

LIGHTWEIGHT POSITIONER (LWP-500-V2) USER MANUAL

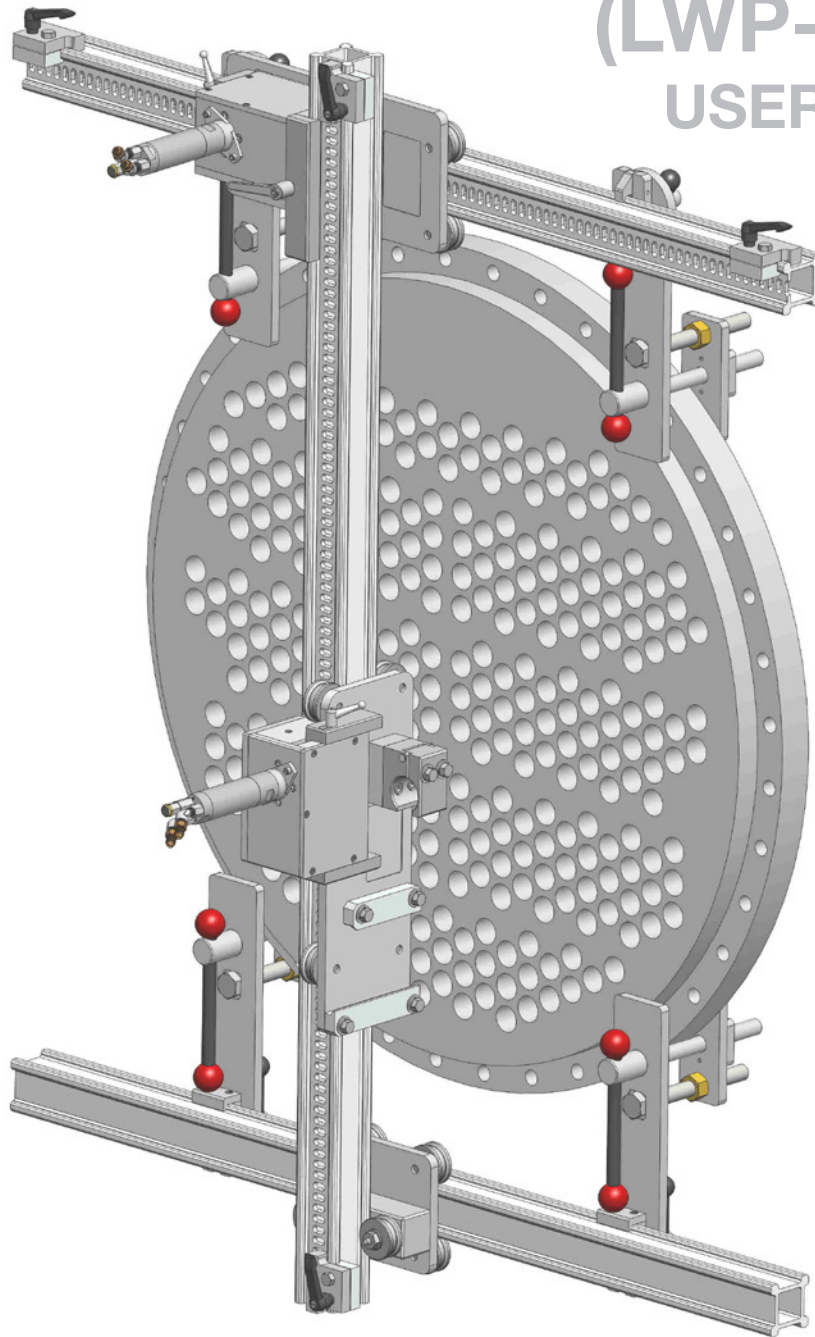


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Andrew Birt Consulting Ltd.
UK

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

SPECIFICATIONS

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 and the AUTOBOX™ (ABX-500-V2).

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

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

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

Signed Andrew B. Birt. Date 08/23/2015

Andrew Birt
Independent Dealer Manager
StoneAge, Inc., Worcester, UK

The technical file for the LIGHTWEIGHT POSITIONER (LWP-500-V2) User Manual 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).

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

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

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

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

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

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

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.



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.

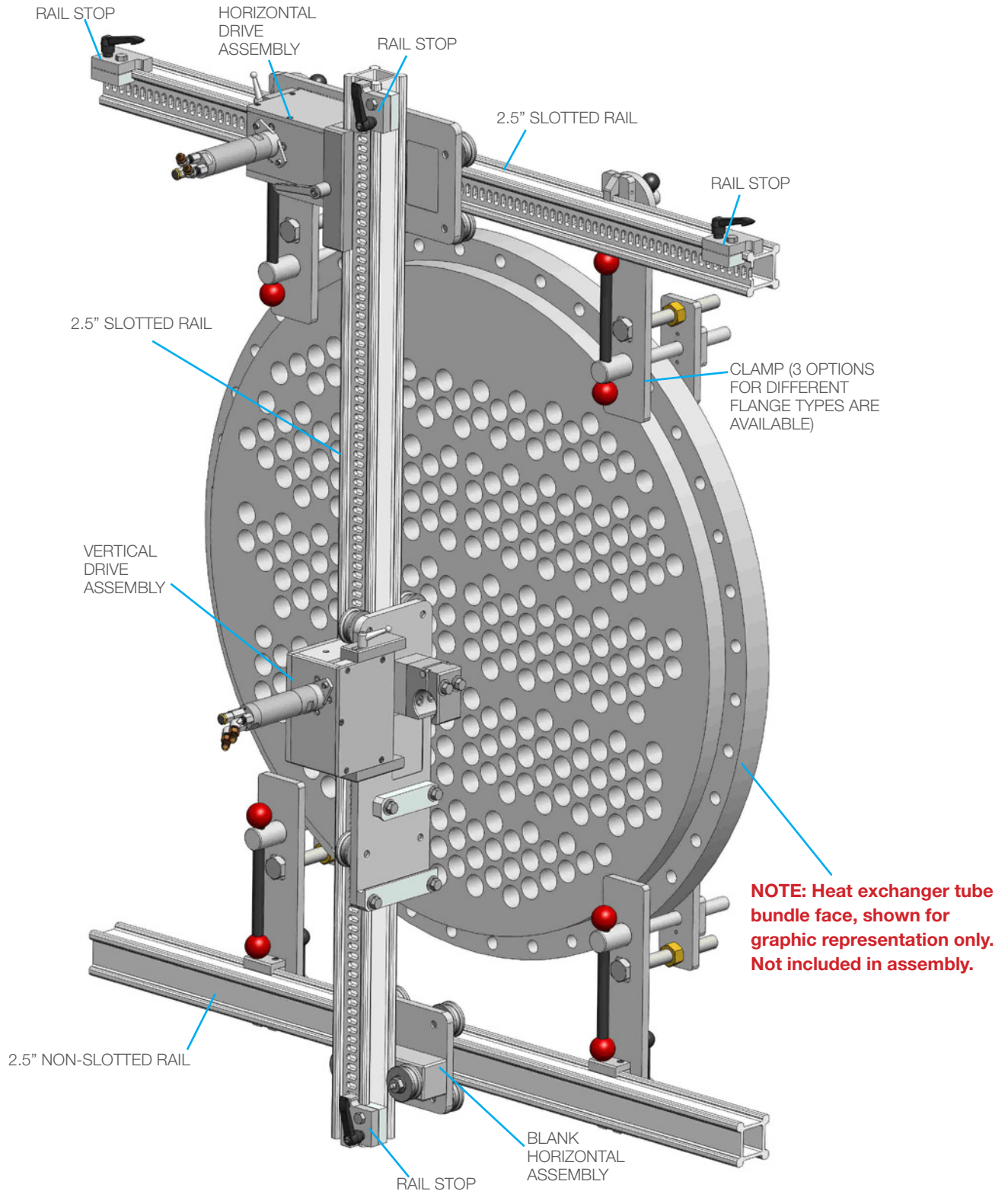
- Do not exceed the maximum operating pressure specified for any component in a system.
- The immediate work area MUST be marked off to keep out untrained persons.
- Inspect the equipment for visible signs of deterioration, damage, and improper assembly. Do not operate if damaged, until repaired.
- Make 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

