



HOSE CONTAINMENT SYSTEMS
(HCS-3L-XXX-200)
(HCS-3L-XXX-125)
USER MANUAL
FOR USE WITH THE AUTOBOX® ABX-3L

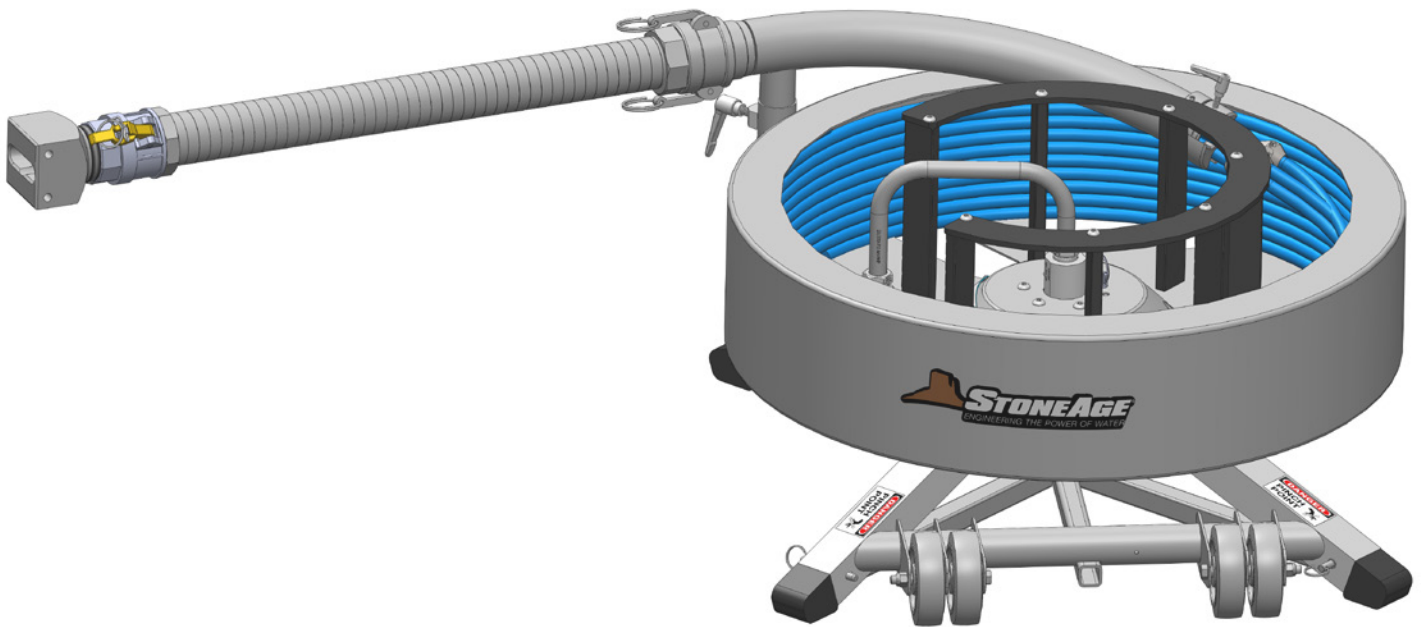


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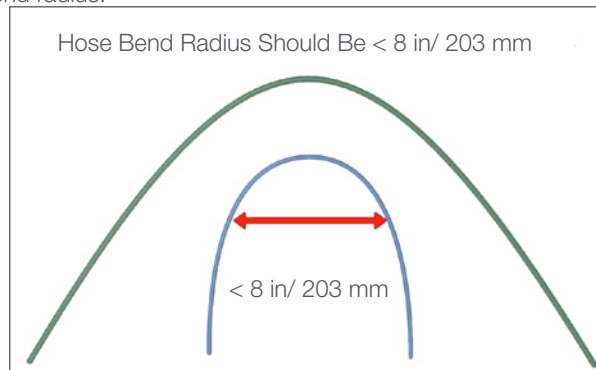
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This manual must be used in accordance with all applicable national laws. The manual shall be regarded as a part of the machine and shall be kept for reference until the final dismantling of the machine, as defined by applicable national law(s).

3L HOSE CONTAINMENT MODEL SPECIFICATIONS

Model Number	Snout Size	Use with Flex Lance Sizes	Maximum Hose Storage	Swivel Pressure Range	Assembly Weight with Snout (Less Hoses)	Assembly Size with Snout (Less Hoses)	Manway Access	Maximum Bend Radius
HCS-3L-TM16-125	1.25" (31.75 mm)	3/2 to 4/4	Three 3/2 @ 150ft (46m)	22k psi 1500 bar	64 lbs 29kg	29.25" X 31" X 15" Tall (743mm x 787mm x 381mm Tall)	38" 965mm	8" 203mm
HCS-3L-M24-125			or Three 4/4 @ 100ft (30m)					
HCS-3L-TM16-200	2" (51 mm)	4/4 to 8/4	or Three 8/4 @ 75ft (23m)					
HCS-3L-M24-200								

NOTE: Use of stiffer hose is not recommended and will result in additional drag on the AUTOBOX® ABX-3L and slower feed speeds. The graph below depicts the proper hose bend radius.



DESCRIPTION OF EQUIPMENT AND INTENDED USE

The Hose Containment System (HCS-3L-XXX-XXX), is a modular, lightweight accessory for the AUTOBOX® ABX-3L, which contains and securely stores hoses typically used for heat exchanger tube cleaning.

The Hose Containment System (HCS-3L-XXX-XXX) is a simple system to setup and operate, and greatly increases job site safety by eliminating the potential for high pressure hoses to snag on structure, valves, or other objects. It also increases hose life by reducing wear and makes it easy to store and transport hoses between jobs.

KEY FEATURES

- Includes 84 in. (2 m) snout.
- 22k psi (1500 bar) max pressure.
- Can be used in triple, dual, or single lance applications.
- Increases hose life by reducing wear.
- Keeps job site clear of trip hazards.
- Easily transportable with dolly style wheels and handle.
- Quick Pin attachment to AUTOBOX® ABX-2L and ABX-3L.
- Comes in two basic models – the North American model is supplied with 'Type M' fittings, and the European model is supplied with metric and BSPP fittings.

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 of 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.

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 Waterjetting 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.

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.

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 Waterjetting Equipment for additional information.

Hygiene - Operators are advised to wash thoroughly after all waterjetting 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 waterjetting
- **Hose protection:** Hose shroud
- **Respiratory protection:** May be required; refer to job specific risk assessment

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. 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 if damaged or improperly assembled, until repaired.
- Make sure all threaded connections are tight and free of leaks.
- Users of the Hose Containment System (HCS-3L-XXX-XXX) 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 Waterjetting Equipment.
- The Control Box should be located in a safe location where the Operator has good visibility of the pipe and hose. The Hose Containment System (HCS-3L-XXX-XXX) and Control Box MUST be supervised at all times and should never be left unattended.
- Always de-energize the system before servicing or replacing any parts. Failure to do so can result in severe injury and/or death.

HIGH-PRESSURE HOSE

The Hose Containment System (HCS-3L-XXX-XXX) is designed to be used with Parker Pro-Lance® and/or Spir Star Blast-Pro® hose ends. Standard hose ends may not fit into the AUTOBOX® (ABX-3L) Hose Tractor and/or Guide Tubes.

- Only high quality hoses intended for waterblast applications should be used as high-pressure hoses. Pressure rating of high-pressure hoses **MUST NEVER** be exceeded.
- 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 through the Drive Belt.

NOTICE

Do not use a shrouded hose or hose with a steel protective cover. This will cause severe damage to the Drive Rollers on the AUTOBOX® (ABX-3L) Hose Tractor.

- **HOSE LENGTHS** The ABX-3L has a variety of accessories that will require additional hose length to be considered in addition to the tube bundle length. This should be verified prior to ordering high pressure hose for each job. The chart below shows the actual length of each configuration and recommended additional length necessary to keep the assembly from lifting off the ground during operation. Provide the tube bundle length and use the chart to follow the calculation below to determine the total hose length.

(Tube Bundle Length in inches / mm) + (Actual Length of Configuration in inches / mm) + (Recommended Additional Connection Length in / mm) = Total Hose Length in inches / mm

ACCESSORY CONFIGURATIONS	ACTUAL LENGTH OF CONFIGURATION	RECOMMENDED ADDITIONAL CONNECTION LENGTH
ABX-3L, Hose Guide, and Lightweight Positioner	32.9 in / 836 mm	39 in / 991 mm
ABX-3L, Hose Guide, Lightweight Positioner, and HCS	145.0 in / 3683 mm	39 in / 991 mm
ABX-3L, Fin Fan Guide, Snout	138 in / 3505 mm	39 in / 991 mm
ABX-3L, Fin Fan Guide, Snout, and HCS	165 in / 4191 mm	39 in / 991 mm

For example: The hose length equation for a 20ft (6096 mm) tube bundle with ABX-3L, Hose Guide, and Lightweight Positioner would be;

