

TOMBSTONE LIFTER

TSL15C4T16

Operators Manual

Conforms to the latest revisions of

ASME B 30.20 and BTH-1

Design Category B, Service Class 3



170 State Route 271
Ligonier, PA 15658
1-800-653-6069

TABLE OF CONTENTS

Section I. General Information.3

Section II. Safety3

Section III. Identification of Major Components5

Section IV. Setup.....5

Section V. Operation.....7

Section VI. Maintenance11

Section VII. Inspection Criteria12

Section VIII. Parts/Drawings13

Section IX. Warranty17

RECORD INFORMATION HERE

FOR REFERENCE

| | |
|---------------------------|--|
| MODEL | |
| BODY SERIAL NUMBER | |
| Notes: | |
| | |



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Section I. General Information.

May we take this opportunity to thank you for purchasing the Kenco Tombstone Lifter. The Tombstone Lifter provides the ultimate in below the hook Block handling versatility. The Tombstone Lifter is quality engineered to provide years of trouble free, low maintenance performance. **Please read and fully understand this manual and any additional attached documentation before attempting to set-up, operate or maintain the Tombstone Lifter system.**

This manual should be made available to all persons who may use or maintain the Tombstone Lifter system. For additional information, please feel free to contact the service department at Kenco at 1-800-653-6069

Section II. Safety

A. General

1. Safety practices described in this manual are intended as guidelines for safe operation under most conditions and are supplementary to any and all rules and/or laws governing any aspect of the Kenco Tombstone Lifter operation that are in force in your area.
2. Before operating the Kenco Tombstone Lifter, you should have a clear understanding of said laws and regulations to ensure compliance.
3. Throughout this manual there are parts tagged with one or more of the following safety warnings. Particular care must be exercised with regard to these statements.



This warning is used where there is a high probability of death or serious injury if the instructions are not followed correctly.



This warning is used where there is a possibility of injury to yourself or others if the instructions are not followed correctly.



This warning is used where there is a possibility of damage to the machine if the instructions are not followed correctly.



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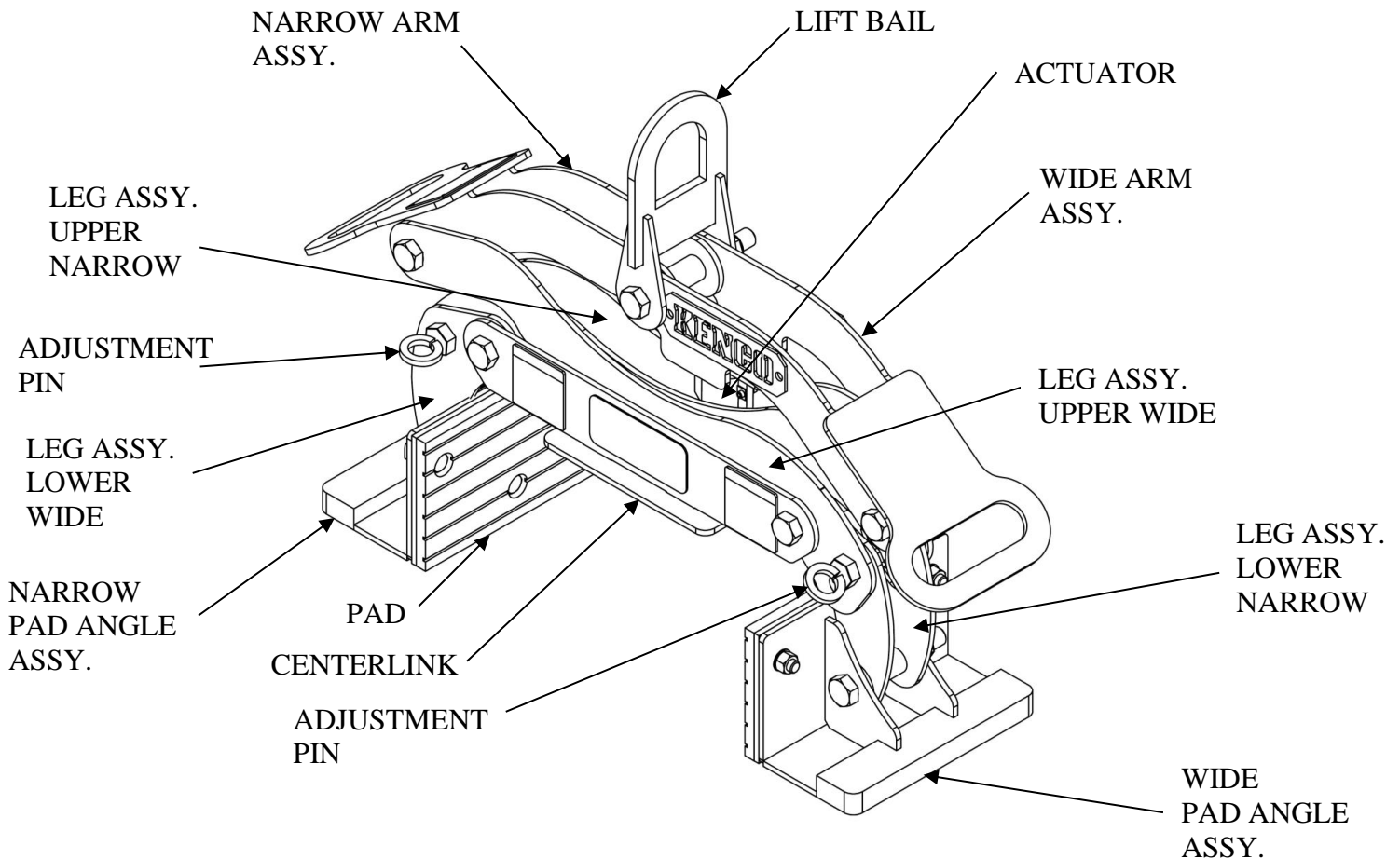
B. Personal Safety