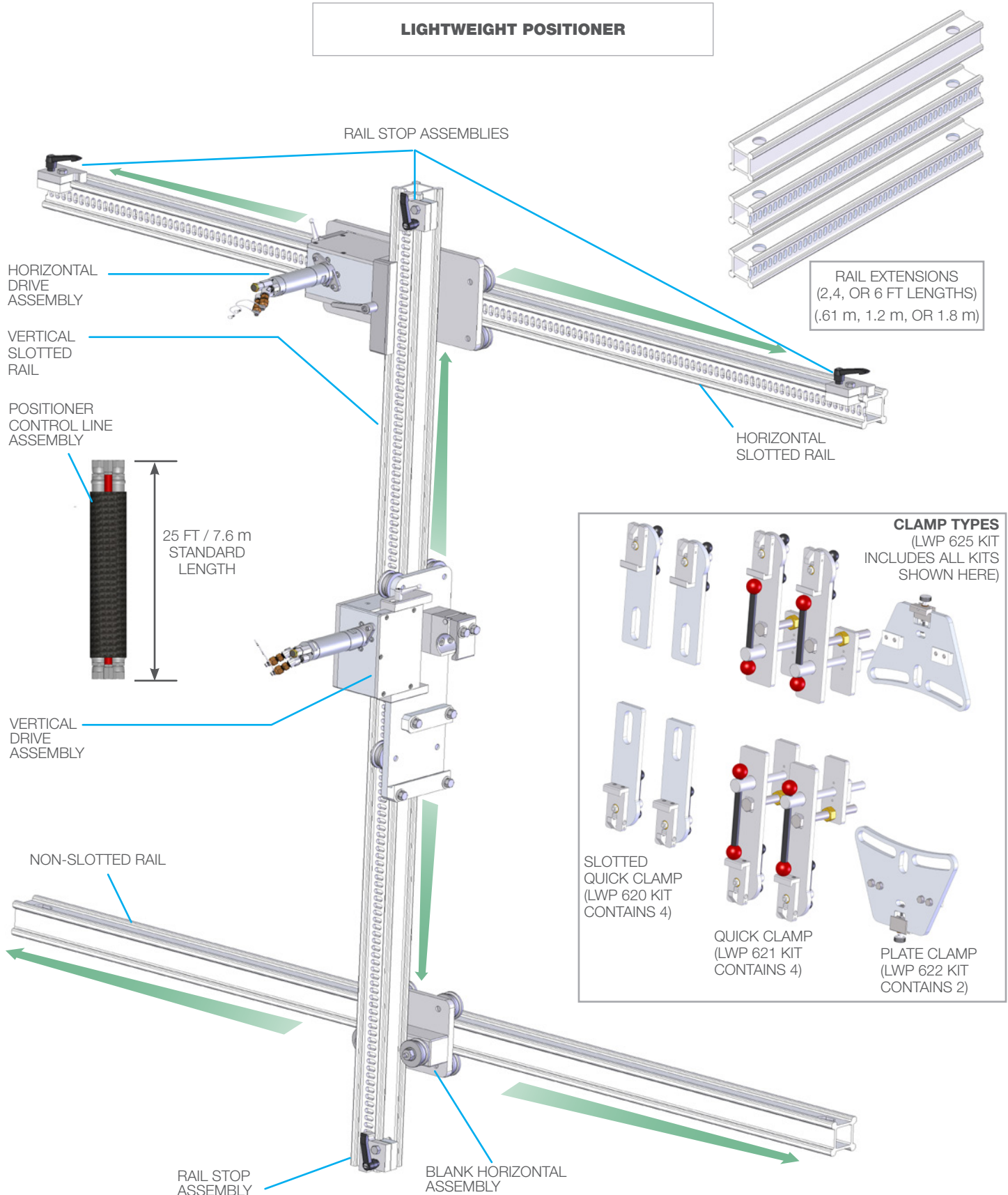
Refer to WJTA-IMCA's, Recommended Practices For The Use Of High-pressure Waterjetting Equipment and/or The Water Jetting Association's, WJA Code of Practice for additional safety information.

- 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)



LIGHTWEIGHT POSITIONER - OVERVIEW



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)

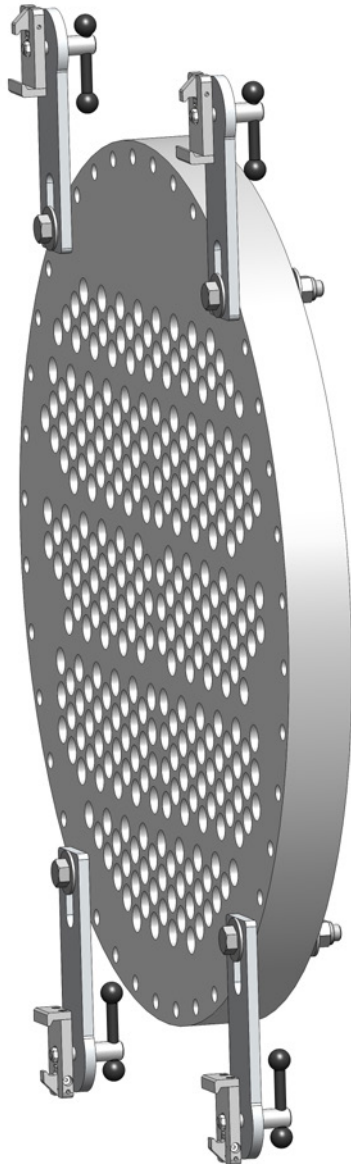
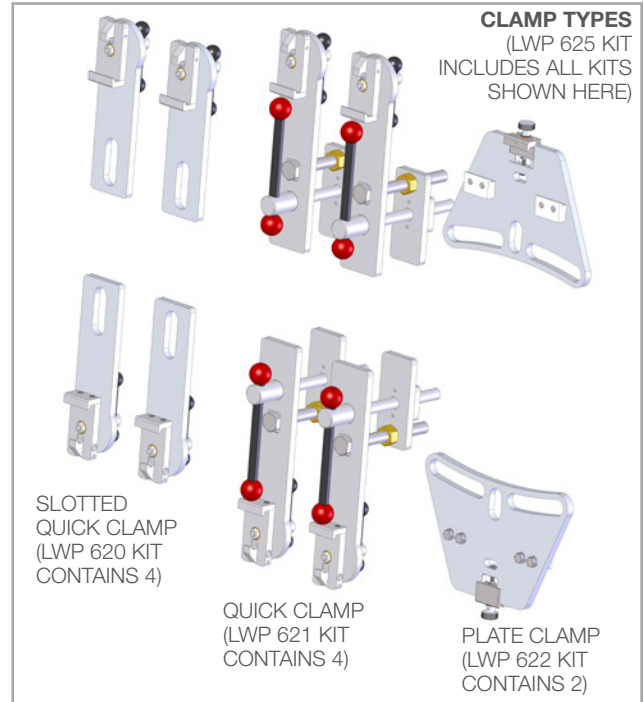


FIGURE 1

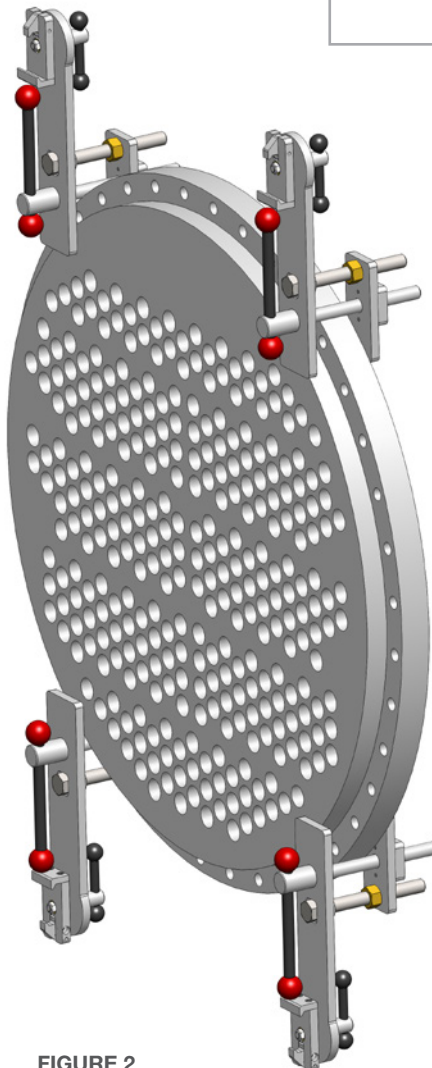


FIGURE 2

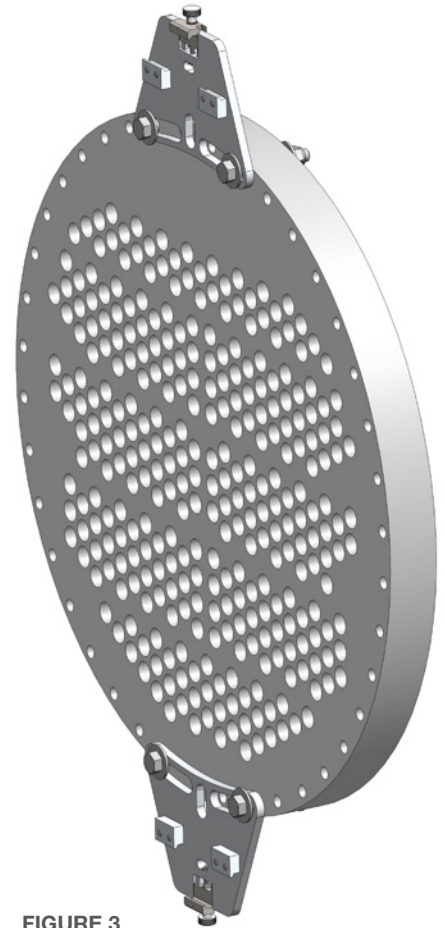


FIGURE 3

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)**

NOTE: 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 retighten the adjustable handle. **(Figure 4)**

