

# Operator's Manual

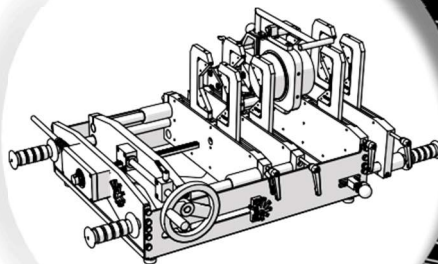
**Asahi/America, Inc.**

**ProWeld® Equipment**



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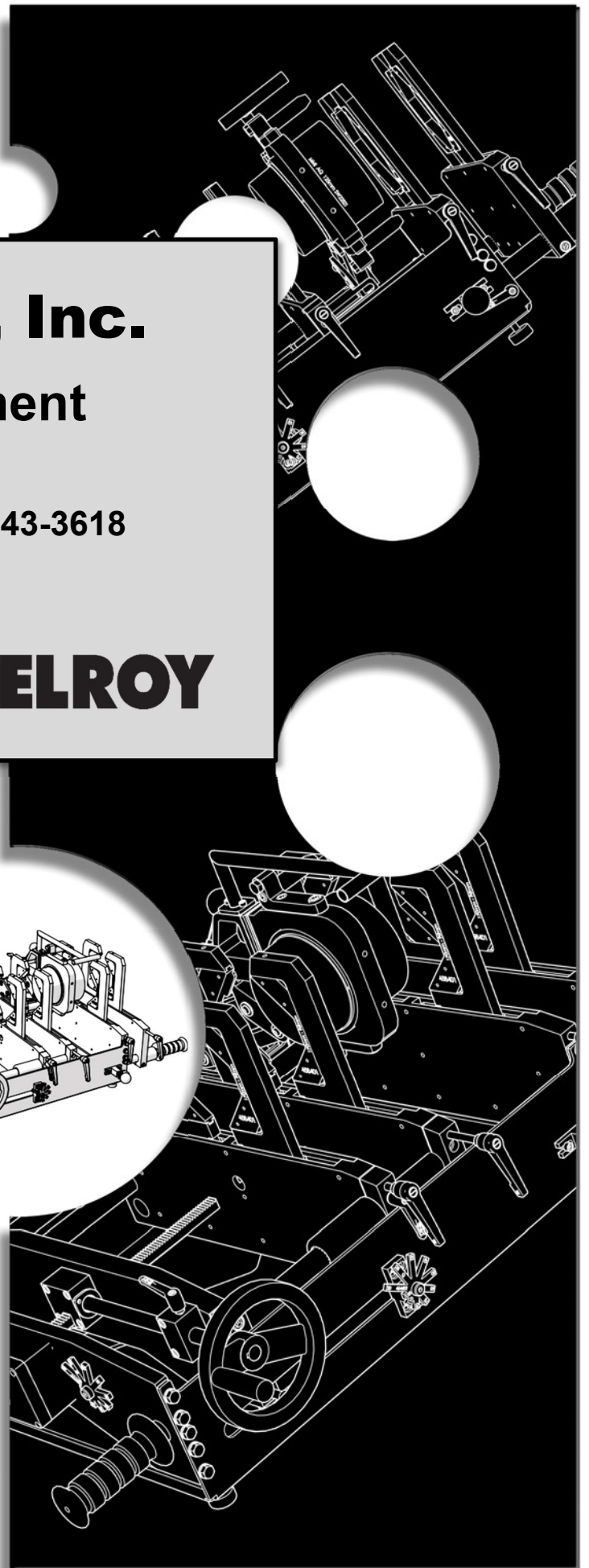


## SmartFab<sup>™</sup>

# 125

Manual: 460801 Revision: Rev C 06/19

Original Language: English





Cancer and Reproductive Harm -  
[www.P65warnings.ca.gov](http://www.P65warnings.ca.gov)

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This product and other products  
could be protected by patents or  
have patents pending. All the latest  
patent information is available at  
[patent.mcelroy.com](http://patent.mcelroy.com)

# Introduction

## Thank you for purchasing this McElroy product through Asahi/America

McElroy has created a smarter way to socket fuse pipe and fittings for polypropylene piping systems with the SmartFab™ 125 benchtop machine. Its portable design allows it to be positioned on any flat surface for precise prefabrication, providing versatility in the field as well as the shop.

Advanced features of the SmartFab 125 provide more efficiency with innovative inserts that reduce ovality in pipe and fittings. The heater pivots to easily accommodate fittings situated on either side of the machine, which eliminates having to reposition the entire machine. Its four jaws adjust to any desired spacing and each jaw clamps individually to the desired pipe and fitting size.

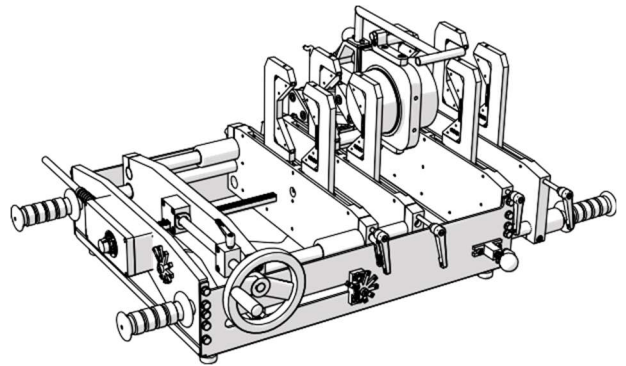
The SmartFab 125 socket fuses 20mm to 125mm pipe and fittings.

When fusing thermoplastic pipe materials, refer to the pipe manufacturer's fusion procedures or appropriate joining standard.

With reasonable care and maintenance, this machine will give years of satisfactory service.

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Before operating this machine, please read this manual thoroughly, and keep a copy with the machine for future reference. This manual is to be considered part of your machine.



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## Asahi/America Training Standards

Since 1984, Asahi/America, Inc. has been teaching contractors the benefits of welding thermoplastic piping systems in industrial and high purity applications. Our partnership with McElroy allows us to leverage their state-of-the-art Learning Management System (LMS) using Asahi/America technical standards across all Asahi piping systems.

For more than 30 years, McElroy has been the only pipe fusion machine manufacturer to continuously offer advanced training. Course offerings are meant to enhance your efficiency, productivity and safety in the proper use of McElroy machines. Asahi/America learning portal classes powered by McElroy University are structured so that the skills learned and the machines used in each class closely match the machines found on pipelining jobsites.

Training modules specific to Asahi/America piping systems available for purchase online and required to be completed prior to onsite training by Asahi/America personnel.

This manual is intended as a guide only and does not take the place of proper training by qualified instructors. The information in this manual is not all inclusive and cannot encompass all possible situations that can be encountered during various operations.

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# Foreword

## LITERATURE INFORMATION

This manual should be stored in a protected location for future reference. Use the literature holder if provided with the product. This manual contains safety information, operation instructions, transportation information, lubrication information and maintenance information. Some photographs or illustrations in this publication show details or equipment that can be different from your machine. Guards and covers might have been removed for illustrative purposes. Continuing improvement and advancement of product design might have caused changes to your machine which are not included in this publication. Read, study, and keep this manual with the machine. Whenever a question arises regarding your machine, or this publication, please contact Asahi/America Technical Services at 1-800-343-3618 or [pipe@asahi-america.com](mailto:pipe@asahi-america.com).

## SAFETY

The safety section lists basic safety precautions. In addition, this section identifies the text and locations of warning signs and labels used on the machine. Read and understand the basic precautions listed in the safety section before operating or performing maintenance and repair on this machine.

## OPERATION

The operation section is a reference for the new operator and a refresher for the experienced operator. This section includes a discussion of gauges, switches, machine controls, accessories, and transportation. Photographs and illustrations guide the operator through correct procedures of setting up, checking, and operating the machine. Operating techniques outlined in this publication are basic. Proficiency develops as the operator gains knowledge and experience with the machine and its capabilities.

## MAINTENANCE

The maintenance section is a guide to equipment care. The maintenance schedule lists the items to be maintained at a specific service interval. Items without specific intervals are listed under the "As Needed" service interval. The schedule lists the page for the step-by-step instructions required to accomplish the scheduled maintenance. Use the schedule as an index for all maintenance procedures. Some maintenance procedures may be referenced in a manual pertaining to that component of the machine. For example, maintenance for an engine component would have its intervals and procedures in the engine operator's manual. Use the hour meter (if equipped) to determine servicing intervals. Calendar intervals will be used instead of hour meter intervals if no hour meter is equipped on a machine. Recommended service should always be performed at the interval that occurs first. Under extremely severe, dusty, or wet operating conditions, more frequent lubrication than is specified in the maintenance schedule might be necessary.



# Foreword

## **PATENT INFORMATION**

This product and other products could be protected by patents or have patents pending. All the latest patent information is available at [patent.mcelroy.com](http://patent.mcelroy.com)

## **REPLACEMENT LITERATURE**

This product is shipped with a printed operator's manual. If the manual becomes lost or damaged, order a replacement manual or download and print a copy of the manual from our website at [https://www.asahi-america.com/images/x-assets/PDF/Datasheet\\_McElroy\\_SmartFab\\_125.pdf](https://www.asahi-america.com/images/x-assets/PDF/Datasheet_McElroy_SmartFab_125.pdf).

## **NAMEPLATE LOCATIONS**

Every machine has a name plate that includes the machine's model number, serial number, and power requirements. The model and serial numbers can be used to register the machine online and activate the warranty. Reference warranty card for information on registering your product. Asahi America's rental tools also have the rental serial number on tool and shipping crate, as well. This serial number required when calling Asahi America with questions for rental tools.

## **REPLACEMENT PARTS**

Contact Asahi/America for replacement parts on Asahi-owned rental tools. Refer to the McElroy parts finder at [www.mcelroy.com](http://www.mcelroy.com) to locate parts for purchase. Reference the model number on the nameplate of the machine when using the parts finder. Contact your McElroy distributor to order replacement parts. Find your closest distributor on our website at [www.mcelroy.com](http://www.mcelroy.com).

# Warranties

## **ASAHI/AMERICA RENTAL WARRANTY**

Asahi/America's comprehensive rental equipment policies can be found on our website here: <https://www.asahi-america.com/support/rental-equipment-policy>

All rental equipment is warranted for six (6) months of on-site usage. All tool failures within this six-month period are handled as indicated in Section V. After six months usage it is recommended that the equipment be returned for regular maintenance and warrantee renewal. Equipment held longer than six months without return is held at the renter's risk.

## **USED EQUIPMENT WARRANTY**

Purchase of refurbished/used equipment carries a 90-day warranty.

