



# DOUBLE PIN SINGLE JOINT ELEVATOR

## OPERATING PROCEDURE MANUAL



# SINGLE JOINT ELEVATOR

## SAFETY INSTRUCTIONS

The most important safety device for this tool is **YOU**. Your good judgment is the best protection against injury.

### ⚠ WARNING



To reduce the risk of injury, everyone using, installing, performing maintenance, changing accessories on, or working near this tool must read and understand these instructions before performing any such task.

## Operating Hazards

**⚠WARNING:** Do not overload the elevator. Overloading the recommended rating could cause series injury or death.

**⚠WARNING:** Secure the Latch Lock Pin in its proper position. Failure to secure the pin when picking up or laying down pipe could cause serious injury or death. See Figure 4.

**⚠WARNING:** Always ensure that the elevator and bore code are correct for the tubular it is to be used on. Failure to use the proper elevator and bore code could result in injury or death.

**⚠WARNING:** Always ensure that the tool joint or collar O.D. of the pipe is correct. Failure to maintain adequate contact area could result in injury or death.

**⚠WARNING:** To prevent injury or elevator malfunction, inspect the elevator bore, latch, hinge pin, and latch pin regularly for wear. Failure to inspect these parts could cause injury or death.

**⚠WARNING:** Do not use oversized pipe. Using oversized pipe could make it difficult or impossible to properly latch the elevator.

**⚠WARNING:** Do not use undersized pipe. Using undersized pipe could cause an inadequate load bearing area and uneven stress distribution. Both of which may result in injury or death.

**⚠WARNING:** Do not use the elevator if the latch or latch lock pin is malfunctioning. Latch or latch lock pin failure, may result in injury or death.

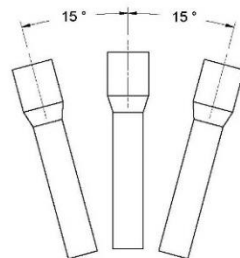
**⚠WARNING:** All warning labels attached to the equipment must be observed. The warning labels must be present on the tool. Do not remove the labels. If they are missing, replacing is mandatory.

**⚠WARNING:** The company operating the tool is responsible for issuing work instructions for safe and proper use of the equipment.

**⚠WARNING:** The operating company is responsible for verifying that any personnel operating, servicing, inspecting, or otherwise involved with the use of the tool must be properly trained correctly.

**⚠WARNING:** Never install the safety pin without the elevator being properly latched. If pin is installed before it is completely latched, the elevator will have a partial/false latch and could result in injury or death. See Figure 1-3

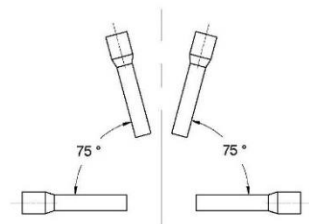
## Vertical / Non-vertical Lifting



Vertical lifting is considered vertical  $\pm 15^\circ$



Non-vertical lifting is considered  $\leq 75^\circ$  as max. from horizon.



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### Workplace Hazards

**⚠WARNING:** keep hands fingers clear of the elevator bore when installing the elevator around the pipe.

**⚠WARNING:** Always use the proper tools and wear eye, head, hand, and foot protection when servicing this elevator.

**⚠WARNING:** Maintain a balanced body position and secure footing.

**⚠WARNING:** For professional use only.

### Maintenance Hazards

**⚠WARNING:** Use only Keystone Energy Tool components on equipment. Failure to do so may affect the correct functioning of the tool and may cause injury or death.

**⚠WARNING:** KET equipment is made of cast alloy heat treated steel and should never be welded on in the field. Improper welding can cause cracks or brittleness in the castings which could result in drastic weakening or failure of the equipment. Any welding or machining must be performed by an authorized KET or API certified repair center.

**⚠WARNING:** Improper welding and/or re-machining of cast alloy heat treated steel can cause personnel injury, property damage, or death.



Read Operation manual before use.



Pay attention: do not place your hands between moving parts.



