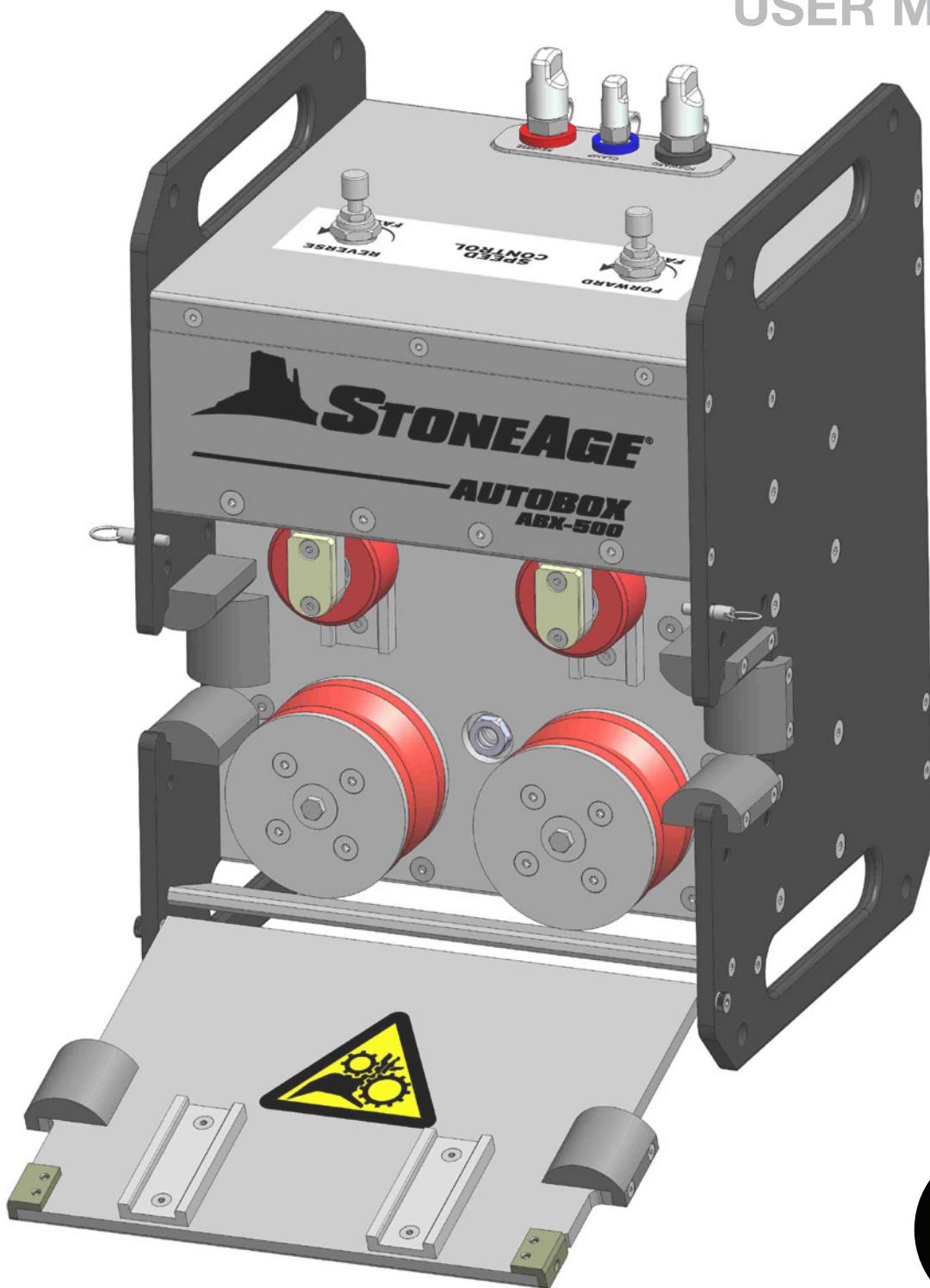




# AUTOBOX® (ABX-500-V2) USER MANUAL



PL 596-V2 REV E

(12/2016)

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**MANUFACTURER'S INFORMATION**

StoneAge Inc.  
466 S. Skylane Drive  
Durango, CO 81303  
Phone: 970-259-2869  
Toll Free: 866-795-1586  
[www.stoneagetools.com](http://www.stoneagetools.com)

Andrew Birt Consulting Ltd.  
UK

This manual must be used in accordance with all applicable national laws. The manual shall be regarded as a part of the machine and shall be kept for reference until the final dismantling of the machine, as defined by applicable national law(s).

**SPECIFICATIONS**

Holding Force <sup>1</sup>	Up to 200 lbs (90 kg)
Hose Feed Rate	1-30 ft/min (305-9144 mm/min) Forward
Hose Retract Rate	20-30 ft/min (6096 - 9144 mm/min) Reverse
Hose Size <sup>2</sup>	0.56-1.75 in (14-45 mm) OD
Coupling Size	Up to 1.75 in (45 mm) - standard 3/4 in NPT coupling
Dimensions	19 in H x 13 in W x 12 in D (483 mm x 300 mm x 305 mm)
Weight	90 lbs (41 kg)
Max Air Supply Pressure	100 psi (0.7 MPa)
Max Air Consumption	70 cfm (.03 m <sup>3</sup> /s) at 100 psi (0.7 MPa)

<sup>1</sup> Maximum retarding force is 90 kg (200 lb) under most conditions. When using the AUTOBOX® (ABX-500-V2) in oily or slippery applications, this value will be reduced significantly based on hose size, hose cover type, lubricating properties of the product, etc. Conversely, a large, dry hose can experience retarding forces in excess of 90 kg (200 lb).

<sup>2</sup> The AUTOBOX® (ABX-500-V2) can also be used to feed rigid pipe or lance with an OD range of 0.56-1.75 in. (14-45 mm). The pipe or lance MUST be securely supported on both ends.

**DESCRIPTION OF EQUIPMENT AND INTENDED USE**

The AUTOBOX® (ABX-500-V2) is a safe and reliable hose handling option for cleaning pipes with rotary jetting tools. Traditional methods require the operator to hand feed a hose while cleaning pipes, which can cause streaking, fatigue and increased safety risk.

The AUTOBOX® (ABX-500-V2) is a portable, air powered device. The operator places the hose into the side of the machine then feeds the hose using the control panel of the control box. The feed rate can be adjusted to meet the demands of each pipe cleaning job. The unit accommodates hose couplings for continuous operation.

The AUTOBOX® (ABX-500-V2) must not be put into service within the European Community ("EC") until the final machinery into which it is to be incorporated has been declared in conformity with the Machinery Directive and all other applicable EC Directives.

**IDEAL FOR:**

- Hands-free pipe cleaning operations where safety is a priority
- Consistent cleaning of pipes where space is limited

**TOOL BENEFITS:**

- Safely operated from outside the water blast zone
- Requires a single operator to run
- Reduces hose wear
- Smaller, lighter, and more portable than a rotary hose device
- Passes couplings for continuous operation



**CE DECLARATION OF INCORPORATION  
OF PARTLY COMPLETED MACHINERY**

We: StoneAge, Inc. 466 South Skylan Drive Durango, CO 81303, USA

Declare that this "partly completed machinery" supplied with this declaration:

Equipment: AUTOBOX® Hose Tractor

Model name: ABX-500-V2 Is in accordance with the following Directives: and

- is designed and manufactured solely as a non-functional component to be incorporated into a machine requiring completion;
- must not be put into service within the European Community ("EC") until the final machinery into which it is to be incorporated has been declared in conformity with the Machinery Directive and all other applicable EC Directives; and
- is designed and manufactured to comply with the 2006/42/EC Essential Health and Safety Requirements of the Machinery Directives and the relevant parts of the following specifications:

EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction

I hereby declare that the equipment named above has been tested and found to comply with the relevant sections of the above referenced specifications and directives.

Signed \_\_\_\_\_ Date 07/01/2015

Andrew Birt

Independent Dealer Manager

StoneAge, Inc., Worcester, UK

The technical file for the AUTOBOX® Hose Tractor (ABX-500-V2) User Manual is maintained at: StoneAge, Inc. 466 South Skylan Drive, Durango, CO 81303, USA

## WARNING AND SAFETY INSTRUCTIONS

### OPERATOR TRAINING

Managers, Supervisors, and Operators MUST be trained in Health and Safety Awareness of High-pressure Water Jetting and hold a copy the Water Jetting Association (WJA) Code of Practice, or equivalent (see [www.waterjetting.org.uk](http://www.waterjetting.org.uk)).

Operators MUST be trained to identify and understand all applicable standards for the equipment supplied. Operators should be trained in manual handling techniques to prevent bodily injury.

StoneAge has designed and manufactured this equipment considering all hazards associated with its operation. StoneAge assessed these risks and incorporated safety features in the design. StoneAge **WILL NOT** accept responsibility for the results of misuse.

**IT IS THE RESPONSIBILITY OF THE INSTALLER/OPERATOR** to conduct a job specific risk assessment prior to use. Job specific risk assessment MUST be repeated for each different set up, material, and location.

The risk assessment MUST conform to the Health and Safety at Work Act 1974 and other relevant Health and Safety legislation.

### PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Use of Personal Protective Equipment (PPE) is dependent on the working pressure of water and the cleaning application. Managers, Supervisors, and Operators MUST carry out a job specific risk assessment to define the exact requirements for PPE. See Protective Equipment for Personnel (Section 6) of WJTA-IMCA's Recommended Practices For The Use Of High-pressure Water jetting Equipment for additional information.

Hygiene - Operators are advised to wash thoroughly after all water jetting operations to remove any waterblast residue which may contain traces of harmful substances.

First aid provision - users MUST be provided with suitable first aid facilities at the operation site.

### SAFETY LABEL DEFINITIONS

The AUTOBOX® (ABX-500-V2) has the potential to cause serious injury if fingers, hair, or clothing become caught between the hose rollers or drive belts.

DO NOT OPERATE WITH THE DOORS OPEN. ENSURE THAT ALL FOUR DOOR PINS ARE SECURED PRIOR TO OPERATION.



Operators MUST read, understand, and follow the Operational and Training Requirements (Section 7.0) of WJTA-IMCA's Recommended Practices For The Use Of High-pressure Water jetting Equipment, or equivalent.

Operators MUST read, understand and follow the Warnings, Safety Information, Assembly, Installation, Connection, Operation, Transport, Handling, Storage, and Maintenance Instructions detailed in this manual.

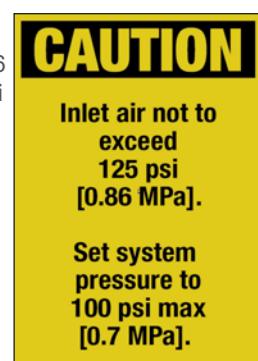
The risk assessment MUST consider potential material or substance hazards including:

- Aerosols
- Biological and microbiological (viral or bacterial) agents
- Combustible materials
- Dusts
- Explosion
- Fibers
- Flammable substances
- Fluids
- Fumes
- Gases
- Mists
- Oxidizing Agents

### PPE may include:

- **Eye protection:** Full face visor
- **Foot protection:** Kevlar® brand or steel toe capped, waterproof, non-slip safety boots
- **Hand protection:** Waterproof gloves
- **Ear protection:** Ear protection for a minimum of 85 dBA
- **Head protection:** Hard hat that accepts a full face visor and ear protection
- **Body protection:** Multi-layer waterproof clothing approved for water jetting
- **Hose protection:** Hose shroud
- **Respiratory protection:** May be required; refer to job specific risk assessment

Maximum operating air pressure is 100 psi (0.7 MPa). Never exceed 125 psi (0.86 MPa) supply pressure. Exceeding 125 psi (0.86 MPa) supply pressure may result in injury to the Operator and/or damage to the equipment.



## WARNING AND SAFETY INSTRUCTIONS

### ⚠️ WARNING

Operations with this equipment can be potentially hazardous. Caution MUST be exercised prior to and during machine and water jet tool use. Please read and follow all of these instructions, in addition to the guidelines in the WJTA Recommended Practices handbook, available online at [www.wjta.org](http://www.wjta.org). Deviating from safety instructions and recommended practices can lead to severe injury and/or death.

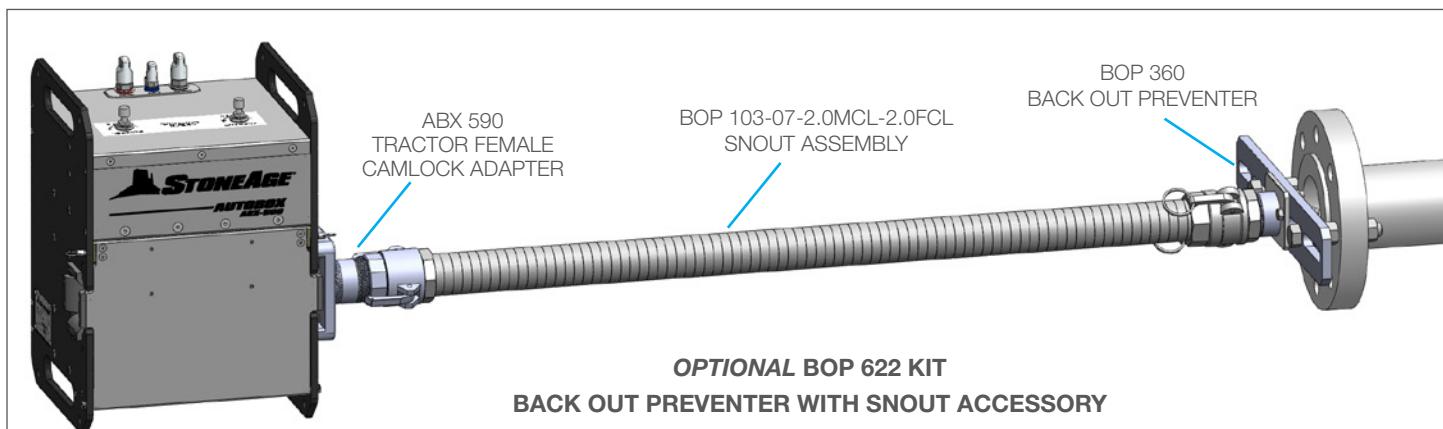
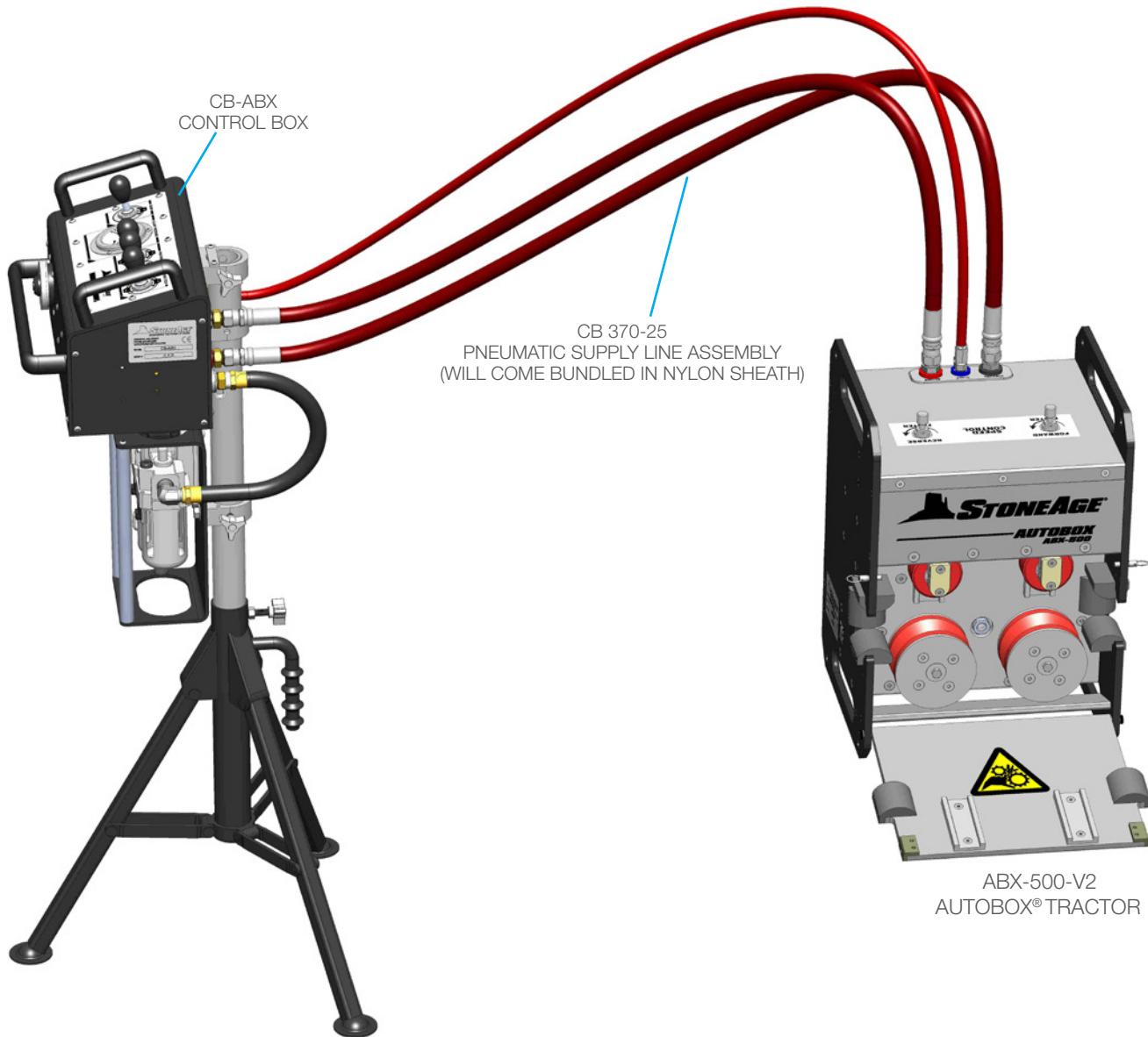
- Do not exceed the maximum operating pressure specified for any component in a system. The immediate work area MUST be marked off to keep out untrained persons.
- Inspect the equipment for visible signs of deterioration, damage, and improper assembly. Do not operate until repaired. Make sure all threaded connections are tight and free of leaks.
- Users of the AUTOBOX® (ABX-500-V2) Hose Tractor MUST be trained and/or experienced in the use and application of high-pressure technology and cleaning, as well as all associated safety measures, according to the WJTA Recommended Practices for the use of High-pressure Water jetting Equipment.
- An anti-withdrawal device (back-out preventer) MUST be used at all times and MUST be securely attached to the pipe. StoneAge offers several different sized high quality back-out preventers that can be used with the AUTOBOX® (ABX-500-V2).
- The Control Box should be located in a safe location where the operator has good visibility of the pipe and hose. The AUTOBOX® (ABX-500-V2) and Control Box MUST be supervised at all times and should never be left unattended.
- Do not fully release the hose clamp (decreasing pressure to zero) during operation, or the AUTOBOX® (ABX-500-V2) Hose Tractor will release the hose and may create a dangerous runaway hose condition, which can result in severe injury and/or death.
- Always de-energize the system before opening the door to service or replace any parts. Failure to do so can result in severe injury and/or death.
- When moving the AUTOBOX® (ABX-500-V2) lift with care to prevent bodily injury.