1. Wear appropriate protective clothing and related safety equipment including protective glasses, hardhat, gloves, protective shoes, hearing protection, and any other equipment/devices dictated by job conditions.
2. Do not wear loose clothing, jewelry, or hairstyles that could become entangled in the Kenco Tombstone Lifter or rigging hardware.
3. Keep hands, feet, and any other appendages clear of the Tombstone Lifter while in operation.

C. Operation Safety.

1. **DO NOT ATTEMPT TO OPERATE OR PERFORM MAINTENANCE ON THE TOMBSTONE LIFTER UNTIL READING AND FULLY UNDERSTANDING THIS MANUAL**
2. **MAINTAIN SAFE DISTANCE FROM LOAD - NEVER ALLOW THE TOMBSTONE LIFTER OR LOAD TO PASS OVER ANY PART OF A PERSON.**
3. **DO NOT USE A KENCO TOMBSTONE LIFTER THAT HAS BEEN ALTERED ACCIDENTALLY OR INTENTIONALLY, IN ANY WAY WITHOUT INSPECTION BY QUALIFIED PERSONNEL.**
4. **DO NOT USE A KENCO TOMBSTONE LIFTER FOR ANY TASK OTHER THAN THE INTENDED PURPOSE OF THE DESIGN.**

Section III. Identification of Major Components



Section IV. Setup.

- A. Check the Tombstone Lifter for any signs of damage incurred during shipping.
- B. Record model and serial # of assembly and components.
- C. Attach the Tombstone Lifter to hoist.
 1. Use as few rigging components (shackles, slings, chain, etc.) as possible.
 2. **ALL RIGGING COMPONENTS MUST HAVE A WORKING LOAD LIMIT THAT IS EQUAL TO OR GREATER THAN THE COMBINED WEIGHT OF INTENDED LOAD PLUS THE TOMBSTONE LIFTER.**
 3. **UNDER NO CIRCUMSTANCES SHOULD ANY COMPONENT USED AS RIGGING TO THE TOMBSTONE LIFTER BE OF A RATED CAPACITY LESS THAN THAT OF THE TOMBSTONE LIFTER.**



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4. **DO NOT RIG UNPROTECTED NYLON SLINGS OR WIRE ROPE DIRECTLY THROUGH LIFT BAIL.**

5. **IF USING EQUIPMENT OTHER THAN A CRANE: USE RIGGING OF SUFFICIENT LENGTH TO PREVENT CONTACT BETWEEN THE TOMBSTONE LIFTER AND EQUIPMENT.**



Section V. Operation.



Before attempting to use the Tombstone Lifter device **ALWAYS** perform a test lift on the intended object(s) to confirm proper operation. **DO NOT** use a Tombstone Lifter to handle objects beyond the rated capacity or range.