DO NOT lift from this area.



Be careful when lifting from these areas.



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# 1.0 Introduction

This manual contains operation and maintenance instructions for the Keystone Energy Tools (KET) “DPSJ” series double pin single joint elevator and provides instruction for its proper field use, disassembly and repair; including a complete parts breakdown.

(KET) “DPSJ” elevators are designed to replace rope slings for hoisting collar type into position when adding to a string. DPSJ elevators allow the crew to handle pipe properly, thus avoiding pipe thread damage and reduces the chances of accidents/injuries.

The DPSJ series pick up elevator has a simple, double hinge pin so that the elevator can open from either side. The size range of the DPSJ series elevator is as illustrated in the table provided.

**(See Figure 1)**

If the safety latch lock pin is installed correctly, then the SJ series elevator can perform non-vertical lifts (picking up of horizontal pipe). Failure to not install the safety latch lock pin correctly may result in injury or death.

If the Safety Latch Lock Pin is inserted into the Latch or Door Lug before closing the Elevator, the Safety Latch Lock Pin will prevent the latch from fully engaging the Latch Lug on the door resulting in a partial/false latch.

Model	Short Ton	Metric Ton	Range
SJ	7.5	6.8	4" - 14"
SJ	10	9.1	16" - 20"

**Figure 1**

**NOTE:** WARNING labels have been installed at critical areas on the tool. Familiarize yourself with their message and locations before proceeding to operate equipment.

**See Safety Instructions Page**

**⚠WARNING:** During use, the elevator should never be run into the tool joints or couplings inducing any type of shock load into the equipment. Shock loads are an impact-type force applied over a short instant of time. In shock loading, the energy of the applied force is ultimately absorbed, or transferred, to the elevator designed to resist the force. The application of shock loads to an elevator can cause shock/fatigue stress loading potentially resulting in premature stress/fatigue failure.



## CE Marking

The tool complies with the Machinery Directive 98/37/EC and 2006/42/EC

This operating manual is a part of the technical documentation for the product.

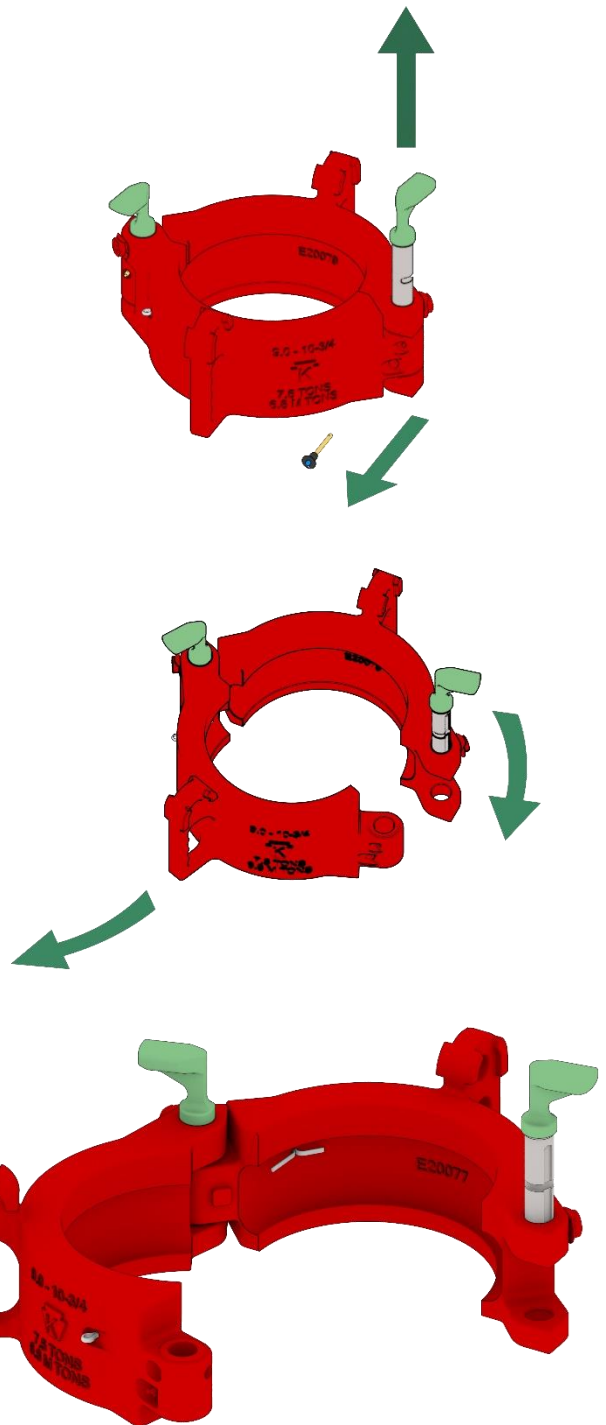
The EC Declaration of Conformity is delivered together with the product. Keep these instructions and the associated documents for later use.