STANDARD: (20ft x 12 in/ft) + 32.9 in + 39 in = **311.9 in.**

METRIC: 6096 mm + 836 mm + 991 mm = **7922 mm**

PRE-RUN SAFETY CHECK

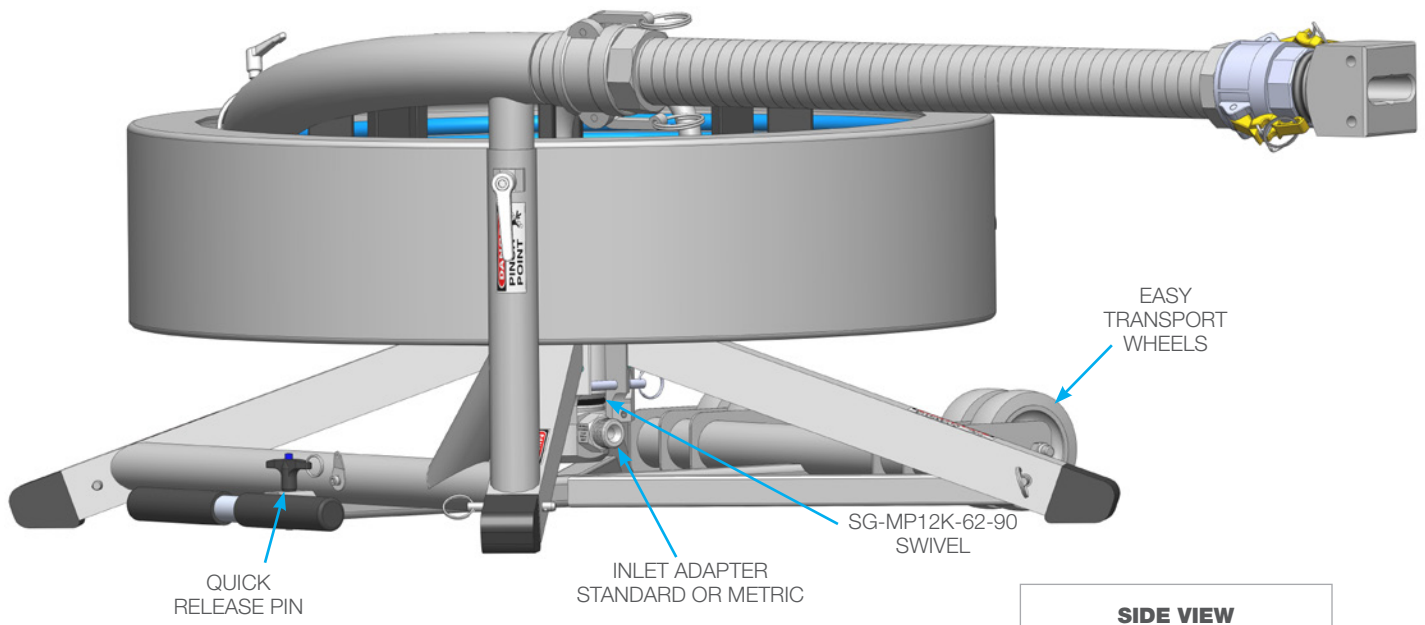
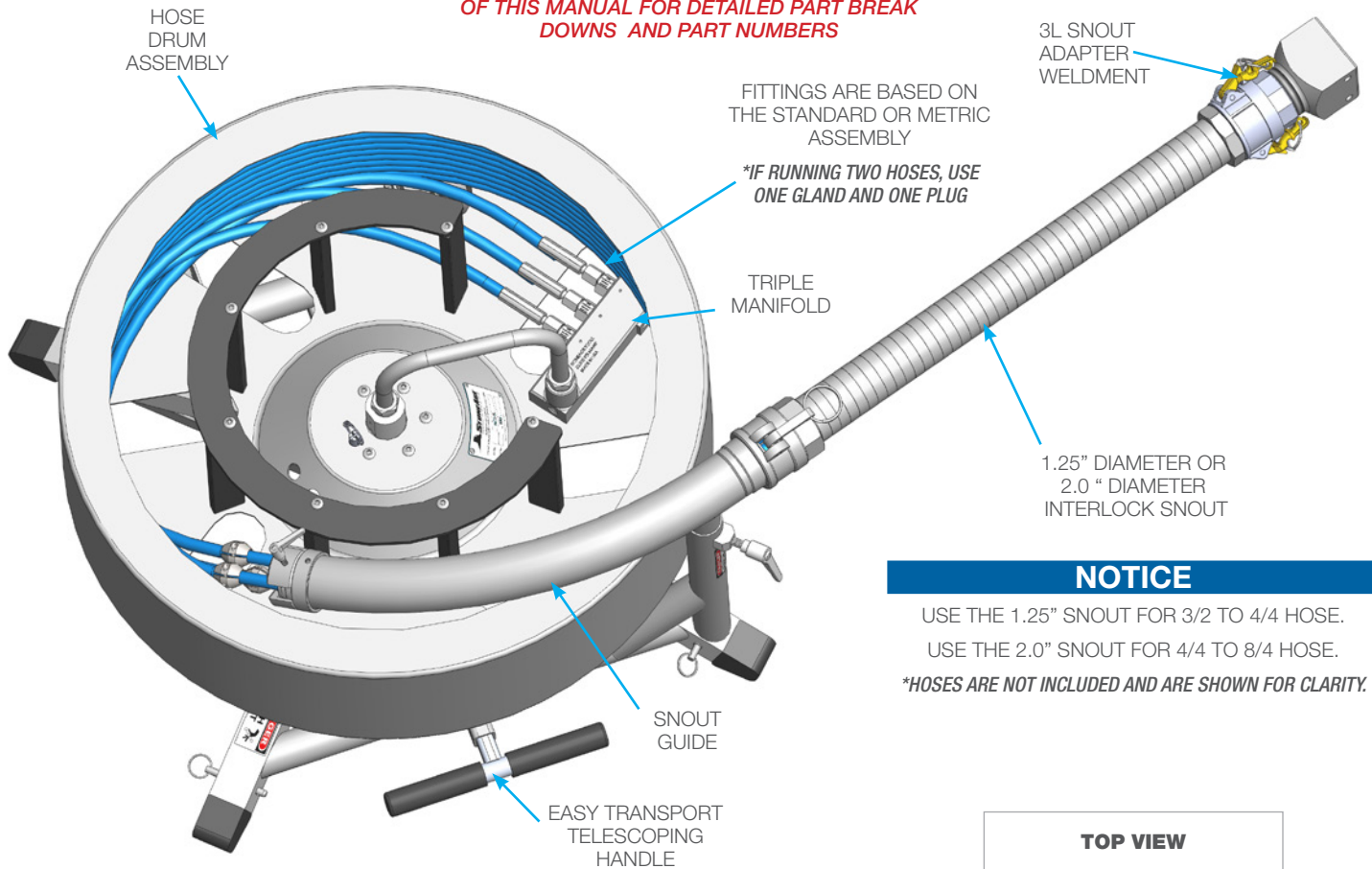
Refer to WJTA-IMCA's, Recommended Practices For The Use Of High-pressure Waterjetting Equipment and/or The Water Jetting Association's, WJA Code of Practice for additional safety information.

- Complete a job specific risk assessment and act on the resulting actions.
- Adhere to all site specific safety procedures.
- Ensure the waterblasting zone is properly barricaded and that warning signs are posted.
- 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).
- 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.
- Check all high-pressure threaded connections for tightness.
- ****Ensure that an anti-withdrawal device (back-out preventer), and all other applicable safety devices are installed on the equipment being used with the Hose Containment System (HCS-3L-XXX-XXX) and set-up properly.****
- Test the Control Box before operating the Hose Containment System (HCS-3L-XXX-XXX) with high-pressure water to verify the control valves move the hose in the intended direction, and that the dump valve and hose clamp are working properly.
- Ensure that Operators never connect, disconnect, or tighten hoses, adapters, or accessories with the high-pressure water pump unit running.
- Ensure no personnel are in the hydroblasting zone.

SYSTEM ASSEMBLY - OVERVIEW

HOSE CONTAINMENT SYSTEM (HCS-3L-XXX-XXX)

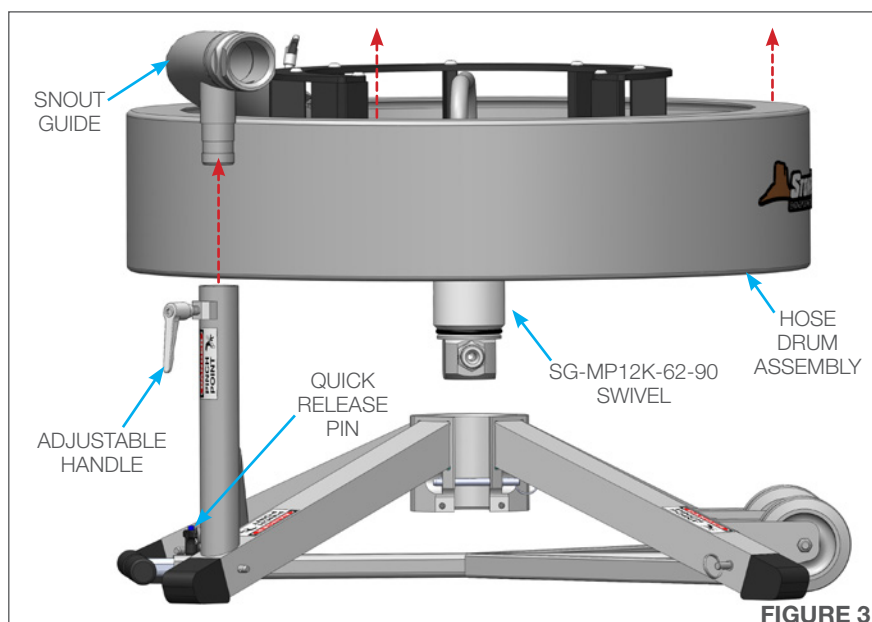
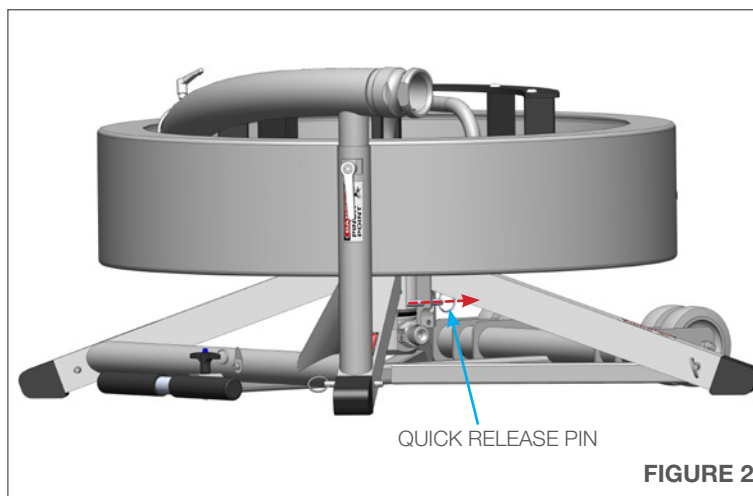
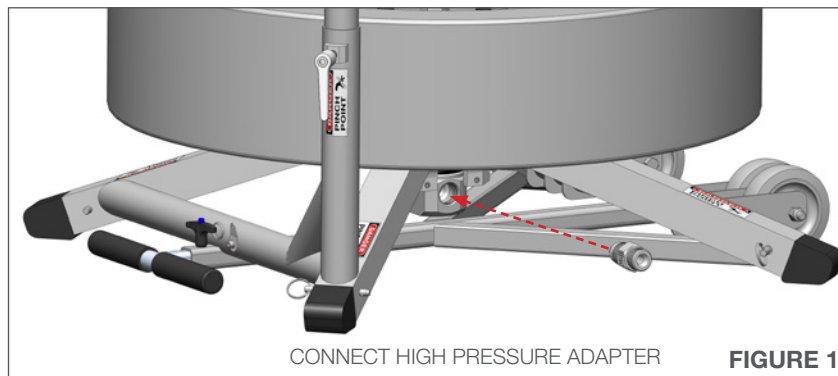
**SEE PART DIAGRAM SECTION AT THE BACK
OF THIS MANUAL FOR DETAILED PART BREAK
DOWNS AND PART NUMBERS*



SWIVEL ADAPTER CONNECTION AT MAIN WATER INLET

The Hose Containment System (HCS-3L-XXX-XXX) comes with a high pressure adapter installed at the swivel. Be sure it is installed securely.

