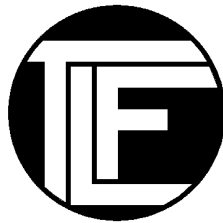


# FW-200 HPA

## OWNER'S MANUAL



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**IMPORTANT:**

**PLEASE READ AND UNDERSTAND THIS  
ENTIRE MANUAL BEFORE OPERATING  
THIS MACHINE. PERFORMING  
IMPROPER PROCEDURES MAY VOID  
THE WARRANTY ON THIS MACHINE  
AND COULD CAUSE SERIOUS INJURY  
TO THE OPERATOR.**

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## **Section 1**

# **INSTALLATION**

## **ITEMS REQUIRED FOR INSTALLATION**

- Screwgun with #2 phillips attachment or #2 phillips screwdriver
- #1 phillips screwdriver
- Flat blade screwdriver, medium
- Allen wrench set, 1/16" - 3/8"
- Crescent wrench
- Fork-lift
- 220-volt power supplied through an 80-amp breaker and power cord of suitable size and length (See Installation Procedures)
- 100-psi compressed air supply and air hose with standard female fitting
- Oil (30 weight or heavier)
- Water-cooling pump to accept 1/4" I.D. water-cooling hose and tank to hold at least 10 U.S. gallons of water (i.e. LITTLE GIANT model: 2E-N pump)
- Dial or digital calipers, 4" - 6"

## **ITEMS REQUIRED FOR OPERATING THE FW-200 HPA**

- 3/16" T-handle allen wrench at least 3" long
- Ratchet wrench with 7/16" socket
- Flat blade screwdriver, medium
- #1 phillips screwdriver
- 5/16" box wrench
- 11/32" box wrench
- 24" steel straightedge 1/16"-1/8" thick
- Allen wrench set, 1/16" - 3/8"
- Welding anti-spatter spray (SILICONE FREE)
- Cloth rags
- 800-1000 grit surfacing stone (2" wide x 4" long)
- Dial or digital calipers, 4" - 6"
- Compressed air hose with nozzle

**CAUTION:**

**ALL ELECTRICAL HOOK-UPS SHOULD BE PERFORMED BY A QUALIFIED ELECTRICAL TECHNICIAN AND COMPLY WITH ALL OSHA REGULATIONS.**

**INSTALLATION PROCEDURES**

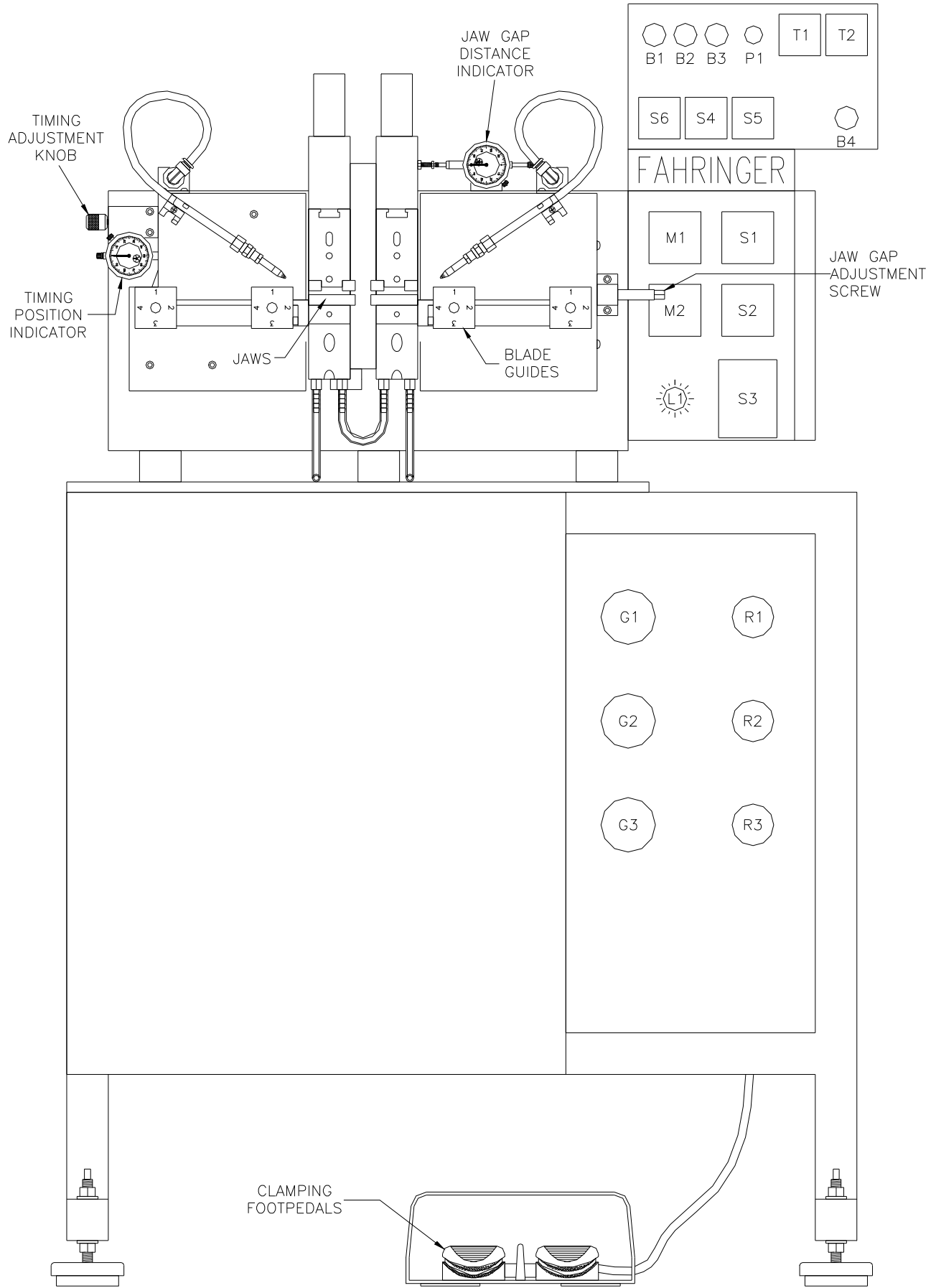
- 1) Open the welder crate.
  - a) Remove the screws around the bottom of the box.
  - b) Remove the front panel from the crate.
  - c) Carefully slide the crate off toward the rear of the welder.
- 2) Remove the clamping footpedals from their mounted position on the pallet and place them temporarily inside the welder stand.
- 3) Remove the four mount bolts holding the welder to the pallet.
- 4) Lift the welder off the pallet with a forklift or other suitable means.
- 5) If desired, mount the stand feet (located in a box inside the welder stand) in the holes from which the pallet mount bolts were removed.
- 6) Place the welder in the desired position on the floor.
- 7) Power must be supplied through an 80-amp breaker. Use the following guidelines to determine the size and length of the power cord.
  - At least 10 gauge at no more than 50 feet in length from breaker
  - At least 8 gauge at no more than 100 feet in length from breaker
  - At least 6 gauge at no more than 150 feet in length from breaker
  - At least 4 gauge at no more than 200 feet in length from breaker
  - At least 2 gauge at no more than 250 feet in length from breaker

