INDUSTRIAL MAGNETICS
EST-1961

TOLL FREE 1.800.662.4638
imi@magnetics.com

BATTERY POWERED LIFT MAGNETS

OPERATION MANUAL

MODELS: BUXF & BUXR - WITH INSPECTION AND MAINTENANCE INSTRUCTIONS

BUXF03000

BUXF05500

BUXF08000

BUXF11000

BUXR01665

BUXR03330

⚠ DANGER

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

INDUSTRIAL MAGNETICS

CONTENTS

INTRODUCTION

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

IMI Products have proven to be among the best designed and safest in our industry, however if used improperly, any Model BUXF or BUXR magnet can be rendered inefficient and unsafe. It is therefore 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 the magnet properly. Failure to do so could result in serious injury or death to the operator and others in the area of operation.

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

Additional copies of this Operations manual are available; request aditional copies of manual #900567.

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 IMI Lift Magnets.

Follow these simple rules to 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 that a lift is to begin.

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 the lifter.

If everything in this manual is not fully understood, contact IMI for assistance before using the magnet.

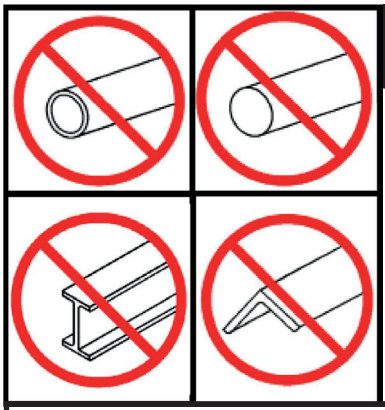
INDUSTRIAL MAGNETICS

RECOGNIZE SAFETY INFORMATION

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

DANGER Red Background, White Letters	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.	**These Hazard Signal Words Deserve your Full Attention**
WARNING Orange Background, Black Letters	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.	
CAUTION Yellow Background, Black Letters	CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.	

UNSAFE LIFTING APPLICATIONS FOR THE MAGNET



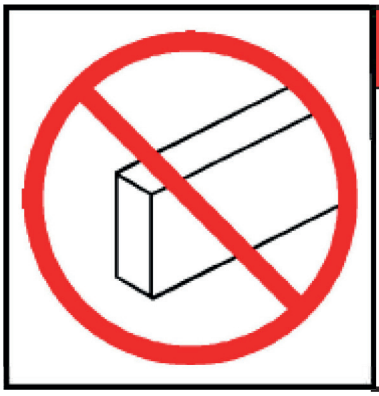
DANGER

» **Never** lift any pipe, solid round or structural shapes with this magnet unless it is configured for the shape.

» **Never** 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.

IMI can provide other type magnets for these applications.

For model BUXR type magnets see lifting guidelines for structural shapes (page 17).



DANGER

Never lift a load by its narrowest dimension.

WARNING

If there is any difficulty lifting a load, DON'T LIFT IT!
Call IMI for advice at 1-800-662-4638

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" (51 mm) 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 Industrial Magnetics, Inc. or a Designated Person*.
- If you have any difficulty lifting a load, DON'T LIFT IT! Call IMI for advice at 1-800-662-4638.

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.
- 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 an unsafe condition.
- Repair or modification of this magnet should only be done by IMI*.

SAFETY PERSON

IMI 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.

*IMI 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.

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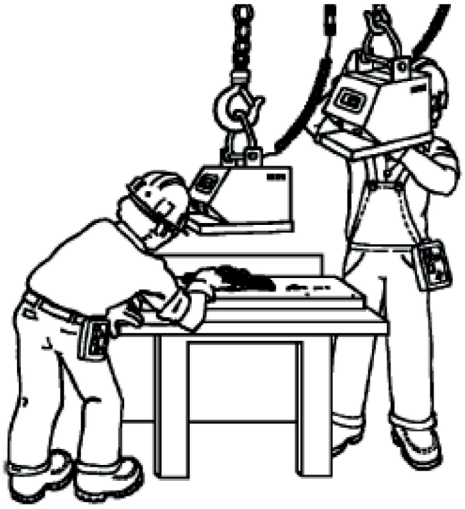
SAFETY RULES