## 2.0 Operation

As with any manual operated elevator, the DPSJ is easily installed by the user. Perform the actions prescribed below after the elevator is hoisted to the rig floor and properly positioned.

- ▶ Remove the bolt from the shackle on the swivel suspension assembly.
- ▶ Attach the shackle over the lifting eye on the elevator then replace the bolt to the shackle.
- ▶ Repeat the process for the opposite lifting eye. To remove the elevator, simply reverse the process.

The operation of the DPSJ elevator is straightforward. The elevator is opened by pulling out the safety latch pin, picking up of either hinge pin locking it into place, and pulling outward by the handle. When the elevator is properly closed around the pipe, turn the hinge pin, push it fully down, followed by installing the Safety Latch Pin. (See Figure 4)



# 3.0 Maintenance

To ensure optimum performance, perform the below-listed weekly checks.

- ▶ Check for worn Hinge Pins and their mating parts. These, if worn, may hinder proper opening and closing of the elevator.
- ▶ Check the Safety Retainer Pin assembly for worn or damaged parts.

Lubricate the elevator regularly during usage and storage to prevent corrosion. Use an extreme pressure, multi-purpose, lithium base grease of No. 1 or No. 2 consistency or a lubricant that meets MIL-SPEC-A907E.

\*\*\*When greasing of pins make sure the pump grease until it comes out of both ends.\*\*\*

Maintain elevator as prescribed in the below periodic Actions/Examinations. (See Figure 3)

**“Proof Load Test”** shall be performed only once following manufacture or remanufacture. This is by applying a load equal to 1.5 times the rated load for a period no less than 5 min. A proof load test shall be followed by surface NDT no earlier than 24 hrs. after proof of testing.

**“Performance Load Test”** is recommended after 365 days of accumulative use. This test is to verify the function of the equipment to perform under the conditions or in conjunction with other equipment. The Performance Test may consist of loads up to, but not exceeding, the rated load of the equipment.

*Reference API 8B Recommended Practice*

**Category III:** Every 6 months the equipment should include NDT of critical areas and may involve some disassembly to access specific components and to identify wear that exceeds the allowable wear tolerances.

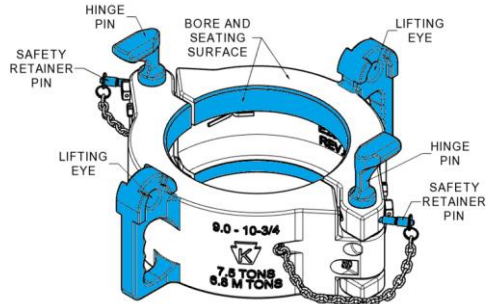
**Category IV:** Every 12 months the equipment **shall** be disassembled to permit the necessary full NDT inspection of all primary load carrying components per ASTM E-709 (see figure 5). Including inspection for excessive wear, cracks, flaws, and deformations.

If any repair work is required, the equipment shall be sent into a Keystone Energy Tool facility for evaluation.

