

AUTOBOX® CONTROL BOX (CB-ABX) USER MANUAL

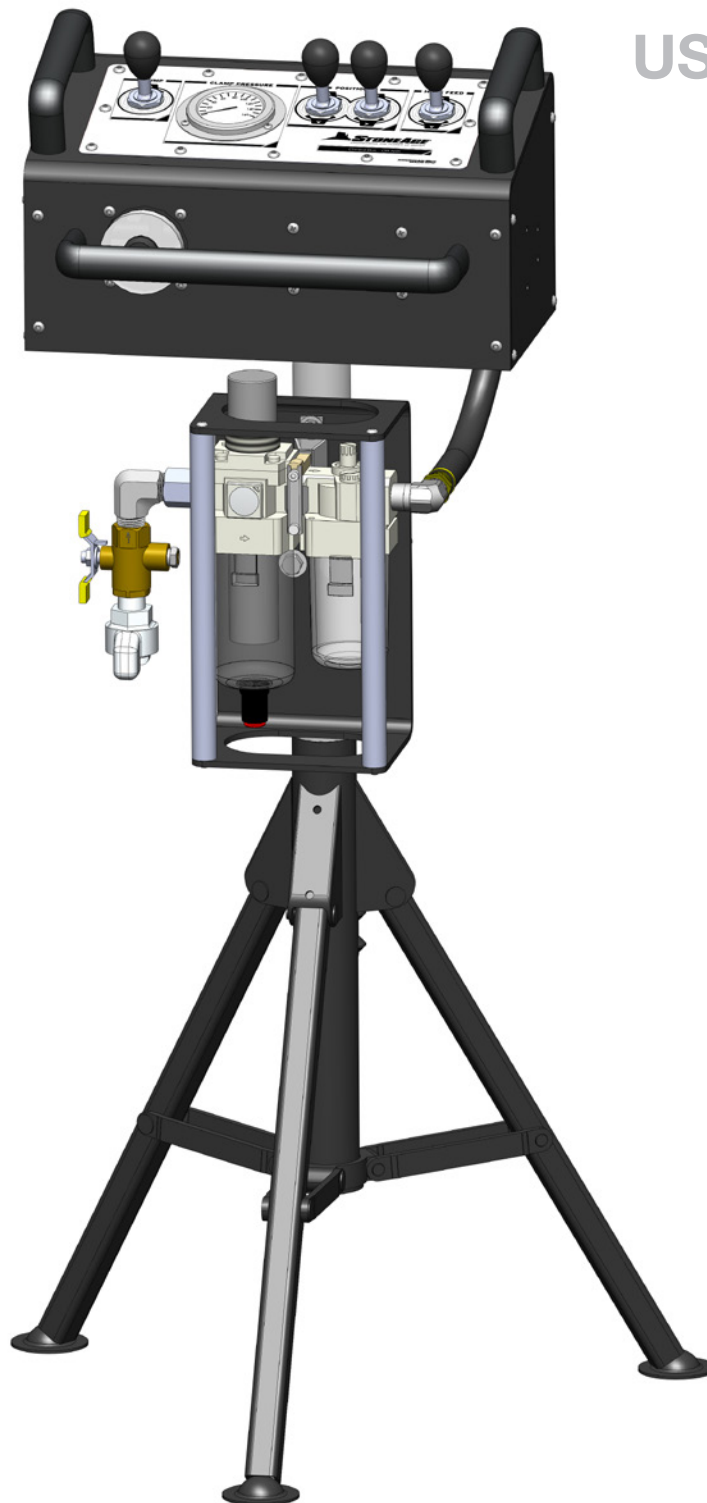


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This manual must be used in accordance with all applicable national laws. The manual shall be regarded as a part of the machine and shall be kept for reference until the final dismantling of the machine, as defined by applicable national law(s).

Updated manuals can be downloaded at:
<https://www.stoneagetools.com/manuals>

SPECIFICATIONS	
Control Box Weight:	43 lbs (19.5 kg) (Includes Control Box, FRL, and stand)
Maximum Air Consumption:	50 cfm at 100 psi (85 m ³ /h at 0.70 MPa)
Maximum Air Supply Pressure:	125 psi (0.86 MPa)
System Operating Pressure:	100 psi (0.70 MPa)
Recommended Operational Temperature Range:	-20 °F to 140 °F (-29 °C to 60 °C)
Minimum speed:	Dependent upon application and hose size
Maximum:	Dependent upon application and hose size

DESCRIPTION OF EQUIPMENT AND INTENDED USE

The CB-ABX comprises a Control Box, Filter-Regulator-Lubricator (FRL) Assembly, and portable tripod stand. The CB-ABX Control Box is used on both the ABX-2L-V2 and ABX-500-V2

The CB-ABX Control Box 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.

KEY FEATURES:

- Pneumatic pilot valve for a user supplied high pressure water dump valve
- A pressure regulator and gauge for hose clamp, X-Y positioner controls, and hose feed forward and reverse.
- The FRL Assembly conditions the air supply to the AUTOBOX® Hose Tractors. Both the FRL and control box disassemble from the stand for transport.

EC DECLARATION OF CONFORMITY

Manufacturer:

StoneAge Incorporated
466 South Skyline Drive
Durango, CO 81303
USA

Authorized Representative:

StoneAge Netherlands BV
Reedijk 7Q
3274 KE Heinenoord
Netherlands
Bob Van Wordragen, Operations Manager StoneAge NL

Declare that:

AutoBox® Control Box (CB-ABX)
for high pressure water cleaning of system parts.

Is compliant with the following Directives and Standards:

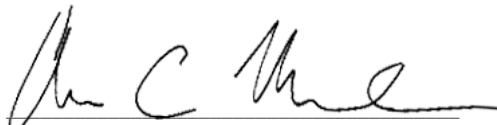
Directive 2006/42/EC (Machinery Directive)

EN ISO 12100:2010 (E) Safety of machinery – General principles for design – Risk assessment and risk reduction

The Technical File for AutoBox® Control Box (CB-ABX)

is maintained at: StoneAge Incorporated, 466 South Skyline Drive, Durango, CO 81303, USA and was compiled by the Engineering Manager. The Technical File is available through the Authorized Representative.

This Declaration of Conformity is issued under the exclusive responsibility of StoneAge Incorporated.



StoneAge Incorporated, Durango, CO, USA
Adam Markham, Engineering Manager, Robotics

02/11/2019
Date



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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).

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.

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

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.

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

SAFETY LABEL DEFINITIONS

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.

CAUTION

Inlet air not to exceed 125 psi [0.86 MPa].

Set system pressure to 100 psi max [0.7 MPa].

⚠ 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. 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 CB-ABX Control Box **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.
- The CB-ABX 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), ABX-2L-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® Hose Tractors 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 performing service or replacing any parts. Failure to do so can result in severe injury and/or death.
- When moving the CB-ABX Control Box lift with care to prevent bodily injury.

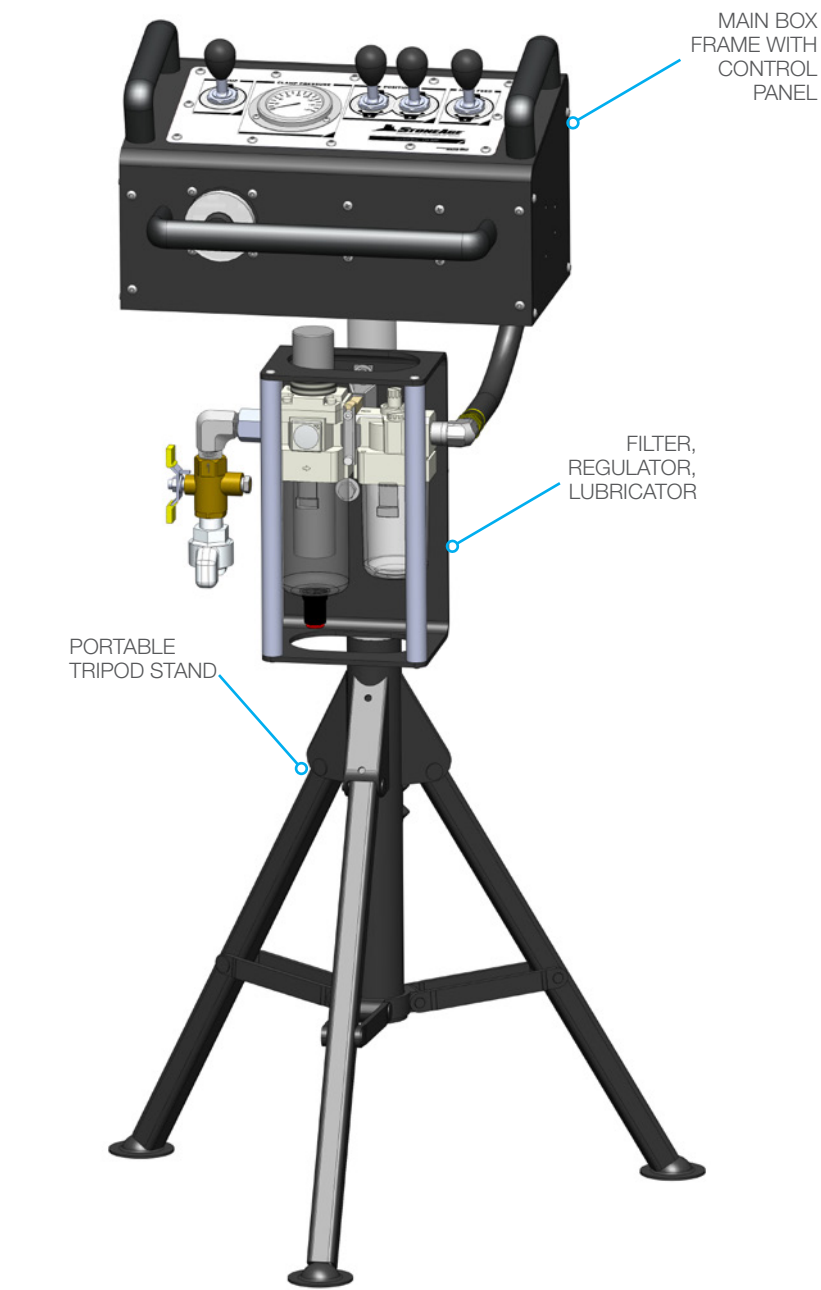
PRE-RUN SAFETY CHECK

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 waterblasting 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 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 all threaded air fitting connections for tightness.