**DANGER: ALWAYS TURN ALL POWER TO THE MACHINE OFF AT THE BREAKER BEFORE OPENING THE LOWER CONTROL BOX. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH!**

- 8) **Turn power to the machine off at the breaker.** Open the door to the lower control box, located on the right side of the welder, and install the main power cord through the hole in the back of the box. Attach the black & white L1 & L2 wires to the MAIN POWER block (the order does not matter). Attach the green ground wire to ground stud next to the power cord hole at the back of the box.
- 9) Turn power to the machine on and check the voltage either with a voltmeter at the MAIN POWER block or by turning the machine on and reading the voltage on the LINE VOLTAGE METER located on the front of the lower control box. Set the LINE VOLTAGE SWITCH to the position closest to your measured power voltage. **Close and lock the door to the lower control box.**
- 10) Plug an air hose onto the air fitting located at the rear of the machine and set the main regulator to supply a line pressure of "100-psi".
- 11) Remove the left front cover from the machine and fill the oil cup, located under the cam, with oil. (Any oil 30 weight or heavier)
- 12) Mount the blade guides, located in the box with the stand feet, to the blade guide mounts on the front of the welder.
- 13) Check the GENERAL SETUP of the machine for any maladjustment that may have occurred during shipment; timing calibration, blade guide alignment, and jaw gap distance indicator calibration. (See GENERAL SETUP)
- 14) Hook up the water-cooling hoses to a water-cooling pump. The hoses are 1/4" I.D.
- 15) Install the flash guard, located in the box with the stand feet, between the carriages and in front of the main shafts. Secure it with the two clips supplied by sliding them over the top of the carriages and the flash guard.
- 16) Before running the welder make sure to replace all covers. **NEVER WELD WITHOUT ALL COVERS IN PLACE.**

## **Section 2**

# **OPERATING INSTRUCTIONS**



## EXPLANATIONS OF CONTROLS

### B1 - WELD BUTTON

Weld Cycle Start

Button is enabled when its green light is on and both clamps are down.

The green light comes on only when the welder is calibrated and at weld start, and remains on during a weld cycle.

### B2 - ADVANCE BUTTON

Advances the welder to the next available position; Calibrates Machine

Button is enabled when its yellow light is on and both clamps are up.

### B3 - ANNEAL BUTTON

Anneal Cycle Start/Stop; Alarm Reset

Button is enabled when its red light is on and both clamps are down.

The red light comes on at the anneal position, and remains on during an anneal cycle.

### B4 - AIR BLOW-OFF BUTTON

Manually activates the air blow-off system.

### P1 - ANNEAL HEAT KNOB

Adjusts the anneal heat up or down.

Heat Range = 100 - 999

100 = 0 volts

999 = Max. Weld Voltage as set by the WELD VOLTAGE SWITCH

### T1 - ANNEAL CYCLE TIMER

Sets the total amount of time anneal current is applied.

Set the time by pressing the button below the display that corresponds with the position of the number you want to change.

### T2 - ANNEAL DELAY TIMER

Sets the amount of time anneal current onset is delayed after reaching the anneal position on Auto mode.

Set the time by pressing the button below the display that corresponds with the position of the number you want to change.

### S1 - WELD VOLTAGE SWITCH

Sets the maximum voltage for welding and/or annealing.

0 = Off

1 = 3.0 volts

2 = 3.6 volts

3 = 4.2 volts

4 = 4.8 volts

5 = 5.4 volts

6 = 6.0 volts

### S2 - LINE VOLTAGE SWITCH

Compensates for high or low power voltage.

Select the setting that is closest to the incoming voltage level powering the machine.

### S3 - MAIN SWITCH

Turns the main power to the machine ON or OFF.

### S4 - MODE SWITCH

Sets the operating mode of the welder.

AUTO - Welds, then automatically re-centers the blade and moves to the anneal position, anneals, and moves back to weld start.

Advancing is disabled unless the welder is not calibrated and/or is not at weld start.

When enabled, advancing stops only at weld start.

MANUAL - Welding and annealing are done manually as separate cycles.

Advancing stops at all positions: 1) Weld Start, 2) Weld Stop, 3) Anneal

WELD ONLY - Only welding can be done in this mode.

Advancing bypasses the anneal position and stops only at weld start and weld stop.

**S5 - FLASHING SPEED SWITCH**

Sets the rate at which the blade-ends are fed together during welding. **1** is Slowest; **6** is Fastest; **0** is Off

**S6 - CLAMPING MODE SWITCH**

SINGLE - Each footpedal activates its corresponding clamp separately

DUAL - Either footpedal will activate both clamps simultaneously

**M1 - WELD VOLTAGE METER**

Indicates the output voltage level occurring at the jaws.

**M2 - LINE VOLTAGE METER**

Indicates the voltage level powering the machine.

**L1 - POWER LIGHT**

Indicates the main power is turned ON.

**R1 - FORGE PRESSURE REGULATOR**

Adjusts the amount of pressure applied to the sliding carriage assembly during forging.

CW - Adjusts the pressure higher

CCW - Adjusts the pressure lower

**R2 - FOLLOWING PRESSURE REGULATOR**

Adjusts the amount of pressure applied to the sliding carriage assembly while advancing or welding.

**R3 - CLAMPING PRESSURE REGULATOR**

Adjusts the clamping pressure.

**G1 - FORGE PRESSURE GAUGE**

Indicates the forging pressure set by the Forge Pressure Regulator.

**G2 - FOLLOWING PRESSURE GAUGE**

Indicates the following pressure set by the Following Pressure Regulator.

**G3 - CLAMPING PRESSURE GAUGE**

Indicates the clamping pressure set by the Clamping Pressure Regulator.

**CLAMPING FOOTPEDALS**

Toggle clamps Up and DOWN.

**JAW GAP ADJUSTMENT SCREW**

Adjusts the distance between the jaws.

CW - Adjusts the jaw gap larger

CCW - Adjusts the jaw gap smaller

**JAW GAP DISTANCE INDICATOR**

Indicates the current distance between the jaws.

**TIMING ADJUSTMENT KNOB**

Adjusts the moment of weld current cut-off.

CW - Adjusts weld current cut-off later

CCW - Adjusts weld current cut-off sooner

**TIMING POSITION INDICATOR**

Indicates the current position of weld current cut-off.

**JAWS**

Clamp blade to be welded or annealed between the upper and lower jaws.

**BLADE GUIDES**

Guides to help align the two blade-ends to be welded.

Positions 1-4 are for smaller to larger tooth sizes, respectively.

## GENERAL SETUP

This section describes how to perform the general setup of the welder. These procedures have already been performed at the factory prior to shipment, and only need to be repeated if the settings become maladjusted.

### SETUP MODE

It is necessary to enter into a special "SETUP" mode for some operations. The following describes the procedure for entering setup, and how to operate the machine while in setup.

#### TO ENTER SETUP:

- 1) Select MANUAL on the mode switch.
- 2) With both clamps in the UP position, press the ADVANCE BUTTON until the machine arrives at the ANNEAL position, signified by the red light. (At this point the yellow and red lights should both be on.)
- 3) Press and hold the WELD BUTTON, then press the ADVANCE BUTTON while holding the weld button. All three lights, green, yellow and red, should come on. This indicates the machine is in setup mode.

#### TO EXIT SETUP:

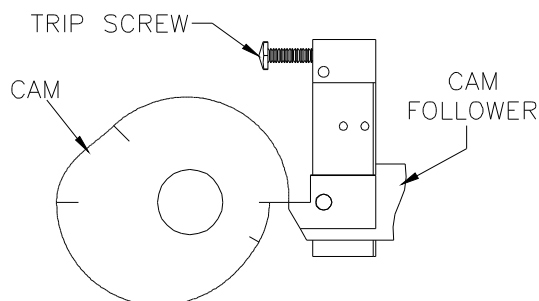
Just press the ANNEAL BUTTON at any time.

#### WHILE IN SETUP:

- The WELD BUTTON acts as a toggle ON/OFF for the cam motor.
- The ADVANCE BUTTON acts as a jog for the cam motor.
- The motor speed is set at the rapid feed rate when the mode switch is set to WELD ONLY or AUTO.
- The motor speed is set by the FLASHING SPEED SWITCH when the mode switch is set to MANUAL.
- Clamping is disabled.

### TIMING CALIBRATION

- 1) Remove the left cover from the front of the machine.
- 2) Enter into the SETUP mode.
- 3) JOG the motor until the cam follower is as close to the cam's forging drop-off point as possible without actually dropping off (See Diagram).
- 4) Assuming the timing position indicator is at a positive setting, turn the timing adjustment knob CCW until a beep is heard for about 0.5 sec.
- 5) NOTE: This beep should occur just when the timing position indicator reaches zero.
- 6) Adjust the trip position, if necessary, by turning the trip screw. CW causes the switch to trip later; CCW causes the switch to trip sooner.
- 7) Recheck the calibration by turning the timing adjustment knob CW at least 0.050", more if necessary, to reset the switch, then repeat from step 4.

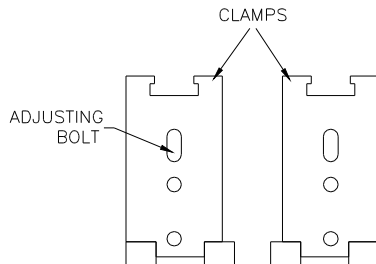


### CLAMPING PRESSURE DISTRIBUTION ADJUSTMENT

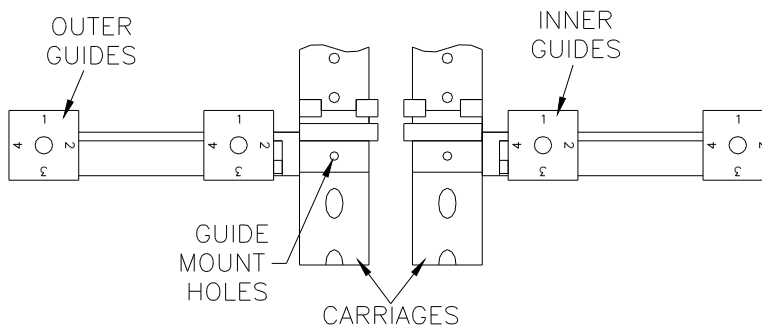
To check the clamping pressure distribution, perform an anneal on a 1"-1.250" blade (See "MANUAL ANNEALING PROCEDURE"), and note how the anneal heat pattern is distributed. It should be an even color, and the same width, from front to back. This denotes even clamping pressure. If the anneal pattern is not even, the points of brightest color and greatest width indicate the areas of heavier clamping pressure. Follow the procedure below to adjust how the clamping pressure is distributed.

CLAMPING PRESSURE DISTRIBUTION ADJUSTMENT (Cont.)

- 1) Unclamp both clamps.
- 2) Turn the adjusting bolt in the desired direction. CW adjusts the pressure toward the back. CCW adjusts the pressure toward the front. (Adjustments in 1/32-1/16 turn increments are recommended. Adjusting too far in or out will cause the clamps to stick.)
- 3) Repeat step 2, if necessary, for the remaining clamp.
- 4) Recheck the anneal pattern.
- 5) Repeat procedure if necessary.

BLADE GUIDE ALIGNMENT

- 1) Mount the inner guides to the front of the carriages, making sure the mating surfaces are clean and smooth, and rotate them to setting #1. (Note: make sure the lower jaw is not overhanging the front of the carriage, as this will cause the guide to not sit flush against the front of the carriage.)
- 2) Rotate the outer guides to setting #1.
- 3) Load a 1/16"-1/8" thick x 24" long steel straightedge into the jaws, pull it against the INNER guides mounted to the front of the carriages, and clamp it in place.
- 4) The straightedge should be touching all four guides, and be able to be raised and lowered without hanging on the top of the outer guides. (Proceed to step 10 if the outer guides are aligned.)
- 5) Loosen the mount screw on the bottom of the guide mount to be adjusted.
- 6) Slide the guide mount so that the blade guide is touching the straightedge.
- 7) Tighten the mount screw and recheck the alignment of the blade guide.
- 8) Repeat steps 5-7, if necessary, until alignment is achieved.
- 9) Repeat steps 5-8, if necessary, for the remaining outer guide.
- 10) Unclamp the straightedge, remove the inner guides from the carriages and mount them to the inner guide mounts, then rotate them to setting #1.
- 11) Load the straightedge into the jaws, pull it against the OUTER guides, and clamp it in place.
- 12) The straightedge should touching all four guides. (Proceed to step 15 if the inner guides are aligned.)
- 13) Perform steps 5-8.
- 14) Repeat steps 13, if necessary, for the remaining inner guide.
- 15) Unclamp and remove the straightedge from the jaws.



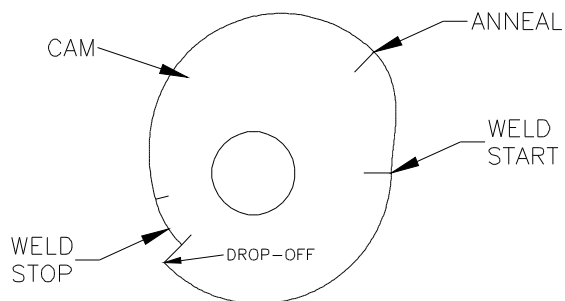
### JAW GAP DISTANCE INDICATOR CALIBRATION

- 1) If the jaw gap can be measured accurately with a pair of calipers, then proceed to step 5.
- 2) Advance the welder to the weld stop position. (Indicated by the yellow light on alone when the cam motor is stopped)
- 3) Turn the JAW GAP ADJUSTMENT screw CCW until the right carriage assembly is butted against the jaw gap stop block positioned between the carriages mounted to the bottom of the left carriage.
- 4) At this point the jaw gap should be about 0.060".
- 5) Adjust the jaw gap distance indicator adjustment screw until the indicator reads the same as the current jaw gap.

### CAM POSITIONING

Positioning of the cam relative to its three position points is adjusted via the three positioning discs attached to the camshaft behind the front plate of the welder.

**THIS PROCEDURE SHOULD ONLY BE PERFORMED WITH THE ASSISTANCE OF AN AUTHORIZED  
T. L. FAHRINGER CO. SERVICE TECHNICIAN!**



## WELD SETUP

These procedures are performed whenever there is a change of the blade size and/or type being welded. Some suggested settings are listed in the settings chart of this manual (See “SETTINGS”). **NOTE:** The suggested settings are only baseline settings and may need to be changed to meet the user's specific requirements and/or shop conditions.

### SET JAW GAP

- 1) Advance to the WELD START position, indicated by the green light.
- 2) Turn the JAW GAP ADJUSTMENT SCREW in the desired direction.
- 3) A 0.5-sec. beep will be heard to signify the machine needs to be recalibrated.
- 4) Press the ADVANCE BUTTON to recalibrate the machine.

**CAUTION: NEVER TURN THE JAW GAP ADJUSTMENT SCREW WHILE THE CAM IS TURNING!**

### SET TIMING

Turn the TIMING ADJUSTMENT KNOB in the desired direction.

### SELECT WELD VOLTAGE

Set the WELD VOLTAGE SWITCH to a position 1-6.

### SET FORGE PRESSURE

Turn the FORGE PRESSURE REGULATOR to the desired setting.

### SET FOLLOWING PRESSURE

Turn the FOLLOWING PRESSURE REGULATOR to the desired setting.

### SELECT FLASHING SPEED

Set the FLASHING SPEED SWITCH to a position 1-6.

### SET BLADE GUIDES

Rotate the BLADE GUIDES to a setting that accommodates the blade's tooth size.

## MANUAL WELDING PROCEDURE

- 1) Select MANUAL or WELD ONLY mode.
- 2) Setup for the desired blade size.  
(See “WELD SETUP”)
- 3) Calibrate machine if necessary.
  - a) The welder is out of calibration if the green light does not come on and/or a 0.5 sec. beep sounds at the weld start position.
  - b) Press the ADVANCE BUTTON to recalibrate.
- 4) Select the desired clamping mode.
- 5) Advance to the weld start position.
  - a) Both clamps must be UP.
  - b) Press the ADVANCE BUTTON until the green weld light comes on.
- 6) Load the blade.
  - a) With both clamps UP, insert the blade-ends into the jaws with the teeth facing the blade guides.
  - b) The teeth should be flush against both the INNER & OUTER blade guides.
  - c) Butt the blade-ends together leaving about a 0.020” gap between them and center the blade joint between the jaws. (When working with larger blade sizes, it is sometimes easier to load one side at a time.)
  - d) Clamp the blade-ends in place making sure they are not overlapping, and the teeth are touching all four guides.
- 7) Press the WELD BUTTON to start the weld cycle.
  - a) Both clamps must be DOWN.

(Manual Welding Procedure continued on page 2-8)

- 8) Unclamp & remove the blade when the weld cycle is finished.
  - a) The weld cycle is finished when the green weld light goes out and the yellow advance light comes on.

## **ANNEAL SETUP**

### SET JAW GAP

Use the same setting as for welding the same size blade. (See WELD SETUP)

### SELECT WELD VOLTAGE SETTING

Use the same setting as for welding the same size blade. (See WELD SETUP)

### SET ANNEAL TIME

Type the time for the duration of the anneal cycle into the ANNEAL TIMER.

### SET ANNEAL HEAT

Turn the ANNEAL HEAT KNOB to the desired setting.

### SET BLADE GUIDES

Rotate the BLADE GUIDES to a setting that accommodates the blade's tooth size.

### FINDING DESIRED ANNEAL HEAT & TIME SETTINGS

If the anneal heat and/or time settings are not known the following procedure can be used to determine them.

- 1) Set the jaw gap as described above.
- 2) Set the anneal time for 30-40 sec. temporarily.
- 3) Set the anneal heat to a low number, somewhere below 250.
- 4) Using a piece of scrap blade material, start a trial anneal cycle. (See "MANUAL ANNEALING PROCEDURE")
- 5) Adjust the ANNEAL HEAT KNOB until the desired temperature is reached and holds.
- 6) If the timer has not yet timed out stop the anneal cycle by pressing the ANNEAL BUTTON.
- 7) Unclamp and load another piece of scrap blade material.
- 8) Start another trial anneal cycle, this time without adjusting the heat.
- 9) If the desired temperature is reached, and holds on its own for a given period of time, stop the anneal cycle and note how long the cycle took.
- 10) Set the anneal time for this length and test the settings on a fresh piece of scrap blade material.
- 11) Repeat steps 4-10 until the desired effect is accomplished without having to adjust anything or stop the anneal cycle early.

## **MANUAL ANNEALING PROCEDURE**

- 1) Set the mode switch to MANUAL.
- 2) Setup for the desired blade size.  
(See "ANNEAL SETUP")
- 3) Advance to the ANNEAL position.
  - a) Both clamps must be UP.
  - b) Press the ADVANCE BUTTON until the red anneal light comes on.
- 4) Load a welded blade.
  - a) With both clamps UP, insert the blade with the weld-burr between the jaws and the teeth facing the blade guides.
  - b) Pull the blade against the guides so that the teeth are flush against all four guides.
  - c) Center the weld-burr between the jaws and clamp the blade in place.
- 5) Press the ANNEAL BUTTON to start the anneal cycle.
  - a) Both clamps must be DOWN.
- 6) Unclamp & remove the blade when the anneal cycle is finished.
  - a) The anneal cycle is finished when the ANNEAL TIMER reaches zero and the yellow advance light comes on.

**NOTE:** The anneal cycle can be stopped early by pressing the ANNEAL BUTTON at any time while an anneal cycle is running.

## **AUTOMATIC WELDING & ANNEALING PROCEDURE**

- 1) Select AUTO mode.
- 2) Setup for welding and annealing the desired blade size.  
(See “WELD SETUP” & “ANNEAL SETUP”)
- 3) Set the anneal delay time.  
Type the time for the duration of the auto anneal delay into the ANNEAL DELAY TIMER.
- 4) Calibrate machine if necessary.
  - a) The welder is out of calibration if the green light does not come on and/or a 0.5 sec. beep sounds at the weld start position.
  - b) Press the ADVANCE BUTTON to recalibrate.
- 5) Select the desired clamping mode.
- 6) Advance to the weld start position.
  - a) Both clamps must be UP.
  - b) Press the ADVANCE BUTTON until the green weld light comes on.
- 7) Load the blade.
  - a) With both clamps UP, insert the blade-ends into the jaws with the teeth facing the blade guides.
  - b) The teeth should be flush against both the INNER & OUTER blade guides.
  - c) Butt the blade-ends together leaving about a 0.020” gap between them and center the blade joint between the jaws. (When working with larger blade sizes, it is sometimes easier to load one side at a time.)
  - d) Clamp the blade-ends in place making sure they are not overlapping, and the teeth are touching all four guides.
- 8) Press the WELD BUTTON to start the weld cycle.
  - a) Both clamps must be DOWN.
- 9) Unclamp and remove the blade when the cycle is finished.
  - a) Automatic cycle is finished when both clamps release and the machine moves back to the weld start position after annealing.





## Section 3

# MAINTENANCE

## CARE AND MAINTENANCE OF WELDING JAWS

Since your welder uses low AC Voltage to weld with, it is critical to keep resistance levels at a minimum in order to maintain consistent weld quality. The lower jaws on your welder are made from a copper tungsten alloy, which provides conductivity at 48% of pure copper, and better wear characteristics than pure copper. If those jaws were made of steel they would wear better, but the conductivity would only be about 18% of pure copper. That low conductivity would create more resistance and a lower quality weld.

Other forms of resistance include:

- Dirt or weld flash embedded in the surface of the jaws.
- Worn or uneven jaw surface.
- Dirt, oil, or shims between jaw and carriage surface.
- Pitting of jaw surfaces.
- Jaws that have been flipped over.