Tool Maintenance		
ACTION	FREQUENCY	FIG.
Grease Hinge Pin	Daily	6
Lubricate Latch Pin		6
Lubricate Latch Lock Bolt		6
Grease Underside of Lifting Eye		6
Grease Bore and Seating Surface		6
MPI Category III	Every 6 Months	8
MPI Category IV	Every 12 Months	8
Performance Load Test	Every 365 Days “See left”	-

**Figure 3**

Locations of parts identified in Figure 3 have been illustrated below for reference. (See Figure 4)



**Figure 4**

## 4.0 Repair

The DPSJ series elevator requires minimum attention. to remove and replace the Hinge Pins, Lock-Tab Washer, Hinge Pin Retainer Bolt, Cotter Pin, and Safety Latch Pin assembly described below.

- ▶ To remove the Hinge Pin, first remove the Hinge Pin Retainer Bolt and Lock-Tab Washer. Pick up the pin and it will come out of the elevator. Replace the Hinge Pin, Hinge Pin Retainer Bolt, and Lock-Tab Washer.
- ▶ To remove the Safety Latch Pin Assembly, remove the cable end ring from the cotter pin on the elevator body.

We have identified those areas considered critical to tool performance and functionality. These should be examined for repair.

(See Figure 5)

**NOTE 1:** Both bodies are specifically matched by trained Keystone Energy Tools professionals. For this reason, a body from one elevator should never be exchanged with a body from another elevator.

Illustrated below are the critical and non-critical areas associated with the subject tool. Critical areas are identified by the shaded areas. All non-shaded areas are considered to be non-critical.

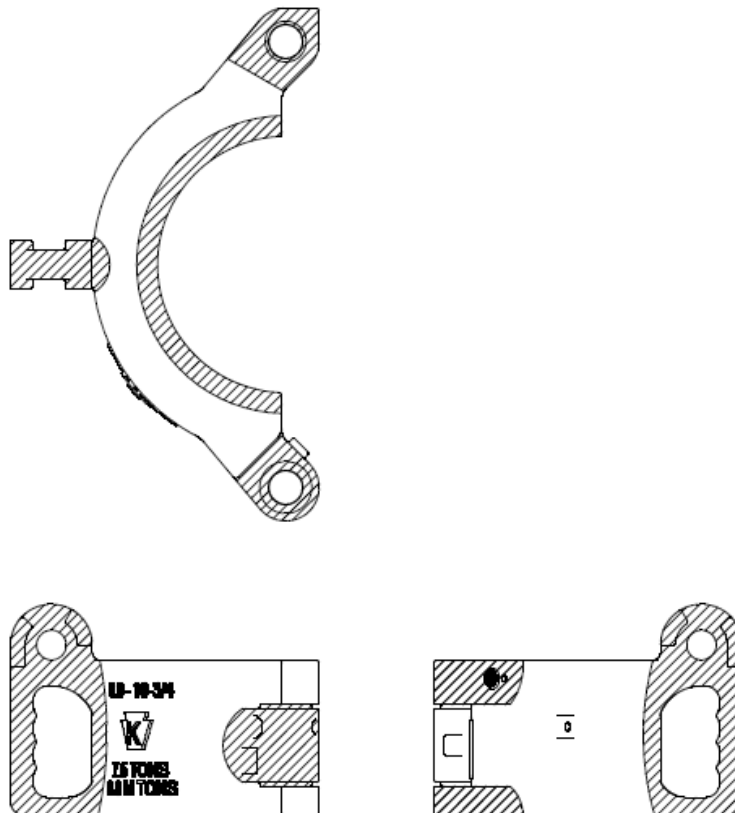
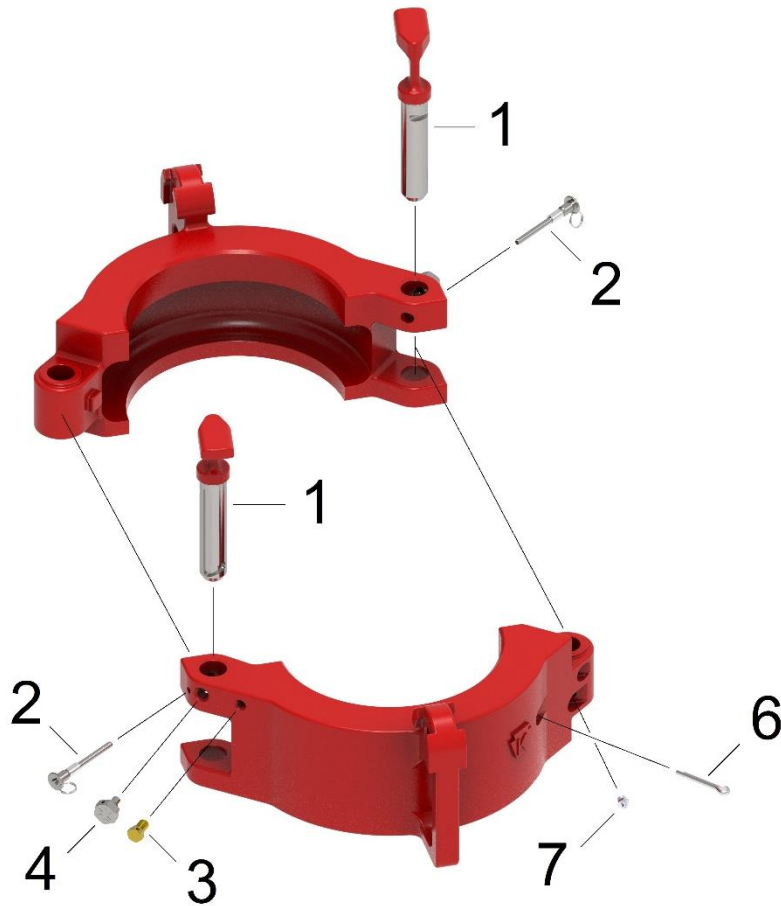