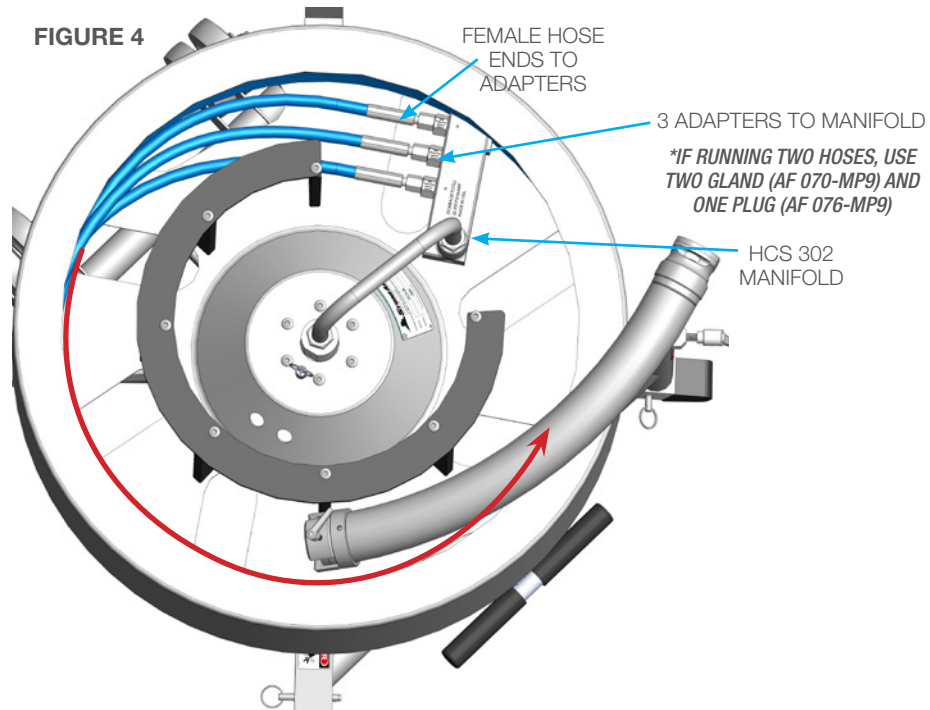
If replacement is necessary, install the high pressure adapter with Swagelok Blue Goop®, or equivalent. **(Figure 1)** When the swivel needs to be removed for maintenance, access is easy by releasing the Guide Snout with the Adjustable Handle, pulling the quick release pin out, and lifting the drum off the base. **(Figures 2 & 3)**



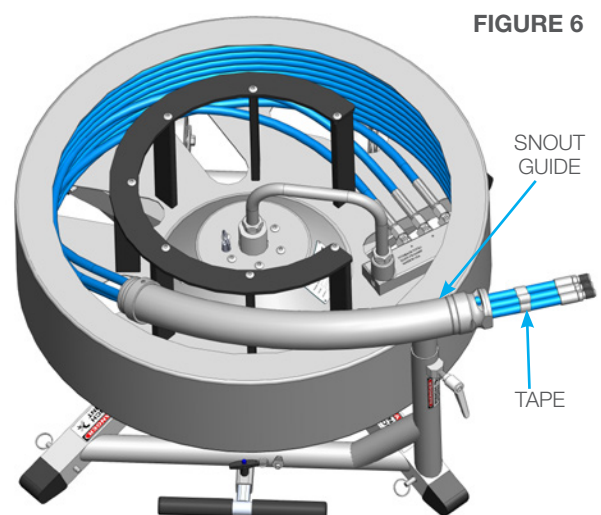
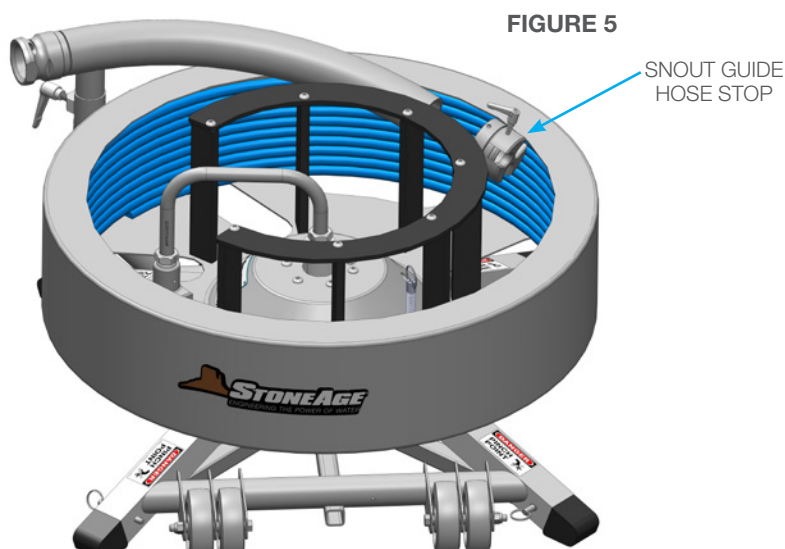
ASSEMBLY, INSTALLATION, AND CONNECTION

LOADING HOSES INTO THE DRUM

1. Lightly apply Blue Goop® Swagelok® Brand Anti-seize or an equivalent to all Adapter threads. Install the Adapters into the HCS 302 Manifold. Loosely thread the female hose ends onto the Adapters and wrap the hoses around the rods, in the direction of the red arrow approximately 3 times. This will allow the hoses to rotate freely and sit flat in the drum. Tighten the Female Hose Ends and continue to wrap the remainder of the hose in the Drum. **(Figure 4)**



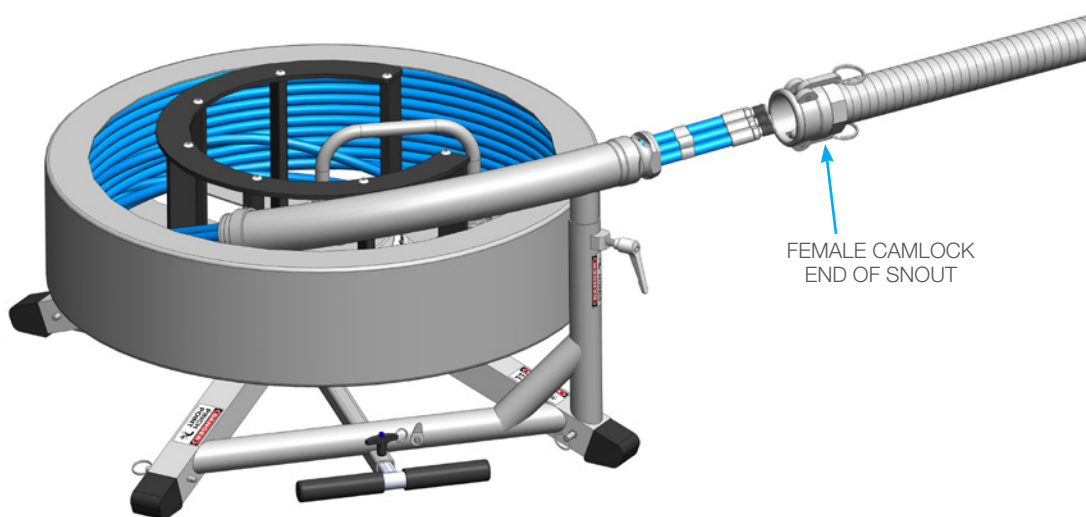
2. Remove the Snout Guide Hose Stop by releasing the Adjustable Handle and sliding the Stop off the Guide. **(Figure 5)**
3. Wrap temporary tape just behind the male hose ends to keep them from twisting inside the Snout Guide, Snout, and HCS 310 3L Adapter. Push the three hose ends through the Guide. **(Figure 6)**



LOADING HOSES INTO THE DRUM CONTINUED...

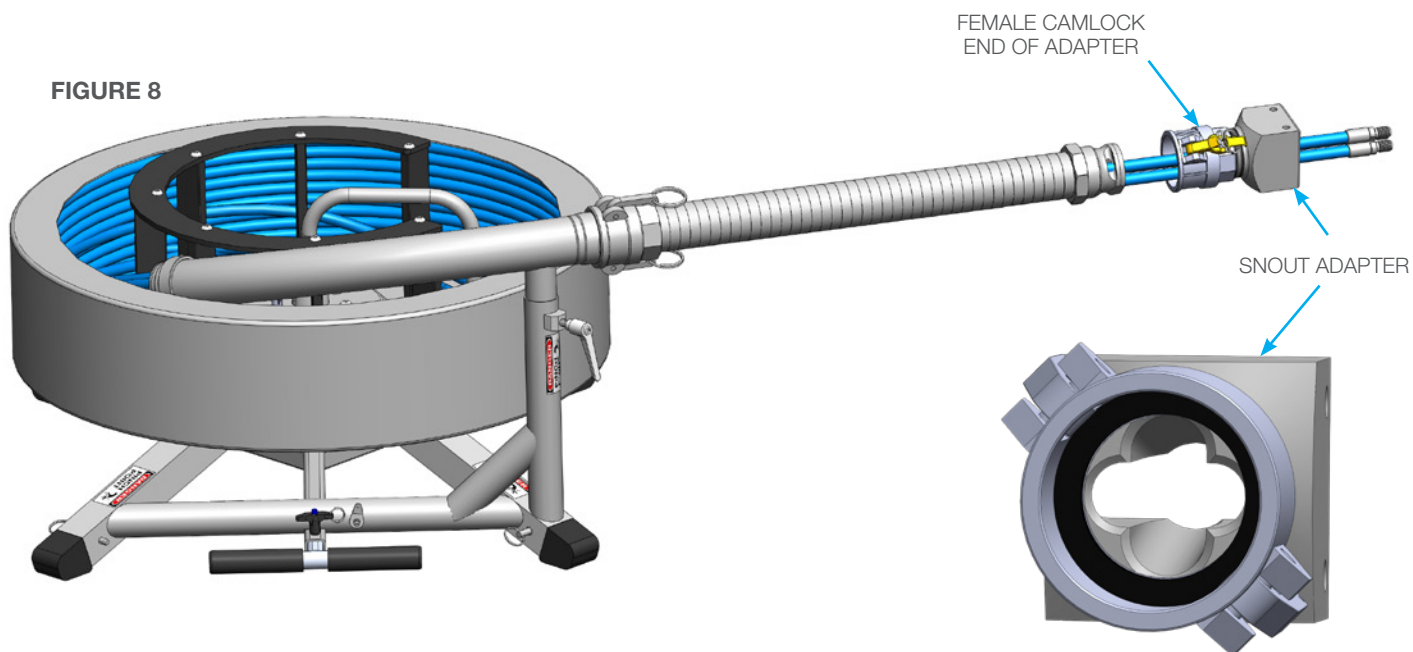
- Continue to push the three hoses through the Snout, then connect the Female Camlock end of the Snout to the Snout Guide. **(Figure 7)**

