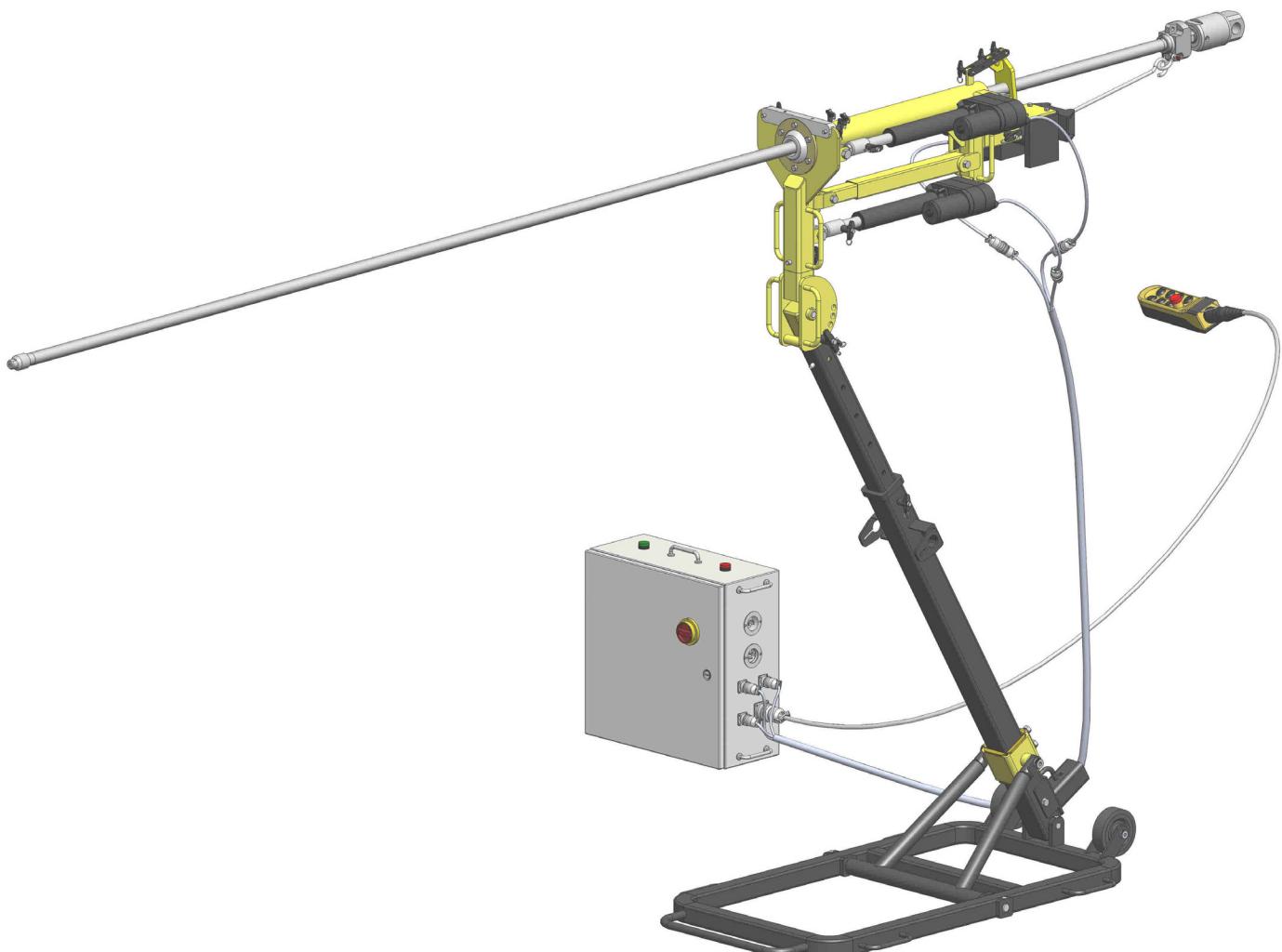




# YELLOW JACKET™ (JKT-100) USER MANUAL



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

## SPECIFICATIONS

Yellow Jacket™ (JKT-100) Weight:	410 lbs (186 kg)
Usable Stroke:	15 ft. (4572 mm)
Maximum Operating Pressure: <sup>*</sup>	Up to 10k PSI (690 Bar)
Maximum Flow	Up to 100gpm (380 l/min)
Inlet Port: <sup>†</sup>	1 NPT
Required Power Supply:	120 VAC/20A
Vertical Tilt:	35°
Horizontal Tilt:	50°
Remote Pendant Cord Length: <sup>**</sup>	25 ft (7620 mm)

<sup>\*</sup>Configurable up to 20k psi <sup>†</sup>Can be configured with rotary swivel

<sup>\*\*</sup>Can be customized upon request

## DESCRIPTION OF EQUIPMENT AND INTENDED USE

The StoneAge Yellow Jacket is an automated high flow water lancing system specifically designed for online boiler cleaning. The system features a pivoting lance that allows the waterjet to be aimed for productive removal of excessive slag from key locations inside a boiler while the boiler is still online.

## KEY FEATURES:

### JKT-100 Yellow Jacket

- Adjustable pivoting lance with 35° of vertical tilt and 50° of horizontal tilt. Lance angle can be set at multiple positions to provide maximum range of motion for precise, efficient cleaning
- Modular design with pinned connections for portability and quick assembly/disassembly
- Adjustable positioning stand with integrated wheels. Stand raises/lowers and telescopes for positioning flexibility. Can be moved similar to a furniture dolly.
- Compact rigid base with multiple anchor locations adds stabilization and safety when running high pressures and flows.
- Remote operation from corded pendant station for accurate control of positioning functions from outside blast zone for increased safety.
- Drive motors and control pendant run on low voltage electrical power. No need for hydraulic or pneumatic hook-ups.
- 24V DC linear actuators for up/down and left/right positioning
- 24V DC winch extends lance into the boiler
- Can accommodate multiple lance options and head types and can be customized for your specific application.
- Electric remote dump control available.

## 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.

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](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 Yellow Jacket™ (JKT-100) 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 JKT 270-001 Backout Assembly located on the JKT-200 Pivot Assembly. Always Verify the Lance is inserted through the JKT 270-001 Backout Assembly.
- The Control Box and Remote should be located in a safe location where the Operator has good visibility of the job. The Yellow Jacket™ (JKT-100) 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 Yellow Jacket™ (JKT-100) 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 high-pressure hose, wire winch cable, 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) and all other applicable safety devices are installed and set-up properly.\*\****
- Test the Remote and Control Box before operating the Yellow Jacket™ (JKT-100) with high-pressure water to verify the Remote moves the Lance in the intended directions, and that the dump valve (not included) 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.

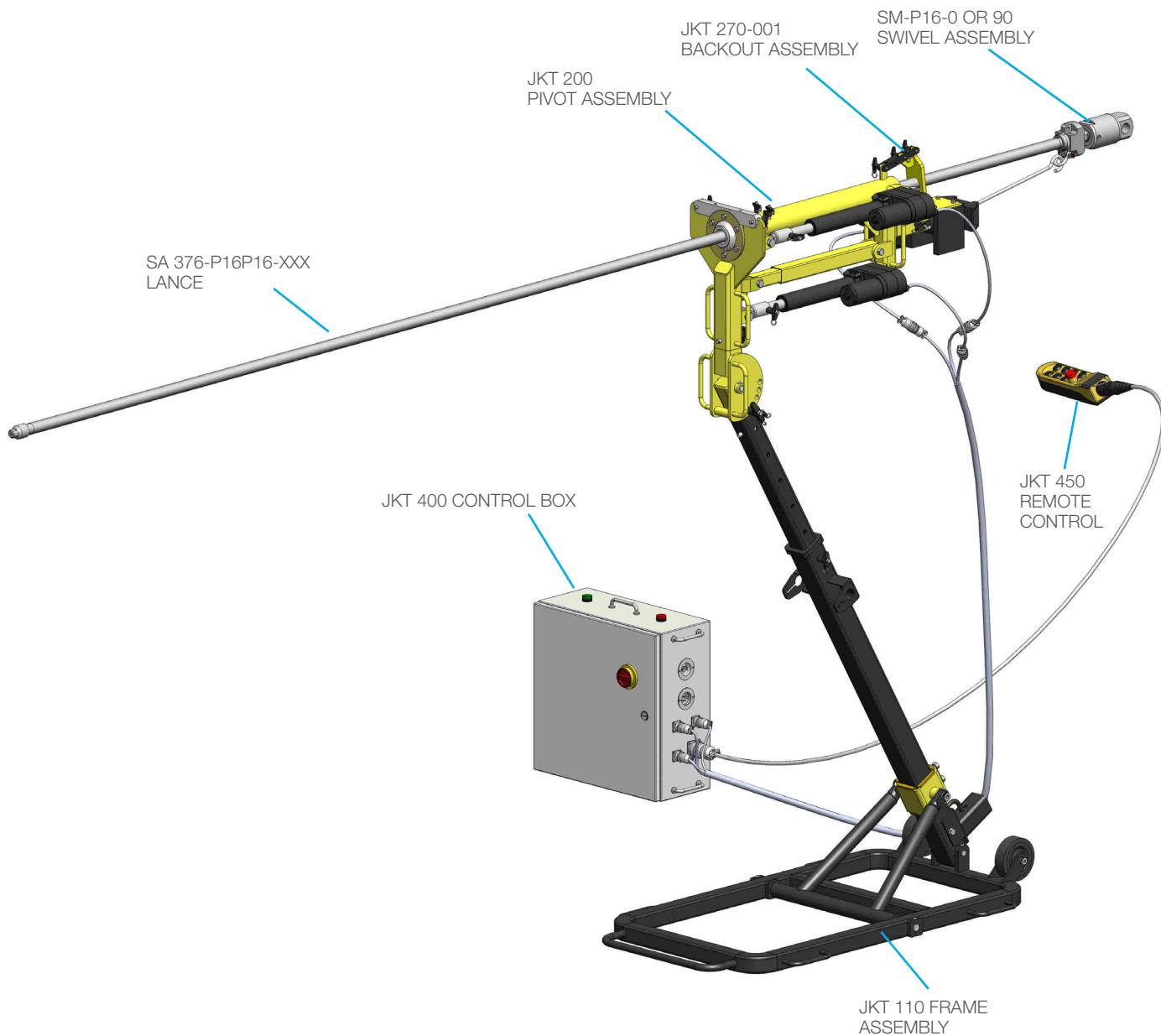
### SAFETY LABEL DEFINITION

The Yellow Jacket™ (JKT-100) has the potential to cause serious injury if fingers, hair, or clothing become caught between the Winch and the Winch Cable.



