TECHNICAL PUBLICATIONS

Operators Manual

175XT

CE

Issue 1.2

960-1138

Overview

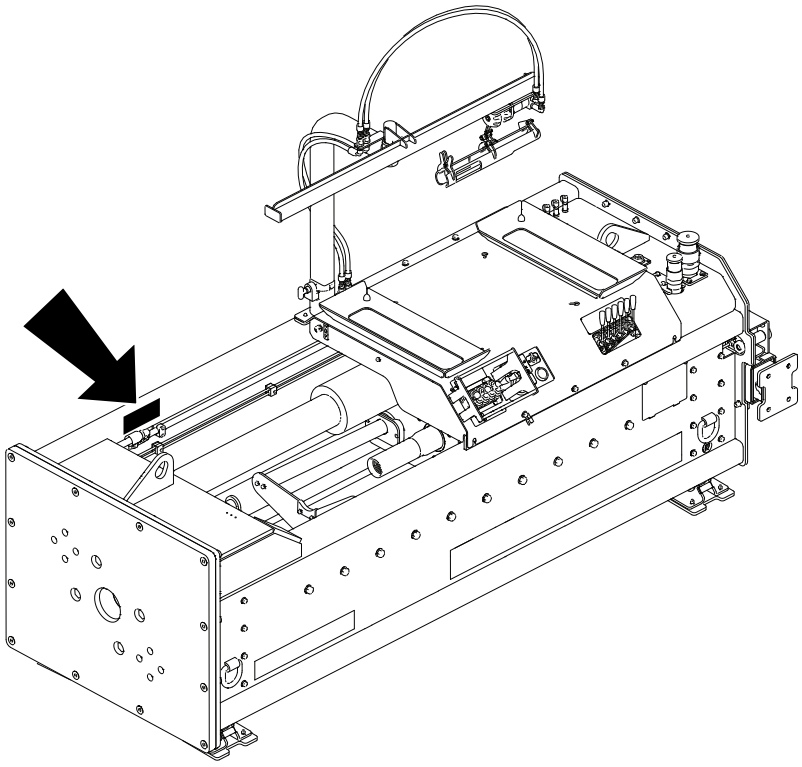
Chapter Contents

California Proposition 65

⚠WARNING Cancer, birth defects, and other reproductive harm. www.P65warnings.ca.gov.

Serial Number Location

Record serial numbers and date of purchase in spaces provided.



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Date of manufacture	
Date of purchase	

Intended Use

HammerHead® pipe bursters are intended for the replacement of 4" (10.2 cm) to 24" (61 cm) diameter buried pipes and conduits. The 175XT produces 173.2 tons (157.1 t) of pullback force. A control unit provides hydraulic power to run the pipe bursting unit.

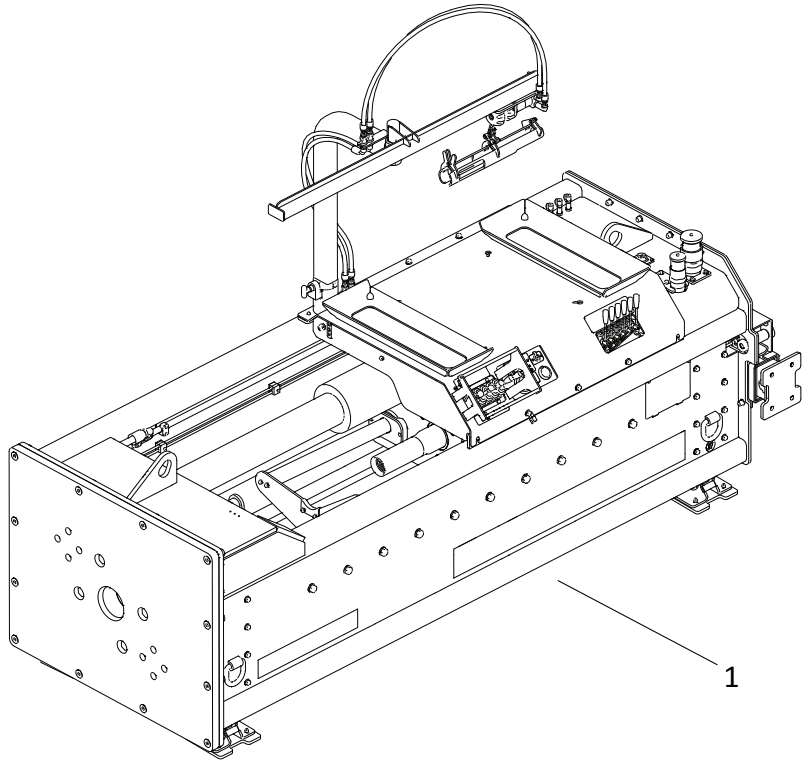
The unit is designed for operation in temperatures typically experienced in earth moving and construction work environments. Provisions may be required to operate in extreme temperatures. Contact your HammerHead dealer. Use in any other way is considered contrary to the intended use.

HammerHead pipe bursters and control units should be operated, serviced, and repaired only by persons familiar with their particular characteristics and acquainted with the relevant safety procedures.

Equipment Modification

This equipment was designed and built in accordance with applicable standards and regulations. Modification of equipment could mean that it will no longer meet regulations and may not function properly or in accordance with the operating instructions. Modification of equipment should only be made by competent personnel possessing knowledge of applicable standards, regulations, equipment design functionality/requirements and any required specialized testing.

Unit Components



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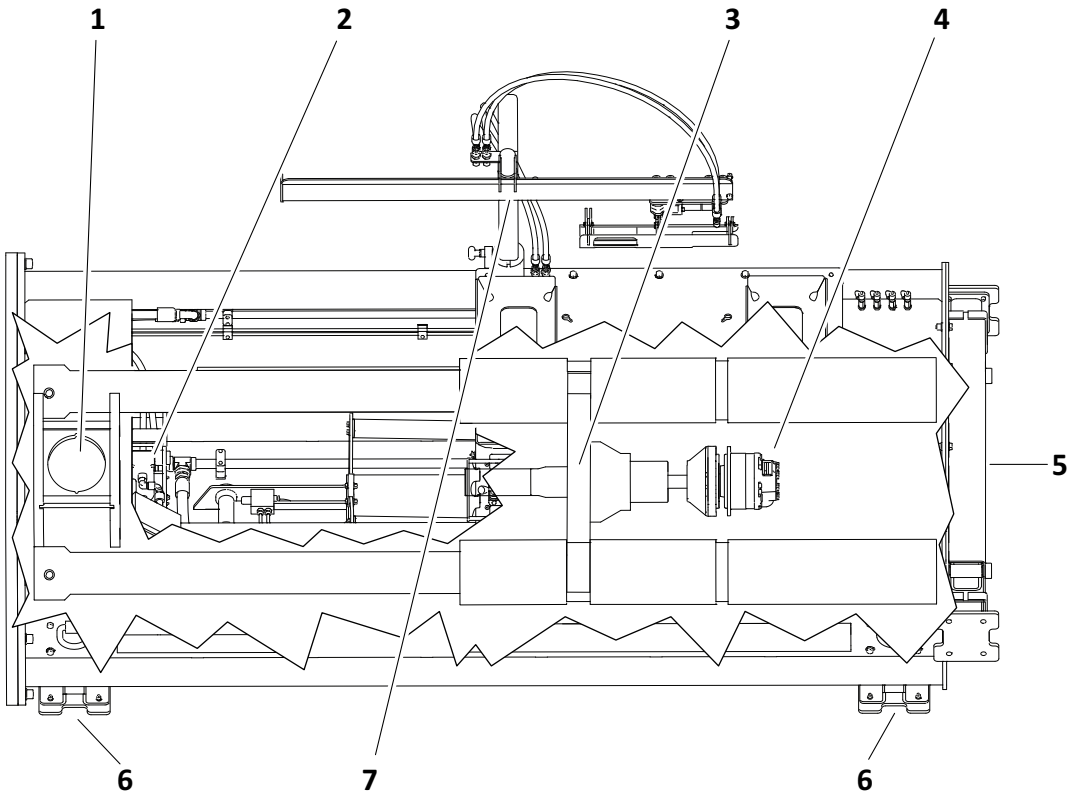
1. Bursting unit

Bursting Unit Components



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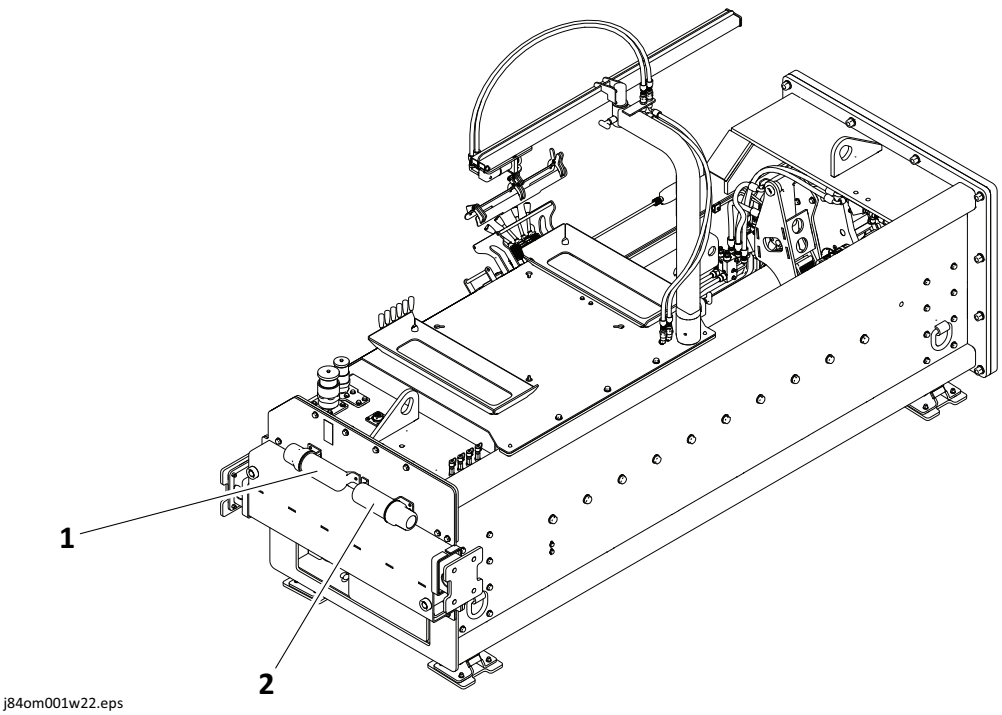
1. Bungee Vise
2. Breakout Vise
3. Spindle Carriage
4. Spindle
5. Horizontal Stabilizers
6. Vertical Stabilizers
7. Rod Lift Assist

Manual / Handle Storage

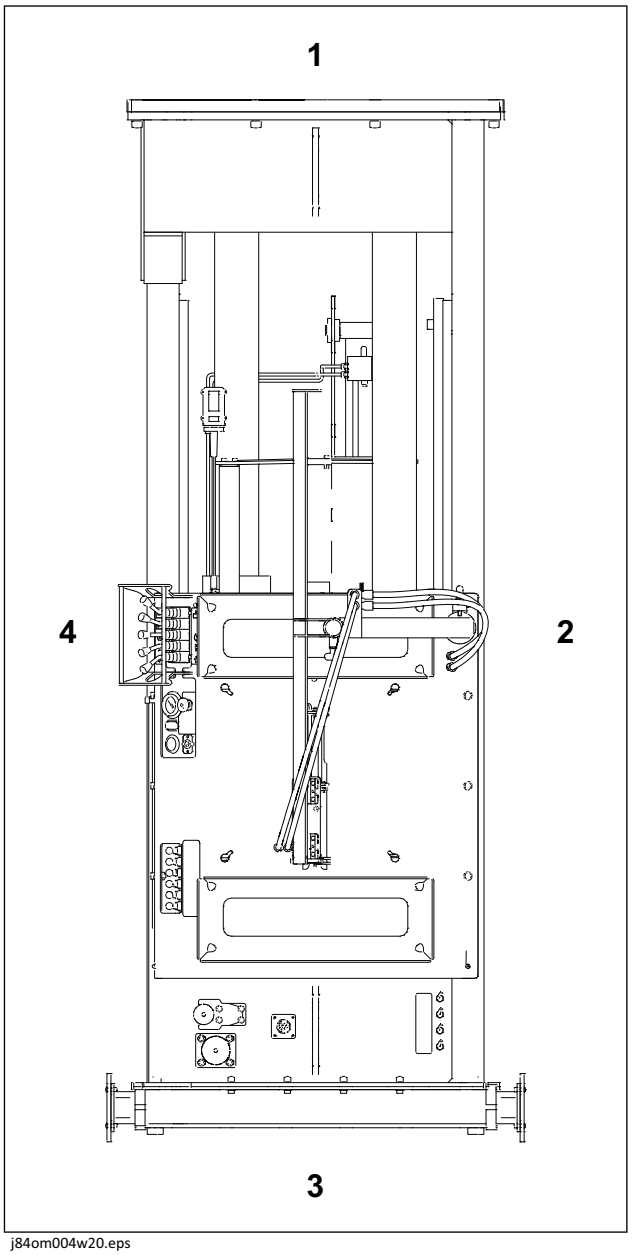


1. Operator manual compartment
2. Handle/pendant storage

Operator Orientation

IMPORTANT: Top view of unit is shown.

1. Front of unit
2. Right side of unit
3. Rear of unit
4. Left side of unit



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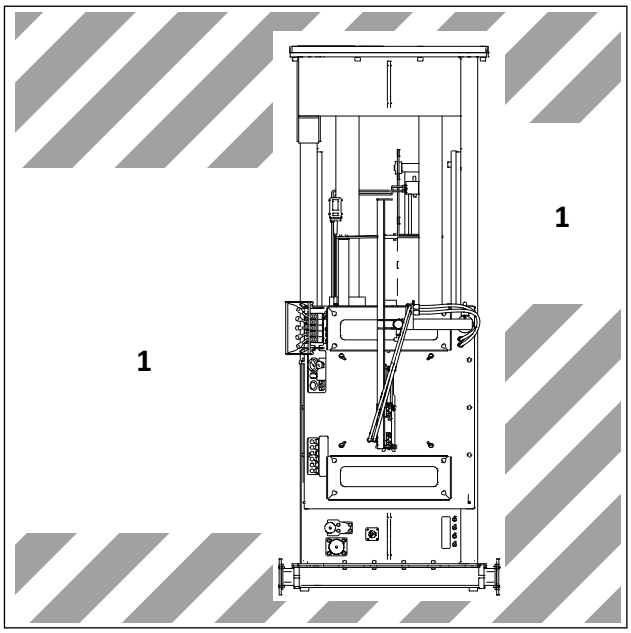
Operating Area

IMPORTANT: Top view of unit is shown.

Operator and/or pipe loader should stand only in the locations marked by number 1.



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About This Manual

This manual contains information for the proper use of this machine. See **Operation Overview** for basic operating procedures. Cross references such as "See page 50" will direct you to detailed procedures.

Bulleted Lists

Bulleted lists provide helpful or important information or contain procedures that do not have to be performed in a specific order.

Numbered Lists

Numbered lists contain illustration callouts or list steps that must be performed in order.

Foreword

This manual is an important part of your equipment. It provides safety information and operation instructions to help you use and maintain your HammerHead® equipment.

Read this manual before using your equipment. Keep it with the equipment at all times for future reference. If you sell your equipment, be sure to give this manual to the new owner.

If you need a replacement copy, contact your HammerHead dealer. If you need assistance in locating a dealer, visit our website at **www.hammerheadtrenchless.com** or write to the following address:

HammerHead Trenchless Equipment
500 South C.P. Avenue
Lake Mills, WI 53551
USA

The descriptions and specifications in this manual are subject to change without notice.HammerHead Trenchless Equipment reserves the right to improve equipment. Some product improvements may have taken place after this manual was published. For the latest information on HammerHead equipment, see your HammerHead dealer.

Thank you for buying and using HammerHead equipment.

175XT
Operator's Manual

Issue number 1.2
Issue Date 03/22
Part number 960-1138

Contents

Safety

Chapter Contents

Safety Alert Classifications

These classifications and the icons defined on the following pages work together to alert you to situations which could be harmful to you, jobsite bystanders or your equipment. When you see these words and icons in the book or on the machine, carefully read and follow all instructions. YOUR SAFETY IS AT STAKE.

Watch for the three safety alert levels: **DANGER**, **WARNING** and **CAUTION**. Learn what each level means.

⚠ DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

⚠ WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

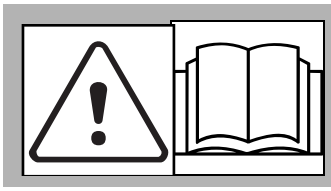
⚠ CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Watch for two other words: ***NOTICE*** and **IMPORTANT**.

NOTICE indicates information considered important, but not hazard-related (e.g., messages relating to property damage).