Figure 5



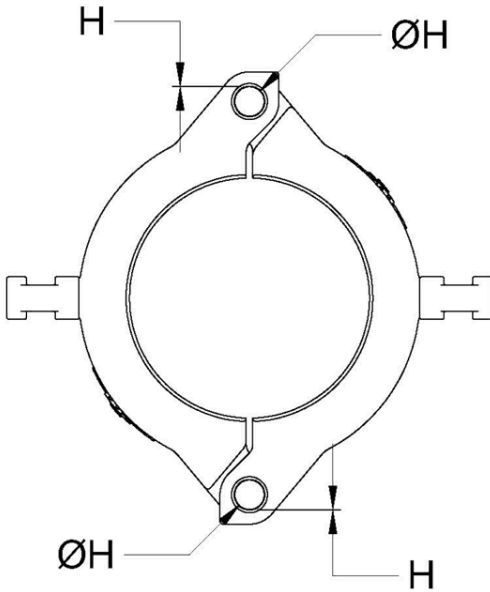
# Replacement Parts



ITEM	QTY	PART No.	DESCRIPTION
1	2	E20073	HINGE PIN
2	2	E20101	HINGE PIN SAFETY RETAINER PIN
3	2	E20102	11/16" LOCK-TAB WASHER
4	2	E20103	HINGE PIN RETAINER BOLT – 3/4" LONG (FRAME SIZE E20073-E20079)
5	2	E20103-1	HINGE PIN RETAINER BOLT – 7/8" LONG (FRAME SIZE E20081)
6	2	E20104	2" COTTER PIN
7	2	E940308-1	1/8" NPT GREASE ZERT