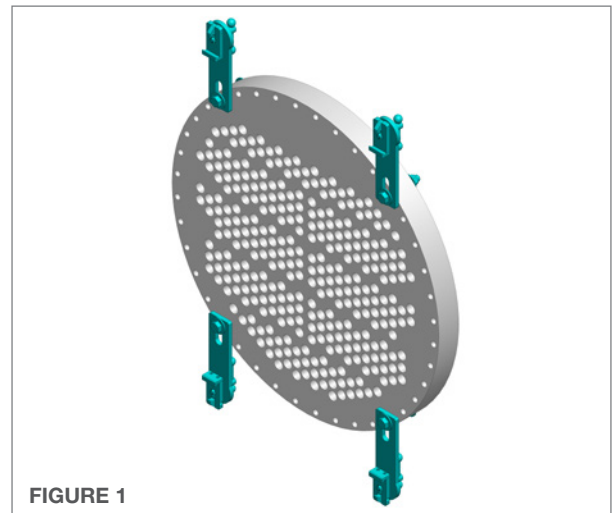


FIGURE 1

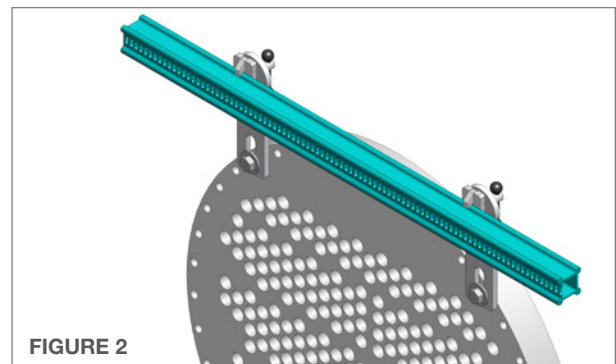


FIGURE 2

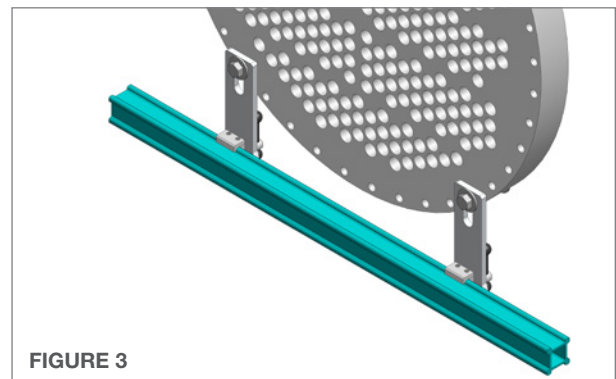


FIGURE 3

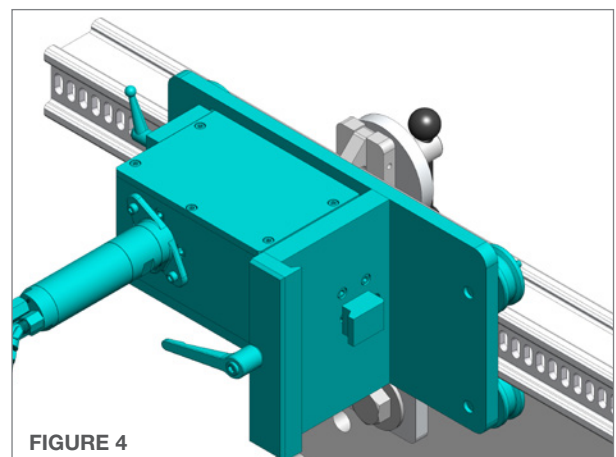


FIGURE 4

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

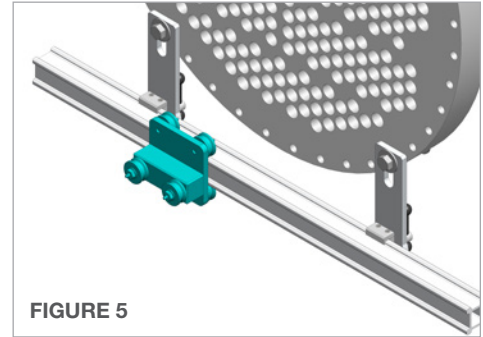


FIGURE 5

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)**

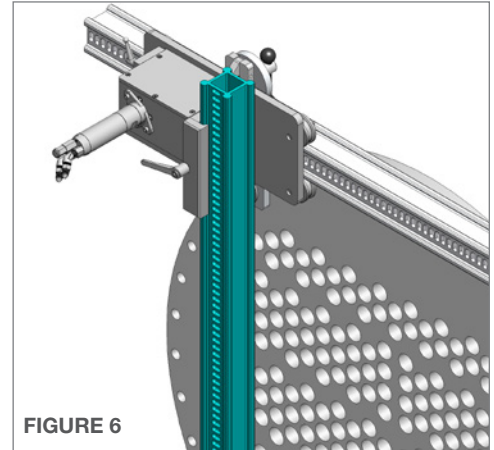


FIGURE 6

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 retighten the adjustable handle. **(Figure 7)**

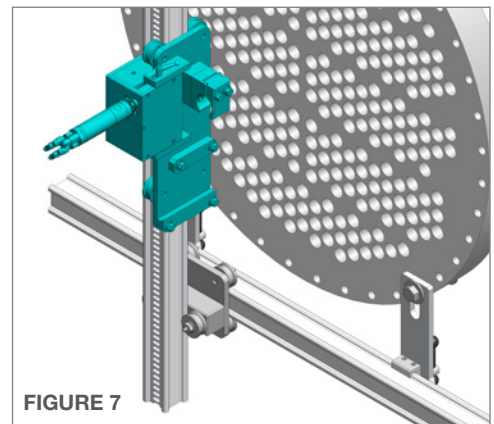


FIGURE 7

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)**

NOTE: 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.

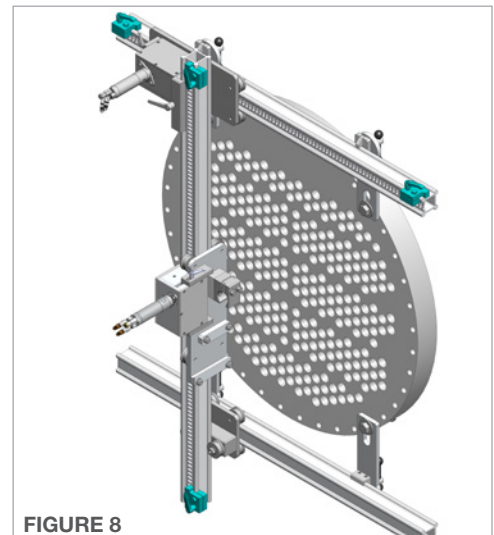


FIGURE 8

MAINTENANCE

Maintenance Item	Frequency	Maintenance Required
Forward, reverse, and clamp fittings	Before 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	After 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.