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

Guidelines



⚠WARNING Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use. Know how to use all controls.

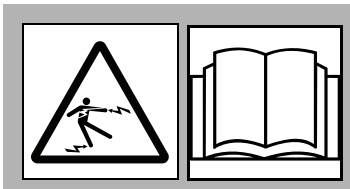
When you see this safety alert sign, carefully read and follow all instructions.
YOUR SAFETY IS AT STAKE. Read this entire section before using your equipment.
SAVE THESE INSTRUCTIONS.

Follow these guidelines before operating any jobsite equipment.

- Complete proper training and read operator's manual before using equipment.
- Mark proposed path with white paint and have underground utilities located before working. In the US or Canada, call 811 (US) or 888-258-0808 (US and Canada). Also contact any local utilities that do not participate in the One-Call service. In countries that do not have a One-Call service, contact all local utility companies to have underground utilities located.
- Classify jobsite based on its hazards and use correct tools and machinery, safety equipment, and work methods for jobsite.
- Mark jobsite clearly and keep spectators away.
- Wear personal protective equipment including long pants, hard hat, eye protection, hearing protection, and protective footwear.
- Do not wear jewelry or loose clothing.
- Review jobsite hazards, safety and emergency procedures, and individual responsibilities with all personnel before work begins. Safety Data Sheets (SDS) are available at www.hammerheadshop.com/resources/technical-sheets/.
- Fully inspect equipment before operating. Repair or replace any worn or damaged parts. Replace missing or damaged safety shields, safety signs, and decals. Contact your HammerHead dealer for assistance.
- Use equipment carefully. Stop operation and investigate anything that does not look or feel right.
- Do not operate unit where flammable gas, liquid, or dust may be present.
- Only operate equipment in well-ventilated areas.
- Contact your HammerHead dealer if you have any question about operation, maintenance, or equipment use.
- To reduce risk of injury, close supervision is necessary when a product is used near children.
- Know how to stop the product and bleed pressures quickly.
- Stay alert — watch what you are doing.
- Do not operate product when fatigued or under the influence of alcohol or drugs.
- Do not overreach or stand on unstable support. Keep good footing and balance at all times.
- To disconnect, turn all controls to the off ("O") position, then remove plug from outlet.

- Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- Unplug from outlet when not in use and before servicing or cleaning.
- For a grounded appliance, connect to a properly grounded outlet only. See grounding instructions.
- Do not expose machine to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
- Store machine out of the reach of children.
- Do not allow persons unfamiliar with machine to operate.
- Do not let familiarity gained from frequent use of machine to allow you to become complacent and ignore tool safety principles.
- Remove any adjusting key or wrench before turning machine on.
- Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges, and refrigerators.
- Do not force the power tool. Use the correct power tool for your application.
- Do not use machine if remote shutdown switch does not turn it on and off.

Grounding Instructions



⚠ DANGER Electric shock. Improper connection of equipment-grounding conductor will cause death or serious injury. Contact qualified electrician to ensure outlet is properly grounded.

To help avoid injury:

- Never modify plug provided with product. If plug will not fit outlet, have a proper outlet installed by a qualified electrician.
- Never use an adapter.
- Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the appliance is properly grounded.

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce risk of electric shock. This product is equipped with a cord with equipment-ground and a grounding plug (shown). The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

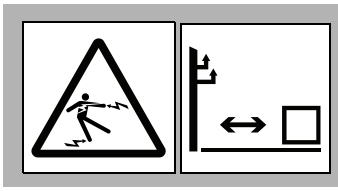
Emergency Procedures

⚠ WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

Before operating any equipment, review emergency procedures and check that all safety precautions have been taken.

EMERGENCY SHUTDOWN - Turn ignition switch to stop position or push remote engine stop button (if equipped).

Electric Strike Description



⚠ DANGER Electric shock. Contacting electric lines will cause death or serious injury. Know location of lines and stay away.

When working near electric cables, remember the following:

- Electricity follows all paths to ground, not just path of least resistance.
- Pipes, hoses, and cables will conduct electricity back to all equipment.
- Low voltage current can injure or kill. Many work-related electrocutions result from contact with less than 440 volts.

Most electric strikes are not noticeable, but indications of a strike include:

- power outage
- smoke
- explosion
- popping noises
- arcing electricity

If any of the occur, assume an electric strike has occurred.

If an Electric Line is Damaged

If you suspect an electric line has been damaged, DO NOT MOVE. Take the following actions. The order and degree of action will depend on the situation.

- If you are in pit:

  - DO NOT TOUCH ANYTHING.
  - Remain in pit.
  - Warn people nearby that an electric strike has occurred. Instruct them to leave the area and contact utility.
  - Contact utility company to shut off power.
  - Do not leave pit until given permission by utility company.
- If you are out of pit:
  - DO NOT TOUCH ANY EQUIPMENT.
  - LEAVE AREA. The ground surface may be electrified, so take small steps with feet close together to reduce the hazard of being shocked from one foot to the other.
  - Contact utility company to shut off power.
  - Do not return to jobsite or allow anyone into area until given permission by utility company.
- If you are on another piece of equipment:
  - Warn people nearby that an electric strike has occurred. Instruct them to leave the area and contact utility.
  - Contact utility company to shut off power.
  - Do not return to area or allow anyone into area until given permission by utility company.

If a Gas Line is Damaged

If you suspect a gas line has been damaged, take the following actions. The order and degree of action will depend on the situation.

- Immediately shut off engine(s), if this can be done safely and quickly.
- Remove any ignition source(s), if this can be done safely and quickly.
- Warn others that a gas line has been cut and that they should leave the area.
- After warning others to leave the area, leave jobsite as quickly as possible.
- Immediately call your local emergency phone number and utility company.
- If jobsite is along street, stop traffic from driving near jobsite.
- Do not return to jobsite until given permission by emergency personnel and utility company.

If a Fiber Optic Cable is Damaged

Do not look into cut ends of fiber optic or unidentified cable. Vision damage can occur. Contact utility company.

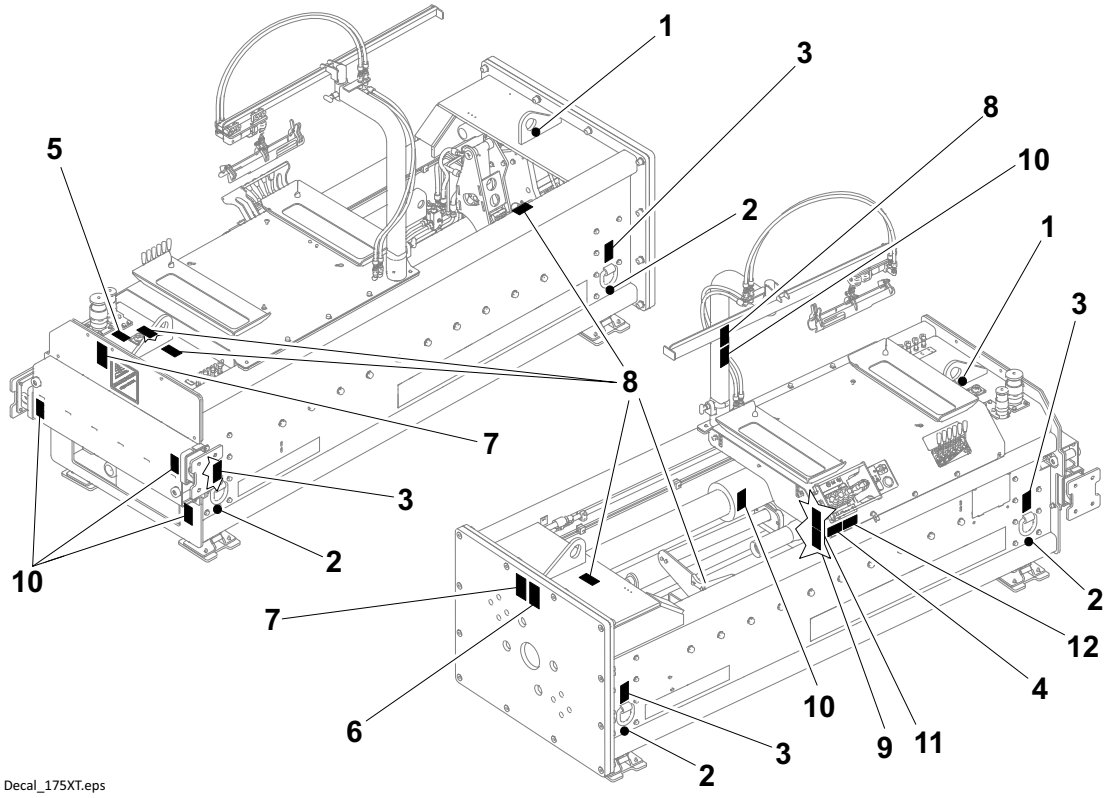
If Machine Catches on Fire

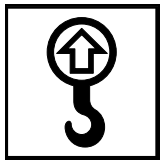
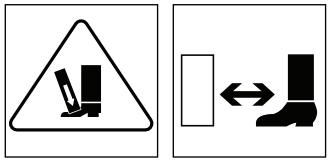
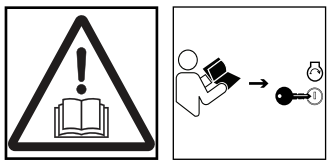
Perform emergency shutdown procedure and then take the following actions. The order and degree of action will depend on the situation.

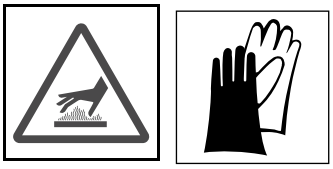
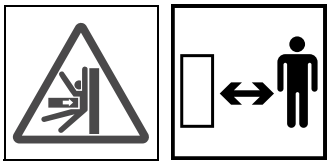
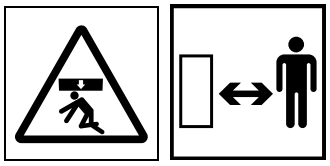
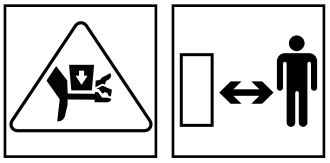
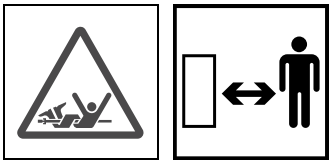
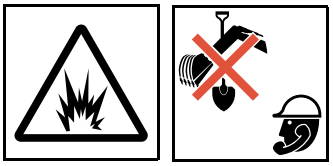
- Immediately move battery disconnect switch (if equipped and accessible) to disconnect position.If it is safe to do so, immediately unplug from A.C. power source.

- If fire is small and fire extinguisher is available, attempt to extinguish fire.
- If fire cannot be extinguished, leave area as quickly as possible and contact emergency personnel.

Machine Safety Alerts



1		Lift point. See Transport chapter for more information.
2		Tiedown location. See Transport chapter for more information.
3		**WARNING** Machine can crush foot. Stay away. 274-965
4		**WARNING** Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use.

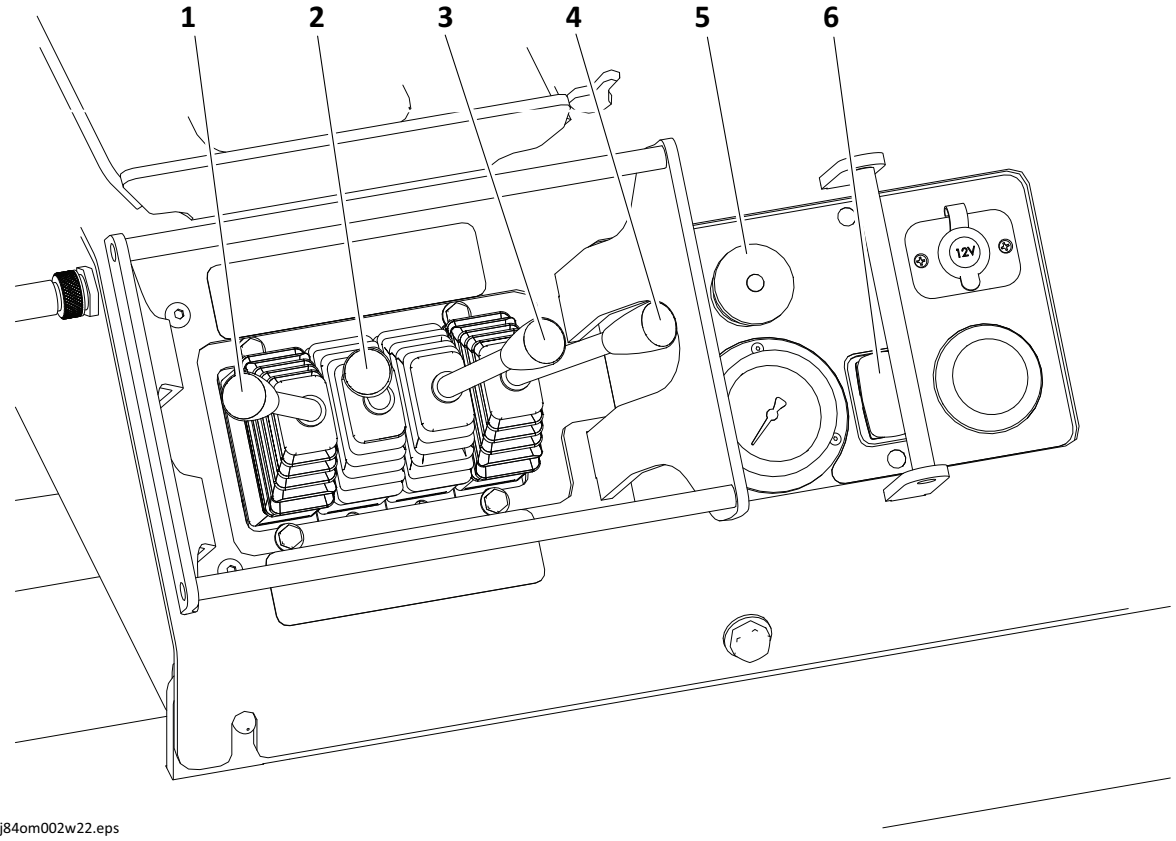
5		**CAUTION** Hot parts may cause burns. Do not touch until cool or wear gloves. 275-355 (2-P), 273-423 (2-P)
6		**CAUTION** Flying objects thrown by machine may strike people. Wear safety glasses and hard hat. 275-193, 270-6903
7		**DANGER** Crushing weight could kill or seriously injure. Stay away.
8		**WARNING** Crushing weight could cause death or serious injury. Stay away.
9		**DANGER** Moving tools will kill or injure. Never use pipe wrenches on drill string.
10		**WARNING** Moving parts could crush hand. Stay away. 274-965
11		**DANGER** Turning shaft will kill you or crush arm or leg. Stay away.
12		**WARNING** Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

Controls

Chapter Contents

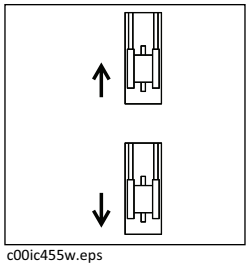
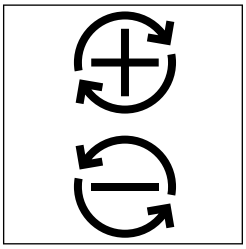
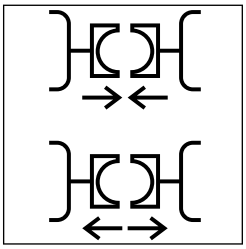
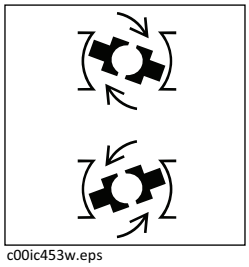
Bursting Unit

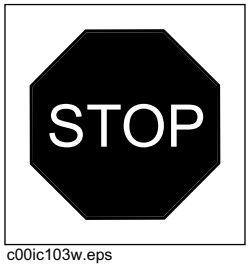
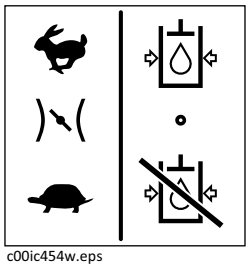
Controls