### PRE-RUN SAFETY CHECK

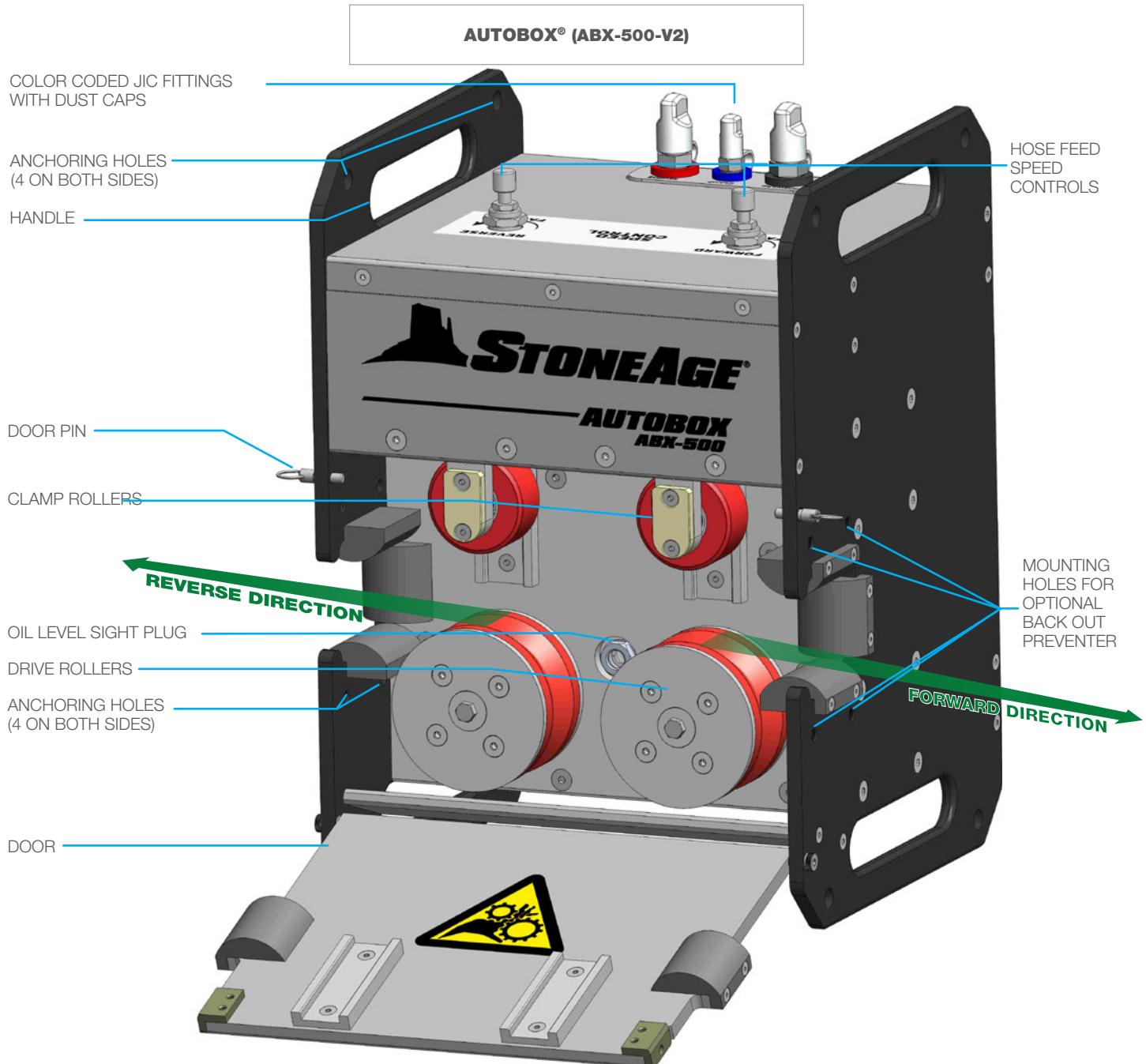
Refer to WJTA-IMCA's, Recommended Practices For The Use Of High-pressure Water jetting Equipment and/or The Water Jetting Association's, WJA Code of Practice for additional safety information.

- Complete a job specific risk assessment and act on the resulting actions.
- Ensure the waterblasting zone is properly barricaded and that warning signs are posted.
- Adhere to all site safety procedures.
- Ensure no personnel are in the hydroblasting zone.
- Ensure the work place is free of unnecessary objects (e.g. loose parts, hoses, tools).
- Ensure all operators are using the correct Personal Protective Equipment (PPE).
- Ensure that an anti-withdrawal device (back-out preventer), whip checks (hose whips), and all other applicable safety devices are installed and set-up properly.
- Check that the air hoses are properly connected and tight.
- Check all hoses and accessories for damage prior to use. Do not use damaged items. Only high quality hoses intended for waterblast applications should be used as high-pressure hoses.
- Ensure that operators never connect, disconnect, or tighten hoses, adapters, or accessories with the high-pressure water pump unit running.
- Test the Control Box before operating the AUTOBOX® (ABX-500-V2) with high-pressure water to verify the control valves move the hose in the intended direction, and that the dump valve is working properly.
- Check that the AUTOBOX® (ABX-500-V2) Hose Tractor is anchored securely for the application and pressure of the waterjet tool being used.
- Check all high-pressure threaded connections for tightness.
- Ensure the door of the AUTOBOX® (ABX-500-V2) is closed and securely latched.

**AUTOBOX® (ABX-500-V2) AND  
CONTROL BOX SYSTEM (CB-ABX) ASSEMBLIES**



## AUTOBOX (ABX-500-V2) - OVERVIEW

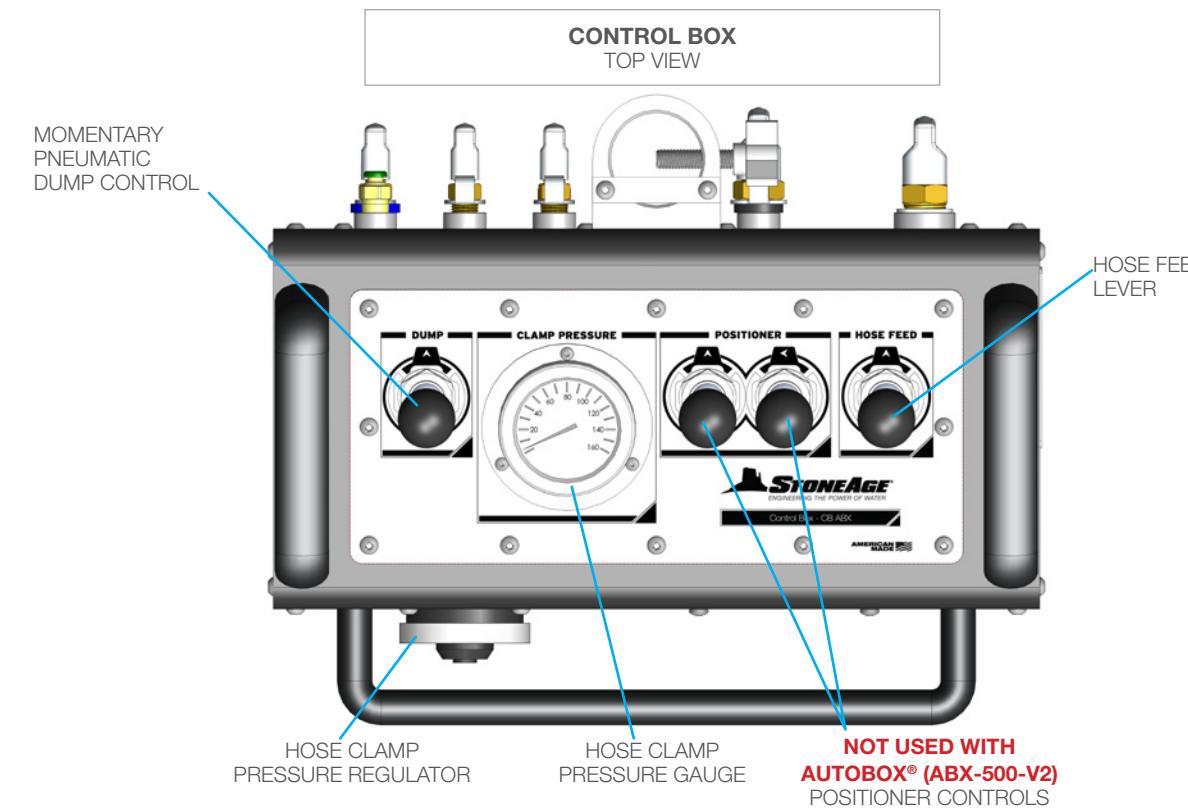


PNEUMATIC SUPPLY LINES (CB 370-25)

25 FT / 7620 mm

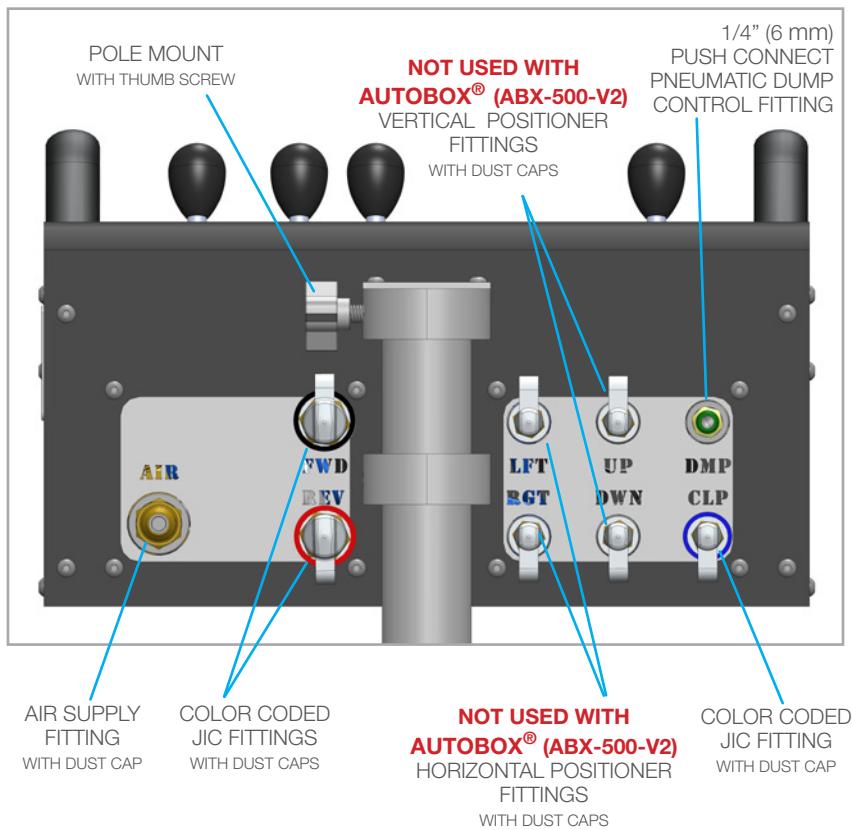
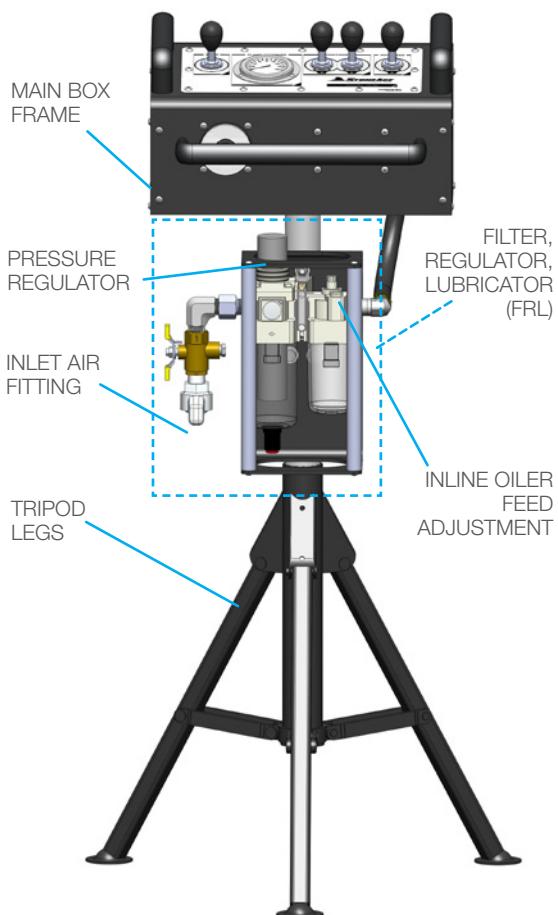


## CONTROL BOX - OVERVIEW



**CONTROL BOX**  
FRONT VIEW

**CONTROL BOX**  
REAR VIEW

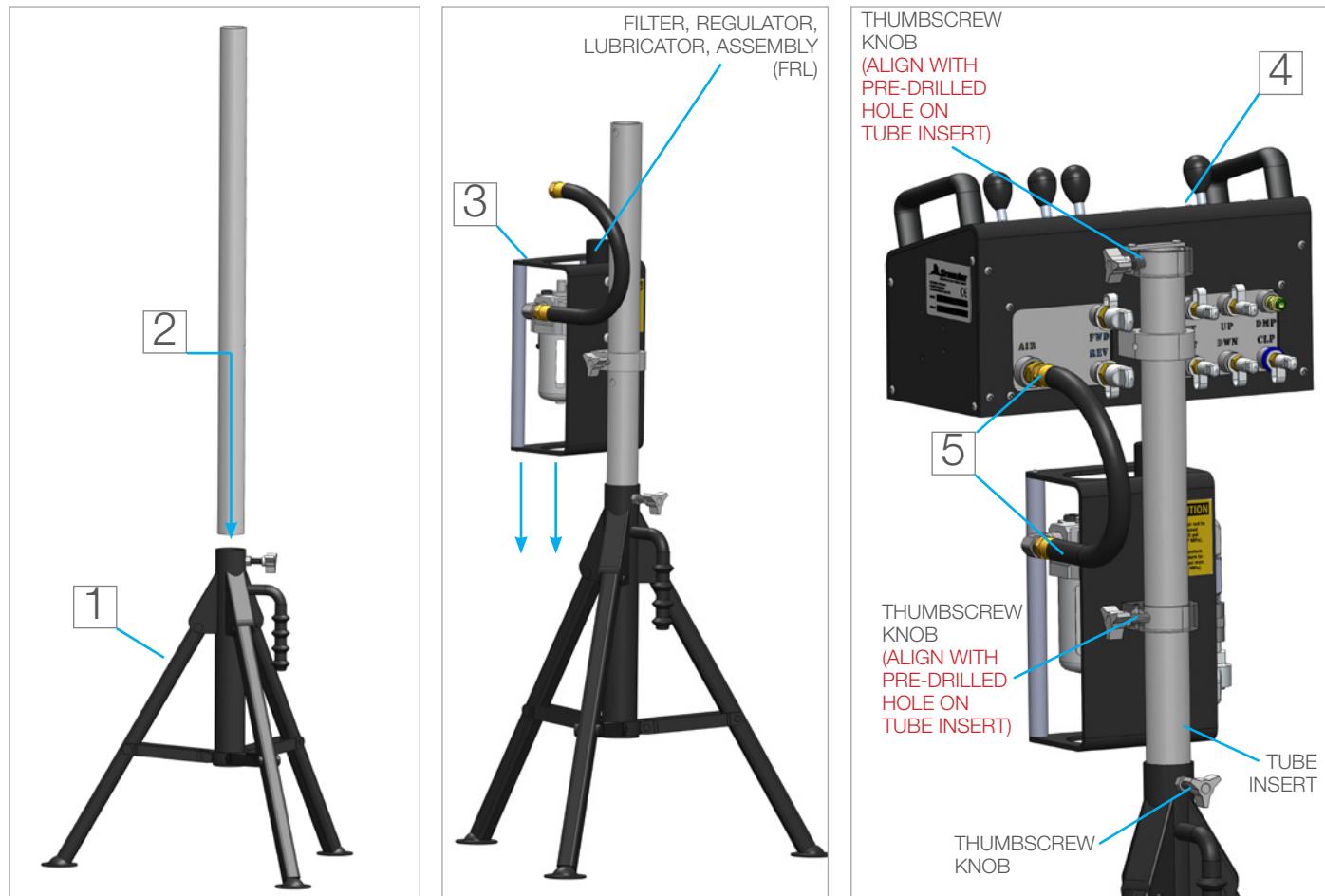


## CONTROL BOX SET-UP

### ASSEMBLE CONTROL BOX, FRL, AND TRIPOD BASE

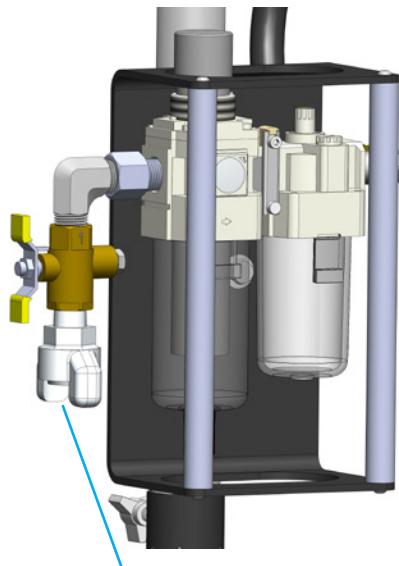
1. Setup the tripod base in a location with good visibility to the bundle face, but at a safe distance away from waterblast zone.
2. Slide the vertical tube into the tripod base. Secure with the supplied thumbscrew knob. Note: The vertical tube has a hole through one wall that the thumbscrew must engage.
3. Slide the Filter, Regulator, Lubricator (FRL) assembly over the vertical tube down to the tripod base. Secure with the supplied thumbscrew knob.
4. Slide the Control Box over the vertical tube. The Control Box has a stop that keeps it located at the top of the vertical tube. Secure with the supplied thumbscrew knob.
5. Install the short 1/2 in. (13 mm) I.D. hose between the FRL and the Control Box.

