



**ABACO MACHINES**

**OPERATION MANUAL**

**ABACO BARRIER HEAVY**

**LIFTER**

**(ABHL3200)**



**ABACO MACHINES (USA)**

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**APPLICABLE MODEL**  
**of this BARRIER HEAVY LIFTER:**

**ABHL3200**

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## ***General Safety Operation Manual Instructions Summary:***

*It is essential to review carefully and understand this Operation Manual before operating the equipment. Failing to read and understand this entire manual may cause injury or death to personnel, or damage to the equipment and the products that are being handled by this equipment if not properly followed.*

*This safety summary includes general safety precautions and instructions that must be understood and applied before, during, and after operations, as well as maintenance to ensure personnel safety and protection of this equipment. Prior to performing any task, the contents included in this manual should be reviewed and fully understood.*

*This manual explains some essential operating or maintenance procedures, practices, conditions, statements, etc. that if those are not strictly followed, it could result in injury, or death by chance in the worst case. And there might be some chances of damaging or destructing materials or machine component itself. In order to avoid or eradicate such worst coincidences and happenings, it is essential to read through this manual and follow accordingly. It is also important to comprehend the functions of this equipment thoroughly for your safe and efficient operations.*

*For any question, please contact your local dealer or distributor.*

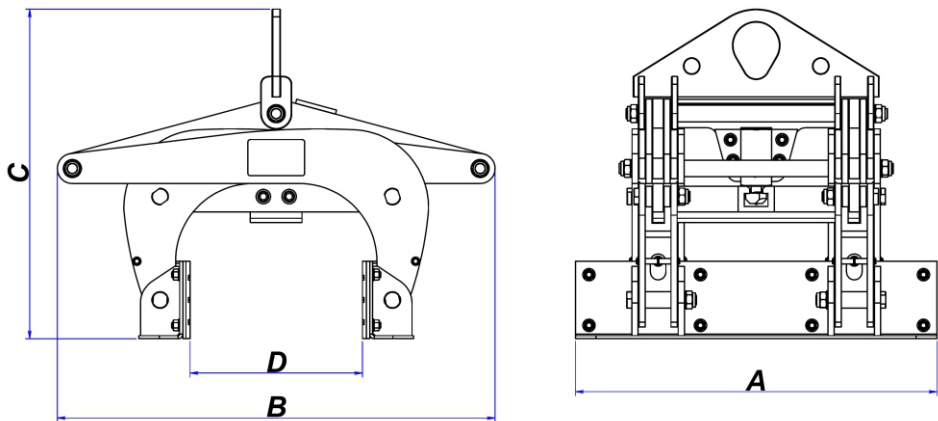
## **I. EQUIPMENT GENERAL INFORMATION:**

- Barrier Heavy Lifter (ABHL3200) is designed to clamp, lift and move heavy slabs in thicknesses ranging from  $3\frac{15}{16}$ " (100mm) to  $11\frac{13}{16}$ " (300mm). This lifter is an ideal solution for moving concrete barriers.
- Automatic locking latch system applied to opening and closing the two clamp jaws helps operate the lifter simply, safely and quickly.
- Rubber layer on clamp jaws provide a gripping force more firmly as well as protects the material surfaces from damage or chipping.
- The equipment equipped with all the protection features increases safety level for the operator and productivity as well.

## **II. TECHNICAL SPECIFICATIONS:**

- ABHL3200 is mainly made of steel.
- ABHL3200 is combined with a crane, hoist or forklift truck to clamp, lift, and transport the heavy material in construction sites.

