

Operator's Manual



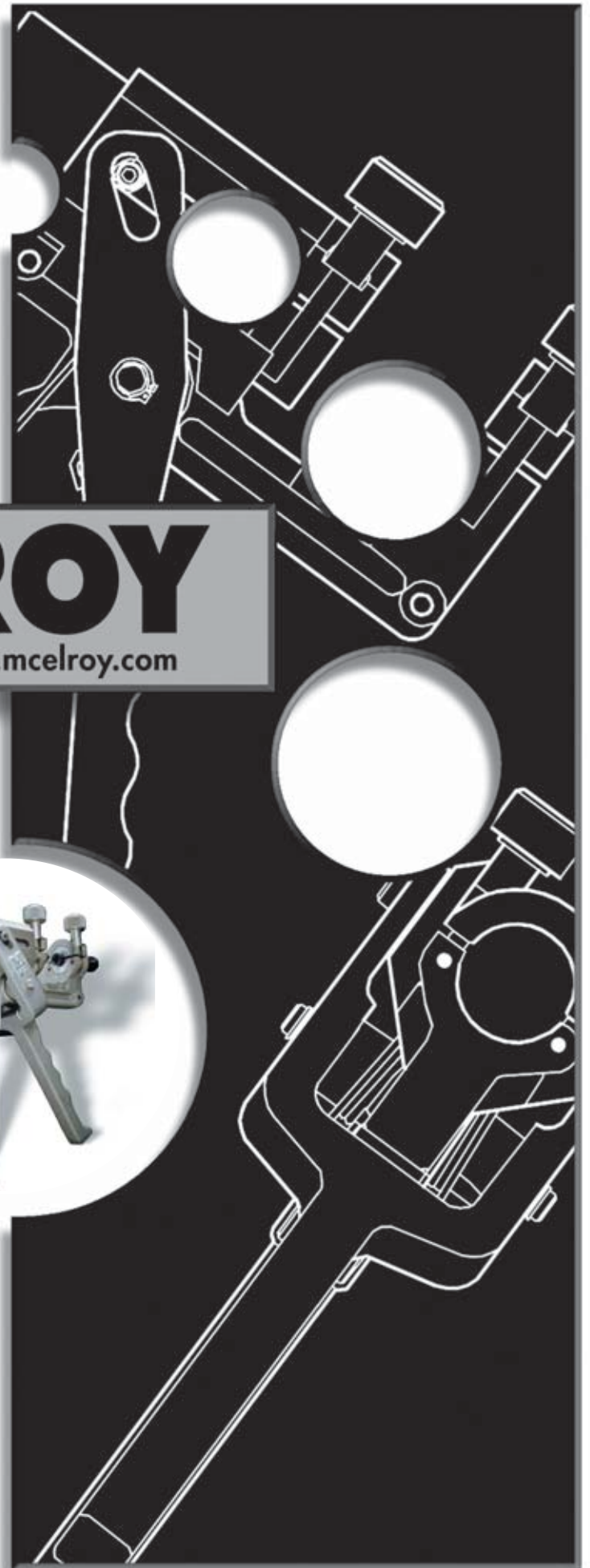
McELROY

www.mcelroy.com



Mini-Mc[®] Fusion Machine

Manual: CTS01401 Revision: G 11/18
Original Language: English





Cancer and Reproductive Harm -
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