FOR FAST, EASY LIFTING WITH AN IMI BATTERY LIFT MAGNET

1 NEVER

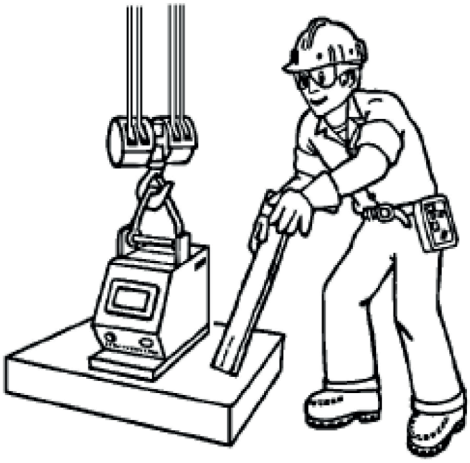
attempt to operate this lift magnet until you read and understand the OPERATOR'S MANUAL & SAFETY INSTRUCTIONS

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

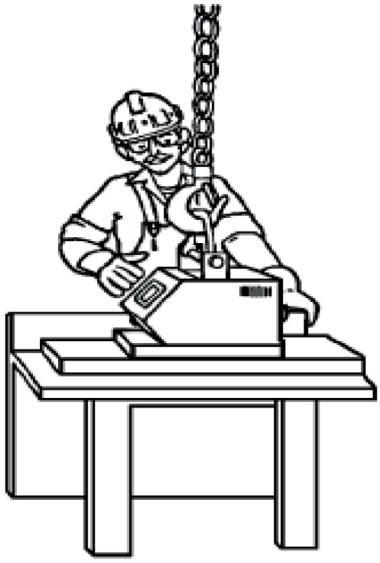
Lift and move the load SMOOTHLY. Avoid jarring and swinging the load while it is in transit. KEEP THE LOAD LEVEL. NEVER let the load come in contact with any obstruction.

If there is any difficulty lifting a load, DON'T LIFT IT. Ask your supervisor for help or call IMI for advice at 1-800-662-4638

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

SAFETY RULES CONTINUED

3



Position the magnet so the load remains level.

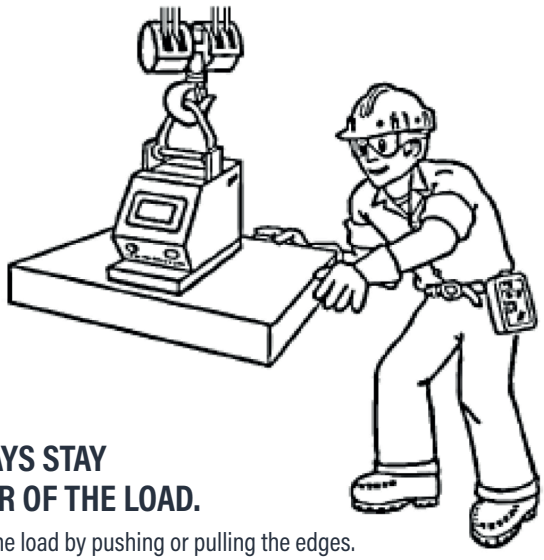
4

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 **GREEN GRIP** 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 **RED RELEASE** button on the Front Panel or push both **RED 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.**

INDUSTRIAL MAGNETICS

OPERATING INSTRUCTIONS

IMPORTANT FACTS FOR THE OPERATION OF LIFT MAGNETS

LOAD CHARACTERISTICS OTHER THAN WEIGHT MUST BE CONSIDERED 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 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 excedes the lift capability of the 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 the minimum thickness of load that 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.

IMPORTANT FACTS FOR THE OPERATION OF LIFT MAGNETS (continued)

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, IMI should be consulted if the load or air temperature exceeds 110° F (43° C).

INDUSTRIAL MAGNETICS

RECOMMENDED LIFTING PROCEDURES

SAFETY HOOK LATCH

Always use a safety hook latch on the crane hook to hold the 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.