Manipulation of the Tombstone lifter by ground personnel for the purpose of alignment with load shall only be done with Custom Tombstone lifter suspended above the block. **KEEP ALL HANDS AWAY FROM THE TOMBSTONE LIFTER DURING OPERATION.**

A. Automatic operation:

1. Ensure that the Tombstone Lifter's capacity and range are appropriate to the block to be handled.



WARNING: Adjustment of the Tombstone Lifter legs should be carried out while the centerlink portion is resting on an object of 10" or less in width providing a stable and balanced condition that suspends the legs such that they are free to rotate. (Suspending the lifter with rigging by the lift eye while attempting to adjust is not recommended as the actuator could be inadvertently cycled, causing the lifter to snap shut.)

2. Adjust the legs of the Tombstone Lifter as necessary to fit the size of the object. (Hole 1 is for objects 10" to 16". Hole 2 is for objects 4" to 10". **See pages 9 and 10 for clarification.**)
3. Position Tombstone Lifter at or near center of object to be lifted.
4. Lower Tombstone Lifter onto object, taking care to minimize impact.
5. Ensure that all persons are clear of Tombstone Lifter and load.
6. Release tension on lift cable to cycle the actuator.
7. Raise Tombstone Lifter and load in a smooth motion. Do not "jerk".
8. Deposit at desired location.
9. Release tension on lift cable to cycle the actuator. (Note: avoid undue slamming of the Tombstone Lifter into open position to prolong actuator life.)
10. Remove Tombstone Lifter (Tombstone Lift is latched in open position automatically)

Tip: The majority of wear on the Tombstone lifter and associated components results from shock loading, impacting, and poor alignment of the Tombstone lifter with the load. Minimizing these incidents will greatly extend the life of the Tombstone lifter and consumables.

B. Avoid Jarring, swinging, and otherwise unnecessary manipulation of the load.



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- C. Avoid handling of loads off center.

- D. DO NOT USE THE TOMBSTONE LIFTER TO PICK MULTIPLES OF ITEMS IN A SINGLE PICK.

- E. Observe all safety practices associated with operation of hoist machinery.

- F. DO NOT USE TOMBSTONE LIFTER TO DRAG LOADS.

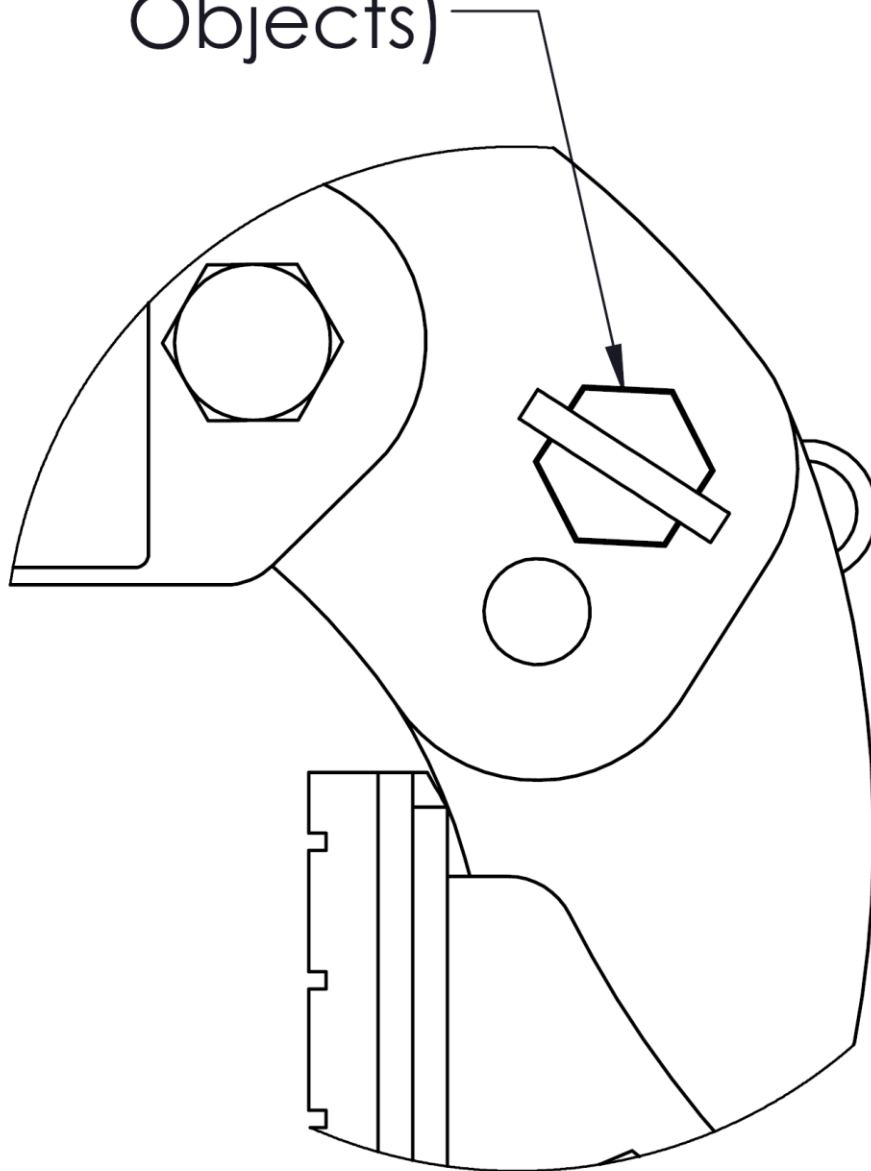
- G. DO NOT ALLOW LOAD (BLOCK) TO CONTACT ANY SURFACE/OBJECT WHILE BEING HANDLED.