FIGURE 7



- Feed the hoses through the HCS 310 3L Snout Adapter before attaching it to the Snout. This will make it easier to push the hoses through the slots in the Adapter. Connect the Female Camlock end of the Adapter to the Snout once all the hoses are passed through the Adapter. **(Figure 8)**

FIGURE 8



ASSEMBLY, INSTALLATION, AND CONNECTION

CONNECT SNOUT AND FEED HOSES THROUGH AUTOBOX® ABX-3L

6. Remove the tape from the hoses. Remove the two Quick Release Pins from the ABX 357 Mounting Bracket and slide the ABX 350 Rear Mount out. Insert the hoses into the AUTOBOX® ABX-3L. **(Figure 9)** The Hose Clamp Pressure Regulator on the Control Box **MUST** be turned to zero pressure to open the drive for easy hose installation. **(Figure 10)** (See the Operation section of the ABX-3L User Manual for more detail on hose loading).

⚠ WARNING

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

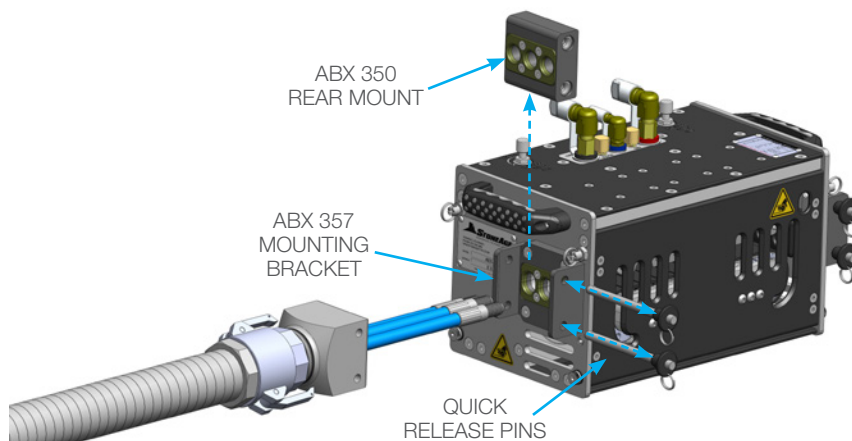
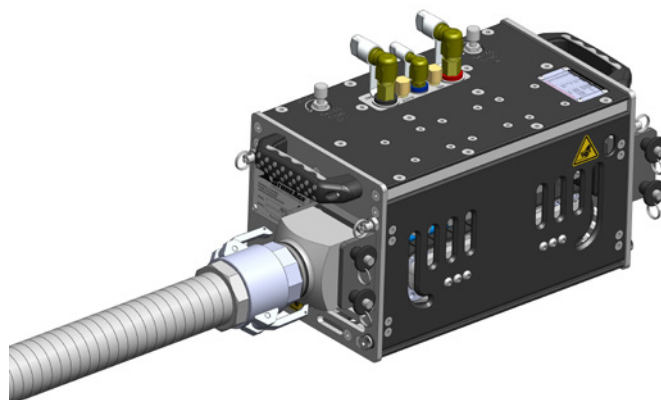


FIGURE 9

FIGURE 10

HOSE CLAMP PRESSURE REGULATOR



7. Lay each hose in the individual slots and slide the Snout Guide Hose Stop onto the Hose Stop Sleeve. Tighten the Adjustable Handle when the Guide is in place. **(Figure 11)**

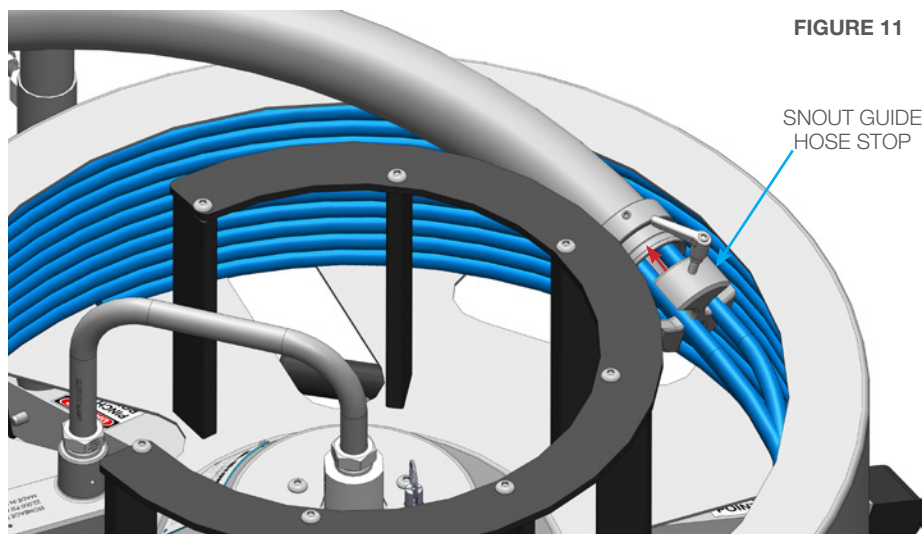
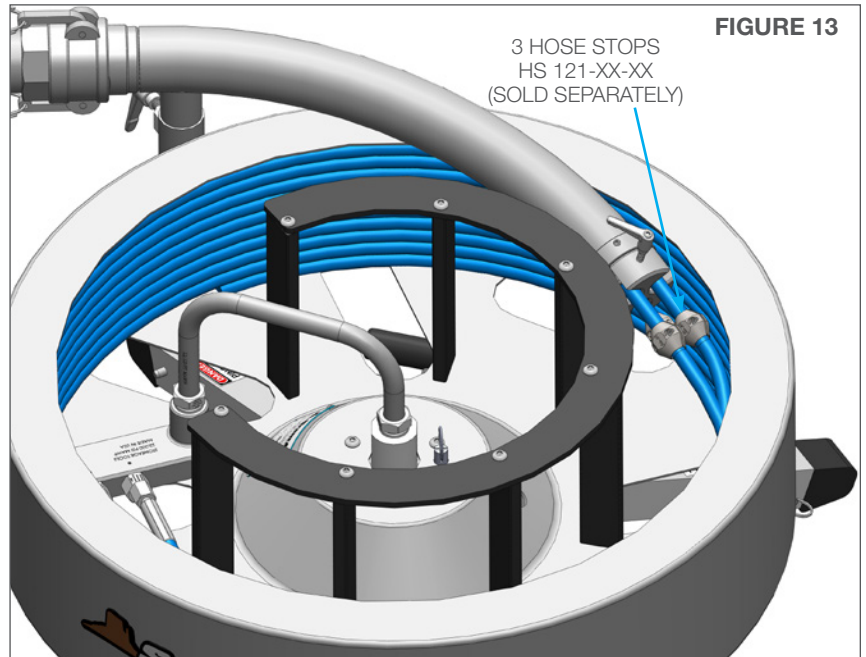
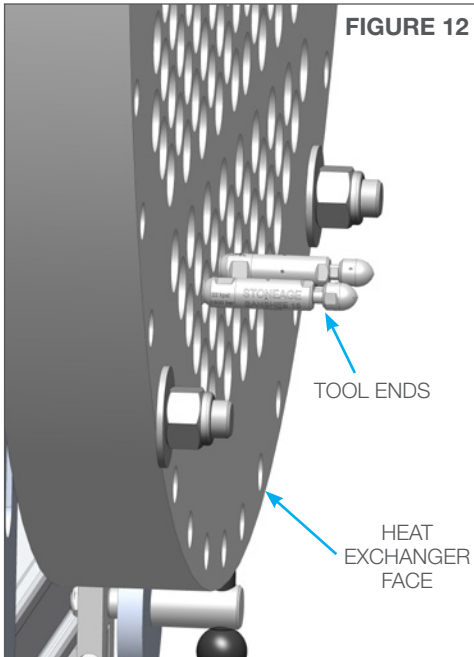


FIGURE 11

CONNECT HOSE STOPS TO HOSES

8. When the system is ready to run, drive the tools into the heat exchanger until they reach the far end of the heat exchanger. **(Figure 12)**
9. Install the appropriate Hose Stops (SOLD SEPARATELY) onto the hoses and locate against the Snout Guide Hose Stop. **(Figure 13)**



OPERATION

SNOUT

- Arrange the **SNOUT** to keep the curvature of the hose as gradual as possible to decrease wear on the hose and reduce drag on the AUTOBOX® (ABX-3L) motor.

WATER CONNECTION

- Connect your high pressure water hose to the inlet adapter on the swivel, located on the bottom of the Hose Containment System (HCS-3L-XXX-XXX).
- Once set up, the operation of the Hose Containment System (HCS-3L-XXX-XXX) is automatic. It is driven by the feed power of the AUTOBOX® (ABX-3L) to coil and uncoil hoses inside the drum.