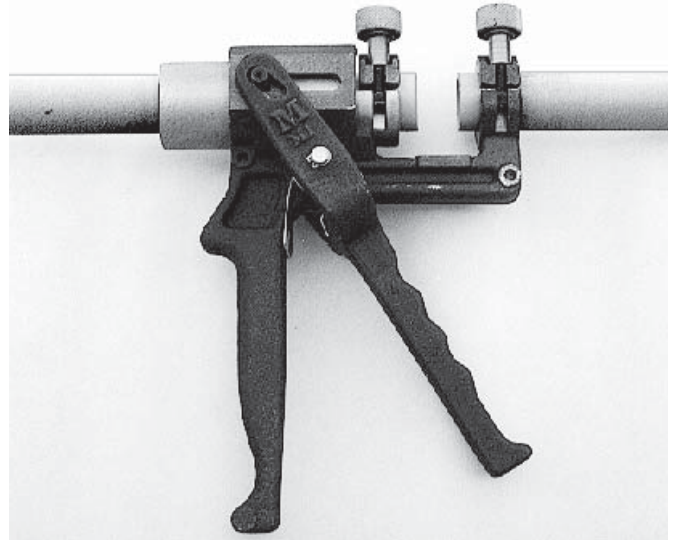
Introduction

Thank You for purchasing this McElroy product

The small and lightweight MiniMc[®] is designed to butt fuse 1/2" to 1" CTS and IPS pipe. (20mm, 25mm, 32mm).

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

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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TX01001-6-27-96

McElroy University

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. McElroy University classes are structured so that the skills learned and the machines used in each class closely match the machines found on pipelining jobsites. We offer training at our facility or yours. Our uniquely qualified McElroy University course instructors offer years of industry experience.

Tuition for each course includes lunches, course materials and a certificate of completion. Online registration, as well as up-to-date course offerings and dates, is available at www.mcelroy.com/university

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 can not encompass all possible situations that can be encountered during various operations.



MU2-03-13-14

TX04659-03-24-14

Warranty

LIMITED WARRANTY

McElroy Manufacturing, Inc. (McElroy) warrants all products manufactured, sold and repaired by it to be free from defects in materials and workmanship, its obligation under this warranty being limited to repairing or replacing at its factory and new products, within **5 years** after shipment, with the exception of purchased items (such as electronic devices, pumps, switches, etc.), in which case that manufacturer's warranty applies. Warranty applies when returned freight is prepaid and which, upon examination, shall disclose to have been defective. This warranty does not apply to any product or component which has been repaired or altered by anyone other than McElroy or has become damaged due to misuse, negligence or casualty, or has not been operated or maintained according to McElroy's printed instructions and warnings. This warranty is expressly in lieu of all other warranties expressed or implied. The remedies of the Buyer are the exclusive and sole remedies available and Buyer shall not be entitled to receive any incidental or consequential damages. Buyer waives the benefit of any rule that disclaimer of warranty shall be construed against McElroy and agrees that such disclaimers herein shall be construed liberally in favor of McElroy.

RETURN OF GOODS

Buyer agrees not to return goods for any reason except upon the written consent of McElroy obtained in advance of such return, which consent, if given, shall specify the terms and conditions and charges upon which any such return may be made. Materials returned to McElroy, for warranty work, repair, etc., **must have a Return Material Authorization (RMA) number**, and be so noted on the package at time of shipment. For assistance, inquiry shall be directed to:

McElroy Manufacturing, Inc.
P.O. Box 580550
833 North Fulton Street Tulsa, Oklahoma 74158-0550
PHONE: (918) 836-8611, FAX: (918) 831-9285.
EMAIL: fusion@McElroy.com

Note: Certain repairs, warranty work, and inquiries may be directed, at McElroy's discretion, to an authorized service center or distributor.

DISCLAIMER OF LIABILITY

McElroy accepts no responsibility of liability for fusion joints. Operation and maintenance of the product is the responsibility of others. We recommend qualified joining procedures be followed when using McElroy fusion equipment.

McElroy makes no other warranty of any kind whatever, express or implied; and all implied warranties of merchantability and fitness for a particular purpose which exceed the aforesaid obligation are hereby disclaimed by McElroy.

PRODUCT IMPROVEMENT

McElroy reserves the right to make any changes in or improvements on its products without incurring any liability or obligation to update or change previously sold machines and/or the accessories thereto.

INFORMATION DISCLOSED

No information of knowledge heretofore or hereafter disclosed to McElroy in the performance of or in connection with the terms hereof, shall be deemed to be confidential or proprietary, unless otherwise expressly agreed to in writing by McElroy and any such information or knowledge shall be free from restrictions, other than a claim for patent infringement, is part of the consideration hereof.