**Keystone** ENERGY TOOLS

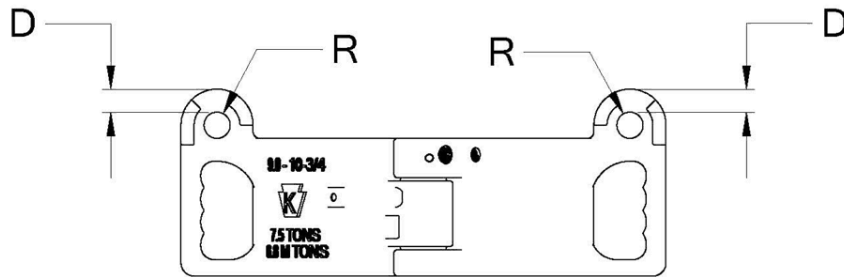
# Wear Data for Double Pin Single Joint Elevator



SIZE	Rated Capacity
4" - 14"	7.5 Ton
16" - 20"	10 Ton

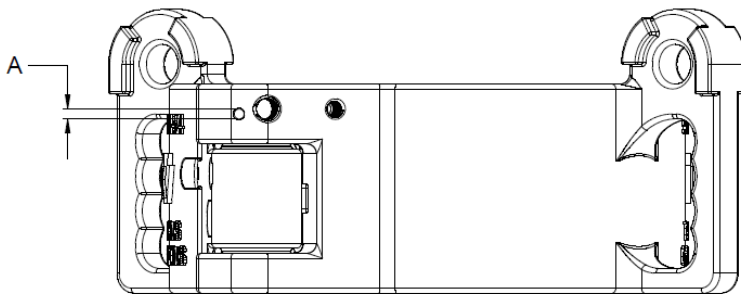
## TOTAL CLEARANCE

Dimension (H) Max	.030"
Dimension (H) Dia. Max	1.140"
Hinge Pin Dia. Min	1.110



## LIFTING EARS

RADIUS-R	1.000"
Dimension (D) Min	0.750"



## SAFETY LATCH PIN

Dimension (A) Max	.270
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## CERTIFICATE OF WARRANTY AND GUARANTEE OF QUALITY

KET warrants all materials and products manufactured to be free from defects in material and workmanship, under normal use and service, when installed, used, and serviced in the manner provided and intended by the seller for a period of twelve (12) months after delivery. Seller's obligation under this warranty is expressly limited to repair or replacement, at its option, of any materials or products, returned to the seller's plant in New Iberia, Louisiana and which are determined by the seller to be defective. All freight charges for return and reshipment shall be paid by the customer. A new warranty period shall not be established for repaired or replaced material or products; such items shall remain under warranty only for the remainder of the warranty period on the original materials or products. This is the sole warranty of the seller and no other warranty is either expressed or implied, in fact or by law, including any warranty at to the merchantability or fitness for a particular use or purpose.

In case of goods or parts not wholly of seller's manufacture, seller shall make available to the customer whatever warranty or guarantee is extended to seller for such goods or parts by the supplier or manufacturer thereof.

Seller will not assume responsibility or liability for any repairs, rebuilding, welding or heat treating done to its material or products outside of seller's plant, such work shall void all warranties. All parts used in the manufacture and /or final assembly of seller's materials or products are necessary for both safety and operational performance. Omission of any part or failure to replace any worn part may result in the malfunction and a consequent safety hazard for which seller disclaims any responsibility or liability for injuries or damage as a result thereof.

Buyer's sole and only remedy in regard to any defective materials or products shall be the repair or replacement thereof as herein provided, and seller shall not be liable for any consequential, special, incidental or punitive damages resulting from or caused by any defective materials, products or supplies.



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**Revision History**

Rev	Date	Changes	By
02	03/02/2021	Added Revision History	Cody H.
03	07/12/2021	Updated Format	Cody H.
04	10/19/2021	Added definitions f/category III & IV inspection methods	Cody H.
05	07/19/2022	Updated address	Cody H.
06	03/29/2023	Updated renderings for new safety latch lock pin placement	Cody H.
07	01/10/2024	Added hinge hole & pin wear data	Cody H.
08	02/02/2024	Updated Wear Data dimension tolerance	Cody H.
09	02/07/2024	Updated Wear data dimensions	Cody H.
10	04/08/2024	Added warning about shock loading	Cody H.