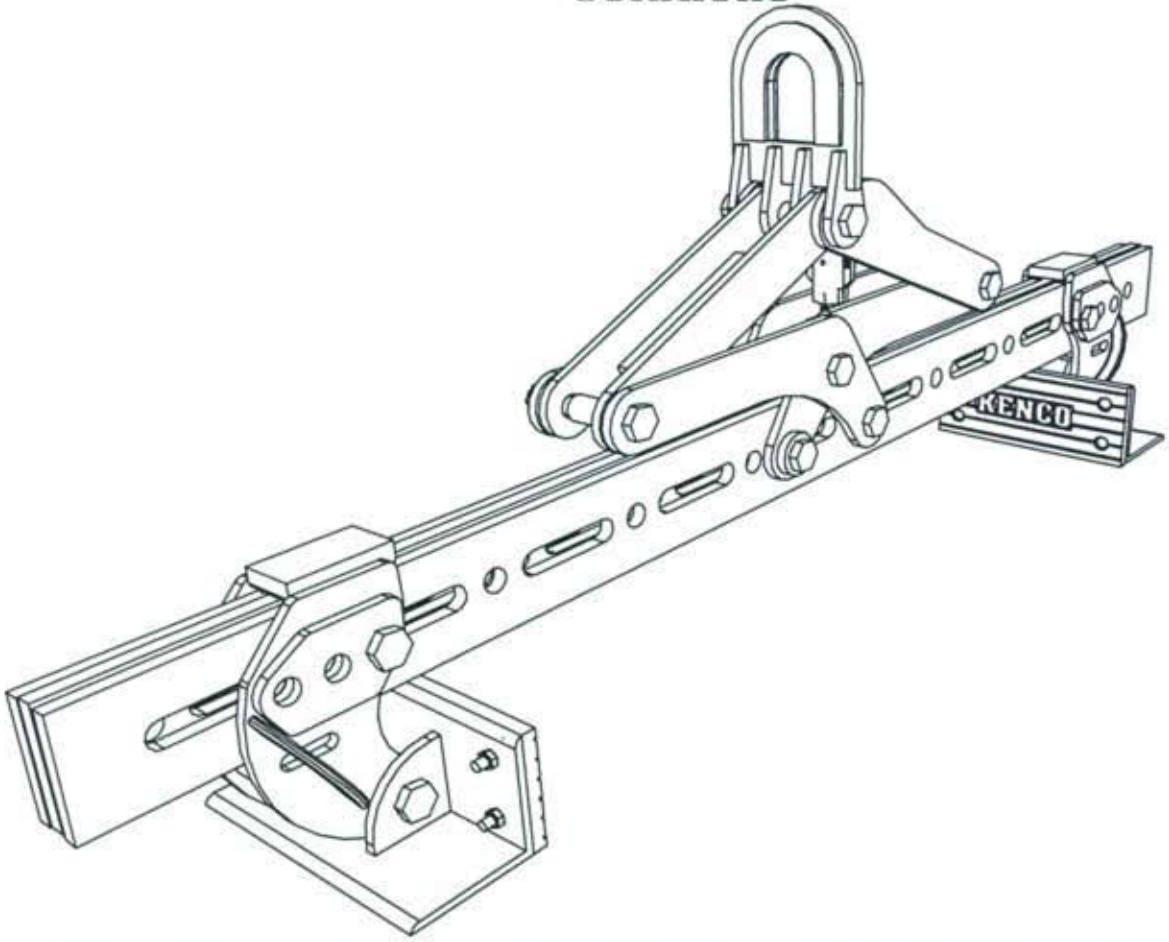
KENCO

Attachment Solutions



Multi-Lift® System

Operators Manual

ML7000 - 7000 LB. SWL

CONFORMS TO ASME B-30.20-2006 AND BTH-1-2005
DESIGN CATEGORY B, SERVICE CLASS 3

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

TABLE OF CONTENTS

RECORD INFORMATION HERE FOR REFERENCE

MODEL		ATTACHMENT SERIAL NUMBER	
BODY SERIAL NUMBER		ATTACHMENT	
ATTACHMENT		ATTACHMENT SERIAL NUMBER	
ATTACHMENT SERIAL NUMBER		ATTACHMENT	
ATTACHMENT		ATTACHMENT SERIAL NUMBER	
ATTACHMENT SERIAL NUMBER		ATTACHMENT SERIAL NUMBER	
ATTACHMENT		ATTACHMENT	

Section I. General Information.