CB-ABX CONTROL BOX OVERVIEW

CB-ABX CONTROL BOX, FRL, AND STAND ASSEMBLY



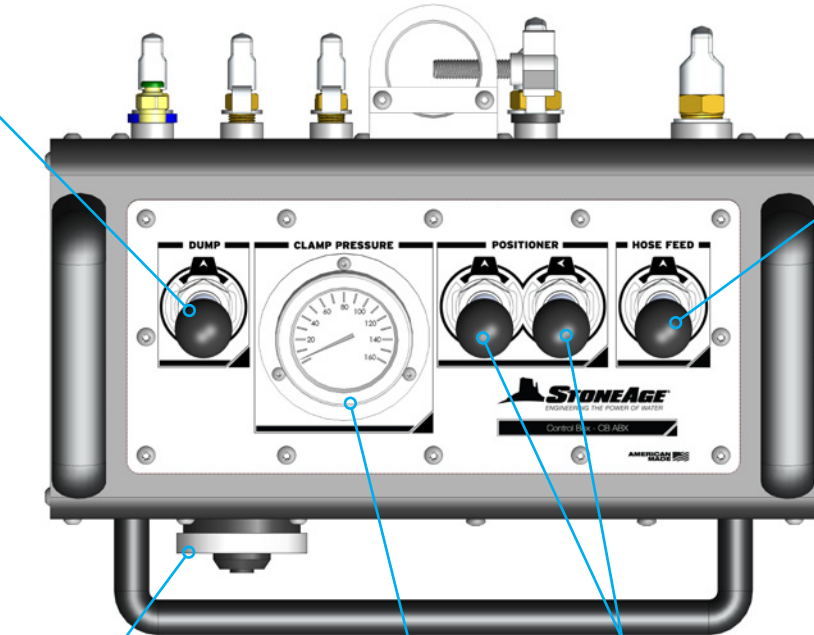
PNEUMATIC SUPPLY LINE PACKAGE



PNEUMATIC SUPPLY LINES
COME BUNDLED IN NYLON SHEATH

CB-ABX CONTROL BOX
TOP VIEW

MOMENTARY
PNEUMATIC
DUMP CONTROL



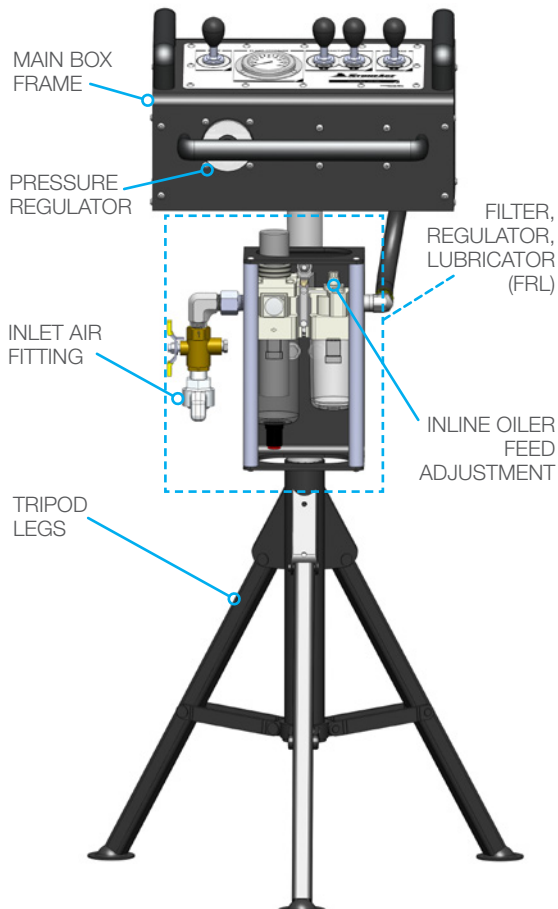
HOSE FEED
LEVER

HOSE CLAMP
PRESSURE REGULATOR

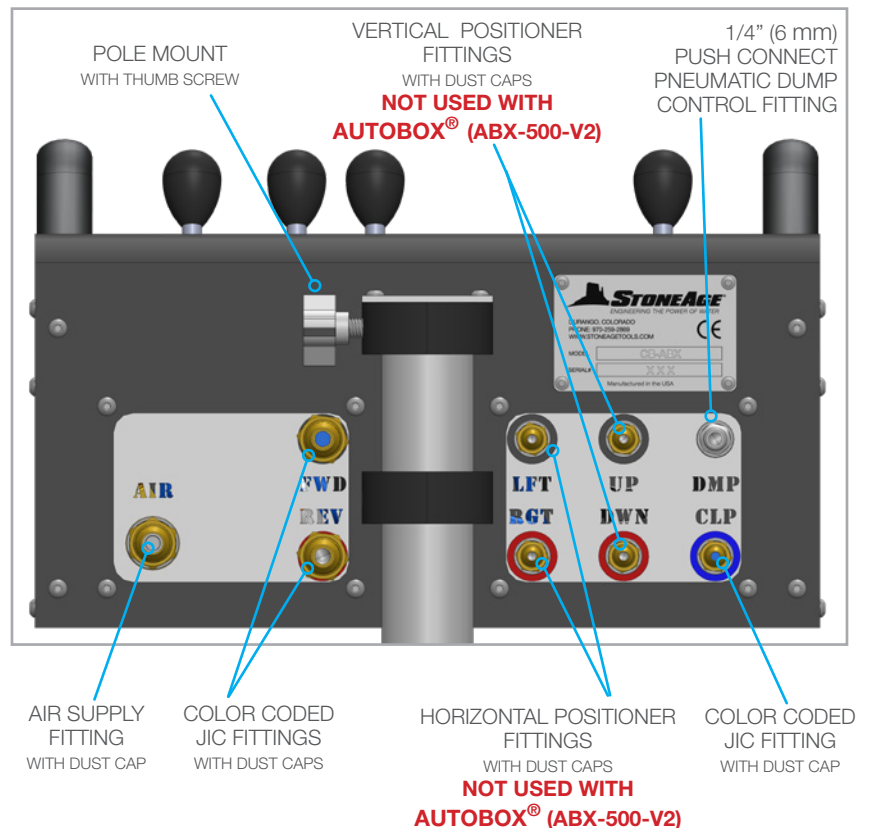
HOSE CLAMP
PRESSURE GAUGE

POSITIONER CONTROLS
**NOT USED WITH
ABX-500-V2**

CB-ABX CONTROL BOX
FRONT VIEW



CB-ABX CONTROL BOX
REAR VIEW



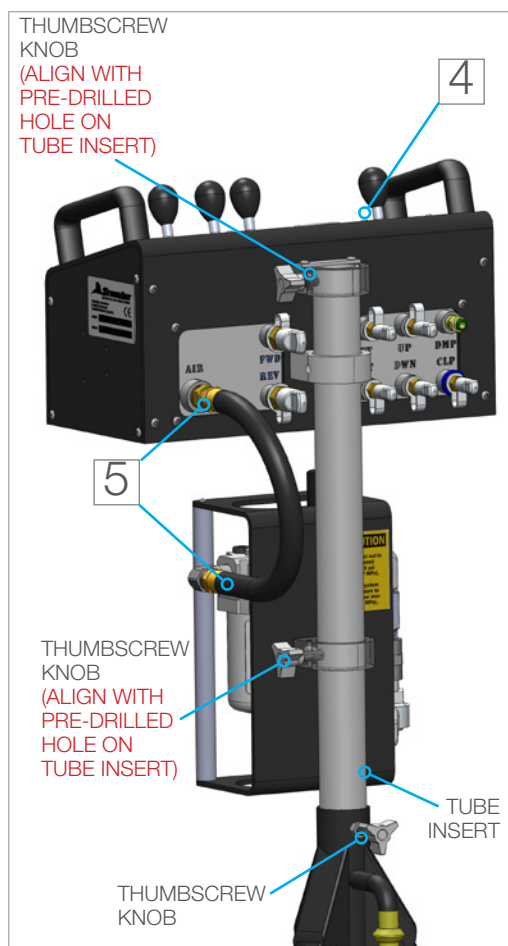
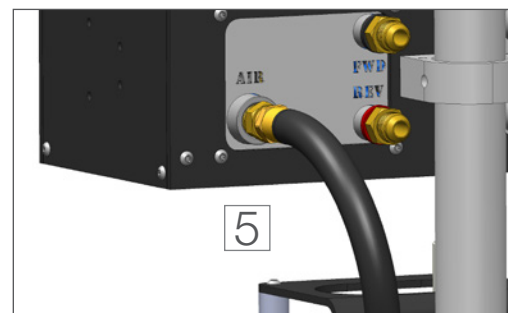
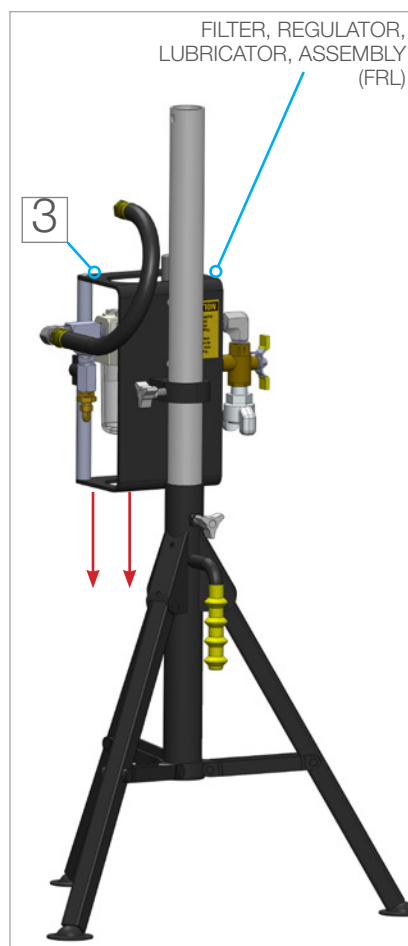
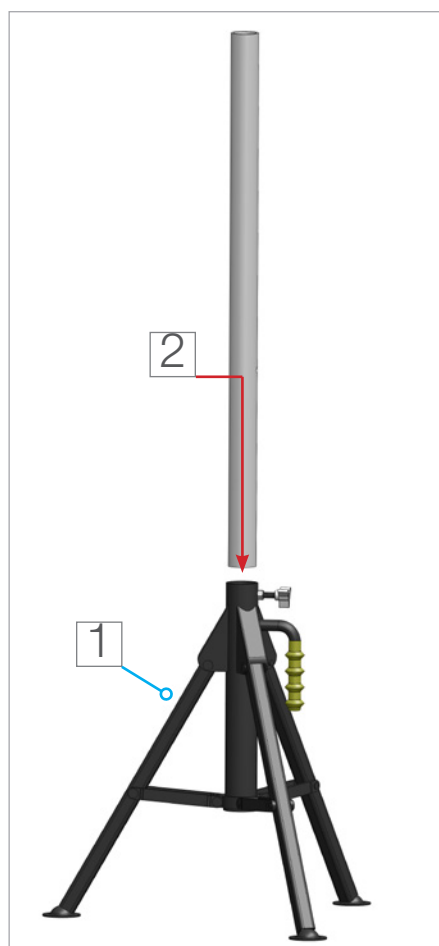
CONTROL BOX SET-UP

ASSEMBLE CONTROL BOX, FRL, AND TRIPOD BASE

1. Setup the tripod base in a location with good visibility to the work 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.

NOTICE

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

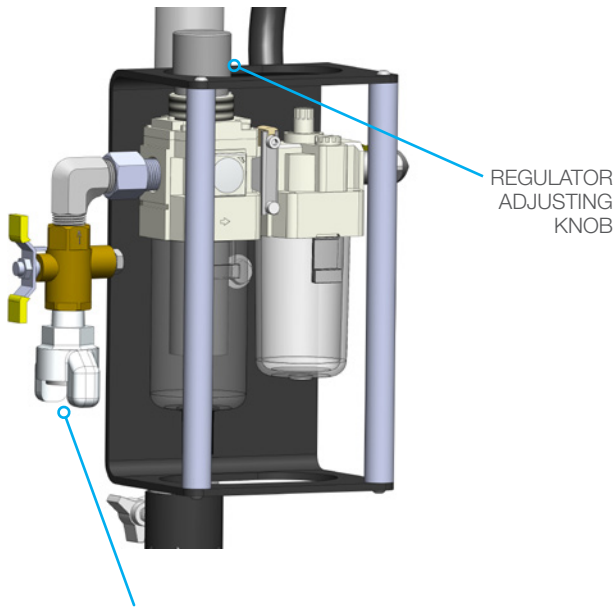


AIR SUPPLY AND LUBRICATOR SETTING

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.
2. Using the regulator adjust the operating air pressure to 100 psi (0.7 MPa) for the application.