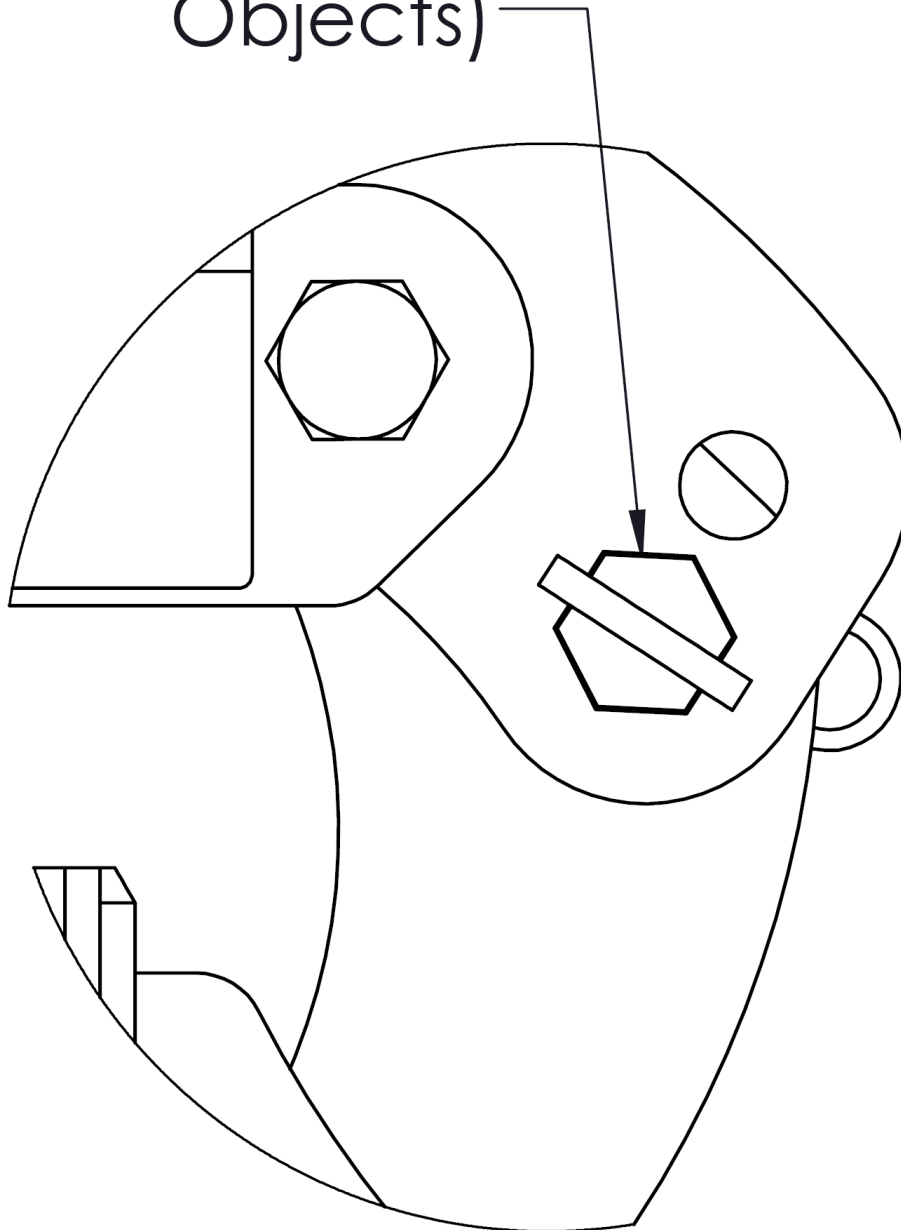
*The Tombstone Lifter handling device produces grip **proportional to and dependent on** the weight of the load. It is for this reason that while in operation the Tombstone Lifter and load **NEVER** be allowed to contact other items.*

Note: Adjustment Pin must be in the same hole of both leg assemblies.

