous screen.

Active History

This screens shows the operator all the alarms in the machine's history.

Alarms Active: Press this button to access alarms history screen.

Operator Control: Press this button to return to the Operator Control screen.

Emergency Stop/Rope Pull

The purpose of the Emergency Stop and the Rope Pull is to stop all operation in the event of an emergency. ***Note: In order to return to normal operation, the Emergency Stop Button needs to be twisted to reset. If the Rope Pull is pulled, the switch needs to be reset. Then the Blue Reset Button needs to be pressed to restore power and air to the system.**

Reset: The purpose of the Reset Button is to restore power and air to the machine.

Pause: The purpose of the Pause Button is to momentarily pause the operation being performed. Continue the operation by pressing the Start Button.

Start Button: The purpose of the Start Button is to initiate the chosen operation.

6.0 Recommended Replacement Parts

Miller Weldmaster recommends keeping the following spare parts in stock:



322291
K Style Thermal Couple
with Electrical Connectors



330297
Air Filter Cartridge



330305
Hot Air Heat Element



379182
Replacement Hex Blade
for Eastman Buzzaird Cutter



383694
Solenoid Valve, 24VDC Coil



NOTE: *The manufacturer will not be held liable for any damage or injuries occurring from any inappropriate use of this machine.*

7.0 Adjustments



(fig.22) X Nozzle Adjustment

Nozzle Adjustment

Nozzle placement is a key component in heat sealing. A properly-placed nozzle will be centered on the weld roller approximately 1/4-inch away and have a slight whistle during the welding process. When an adjustment is needed, turn the speed control to a low setting. Make the adjustment and check the nozzle placement by engaging the Start Switch. Remember that the nozzle placement will change when welding at different temperatures. Check the placement when the temperature is changed more than 160 degrees C.

1. X Nozzle Adjustment - The X Nozzle

Adjustment allows left and right fine-tuning of the Hot Air Nozzle. The proper X-Nozzle Adjustment (fig.22) will leave the Hot Air Nozzle centered on the Weld Roller.

2. Y Nozzle Adjustment - The Y Nozzle

Adjustment allows up and down fine-tuning of the Hot Air Nozzle. The proper Y-Nozzle Adjustment (fig.22) will leave the Hot Air Nozzle directed at the pinch point of the Weld Roller and the Welding Track. A whistling sound should be heard as the air from the nozzle hits this pinch point.

3. Z Nozzle Adjustment - The Z Nozzle

Adjustment allows in and out fine-tuning of the Hot Air Nozzle. The proper Z-Nozzle Adjustment (fig.22) will leave the Hot Air Nozzle approximately 1/4 to 1/2 inch away from the pinch point.

4. Nozzle Adjustment Finished

When finished, the Hot Air Nozzle should be placed in the center of the weld roller left to right, 1/4 to 1/2 inch.

7.0 Adjustments



Warning! When adjusting the lasers, do not look directly into the laser source. Use caution when calibrating lasers.

Laser Alignment

Double Laser Line

1. Turn the POWER on.
2. Leave the Heat Switch in the OFF position. Load some sample fabric (white is best) under the fabric clamp and extend to the end of the machine.
3. Turn the Left and Right Vacuums ON.
4. Engage the Weld Roller to the DOWN position and align the inside edge of the weld roller to the edge of the first row of vacuum hole on the vacuum welding track.
5. Turn the Speed Control to a speed of 20.
6. Using a ballpoint pen, place it on the inside edge of the Weld Roller, where the laser should be. Repeat for outside laser line.
7. Depress the START button and edge the roller the length of the welding track.
8. If needed, make the first adjustment by loosening the laser mount knob to calibrate the laser in and out to the drawn line. When satisfied, tighten the laser mount knob.
9. If needed, make the second adjustment by loosening the laser mount knob and calibrate the laser by turning the top of it. This will rotate the laser line. When satisfied, tighten the laser mount knob.

Butt Seam

1. Flip the Laser Switch to the Butt Seam mode.
2. Move the Weld Roller over so that the edge is against the laser, considering the double laser line has been adjusted properly and the fabric with pen lines remain in place. Measure to the middle point of the double laser making a mark at this point. Move the edge of the weld roller to this mark and tighten. Follow step seven of the above. Align laser.