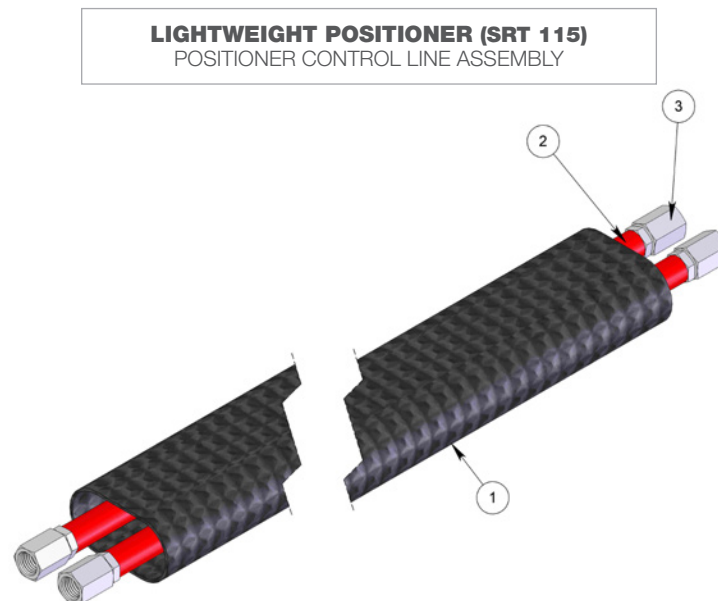
Contact StoneAge for Safety Data Sheets for material usage, a complete list of spare part numbers, and service instructions for the Lightweight Positioner.

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.

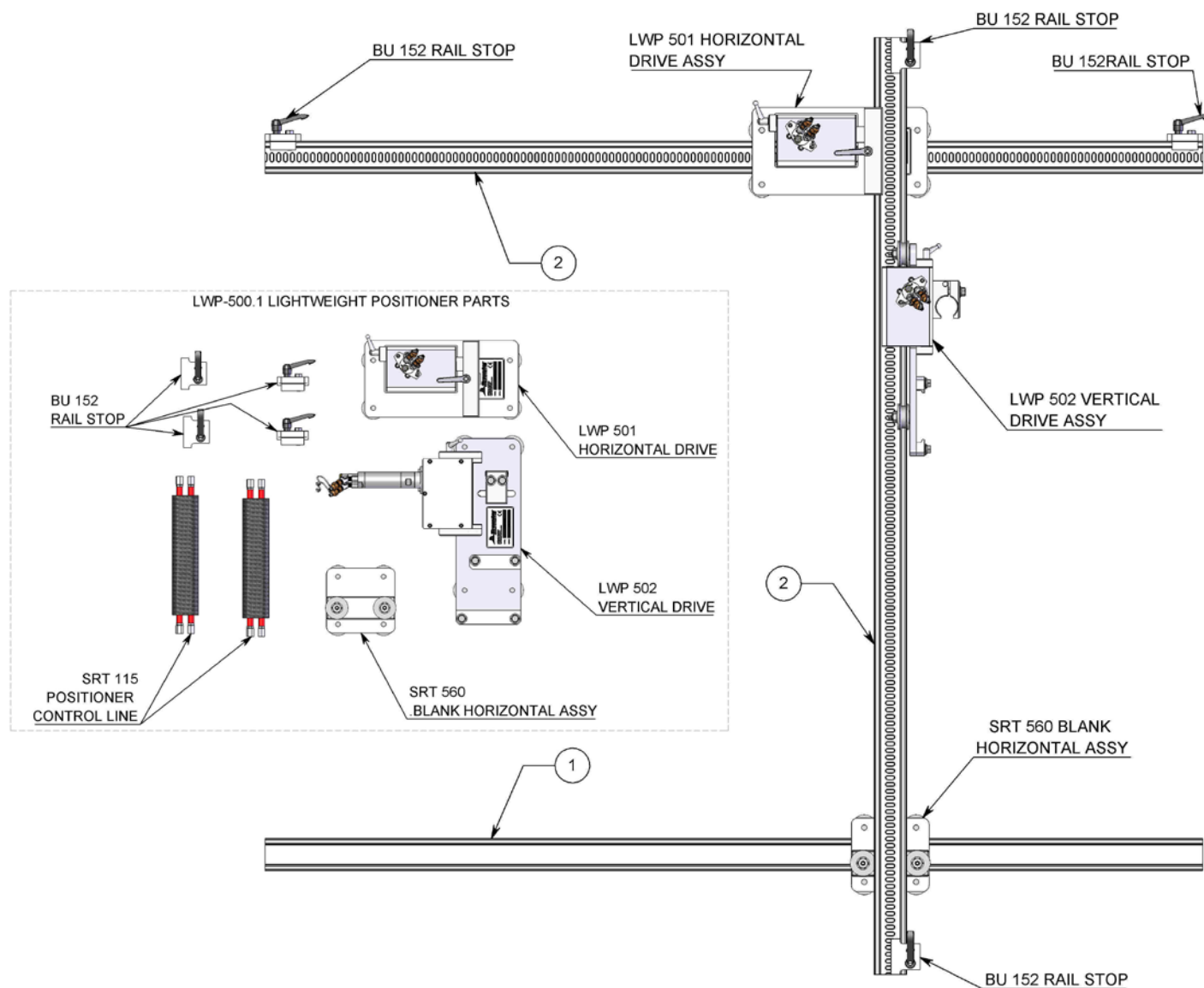
The Lightweight POSITIONER (LWP-500-V2), can be broken down into smaller components that should be stored in a clean and dry area.

PARTS DIAGRAM



#	PART NUMBER	QTY
1	SRT 121 POSITIONER AIR LINE COVER 26FT OAL	1
2	SRT 118 CONTROL LINE, RED	2
3	SRT 119 FEMALE J4 SWIVEL X .250 I.D. HOSE BARB	4

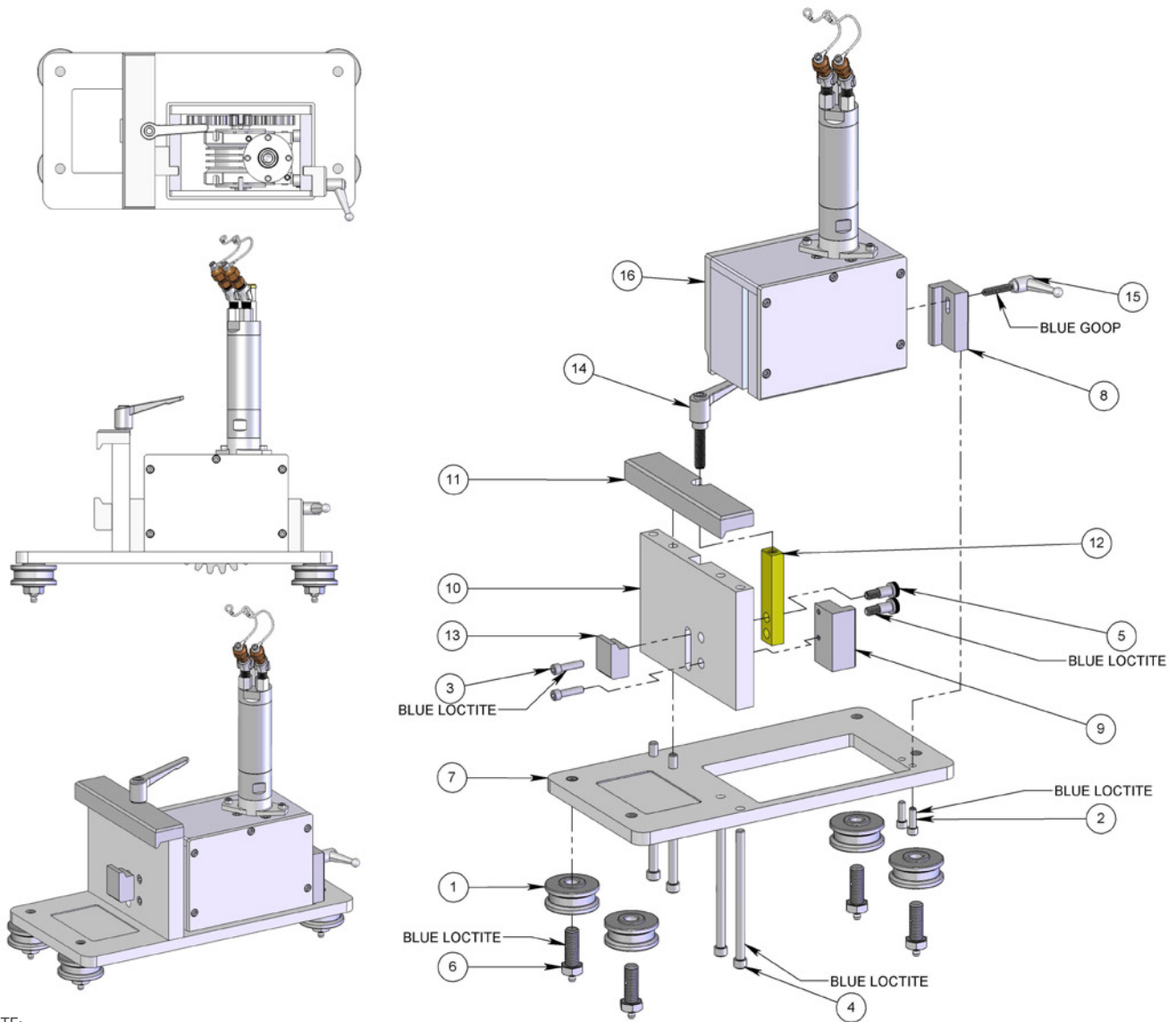
**LIGHTWEIGHT POSITIONER ASSEMBLY
(LWP-500-V2)**