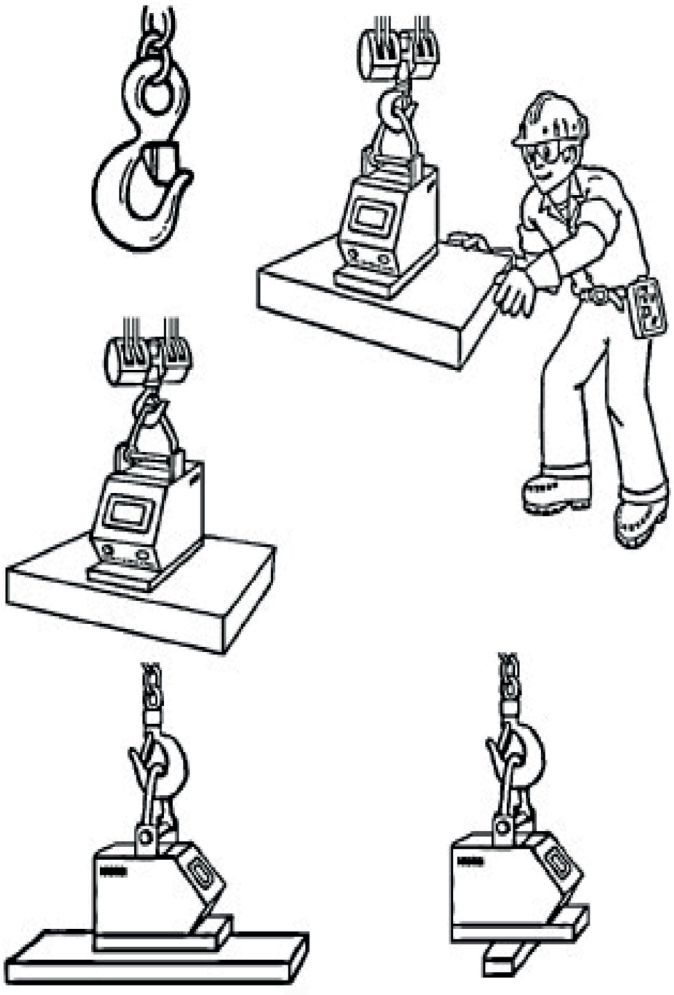
PLATE LIFTING

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 p. 8-9).

BAR LIFTING

When the load length 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.



NOTE:
UNSAFE LIFTING APPLICATIONS FOR THE MAGNET ARE DETAILED ON PAGE 4

WARNING

If you have any difficulty lifting a load, DON'T LIFT IT!
Call IMI for advice at 1-800-662-4638

INSTALLATION

BATTERY INSTALLATION

The battery used in the BUXF and BUXR series should be a BCI group 27 style battery of the deep discharge type (IMI part no. 16-1037). 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. IMI does not recommend the use of wet lead acid batteries. After installing the battery Program Your Magnet reference page 13.

⚠ 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 POLARITY

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.
NEXT connect the black battery cable to the negative post, marked(-).

BATTERY CHARGING

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.

IMPORTANT: 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 the 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.

INDUSTRIAL MAGNETICS

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 **GREEN GRIP** 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 20 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 **GREEN GRIP** 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 20 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 21 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 GRIP** 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 20 section B.

RELEASE LOAD

Relax the lift bail until the yellow light on the controller panel begins to flash. Press **BOTH RED RELEASE** buttons simultaneously. 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 21 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 GRIP** 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 21, Sections H & I.

LOCAL CONTROL

TURN ON MAGNET

Press the **GREEN GRIP** 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 20 section B.

RELEASE LOAD

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 control 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 21 section G.

MAGNET SPECIFICATIONS

Part No.	WLL (lbs) Working Load Limit	Overall Dimensions		Height to crane hook (in)	Magnet base			Bail			Weight (lbs) with battery	Battery part no.
		Height (in)	Length (in)		Height (in)	Width (in)	Length (in)	Thickness (in)	Opening Height (in)	Opening Width (in)		
BUXF03000	3000	24-7/8	21	23-3/4	4-1/2	8-7/8	15	1-1/4	4-1/8	2-1/2	315	16-1037
BUXF05500	5500	24-7/8	21	23-3/4	4-1/2	9-5/8	21	1-1/4	4-1/8	2-1/2	371	16-1037
BUXF08000	8000	25-7/8	48	24-3/4	5-7/16	9-5/8	48	1-1/4	4-1/8	2-1/2	688	16-1037
BUXF11000	11,000	26-5/8	60	25-1/2	4-1/2	9-5/8	21 (qty 2)	1-1/4	4-1/8	2-1/2	827	16-1037
BUXR01665	1665	30-1/8	21	29	9-13/16	9-1/2	18-1/2	1-1/4	4-1/8	2-1/2	461	16-1037
BUXR03330	3300	32-1/2	30	31-7/16	12-1/8	10-1/2	30	1-1/4	4-1/8	2-1/2	821	16-1037

All model BUXF & BUXR Lifting Magnets are rated for 50% Duty Cycle.

