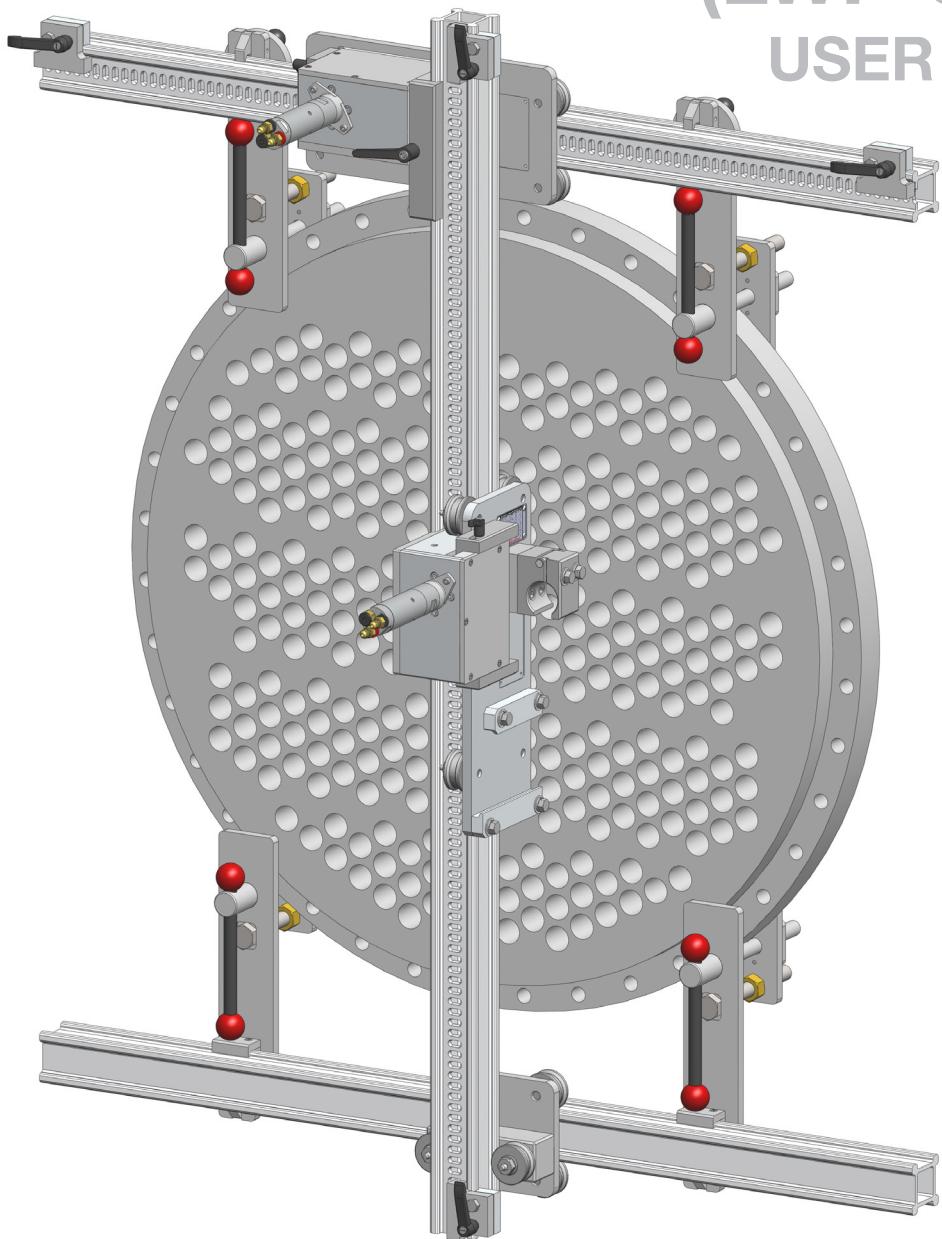




# LIGHTWEIGHT POSITIONER (LWP-500-V2)

## USER MANUAL



PL 610-V2 REV H  
(04/2017)

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

StoneAge Europe  
Unit 2, Britannia Business Centre  
Britannia Way  
Malvern WR14 1GZ  
United Kingdom  
Phone: +44 (0) 1684 892065

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

### SPECIFICATIONS

Lightweight Positioner Weight:

120 lbs (54.4 kg)

(Includes 6ft rails, horiz., vert., and idler carriage, and 4 clamps)

### DESCRIPTION OF EQUIPMENT AND INTENDED USE

The Lightweight Positioner can be mounted to a variety of heat exchanger tube bundles and has pneumatic powered horizontal and vertical drives. It is intended to be used with AUTOBOX® (ABX-2L) HOSE TRACTOR, AUTOBOX® (ABX-3L) HOSE TRACTOR, and the PRODRIVE TRACTOR (ABX-PRO).

### KEY FEATURES:

#### LIGHTWEIGHT POSITIONER (LWP-500-V2)

- Modular system designed for portability and easy assembly
- Quick install drive carriages
- Utilizes 2.5 in. (6.35 cm) box rail
- Stainless Steel air motors
- Variety of clamp and bolt-on attachment options are available



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

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

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

Equipment: LIGHTWEIGHT POSITIONER Assembly

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

is designed and manufactured solely as a non-functional component to be incorporated into a machine requiring completion;

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

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

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

Date 08/23/2015

StoneAge Europe  
Unit 2, Britannia Business Centre  
Britannia Way  
Malvern WR14 1GZ  
United Kingdom

The Technical File for the LIGHTWEIGHT POSITIONER (LWP-500-V2) is maintained at: StoneAge, Inc. 466 South Skylane Drive, Durango, CO 81303, USA



## WARNING AND SAFETY INSTRUCTIONS

### OPERATOR TRAINING

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

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

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

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

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

### PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

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

### SAFETY LABEL DEFINITION

The Lightweight Positioner (LWP-500-V2) has the potential to cause serious injury if fingers, hair, or clothing become caught between the rollers.



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.

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

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

### PPE may include:

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

## WARNING AND SAFETY INSTRUCTIONS

### ⚠ WARNING

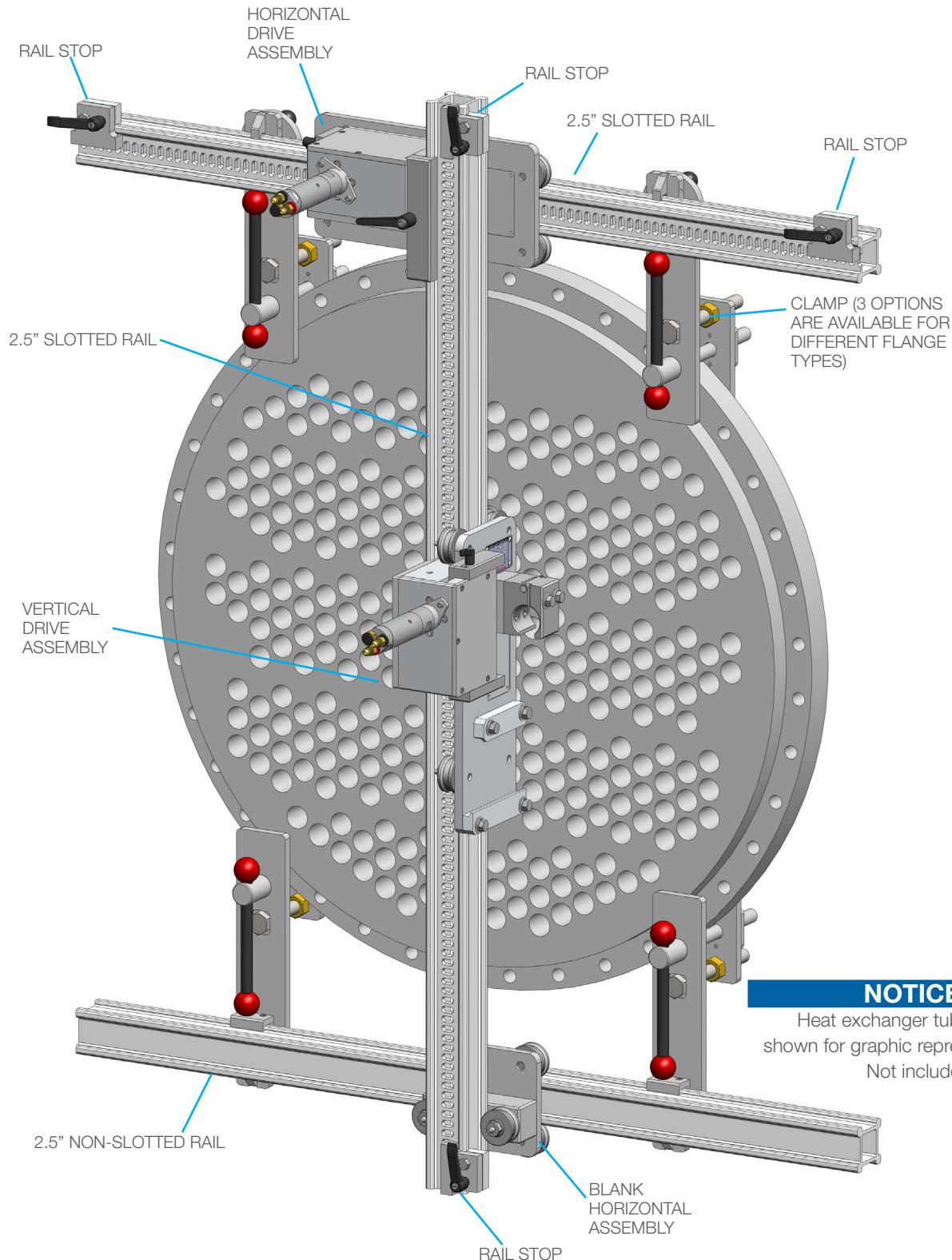
Operations with this equipment can be potentially hazardous. Caution MUST be exercised prior to and during machine and water jet tool use. Please read and follow all of these instructions, in addition to the guidelines in the WJTA Recommended Practices handbook, available online at [www.wjta.org](http://www.wjta.org).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

- Do not exceed the maximum operating pressure specified for any component in a system.
- The immediate work area MUST be marked off to keep out untrained persons.
- Inspect the equipment for visible signs of deterioration, damage, and improper assembly. Do not operate if damaged, until repaired.
- Make sure all threaded connections are tight and free of leaks.
- Users of the Lightweight Positioner (LWP-500-V2) 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.
- An anti-withdrawal device (back-out preventer) MUST be used at all times. The back-out prevention device is the Hose Stop Collet located within the Hose Guide Assembly. StoneAge offers several different size Hose Stop Collets. The Collet Size Reference guide is located on the Hose Guide Assembly.
- The Control Box should be located in a safe location where the Operator has good visibility of the pipe and hose. The Lightweight Positioner (LWP-500-V2) 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.
- When moving the Lightweight Positioner (LWP-500-V2) lift with care to prevent bodily injury.

