

# OPERATOR'S MANUAL AND SAFETY INSTRUCTIONS

WITH INSPECTION AND MAINTENANCE INSTRUCTIONS  
**BATTERY POWERED LIFT MAGNETS**

MODELS: BUX BM<sup>2</sup> & BUX BP<sup>2</sup>



**BUX BM<sup>2</sup>-13PB**



**BUX BM<sup>2</sup>-25PB**



**BUX BM<sup>2</sup>-36PB**



**BUX BM<sup>2</sup>-50PB**



**BUX BP<sup>2</sup>-7PB**



**BUX BP<sup>2</sup>-15PB**



An Industrial Magnetics, Inc. Company

## **⚠ DANGER**

- Always stay clear of the load.
- Never lift loads over people or in close proximity to people.
- Never attempt to operate either of these magnets until you have read and understand this Operator's Manual.

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## INTRODUCTION

Thank you for purchasing this O.S. Walker Product. If used and maintained properly, it will serve you for many years. Thousands of O.S. Walker lift magnets are in service today doing safe, fast, and efficient magnetic material handling. It is often the most efficient way for one person to load, transport, and unload material.

O.S. Walker Products have proven to be among the best designed and safest in our industry, however, if used improperly, any Model BUX BM<sup>2</sup> OR BUX BP<sup>2</sup> magnet can be rendered inefficient and unsafe. It is, therefore, absolutely essential that anyone who uses this lifting system or is responsible for its application be trained on how to use it correctly.

**Read this manual carefully and learn how to operate and maintain your magnet properly. Failure to do so could result in serious injury or death to yourself and others in the area of operation.**

**This manual should be considered a permanent part of your magnet and should always be available to all operators and remain with the magnet if it is re-sold.**


**Additional copies of this OPERATOR'S manual ARE AVAILABLE.  
JUST CALL 1-800-962-4638 AND REQUEST ADDITIONAL COPIES OF MANUAL #37-DD16630.**

# SAFETY INSTRUCTIONS

## GENERAL SAFETY RULES

Danger always exists when loads are transported by lifting devices, especially if the equipment is not being used properly or is poorly maintained. Because accidents and severe bodily injury or death can result, specific safety precautions must be applied to the operation, inspection, and maintenance of Walker Lift Magnets.

Following these simple rules can help avoid lifting accidents:

 **DANGER**

- **Always** stay clear of the load.
- **Never** lift loads over people or in close proximity to people.
- **Never** attempt to operate this magnet until you read and understand the Operator's Manual.
- **Never** use this magnet to lift, support or transport people.
- **Never** leave any lifted load unattended.
- **Never** lift more than one work piece at a time with this magnet.
- **Always** make sure that the supporting structure and load attaching devices (i.e. crane, chains and hook) are rated to support the weight of the magnet and load.
- **Always** make sure that the load's weight and dimensions are within the Magnet's Lifting Guidelines. These Guidelines are located in the Operator's Manual.
- **Always** let those near you know when a lift is to begin.

Remember, proper lifting knowledge and techniques are the responsibility of the operator. Be sure to read and understand the instructions and safety warnings contained in this manual before using your lifter.

If you do not understand everything in this manual, contact O.S. Walker for assistance before using the magnet.

## Call 1-800-W-MAGNET

# SAFETY INSTRUCTIONS

## RECOGNIZE SAFETY INFORMATION



This is the safety alert symbol. When you see this symbol on your magnet or in this manual, be alert to the potential for personal injury. Follow recommended precautions and safe operating practices at all times.



### **DANGER**

Red Background, White Letters

This indicates a situation in which a hazard is imminent and will result in a high probability of serious injury or death.



### **WARNING**

Orange Background, Black Letters

This indicates a potentially hazardous situation, which could result in some probability of serious injury or death.



### **CAUTION**

Yellow Background, Black Letters

This indicates a potentially hazardous situation, which could result in minor injury or moderate injury.

*These are  
Hazard  
Seriousness  
Signal  
Words*

## UNSAFE LIFTING APPLICATIONS FOR YOUR MAGNET

		<h3><b>! DANGER</b></h3> <ul style="list-style-type: none"> <li>■ <b>Never</b> lift any pipe, solid round or structural shapes with this magnet.</li> <li>■ <b>Never</b> lift any castings that do not have a machined flat lifting surface for the magnet. The location of the lifting surface should be such to permit the load to remain level when lifted.</li> </ul>
<p>O.S. Walker can provide other type magnets for these applications.</p>		
<p>For model BUX BM<sup>2</sup> or BUX BP<sup>2</sup> type magnets see lifting guidelines (page 15).</p>		

	<h3><b>! DANGER</b></h3> <ul style="list-style-type: none"> <li>■ <b>Never</b> lift a load by its narrowest dimension.</li> </ul>
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### **WARNING**

If you have any difficulty lifting a load, **DON'T LIFT IT!**  
Call O.S. Walker for advice at 1-800-962-4638

# SAFETY INSTRUCTIONS

## WAYS TO AVOID A REDUCTION OF LIFTING CAPACITY

### **DANGER**

#### To Avoid any Reduction of Lifting Capacity:

- The lifting surfaces of the magnet and the area of the load where the magnet will be located must be clean, smooth, flat and free of nicks and burrs.
- The full area of the magnet's lifting surface must be in contact with the load.
- The load must be at least 2" (51mm) thick.
- The load must be low carbon steel such as SAE 1020.
- The magnet's lifting surface must stay level and the contacting surface of the load remain flat.
- The temperature of the magnet and/or the load must not be greater than 110°F (43°C).
- Repair of this magnet should only be done by the O. S. Walker Co. or a Qualified Person.\*
- If you have any difficulty lifting a load, DON'T LIFT IT! Call O.S. Walker for advice at 1-800-962-4638.

## ADDITIONAL WARNINGS

### **WARNING**

- Never lift loads with any dimension greater than those shown in the LIFTING GUIDELINES.
- Never leave the I.R. Remote unit where it may be damaged.
- Never operate damaged or malfunctioning magnets.
- Never remove or damage Operating and Warning labels.
- Persons using pacemakers or other medical devices should not use this magnet until they have consulted with their physician.

### **WARNING**

- Disassembly or repair of this magnet can result in reduced holding power and/or cause an unsafe condition. Therefore, anytime the magnet is disassembled beyond the parts list shown in this manual, the magnet must be re-tested for break-away force in accordance with the test described in ANSI/ASME B30.20.
- Modification of any operating mechanism or structure of this magnet can reduce the magnet's effectiveness and/or cause an unsafe condition.
- Repair or modification of this magnet should only be done by O.S. Walker\*.

## SAFETY PERSON

O.S. Walker recommends that a person be assigned to review all magnetic handling applications for these magnets to ensure that safe practices and procedures are being followed.

\*Walker replacement parts may be installed by a **\*\*Designated Person**.

**\*\* Designated Person** - A person selected or assigned by the employer as being competent to replace specific replacement parts listed in this manual and is able to verify the proper functioning of the specific replacement parts and the entire product after the completion of the installation.

# INSTALLATION

## BATTERY INSTALLATION:

The battery used in the BUX BM<sup>2</sup>-13PB series should be a BCI group 22NF style battery of the deep discharge type. It should have a minimum reserve capacity of 45 ampere-hour @ 20 hour rate (e.g. Dynasty DCS-50U). The battery used in the BUX BM<sup>2</sup>-25PB, BUX BM<sup>2</sup>-36PB, BUX BM<sup>2</sup>-50PB, BUX BP<sup>2</sup>-7PB or BUX BP<sup>2</sup>-15PB series should be a BCI group 27 style battery of the deep discharge type. It should have a minimum reserve capacity of 82 ampere-hour @ 20 hour rate such (e.g. Dynasty DCS-88BT). Replacement batteries must be 12 volt, top lug terminal, low maintenance, AGM type, and should have the highest reserve capacity available and be rated for deep cycle discharge. O.S. Walker does not recommend the use of wet lead acid batteries. After installing the battery Program Your Magnet reference page 18.

 **DANGER**

**BATTERY GAS CAN EXPLODE. KEEP SPARKS AND FLAMES AWAY FROM BATTERIES.**

**IMPORTANT:** CHARGER MAY BE PERMANENTLY DAMAGED IF BATTERY CABLES ARE REVERSED. BE SURE CABLES ARE CONNECTED WITH CORRECT POLAITY.

**Install battery with the positive terminal towards the rear of the magnet.**

- **FIRST**, connect the red battery cable to the positive post, marked (+) and cover with the terminal boot.
- **THEN**, connect the black battery cable to the negative post, marked (-).

## BATTERY CHARGING

Read and understand the instructions supplied with your battery. After installation, the battery should be charged as soon as possible to avoid loss of life. Make sure the battery has been fully charged before placing the magnet into service.

**NEVER ATTEMPT TO CHARGE A DAMAGED OR FROZEN BATTERY. Charge the battery in a well ventilated area. Battery gases are explosive. KEEP SPARKS AND FLAMES AWAY FROM THE BATTERY.**

Turn the built in charger on by connecting the control unit to the 115 VAC line using the line cord shipped with your battery powered lift magnet. For the charger to operate, the magnet must be turned off.

The battery charger is designed to monitor the battery voltage and current during the charging cycle to prevent damage to the battery. The charger has the capacity to restore the charge to a healthy battery during non-production shifts. Recharging the battery every night is recommended to increase battery life and maximize your magnet's operating time.

 **DANGER**

**NEVER DISCONNECT THE MAGNET FROM ITS POWER SOURCE WHILE IT IS ENERGIZED! ELECTRICAL ARCING WILL OCCUR AND MAY CAUSE SERIOUS INJURY.**

# SPECIFICATIONS

## Magnet Specifications

Model No.	BUX BM <sup>2</sup> -13PB	BUX BM <sup>2</sup> -25PB	BUX BM <sup>2</sup> -36PB	BUX BM <sup>2</sup> -50PB	BUX BP <sup>2</sup> -7PB	BUX BP <sup>2</sup> -15PB
Length (inch)	21.00	21.00	48.00	60.00	20.50	30.00
Width (inch)	9.56	9.63	9.63	12.00	9.50	10.50
Ht. (inch)To Crane Hook	22.28	22.46	23.15	22.95	27.72	29.97
Net Weight (lbs).	191	260	565	645	350	739

## Performance Rating on AISI 1020 Steel

Performance Rating on AISI 1020 Steel	
BUX BM <sup>2</sup> -13PB	0 - 3,000 lbs. Rated Lift
BUX BM <sup>2</sup> -25PB	0 - 5,500 lbs. Rated Lift
BUX BM <sup>2</sup> -36PB	0 - 8,000 lbs. Rated Lift
BUX BM <sup>2</sup> -50PB	0 - 11,000 lbs. Rated Lift
BUX BP <sup>2</sup> -7PB	0 - 1,665 lbs. Rated Lift
BUX BP <sup>2</sup> -15PB	0 - 3,330 lbs. Rated Lift

All model BM<sup>2</sup> & BP<sup>2</sup> Lifting Magnets are rated for 50% Duty Cycle (see page 14).

# OPERATING INSTRUCTIONS

## IMPORTANT FACTS FOR THE OPERATION OF LIFT MAGNETS

LOAD CHARACTERISTICS OTHER THAN JUST WEIGHT  
MUST BE CONSIDERED IN ORDER TO DETERMINE  
THE LOAD THAT ANY MAGNET CAN LIFT.

This statement is true for all lifting magnets because they all operate using the same fundamental laws of physics. Magnetic power is often pictured as lines of magnetic force flowing from north pole to south pole. Anything that limits the flow of these magnetic lines of force obviously reduces the magnet's lifting capacity. There are many important factors, which limit the flow of these lines of force.

### 1. LOAD THICKNESS

The greater the number of lines of magnetic force that can flow from a magnet into the load, the greater the effectiveness of the magnet. The thicker the load, the more lines of magnetic force that are able to flow, up to the thickness where the load capacity exceeds the capability of the lift magnet.

Thin material (load) means less iron available and thus fewer lines of magnetic force flow from the magnet into the load. As a result, the lifting capacity of the magnet is reduced. In some cases, the magnet will attract more than one thin plate of material when set on a stack of thin plates. **DO NOT LIFT** more than one plate at a time as the lower plate may not be held sufficiently.

The lifting guidelines provide the user with what minimum thickness of load is required to reach full lifting capacity. Loads thinner than those listed will result in reduced lifting capacity of the magnet. This is evidenced by the information in the lifting guidelines charts.

### 2. SURFACE CONDITIONS

Magnetic lines of force do not flow easily through air, however, they do flow very easily through iron. As a result, anything that creates a space or an air gap between a magnet and the load will limit the flow of magnetic lines of force, thus, reducing the lifting capacity of the magnet.

■ **Magnet's Lifting Surface Condition** - The lifting surfaces of a magnet must be clean, smooth, flat and free of nicks and burrs in order to minimize the air gap between a magnet and the load. This magnet has been designed with soft, low carbon steel lifting surfaces in order to maximize the lifting capacity. This requires that special care be taken to protect these surfaces. Follow the Inspection Instructions in this manual. Attaching or welding other materials to the lifting surfaces of this magnet in order to reduce wear is not recommended as it will reduce the lifting capacity.

■ **Load Surface Condition** - Paper, dirt, rags, rust, paint, and scale act the same as air. A rough surface finish on the load also creates an air gap between the magnet and load. Any of these conditions will reduce the magnet's lifting capacity.

### 3. LOAD ALLOY

Low carbon steels, such as SAE 1020 steel, are nearly as good conductors of magnetic lines of force as pure iron. Many alloys, however, contain non-magnetic materials which reduce the ability of magnetic lines of force to flow into the load. An alloy such as SAE 300 series stainless steel is almost as poor a conductor of magnetic lines of force as air.

Type 416 stainless steel is considered magnetic but contains enough chromium so that a magnet can develop only one-half as much force on a type 416 stainless steel load when compared to SAE 1020 steel. In cast iron, the carbon content reduces the force developed to less than one-half of that developed on SAE 1020 steel. (Chilled cast iron further reduces the force to less than one-quarter.)



#### **4. LOAD LENGTH OR WIDTH**

As the length or width of a load increases, it will cease to remain flat when lifted as the edges will begin to droop. This drooping or sagging of the load can create an air gap between the load and the magnet, especially at the ends of the magnet. This is referred to as peel. If this occurs, the lifting capacity of the magnet is greatly reduced.

For plate lifting, where drooping often occurs, rectangular shaped magnets must be positioned so that the length of the magnet is parallel to the width of the load.

#### **5. POSITION OF MAGNET'S LIFTING SURFACE**

As the slope of the magnet's lifting surface changes from horizontal to vertical, the lifting capacity of the magnet decreases. When the magnet's lifting surfaces are vertical, the lifting capacity of the magnet is minimum and dependent upon the coefficient of friction between the magnet's lifting surface and the load.

#### **6. PORTION OF MAGNET SURFACE IN CONTACT WITH LOAD**

The full surface of the magnet must contact the load if the magnet is to achieve its rated lift capacity.

#### **7. LOAD TEMPERATURE**

The temperature of the load can cause damage to the magnet and if high enough, can even change the magnetic characteristics of the load. For Standard Lift Magnets, Walker should be consulted if the load or air temperature exceeds 110° F (43° C).

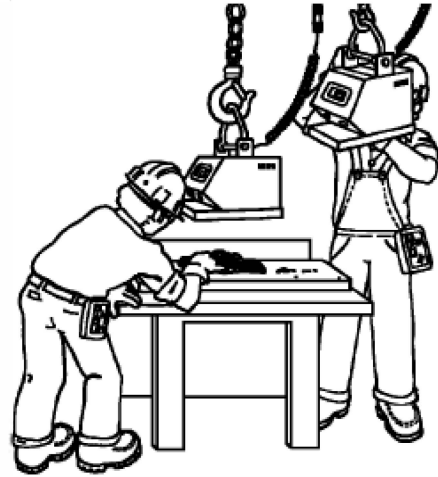
# SAFETY

FOR FAST, EASY LIFTING WITH YOUR WALKERLIFT MAGNET –

## 1 NEVER

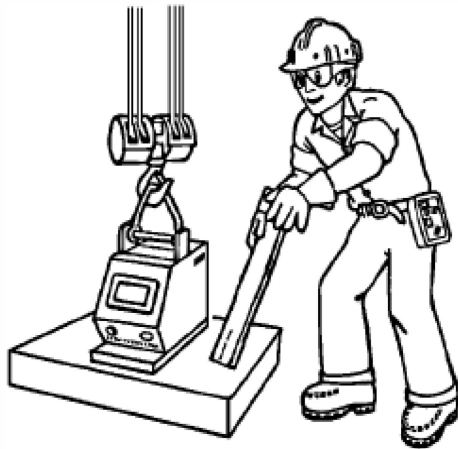
attempt to operate this lift magnet until you read and understand the **OPERATOR'S MANUAL & SAFETY INSTRUCTIONS** (Manual #37-DD16630 for the BM<sup>2</sup> and BP<sup>2</sup> magnets).

## 2



Check the condition of the magnet prior to every lift. WIPE clean the bottom of the magnet and the area on the load where the magnet will be located. File away burrs.

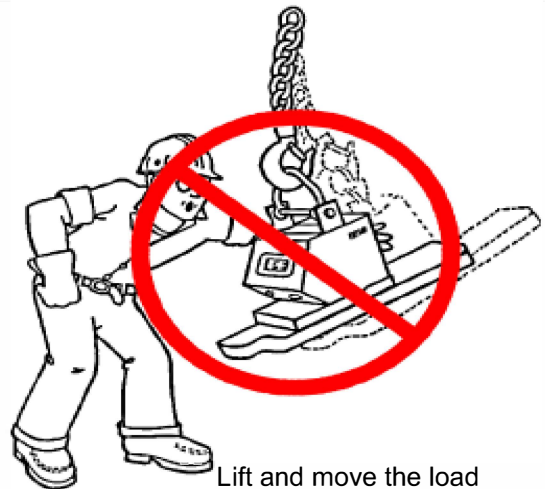
## 5



Check to be sure no one is near the load to be lifted. Inform others in the area that a lift is to begin. Lift the load 2 to 3 inches (50 to 75 mm) and then jar the load to insure that adequate holding power is available.

**ALWAYS STAY CLEAR OF THE LOAD.**

## 6



Lift and move the load **SMOOTHLY**. Avoid jarring and swinging the load while it is in transit. **KEEP THE LOAD LEVEL. NEVER** let the load come in contact with any obstruction.

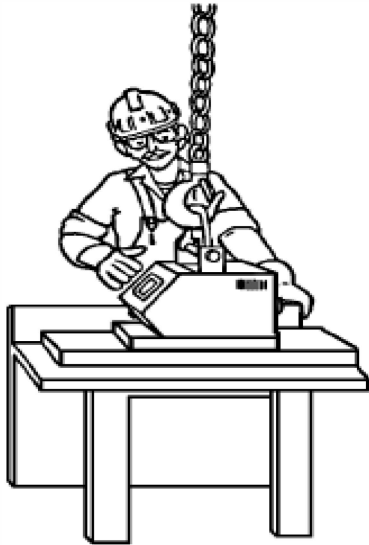
If you have any difficulty lifting a load, **DON'T LIFT IT**. Ask your supervisor for help or call O.S. Walker Co., Inc., for advice at 1-800-W-MAGNET

When working in an area using lifting magnets, wear safety glasses, work gloves, steel-toed shoes and a safety hat.

# RULES

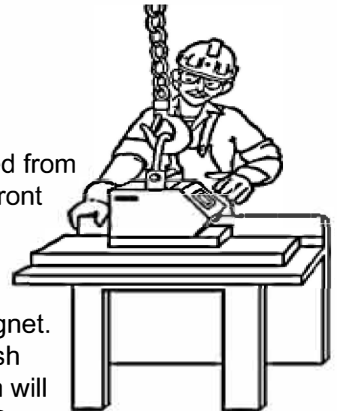
MODELS: BUX BM<sup>2</sup> and BUX BP<sup>2</sup>

## 3



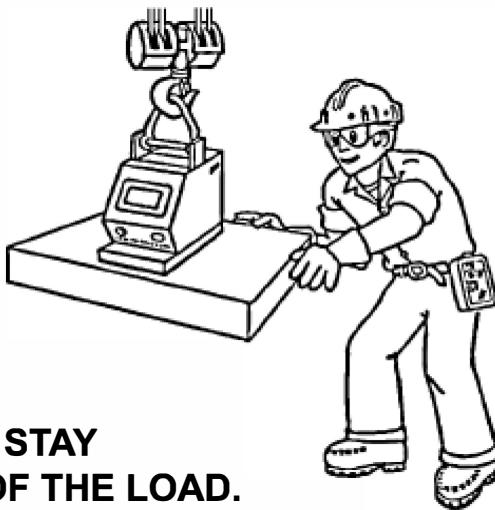
Position the magnet so the load remains level.

## 4



This magnet can be operated from the controls located on the front panel of the magnet or the Remote Control unit when its lens is pointed towards the control panel on the magnet. To energize the magnet, push the "LIFT" button. The alarm will sound and the red **DANGER** lamp will light while the magnetic energy builds up. When the magnetic energy builds up to a sufficient level, the alarm will stop sounding. The indicator lamps will now show the battery charge level. This might take a few seconds. **IF THE ALARM CONTINUES SOUNDING, OR THE RED DANGER LAMP STAYS ON, DO NOT OPERATE THE MAGNET. TURN THE MAGNET OFF.**

## 7



### **ALWAYS STAY CLEAR OF THE LOAD.**

Guide the load by pushing or pulling the edges. This keeps your entire body clear of the load at all times. **DO NOT** guide the load by pushing or pulling the Magnet. **NEVER** get in a position where you could get hit with load if it dropped.

## 8



Carefully set the load down. To release the load, press the "RELEASE" button on the Front Panel or push both "RELEASE" buttons on the Remote Control at the same time by using both thumbs. Then lift the magnet slightly to be sure the load has been released.

**CAUTION**

**NEVER** re-energize the magnet until it has been placed in contact with the load to be lifted. Prematurely energizing the magnet could cause unwanted materials to be attracted to the magnet. **PERSONAL INJURY MAY RESULT.**

# RECOMMENDED LIFTING PROCEDURES

## ■ SAFETY HOOK LATCH

Always use a safety hook latch on your crane hook to hold your magnets.

## ■ STAY CLEAR OF THE LOAD

Guide the load by pushing or pulling the edges of the load.  
Keep your entire body clear of the load at all times.

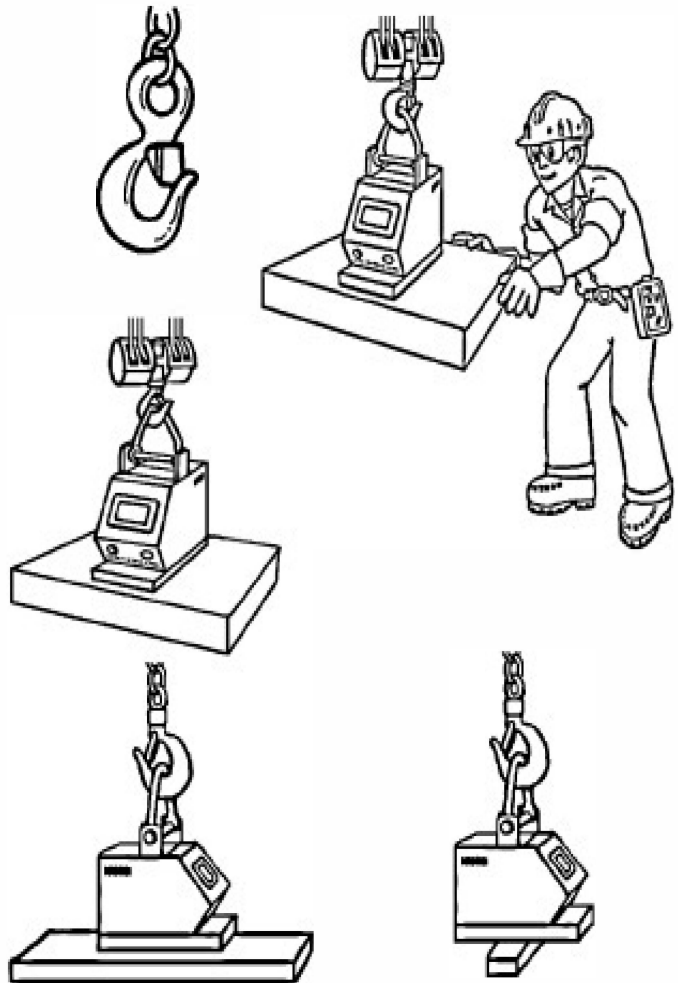
## ■ PLATE LIFTING

On plates less than 1 1/2" (38mm) thick, position the magnet length so that it is parallel to the width of the plate. Never lift any plate less than 3/16" (4.7mm) thick. (See Important Facts 1 & 4).

## ■ BAR LIFTING

When the load width is less than the magnet length and wider than the magnet width, position the magnet length so that it is parallel to the length of the bar and the entire lifting surface of the magnet is in contact with the load.

When the load width is narrower than the width of the magnet, position the magnet so the length of the magnet is parallel to the width of the load. This allows for maximum and equal amounts of each pole area in contact with the load.



## UNSAFE LIFTING APPLICATIONS FOR YOUR MAGNET

		<p><b>▲ DANGER</b></p> <ul style="list-style-type: none"> <li>• <b>Never</b> lift any pipe, solid round or structural shapes with this magnet.</li> <li>• <b>Never</b> lift any castings that do not have a machined flat lifting surface for the magnet. The location of the lifting surface should be such to permit the load to remain level when lifted.</li> </ul>		<p><b>▲ DANGER</b></p> <ul style="list-style-type: none"> <li>• <b>Never</b> lift a load by its narrowest dimension.</li> </ul>

O.S. Walker can provide other type magnets for these applications.

For model BP<sup>2</sup> type magnets see lifting guidelines (page 16).

<b>WARNING</b>	<p>If you have any difficulty lifting a load, <b>DON'T LIFT IT!</b> Call O.S. Walker for advice at 1-800-962-4638</p>
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# GUIDELINES FOR THE REDUCTION OF THE RATED LIFTING CAPACITY:

**CAUTION**: Each Walker lifter model is rated for a different weight limit. Load characteristics will affect the lifting capacity of the magnets. The lifting guidelines for the various models are shown on the following pages.

- The Lifting Guidelines charts show the effect of air gap, load thickness, load length, and load width on lifting capacity. As the thickness of the load decreases, so does the rated lifting capacity of the magnet. The tables show the maximum weight or load size that can be lifted for each thickness under varying air gap conditions. **DO NOT EXCEED EITHER THE MAXIMUM LOAD WEIGHT OR LOAD SIZE FOR EACH THICKNESS.**
- Each value shown in the Lifting Guidelines charts is for SAE 1020 steel. Any increase in alloy content will result in further reduction of the lifting capacity of the magnet.

THIS TABLE PROVIDES SOME REDUCTION FACTORS FOR MATERIAL OTHER THAN SAE 1020 STEEL	
Reduction Factors for Materials Other than SAE 1020 Steel	
Materials	REDUCTION FACTOR
Cast Steel	0.90
3% Silicon Steel	0.80
SAE 1095 Steel	0.70
416 Stainless Steel	0.50
Cast Iron (non-chilled)	0.45
Pure Nickel	0.10

For Other Materials Consult O.S. Walker

Rated Lifting Capacity (for these materials) = Reduction Factor multiplied by Maximum Load Value (for 1020 Steel) from Lifting Guidelines. (Plate) Ref. page 15.

Example: Lifting SAE 1095 STEEL, 1/2" thick, ROUGH machined flat surfaces (use .020" air gap) with a Model BM<sup>2</sup>-25PB magnet.

RATED LIFTING CAPACITY = 0.70 multiplied by 725 = 507 pounds

## ADDITIONAL OPERATING INFORMATION

Avoid dropping, banging, or slamming the magnet into other objects.

Battery Powered Lifting Magnets are electromagnetic devices. Do not allow water to enter the magnet body. Water is an electrical conductor and could short out the magnet.

If you have any difficulty lifting a load, **DON'T LIFT IT!**

**DANGER** DANGER: NEVER DISCONNECT THE MAGNET FROM ITS POWER SOURCE WHILE IT IS ENERGIZED! ELECTRICAL SHOCK MAY OCCUR AND CAUSE SERIOUS INJURY.

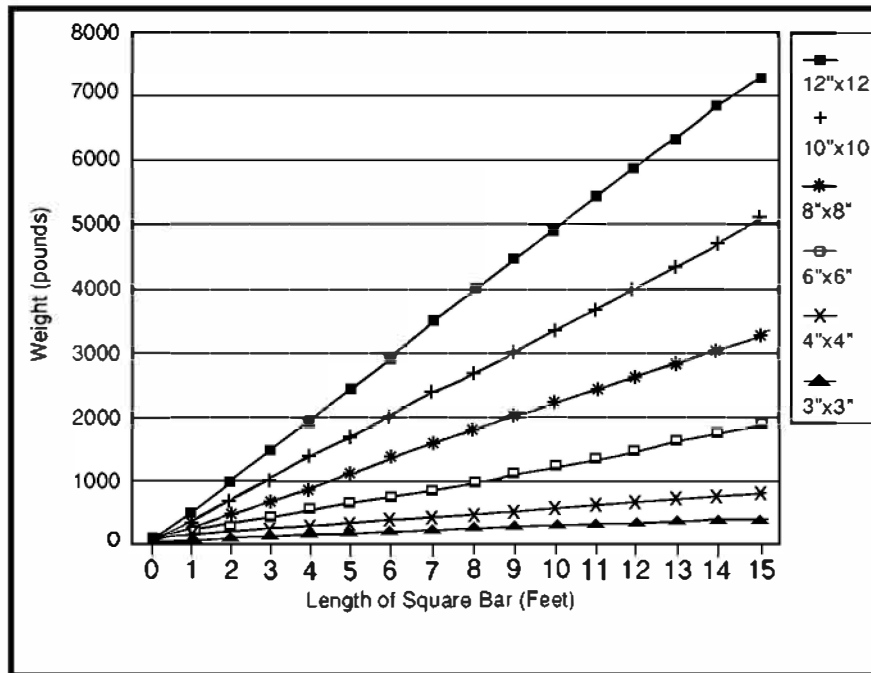
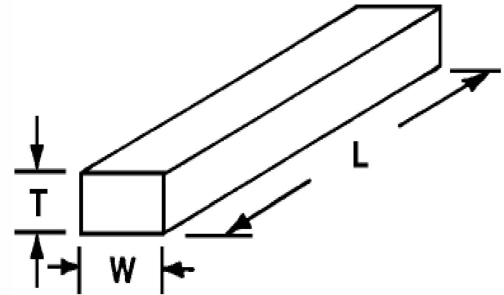
## LOAD WEIGHT GUIDELINE

To estimate the weight of a steel work piece, first determine the volume of the Load in cubic inches. Then multiply the volume (cubic inches) by the density of steel (.283) pounds per cubic inch.

**Load Weight (steel) = (volume) multiplied by (density)**  
**= (W x T x L) x (.283)**

Example: What is the weight of a 10" wide x 5" thick x 96" long piece of steel?

Load Weight = (10 x 5 x 96) x (.283) = 1358 lbs.



## DUTY CYCLE

DO NOT EXCEED THE RATED 50% DUTY CYCLE OF THESE MAGNETS. (Exceeding the duty cycle will result in reduced lifting capacity, less operating time between battery charges, and a reduction in the life of the magnet.)

Duty cycle rating (D.C. %) is defined as:

$$\frac{\text{Time On} \times 100}{\text{Time Off} + \text{Time On}} = \text{D.C. \%}$$

and is expressed as a Percent (with a maximum of 10 minutes Time On.)

Therefore, to maximize the effectiveness of your magnet, keep the power off when the magnet is not in use.

EXAMPLES:

3 MINUTES ON, 1 MINUTE OFF EQUALS:  $(3 \times 100) / (3 + 1) = 75\%$

5 MINUTES ON, 5 MINUTES OFF EQUALS:  $(5 \times 100) / (5 + 5) = 50\%$

WARNING

If you have any difficulty lifting a load, DON'T LIFT IT!  
 Call O.S. Walker for advice at 1-800-962-4638

## LIFTING GUIDELINES BM<sup>2</sup> PLATE

MAGNET MODELS	WORK PIECE THICKNESS	TYPE OF SURFACE					
		CLEAN & SMOOTH Similar to a flat ground surface 32 microinch RMS.000" Max. Air Gap †		RUST OR SCALE Similar to a flat hot rolled steel surface.010" (.254mm) Max. Air Gap †		IRREGULAR OR ROUGH Similar to a flat smooth cut file.020" (.508mm) Max. Air Gap †	
		Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)
BM <sup>2</sup> -13PB	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 9 FEET						
	OVER 1-1/2"	3000	-	2575	-	2000	-
	1-1/2"	3000	7 x 7	2575	6 x 7	2000	5 x 6
	*1"	2100	7 x 7	1975	6 x 7	1700	5 x 6
	*3/4"	1475	7 x 6	1300	6 x 6	1100	5 x 6
	*1/2"	825	6 x 6	750	6 x 6	650	5 x 5
	*3/8"	475	5 x 6	425	5 x 5	400	5 x 5
	*1/4"	200	4 x 4	190	4 x 4	175	4 x 4
BM <sup>2</sup> -25PB	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 15 FEET						
	OVER 2"	5500	-	4650	-	3850	-
	*2"	5500	8 x 8	4650	7 x 8	3850	6 x 7
	*1-1/2"	4075	8 x 8	3575	7 x 8	2975	6 x 7
	*1"	2650	8 x 8	2500	7 x 8	2100	7 x 7
	*3/4"	1650	7 x 7	1450	6 x 7	1350	6 x 7
	*1/2"	825	6 x 6	800	6 x 6	725	5 x 7
	*3/8"	475	5 x 6	450	4 x 7	400	5 x 5
*1/4"	210	4 x 5	190	4 x 4	180	4 x 4	
BM <sup>2</sup> -36PB	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 20 FEET						
	OVER 2"	8000	-	7200	-	6000	-
	*1"	8000	9 x 20	7200	8 x 20	6000	8 x 18
	*3/4"	5350	8 x 20	4900	8 x 20	4320	8 x 17
	*1/2"	2000	8 x 12	1925	8 x 11	1850	8 x 11
	*3/8"	1100	8 x 9	1025	8 x 8	950	7 x 8
	*1/4"	550	6 x 9	525	6 x 8	500	6 x 8
BM <sup>2</sup> -50PB	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 25 FEET						
	OVER 2"	11000	-	9300	-	7700	-
	*2"	11000	11 x 12	9300	10 x 11	7700	9 x 10
	*1-1/2"	8150	11 x 11	7150	10 x 11	5950	9 x 10
	*1"	5300	11 x 11	5000	11 x 11	4200	10 x 10
	*3/4"	3300	9 x 10	2900	9 x 10	2700	9 x 9
	*1/2"	1650	8 x 9	1600	8 x 9	1450	8 x 8
	*3/8"	950	7 x 8	900	7 x 8	800	7 x 7
*1/4"	420	6 x 6	380	6 x 6	360	5 x 6	

\* LIFTING CAPACITY AFFECTED BY PEEL AND THICKNESS. SEE 1 & 4 OF THE "IMPORTANT FACTS" (PAGE 8 & 9) IN THIS INSTRUCTION MANUAL.

† SEE SECTION 6 OF THE "IMPORTANT FACTS" (PAGE 9) IN THIS INSTRUCTION MANUAL. ALSO, READ RECOMMENDED LIFTING PROCEDURES (PAGE 12).

Values shown are **maximum rated capacities** when all operating instructions and warnings are strictly followed. Values based on SAE 1020.  
Higher alloy steels and other magnetic materials will require further reductions of these rated capacities.  
(See Guidelines for the Reduction of Rated Lifting Capacity.)

## LIFTING GUIDELINES BP<sup>2</sup> PLATE

MAGNET MODELS	-- WORK PIECE THICKNESS	TYPE OF SURFACE					
		CLEAN & SMOOTH Similar to a flat ground surface 32 microinch RMS.000" Max. Air Gap †		RUST OR SCALE Similar to a flat hot rolled steel surface.010" (.254mm) Max. Air Gap †		IRREGULAR OR ROUGH Similar to a flat smooth cut file.020" (.508mm) Max. Air Gap †	
		Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)
BP <sup>2</sup> -7PB	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 7 FEET						
	OVER 2"	1665	-	1515	-	1365	-
	*2"	1665	4 x 5	1515	4 x 4	1365	4 x 4
	*1-1/2"	1665	5 x 5	1365	4 x 5	1250	4 x 5
	*1"	1500	6 x 6	1233	5 x 6	1115	5 x 5
	*3/4"	1165	6 x 6	965	5 x 6	865	5 x 5
	*1/2"	830	6 x 6	680	5 x 6	615	5 x 6
	*3/8"	565	6 x 6	465	5 x 6	450	5 x 6
*1/4"	400	6 x 6	350	5 x 6	330	5 x 6	
BP <sup>2</sup> -15PB	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 12 FEET						
	OVER 2"	3330	-	3030	-	2730	-
	*2"	3330	6 x 6	3030	6 x 6	2730	5 x 6
	*1-1/2"	3330	7 x 7	2730	6 x 7	2500	6 x 6
	*1"	2865	8 x 8	2330	7 x 8	2115	7 x 7
	*3/4"	2100	8 x 8	1730	7 x 8	1550	7 x 7
	*1/2"	1400	8 x 8	1165	7 x 8	1050	7 x 7
	*3/8"	900	7 x 7	750	7 x 7	715	6 x 7
*1/4"	630	7 x 8	550	7 x 7	530	7 x 7	

## LIFTING GUIDELINES (STRUCTURAL SHAPES)

MATERIAL TYPE	MATERIAL SIZE	MAGNET MODELS			
		BP <sup>2</sup> -7PB		BP <sup>2</sup> -15PB	
		MAX. WT. (lbs)	MAX LENGTH (ft)	MAX. WT. (lbs)	MAX LENGTH (ft)
BEAMS & CHANNELS REDUCE CAPACITY BY " WHEN LIFTING ON FLANGE	1/4" - 3/8" WEB	330	20	530	20
	7/16" - 1/2" WEB	500	20	815	20
	5/8" - 3/4" WEB	830	20	1450	20
	7/8" - 1" WEB	1000	20	1865	20
	ABOVE 1" WEB	1665	20	3330	20
SOLID BARS	1" THRU 5 1/2" DIA..	-	20	-	20
	5-1/2" - 12" DIA.	1665	-	3330	-
PIPE & TUBING	1" - 12" DIA.	1665	20	3330	20
ANGLES (APEX UP)	ALL SIZES	600	20	1000	20
NEVER LIFT STRUCTURAL SHAPE LOADS WITH ANY DIMENSION GREATER THAN 20 FT.					

\* LIFTING CAPACITY AFFECTED BY PEEL AND THICKNESS. SEE 1 & 4 OF THE "IMPORTANT FACTS" (PAGE 8 & 9) IN THIS INSTRUCTION MANUAL.

† SEE SECTION 6 OF THE "IMPORTANT FACTS" (PAGE 9) IN THIS INSTRUCTION MANUAL. ALSO, READ RECOMMENDED LIFTING PROCEDURES (PAGE 12).

**Values shown are maximum rated capacities when all operating instructions and warnings are strictly followed. Values based on SAE 1020. Higher alloy steels and other magnetic materials will require further reductions of these rated capacities. (See Guidelines for the Reduction of Rated Lifting Capacity.)**



# INDICATING LAMPS, I.R. REMOTE, and LOCAL CONTROL

 **DANGER**

**Do Not Attempt To Lift a Load While Alarm Is Sounding Or Red “Danger” Indicator Is On.**

## INDICATOR LIGHT DISPLAY DURING LIFT

When the magnet is on a load and the “LIFT” button on the Front Panel or I.R. remote is pressed, the red “DANGER” indicator will light and the alarm will sound. The alarm may continue for a few seconds, until the magnetic energy builds up to the proper level needed for lifting. **NEVER BEGIN TO LIFT A LOAD WHILE ALARM IS SOUNDING OR WHEN THE RED DANGER INDICATOR IS ON.** If the red DANGER indicator remains on and the alarm continues to sound, **DO NOT USE THE MAGNET.** See Troubleshooting page 21 section B for more information.

The panel indicators indicate the battery’s charge level while using the magnet. When the magnet is turned on, the lamps indicate the voltage level of the battery. When the four green lamps go out, the battery charge is low and it should be recharged before doing any further lifting.

After a complete battery charge (as indicated by a green Battery indicator), ALL the charge level lamps should light when the “LIFT” button on the Front Panel or I.R. remote is pressed. If, however, the last green indicator turns off shortly after the magnet has been turned on, this could indicate the battery’s inability to retain the charge level. See Troubleshooting page 21 section C for more information.

 **DANGER**

Observe the battery charge level indicators frequently during each lift. If the red DANGER indicator goes on and/or the alarm sounds during a lift, set the load down immediately.

## INDICATOR DISPLAY DURING CHARGING

With the magnet off and the power cord plugged into a 115 VAC source, the red “BATTERY” indicator light should turn on within 10 seconds indicating the battery is being charged. When the battery is nearly fully charged, the “BATTERY” indicator will alternate between red and green. Once the battery is fully charged, the charger maintains a float charge on the battery to maintain a full charge. This is indicated by the “BATTERY” indicator staying lit green. The battery is now fully charged and ready for use. Using the magnet prior to the battery being fully charged will reduce the safe operating time of the magnet.

**If no lamps come on after the charger is initially plugged in, unplug the unit and see Troubleshooting page 22 Sections H & I.**

When the green “BATTERY” indicator turns on, the charger may be left plugged in if desired. A constant float charge is maintained on the battery and will keep the battery fully charged.

## I.R. REMOTE

### TURN ON MAGNET

Press the green LIFT button. The red **DANGER** indicator will light and the alarm will sound. This alarm may continue, for a few seconds until the magnetic energy builds up to the proper level needed for lifting. **NEVER BEGIN TO LIFT A LOAD WHILE ALARM IS SOUNDING OR WHEN THE RED DANGER INDICATOR IS ON.** If the red **DANGER** indicator remains on and the alarm continues to sound, **DO NOT USE THE MAGNET**, refer to Troubleshooting page 21 section B.

### RELEASE LOAD

First, relax the lift bail until the yellow light on the controller panel begins to flash. Press BOTH red RELEASE buttons simultaneously with both thumbs. After pressing the release buttons, the red **DANGER** indicator will light and the alarm will sound. Release the buttons and wait several seconds until the magnet control runs through a discharge cycle. This is indicated by the indicator lights turning off and the silencing of the alarm. Each time the buttons are pressed, the red LED indicator on the remote should illuminate. If the intensity of this LED dims or the activation distance from the magnet diminishes, replace the 9 Volt battery in the remote. If the magnet will not release the load, then again press BOTH red RELEASE buttons simultaneously to initiate a secondary release cycle. **If the magnet will not release the load, refer to Troubleshooting page 22 section G.**

### PROGRAM YOUR MAGNET

For use with a new replacement remote unit, point the remote at the lights on the bezel of the battery magnet and hold down the green "LIFT" button and the top red "RELEASE" button simultaneously. Keep the buttons depressed until the row of lights on the battery magnet flash sequentially and the alarm sounds. Then release the buttons and the magnet should be programmed to operate with the new remote and be ready for use. If the process does not proceed as described, refer to Troubleshooting on page 22, Sections H & I.

## LOCAL CONTROL

### TURN ON MAGNET

Press the green LIFT button on the front of the controller panel. The red **DANGER** indicator will light and the alarm will sound. The alarm may continue for a few seconds until the magnetic energy builds up to the proper level needed for lifting. **NEVER BEGIN TO LIFT A LOAD WHILE ALARM IS SOUNDING OR WHEN THE RED DANGER INDICATOR IS ON.** If the red **DANGER** indicator remains on and the alarm continues to sound, **DO NOT USE THE MAGNET**, refer to Troubleshooting page 21 section B.

### RELEASE LOAD

First, relax the lift bail until the yellow light on the controller panel begins to flash. Press the red RELEASE button on the front of the controller panel. After pressing the release button, the red **DANGER** indicator will light and the alarm will sound. Release the button and wait several seconds until the magnet control runs through a discharge cycle. This is indicated by the indicator lights turning off and the silencing of the alarm. If the magnet will not release the load, then again press the red RELEASE button to initiate a secondary release cycle. **If the magnet will not release the load, see Troubleshooting page 22 section G.**

# INSPECTION AND MAINTENANCE INSTRUCTIONS

## EVERY LIFT

- Keep the lifting surfaces of the magnet CLEAN, SMOOTH, FLAT, and FREE OF RUST or any FOREIGN MATERIALS. Nicks and burrs on the lifting surfaces will reduce lifting capacity. If burrs occur, they can be removed by filing the contact surface. Care must be taken to protect the neighboring lifting surfaces when filing.
- Deep nicks may require grinding the entire lifting surface. (See Weekly Inspection Instructions)
- Check that the alarm sounds and the red **DANGER** indicator lights when the LIFT button on the Front Panel or I.R. remote is pressed. If either the lamp and alarm do not operate, **DO NOT USE THE MAGNET.**

## DAILY

- Check the entire magnet's case, lifting surfaces, lifting arms, bail, and welds for cracks or other defects. If present, **DO NOT USE THE MAGNET** – Contact a Qualified Person or O. S. Walker.
- Check the lifting bail bar and shaft for wear. If the bail bar or shaft is worn to 80% of its original size, it must be replaced.
- Keep the battery charged as described on page 6.
- Check battery connections. If corrosion appears, disconnect the battery, clean the terminals, then reconnect. (Always remove black (-) battery lead first and connect it last.)
- Check the physical condition of all cables, leads, lamps, and alarms. Repair or replace any suspicious components.
- Check the condition of the Operating Instruction label and Product Safety signs. If these labels and signs are missing or damaged, they should be replaced.

## WEEKLY

- The lifting surfaces of the magnet should be checked for flatness and wear. Uneven wear and non flat surfaces can create an air gap between the magnet and load which will greatly reduce the lifting capacity. Some nicks and burrs will occur on the lifting surfaces due to normal usage. If the flat contact area of the entire magnet's lifting surfaces becomes less than 90% of the original total lifting surface, it should be taken out of service until the lifting surfaces can be reground.
- If regrinding is necessary, all the lifting surfaces must remain flat and in the same plane. After regrinding, the magnet must be re-tested for breakaway force in accordance with the test described in ANSI/ASME B30.20.
- Check the rigid epoxy of the encapsulated coil. If any cracks or distortion of the epoxy is evident, immediately contact O.S. Walker or your supervisor.

O.S. Walker recommends that your lifting magnet be re-tested for breakaway force each year.



# TROUBLESHOOTING

Symptoms	Possible cause
A. MAGNET DOES NOT TURN ON.	1) To operate the magnet, make sure the lift bail is in a relaxed position. Then press the LIFT button on the Front Panel or the I.R. remote. If no display indicators turn on, then the battery voltage may be below the minimum acceptable operating level 11.6 volts. Charge the battery until the voltage is at an acceptable level.
	2) Check the battery terminals for corrosion and clean if necessary. Dirty terminals reduce the voltage to the magnet.
	3) Check the LED on the remote to assure it lights when the buttons are pressed. If not, change the battery in the remote or try operating using the Front Panel Controls.
B. ALARM WILL NOT STOP SOUNDING AFTER MAGNET IS TURNED ON.	1) When the magnet is turned on, the alarm will normally sound for a few seconds while the magnet energy builds to the proper level for safe lifting. If the alarm continues sounding after several seconds, then the battery level may have fallen below the danger level after the magnet was turned on. <b>NEVER ATTEMPT TO LIFT A LOAD WHILE THE ALARM IS SOUNDING OR THE RED DANGER INDICATOR IS ON.</b> The danger level is 11.6 volts and the magnet should not be operated once the battery falls below this voltage. If the battery voltage is below 11.6 volts, it must be recharged before further use.
	2) The alarm will also sound if there is a break in the magnet coil, the magnet cord, or the control circuit, causing lack of current flow. Check to see if the magnet is securely connected to the terminals on the control PCB. If the alarm persists, do not attempt to use the magnet. Call 1-800-W-MAGNET and ask for technical assistance.
	3) Check the label located on the back of the control unit (inside the battery compartment) to be certain it is the correct control for your magnet model. Controls are configured for use on specific models.
C. DISPLAY LAMPS TURN OFF RAPIDLY.	1) After a complete battery charge, ALL the charge level lamps should light when the LIFT button on the Front Panel or I.R. remote is pressed. The green lamps will turn off as the battery discharges, and will turn off faster with higher power consumption lift magnets. (BM <sup>2</sup> -36PB, BM <sup>2</sup> -50PB, BP <sup>2</sup> -7PB and BP <sup>2</sup> -15PB) than with the BM <sup>2</sup> -13PB and BM <sup>2</sup> -25PB magnets. However, if the last green lamp(s) turn off minutes after the magnet has been turned on, this does not necessarily indicate a problem with the charger. Instead, it could be indicating the battery's inability to accept its original full charge level.
	2) As lead acid batteries age or become damaged internally, they become unable to accept the full charge storage capacity, the lamps will begin to turn off sooner for the same previous "on time". With increase aging and/or damage causing even less charge storage capacity, the lamps will progressively turn off faster. Replacement batteries of lower reserve capacity than recommended will result in the lamps turning off more rapidly and providing less usage time between charges. Therefore, the user is cautioned to: <b>OBSERVE THE BATTERY CHARGE LEVEL LAMPS FREQUENTLY DURING EACH LIFT. IF THE RED LAMP GOES ON AND/OR THE ALARM SOUNDS DURING A LIFT, SET THE LOAD DOWN IMMEDIATELY.</b>
	3) Check the condition of the battery. Remove the battery from the magnet, and fully charge on an external charger. After completing the charge, check the battery voltage using a voltmeter. The battery voltage should read approximately 12.7 volts at a full charge. Let the battery sit for 15-20 minutes and re-check the voltage. If the voltage has dropped, replace the battery.

# TROUBLESHOOTING

D. ALARM DOES NOT SOUND.	1) The alarm should always sound when the LIFT button on the Front Panel or I.R. remote is pressed and whenever the red <b>DANGER</b> indicator turns on. If the alarm does not sound, <b>DO NOT USE THE MAGNET</b> . Call 1-800-962-4638 and ask for technical assistance.
E. RED "DANGER" LAMP DOES NOT LIGHT.	1) The red <b>DANGER</b> indicator should always turn on when the LIFT button on the Front Panel or I.R. remote is pressed and whenever the alarm sounds. If the red <b>DANGER</b> indicator does not light, <b>DO NOT USE THE MAGNET</b> . Call 1-800-962-4638 and ask for technical assistance.
F. MAGNET NOT HOLDING.	1) A non-magnetic space (air gap) introduced in between the magnet and the work piece being lifted will cause a reduction in holding power. This air gap can be caused by any non-magnetic separation such as rust, paper, paint, dirt, scale, or burrs on either surface.
G. MAGNET WILL NOT RELEASE.	1) Check the amber indicator on the control panel and make sure it is flashing. If the indicator is constant, release any residual tension on the lift bail until the indicator flashes. <b>NOTE:</b> If the lift bail is fully relaxed or the crane hook is allowed to rest on the lift bail, the indicator may not flash. Raise the lift bail until the indicator flashes.
	2) Check the LED on the remote to assure that it lights when the buttons are pressed. If this does not occur, change the battery in the remote.
H. BATTERY NOT CHARGING.	1) Check the battery terminals for a good clean contact. Clean if any corrosion is present. A battery will not charge properly if the terminals are with corroded.
	2) Check for proper operation of battery charger. The power cord should be plugged in and the magnet should be turned off. Check the fuse located in the cord receptacle. If the fuse is blown, replace with 2 amp Slo Blo 5x20 mm type. Check the cables for any damage. When the charger is initially plugged in, the battery indicator should light red. If not, see section (I) below.
	3) As lead acid batteries age and/or become damaged internally, they do not retain their full charge capacity. Indications of the battery conditions may be observed by the charger requiring longer periods of time to turn on the "complete" lamp (green battery indicator) or possibly not being able to reach a charge level to turn on the "complete" indicator.
	4) If the magnet was left on and the battery allowed to drop below 8 volts, the magnet's power relay could remain latched "ON" even if the RELEASE buttons on the I.R. remote were pressed. Under this condition, the magnet coil would load down the battery preventing it from being charged. The solution is to disconnect the battery and charge it with an external charger. When the battery is reconnected, the circuit will reset itself.
	5) Check the output of the charger. This can be done by a qualified electrician using an amp meter (capable of handling 10 amps) connected in series between the (red) positive battery cable and the positive (+) terminal battery. Read section (I).
I. DISPLAY LAMPS DO NOT TURN ON WHILE CHARGING.	1) When the power cord is connected to a 115VAC power source, the red battery indicator light should turn on within 10 seconds to indicate the battery is being charged. As the battery nears a full charge, the battery indicator will alternate between red and green. When the battery is fully charged, the indicator will stay green, indicating a float charge (13.5 volts) is being maintained on the battery and that the magnet is ready for use. The charge time will vary depending upon the state of the battery when the charge is initiated.
	2) If the battery indicator does not light when the charger is initially plugged in and the magnet is turned off, then the battery level may have fallen too low and the battery charger will not operate. Check the battery voltage. If the voltage has fallen below approximately 8 volts, the charger may not turn on immediately. If it doesn't turn on within a few minutes, then the battery may be worn out. We suggest replacing the battery or charging it with an external charger, then carefully watching its performance. If the lamps turn off rapidly as discussed in section (C), <b>REPLACE THE BATTERY</b> .

# RETURN AND REPAIR INSTRUCTIONS

For warranty and non-warranty repairs on any part of your magnet system, contact O.S. Walker, Inc. TOLL FREE at 1-800-W-MAGNET. A return authorization number will be issued along with any applicable packaging and shipping instructions. After receipt of the components to be repaired, O.S. Walker, Inc. will perform an inspection and provide an estimate of the repair costs at no charge to the customer. Authorization from the customer must be obtained by O.S. Walker, Inc. before repairs are made. Transportation charges, both to and from the factory, are the sole responsibility of the customer.

## NEVER SHIP THE MAGNET WITH BATTERY INSTALLED. IT IS UNLAWFUL!

\*Walker replacement parts may be installed by a **\*\*Designated Person**.

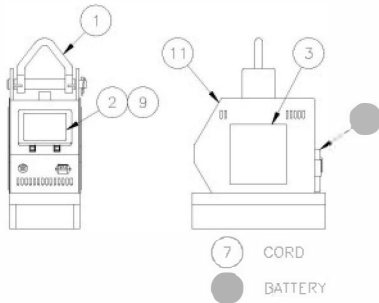
**⚠ WARNING**

- Disassembly or repair of this magnet can result in reduced holding power and/or cause an unsafe condition. Anytime the magnet is disassembled beyond the parts list shown in this manual, the magnet must be re-tested for breakaway force in accordance with the test described in ANSI/ASME B30.20.
- Modification of any operating mechanism or structure of this magnet can reduce the magnet's effectiveness and/or cause unsafe conditions.
- Repair or modification of this magnet should only be done by O.S. Walker.\*

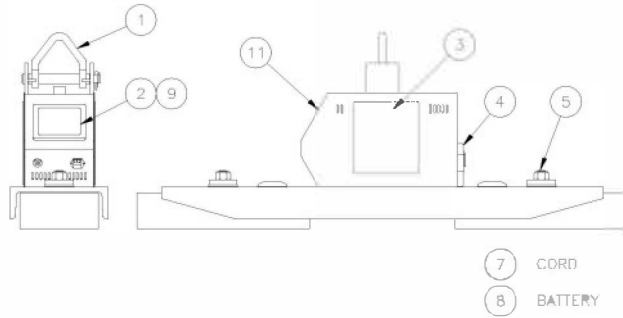
**\*\* Designated Person** - A person selected or assigned by the employer as being competent to replace specific replacement parts listed in this manual and is able to verify the proper functioning of the specific replacement parts and the entire product after the completion of the installation.

# REPLACEMENT PARTS LIST

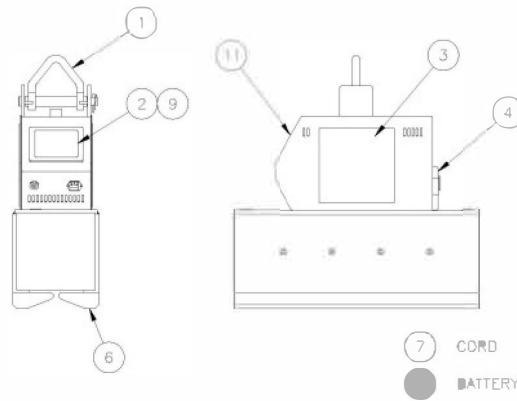
Item #	Description	BM <sup>2</sup> -13PB	BM <sup>2</sup> -25PB	BM <sup>2</sup> -36PB	BM <sup>2</sup> -50PB	BP <sup>2</sup> -7PB	BP <sup>2</sup> -15PB
1	Lift bail	44-BB14416	44-BB14416	44-BB14416	44-BB14416	44-BB14416	44-BB14416
2	Charger/Controller	56-BXM4917A	56-BXM4917A	56-BXM4917A	56-BXM4917A	56-BXM4917A	56-BXM4917A
3	Tag kit	54-DD17035	54-DD17036	54-DD17037	54-DD17038	54-DD17039	54-DD17040
4	I.R. Transmitter	39-DD14069	39-DD14069	39-DD14069	39-DD14069	39-DD14069	39-DD14069
5	Locking nut ass'y	-	-	-	54-DD3591S	-	-
6	Pole shoes	-	-	-	-	44-CC3279S	44-CC10058S
7	Cord (AC power)	10-5484	10-5484	10-5484	10-5484	10-5484	10-5484
8	Battery	16-1035	16-1037	16-1037	16-1037	16-1037	16-1037
9	Front Panel	39-3744	39-3744	39-3744	39-3744	39-3744	39-3744
10	Epoxy patch kit	54-DD14974	54-DD14974	54-DD14974	54-DD14974	54-DD14974	54-DD14974
11	Battery enclosure	39-AA14294	39-AA14294	39-AA14294	39-AA14294	39-AA14294	39-AA14294



BM<sup>2</sup>-13PB, BM<sup>2</sup>-25PB, BM<sup>2</sup>-36PB



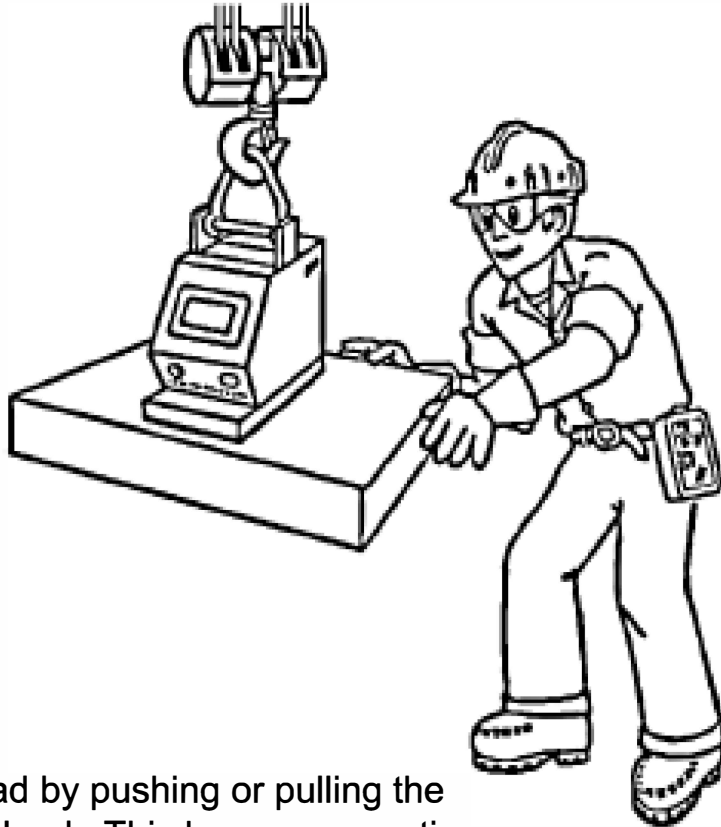
BM<sup>2</sup>-50PB



BP<sup>2</sup>-7PB, BP<sup>2</sup>-15PB



# ALWAYS STAY CLEAR OF THE LOAD



Guide the load by pushing or pulling the edges of the load. This keeps your entire body clear of the load at all times.

DO NOT guide the load by pushing or pulling the magnet. NEVER get in a position where you could get hit with the load if it is dropped.



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