7.0 Adjustments

Guide Adjustments

Welding a Hem: The hem guide needs to be 1/16 to 1/8 inch off track and aligned perpendicular to track. The outside of guide needs to be adjusted to outside of weld roller. After running a test if there is a pocket on the hem move guide away from operator.

- Set machine to the desired settings, install your hemming guide to the machine.
- Align the hemming guide so the outside edge is aligned with the edge of the weld roller.
- Generally the clutch pressure needs to be adjusted to a higher setting when welding a hem.
- Do not pull the fabric sideways when feeding the fabric into the hemming guide, roll the fabric into the guide. If you pull the fabric sideways it will become tight and bind up in the guide.

1. Install hem guide.
2. Slide edge of material through guide pinching material on top of itself.
3. Making sure it is square with the edge.
4. While pinching, slide material under weld roller.
5. Put weld roller down than put clamp down.
6. Pull material tight, make sure the material between the wheel and guide is tight so that the nozzle will swing in free.
7. Press start and hold the material against the right side of the guide.
8. If needed turn clutch pressure up a little to help keep the material in the guide.
9. When finished with run, press return (if auto return is not engaged).
10. Lift clamp.
11. Check weld.
12. No vacuum needed.

7.0 Adjustments

Welding a Hem with Rope: Welding a hem with rope is the same as welding a straight hem except you are adding rope through the rope eyelet or leaving a void for the open pocket.

1. Install hem and rope guide.
2. Slide rope through guide.
3. Slide edge of material through guide pinching material on top of itself.
4. Making sure it is square with the edge.
5. While pinching, slide material under weld roller keeping rope to left side of the wheel.
6. Put weld roller down, make sure wheel is not on rope, then put clamp down.
7. Pull material tight, make sure the material between the wheel and guide is tight so that the nozzle will swing in free.
8. Press start and hold the material against the right side of the guide.
9. If needed turn clutch pressure up a little to help keep the material in the guide.
10. When finished with run, press return (if auto return is not engaged).
11. Lift clamp.
12. Check weld.
13. No vacuum needed.

7.0 Adjustments

Welding an Overlap

- The overlap guide needs to be high enough so the nozzle can swing in and not hit the bottom of the guide. The guide also needs to be perpendicular to the track.
 - The overlap guide is used to control the exact positioning of the top fabric panel being welded. The guide controls the final position of the top fabric panel.
 - The guide will be lined up with the edge of the weld roller.
1. Place bottom side of panel to be welded under the right clamp 1/4 – 3/8 inch, aligning edge with inside laser line.
 2. Turn on right vacuum (cover unused track with magnet).
 3. Smooth panel on vacuum and check alignment with laser line.
 4. Place top side of panel to be welded under the left clamp 1/4 – 3/8 inch, aligning edge with outside laser line.
 5. Lower weld roller.
 6. Install overlap guide.
 7. Turn on left vacuum (cover unused track with magnet).
 8. Smooth panel on vacuum and check alignment with laser line (1/4 inch over).
 9. Press start and hold material into the guide being careful not to stretch it.
 10. When finished with run, press return (if auto return is not engaged).
 11. Turn off left and right vacuums.
 12. Lift clamps.
 13. Check weld.

7.0 Adjustments

Welding a Pole Pocket

- The pocket guide needs to be high enough so the nozzle does not hit the bottom of the guide. It also needs to be perpendicular to the track.
 - The pocket guide is used to weld pole pockets. The guide is used to control the exact positioning of the top flap of material.
 - When welding a pocket 3 inches or larger, normally the overlap settings may be used. If smaller than 3 inches, the speed will need to be turned up reducing the amount of heat because the heat will become trapped.
 - Do not pull the fabric sideways or backwards when holding the fabric into the pocket guide, just hold the fabric with very little pressure against the guide. If you pull the fabric sideways it will become tight and bind up in the guide. If you pull the fabric backwards it may stretch leaving wrinkles.
1. Place panel to be welded under the clamps 1/4 – 3/8 inch, aligning edge of panel on the trough to desired pocket size.
 2. Turn on right vacuum (cover unused track with magnet).
 3. Pull panel tight and check alignment of edge to desired pocket size.
 4. Lift the left clamp.
 5. Fold the edge side under the clamps and weld roller.
 6. Align edge with right laser making sure panel is square under roller.
 7. Lower weld roller and clamp.
 8. Install pocket guide.
 9. Press start and hold the material against the right side of guide.
 10. When finished with run, press return (if auto return is not engaged).
 11. Turn off right vacuum.
 12. Lift clamps.
 13. Remove pocket guide.
 14. Check weld.