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:

(Time On x 100) / (Time Off + Time On) = D.C. % and is expressed as a Percent (with a maximum of 10 minutes Time On.)
To maximize the effectiveness of your magnet, keep the power off when the magnet is not in use.

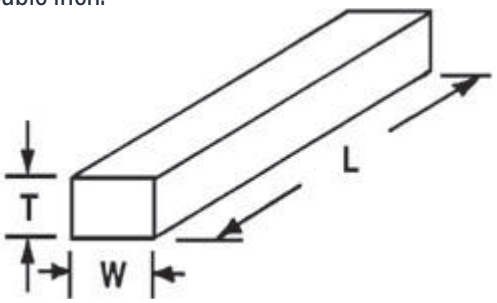
EXAMPLES:

3 MINUTES ON, 1 MINUTE OFF EQUALS: (3 x 100) / (3 + 1) = 75%
5 MINUTES ON, 5 MINUTES OFF EQUALS: (5 x 100) / (5 + 5) = 50%

WARNING If there is any difficulty lifting a load, DON'T LIFT IT! Call IMI for advice at 1-800-662-4638

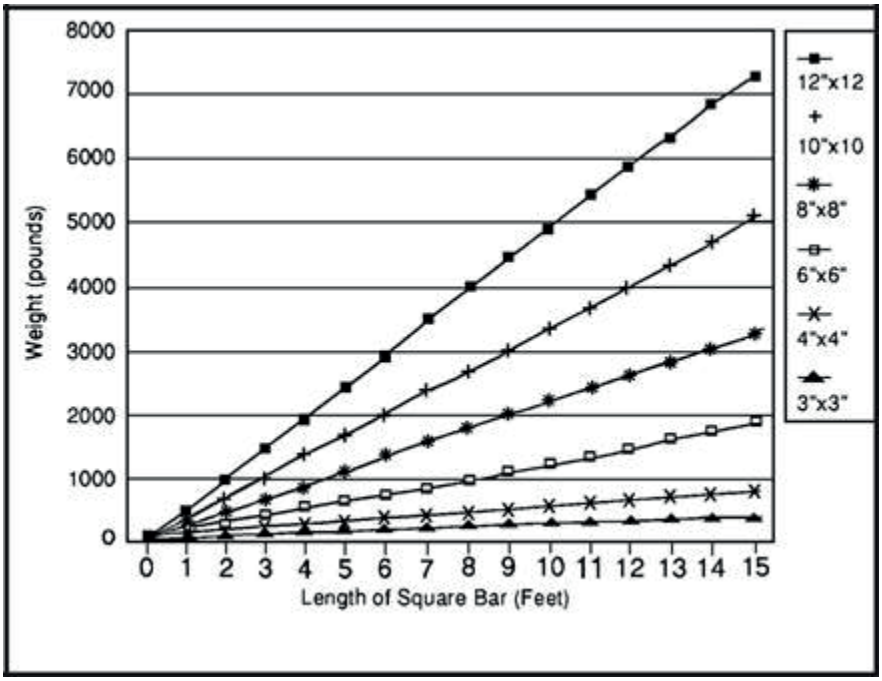
LOAD WEIGHT GUIDELINE

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) inches x (.283) lbs/cubic inch

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



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INDUSTRIAL MAGNETICS

LIFTING GUIDELINES BUXF PLATE

MAGNET MODELS	WORK PIECE THICKNESS	TYPE OF SURFACE Max. Air Gap †					
		CLEAN & SMOOTH Similar to a flat ground surface 32 microinch RMS.000"		RUST OR SCALE Similar to a flat hot rolled steel surface .010" (.254 mm)		IRREGULAR OR ROUGH Similar to a flat smooth cut file .020" (.508 mm)	
		Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)
BUXF03000	NEVER LIFT ANY LOAD 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
BUXF05500	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 15 FEET						
	OVER2"	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
BUXF08000	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
BUXF11000	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 25 FEET						
	OVER2"	11000	-	9300	-	7700	-
	*2"	11000	11 x 12	9300	10 x 11	7700	9 x10
	*1-1/2"	8150	11 x 11	7150	10 x 11	5950	9 x10
	*1"	5300	11 x 11	5000	11 x 11	4200	10 x 10
	*3/4"	3300	9 x 10	2900	9 x 10	4200	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 NOTES 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 10).