Adjustment Pin in Hole 1 (10" to 16" Objects)



Adjustment Pin in Hole 2 (4" to 10" Objects)





Section VI. Maintenance

A. Daily:

1. Visually inspect the Tombstone Lifter for signs of stress and wear.
2. Check that bolts and nuts are snug.
3. Check that key-way area of the attachment and lift body are properly seated.
4. Ensure free movement of all components.
5. Ensure that all warning labels are present and readable.
6. Check that the actuator mounting screws are snug and seated.
7. Lubricate all moving mechanisms with penetrating oil.
8. **LUBRICATE ACTUATOR WITH LIGHT PENETRATING OIL ONLY (WD40™)**

B. Annually*

1. Remove pivot bolts and coat with grease.
2. Inspect holes, pins, bolts etc. for wear. See sect VII for criteria.
3. Remove actuator, clean and lubricate with light penetrating oil – check for signs of wear, replace if necessary.

* *Frequency depends on usage, environmental conditions, etc.*

Section VII. Inspection Criteria

THE TOMBSTONE LIFTER UNIT AND ALL OF ITS ASSOCIATED COMPONENTS SHALL BE REMOVED FROM SERVICE AND TAGGED APPROPRIATELY UNTIL RECERTIFICATION BY A QUALIFIED INDIVIDUAL IN ANY OF THE FOLLOWING CONDITIONS:

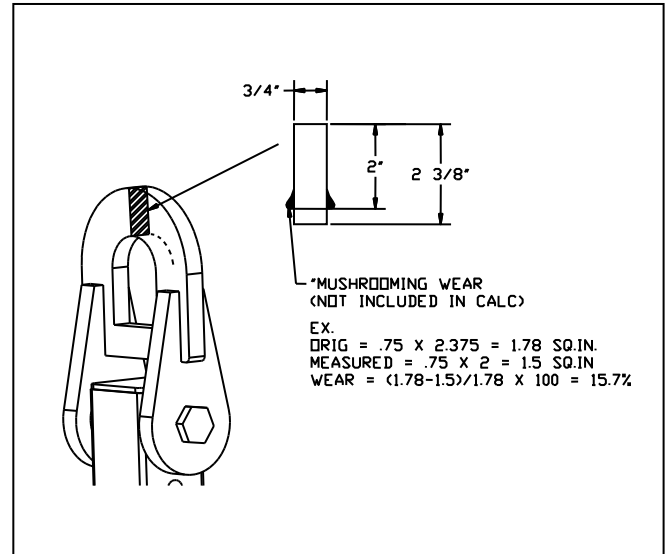
A. General

1. Cracking in any component or member.
2. Cracking in any weld.
3. Visible distortion in any member.
4. Visible distortion in any Bolt/Pin/Shaft.

B. Specific

1. Lift Bail

- a. The lift bail shall be replaced if a 20% loss in cross-sectional area from the original member(s) can be demonstrated. Note: cross section of welds, “mushroomed” wear faces, and burrs are not accounted for as cross-sectional area. (See ill.)



2. Holes.

- a. Any members through which bolted or pinned connections pass shall be replaced if a 10% loss in cross-sectional area from the original member(s) can be demonstrated. Note: cross section of welds, “mushroomed” wear faces, and burrs are not accounted for as cross-sectional area.