**Note: The vertical tube has a hole through one wall that the thumbscrew must engage.**



**AIR SUPPLY AND LUBRICATOR SETTING**

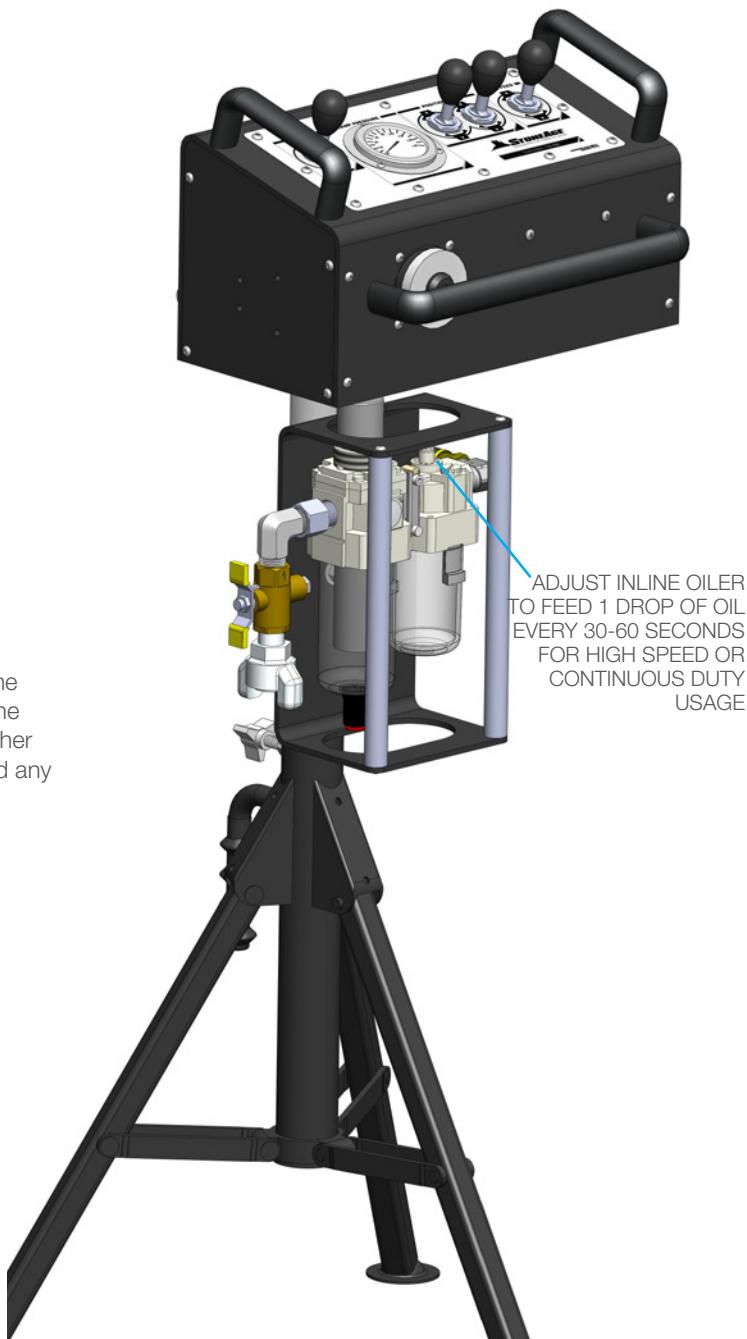
1. The Control Box is supplied with a twist claw style inlet coupling (Chicago style) located on the side of the FRL Assembly. Connect a compatible compressed air line (not included) according to the Manufacturer's instructions. If another pneumatic connection is preferred, this fitting can be removed and any male 1/2 in (13 mm) NPT fitting may be used.
2. Using the regulator adjust the operating pressure to 100 psi (0.7 MPa) for the application.

**AIR SUPPLY FITTING**

A universal **AIR SUPPLY FITTING** (Chicago style) is located on the back of the Control Box. Connect a compatible compressed air line (not included) according to the Manufacturer's instructions. If another pneumatic connection is preferred, this fitting can be removed and any male 1/2 in NPT fitting may be used.

**WARNING**

Maximum operating air pressure is 100 psi (0.7 MPa). Never exceed 125 psi (0.86 MPa) supply pressure. Exceeding 125 psi (0.86 MPa) supply pressure may result in injury to the Operator and/or damage to the equipment.

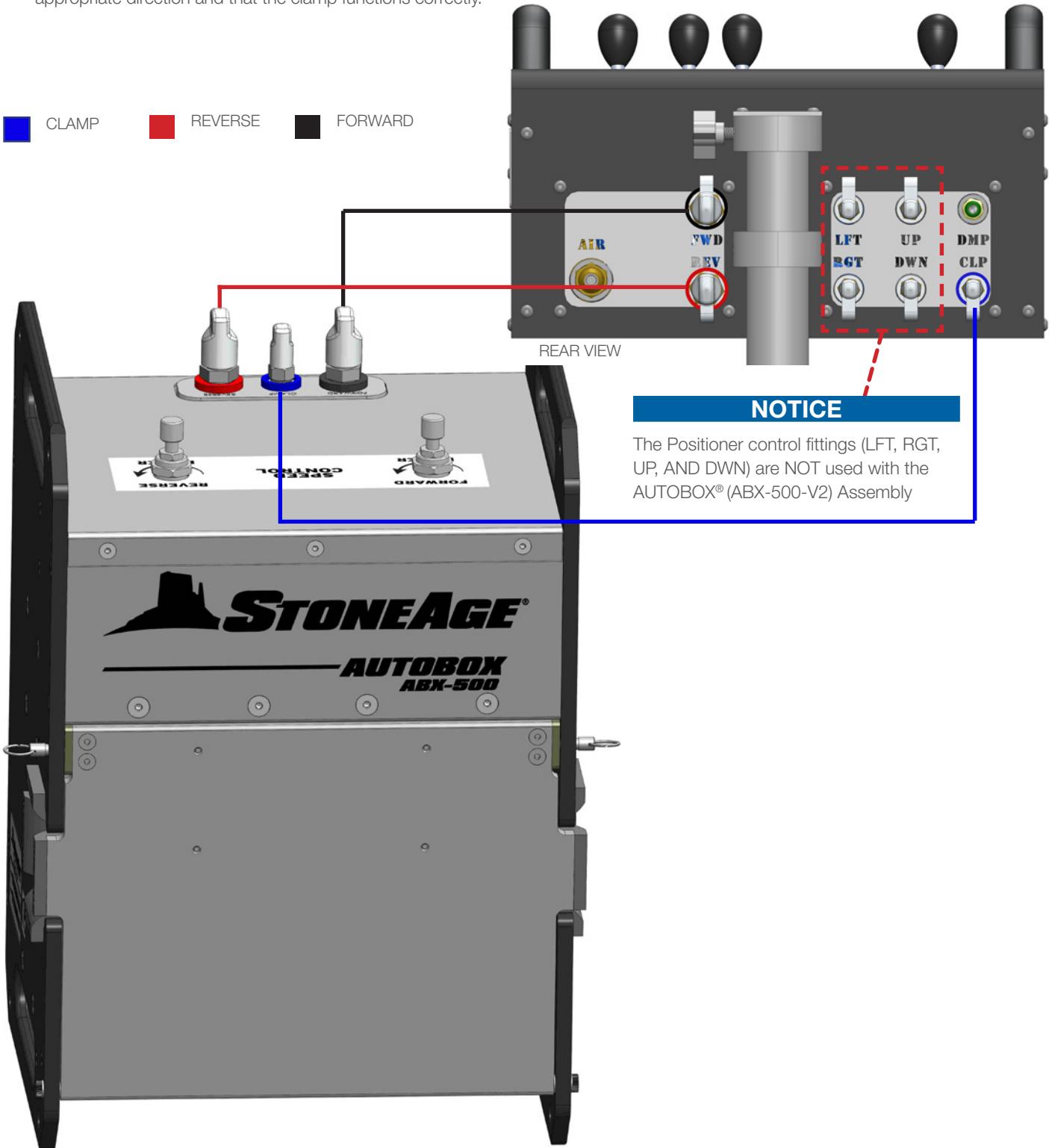


## CONTROL BOX TO SYSTEM ASSEMBLY

### PNEUMATIC SUPPLY LINE CONNECTIONS

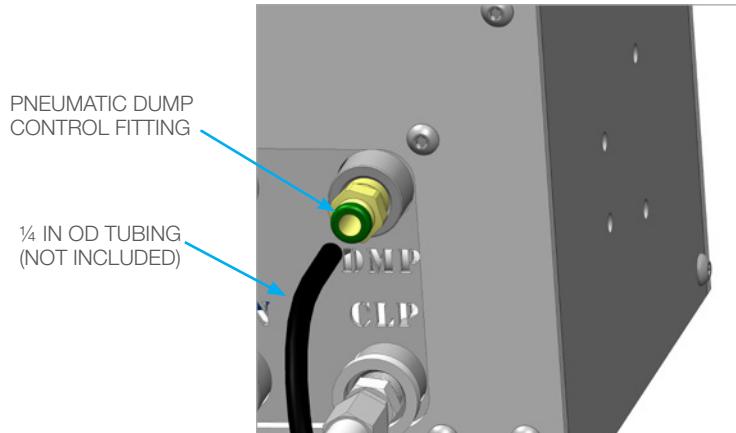
1. Remove the dust caps from the Joint Industry Council (JIC) fittings of the Control Box and the AUTOBOX® (ABX-500-V2)
2. Connect the AUTOBOX® (ABX-500-V2) to the Control Box with two 1/2 in. (13 mm) JIC hoses and one 1/4 in. (6 mm) JIC hose. Verify the Control Box rotates the rollers in the appropriate direction and that the clamp functions correctly.

3. Test the Control Box before operating the AUTOBOX® (ABX-500-V2) with high pressure water to verify the control valves move the hose in the intended direction, and that the dump valve is working properly.



**PNEUMATIC DUMP CONTROL FITTING AND LINE**

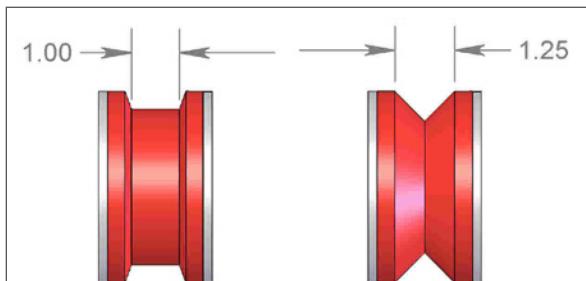
A **MOMENTARY PNEUMATIC DUMP CONTROL** is located on the Control Box panel and can be set up to control an air actuated dump valve. To utilize the toggle, the end user will need to install 1/4 in. (6 mm) O.D. nylon tubing (not included) between the **PNEUMATIC DUMP CONTROL FITTING** and the pneumatic dump valve.



CONTROL BOX REAR VIEW

**ABX-500-V2 DRIVE ROLLERS****DRIVE ROLLERS**

Two sizes of drive rollers are supplied with the AUTOBOX® (ABX-500-V2). The factory installed drive rollers have a deep groove that is optimized for hoses with an OD of 1.00-1.75 in. (25-45 mm). The alternate set of drive rollers has a large square groove for optimal performance when using smaller hoses with an OD of 0.56-1 in. (14-25 mm)

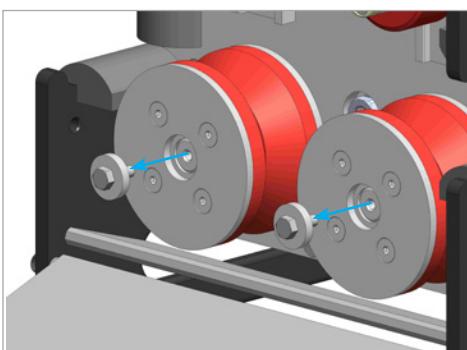
**WARNING**

Always de-energize the system before servicing or replacing any parts. Failure to do so can result in severe injury and/or death.

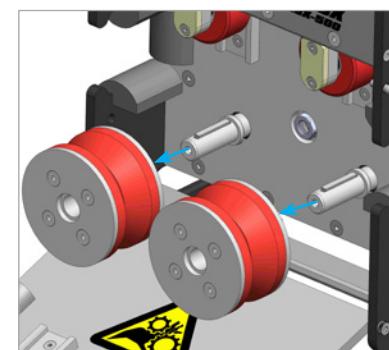
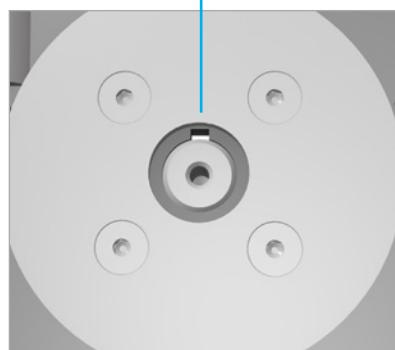
**To replace the drive rollers:**

1. Use a 7/16 in wrench to remove the bolts and washers from the center of each plate.
2. Slowly run the drive rollers in order to orient key way of the drive rollers upward.
3. Pull the rollers from the shafts. Install the spare drive rollers, making sure the key way is lined up with the keys.
4. Prior to reinstalling the bolts of the drive rollers, apply 1-2 drops of Loctite Threadlocker Blue 242® to the bolt threads. Reinstall the bolts and washers into the drive rollers. Use a 7/16 in wrench to tighten the bolts to 75 in-lb (8.5 N·m)

KEY WAY



DRIVE ROLLER BOLTS



## OPERATION

### POSITIONING THE AUTOBOX™ (ABX-500-V2)

The AUTOBOX® (ABX-500-V2) hose control device has been engineered to run in the upright orientation show to the right.

The internal gearbox pressure relief vent is designed to open only when gearbox case pressure exceeds 7.5 psi (0.05 MPa). This allows the AUTOBOX® (ABX-500-V2) to be used in any orientation for short periods of time. When using the device in any orientation other than the standard orientation, the gearbox pressure relief vent may leak small amounts of oil. The gearbox oil level should be monitored closely in these applications.

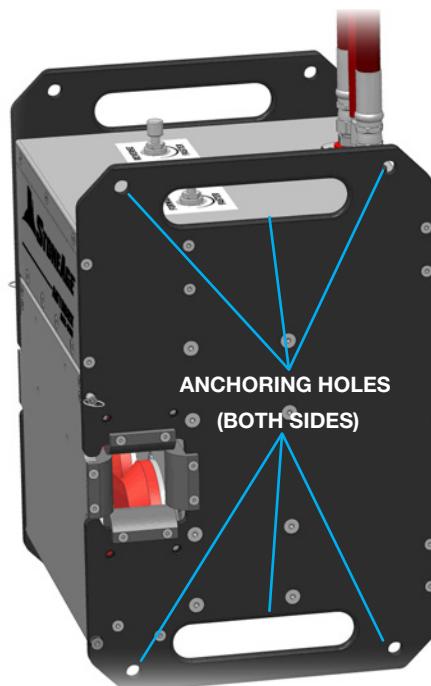
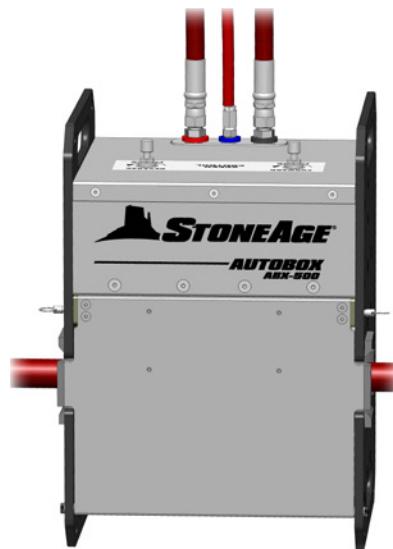
### ANCHORING THE AUTOBOX® (ABX-500-V2)

Use the anchoring holes to securely anchor the AUTOBOX® (ABX-500-V2) to the floor, structural beams, heavy duty scaffolding, or similar components. The anchoring method MUST be capable of withstanding a minimum of 500 lbs of reaction force from the AUTOBOX® (ABX-500-V2). Both side plates have large 1.25 in. x 5 in. (32 mm x 127 mm) slots at the top and bottom for direct anchoring. There are two 0.50 in. (13 mm) holes at the top and bottom to mount Telespar predrilled square tubing, or other structural shapes to facilitate anchoring. Additional anchoring options are available through StoneAge. Operate the high-pressure hose and waterjet tool at full pressure to test the anchoring method.

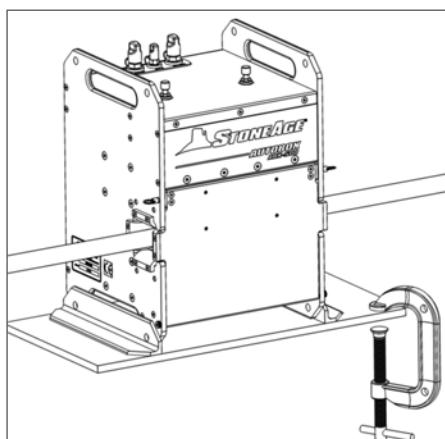
**It is important to securely anchor at least one hole from two different sides, in order to prevent the AUTOBOX® (ABX-500-V2) from rotating or shifting during operation. Recheck the anchors frequently during operation to ensure the AUTOBOX® (ABX-500-V2) is secure.**

#### ⚠ WARNING

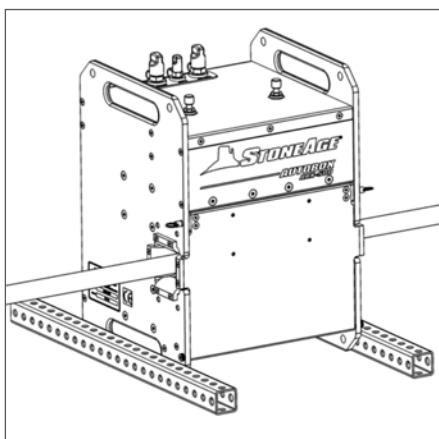
Waterjets can cause severe injury and/or death. A back-out preventer MUST be used at all times and MUST be securely attached to the pipe.