## SYSTEM ASSEMBLY - OVERVIEW

### YELLOW JACKET™ (JKT-100), CONTROL BOX, AND REMOTE, SYSTEM ASSEMBLY

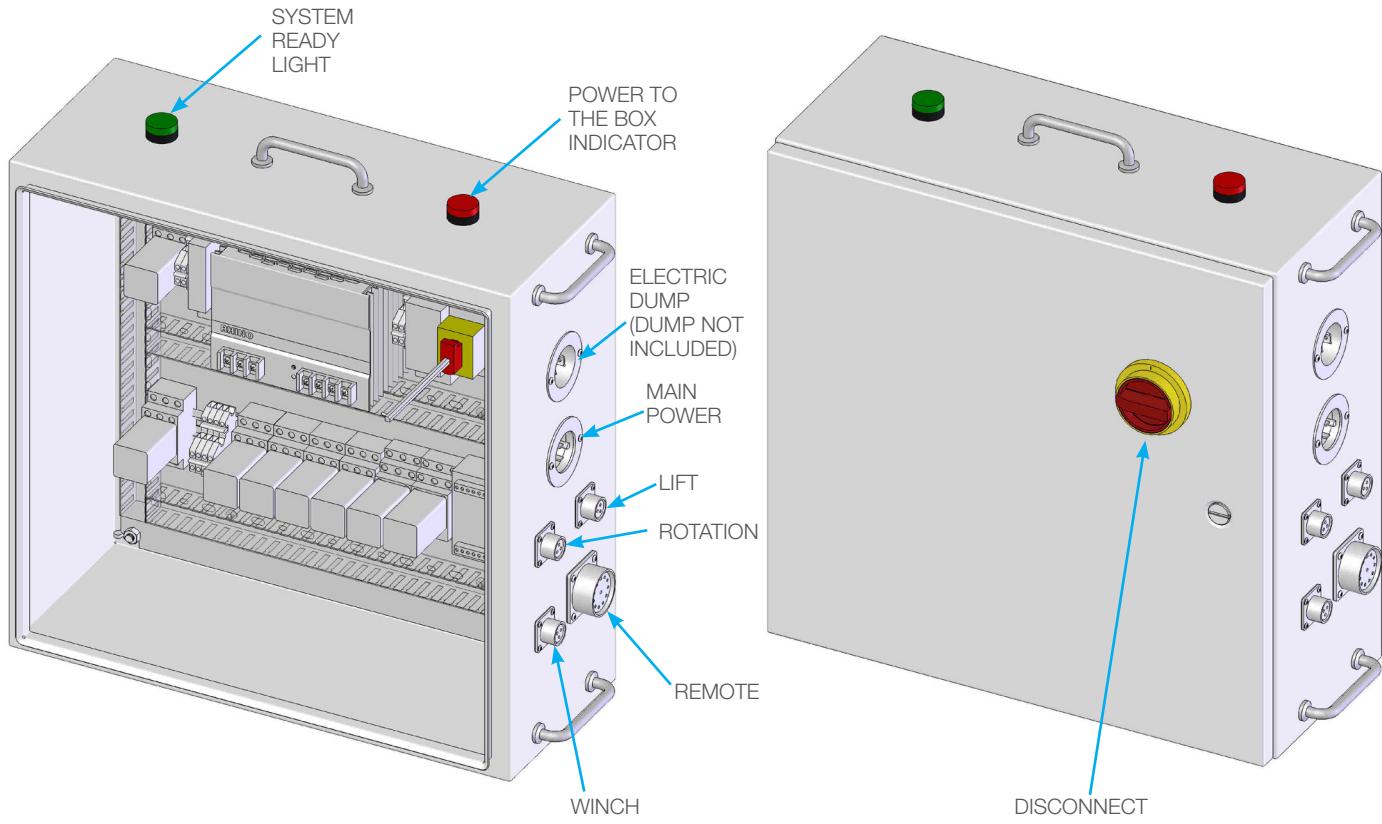


## YELLOW JACKET™ (JKT-100)

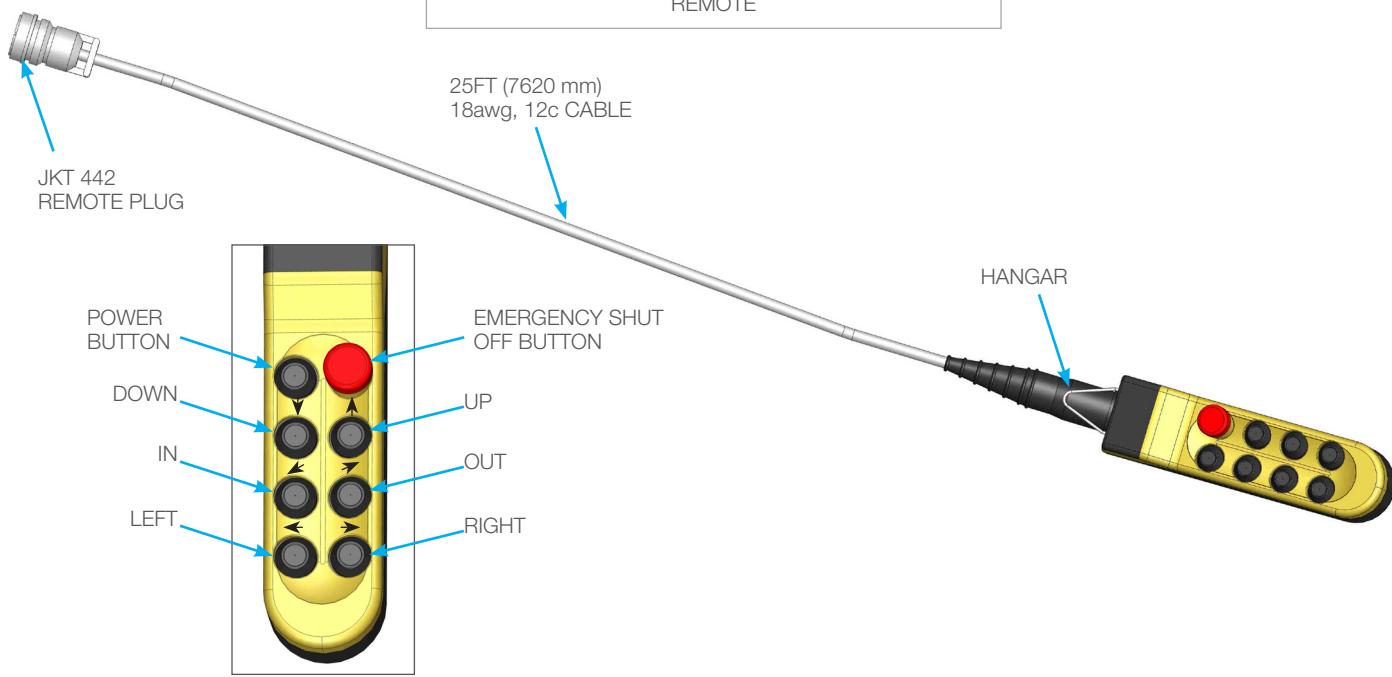


## CONTROL BOX AND REMOTE- OVERVIEW

**YELLOW JACKET™ (JKT-400)**  
CONTROL BOX



**YELLOW JACKET™ (JKT-450)**  
REMOTE



## YELLOW JACKET STEP-BY-STEP ASSEMBLY

The Yellow Jacket™ (JKT-100) System Assembly broken down into sub-assemblies shown below in **(Figure 1)**.

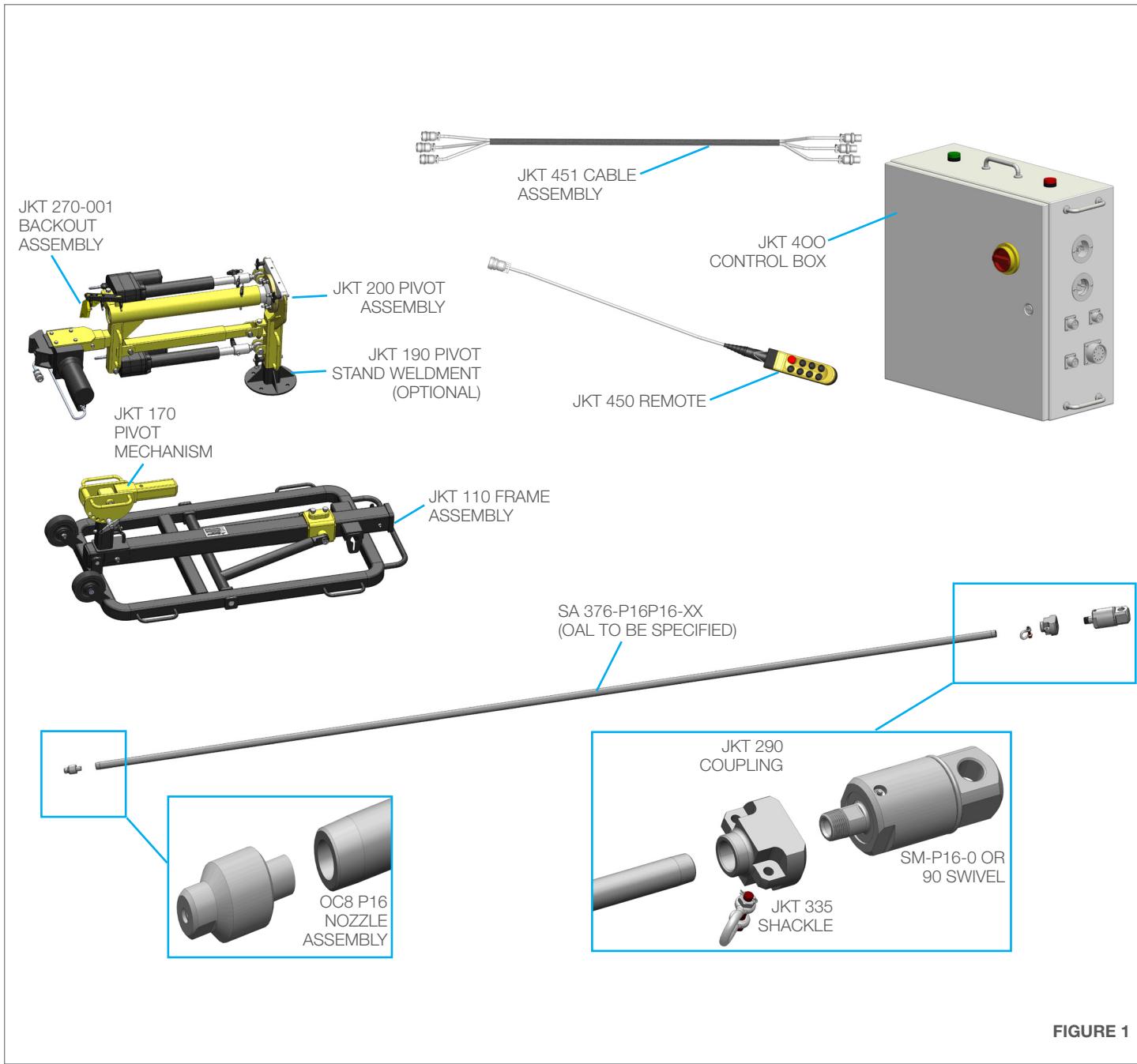


FIGURE 1

## YELLOW JACKET- ASSEMBLY

1. Remove the Pivot Lock Assembly from the Frame Assembly and set aside. **(Figure 1)**

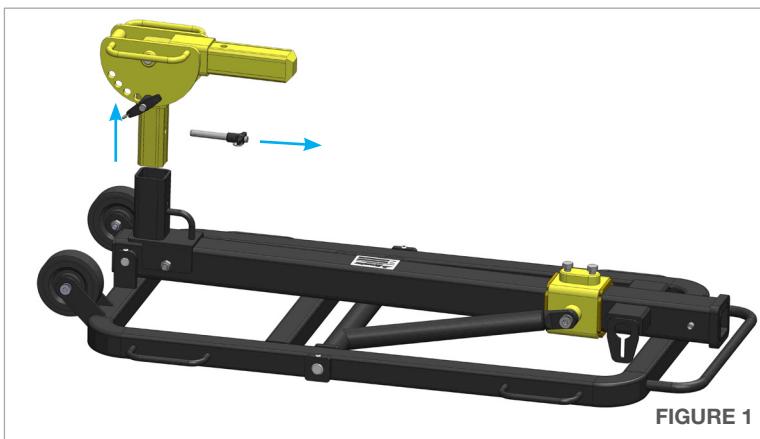


FIGURE 1

2. Loosen the two 1/2" Bolts and raise the Boom arm into the position that best suits the application. Secure the two bolts, remove the Quick Release Pin from the Inner Boom arm and slide the Inner Boom arm out to the position that best suits the application. **(Figure 2)**

