



AST-200
Autostroke System

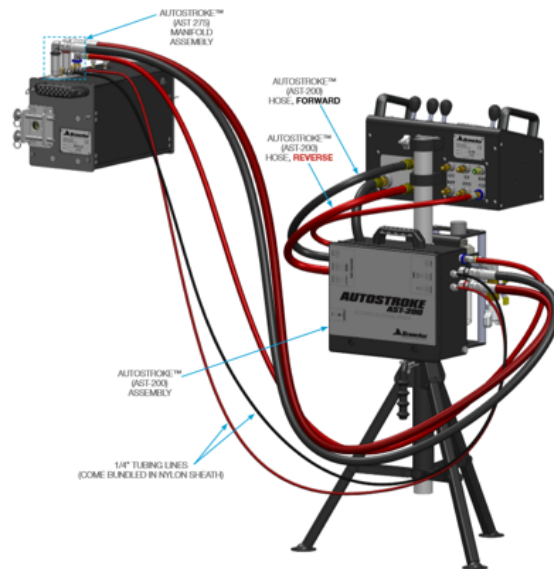
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AST-200 AutoStroke System



Prior to automated equipment, operators would feed flexible lances with rotary and non rotary tools into heat exchangers - by hand. They would feed the lance hand over hand - while they had their foot on a dump valve on the floor. Quite literally, they were managing pressures up to 40,000 psi with their hands and feet in direct contact with the high pressure hoses. While doing this work they could feel and hear when the tools were being forced into the plugged tubes and stopping the rotation of the Banshees. This lack of rotation slowed or stopped the cleaning process. The operator would then pull the lance back and then feed it in again, repeatedly, trying to clean more of the tube. The Autostroke replaces that function automatically, with little to no input from the operator. This creates a substantial process improvement for both safety and productivity. Owners will also see a greater return on their investment on hose and Banshee tool life when using the AST system.

The worse the heat exchanger is plugged the more important it is to incorporate the AST-200!

The AST-200 Autostroke system is a unique and highly beneficial accessory only offered by StoneAge.