## **NEW EQUIPMENT WARRANTY**

Purchase of new Asahi/America versions of McElroy equipment carries a 5-year limited warranty. Details can be found here: <https://www.mcelroy.com/warranty.htm>

## **ASAHI/AMERICA TOOL DEPARTMENT CONTACTS**

For technical or tool related questions, please contact:

Rental Equipment Manager – 781-388-4618 or [toolmanager@asahi-america.com](mailto:toolmanager@asahi-america.com)

For Rental Administration, Billing, and Returns – 781-388-4623 or [toolrental@asahi-america.com](mailto:toolrental@asahi-america.com)

Welding and Standards Manager – 781-388-4577

To schedule field service or training, please enter information here: <https://www.asahi-america.com/support/field-technician-request>

For technical service related questions, please contact:

High Purity, Double Wall, or Industrial Piping – 781-321-5409 or [pipe@asahi-america.com](mailto:pipe@asahi-america.com)

Asahi/America Corporate Headquarters – 800-343-3618 or [asahi@asahi-america.com](mailto:asahi@asahi-america.com)

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Tulsa, Oklahoma, USA

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# Fusion Equipment Safety

## Safety Alerts



This hazard alert sign appears in this manual. When you see this sign, carefully read what it says. **YOUR SAFETY IS AT STAKE.**

You will see the hazard alert sign with these words: **DANGER**, **WARNING**, and **CAUTION**.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

In this manual you should look for two other words: **NOTICE** and **IMPORTANT**.

**NOTICE:** can keep you from doing something that might damage the machine or someone's property. It may also be used to alert against unsafe practices.

**IMPORTANT:** can help you do a better job or make your job easier in some way.

TX00030-12-1-92



WR00051-11-30-92

## Read and Understand

Do not operate this equipment until you have carefully read, and understand all the sections of this manual, and all other equipment manuals that will be used with it.

Your safety and the safety of others depends upon care and judgment in the operation of this equipment.

Follow all applicable federal, state, local, and industry specific regulations.

McElroy Manufacturing, Inc. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the machine are therefore not all inclusive. You must satisfy yourself that a procedure, tool, work method, or operating technique is safe for you and others. You should also ensure that the machine will not be damaged or made unsafe by the method of operation or maintenance you choose.



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# Fusion Equipment Safety

## General Safety

Safety is important. Report anything unusual that you notice during set up or operation.

**LISTEN** for thumps, bumps, rattles, squeals, air leaks, or unusual sounds.

**SMELL** odors like burning insulation, hot metal, burning rubber, hot oil, or natural gas.

**FEEL** any changes in the way the equipment operates.

**SEE** problems with wiring and cables, hydraulic connections, or other equipment.

**REPORT** anything you see, feel, smell, or hear that is different from what you expect, or that you think may be unsafe.



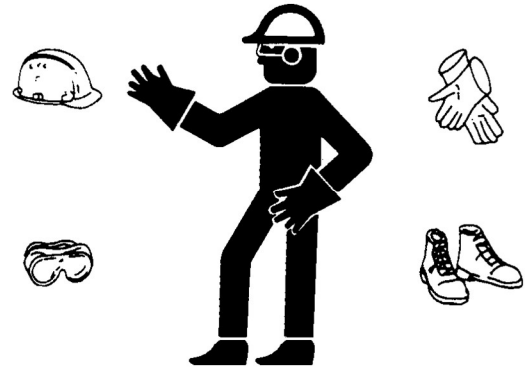
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## Wear Safety Equipment

Wear a hard hat, safety shoes, safety glasses, and other applicable personal protective equipment.

Remove jewelry and rings, and do not wear loose-fitting clothing or long hair that could catch on controls or moving machinery.



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## Heater Is Not Explosion Proof



This heater is not explosion proof. Operation of heater in an explosive atmosphere will result in serious injury or death.

Heater components are attached to the machine and the machine must not be used in an explosive atmosphere.



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# Fusion Equipment Safety

## Electrical Safety

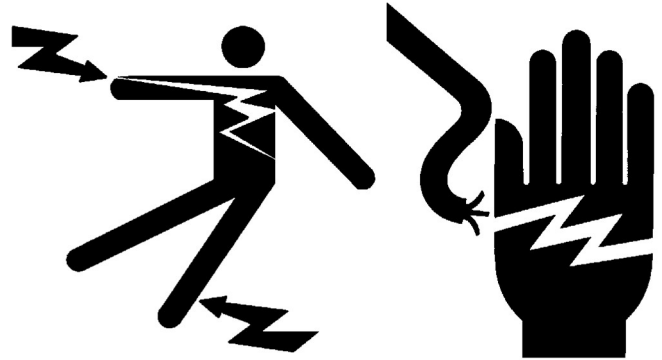
**⚠️ WARNING** Always ensure equipment is properly grounded. It is important to remember that you are working in a wet environment with electrical devices. Proper ground connections help to minimize the chances of an electric shock.

Frequently inspect electrical cords and unit for damage. Have damaged components replaced and service performed by a qualified electrician.

Do not carry electrical devices by the cord

**NOTICE:** Always connect units to the proper power source as listed on the unit, or in the owner's manual.

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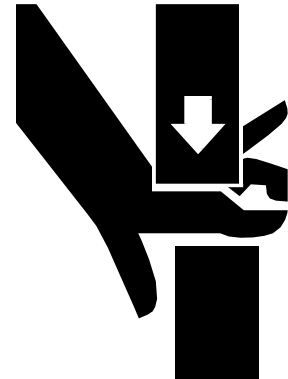


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## Pinch Points

**⚠️ CAUTION** Moving components of the machine can create pinch points. Use caution while operating the machine not to expose body parts to pinch points. Pinch points may cause minor to moderate injury.

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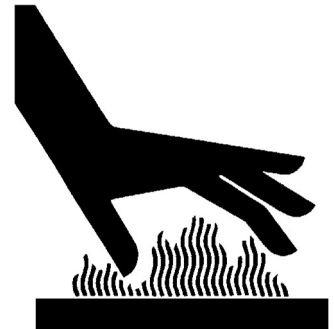
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## Heater is Hot

**⚠️ CAUTION** The heater is hot and will burn clothing and skin. Use care when heating the pipe and fitting.

**NOTICE:** Use only a clean dry lint free non-synthetic cloth to clean the heater adapters.

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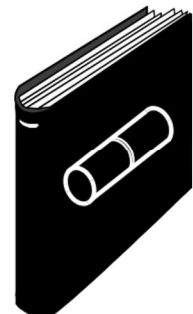
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## Fusion Procedures

Obtain a copy of the pipe manufacturer's procedures or appropriate joining standard for the pipe being fused. Follow the procedure carefully, and adhere to all specified parameters.

**NOTICE:** Failure to follow pipe manufacturer's procedure could result in a bad joint. Always follow pipe manufacturer's procedures.

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# Overview

## Theory of Heat Fusion

The principle of heat fusion is to heat two surfaces to a designated temperature, and then fuse them together by application of force. This develops pressure which causes flow of the melted materials, which causes mixing and thus fusion. When the thermoplastic material is heated, the molecular structure is transformed from semi-crystalline into an amorphous condition. When fusion pressure is applied, the molecules from each thermoplastic part mix. As the joint cools, the molecules return to their semi-crystalline form, the original interfaces are gone, and the fitting and pipe have become one monolithic unit. A strong, fully leak tight connection is the result.



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The principal operations include:

- Clamping** The pipe and fitting must be held firmly to allow all subsequent operations to take place.
- Cleaning** The area of pipe that the fitting will come in contact with must be cleaned.
- Aligning** The fitting, heater adapters, and pipe must be properly aligned.
- Heating** A melt pattern must be formed that penetrates into the pipe and into the fitting.
- Joining** The pipe and fitting must be joined and the pipe fully seated within the fitting.
- Holding** The molten joint must be held immobile until adequately cooled.
- Inspecting** Visually examine the entire circumference of the joint for compliance with standards established by your company, customer, industry, federal, state, or local regulations.

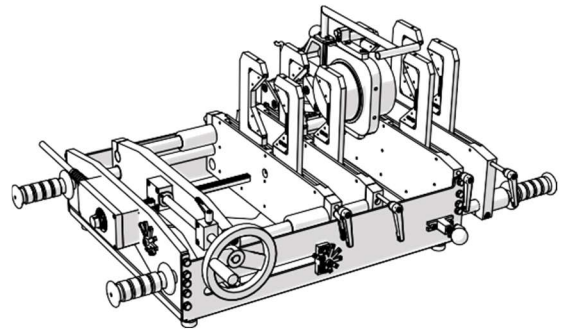
# Overview

## SmartFab™ 125 Fusion Machine

McElroy has created a smarter way to socket fuse pipe and fittings for polypropylene piping systems with the SmartFab™ 125 benchtop machine. Its portable design allows it to be positioned on any flat surface for precise prefabrication, providing versatility in the field as well as the shop.

When fusing thermoplastic pipe materials, refer to the pipe manufacturer's fusion procedures or appropriate joining standard.

The SmartFab 125 socket fuses 20mm to 125mm pipe and fittings.



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## Carriage Assembly

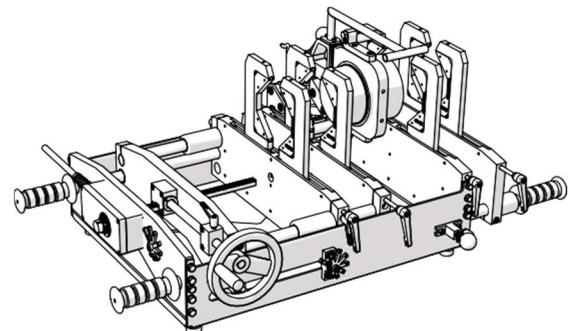
The SmartFab 125 carriage assembly has 4 jaw frames which can be individually spaced and clamped allowing the operator flexibility to fuse the greatest combination of pipe and fittings.

The carriage consists of two fixed jaws and two movable jaws.

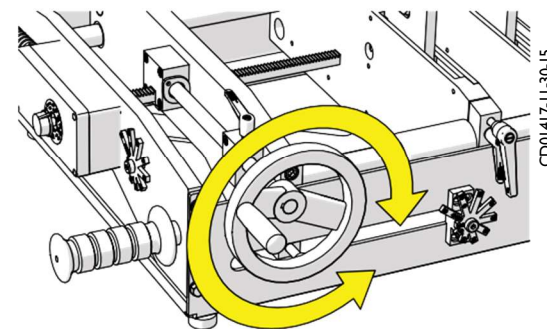
The movable jaws are actuated by a rack and pinion.

The movable jaws are opened and closed using the hand wheel on the side of the machine.