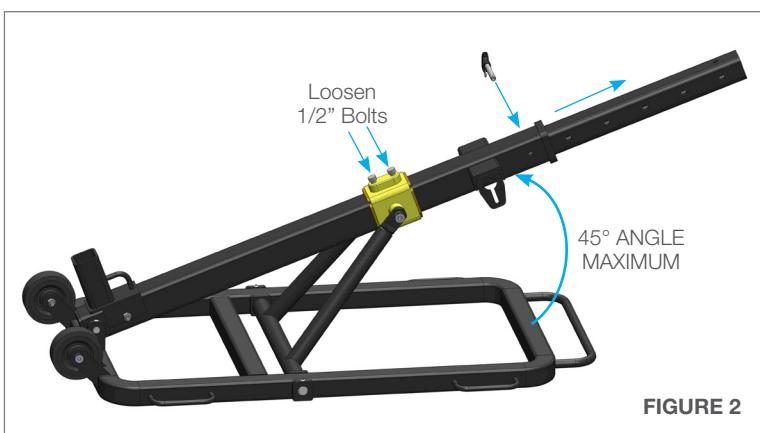


FIGURE 2

3. Install the Pivot Lock Assembly into the Inner Boom. Secure the Pivot Lock Assembly with the Quick Release Pin. **(Figure 3)**

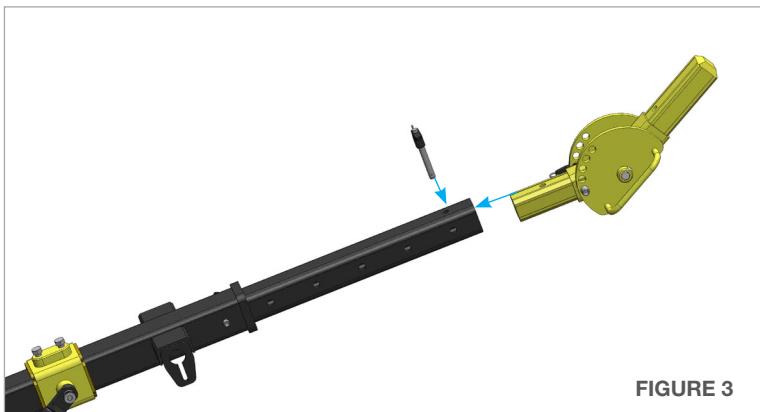


FIGURE 3

4. Set the angle of the Pivot Lock by removing the Quick Release Pin, setting the angle for the application, and reinstalling the Quick Release Pin. **(Figure 4)**

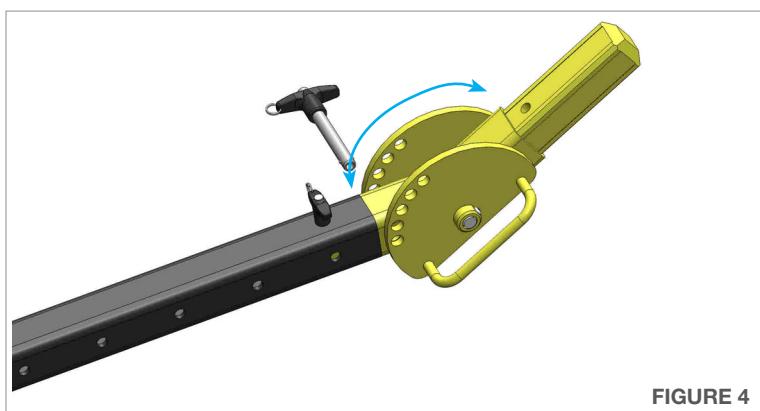
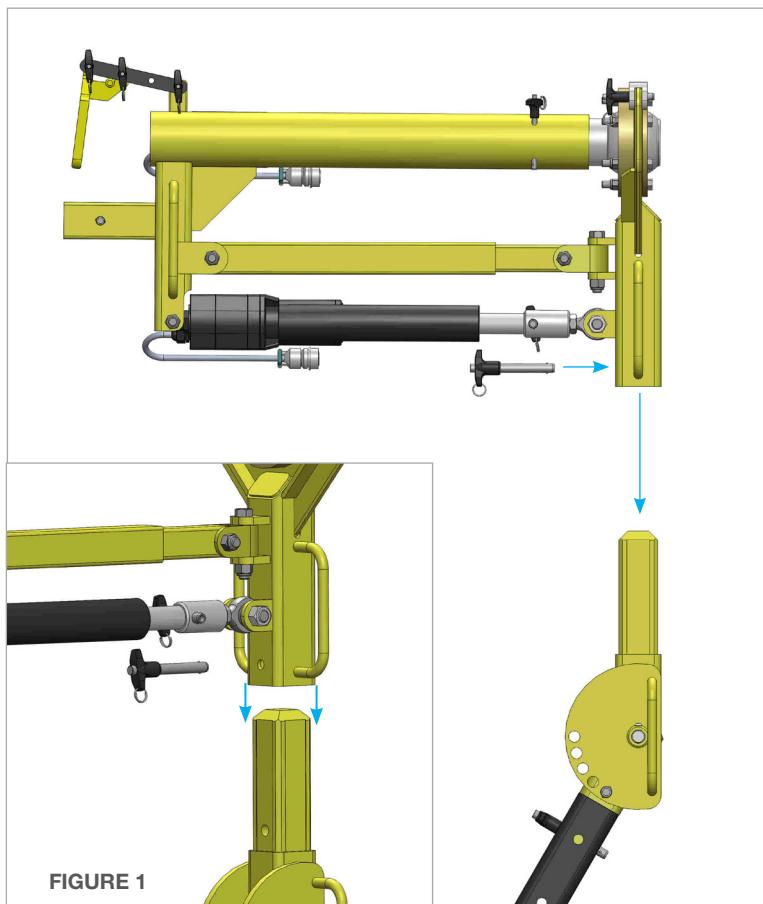
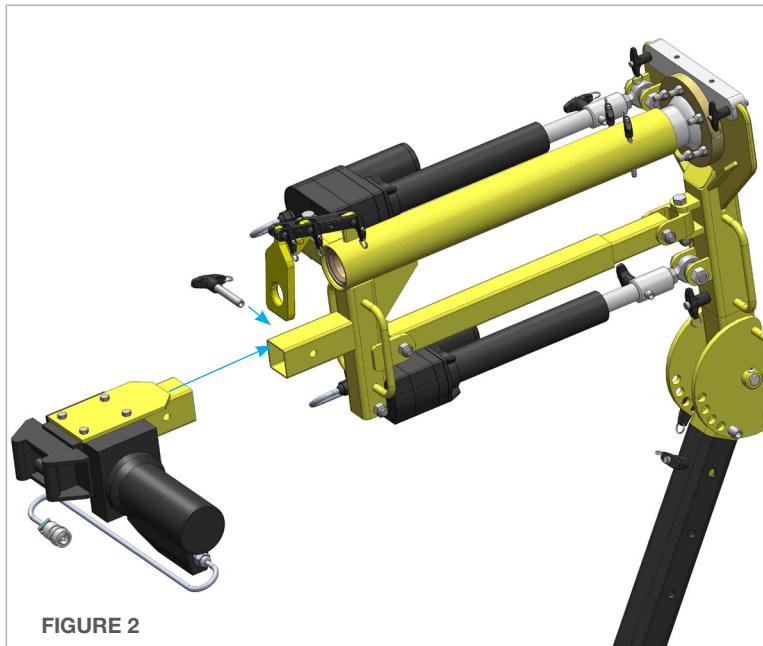


FIGURE 4

1. Remove the Quick Release Pin from the Pivot Assembly (JKT-200). Slide the Pivot Assembly onto the Pivot Lock Assembly and secure with the Quick Release Pin. **(Figure 1)**

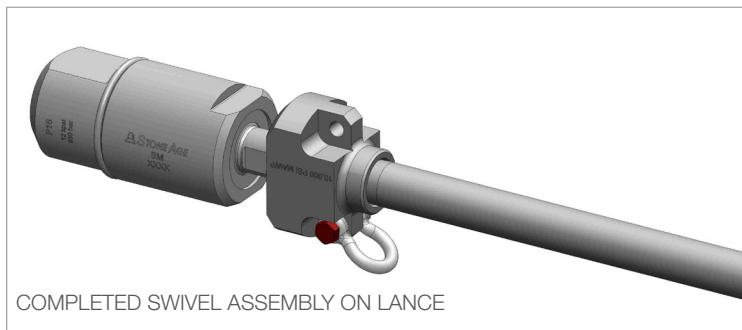
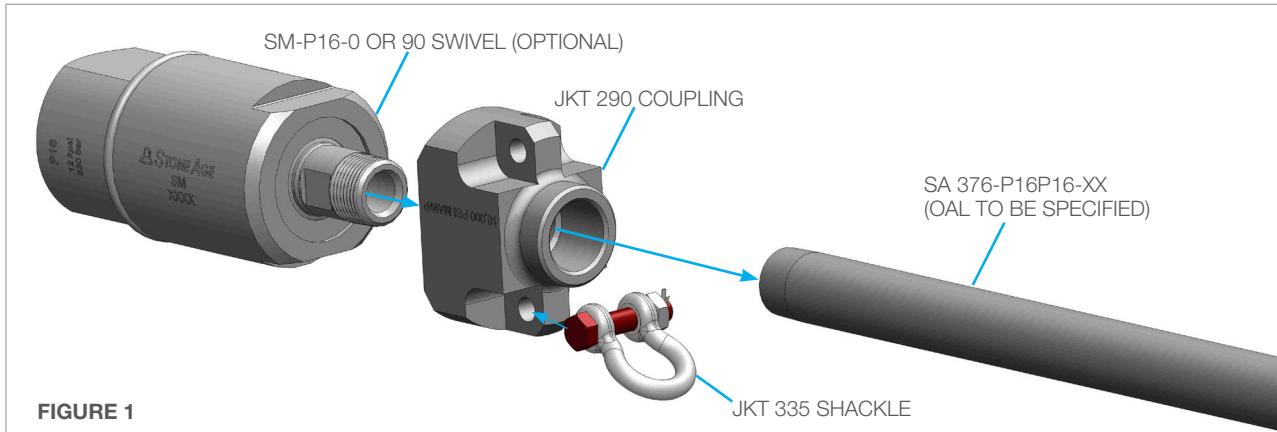


2. Slide the Winch Assembly onto the Pivot Assembly (JKT-200) in the position shown and secure with the Quick Release Pin. **(Figure 2)**