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 BUXR PLATE

MAGNET MODELS	WORK PIECE THICKNESS	TYPE OF SURFACE Max. Air Gap †					
		CLEAN & SMOOTH Similar to a flat ground surface 32 microinch RMS.000"		RUST OR SCALE Similar to a flat hot rolled steel surface .010" (.254 mm)		IRREGULAR OR ROUGH Similar to a flat smooth cut file .020" (.508 mm)	
		Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)
BUXR01665	NEVER LIFT ANY LOAD 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
BUXR03330	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 12 FEET						
	OVER2"	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	1550	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 GUIDELINE BUXR STRUCTURAL SHAPES

Material Type	MATERIAL SIZE	MAGNET MODELS			
		BUXR01665		BUXR03330	
		MAX.WT. (lbs)	MAX LENGTH (lbs)	MAX. WT. (lbs)	MAX LENGTH (lbs)
BEAMS & CHANNELS REDUCE CAPACITY 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 10).

Values shown are maximum rated capacities when all operating instructions and warnings are strictly followed.
Values based on SAE 1020 steel.
Higher alloy steels and other magnetic materials will require further reductions of these rated capacities.

INDUSTRIAL MAGNETICS

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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 **GREEN GRIP** 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 IMI or a designated person.
- Check the lifting bail bar for wear. If the bail bar is worn to 80% of its original size, it must be replaced.
- Keep the battery charged as described on page 11.
- 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 IMI or a designated person.

IMI recommends that lifting magnets be re-qualified for breakaway force every year; IMI offers this and related servies.

PERIODIC INSPECTION RECORD

See ASME B30.20 Section 20
Record date and initials; note condition of each item

Date and Initial for each inspection	Condition	Date Initials	Date Initials
Magnet Face			
Electrical Wiring & Indicator Lights			
Control Operation			
Coil Resistance & Resistance To Ground			
Coil Epoxy Encapsulation			
Lift Bail & Click Pin			
Structural & Weld Condition			
Labels & Safety Instructions			

Date and Initial for each inspection	Condition	Date Initials	Date Initials
Magnet Face			
Electrical Wiring & Indicator Lights			
Control Operation			
Coil Resistance & Resistance To Ground			
Coil Epoxy Encapsulation			
Lift Bail & Click Pin			
Structural & Weld Condition			
Labels & Safety Instructions			

NOTES:

INDUSTRIAL MAGNETICS

TROUBLESHOOTING

Symptoms	Possible cause
A. MAGNET DOES NOT TURN ON.	1) To operate the magnet, make sure the lift bail is in a relaxed postion. Then press the **GREEN GRIP** 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. **NEVER ATTEMPT TO LIFT A LOAD WHILE THE ALARM IS SOUNDING OR THE RED DANGER INDICATOR IS ON.** 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 1-800-662-4638 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 **GREEN GRIP** 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. (BUXF08000, BUXF11000, BUXR01665, BUXR03300 than with the BUXF03000 and BUXF05500 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: 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
	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 **GREEN GRIP** button on the Front Panel or I.R. remote is pressed and whenever the **RED DANGER** indicator turns on. If the alarm does not sound, DO NOT USE THE MAGNET. Call 1-800-662-4638 and ask for technical assistance.
E. RED "DANGER" LAMP DOES NOT LIGHT	1) The **RED DANGER** indicator should always turn on when the **GREEN GRIP** button on the Front Panel or I.R. remote is pressed and whenever the alarm sounds. If the **RED DANGER** indicator does not light, DO NOT USE THE MAGNET. Call 1-800-662-4638 and ask for technical assistance.
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. NOTE: 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 Slow Blow ("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 **RED 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), REPLACE THE BATTERY.

GUIDELINES FOR THE REDUCTION OF THE RATED LIFT CAPACITY

⚠ CAUTION Each Battery Lift model is rated for a different weight limit. Load characteristics will affect the lifting capacity of the magnets. The lifting guidelines for all 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 on the Lifting Guidelines charts is for SAE 1020 steel, and any increase in alloy content will result in further reduction of the lifting capacity of the magnet.

THIS TABLE PROVIDES REDUCTION FACTORS for MATERIAL 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 IMI	

Rated Lifting Capacity (for these materials)= Reduction Factor multiplied by Maximum Load Value (for 1020 Steel) from Lifting Guidelines (plate) ref. pages 15-17.

Example: Lifting SAE 1095 STEEL, ½" thick, ROUGH machined flat surfaces (use .020" air gap) with a Model BUXF05500 magnet.
Rated Lift Capacity = 0.70 multiplied by 725 = 507 pounds.