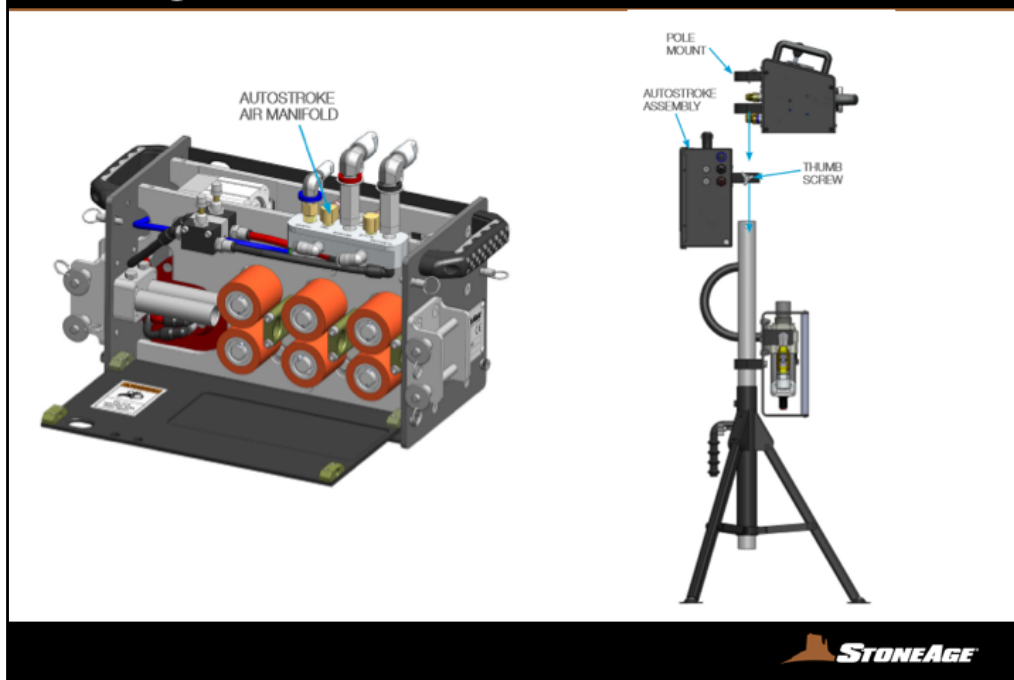


The AST-200 is being introduced as a new product, with the capability to generate its own electrical power using the readily available air supply. This new system uses the incoming air pressure to generate electricity to power itself. The AST-200 is more expensive than its predecessor, the AST-100-2L. This price increase is primarily driven by the built-in air powered generator, but the AST-200 also features a robust steel enclosure.

The AST-100-2L will remain in production through Spring '17 shutdown to see what the market's acceptance is of the AST-200. The AST-100-2L is battery powered, requiring back up sets of batteries while on the job – the trade-off is a lower price. If we see a need to keep the AST-100-2L in the AutoStroke lineup, we will change the part ID to AST-100 and offer some small upgrades such as “D” cell batteries for longer life.

Both of these options are compatible with both ABX-2L and ABX-3L hose tractors.

Design Overview – Installation ABX-2L

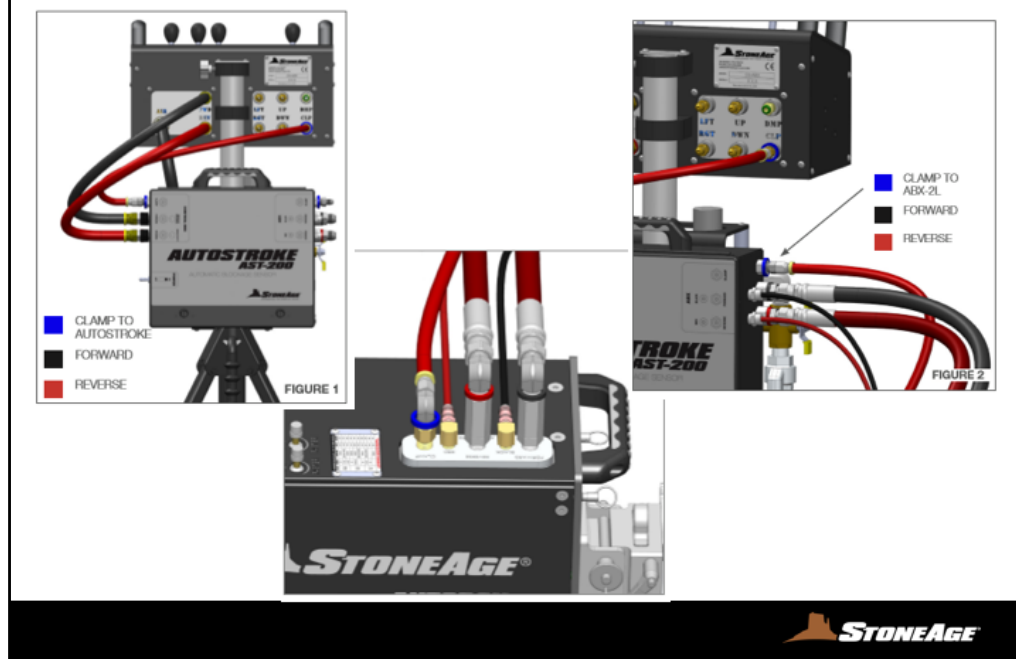


The ABX-2L does NOT come from the factory set up for Autostroke. So you need to confirm with the customer if they need the Autostroke Air Manifold. The easiest way to do that is to ask them if there are two 90° bronze fittings in between the air connections on the manifold.

The Autostroke box fits over the existing pole on the CB stand above the FO package, secures with a thumb screw, then the panel installs over that.

The ABX-3L DOES come standard with the Autostroke Air Manifold installed.

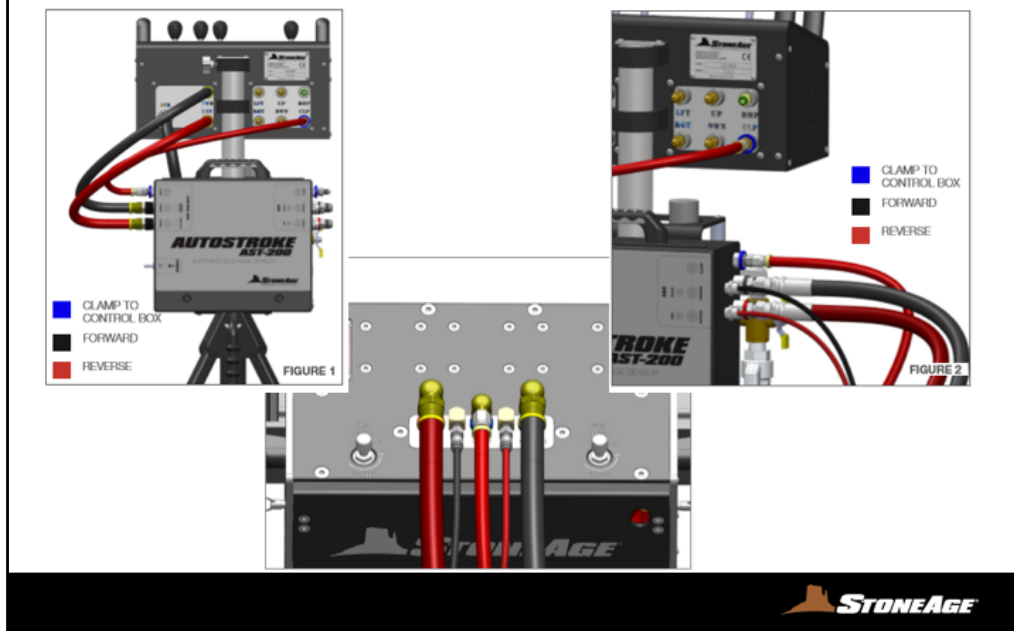
Design Overview – Installation ABX-2L



HOSE CONNECTIONS ABX-2L

1. Connect the BLACK and RED 1/2" lines from the AutoStroke "Forward" and "Reverse" connections to the "Forward" and "Reverse" connections on the back of the CB-ABX. Connect the SHORT 1/4" I.D. Hose to the fitting marked "CLAMP" on the left side of the AutoStroke to the "CLAMP" fitting on the Control Box. (Figure 1)
2. Connect the LONG 1/4" I.D. Hose to the fitting marked "CLAMP" on the right side of the AutoStroke and the opposite end to the "CLAMP" fitting on the ABX-2L. Insert the ends of the 1/4" BLACK and RED tubing into the press lock fittings on the right side of the AutoStroke. Push the opposite ends of each tube into the color labeled, press lock, fittings on the manifold atop the ABX-2L. Connect the BLACK and RED 1/2" lines to the right side of the AutoStroke marked "Forward" and "Reverse" and connect the opposite ends to the manifold on the ABX-2L. (Figure 2 & 3)
3. Assemble the Control Box stand in the same order as the ABX-2L shown on slide 5.

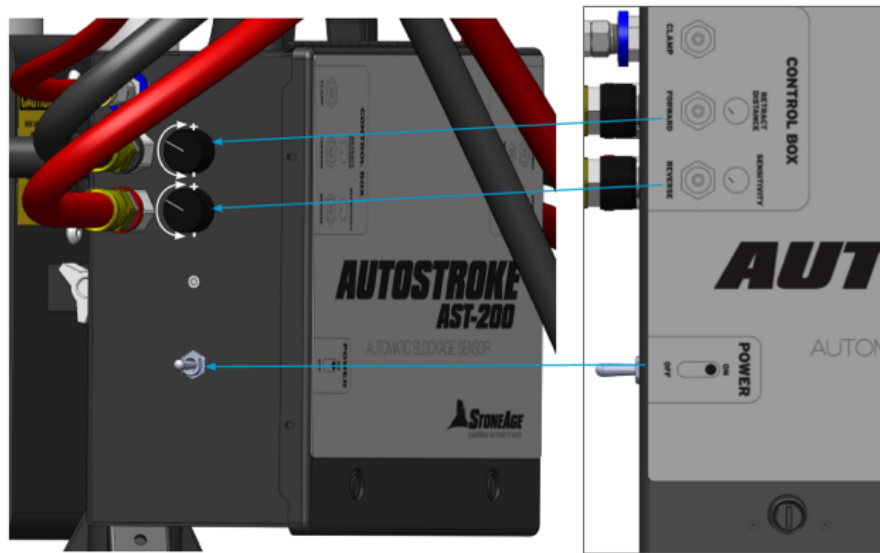
Design Overview – Installation ABX-3L



HOSE CONNECTIONS ABX-3L

1. Connect the BLACK and RED 1/2" lines from the AutoStroke "Forward" and "Reverse" connections to the "Forward" and "Reverse" connections on the back of the CB-ABX. Connect the SHORT 1/4" I.D. Hose to the fitting marked "CLAMP" on the left side of the AutoStroke to the "CLAMP" fitting on the Control Box. (Figure 1)
2. Connect the LONG 1/4" I.D. Hose to the fitting marked "CLAMP" on the right side of the AutoStroke and the opposite end to the "CLAMP" fitting on the ABX-3L. Insert the ends of the 1/4" BLACK and RED tubing into the press lock fittings on the right side of the AutoStroke. Push the opposite ends of each tube into the color labeled, press lock, fittings on the manifold atop the ABX-3L. Connect the BLACK and RED 1/2" lines to the right side of the AutoStroke marked "Forward" and "Reverse" and connect the opposite ends to the manifold on the ABX-3L. (Figure 2 & 3)
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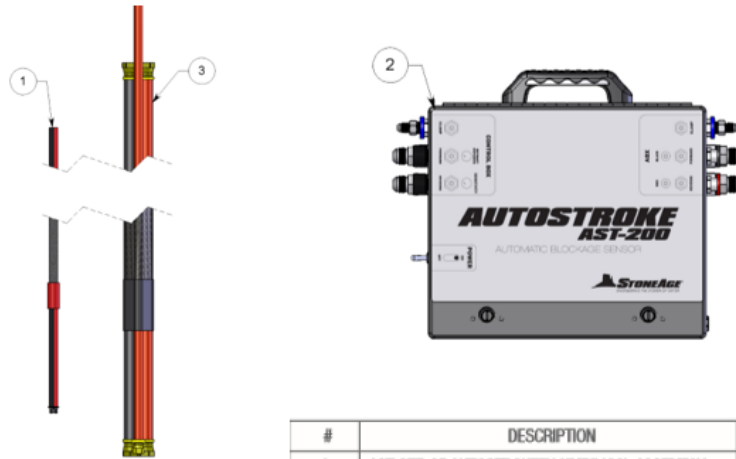
Design Overview – Operation



AUTOSTROKE AST-200 FUNCTIONS

1. Make sure the air supply, return and sense lines are properly installed to the AST-200 and ABX-2L/3L.
2. Turn on the air supply to activate the air powered generator.
3. Turn the AutoStroke toggle to the "ON" Position.
4. To setup the AutoStroke turn the SENSITIVITY all the way down (Increase turn clockwise, Decrease turn counter-clockwise).
5. Next position your nozzles so the hit the tube sheet face and run them into the tube sheet. While holding the feed in lever increase the sensitivity until it just starts to peck at the tube sheet face.
6. Adjust the RETRACT DISTANCE (Increase turn clockwise, Decrease turn counter-clockwise) until you like how far it is retracting the nozzles.
7. The AutoStroke is now operational.

Design Overview – Parts Breakdown

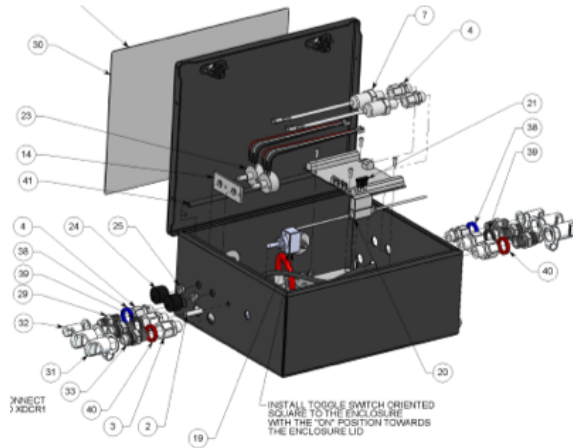


#	DESCRIPTION	QTY
1	AST 277-25 AUTOSTROKE™ UMBILICAL ASSEMBLY	1
2	AST 301 AUTOSTROKE™ BOX WITH GENERATOR	1
3	AST 340 AUTOSTROKE™ HOSE BUNDLE ASSY	1



Remember, to adapt to the ABX-2L you will need to confirm that they have the upgrade manifold option installed in the ABX-2L tractor.

Design Overview – Parts Breakdown



#	PART NUMBER	QTY.
2	AST 207 LED INDICATOR	1
3	AST 220 BULKHEAD PL5 PGF	4
4	AST 221 BULKHEAD PL4 P4F	4
7	AST 230 PRESSURE TRANSDUCER ASSEMBLY	2
14	AST 312 POTENTIOMETER SPACER	1
16	AST 315 MICRO CONTROLLER	1
19	AST 318.1 TOGGLE SWITCH, DPST	1
20	AST 318.2 INLINE FUSE HOLDER	1
21	AST 319 FUSE, ATO 1A	1
23	AST 321 POTENTIOMETER ASSEMBLY	2
24	AST 322 POTENTIOMETER KNOB	2
25	AST 323 ROTARY SHAFT SEAL	2
29	AST 329 FTG P4J4 STEEL MALE TO MALE	2
30	AST 350 AUTOSTROKE GRAPHIC	1
31	BR 167 DUST CAP	4
32	BR 168 DUST CAP, J4	2
33	CB 122 FITTING, OUTLET PGJ8	4
38	GP 011-B BLUE ID BAND MED	2
39	GP 011-BK BLACK ID BAND MED	2
40	GP 011-R RED ID BAND MED	2
41	GPTB 0250-PUR05A-BK 250 URETHANE TUBING BLACK	1
52	SKR 880.44 AIR MOTOR GENERATOR, WITH FITTINGS	1

STONEAGE

Maintenance

MAINTENANCE

Maintenance Item	Frequency	Maintenance Required
Air Motor Generator Replacement	When Needed	If the Air Motor Generator fails on the AutoStroke, it is possible to replace it. Please call your StoneAge Customer Service Representative to order part number SKR 880.44 AIR MOTOR GENERATOR, WITH FITTINGS . Follow the Air Motor Generator Replacement instructions located in this manual
All Air Fittings	After each use	Reinstall all dust caps to protect from dirt and moisture.
Air Lines	Before each use	Blow out before making connections to the AutoStroke
Electrical Connections	Frequently	Visually inspect for corrosion.

Contact StoneAge for Safety Data Sheets for material usage and any other pertinent information that may be required.



Trouble Shooting

TROUBLESHOOTING

Problem	Solution
AST is not functioning	<ul style="list-style-type: none">-Check that airlines are connected properly-Check that switch is on and red LED is lit while feeding forward-Increase sensitivity-Verify that fuse is not blown
AST continues to reverse feed	<ul style="list-style-type: none">-Check that hose is not getting hung up behind the ABX-Reduce sensitivity-Reduce hose drag



International Offerings

There are no foreseen changes to accommodate International variations except CE certification – which is in process.

All connections are JIC air fittings or push-lock style fittings.

“C” cell batteries (for the AST-100-2L) are common items and can be locally purchased internationally.



Shipping / Packaging

The goal is to be able to ship this system via UPS, Federal Express, and other air/ground carriers. To meet that goal the individual components will be wrapped and secured for cardboard box delivery. It can also be packages with complete ABX-3L/2L packages.



Pricing

Part ID	Description	MSRP USD
AST-200	Autostroke with Generator	\$7500