#	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-V2.1 LIGHTWEIGHT POSITIONER PARTS	1

PARTS DIAGRAM

LIGHTWEIGHT POSITIONER (LWP 501)



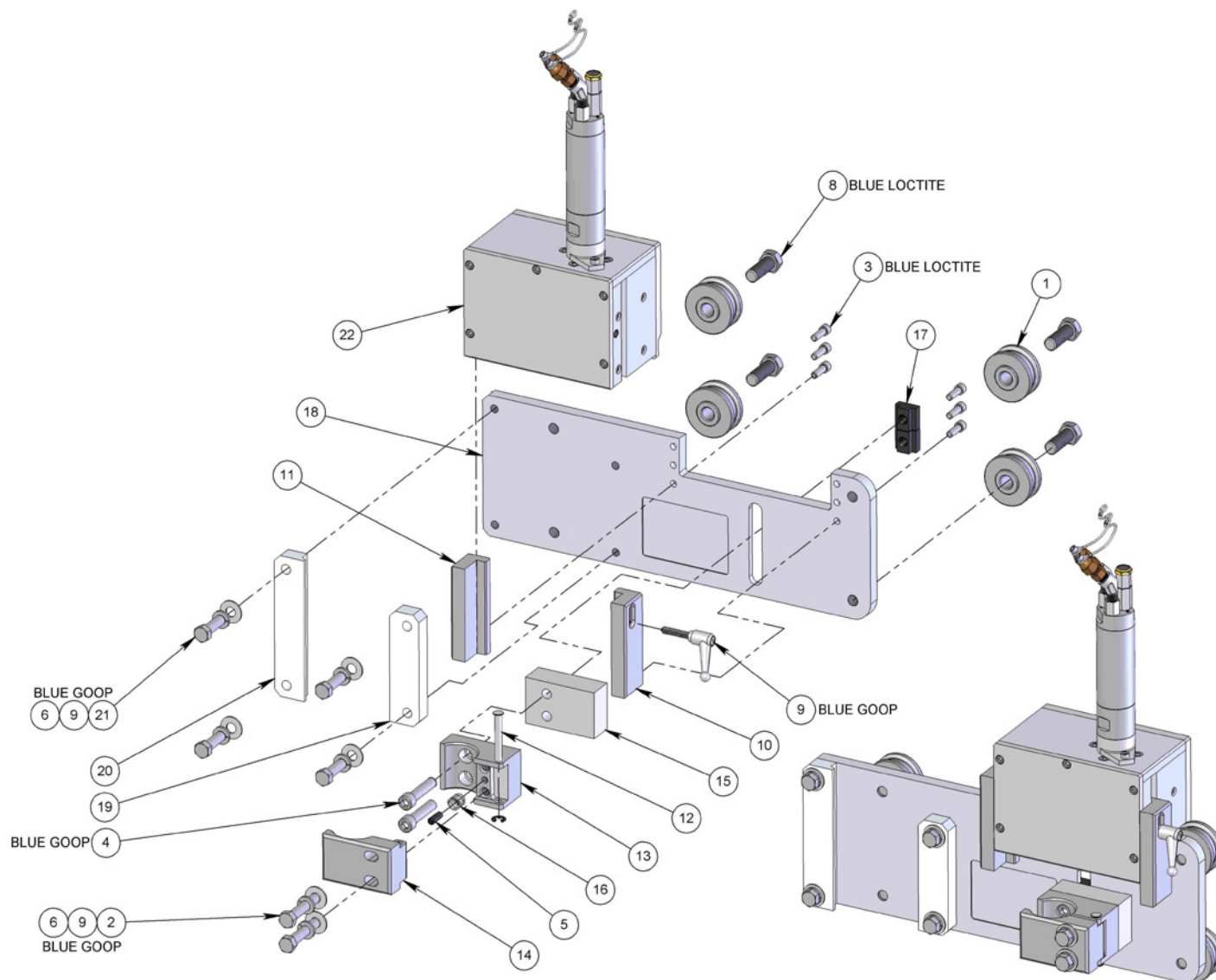
NOTE:

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:

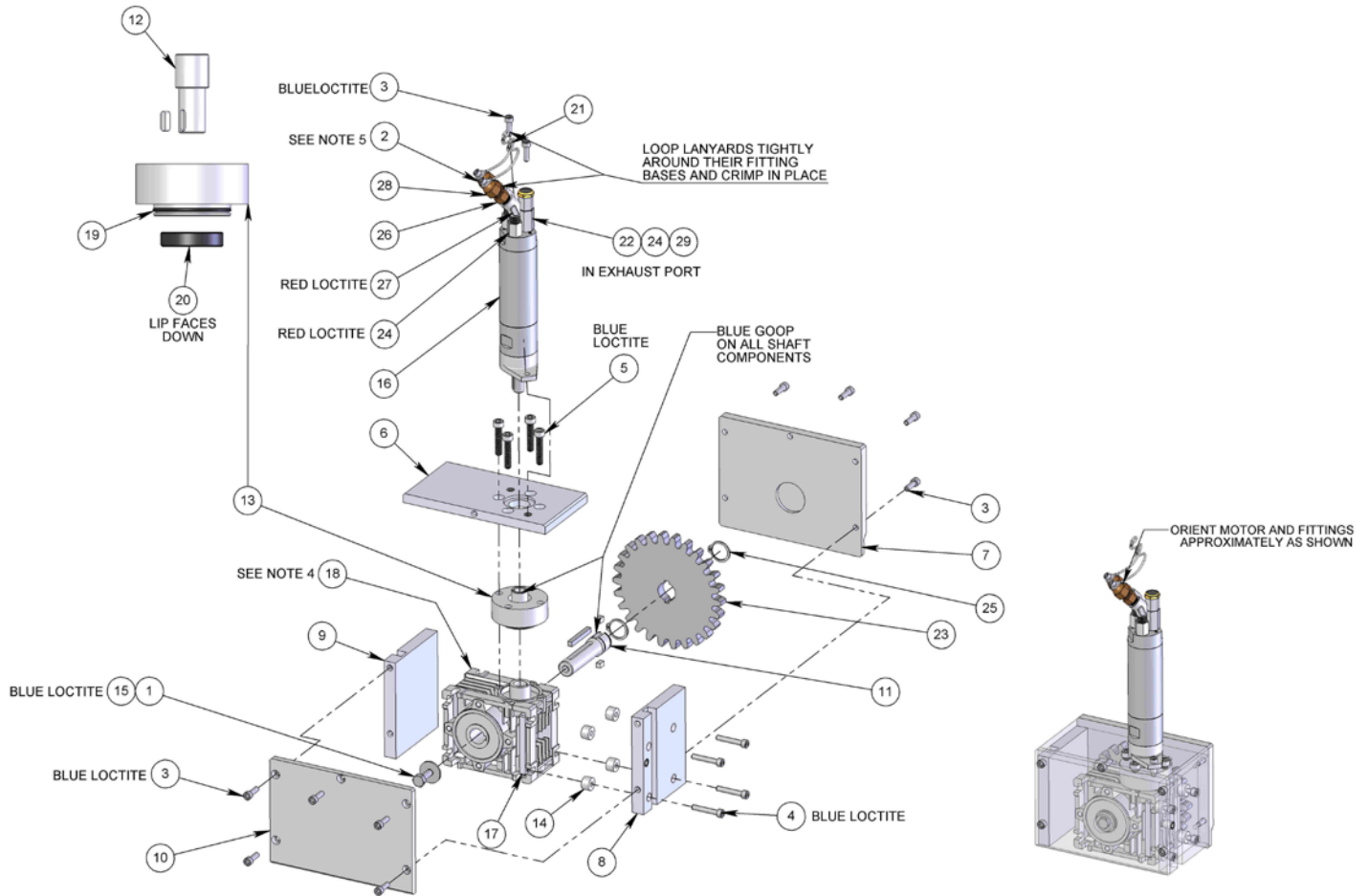
1. BLUE LOCTITE: PN: 243 OR EQUIVALENT
2. BLUE GOOP IS A SWAGELOK BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.