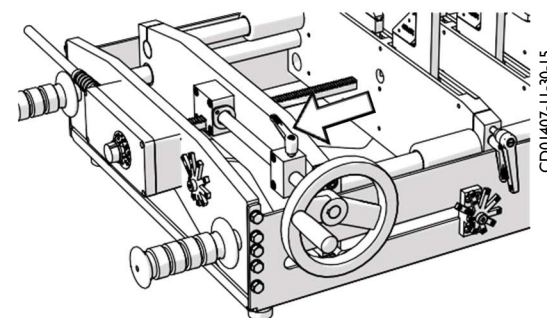
The movable jaws can be locked in position by tightening the handle near the hand wheel.



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# Overview

## Heater



Heater is not explosion proof. Operation of heater in an explosive atmosphere will result in serious injury or death.

The heater has a green indicator light which will flash on and off. This indicates that the controller is operating normally. If the green indicator is not flashing then the controller may not be operating properly. If this occurs, disconnect power and have the heater repaired by a McElroy Authorized Service Center.

The heater temperature is controlled by a microprocessor. It has a red indicator light on the bottom of the temperature scale. When the heater is plugged in and preheating the light glows steadily until the set temperature is reached. The light then goes off and on slowly as the heater maintains temperature.

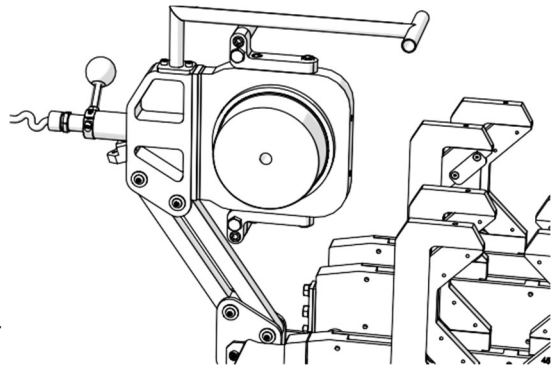
The heater body is not coated. Coated socket fusion heater adapters are available for all socket fusion applications.

**NOTICE:** The heater should never be used without socket fusion heater adapters installed.

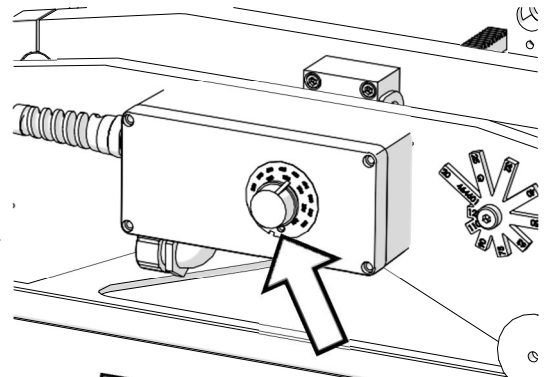
To prevent a build-up of plastic pipe residue from accumulating on the heater adapters (loss of surface temperature and pipe sticking may result), the heater adapters should be cleaned with a clean dry lint free non-synthetic cloth before every fusion joint.

The heater pivots in and out of the fusion area. The heater can be rotated to change the position of the heater adapters from one side to the other to allow fusion on both ends of the machine.

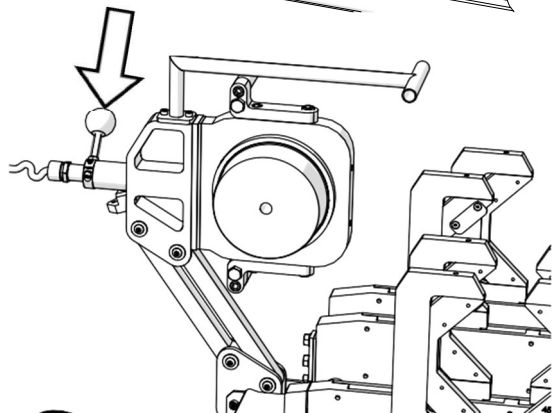
To rotate the heater, pull the handle of the heater with the round ball toward the heater and rotate the heater.



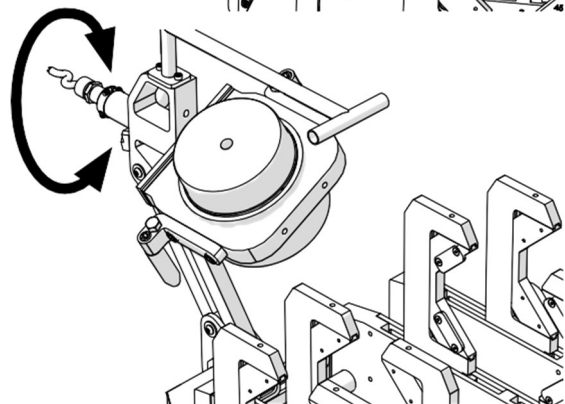
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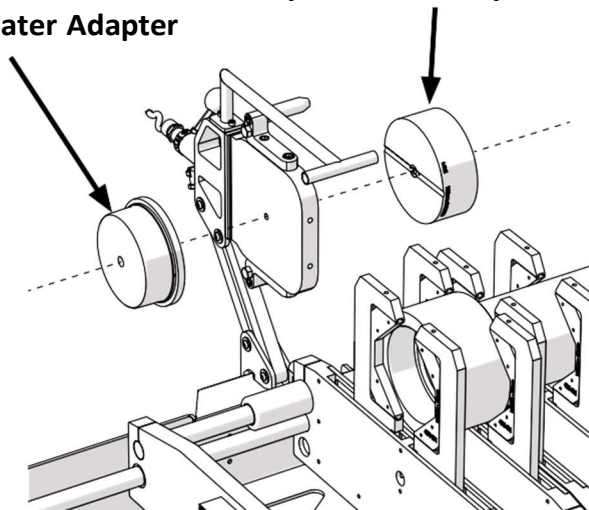


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Fitting Heater Adapter

Pipe Heater Adapter



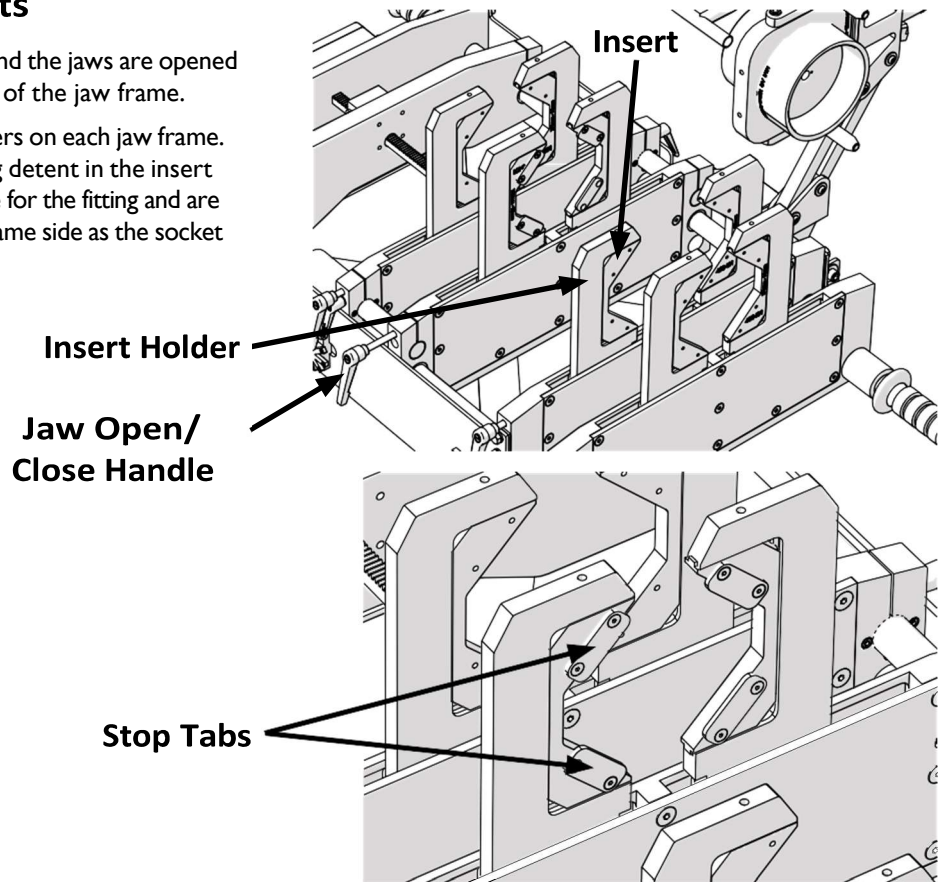
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# Overview

## Carriage Jaws and Inserts

Each jaw frame has two insert holders and the jaws are opened and closed using the handle at the end of the jaw frame.

Inserts are installed into the insert holders on each jaw frame. Inserts are locked into place by a spring detent in the insert holder. The inserts with the stop tabs are for the fitting and are installed on the inner jaw frame on the same side as the socket heater adapter on the heater.



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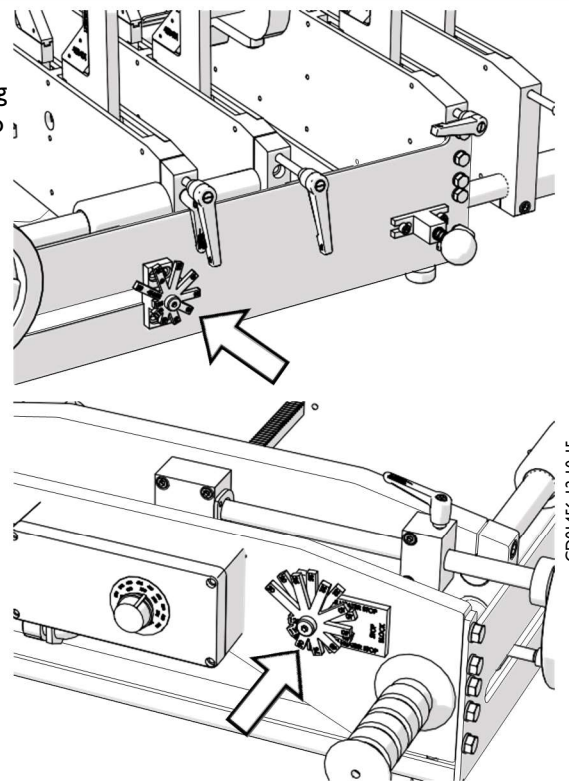
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## Depth Star

The depth star is used to change the stab depth of movable jaws by providing a stop for the movable jaws to rest against. It rotates to change the pipe size to fuse and each size is labeled on the face of the depth star.

There is a depth star to match the appropriate heater adapters. The depth stars have a marking that will match the marking of the heater adapters.