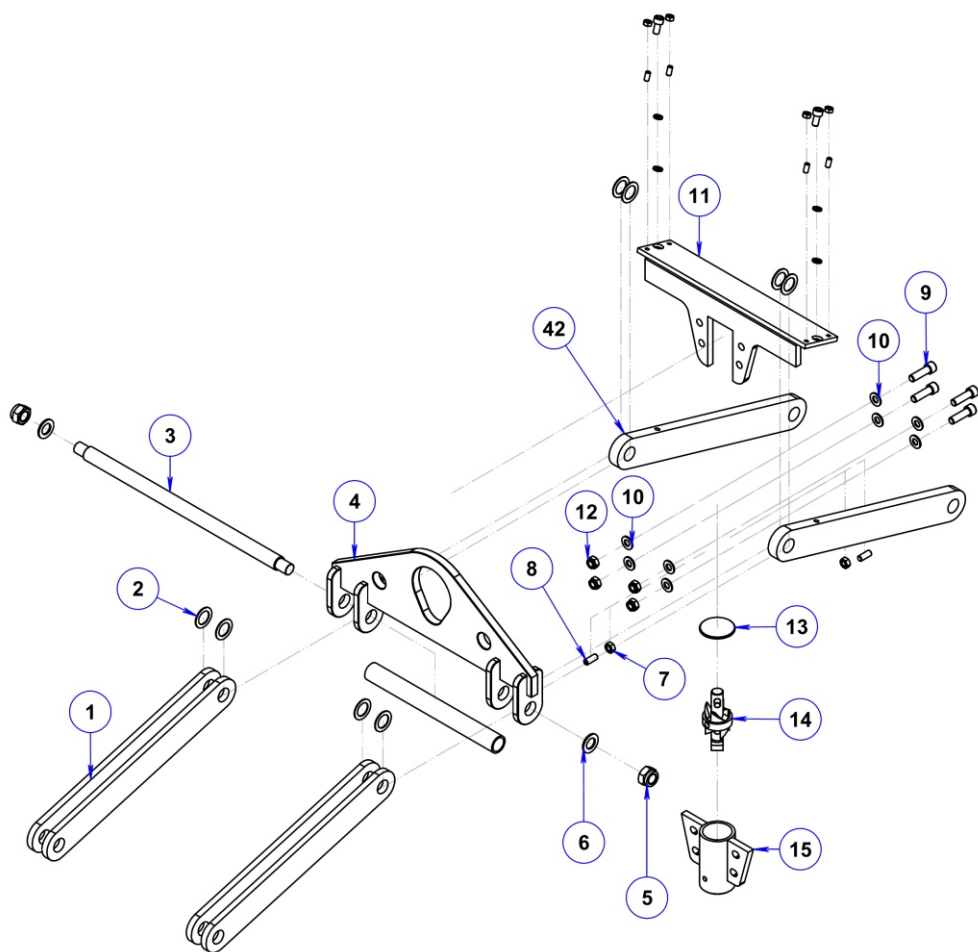
**1. Dimensions:**

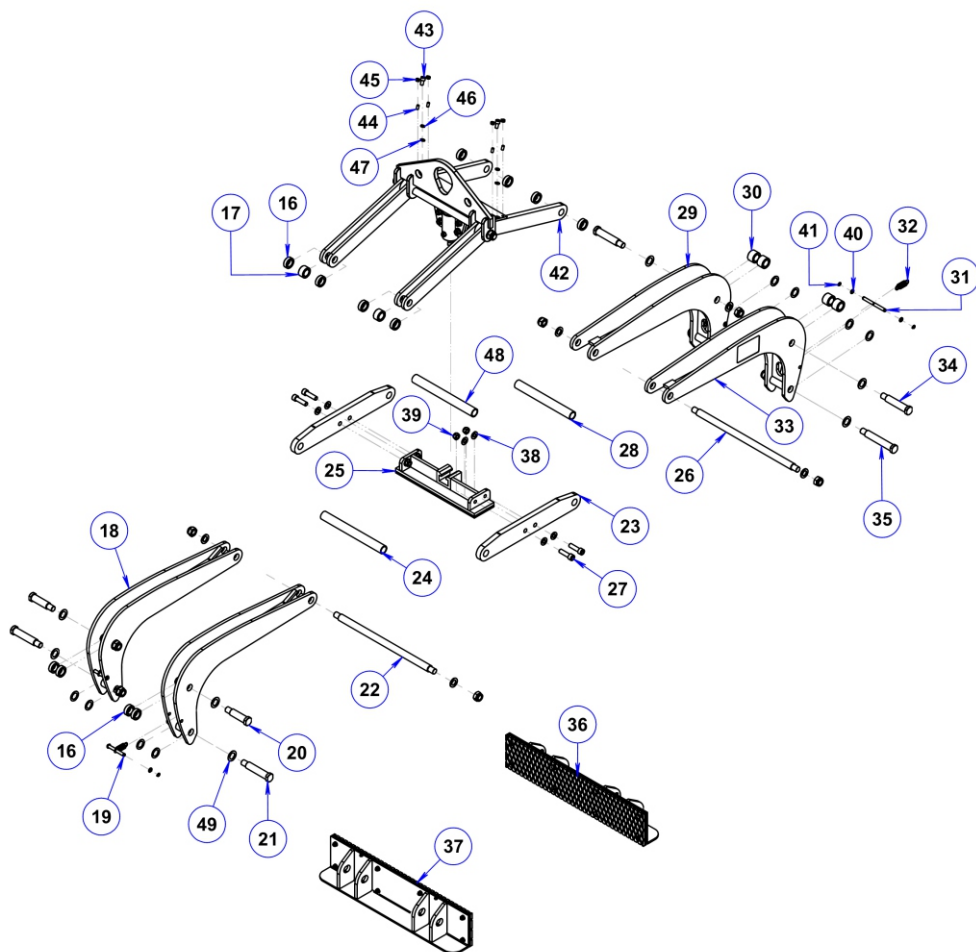


Length (A) inches (mm)	Width (B) inches (mm)	Height (C) inches (mm)	Grip Range (D) inches (mm)	W.L.L* lbs (kg)
27 <sup>9</sup> / <sub>16</sub> (700)	33 <sup>3</sup> / <sub>16</sub> (843)	26 <sup>1</sup> / <sub>4</sub> (667)	3 <sup>15</sup> / <sub>16</sub> ~ 11 <sup>13</sup> / <sub>16</sub> (100 ~ 300)	7040 (3200)

*\*W.L.L: Work Load Limit*

## 2. Spare part list:





## SPARE PART LIST

PART NUMBER	DESCRIPTION	QTY.
ABHL3200-01	Clamp arm 1	4
ABHL3200-02	Brass washer Ø25	16
ABHL3200-03	Main axle	1
ABHL3200-04	Hook	1
ABHL3200-05	Lock nut M20	14
ABHL3200-06	Washer Ø20	14

## **SPARE PART LIST**

<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
ABHL3200-07	Nut M10	2
ABHL3200-08	Hexagon socket set screw M10 x 25	2
ABHL3200-09	Hexagon socket head cap screw M12 x 40	4
ABHL3200-10	Washer Ø12	8
ABHL3200-11	Clamp bar	1
ABHL3200-12	Lock nut M12	4
ABHL3200-13	Flange, catcher	1
ABHL3200-14	Automatic locking latch	1
ABHL3200-15	Catcher, latch	1
ABHL3200-16	Bushing 1	12
ABHL3200-17	Bushing 2	2
ABHL3200-18	Brace clamp 1	2
ABHL3200-19	Pin 1	2
ABHL3200-20	Pin, rotary 2	2
ABHL3200-21	Pin, clamp jaw 2	2
ABHL3200-22	Axle, clamp arm 2	1
ABHL3200-23	Horizontal bar	2
ABHL3200-24	Spacing pipe 1	1
ABHL3200-25	Link plate	1
ABHL3200-26	Axle, clamp arm 1	1
ABHL3200-27	Hexagon socket head cap screw M14 x 50	4
ABHL3200-28	Spacing pipe 2	1

<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
ABHL3200-29	Brace clamp 2	1
ABHL3200-30	Bushing 3	4
ABHL3200-31	Pin 2	2
ABHL3200-32	Spring	4
ABHL3200-33	Brace clamp 3	1
ABHL3200-34	Pin, rotary 1	2
ABHL3200-35	Pin, clamp jaw 1	2
ABHL3200-36	Clamp jaw 1	1
ABHL3200-37	Clamp jaw 2	1
ABHL3200-38	Washer Ø14	8
ABHL3200-39	Lock nut M14	4
ABHL3200-40	Aluminum washer Ø10	8
ABHL3200-41	Circlip Ø10	8
ABHL3200-42	Clamp arm 2	2
ABHL3200-43	Hexagon socket head cap screw M10 x 20	2
ABHL3200-44	Hexagon socket set screw M8 x 16	4
ABHL3200-45	Nut M8	4
ABHL3200-46	Spring washer Ø10	2
ABHL3200-47	Washer Ø10	2
ABHL3200-48	Spacing pipe 3	1
ABHL3200-49	Washer Ø25	8

### **III. SAFETY INSTRUCTIONS:**

#### **1. General Warnings, Cautions and Notes:**

##### **a. For Barrier Heavy Lifter:**

##### **Caution:**

- Carefully consider and follow all the safety regulations and applicable laws in your country for the operations.
- It is strongly recommended that only employees who are highly trained, experienced are allowed to operate this device. Safety rules and regulations must be strictly followed.
- Lifting the material up slowly and in a careful manners. If the slab is not balanced, lower the lifter to make appropriate position adjustment before lift it up again.

##### **Warning:**

- Inspect the Barrier Heavy Lifter carefully and thoroughly. If the rubber pads of clamp jaws are worn-out or damaged, do not use.
- This equipment is designed with grip range from 100mm to 300mm. Determine the weight of the material to be lifted. Do not exceed the W.L.L (Work Load Limit) shown on the page 2.
- During operation, all workers in the work environment must be cautious and ensuring they are standing and moving safely around the work area to avoid unexpected accident injury.
- Make sure to check the rubber pads are free from dirt. Grease and other substances that may reduce their effectiveness. Clean the rubber pad surfaces by water. Then wait till dry and use the device after.
- Do not lift the material which has the large tilt angle (see Appendix, page 14). The grip force depends on friction. Lifting the material featured the large tilt angle may cause the rubber pads to lose their grips.

- No more than one piece should be lifted at any time.
- Position the lifter at the center of the material to be lifted, so that the load is balanced.
- The operator is responsible for the material is inserted to the full depth into the opening of the clamp jaws. (see Appendix, page 13.)

## **b. General safety instruction for Operations:**

### **Caution:**

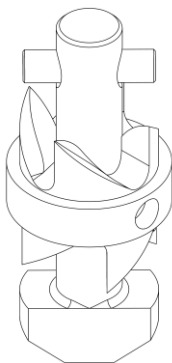
- In order to protect from any accident, it is important to follow safety rules and regulations.
- Read and comprehend this Operation Manual carefully before using the equipment.
- Ensure that this Operation Manual is always available beside the place where the lifter is used.
- Give permissions to operate Barrier Heavy Lifter only to the persons who are well-trained and competent to work.
- Use appropriate PPE (Personal Protective Equipment) such as helmet, gloves, and safety boots, etc.
- To ensure the equipment functioning properly and safely, do a visual inspection and make sure there are no signs of damage.
- Inspections and Repairs should only be done by qualified personnel.
- If any parts are worn-out, repair or replace, or contact the manufacture for solution consultation.
- Clean this equipment thoroughly after use.
- Store the equipment in a well-ventilated place, avoid places with high heat or humidity.

**Warning:**

- Never leave your loaded Barrier Heavy Lifter unattended.
  - Never allow yourself or anybody to go under a lifting material.
  - Be sure to check the lifter and its accessories duly and periodically.
- There should be no damage or loosening of fasteners or any irregular unfunctional sound. Always revisit this safety operation manuals and be cautious with all the warnings throughout this manual before operate the equipment.

**c. Automatic locking latch system:**

- Automatic locking latch system consists of a cam wheel which could be rotated when the device was lifted up to clamp the stone slab. Make sure that no dust is inside the automatic locking latch, regularly check and lubricate oil to ensure the proper operation.



Automatic locking latch

**2. Device usage:**

**Warning:** ABHL3200 should installed and attached appropriately and safely as sketched below to ensure safe operation.

**Step 1:** Hook the Barrier Heavy Lifter to a forklift boom (Figure 1.1)

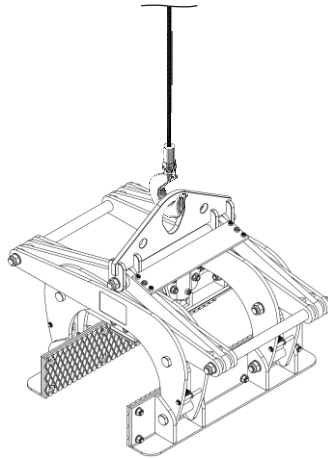


Figure 1.1

**Step 2:** Clamp the concrete barrier.

- Move the clamp over the concrete barrier to be lifted (Figure 2.1)

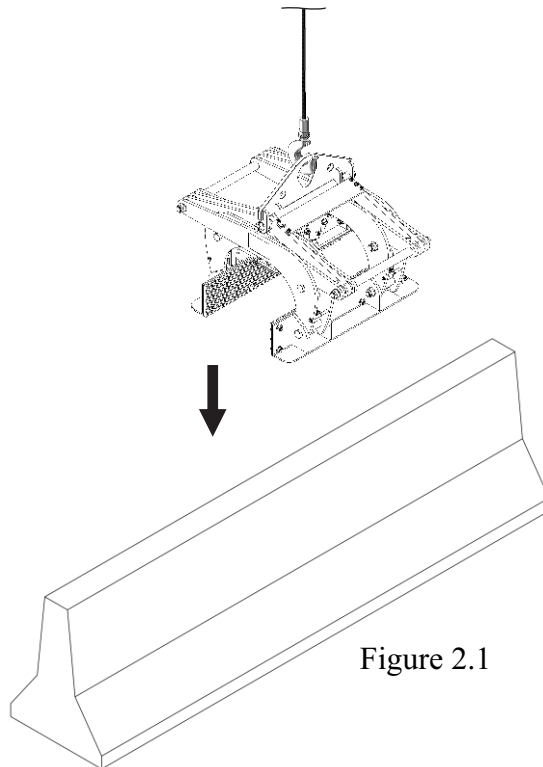
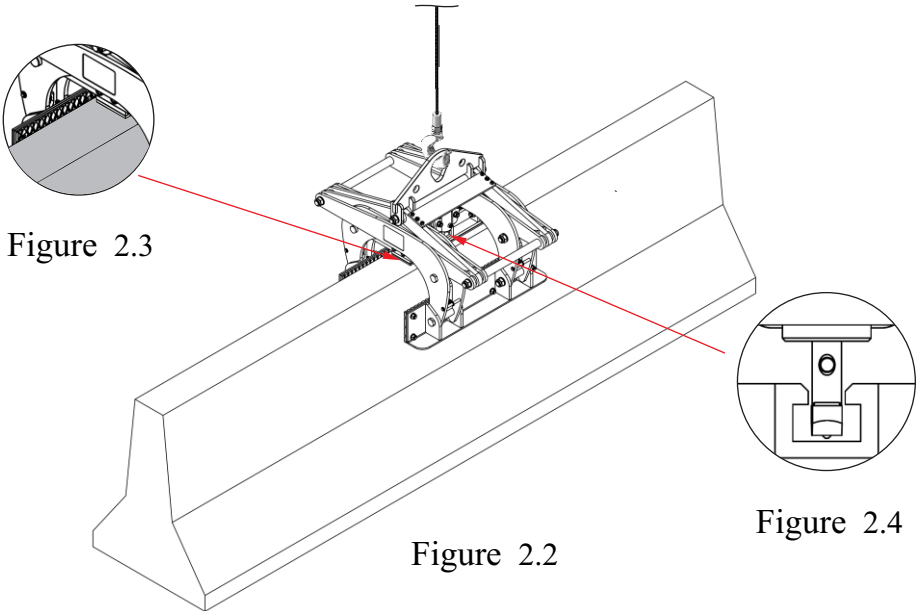


Figure 2.1

- Lowering the lifter slowly to allow the concrete barrier be perpendicular and fully inserted into the opening of the clamp jaws (Figure 2.2).

***Note:** Position the lifter securely at the center of the concrete barrier so that the load is balanced. Ensure the opening of clamp jaws is wide enough to clamp the barrier fully deeply (see Appendix). Lower the lifter until the locking latch rotates horizontally (Figure 2.4) to disengage the two clamp jaws.*



- Lift the concrete barrier slowly to ensure the weight balance. During lifting, the automatic locking latch system will keep clamp jaws closed to grip the barrier tightly. The barrier is ready to move out at the moment.

***Note:** If the clamp jaws do not grip the barrier firmly and securely when lifting, lower the lifter, recheck the status and lift it up again.*

**Step 3:** Move the concrete barrier to desired location (Figure 3.1).

**Caution:** *All the people who are not obligated must stand within safety area while material is being lifted or moved. Do not allow yourself or anybody to go under the lifted material.*

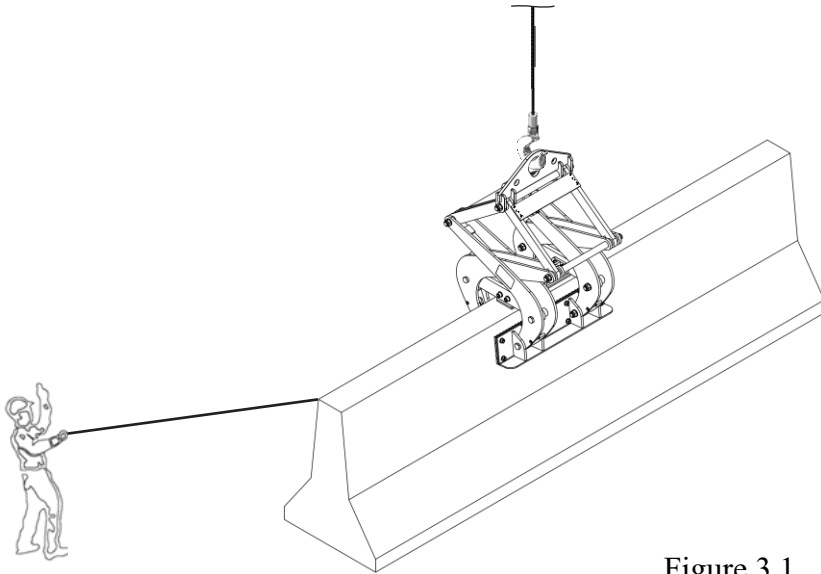


Figure 3.1

**Step 4:** Get the equipment out of the concrete barrier.

Lower the clamp slowly until the locking latch locks to keep the clamping jaws open, then lift the lifter out of the barrier.

**Caution:**

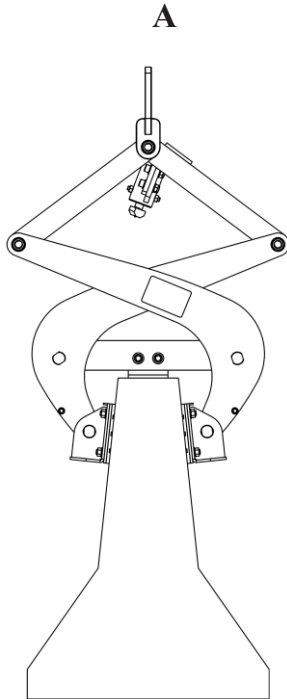
- *Before lowering the material, the operator is responsible for ensuring there are no obstacles to interfere.*
- *If the lifter still grips the material, do all the steps again by moving up and down to unlock the locking latch.*

## **IV. APPENDIX:**

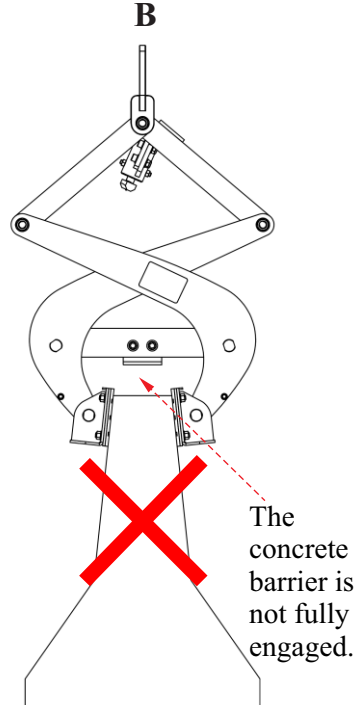
### **1. Correct and incorrect methods of clamping the concrete barrier:**

#### **WARNING**

- Do not exceed Work Load Limit
- Material thickness must be within Grip Range



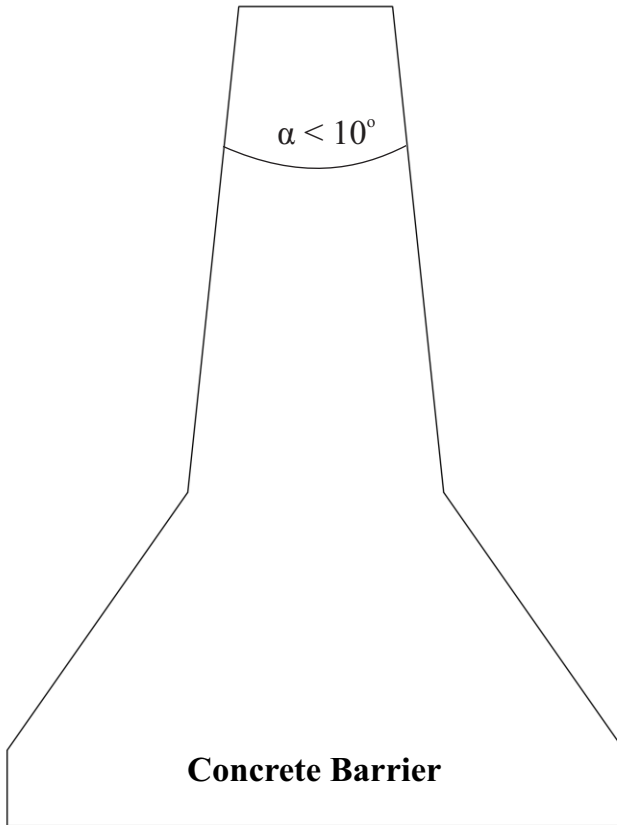
Correct



Incorrect

## **2. Permissible tilt angle of the material to be lifted:**

When lifting the material, the permissible tilt angle called “ $\alpha$ ” of the material is “ $\alpha < 10^\circ$ ”.



The larger tilt angle has, the smaller the grip force is.

Therefore:

- When using the lifter to lift materials featured large tilt angle, the operator must notice carefully.
- Lift the clamped barrier slowly, then check and confirm that there is no sign of slippage.
- If any slippage is detected, stop lifting immediately, lower the equipment on the ground and do not use.

## **V. TECHNICAL PROBLEMS & SOLUTIONS:**

<b>Technical Problems</b>	<b>Cause</b>	<b>Solution</b>
Automatic locking latch does not operate.	Dust and/or rust or lever arm does not return to the original position	Lubricate oil, clean the lock latch or replace with a new latch.
Rubber layers are damaged	Worn-out, or deformed.	Replace with a new one.
It is hard to handle and to clamp the barrier.	Rotating joints are dusted or rusted.	Clean and lubricate oil into these rotating joints.

## **VI. INSPECTION & MAINTENANCE:**

- Operator is responsible to check the equipment regularly, not limited to check the rubber pads and locking latch.
- Always keep necessary spare parts on hand for maintenance or repair.
- Periodically, operator is responsible to schedule equipment maintenance, especially for tighten all bolts and nuts securely.
- Always keep this equipment clean and away from grease or liquid because they can reduce the effectiveness of rubber pads and cause them to lose their grip.
- Store this equipment in a well-ventilated place (dry and cool), avoid places with high heat and/or humidity.

## **VII. WARRANTY POLICY:**

At the time of delivery, it is necessary to inspect the **Barrier Heavy Lifter (ABHL3200)** to make sure that it has not been damaged during shipment. The product at the time of dispatch is warranted to be free of defects in material or workmanship.

Claims for errors, shortages, defects, or nonconformities ascertainable upon inspection must be made in writing within eight business days from the date of product delivery. Claims not made as provided above and within the applicable time period will be barred and no other claims will be considered.

We provide a one (1) year warranty on the **Barrier Heavy Lifter (ABHL3200)** from the date of purchase.

During warranty period, we will provide the replacement parts at no charge (Please note: shipping and handling fees may apply).

### **Warranty coverage is void if:**

- The operator failed to comply with the instructions in the manual.
- The specifications are not followed.
- Damage is due to inadequate maintenance and inspections.
- Damage is due to improper storage and/or usage.
- Modification and repairs made to the equipment were performed by the user/operator without the manufacture's knowledge and agreement.
- Aftermarket or none genuine spare parts were used for repair installation.
- Modification and repair installations were conducted by uncertified individual.

# **WARRANTY CERTIFICATE**

You are kindly requested to read the following carefully.

## **PERIOD**

The warranty starts from the date of purchase (date on distributors invoice).

Warranty is valid for a period of twelve (12) months.

## **WARRANTY**

This warranty is limited only to provide replacements of the parts recognized by the Company as defective (excluding worn-outs and consumables.)

The Company is not responsible for any misuse or abuse of the product after purchase and/or caused by negligence from the content of this manual.

In an event of equipment failure to operate the machine and/or requiring technical support, operator/user is requested to contact with our Customer Support Department. Our member will inform you (operator/user) of the appropriate procedures accordingly and how to file warranty claim and advise you to your nearest approved service center.

## **EXCLUSIONS**

Warranty does not apply for damages or failures caused by:

Misuses, errors in transportation, incorrect handling or failing to maintain the equipment appropriately.

Use of non-genuine parts/accessories, or of incorrect specifications.



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