PROPRIETARY RIGHTS

All proprietary rights pertaining to the equipment or the components of the equipment to be delivered by McElroy hereunder, and all patent rights therein, arising prior to, or in the course of, or as a result of the design or fabrication of the said product, are exclusively the property of McElroy.

LAW APPLICABLE

All sales shall be governed by the Uniform Commercial Code of Oklahoma, U.S.A.

Register your product online to activate your warranty: www.McElroy.com/fusion

(Copy information listed on the machine nameplate here for your records).

Model No. _____

Serial No. _____

Date Received _____

Distributor _____

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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

WR00051-1-1-30-92

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.



TX02946-4-15-09

WR00052-12-1-92

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.



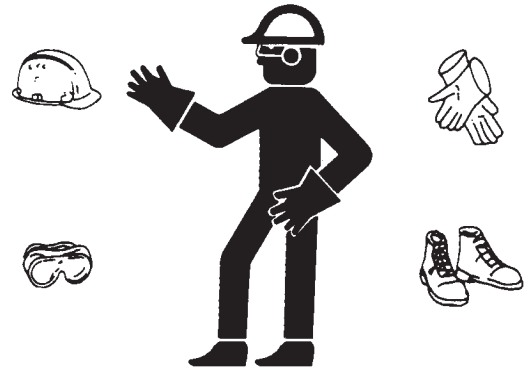
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Wear Safety Equipment

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.



WR00053-12-2-92

TX00032-4-7-93

Heater Is Not Explosion Proof

⚠ DANGER This heater is not explosion proof. Operation of heater in an explosive atmosphere without necessary safety precautions will result in serious injury or death.

When operating in an explosive atmosphere, the heater should be brought up to temperature in a safe environment, then unplugged before entering the explosive atmosphere for fusion.



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TX04467-03-24-14

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.

NOTICE: Disconnect the machine from the power source before attempting any maintenance or adjustment.



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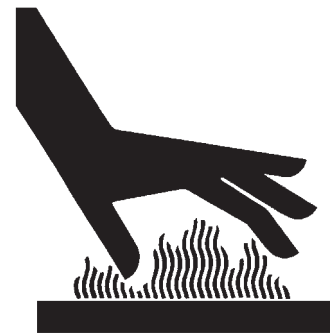
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Heater is Hot

⚠️ CAUTION

The heater is hot and will burn clothing and skin. Keep the heater in its insulated heater stand or blanket when not in use, and use care when heating the pipe.

NOTICE: Use only a clean nonsynthetic cloth to clean the heater plates.



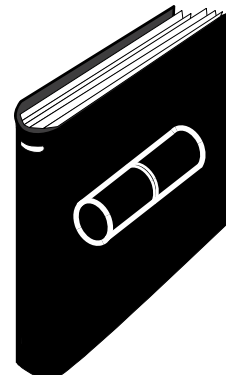
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Fusion Procedures

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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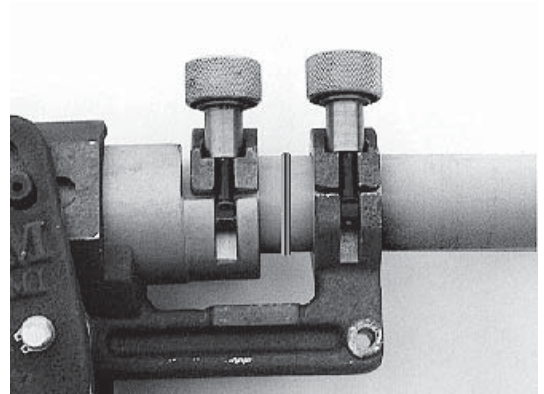
Overview

Theory of Heat Fusion

The principle of heat fusion is to heat two pipe 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 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 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.