#	PART NUMBER	QTY.
1	BR 055-SS ROLLER ASSY	4
2	GB 337-08 BOLT, HEX .37-16 X 2.00 SS	2
3	GS 325-03 SHCS .25-20 X .75 SS (TB 050)	6
4	GS 337-07 SHCS .37-16 X 1.75 SS	2
5	GSS 525-20-75CU SET SCREW	1
6	GW 337-F FLAT WASHER SS	6
9	GW 337-L LOCK WASHER SS	6
8	LP 652-1.38 AXLE-ZERK	4
9	SRT 557 ADJUSTABLE HANDLE .25-20 X 1.19 SS	1
10	SRT 571 VERTICAL HANDLE MOUNT BLOCK	1
11	SRT 573 VERTICAL MOUNT BLOCK	1

12	SRT 579 CLEVIS PIN, SS WITH E-RING	1
13	SRT 582 VERTICAL BOTTOM PIPE CLAMP	1
14	SRT 583 VERTICAL TOP PIPE CLAMP	1
15	SRT 585 CLAMP SPACER	1
16	SRT 586 SMALL CLAMP SPRING	1
17	SRT 592 T-NUT FULL THD .38-16	2
18	LWP 512 VERTICAL CARRIAGE PLATE	1
19	LWP 513 UPPER RAIL CLAMP	1
20	LWP 514 LOWER RAIL CLAMP	1
21	GB 337-05 BOLT, HEX .37-16 X 1.25 SS	4
22	LWP 503 MOTOVARIO DRIVE ASSY	1

PARTS DIAGRAM

LIGHTWEIGHT POSITIONER (LWP 503) MOTOVARIO DRIVE ASSEMBLY



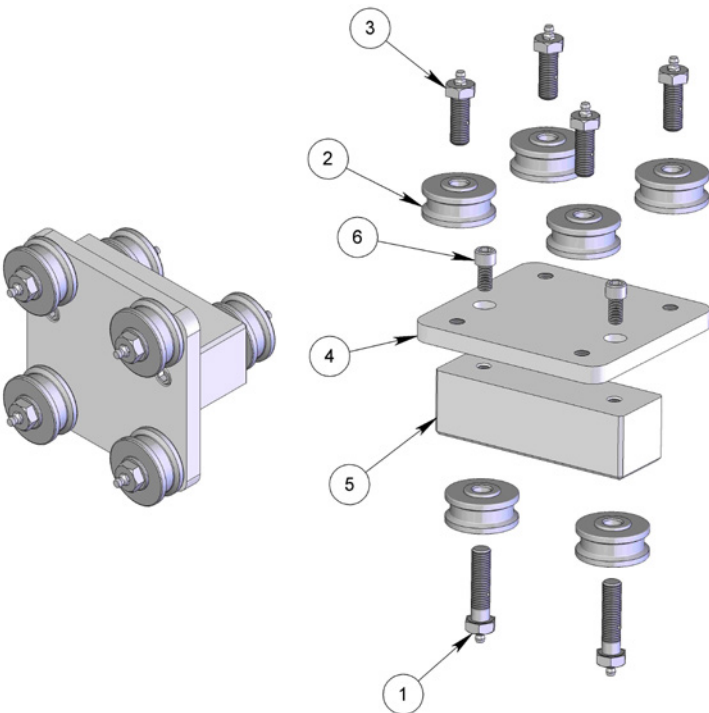
NOTE:

1. RED LOCTITE: PN: 262 OR EQUIVALENT
2. BLUE LOCTITE: PN: 242 OR EQUIVALENT
3. BLUE GOOP IS A SWAGelok BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.
4. REMOVE MOUNTING FLANGE THAT COMES WITH GEARBOX. KEEP INPUT SHAFT FACING UP TO PREVENT OIL LEAKAGE.
5. ASSURE LANYARD EYELET CAN ROTATE

#	PART NUMBER	QTY.
1	GB 325-03 BOLT, HEX .25-20 X .75 SS	1
2	GS 316-01 SHCS .16-32 X .25 SS	2
3	GS 319-025 SHCS .19-24 X .62 SS	12
4	GS 319-045 SHCS .19-24 X 1.125 SS	4
5	GS 3M6-30-1.0 SHCS M6X1.0 X 30 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

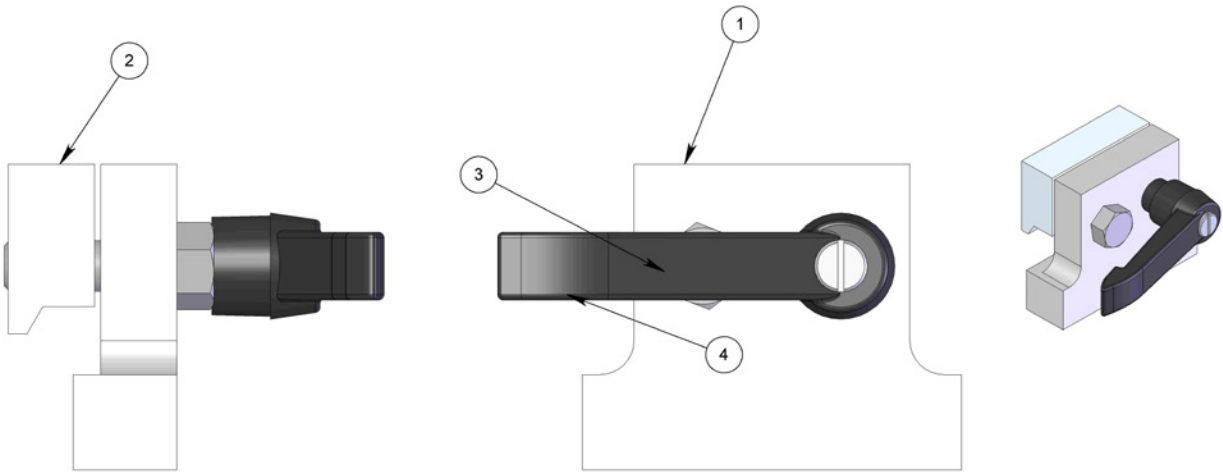
15	LWP 516 WASHER, OVERSIZED	1
16	LWP 520.1 AIR MOTOR	1
17	LWP 542 NUT PLATE	2
18	LWP 550 MOTOVARIO NMRV030301600_625IN	1
19	RJ 008 O-RING	1
20	SL 010 SEAL	1
21	SRT 209.1 LANYARD ASSY (CUT TO LENGTH)	2
22	SRT 457 CHECK VALVE, BSPP2	1
23	SRT 520 SPUR GEAR SS (6 DP, 14.5 PA, 26 T)	1
24	SRT 531 FTG, ADAPTER BSPP2 X P2	3
25	SRT 537 RETAINING RING, SS EXTERNAL	2
26	SRT 553 FTG, J4 MALE X P2 MALE	2
27	SRT 555 MALE X FEMALE P2 ELBOW 45	2
28	SRT 558 J4 CAP	2
29	WBW 148 MUFFLER	1

LIGHTWEIGHT POSITIONER (SRT 560)
BLANK HORIZONTAL ASSEMBLY



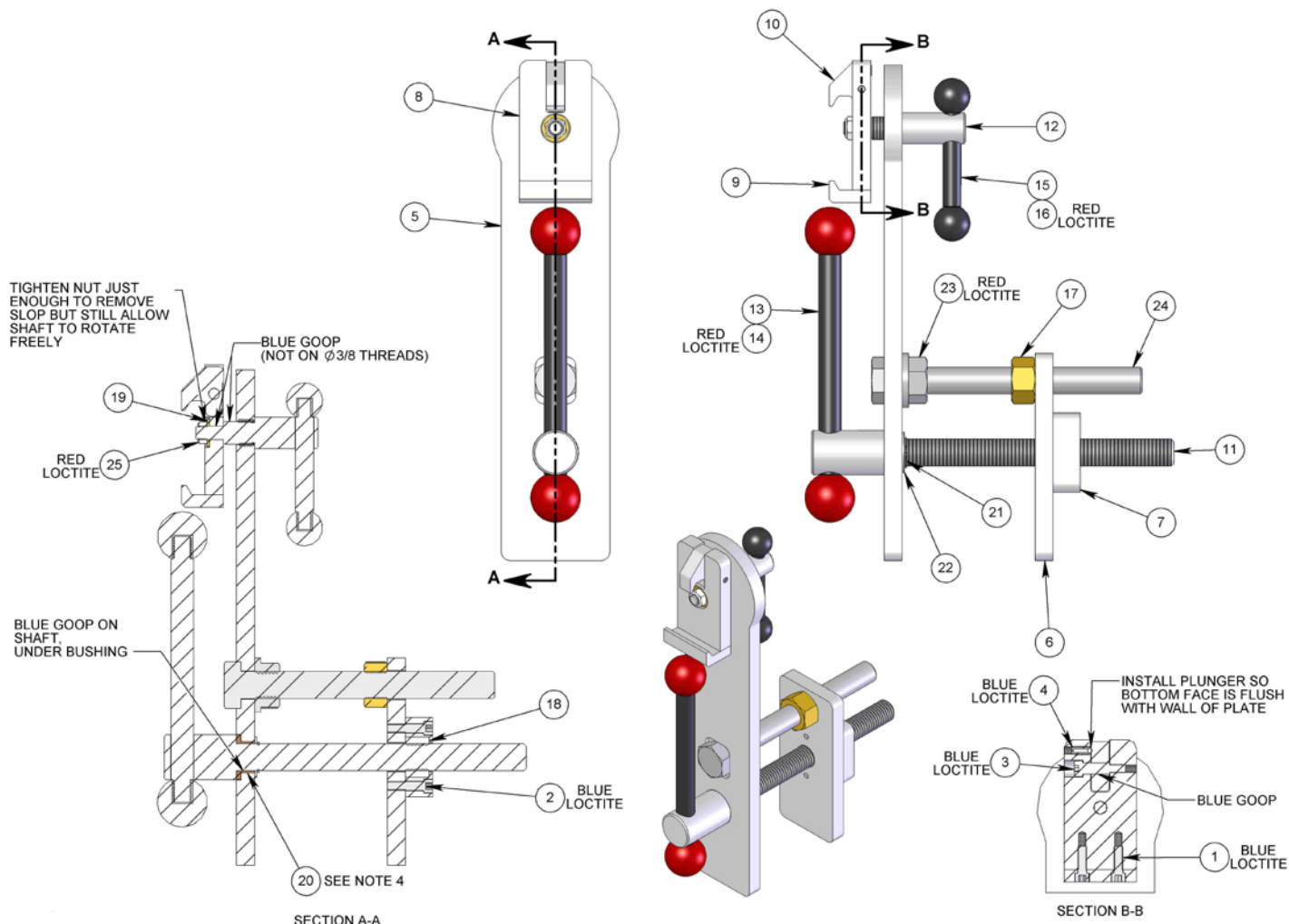
#	PART NUMBER	QTY.			
1	BR 052-2.0 AXLE-ZERK	2	4	SRT 561 BLANK HORIZONTAL CARRIAGE PLATE	1
2	BR 055-SS ROLLER ASSY	6	5	SRT 562 BLANK ROLLER SPACER	1
3	LP 652-1.38 AXLE-ZERK	4	6	GS 337-03 SHCS .37-16 X .75 SS	2

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

LIGHTWEIGHT POSITIONER (LWP 518) SLOTTED QUICK CLAMP ASSEMBLY



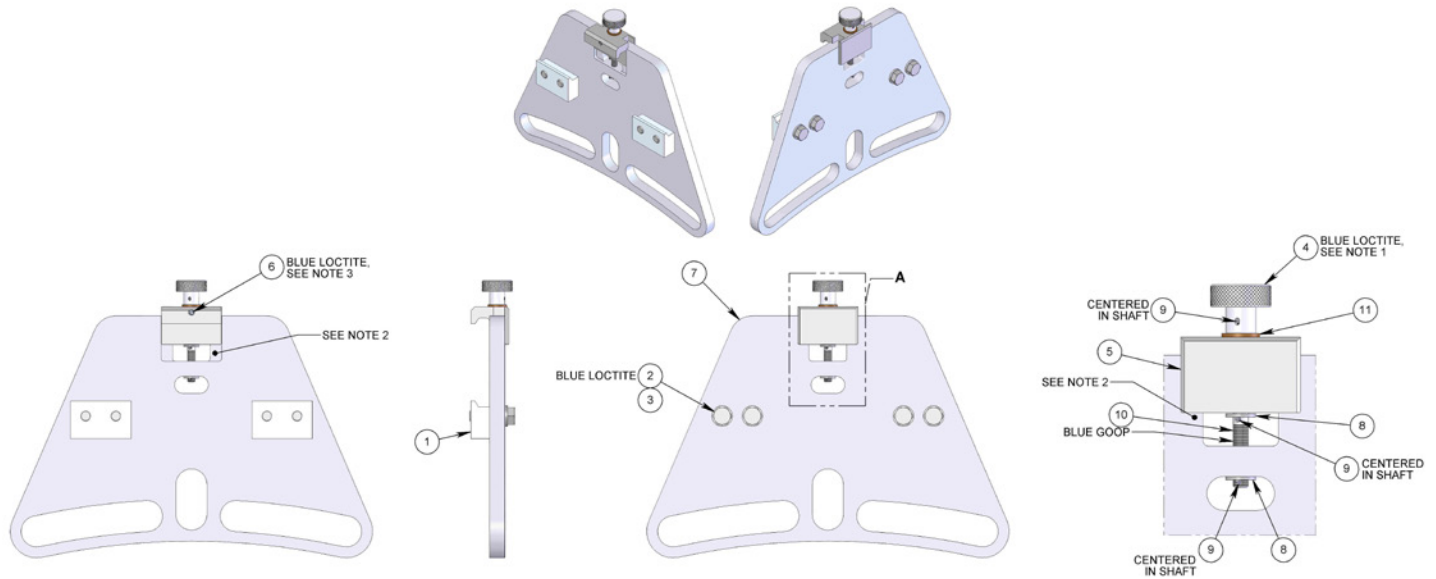
NOTE:

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, 1/4-20 UNC X 0.750L	2
2	GS 325-04 SCREW, SHC, STAINLESS, 1/4-20 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

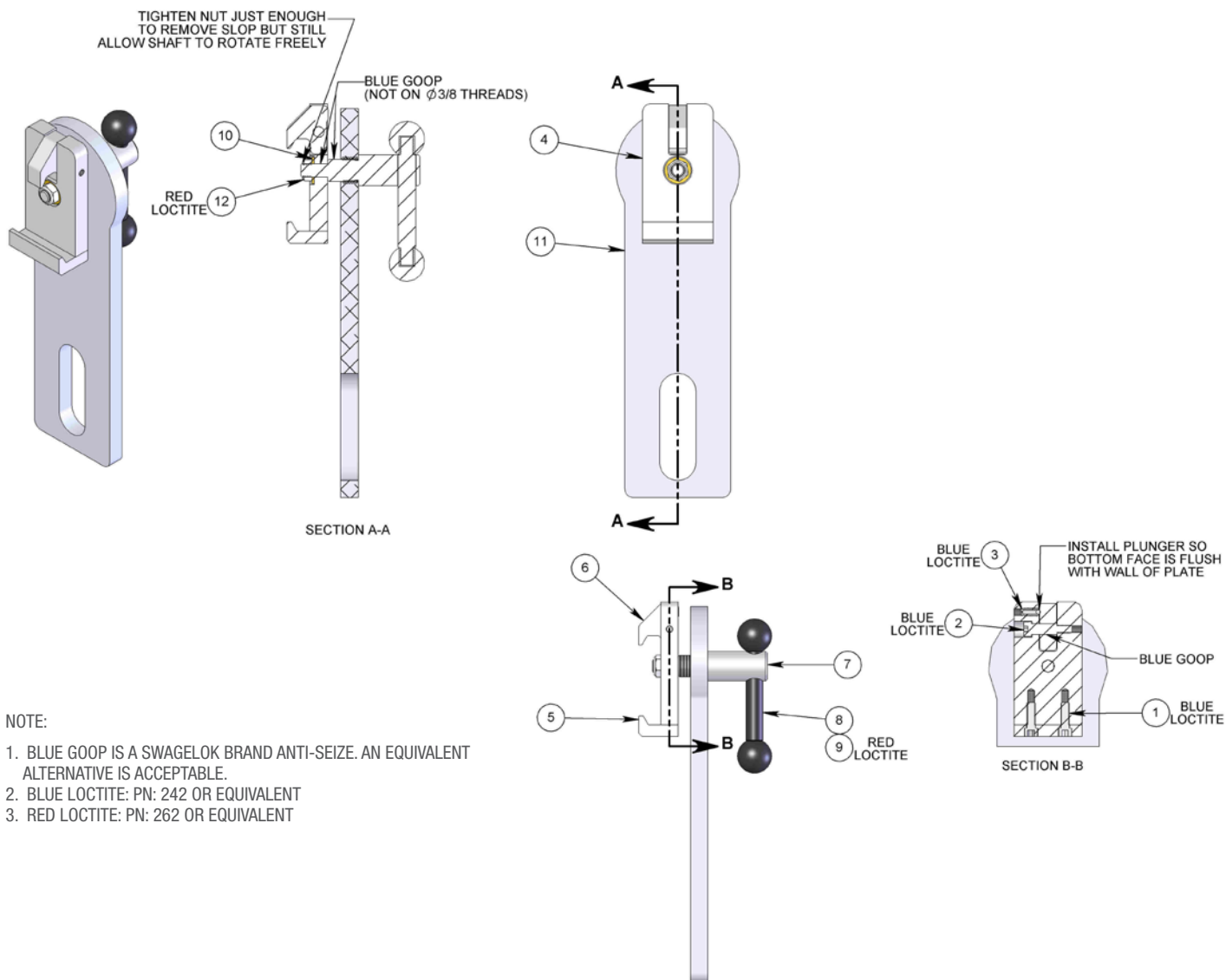


NOTE:

- BEFORE INSTALLING KNOB, INSTALL MIDDLE SPRING PIN & ADJACENT FLAT WASHER. APPLY A THIN LAYER OF GENERAL PURPOSE GREASE TO UNTHREADED 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.
- APPLY A THIN LAYER OF GENERAL PURPOSE GREASE TO ALL SURFACES OF PLATE THAT CLAMP WILL SLIDE ON
- THREAD PLUNGER IN SO BALL ENGAGES DETENTS IN SHAFT.
DO NOT ALLOW BODY OF PLUNGER TO TOUCH SHAFT.
- BLUE GOOP IS A SWAGelok BRAND ANTI-SEIZE. AN EQUIVALENT ALTERNATIVE IS ACCEPTABLE.
- BLUE LOCTITE: PN: 242 OR EQUIVALENT

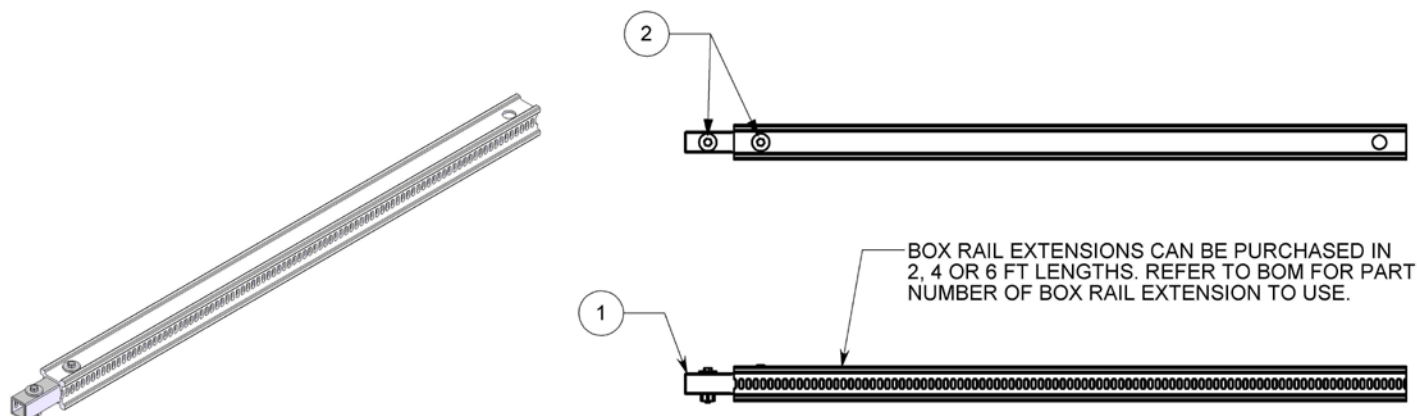
#	PART NUMBER	QTY.
1	BR 060 RAIL CLAMP	2
2	GB 337-05 BOLT, HEX HEAD, STAINLESS, 3/8-16 UNC X 1.250L	4
3	GW 337-L WASHER, LOCK, 3/8", STAINLESS	4
4	LWP 536 MODIFIED KNOB	1
5	LWP 537 SLIDE CLAMP	1
6	LWP 539 BALL NOSE SPRING PLUNGER	1
7	LWP 540 PLATE CLAMP BASE PLATE	1
8	LWP 541 FLAT WASHER	2
9	LWP 543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

LIGHTWEIGHT POSITIONER (LWP 552) SLOTTED QUICK CLAMP ASSEMBLY



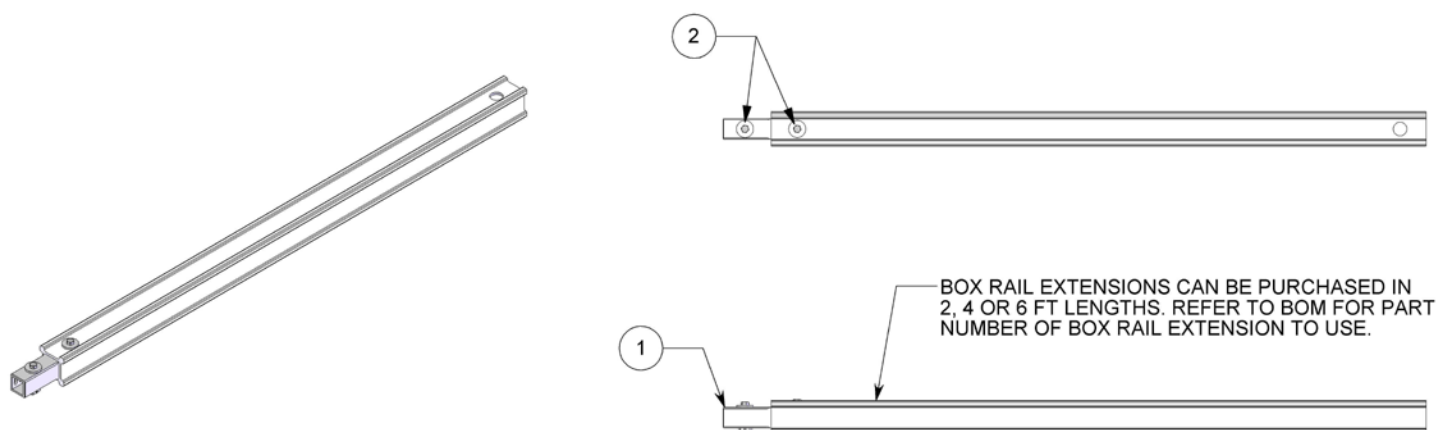
#	PART NUMBER	QTY.
1	GS 325-03 SCREW, SHC, STAINLESS, 1/4-20 UNC X 0.750L	2
2	GSSH 0312-0750-SS SHOULDER SCREW	1
3	LWP 517 BALL NOSE SPRING PLUNGER	1
4	LWP 524 RAIL CLAMP PLATE	1
5	LWP 525 STATIC RAIL CLAMP	1
6	LWP 526 QUICK RAIL CLAMP FINGER	1
7	LWP 528 RAIL CLAMP SHAFT	1
8	LWP 531 RAIL CLAMP LEVER	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 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



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

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

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

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

a. The warranty shall not apply if the product or service (1) has been subject to misuse, negligence or accident; (2) has not been installed or operated in accordance with Seller's recommendations; (3) has been operated under more severe conditions than those specified for the particular product or service; (4) has been operated beyond the rated capacity of the product; or (5) has been repaired or altered outside Seller's facilities or in any way so as, in Seller's judgment, to affect its stability or reliability.

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

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

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

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

- a. if Buyer fails to purchase and use necessary and appropriate safety devices and guards as determined and/or recommended by Seller;
- b. if Buyer fails to maintain in good working order such safety devices and guards as are purchased from Seller;
- c. if Buyer adds, omits, repairs, modifies, replaces or substitutes any components on the equipment without permission from Seller;
- d. if Buyer exceeds at any time the maximum safe loads, pressures or speeds recommended by Seller for the equipment furnished hereunder without the specific written consent of Seller; or
- e. if Buyer otherwise fails to operate the product or equipment in accordance with Seller's printed instructions or otherwise negligently operates the equipment.

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

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

7. Modification. These Terms and Conditions are intended by Seller and Buyer to constitute a final, complete and exclusive expression of agreement and cannot be supplemented or amended without Seller's prior written approval. Seller's waiver of any breach, or failure to enforce any of the Terms and Conditions at any time, shall not in any way affect,

limit or waive Seller's right thereafter to enforce and compel strict compliance with every Term and Condition thereof. If any provisions of these Terms and Conditions are held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the other portions hereof.

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

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

STONEAGE PATENT DATA

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

<http://www.sapatents.com>



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