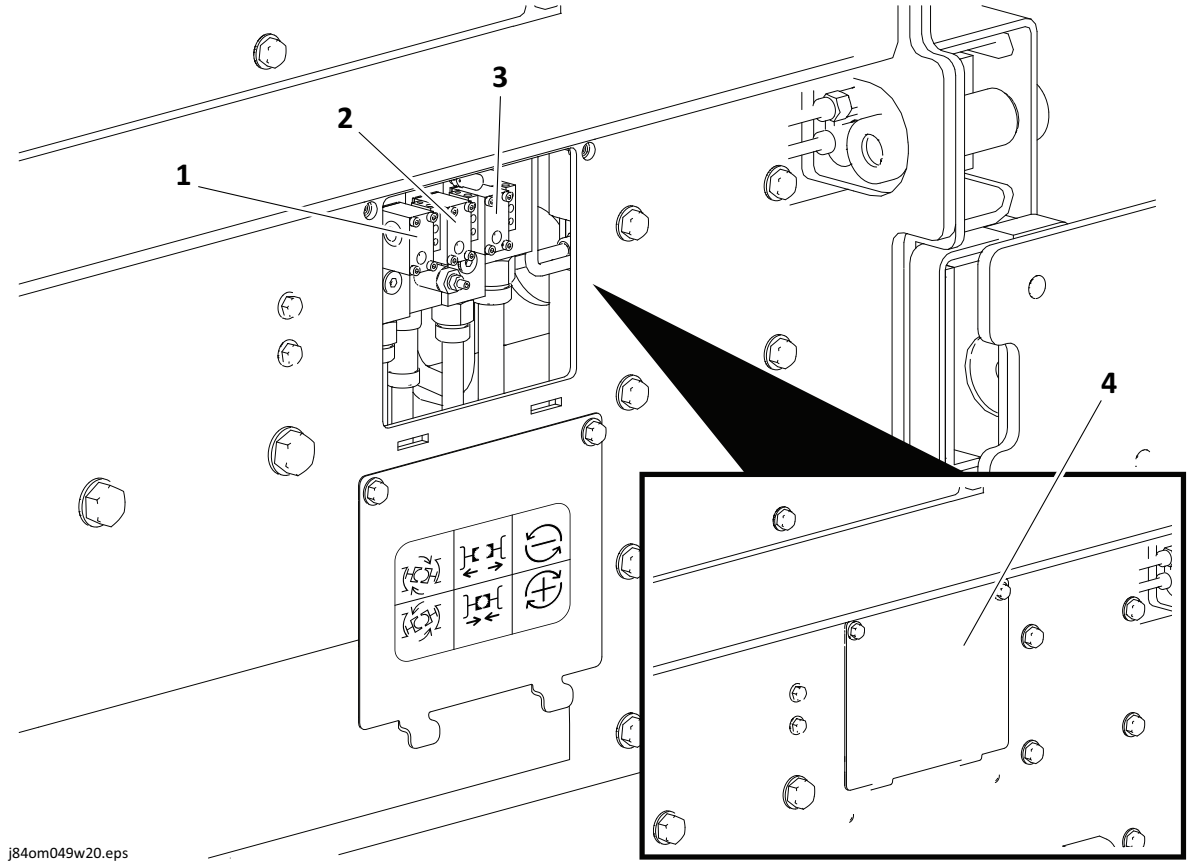
IMPORTANT: Do not use thrust/pullback and thrust/fast pullback levers simultaneously. Only one may be active during operation.

1. Thrust/Pullback
2. Rotation
3. Bungee Vise
4. Breakout vise
5. Remote engine stop switch
6. Throttle switch

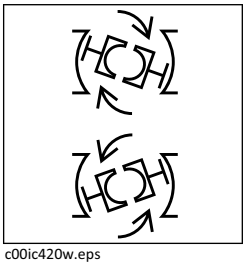
Item	Description	Notes
1. Thrust/Pullback  c00ic455w.eps	To thrust, pull up. To pullback, press down.	
2. Rotation  c00ic403w.eps	To rotate spindle clockwise (makeup), pull up. To rotate spindle counterclockwise (breakout), press down.	
3. Bungee vise  c00ic404w.eps	To close clamp, pull up. To open clamp, press down.	
4. **Breakout vise**  c00ic453w.eps	To open and rotate clockwise, pull up. To close and rotate counterclockwise (breakout), press down.	

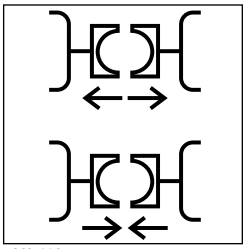
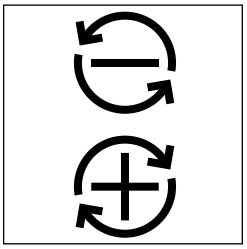
Item	Description	Notes
5. **Remote engine stop switch**  c00ic103w.eps	To stop engine, press.	Engine will not start until control is returned to neutral position.
6. **Throttle/Pressure switch** I  c00ic454w.eps	To increase speed to maximum throttle and pressure, press up. To decrease speed to idle and standby pressure, press down.	

Backup Control Access

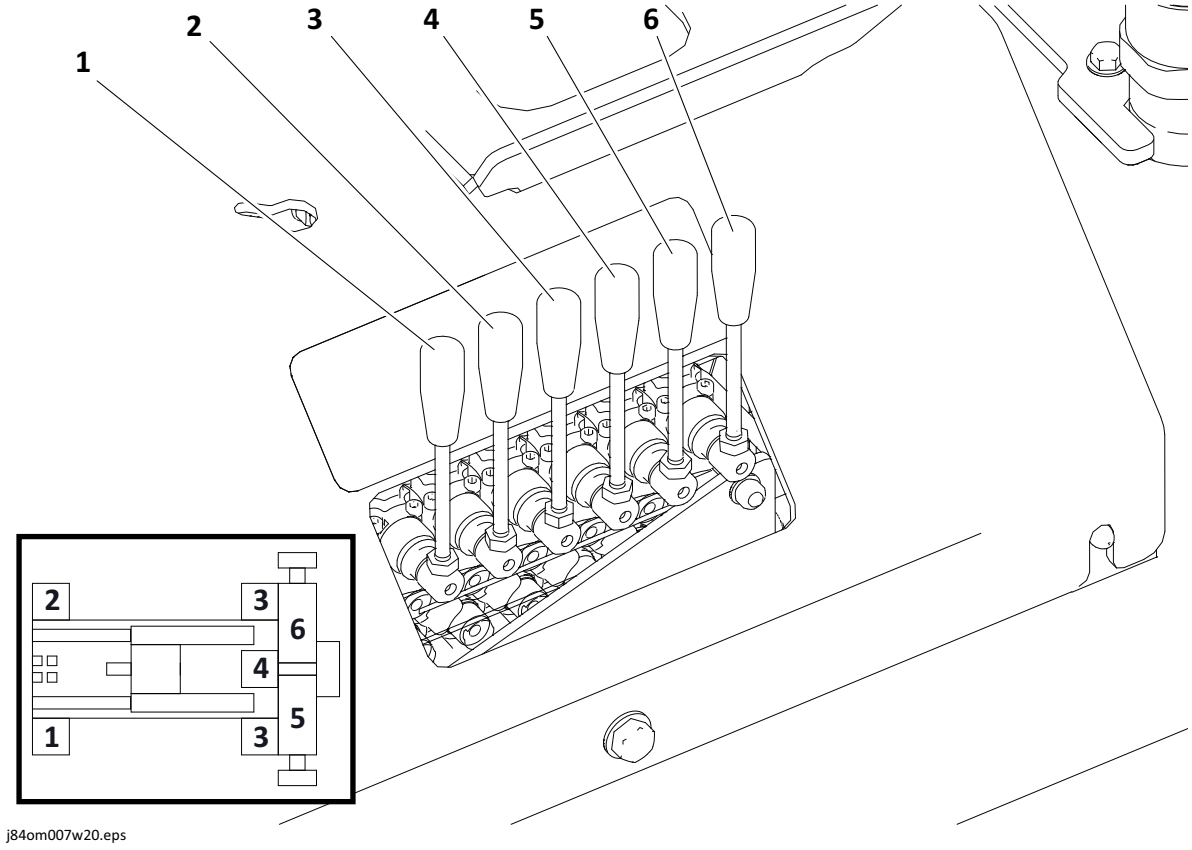


1. Breakout vise
2. Bungee vise
3. Rotation
4. Control access panel

Item	Description	Notes
1. Breakout vise  c00ic420w.eps	To open and rotate clockwise, pull up. To close and rotate counterclockwise (breakout), press down.	

Item	Description	Notes
2. Bungee vise  c00ic419w.eps	To open clamp, pull up. To close clamp, press down.	
3. Rotation  c00ic418w.eps	To rotate spindle counterclockwise (breakout), pull up. To rotate spindle clockwise (makeup), press down.	
4. Control access panel	To access backup controls, remove panel.	

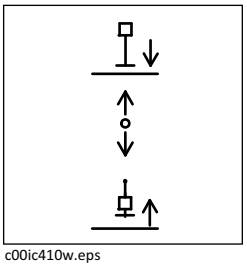
Stabilizer Controls

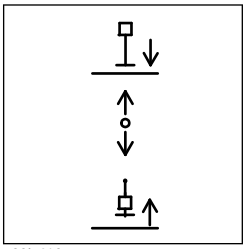
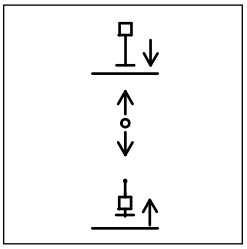
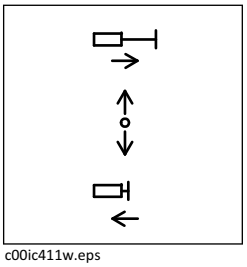
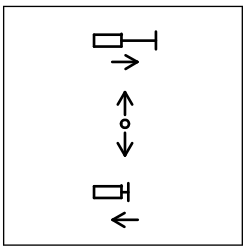


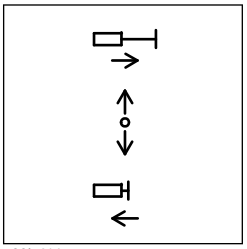
j84om007w20.eps

NOTICE: Raising one side of bursting unit too much can cause the unit to tip over.

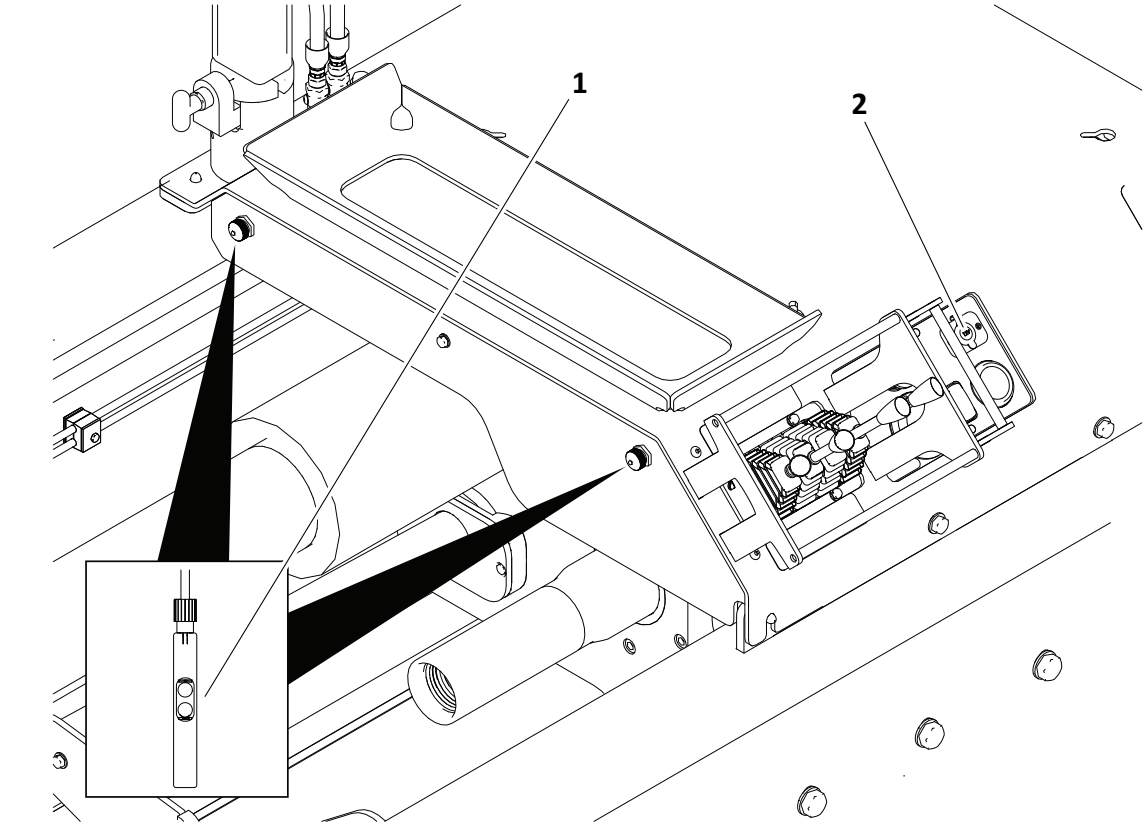
1. Left front vertical stabilizer
2. Right front vertical stabilizer
3. Rear vertical stabilizers
4. Rear horizontal stabilizer
5. Left horizontal stabilizer
6. Right horizontal stabilizer

Item	Description	Notes
1. Left front vert. stabilizer  c00ic410w.eps	To extend, push forward. To retract, pull back.	

Item	Description	Notes
2. Right front vert. stabilizer  c00ic410w.eps	To extend, push forward. To retract, pull back.	
3. Rear vertical stabilizers  c00ic410w.eps	To extend, push forward. To retract, pull back	
4. Rear horizontal stabilizer  c00ic411w.eps	To extend, push forward. To retract, pull back	
5. Left horizontal stabilizer  c00ic411w.eps	To extend, push forward. To retract, pull back	

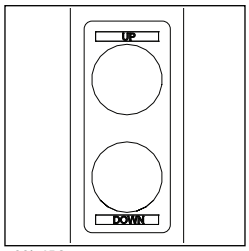
Item	Description	Notes
6. Right horizontal stabilizer  c00ic411w.eps	To extend, push forward. To retract, pull back	

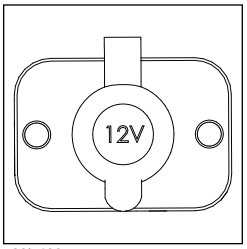
Miscellaneous Controls



j84om004w22.eps

1. Rod lift assist pendant
2. 12v DC auxiliary outlet

Item	Description	Notes
1. Rod lift assist  c00ic456w.eps	To raise, press up. To lower, press down.	

Item	Description	Notes
2. 12v DC auxiliary outlet  c00ic409w.eps	Provides power for other equipment.	Power output is fused to 15A.

Prepare

Chapter Contents

Gather Information

A successful job begins before the pull. The first step in planning is reviewing information already available about the job and jobsite.

Review Job Plan

Review blueprints or other plans and make sure you have taken enlargement during pullback into account. Check for information about existing or planned structures, elevations, or proposed work that may be taking place at the same time.

Notify One-Call Services

Mark proposed path with white paint and have underground utilities located before working.

- In the US or Canada, call 811 (US) or 888-258-0808 (US and Canada. Also contact any local utilities that do not participate in the One-Call service.
- In countries that do not have a One-Call service, contact all local utility companies to have underground utilities located.

Examine Pullback Material

Ask for a sample of the new product material you will be pulling back. Check its weight and stiffness. Contact the manufacturer for bend radius information. Check that you have appropriate pullback devices.

Arrange for Traffic Control

If working near a road or other traffic area, contact local authorities about safety procedures and regulations.

Plan for Emergency Services

Have the telephone numbers for local emergency and medical facilities on hand. Check that you will have access to a telephone.

Inspect Site

Identify Hazards

⚠WARNING Entering a confined space without following all required procedures and having and effective emergency rescue plan can result in serious injury or death.

To help avoid injury:

- Follow local regulations for confined space.
- Test the atmosphere in manholes and other confined spaces before entering and continuously while in the confined space.
- Have an emergency plan in place.

Inspect jobsite before transporting equipment. Check for the following:

- overall grade or slope
- changes in elevation such as hills or open trenches
- obstacles such as buildings, railroad crossings, or streams
- signs of utilities
  - – "buried utility" notices
  - – utility facilities without overhead lines
  - – gas or water meters
  - – junction boxes
  - – drop boxes
  - – light poles
  - – manhole covers
  - – sunken ground
- traffic
- access
- soil type and condition
- depths of existing pipes

Have an experienced locating equipment operator sweep area within 20' (6 m) to each side of burst path to verify previously marked line and cable locations. Mark location of all buried utilities and obstructions.

Select Installation and Bursting Pit Locations

Consider the following when selecting pit locations:

Slope

Consider how slope will affect unit setup and operation. Assess the risks on each slope to determine if factors affecting the risks create an unsafe condition for pipe bursting.

Traffic

Vehicle and pedestrian traffic must be a safe distance from pulling equipment. Allow at least 10' (3 m) buffer zone around equipment.

Space

Check that starting and ending points allow enough space for installation and bursting pits.

Check that installation area has enough space for product to be installed.

Check that there is enough space to work.

Access

Consider shade, wind, fumes, and other site features.

NOTICE: Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.

⚠WARNING Entering a confined space without following all required procedures and having and effective emergency rescue plan can result in serious injury or death.

