Magswitch MagDolly Instruction Manual

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This Magswitch MagDolly is designed to safely and easily lift manhole covers, tree grates, cast iron access points, and typical construction castings. The Magdolly can also be used for transporting steel sheet in industrial applications. This MagDolly is designed to be used with the Magswitch Heavy Lifters.

⚠ WARNING

Read All Instructions! Failure to Follow All Instructions Listed Below May Result In An Unsafe Or Dangerous Condition.

General Magnet Usage Information

- All magnets need to be ***kept at a safe distance*** from all magnetic storage devices, electronics and credit cards etc.
- Ensure that the Magswitch magnets are ***stored in the "off" position*** when not in contact with metals.
- All Magswitch products are ***designed for normal work/jobsite conditions***, do not immerse in water or in a hazardous environment.
- ***Not recommended for painted or finish coated surfaces*** as this will reduce the magnetic bond and damage the finished surface.
- ***This product contains Lithium lubricant***. For SDS information, contact Magswitch.
- ***Never exceed the rated load*** of the Magswitch magnet. This may result in an unsafe or dangerous condition. See Derating Factors section below for more details.
- ***DO NOT attempt to alter or disassemble the device*** in any way. This will void the warranty and may result in an unsafe or dangerous condition. There are no serviceable parts inside the device.
- ***Never operate*** an unsafe or 'out-of-service' tagged magnet, or one with missing parts or labels.
- ***Never operate a lifting magnet when capacity, weight or safety markings are missing, damaged or obscured.***
- ***Never turn the magnet 'ON' unless it is in contact with ferromagnetic metal***. The magnets can be left ON or OFF indefinitely without harm, however when they are in the ON position, and near ferromagnetic materials, there will be a powerful magnetic attraction.
- ***Thicker metals will be held more strongly than thinner metals.***
- ***Never use any Magswitch magnet as a welding ground or as part of an electrical circuit***.
- ***DO NOT use the Magswitch product if it is damaged or is not working properly***. Severe injury can occur if this device is not used properly and safely.
- ***Avoid sudden jerking or shock force*** as this will cause the magnet to lose its hold.
- ***Use caution to ensure that it is safe to release the magnet*** and that nothing will fall or become dangerous.
- ***DO NOT expose standard rated Magswitch magnets to temperatures above 176deg Fahrenheit (80 Celsius)***. High temperatures will permanently degrade the magnet's effectiveness and may result in an unsafe condition.
- Always ensure that the ***full face of the magnet is in contact with the load.*** Maximum holding capacity will only be achieved when the full face of the magnet is in contact with the target being held.
- ***Always test the connection*** before attempting to use the magnet to ensure that it is capable of lifting the material securely.

General Magnetic Lifting Safety Information

- ***Always inspect the lifting device*** to ensure that it is in good working order.
- Operator shall ***immediately stop*** using the lifting magnet ***if any improper performance or conditions exist*** during the lift.
- This lifter ***is designed for straight, flat horizontal lifting***, never allow a lifted object to alter its plane from horizontal.
- ***Never stand under load*** being lifted or place any part of your body under the load. ***Serious injury can occur.***
- ***Ensure that all operators are qualified to operate the lifting magnet*** and are familiar with all applicable lifting standards.

- ***DO NOT lift a load higher than necessary.***
- Lifting magnets must be ***centered on load.***
- ***DO NOT leave a lifted load unattended*** at any time***.***
- ***Never carry people*** or allow people to ride on materials being lifted.
- ***User and anyone else in proximity must stay clear of the suspended load.***

After the Lift

- Always check lifting magnet to ***ensure that no damage occurred and that is still complies with all requirements*** above.
- Always ***wipe off any debris or contaminants*** that became attracted to the magnet that would prevent a safe lift in the future.
- Always ***notify the designated person*** in your company of any ***problems or concerns*** regarding the operation of the magnet.
- ***Wipe a light coating of oil on the magnet*** as needed to prevent rust.
- Always ***store the magnet in a safe location and in the "Off" position*** to ensure that no damage can occur or accidental contact with metal be made. Ensure that the storage area is free of humidity, debris, shavings etc.
- For safe operation, the ***bottom surface of the magnet must always be flat and smooth***. If necessary, it is possible to sand the magnet face smooth using 400 grit sandpaper and a flat surface. ***Always file any burrs*** that would interfere with full contact.