ADDITIONAL OPERATING INFORMATION

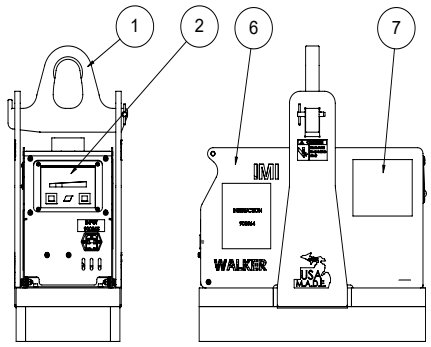
Avoid dropping, banging, or slamming the magnet into other objects.
Battery Powered Lifting Magnets are electromagnetic devices. Do not allow water to enter the magnet body. Water is an electrical conductor and could short out the magnet.

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

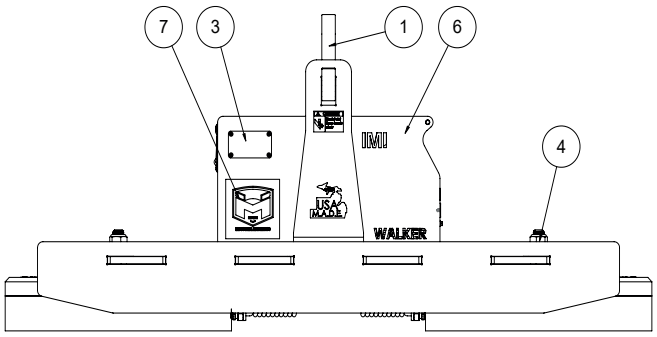
REPLACEMENT PARTS LIST

Item#	Description	BUXF03000	BUXF05500	BUXF08000	BUXF11000	BUXR01665	BUXR03330
1	Lift bail	MH1047	MH1047	MH1047	MH1047	MH1047	MH1047
2	Charger/Controller	56-BXM4917A	56-BXM4917A	56-BXM4917A	56-BXM4917A	56-BXM4917A	56-BXM4917A
3	Metal ID Tag kit	BUXF030TAGKIT	BUXF055TAGKIT	BUXF080TAGKIT	BUXF110TAGKIT	BUXR016TAGKIT	BUXR033TAGKIT
4	Locking nut ass'y	-	-	-	54-DD3591	-	-
5	Pole shoes	-	-	-	-	44-CC3279	44-CC10058
6	Battery enclosure	MH5253	MH5253	MH5253	MH5253	MH5253	MH5253
7	Sticker kit	BUXF030STKKIT	BUXF055STKKIT	BUXF080STKKIT	BUXF110STKKIT	BUXR016STKKIT	BUXR033STKKIT
*	I.R. Transmitter	39-DD14069	39-DD14069	39-DD14069	39-DD14069	39-DD14069	39-DD14069
*	Cord (AC power)	10-5484	10-5484	10-5484	10-5484	10-5484	10-5484
*	Battery	16-1037	16-1037	16-1037	16-1037	16-1037	16-1037
*	Epoxy patch kit	06-DD14974	06-DD14974	06-DD14974	06-DD14974	06-DD14974	06-DD14974

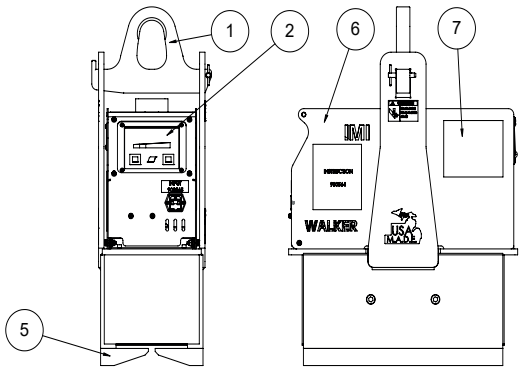
* Items are not shown



BUXF03000, BUXF05500, BUXF08000 REFERENCE



BUXF11000 REFERENCE



BUXR01665, BUXR03330 REFERENCE

INDUSTRIAL MAGNETICS

RETURN AND REPAIR INSTRUCTIONS

For warranty and non-warranty repairs on any part of your magnet system, contact IMI TOLL FREE at 1-800-662-4638. A return authorization number will be issued along with any applicable packaging and shipping instructions. After receipt of the components to be repaired, IMI 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 IMI 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!

*IMI 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. Therefore, 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 Industrial Magnetics, Inc.