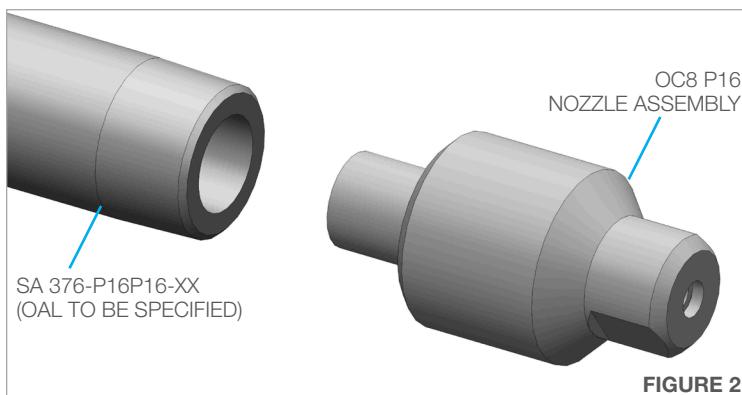


## OPTIONAL SWIVEL AND LANCE- ASSEMBLY

1. Remove the Cotter Pin and bolt from the Shackle. Line up the Shackle with the Coupling and install the bolt through both the Shackle and the Coupling. Tighten the nut onto the Shackle Bolt and secure the Cotter Pin in place. Thread the Swivel into the Coupling and Shackle Assembly. Thread the Lance into the Coupling. **(Figure 1)**



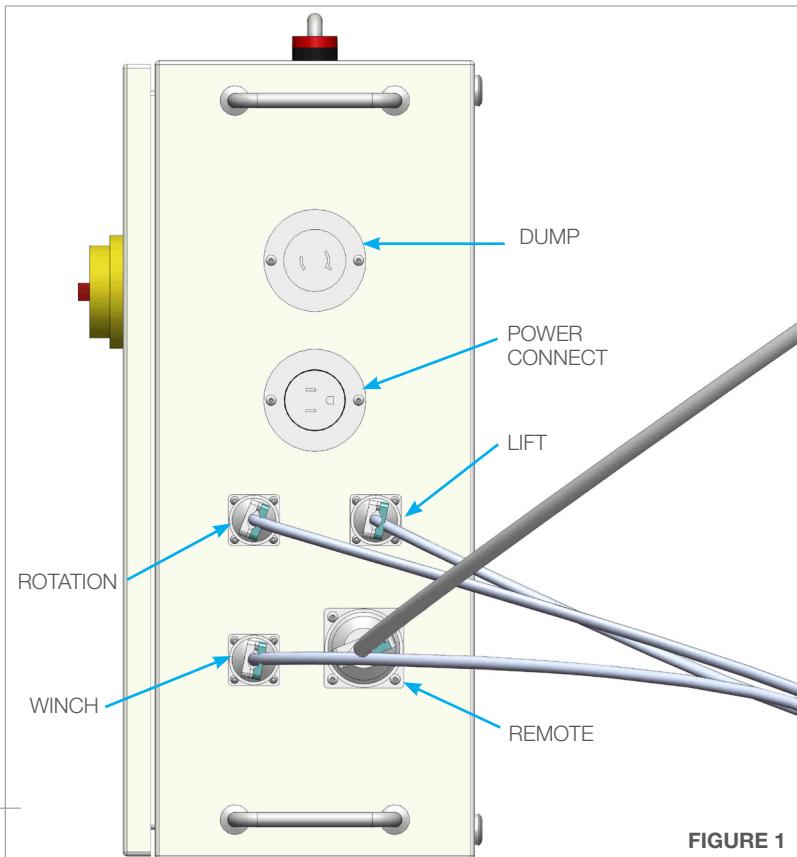
2. Thread the OC8 P16 Nozzle Assembly on the opposite end of the Lance. **(Figure 2)**



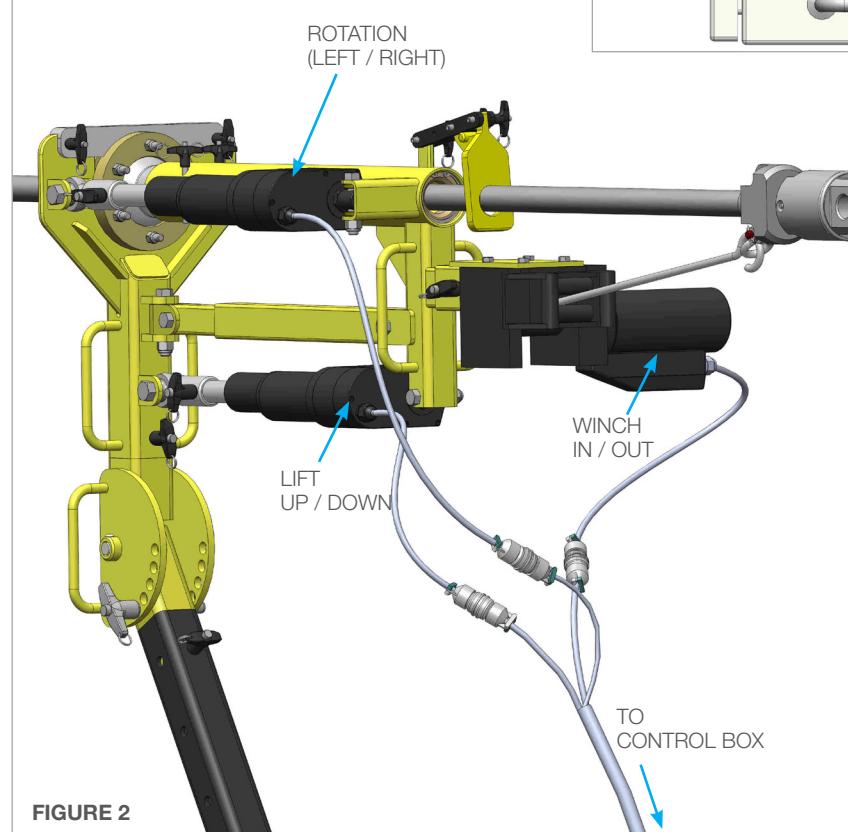
## CONTROL BOX TO SYSTEM ASSEMBLY

1. Plug the Wire Cables, Remote, and Power supply into the Control Box as shown in **(Figure 1)**.

**YELLOW JACKET™ (JKT 400)  
CONTROL BOX**



**FIGURE 1**

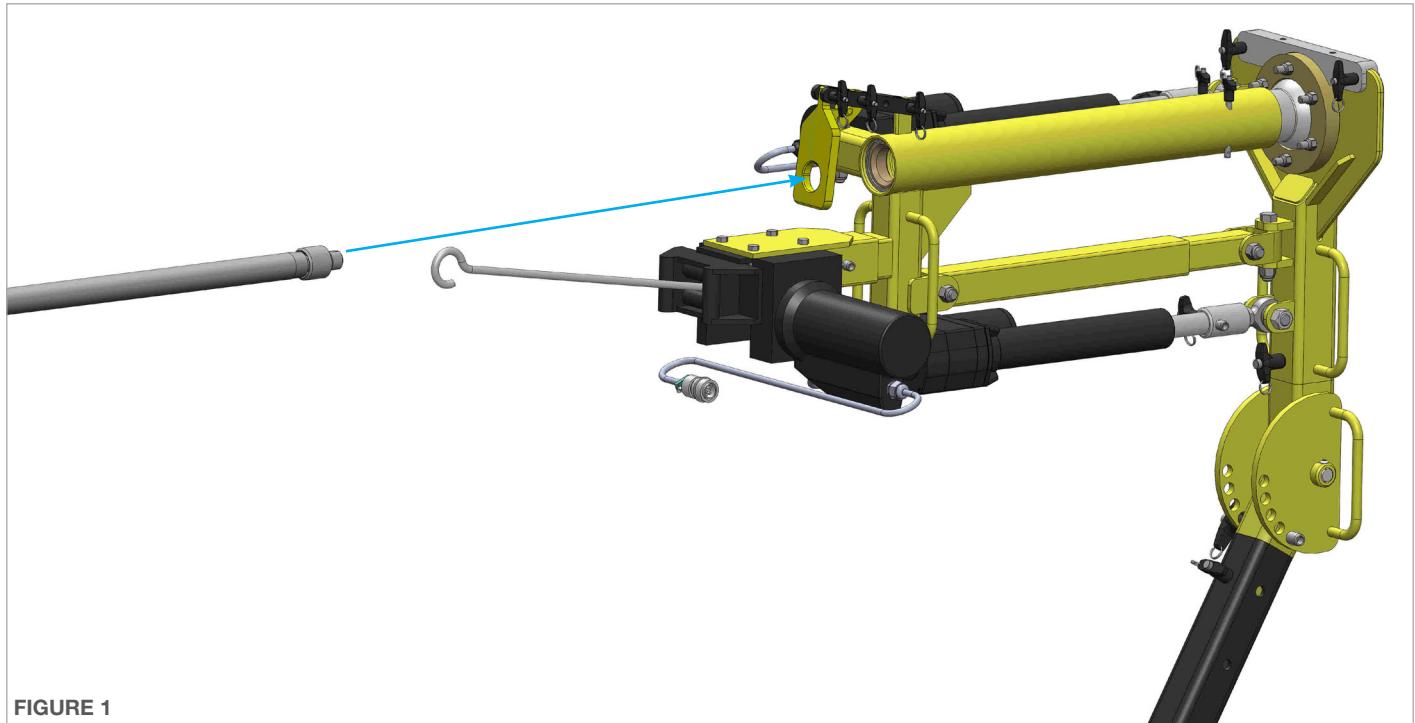


**FIGURE 2**



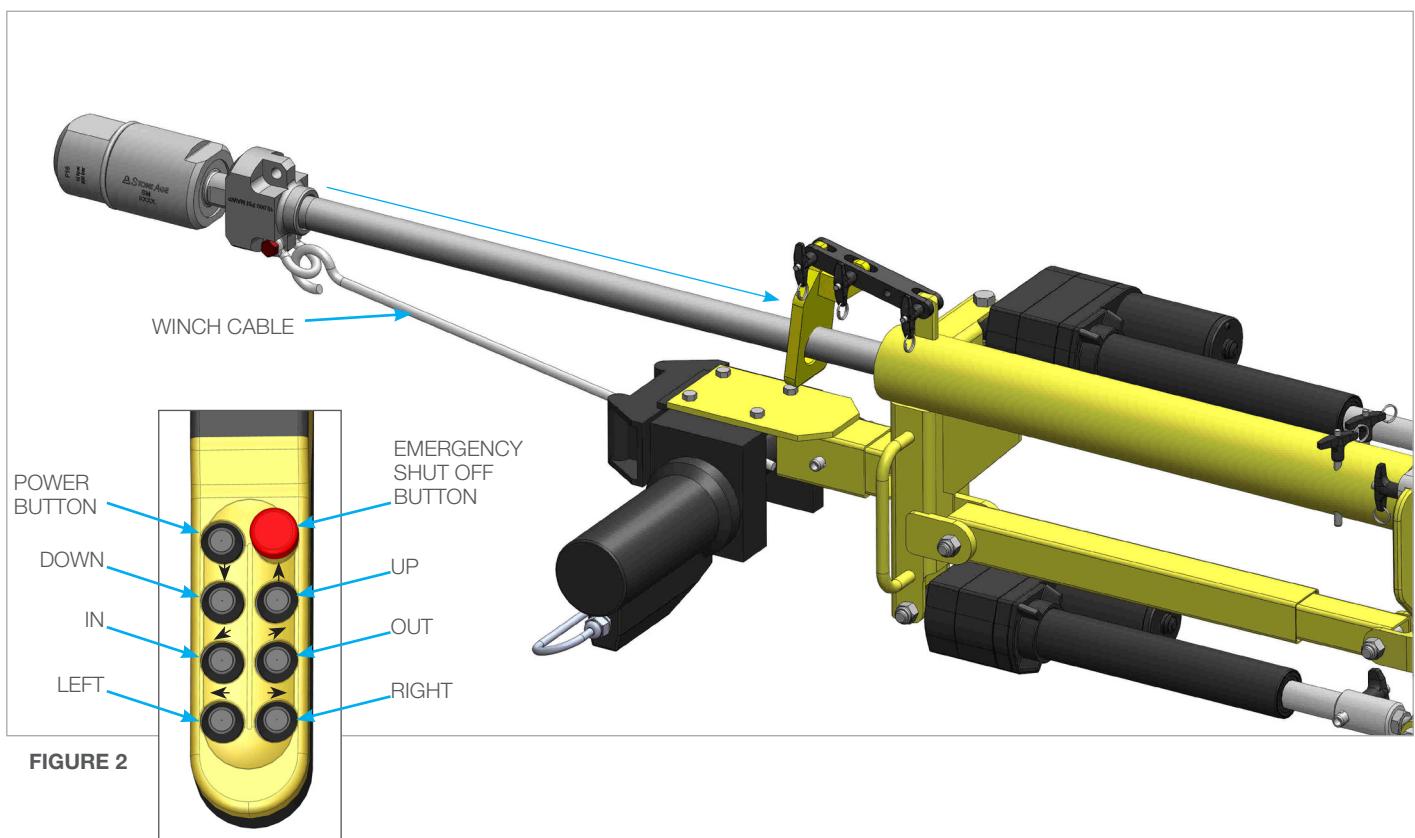
## LANCE TO YELLOW JACKET - ASSEMBLY

1. Insert the Lance / Swivel Assembly through the Backout Assembly (JKT 270-001) then through the Pivot Assembly (JKT-200). **(Figure 1)**