AUTOBOX® (ABX-3L)

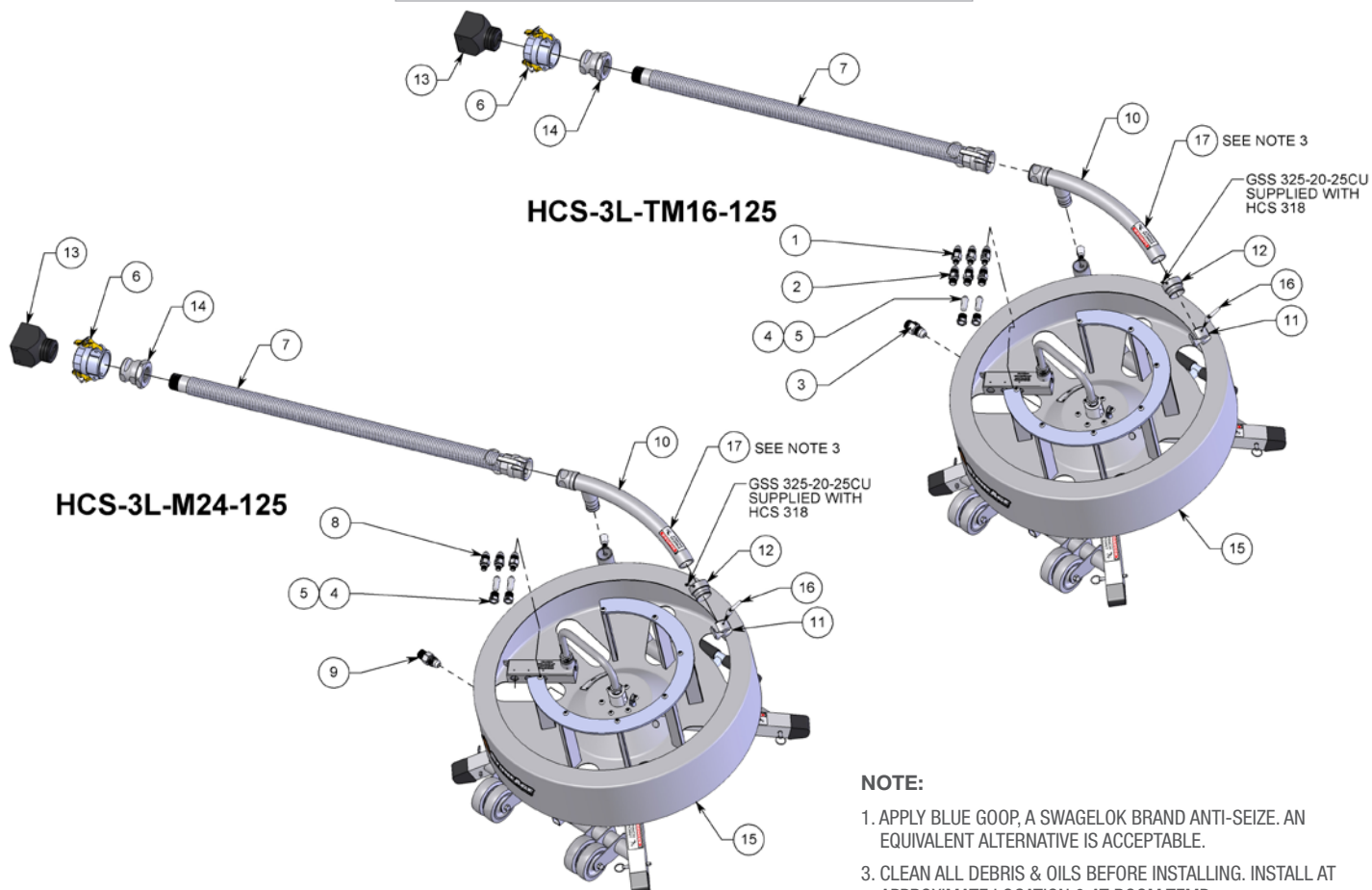
- See the AUTOBOX® (ABX-3L) User Manual for full detailed operation and safety information.

MAINTENANCE

Maintenance Item	Maintenance Required
Swivel	Grease the swivel after every 100 hours of use
High Pressure Seals	Replace when high pressure seals begin to leak.

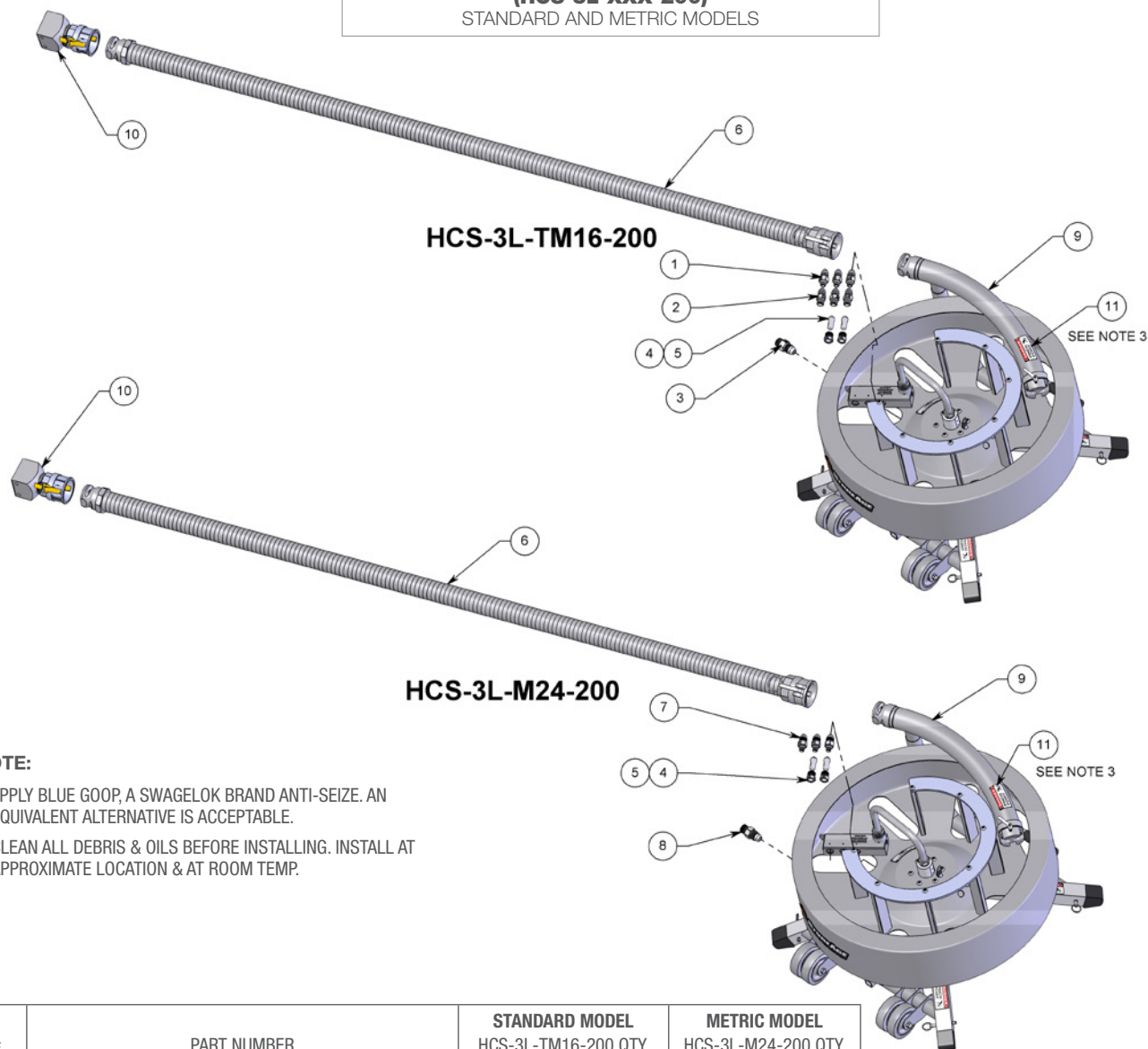
PART DIAGRAM

HOSE CONTAINMENT SYSTEM (HCS-3L-XXX-125) STANDARD AND METRIC MODELS



#	PART NUMBER	STANDARD MODEL HCS-3L-TM16 QTY.	METRIC MODEL HCS-3L-M24 QTY.
1	AF 060-MP9 ADAPTER .56 TYPE M TO MP9	3	-
2	AF 061-MP9 ADAPTER .75 TYPE M TO MP9	3	-
3	AF 063-MP12 ADAPTER 1.00 TYPE M TO MP12	1	-
4	AF 070-MP9 GLAND	2	2
5	AF 076-MP9 PLUG	2	2
6	BJ 543 SNOOT 2NPT FEMALE COUPLER	1	1
7	BOP 090-7-001 SNOOT, CORRUGATED, 1.25 CAMLOCKS, 7FT	1	1
8	GP 255-MP9BSPP4C ADAPTER	-	3
9	GP 255-MP12M24C ADAPTER	-	1
10	HCS 320 P20 GUIDE SNOOT WELDMENT	1	1
11	HCS 327 HOSE STOP SH	1	1
12	HCS 328 HOSE STOP SLEEVE SH	1	1
13	HCS 350 SNOOT 3L ADAPTER	1	1
14	HCS 351 2.0MCL X 1.25 NPT	1	1
15	HCS-3L.1-V2 DRUM AND FRAME ASSY	1	1
16	HCS 325 ADJUSTABLE HANDLE	1	1
17	PL 160 PINCH POINT 1.5X3.0 DECAL	1	1