Important Safety Information

- All magnetic heavy lifting magnets are de-rated for safe lifting. De-rating reduces the magnet's allowed lifting capacity down to the Safe Working Load (SWL). Standard industry rating complies with ASME B30.20 B standard and relevant CE Directives for safe use. If a lifting magnet has a maximum breakaway force of 3,000 pounds, then a 3:1 de-rating is a maximum of 1000lbs.
- ***Always determine your Safe Working Load based on your lifting conditions***! ASME B30.20 provides for 2:1 SWL or 3:1 SWL depending on the user's lifting conditions.
- **USER MUST refer to ASME B30.20** to determine which SWL is appropriate for their lifting conditions!
- ***Always perform a test lift of no more than 2-3 inches (10cm) to ensure that the bond is sufficient to lift the load and that the load is not flexing.***
- The SWL ratings should be further reduced by a minimum of 1/2 when lifting round material such as pipe. All ratings can vary depending on the thickness, surface condition, size, and type of steel being lifted. The rating is also affected when air gaps are present. More details are outlined in the Derating Section below.
- In all cases, make sure that the correct lifter is being used for the lifting conditions present.
- ***When lifting, never exceed the Safe Working Load of the magnet***. All Magswitch lifting magnets are rated at their Safe Working Load for your safety. Please refer to the label on the individual magnet for the Safe Working Load for your magnet.
- ***The Owner of this magnetic lifter has the responsibility*** to ensure that their employees are trained in and follow safe working practices when using magnetic lifters as consistent with ASME B30.20 standards and CE directives for safe operating and proper posting of signs and maintenance of labeling on the lifter.

⚠ WARNING

Derating the Rated Load Capacity

- ***Numerous factors can negatively affect the strength*** of the Magnetic bond including dirt, debris, oils and grease, painted surfaces and any gap between the Magnet and the metal surface will decrease the bond.
- ***Additional factors include the type of metals being lifted.***

Shown is a typical derating chart, it shows how different metals are attracted to a magnet.

Your results will be different depending on such conditions as;

- Surface condition
- Surface Flatness
- Surface Smoothness
- Material Thickness
- Material flex or sag (may require a spreader bar).
- Percentage of magnet in contact.
- And other conditions

Reduction factors for Materials Other than AISI 1020 Steel	
Material	**REDUCTION FACTOR**
Cast Steel	0.90
3% Silicon Steel	0.80
AISI 1095 Steel	0.70
416 Stainless Steel	0.50
Cast Iron Non-Chilled	0.45
Pure Nickel	0.10

⚠ WARNING

Operating your lifter in shear de-rates the SWL by a factor of **0.2** (20% of SWL)

Always place round stock and pipe In line with the bottom groove.[1] Derate capacity by an additional Factor of **0.5** (1/2).

[1] Round stock and pipe lifting do NOT apply to MLAY 1000x12. If your application requires lifting to pipe with the MLAY1000x12, call Magswitch.

Calculating your derating factor:

Example: you want to use an MLAY 1000x3 with a max break away of 3000lbs, to lift a sufficiently thick, cast steel pipe in shear. Taking into account all derating factors for this application, the equation for our derating factor to calculate our Safe Working Load (SWL) is shown below:

$$Holding\ Force = (SWL)(Material\ derating\ factor)(Shear\ Derating\ Factor)(Curved\ surface\ derating\ Factor)$$
$$= (1000\ lbs)(0.9)(0.2)(0.5) = 90\ lbs$$

Therefor you can use the MLAY 1000x3 to safely lift a cast steel pipe in shear that weighs 90 lbs. or less.

* If you are not lifting in shear, or lifting round stock or pipe, you do not need to include those derating factors in your derating calculation.
** The max breakaway strength of the tool is significantly affected by the thickness of the material the magnet is lifting. Please reference the SWL performance chart for your selected lifting magnet to properly determine the SWL for the specific thickness of material you are lifting.

Magswitch Limited Warranty

Magswitch products are covered by a One Year Limited Warranty on Material and Workmanship. Warranty is Non-Transferable. Magswitch reserves the right to inspect all product claims under warranty. Any alteration of the device voids this warranty. User assumes all risk for the proper use of this device and for ensuring product suitability for intended application. This warranty shall not cover any incidental or consequential damages due to the improper use or failure of this device.