⚠ 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.

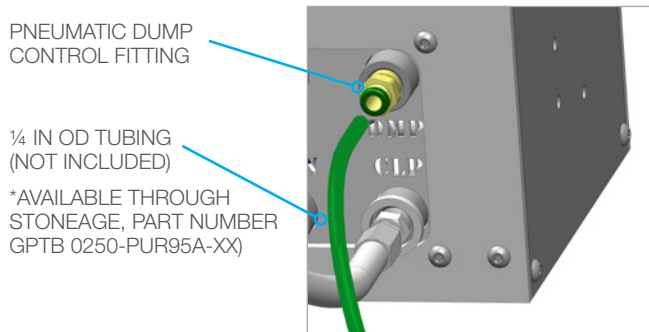


AIR SUPPLY FITTING

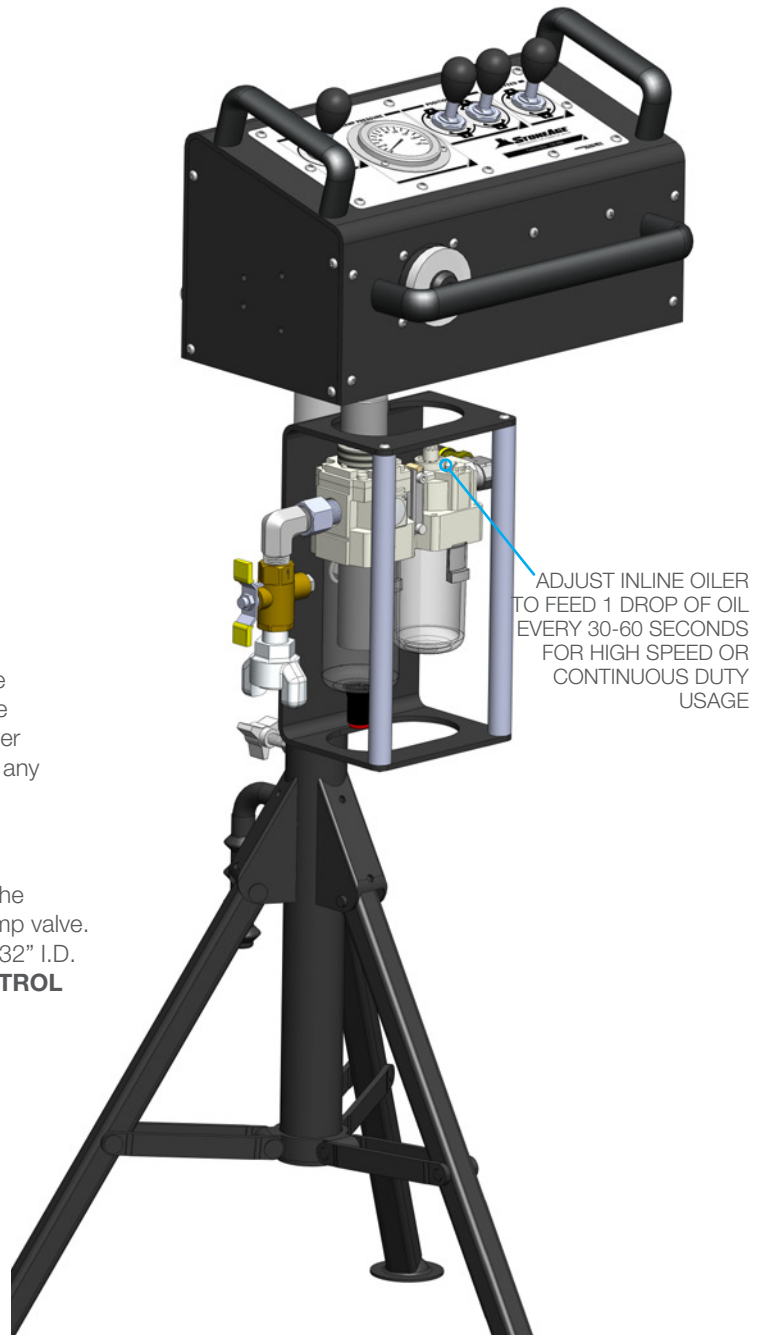
A universal **AIR SUPPLY FITTING** (Chicago style) is located on the back of the Control Box. Connect a compatible compressed air line (not included) according to the Manufacturer's instructions. If another pneumatic connection is preferred, this fitting can be removed and any male 1/2 in NPT fitting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

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. O.D., 5/32" I.D. poly tubing (not included) between the **PNEUMATIC DUMP CONTROL FITTING** and the pneumatic dump valve.



CONTROL BOX REAR VIEW



CONTROL BOX TO AUTOBOX® (ABX-500-V2) HOSE TRACTOR ASSEMBLY

PNEUMATIC SUPPLY LINE CONNECTIONS

1. Remove the dust caps from the Joint Industry Council (JIC) fittings of the AUTOBOX® (ABX-500-V2) and the CB-ABX Control Box.
2. Connect the AUTOBOX® (ABX-500-V2) to the CB-ABX 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 CB-ABX 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.

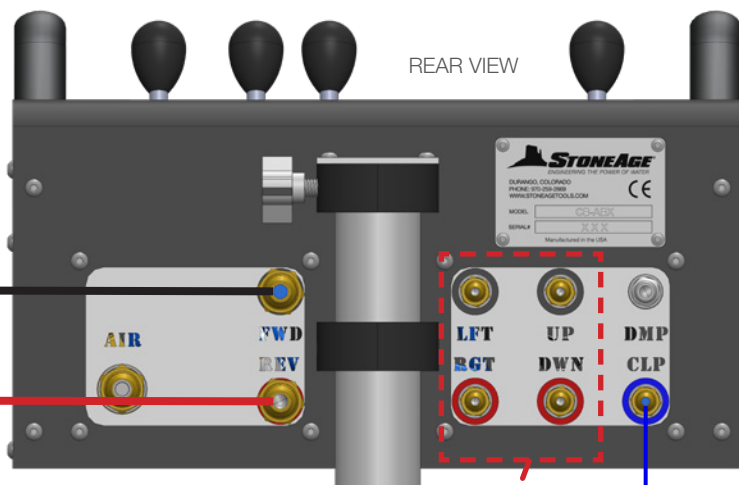
NOTICE

All hoses and fitting are color coded for ease of installation.

 FORWARD

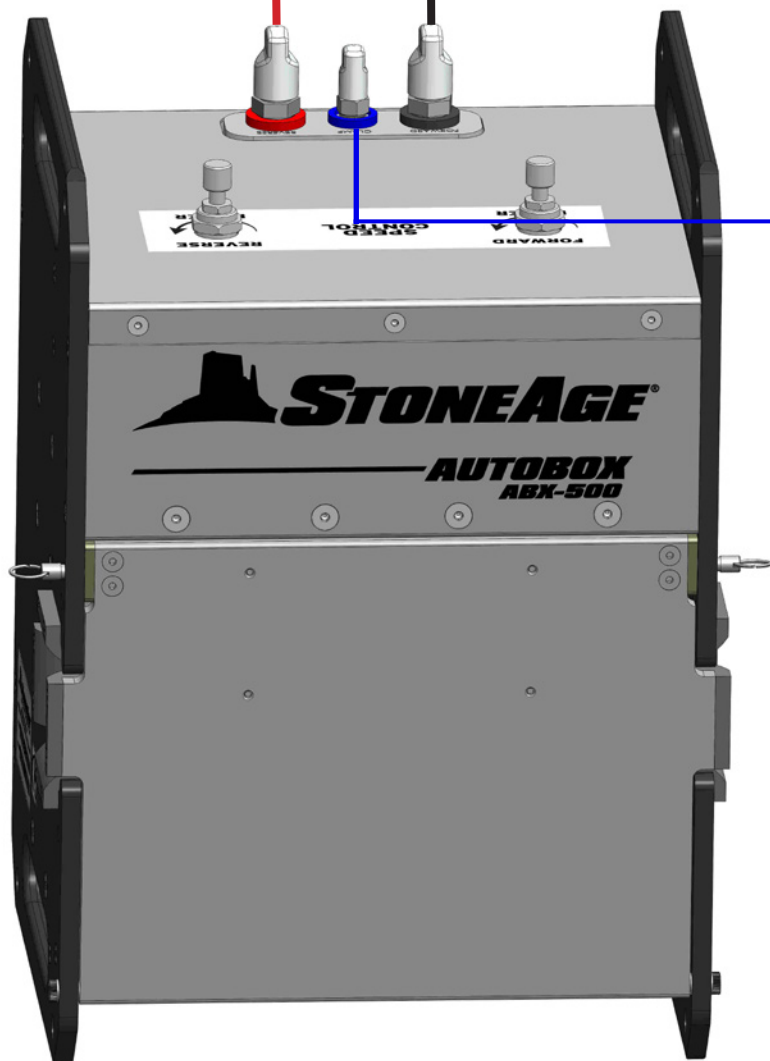
 REVERSE

 CLAMP (1/4" HOSE)



NOTICE

The Positioner control fittings (LFT, RGT, UP, and DWN) are NOT USED with the AUTOBOX® (ABX-500-V2).