**FIGURE 1**

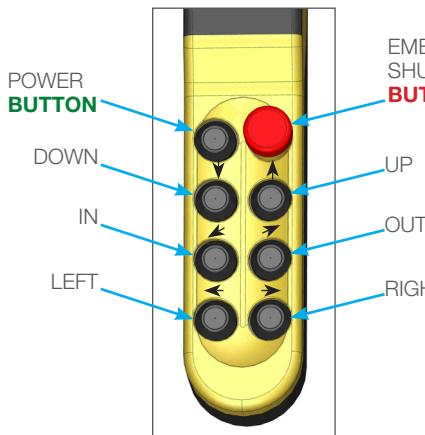
2. Connect the Winch Cable to the Shackle on the Lance Assembly. Use the "IN" and "OUT" buttons on the Remote Control Panel to extend the cable to make the connection. **(Figure 2)**



**FIGURE 2**

## CONTROL BOX AND REMOTE

- The **EMERGENCY SHUT OFF BUTTON** will deactivate all Yellow Jacket™ (JKT-100) functions. The **RED** light on the Control Box indicates there is 120v 20A power supply to the Control Box. At this point, there is no power to the Yellow Jacket™ (JKT-100). The Emergency Shut Off Button must be released before activating the Power On Button.
- The **POWER ON BUTTON** will turn on the Yellow Jacket™ (JKT-100) and power the Control Box. The Power On Button can not be activated until the Emergency Release Button has been released. A **GREEN** light will come on the Control Box to indicate the unit is ready to be operated.
- The **WINCH IN/OUT BUTTONS** will move the Lance in the forward (feeding) and reverse (retracting) directions. Release the Emergency Stop Button before moving the Lance in the reverse (retracting) direction. DO NOT allow the Winch Cable to run all the way back into the Winch.
- The **UP/DOWN BUTTONS** will move the Lance in the Up and Down directions. There are stops to prevent the Lance from over rotating.
- The **LEFT/RIGHT BUTTONS** will move the Lance from side to side. There are stops to prevent the Lance from over rotating.



- When using a **ELECTRIC DUMP CONTROL (Not Included)**, hold it in the High Pressure On position to route the high-pressure water to the tool. Release the knob to divert the high-pressure water away from the tool.
- To de-energize the system, release the **ELECTRIC DUMP CONTROL (Not Included)**. This will stop the unit from moving and reroute the high-pressure water away from the Yellow Jacket™ (JKT-100).

## TEST RUN PROCEDURE

- Perform the **PRE-RUN SAFETY CHECK (SEE PAGE 6)**.
- Ensure the Lance is installed through the Backout Assembly and the Backout Assembly engages by pulling the Lance away from the Pivot Assembly.
- Operate the Remote before running the waterjet tool at full pressure to test the Rotation, Lift, Forward and Back movements of the Pivot Assembly.
- If using a **ELECTRIC DUMP CONTROL (Not Included)**, operate the high-pressure water at full pressure and use the to verify that the dump valve is working properly. Test the REMOTE before operating the Yellow Jacket™ (JKT-100) with high-pressure water to verify the controls move the Lance in the intended direction, and that the dump is working properly.

## RUN PROCEDURE

- After completing the setup, the Yellow Jacket™ (JKT-100) system is ready for operation.
- Once the hose connection has been made, it is recommended to flush the hose and verify the dump valve is working properly.
- Feed forward and advance the Lance into the tube bundle at low pressure and wait for the tools to exit the far side of the heat exchanger.
- Close the dump and gradually increase the pump to the desired operating pressure.
- Operate the left/right, up/down, and in/out functions on the Remote to begin high pressure cleaning at the preferred location on the tube bundle.

## HIGH-PRESSURE HOSE

- The Yellow Jacket™ (JKT-100) is designed to be used with a 1", 10K PSI high pressure hose with Parker Pro-Lance® and/or Spir Star Blast-Pro® hose ends.
- Only high quality hoses intended for waterblast applications should be used as high-pressure hoses. Pressure ratings of high-pressure hoses MUST NEVER be exceeded.

### WARNING

- Never exceed winch or wire rope rated capacity. Review included Winch Operating Manual.
- Never touch wire rope or hook while someone else is at the control switch or during winch operation.
- Always stand clear of wire rope is winching.
- Always keep hands clear of wire rope, hook loop, hook and fairlead opening during installation, operation and when spooling in or out.
- Always use extreme caution when handling hook and wire rope during spooling operations.
- Always use supplied hook strap whenever spooling wire rope in or out, during installation or operation to avoid injury to hands or fingers.
- The Yellow Jacket™ (JKT-100) MUST be supervised at all times.

## STORAGE, TRANSPORTATION, AND HANDLING

When moving the Yellow Jacket™ (JKT-100), lift with care to prevent bodily injury.

The Yellow Jacket™ (JKT-100) is shipped in a custom wooden crate and should be stored upright in the same crate between jobs.

When storing the unit, Use mild soapy water to clean the machine in order to remove corrosive materials.

Winch Storage: When not being used, the winch should be left with the clutch

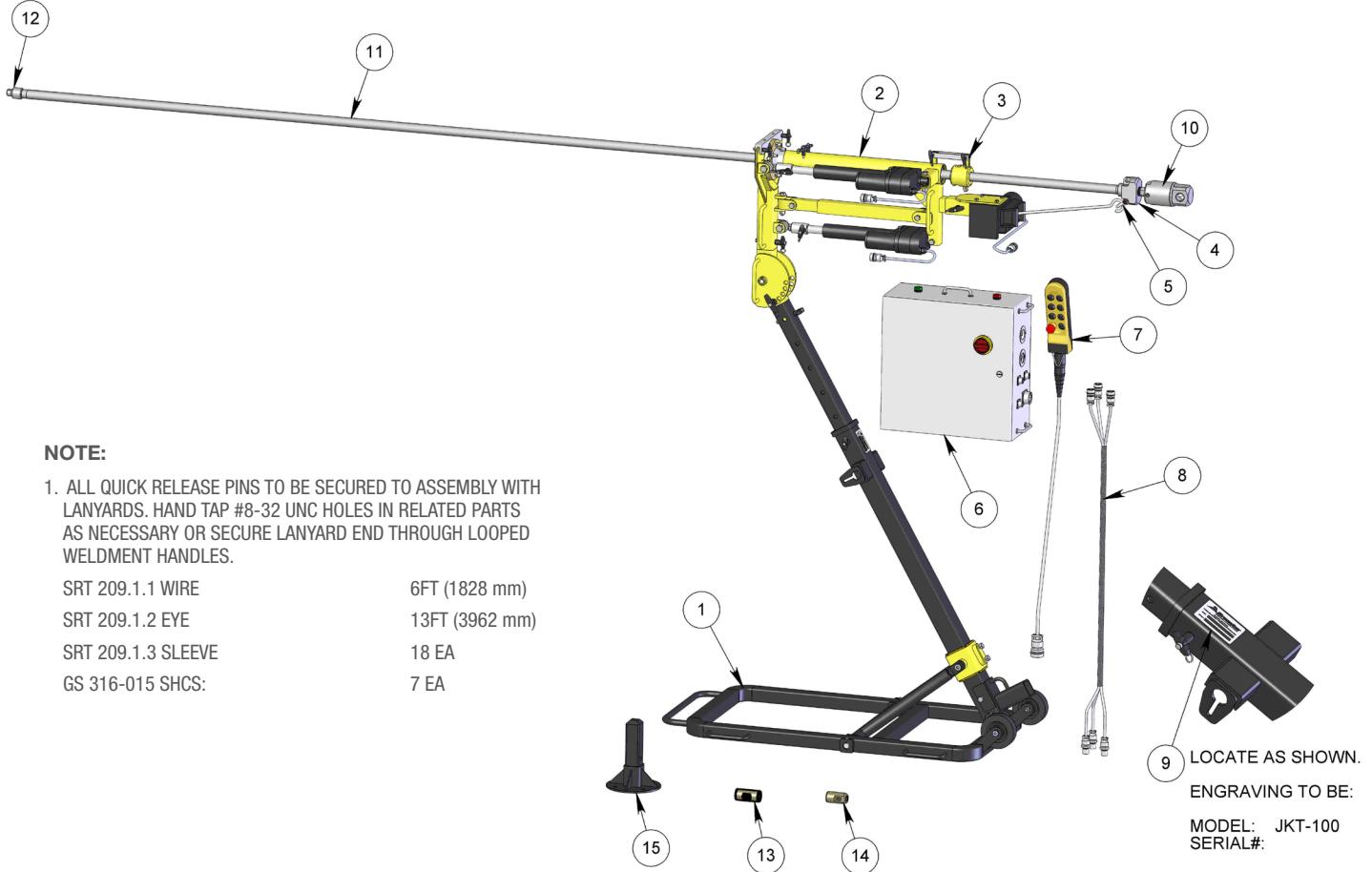
in the engaged position. This helps the internal parts of the winch withstand the effects of weather and contamination. Inspect the remote pendant control for damage. Store the winch/remote pendant in a protected, clean, dry area. Never submerge the Winch Assembly in water.

## MAINTENANCE

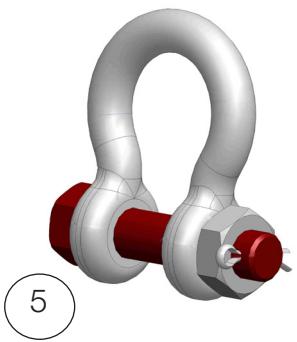
Maintenance Item	Frequency	Maintenance Required
Winch Assembly	<b>Before</b> each use	<p>Inspect the rope before and after each winching operation. If the rope has become kinked or frayed, the rope needs to be replaced immediately. Be sure to also inspect the winch hook and hook pin for signs of wear or damage. Replace if necessary.</p> <p><b>NOTICE</b></p> <p>No lubrication is required for the life of the winch.</p>
Winch Assembly	<b>After</b> each use	<p>Keep winch, rope, and remote pendant control free from contaminants. Use a clean rag or towel to remove any dirt and debris. If necessary, unwind winch completely (leaving a minimum of 5 wraps on spooling drum), wipe clean, and rewind properly before storage. Using light oil on the wire rope and winch hook can keep rust and corrosion from forming.</p>
Remote	<b>Before</b> each use	Inspect remote pendant control and all electrical connections to be certain they are clean and tight fitting.