May we take this opportunity to thank you for purchasing the KENCO Multilift® system. The Multilift® system provides the ultimate in below the hook handling versatility and is quality engineered to provide years of trouble free, low maintenance performance. Please read and fully understand this manual and any additional enclosed documentation before attempting to setup operate or maintain the Multilift® system.

This manual should be made available to all persons who may use or maintain the Multilift® 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 Multilift® operation that are in force in your area.

2. Before operating the KENCO Multilift® , 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.

⚠ *DANGER*	This warning is used where there is a high probability of death or serious injury if the instructions are not followed correctly.
⚠ *WARNING*	This warning is used where there is a possibility of injury to yourself or others if the instructions are not followed correctly.
⚠ *CAUTION*	This warning is used where there is a possibility of damage to the machine if the instructions are not followed correctly.

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 or jewelry that could become entangled in the KENCO Multilift® or rigging hardware.

C. Operation Safety.

1. DO NOT ATTEMPT TO OPERATE OR PERFORM MAINTENANCE ON THE MULTILIFT® UNTIL FIRST READING AND FULLY UNDERSTANDING THIS MANUAL

2. MAINTAIN SAFE DISTANCE FROM LOAD - NEVER ALLOW LIFTER OR LOAD TO PASS OVER ANY PART OF A PERSON.

3. DO NOT USE A KENCO MULTILIFT® THAT HAS BEEN ALTERED ACCIDENTALLY OR INTENTIONALLY, IN ANY WAY WITHOUT INSPECTION BY QUALIFIED PERSONNEL.

D. Pinch points

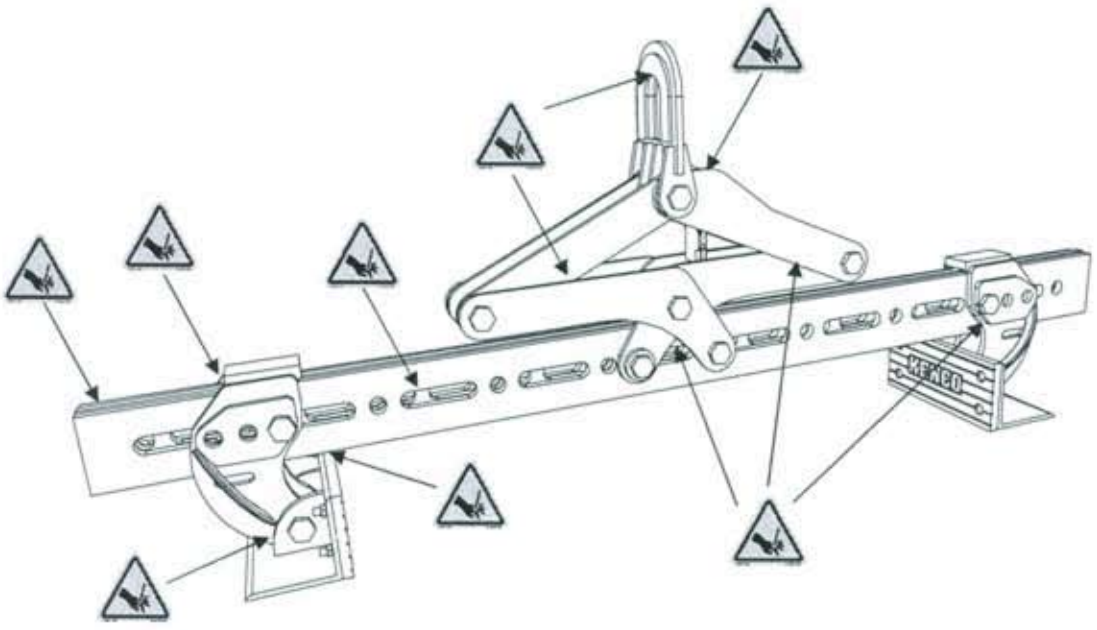
WARNING

1. Due to the mechanical nature of the multilift, extreme care must be taken to avoid placing hands, limbs, hair, or clothing on or near the lifter while in operation.

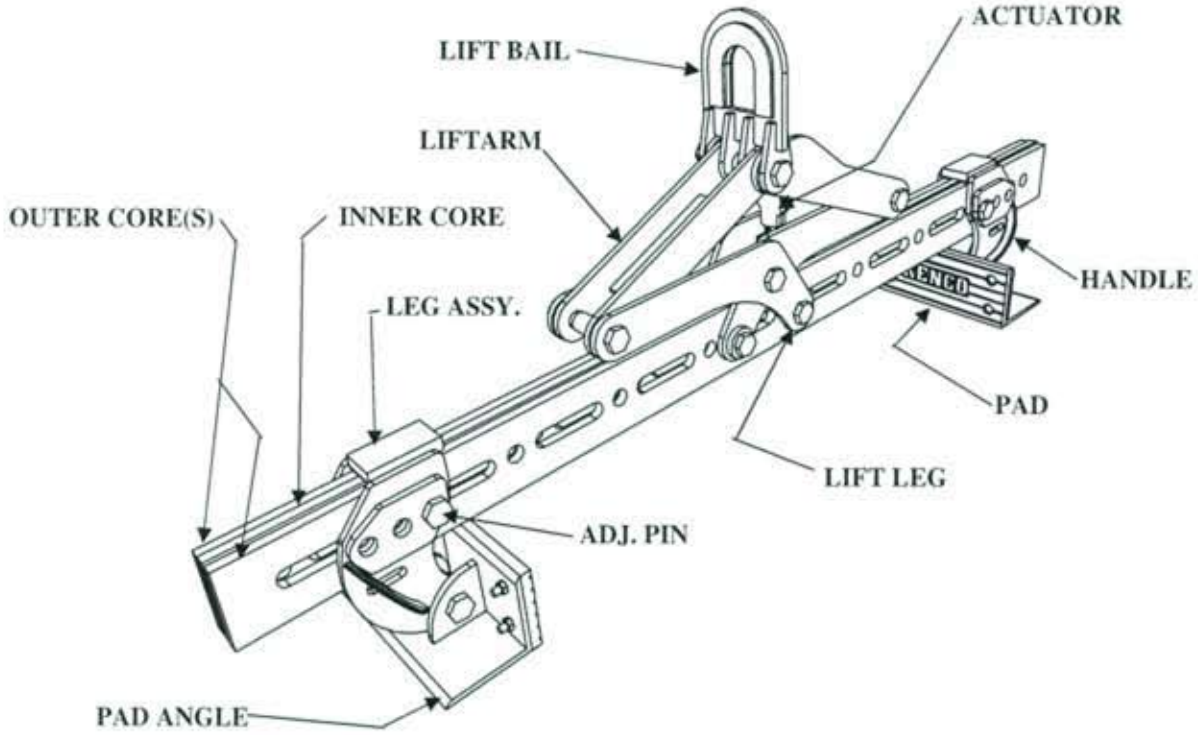
2. Extreme care must be taken while adjusting the legs of the lifter. Keep fingers, clothing, etc. clear of the gap(s) formed between the leg and core structures.

3. AT NO TIME SHALL ANYTHING OTHER THAN THE HANDLES OF THE LIFTER BE USED TO CONTROL THE ALIGNMENT, LOADED OR UNLOADED, OF THE LIFTER.

4. USE ONLY THE HANDLES PROVIDED TO ADJUST THE LEGS OF THE LIFTER.



Section III. Identification of Major Components



Section IV. Setup.

A. Check lifter for any signs of damage incurred during shipping.

B. Record model, and serial # of assembly and components.

C. Check all bolts for snugness.

D. Attach lifter to hoist.

1. Where possible, hook directly through lift bail.
2. If necessary, use shackles/slings of equal to or greater capacity than intended application.
3. **UNDER NO CIRCUMSTANCES SHOULD ANY COMPONENT USED AS RIGGING TO LIFTER BE OF A RATED CAPACITY LESS THAN THAT OF THE LIFTER.**

Section V. Grip adjustment.

⚠ *CAUTION: The procedures that follow are intended as guidelines. They are to be carried out by qualified mechanics possessing knowledge of general procedures and practices involved with the maintenance of heavy machinery.*

⚠ *IMPORTANT: Wear appropriate protective clothing and personal safety equipment including safety glasses, hard hat, gloves, protective shoes, hearing protection, and any special equipment called for by the job conditions.*

⚠ *WARNING: Failure to observe standard safety practices could result in personal injury. Service personnel and operators must be fully conversant with the maintenance and operating procedures.*

A. Faces of object to be gripped should be parallel and sound.

B. Place multilift on object to be lifted to determine grip.
1. pads should have a minimum of ½" and a maximum of 3" clearance with object.

C. Place multilift on an object narrower than grip and with sufficient height to provide clearance for leg assemblies for adjustment. DO NOT ATTEMPT TO ADJUST LEG ASSEMBLIES WHILE MULTILIFT IS HANGING.
1. **Care must be taken to ensure that the lifter remains stable and balanced during adjustment.**

D. The following points provide for adjustment of the grip:
1. multiple Slot/hole locations on the lift core.
2. multiple hole locations on the leg assemblies.

E. Leg assemblies are attached to the core in the following manner:
1. **Outer Leg assembly** is pinned through a **HOLE(s)** in the **OUTER CORE(s)** and permitted to travel in a **SLOT** of the **INNER CORE**.
2. **Inner Leg assembly** is pinned through a **HOLE** in the **INNER CORE** and permitted to travel in the **SLOT(s)** of the **OUTER CORE(s).**

Outer Leg Assembly

F. Leg assemblies are referenced to their respective core member by the presence (or lack of) shim plate(s) on the inner surface of the leg bearing plate(s). The leg referenced to the **inner core** has a **single shim** on its **lower bearing plate**, the leg referenced to the **outer cores** has two **(2) shims** on its **upper bearing plate.**

Inner Leg Assembly

Sec. V (cont.)

G. The lift assembly is pinned to the lift core in the same manner as the legs.

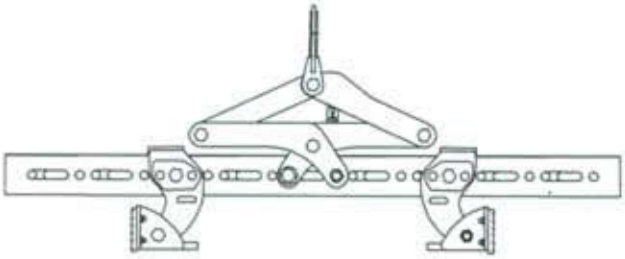
H. Adjust legs and/or lift assembly for a level pick.

I. Ensure that the structure (leg assemblies, lift core, and lift assembly) do not bind and have travel remaining after adjustment.

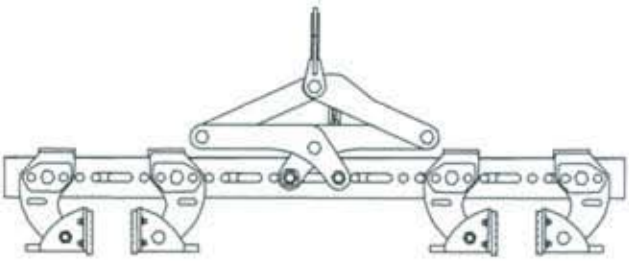
J. Multiple Leg/Core Configurations:

1. Legs can be reversed for inside-out gripping.
2. Legs can be used in multiples for open ended boxes.*
3. Lift assembly can be positioned to either side of the leg assemblies to handle "L" shaped objects.*
4. Custom leg and pad configurations available (extended legs, hardened points, etc).*
5. Custom core lengths available.*

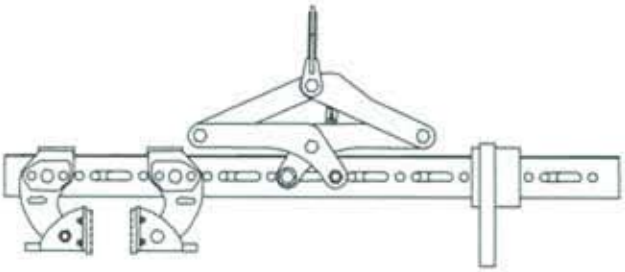
** Requires additional hardware not included with standard unit.*



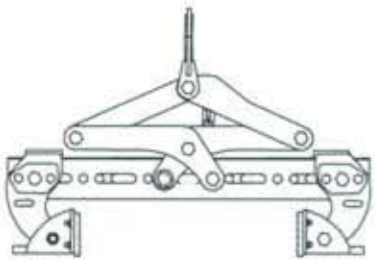
Inside-out gripping



Double Edge Gripping



"L" shaped object
(shown with additional counterweight)



Shortened Cores

Section VI. Operation

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

DANGER ***Remove all surface contaminants from Lifter pads and object faces to be gripped prior to attempting a lift. Any dirt, films, release agents, etc. can compromise the gripping function of the lifter.***

A. Automatic operation:

1. Position lifter at or near center of object(s) to be lifted.
2. Lower lifter onto object, taking care to minimize impact.
3. Release tension on lift cable.
4. Raise lifter and load in a smooth motion, do not "jerk".
5. Deposit at desired location.
6. Release tension on lift cable. (Note: avoid undue slamming of the lifter into open position to prolong actuator life.)
7. Remove lifter (Multilift® is latched in open position automatically)

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

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

C. Avoid picking loads off center.

D. DO NOT USE THE MULTILIFT TO PICK MULTIPLES OF ITEMS IN A SINGLE PICK .

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

Section VII. Maintenance

A. Daily:

1. Visually inspect lifter for signs of stress and wear.
2. Make sure that all labels and warnings are present.
3. Check that bolts and nuts are snug.
4. Ensure free movement of all components.
5. Ensure that all warning labels are present and readable.
6. Check that actuator-mounting screws are snug and seated.
7. Lubricate all moving mechanisms with penetrating oil.
8. **LUBRICATE ACTUATOR WITH LIGHT PENETRATING OIL ONLY (WD40™)**
9. Concerning the urethane padded attachments:
   a. Check that all pad mounting bolts and nuts are tight.
   b. Verify freedom of rotation for pad angle.
   c. Ensure that pad material is sound, and not de-laminated from backing plates.
   d. Ensure that pad mounting bolt heads are min.1/8" below the surface of the pad.

B. Annually*

1. Remove bolts and coat with grease.
2. Coat washers and associated faces of members with grease.
3. Inspect holes, pins, bolts etc for wear. See sect VIII for criteria.
4. Clean actuator and lubricate with light penetrating oil – check for signs of wear, replace if necessary.

- *Frequency depends on usage, environmental conditions, etc*
- *Consult appropriate standards for additional information.*

Section VIII. Inspection Criteria

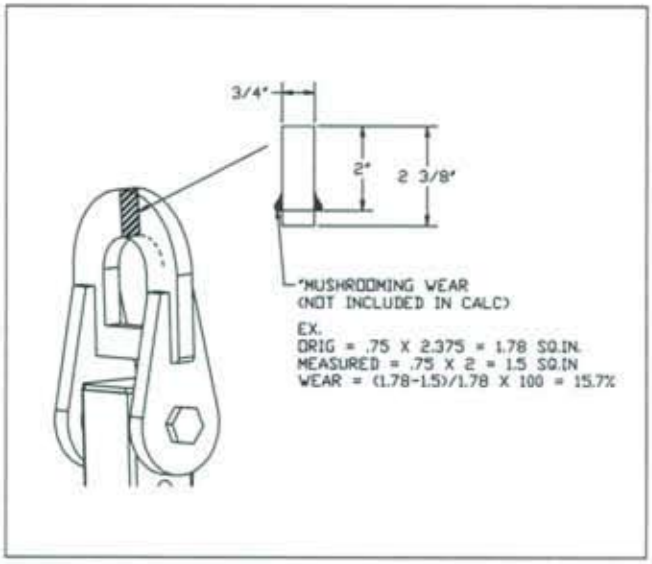
THE MULTILIFT® UNIT AND ALL OF ITS ASSOCIATED COMPONENTS SHALL BE REMOVED FROM SERVICE AND TAGGED APPROPRIATELY UNTIL RECERTIFICATION BY A QUALIFIED INDIVIDUAL IN ANY OF THE FOLLOWING CONDITIONS:

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 Bale
   a. The lift bale 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.)