PNEUMATIC SUPPLY LINE CONNECTIONS

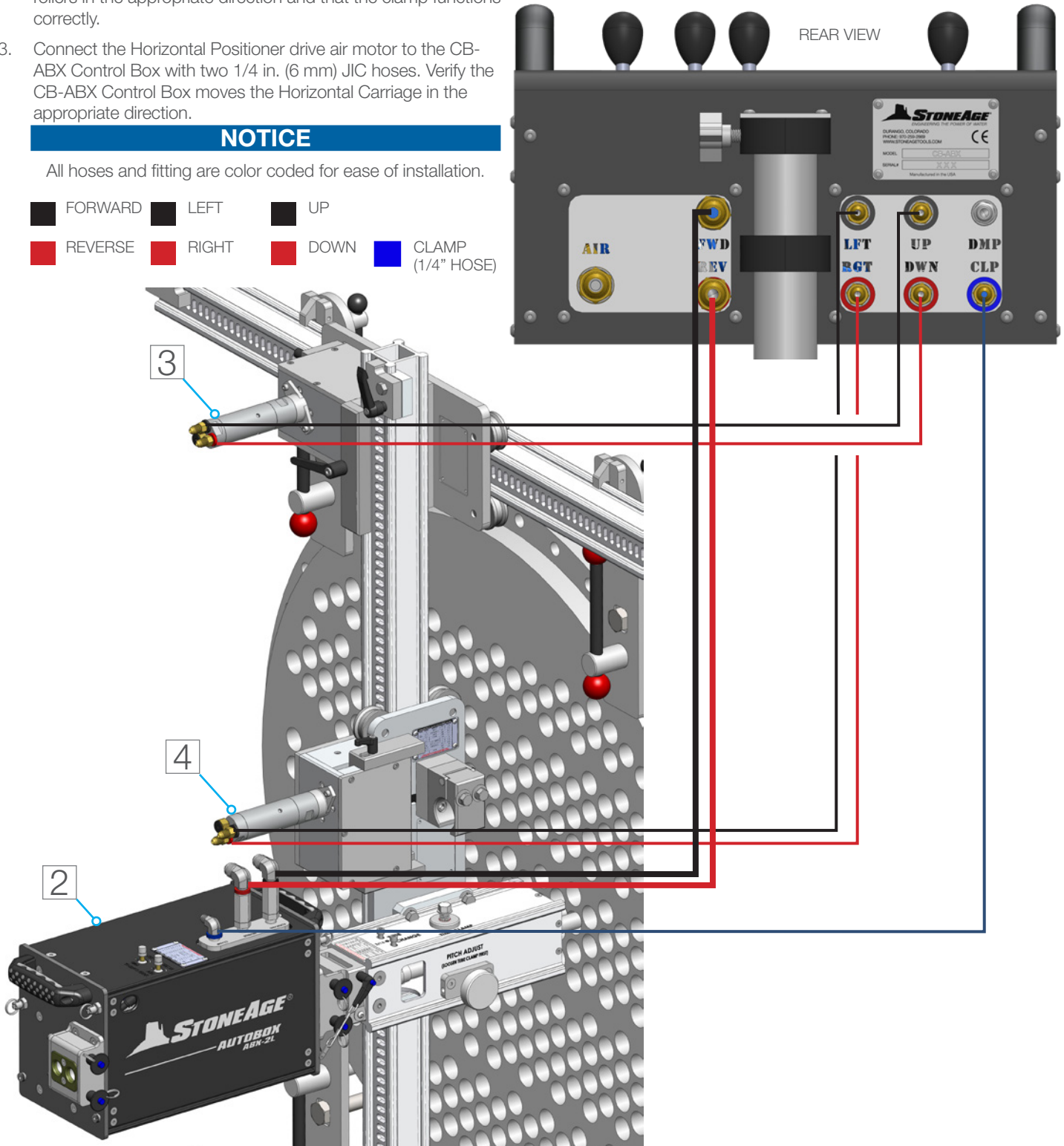
1. Remove the dust caps from the Joint Industry Council (JIC) fittings of the Control Box and the AUTOBOX® (ABX-2L-V2) Hose Tractor.
2. Connect the AUTOBOX® (ABX-2L-V2) Hose Tractor to the CB-ABX Control Box with two 1/2 in. (13 mm) JIC hoses and one 1/4 in. (6 mm) JIC hose. Verify the Control Box rotates the rollers in the appropriate direction and that the clamp functions correctly.
3. Connect the Horizontal Positioner drive air motor to the CB-ABX Control Box with two 1/4 in. (6 mm) JIC hoses. Verify the CB-ABX Control Box moves the Horizontal Carriage in the appropriate direction.

NOTICE

All hoses and fitting are color coded for ease of installation.

 FORWARD	 LEFT	 UP
 REVERSE	 RIGHT	 DOWN
	 CLAMP	(1/4" HOSE)

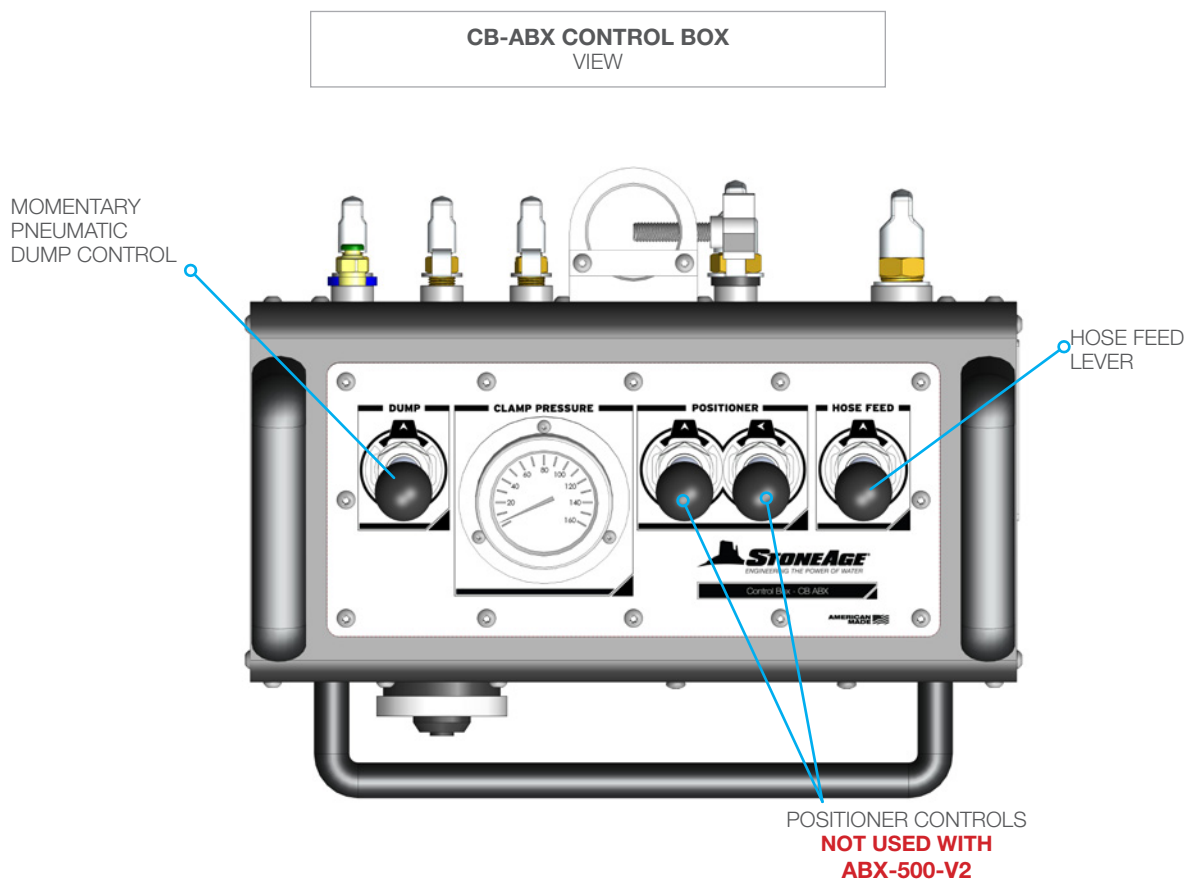
4. Connect the vertical positioner drive air motor to the CB-ABX Control Box with two 1/4 in. (6 mm) JIC hoses. Verify the CB-ABX Control Box moves the vertical carriage in the appropriate direction.
5. Test the CB-ABX Control Box before operating the AUTOBOX® (ABX-2L-V2) Hose Tractor with high pressure water to verify the control valves move the hose in the intended direction, and that the dump valve is working properly.



OPERATION

CONTROL PANEL FUNCTIONS

- 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) and the AUTOBOX® (ABX-2L-V2) Hose Tractors. Speed is independently adjustable for Forward/Reverse.
- **UP/DOWN** will move the AUTOBOX® (ABX-2L-V2) up and down the tube face bundle. Push forward to move the assembly UP, release to STOP the motion, push down to move the assembly down.
- **LEFT/RIGHT** will move the AUTOBOX® (ABX-2L-V2) from side to side along the tube face bundle. Push left to move the assembly to the LEFT, release the lever to STOP the motion, push RIGHT to move the assembly to the right.
- To use the **MOMENTARY PNEUMATIC DUMP CONTROL**, hold it in the **FORWARD** 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 Tractor or AUTOBOX® (ABX-2L-V2) Hose Tractor.

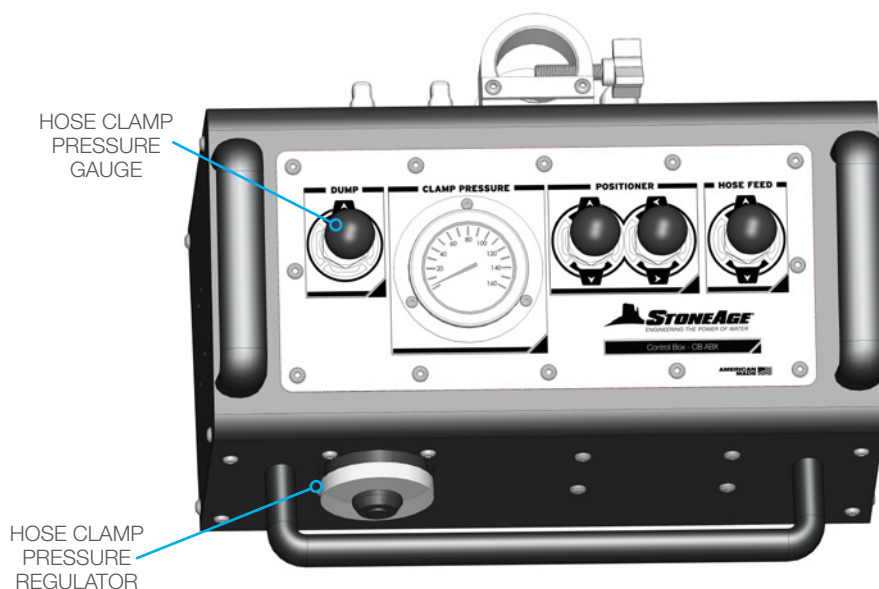


HOSE CLAMP

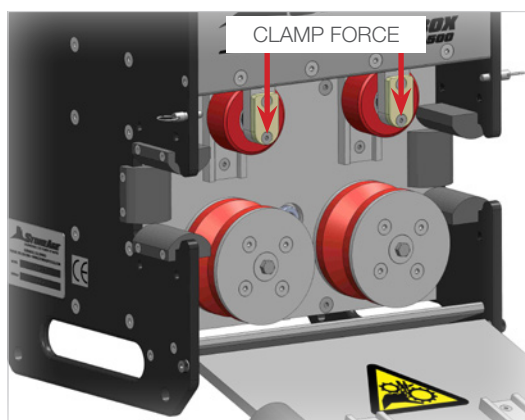
The clamp rollers are controlled by turning the **HOSE CLAMP PRESSURE REGULATOR**. Use the **HOSE CLAMP PRESSURE GAUGE** to record desired pressure for future use. Clamp force will not damage hoses or couplings. Proper clamp force will provide good control of the hose in forward and reverse directions,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

⚠ WARNING

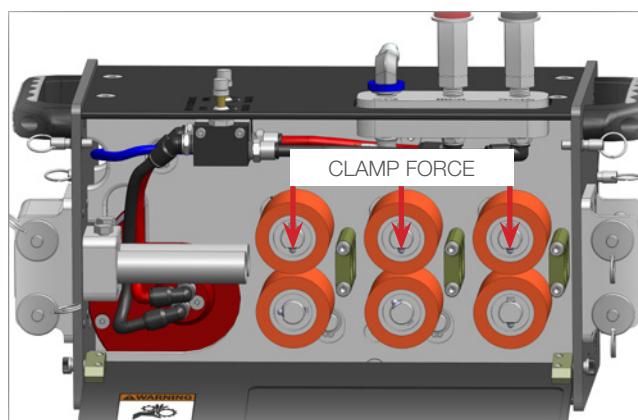
Do not fully release the hose clamp (decreasing pressure to zero) during operation, or the AUTOBOX® (ABX-500-V2) Hose Tractor will release the hose and may create a dangerous runaway hose condition, which can result in severe injury and/or death.