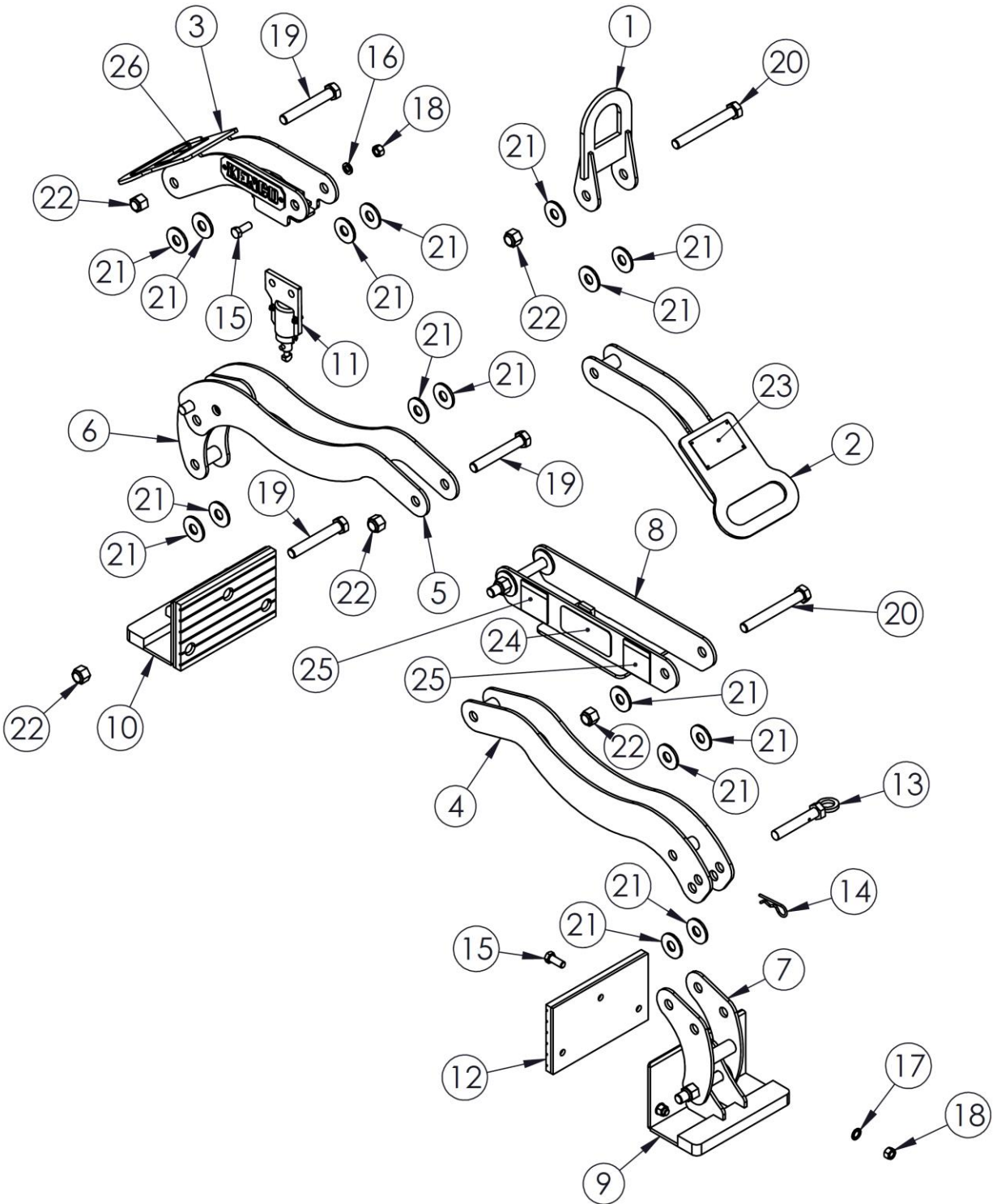
3. Pins/Bolts.

- a. Any visible deformation of a pin, shaft or bolt shall require replacement of that part.

4. Pads – Replace if:

- a. For units utilizing urethane gripping pads, if surface of any given mounting bolt is not at least 3/32” below the surface of the pad,.
- b. Any de-lamination of the pad from the backing plate.
- c. Any scarring, chunking, or missing pad material constituting a total combined loss of surface area greater than 3 sq. in. per pad.
- d. Any single scar, chunk, or missing pad face that is greater than 1 sq. in per pad.

Section VIII. Parts/Drawings



23

KENCO CORPORATION
877-4ATTACH

MODEL

USAGE

CAPACITY WT.

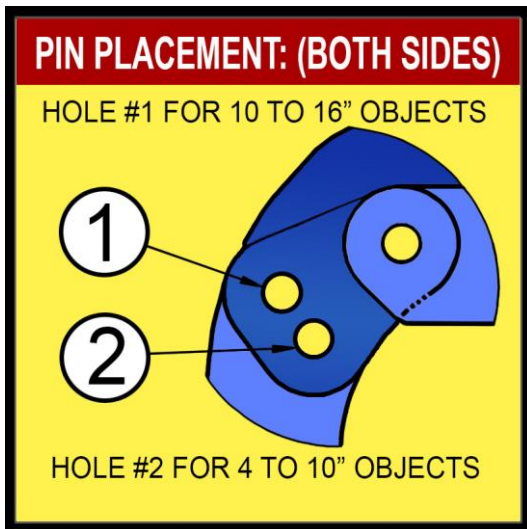
SERIAL NO.