Contact StoneAge for Safety Data Sheets for material usage, a complete list of spare part numbers, and service instructions for the Yellow Jacket™ (JKT-100) and Control Box.

## YELLOW JACKET™ (JKT-100)



#	PART NUMBER	QTY
1	JKT 110 FRAME ASSEMBLY	1
2	JKT 200 PIVOT ASSEMBLY	1
3	JKT 270-001 BACKOUT ASSEMBLY	1
4	JKT 290 P16P16 COUPLING WITH THREAD SUPPORT	1
5	JKT 355 SHACKLE WITH SAFETY PIN	1
6	JKT 400 CONTROL BOX ASSEMBLY	1
7	JKT 450 REMOTE ASSEMBLY	1
8	JKT 451 MACHINE UMBILICAL ASSEMBLY	1
9	PL 152 STONEAGE LABEL, SERIAL NUMBER PLAQUE	1

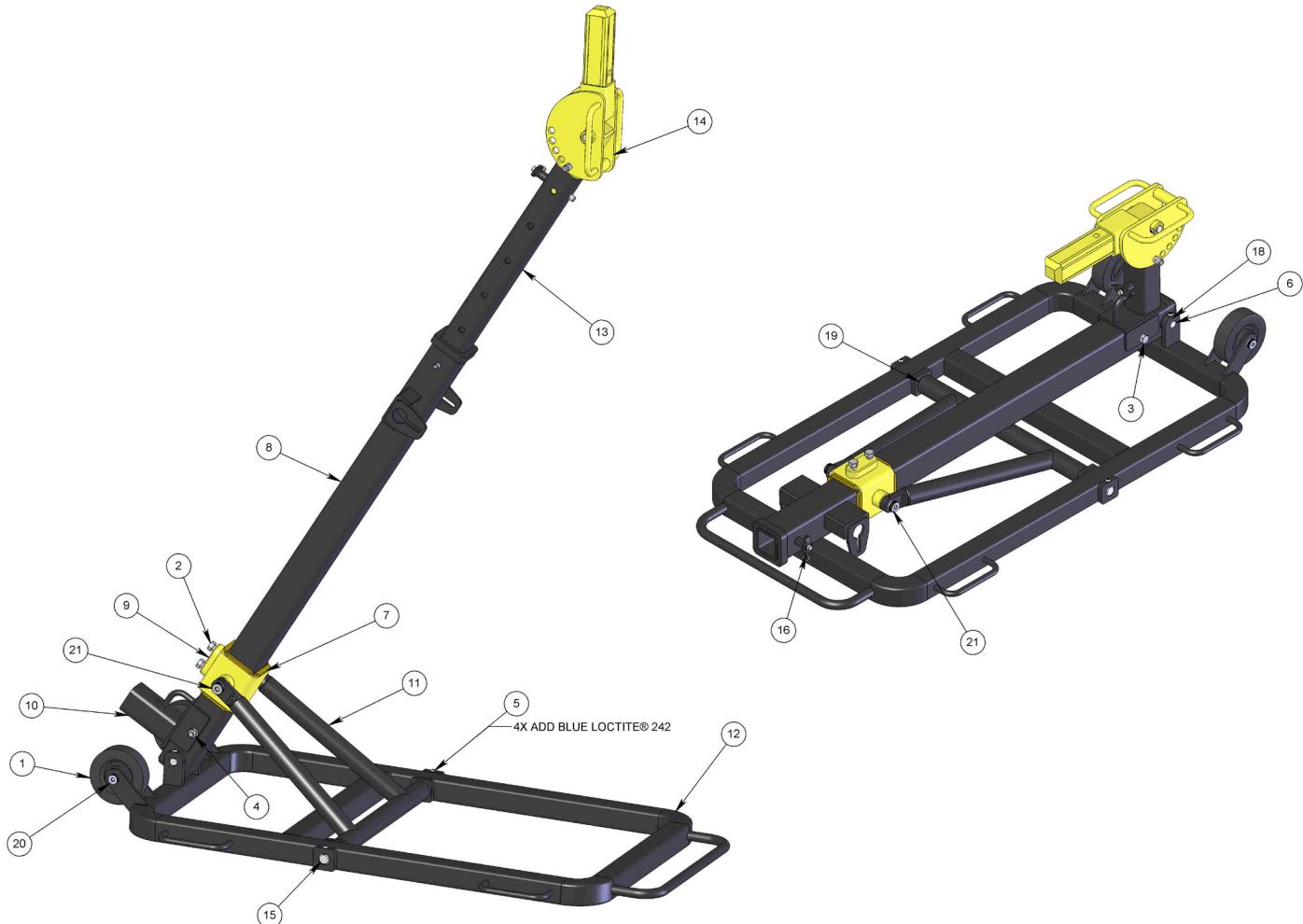


LINE ITEMS		
#	PART NUMBER	QTY
10	SM-P16-0 OR 90 SWIVEL	1
11	SA 376-P16P16-XX NIPPLE (OAL TO BE SPECIFIED)	1
12	OC8 P16 NOZZLE ASSEMBLY	1

OPTIONAL ITEMS		
#	PART NUMBER	QTY
13	JKT 296 P16P16-SL 15-5 10K COUPLING	1
14	JKT 295 P16P8-SL 15-5 10K COUPLING	1
15	JKT 190 PIVOT STAND WELDMENT	1

## PARTS DIAGRAM

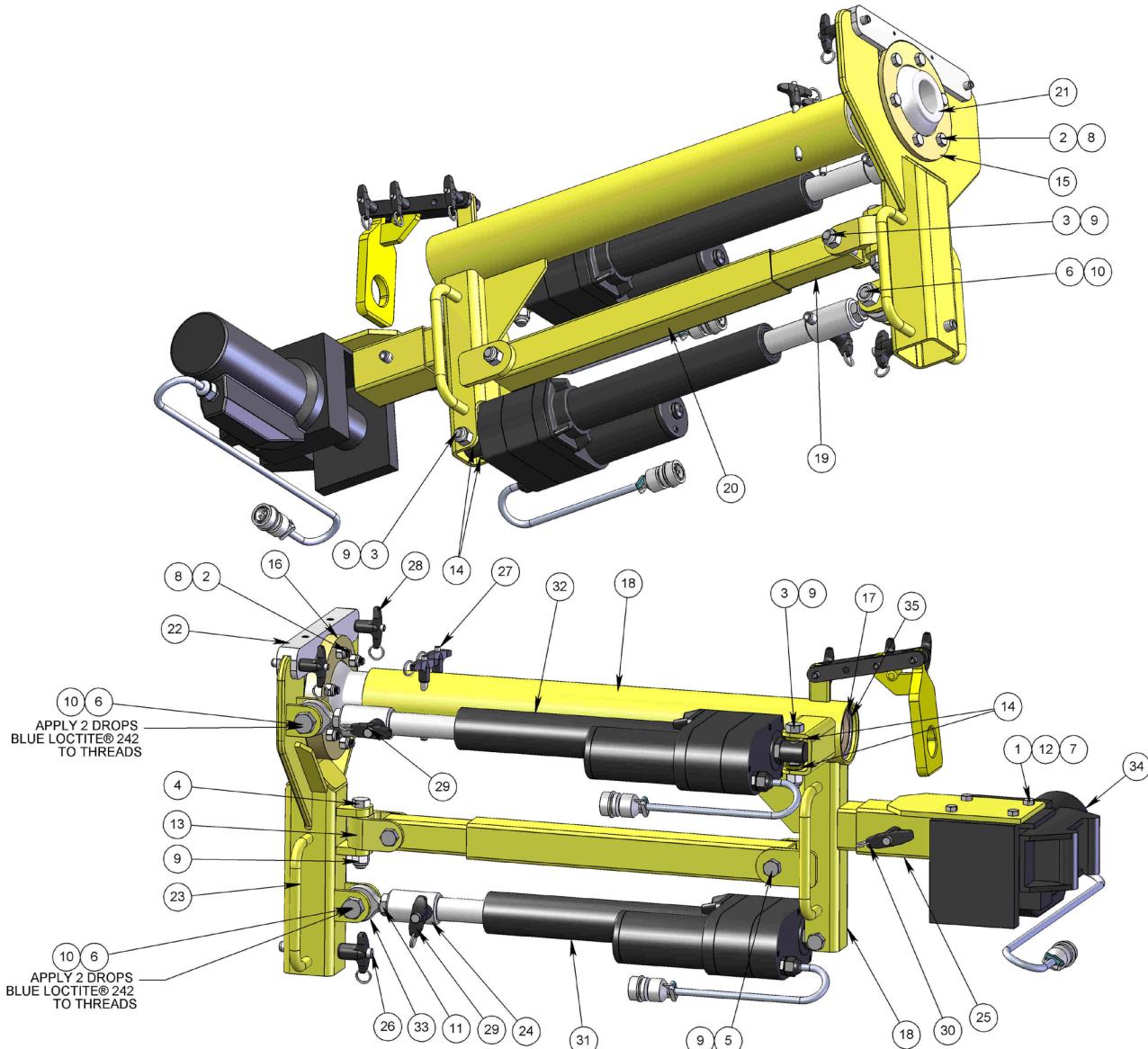
**YELLOW JACKET™ (JKT 110)**  
FRAME ASSEMBLY



#	PART NUMBER	QTY
1	BHK 218 WHEEL	2
2	GB 350-05 BOLT, HEX, .50-13 X 1.25 SS	2
3	GB 350-17 BOLT, HEX, .50-13 X 4.25 SS	1
4	GB 350-L NYLOK NUT SS	3
5	GSB 325-04 BHCS .25-20 X 1.00 Lg SS	4
6	JKT 112 BOOM AXLE	1
7	JKT 113 BOOM SLIDE SHIM PLATE	4
8	JKT 115 BOOM WELDMENT	1
9	JKT 120 BOOM SLIDE WELDMENT	1
10	JKT 130 BOOM STORAGE WELDMENT	1
11	JKT 140 BRACE WELDMENT	1
12	JKT 150 FRAME WELDMENT	1

13	JKT 160 INNER BOOM	1
14	JKT 170 PIVOT LOCK ASSEMBLY	1
15	JKT 180 BRACE AXLE	2
16	JKT 335 QUICK RELEASE PIN .50 X 3.11	1
17	JKT 342 SLEEVE BEARING 1.0 OD X .75 ID X .62 SAE863	2
18	JKT 345 FLANGE BEARING 1.0 OD X .75 ID X 1.25 SAE863	2
19	JKT 350 FLANGE BEARING 1.25 OD X 1.00 ID X 1.25 SAE863	2
20	JKT 356 SHOULDER SCREW .62 OD X 2.50 SS	2
21	JKT 357 SHOULDER SCREW .75 OD X .75 SS	2