**HOSE CONTAINMENT SYSTEM
(HCS-3L-XXX-200)**
STANDARD AND METRIC MODELS



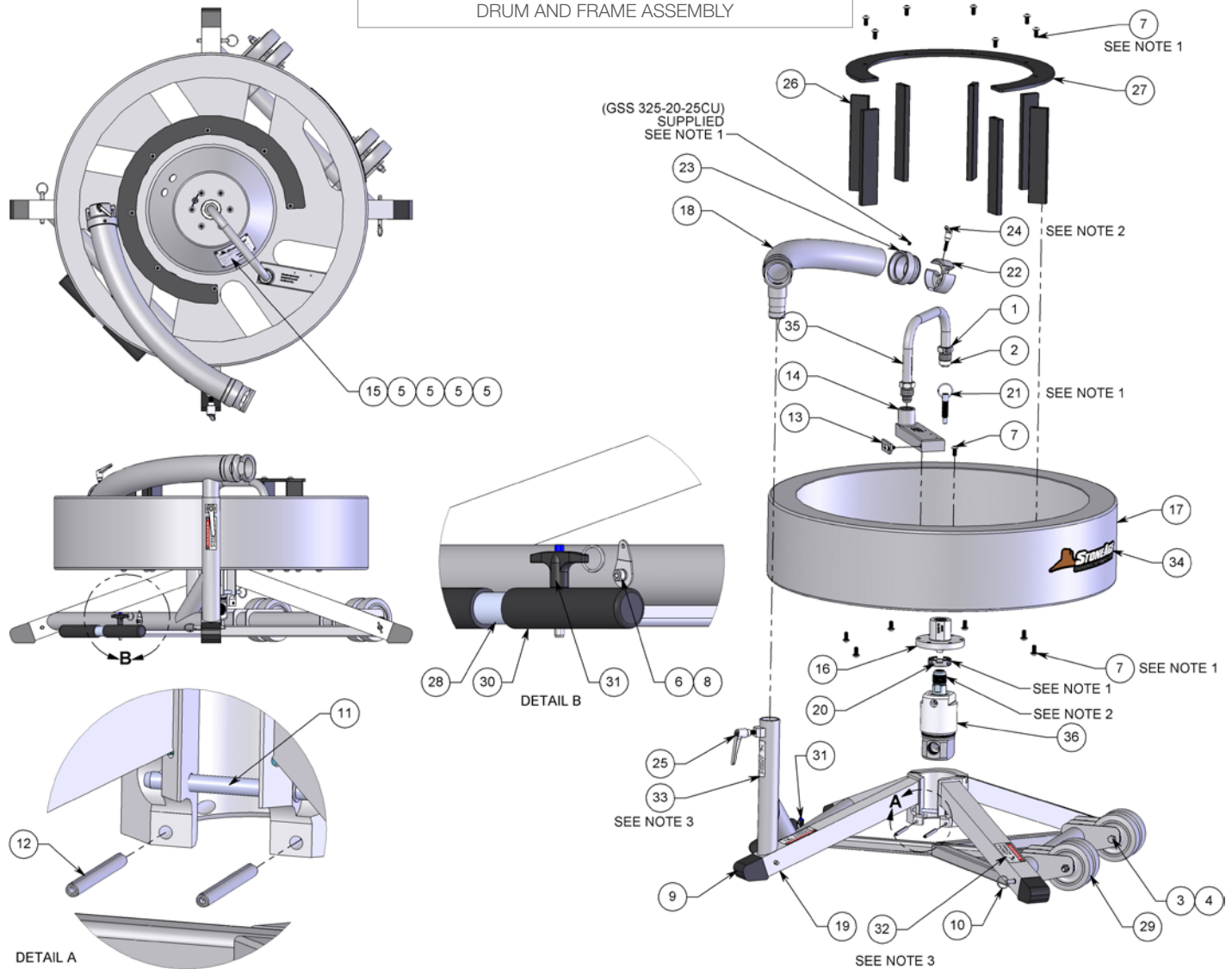
NOTE:

1. APPLY BLUE GOOP, A SWAGelok BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.
3. CLEAN ALL DEBRIS & OILS BEFORE INSTALLING. INSTALL AT APPROXIMATE LOCATION & AT ROOM TEMP.

#	PART NUMBER	STANDARD MODEL HCS-3L-TM16-200 QTY.	METRIC MODEL HCS-3L-M24-200 QTY.
1	AF 060-MP9 ADAPTER .56 TYPE M TO MP9	3	-
2	AF 061-MP9 ADAPTER .75 TYPE M TO MP9	3	-
3	AF 063-MP12 ADAPTER 1.00 TYPE M TO MP12	1	-
4	AF 070-MP9 GLAND	2	2
5	AF 076-MP9 PLUG	2	2
6	BOP 103-07-2.0MCL- 2.0FCL 2.0 INTERLOCK SNOOT, 7FT	1	1
7	GP 255-MP9BSP4C ADAPTER	-	3
8	GP 255-MP12M24C ADAPTER	-	1
9	HCS 311 GUIDE SNOOT WELDMENT	1	1
10	HCS 310 SNOOT 3L ADAPTER WELDMENT	1	1
11	HCS 317 HOSE STOP	1	1
12	HCS 318 HOSE STOP SLEEVE	1	1
13	HCS 325 ADJUSTABLE HANDLE	1	1
14	HCS-3L.1-V2 DRUM AND FRAME ASSY	1	1
15	PL 160 PINCH POINT 1.5X3.0 DECAL	1	1

PART DIAGRAM

HOSE CONTAINMENT SYSTEM (HCS-3L.1-V2) DRUM AND FRAME ASSEMBLY



NOTE:

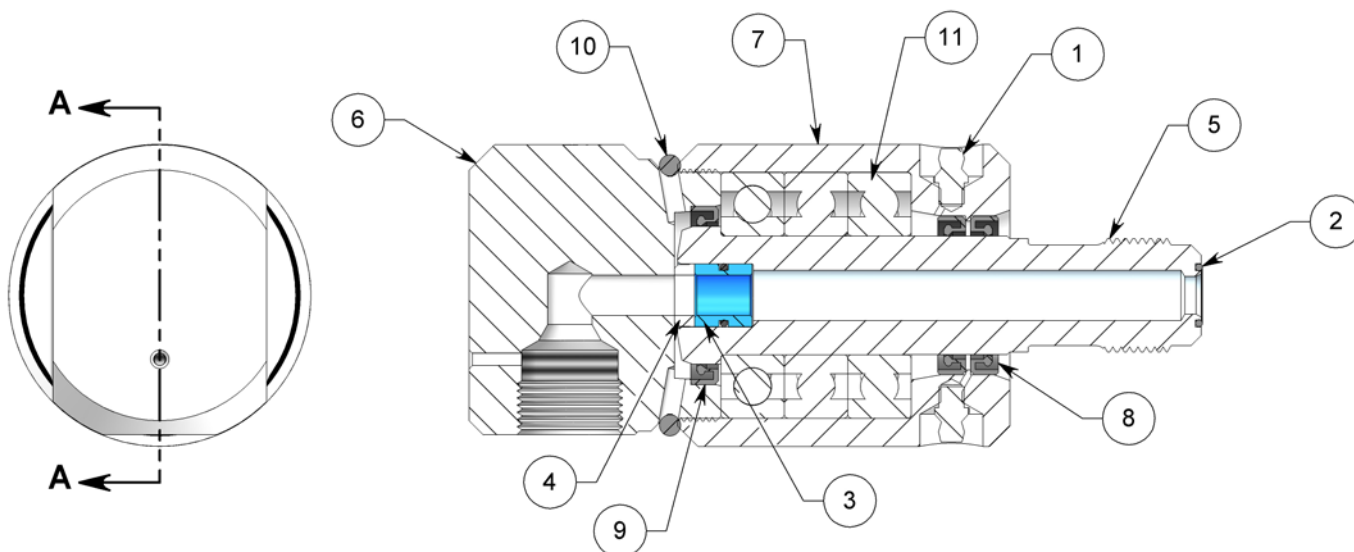
1. APPLY BLUE LOCTITE: PN 242 OR EQUIVALENT TO ALL THREADED HARDWARE.
2. APPLY BLUE GOOP, A SWAGelok BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.
3. CLEAN ALL DEBRIS AND OILS BEFORE INSTALLING. INSTALL AT APPROXIMATE LOCATION AND AT ROOM TEMP.

#	PART NUMBER	QTY.
1	AF 070-MP12 GLAND	2
2	AF 071-MP12 COLLAR	1
3	GB 337-15 BOLT, HEX .37-16 X 3.75 SS	2
4	GN 337-L NYLON NUT SS	2
5	GR 125-SS-126-187 RIVET	4
6	GS 319-05 SHCS .19-24 X 1.25 SS	1
7	GSB 331-025 BHCS .31-18 X .62 LG SS	23
8	GW 319-L LOCK WASHER SS	1
9	HCS 214 INSERT, LEG	4
10	HCS 216 PIN, QUICK RELEASE .3120D X 1.75 LONG BALL DETENT	4
11	HCS 218 PIN, QUICK RELEASE .3120D X 2.50 LONG BALL DETENT	1

12	HCS 219 SPRING PIN, COILED .250D X 3.00	2
13	HCS 301 SLIDER PLATE	1
14	HCS 302 TRIPLE DRUM MANIFOLD	1
15	HCS 303-V2 SERIAL PLAQUE	1
16	HCS 305 DRIVE COUPLING, KMP12	1
17	HCS 306 HOSE DRUM	1
18	HCS 311 GUIDE SNOOT WELDMENT	1
19	HCS 312 BASE FRAME WELDMENT	1
20	HCS 315 SHAFT COLLAR LOCK	1
21	HCS 316 SPRING PLUNGER	1
22	HCS 317 HOSE STOP	1
23	HCS 318 HOSE STOP SLEEVE	1
24	HCS 325 ADJUSTABLE HANDLE	1

25	HCS 326 ADJUSTABLE HANDLE	1
26	HCS 461 SQUARE ROD	7
27	HCS 462 SUPPORT RING	1
28	NAV 115 - HANDLE WELDMENT	1
29	NAV 308 - WHEEL, 4IN DIA	4
30	NAV 311 - GRIP, ROUND, HEX SURFACE	2
31	NAV 325 - PIN, QUICK-RELEASE, TEE HANDLE, 1IN L, W LANYARD	1
32	PL 160 PINCH POINT 1.5X3.0 DECAL	4
33	PL 160 PINCH POINT 1.5X3.0 DECAL	1
34	PL L STONEAGE STICKER, LARGE-HCS-3L.1-V2	1
35	SA 577-MP12LMP12L-17.68-180	1
36	SG-MP12K-62-90 SWIVEL	1

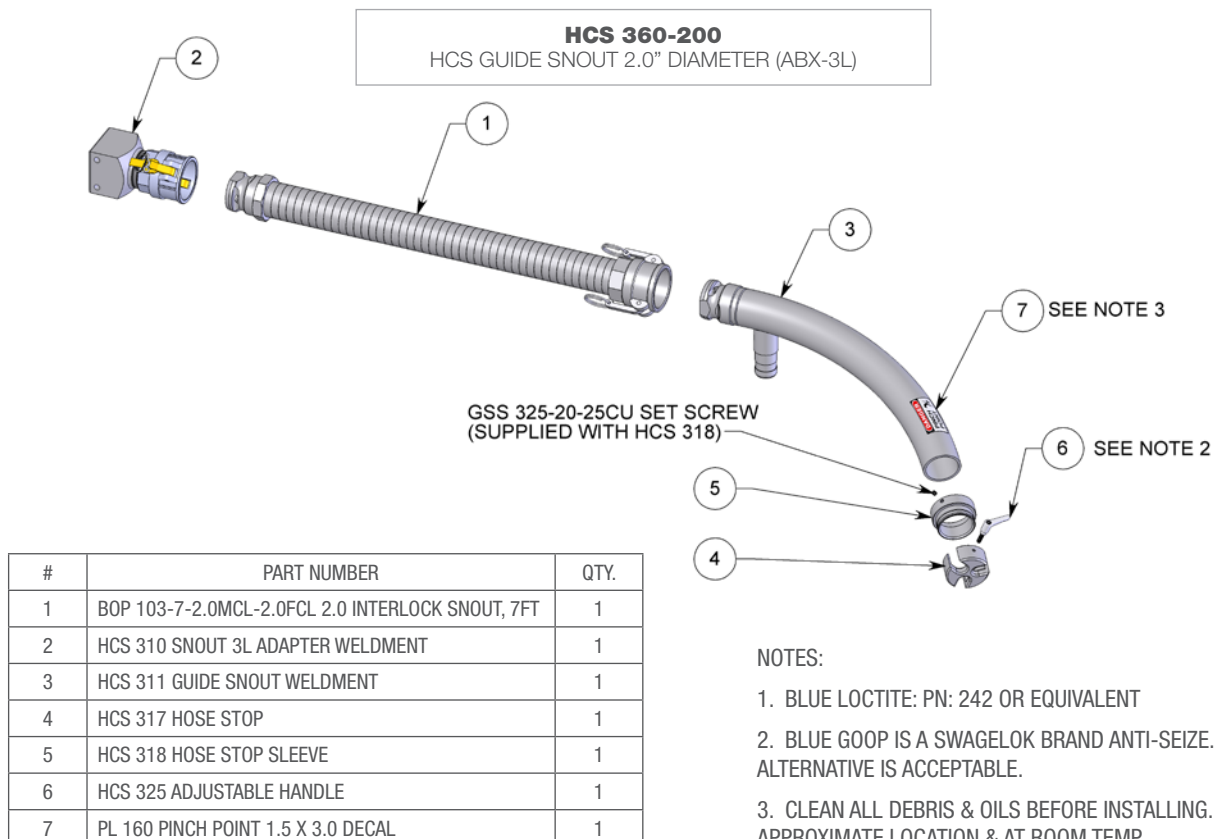
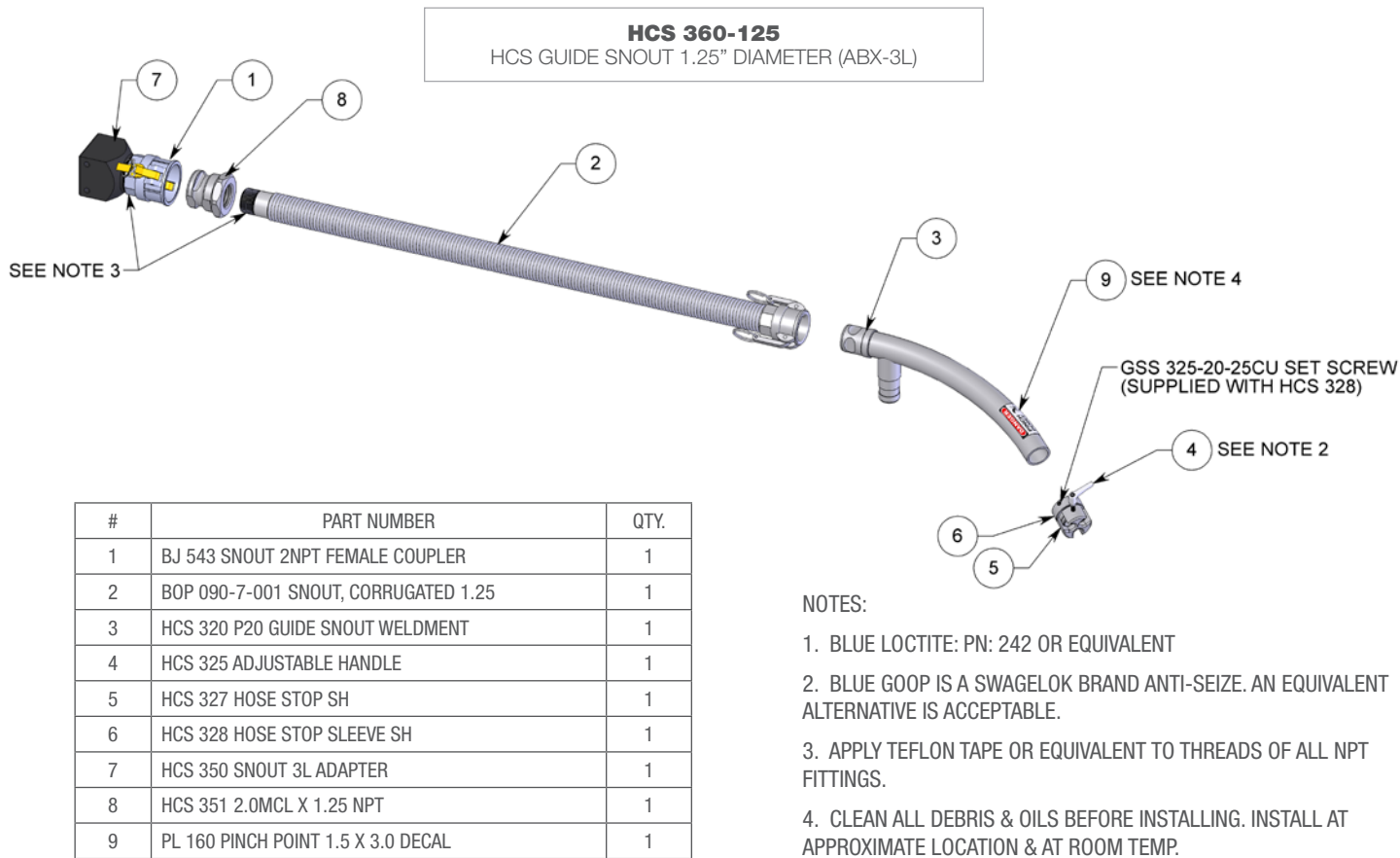
SG-MP12K-62-90
SG SWIVEL



SECTION A-A

#	PART NUMBER	QTY.
1	FS 004-0 ZERK, STRAIGHT	2
2	FS 021-K O-RING	1
3	HC 012-TO HP SEAL, ORING	1
4	MJ 011-C SEAT, CARBIDE	1
5	SG 001-K-62 SHAFT	1
6	SG 002-MP12-62-90 NUT	1
7	SG 003 BODY	1
8	SG 006 SEAL, SMALL	2
9	SG 007 SEAL, LARGE	1
10	SG 008 O-RING	1
11	SG 009 BEARING (6206)	3

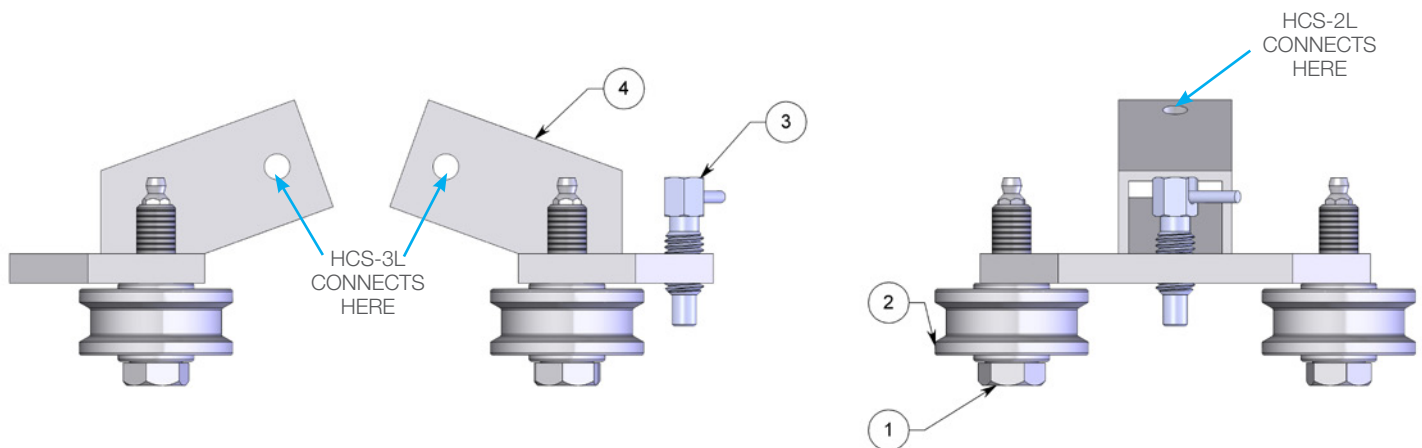
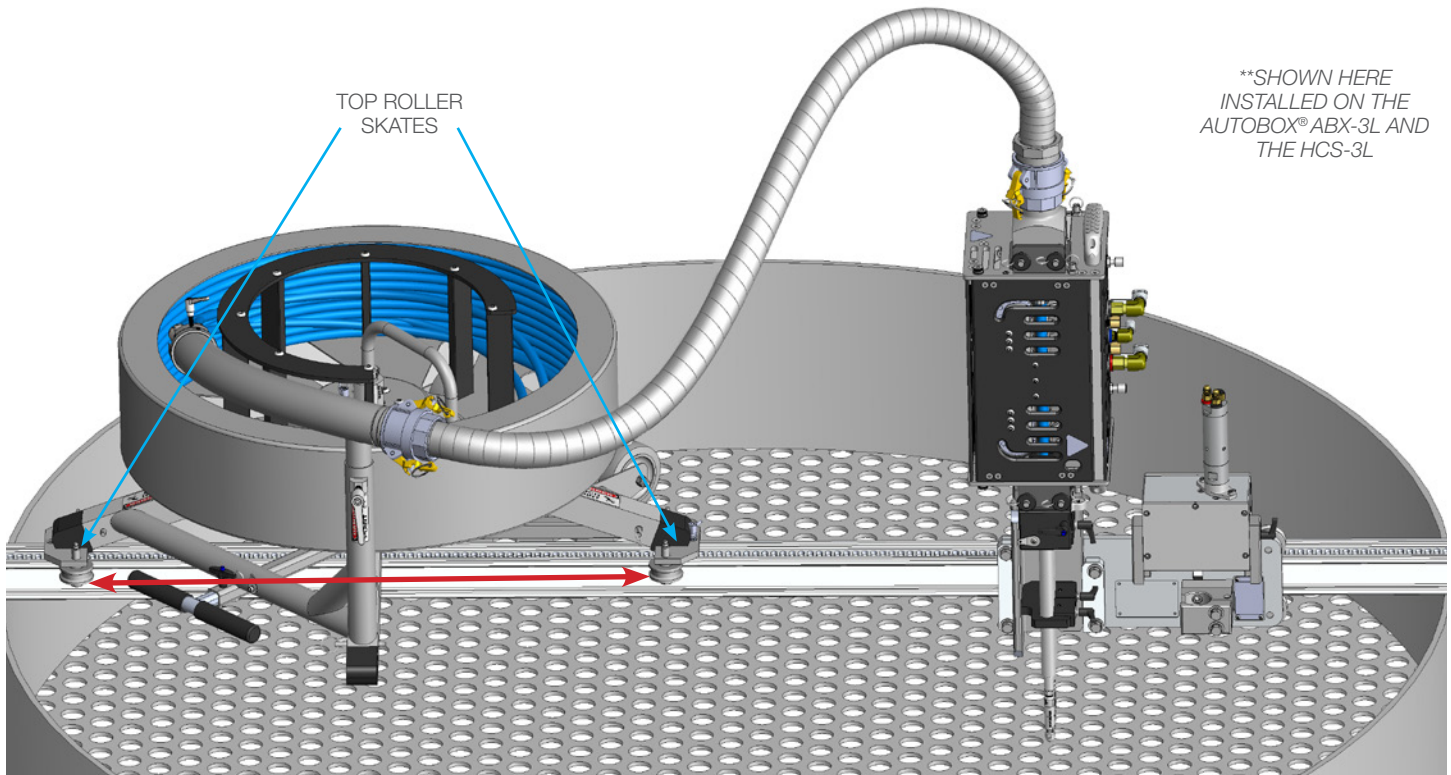
HCS 360-125 AND HCS 360-200 GUIDE SNOOT ACCESSORY PART DIAGRAM