The principal operations include:

- Clamping** The pipe pieces are held axially and radially to allow all subsequent operations to take place.
- Facing** The pipe ends are faced to establish clean, parallel mating surfaces perpendicular to the centerline of the pipes.
- Aligning** The pipe ends are aligned with each other to minimize mismatch of the pipe walls.
- Heating** A melt pattern that penetrates into the pipe is formed around both pipe ends.
- Fusing** The melt patterns are joined with a specified force, which is constant around the pipe interfacial area.
- Cooling** The fusion joint is held immobile with a specified force until adequately cooled.
- Inspecting** Visually examine the entire circumference of the joint for compliance with the standard or fusion procedure used.

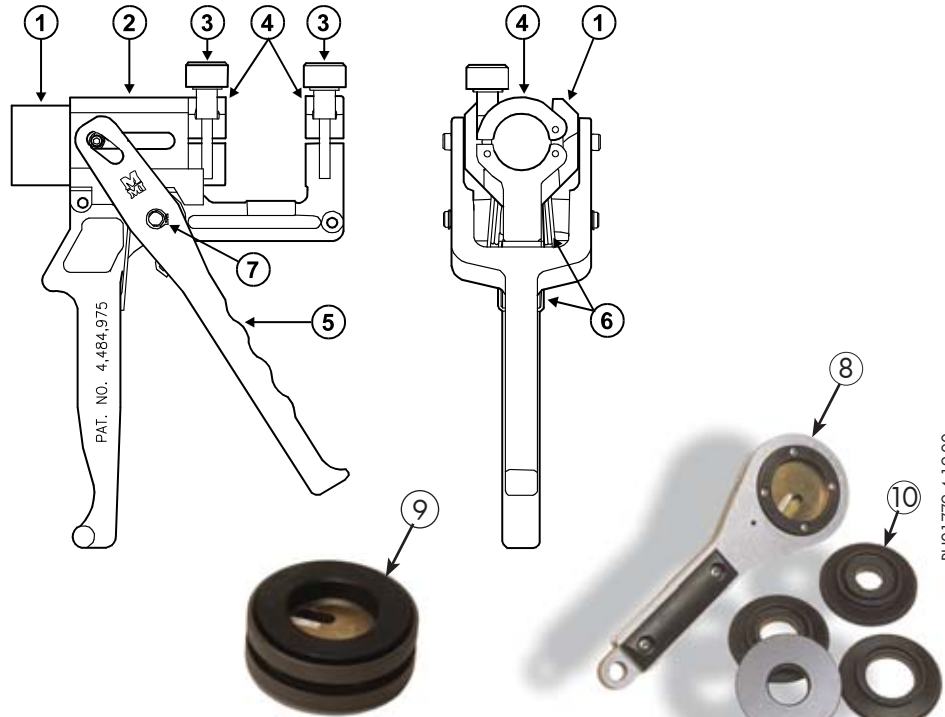


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Overview

Nomenclature

- ① Barrel
- ② Body
- ③ Clamp Knob Assembly
- ④ Clamps
- ⑤ Trigger
- ⑥ Torque Spring
- ⑦ Trigger Pivot Pin
- ⑧ Ratchet Facer
- ⑨ Hand Facer
- ⑩ Facer Inserts



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Heater



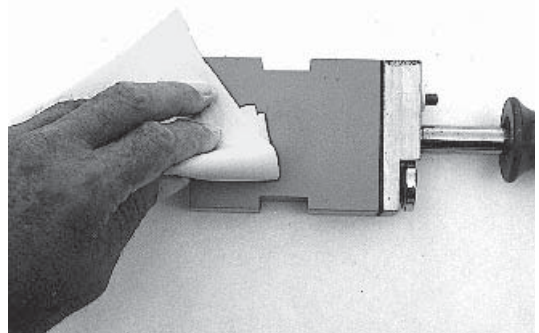
Heater is not explosion proof. Operation of heater in an explosive atmosphere without necessary safety precautions will result in serious injury.

If operating in an explosive atmosphere, heater should be brought up to temperature in a safe environment, then **unplugged before entering** the explosive atmosphere for fusion.

The heater is thermostatically controlled.

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

The heater should always be stored in the insulated heater sling for protection of the operator and to minimize heat loss and risk of mechanical damage.



PH00870-7-3-96

PH00879-7-3-96

Operation

Read before Operating

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



TX00838-1-5-96

STOR-1-5-96

Prepare Heater

⚠ DANGER Heater is not explosion proof. Operation of heater in an explosive atmosphere without necessary safety precautions will result in serious injury or death.

If operating in an explosive atmosphere, heater should be brought up to temperature in a safe environment, then unplugged before entering the explosive atmosphere for fusion.

Place heater in insulated heater sling.

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 how to adjust heater temperature.

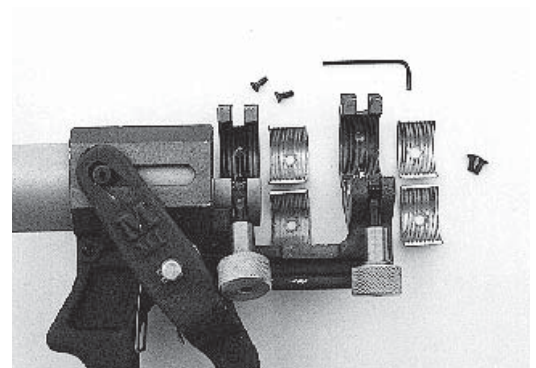


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Install Clamping Inserts

Select and install appropriate clamping inserts for the pipe that is being fused.



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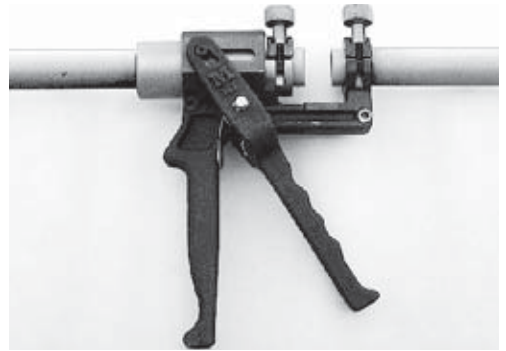
Operation

Loading Pipe Into Machine

Clean the inside and outside of pipe ends that are to be fused.

Open the upper jaws and insert pipe in each pair of jaws with applicable inserts installed. Let the ends of the pipe protrude about 1/2" past the face of the jaws.

TX01004-7-1-96



PH00872-7-3-96

Adjust Pipe for Facing

Separate facers are required for each pipe size. Select the proper facer to use and place it between the pipe ends. Squeeze the Trigger just enough to bring the pipe ends up against the facer and adjust for face-off. Lightly snug clamp knobs, but do not overtighten.

IMPORTANT: Overtightening can flare the pipe ends, causing misalignment.

TX01005-7-1-96



PH01775-4-19-00

Facing the pipe

Rotate the facer in the direction that the arrows indicate, until it bottoms out against the inside of the jaws.

IMPORTANT: It is critical for proper face-off and alignment, that facing continues until the facer bottoms out.

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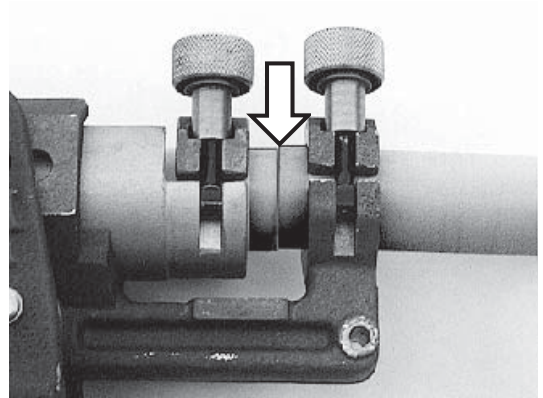
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Operation

Check Alignment of Pipe

Bring the pipe ends together and check for alignment. If high/low (misalignment) exists, adjust by tightening the high side clamp. When pipe is properly aligned, tighten both clamps simultaneously to ensure against pipe slippage.

IMPORTANT: When clamping, do not over-tighten the clamp knobs. Bring the pipe ends together under fusion pressure to check for slippage. If slippage occurs, return to **Loading Pipe into Machine**.



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TX01007-7-1-96

Check Heater Temperature

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

Check heater surface temperature.

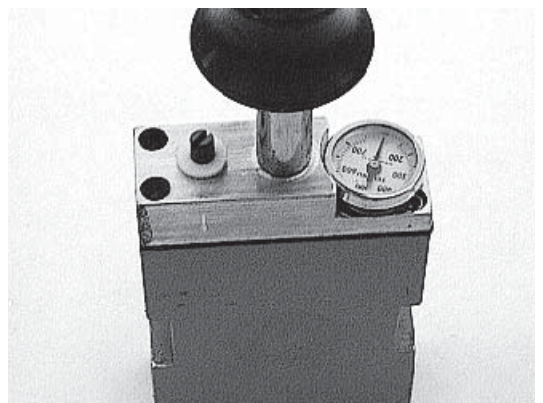
Refer to the pipe manufacturer's recommendations for proper heater temperature.

IMPORTANT: The dial thermometer on the heater indicates internal temperature which varies from the actual surface temperature.

The dial thermometer can be used as reference once the surface temperature has been verified.



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Operation

Inserting Heater



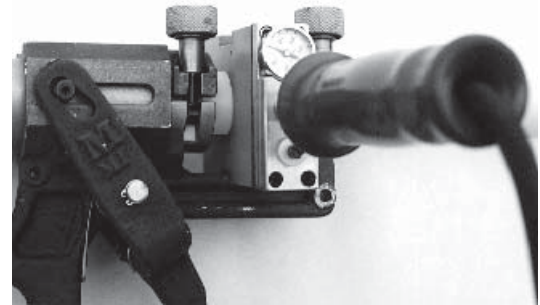
Heater is not explosion proof. This unit is not explosion proof. Operation of heater in an explosive atmosphere without necessary safety precautions will result in serious injury or death.

If operating in an explosive atmosphere, heater should be brought up to temperature in a safe environment, then unplugged before entering the explosive atmosphere for fusion.

Use a clean nonsynthetic cloth to clean the butt fusion heater adapter surfaces.

Verify heater temperature by noting the reading on the dial thermometer.

Insert heater in position with the slotted area resting on the flat machined surface of the machine. Bring the pipe ends against the heater faces using the pipe manufacturer's time, temperature and pressure recommendations for the heating cycle.



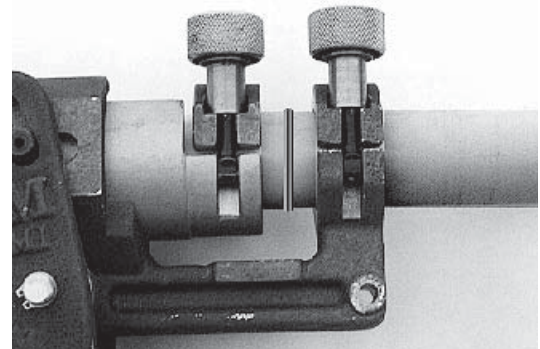
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Fusing the Pipe

After the heating cycle is completed, remove pressure on the pipe ends and let them move away from the heater. Remove the heater, being careful not to pull any melted plastic with it and quickly bring the pipe ends together using pipe manufacturer's recommended fusion procedure.

NOTICE: Failure to follow pipe manufacturer's heating time, pressure and cooling time may result in a bad joint.



PH00869-7-3-96

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Remove the Machine

When the cooling cycle is completed, unclamp and remove the machine.



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TX01010-7-1-96

Maintenance

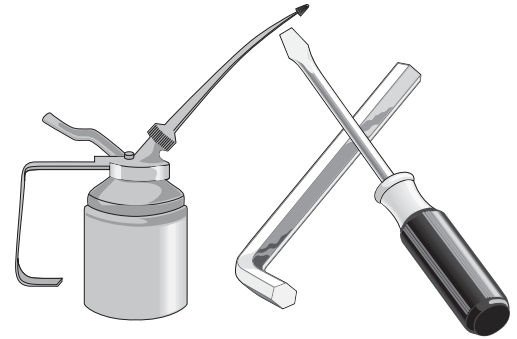
Preventative Maintenance

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.

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Cleaning the Machine

The machine should be cleaned, as needed with a soap and water wash.

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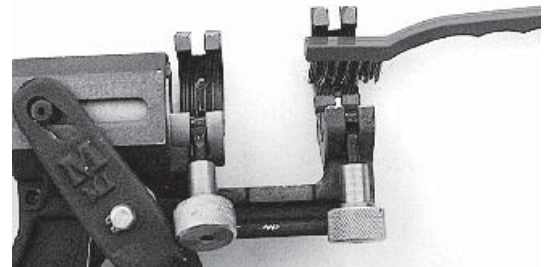


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Remove Dirt

Remove dirt from jaw and insert serrations and clamp knob eyebolts.

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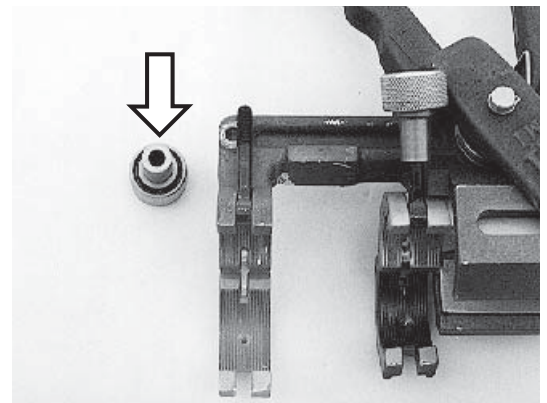


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Clean and Lubricate Bearings

All clamp knobs are equipped with thrust bearings to reduce friction and improve efficiency of the clamping screw. Keep these bearings clean by washing in kerosene or solvent. They should be lubricated with light machine oil. These bearings must be replaced if they become inoperative.

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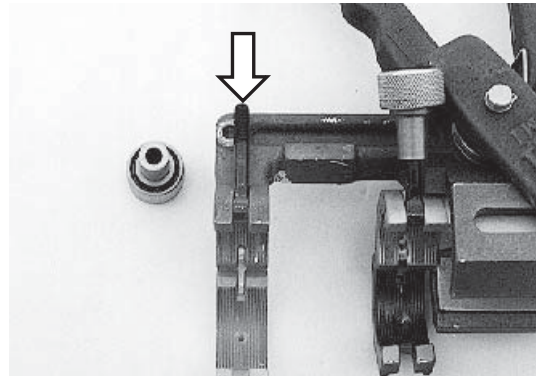


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Maintenance

Clean Eyebolt Threads

Keep the clamp knob eyebolt threads brushed clean.

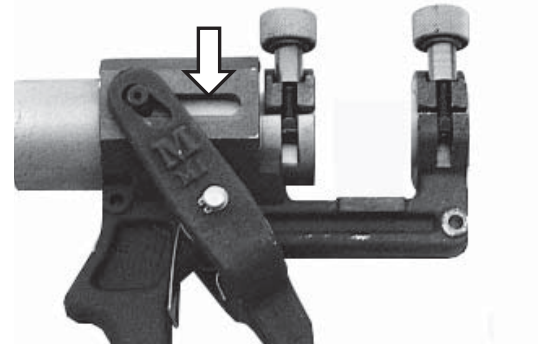


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Lubricate Barrel

Apply a light film of lubricant on the barrel.