7.0 Adjustments

Welding Webbing or Tapes

1. Install the adjustable webbing or tape guide to the machine.
2. Adjust the guide to the correct width of your webbing or tape.
3. Insure that the weld roller and nozzle will not touch the guide. The guide also needs adjusted parallel to the wheel.

Butt seam tape guide

1. The butt seam tape guide is used to properly guide and place the tape when butt seaming.
2. The butt seam tape guide is adjustable for various tape widths. Make sure both adjustable parts of the guide are aligned and the are both the same widths.

Weld Roller Adjustments

1. The weld roller is located on the traveling welding head.
2. The purpose of the weld roller is to compress the heated material together producing the welded seam and to drive or feed the fabric through the system.
3. The weld roller always needs to be aligned on the edge of vacuum holes nearest the operator side of the welding track.

7.0 Adjustments

Interchanging of Weld Rollers

1. Loosen the bolt on the weld roller clamping collar.
2. Slide the weld roller off of the weld roller shaft.
3. Slide the new weld roller on to the weld roller shaft.
 - a. Align weld roller in the center of the lasers.
 - b. Depending on weld roller size the lasers may need readjusted. (See laser adjustment)
4. Align the hot air nozzle with the new weld roller. (See nozzle alignment)
5. When changing to different sizes of weld rollers the nozzle needs to be changed to match the weld roller.

Interchanging of Hot Air Nozzles

1. Turn off the heat and power.
2. After the machine has cooled down properly loosen the nozzle clamp.
3. Hold the nozzle with a pair of pliers as the nozzle may still be too hot to touch.
4. Remove the hot air nozzle and nozzle clamp assembly.
5. Position the new hot air nozzle into the nozzle clamp assembly and position them onto the dual element housing.
7. Slightly tighten the nozzle clamp.
8. It is very important to align the hot air nozzle tip so that it is centered and squared on the weld roller and that the nozzle tip is square with the bottom track.
9. Turn power back on.
 - a. Set the speed to zero. **ONLY DO THIS IF THE MACHINE IS NOT RELEASING HOT AIR!** Then press start to bring nozzle into welding position, the carriage will not move to allow for easy adjustment. Position the tip of the nozzle so it is aligned square with the weld roller and the bottom track. Lock down the nozzle clamp with a pair of pliers.
 - b. With the nozzle square, turn up the speed to the desired setting. Turn the heat power back on and allow machine to heat up to desired temperature.
 - c. See nozzle adjustment.

7.0 Adjustments

Weld Roller Cylinder Adjustment

- The pressure on the weld roller is created from the pneumatic cylinder used to pick up or put down the weld roller.
- The pressure on the weld roller is regulated and displayed on the control panel. The pressure needs to be set at least at 10lbs. If the pressure is not set the cylinder will not properly function.
- The speed of the weld roller up and down can be adjusted by the metering valves on the side of the air cylinder.

Nozzle Swing Cylinder Adjustment

- The hot air nozzle is automatically placed into or out of the position through the nozzle swing air cylinder.
- If the hot air nozzle is swinging to fast or to slow the speed of the swing action is controlled by the air flow metering valves located on the side of the air cylinder. Turning the screws in will slow the speed of the swing while backing the screws out will increase the speed.
- The hot air nozzle should be centered with the weld roller.

Cutter Adjustment

- If the machine is equipped with the butt seam laser. Align cutter to this laser line. If the machine does not have this option, Align cutter to inside overlap laser.
- First, jog cutter to starting position. The cutter should be adjusted square in the mounting clamp so when the cutter is put down, the foot sits on the track square. Then tighten the four bolts. However do not over tighten, this will pinch the air flow inside of the cutter, which will make the cutter not function.
- Second, the cutter clamp is attached to the machine. This controls the side to side adjustment and angle of the cutter foot. The cutter foot should be at a slight incline lifting the back of the foot slightly off the track. Too much of an incline will result in the cutter digging into the track. The cutter should be slid left or right to align the foot with the laser line. Tighten four bolts and run a test cut. Determine if the cutter is cutting on the laser line. If not move cutter left or right until cutter cuts on the line. Remember the angle of the foot may move every time cutter is slid left or right.