### PRE-RUN SAFETY CHECK

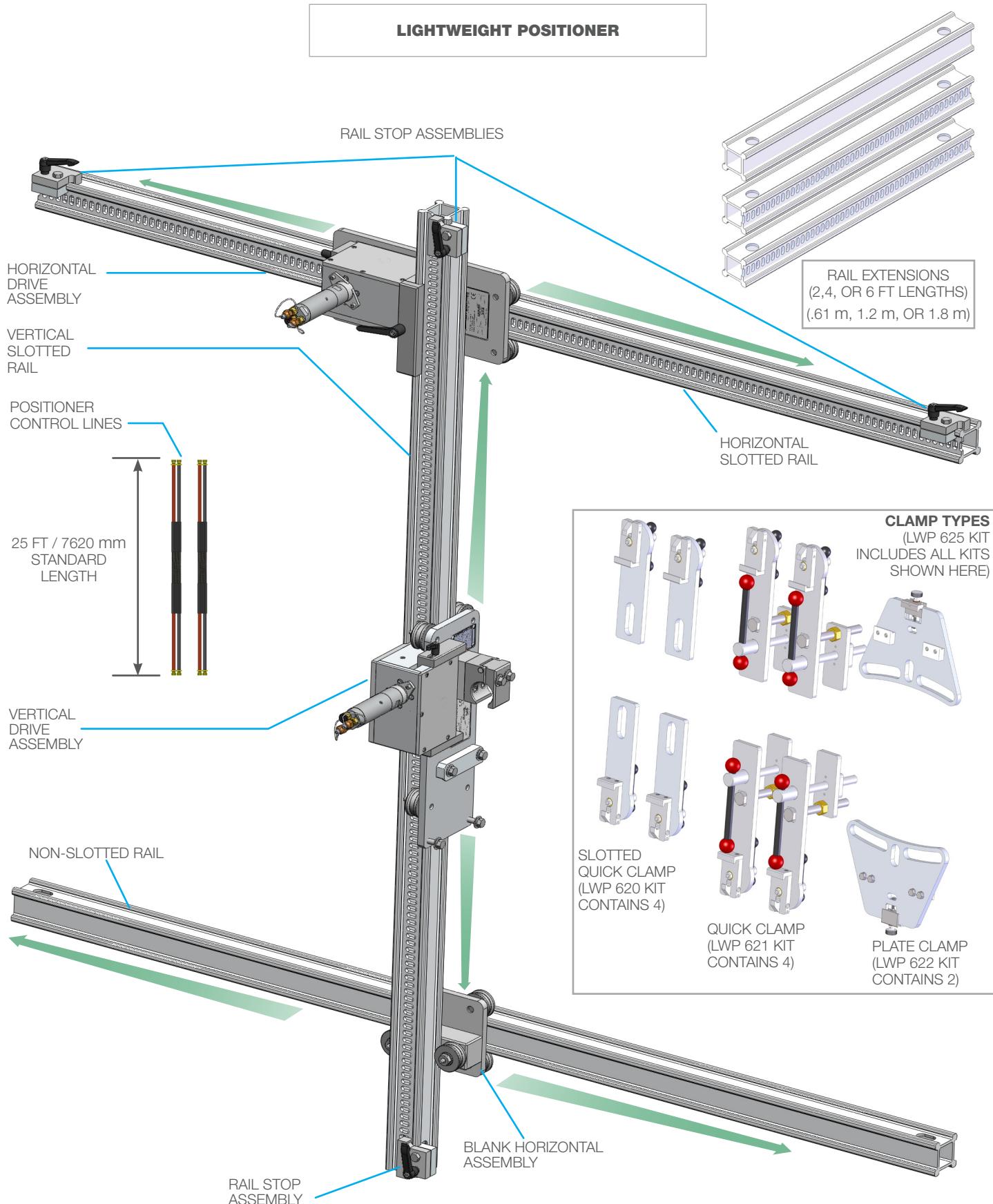
Refer to WJTA-IMCA's, Recommended Practices For The Use Of High-pressure Waterjetting Equipment and/or The Water Jetting Association's, WJA Code of Practice for additional safety information.

- 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 a anti-withdrawal device (back-out preventer), whip checks (hose whips), and all other applicable safety devices are installed and set-up properly.\*\***
- Ensure the doors of the Lightweight Positioner (LWP-500-V2) are closed and securely latched.
- Test the Control Box before operating the Lightweight Positioner (LWP-500-V2) 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.

**LIGHTWEIGHT POSITIONER ASSEMBLY  
(LWP-500-V2)****NOTICE**

Heat exchanger tube bundle face,  
shown for graphic representation only.  
Not included in assembly.

## LIGHTWEIGHT POSITIONER - OVERVIEW



## LIGHTWEIGHT POSITIONER CLAMP SELECTION

### CLAMP SELECTION

Is dependent upon the heat exchanger geometry, bolt holes, hole spacing, and flange accessibility.

### QUICK CLAMPS

Use if heat exchanger flange provides a robust clamping surface or if flange holes are inaccessible. Align clamps on the surface of the flange to maximize flange engagement to clamps. (Figure 2)

### SLOTTED QUICK AND PLATE CLAMPS

Use if heat exchanger flange has bolt holes that are easily accessible. Use quick clamps or plate clamps, depending on the spacing of the hole pattern. (Figures 1 & 3)

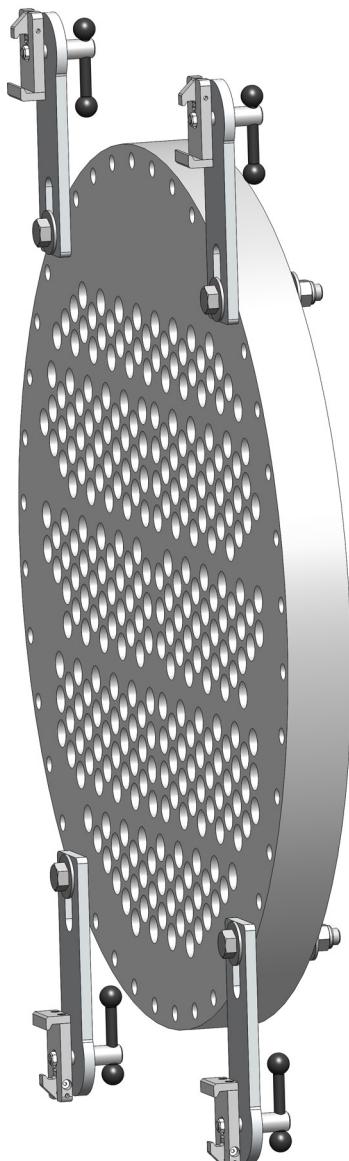


FIGURE 1

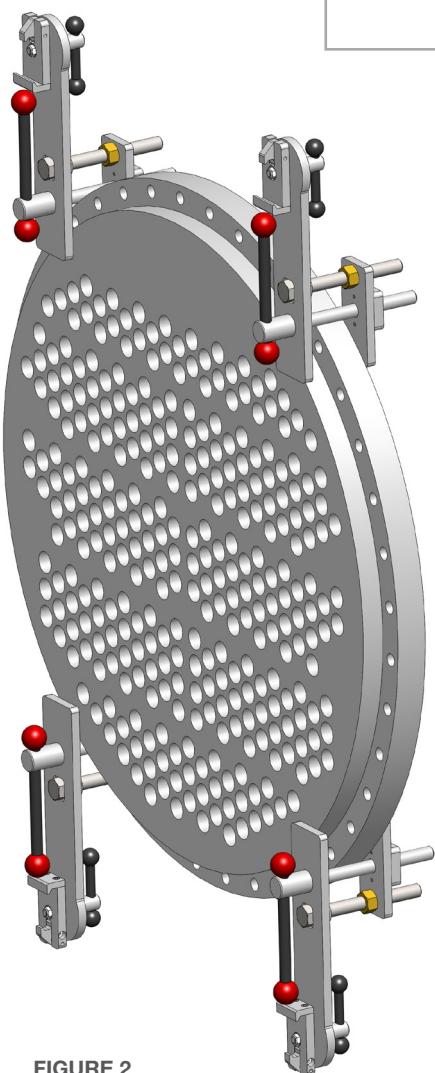


FIGURE 2

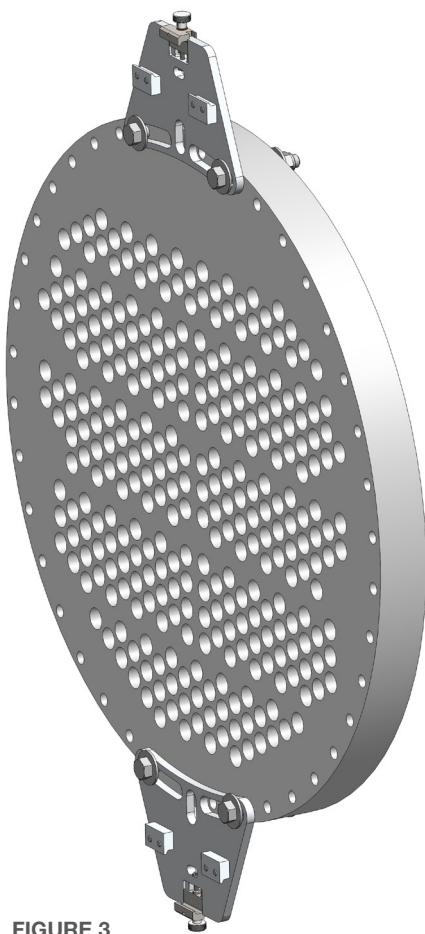
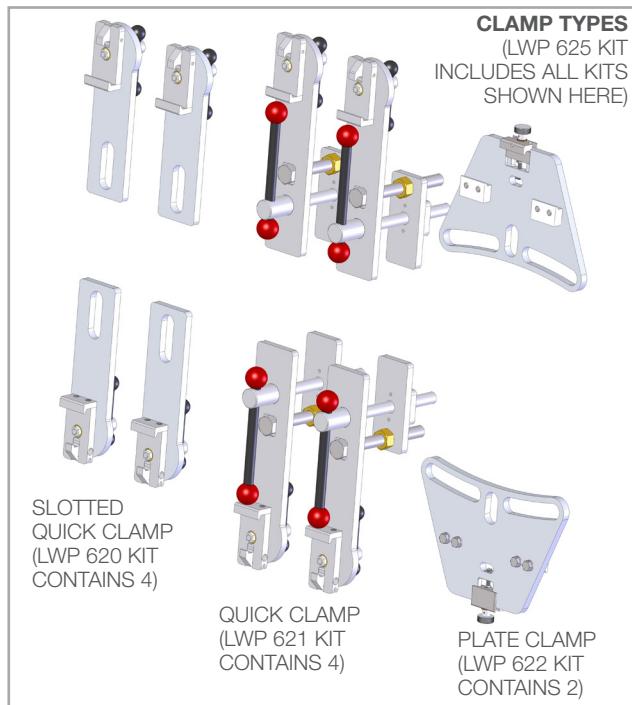