To help avoid injury:

- Follow local regulations for confined space.
- Test the atmosphere in manholes and other confined spaces before entering and continuously while in the confined space.
- Have an emergency plan in place.

Classify Jobsite

WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

To help avoid injury:

- Wear personal protective equipment including hard hat, safety eye wear, and hearing protection.
- Do not wear jewelry or loose clothing.
- Notify One-Call and companies which do not subscribe to One-Call.
- Comply with all utility notification regulations before digging or bursting.
- Verify location of previously marked underground hazards.
- Mark jobsite clearly and keep spectators away.

Select a Classification

Jobsites are classified according to underground hazards present.

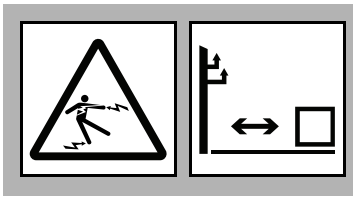
If working . . .	then classify jobsite as . . .
within 10' (3 m) of a buried electric line	electric
within 10' (3 m) of a natural gas line	natural gas
in concrete, sand, or granite which is capable of producing crystalline silica (quartz) dust	crystalline silica (quartz) dust
within 10' (3 m) of any other hazard	other

NOTICE: If you have any doubt about jobsite classification, or if jobsite might contain unmarked hazards, take steps outlined previously to identify hazards and classify jobsite before working.

Apply Precautions

Once classified, precautions appropriate for jobsite must be taken. Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.

Electric Jobsite Precautions

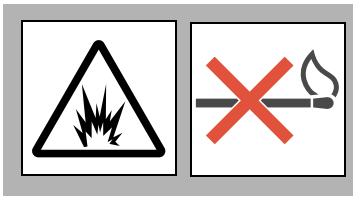


DANGER Electric shock will cause death or serious injury. Stay away. 274-049

Use one or both of these methods.

- Expose line by careful hand digging or soft excavation.
- Have service shut down while work is in progress. Have electric company test lines before returning them to service.

Natural Gas Jobsite Precautions

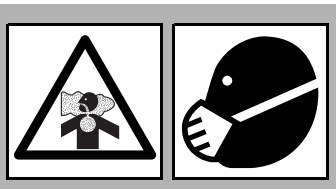


WARNING Fire or explosion possible. Fumes could ignite and cause burns. No smoking, no flame, no spark. 275-419 (2P)

Position equipment upwind from gas lines and use one or both of these methods.

- Expose lines by careful hand digging or soft excavation.
- Have gas shut off while work is in progress. Have gas company test lines before returning them to service.

Crystalline Silica (Quartz) Dust Precautions



⚠WARNING Breathing crystalline silica dust may cause lung disease. Cutting, drilling, or working materials such as concrete, sand, or rock containing quartz may result in exposure to silica dust. Use dust control methods or appropriate breathing protection when exposed to silica dust.

To help avoid injury:

- Use water spray or other means to control dust.
- Refer to U.S. Department of Labor Occupational Safety and Health Administration guidelines to learn more about appropriate breathing protection and permissible exposure limits.

Crystalline silica dust is a naturally occurring substance found in soil, sand, concrete, granite, and quartz. Breathing silica dust particles while cutting, drilling, or working materials may cause lung disease or cancer. To reduce exposure:

- Use water spray or other means to control dust.
- Refer to U.S. Department of Labor Occupational Safety and Health Administration guidelines to learn more about appropriate breathing protection and permissible exposure limits.

Other Jobsite Precautions

You may need to use different methods to safely avoid other underground hazards. Talk with those knowledgeable about hazards present at each site to determine which precautions should be taken or if job should be attempted.

Plan Pull Path

Plan the pull path, from entry to end, before job begins. Locate the entire route of the pipe to be replaced to ensure a straight path. Expose all crossing or parallel utilities in accordance with local regulations.

Prepare Jobsite

⚠WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

To help avoid injury:

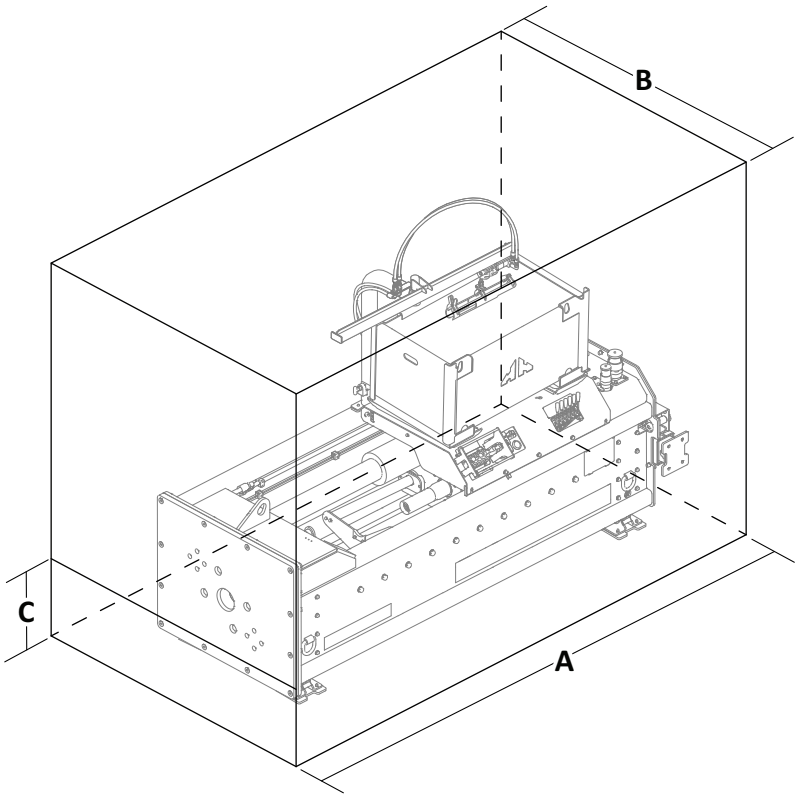
- If jobsite classification is in question or the possibility of unmarked electric utilities exists, classify jobsite as electric.
- Cutting high voltage cable can cause electrocution. Expose lines by hand before digging.
- All vegetation near operator's station must be removed. Contact with trees, shrubs, or weeds during electrical strike could result in electrocution.

Mark Pull Path

Mark your planned pull path with flags or paint.

Dig Bursting Pit

Dimensions



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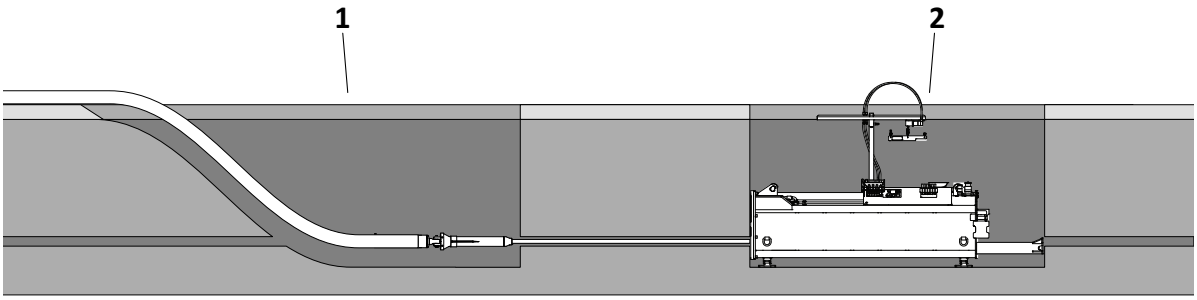
Minimum Bursting Pit		
Length (A) **U.S. (metric)**	**Width (B)** **U.S. (metric)**	**Depth (C)** **U.S. (metric)**
135” (3.43 m)*	96” (2.44 m)	21.8” (553.7 mm)**
*Add 72” (1.83 m) to length of bursting pit if using the extraction cage. **Below pipe center line		

Requirements



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Installation Pit (1)

- Pit dimensions depend on pipe depth and product being installed.
- Must be in line with existing pipe.
- Sloped back end aids new product installation. Consider new product bend radius.

Bursting Pit (2)

- Must be level to align bursting unit properly with existing pipe.
- Cover pit floor with gravel for drainage and to allow bursting unit to be level with existing pipe.
- Bottom 48" of pit wall must be square (90°) with pit floor.

NOTICE: Loose soil may need to be shored to support force of burst.

- Place steel road plate underneath bursting unit.

NOTICE: Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.

WARNING Entering a confined space without following all required procedures and having and effective emergency rescue plan can result in serious injury or death.

To help avoid injury:

- Follow local regulations for confined space.
- Test the atmosphere in manholes and other confined spaces before entering and continuously while in the confined space.
- Have an emergency plan in place.

Check Supplies and Prepare Equipment

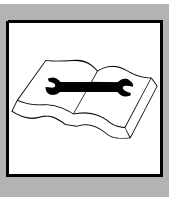
Check Supplies

- marking flags or paint
- fuel
- hydraulic oil
- keys
- tooling string (See "Tooling String" on page 74.)
- barrier cones and tape
- rod joint lube antiseize MIL-A-907E
- personal protective equipment, such as hard hat and safety glasses
- notepad and pencil
- extraction cage(s) (See "Extraction Cage" on page 75.)

Prepare Equipment

Condition and Function

- all controls



WARNING Improper control function could cause death or serious injury. If control does not work as described in instructions, stop machine and have it serviced.

- clean couplers
- hoses and valves
- inspect/clean jaws

Assemble Accessories

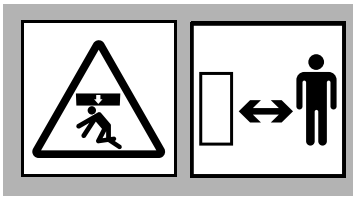
Fire Extinguisher

If required, mount a fire extinguisher near the power unit but away from possible points of ignition. The fire extinguisher should always be classified for both oil and electric fires. It should meet legal and regulatory requirements.

Transport

Chapter Contents

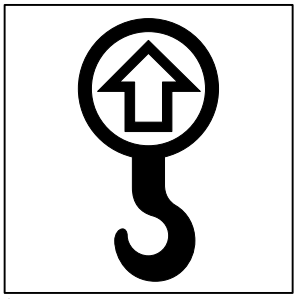
Lift



WARNING Crushing weight could cause death or serious injury. Stay away.

Points

Lifting points are identified by lifting decals. Lifting at other points is unsafe and can damage machinery.



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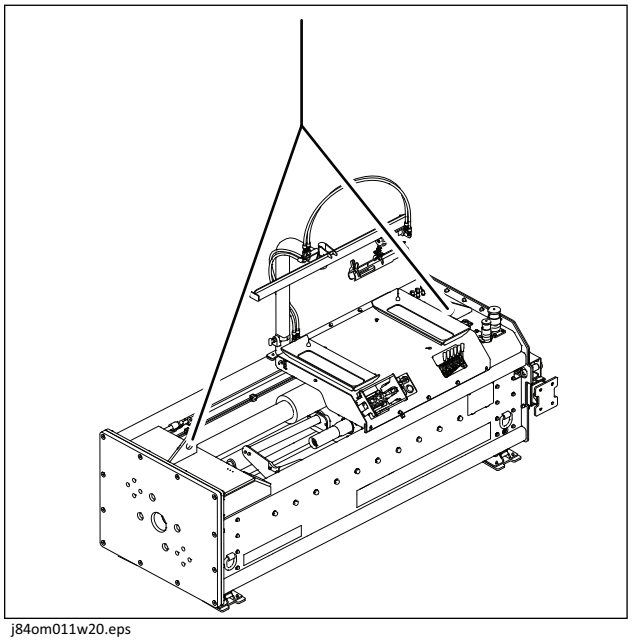
Procedure

Bursting Unit

Use equipment capable of supporting the unit's size and weight. See “Specifications” on page 83 or measure and weigh equipment before lifting. Use supplied lift chains at lift points as shown.

NOTICE: Do not attempt to lift rod box with bursting unit.



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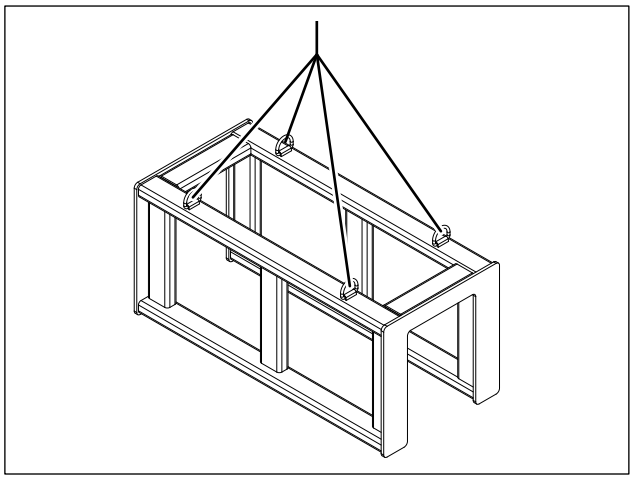
Extraction Cage

Use equipment capable of supporting the extraction cage's size and weight. See “Specifications” on page 83.



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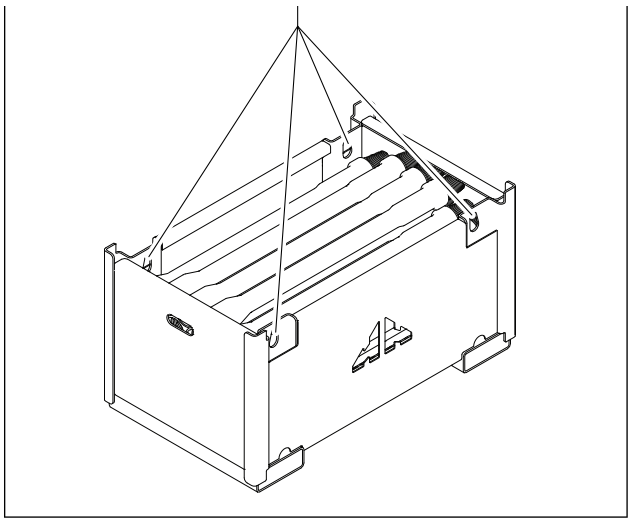
Rod Box

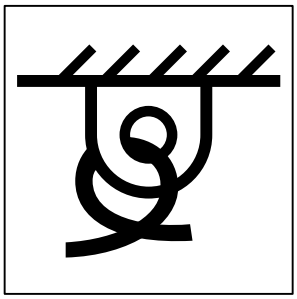
Use equipment capable of supporting the rod box's size and weight.



Tie Down

Points

Tiedown points are identified by tiedown decals. Securing to trailer at other points can damage machinery.



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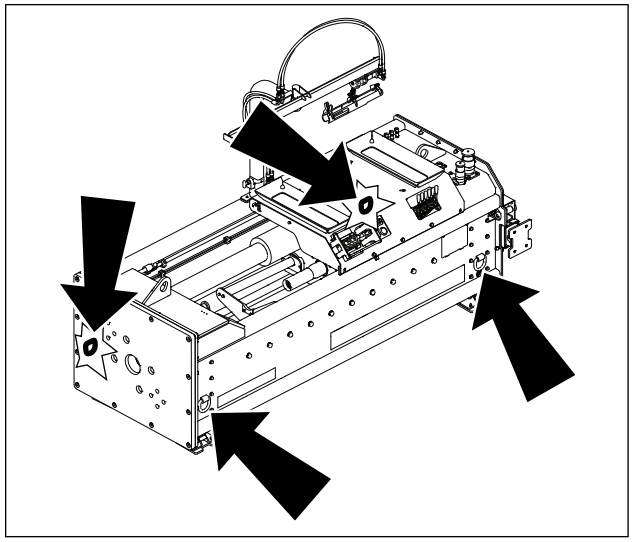
Procedure

Bursting Unit

To tie down bursting unit, use D-rings shown.

NOTICE: Do not attempt to transport rod box with bursting unit. Remove rod box before transporting.



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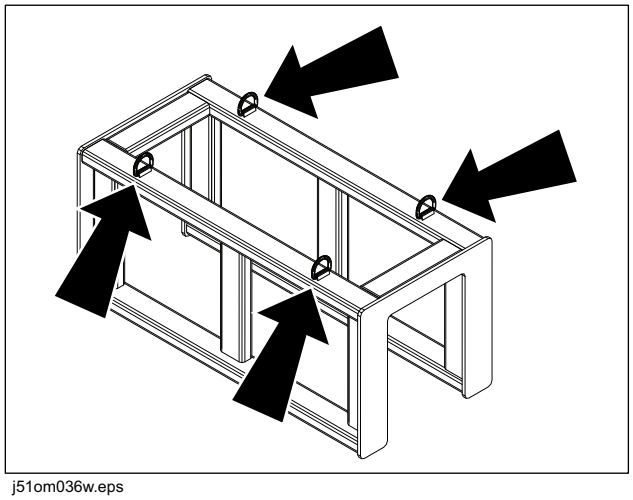
Extraction Cage

Use chain or strap to tie down and secure extraction cage. Use D-rings shown.