Cutter Oiler

- The cutter oilier is located on the back operator side of the head carriage. To fill the oilier, unscrew the container. Fill the container only $\frac{3}{4}$, if the container is full it will overflow. There is no adjustment for the amount of oil being used.

7.0 Adjustments

Micro-Switch Adjustments

This page will detail each of the Micro-switches and sensors on the Miller Weldmaster 112 Extreme.

- **Overrun Limit Switch:** The purpose of this switch is to stop the head carriage from over travel. ***Note:** This switch will initiate the Emergency Stop and take power and air from the machine.
- **Return Home Slow Down Switch:** The purpose of this switch is to slow down the head carriage when returning to the home position.
- **Cutter Safety Switch:** The purpose of this switch is to ensure that the cutter is in the up position in order to return to the home position.

Position Sensors

- **Home Position Sensor:** The purpose of this sensor is to tell the system the head carriage is in the home position, ready to run.
- **Cutter Position Sensor:** The purpose of this sensor is to tell the system the head carriage is in the position to cut.
- **Forward Limit Sensor:** The purpose of this sensor is to stop the forward motion of the head carriage.

8.0 Maintenance



Warning! Only a qualified technician may perform maintenance on this machine. This may be a Miller Weldmaster representative or someone trained by a Miller Weldmaster representative.



Warning! This machine must be disconnected from its power source before any maintenance may begin.

Cleaning

- **Air Filter Cartridge:** The Miller Weldmaster 112 Extreme has an Air Compressor that supplies airflow to the heat elements. Periodic cleaning and changing of the Air Filter Cartridge is necessary to maintain sufficient airflow. Insufficient airflow or any impurities in the airflow will shorten the life of the heat elements.
- **Clean Air Filter Cartridge Every Week:** If the surrounding conditions in your production area are not clean, it is recommended that you clean the Air Filter Cartridge twice a week.

1. Loosen and remove the Air Filter Cartridge End Cap.
2. Remove the Air Filter Cartridge.
3. Using brake cleaner or a product containing high amounts of Ether, spray the Air Filter Cartridge from the inside out. The element housing to the element.
4. Dry the Air Filter Cartridge by blowing the Air Filter Cartridge from the inside out with shop air.
5. Reinstall the Air Filter Cartridge and Air Filter Cartridge End Cap onto the internal air compressor and tighten.

- **Replace Air Filter Cartridge Every 3 – 6 Months:** If the surrounding conditions in your production area are not clean, it is recommended that you change the Air Filter Cartridge every month.

1. Remove the Air Filter Cartridge End Cap.
2. Remove the Air Filter Cartridge.
3. Replace with a new Air Filter Cartridge, part number 30297.
4. Reinstall the Air Filter Cartridge and Air Filter Cartridge End Cap onto the internal air compressor.

8.0 Maintenance



Warning! Only a qualified technician may perform maintenance on this machine. This may be a Miller Weldmaster representative or someone trained by a Miller Weldmaster representative.



Warning! This machine must be disconnected from its power source before any maintenance may begin.

Replacing Components

• **Heat Elements:** The Heating Elements used by the Miller Weldmaster 112 Extreme are rated for 1000 hours of use at 537 degrees Celsius (1000 degrees F). Although longer heat element life is possible with proper maintenance; 1000 hours is the average. If the Heat Elements fail prematurely, contact a Miller Weldmaster representative before replacement. It is recommended that both elements be changed, even if only one burns out.

1. Turn the Circuit Breaker to the OFF position.
2. Disconnect the power cord from the power supply. If the power cord is wired into the power supply, turn the power OFF at the junction box.
3. Remove the 5 sheet metal screws from the element housing.
4. Unplug the 2 Thermocouple leads.
5. Remove the top covering of the Element Housing and slide it out of the way.
6. Remove the 2 pieces of insulation between the Wire Leads and the Aluminum Air Divider.
7. Remove the 4 leads from the heat elements.
8. Loosen the 4 screws securing the Aluminum Air Manifold.
9. Remove the 4 screws.
10. Remove the Aluminum Air Manifold.
11. Carefully remove the heat elements from the element housing.

8.0 Maintenance

Replacing Components Cont..