**CAUTION: NEVER FLIP THE LOWER JAWS OVER** as this could cause serious damage to the carriages **and will void your warranty.**

## RECONDITIONING WELDING JAWS

When your jaws become worn, pitted, or embedded with foreign material they may be reconditioned by surface grinding.

Surface grinding will remove the worn part of the jaws while maintaining flatness, parallelism and a smooth finish. Both lower jaws must be ground together in order to maintain the same thickness and keep the welded blade properly aligned. A surface profilometer finish of 32 or better is acceptable. New jaws are 1/2" thick and can have up to 1/8" of material removed. Typically it is necessary to remove .005" - .010" of material to restore the finish.

The upper steel jaws also need to be reground periodically, although not as often due to their wear qualities. These jaws must also be ground together for the same reasons as the lower jaws.

## PERIODIC MAINTENANCE

### AT THE BEGINNING OF THE DAY & EVERY TIME THE BLADE SIZE IS CHANGED

- Clean the entire weld area thoroughly with a rag and cleaning agent, such as welding anti-spatter spray.
- Check the clamping pressure distribution and adjust if necessary.
- Apply welding anti-spatter spray liberally to the weld area between the carriages and wipe the jaw surfaces dry before welding. Reapply anti-spatter as necessary throughout the day.

### AFTER EVERY WELD

- Blow off the jaws with compressed air to remove any loose weld flash and dirt before clamping a blade.

### EVERY 10 WELDS

- Wipe the jaw surfaces with a rag and clean the weld area to remove weld flash. Any weld flash adhering to the edges of the jaws can be removed with a scraper or a flat blade screwdriver.

**CAUTION:** Take care when scraping off weld flash not to nick, dent or scratch the surfaces of the lower jaws.

### DAILY

- Remove the clamp blocks and flash guard.
- Clean the entire weld area thoroughly with a rag and cleaning agent, such as welding anti-spatter spray.
- Clean and inspect all parts for wear and damage.
- Clean and inspect the flash guard for any cracks or holes and replace if necessary.
- Inspect lower jaws for uneven wear, pitting and cracking. Lightly resurface both jaw faces together with a fine grit surfacing stone, if necessary, to remove any high spots.
- Lightly lubricate the clamp block slides before reinstalling the clamp blocks. (Any oil 30 weight or heavier)

WEEKLY

- Remove lower jaws and blade guide mount rails. Clean and inspect the jaws and carriages for wear and damage.
- Clean your entire welder. This will make any problems more noticeable (E.G. leaks or broken parts).
- Inspect the air and hydraulic system for leaks or worn hoses and repair or replace, if necessary.

**DANGER:** Make sure all hydraulic pressure has been evacuated from the system before beginning any maintenance to the hydraulic system. Check the pressure gauge mounted on top of the hydraulic pump. To relieve pressure, disconnect air from the welder. Turn the welder ON and press either of the clamping foot pedals, until the pressure gauge drops to “0-psi”. Turn the welder OFF and do not re-connect air to the welder until all maintenance has been completed.

- Check the oil level in the hydraulic pump and add oil, if necessary. A drop in the oil level would indicate a leak in the system, and should be corrected as soon as possible. (Hydraulic Oil Type AW68)
- Check the oil level in the air lubricator and add oil as needed. It is normal for the lubricator to loose oil. The filler cap is located on top of the lubricator. (Hydraulic Oil Type AW68)
- Check the air filter/accumulator for water accumulation and excessive dirt. There is a drain plug located on the bottom of the filter bowl to drain water out. If there is a lot of dirt in the bowl, it will need to be removed and cleaned.
- Remove the left and right front covers of the welder. Check the oil level in the oil cup, located under the cam on the left side of the welder, and fill if necessary. (Any oil 30 weight or heavier)
- Remove the cut-off switch slide from its housing. Clean and lubricate it with a lightweight oil. (Any oil 30 weight or lighter)
- Clean and lubricate the main shafts and main bearings WITHOUT REMOVING THEM. (Any oil 30 weight or heavier)
- Lubricate the drive rod at all friction points, including the threaded portion of the rod where it screws into the drive bushing. (Any oil 30 weight or heavier)
- Lubricate the lever pivot pin. (Any oil 30 weight or lighter)
- Check the timing calibration.
- Measure the jaw gap with a pair of calipers and check against the indicated reading on the jaw gap indicator.
- Check the water-cooling pump for proper operation. Check water lines and fittings for leaks. Fill the water tank as needed.