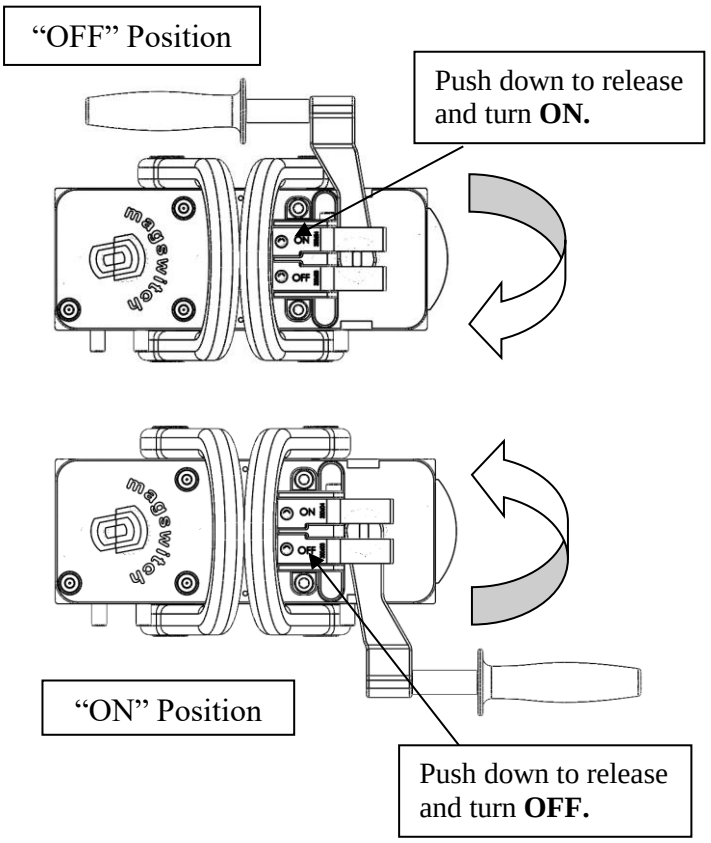
Magswitch Lifting Magnets Operating Instructions

To Activate

1. Place on to ferromagnetic steel.
2. Firmly hold handle, push the ON latch down, rotate handle in direction of arrow until it locks into place.
3. Gently tug on handle to ensure that it is securely locked in place.

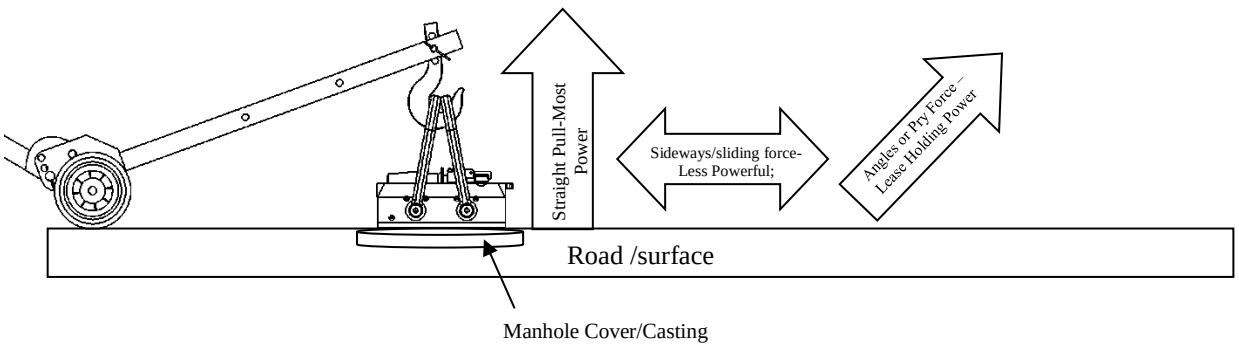
To Deactivate

1. Ensure that nothing will fall or become unsafe.
2. Hold handle, push OFF latch down as shown on the right.
3. Rotate handle in direction of arrow until it locks into place.



Heavy Lifter Magnet Operation Information

- ***The handles on the Magswitch heavy lifter magnets must be turned clockwise 180 degrees until they lock into place*** in order to be turned on. It is not possible to hold the magnets in place unless fully turned on. ***Do not turn on unless in contact with metal!***
- ***To release the magnets turn the handles 180 degrees counter clockwise until it stops***. The magnet will ***turn off and release immediately*** upon turning the handle. Use caution to ensure that it is safe to release the magnets and that nothing will fall or become dangerous.
- This Magswitch lifting magnet is capable of ***exceptional breakaway force*** holding power. Magswitch magnets are exceptionally strong in ***shear force*** as well***. Pry force is the least powerful*** of the holding capabilities and great care must be used when attempting to use this device with pry force.