Warning! Inspect each element for any broken-off fragments of glass or wire. Any missing fragments will be in the dual-element housing or nozzle. These fragments must be removed before installing new elements.

12. Carefully install 2 new heat elements into the Dual-Element Housing.
13. Install the Aluminum Air Divider.
14. Install and tighten down.
15. Connect the four wire leads to the elements. Make sure wires #1 and #3 plug onto one element, and wires #2 and #4 plug onto the other element.
16. Slide the top covering back onto the Heat Element Housing. Make sure to feed the Thermocouple connections through the top hole.
17. Install the 3 sheet metal screws to the top of the Heat Element Housing.
18. Install the 2 bolts into the top of the Heat Element Housing and tighten.
19. Connect the Thermocouple Wire Leads, wire #1 to red, and wire #2 to yellow.

8.0 Maintenance

Replacing Components

- **Thermocouple:** The Miller Weldmaster 112 Extreme uses a Thermocouple to read the air temperature just before it reaches the nozzle. The typical life expectancy of a Thermocouple varies. The Thermocouple should be replaced if the machine does not maintain a constant temperature of +/- 1 Degree C (+/- 2 Degrees F) or the heat elements burn out prematurely.

1. Turn the Circuit Breaker to the OFF position.
2. Disconnect the power cord from the power supply. If the power cord is wired into the power supply, turn the power OFF at the junction box.
3. Unplug the 2 Thermocouple leads.
4. Remove the 4 screws, spacers, and safety guard from the bottom of the element housing.
5. Remove the Hot Air Nozzle by loosening the clamp.
6. Remove the Thermocouple Wire Mount.
7. Remove the bottom cover and some of the fiberglass insulation from the element housing.
8. Using a 7/16-inch wrench, carefully loosen and remove the Thermocouple Nut.
9. Remove the Thermocouple carefully, it may be snug.
10. Install the new Thermocouple with all the fiberglass insulation by following the next steps. Make sure the Thermocouple is inserted all the way.
11. Tighten the Thermocouple Nut.
12. Reinsert the fiberglass insulation and bottom cover.
13. Install the Thermocouple Wire Mount.
14. Plug in the Thermocouple leads, wire #1 to red, and wire #2 to yellow.
15. Install the nozzle and clamp. Make certain to install the clamp with the ring side up.
16. Install the Safety Guard, spacers and screws to the bottom element housing.

9.0 Transportation Specs and Storage

Warning! It is recommended to use a forklift when moving or removing a crated machine from a pallet.

Transporting Within a Production Facility

Due to the weight of the Miller Weldmaster machine, the manufacturer requires a forklift or tow motor to be used. The forks are to be inserted below the bottom frame of the upper beam along the center of gravity. Before lifting the machine the upper to lower beams must be properly secured together. Lift slowly to ensure proper placement of forks.

Transporting Outside Production Facility

The manufacturer requires the Miller Weldmaster machine to be placed on a truck trailer or shipping container using a forklift or tow motor. The forks are to be inserted below the bottom frame of the upper beam along the center of gravity. Before lifting the machine the upper to lower beams must be properly secured together. Lift slowly to ensure proper placement of forks. Once the machine is properly placed onto the trailer or container the machine must be secured to the trailer or container to prevent the machine from moving.

Storage

The manufacturer recommends that any time the machine is not in use, it must be protected from excess dust and moisture. The operator should familiarize themselves with the warning symbols on the machine to be alert to the potentially hazardous areas on the machine.

NOTE: The manufacturer will not be held liable for any damage or injuries occurring from any inappropriate use of this machine.

10.0 Troubleshooting

NOTE: The machine must have at least 90psi of air pressure in order to Reset power.

Loss of Welding Temperature

- Heat elements may be burned out, check number of hours on the heat elements.
The heat elements are rated for 1000 hours at 730C.
- Thermocouple may be burned out or loose wires.
- Check wire connections to each heat element.
- Poor electrical connection on the supply line to the machine.

Air Cylinders Do Not Operate

- Check air pressure! Should be 90 PSI coming into machine.
- Meter valve on cylinder needs adjusted.
- Check solenoid valve for air pressure and voltage.
- If you have air pressure and voltage, the solenoid is bad.