The depth stars that are not being used are stored at the end of the machine next to the heater controls when not in use.



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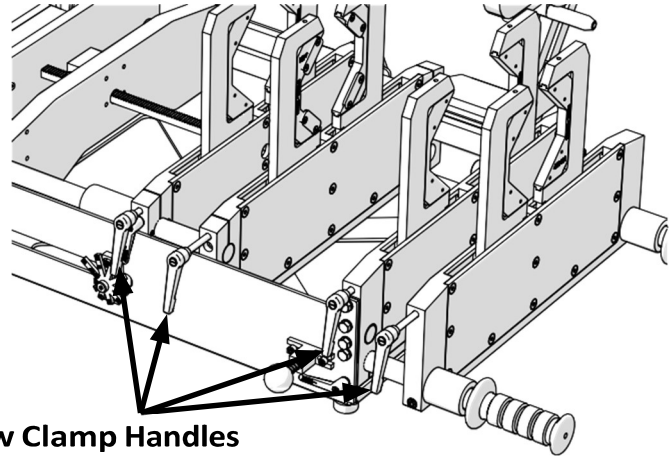
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# Overview

## Jaw Clamp Handles

At the end of each jaw frame are adjustable handles for clamping and unclamping of pipe and fittings. By pulling out on the handles, the handle position can be adjusted.

Rotating the handle will open and close the jaws on the jaw frame.



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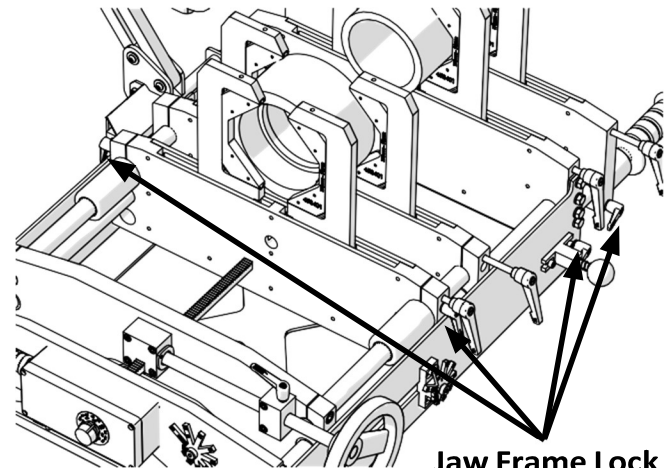
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Jaw Clamp Handles

## Jaw Frame Lock Handles

At both ends of three of the jaw frames are adjustable handles for locking and unlocking the position of the jaw frames. By pulling out on the handles, the handle position can be adjusted.

Rotating the handle will loosen and tighten the jaw frames on the guide rods of the machine.



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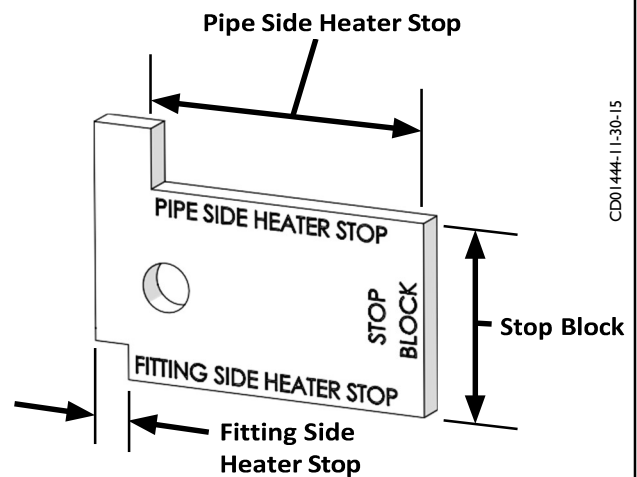
Jaw Frame Lock Handles

## Set Up Gauges

The machine comes with set up gauges for use during the set up calibration procedures. There is a set up gauge to match the appropriate heater adapters. The set up gauges will have a marking that will match the marking of the heater adapters. There are 3 different gauges on the block.

- 1) Pipe Side Heater Stop - to measure the long heater stop distance.
- 2) Fitting Side Heater Stop - to measure the short heater stop distance.
- 3) Stop Block - to measure the distance between the two inner jaw frames.

The gauges are stored with the additional depth stars when not in use.



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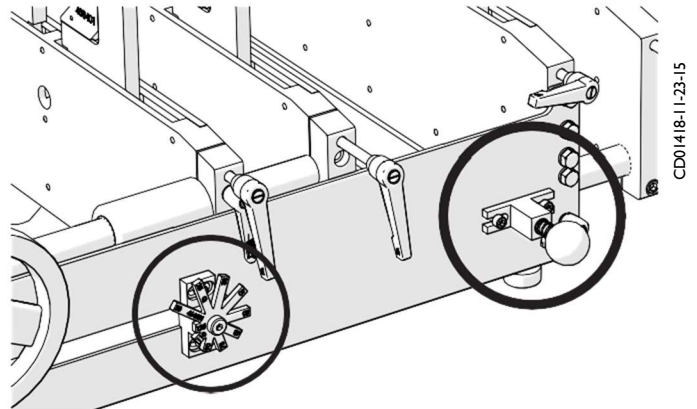
# Overview

## Set Up Calibration

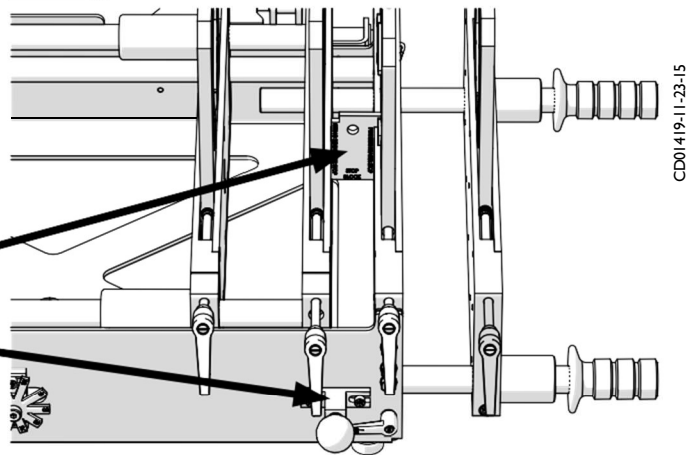
Install the appropriate type depth star that will match the heater adapters used.

Select the appropriate Set Up Gauge for the heater adapters being used and use that gauge for the calibration procedures.

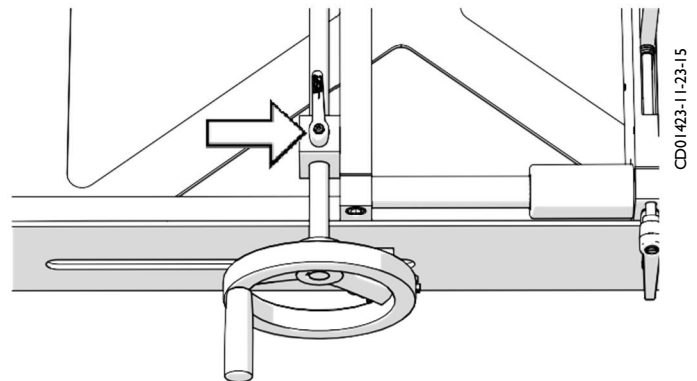
Loosen the bolts attaching the setting stop block and depth star block to the frame.



Push in and hold the setting stop. Insert the appropriate Set Up Gauge that matches the heater adapters used, between the inner jaw frames with the stop block portion down. Close the carriage until the inner jaw frames are resting against the Set Up Gauge.

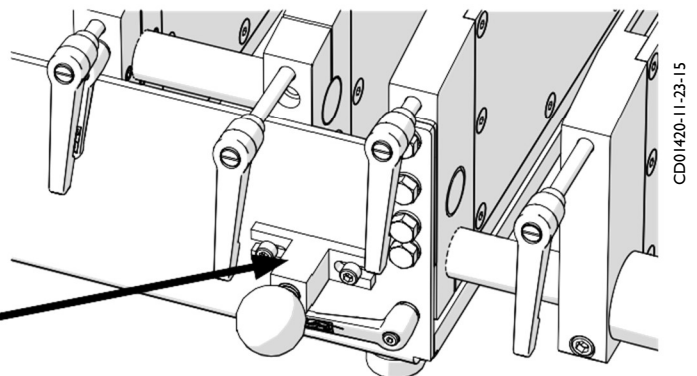


Lock the carriage. Adjust the setting stop block until it rests against the inner jaw frame on the movable jaws.



Tighten the bolts on setting stop block.

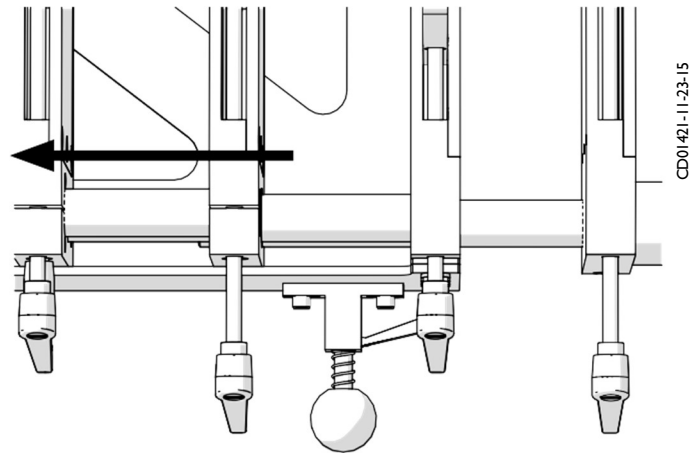
Unlock the carriage. Open and close the carriage against the setting stop and verify the measurement between the inner jaw frames.



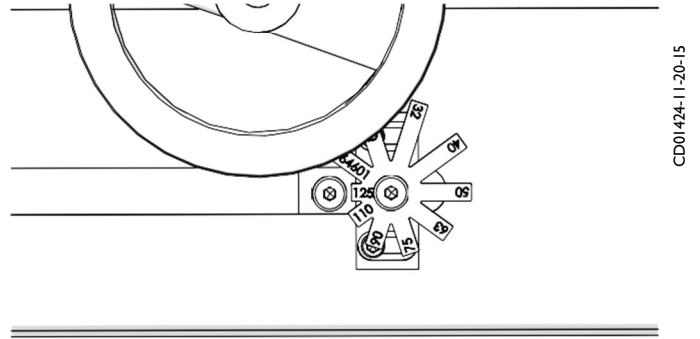
# Set Up

## Set Up Calibration (continued)

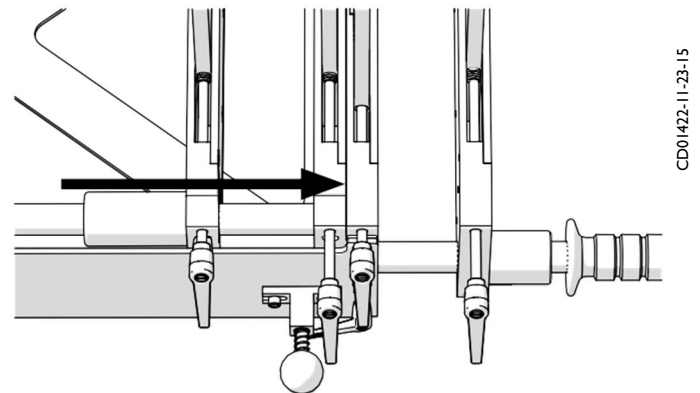
Open movable jaws to release the setting stop.