## REMOVING CLAMP BLOCKS, LOWER JAWS & GUIDE MOUNT RAILS

### REMOVING THE CLAMP BLOCKS

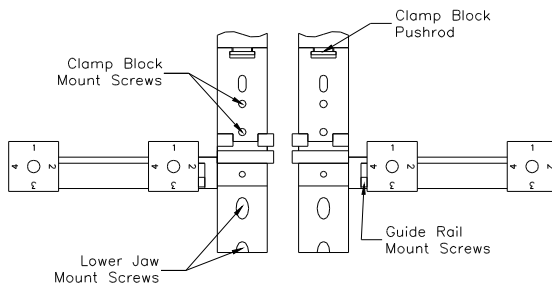
- 1) Unscrew the upper mount screw (3/16” allen screw) only until light resistance is felt. (See Diagram)
- 2) Unscrew the lower mount screw only until light resistance is felt.
- 3) Unscrew the upper mount screw the rest of the way; the top of the block will push out.
- 4) Unscrew the lower mount screw the rest of the way; the bottom of the block will push out.
- 5) Insert the allen wrench into one of the mount screws to keep the slide from falling out when removing the block.
- 6) Using a flat blade screwdriver, pry the clamp block pushrod down until there is about a 1/32” gap between the clamp block and the carriage.
- 7) Pull the clamp block straight out.

### REMOVING THE LOWER JAWS

- Remove the two lower jaw mount screws. (See Diagram)

### REMOVING THE GUIDE MOUNT RAILS

- Remove the two guide rail mount screws. (See Diagram)
- The inner guide mount can be removed if it is in the way of the guide rail mount screws.



## **REINSTALLING LOWER JAWS, CLAMP BLOCKS & GUIDE MOUNT RAILS**

**IMPORTANT:** The lower jaws, clamp blocks and guide mount rails must be installed in the following order:

- 1) Install the lower jaws first, making sure there is no dirt or oil between the jaw and the carriage surface and both mating surfaces are smooth. Also, the front of the jaw must not overhang the front of the carriage, and the outside of the jaw must not overhang the outside of the carriage as this will cause interference to the guides and guide mount rails.

**CAUTION:** Extreme care must be taken to ensure the mating surfaces are totally smooth, dry, and free of all debris.

**CAUTION:** Do not overtighten the lower jaw mount screws as this could cause the jaws to warp.

- 2) Install the clamp block assemblies next.
  - 1) Insert the clamp block slide into the rear of the clamp block making sure it is right side up so the mount screws line up with the proper holes in the clamp blocks.
  - 2) Insert a 3/16" allen wrench into one of the mount screws through its proper hole in the clamp block to hold the slide in place.
  - 3) Pry the clamp block pushrod down with a flat blade screwdriver until the clamp block slides onto it. (There should be a ledge facing the front to catch the screwdriver on. If you don't see it turn the pushrod around until it faces the front.)
  - 4) Push the clamp block back until it stops and release it to the up position.
  - 5) Screw the upper mount screw in only until light resistance is felt or the clamp block begins to move then back it off about 1/2 turn.
  - 6) Screw the lower mount screw in until resistance is felt.
  - 7) Alternate between the upper and lower mount screws in this manner until they are both tight.

Once installed, it is a good idea to move the clamp blocks up and down to check for proper operation. This can be accomplished by inserting a flat blade screwdriver between the top of the clamp block and the carriage, prying the block down and then releasing it. The block should retract to the up position freely.

**CAUTION:** Serious damage can occur to the clamp blocks if they are not exercised by hand first. If the clamps are activated hydraulically the pressure could either damage faulty parts or jam the clamps so tightly that disassembly will be difficult or even impossible.

If the clamp block does not return to the up position, check to see if the front of the block is flush with the front of the carriage. If it is not then adjust the block until it is flush with the front of the carriage. If adjusting the block does not correct the problem, remove and inspect the assembly for any foreign matter or jammed slide parts.

- 3) Lastly, attach the guide mount rails ensuring the jaws are not overhanging the sides of the carriages, and realign the blade guides.

## WARRANTY

Your Fahringer model FW-200 HPA welder is guaranteed against defects in material and workmanship for a period of one full year from the date of shipment. This warranty covers all parts and labor needed should repair become necessary due to such defects. However, this warranty does not cover damage that occurs during shipment, or damage caused by neglect, abuse, misuse, normal wear and tear, or any act of nature. Should the return of any equipment to T. L. Fahringer Co. become necessary, the owner is responsible for all shipping charges to and from T. L. Fahringer Company's plant. All warranty returns must be authorized by T. L. Fahringer Co. in advance. Furthermore, any further damage that occurs to equipment during shipment back to T. L. Fahringer Co. will not be covered under warranty. It is the sender's responsibility to package the equipment properly so as to prevent damage from occurring during shipment. If replacement parts are needed to make a warranty repair in the customer's plant, there will be no charge for the warranted items, but the customer may be responsible for any shipping charges. Should the services of a T. L. Fahringer Co. technician be required at the customer's plant, there will be no charge for parts or labor covered under warranty, but the customer is responsible for all other expenses, including, but not limited to, airfare, lodging, meals, and any transportation needed.

All warranty repairs will be made at the discretion of T. L. Fahringer Co.; as such, some or all of the repairs may be the responsibility of the owner and not T. L. Fahringer Co.