FIGURE 3



## LIGHTWEIGHT POSITIONER SET-UP

### LIGHTWEIGHT POSITIONER STEP BY STEP SET-UP

1. Mount the appropriate frame **Positioner Clamps** to the tube bundle as shown on the previous page. (Shown in Figure 1 with Slotted Quick Clamps) Positioner Clamps should be aligned horizontally with the direction of the tube rows. (**Figure 1**)

#### NOTICE

Heat exchanger tube bundle face, shown for graphic representation only. Not included in assembly.

2. Insert the **Top Rail (slots facing out)** into the upper mounting brackets. If the rail is not closely aligned with the tube rows, loosen one of the upper mounting brackets and adjust until the top rail is parallel with the horizontal tube rows. Tighten the clamps securing the rail to the mounting brackets, and ensure upper mounting brackets are securely clamped or bolted to the tube bundle flange. (**Figure 2**)

3. Insert the **Lower Rail (non-slotted)** into the lower mounting brackets. It is not critical that this rail is aligned as precisely as the top rail, but it should be close to parallel with the top rail for best performance. Tighten the clamps securing the rail to the mounting brackets, and ensure lower mounting brackets are securely clamped or bolted to the tube bundle flange. (**Figure 3**)

4. Loosen the **Quick Adjust Handle** and pull the gearbox away from the carriage plate. This will allow the **Horizontal Drive Carriage** to slide onto the rail without pneumatic power to rotate the drive. Center the carriage on the top rail and push the gearbox back toward the carriage plate. This will engage the gear into the rail slots. Verify the gear is engaging the slots correctly and tighten the adjustable handle. (**Figure 4**)

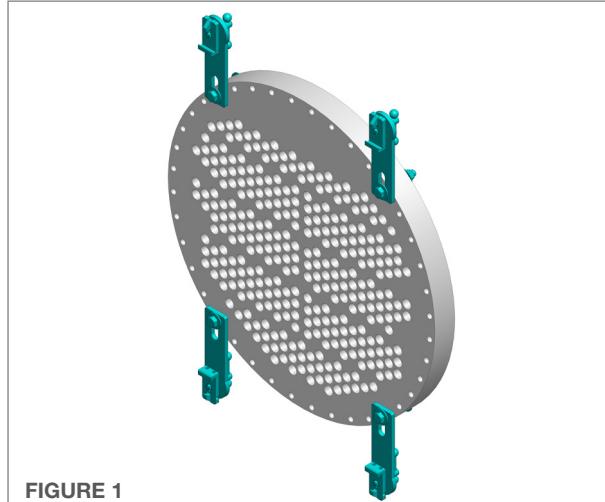


FIGURE 1

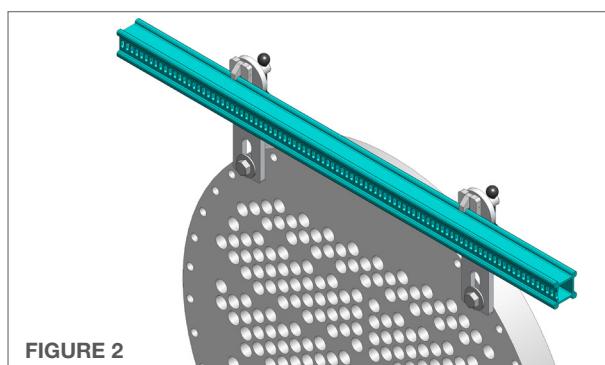


FIGURE 2

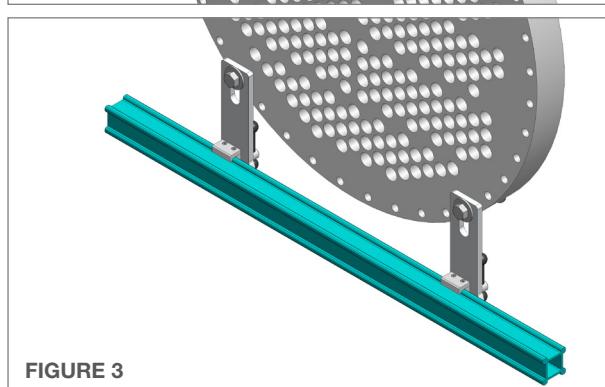


FIGURE 3

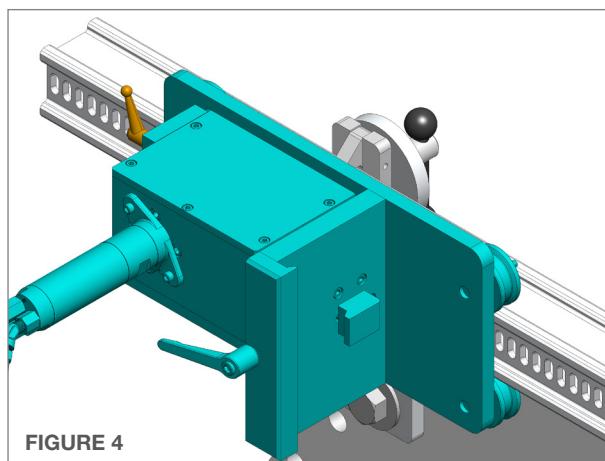


FIGURE 4

5. Slide the **Idler Carriage** onto the Lower Non-Slotted Rail. (**Figure 5**)

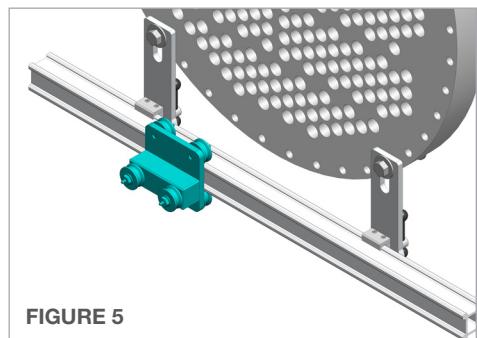


FIGURE 5

6. Loosen the **Large Adjustable Handle** for the Vertical Rail Clamp. Align the Idler Carriage with the vertical rail clamp on the horizontal carriage. Install the **Vertical Rail** with **(slots facing out)** down through the horizontal carriage clamp and between the rollers on the idler carriage. Adjust the position of the vertical rail as required and secure the clamp on the horizontal carriage by tightening the large adjustable handle. (**Figure 6**)

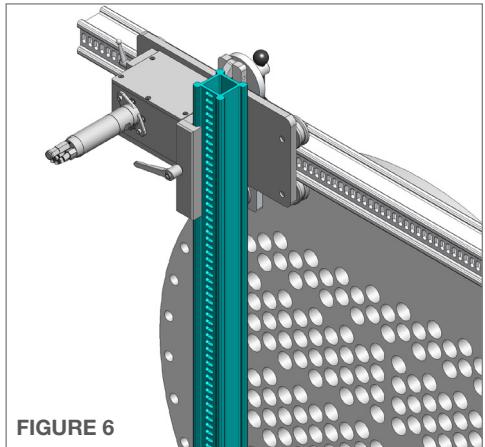


FIGURE 6

7. Loosen the **Quick Adjust Handle** and pull the gearbox away from the carriage plate. This will allow the **Vertical Drive Carriage** to slide onto the rail without pneumatic power to rotate the drive. Center the carriage on the vertical rail and push the gearbox back toward the carriage plate. This will engage the gear into the rail slots. Verify the gear is engaging the slots correctly and tighten the adjustable handle. (**Figure 7**)

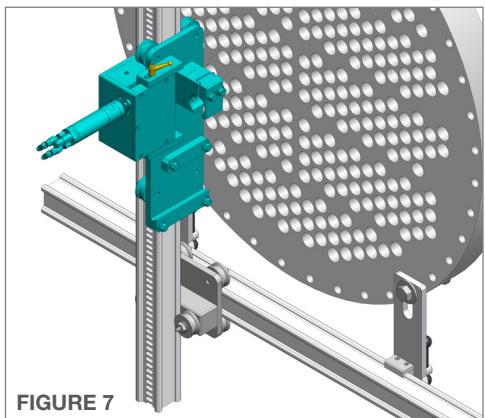


FIGURE 7

8. Install the four **Rail Stops** at both ends of the top, slotted, horizontal rail, and both ends of the vertical slotted rail. (**Figure 8**)

### NOTICE

Verify the mounting brackets and rail clamps are securely tightened and that the drive carriages are securely engaged and the adjustable handles are tightened.

Never loosen the vertical gearbox once the guide assembly and tractor are installed, as it may result in the carriage falling vertically down. This may cause damage and/or injury.

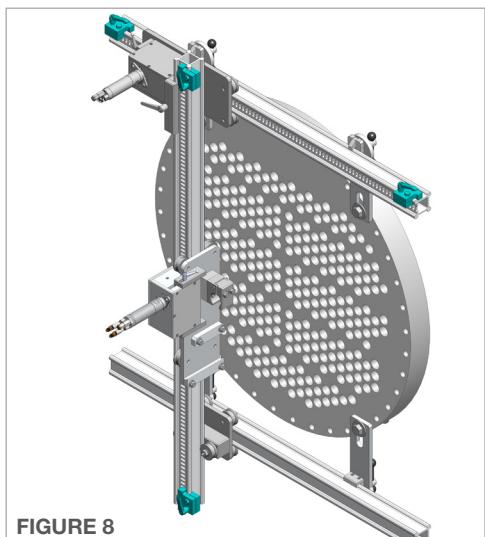


FIGURE 8

## MAINTENANCE

Maintenance Item	Frequency	Maintenance Required
Forward, reverse, and clamp fittings	<b>Before</b> each use	Inspect threads for wear or damage.
Carriage rollers	Every 100 Hours of use	Lubricate Zerks on all Carriage Rollers using any multipurpose NLGI 2 grease.
Vertical and Horizontal Rails	As Needed	Inspect for wear that would allow Carriage Rollers to slip off. Replace Rail as needed.
All components the hoses pass through	<b>After</b> each use	Most wear parts are made from 17-4 PH stainless steel and should have a very long life. However, as wear occurs the rounded edges could become sharp and damage hoses. Any components showing excessive wear should be replaced.

Contact StoneAge for Safety Data Sheets for material usage, a complete list of spare part numbers, and service instructions for the Lightweight Positioner.

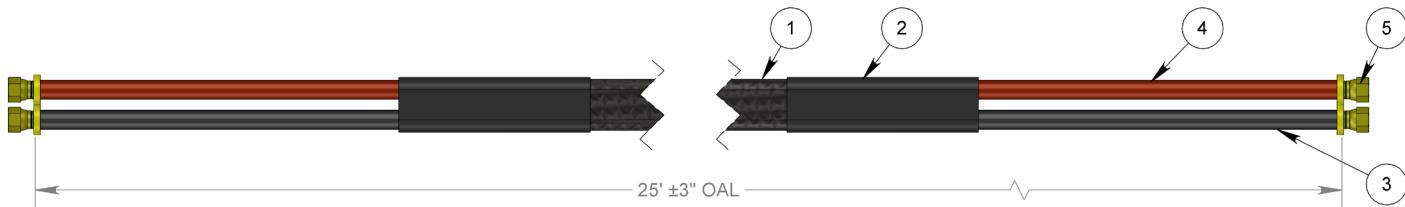
## STORAGE, TRANSPORTATION, AND HANDLING

Use mild soapy water to clean the machine in order to remove corrosive materials. Before storing the unit, use compressed air to blow off debris and moisture. Apply a small amount of air tool oil directly into the Horizontal and Vertical Drive fittings. Then, briefly operate the controls at slow speed for a short duration in each direction to coat the interior parts of the motor. Install the dust caps onto all fittings to keep moisture and dirt out.

The Lightweight POSITIONER (LWP-500-V2), can be broken down into smaller components that should be stored in a clean and dry area.

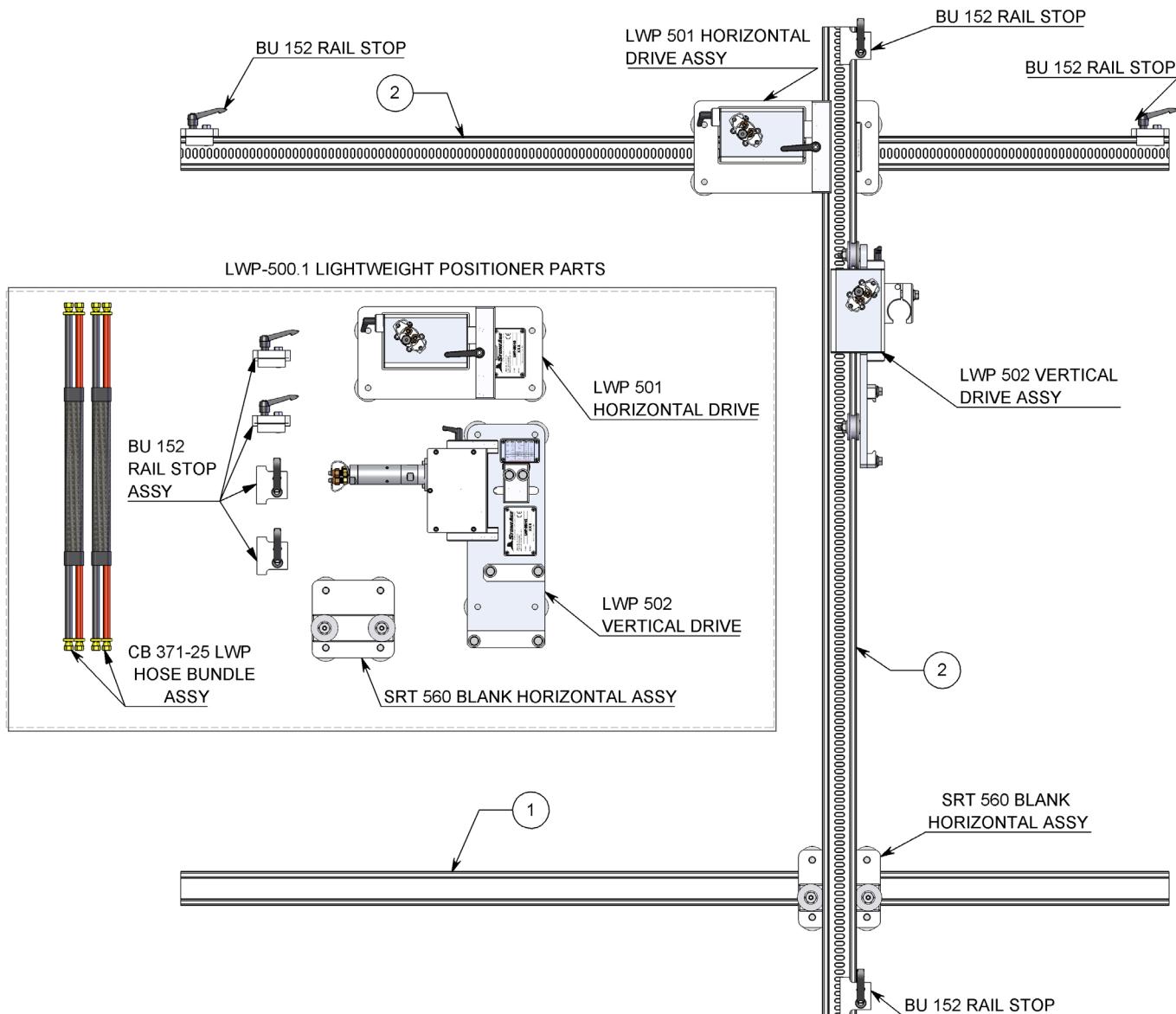
## PARTS DIAGRAM

**LIGHTWEIGHT POSITIONER (CB 371-25)**  
POSITIONER CONTROL LINE ASSEMBLY



#	PART NUMBER	QTY.	UNITS
1	GPSL 1000-NYL-G-BK 1.00 DIA BRAIDED EXPANDABLE HEAVY DUTY NYLON	1	24'
2	GPHS 2000-OLE-A-BK\ 2.00 DIA HEAVY DUTY MOISTURE SEAL HEAT-SHRINK	2	5"
3	GPHO 0250-RUB-BK 1/4" ID X 1/2" OD PUSH-ON AIR HOSE, BUNA-N/PVC, 250 PSI, BLACK	1	25'
4	GPHO 0250-RUB-RD 1/4" ID X 1/2" OD PUSH-ON AIR HOSE, BUNA-N/PVC, 250 PSI, RED	1	25'
5	SRT 122 PUSH-ON BRASS HOSE FITTING 1/4" JIC	4	

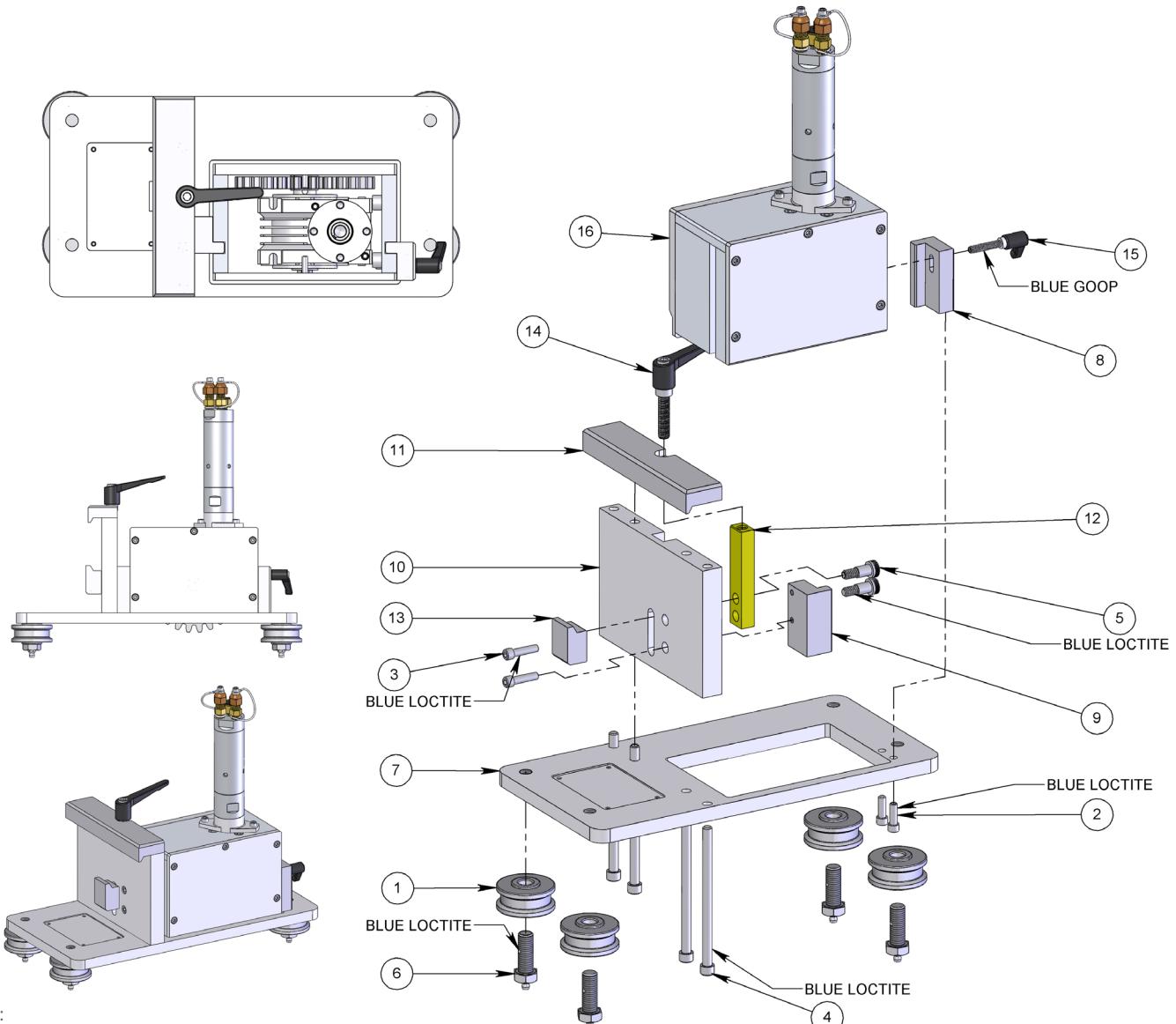
**LIGHTWEIGHT POSITIONER ASSEMBLY  
(LWP-500-V2)**



#	PART NUMBER	QTY
1	BR 002-XX-001 2.5 BOX RAIL EXTRUSION	1
2	BU 002-XX-001 2.5 BOX RAIL EXTRUSION, SLOTTED	2
3	LWP-500.1 LIGHTWEIGHT POSITIONER PARTS	1

## PARTS DIAGRAM

**LIGHTWEIGHT POSITIONER (LWP 501)**  
HORIZONTAL POSITIONER

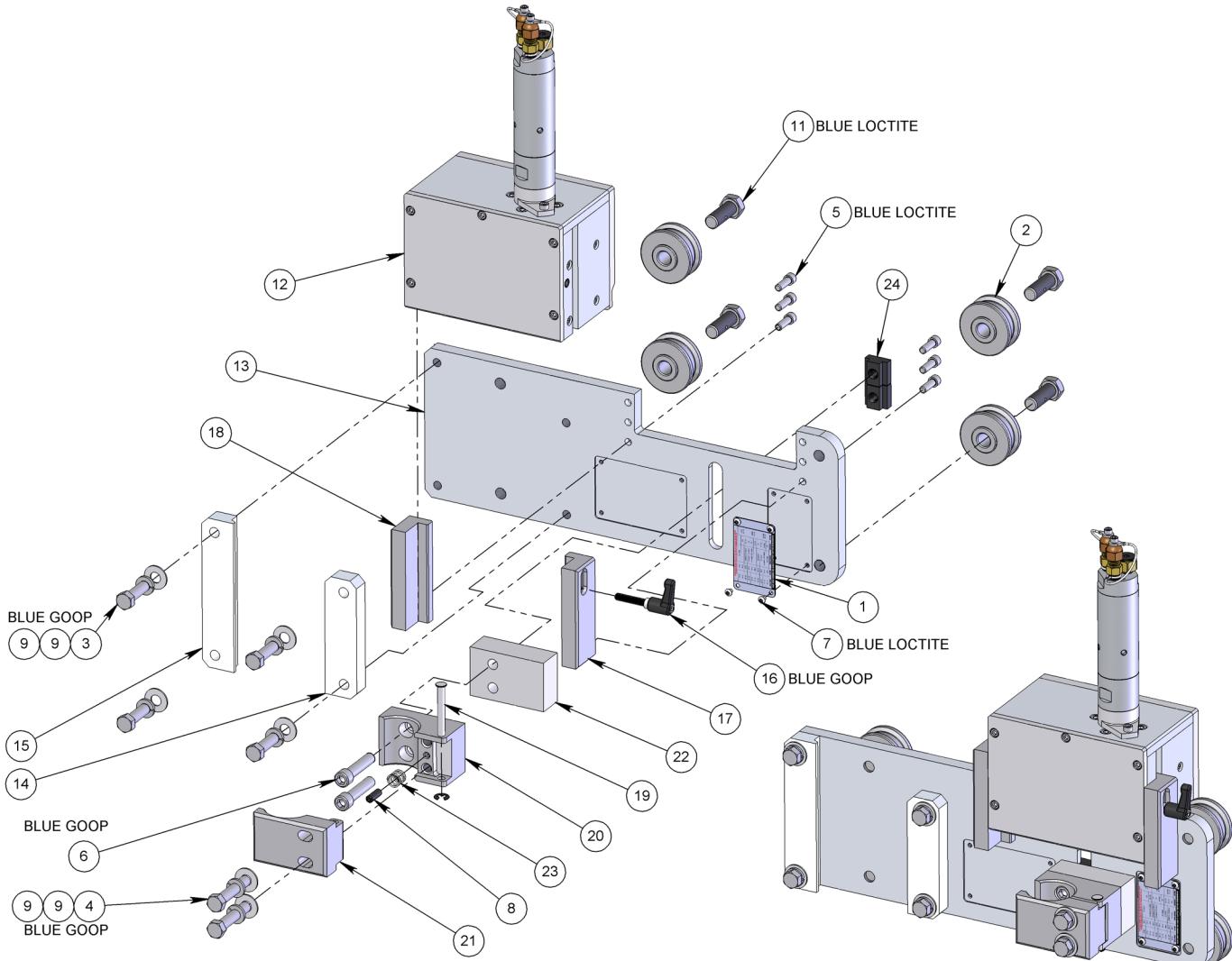


NOTE:

1. BLUE LOCTITE: PN: 243 OR EQUIVALENT
2. BLUE GOOP IS A SWAGELOK BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.

#	PART NUMBER	QTY.
1	BR 055-SS ROLLER ASSY	4
2	GS 325-03 SHCS .25-20 X .75 SS (TB 050)	2
3	GS 325-04 SHCS .25-20 X 1.00 SS (BC 053)	2
4	GS 331-20 SHCS .31-18 X 5.00 SS	4
5	GSSH 0375-0500-SS SHOULDER SCREW	2
6	LP 652-1.38 AXLE-ZERK	4
7	SRT 506 HORIZONTAL CARRIAGE PLATE	1
8	SRT 546 HANDLE MOUNT BLOCK	1

9	SRT 547 MOUNT BLOCK	1
10	SRT 548 HORIZONTAL MOUNTING PLATE	1
11	SRT 549 HORIZONTAL RAIL CLAMP	1
12	SRT 551 CLAMP FINGER	1
13	SRT 552 ADJUSTABLE RAIL CLAMP	1
14	SRT 556 ADJUSTABLE HANDLE .38-16 X 1.56 SS	1
15	SRT 557 ADJUSTABLE HANDLE .25-20 X 1.19 SS	1
16	LWP 503 MOTOVARIO DRIVE ASSY	1

**LIGHTWEIGHT POSITIONER (LWP 502)**  
 VERTICAL POSITIONER


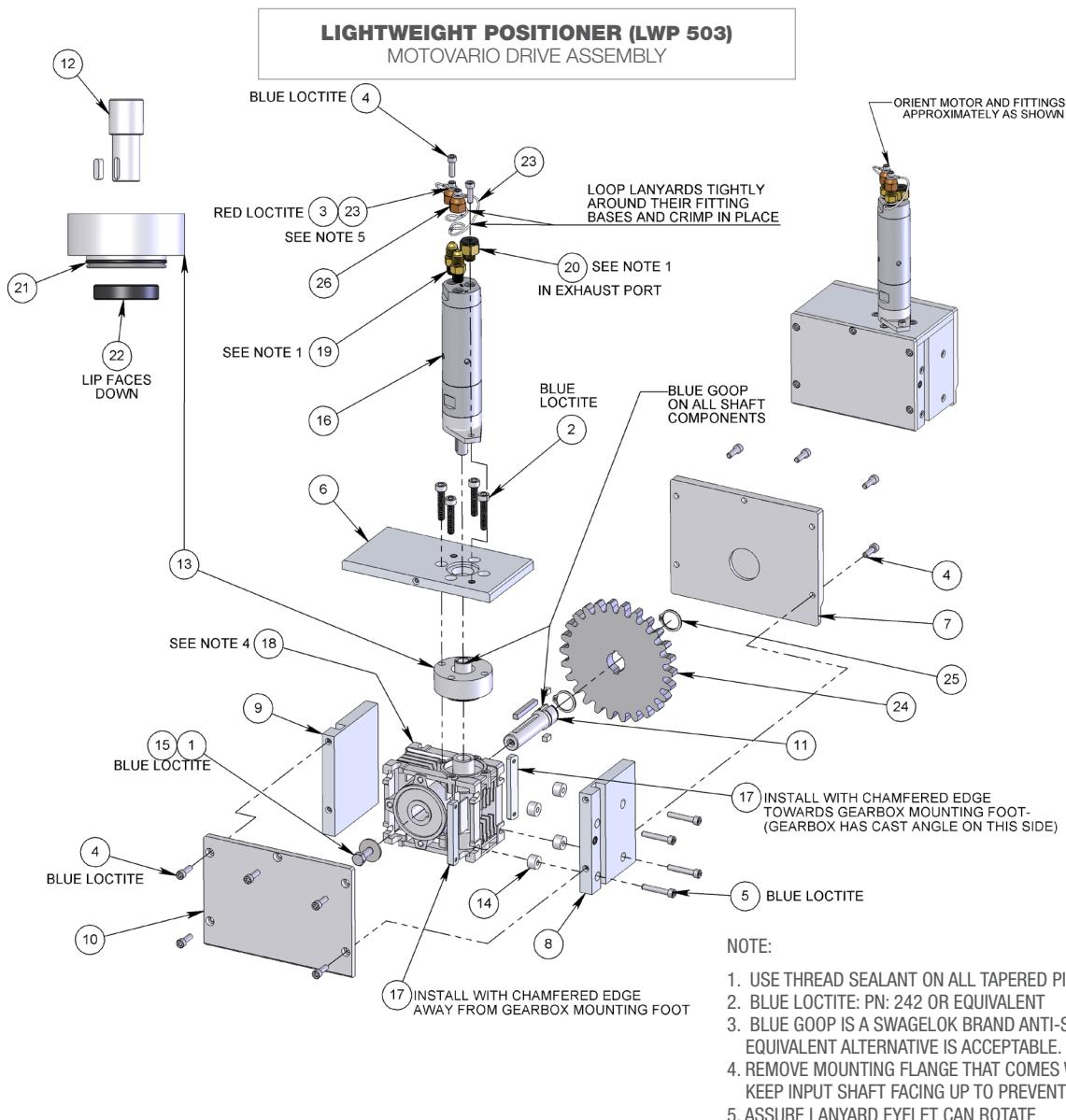
## NOTE:

1. BLUE LOCTITE: PN: 243 OR EQUIVALENT
2. BLUE GOOP IS A SWAGELOK BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.

#	PART NUMBER	QTY.
1	ABX 139-001 COLLET REFERENCE PLATE	1
2	BR 055-SS ROLLER ASSY	4
3	GB 337-05 BOLT, HEX .37-16 X 1.25 SS	4
4	GB 337-08 BOLT, HEX .37-16 X 2.00 SS	2
5	GS 325-03 SHCS .25-20 X .75 SS (TB 050)	6
6	GS 337-07 SHCS .37-16 X 1.75 SS	2
7	GSB 313-0075 BHCS 6-32 X .188 LG SS	4
8	GSS 525-20-75CU SET SCREW	1
9	GW 337-F FLAT WASHER SS	6
10	GW 337-L LOCK WASHER SS	6
11	LP 652-1.38 AXLE-ZERK	4
12	LWP 503 MOTOVARIO DRIVE ASSY	1

13	LWP 512 VERTICAL CARRIAGE PLATE	1
14	LWP 513 UPPER RAIL CLAMP	1
15	LWP 514 LOWER RAIL CLAMP	1
16	SRT 557 ADJUSTABLE HANDLE .25-20 X 1.19 SS	1
17	SRT 571 VERTICAL HANDLE MOUNT BLOCK	1
18	SRT 573 VERTICAL MOUNT BLOCK	1
19	SRT 579 CLEVIS PIN, SS WITH E-RING	1
20	SRT 582 VERTICAL BOTTOM PIPE CLAMP	1
21	SRT 583 VERTICAL TOP PIPE CLAMP	1
22	SRT 585 CLAMP SPACER	1
23	SRT 586 SMALL CLAMP SPRING	1
24	SRT 592 T-NUT FULL THD .38-16	2

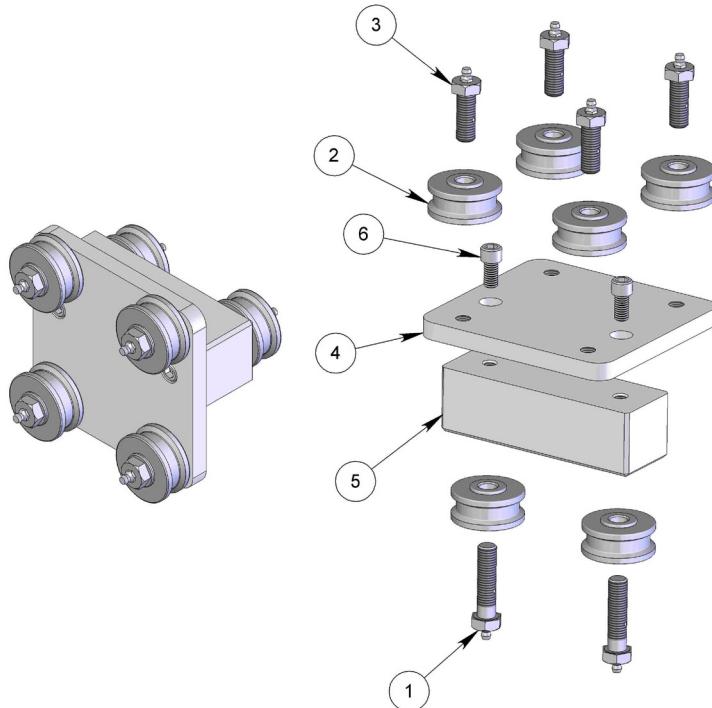
## PARTS DIAGRAM



#	PART NUMBER	QTY.
1	GB 325-03 BOLT, HEX .25-20 X .75 SS	1
2	GS 3M6-30-1.0 SHCS M6X1.0 X 30 SS	4
3	GS 316-01 SHCS .16-32 X .25 SS	2
4	GS 319-025 SHCS .19-24 X .62 SS	12
5	GS 319-045 SHCS .19-24 X 1.125 SS	4
6	LWP 504 TOP MOTOR MOUNT PLATE	1
7	LWP 505 GEAR COVER	1
8	LWP 506 HANDLE SIDE MOUNTING PLATE	1
9	LWP 507 IDLE SIDE MOUNTING PLATE	1
10	LWP 508 REAR COVER	1
11	LWP 509 MOTOVARIO SHAFT	1
12	LWP 510-001 STEP SHAFT	1
13	LWP 511 TOP GEARBOX SPACER	1
14	LWP 515 SPACER	4

15	LWP 516 WASHER, OVERSIZED	1
16	LWP 520-001 AIR MOTOR	1
17	LWP 542 NUT PLATE	2
18	LWP 550 MOTOVARIO NMRV030301600_625IN	1
19	LWP 556 FTG, STRAIGHT P2MJ4M	2
20	LWP 557 EXHAUST PROTECTOR, P2M	1
21	RJ 008 O-RING	1
22	SL 010 SEAL	1
23	SRT 209.1 LANYARD ASSY VT (CUT TO LENGTH)	2
24	SRT 520 SPUR GEAR SS (6 DP, 14.5 PA, 26 T)	1
25	SRT 537 RETAINING RING, SS EXTERNAL	2
26	SRT 558 J4 CAP	2

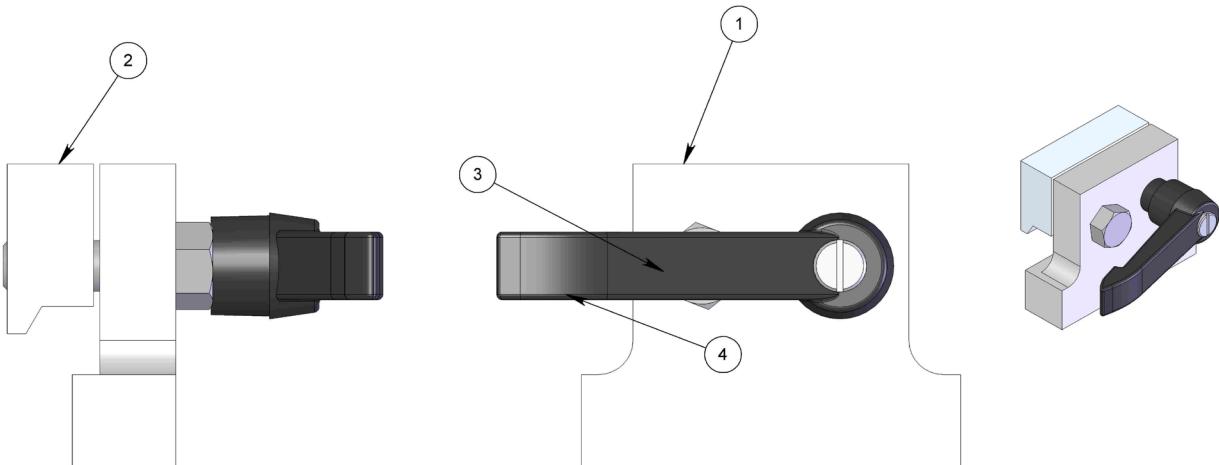
**LIGHTWEIGHT POSITIONER (SRT 560)**  
BLANK HORIZONTAL ASSEMBLY



#	PART NUMBER	QTY.
1	BR 052-2.0 AXLE-ZERK	2
2	BR 055-SS ROLLER ASSY	6
3	LP 652-1.38 AXLE-ZERK	4

4	SRT 561 BLANK HORIZONTAL CARRIAGE PLATE	1
5	SRT 562 BLANK ROLLER SPACER	1
6	GS 337-03 SHCS .37-16 X .75 SS	2

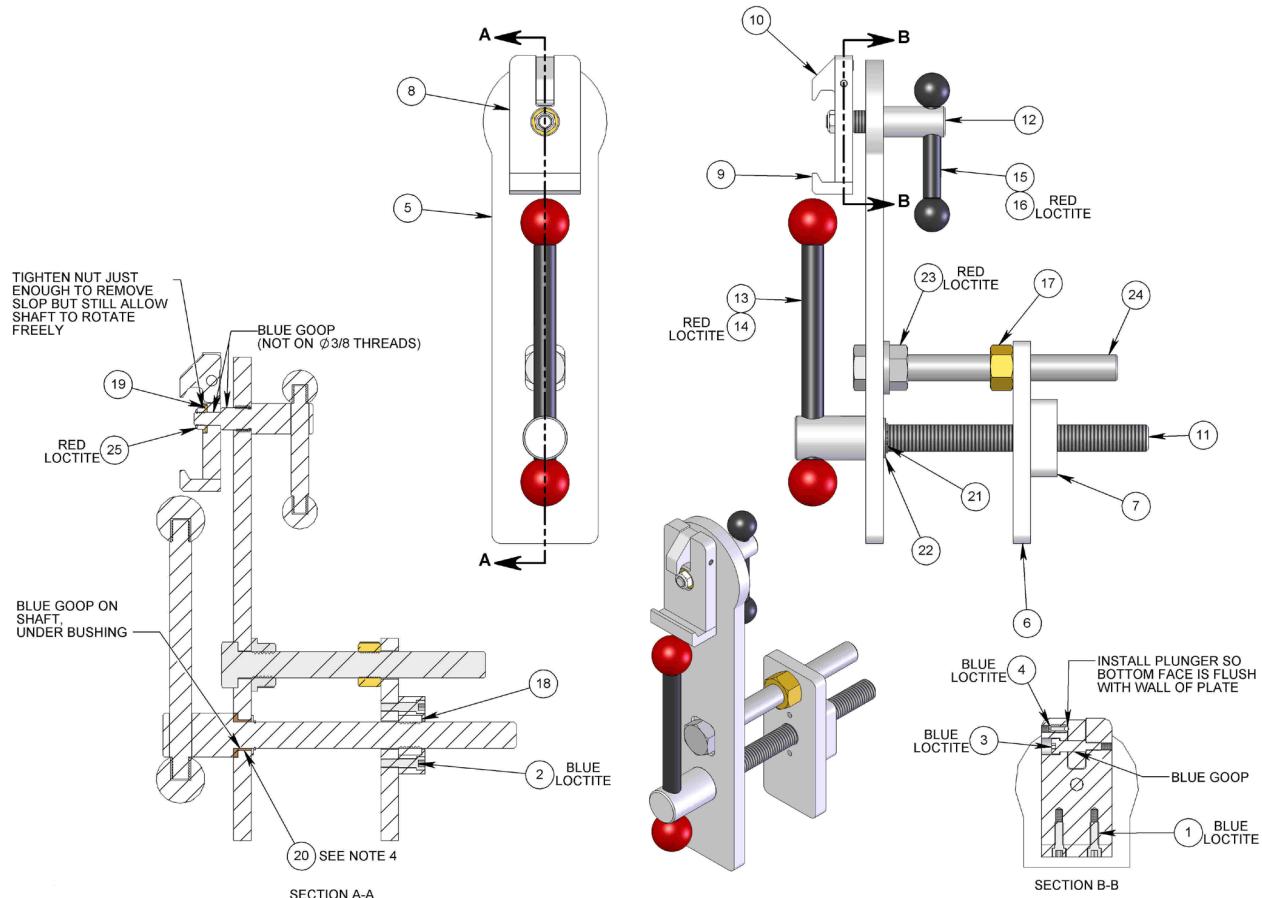
**LIGHTWEIGHT POSITIONER (BU 152)**  
RAIL STOP ASSEMBLY



#	PART NUMBER	QTY.
1	BU 149 PLATE, RAIL STOP	1
2	BR 060 RAIL CLAMP	1
3	GB 537-05 BOLT, HEX .37-16 X 1.25	1
4	BU 151 HANDLE	1

## PARTS DIAGRAM

### LIGHTWEIGHT POSITIONER (LWP 518) SLOTTED QUICK CLAMP ASSEMBLY



#### NOTE:

1. BLUE GOOP IS A SWAGELOK BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.
2. BLUE LOCTITE: PN: 242 OR EQUIVALENT
3. RED LOCTITE: PN: 262 OR EQUIVALENT
4. IF SHAFT DOES NOT SLIDE THROUGH BUSHING EASILY, REAM BUSHING ID TO SHAFT OD +.005/.001.

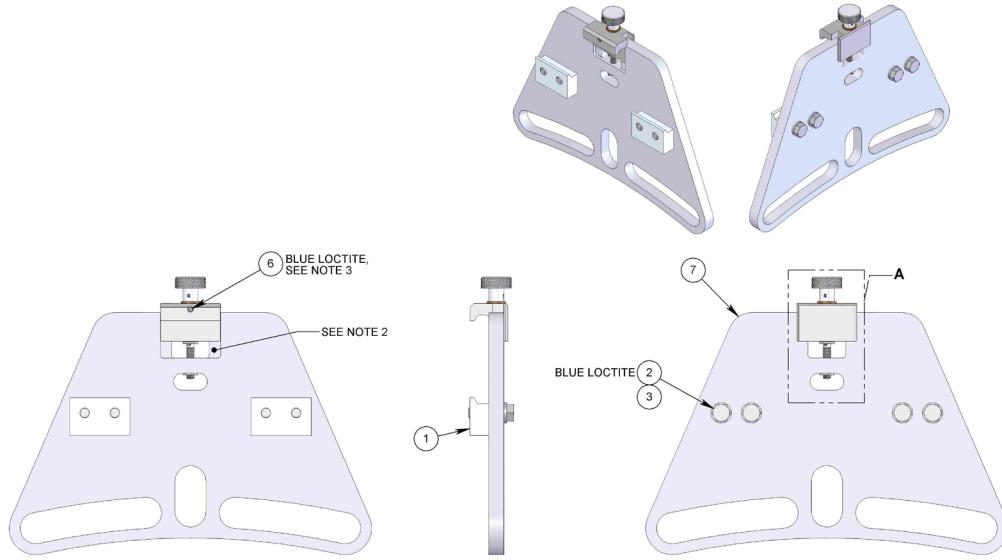


#	PART NUMBER	QTY.
1	GS 325-03 SCREW, SHC, STAINLESS, 114-20 UNC X 0.750L	2
2	GS 325-04 SCREW, SHC, STAINLESS, 114-20 UNC X 1.000L	2
3	GSSH 0312-0750-SS SHOULDER SCREW	1
4	LWP 517 BALL NOSE SPRING PLUNGER	1
5	LWP 521 QUICK CLAMP BASE PLATE	1
6	LWP 522 FLANGE CLAMP PLATE	1
7	LWP 523 NUT CAP	1

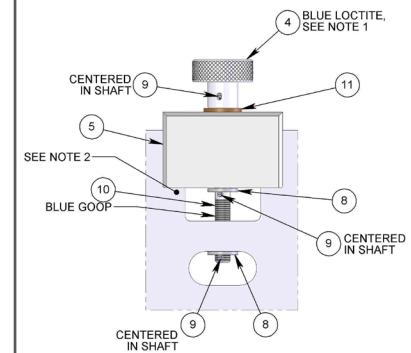
8	LWP 524 RAIL CLAMP PLATE	1
9	LWP 525 STATIC RAIL CLAMP	1
10	LWP 526 QUICK RAIL CLAMP FINGER	1
11	LWP 527 FLANGE CLAMP SCREW	1
12	LWP 528 RAIL CLAMP SHAFT	1
13	LWP 529 FLANGE CLAMP LEVER	1
14	LWP 530 FLANGE CLAMP KNOB	2
15	LWP 531 RAIL CLAMP LEVER	1
16	LWP 532 RAIL CLAMP KNOB	2
17	LWP 533 NUT, BRASS, 3/4-10	1

18	LWP 534 NUT, SQUARE, 3/4-10	1
19	LWP 535 THRUST WASHER	1
20	LWP 545 FLANGED BUSHING	1
21	LWP 546 RETAINING RING	1
22	LWP 547 SHIM	1
23	LWP 548 FLANGED NUT	1
24	LWP 555 BOLT, 3/4-10 X 7.00L, FULLY THREADED	1
25	SRT 333 NYLOCK HEX JAM NUT SS THIN	1

**LIGHTWEIGHT POSITIONER (LWP 519)**  
PLATE CLAMP ASSEMBLY



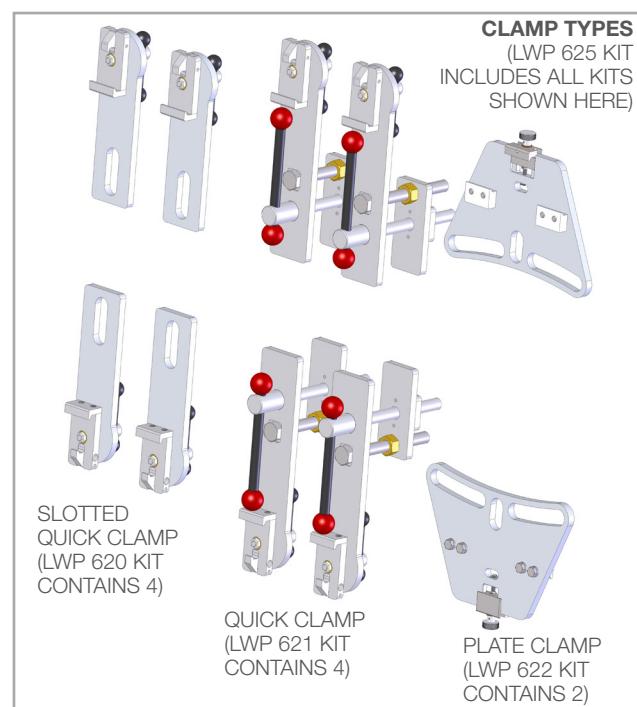
ALSO SOLD AS LWP 623  
PLATE CLAMP SCREW  
ASSEMBLY KIT



## NOTE:

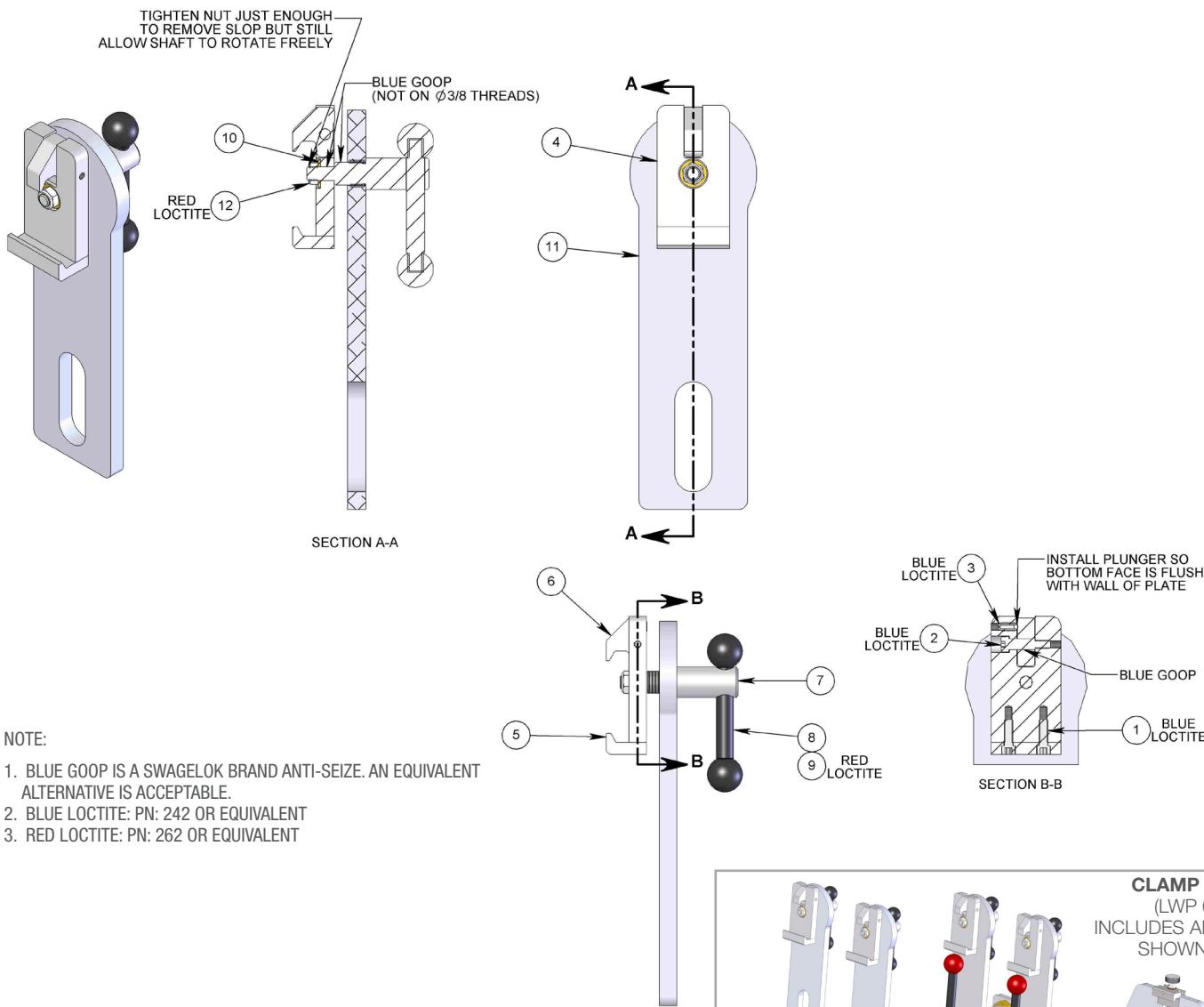
1. BEFORE INSTALLING KNOB, INSTALL MIDDLE SPRING PIN & ADJACENT FLAT WASHER. APPLY A THIN LAYER OF GENERAL PURPOSE GREASE TO UNTHEADED SECTION OF SHAFT THEN INSTALL SHAFT UP THROUGH SLIDE CLAMP. THREAD KNOB ON SHAFT AS FAR AS POSSIBLE WHILE STILL ALLOWING SHAFT TO FREELY ROTATE, THEN BACK OFF TO FIRST SPOT FOR SPRING PIN INSTALLATION.
2. APPLY A THIN LAYER OF GENERAL PURPOSE GREASE TO ALL SURFACES OF PLATE THAT CLAMP WILL SLIDE ON
3. THREAD PLUNGER IN SO BALL ENGAGES DETENTS IN SHAFT.  
DO NOT ALLOW BODY OF PLUNGER TO TOUCH SHAFT.
4. BLUE GOOP IS A SWAGELOK BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.
5. BLUE LOCTITE: PN: 242 OR EQUIVALENT