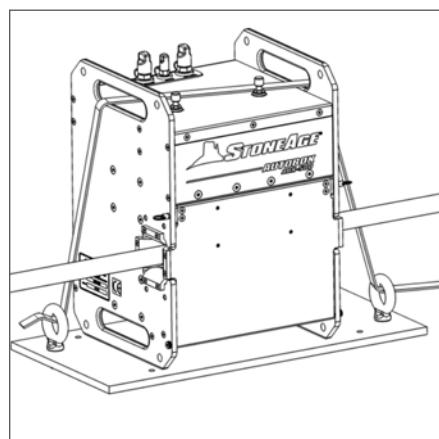
EXAMPLE ANCHORING OPTIONS



Angle Anchor



Telespar Anchor



Strap Anchor

## CONTROL PANEL

The **HOSE FEED LEVER** will move the hose in the forward (feeding) and reverse (retracting) directions. The **OFF** position is at the spring centered middle position and will stop the Drive Rollers from turning. The speed controls are located on the AUTOBOX® (ABX-500-V2). Speed is independently adjustable for Forward/Reverse. Minimum speed is .2ft/sec (61 mm/sec). Maximum speed is 3.0ft/sec (914 mm/sec).

To use the **MOMENTARY PNEUMATIC DUMP CONTROL**, hold it in the **HIGH PRESSURE ON** position to route the high-pressure water to the tool. Release the knob to divert the high-pressure water away from the tool.

To de-energize the system, release the **HOSE FEED LEVER** and release the **MOMENTARY PNEUMATIC DUMP CONTROL**. This will stop the Drive Rollers from moving and reroute the high-pressure water away from the AUTOBOX® (ABX-500-V2).

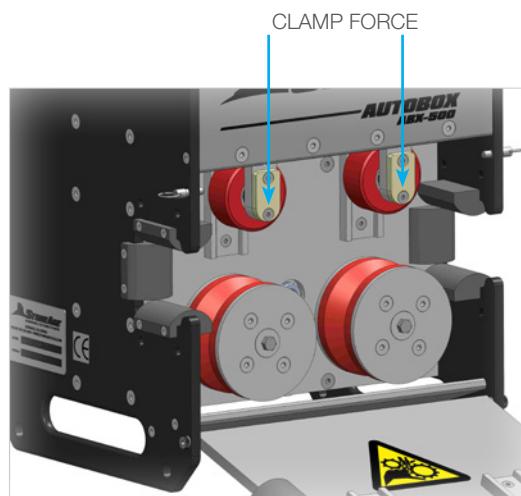
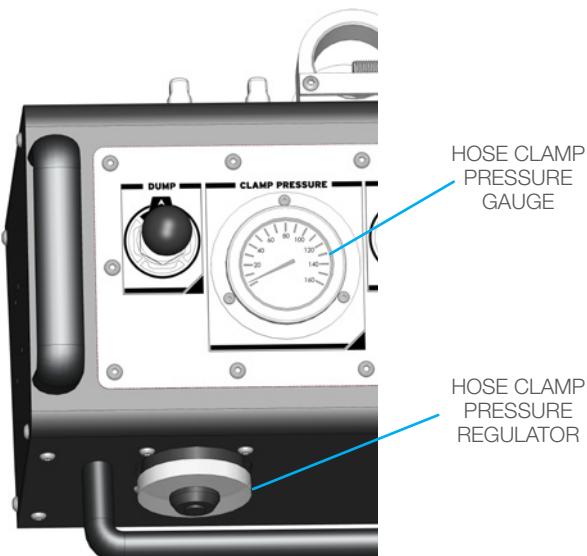


## HOSE CLAMP

The clamp rollers are controlled by turning the **HOSE CLAMP PRESSURE REGULATOR**. Use the **HOSE CLAMP PRESSURE GAUGE** to record desired pressure for future use. Clamp force will not damage hoses or couplings. Proper clamp force will provide good control of the hose in forward and reverse directions, and keep the hose running in the groove of the drive rollers.

## ⚠️ WARNING

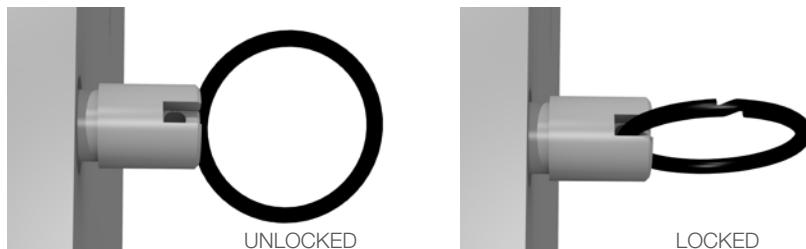
Do not fully release the hose clamp (decreasing pressure to zero) during operation, or the AUTOBOX® (ABX-500-V2) Hose Control Device will release the hose and may create a dangerous runaway hose condition, which can result in severe injury and/or death.



## OPERATION

### DOOR PIN

The door pin is a spring plunger with a pull ring. To lock the door, pull and twist the pull ring, then release it into the groove of the pin. Make sure to lock both sides of the door.



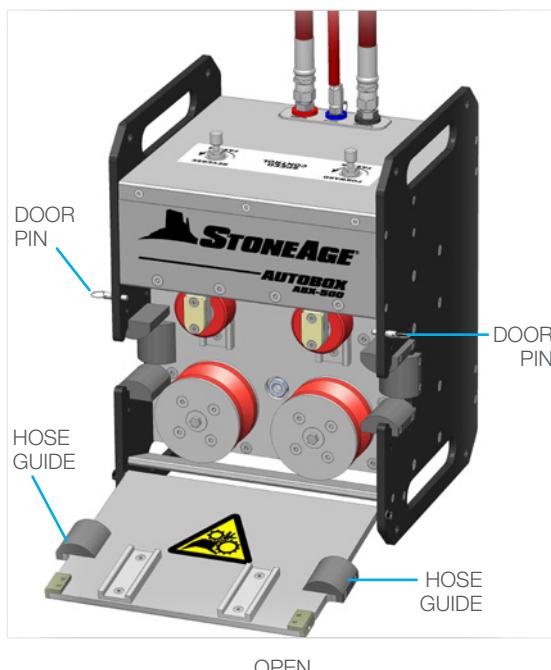
### DOOR

Always run the AUTOBOX® (ABX-500-V2) with the door closed and locked, except when watching hose whips as they pass through the device (see the hose whip instructions within the OPERATION section of this manual).

To open the door, unlock the door pins and lower the door by the two sections of the hose guide. Close the door by raising it into position and locking both door pins.

### WARNING

Always de-energize the system before opening the door to service or replace any parts. Failure to do so can result in severe injury and/or death.



OPEN



CLOSED

## HIGH-PRESSURE HOSE

Only high quality hoses intended for waterblast applications should be used as high-pressure hoses. The pressure rating of high-pressure hoses MUST never be exceeded.

### NOTICE

Do not use a shrouded hose or hose with a steel protective cover. This will cause severe damage to the clamp rollers and drive rollers.

Open the door to install the high-pressure hose. The **HOSE CLAMP PRESSURE REGULATOR** on the Control Box MUST be turned to zero pressure to open the clamp rollers for easy hose installation. Insert the hose, equipped with the waterjet tool, between the clamp rollers and the drive rollers. Increase the pressure on the **HOSE CLAMP PRESSURE REGULATOR** to extend the clamp rollers and clamp the hose. Close and lock the door before operating the AUTOBOX® (ABX-500-V2).

**Test the Control Box before operating the AUTOBOX® (ABX-500-V2) with high-pressure water to verify the control valves move the hose in the intended direction, and that the dump valve is working properly.**

**Verify that the high-pressure hose is properly installed in the back-out preventer.** Operate the high-pressure hose and waterjet tool at full pressure to test the clamp force. Proper clamp force will provide good control of the hose in forward and reverse directions, and keep the hose running in the groove of the drive rollers.

**The AUTOBOX® (ABX-500-V2) Hose Control Device MUST be supervised at all times.** This device is not intended to push the hose and waterjet tool. Once the waterjet tool has pulled the hose to its capacity, slack will form in the hose between the device and the back-out preventer.

### WARNING

Crush Hazard. Keep hands, hair, and clothing clear of drive rollers and clamp rollers. Contact with moving parts can result in severe injury.



## OPERATION

### HOSE COUPLINGS AND HOSE WHIPS

Hose couplings and hose whips can be passed through the AUTOBOX® (ABX-500-V2) while the high-pressure water and waterjet tool remain in operation.

In the instance that couplings (or couplings with hose whips) become difficult to pass, use the **MOMENTARY PNEUMATIC DUMP CONTROL TOGGLE** to dump the high-pressure water and use the **HOSE FEED SPEED CONTROLS** only to pass the coupling.

#### For couplings equipped with hose whips:

1. As the coupling approaches the AUTOBOX® (ABX-500-V2), reduce the forward/reverse speed by adjusting the **HOSE FEED SPEED CONTROLS**. The speed should be reduced so the **hose whip** stops once it contacts the first roller.
2. Record the current hose clamp pressure displayed on the **HOSE CLAMP PRESSURE GAUGE**, for reference.
3. Open the door of the AUTOBOX® (ABX-500-V2).

#### ⚠ WARNING

Crush Hazard. Keep hands, hair, and clothing clear of drive rollers and clamp rollers. Contact with moving parts can result in severe injury.

4. Slowly reduce the hose clamp pressure until the hose whip begins to advance through the clamp rollers. Watch as the hose whips and coupling pass through the drive rollers and clamp rollers. Make sure the hose whips do not become caught in the device or in the back-out preventer.

*The amount of pressure reduction will depend on the size and material of the hose and coupling, as well as the pressure and flow of the high-pressure tool being used.*

#### ⚠ WARNING

Do not fully release the hose clamp (decreasing pressure to zero) during operation, or the AUTOBOX® (ABX-500-V2) Hose Control Device will release the hose and create a dangerous runaway hose condition, which can result in severe injury and/or death.

6. Once the hose whips and coupling have passed through both rollers and exit the AUTOBOX® (ABX-500-V2), return the Hose Clamp Pressure to the recorded pressure.
7. Close the door and secure the door pins.
8. Use the **HOSE FEED SPEED CONTROLS** to adjust the forward/reverse speeds, as desired.

#### For couplings NOT equipped with hose whips:

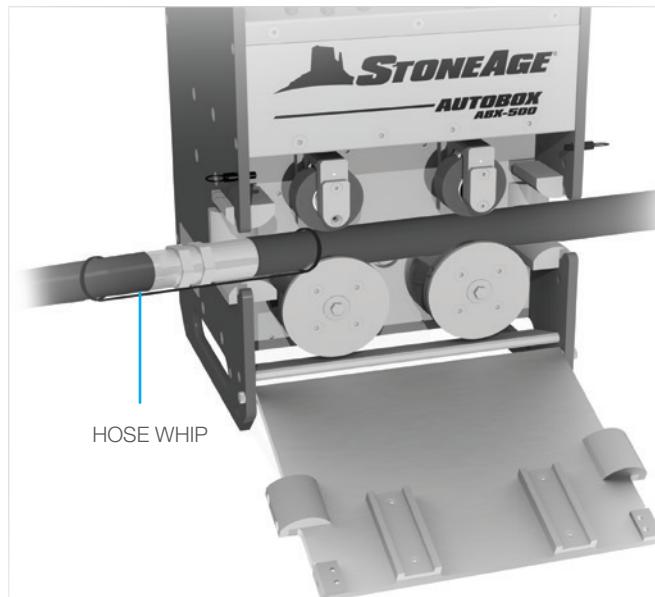
1. As the coupling approaches the AUTOBOX® (ABX-500-V2), reduce the forward/reverse speed by adjusting the **HOSE FEED SPEED CONTROLS**. The speed should be reduced so the **coupling** stops once it contacts the first roller.
2. Record the current hose clamp pressure displayed on the **HOSE CLAMP PRESSURE GAUGE**, for reference.
3. Slowly reduce the hose clamp pressure until the coupling begins to advance through the clamp rollers.

*The amount of pressure reduction will depend on the size and material of the hose and coupling, as well as the pressure and flow of the high-pressure tool being used.*

#### ⚠ WARNING

Do not fully release the hose clamp (decreasing pressure to zero) during operation, or the AUTOBOX® (ABX-500-V2) Hose Control Device will release the hose and create a dangerous runaway hose condition, which can result in severe injury and/or death.

4. Once the coupling has passed through both rollers and exits the AUTOBOX® (ABX-500-V2), return the hose clamp pressure to the recorded value.
5. Use the **HOSE FEED SPEED CONTROLS** to adjust the forward/reverse speeds, as desired.



## PRE-RUN SAFETY CHECK

Refer to WJTA-IMCA's, Recommended Practices For The Use Of High-pressure Water jetting Equipment and/or The Water Jetting Association's, WJA Code of Practice for additional safety information.

- Complete a job specific risk assessment and act on the resulting actions.
- Ensure the waterblasting zone is properly barricaded and that warning signs are posted.
- Adhere to all site safety procedures.
- Ensure no personnel are in the hydroblasting zone.
- Ensure the work place is free of unnecessary objects (e.g. loose parts, hoses, tools).
- Ensure all operators are using the correct Personal Protective Equipment (PPE).
- Ensure that a anti-withdrawal device (back-out preventer), whip checks (hose whips), and all other applicable safety devices are installed and set-up properly.

- Check that the air hoses are properly connected and tight.
- Check all hoses and accessories for damage prior to use. Do not use damaged items. Only high quality hoses intended for waterblast applications should be used as high-pressure hoses.
- Ensure that operators never connect, disconnect, or tighten hoses, adapters, or accessories with the high-pressure water pump unit running.
- Test the Control Box before operating the AUTOBOX® (ABX-500-V2) with high-pressure water to verify the control valves move the hose in the intended direction, and that the dump valve is working properly.
- Check that the AUTOBOX® (ABX-500-V2) Hose Control Device is anchored securely for the application and pressure of the waterjet tool being used.
- Check all high-pressure threaded connections for tightness.
- Ensure the door of the AUTOBOX® (ABX-500-V2) is closed and securely latched.

## TEST RUN PROCEDURE

- Perform the **PRE-RUN SAFETY CHECK**.
- Operate the high-pressure hose and waterjet tool at full pressure to test the clamp force. Proper clamp force will provide good control of the hose in forward and reverse directions, and keep the hose running in the groove of the drive rollers.
- Adjust the hose feed speed controls. Proper forward and reverse speeds will vary, depending on the type of material being removed and the pipe or vessel size and/or shape. Adjustment of the hose feed speed controls may be necessary during operation in order to optimize cleaning and overall productivity.
- Operate the high-pressure water at full pressure and use the **MOMENTARY PNEUMATIC DUMP CONTROL TOGGLE** to verify that the dump valve is working properly.

## STORAGE, TRANSPORTATION, AND HANDLING

When moving the AUTOBOX® (ABX-500-V2), lift with care to prevent bodily injury.

The AUTOBOX® (ABX-500-V2) is shipped in a custom wooden crate and should be stored upright in the same crate between jobs.

When storing the unit, use compressed air to blow out the air lines to remove debris and moisture. Use mild soapy water to clean the machine in order to remove corrosive materials.

Apply a small amount of air tool oil directly into the forward and reverse fittings. Then, briefly operate the controls at slow speed for a short duration in each direction to coat the interior parts of the motor. Install the dust caps onto all three fittings to keep moisture and dirt out.

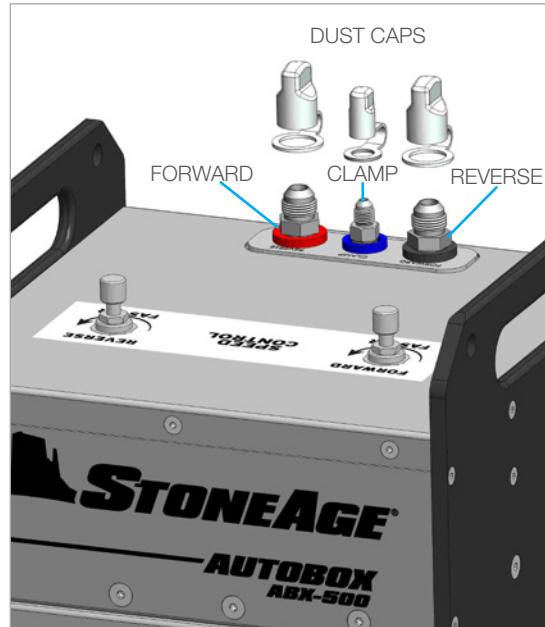
### NOTICE

Do not add oil to the clamp fitting, as oil may accumulate in the air cylinders and prevent them from fully retracting.

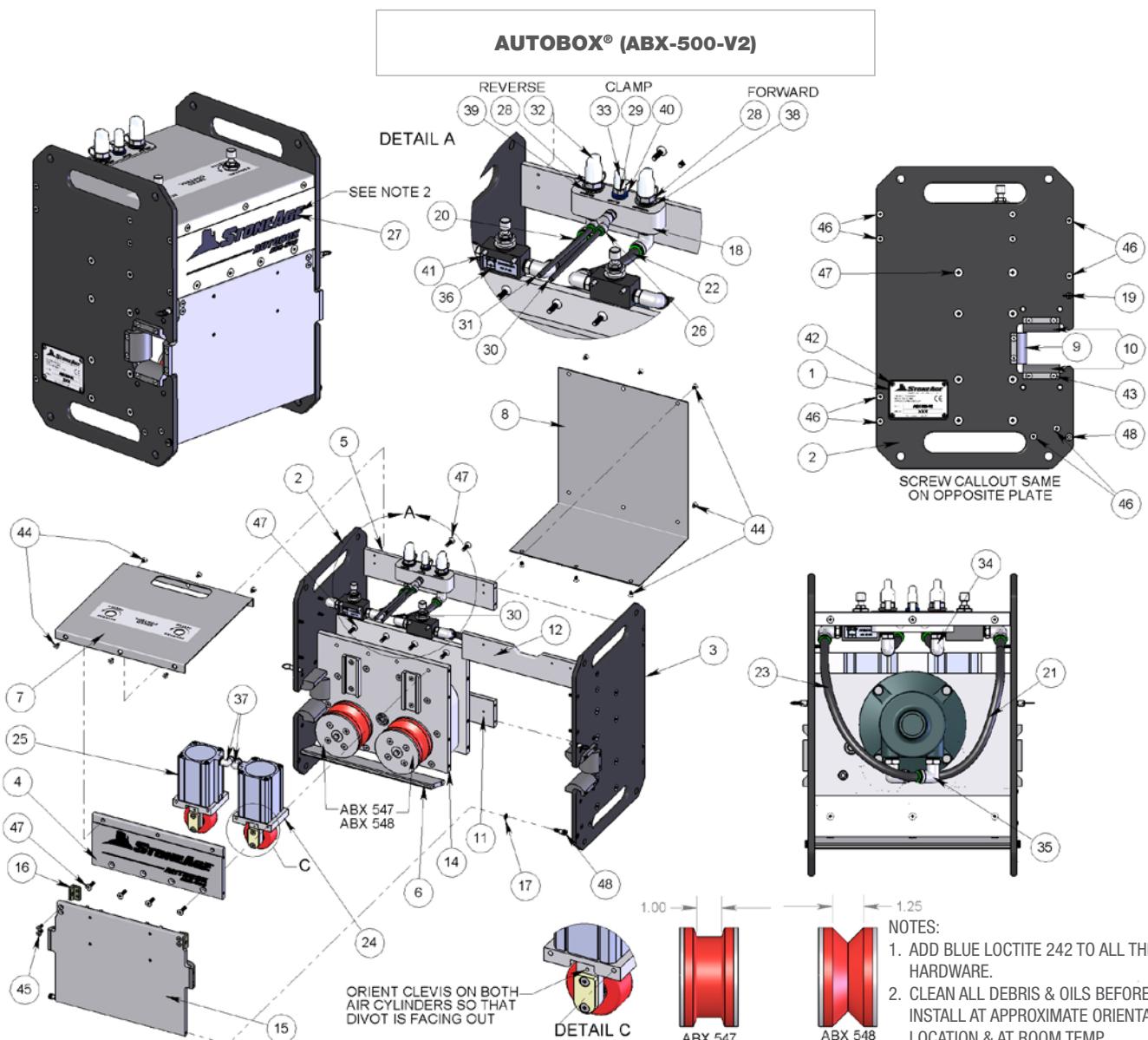
## MAINTENANCE

Maintenance Item	Frequency	Maintenance Required
Gearbox oil level	<b>Before</b> each use	Fill with Mobil® and SCH™ 634 synthetic gear oil.
Forward, reverse, and clamp fittings	<b>Before</b> each use	Inspect threads for wear or damage. Drive rollers and clamp rollers may continue to function normally after some wear. Roller replacement is required when wear begins to affect the hose feed in forward or reverse, or when it affects the hose alignment.
Forward and reverse fittings	<b>After</b> each use	Apply a small amount of air tool oil directly into the forward and reverse fittings. Then, briefly operate the controls at slow speed for a short duration in each direction to coat the interior parts of the motor. Install the dust caps onto all three fittings to keep moisture and dirt out.
<b>NOTICE</b>		
		Do not add oil to the clamp fitting, as oil may accumulate in the air cylinders and prevent them from fully retracting.
Drive rollers	<b>Before</b> each use	Inspect for wear, pitting, cracks. Clean with mild, soapy water. Replace as needed.
Clamp rollers	<b>Before</b> each use	Inspect for wear, pitting, cracks. Clean with mild, soapy water. Replace as needed.
Black Delrin® acetal resin hose guides	<b>After</b> extended use	Inspect for wear and cracks. Replace as needed.