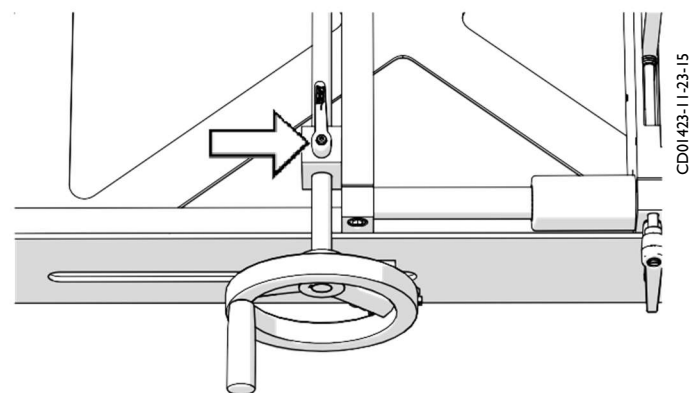
Set the depth star to 125mm. The 125mm will point to the left toward the bolt of the movable jaws.



Close the movable carriage against the inner fixed jaw frame. There should be no gap.



Lock the carriage.

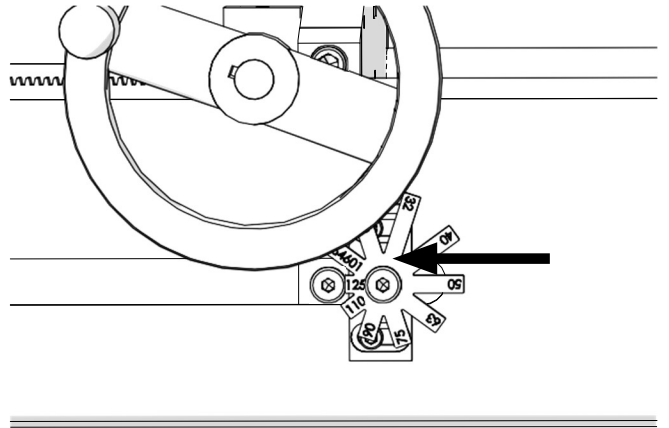


# Set Up

## Set Up Calibration (continued)

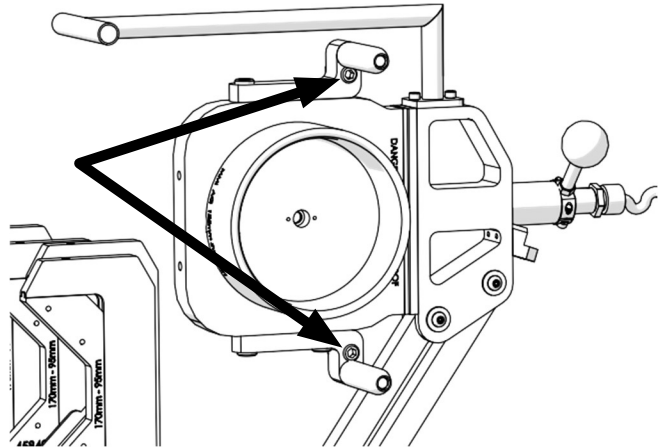
Slide the depth star block to the left until it contacts the bolt.

Tighten the bolts on the depth star block to lock the position.



CD01425-11-20-15

Loosen the set screws for the short heater stop bolts.



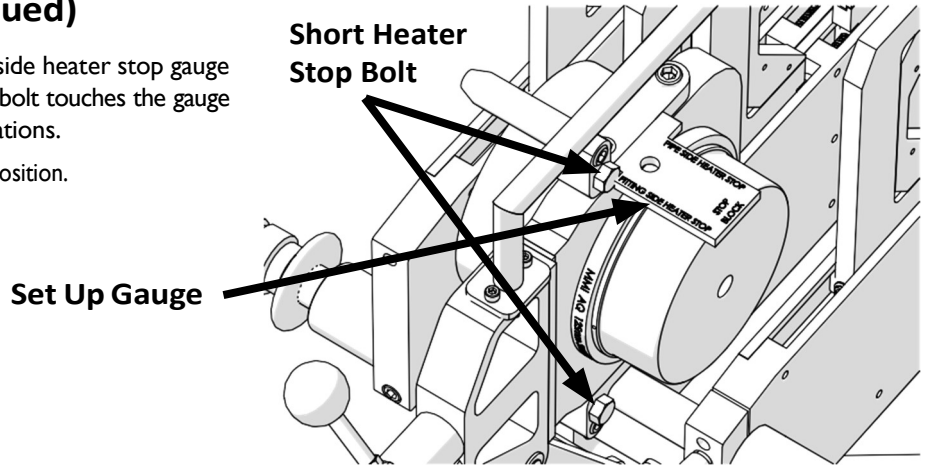
CD01426-11-20-15

# Set Up

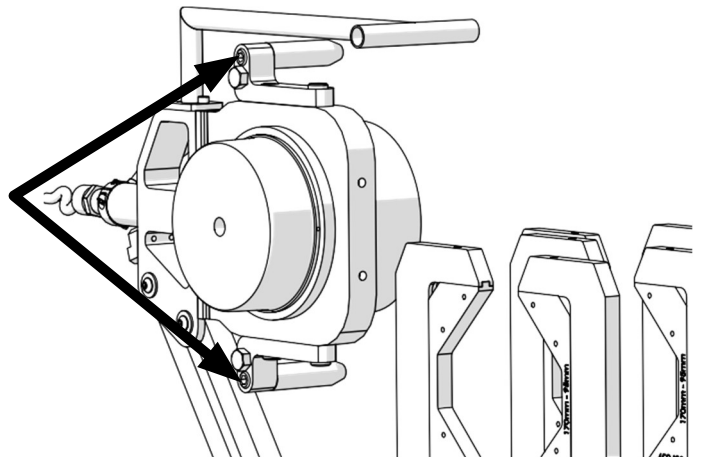
## Set Up Calibration (continued)

Insert the Set Up Gauge using the fitting side heater stop gauge and adjust short heater stop bolt until the bolt touches the gauge (from the heater stop mount) in both locations.

Tighten the set screws to lock the bolts in position.

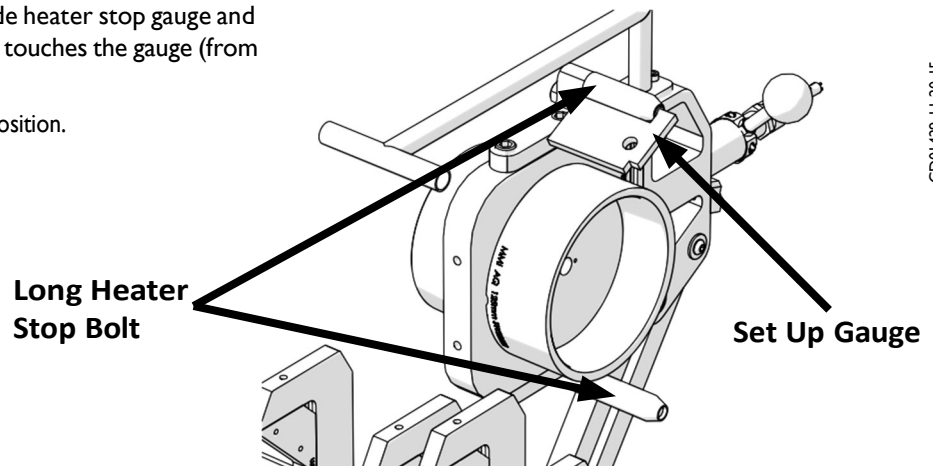


Loosen the set screws for the long heater stop bolts.



Insert the Set Up Gauge using the pipe side heater stop gauge and adjust long heater stop bolts until the bolt touches the gauge (from the heater stop mount) in both locations.

Tighten the set screws to lock the bolts in position.



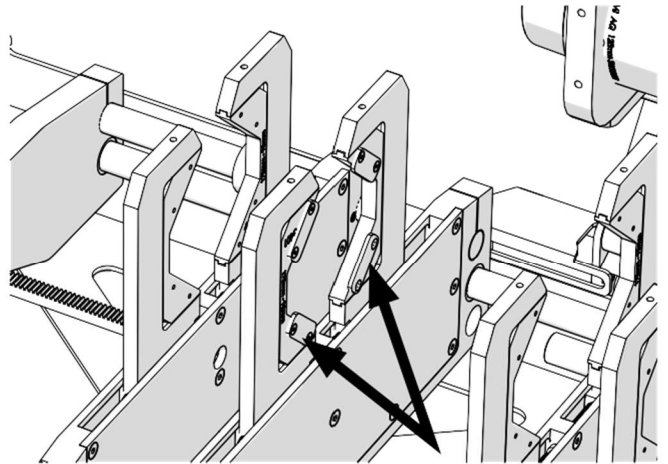
# Set Up

## Set Up Calibration (continued)

Select a fitting, the appropriate inserts and heater adapters to match.

Install the heater adapters on the heater. The pipe heater adapter is installed on the side of the heater with the long heater stops.

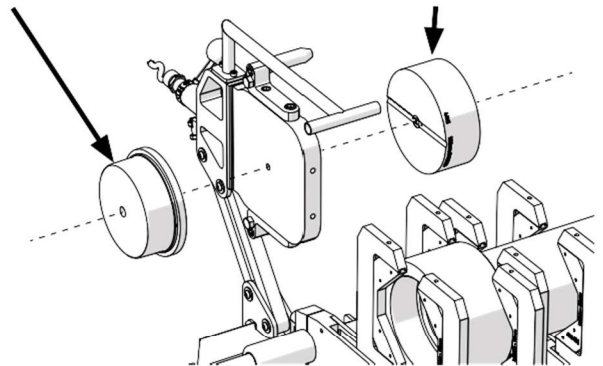
Install the inserts with the stops on the inner jaw frame.