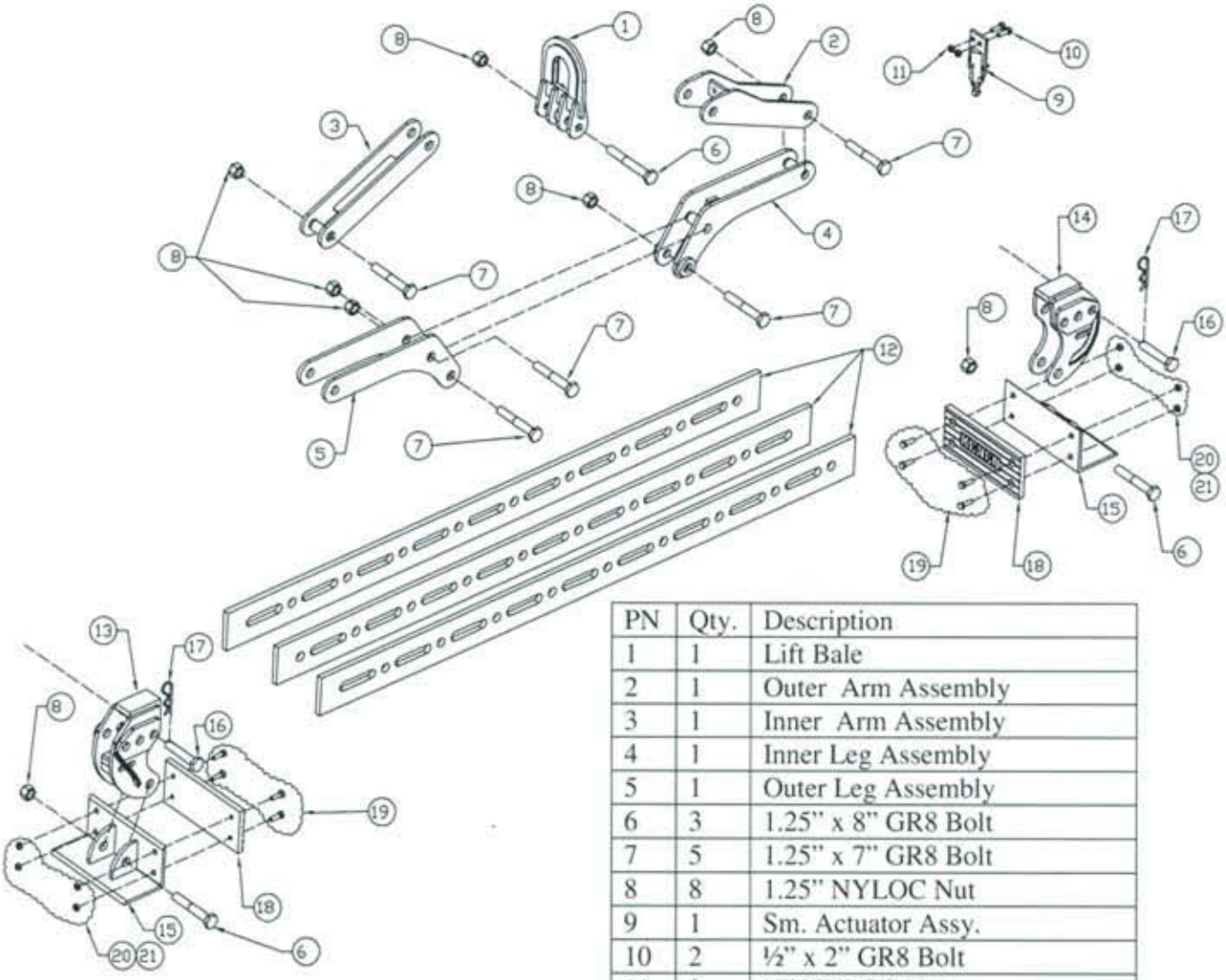


2. Holes.
   a. Any members through which bolted or pinned connections pass shall be replaced if a 10% loss in cross-sectional area from the original member(s) can be demonstrated. Note: cross section of welds, "mushroomed" wear faces, and burrs are not accounted for as cross-sectional area.

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 IX. Parts/Drawings



PN	Qty.	Description
1	1	Lift Bale
2	1	Outer Arm Assembly
3	1	Inner Arm Assembly
4	1	Inner Leg Assembly
5	1	Outer Leg Assembly
6	3	1.25" x 8" GR8 Bolt
7	5	1.25" x 7" GR8 Bolt
8	8	1.25" NYLOC Nut
9	1	Sm. Actuator Assy.
10	2	½" x 2" GR8 Bolt
11	2	½" NYLOC Nut
12	3	Core member
13	1	Outer Core Leg Assy.
14	1	Inner Core Leg Assy.
15	2	Pad Angle
16	2	Leg Pin
17	2	Leg Pin Retaining Hitch Pin
18	2	Pad
19	8	½" x 1.25" GR8 Bolt
20	8	½" Nut
21	8	½" Starlock Washers
22	1	Lables and decals*

**Due to the modular nature of the ML series lifters the decals are listed on the next page and should be located in high visibility areas on the lifter.*

Section X. Labeling

KENCO CORPORATION
877-4ATTACH

MODEL
USAGE
CAPACITY WT.
SERIAL NO.

I.D. TAG – ALUMINUM, RIVITED– 1PC

Model: KL 12000
Unit Weight: 900 lbs.
Capacity: 12000 lbs.
Usage: 16' - 20' Barrier Wall

170 State Route 271, Ligonier, PA 15658
www.kenco.com 1-877-4-ATTACH

ID. Decal – 1PC. (EXAMPLE)

R.O.M. Decal – 1 PC.

WARN. Decal – 1 PC.

DANGER. Decal – 4 PCS.

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

BTH-1 TAG ALUMINUM, RIVITED– 1 PC.

Section XI. Warranty

A. Policy

1. KENCO Corporation (KENCO) warrants the KENCO Multilift® 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 customer
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 or consumables such as Pads, Pins or lifting bales, etc. are not considered for warranty claims.

B. Disclaimer

1. THIS WARRANTY IS EXCLUSIVE AND IN LIEW 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.