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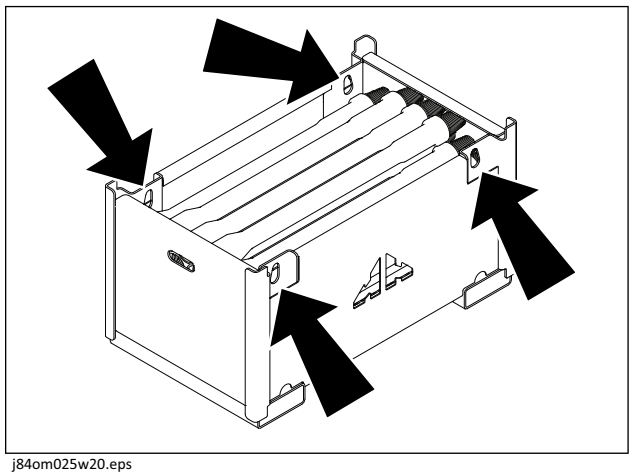
Rod Box

To tie down rod box use slots shown.



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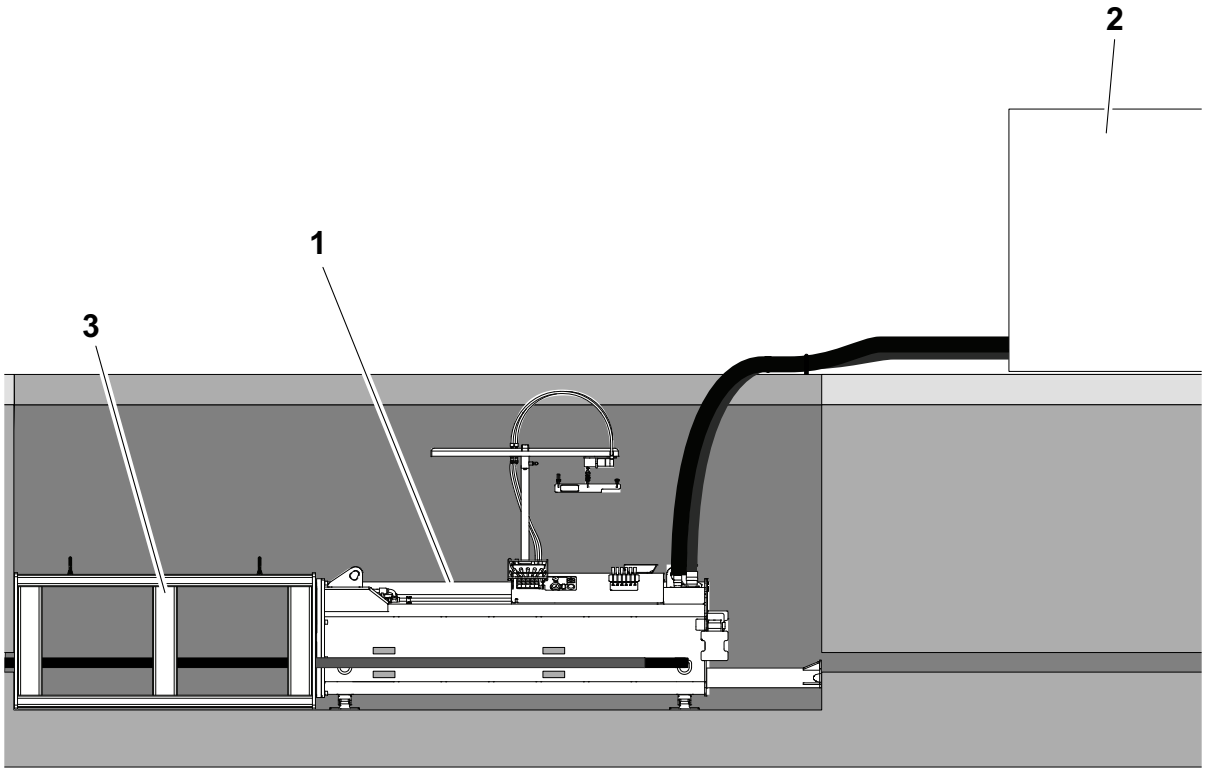
Burst Pipe

Chapter Contents

Setup and Configuration



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1. Bursting unit
2. Control unit
3. Extraction cage

NOTICE: Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.

WARNING Entering a confined space without following all required procedures and having an effective emergency rescue plan can result in serious injury or death.

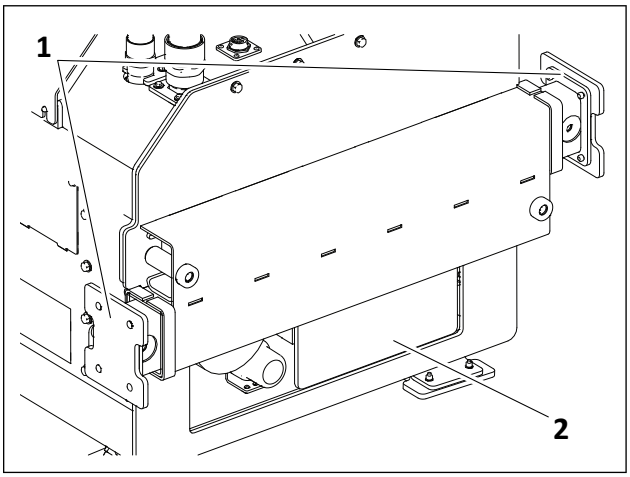
To help avoid injury:

- Follow local regulations for confined space.
- Test the atmosphere in manholes and other confined spaces before entering and continuously while in the confined space.
- Have an emergency plan in place.

1. Use equipment capable of safely lifting and unloading power unit, bursting unit, extraction cage, and related equipment next to bursting pit.
2. Set power unit switch to OFF.
3. Position power unit outside of bursting pit, at least two feet away from the edge.
4. Place gravel as a pit floor liner with a steel road plate under the bursting unit to establish slip-free work surface and drainage, and to establish correct depth so that rod string will be level with existing pipe.
5. If using extraction cage lower into the pit and place against the pit wall.

NOTICE: Ensure no personnel are in pit as equipment is lowered.

6. Lower bursting unit into pit against extraction cage, if used. If no extraction cage is used, place against pit wall. Allow space for pipe/pipe loader beside pulling unit.
7. Use stabilizers to ensure front plate is square (90°) with pit floor or end of the extraction cage. See "Stabilizer Controls" on page 26.
8. Secure machine on all sides during pullback using proper cribbing and blocking devices.
9. Extend horizontal stabilizers (1) to pit wall, then retract 1/2" (1 cm). Extend rear stabilizer (2) to pit wall to ensure machine is secure during pullback.



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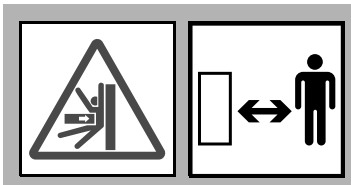
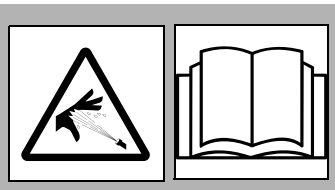


WARNING Machine can move suddenly during pullback and rods can reverse rapidly if there is a sudden release of product which could cause serious injury or death.

To help avoid injury:

- Secure machine using proper cribbing and blocking devices in all directions during pullback.
- Operate only from designated area.
- Inspect and rotate rods.
- Replace damaged rods.
- Use proper clamping procedures.



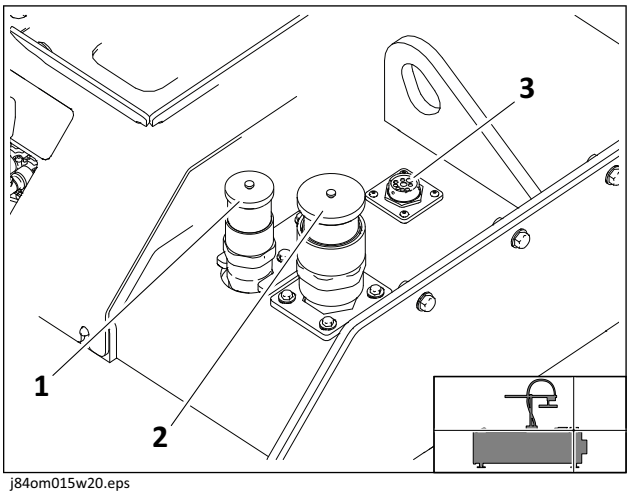
WARNING Pressurized fluid or air could pierce skin and cause severe injury. Refer to operator's manual for proper use.

To help avoid injury:

- Always connect return line first and remove last.
- Before using system, check that all connections are tight and all lines are undamaged.

If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.

10. Connect hydraulic hoses from power unit to bursting unit.
    - First connect return line (1) from power unit to bursting unit by threading connection together until colored o-ring cannot be seen.
    - Second connect pressure line (2) from power unit to bursting unit by threading connection together until colored o-ring cannot be seen.
    - Join dust caps together to keep them clean.



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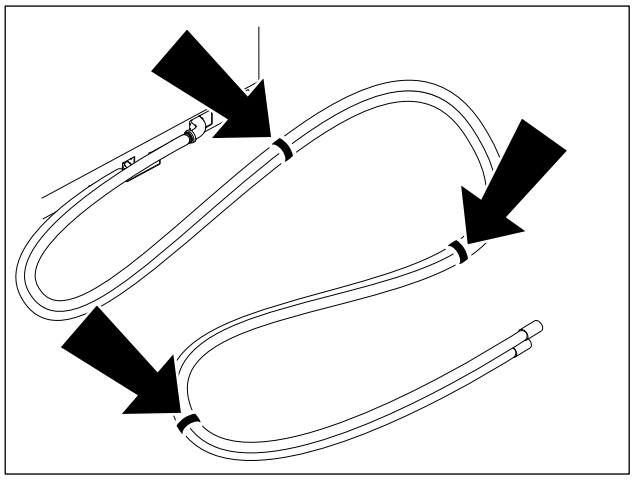
NOTICE:

- Ensure all hose is removed from all hooks on the power unit while operating machine.
- Ensure hoses are properly supported and secured outside of pit to keep them from moving while machine is in use.

11. Connect electrical cable from power unit to bursting unit (3).
12. Place rod box in rod box tray on unit, with female threads facing front of machine.
13. Remove front plate from rod box.
14. Keep rod joint lube available for lubricating female rod threads as needed.

Secure Hydraulic Hoses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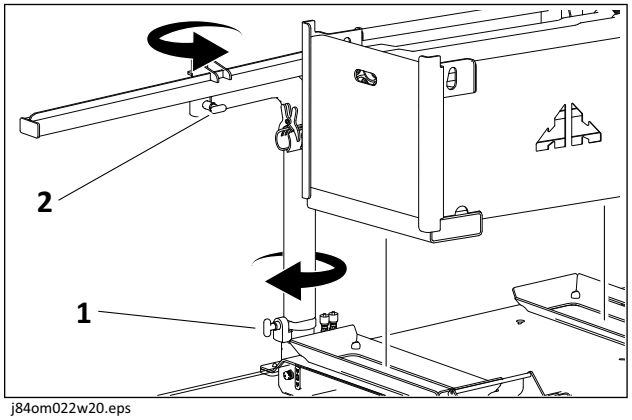
1. Ensure control unit engine is off.
2. Secure hydraulic hoses together using straps provided as shown.

   NOTICE: Straps should be secured as tightly as possible.

   - Secure first strap at approximately 10' (3.05 m) from control unit.
   - Secure second strap near the connectors at the ends of the hoses near the bursting pit.
   - Evenly space and secure remaining straps along the hoses.

Add / Remove Rod Box



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1. Remove pin (1), rotate rod lift assist out of the way, reinstall pin.
2. Remove pin (2), rotate upper rod lift assist out of the way, reinstall pin.
3. Add/remove rod box, .

   NOTICE: When adding rod box, align feet with trays as shown, with female threads facing front of machine.

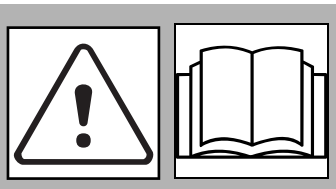
4. Remove pin (2), rotate upper rod lift assist into position over machine, reinstall pin.
5. Remove pin (1), rotate rod lift into position over machine, reinstall pin.

Emergency Stop Procedure

To shut down power unit engine under normal conditions, use key switch or remote stop switch on control unit.

To shut down control unit from bursting unit, press the remote stop switch.

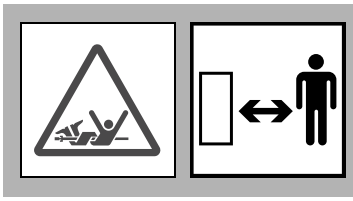
Push Rods



⚠WARNING Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use.

To help avoid injury:

- Maintain 2-way communication between bursting pit and all other personnel.
- Ensure operator has good visibility of rods entering/exiting bursting unit.
- Make sure all personnel are clear of moving parts.
- Keep personnel at the proper operating area. See "Operating Area" on page 6.
- Bursting unit may raise off pit floor under load. Keep hands and feet away.
- Ensure that hoses are secured outside of pit.
- Do not attempt to use any part of body to assist rods or product entering/exiting pipe or bursting unit.



⚠ DANGER Turning shaft will kill you or crush arm or leg. Stay away.

To help avoid injury: Do not hold rod while turning. Burrs and slight imperfections on rods can catch skin, clothing, etc.

IMPORTANT: For unit components, see "Bursting Unit Components" on page 5. For controls, see "Controls" on page 26.

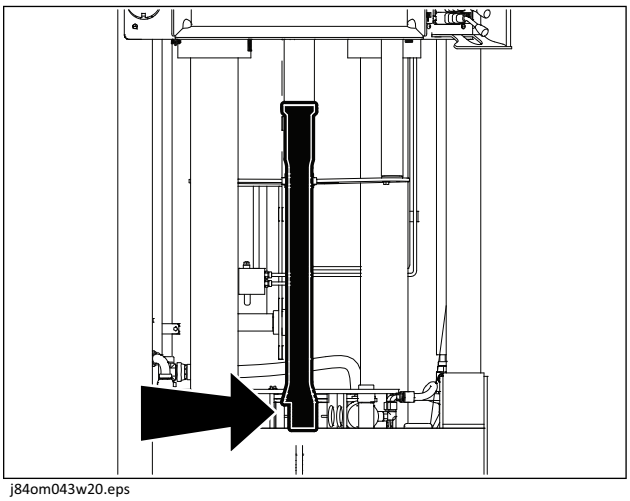
Maximum pressure	Maximum force
1800psi (124.1bar)	26.5tn (24,040kg)

1. Place at least one operator/pipe loader in the bursting pit. Keep this person in operating area (page 6).
2. Start control unit engine. Set engine to high throttle.

   NOTICE: To shut down control unit from bursting unit, press the remote stop switch. Otherwise, turn engine off at the control unit, using the key or remote stop switch on control unit.

3. Ensure bungee vise is in the open.
4. Open breakout vise.
5. Move carriage to back of unit.
6. Select pilot rod and apply lube to rod threads if needed.
7. Install push point on end of pilot rod.

8. Insert rod into bursting unit through open bungee vise and breakout vise, with female end of rod in the breakout vise (shown).
9. Close breakout vise.
10. To connect rod to spindle, rotate spindle clockwise .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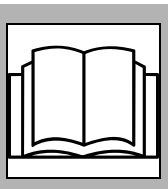
NOTICE: Tighten all threaded joints completely so shoulders touch.

NOTICE: Driven shaft can stop spinning, or have difficulty spinning if it comes in contact with load cone or resistance cone. See "Driven Shaft Adjustments" on page 69.

11. Open breakout vise.
12. Move spindle to front of unit.
13. Close bungee vise with rod joint flush with bungee vise face.
14. Disconnect spindle by rotating counterclockwise.
15. Move spindle to back of unit.
16. Install rod. See "Add Rod" on page 68.
17. Connect rod by rotating spindle clockwise.
18. Move spindle to front of unit.
19. Close bungee vise with rod joint flush with bungee vise face.
20. Disconnect spindle by rotating counterclockwise.
21. Move spindle to back of unit.
22. Repeat steps 16-21 as needed to complete job.

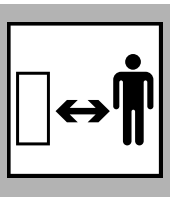
Connect Tooling String to Pilot Rod

⚠WARNING **⚠WARNING** Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use.

To help avoid injury:

- Maintain 2-way communication between bursting pit and all other personnel.
- Make sure all personnel are clear of moving parts.
- Do not attempt to use any part of body to assist rods or product entering/exiting pipe or bursting unit.

⚠DANGER Turning shaft will kill you or crush arm or leg. Stay away.