CD01430-11-20-15

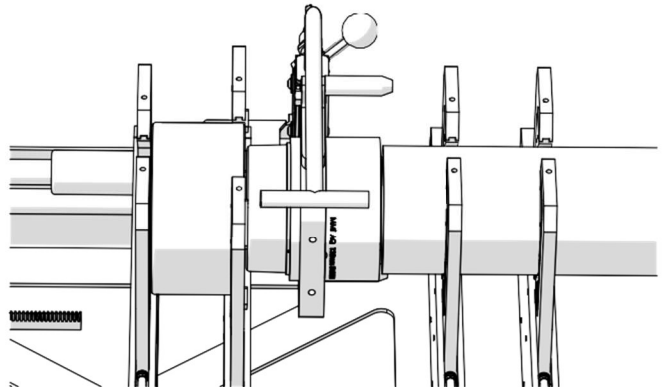
Fitting Heater Adapter

Pipe Heater Adapter



Install pipe and fitting into the machine. The fitting will be inserted against the inserts with the stops on them.

Slowly advance the movable jaws until the fitting is close to the heater adapter.

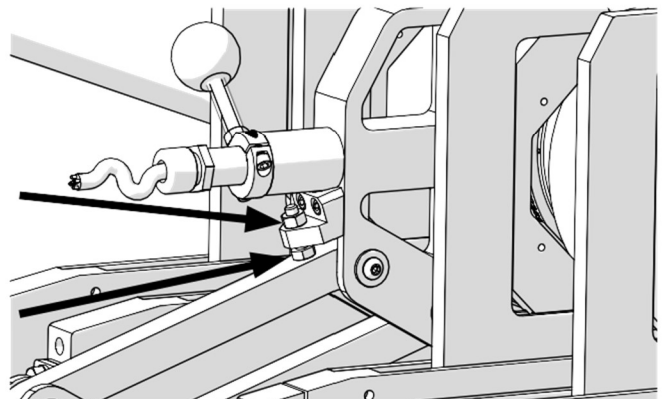


CD01431-11-20-15

Using a 7/16" wrench, loosen the locking nut on the back of the heater swivel assembly.

Adjust the center height of the heater to match the fitting to the vertical alignment of the heater adapter.

Tighten the locking nut.



CD01432-11-20-15

TX04857-03-14-16



# Fusion Procedure

## Read Before Operating

Before operating this machine, please read this manual thoroughly, and keep a copy with the machine for future reference.

When fusing thermoplastic pipe materials, refer to the pipe manufacturer's suggested procedures or appropriate joining standard.

The pipe and fitting can be fused in either side of the machine removing the need to reposition the machine.

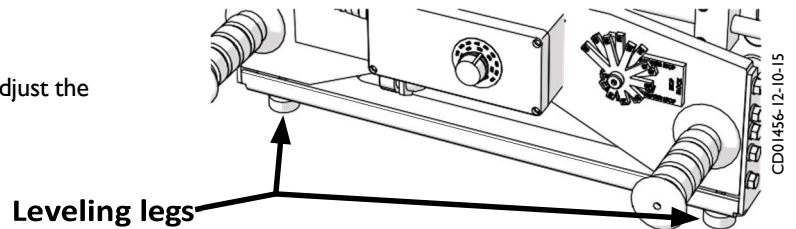


STOP-12-22-92

TX04858-12-14-15

## Level Machine

Use a torpedo level along the top of the jaw frames and adjust the leveling legs



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TX04859-12-14-15

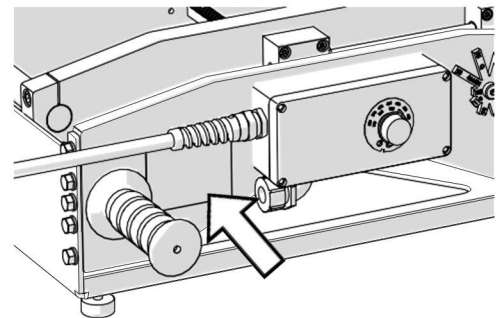
## Connecting to Power

**⚠ DANGER** All electrical equipment and power sources must be located in a non-explosive atmosphere. Failure to do so will result in serious injury or death.

The heater must be connected to a source rated for the device's power requirements. The device has a plate or label with the device's power requirements.

Consult generator sizing form in the back of this manual to determine the proper size generator to power all electrical equipment.

TX04860-12-14-15



CD01441-11-30-15

## Prepare Heater

**⚠ DANGER** Heater is not explosion proof. Operation of heater in an explosive atmosphere will result in serious injury or death.

Install socket fusion heater adapters if not already installed.

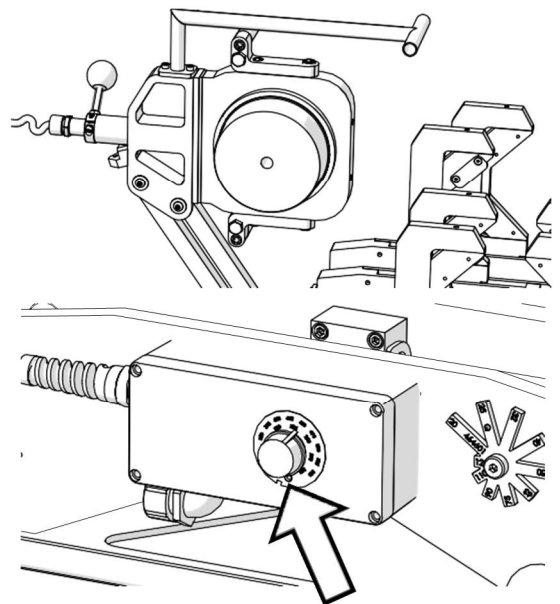
Ensure the pipe heater adapter goes on the side with the long heater stops.

**NOTICE:** The heater should never be used without socket fusion heater adapters installed. Refer to the "Maintenance" section of this manual for installation procedure.

Plug heater into a proper power source.

Allow heater to warm-up to operating temperature.

Refer to the "Maintenance" section of this manual for instructions on how to adjust heater temperature.



CD01411-11-30-15

CD01440-11-23-15

TX04861-12-14-15



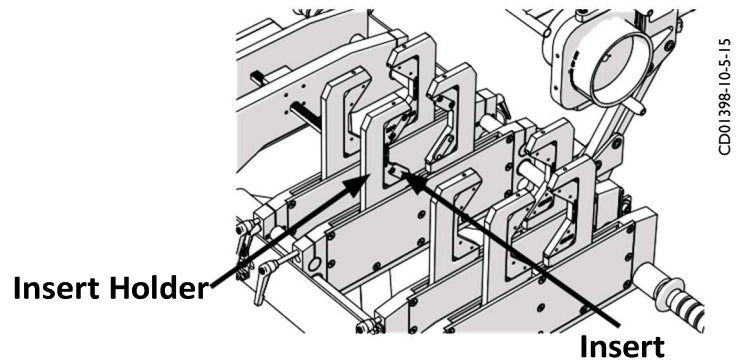
# Fusion Procedure

## Install Inserts

Inserts are installed into the insert holders on each jaw frame. Inserts are locked into place by a spring detent in the insert holder. The inserts with the stop tabs are for the fitting and are installed on the inner jaw frame on the same side as the fitting heater adapter on the heater.

Install appropriate sized inserts for the pipe and fitting being fused.

TX04862-12-14-15



## Load Pipe and Fitting

Load the fitting into the machine ensuring the fitting rests against the stop tabs on the inner movable jaw. Clamp the inner movable jaw until the fitting is firmly held in the jaw.

**IMPORTANT:** The jaws of the jaw frame can be used to back up the fitting or use a clamped piece of pipe behind the fitting.

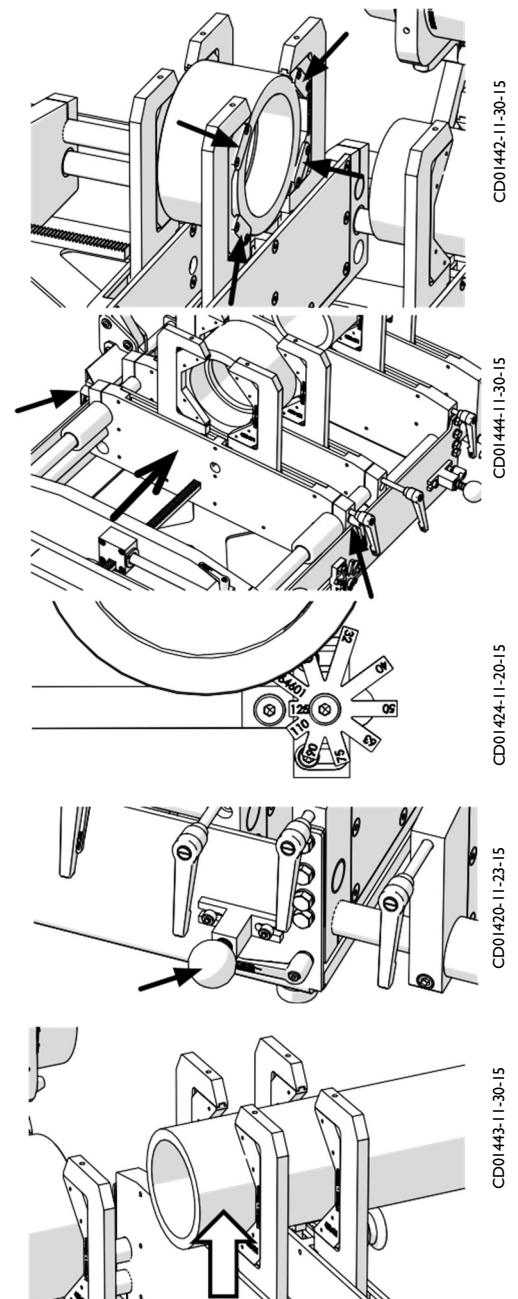
Rotate the depth star to the pipe size being fused. Press and hold in the setting stop. Close the movable jaws against the setting stop. Release the setting stop and lock the movable jaws. Load the pipe into the fixed jaws of the machine. Move the pipe toward the fitting until the face of the pipe is even with the face of the fitting. Clamp both jaws until the pipe is held firmly in the jaws.

Unlock the movable jaws and open the carriage. The setting stop will release.

The fitting and pipe must be clean and dry. Use a dry clean lint free non-synthetic cloth to wipe the mating surfaces.