THIS LIFTER IS DESIGNED TO ASME BTH-1
DESIGN CATEGORY SERVICE CLASS

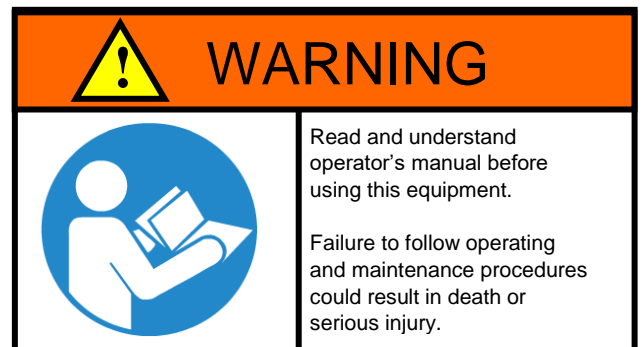
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25



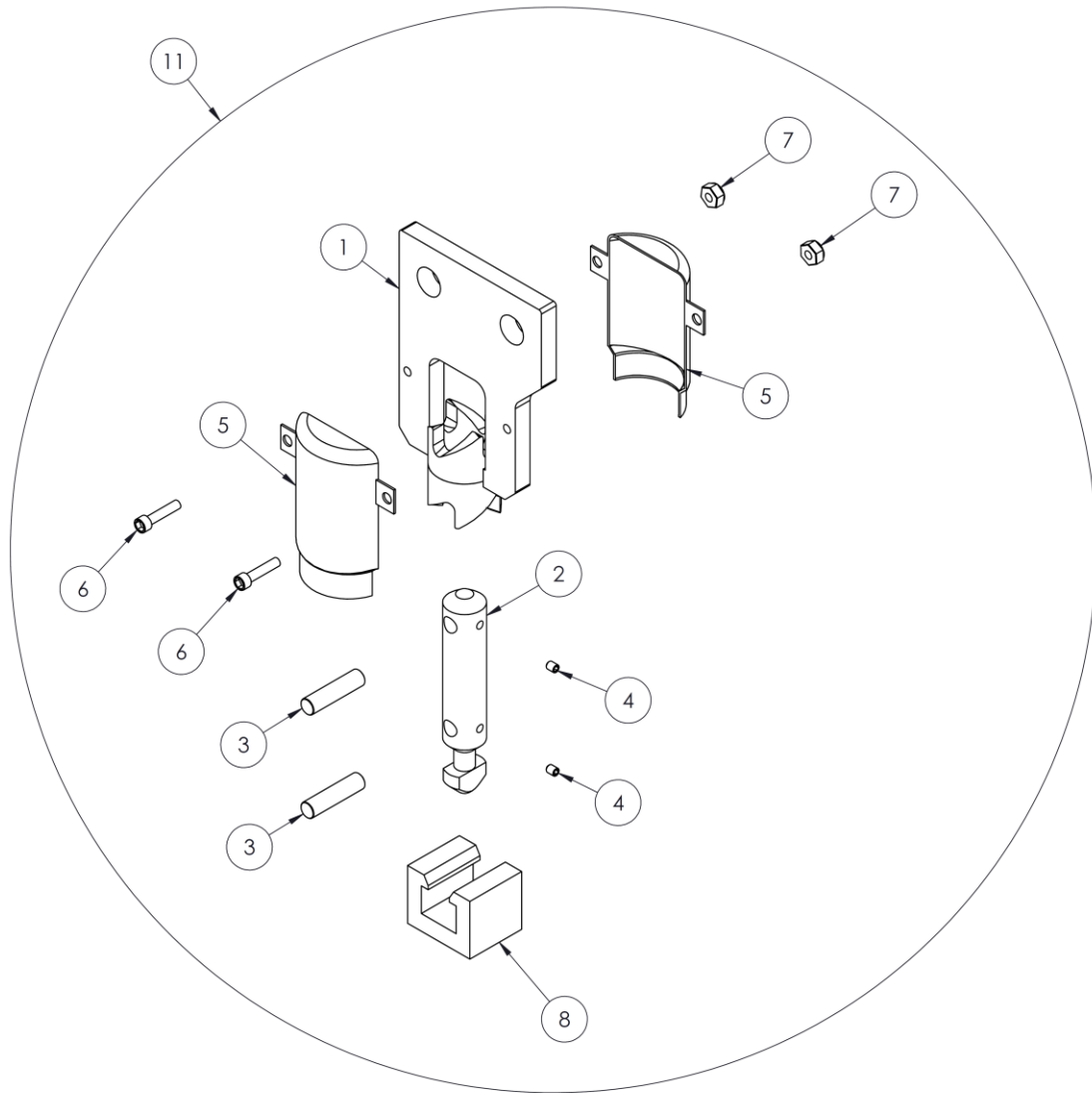
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NOTE: MODEL AND SERIAL NUMBER OF LIFTER MUST ACCOMPANY PART ORDERS.