HCS 450 TOP ROLLER SKATE SET ACCESSORY PART DIAGRAM

HCS 450 TOP ROLLER SKATE SET

The HCS 450 Roller Skates were designed to provide mounting capability for the Hose Containment Systems in locations where the heat exchanger is not surrounded by a decking or scaffolding. The Hose Containment System can be installed on the slotted rail and pinned in place or rolled freely using the HCS 450 Top Roller Skate Set. This configuration keeps the hoses and snout in alignment with the Autobox® Hose Tractor, reducing drag and keeping the hoses neatly in place. **(Figure 1)**



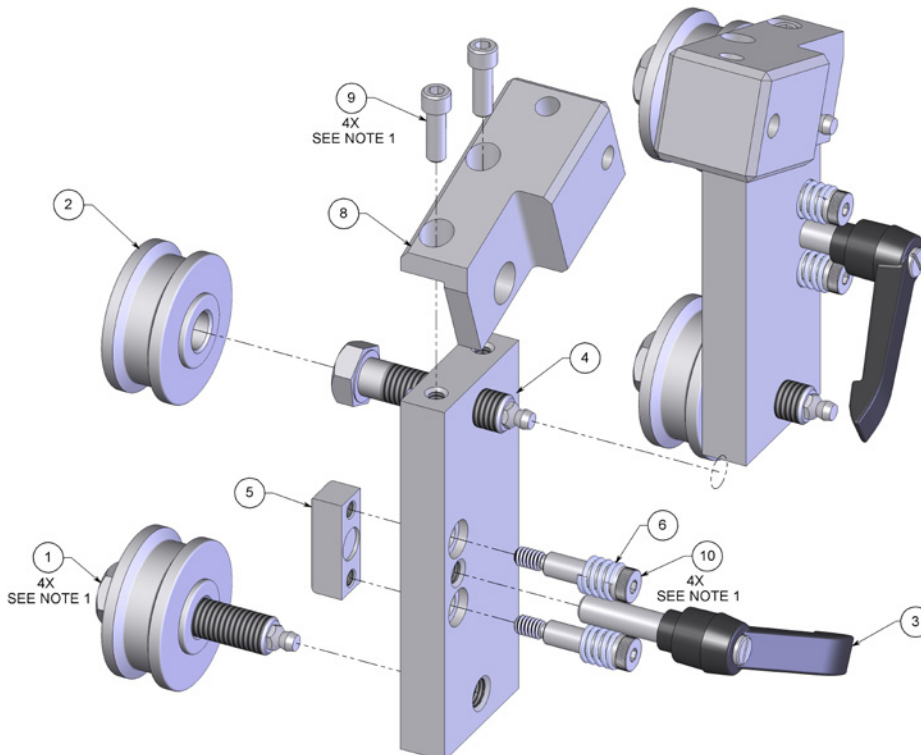
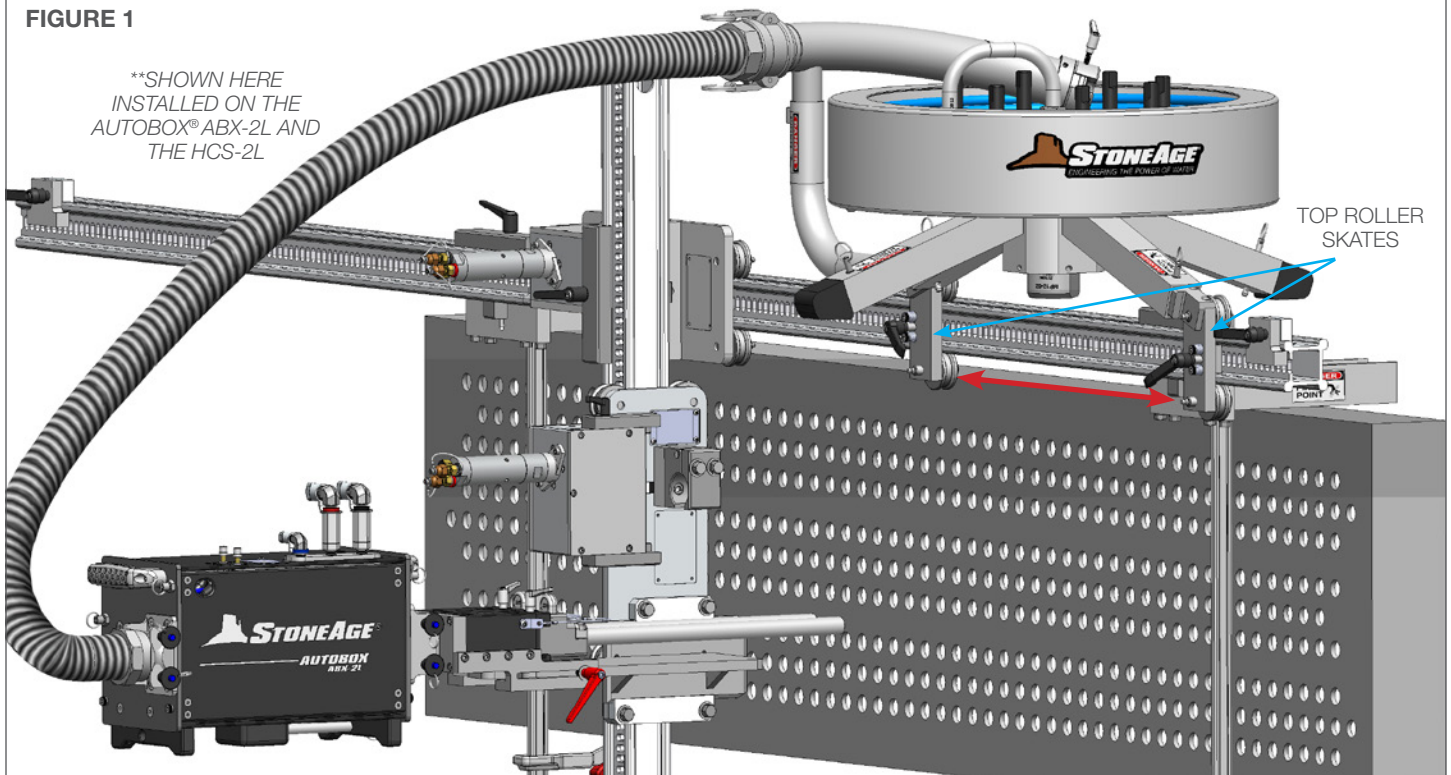
#	PART NUMBER	QTY.
1	BR 051-2.0-0 AXLE-ZERK	4
2	BR 055-SS ROLLER ASSY	4
3	HCS 115 RETRACTABLE SPRING PLUNGER	1
4	HCS 455 WELDMENT ROLLER SKATES	2

FF 450 TOP ROLLER SKATE SET ACCESSORY PART DIAGRAM

FF 450 TOP ROLLER SKATE SET

The FF 450 Roller Skates were designed to provide mounting capability for the Hose Containment Systems on Fin Fan Exchanger faces. The Hose Containment Systems can be installed on the slotted rail and clamped in place or rolled freely using the FF 450 Top Roller Skate Set. This configuration keeps the hoses and snout in alignment with the Autobox® Hose Tractor, reducing drag and keeping the hoses neatly in place. **(Figure 1)**

FIGURE 1



#	PART NUMBER	QTY.
1	BR 051-2.0-0 AXLE-ZERK	4
2	BR 055-SS ROLLER ASSY	4
3	BU 151 HANDLE	2
4	FF 162 FRONT PLATE SUPPORT	2
5	FF 163 SLIDE TOP	2
6	FF 164 SS COMPRESSION SPRING	4
7	FF 450.1 TUBE INSERT	1
8	FF 450.2 TUBE INSERT MIRROR	1
9	GS 325-03 SHCS .25-20 X .75 SS (TB 050)	4
10	GSSH 0312-1000-SS SHOULDER SCREW	4

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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 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 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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