**NOTICE:** Do not touch fusion area with hands.

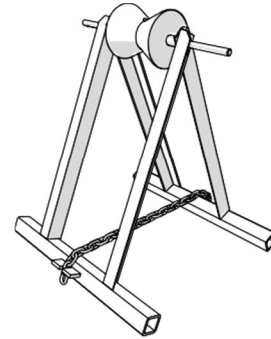
TX04863-12-14-15



# Fusion Procedure

## Support Pipe

Set up pipe stands and adjust height so the pipe is in line with the jaws of the machine.



CD01450-12-01-15

TX04864-12-14-15

## Verify Alignment

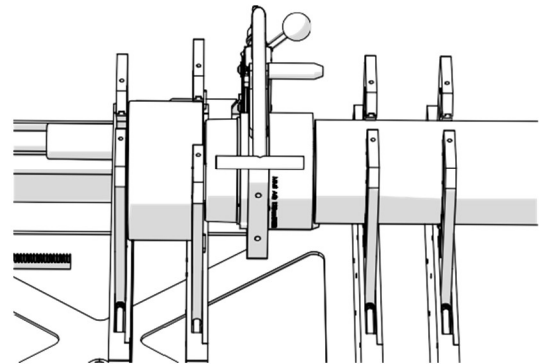
Insert the heater between fitting and pipe.

Close the carriage until the fitting and pipe come close to the heater.

Verify the fitting and pipe are in proper alignment to the heater.

If not in proper alignment, perform the set up calibration again to align machine.

Open the carriage.



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TX04865-12-14-15

## Check Heater Temperature

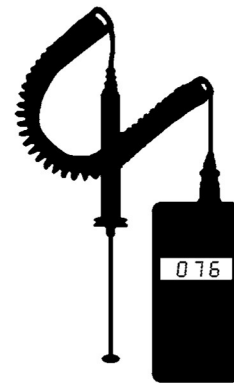
**NOTICE:** Incorrect heating temperature can result in questionable fusion joints. Check heater adapters periodically with a pyrometer and make necessary adjustments.

Refer to the "Maintenance" section of this manual for instructions on how to adjust heater temperature.

Check heater surface temperature with a pyrometer.

Refer to the pipe manufacturer's recommendations or appropriate joining standard for proper heater temperature.

Use a clean dry lint free non-synthetic cloth to clean the socket fusion heater adapter surfaces.



WR00077-4-16-93

TX04866-12-14-15

# Fusion Procedure

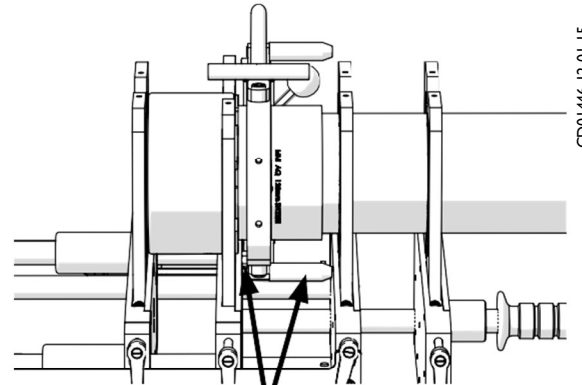
## Heating the Pipe and Fitting

Close the carriage until the heater stops make contact with the jaw frames.

**IMPORTANT:** Do not force the pipe and fitting onto the heater. Allow the pipe and fitting to melt onto the heater. Forcing the pipe and fitting onto the heater will damage the machine or create a questionable melt pattern.

Heating time starts when the pipe and fitting are fully inserted onto the heater adapters.

Heat the fitting and pipe for the pipe manufacturer or joining standard's specified period of time.



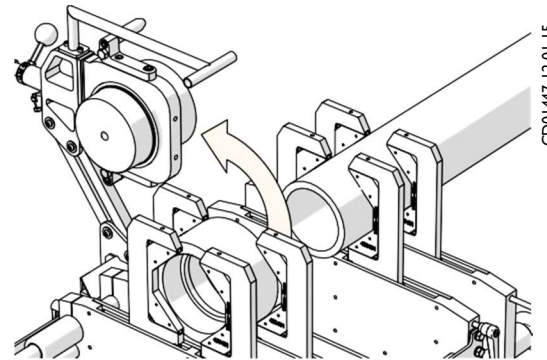
Heater Stops

TX04867-12-14-15

CD01446-12-01-15

## Remove Heater

Open the carriage completely. Quickly retract the heater.



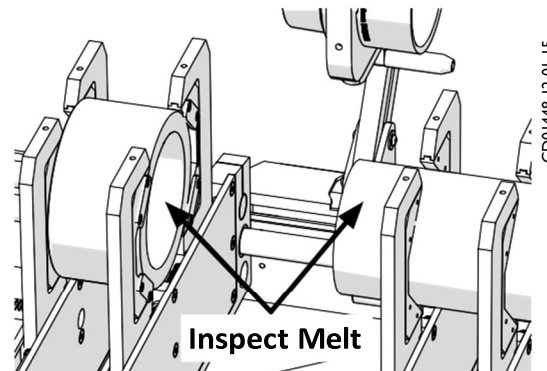
TX04868-12-14-15

CD01447-12-01-15

## Inspect Melt

Quickly inspect the heated parts to make sure all surfaces have been melted properly.

If melt is not complete, cut off melted pipe end. Use a new fitting and repeat preparation and heating process.



TX04869-12-14-15

CD01448-12-01-15

# Fusion Procedure

## Fusion and Cooling

Close the carriage until the carriage stops against the depth star.

**NOTICE:** Be sure to complete the joint in the time allowed by the pipe manufacturer or appropriate joining standard.

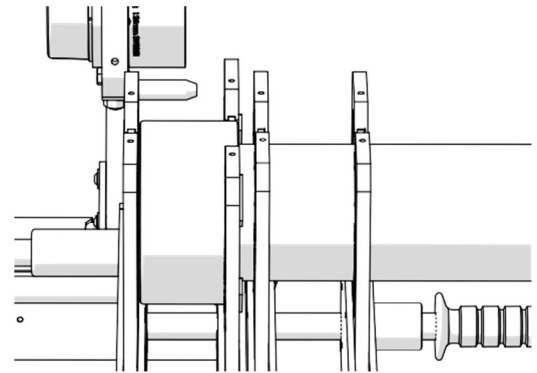
Lock the carriage. Allow the carriage to stay in place for the total cooling time specified by the pipe manufacturer or appropriate joining standard.

After the cooling time, if you are not satisfied with the results of the fusion there are adjustments that can be made to improve the fusion.

- 1) If the melt is not reaching the insertion depth mark on the pipe, then shorten the length of the long heater stops.
- 2) If there is too much melt or the melt is exceeding the insertion depth mark on the pipe, then lengthen the long heater stops.

**IMPORTANT:** Use the Set Up Calibration procedure as the base set up before making adjustments to the machine stops.

TX04870-12-14-15



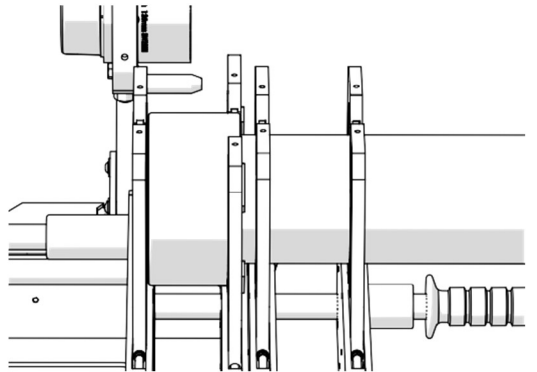
CD01449-12-01-15

## Opening Jaws

After the joint has cooled for the pipe manufacturer's recommended time or appropriate joining standard, loosen all clamp handles, and remove the fused pipe and fitting.

Open the movable jaws.

TX04871-12-14-15



CD01342-10-5-15

# Maintenance

## Preventative Maintenance

To insure optimum performance, the machine must be kept clean and well maintained.

With reasonable care, this machine will give years of service. Therefore, it is important that a regular schedule of preventive maintenance be kept.

Store machine inside, out of the weather, whenever possible.

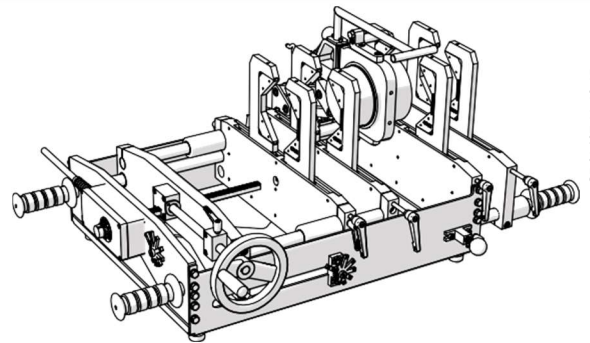


TX00428-8-10-95

CD001402-11-2-94

## Cleaning the Machine

The machine should be cleaned by using compressed air to blow away debris and wiped clean with a clean rag.



TX04872-12-14-15

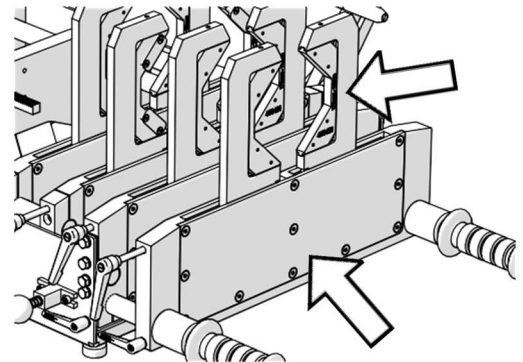
CD001407-11-12-15

## Clean Jaws and Inserts

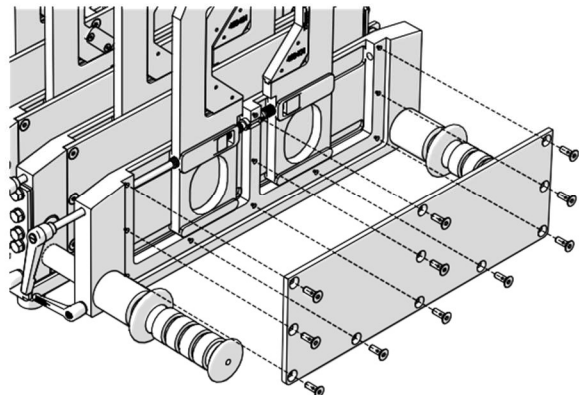
To prevent slippage and insure proper alignment, the jaws and inserts must be clean. Clean the jaws and inserts of any dirt or residual material using a stiff-bristled brush.

If the jaws become hard to open and close, the jaw frame can be disassembled so it may be cleaned and lubricated.

Clean the jaw frame of any old lubrication and inspect internal parts for damage. Alcohol can be used to remove the old lubrication. Apply dry moly lubricant to the friction surfaces of the inside of the jaw frame. Allow the lubricant to dry. Re-assemble the jaw frame. Repeat for the additional jaw frames.