**YELLOW JACKET™ (JKT 200)**  
PIVOT ASSEMBLY



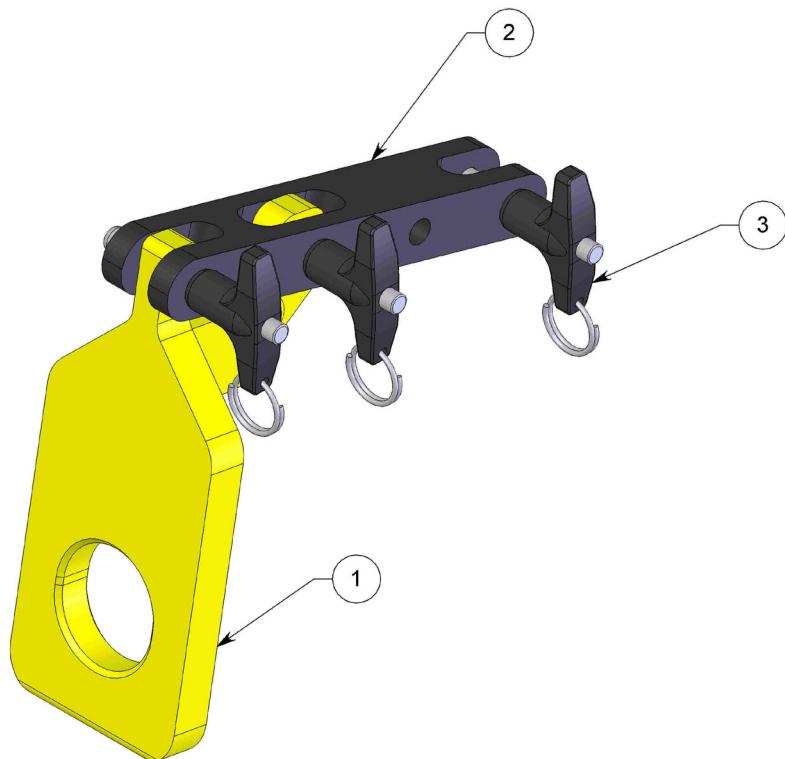
#	PART NUMBER	QTY
1	GB 331-04 BOLT, HEX, .31-18 X 1.00 SS	4
2	GB 337-10 BOLT, HEX, .37-16 X 2.50 SS	6
3	GB 350-11 BOLT, HEX, .50-13 X 2.75 SS	3
4	GB 350-12 BOLT, HEX, .50-13 X 3.00 SS	1
5	GB 350-13 BOLT, HEX, .50-13 X 3.25 SS	1
6	GB 362-10 BOLT, HEX, .62-11 X 2.50 SS	2
7	GN 331-L NYLOCK NUT SS	4
8	GN 337-L NYLOCK NUT SS	6
9	GN 350-L NYLOCK NUT SS	5
10	GN 362-H HEX NUT SS	2

11	GN 362-HJ-18 HEX JAM NUT	2
12	GW 331-F FLAT WASHER	4
13	JKT 205 BLOCK, ANTI ROTATION	1
14	JKT 206 BRONZE SPACER	4
15	JKT 207 BRONZE BEARING PILOTED	1
16	JKT 208 BRONZE BEARING PLAIN	1
17	JKT 209 GUIDE TUBE CENTRALIZER	1
18	JKT 210 GUIDE WELDMENT	1
19	JKT 215 INSIDE TUBE 1.50	1
20	JKT 220 INSIDE TUBE 1.75	1
21	JKT 225 MANTIS BALL	1
22	JKT 227 PIVOT RETENTION PLATE	1
23	JKT 230 PIVOT WELDMENT	1
24	JKT 235 ROD ADAPTER	2
25	JKT 250 WINCH MOUNT WELDMENT	1
26	JKT 270 BACKOUT ASSEMBLY	1

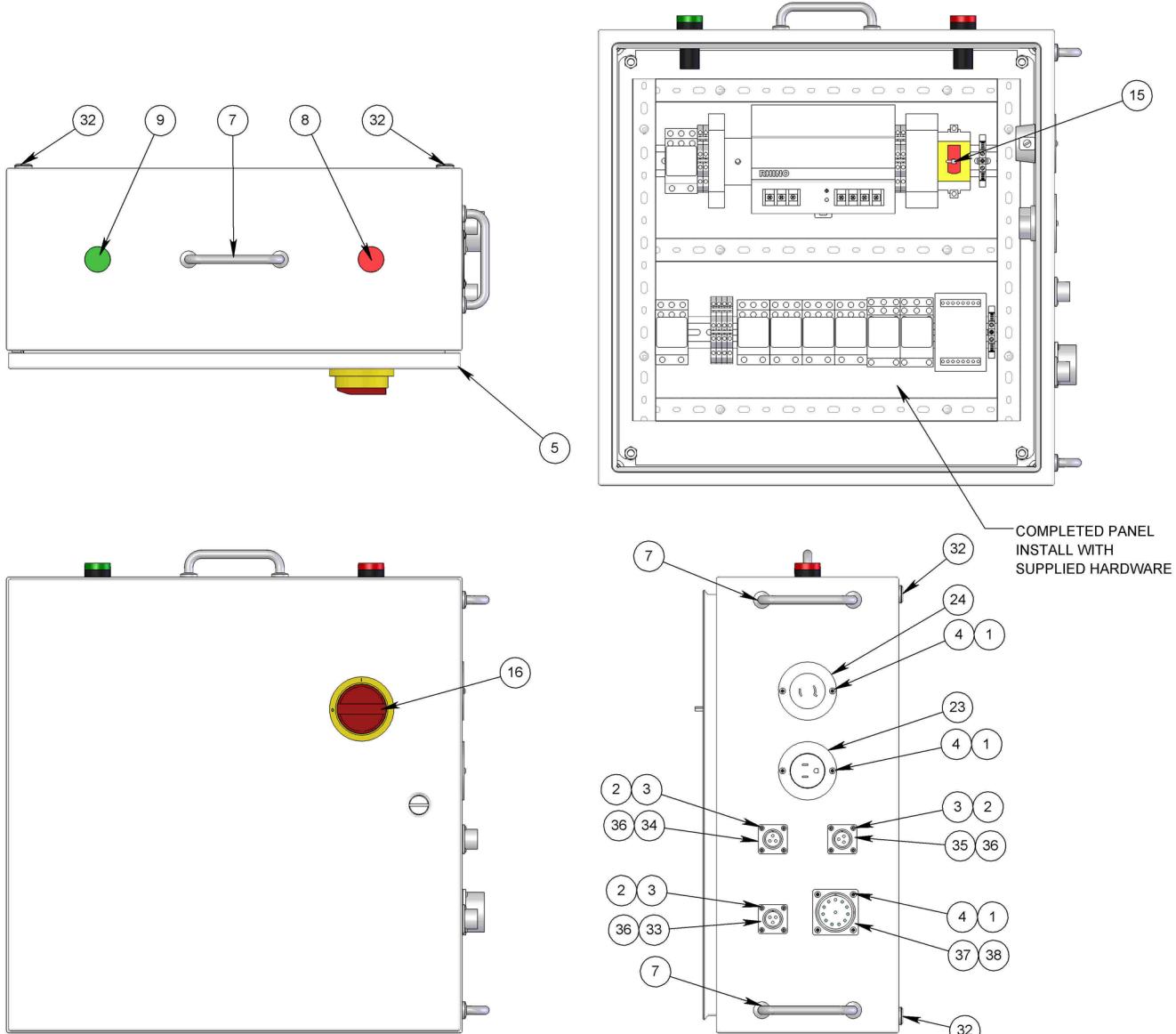
27	JKT 310 QUICK RELEASE PIN .50 X 2.50	1
28	JKT 315 QUICK RELEASE PIN .312 X 2.50	2
29	JKT 320 QUICK RELEASE PIN .375 X 1.00	2
30	JKT 325 QUICK RELEASE PIN .50 X 1.50	2
31	JKT 330 QUICK RELEASE PIN .50 X 2.25	1
32	JKT 360-L LIFT CYLINDER MODIFICATIONS	1
33	JKT 360-R ROTATION CYLINDER MODIFICATIONS	1
34	JKT 370 ROD END MALE .625-18	2
35	JKT 375 WINCH ASSEMBLY MODIFICATIONS	1
36	JKT 380 GUIDE TUBE RETAINING RING	2

## PARTS DIAGRAM

**YELLOW JACKET™ (JKT 270-001)**  
BACKOUT ASSEMBLY



#	PART NUMBER	QTY
1	JKT 276 BACKOUT WELDMENT	1
2	JKT 280-001 BACKOUT LINK BAR	1
3	JKT 305 QUICK RELEASE PIN .312 X 1.00	3

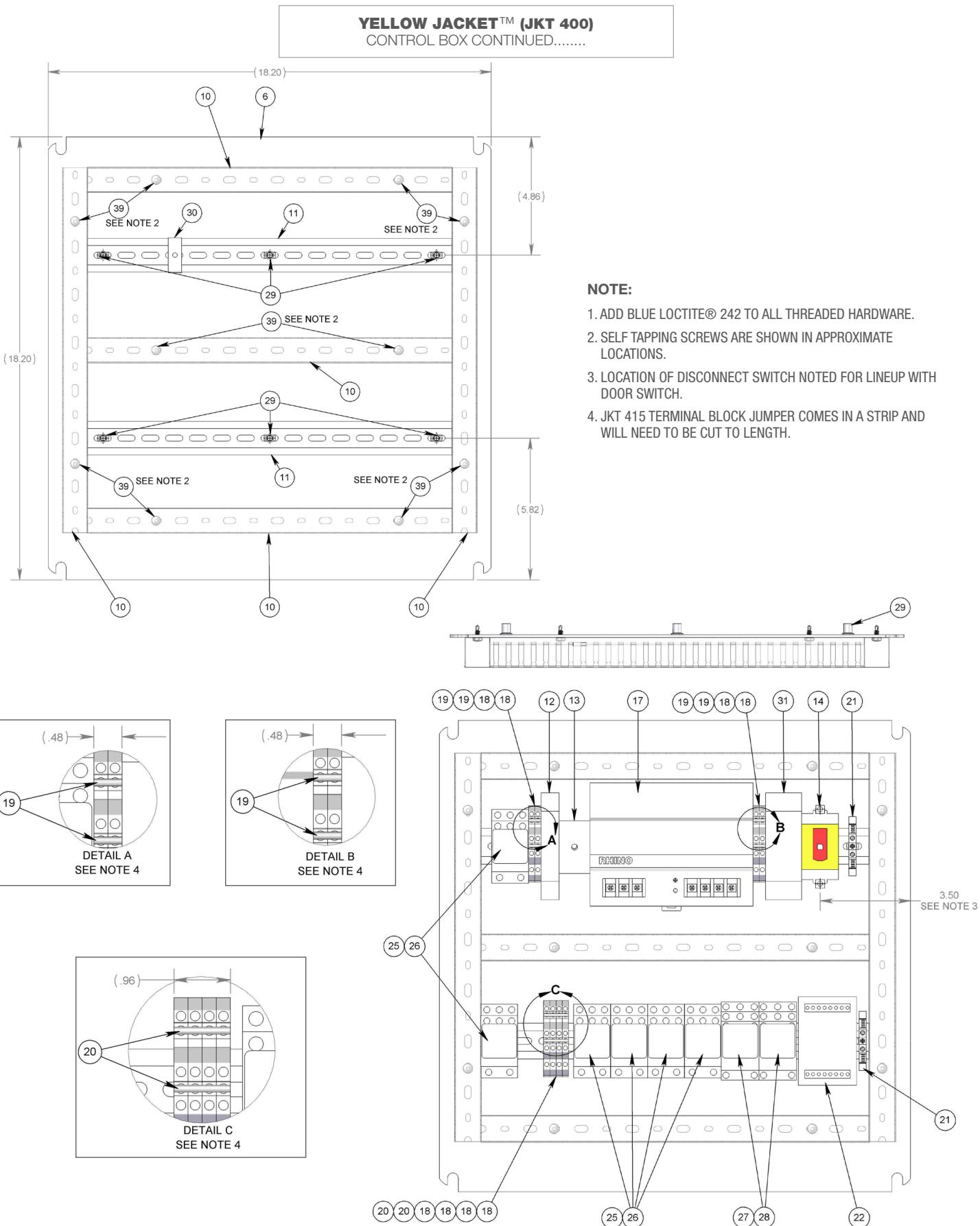
**YELLOW JACKET™ (JKT 400)**  
 CONTROL BOX