#	PART NUMBER	QTY.
1	BR 060 RAIL CLAMP	2
2	GB 337-05 BOLT, HEX HEAD, STAINLESS, 318-16 UNC X 1.250L	4
3	GW 337-L WASHER, LOCK, 3/8", STAINLESS	4
4	LWP 536 MODIFIED KNOB	1
5	LWP 537 SLIDE CLAMP	1
6	LWP 539 BALL NOSE SPRING PLUNGER	1
7	LWP 540 PLATE CLAMP BASE PLATE	1
8	LWP 541 FLAT WASHER	2
9	LWP 543 SPRING PIN	3
10	LWP 544 CLAMP SHAFT	1
11	LWP 549 BRONZE THRUST BUSHING	1

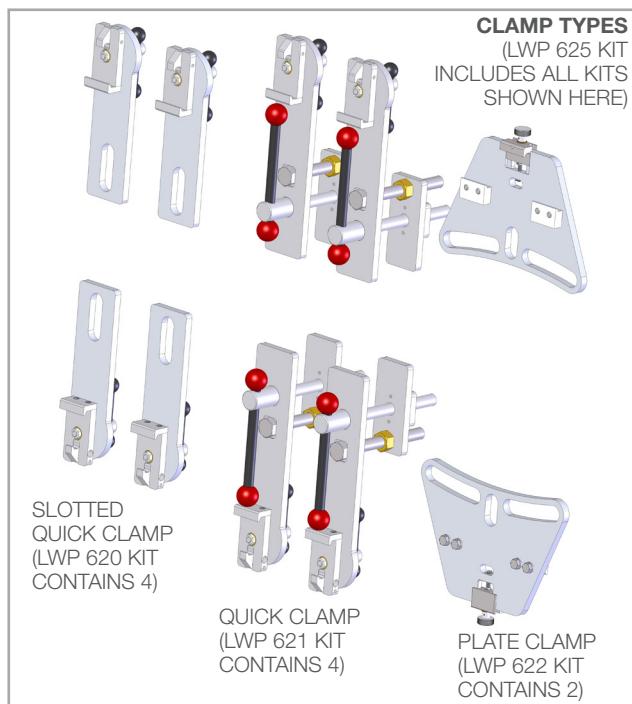


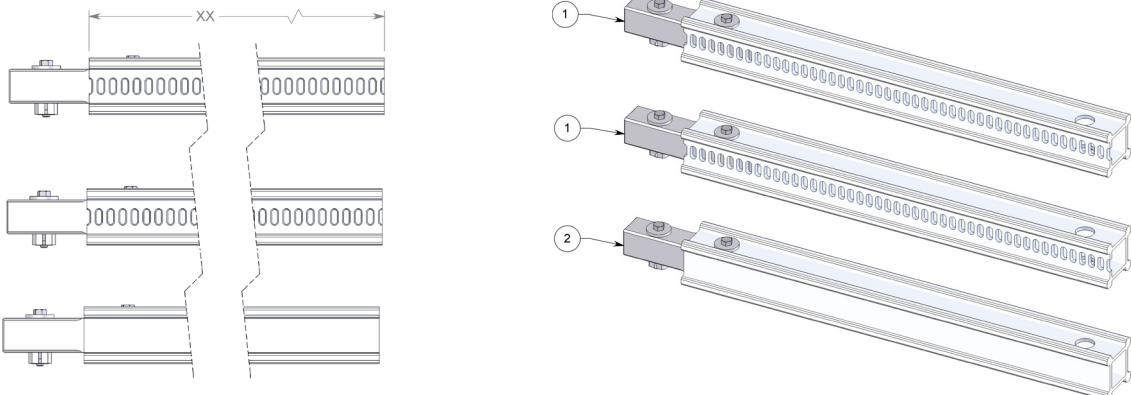
## PARTS DIAGRAM

### LIGHTWEIGHT POSITIONER (LWP 552) SLOTTED QUICK CLAMP ASSEMBLY

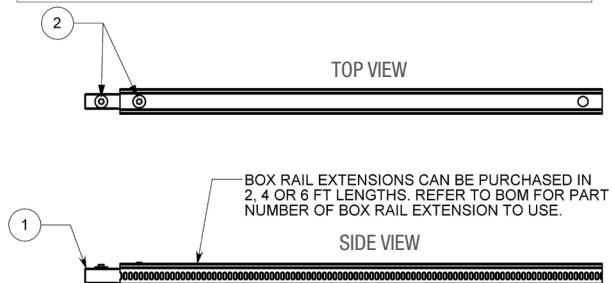


#	PART NUMBER	QTY.
1	GS 325-03 SCREW, SHC, STAINLESS, 1/4-20 UNC X 0.750L	2
2	GSSH 0312-0750-SS SHOULDER SCREW	1
3	LWP 517 BALL NOSE SPRING PLUNGER	1
4	LWP 524 RAIL CLAMP PLATE	1
5	LWP 525 STATIC RAIL CLAMP	1
6	LWP 526 QUICK RAIL CLAMP FINGER	1
7	LWP 528 RAIL CLAMP SHAFT	1
8	LWP 531 RAIL CLAMP LEVER	1
9	LWP 532 RAIL CLAMP KNOB	2
10	LWP 535 THRUST WASHER	1
11	LWP 551 SLOTTED QUICK CLAMP BASE PLATE	1
12	SRT 333 NYLOCK HEX JAM NUT SS THIN	1

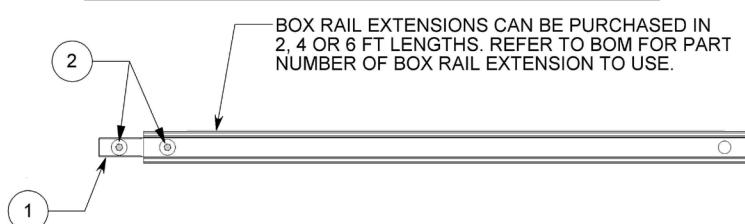


**LIGHTWEIGHT POSITIONER (LWP 582-XX-V2)**  
 COMPLETE WINDOW, 2.5IN. BOX RAIL EXTENSION KIT


#	PART NUMBER	2FT/QTY.	4FT/QTY.	6FT/QTY.
1	LWP 580-XX-001 2.5IN BOX RAIL EXTENSION KIT, SLOTTED (CAN BE PURCHASED SEPARATELY SEE BELOW)	2	2	2
2	LWP 581-XX-001 2.5IN BOX RAIL EXTENSION KIT (CAN BE PURCHASED SEPARATELY SEE BELOW)	1	1	1

**LIGHTWEIGHT POSITIONER (LWP 580-XX-001)**  
 2.5IN. BOX RAIL EXTENSION KIT, SLOTTED


#	PART NUMBER	DESCRIPTION	LWP 580-2 QTY.	LWP 580-4 QTY.	LWP 580-6 QTY.
1	BR 006-2.5-001	2.5" SPLICE TUBE	1	1	1
2	BR 008-2.5-001	2.5" WEDGE BOLT ASSEMBLY	2	2	2
3	BU 002-02-001	2.5" BOX RAIL EXTENSION	1	-	-
4	BU 002-04-001	2.5" BOX RAIL EXTENSION	-	1	-
5	BU 002-06-001	2.5" BOX RAIL EXTENSION	-	-	1

**LIGHTWEIGHT POSITIONER (LWP 581-XX-001)**  
 2.5IN. BOX RAIL EXTENSION KIT, NOT SLOTTED


#	PART NUMBER	DESCRIPTION	LWP 581-2 QTY.	LWP 581-4 QTY.	LWP 581-6 QTY.
1	BR 006-2.5-001	2.5" SPLICE TUBE	1	1	1
2	BR 008-2.5-001	2.5" WEDGE BOLT ASSEMBLY	2	2	2
3	BR 002-02-001	2.5" BOX RAIL EXTENSION	1	-	-
4	BR 002-04-001	2.5" BOX RAIL EXTENSION	-	1	-
5	BR 002-06-001	2.5" BOX RAIL EXTENSION	-	-	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.stoneagetoools.com/terms>

<http://www.stoneagetoools.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](http://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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