AUTOBOX® (ABX-500-V2) HOSE TRACTOR



AUTOBOX® (ABX-2L-V2) HOSE TRACTOR



TEST RUN PROCEDURE

- Perform the **PRE-RUN SAFETY CHECK (SEE PAGE 7)**.
- 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.

MAINTENANCE

Maintenance Item	Frequency	Maintenance Required
Lubricant level of Filter, Regulator, Lubricator	Before each use check level	For average conditions, the use of high quality SAE #10 (S.U.V. 150-200 SEC @ 100°F) oil is recommended. Other lubricants, as specified by the maker of the equipment to be lubricated, may be used if not heavier than SAE #40 (S.U.V. 800 SEC @100°F).
Lubricant level of Filter, Regulator, Lubricator	Before each use Check Cessation of oil dripping through the sight dome	If both air and oil are kept clean, and the oil level is never allowed below end of tube in the bowl, the lubricator should provide long periods of unattended service. Cessation of oil dripping through the sight dome, irrespective of knob adjustment, is an indication that cleaning is necessary. To clean, it is not necessary to remove lubricator from the line. Depressurize and disassemble. In most instances, cleaning is needed only in the oil metering area. Pull off adjusting knob, unscrew sight dome assembly, remove inner drip spout and clean with household soap. PLASTIC BOWLS AND SIGHT DOME MUST BE CLEANED WITH HOUSEHOLD SOAP ONLY.
Lubricant level of Filter, Regulator, Lubricator	During use, Check drip rate and make Intermittent Adjustments	The adjustment knob is factory set so that, when turned fully clockwise, no oil is delivered to the venturi for atomization, and the equipment is not being lubricated. To adjust the oil drip rate, turn on the air, start flow and set knob to obtain the desired drip rate, which is visible through the sight dome. As a start, one to two drops per minute is suggested, correct lubrication is a matter of experience and demand. Clockwise rotation of knob decreases oil feed rate. To check lubrication, hold thumbnail or a mirror near the equipment exhaust. A heavy film indicates over-lubrication and the drip rate should be reduced by turning knob to a lower setting.

Contact StoneAge for Safety Data Sheets for material usage, a complete list of spare part numbers, and service instructions for the CB-ABX Control Box.

STORAGE, TRANSPORTATION, AND HANDLING

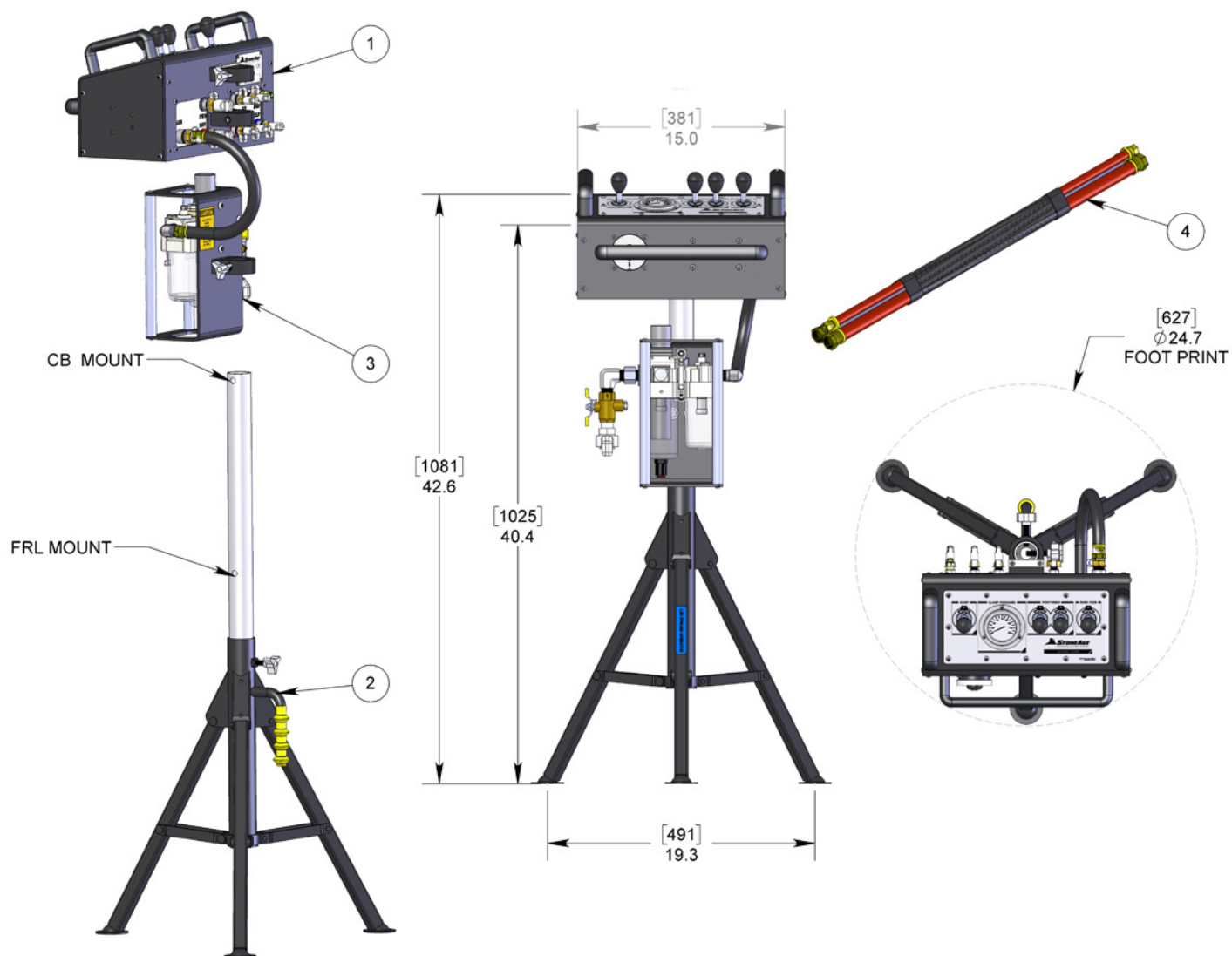
When moving the CB-ABX, lift with care to prevent bodily injury.

The CB-ABX 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. Install the dust caps onto all three fittings to keep moisture and dirt out.

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AUTOBOX® (CB-ABX)
CONTROL BOX

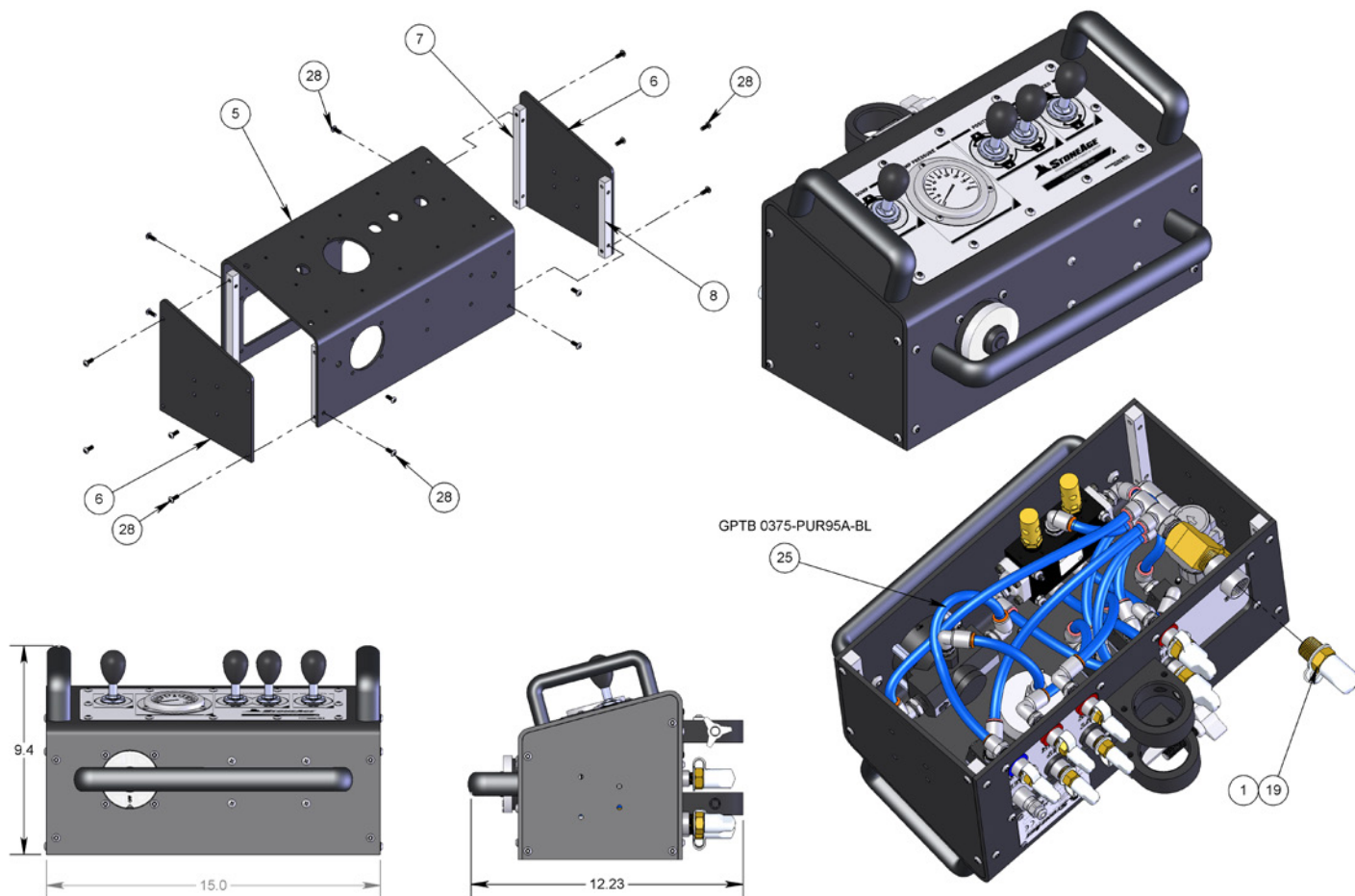


NOTES:

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

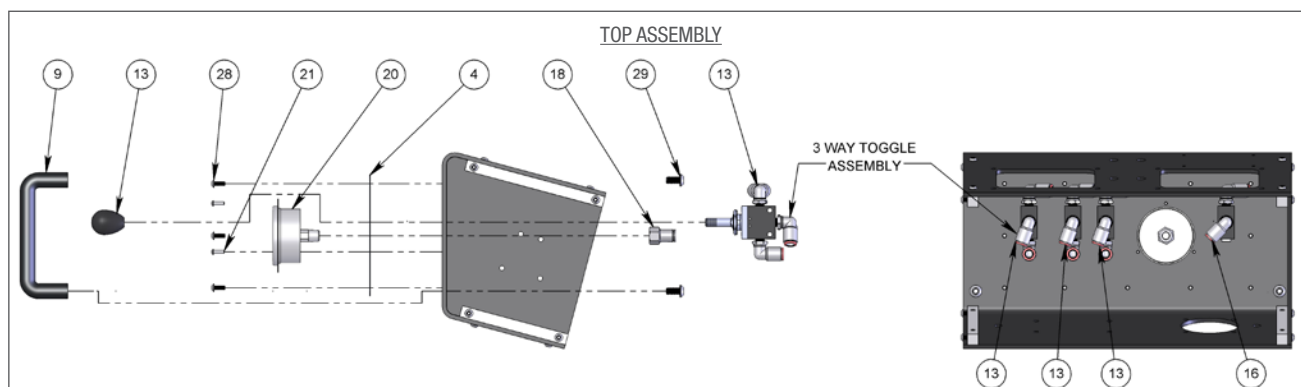
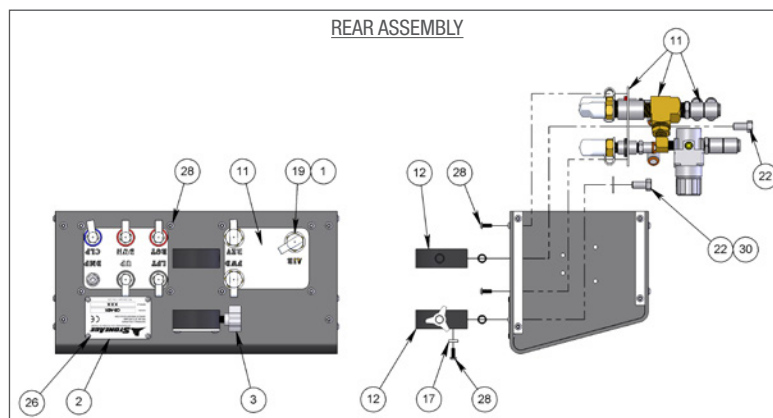
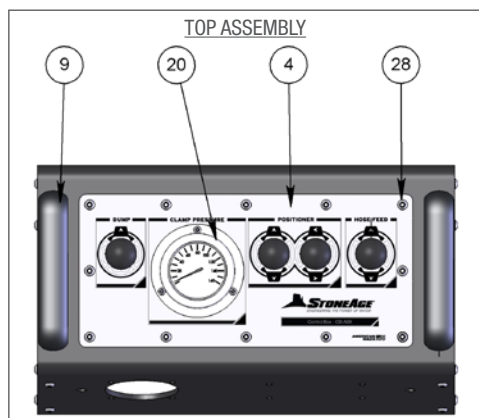
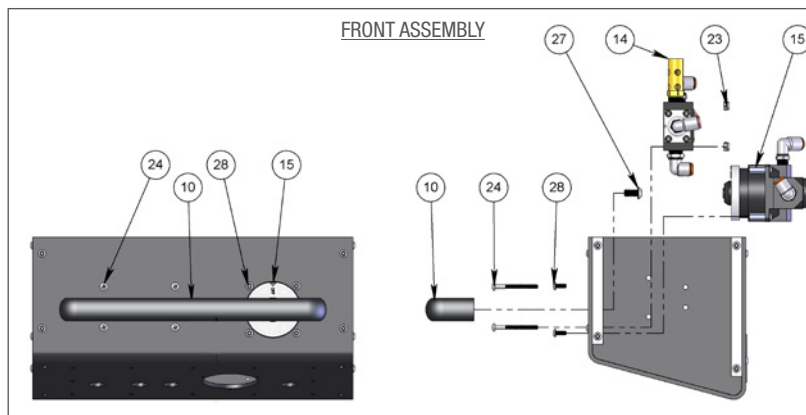
#	PART NUMBER	QTY.
1	CB 300 CONTROL BOX ASSEMBLY	1
2	CB 301 CB STAND ASSEMBLY	1
3	CB 310 FRL ASSEMBLY	1
4	CB 370-25 ABX HOSE BUNDLE ASSEMBLY	1

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
19	CB 355 FTG P8J8 BRASS MALE TO MALE	1
25	GPTB 0375-PUR95A-BL	8FT
28	GTB 319-02-32 BHTS .19-32 X .50 LG TORX-SS	42

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



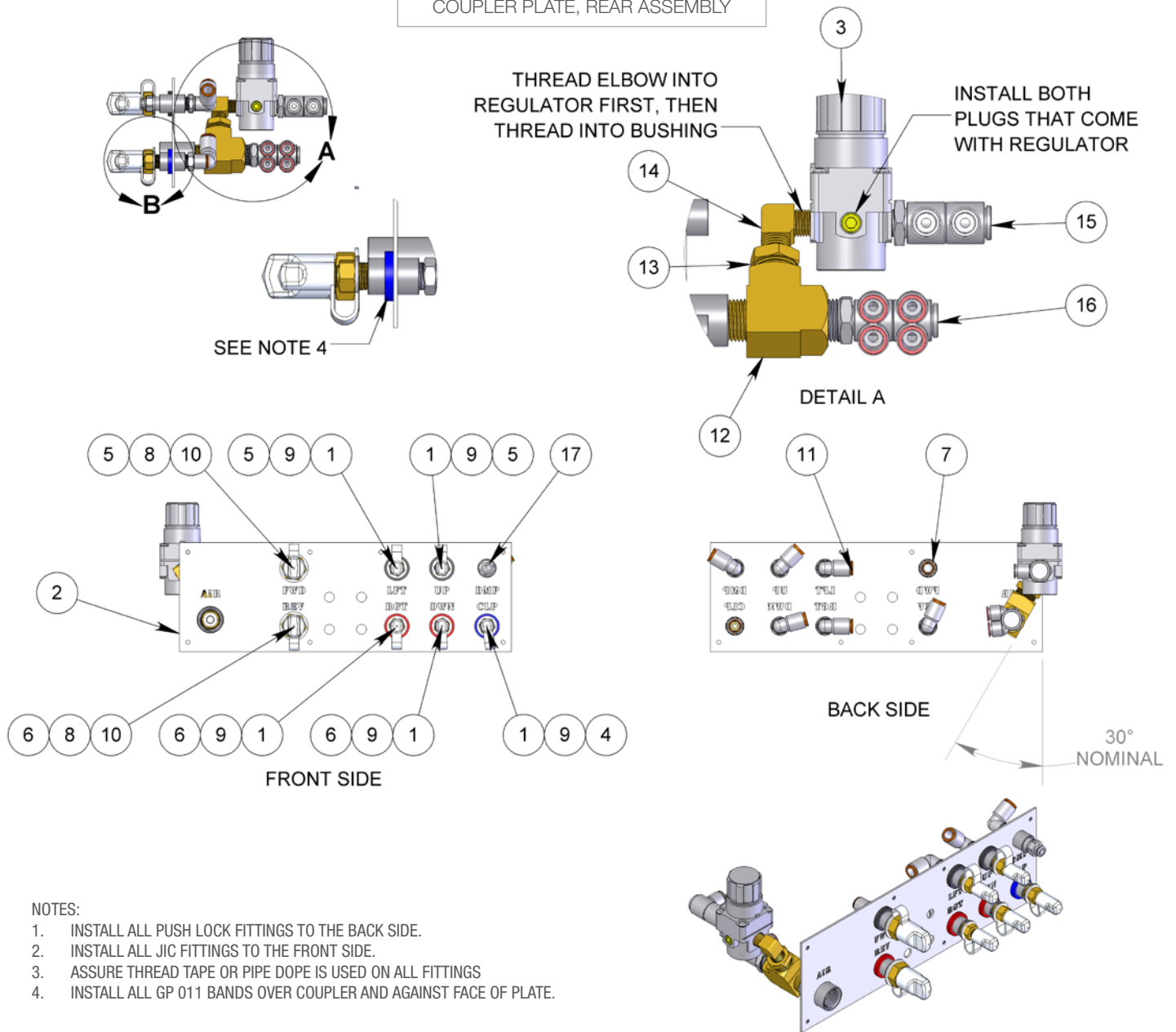
#	PART NUMBER	QTY.
1	BR 167 DUST CAP	1
2	CB 304-001 CE SERIAL PLATE	1
3	CB 314 3-LOBE KNOB	1
4	CB 320 GRAPHIC OVERLAY	1
9	CB 325 HANDLE TOP	2
10	CB 326 HANDLE FRONT	1
11	CB 327-001 COUPLER PLATE, REAR ASSEMBLY	1
12	CB 328-001 POLE MOUNT	2

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 347 CAP PLATE	1
18	CB 349 FTG P4F PL6 STRAIGHT	1
19	CB 355 FTG P8J8 BRASS MALE TO MALE	1
20	CB 548-SS GAUGE	1
21	GSB 313-02 BHCS 6-32 X .50 LG SS	3

22	GB 337-03 BOLT, HEX .37-16 X .75 SS	4
23	GN 319-L NYLOK NUT SS (HC 025.1)	4
24	GPH 319-08 PHPMS 10-24 X 2.00 SS	4
26	GR 125-SS-188-250 RIVET	4
27	GSB 3M8-16-1.25 BHCS M8X1.25 X 16 SS	2
28	GTB 319-02-32 BHTS .19-32 X .50 LG TORX-SS	42
29	GTB 331-025 BHTS .31-18 X .63 LG TORX-SS	4
30	GW 337-F FLAT WASHER SS	2