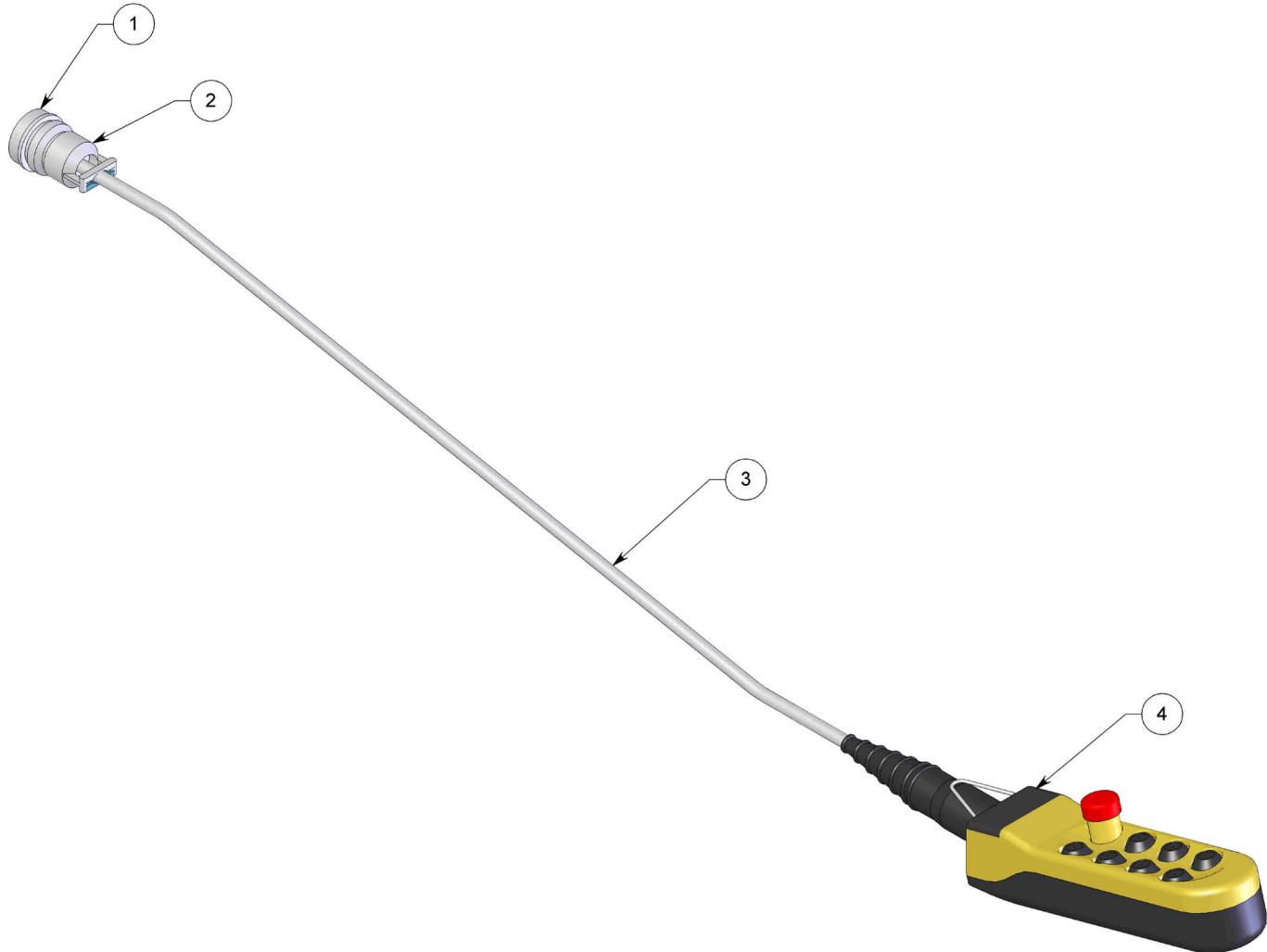
#	PART NUMBER	QTY.
1	CB 553 Hex Nut .138-32 SS	8
2	GN 311-H Hex Nut SS	12
3	GSB 311-02 BHCS .112-40 x .50 Lg SS	12
4	GSB 313-0175 BHCS 6-32 x .437 Lg SS	8
5	JKT 401 Enclosure	1
6	JKT 402 Panel	1
7	JKT 403 Handle	3
8	JKT 404 Light, 120V Red LED	1
9	JKT 405 Light, 24V Green LED	1
10	JKT 406 Wire Duct, 15in	5
11	JKT 407 Din Rail, 15in	2
12	JKT 408 Circuit Breaker, 10A	1

13	JKT 409 Bridge Rectifier	1
14	JKT 410 Disconnect Switch	1
15	JKT 411 Disconnect Shaft	1
16	JKT 412 Disconnect Handle	1
17	JKT 413 Power Supply, 24V 480W	1
18	JKT 414 Terminal Block, Double Level	8
19	JKT 415 Terminal Block Jumper 2 Block	4
20	JKT 415 Terminal Block Jumper 4 Block	2
21	JKT 416 Terminal Block, Ground	2
22	JKT 417 Diode Module	1
23	JKT 418 Power Inlet, 120VAC	1
24	JKT 419 Dump Connector	1
25	JKT 420 Relay Socket, DPDT	6

26	JKT 421 Relay, DPDT	6
27	JKT 422 Relay Socket, 3PDT	2
28	JKT 423 Relay, 3PDT	2
29	JKT 424 Rivet Nut, .25-20	6
30	JKT 425 Din Rail Clip	1
31	JKT 426 Circuit Breaker, 15A	1
32	JKT 427 Hole Sealer	4
33	JKT 430 Winch Flanged Receptacle	1
34	JKT 433 Rotation Flanged Receptacle	1
35	JKT 436 Lift Flanged Receptacle	1
36	JKT 439 Small Connector Gasket	3
37	JKT 441 Remote Flanged Receptacle	1
38	JKT 444 Large Connector Gasket	1
39	SRT 379 Screw, Pan Hd Self Tap 10-16 x .50 SS	10

## PARTS DIAGRAM

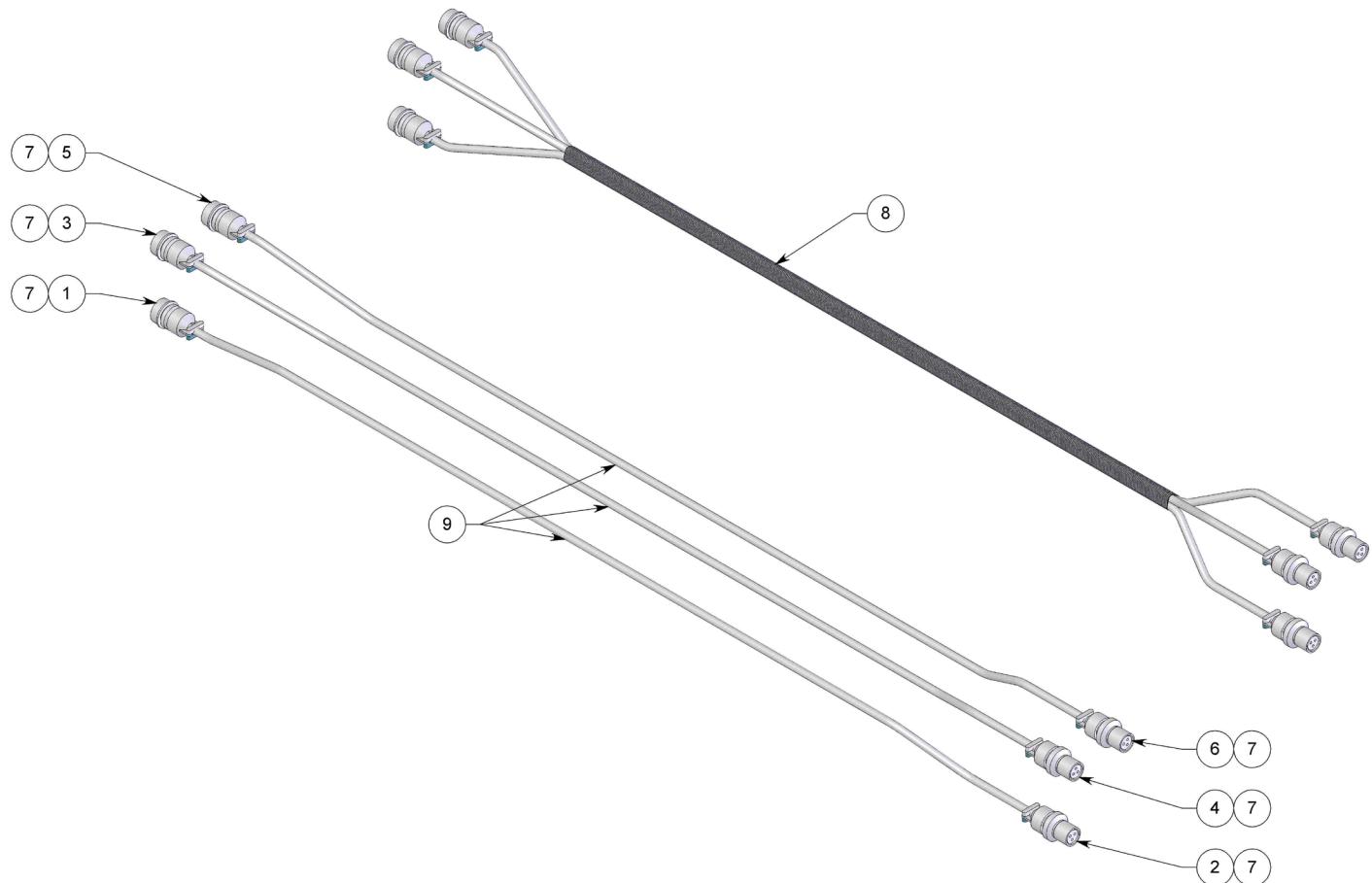


**YELLOW JACKET™ (JKT 450)**  
REMOTE ASSEMBLY

#	PART NUMBER	QTY.
1	JKT 442 REMOTE PLUG	1
2	JKT 443 LARGE CABLE CLAMP	1
3	JKT 452 CABLE, 25FT 18AWG 12C	1
4	JKT 453 REMOTE	1

## PARTS DIAGRAM

**YELLOW JACKET™ (JKT 451)**  
MACHINE UMBILICAL ASSEMBLY



#	PART NUMBER	QTY
1	JKT 431 WINCH PLUG	1
2	JKT 432 WINCH RECEPTACLE	1
3	JKT 434 ROTATION PLUG	1
4	JKT 435 ROTATION RECEPTACLE	1
5	JKT 437 LIFT PLUG	1
6	JKT 438 LIFT RECEPTACLE	1
7	JKT 440 SMALL CABLE CLAMP	6
8	JKT 448 EXPANDABLE SLEEVE, 10FT	1
9	JKT 449 CABLE, 15FT 14AWG 3C	3

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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 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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