| BOM Table | | |
|-----------|------|--|
| ITEM NO. | QTY. | PART NAME |
| 1 | 1 | TSL15C4T16 Lift Eye |
| 2 | 1 | TSL15C4T16 Arm Assy. Narrow |
| 3 | 1 | TSL15C4T16 Arm Assy. Wide |
| 4 | 1 | TSL15C4T16 Leg Assy. Upper Narrow |
| 5 | 1 | TSL15C4T16 Leg Assy. Upper Wide |
| 6 | 1 | TSL15C4T16 Leg Assy. Lower Narrow |
| 7 | 1 | TSL15C4T16 Leg Assy. Lower Wide |
| 8 | 1 | TSL15C4T16 Centerlink Assy. |
| 9 | 1 | TSL15C4T16 Pad Angle Assy. Narrow |
| 10 | 1 | TSL15C4T16 Pad Angle Assy. Wide |
| 11 | 1 | Small Actuator Assy. |
| 12 | 2 | 6x10 TSL Pad |
| 13 | 2 | Adjustment Pin Assy. |
| 14 | 2 | Adjustment Pin Retainer-Hairpin |
| 15 | 8 | 1/2"NCx 1-1/4" Grade 8 Hex Head Capscrew |
| 16 | 2 | 1/2" Lock Washer |
| 17 | 6 | 1/2" Internal Tooth Lock Washer |
| 18 | 8 | 1/2"NC Hex Nut |
| 19 | 4 | 3/4"NCx 5" Grade8 Hex Head Capscrew |
| 20 | 3 | 3/4"NCx 6" Grade8 Hex Head Capscrew |
| 21 | 23 | 3/4" USS Flat Washer |
| 22 | 7 | 3/4"NC Nylock Nut |
| 23 | 1 | Kenco ID Tag |
| 24 | 2 | Danger Sticker |
| 25 | 4 | TSL Leg Adjustment Sticker |
| 26 | 1 | Small Warning Sticker |



| ITEM NO. | QTY. | PART NAME |
|----------|------|-------------------------|
| 1 | 1 | Small KL Act. Body |
| 2 | 1 | Small KL Act Shaft |
| 3 | 2 | Small KL Act Pin |
| 4 | 2 | Small Act. Set Screw |
| 5 | 2 | Small Act Cover |
| 6 | 2 | Small Act. Cover Screw |
| 7 | 2 | Small Act. Cover Nut |
| 8 | 1 | Small KL Receiver Block |



Section IX. Warranty

A. Policy

1. KENCO Corporation (KENCO) warrants the Kenco Tombstone Lifter lifting device (not including pads or consumable items) sold by KENCO to be free from proven defects in material and workmanship for a period of six (6) months from the delivery date to the original owner.
2. Warranty is limited to replacement of parts and/or assemblies, which upon inspection by KENCO are deemed to be defective in material, workmanship, or both.
3. Warranty shall not extend to products that have been altered or repaired in any way without the express written consent of KENCO.
4. Warranty shall not extend to any product that has been misused, abused, or improperly applied or any defect resulting thereof.
5. Defects and corrosion that are the result of improper storage and/or maintenance are not warrantable.
6. Wear items such as Pads, Pins or Lifting bails etc. are not considered for warranty claims.

B. Disclaimer

1. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATIONS AND WARRANTIES EXPRESSED OR IMPLIED, AND KENCO EXPLICITLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL THE END USER BE ENTITLED TO ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES OF ANY KIND ARISING OUT OF BREACH OF CONTRACT, WARRANTY (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW, WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY KENCO, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO.