

Hornet™ XL Fusion Machine

Models: ASW31401, ASW31402



M McELROY

www.mcelroy.com



Manual: SW31301
Revision A 09/19
Original Language: English

Operator's Manual

Important Safety Information

Most accidents that involve product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have necessary training, skills and tools to perform these functions properly.

Advanced training is offered through McElroy University. Course offerings are meant to enhance your efficiency, productivity and safety in the proper use of McElroy equipment.

Improper operation, maintenance or repair of this product can be dangerous and could result in injury or death.


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


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

The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION". The Safety Alerts are shown below.

The meaning of these safety alert symbols are as follows:

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

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

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

Signal words "NOTICE" and "IMPORTANT" are used to bring attention to important information.

The meaning of these signal words are as follows:

"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.

McElroy cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are, therefore, not all inclusive. If a tool, procedure, work method or operating technique that is not specifically recommended by McElroy is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the product will not be damaged or be made unsafe by the operation, maintenance or repair procedures that you choose.

The information, specifications, and illustrations in the publication are on the basis of information that was available at the time that the publication was written. The specifications, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service that is given to the product. Obtain the complete and most current information before you start any job. The most current information is available at our website

www.mcelroy.com.

TX05337-04-18

 WARNING	Cancer and Reproductive Harm - www.P65warnings.ca.gov
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WARNING

When replacement parts are required for this product McElroy recommends using McElroy replacement parts or parts with equivalent specifications including, but not limited to, physical dimensions, type, strength and material.

Failure to heed this warning can lead to premature failures, product damage, personal injury or death.

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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. Digital copy will contain hyperlinks. Press Alt + Left Arrow to return to the selected hyperlink.

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 McElroy Technical Services at 918-831-9224 or techsupport@mcelroy.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.

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.

Patent Information

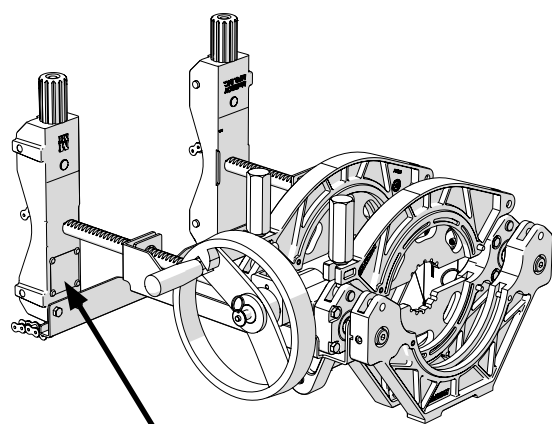
This product and other products could be protected by patents or have patents pending. All the latest patent information is available at patent.mcelroy.com

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 at www.mcelroy.com.

Nameplate Location

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.



Machine Nameplate

CD02423-02-12-19

Replacement Parts

Refer to the McElroy parts finder at 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.

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 aforestated 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. _____

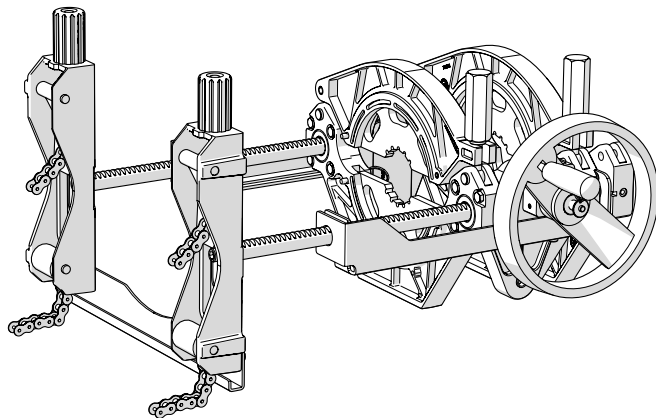
Serial No. _____

Date Received _____

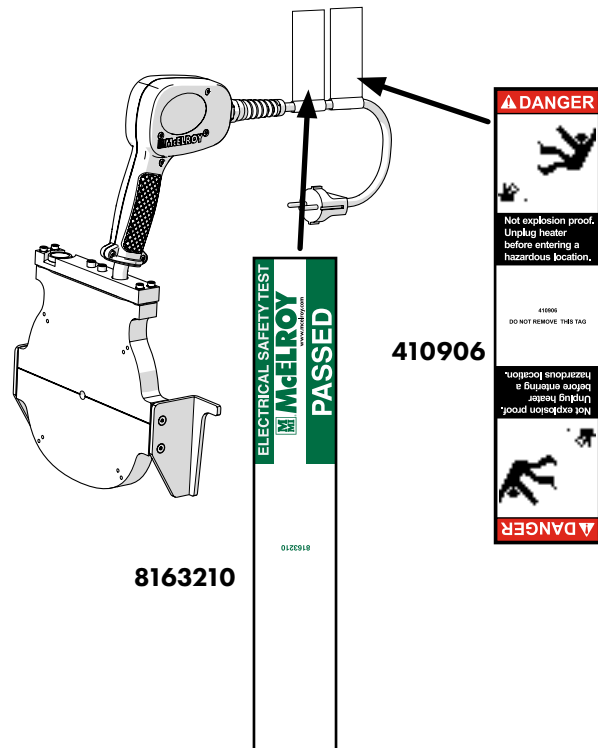
Distributor _____

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SAFETY



CD02424-02-12-19



There can be several specific safety messages on this machine. The exact location of the hazards and the description of the hazards are reviewed in this section. Please become familiarized with all safety messages.

Make sure that all of the safety messages on the machine are legible. Clean the safety messages or replace the safety messages if you cannot read the words. Replace if the illustrations are not legible. When you clean the safety messages, use a cloth, water and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety messages. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety message or damage the print of the safety message.

Replace any safety message that are damaged, or missing. If a safety message is attached to a part that is replaced, install a safety message on the replacement part. New safety messages can be ordered from McElroy using the part number listed.

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.



SAFE1ST-2-21-18

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. Remove any loose safety equipment during an operation that could be drawn into or caught in the machine.

Ensure proper fire prevention or other fire-fighting equipment is available and all personnel know how and when to use it.

Heater Is Not Explosion Proof

This safety message is located on the cord of the heater.

⚠ 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.



WR00080-2-21-18

Electric Motors are Not Explosion Proof

⚠ DANGER

Electric motors are not explosion proof. Operation of these components in an explosive atmosphere without necessary safety precautions will result in serious injury or death.

The drill motor cannot be used manually and must not be used in an explosive atmosphere.



WR00080-2-21-18

WR00080-4-12-93

Electrical Safety

⚠ WARNING

Always ensure equipment is properly grounded. It is important to remember that if 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. Use GFCI electrical connections when available.



WR00065-2-21-18

Power Tool Safety

⚠ WARNING

Read and understand the all instructions provided with your power tool. Failure to follow all the power tool instructions, may result in electric shock, fire and/or serious personal injury.

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 dry lint free non-synthetic cloth to clean the heater plates.



WR00030-2-21-18

Fusion Procedures

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

NOTICE: Failure to follow the pipe manufacturer's fusion procedures or appropriate joining standard could result in a bad fusion joint.

Do Not Modify Machine

Make no modifications to your equipment unless specifically recommended or requested by McElroy.

GENERAL INFORMATION

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 principle operations include:

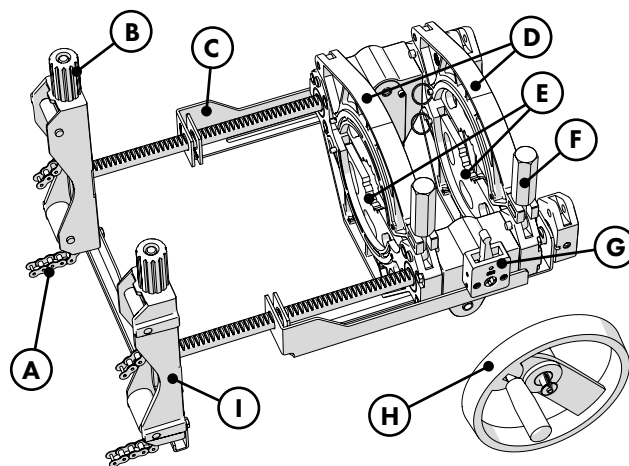
- Clamping** The pipe and fitting must be held firmly to allow all subsequent operations to take place.
- Cleaning** The area of pipe that the fitting will come in contact with must be cleaned and roughed up, as well as the base of the fitting.
- Aligning** The fitting must be properly seated on the pipe and then clamped in the machine for proper alignment.
- Heating** A melt pattern must be formed that penetrates into the pipe and into the fitting.
- Joining** The melt patterns must be joined with a specified force. The force must be constant around the interface area.
- Holding** The molten joint must be held immobile with a specified force 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.



CD05428-3-15-19

Nomenclature

Hornet™ XL Carriage



CD02425-02-11-19

A - Main Pipe Chains

Chain used to secure the Hornet XL to the main pipe.

B - Main Pipe Clamp Knobs

Used to tighten the main pipe chain on the pipe.

C - Heater Stripper Bars

Strips the heater from the main pipe and the fitting.

D - 160mm Pipe Jaws

Jaws used to clamp onto pipe, fitting adapter or drill adapter.

E - 63mm Pipe Inserts

Size of inserts used to clamp the fitting adapter and drill adapter.

F - Pipe Jaws Clamp Knobs

Used to tighten the pipe jaws to pipe, fitting adapter or drill adapter.

G - Brake

Holds the position of the carriage when applied.

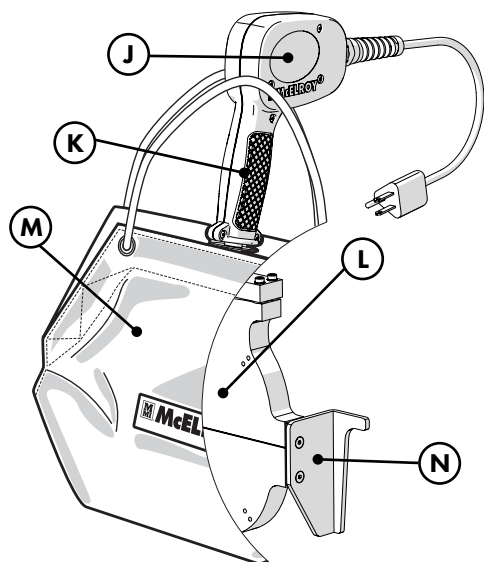
H - Detachable Handwheel

Rotates to open and close the carriage. The handle can be folded in for storage. The handwheel is also detachable and can be attached to the other side of the carriage.

I - Tailstock

The tailstock allows the Hornet XL to attach to any size main. With the extension chains from the accessory kit, the Hornet XL can attach to a 125mm to 630mm main pipe.

Heater



CD02482-02-13-19

J - Heater Information Label

Provides model number, power and indicator light information.

K - Heater Handle

Location to hold the heater and has a potentiometer to adjust the heater temperature.

L - Heater Body

Non-stick coated heater adapters attach to the heater body.

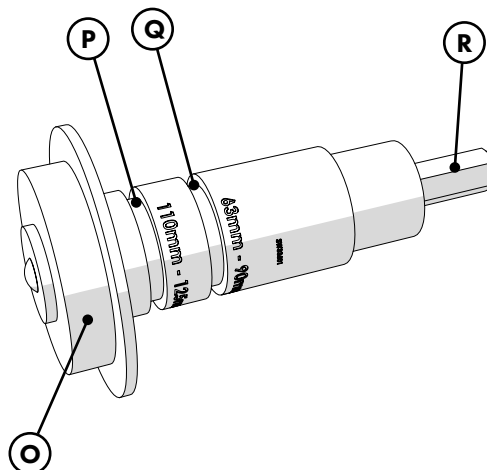
M - Insulated Heater Bag

This bag insulates the heater while stored. Helps maintain the set heater temperature.

N - Heater Support Bracket

Inserts into the stripper bars to allow the heater to be stripped from the main pipe and fitting.

Fitting Adapter



CD02427-02-13-19

O - Fitting Puck

Rubber puck that fits inside the inner diameter of the fitting. The pucks are sized to fit a specific size fitting.

P - 110mm to 125mm Clamp Channel

Used with the 63mm pipe inserts to clamp the fitting adapter in the carriage for 110mm to 125mm fittings.

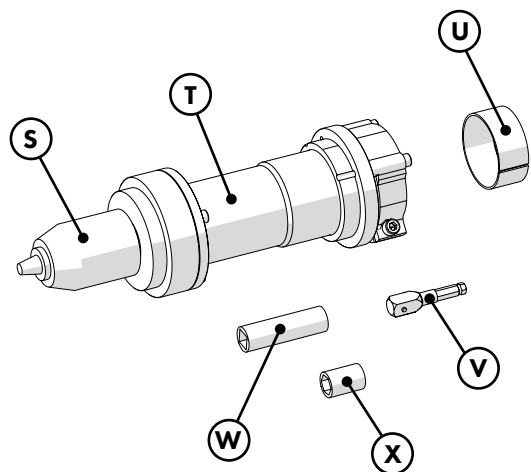
Q - 63mm to 90mm Clamp Channel

Used with the 63mm pipe inserts to clamp the fitting adapter in the carriage for 63mm to 90mm fittings.

R - Fitting Adapter Clamp Knob

Tighten knob to secure the fitting to the fitting adapter.

Drill Adapter



CD02428-03-15-19

S - Drill Adapter Chuck

Holds the hole saw (not included) used to drill the main pipe.

T - Drill Adapter

Attached to a drill (not included) so it can be clamped into the jaws of the Hornet XL. The adapter fits drills with a circular pilot size of 1-29/32" (48.5mm).

U - Drill Adapter Sleeve

Used inside the drill adapter for drills with a circular pilot size of 1-13/16" (46mm).

V - 3/8" Square to 5/16" Hex Adapter

Attaches to one of the sockets to connect the drill to the hex of drill adapter.

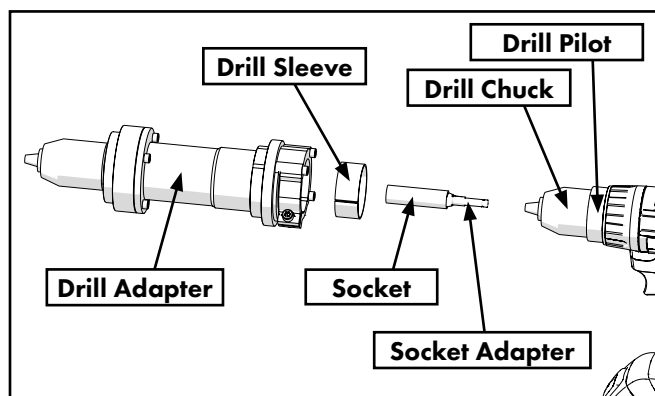
W - 7/16" Deep Socket, 3/8" Drive

Socket used to connect a standard drill with the drill adapter.

X - 7/16" Socket, 3/8" Drive

Socket used to connect a 90° drill with a long drill chuck with the drill adapter.

Attach Drill to Drill Adapter

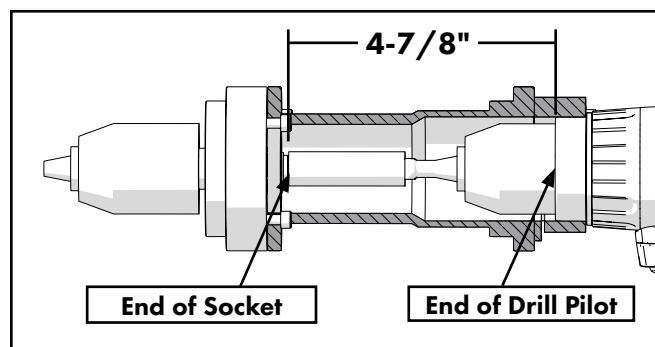


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- 1) Attach the required socket to the socket adapter to make up the length 4-7/8" between the end of the drill pilot and the end of the socket.

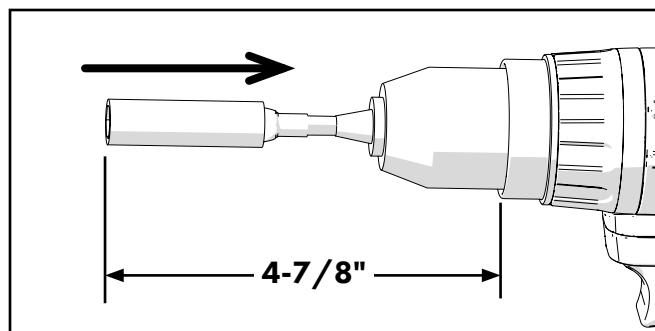
The socket adapter with deep socket length is 3-13/16" (97mm).

The socket adapter with short socket length is 2-5/8" (67mm).



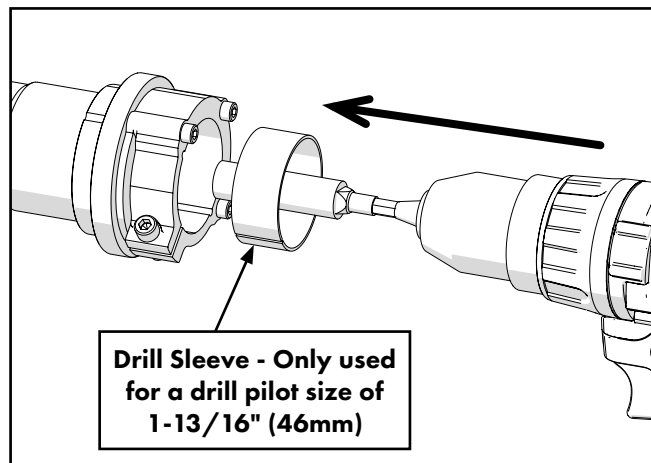
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- 2) Insert the adapter and socket into the drill chuck. The amount of adapter inserted into the chuck will need to make the total measurement from the end of the drill pilot to the end of the socket to equal 4-7/8". Tighten the drill chuck.



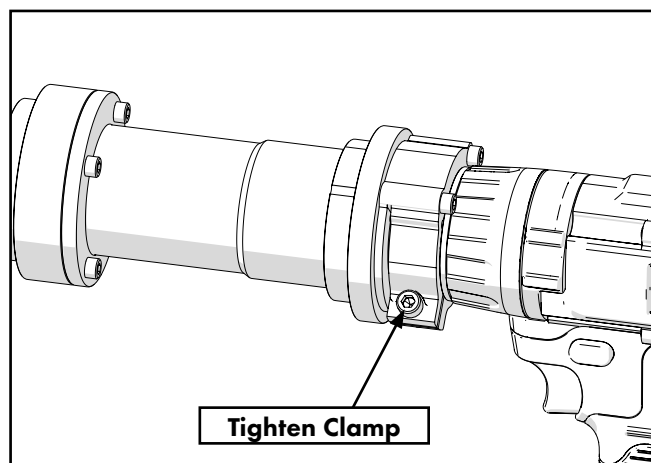
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- 3) Insert the drill into the drill adapter. If the drill pilot is 1-13/16" (46mm), then the drill sleeve must be inserted into the drill adapter so that the drill adapter can be tightened to the drill pilot. Align the slot on the drill sleeve with the slot of the drill adapter.



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- 4) Ensure the drill is fully inserted over the drill pilot of the drill. If the drill will not insert completely, you may need to adjust the socket adapter. Tighten the drill adapter clamp.



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- 5) Check the function of drill by pressing the trigger. The chuck of the drill adapter should turn when operated. If the drill adapter does not turn, remove the drill and extend more of the socket adapter.

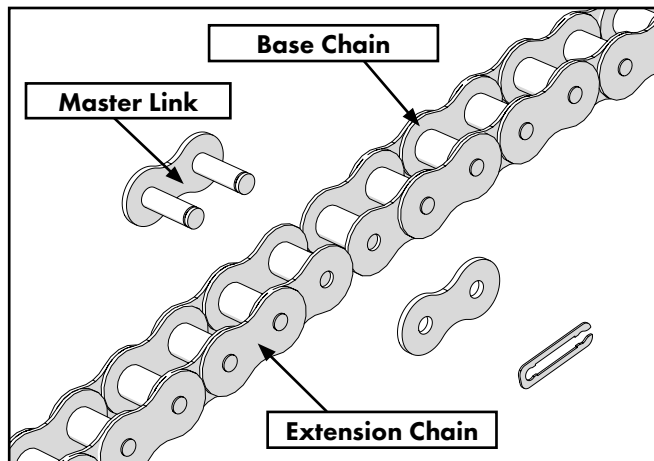
IMPORTANT: Dedicating a drill to the drill adapter will defeat the need to remove and reattach the drill adapter to the drill. Leave the drill attached and store it in the Hornet XL case.

Attach Extension Chains

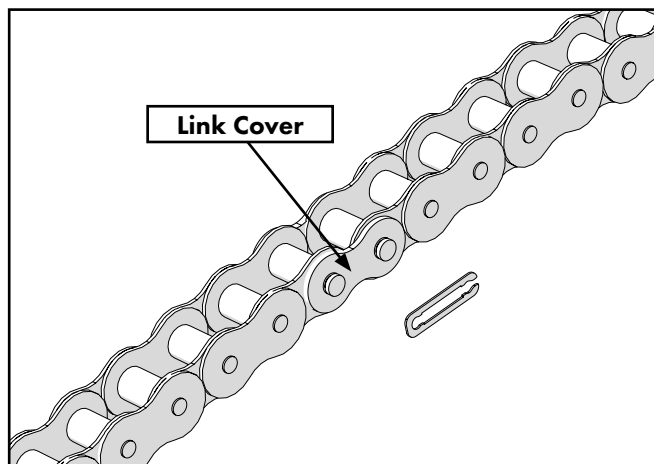
The Horner™ XL comes equipped with base chains that will attach the Horner™ XL to a main pipe size up to 315mm (12" OD). The accessory kit has extension chains that will allow the Horner™ XL to attach to a main pipe size up to 630mm (24" OD).

Attach Extension Chains:

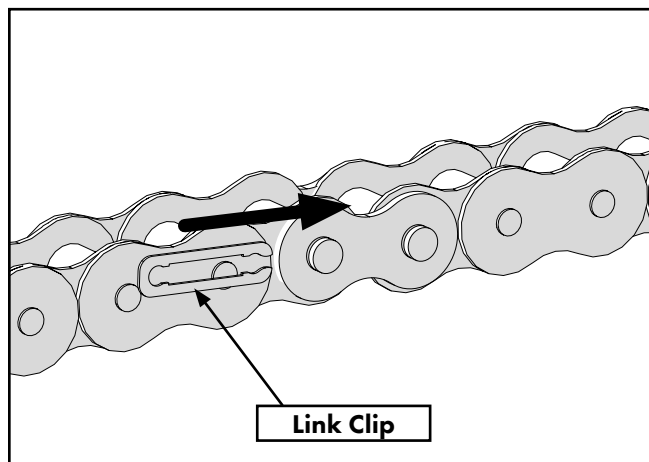
- 1) Position the extension chain next to the end of the base chain.



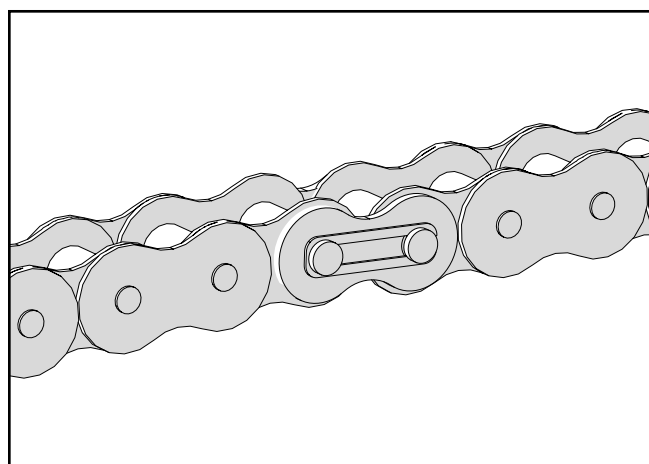
- 2) Insert the pins of the master link into the base chain and the extension chain. Place the link cover over the pins of the master link.



- 3) Insert the link clip between the grooves of the master link to secure the link cover.

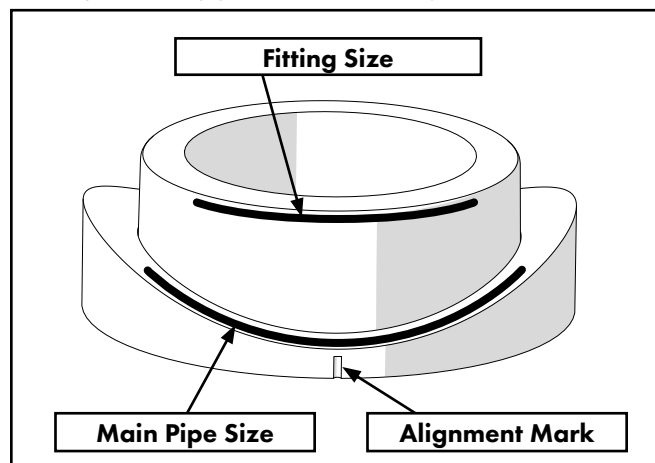


- 4) Ensure the clip is seated completely on the pins of the master link. Repeat these instructions for the other chain.



Install Heater Adapters

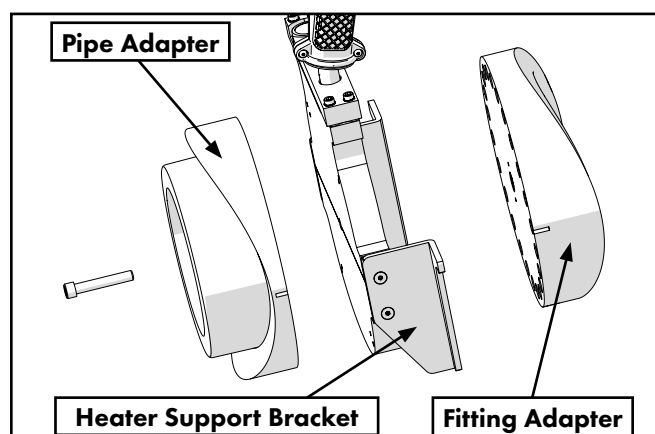
Correctly sized heater adapters must be installed before performing a fusion with the Hornet™ XL. The adapters are sized by the main pipe size and the fitting size.



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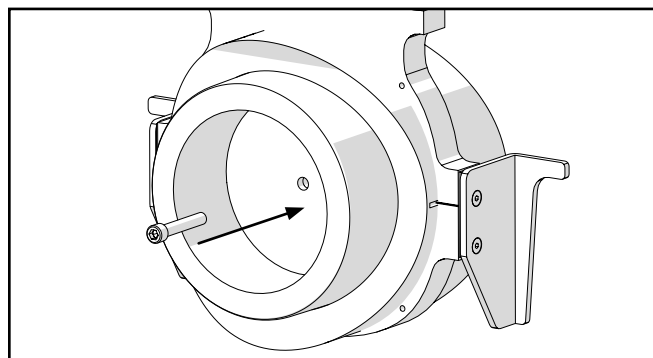
Install Heater Adapters:

- 1) Position the fitting adapter between the bends of the heater support bracket. Position the pipe adapter opposite of the fitting adapter.



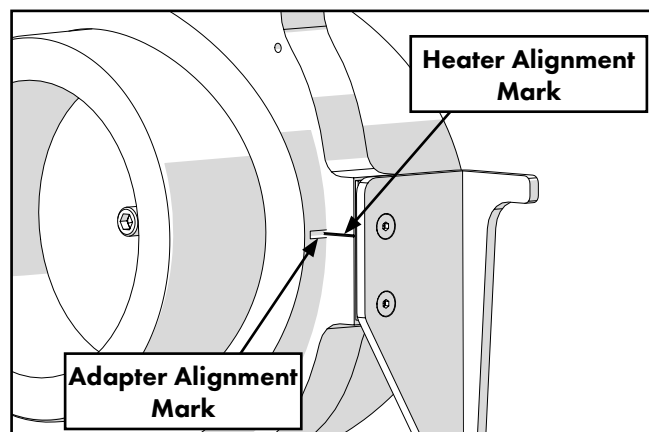
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- 2) Insert the screw into the pipe adapter and tighten the screw enough to hold the adapters to the heater body.

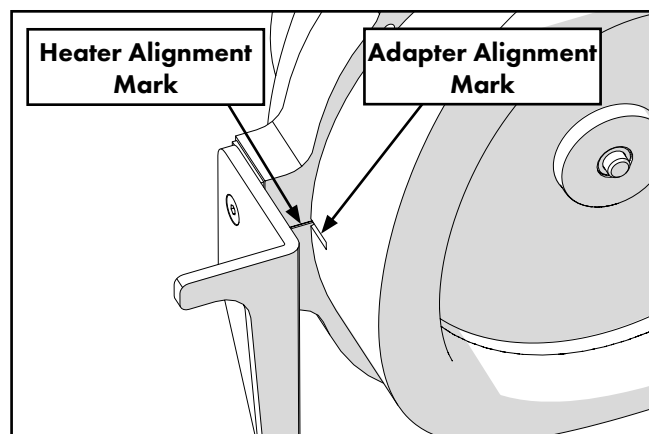


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- 3) Rotate the adapters and align the marks on the adapters with the mark on the heater body.



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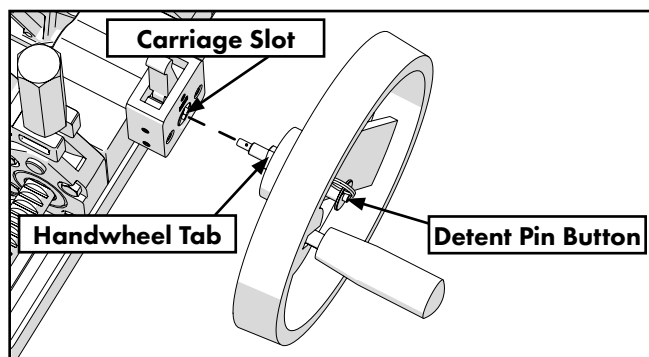
CD02444-03-15-19

- 4) After both adapter are aligned, tighten the screw to secure the position of the adapters.

Detachable Handle

The handwheel can be removed and positioned on either side of the carriage.

- 1) Push the button of the detent pin, grasp the handwheel and pull away from the carriage.
- 2) Align the tab on the back of the handwheel with the slot on the carriage to attach the handwheel.



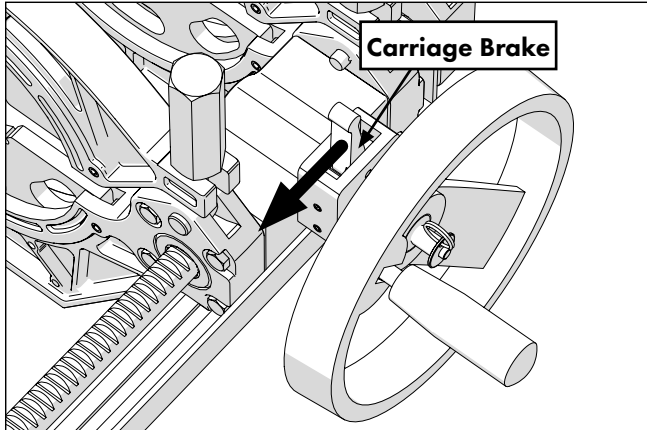
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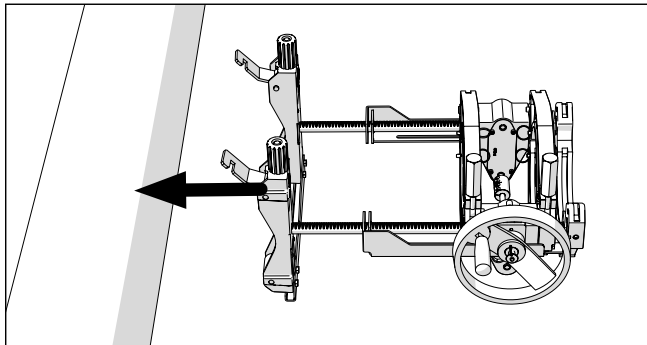
OPERATION - FUSION OUTLET

Attach Hornet™ XL to Pipe

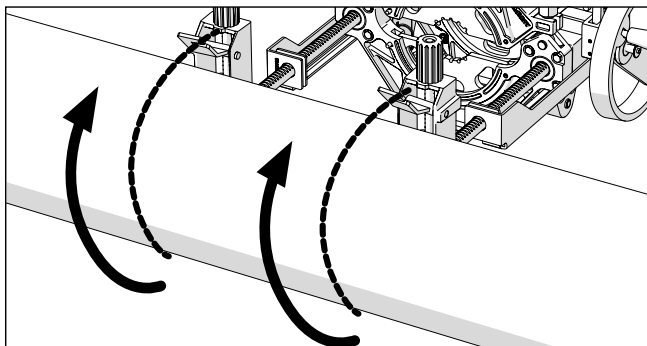
- 1) Determine the size of the main pipe and the size of outlet that will be fused. If the main pipe size is greater than 315mm (12" OD), the extension chains need to be installed. Refer to ["Attach Extension Chains"](#) section of this manual for installation procedure.
- 2) Apply the carriage brake so the carriage will not move while attaching the Hornet™ XL. The handwheel can be removed and positioned on the other side of the carriage if needed.



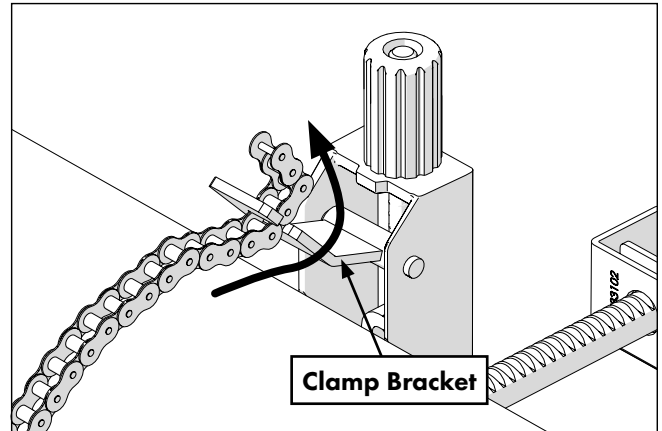
- 3) Position the tailstock against the main pipe.



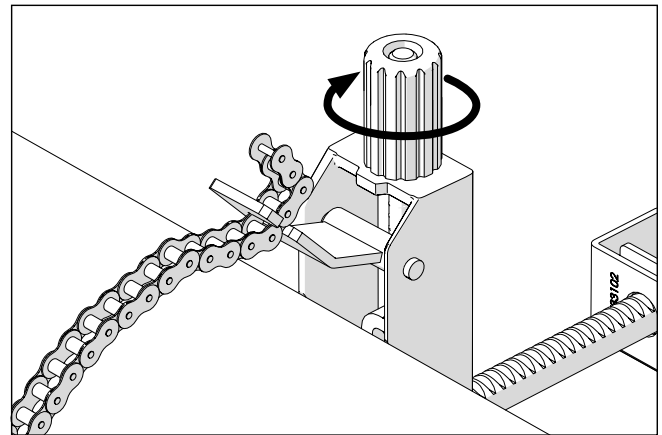
- 4) Wrap the chains around the pipe and up to the clamp knobs of the tailstock.



- 5) Pull the chain tight and insert the closest link of the chain into the slot of the clamp bracket.



- 6) Tighten the clamp knob until the tailstock is firmly secured to the main pipe. Repeat these steps for the other chain.



The clamp knobs are equipped with a ball thrust bearing, which permit the operator to develop high clamp forces with minimal effort.

- 7) Clean the main pipe in the area where the fitting will be fused.

Prepare Heater

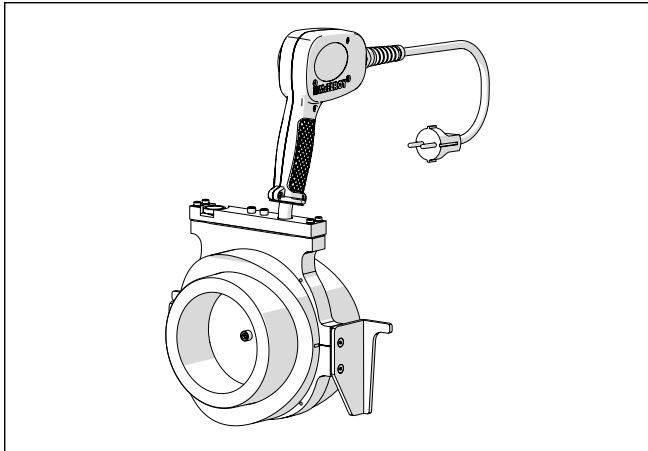
DANGER

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.

- 1) Ensure the heater is cool. Install fusion outlet heater adapters.

NOTICE: The heater should never be used without fusion heater adapters installed. Refer to the [“Install Heater Adapters”](#) section of this manual for installation procedure.



CD02449-03-15-19

- 2) Place heater in insulated heater bag.
- 3) Plug heater into a proper power source. Refer to Heater Information Label for power information.

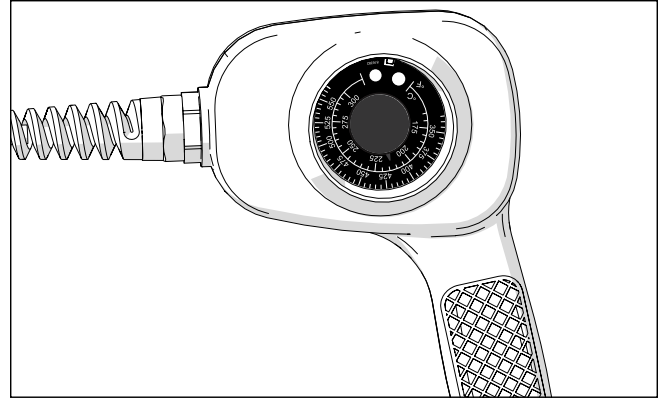
Adjusting Heater Temperature:

- 4) Turn knob to desired temperature. Allow heater to reach temperature. Measure the heater surface temperature with a pyrometer. Any variance must be corrected to the pyrometer reading.

Loosen set screw in the knob. Turn knob to point to the temperature of the pyrometer reading. Tighten set screw in the knob.

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

The thermometer on the heater body indicates internal temperature and should be used as a reference only.

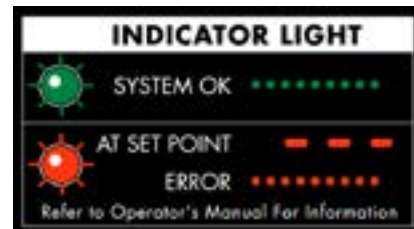


CD02152-2-21-18

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 on the handle 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.



PH02571-2-21-18

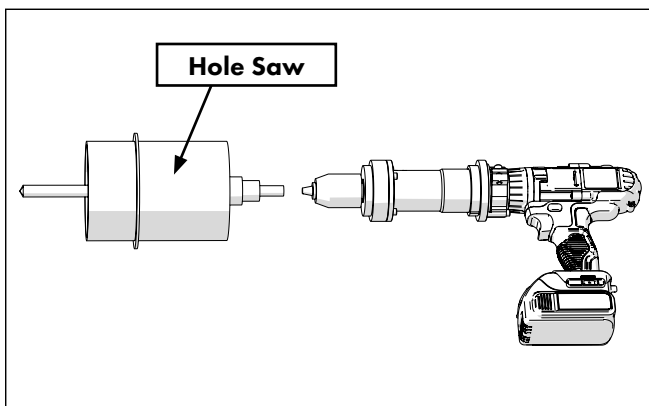
- 5) Allow heater to warm-up to operating temperature.

Drill Main Pipe

The drill adapter is used with a hole saw to drill a hole in the main pipe.

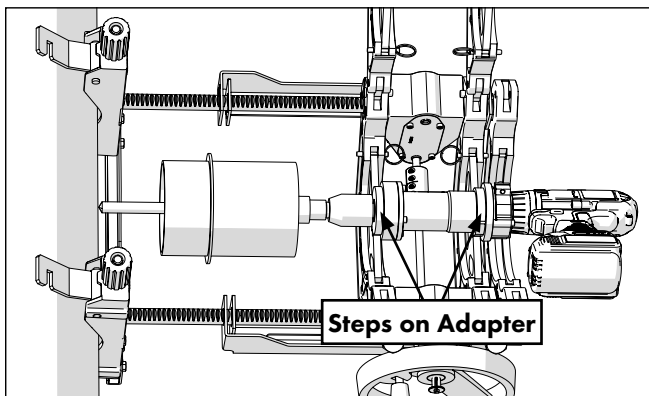
Insert Drill Adapter in Carriage:

- 1) Attach drill (not included) to the drill adapter. Refer to the ["Attach Drill to Drill Adapter"](#) section of this manual for installation procedure.
- 2) Install a hole saw (not included) that matches the fitting size to be fused. Contact fitting manufacturer for hole saw recommendations.



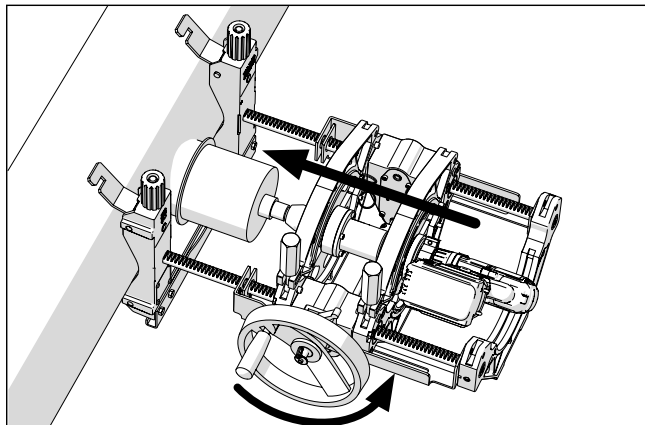
CD02454-02-27-19

- 3) Ensure the 63mm pipe inserts are installed in the jaws of the carriage. Unlock the brake on the carriage and open the carriage completely then lock the brake. Insert the drill and drill adapter in the lower jaws of the carriage. There are two steps in the drill adapter and each one will rest in the pipe inserts. Close the jaws and tighten the clamps to secure the adapter in the carriage.



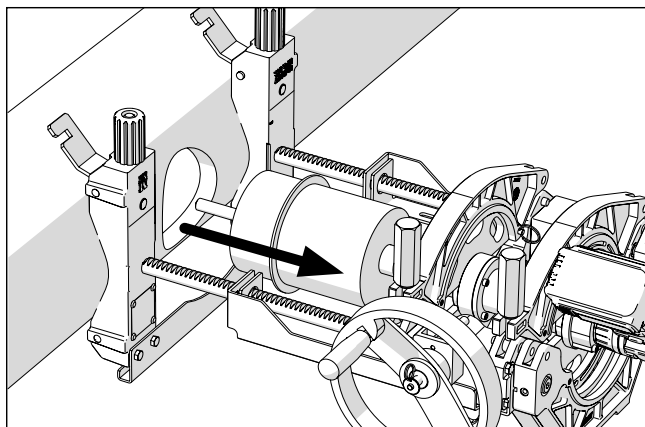
CD02453-02-26-19

- 4) Unlock the brake on the carriage. Pull the trigger on the drill and close the carriage toward the main pipe. Apply extra pressure as needed to advance the hole saw into the main pipe. Drill until the hole saw cuts through the pipe wall completely.



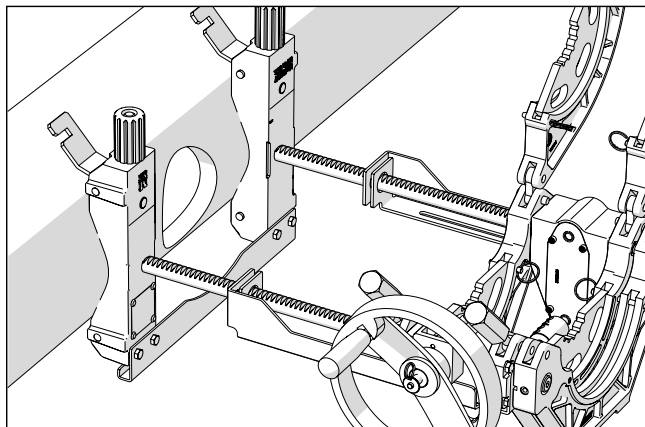
CD02455-02-27-19

- 5) Release the drill trigger and open the carriage completely and apply the brake.



CD02456-02-27-19

- 6) Open the jaws of the carriage and remove the drill and drill adapter.



CD02458-02-27-19

Insert Fitting

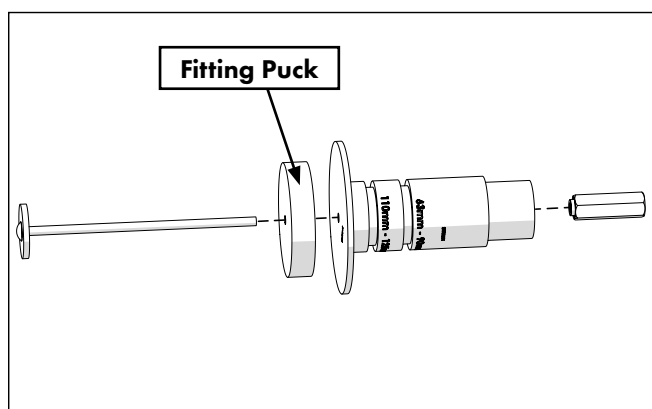
The fitting adapter secures the position and orientation of the fitting in the carriage for 63mm - 125mm fittings.

If pipe is pipped to the fitting, the fitting can be clamped using Acrobat™ pipe inserts instead of the fitting adapter.

For 160mm fittings the adapter is not required and the fitting can be clamped directly in the machine.

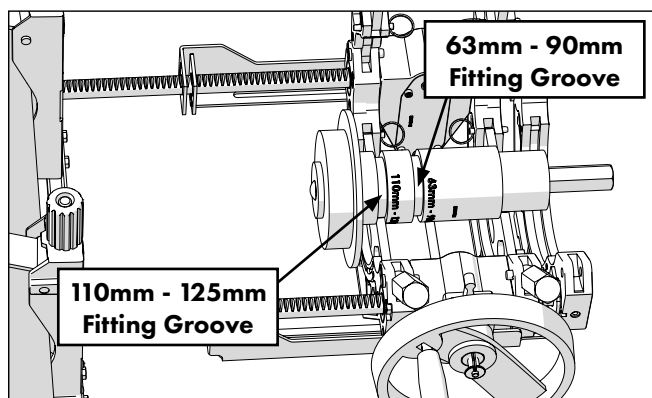
Insert Fitting Adapter in Carriage (63mm to 125mm Fittings):

- 1) Open the jaws of the carriage.
- 2) Install a fitting puck for the size fitting to be fused.



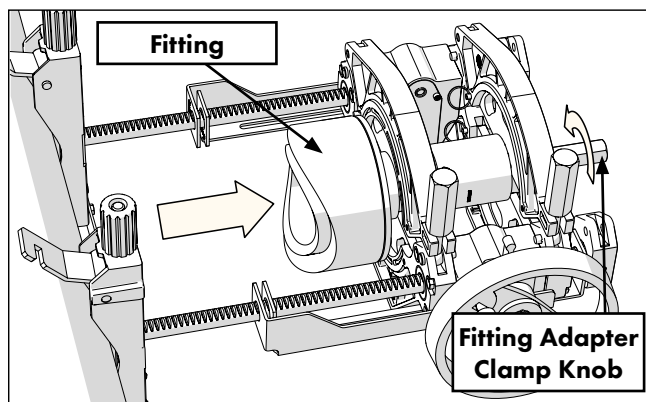
CD02450-03-15-19

- 3) Ensure the 63mm pipe inserts are installed in the jaws of the carriage. Insert the fitting adapter in the lower jaws of the carriage. There are two grooves on the adapter one for 110mm - 125mm fittings and the other for 63mm - 90mm fittings. Ensure the adapter is inserted with the appropriate groove in the lower jaw closest to the main pipe. Close the jaws and tighten the clamps to secure the adapter in the carriage.



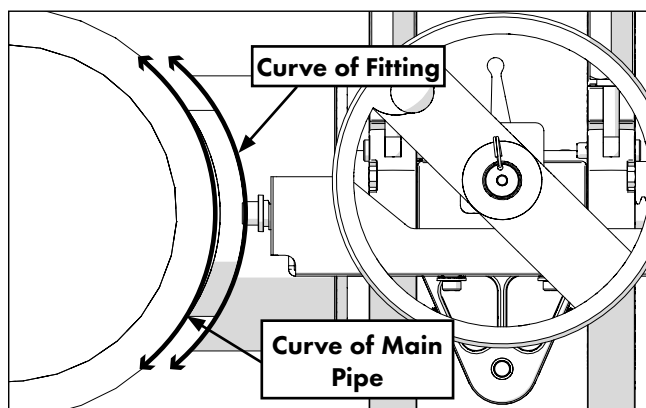
CD02451-02-26-19

- 4) Insert the fitting over the fitting puck and against the backing plate of the adapter.



CD02452-03-15-19

- 5) Close the carriage and bring the fitting next to the main pipe.
- 6) Adjust the fitting by rotating it to align the curve of the fitting to the curve of the main pipe.



CD02459-03-15-19

- 7) After alignment, tighten the fitting adapter clamp knob to secure the fitting.
- 8) Clean the fitting where the fitting will make contact with the main pipe.

Insert Heater

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

Refer to "[Prepare Heater](#)" section for how to adjust heater temperature.

- 1) Check heater surface temperature with a pyrometer.

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

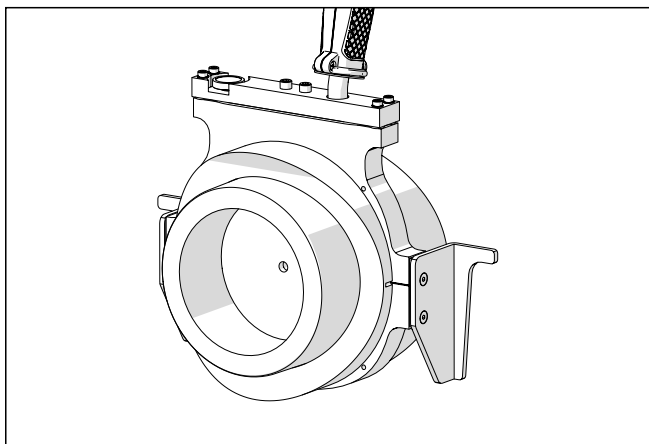
IMPORTANT: The dial thermometer on the heater indicates internal temperature which varies from the actual surface temperature.

The dial thermometer can be used as reference once the surface temperature has been verified and is never a substitute for actual surface temperature.

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.

- 2) Use a clean dry lint free non-synthetic cloth to clean the fusion heater adapters.

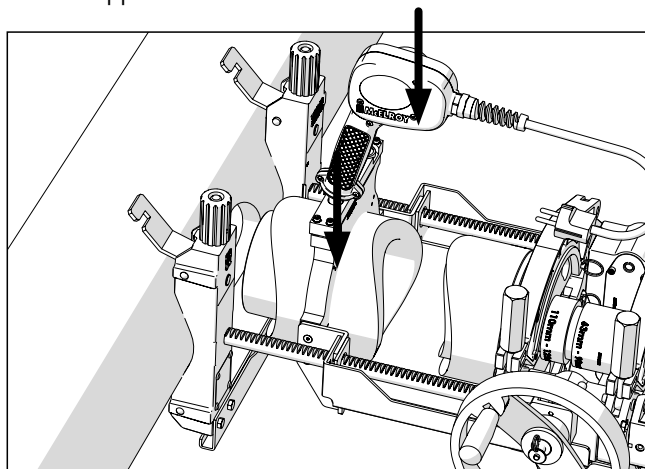


CD02461-03-15-19

CAUTION

Keep the heater in its insulated heater stand or blanket when not in use, and use care when heating the pipe.

- 4) Open carriage completely. Insert heater in the heater strippers between the main pipe and fitting. Ensure the tabs of the heater insert between the tabs of the heater stripper.

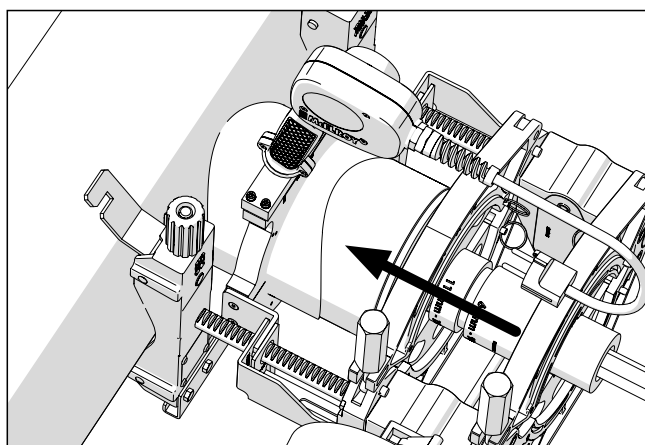


CD02460-03-15-19

Heat Fitting and Pipe

- 1) Rotate the handwheel to close the carriage bringing the heater into the pipe and the fitting into the heater.

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



CD02462-03-15-19

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

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

- 2) Engage the carriage brake to hold the position of the carriage during heating time.
- 3) When the heating time is complete, release the carriage brake. Open the carriage until there is enough room to remove the heater. Quickly remove the heater from heater strippers.
- 4) Quickly inspect the heated parts to make sure all surfaces have been melted properly.

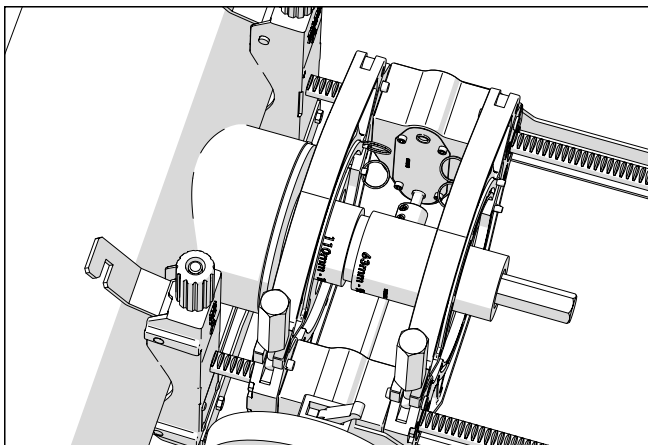
Fuse Fitting and Pipe

- 1) Close the carriage bringing the fitting and pipe together. Continue to close the carriage until the fitting is inserted completely into the pipe.

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

- 2) Engage the carriage brake to hold the carriage position after the fitting is completely inserted.

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



CD02463-03-15-19

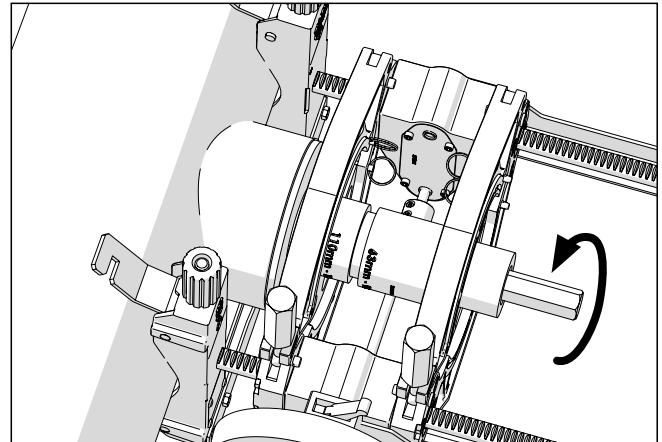
Remove Hornet™ XL

After completing the specified cooling time, inspect the joint for compliance with the appropriate joining standard.

There should be no gaps or voids between the fitting and the pipe.

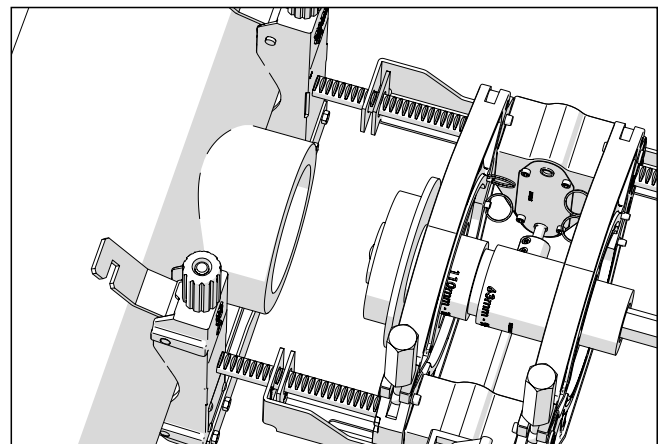
If the joint is not acceptable, cut out the pipe section and fuse a new pipe in the removed section.

- 1) Unclamp the fitting from the fitting adapter.



CD02463-03-15-19

- 2) Release the carriage brake. Open the carriage completely and reapply the carriage brake.



CD02468-03-15-19

- 3) If a pipe needs to be fused to the fitting, refer to [“Operation - Socket Fuse to Outlet”](#) for a socket fusion.
- 4) Remove the carriage from the main pipe by loosening the clamp knobs on the tailstock. Slide the chains from the clamp brackets and lift machine from the main pipe.

IMPORTANT: Support the machine while unclamping to avoid the machine falling or swinging around the main pipe.

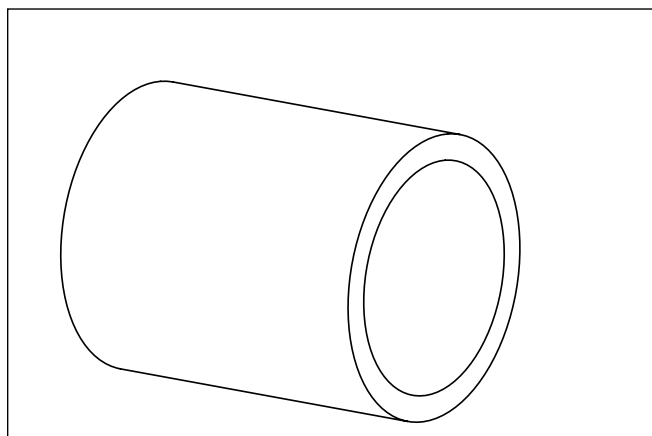
- 5) Refer to [“Attach Hornet™ XL to Pipe”](#) section and start a new fusion outlet.

OPERATION - SOCKET FUSE TO OUTLET

After creating a fusion outlet on a main pipe, you can use the Horner™ XL to fuse a pipe to the fusion outlet. A 63mm to 125mm outlet requires a socket fusion to be performed. Leave the machine attached in the same position after making the fusion outlet. The jaw inserts and socket fusion heater adapters are not included and will need to be obtained separately.

Prepare Pipe End

- 1) Cut off damaged or oval ends of pipe squarely with a pipe cutter.
- 2) Remove shavings and burrs inside pipe end.



CD00999-2-21-18

Prepare Heater

⚠ DANGER

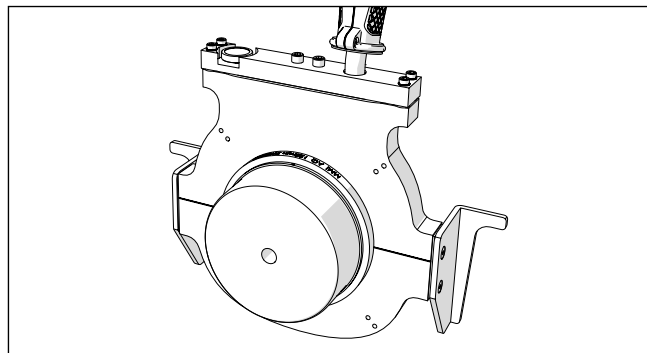
This heater is not explosion proof. Operation of heater in an explosive atmosphere without necessary safety precautions will result in serious injury or death.

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.

- 1) Ensure the heater is cool. Install socket fusion heater adapters (not included) for 63mm to 125mm outlets. Refer to [“Changing Heater Plates/Adapters”](#) in the Maintenance section for information about heater plates and adapters.

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

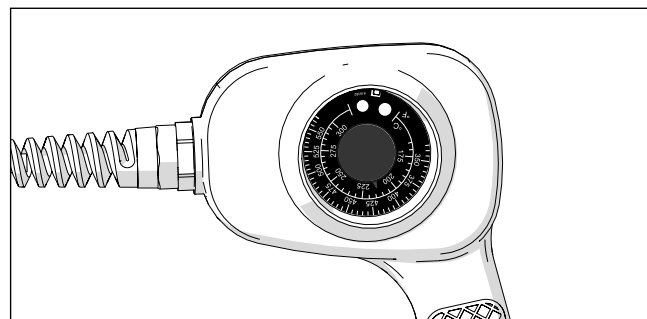
- 2) Place heater in insulated heater bag.



CD02479-03-15-19

- 3) Plug heater into a proper power source. Refer to Heater Information Label for power information.

Adjusting Heater Temperature:



CD02152-2-21-18

- 4) Turn knob to desired temperature. Allow heater to reach temperature. Measure the heater surface temperature with a pyrometer. Any variance must be corrected to the pyrometer reading.

Loosen set screw in the knob. Turn knob to point to the temperature of the pyrometer reading. Tighten set screw in the knob.

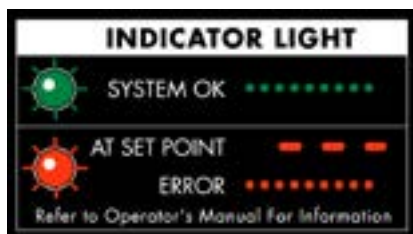
Turn knob to desired temperature. Allow heater to stabilize at the new temperature (5 to 10 minutes) after adjusting.

The thermometer on the heater body indicates internal temperature and should be used as a reference only.

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 on the handle 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.



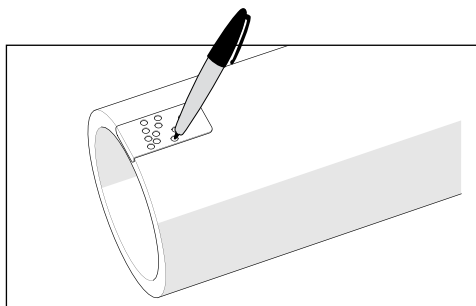
PH02571-2-21-18

- 5) Allow heater to warm-up to operating temperature.

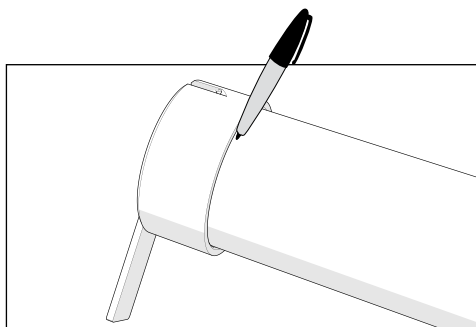
Mark Insertion Depth

- 1) Use a marking instrument and mark the insertion depth according to the appropriate joining standard. The mark can be made using the insertion depth gauge. This mark is the insertion depth used when fusing the pipe and fitting.

The chamfer/depth gauge tool may be used to chamfer the end of the pipe as well as determine the insertion depth. Mark the insertion depth along the edge of the chamfer/depth gauge. The chamfer/depth gauge is pipe size specific.



CD01209-2-21-18

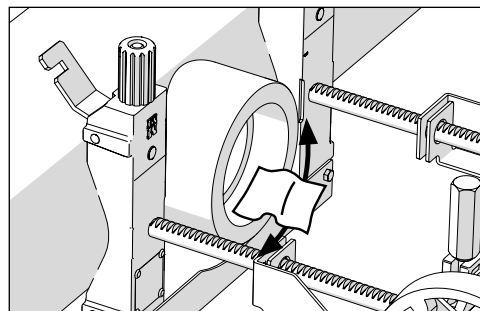


CD01238-2-21-18

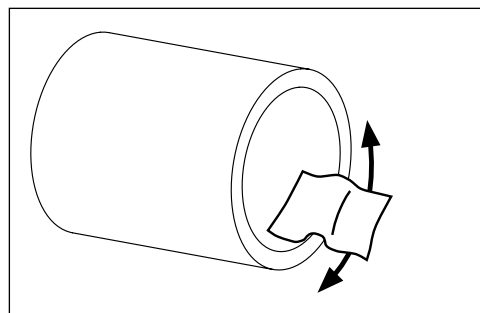
Clean Fitting and Pipe

- 1) Fitting and pipe must be clean and dry. Use a clean lint free cloth to wipe the mating surfaces.

NOTICE: Do not touch fusion area with hands.



CD02464-03-15-19



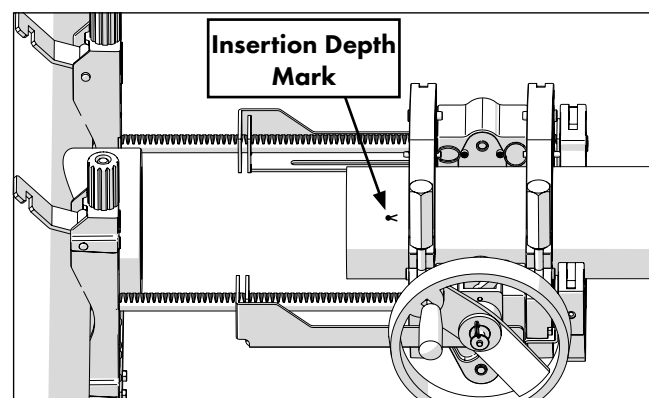
CD00999-2-21-18

Load Pipe

- 1) Ensure the Acrobat™ pipe inserts are installed for the size of pipe to be fused.
- 2) Load the pipe into the jaws of the carriage. Allow enough pipe to protrude so that the pipe can be inserted to the insertion depth. Tighten the clamp knobs on the carriage.

NOTICE: Overtightening the jaws could distort the pipe or fitting resulting in a questionable fusion joint.

- 5) Open the carriage completely to allow the heater to be inserted.

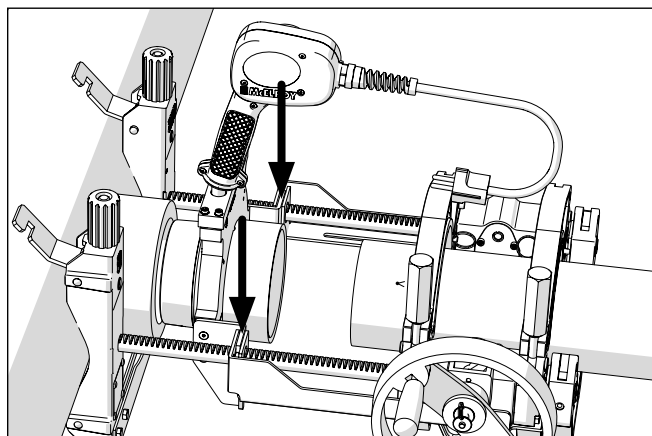


CD02465-03-15-19

Heat Fitting and Pipe

- 1) Use a pyrometer to check the temperature on the socket faces.
- 2) Use a clean non-synthetic lint free cloth to clean the heater socket adapter surfaces.
- 3) Insert the heater into the heater strippers in between the pipe end and fitting. Rotate the handwheel moving the pipe onto the heater and the heater onto the fitting. Close the jaws until the heater is inserted completely into the fitting and the pipe is inserted to the insertion depth mark.

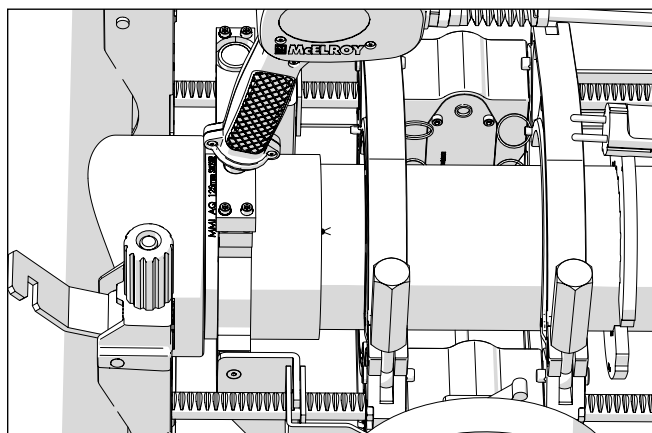
IMPORTANT: Do not force the heater onto the pipe and fitting. Allow the pipe and fitting to melt onto the heater. Forcing the heater onto the fitting and pipe will damage the Hornet XL or create a questionable melt pattern.



CD02466-03-15-19

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

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

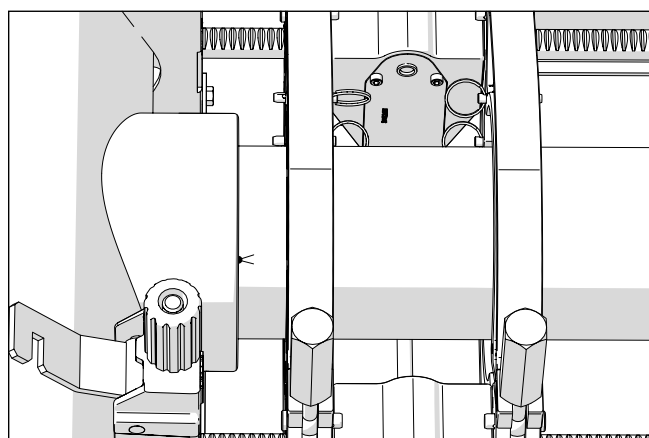


CD02467-03-15-19

- 2) Engage the carriage brake to hold the position of the carriage during heating time.
- 3) When the heating time is complete, release the carriage brake. Open the carriage completely. Quickly remove the heater from heater strippers.
- 4) Quickly inspect the heated parts to make sure all surfaces have been melted properly.

Fusion and Cooling

- 1) Close the carriage bringing the fitting and pipe together. Close the carriage to the insertion depth mark on the pipe. Engage the carriage brake to hold the position of the carriage.



CD02469-03-15-19

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

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

Remove Hornet™ XL

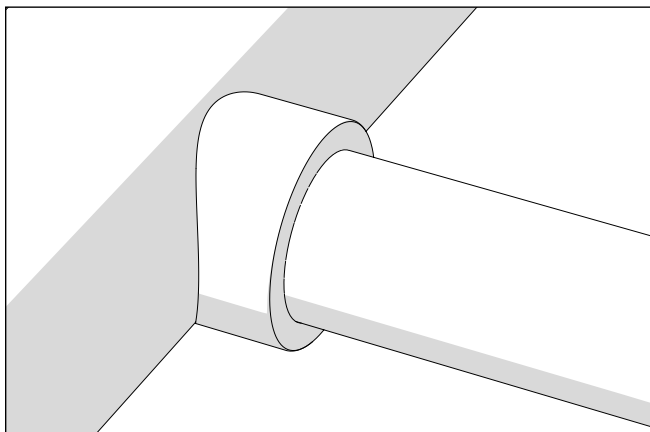
After completing the specified cooling time, inspect the joint for compliance with the appropriate joining standard.

There should be no gaps or voids between the fitting and the pipe.

If the joint is not acceptable, cut out the pipe section and fuse a new pipe in the removed section.

- 1) Open the jaws of the carriage.
- 2) Remove the machine from the main pipe by loosening the chains on the tailstock and removing the chains from the chain brackets. Lift the machine away from the pipe.

IMPORTANT: Support the machine while unclamping to avoid the machine falling or swinging around the main pipe.



CD02470-03-15-19

STORAGE/TRANSPORT

Storage/Transport

A storage/transport case is available to store the Horner™ XL fusion machine package. The case has wheels for mobility and carrying handle options that aid in loading and unloading. Foam inserts inside the case provide storage locations for each component of the package.

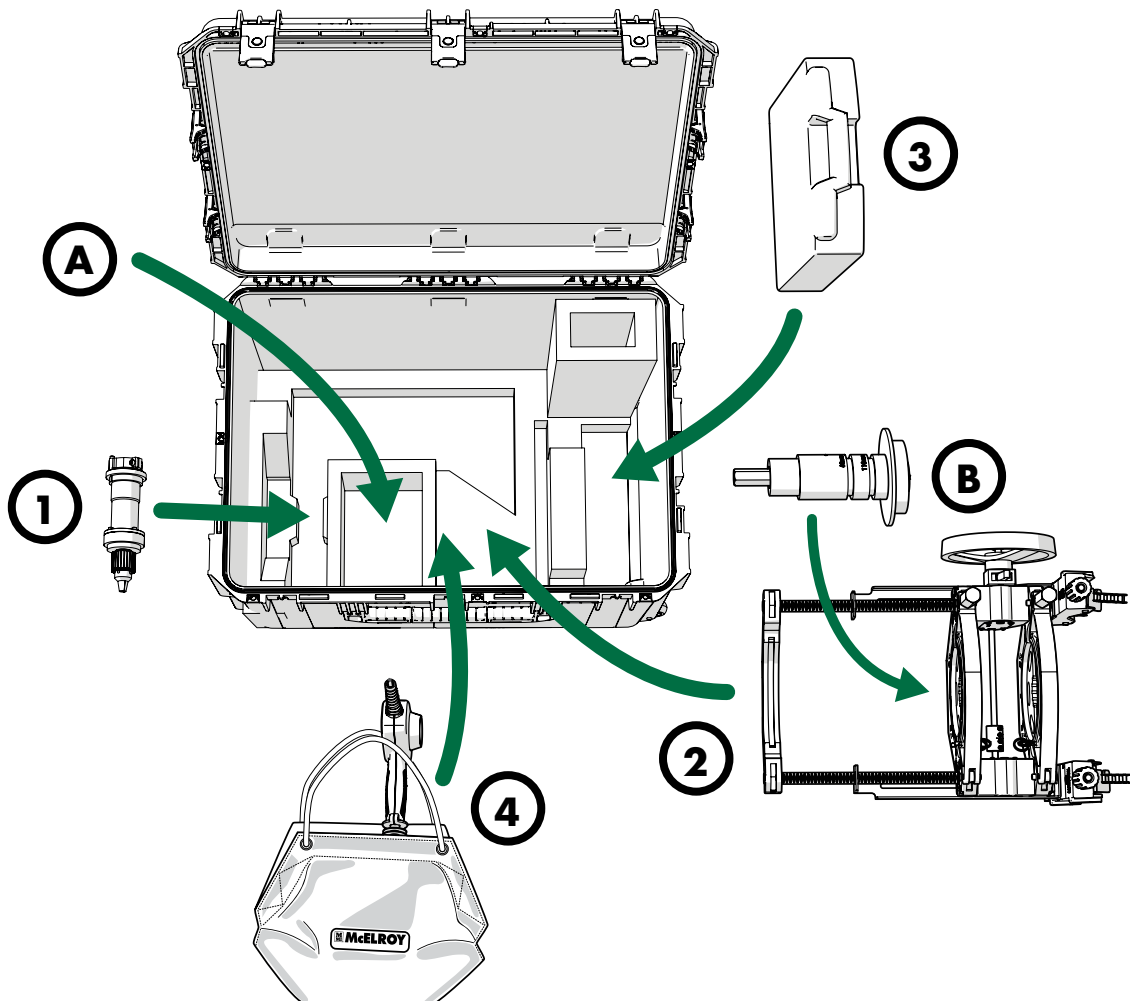
Refer to the illustrations for component locations.

- 1) Drill Adapter - The drill adapter can be stored with the drill attached. The drill is not included.
- A) Additional Storage Area - Can be used to store drill battery and charger (not included).
- 2) Horner™ XL Fusion Machine - Clamp the fitting adapter (B) in the fusion machine. Close the carriage against tailstock and apply the carriage brake. Attach the handwheel to the brake side of the carriage. Insert the fusion machine into the case.
- 3) Horner™ XL Accessory Case - Insert the accessory case in front of the tailstock of the fusion machine.

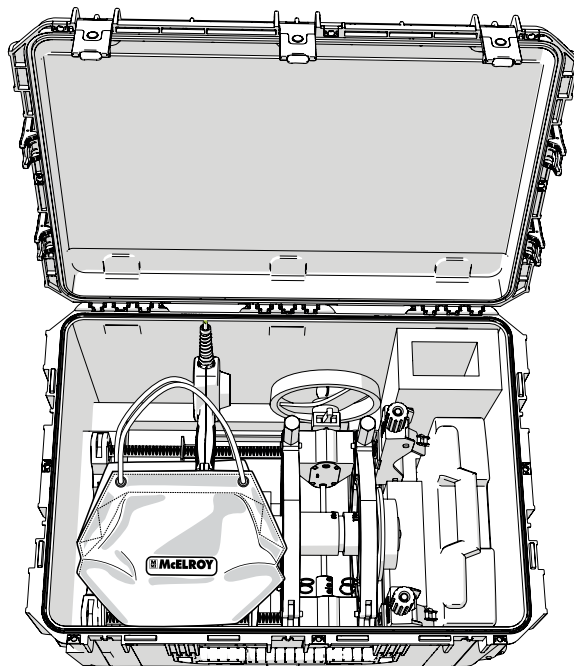
- 4) Heater - Insert the heater into the insulated heater bag. Position the heater with bag on top of fusion machine with the heater cord pointing upward.

NOTICE: Ensure the heater is cool before inserting the heater bag into the case. Damage to the foam inserts could occur.

TX05402-03-15-19



Horner™ XL Storage Case Storage Locations



Horner™ XL Storage Case with All Items Stored

MAINTENANCE

Task	As Needed	Daily	Monthly	Yearly
Clean Machine	●			
Check Machine Operation		●		
Fasteners Are Tight			●	
Changing Heater Plates/Adapters	●			
Clean Chains	●			
Clean Fitting and Drill Adapter	●			
Adjust Gearbox Chain Tension	●			

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.

Clean Machine

- 1) Clean the machine with soap and water as needed.
Do not pressure wash.

Check Machine Operation

- 1) Open and close the carriage of the machine. If the machine has resistance opening or closing, inspect the carriage guide rods for debris in the rack and brush any debris out of the rack.
- 2) Inspect the gearboxes and cross shaft for damage. Ensure power is being transmitted from gearbox to gearbox with a minimal amount of free play in the handle.
- 3) Engage the carriage brake and orient the machine vertically. Apply pressure on the carriage with hands. If the brake slips and doesn't hold the carriage position, replace the brake.
- 4) Inspect the jaw clamps for proper operation. Replace any damaged jaw clamps.
- 5) Inspect chain clamps for proper operation. Replace any damaged chain clamps.

Fasteners Are Tight

- 1) Inspect all machine fasteners for tightness. Tighten any loose fasteners.

Changing Heater Plates/Adapters

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

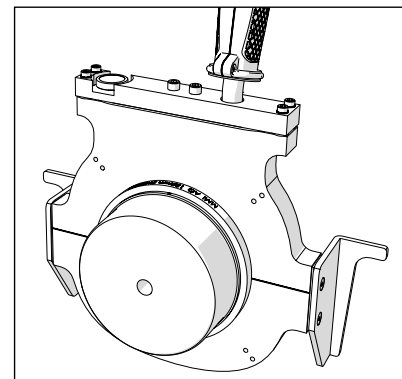
Heater plates/adapters are installed with stainless steel cap screws.

Care should be taken to assure that the 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 surface of the heater adapters are coated with an anti-stick coating.

NOTICE: Only install heater adapters when the heater is cool.



CD02479-03-15-19

Clean Chains

Chains and extension chains can become dirty causing the chains to slip on the pipe.

- 1) Clean any debris from the chains using a stiff bristled brush.

Clean Fitting Adapter

- 1) Clean any debris from the adapter using a clean cloth.

Clean Drill Adapter

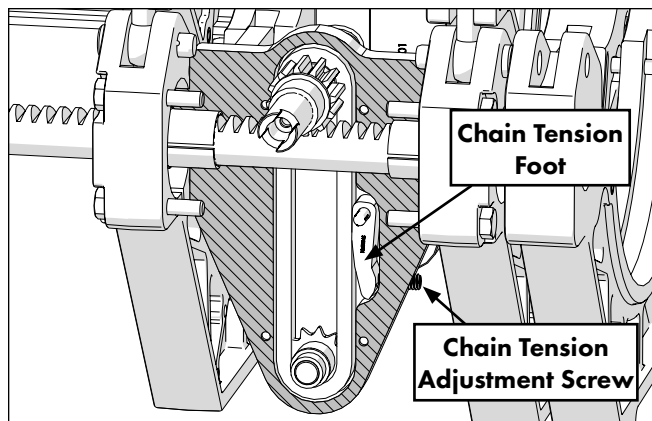
- 1) Clean any debris from the adapter using a clean cloth.

Adjust Gearbox Chain Tension

- 1) Tighten the set screw to adjust the chain tension.

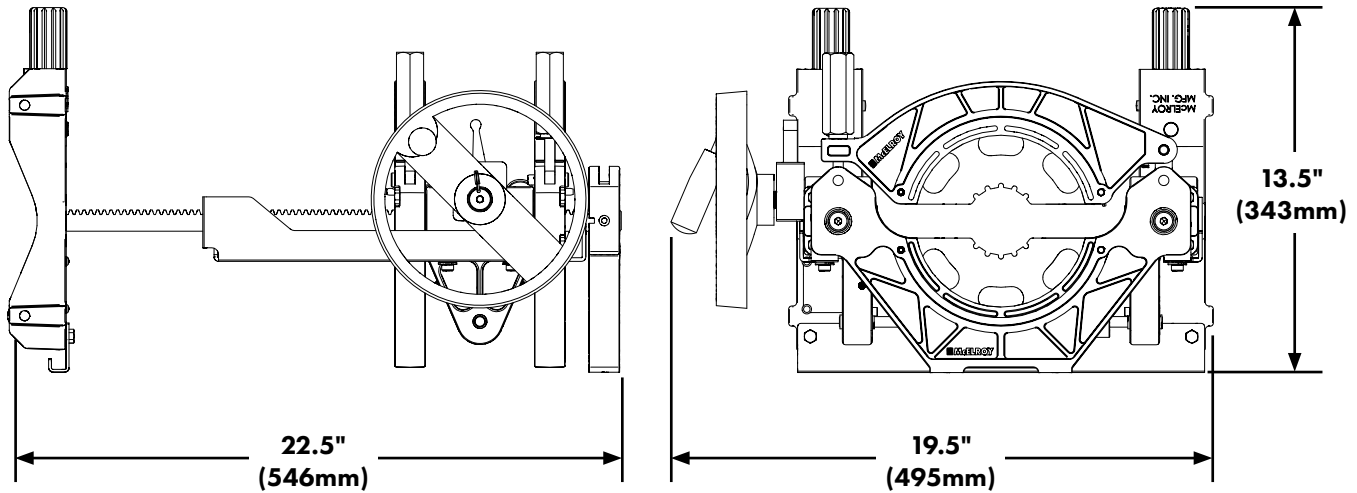
NOTICE: Over-tightening the screw will apply too much chain tension and will cause the carriage to not move easily and damage the chain and gears of the gearbox.

- 2) Move the handwheel to the other gearbox and adjust the chain tension on the second gearbox.



CD02478-03-15-19

SPECIFICATIONS



Specifications

Horner™ XL Specifications

Models: ASW31401 - 120V Machine Package

ASW31402 - 240V Machine Package

Capacity: Fuses Outlet Sizes 63mm - 160mm (2" - 6")
Fuses to Main Sizes 125mm - 630mm (4" - 24")

Weight: Machine: 42 lbs. (19.0 kg)*

Dimensions: Length: 22.5" (546mm)
Width: 19.5" (495mm)
Height: 13.5" (343mm)

Power: Heater Power: 1,600 Watt

Package Inclusions:

Package includes Horner™ XL carriage, heater, 63mm jaw inserts, drill adapter, drill adapter sleeve, 7/16" deep socket, 7/16" socket, 3/8" square drive, fitting adapter, fitting clamp puck kit, chain extensions, accessory case and storage case. Drill and hole saws are not included. Heater adapters/plates, other jaw inserts sold separately.

* Carriage weight can be reduced by removing upper jaws, lower jaw inserts, clamp handles and handwheel (all done without use of tools) to 34 lbs. (15.5 kg).

NOTES

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