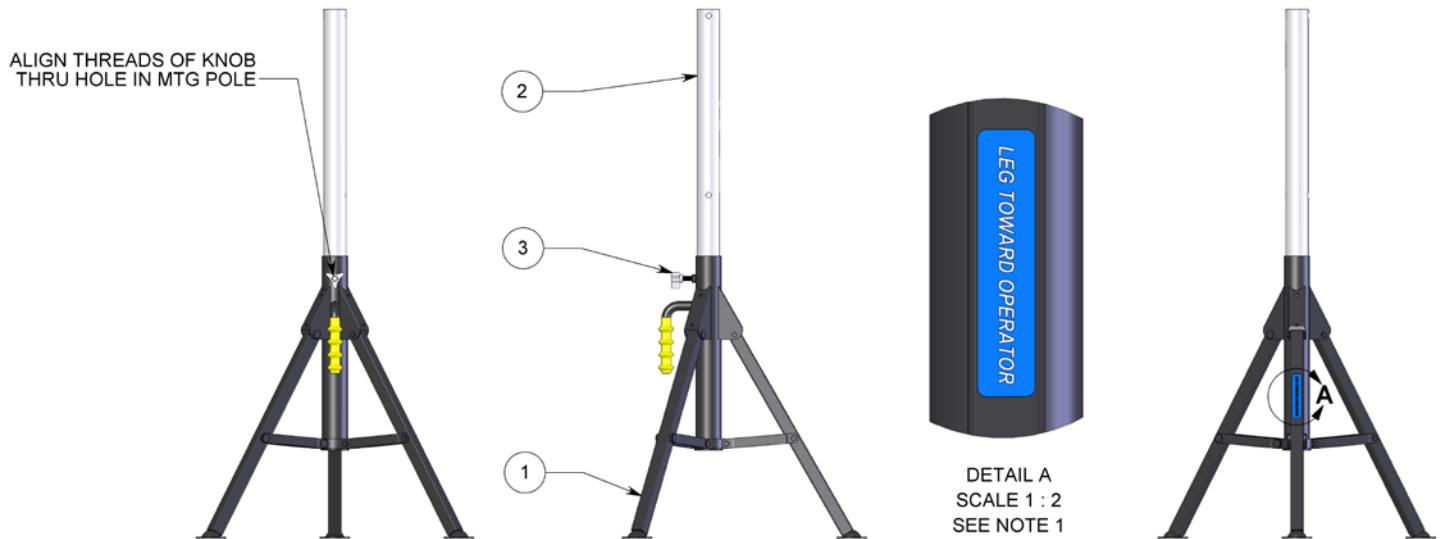
PARTS DIAGRAM

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

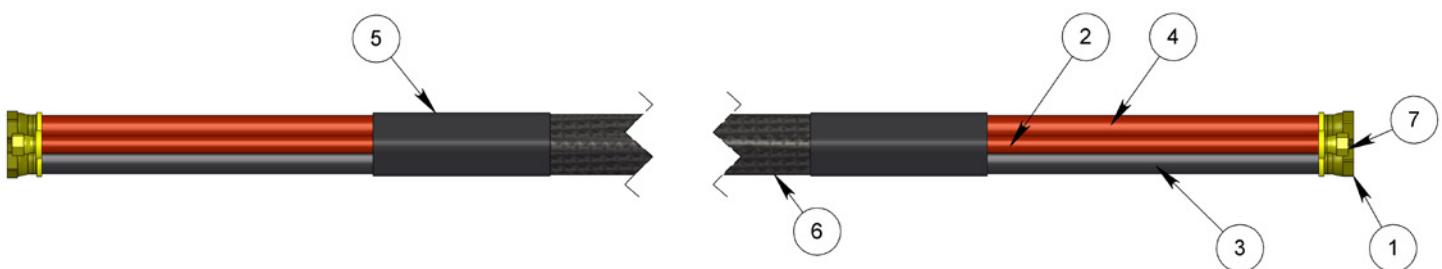


#	PART NUMBER	QTY.
1	BR 168 DUST CAP, J4	5
2	CB 327.1-001 COUPLER PLATE, REAR WELDMENT	1
3	CB 704 PRESSURE REGULATOR, 60 PSI	1
4	GP 011-B BLUE ID BAND MED	1
5	GP 011-BK BLACK ID BAND MED	3
6	GP 011-R RED ID BAND MED	3
7	CB 354 FTG, ADAPTER P4M PL6	2
8	CB 357 FTG, ADAPTER P4M J8M BRASS	2

9	CB 356 FTG, ADAPTER P4M J4M BRASS	5
10	BR 167 DUST CAP J8	3
11	CB 351 FTG, ELBOW SWIVEL 90 P4M PL6	6
12	CB 346 FTG, TEE P8M P8F P8F	1
13	CB 343 FTG, BUSHING P8M P4F	1
14	CB 365 FTG, ELBOW 90 P4M P4M	1
15	CB 339 FTG, MANIFOLD 90 P4M 2XPL6	1
16	CB 330 FTG, MANIFOLD 90 P8M 4XPL6	1
17	SM 309 FTG, ADAPTER P4M PL4	1

AUTOBOX® (CB 301)
 CB STAND ASSEMBLY


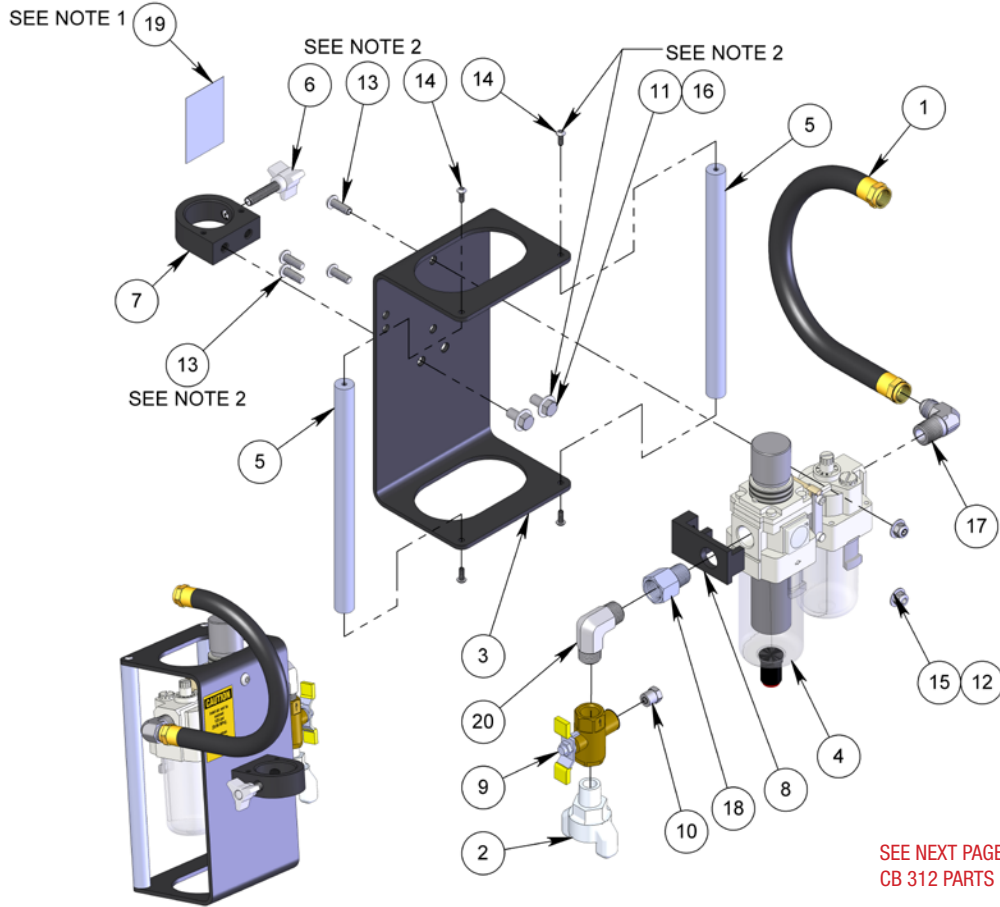
#	PART NUMBER	QTY.
1	CB 3001.1 CUSTOM SUMNER STAND	1
2	CB 303 MTG POLE	1
3	CB 314 3-LOBE KNOB	1
4	PL 163 DECAL, LEG TOWARD OPERATOR	1

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

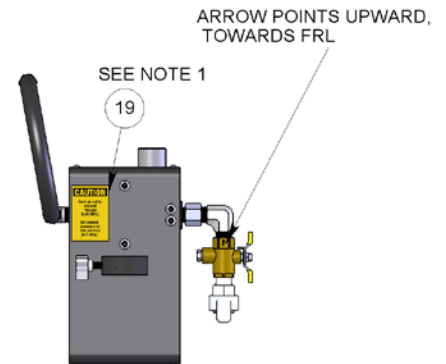
AUTOBOX® (CB 310) FRL ASSEMBLY



SEE NEXT PAGE FOR
CB 312 PARTS LIST

NOTES:

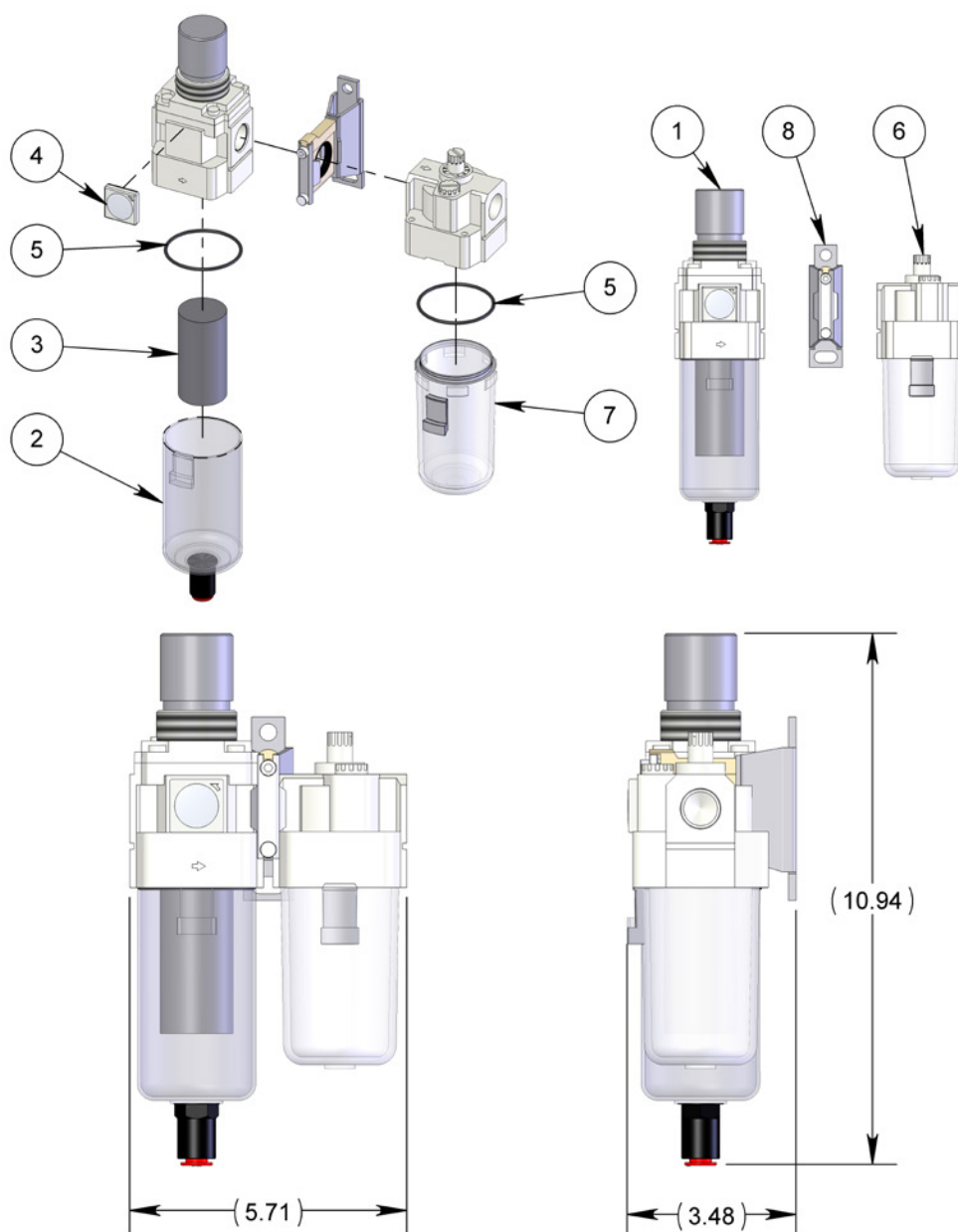
1. CLEAN ALL DEBRIS & OILS BEFORE INSTALLING. INSTALL AT APPROXIMATE ORIENTATION AND LOCATION & AT ROOM TEMP.
2. APPLY BLUE LOCTITE (PN: 242 OR EQUIVALENT) TO ALL STRAIGHT THREADED FASTENERS.
3. APPLY THREAD SEALANT (LOCTITE 567 OR EQUIVALENT) TO ALL TAPERED THREADS.
4. ADD BLUE GOOP WHICH IS A SWAGelok 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	DB 026 MUFFLER, 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 SS	4
14	GTB 319-02-32 BHTS .19-32 X .50 TORX SS	4
15	GW 331-F FLAT WASHER SS	2
16	GW 337-F FLAT WASHER SS	2
17	HRS 573 FTG, ELBOW 90 P8M J8M	1
18	ML 077-P8 BUSHING	1
19	PL 156-125 CAUTION INLET AIR, 125PSI MAX	1
20	SBT 292.1 FTG, ELBOW 90 P8M P8M	1

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



#	PART NUMBER	QTY.
1	CB 312.1 FILTER REGULATOR ASSEMBLY	1
2	CB 312.1.1 FILTER REGULATOR BOWL	1
3	CB 312.1.6 FILTER	1
4	CB 312.1.7 GAUGE WITH LENS	1
5	CB 312.1.8 ORING	2
6	CB 312.2 LUBRICATOR ASSEMBLY	1
7	CB 312.2.2 LUBRICATOR BOWL	1
8	CB 312.3 SPACER W BRACKET	1

TERMS AND CONDITIONS

1. Acceptance of Terms and Conditions. Receipt of these Terms and Conditions of Sale ("Terms and Conditions") shall operate as the acceptance by StoneAge, Inc. ("Seller") of the order submitted by the purchaser ("Buyer"). Such acceptance is made expressly conditional on assent by Buyer to these Terms and Conditions. Such assent shall be deemed to have been given unless written notice of objection to any of these 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 Buyer with prompt and efficient service. However, to individually negotiate the terms of each sales contract would substantially impair Seller's ability to provide such service. Accordingly, the product(s) furnished by Seller are sold only according to the terms and conditions stated herein and with the terms and conditions stated in any effective StoneAge Dealer Agreement or StoneAge Reseller Agreement, if applicable. Notwithstanding any terms and conditions on Buyer's order, Seller's performance of any contract is expressly made conditional on Buyer's agreement to these Terms and Conditions 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.