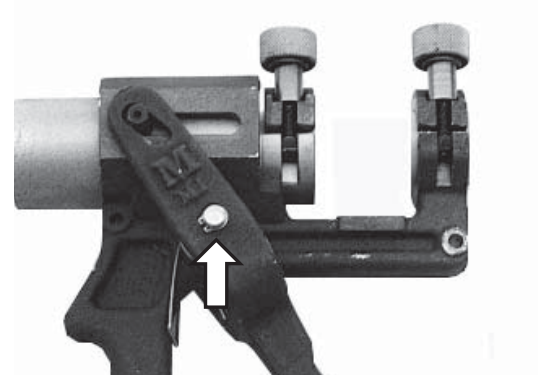


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TX01011-7-3-96

Lubricate Pivot Pin

Apply a light film of lubricant on the pivot pin.



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TX01012-7-3-96

Facer and Blades

Inspect the facer blades for sharpness and damage. Blades can not be resharpened and should be replaced when dull or damaged.

Keep the knurls on the outside of the facer clean using a stiff-bristled brush.

Do not allow shavings to build up in the facer.



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TX01013-7-3-96

Maintenance

Adjusting Heater Temperature

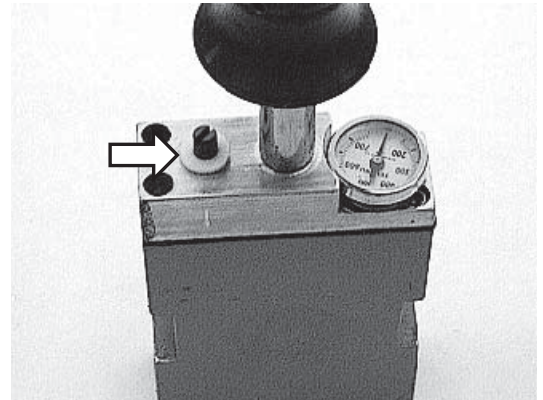
NOTICE: Incorrect adjustment can result in injury as well as machine damage. Follow these instructions carefully.

The heater thermoswitch adjustment **shaft** protrudes through the heater handle base.

Turn the adjustment shaft clockwise to lower temperature, counterclockwise to raise temperature.

Allow sufficient amount of time for unit to stabilize at the new temperature (5 to 10 minutes) after each adjustment.

One full turn equals approximately 100° F.



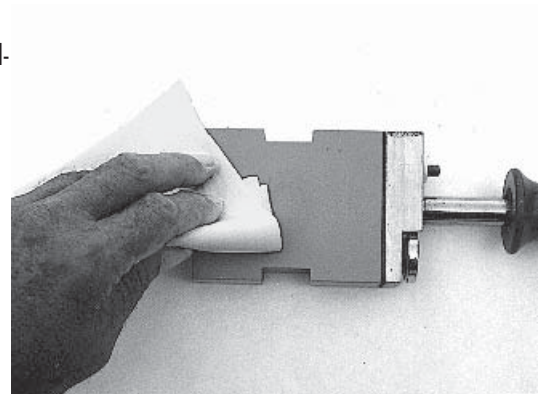
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TX00442-04-02-14

Clean Heater Surfaces

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

Before each fusion is made, the surface of the heater adapters must be wiped with a clean, non-synthetic cloth.



PH00879-5-6-97

TX00867-6-15-10

Specifications

Mini-Mc[®]

Specification:

Designed for 1/2" CTS to 1" CTS and IPS Butt Fusion

Dimensions:

Width: 3-3/4" (9.5 cm)
Length: 7-3/4" (19.7 cm)
Height: 11-1/2" (29.2 cm)

Weight: 3-1/2 lbs. (1.6 Kg)

Heater: 300 W, 100-120V, 50/60 Hz, 1Ph
300 W, 200-220V, 50/60 Hz, 1Ph

About this manual . . .

McElroy Manufacturing continually strives to give customers the best quality products available. This manual is printed with materials made for durable applications and harsh environments.

This manual is waterproof, tear resistant, grease resistant, abrasion resistant and the bonding quality of the printing ensures a readable, durable product.

The material does not contain any cellulose based materials and does not contribute to the harvesting of our forests, or ozone-depleting constituents. This manual can be safely disposed of in a landfill and will not leach into ground water.

TX001660-8-19-99



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