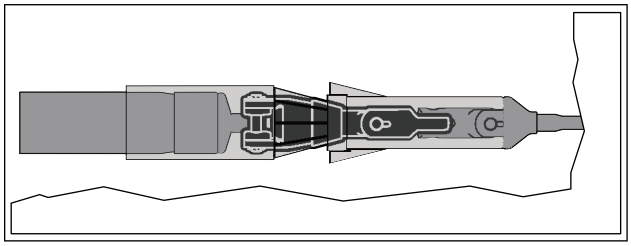
To help avoid injury: Do not hold rod while turning. Burrs and slight imperfections on rods can catch skin, clothing, etc.

IMPORTANT: See "Tooling String" on page 72 for more information.

1. Push rod into installation pit.
2. Turn control unit engine off.
3. Remove push point from pilot rod.
4. Connect flex joint of bursting/slitting tooling string to pilot rod.
5. Torque the connections to 250 ft•lb (339 N•m).

   NOTICE: Use a wrench to hold the rod string while torquing to prevent over-tightening rod string joints.

6. Turn power unit engine on.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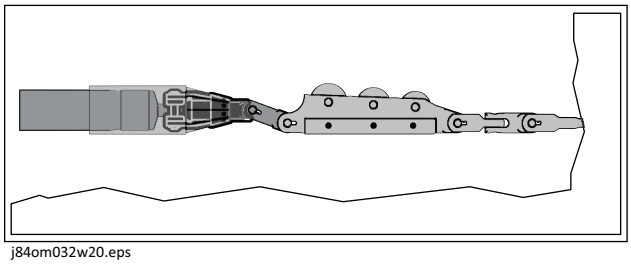
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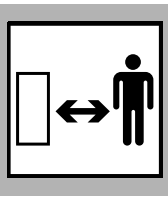
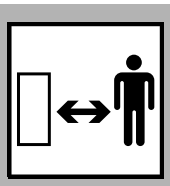
Pull Back Rods

DANGER Turning shaft will kill you or crush arm or leg. Stay away.

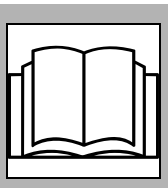
To help avoid injury: Do not hold rod while turning. Burrs and slight imperfections on rods can catch skin, clothing, etc.

WARNING Machine can move suddenly during pullback and rods can reverse rapidly if there is a sudden release of product which could cause serious injury or death.

To help avoid injury:

- Secure machine using proper cribbing and blocking devices in all directions during pullback.
- Operate only from designated area.
- Inspect and rotate rods.
- Replace damaged rods.
- Use proper clamping procedures.

WARNING Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use.

To help avoid injury:

- Maintain 2-way communication between bursting pit and all other personnel.
- Ensure operator has good visibility of rods entering/exiting bursting unit.
- Make sure all personnel are clear of moving parts.
- Keep personnel at the proper operating area. See "Operating Area" on page 6.
- Bursting unit may raise off pit floor under load. Keep hands and feet away.
- Do not attempt to use any part of body to assist rods or product entering/exiting pipe or bursting unit.

IMPORTANT: For unit components, see "Bursting Unit Components" on page 5. For controls, see "Controls" on page 26.

During pullback, it is possible to use both fast pullback and standard pullback options. Fast pullback reduces power. If machine will not pull while using fast pullback, switch to standard pullback. See tables

below for more information.

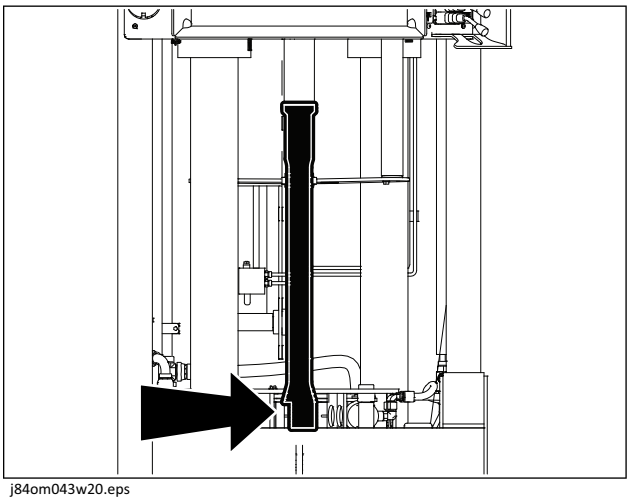
Standard Pullback	
Pressure	**Force**
1000psi (69bar)	39tn (35,000kg)
1500psi (103bar)	58tn (52,500kg)
2000psi (138bar)	77tn (70,000kg)
2500psi (172bar)	96tn (87,500kg)
3000psi (207bar)	115tn (105,000kg)
3500psi (241bar)	135tn (122,000kg)
4000psi (276bar)	154tn (140,000kg)
4500psi (310bar)	173.2tn (157,000kg)

Procedure

1. Place at least one operator/pipe loader in the bursting pit. Keep this person at in operating area (page 6).
2. Start control unit engine. Set engine to high throttle.

> ***NOTICE:*** To shut down control unit from bursting unit, press the remote stop switch. Otherwise, turn engine off at the control unit, using the key or remote stop switch on control unit.

3. Open bungee vise.
4. Pull rod into bursting unit until main cylinders are fully extended.
5. Move spindle forward until rod joint is flush with bungee vise.(shown).
6. Close bungee vise.
7. Close breakout vise and breakout rod.
8. Open breakout vise.
9. Rotate spindle counterclockwise until rod in breakout vise is fully disconnected.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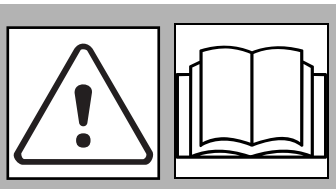
> ***NOTICE:*** Driven shaft can stop spinning, or have difficulty spinning if it comes in contact with load cone or resistance cone. See "Driven Shaft Adjustments" on page 69.

10. Close breakout vise on female end of rod.

11. Rotate spindle to disconnect rod from spindle.
12. Open breakout vise.
13. Remove rod. See "Remove Rod" on page 68.
14. Move spindle to front of machine.
15. Rotate spindle clockwise to connect to rod in bungee vise.
16. Repeat steps 3-15.

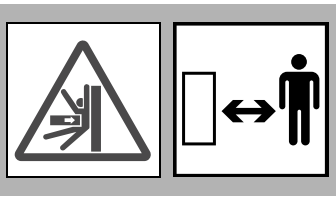
Pull New Product



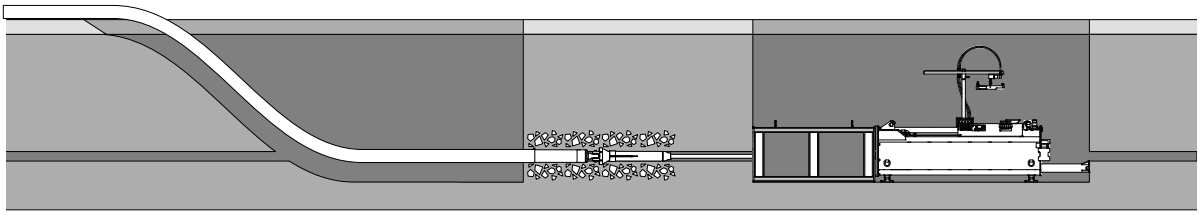
⚠ WARNING Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use.

To help avoid injury:

- Maintain 2-way communication between bursting pit and all other personnel.
- Ensure operator has good visibility of rods entering/exiting bursting unit.
- Make sure all personnel are clear of moving parts.
- Keep personnel at the proper operating area during operation. See "Operating Area" on page 6.
- Bursting unit may raise off pit floor under load. Keep hands and feet away.
- Do not attempt to use any part of body to assist rods or product entering/exiting pipe or bursting unit.



⚠ DANGER Crushing weight could kill or seriously injure. Stay away.



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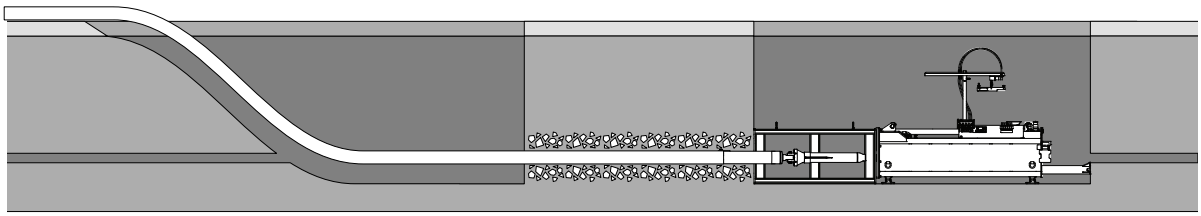
1. Disconnect rod and place in rod box. See "Remove Rod" on page 68.

2. Continue pulling back rod string until bursting/splitting assembly reaches pit.



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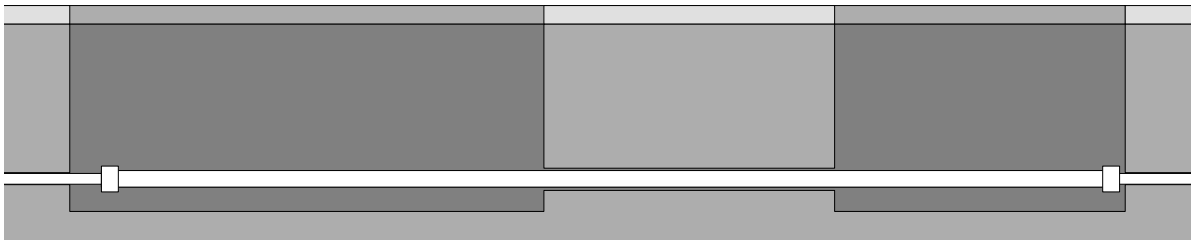
3. Connect one rod onto rod in bursting unit.
4. If not already in place, move bursting unit back in pit and position extraction cage between bursting unit and existing pipe and pit wall.

> **IMPORTANT:** When placing extraction cage, ensure lateral and horizontal stabilizers are disengaged before pushing unit back.
> Ensure extraction cage is level and centered. Move bursting unit forward until it is firmly against extraction cage.

5. Pull bursting/splitting system into extraction cage.
6. Remove extraction cage.
7. Disconnect and remove bursting/splitting system.
8. Remove bursting unit from pit.
9. Connect both ends of new product to existing pipe to complete job.

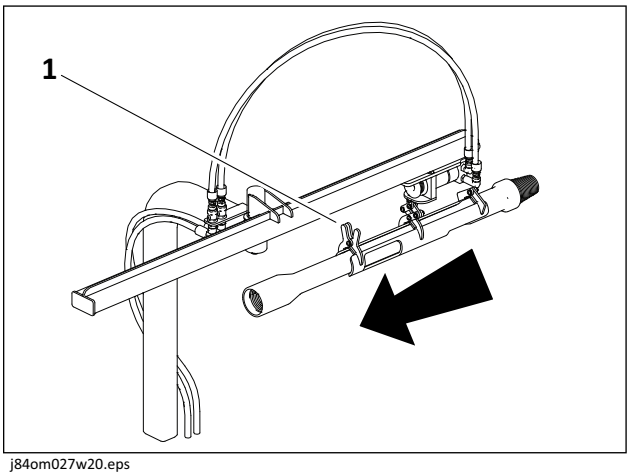


Add Rod

1. Open clamp (1).
2. Lower onto rod in rod box.
3. Close clamp.
4. Raise rod out of rod box.

> ***NOTICE:*** Do not place any body part under pipe. Falling pipe can cause injury.

5. Slide rod and clamp forward.
6. Lower onto rod holder guide.
7. Open clamp to release rod.



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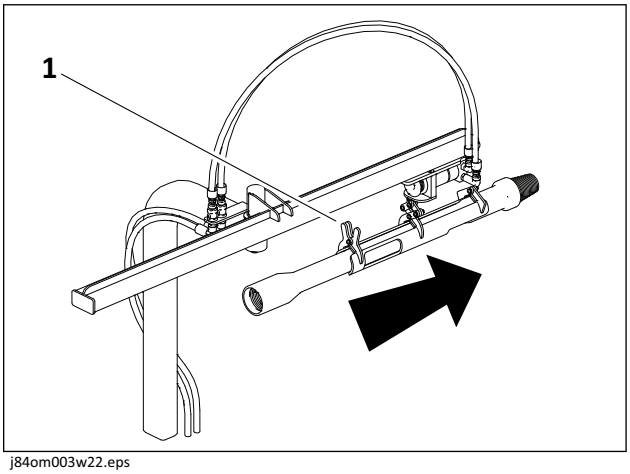
Remove Rod

1. Slide clamp forward.
2. Open clamp (1).
3. Lower onto rod on rod holder guide.
4. Close clamp on rod.
5. Raise out of machine.

> ***NOTICE:*** Do not place any body part under pipe. Falling pipe can cause injury.

6. Slide rod and clamp back.
7. Lower rod into rod box.
8. Open clamp to release rod.



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Driven Shaft Adjustments

Driven shaft can rub against load cone or resistance cone and slow down or stop.

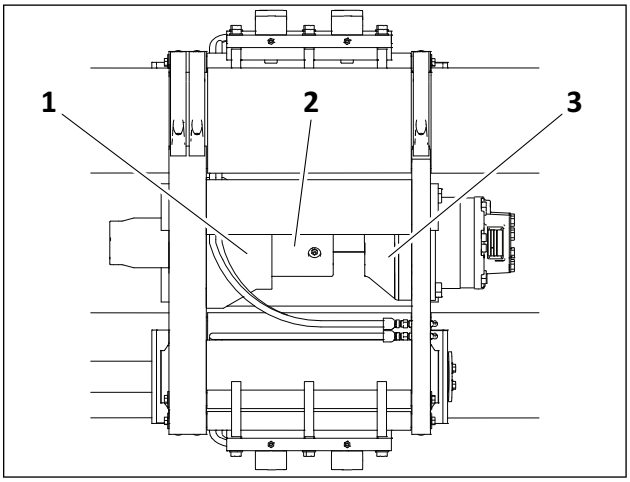
Multiple adjustments may need to be made during the bursting process.

Driven Shaft / Load Cone

If driven shaft (2) rubs against load cone, move spindle carriage (4) toward front of unit to create clearance.

Driven Shaft / Resistance Cone

If driven shaft rubs against resistance cone (3), move the spindle carriage (4) toward the back of the unit to create clearance.



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Troubleshooting

Chapter Contents

Tooling Stuck in Pipe/Ground

If down hole unit tonnage reaches 173.2 tons (4500 psi on pressure gauge) and rod/tooling does not move, tooling string may need to be excavated.

1. Unload and release bungee to relieve all tension on rod.
2. Shut down bursting system.
3. Excavate tooling string and rectify obstruction.
4. Contact dealer for further assistance.

Driven Shaft Slows Down or Stops

1. See "Driven Shaft Adjustments" on page 69.
2. Contact dealer for further assistance.

Rod Joints Do Not Make Up Completely

1. Inspect threads for damage. Replace rods and/or subsaver if necessary.
2. Make sure angular misalignment of rods in pipe to rods in bursting unit is not causing rod threads to bind. Stabilizers may have to be adjusted to reduce and/or remove the misalignment.
3. Contact dealer for further assistance.

Electrical System Does Not Function Properly

1. Make sure umbilical cord is properly connected at both the burst unit and the control unit.
2. Contact dealer for further assistance.

Hydraulic System Does Not Function Properly

1. Make sure hydraulics hoses are connected properly. Quick disconnects must be threaded together completely.
2. Make sure the Throttle/Pressure Switch is on the "on" position on the burst unit.
3. Make sure the Throttle/Pressure Switch is on the "on" position on the control unit.
4. Contact dealer for further assistance.

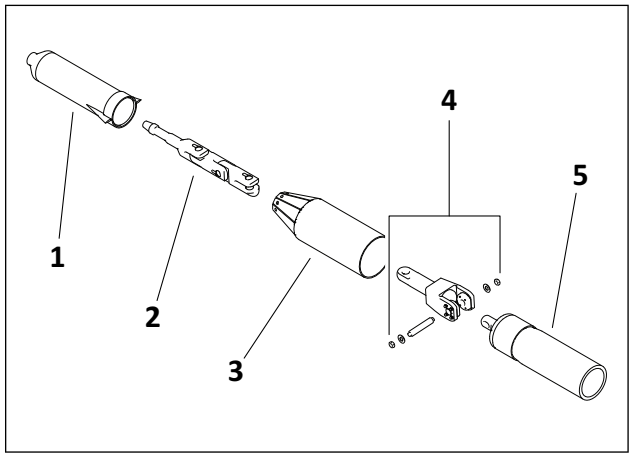
Systems and Equipment

Chapter Contents

Tooling String

Bursting String

Ref.	Description
1	pipe pilot
2	flex joint
3	expander
4	expander rod assembly
5	pipe puller



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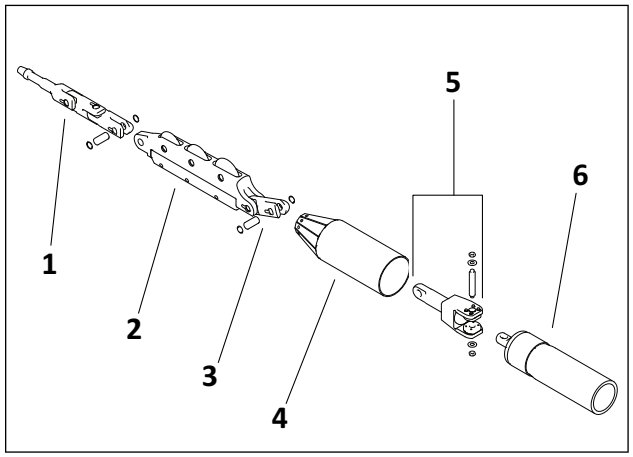
Slitter String

Ref.	Description
1	flex joint
2	slitter assembly
3	trailing pivot rod assembly
4	expander
5	expander rod assembly
6	pipe puller



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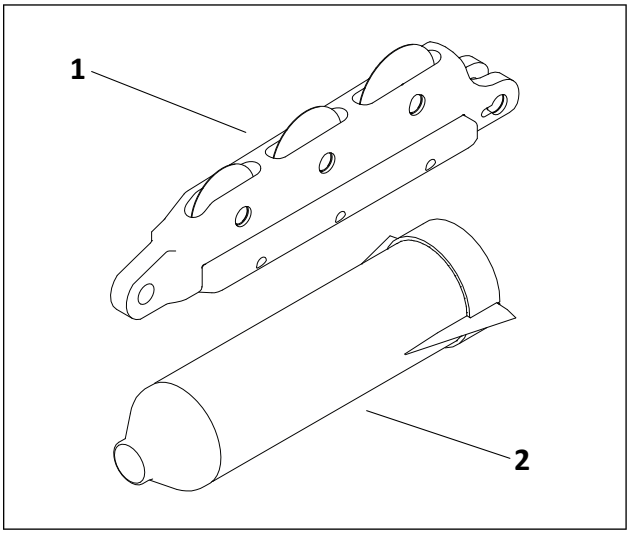
Bursting/Splitting Heads

Identification and Uses

Ref.	Type	Uses
1	slitter	ductile iron, steel, cast iron with repairs
2	pipe pilot	clay, asbestos cement, PVC, PE, cast iron



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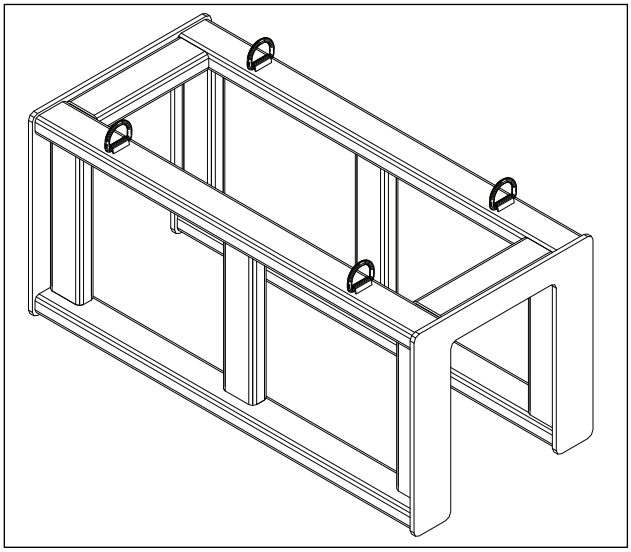
Extraction Cage

The extraction cage allows room to remove the bursting/splitting assembly from the new product after it enters the bursting pit.



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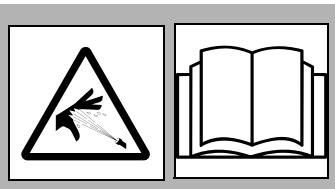
Complete the Job

Chapter Contents

Disconnect Hoses

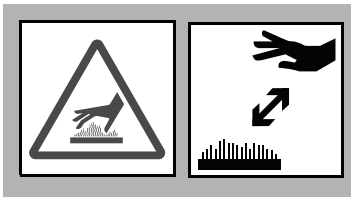


WARNING Pressurized fluid or air could pierce skin and cause severe injury. Refer to operator's manual for proper use.

To help avoid injury:

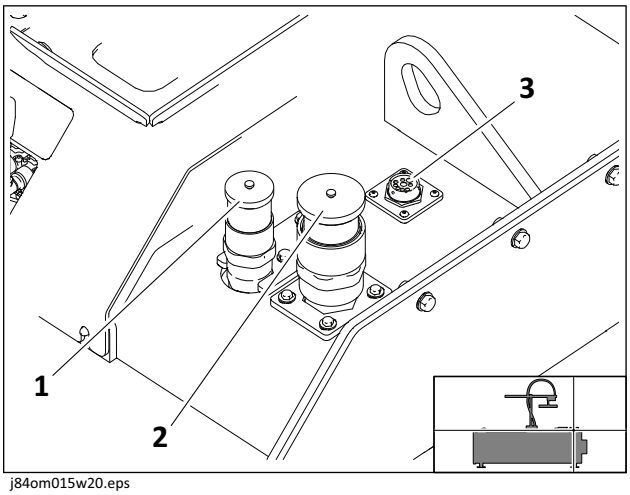
- Always connect return line first and remove last.
- Before using system, check that all connections are tight and all lines are undamaged.

If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.



CAUTION Hot parts may cause burns. Do not touch until cool or wear gloves.

1. Disconnect the pressure line (2) from the bursting unit.
2. Disconnect the return line (1) from the bursting unit.
3. Disconnect electric cable (3) from bursting unit.
4. Wrap hoses around the hooks on the control unit.



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Stow Components

1. Install all covers.
2. Load components onto trailer.
3. Secure all components on trailer.

Restore Jobsite

Fill in installation, bursting and service connection pits.

Stow Tools

Make sure all accessories and tools are loaded and properly secured on trailer.

Store Machine

IMPORTANT: For periods of time exceeding two months:

- Ensure exposed parts are treated with anti-rust agent.
- Touch up paint as needed to prevent rusting.
- Lubricate machine and apply grease to unpainted surfaces.

To store, ensure equipment is stowed, machine is properly rinsed, and all fluids are at appropriate levels. For more information on filling fluids, see Maintenance chapter.

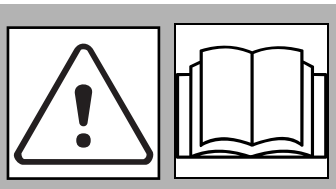
Decommission Machine

Before decommissioning machine, follow local regulations for disposing of hazardous substances.

Maintenance

Chapter Contents

Maintenance Precautions



⚠WARNING Misuse of machine can cause death or serious injury. Read and understand operator's manual and all other safety instructions before use. 273-475

To help avoid injury:

- Unless otherwise instructed, all maintenance should be performed with engine off.
- Refer to engine manufacturer's manual for engine maintenance instructions.
- Refer to US Occupational Safety and Health Administration (OSHA) guidelines for appropriate lockout-tagout procedures.

Recommended Lubricants/Service Key

Item	Description
EPRG	Extreme-Pressure Grease - high temperature red D4950-07 LB-GC
EPX	Epoxy - thread locking two-part. Part number 915-0003
RJL	Rod Joint Grease - Antiseize MIL-A-907E
	Check level of fluid or lubricant
	Check condition
	Filter
	Change, replace, adjust, service or test

Proper lubrication and maintenance protects HammerHead® equipment from damage and failure. Service intervals listed are minimum requirements. In extreme conditions, service machine more frequently. Use only recommended lubricants.

NOTICE:

- Use only genuine HammerHead parts and approved lubricants to maintain warranty.
- Use the "Service Record" on page 99 to record all required service to your machine.

Each Use

Tasks	Notes
Inspect rods/pipes	after each use
Clean jaw	after each use
Inspect lift assist rope	after each use

Inspect Rods/Pipes

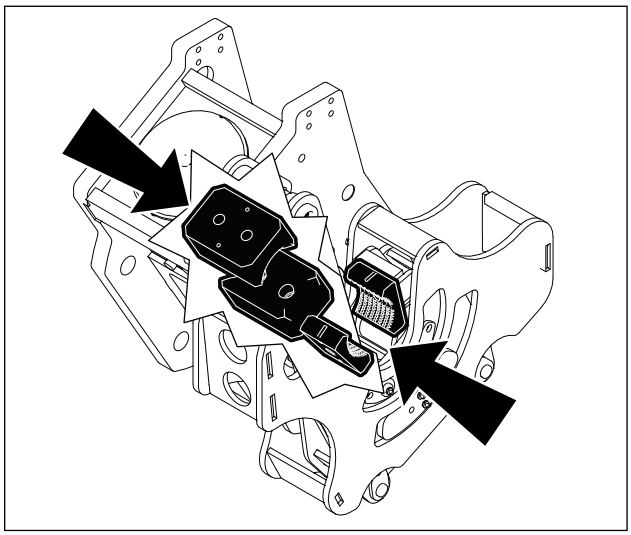
Inspect rods/pipes after each use. Ensure rods/pipes are not:

- severely bent
- gouged more than 1/8" (3.2 mm) on hollow sections
- cracked

NOTICE: If rods/pipes are damaged, replace immediately.

Clean Jaw

Clean breakout jaw and bungee jaw with high-pressure water after each job. Brush jaws with wire brush to remove debris.



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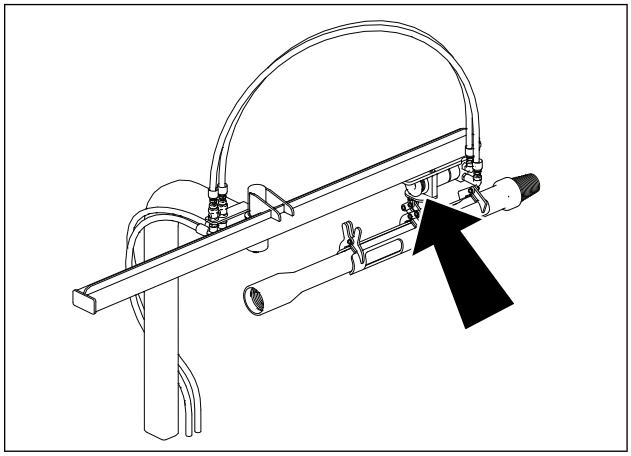
Inspect Lift Assist Rope

Inspect lift assist rope for tears or frays. If damage is found, replace rope.



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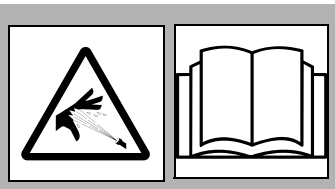
50 Hour

Task	Notes
Check hydraulic hoses	
Change hydraulic pressure filter	initial change

Check Hydraulic Hoses



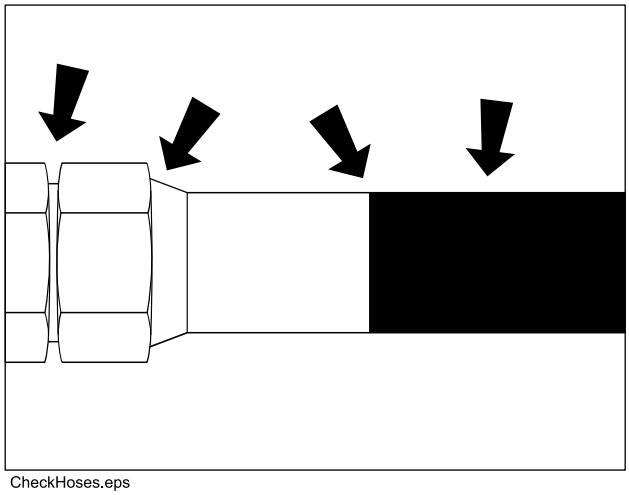
WARNING Pressurized fluid or air could pierce skin and cause severe injury. Refer to operator's manual for proper use.

To help avoid injury:

- Use a piece of cardboard or wood, rather than hands, to search for leaks.
- Wear protective clothing, including gloves and eye protection.
- Before disconnecting a hydraulic line, turn engine off and operate all controls to relieve pressure.
- Lower, block, or support any raised component with a hoist.
- Cover connection with heavy cloth and loosen connector nut slightly to relieve residual pressure. Catch all fluid in a container.
- Before using system, check that all connections are tight and all lines are undamaged.

If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.

Check hydraulic hoses for leaks.



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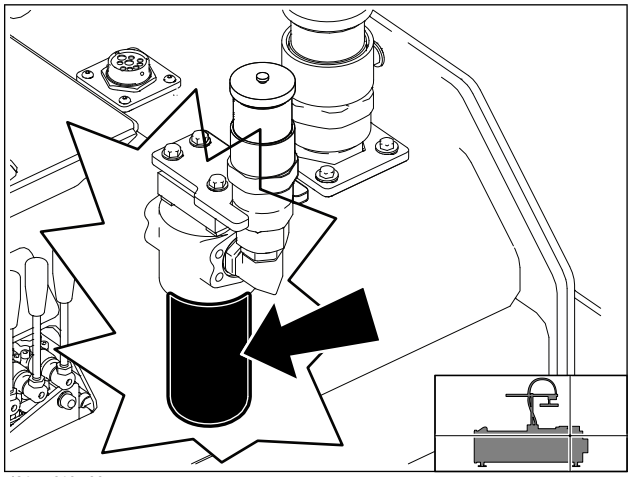
Change Hydraulic Pressure Filter (initial)

Change hydraulic pressure filter after 50 hours initially, and every 200 hours thereafter.



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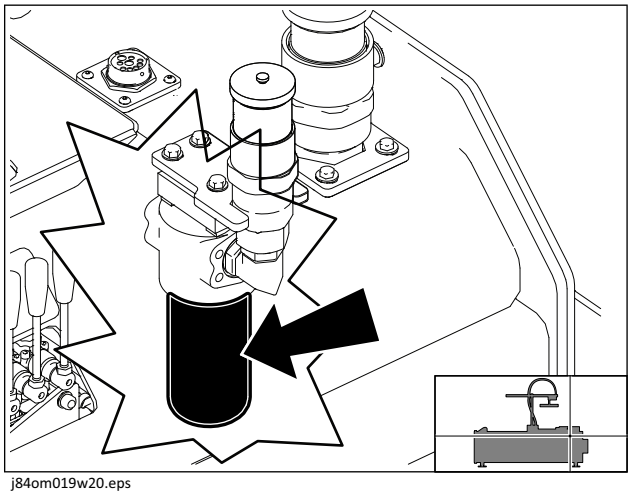
200 Hour

Task	Notes
Change hydraulic pressure filter	

Change Hydraulic Pressure Filter

Change hydraulic pressure filter every 200 hours.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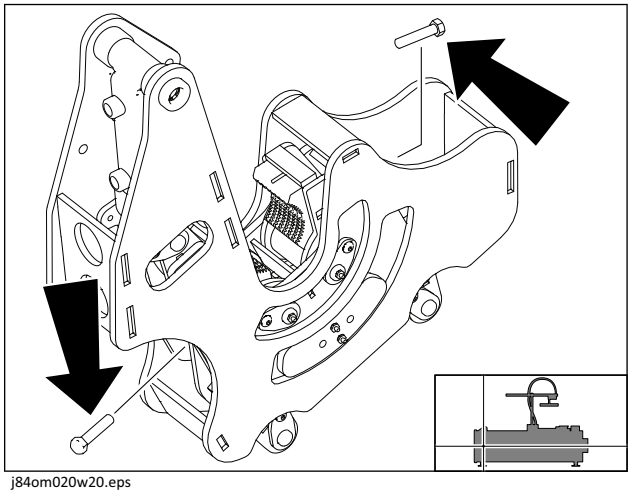
As Needed

Task	Notes
Replace jaws	Breakout vise and bungee vise
Replace carriage wheels	
Replace rod holder guide	
Replace sub-saver	EPX
Lube rod/pipe threads	RJL
Lube breakout vise	EPRG
Lube spindle	EPRG
Lube super swivels	EPRG

Replace Jaws

Breakout Vise

1. Remove two bolts and two bushings (shown) to remove jaws.
2. Replace jaws.
3. Reinstall bolts and bushings.



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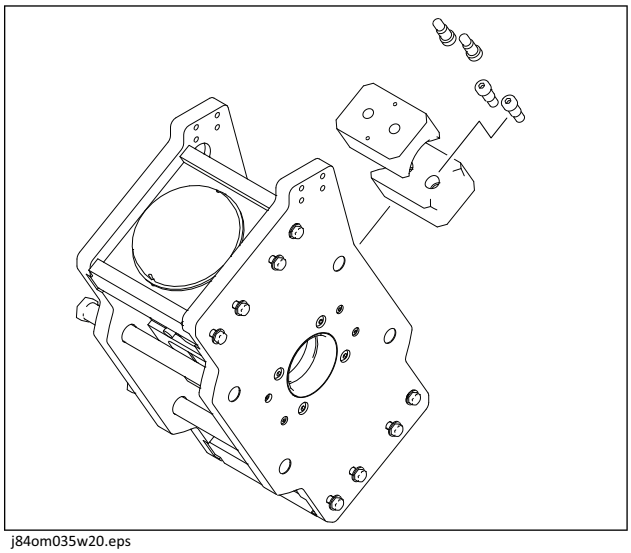
Bungee Vise

1. Remove four shoulder screws.
2. Replace jaws.
3. Reinstall shoulder screws.



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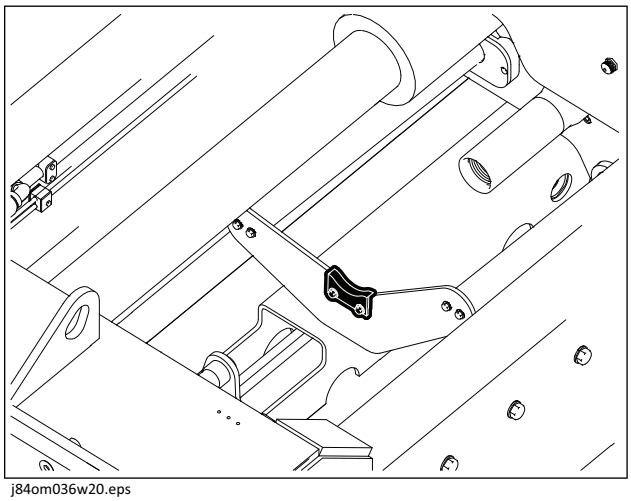
Replace Rod Holder Guide

1. Remove bolts holding plastic guides in place.
2. Remove worn guide.
3. Reinstall new guide using existing hardware.



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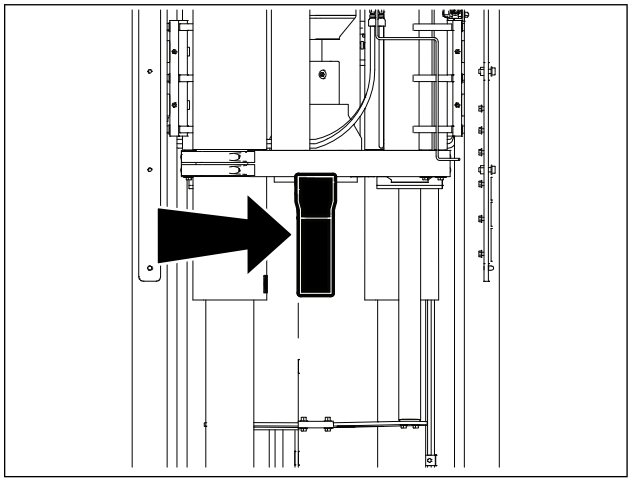
Replace Sub-Saver

Remove Sub-Saver

1. Use an acetylene torch to heat sub-saver.

NOTICE: Thread locking compound will release at 500°-600° F (260° - 315° C)

2. Move spindle forward.
3. Close breakout vise.
4. Turn spindle to detach saver sub.
5. Open breakout vise and remove saver sub.



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Install Sub-Saver

6. Clean sub-saver and spindle shaft with solvent and rinse with water. Remove all grease, moisture, and foreign matter. Remove rust with a wire brush.
7. Mix EPX two-part thread locking compound until completely blended with no visible streaks.
8. Apply compound to entire circumference of the first 2/3 of the male sub-saver threads.
9. Install sub-saver on spindle.
10. Move spindle forward.
11. Close breakout vise.
12. Turn spindle at maximum torque to secure new sub-saver.

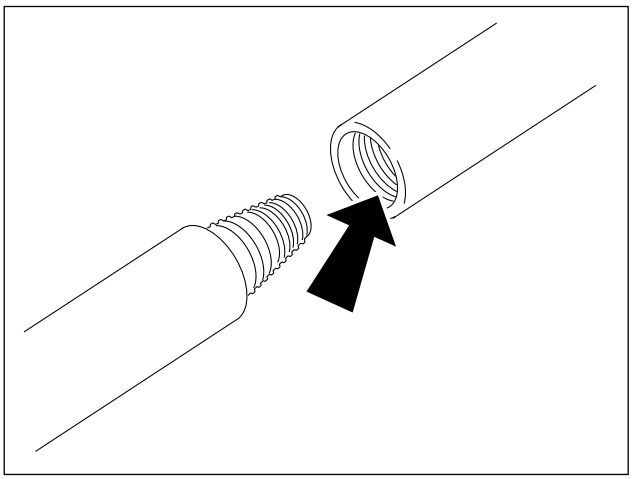
NOTICE: Contact HammerHead dealer for instructions to achieve maximum torque.

Lube Rod/Pipe Threads

Lube with RJL antiseize lubricant as needed.

NOTICE:

- Apply lubricant to female threads only.
- If rod/pipe threads are damaged, replace immediately.
- Ensure rods/pipes are free from any dirt or debris.



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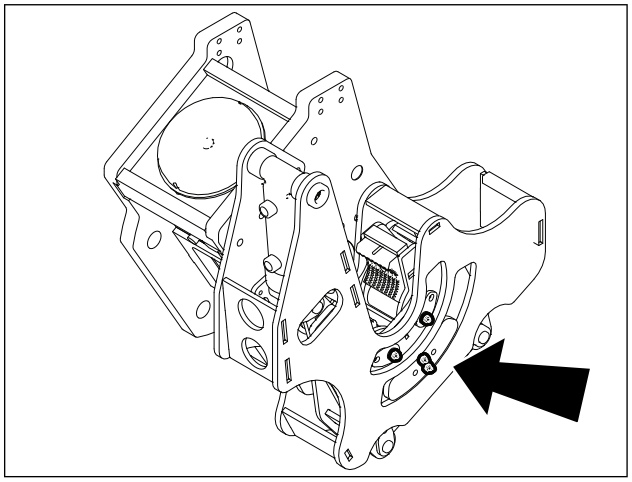
Lube Breakout Vise

Lube grease fitting with EPRG extreme pressure grease as needed.



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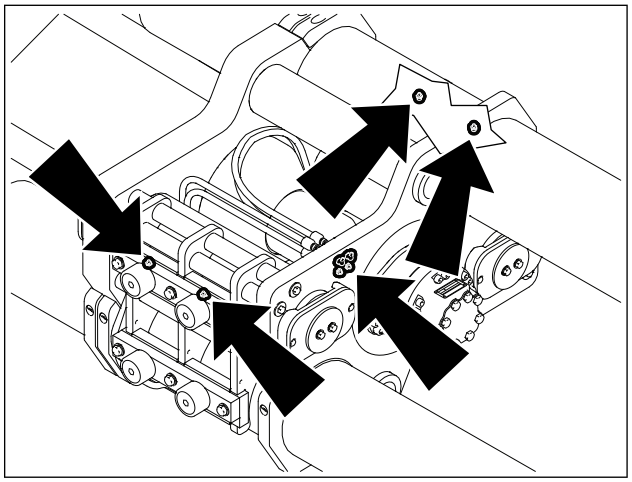
Lube Spindle

Lube grease fittings with EPRG extreme pressure grease as needed.



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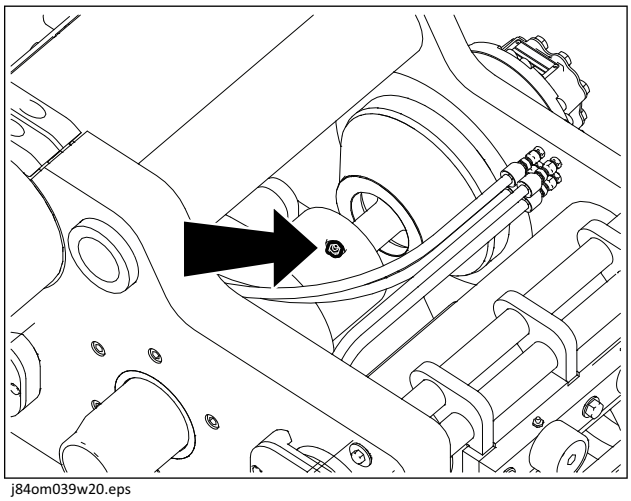
Lube Super Swivels

Lube grease fitting with EPRG extreme pressure grease as needed.



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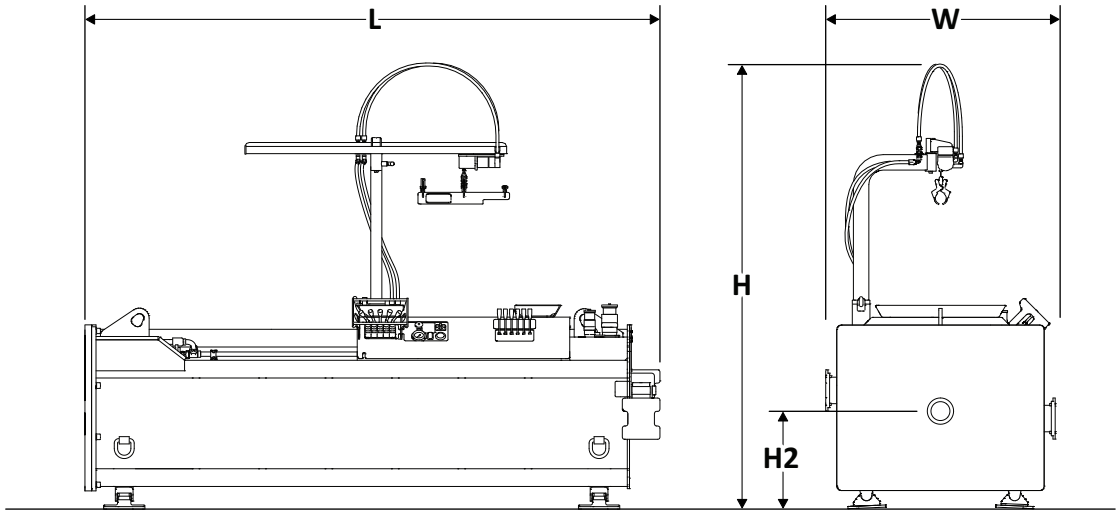
Specifications

Bursting Unit



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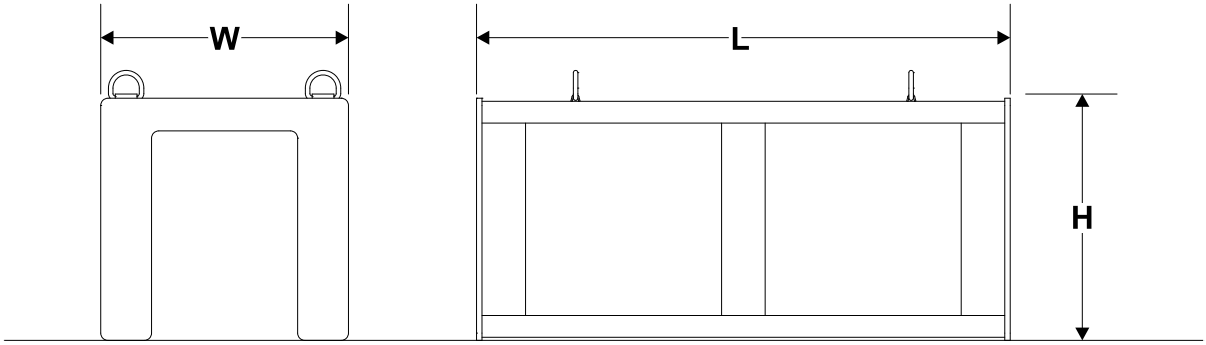
Dimensions	U.S.	Metric
L, length	129.9 in	3.3 m
W, width	52 in	1320.8 mm
H, height	92 in	2.3 m
H2, rod height	21.9 in	556.3 mm
Weight, mass	9200 lb	4172 kg

Operational	U.S.	Metric
Push force	15 ton	13.6 tonne
Pullback force	173.2 ton	157.1 tonne
Working pressure	4450-4550 psi	307-314 bar
Working flow rate	41-43 gpm	155-163 L/min
Hydraulic fluid requirements:		
	Fluid must meet ISO 32.	
	Cleanliness level must meet ISO 18/15/13.	

Rod	U.S.	Metric
Length	39.3 in	1 m
Diameter	3.5 in	88.9 mm
Weight, mass	61 lb	27.7 kg

Extraction Cage



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Dimensions	U.S.	Metric
L, length	72 in	1.8 m
W, width	47.5 in	1.2 m
H, height	39.5 in	1 m
Weight, mass	1700 lb	771 kg

EU Declaration of Conformity

Countries in the European Union should have received a Declaration of Conformity (DOC) with this machine similar to the example below.

Earth Tool Company, A Division of The Charles Machine Works Inc., 500 South C.P. Avenue, Lake Mills, Wisconsin, 53551, USA, declares that the following unit(s):

Model	**Serial Number**	**Description**
XXXXX	(Model)XXXXX	(Product Description)

Conform(s) to the following directives:

2006/42/EC (Machinery Directive)

Conformity Assessment: XXXXX

The Technical Construction File is maintained at the manufacturer's location.

Each model listed has been evaluated with the following standards and/or other normative documents:

EN ISO XXXXX, ISO XXXXX

The manufacturer's European representative is:

Ditch Witch Barcelona
International Underground Systems, S.L.
C/EL PLA, 130 * Poligon Industrial El Pla
08980 Sant Feliu De Llobregat * Spain
Phone: +34 93 632 7344
FAX: +34 93 632 7343

Support

Procedure

Notify your dealer immediately of any malfunction or failure of HammerHead® equipment.

Always give model, serial number, and approximate date of your equipment purchase. This information should be recorded and placed on file by the owner at the time of purchase.

Return damaged parts to dealer for inspection and warranty consideration if in warranty time frame.

Order genuine HammerHead replacement or repair parts from your authorized HammerHead dealer. Use of another manufacturer's parts may void warranty consideration.

Resources

Publications

Contact your HammerHead dealer for publications and videos covering safety, operation, service, and repair of your equipment.

HammerHead Training

For information about on-site, individualized training, contact your HammerHead dealer.

Warranty

Limited Warranty Policy

Earth Tool Company LLC, hereinafter sometimes referred to as ETC warrants each new industrial product of its own manufacture to be free from defects in material and workmanship, under normal use and service for one full year after delivery to the owner or 1000 operating hours, whichever occurs first. During the warranty period, the authorized selling HammerHead® Dealer shall furnish parts without charge for any HammerHead product that fails because of defects in material and workmanship. Warranty is void unless warranty registration card is returned within ten days from the date of purchase. This warranty and any possible liability of Earth Tool Company LLC here under is in lieu of all other warranties, express, implied, or statutory, including, but not limited to any warranties of merchantability or fitness for a particular purpose.

The parties agree that the Buyer's SOLE AND EXCLUSIVE REMEDY against ETC, whether in contract or arising out of warranties, representations, or defects shall be for the replacement or repair of defective parts as provided herein. In no event shall ETC's liability exceed the purchase price of the product. The Buyer agrees that no other remedy (including, but not limited to, incidental or consequential loss) shall be available to him. If, during the warranty period, any product becomes defective by reason of material or workmanship and Buyer immediately notifies ETC of such defect, ETC shall, at its option, supply a replacement part or request the return of the product to its plant in Lake Mills, Wisconsin. No part shall be returned without prior written authorization from ETC, and this warranty does not obligate ETC to bear any transpiration charges in connection with the repair or replacement of defective parts. Earth Tool Company LLC will not accept any charges for labor and/or parts incidental to the removal or remounting of parts repaired or replaced under this Warranty.

This Warranty shall not apply to any part or product which shall have been installed or operated in a manner not recommended by ETC nor to any part or product which shall have been neglected, or used in any way which, in ETC's opinion, adversely affects its performance; nor negligence of proper maintenance or other negligence, fire or other accident; nor with respect to wear items; nor if the unit has been repaired or altered outside of an ETC authorized dealership in a manner of which, in the sole judgment of ETC affects its performance, stability or reliability; nor with respect to batteries which are covered under a separate adjustment warranty; nor to any product in which parts not manufactured or approved by ETC have been used, nor to normal maintenance services or replacement of normal service items. Equipment and accessories not of our manufacture are warranted only to the extent of the original Manufacturer's Warranty and subject to their allowance to us, if found defective by them. ETC reserves the right to modify, alter, and improve any product or parts without incurring any obligation to replace any product or parts previously sold with such modified, altered, or improved product or part. No person is authorized to give any other Warranty, or to assume any additional obligation on ETC's behalf unless made in writing, and signed by an officer of ETC.

EARTH TOOL COMPANY LLC

Lake Mills, Wisconsin

Service Record

Service Performed	Date	Hours

Service Performed	Date	Hours