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CD001461-15-10-15

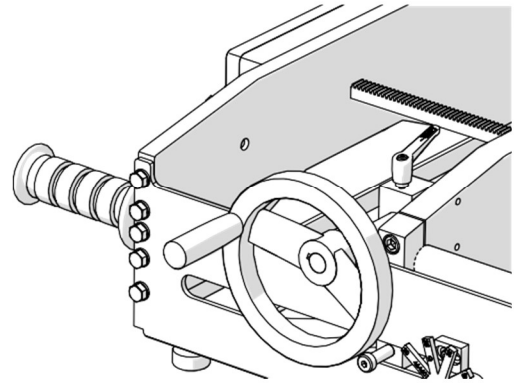
TX04873-12-14-15

# Maintenance

## Fasteners Must Be Tight

Check all nuts, bolts, and snap rings to make certain they are secure and in place.

TX00437-9-13-94



## Installing Socket Fusion Adapters

The heater body of this assembly is not coated. Coated socket fusion heater adapters are available for all socket fusion applications.

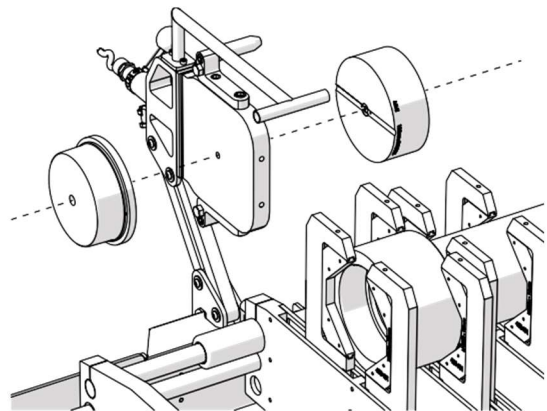
Care should be taken to ensure that the socket fusion heater adapters are seated on the heater body, and that there is no foreign matter trapped between these surfaces.

**IMPORTANT:** Do not over tighten the bolts.

The surfaces of the socket fusion heater adapters are coated with an antistick coating.

Ensure the pipe heater adapter is installed on the side of the heater with the long heater stops.

TX04874-12-14-15



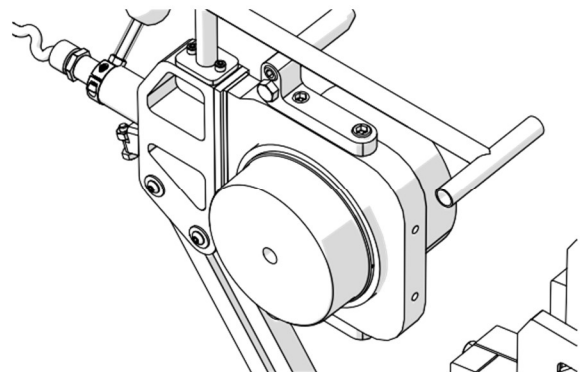
## Clean Heater Surfaces

The heater adapters must be kept clean and free of any plastic build up or contamination.

Before each fusion joint the heater surfaces must be wiped with a clean dry lint free non-synthetic cloth.

**NOTICE:** Do not use an abrasive pad or steel wool. Use a non-synthetic cloth that won't damage surfaces.

TX04879-12-14-15



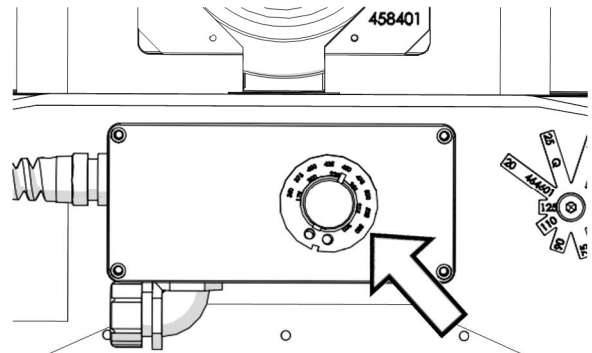
## Adjusting Heater Temperature

Turn knob to desired temperature. Measure the heater surface temperature with a pyrometer. Any variance must be corrected to the pyrometer reading.

Loosen setscrew in the knob. Turn knob to point to the same temperature as the pyrometer. Tighten setscrew in the knob.

Turn knob to desired temperature. Allow heater to stabilize at the new temperature (5 to 10 minutes) after adjusting. Verify the temperature.

TX04875-12-14-15



# Maintenance

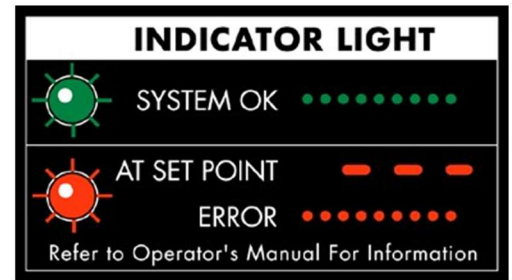
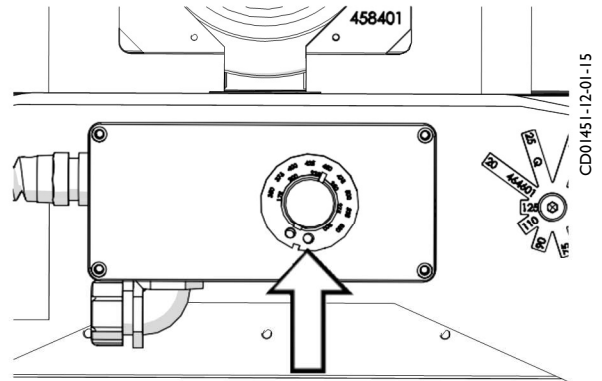
## Heater Indicator Light

The heater has a green indicator light which will flash on and off. This indicates that the controller is operating normally. If the green indicator is not flashing then the controller may not be operating properly. If this occurs, disconnect power and have the heater repaired by an McElroy Authorized Service Center.

The heater has a red indicator light at the bottom of the temperature scale. When the heater is plugged in and preheating the red light glows steadily until the set temperature is reached. The red light then goes off and on as the heater maintains temperature.

If the heater is not operating properly, the control will attempt to turn the heater off and the red indicator light will flash rapidly. If this occurs, disconnect the power and take it to a McElroy Authorized Service Center for repair.

TX04876-12-14-15



# Maintenance Checklist

## Fusion Machine Checklist

Item to Check	Satisfactory	Needs Repair	Repair Comments
<b>UNIT</b>			
Machine is clean			
All nuts and bolts are tight			
All placards and handles are in place			
All clamp handles turn freely			
Cords and plugs are in good condition			
Hand wheel for movable jaws turns freely			
Jaws are properly aligned			
Inserts fit properly			
Depth stars are in place and not damaged			
Heater moves in and out of the carriage freely			
Heater adapters clean and in good condition			
Surface temperature checked with pyrometer			
Set Up Gauge in place and not damaged			
Heater rotates and locks properly			
Rack is clean and in good condition			

TX04877-12-14-15



# Specifications

## Fusion Machine Specifications: SmartFab™ 125

### Dimensions:

Length:	40.1" (1019mm)
Width:	30.8" (782mm)
with Heater Extended:	38" (965mm)
Height:	16" (406mm)
with Heater Extended:	20.5" (521mm)

### Weight:

Carriage Assembly: 145 lbs (65.8Kg)

### Power Requirements:

Heater: 1600W, 100-120V, 14.5A, 50/60Hz, 1Ph

1600W, 200-240V, 6.7A, 50/60Hz, 1Ph

Plug Type: A) NEMA 5-15P, 15A, 2 Pole, 3 Wire

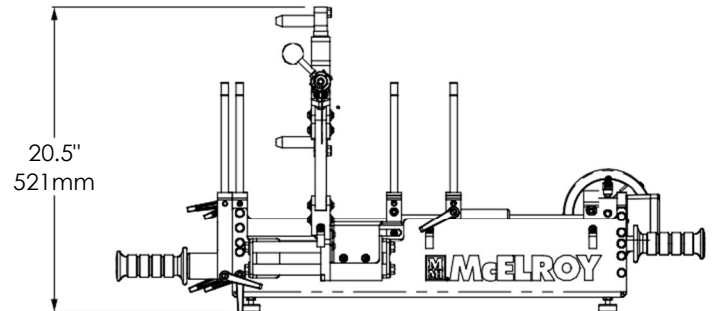
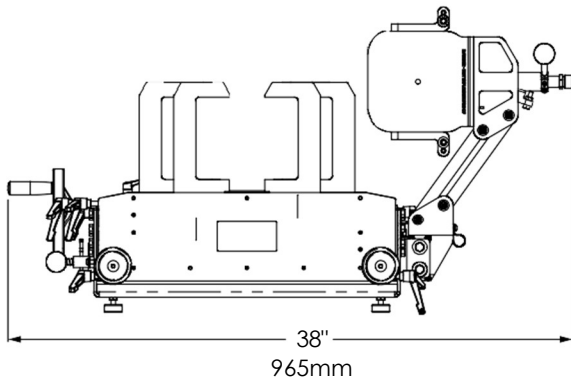
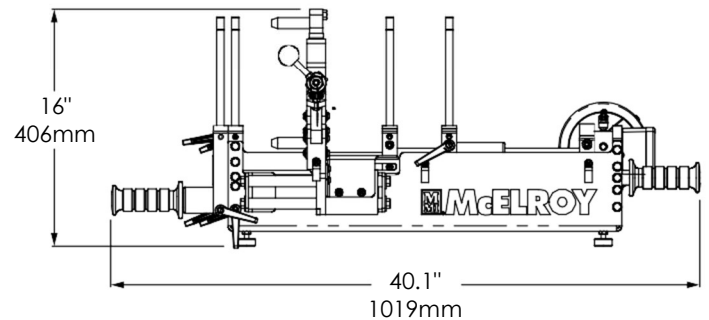
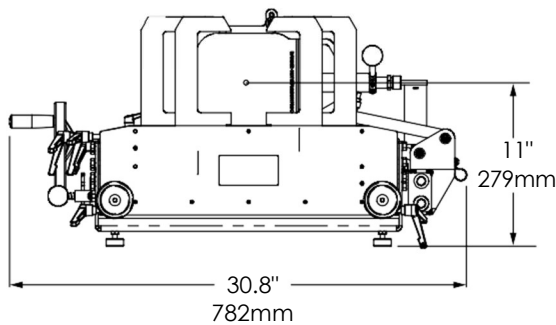
M) DIN 49441, 16A, 2 Pole, 3 Wire



A



M



TX04878-12-14-15

Heater Extended



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