MagDolly Usage Instructions

Recommended magnet for the Magswitch MagDolly

- Magswitch recommends using the MLAY 1000 (model number 8100088) or MLAY 600x2 Heavy Lifting Magnet (model number 8100360).
- The MagDolly is also compatible with other Magswitch Heavy Lifters.
- Custom built, or aftermarket spreader bars may be used to utilize two magnets at the same time as long as the overall weight does not exceed the maximum rating of the MagDolly frame. Magswitch is not liable for damages resulting from custom built or aftermarket spreader bars.

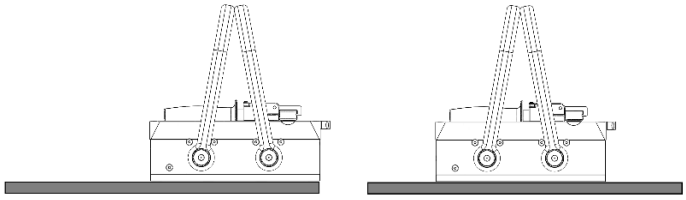
For optimum results

- The casting/target must be ***free to move***, not secured in place by ice, compacted sand, asphalt, concrete, etc. Magswitch also provides 2T Jack Kit (sold separately) to break the seal if needed. Please read the 2T Jack Kit Instruction Manual before using the kit.
- The casting/target must be ***free of debris.*** Sand, ice, asphalt, concrete, and other materials can prevent the magnet from making direct contact with the cover and will decrease the lifting capacity and may render the magnet ineffective.
- Place the magnet in the center of the casting/target for proper balance.
- Make as much contact with the casting/target as possible. The more metal to metal contact, the greater the holding force of the magnet.
- Extend the handle of the MagDolly as far as desired, using the pin to hold it in place. The handle has three locking positions for extra leverage, user comfort and storage capability.
- Adjust the hook position based on the weight and height of the target. The hook has three horizontal positions and three vertical positions.

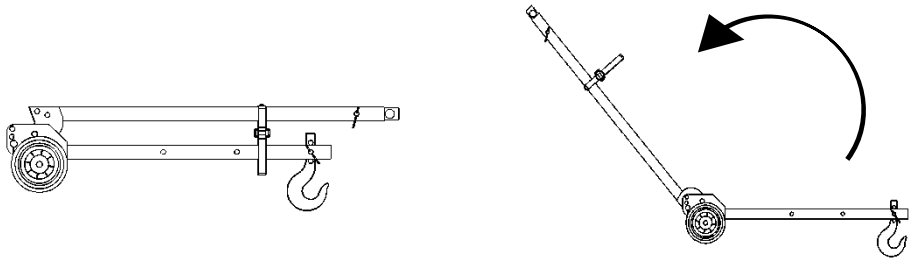
To use the MagDolly Lifting System

Ensure that the casting/target is free and able to be lifted.

1. Use a mallet or Magswitch 2T Jack Kit (sold separately) to break the casting/target loose if necessary.
2. Remove any debris that would prevent the magnet from making full contact with the casting/target being lifted.
3. Place the magnet in the center of the casting/target.

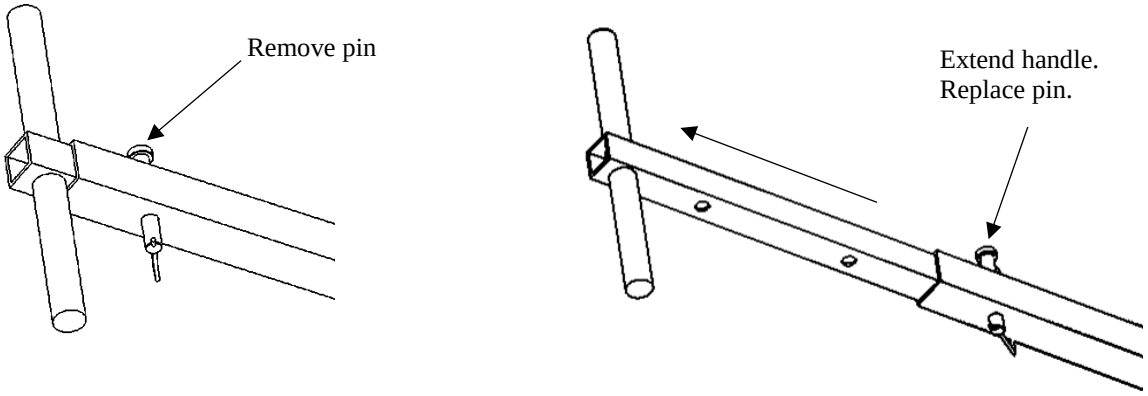


4. Turn the magnet to the ON position. Ensure the handle locks in ON position. See above *Magswitch Lifting Magnet Operating Instructions* section for more details.
5. Unfold the MagDolly.