2. Payment/Prices. Unless other arrangements have been made in writing between Seller and Buyer, payment for the product(s) shall be made upon receipt of invoice. The prices shown on the face hereof are those currently in effect. Prices invoiced shall be per pricelist 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 the product(s), and the collection of which Seller is or may be responsible to provide to any governmental authority, unless acceptable exemption certificates are provided by Buyer in accordance with applicable 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 product(s) being purchased, whether now in effect or hereafter imposed by any governmental authority, foreign or domestic.

3. Warranty. SELLER MAKES NO WARRANTIES OR REPRESENTATIONS AS TO THE PERFORMANCE OF ANY PRODUCT EXCEPT AS SET FORTH IN THE STONEAGE LIMITED WARRANTY PROVIDED WITH THE PRODUCT.

4. 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. The proposed shipment date is an estimate. Seller will notify Buyer promptly of any material delay and will specify the revised delivery date as soon as practicable. 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).

All product(s) will be shipped F.O.B. point of origin, unless specifically agreed otherwise, and Buyer shall pay all shipping costs and insurance costs from that point. Seller, in its sole discretion, will determine and arrange the means and manner of transportation of the product(s). Buyer shall bear all risk of loss commencing with the shipment or distribution of the product(s) from Seller's warehouse. Order shortages or errors must be reported within fifteen (15) business days from receipt of shipment to secure adjustment. No product(s) may be returned without securing written approval from Seller.

5. Modification. These Terms and Conditions are intended by Seller and Buyer to constitute a final, complete and exclusive expression of agreement relating to the subject matter hereof and cannot be supplemented or amended without Seller's prior written approval.

6. Omission. Seller's waiver of any breach or Seller's failure to enforce any of these 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 hereof.

7. Severability. If any provision of these Terms and Conditions is held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the other portions hereof.

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

9. Governing Law. 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.

10. Jurisdiction and Venue. Seller and Buyer agree that the state or federal courts located within the City and County of Denver, Colorado shall have sole and exclusive jurisdiction over any litigation concerning any dispute arising under these Terms and Conditions not otherwise resolved pursuant to Section 9 as well as any alleged defects of any Products or damages sustained as a result of such alleged defects. Seller and Buyer further agree that should any litigation be commenced in connection with such a dispute, it shall only be commenced in such courts. Seller and Buyer agree to the exclusive jurisdiction of such courts and neither will raise any objection to the jurisdiction and venue of such courts, including as a result of inconvenience.

11. Attorney's Fees. 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 mediation.

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>

STONEAGE TERMS AND WARRANTY

View StoneAge's Terms and Warranty Conditions online.

<http://www.stoneagetools.com/terms>

<http://www.stoneagetools.com/warranty>

Warranties set forth herein extend only to End-Users, meaning customers acquiring, or that have previously acquired, a product manufactured by StoneAge ("Product") for their own use and not for resale, either directly from StoneAge Inc. ("StoneAge") or from a StoneAge Authorized Dealer or Reseller ("Dealer"). No warranty of any kind or nature is made by StoneAge beyond those expressly stated herein.

1. LIMITED WARRANTY PERIOD. Subject to the limitations and conditions hereinafter set forth, StoneAge warrants its Product to be free from defects in workmanship and material for a period of one (1) year from the date of purchase by the End-User, provided that the end of the limited warranty period shall not be later than eighteen (18) months from the date of shipment of the Product to the Dealer or the End-User by StoneAge ("Limited Warranty Period"). All replacement parts which are furnished under this Limited Warranty and properly installed shall be warranted to the same extent as the original Product under this Limited Warranty if, and only if, the original parts were found to be defective within the original Limited Warranty Period covering the original Product. Replacement parts are warranted for the remainder of the original Limited Warranty Period. This Limited Warranty does not cover any component part of any Product not manufactured by StoneAge. Any such component part is subject exclusively to the component manufacturer's warranty terms and conditions.

2. LIMITED WARRANTY COVERAGE. StoneAge's sole obligation under this Limited Warranty shall be, at StoneAge's option and upon StoneAge's inspection, to repair, replace or issue a credit for any Product which is determined by StoneAge to be defective in material or workmanship. StoneAge reserves the right to examine the alleged defective Product to determine whether this Limited Warranty is applicable, and final determination of limited warranty coverage lies solely with StoneAge. No statement or recommendation made by a StoneAge representative, Dealer or agent to End-User shall constitute a warranty by StoneAge or a waiver or modification to any of the provisions hereof or create any liability for StoneAge.

3. WARRANTY SERVICE PROVIDERS. Service and repair of the Product is to be performed only by StoneAge authorized service representatives, including Dealers who are authorized repair centers, with StoneAge approved parts. Information about StoneAge authorized service representatives can be obtained through the StoneAge website at www.stoneagetools.com/ service. Unauthorized service, repair or modification of the Product or use of parts not approved by StoneAge will void this Limited Warranty. StoneAge reserves the right to change or improve the material and design of the Product at any time without notice to End-User, and StoneAge is not obligated to make the same improvements during warranty service to any Product previously manufactured.

4. WARRANTY EXCLUSIONS. This Limited Warranty does not cover, and StoneAge shall not be responsible for the following, or damage caused by the following: (1) any Product that has been altered or modified in any way not approved by StoneAge in advance in writing; (2) any Product that has been operated under more severe conditions or beyond the rated capacity specified for that Product; (3) depreciation or damage caused by normal wear and tear, failure to follow operation or installation instructions, misuse, negligence or lack of proper protection during storage; (4) exposure to fire, moisture, water intrusion, electrical stress, insects, explosions, extraordinary weather and/or environmental conditions including, but not limited to lightning, natural disasters, storms, windstorms, hail, earthquakes, acts of God or any other force majeure event; (5) damage to any Product caused by any attempt to repair, replace, or service the Product by persons other than StoneAge authorized service representatives; (6) costs of normal maintenance parts and services; (7) damage sustained during unloading, shipment or transit of the Product; or (8) failure to perform the recommended periodic maintenance procedures listed in the Operator's Manual accompanying the Product.

5. REQUIRED WARRANTY PROCEDURES. To be eligible for warranty service, the End-User must: (1) report the Product defect to the entity where the Product was purchased (i.e. StoneAge or the Dealer) within the Limited Warranty Period specified in this Limited Warranty; (2) submit the original invoice to establish ownership and date of purchase; and (3) make the Product available to a StoneAge authorized service representative for inspection to

determine eligibility for coverage under this Limited Warranty. This Limited Warranty shall not extend to any person or entity who fails to provide proof of original purchase from StoneAge or a Dealer. No Product may be returned for credit or adjustment without prior written permission from StoneAge.

6. DISCLAIMER OF IMPLIED WARRANTIES AND OTHER REMEDIES. EXCEPT AS EXPRESSLY STATED HEREIN (AND TO THE FULLEST EXTENT ALLOWED UNDER APPLICABLE LAW), STONEAGE HEREBY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL WARRANTIES, REPRESENTATIONS OR PROMISES AS TO THE QUALITY, PERFORMANCE OR FREEDOM FROM DEFECT OF THE PRODUCT COVERED BY THIS LIMITED WARRANTY. STONEAGE FURTHER DISCLAIMS ALL IMPLIED INDEMNITIES.

7. LIMITATION OF LIABILITY. End-User specifically acknowledges that the Product may be operated at high speeds and/or pressures, and that as such it may be inherently dangerous if not used correctly. End-User shall familiarize itself with all operation materials provided by StoneAge and shall at all times use and require its agents, employees and contractors to use all necessary and appropriate safety devices, guards and proper safe operating procedures. In no event shall StoneAge be responsible for any injuries to persons or property caused directly or indirectly by the operation of the Product if End-User or any agent, employee, or contractor of End-User: (1) fails to use all necessary and appropriate safety devices, guards and proper safe operating procedures; (2) fails to maintain in good working order such safety devices and guards; (3) alters or modifies the Product in any way not approved by StoneAge in advance in writing; (4) allows the Product to be operated under more severe conditions or beyond the rated capacity specified for the Product; or (5) otherwise negligently operates the Product. End-User shall indemnify and hold StoneAge harmless from any and all liability or obligation incurred by or against StoneAge, including costs and attorneys' fees, to or by any person so injured.

TO THE FULL EXTENT ALLOWED BY APPLICABLE LAW, STONEAGE SHALL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF PROFITS, LOSS OF GOODWILL, DIMINUTION OF VALUE, WORK STOPPAGE, INTERRUPTION OF BUSINESS, RENTAL OF SUBSTITUTE PRODUCT, OR OTHER COMMERCIAL LOSS EVEN TO THE EXTENT SUCH DAMAGES WOULD CONSTITUTE DIRECT DAMAGES), WITH RESPECT TO THE COVERED STONEAGE PRODUCT, OR OTHERWISE IN CONNECTION WITH THIS LIMITED WARRANTY, REGARDLESS OF WHETHER STONEAGE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

IT IS UNDERSTOOD THAT STONEAGE'S LIABILITY, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, IN NEGLIGENCE, OR OTHERWISE SHALL NOT EXCEED THE AMOUNT OF THE PURCHASE PRICE PAID BY THE END-USER FOR THE PRODUCT. STONEAGE'S MAXIMUM LIABILITY SHALL NOT EXCEED, AND END-USER'S REMEDY IS LIMITED TO EITHER (1) REPAIR OR REPLACEMENT OF THE DEFECTIVE WORKMANSHIP OR MATERIAL OR, AT STONEAGE'S OPTION, (2) REFUND OF THE PURCHASE PRICE, OR (3) ISSUANCE OF A CREDIT FOR THE PURCHASE PRICE, AND SUCH REMEDIES SHALL BE END-USER'S ENTIRE AND EXCLUSIVE REMEDY.

YOU, THE END-USER, UNDERSTAND AND EXPRESSLY AGREE THAT THE FOREGOING LIMITATIONS ON LIABILITY ARE PART OF THE CONSIDERATION IN THE PRICE OF THE STONEAGE PRODUCT YOU PURCHASED.

Some jurisdictions do not allow the limitation or exclusion of liability for certain damages, so the above limitations and exclusions may not apply to you. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction. If any provisions of this Limited Warranty is held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the other portions hereof.

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