Contact StoneAge for Safety Data Sheets for material usage, a complete list of spare part numbers, and service instructions for the AUTOBOX® (ABX-500-V2) Hose Control Device and Control Box.



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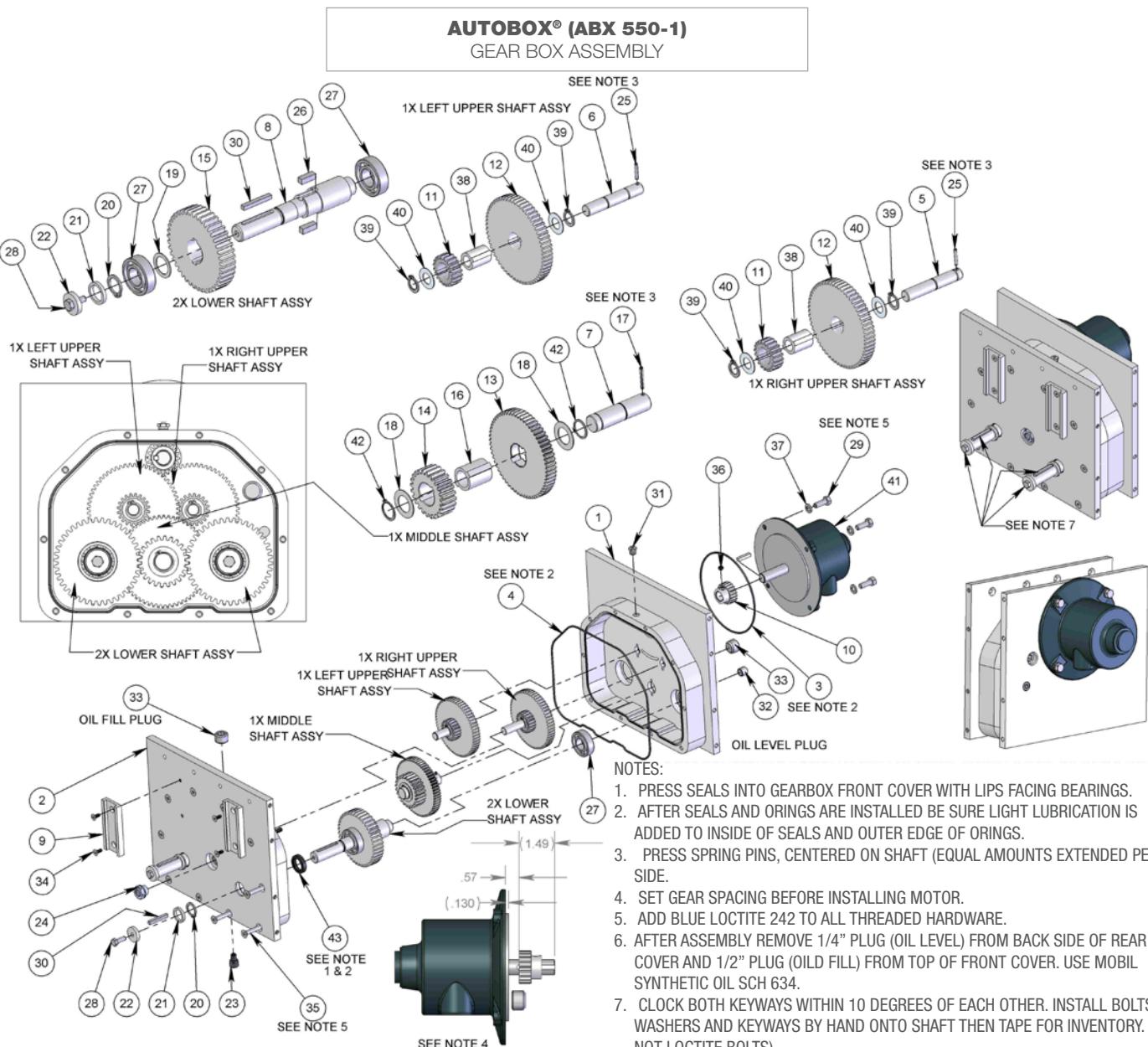


#	PART NUMBER	QTY.
1	ABX 503-002 CE SERIAL PLATE	1
2	ABX 505-001 END PLATE LEFT	1
3	ABX 506-001 END PLATE RIGHT	1
4	ABX 507 OUTER CYLINDER PLATE	1
5	ABX 508 REAR SUPPORT UPPER	1
6	ABX 509 DRAIN PLATE	1
7	ABX 510-001 COVER, UPPER	1
8	ABX 511 COVER, LOWER	1
9	ABX 512 GUIDE BLOCK SIDE	2
10	ABX 513 GUIDE BLOCK TOP BOTTOM	4
11	ABX 514 REAR SUPPORT LOWER	1
12	ABX 515 VALVE STRINGER	1
13	ABX 548 DRIVE ROLLER ASSY 1.25 GROOVE	2
14	ABX 550-001 GEARBOX ASSY	1
15	ABX 560 DOOR ASSY	1

16	ABX 562 WEAR PLATE, DOOR	2
17	ABX 563 SHIM WASHER SS .060	2
18	ABX 565 AIR MANIFOLD	1
19	ABX 566 SPRING PLUNGER, PULL RING LOCKING	2
20	ABX 567 AIR MOTOR TUBE 1A	1
21	ABX 567 AIR MOTOR TUBE 1B	1
22	ABX 567 AIR MOTOR TUBE 2A	1
23	ABX 567 AIR MOTOR TUBE 2B	1
24	ABX 570 AIR CYLINDER ASSY (MIRROR ASSY)	1
25	ABX 570 AIR CYLINDER ASSY	1
26	ABX 576 FTG, WYE P4PL4PL4	1
27	ABX 579 DECAL	1
28	ABX 592 FITTING, OUTLET P6J8 SS	2
29	ABX 593 FITTING, OUTLET P4J4 SS	1
30	ABX CYLINDER TUBE 1 (HRS 565)	1
31	ABX CYLINDER TUBE 2 (HRS 565)	1

32	BR 167 DUST CAP	2
33	BR 168 DUST CAP, J4	1
34	BUD 141 FITTING 90° SWIVEL P6MPL8	6
35	BUD 142 FITTING 90° SWIVEL P8MPL8	2
36	CB 528 P6 FLOW CONTROL VALVE ABX	2
37	CB 558 FTG, ELBOW P4PL4	2
38	GP 011-B BLUE ID BAND	1
39	GP 012-BK BLACK ID BAND	1
40	GP 012-RD RED ID BAND	1
41	GS 319-06 SHCS .19-24 X 1.50 SS	4
42	GSB 313-0075 BHCS 6-32 X .188 LG SS	4
43	GSF 316-025 FHCS .16-32 X .63 LG SS	12
44	GSF 319-015 FHCS .19-24 X .38 LG SS	15
45	GSF 319-02 FHCS .19-24 X .50 LG SS	4
46	GSF 319-03 FHCS .19-24 X .75 LG SS	20
47	GSF 325-035 FHCS .25-20 X .88 LG SS	26
48	GSSH 0312-0375-SS SHOULDER SCREW	2

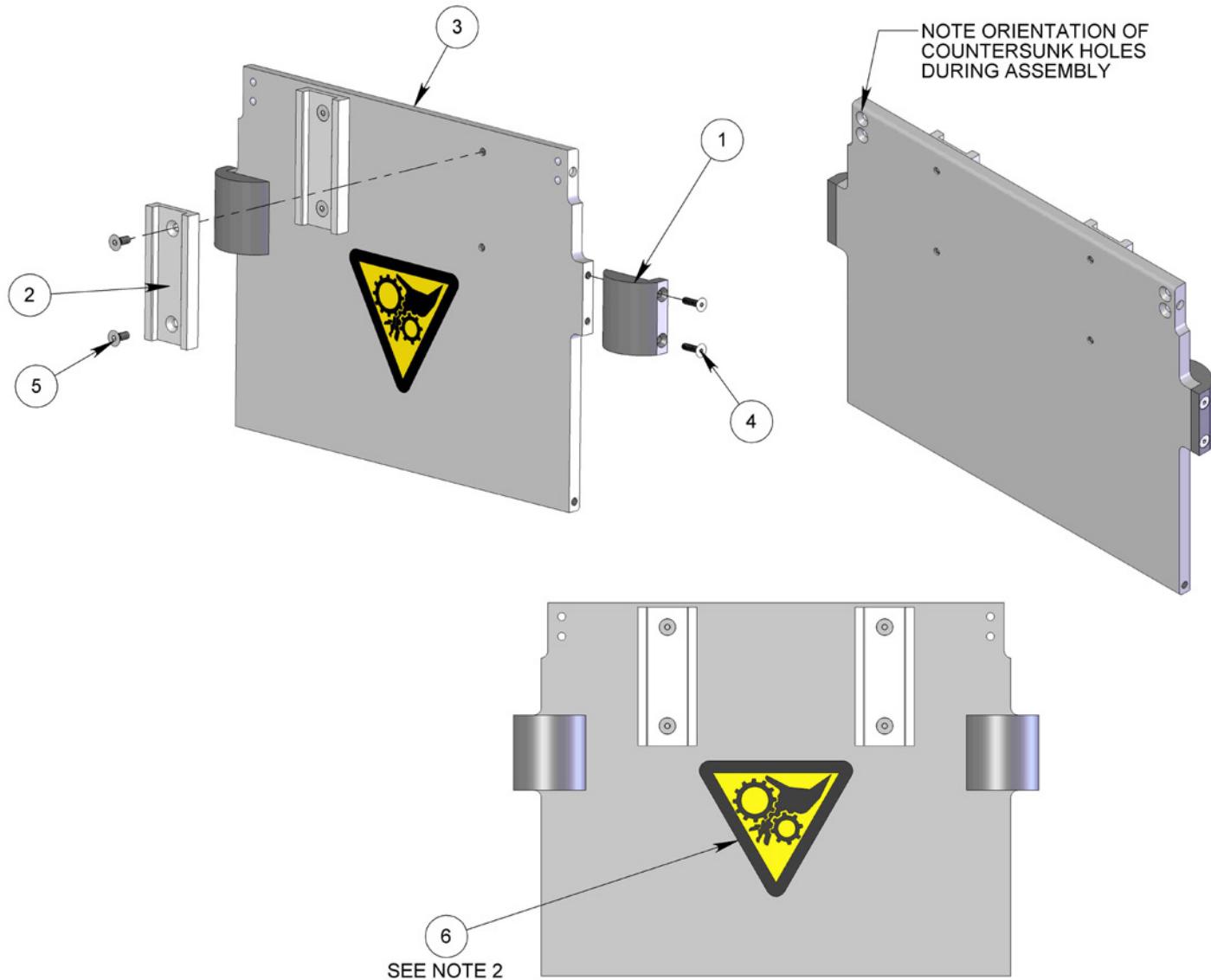
## PARTS DIAGRAM



#	PART NUMBER	QTY.
1	ABX 520-001 GEARBOX COVER REAR	1
2	ABX 521 GEARBOX COVER FRONT	1
3	ABX 522.1-001 O-RING	1
4	ABX 522.2 O-RING	1
5	ABX 523 SHAFT, PRIMARY	1
6	ABX 524 SHAFT, INTERMEDIATE	1
7	ABX 525 SHAFT, FINAL	1
8	ABX 526 SHAFT, ROLLER	2
9	ABX 527 PLATE, GUIDE	2
10	ABX 531 SPUR GEAR 20T	1
11	ABX 532 CHANGE GEAR 20T	2
12	ABX 533 CHANGE GEAR 60T	2
13	ABX 534 CHANGE GEAR 60T MODIFIED BORE	1
14	ABX 535 CHANGE GEAR 24T	1

15	ABX 536 CHANGE GEAR 42T	2
16	ABX 537 CHANGE GEAR BUSHING MODIFIED	1
17	ABX 541 SPRING PIN .125 X 1.00 LG	1
18	ABX 542 THRUST WASHER	2
19	ABX 543 SHIM WASHER	2
20	ABX 544 RING, RETAINING EXT .75 HD SS	2
21	ABX 545 WASHER, INSIDE	2
22	ABX 546 WASHER, OUTSIDE	2
23	ABX 549 MAGNETIC DRAIN PLUG, P4	1
24	BHK 131 OIL SIGHT	1
25	BRLM 191 SPRING PIN, .125 X .75	2
26	BRLM 195 KEY, SQ .250 X .250 X .75	4
27	CJSW 009 BEARING	4
28	GB 325-03 BOLT, HEX .25-20 X .75 SS	2

29	GB 331-035 BOLT, HEX .31-18 X .88 SS	4
30	GK 188-188-1500-SE KEY	2
31	GP 023-P2 BREATHER WITH CHECK VALVE 7-15 PSI	1
32	GP 025-P4SS HEX SOCKET PLUG	1
33	GP 025-P8SS HEX SOCKET PLUG	2
34	GSF 319-02 FHCS .19-24 X .50 LG SS	4
35	GSF 325-10 FHCS .25-20 X 2.50 LG SS	10
36	GSS 331-18-16CU SET SCREW	1
37	GW 331-L LOCK WASHER SS	4
38	HRS 515 GEAR BUSHING	2
39	HRS 518 RETAINING RING, SL EXTERNAL	4
40	HRS 529 THRUST WASHER	4
41	LM 016-4 AIR MOTOR	1
42	PTL 078 RETAINING RING, SS EXTERNAL	2
43	SL 010 SEAL	2

**AUTOBOX® (ABX 560)**  
 DOOR ASSEMBLY


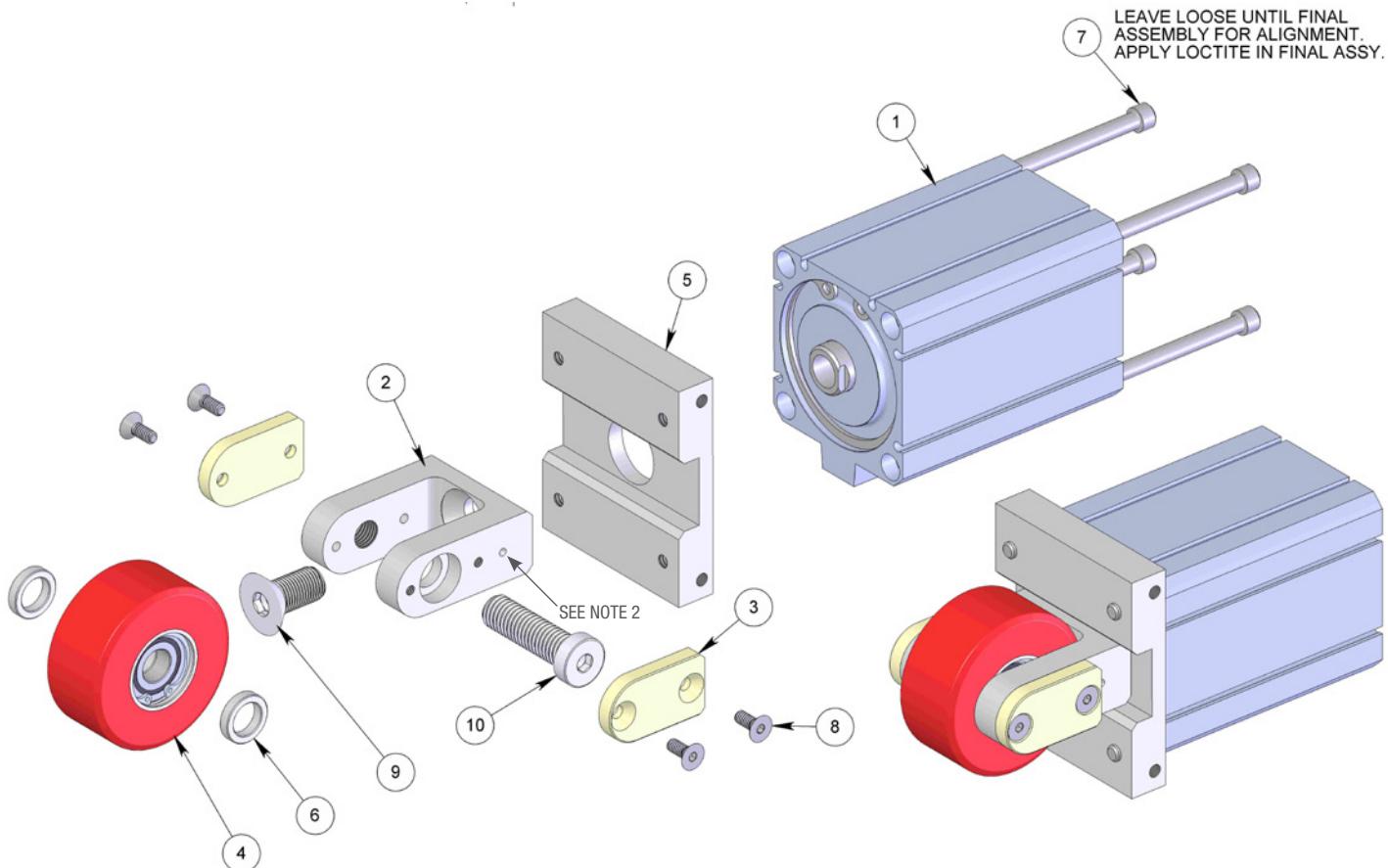
#	PART NUMBER	QTY.
1	ABX 512 GUIDE BLOCK SIDE	2
2	ABX 527 PLATE, GUIDE	2
3	ABX 561 DOOR	1
4	GSF 316-025 FHCS .16-32 X .63 LG SS	4
5	GSF 319-02 FHCS .19-24 X .50 LG SS	4
6	PL 154 PINCH SAFETY DECAL	1

## NOTES:

1. APPLY BLUE LOCTITE 242 TO ALL THREADED HARDWARE.
2. CLEAN ALL DEBRIS & OILS BEFORE INSTALLING. INSTALL AT APPROXIMATE ORIENTATION AND LOCATION & ROOM TEMP.

## PARTS DIAGRAM

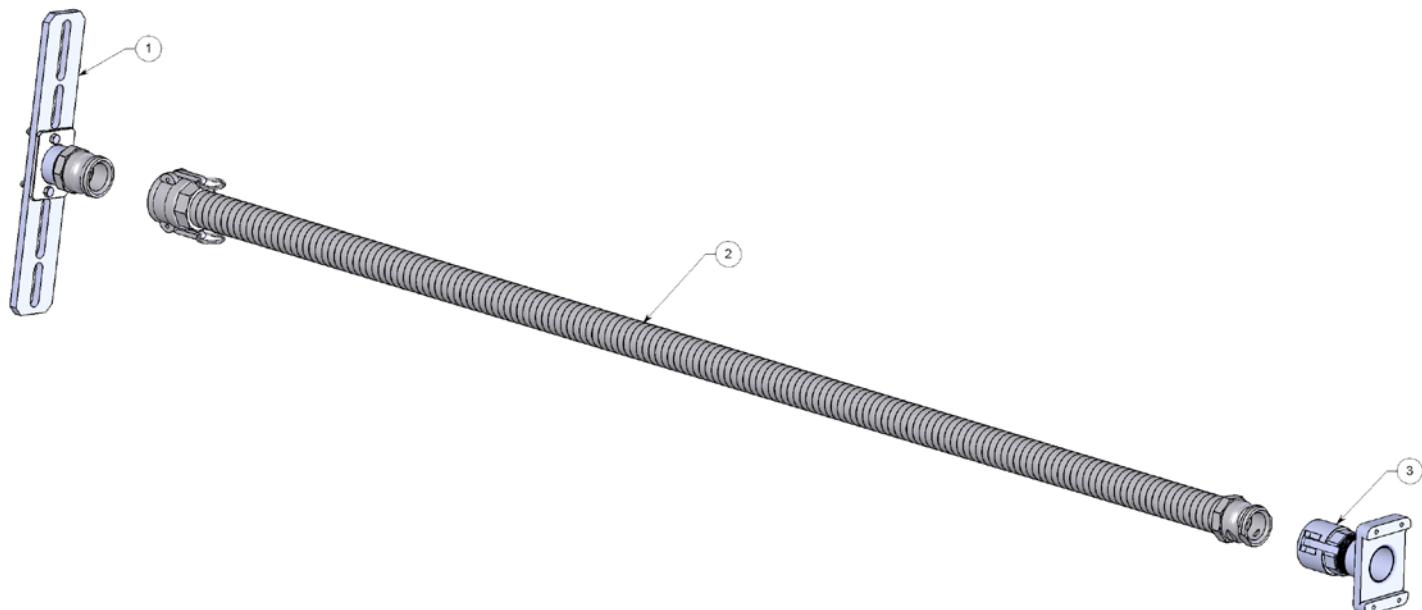
**AUTOBOX® (ABX 570)**  
AIR CYLINDER ASSEMBLY



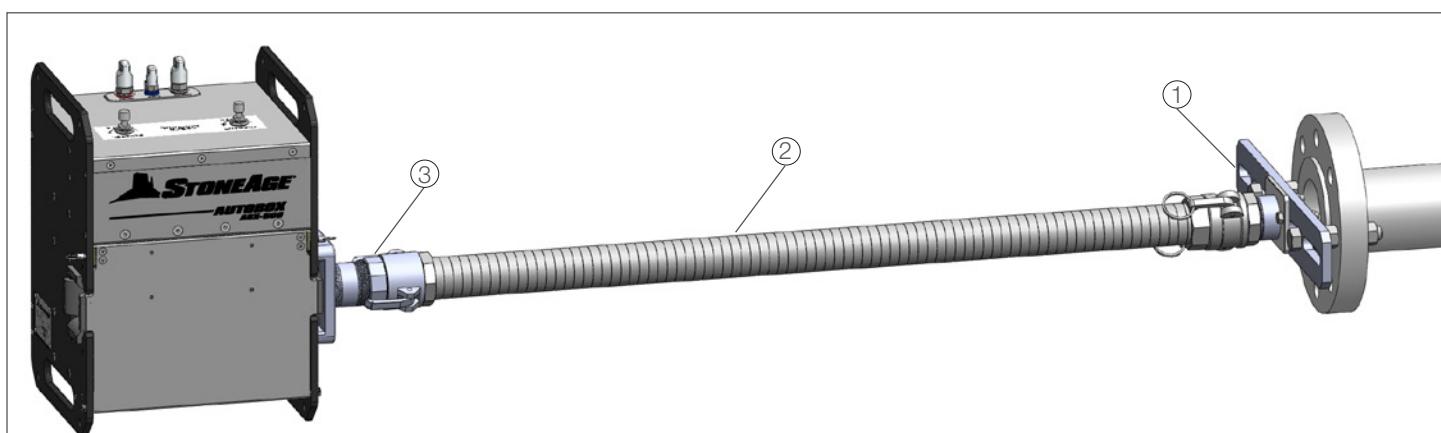
#	PART NUMBER	QTY.
1	ABX 571 AIR CYLINDER (NCQ8B250-200S)	1
2	ABX 572 CYLINDER CLEVIS	1
3	ABX 573 CLEVIS BEARING PAD	2
4	ABX 574 2.5 OD UPPER ROLLER	1
5	ABX 575 CYLINDER MTG BRACKET	1
6	ABX 582 ROLLER SPACER	2
7	GS 325-18 SHCS .25-20 X 4.50 SS	4
8	GSF 319-02 FHCS .19-24 X .50 LG SS	4
9	GSF 350-04-20 FHCS .50-20 X 1.00 LG SS	1
10	GSLH 550-07 SHCS, LW HD .50-13 X 1.75 LG	1

NOTES:

1. APPLY BLUE LOCTITE 242 TO ALL THREADED HARDWARE.
2. THIS DEPRESSION / DIVOT IS USED TO ORIENT THE CLEVIS ASSEMBLY IN THE ABX-500-V2 ASSEMBLY.

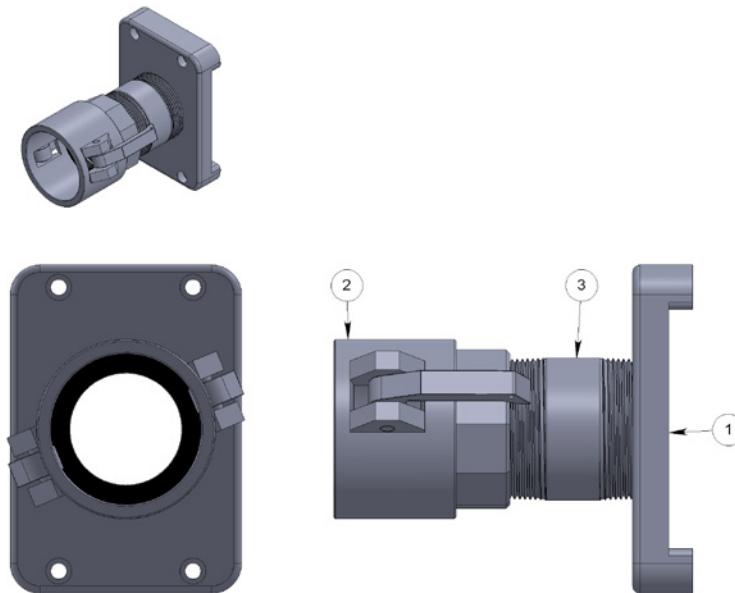
**AUTOBOX® (BOP 622)**  
ABX-500 SNOUT ASSEMBLY

#	PART NUMBER	QTY.
1	BOP 360 BACK OUT PREVENTER ASSEMBLY	1
2	BOP 103-07-2.0MCL- 2.0FCL 2.0 INTERLOCK SNOUT, 7FT	1
3	ABX 590 TRACTOR SNOUT ASSEMBLY	1



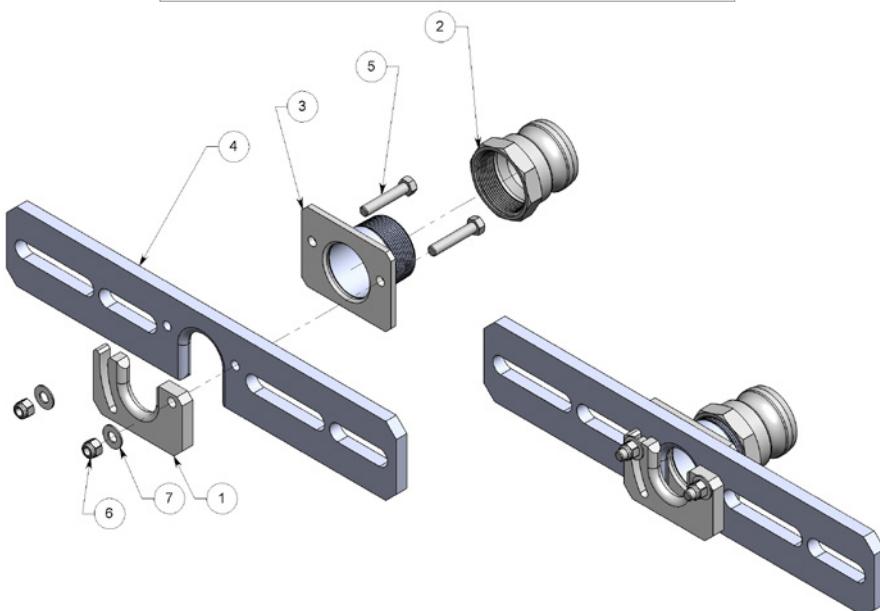
## PARTS DIAGRAM

**AUTOBOX® (ABX 590)**  
SNOUT TRACTOR MOUNT ASSEMBLY, FEMALE

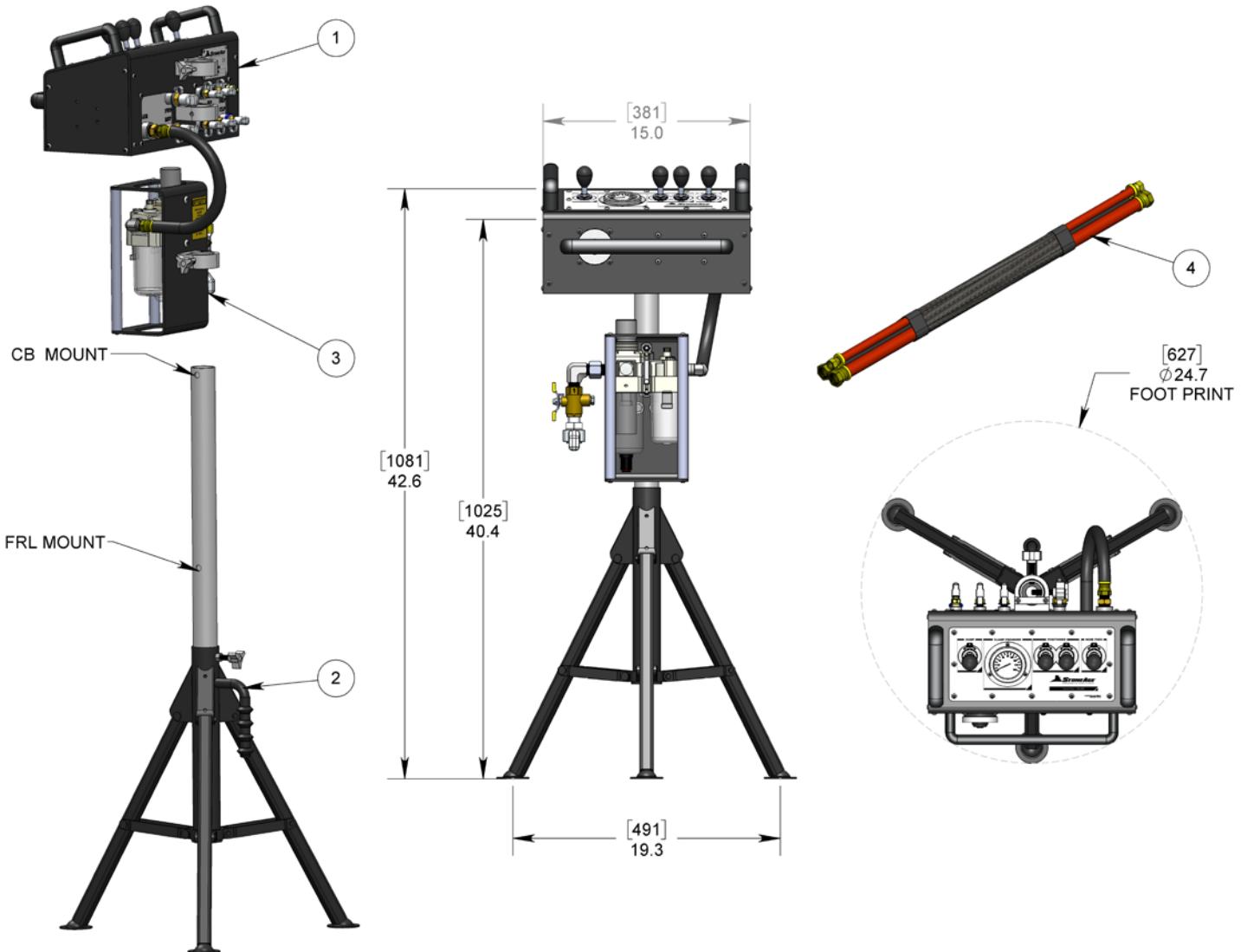


#	PART NUMBER	QTY.
1	ABX 591 SNOUT TRACTOR MOUNT	1
2	BJ 543 SNOUT 2NPT FEMALE COUPLER	1
3	BJ 544 SNOUT 2NPT MALE PIPE	1

**AUTOBOX® (BOP 360)**  
BACK OUT PREVENTER ASSEMBLY



#	PART NUMBER	QTY.
1	BJ 319 HINGE PLATE	1
2	BOP 357 CAM LOCK, 2IN-M, 2INNPT-F	1
3	BOP 358 SNOUT ADAPTER WELDMENT, BOP	1
4	BOP 359 MOUNTING PLATE, BOP	1
5	GB 337-08 BOLT, HEX .37-16 X 2.00 SS	2
6	GN 337-L NYLOK NUT SS	2
7	GW 337-F FLAT WASHER SS	2

**AUTOBOX® (CB-ABX)**  
 CONTROL BOX


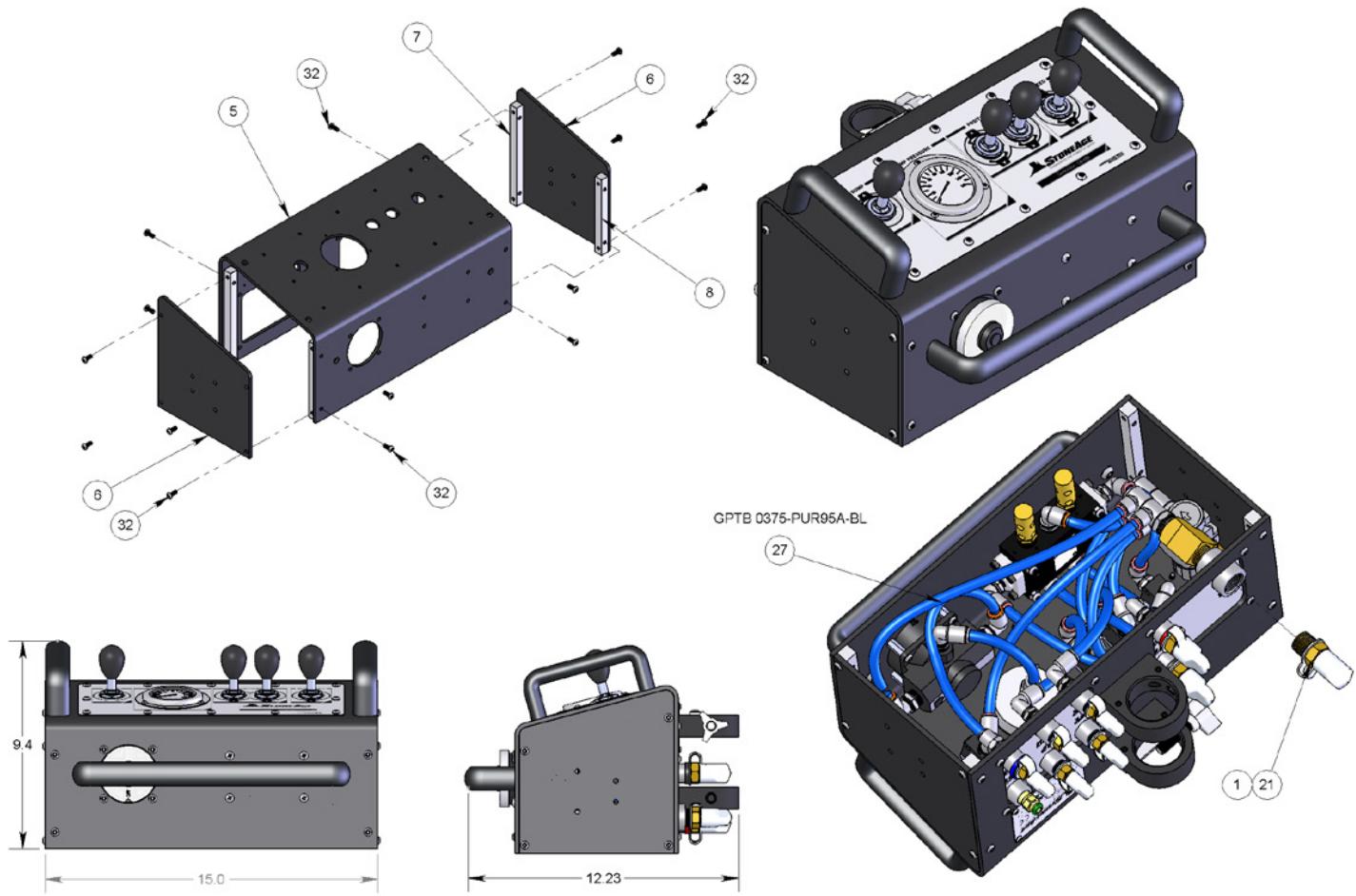
## NOTES:

1. ASSEMBLY REFERENCE DIMENSION SHOWN (MM) / INCHES.

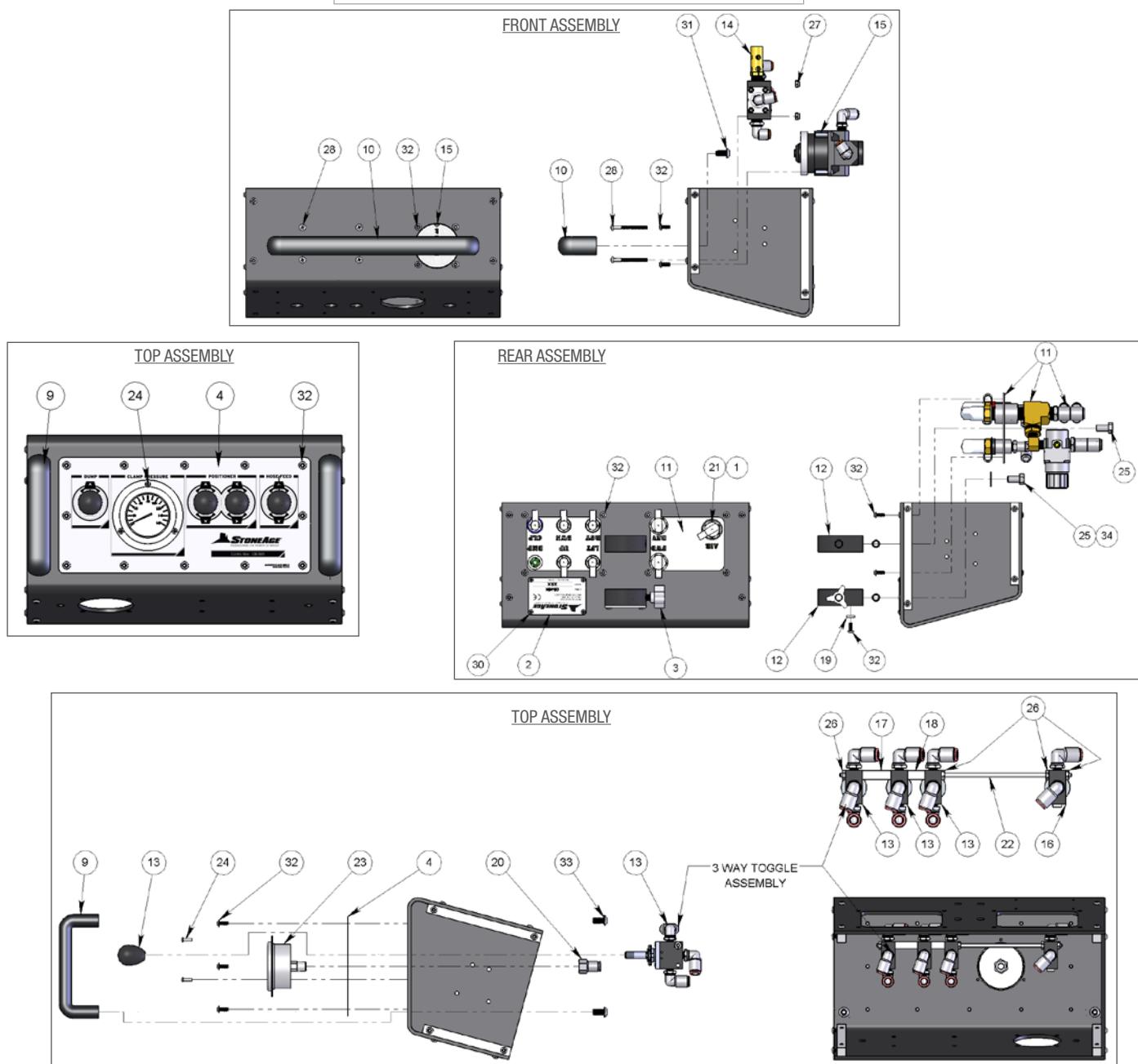
#	PART NUMBER	QTY.
1	CB 300 CONTROL BOX ASSEMBLY	1
2	CB 301 CB STAND ASSEMBLY	1
3	CB 310 FRL ASSEMBLY	1
4	CB 370-25 ABX HOSE BUNDLE ASSEMBLY	1

## PARTS DIAGRAM

**AUTOBOX® (CB 300)  
CONTROL BOX ASSEMBLY  
(CONTINUED ON NEXT PAGE)**



#	PART NUMBER	QTY.
1	BR 167 DUST CAP	1
5	CB 321 CB FRAME	1
6	CB 322 SIDE PLATE	2
7	CB 323 BRACE REAR	2
8	CB 324 BRACE FRONT	2
21	CB 355 FTG P8J8 BRASS MALE TO MALE	1
32	GTB 319-02-32 BHTS .19-32 X .50 LG TORX-SS	42

**AUTOBOX® (CB 300)  
CONTROL BOX ASSEMBLY (CONTINUED)**


#	PART NUMBER	QTY.
1	BR 167 DUST CAP	1
2	CB 304-001 CE SERIAL PLATE	1
3	CB 314 3-LOBE KNOB	1
4	CB 320 GRAPHIC OVERLAY	1
9	CB 325 HANDLE TOP	2
10	CB 326 HANDLE FRONT	1
11	CB 327-001 COUPLER PLATE, REAR ASSEMBLY	1
12	CB 328-001 POLE MOUNT	2
13	CB 333-HD PNEUM3WAYASSY	3

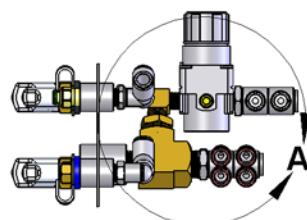
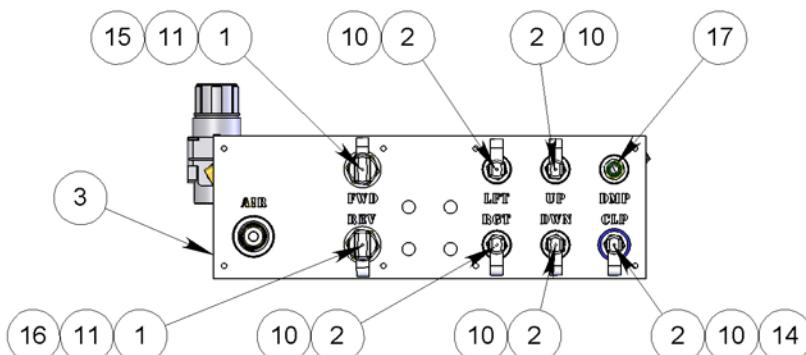
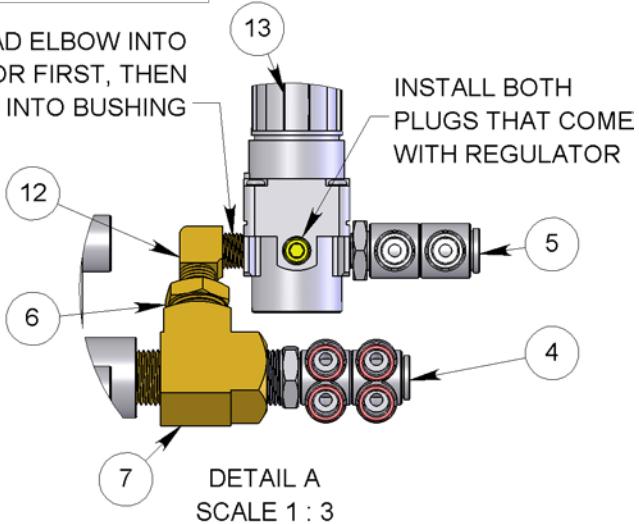
14	CB 334 RY3 AAA PILOTED SPOOL VALVE ASSY	1
15	CB 335 REG ASSY	1
16	CB 337-HD PNEUM3WAYASSY - DUMP	1
17	CB 344 SPACER #10 1-1_4LONG	1
18	CB 345 SPACER #10 3_4LONG	1
19	CB 347 CAP PLATE	1
20	CB 349 FTG P4F PL6 STRAIGHT	1
21	CB 355 FTG P8J8 BRASS MALE TO MALE	1
22	CB 361 10-24 THREADED ROD	1
23	CB 548-SS GAUGE	1
24	CB 554 BSHCS .138-32 X .50 SS	3

25	GB 337-03 BOLT, HEX .37-16 X .75 SS	4
26	GN 319-H HEX NUT SS	4
27	GN 319-L NYLOK NUT SS (HC 025.1)	4
28	GPH 319-08 PHPMS 10-24 X 2.00 SS	4
30	GSB 313-0075 BHCS 6-32 X .188 LG SS	4
31	GSB 3M8-16-1.25 BHCS M8X1.25 X 16 SS	2
32	GTB 319-02-32 BHTS .19-32 X .50 LG TORX-SS	42
33	GTB 331-025 BHTS .31-18 X .63 LG TORX-SS	4
34	GW 337-F FLAT WASHER SS	2

## PARTS DIAGRAM

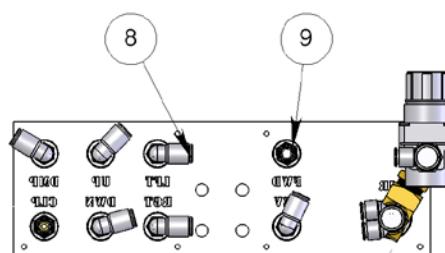
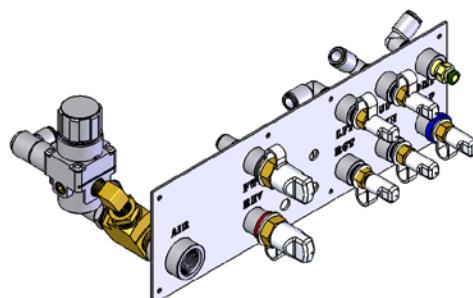
**AUTOBOX® (CB 327-001)**  
COUPLER PLATE, REAR ASSEMBLY

THREAD ELBOW INTO  
REGULATOR FIRST, THEN  
THREAD INTO BUSHING



FRONT SIDE

#	PART NUMBER	QTY.
1	BR 167 DUST CAP	2
2	BR 168 DUST CAP, J4	5
3	CB 327.1-001 COUPLER PLATE, REAR WELDMENT	1
4	CB 330 P8PL6 4-WAY MANIFOLD	1
5	CB 339 P4P6 MANIFOLD 2-WAY	1
6	CB 343 FTG P8P4 BUSHING	1
7	CB 346 FTG P8 T-FITTING	1
8	CB 351 FTG P4PL6 SWIVEL ELBOW	6
9	CB 354 FTG P4PL6 STRAIGHT	2
10	CB 356 FTG P4J4 BRASS MALE TO MALE	5
11	CB 357 FTG P4J8 BRASS MALE TO MALE	2
12	CB 365 FTG P4P4 ELBOW	1
13	CB 704 PRESSURE REGULATOR, 60 PSI	1
14	GP 011-B BLUE ID BAND MED	1
15	GP 011-BK BLACK ID BAND MED	1
16	GP 011-R RED ID BAND MED	1
17	SM 309 FITTING, BUSHING P4M PL4	1



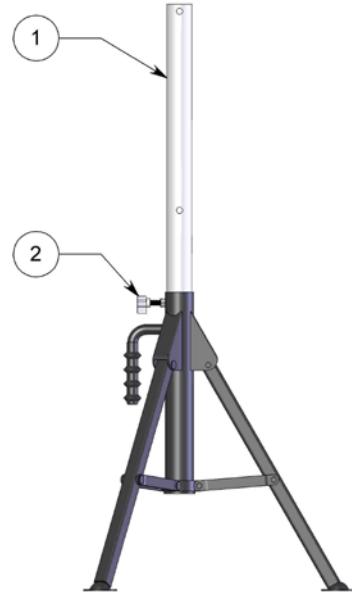
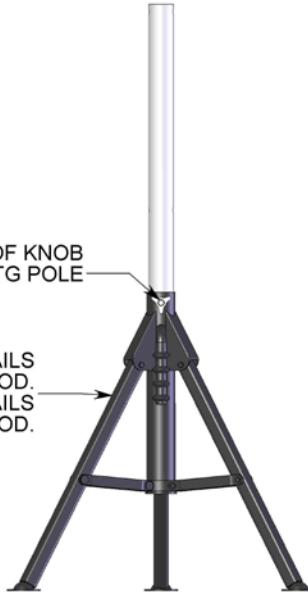
BACK SIDE

30°  
NOMINAL



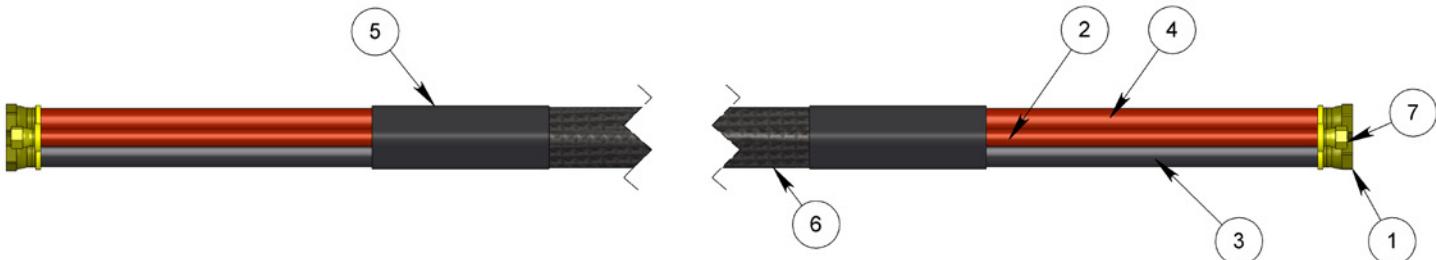
**AUTOBOX® (CB 301)**  
CB STAND ASSEMBLY

ALIGN THREADS OF KNOB  
THRU HOLE IN MTG POLE  
  
SEE NOTE 1 FOR DETAILS  
ON OBTAINING TRIPOD.  
SEE SHEET 2 FOR DETAILS  
ON MODIFYING TRIPOD.



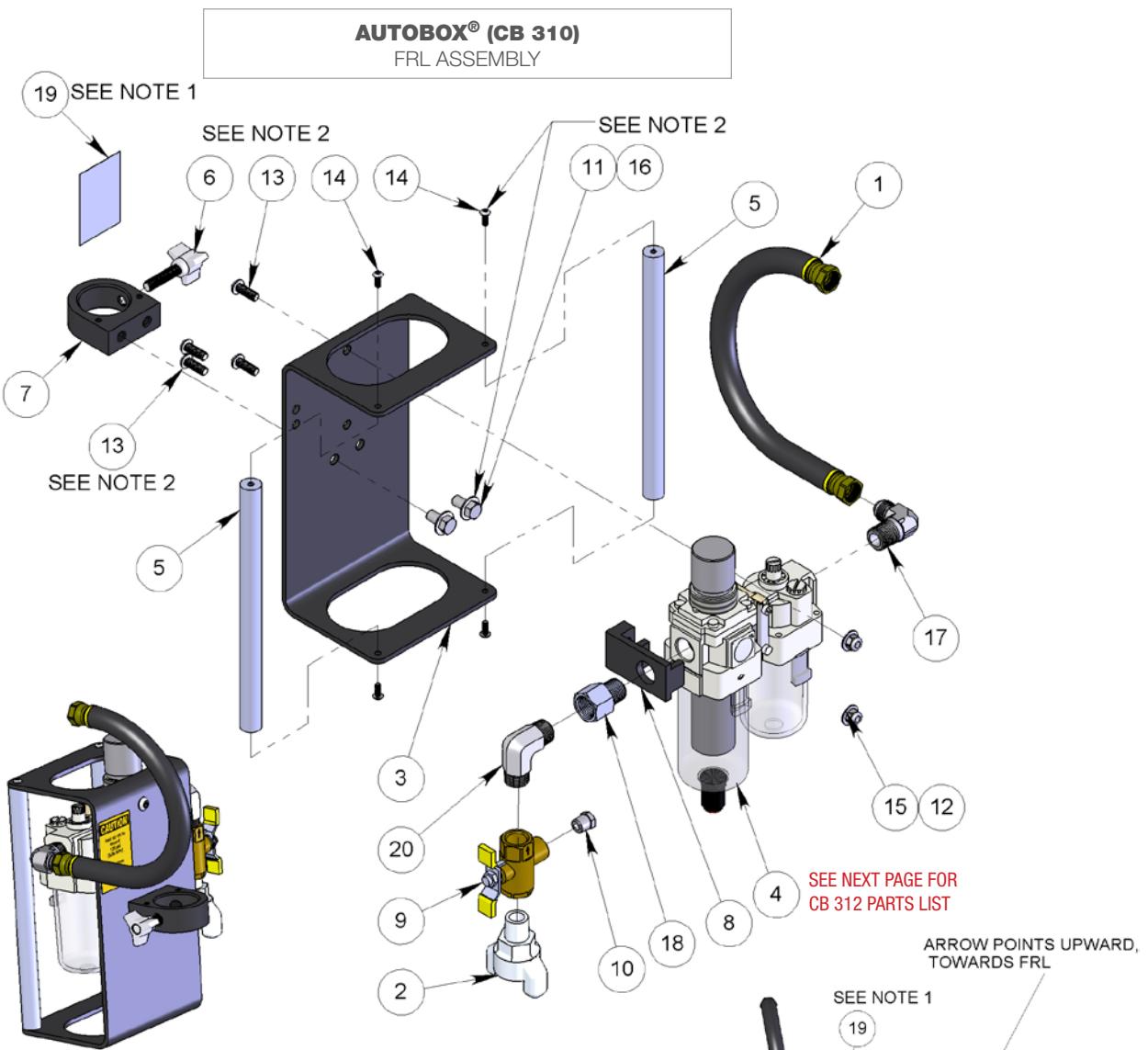
#	PART NUMBER	QTY.
1	CB 303 MTG POLE	1
2	CB 314 3-LOBE KNOB	1

**AUTOBOX® (CB 370-25)**  
CONTROL LINE ASSEMBLY



#	PART NUMBER	QTY.	UNITS
1	GP 053 1/2" PUSH-ON BRASS HOSE FITTING 1/2" JIC	4	
2	GPHO 0250-RUB-RD 1/4" ID X 1/2" OD PUSH-ON AIR HOSE, BUNA-N/PVC, 250 PSI, RED	1	25'
3	GPHO 0500-RUB-BK 1/2" ID X 3/4" OD PUSH-ON AIR HOSE, BUNA-N/PVC, 250 PSI, BLACK	1	25'
4	GPHO 0500-RUB-RD 1/2" ID X 3/4" OD PUSH-ON AIR HOSE, BUNA-N/PVC, 250 PSI, RED	1	25'
5	GPHS 2000-OLE-A-BK 2.00 DIA HEAVY DUTY MOISTURE SEAL HEAT-SHRINK	2	5"
6	GPSL 1750-NYL-G-BK 1.75 DIA BRAIDED EXPANDABLE HEAVY DUTY NYLON	1	24'
7	SRT 122 1/4" PUSH-ON BRASS HOSE FITTING 1/4" JIC	2	

## PARTS DIAGRAM



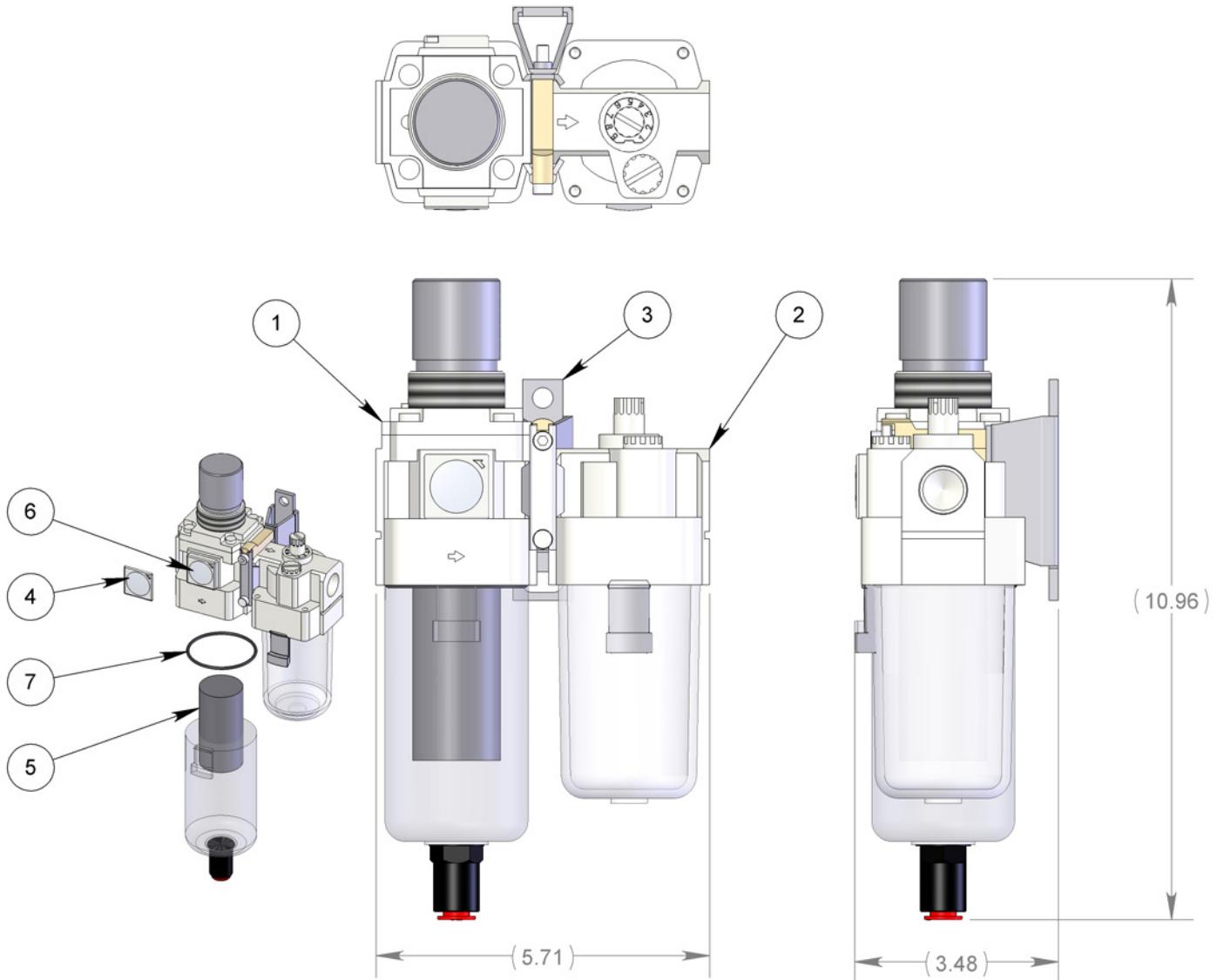
### NOTES:

1. CLEAN ALL DEBRIS & OILS BEFORE INSTALLING. INSTALL AT APPROXIMATE ORIENTATION AND LOCATION & AT ROOM TEMP.
2. APPLY BLUE LOCTITE (PN: 242 OR EQUIVALENT) TO ALL STRAIGHT THREADED FASTENERS.
3. APPLY THREAD SEALANT (LOCTITE 567 OR EQUIVALENT) TO ALL TAPERED THREADS.
4. ADD BLUE GOOP WHICH IS A SWAGELOK BRAN ANTI-SEIZE TO ALL OTHER THREADED HARDWARE OR AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.

#	PART NUMBER	QTY.
1	CB 052-14 HOSE ASSY (FOR CB ABX)	1
2	CB 114 INLET FITTING	1
3	CB 311 FRL FRAME	1
4	CB 312 GEN3 FILTER-REGULATOR-LUBRICATOR WITH GEN2 CLAMP	1
5	CB 313 ROD	2
6	CB 314 3-LOBE KNOB	1
7	CB 328-001 POLE MOUNT	1
8	CB 395 FRL BRACKET	1
9	CB 792 VALVE, AUTODRAIN, P8	1
10	CB 793 BREATHER, SINTERED BRONZE, P4	1

11	GB 337-03 BOLT, HEX .37-16 X .75 SS	2
12	GN 331-L NYLOK NUT SS	2
13	GSB 331-035 BHCS .31-18 X .88 LG SS	4
14	GTB 319-02-32 BHTS .19-32 X .50 LG TORX-SS	4
15	GW 331-F FLAT WASHER SS	2
16	GW 337-F FLAT WASHER SS	2
17	HRS 573 FITTING 90 DEG P8J8	1
18	ML 077-P8 BUSHING	1
19	PL 156-125 CAUTION INLET AIR, 125PSI MAX	1
20	SBT 292.1 FTG 90° ELBOW P8MP8M	1

**AUTOBOX® (CB 312)**  
GEN 3 FILTER, REGULATOR, LUBRICATOR WITH GEN 2 CLAMP

**NOTICE**

REV A

THE ORIGINAL SMC AC40A-N04DE-Z HAS BECOME OBSOLETE AND REPLACED WITH SMC AC40A-N04DE-Z-B. IT IS COMPLETELY INTERCHANGEABLE.

REV B

THE GEN3 CLAMPS IN THE SMC AC40A-N04DE-Z-B ASSY WERE FAILING. THE AAP1378 ASSY USES THE GEN2 CLAMP.  
IT IS COMPLETELY INTERCHANGEABLE.

#	PART NUMBER	QTY.
1	CB 312.1 GEN3 REGULATOR-FILTER AW40-N04DE-Z-B	1
2	CB 312.2 LUBRICATOR AL40-N04-Z-A	1
3	CB 312.3 SPACER W BRACKET, GEN2 Y400T	1
4	CB 312.1.4 LENS COVER FOR GAUGE	1
5	CB 312.1.6 FILTER	1
6	CB 312.1.7 GAUGE WITH LENS	1
7	CB 312.1.8 O RING	1

## TERMS AND CONDITIONS

1. Acceptance of Terms and Conditions. These Terms and Conditions shall operate as Seller's acceptance of Buyer's purchase order, and such acceptance is made expressly conditional on assent by Buyer to the Terms and Conditions. Such assent shall be deemed to have been given unless written notice of objection to any of such Terms and Conditions (including inconsistencies between Buyer's purchase order and this acceptance) is given by Buyer to Seller promptly on receipt hereof.

Seller desires to provide its Buyer with prompt and efficient service. However, to negotiate individually the terms of each sales contract would substantially impair Seller's ability to provide such service. Accordingly, products furnished and services rendered by Seller are sold only on the Terms and Conditions stated herein. Notwithstanding any Terms or Conditions on Buyer's order, Seller's performance of any contract is expressly made conditional on Buyer's agreement to Seller's Terms and Conditions of sale unless otherwise specifically agreed to in writing by Seller. In the absence of such agreement, commencement of performance, shipment and/or delivery shall be for Buyer's convenience only and shall not be deemed or construed to be an acceptance of Buyer's Terms and Conditions. **PRODUCTS SOLD BY SELLER ARE DESIGNED AND INTENDED TO BE USED AT HIGH PRESSURES AND SPEEDS, AND MAY BE DANGEROUS IF OPERATED IMPROPERLY OR WITHOUT THE USE OF APPROPRIATE SAFETY DEVICES AND GUARDS. BUYER IS CAUTIONED TO CAREFULLY READ AND UNDERSTAND THESE TERMS AND CONDITIONS, AS THEY HAVE IMPORTANT LEGAL CONSEQUENCES.**

2. Payment/Prices. Unless other arrangements have been made in writing between Seller and Buyer, payment for product delivered shall be made upon receipt of invoice. The prices shown on the face hereof are those currently in effect. Prices invoiced shall be per price list in effect at the time of shipment. Prices are subject to increase for inclusion of any and all taxes which are applicable and which arise from the sale, delivery or use of Seller's products or services and for the collection of which Seller is or may be responsible to any governmental authority unless acceptable exemption certificates are provided by Buyer in accordance with law. Buyer shall pay all charges for transportation and delivery and all excise, order, occupation, use or similar taxes, duties, levies, charges or surcharges applicable to the equipment or services being purchased, whether now in effect or hereafter imposed by any governmental authority, foreign or domestic.

3. Warranty. Subject to the limitations and conditions hereinafter set forth, Seller warrants to the original Buyer that its products are free from defects in workmanship and material for a period of one (1) year months from shipment. Seller's obligation under this warranty shall be limited to repairing, replacing or issuing a credit for, at Seller's option, any products or services it finds to be defective in material or workmanship. In no event shall Seller be liable for any incidental, consequential or indirect damages of any kind. **THIS WARRANTY SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY FOR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.** No statement or recommendation made by Seller or its representative to Buyer or User shall constitute a warranty by Seller or a waiver or modification to any of the provisions hereof or create any liability for Seller. All warranty claims are subject to the exclusions and limitations set forth below:

a. The warranty shall not apply if the product or service (1) has been subject to misuse, negligence or accident; (2) has not been installed or

operated in accordance with Seller's recommendations; (3) has been operated under more severe conditions than those specified for the particular product or service; (4) has been operated beyond the rated capacity of the product; or (5) has been repaired or altered outside Seller's facilities or in any way so as, in Seller's judgment, to affect its stability or reliability.

b. Products that Seller furnishes, but does not manufacture, carry only the warranty of the manufacturer of such products. Where other manufacturers' or suppliers' products used in Seller's products or services prove defective, Seller's liability shall exist only to the extent that Seller is able to recover from such manufacturers or suppliers for such defects.

c. Any warranty granted by Seller to the Buyer shall be deemed void if any goods covered by such warranty are used for any purpose not recommended or permitted. In addition, the Buyer shall indemnify Seller and hold Seller harmless from and against any and all claims, damages, losses, costs, expenses and other liability of whatever nature that Seller suffers or incurs by reason of any such unintended use.

d. Notice of defective product or service must be given in writing to Seller by Buyer or User within fifteen (15) business days following receipt of goods. Buyer or User shall keep such products or services in an unaltered condition for examination by Seller's representative. No goods may be returned for credit or adjustment without prior written permission from Seller.

4. Product Liability. Buyer specifically acknowledges that the products being purchased may be operated at high speeds and/or pressures, and that as such they may be inherently dangerous if not used correctly. Buyer shall be solely responsible for the safe operation of the products at all times and for determining the safety devices and guards that may be required for the safe operation of the products. Buyer shall undertake to specify and order all safety devices and guards necessary for the safe operation of the equipment covered. All safety devices and guards offered in Seller's quotations are recommended for purchase. Seller may provide necessary safety devices and guards not offered in this quotation at an extra price in accordance with the specifications of Buyer. Buyer shall at all times use and require its employees to use all necessary and appropriate safety devices, guards and proper safe operating procedures. Buyer shall not remove or modify any such devices, guards or warning signs and shall insist on safe operating practices on the part of its personnel. In no event shall Seller be responsible for any injuries to persons or property caused by defects in any equipment, including by way of illustration and not limitation, any pumps, compressors, fittings, connections, components, piping or hoses up to the point that same are connected to the product. Buyer agrees to indemnify and to save Seller harmless from any and all liability or obligation incurred by or against Seller, including costs and attorneys' fees, to or by any persons injured directly or indirectly in the operation of the equipment furnished under the following conditions:

- a. if Buyer fails to purchase and use necessary and appropriate safety devices and guards as determined and/or recommended by Seller;
- b. if Buyer fails to maintain in good working order such safety devices and guards as are purchased from Seller;
- c. if Buyer adds, omits, repairs, modifies, replaces or substitutes any components on the equipment without permission from Seller;

d. if Buyer exceeds at any time the maximum safe loads, pressures or speeds recommended by Seller for the equipment furnished hereunder without the specific written consent of Seller; or

e. if Buyer otherwise fails to operate the product or equipment in accordance with Seller's printed instructions or otherwise negligently operates the equipment.

**5. Delivery.** Seller is not obligated to make delivery by a specified date, but will always use its best efforts to make delivery within the time requested. All deliveries are based on F.O.B. Seller's factory, unless specifically agreed otherwise, and Buyer shall pay all shipping costs and insurance from that point. Seller, in its sole discretion, will determine and arrange the means and manner of transportation of the products. Responsibility of Seller shall cease and Buyer assumes all risk of loss or damages upon Seller's delivery to and receipt by a common carrier. Carriers shall be responsible for goods lost or damaged in transit and Buyer shall immediately notify the carrier in writing of such loss or damage. At Buyer's request Seller will offer its assistance.  
**THE PROPOSED SHIPMENT DATE IS AN ESTIMATE. UNDER NO CIRCUMSTANCES SHALL SELLER HAVE ANY LIABILITY WHATSOEVER FOR LOSS OF USE OR FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM DELAY REGARDLESS OF THE REASON(S).** Shortages or errors must be reported within fifteen (15) business days from receipt of shipment to secure adjustment. No merchandise may be returned without securing written approval from Seller. Seller will notify Buyer promptly of any material delay and will specify the revised delivery date as soon as practicable. Seller shall not be liable for any delay in delivery or performance, or for any failure to manufacture, deliver or perform due to (a) any cause beyond its reasonable control; (b) any act of God, act of Buyer, act of civil or military authority, governmental priority, strike or other labor disturbance, flood, epidemic, war, riot, delay in transportation or car shortage; or (c) inability on account of any cause beyond the reasonable control of Seller to obtain necessary materials, components, services or facilities. In the event of any such delay, the date of delivery or of performance shall be extended for a period equal to the time lost by reason of the delay.

**6. Technical Advice.** All technical advice, recommendations and services of Seller are intended for use by persons having adequate skill, at their own risk, and Seller assumes no responsibility, and Buyer hereby waives all claims against Seller, for results obtained or damages incurred from the use of Seller's advice, recommendations and services.

**7. Modification.** These Terms and Conditions are intended by Seller and Buyer to constitute a final, complete and exclusive expression of agreement and cannot be supplemented or amended without Seller's prior written approval. Seller's waiver of any breach, or failure to enforce any of the Terms and Conditions at any time, shall not in any way affect, limit or waive Seller's right thereafter to enforce and compel strict compliance with every Term and Condition thereof. If any provisions of these Terms and Conditions are held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the other portions hereof.

**8. Disputes.** Buyer and Seller shall attempt in good faith promptly to resolve any dispute arising under these Terms and Conditions by negotiations between representatives who have authority to settle the controversy. If unsuccessful, Buyer and Seller shall further attempt in good faith to settle the dispute by nonbinding third-party mediation, with

fees and expenses of such mediation apportioned equally to each side. Any dispute not so resolved by negotiation or mediation may then be submitted to a court of competent jurisdiction in accordance with the terms hereof. These procedures are the exclusive procedures for the resolution of all such disputes between the parties. All sales, agreements for sale, offers to sell, proposals, acknowledgments and contracts of sale, including, but not limited to, purchase orders accepted by Seller, shall be considered a contract under the laws of the State of Colorado and the rights and duties of all persons, and the construction and effect of all provisions hereof shall be governed by and construed according to the laws of such state. A state or federal court located within the State of Colorado shall have sole and exclusive jurisdiction over any litigation concerning any such matters as well as any alleged defects of any products or equipment covered thereby or damages sustained as a result of such alleged defects. If any litigation is commenced between Seller and Buyer, or their personal representatives, concerning any provision hereof, the party prevailing in the litigation shall be entitled, in addition to such other relief that is granted, to a reasonable sum as and for their attorneys' fees and costs in such litigation or arbitration.

#### STONEAGE TRADEMARK LIST

View the list of StoneAge's trademarks and service marks and learn how the trademarks should be used. Use of StoneAge trademarks may be prohibited, unless expressly authorized.

<http://www.StoneAgetools.com/trademark-list/>

#### STONEAGE PATENT DATA

View the list of StoneAge's current U.S. patent numbers and descriptions.

<http://www.sapatents.com>



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