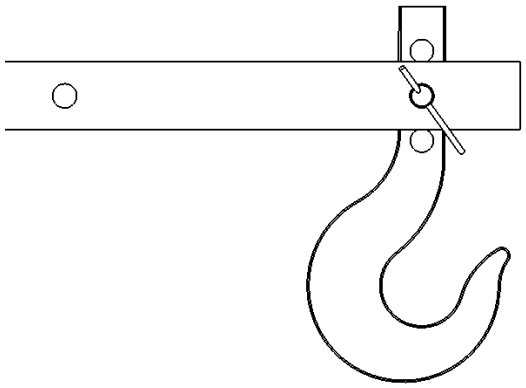


Closed Open

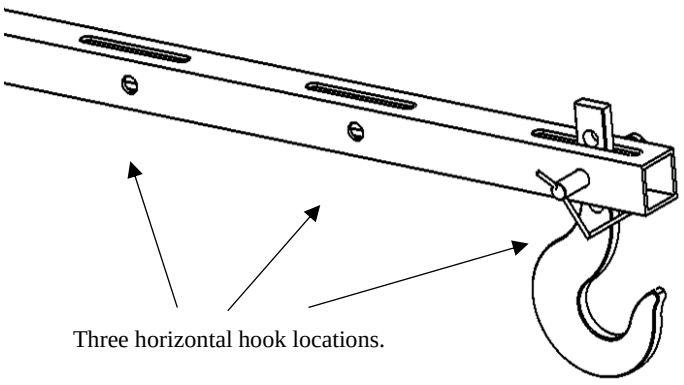
6. Remove the locking pin, extend the MagDolly handle to the desired length, and reinsert and locking pin to hold the handle in place. Extending the handle will yield more powerful lifting capability (Full extension of the handle will give maximum lifting capability).



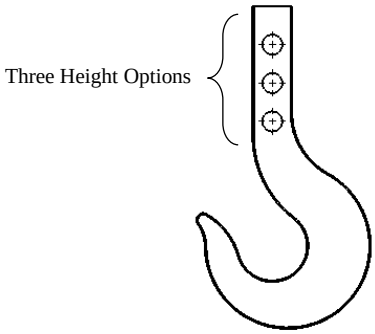
7. Remove the locking pin and install the lifting hook vertically into the lifting arm of the MagDolly.



8. Adjust the hook to the desired horizontal location. There are three horizontal hook locations (see image below). With the hook position closest to the wheels of the MagDolly, the less power will be needed to lift the same target. Please note: Decreased distance from the wheel also limits the travel of the casting/target. A bigger size casting/target should use the location further away from the wheels to avoid interference and reduce operator lifting strain.

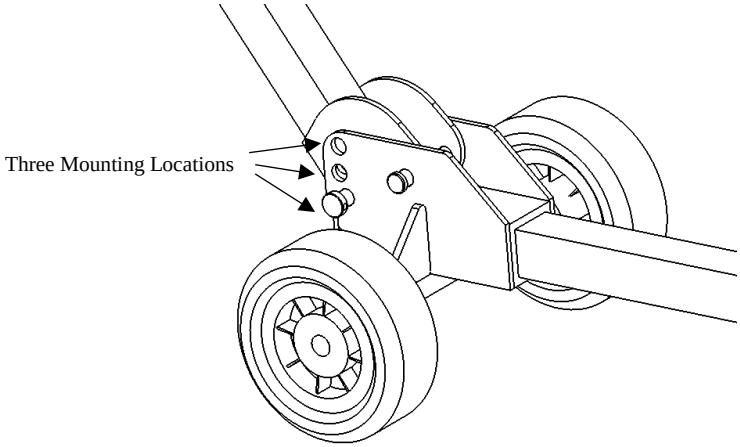


9. Adjust the hook to the desired height. The hook has three height options to be installed on the MagDolly (see image below). The benefit of this feature is that it allows for numerous starting lift positions to account for varying operator height and lifting capability or different lifting applications so that the tool can meet most needs. Set up the location and height of the hook and adjust it to the best desired location before the beginning of each application.