Cutter

- **Cutter not cutting on laser line.**
 - Cutter needs adjusted.
 - Lasers need adjusted.
- **Cutter not turning on.**
 - No air pressure to cutter.
- **Cutter not dropping to track or dropping too fast.**
 - Metering valve on cutter slide needs adjusted.
- **Cutter hitting clamp.**
 - Sensor for cutter Home Position needs adjusted. (See micro switches, sensor adjustments)
- **Cutter leaking oil.**
 - Cutter oilier needs adjusted.

Hot Air Nozzle

- **Nozzle hits clamp.**
 - Head carriage returned too far. (See micro switches, sensors)
- **Nozzle hits track, weld roller or guide.**
 - Nozzle needs adjusted (see nozzle adjustment).
 - Guide needs adjusted up.
- **Nozzle moves when its activated to weld.**
 - Nozzle clamp loose (see nozzle adjustment).

10.0 Troubleshooting

Seam is Only Welded on One Side

- **The hot air nozzle tip needs to be adjusted.**
 - Nozzle needs adjusted side to side.
 - Nozzle may be pinched shut on one side. Open the pinched side so there is even flow.
 - The speed control is set too high not allowing enough time for the hot air to be applied to the seam properly.
 - There is a contaminant on the surface of the fabric being welded.

Overlap Seam

- **Overlap seam is puckered on both sides of weld.**
 - Temperature is too hot. Turn down heat or speed up the machine.
- **One panel is puckering and may be coming up short or long.**
 - The clutch pressure needs decreased if coming up short.
 - The clutch pressure needs increased if coming up long.
- **Overlap weld has a flap on one side of the weld.**
 - Guide needs adjusted side to side.
 - Bottom panel not aligned properly.
- **Overlap weld is less than weld size.**
 - Guide needs adjusted. Slide guide away from operator.

Pole Pocket

- **Pocket seam is over puckering.**
 - Temperature is too hot. Turn heat down or speed up the machine.
- **Pocket has wrinkles and twist.**
 - Material not started square.
 - Clutch pressure needs adjusted. If top piece comes up short, decrease clutch pressure. If it comes out long, increase clutch pressure.
 - Operator is pulling too much on material. Keep material straight during the weld with little pressure from operator against guide. Let the machine and guide do the majority of the work.
- **Pocket has a flap on one side of the weld.**
 - Guide needs adjusted. Slide guide towards operator.
- **Pocket weld is less than weld size..**
 - Guide needs adjusted. Slide guide away from operator.

10.0 Troubleshooting

Hem

- **Hem is over puckering or burnt one side out.**
 - Temperature is too hot. Turn heat down or speed up the machine.
- **Hem will not stay in guide.**
 - Guide not square, adjust guide.
 - Add clutch pressure.
- **Nozzle hits material.**
 - Nozzle too high. Lower nozzle.
 - Material not tight between weld roller and guide due to not starting material square at the beginning.
- **Hem weld has a flap on one side of the weld.**
 - Guide needs adjusted. Slide guide towards operator.
- **Hem weld has a bead or pocket on one side of weld.**
 - Guide needs adjusted. Slide guide away from operator.

Hem and Rope

- **Material too loose around rope.**
 - Adjust guide away from operator.
 - Rope too small for guide.
- **Material too tight around rope.**
 - Adjust guide toward the operator.
 - Rope too big for guide.
- **Hem and rope is over puckering or burnt one side out.**
 - Temperature is too hot. Turn heat down or speed up the machine.
- **Hem and rope will not stay in guide.**
 - Guide not square adjust guide.
 - Add clutch pressure.
- **Nozzle hits material.**
 - Nozzle too high, lower nozzle.
 - Material not tight between weld roller and guide due to not starting material square at the beginning.
- **Weld roller runs over rope.**
 - Rope needs to be started on outside of weld roller.

10.0 Troubleshooting

Butt Seam

- **Tape not centered in weld.**
 - Guide misaligned.
 - Center of butt not aligned with laser.
 - Laser line not centered with weld roller.
- **Tape wrinkling.**
 - Too much clutch pressure.
 - Too hot.

Truck Side Beading

- **Indicator line does not line up with material.**
 - Guide misaligned.
- **Nozzle hits beading.**
 - Nozzle too high.
- **Wrinkles at the beginning.**
 - Material not clamped.

NOTES: _____



NOTES: _____