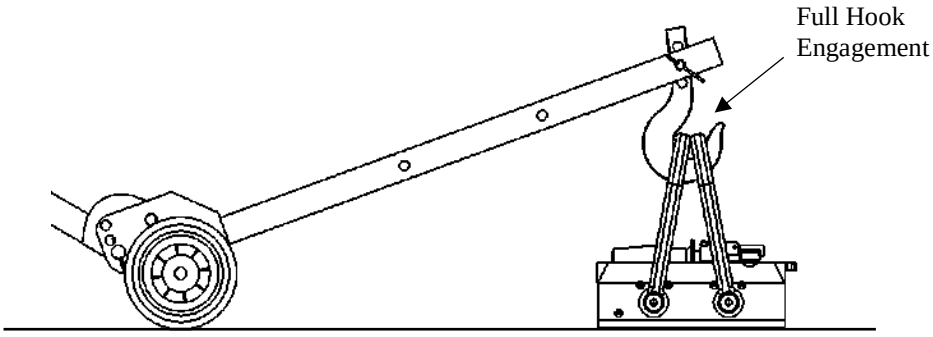


10. Reinsert the locking pin to hold the hook in place.

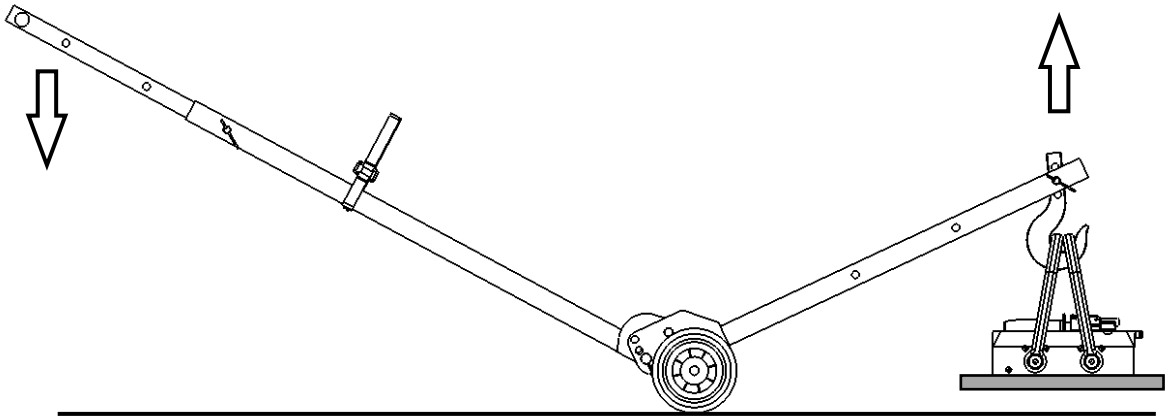
11. Adjust the angle of the lifting handle. There are three locations near the hinge to adjust the angle of the lifting handle. Reinsert the locking pin to hold the lifting handle in place.



12. Push the MagDolly forward until the lift rings of the Heavy Lifting Magnet are fully engaged into the hook of the MagDolly.



13. Apply steady pressure downward on the handle until the casting/target is raised and able to be moved. This step can be complete by up to two operators (one of each side of the handle) as needed based on the force required.



14. When moving the casting/target, be careful not to jar the dolly as this sudden shock force may cause the magnet to lose its hold.
15. Pivot the MagDolly to place the casting/target to the side, or carefully walk backwards to place the casting/target in a safe location.
16. When replacing the casting/target, make sure that the MagDolly is properly adjusted, and repeat steps 12-14 to lift the casting/target.
17. Carefully maneuver the casting/target back into position and gently lower until firmly in place.
18. Remove the Magdolly hook from the Heavy Lifter rings.
19. Return the handle to the shortest position and fold up the MagDolly using the strap to keep it closed, and store in a safe location.
20. Turn OFF the Heavy Lifter magnet and remove from the casting/target.

Note: It is not necessary to turn off the magnet while the casting/target is awaiting replacement. The magnet can be left ON or OFF indefinitely. To prevent the sudden and powerful attraction that will occur when the magnet is in the ON position, Magswitch recommends that the magnet be left in the OFF position at all times unless in contact with a steel or cast iron target.