



## PENTALIFT EQUIPMENT CORPORATION

# MFR32 VEHICLE RESTRAINT OWNERS MANUAL

SERIAL NUMBER : \_\_\_\_\_

Individual Serial Number(s) must be filled out by the user for future reference.

### **This manual is an important document.**

It shall be kept with the machine or located where readily available to operators and maintenance personnel for reference purposes. Do not install, operate or service this product unless you have read and fully understand the entire contents of this manual. Failure to do so may result in property damage, bodily injury or death. Keep this manual in a safe place for future reference.

**NOTE:** A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalift factory trouble shooting assistance.

**Pentalift Equipment Corporation  
21 Nicholas Beaver Rd  
Puslinch, ON N0B 2J0  
Phone: 519-763-3625  
Fax: 519-763-2894  
Parts Phone: 519-763-3625 Extension 625  
Ask for Parts Department**

**Pentalift Equipment Corporation provides an owners manual when equipment is shipped. Additional manuals are available at \$25.00 each.**

**IMPORTANT:** The owners manuals that are provided on Pentalift Equipment Corporations website are generic in nature. They are provided for general information only. For all purposes, only the owners manual that is specific to the equipment should be referenced and relied on. In order to receive the specific owners manual for specific Pentalift equipment, please contact your Pentalift representative and supply the specific serial number(s) for the equipment the manual is required for. Do not rely on the information in the generic owners manuals provided through the website as it may not be appropriate for your specific Pentalift equipment.

*Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.*

# PRODUCT REGISTRATION



## PRODUCT REGISTRATION CARD

To validate warranty and to advise of product updates  
please complete the following information and return to

**Pentalift Equipment Corporation**

To validate warranty on-line go to: [www.pentalift.com](http://www.pentalift.com)

### End User Information

*Company Name:		
Contact *First Name:	*Last Name:	Title:
*Mailing Address:		
*City:	*State/Prov.	*Zip/Postal Code:
*Phone: ( ) -	Fax: ( ) -	Email:
Check Products Purchased:	<input type="checkbox"/> Levelers, <input type="checkbox"/> Vehicle Restraints, <input type="checkbox"/> Seals/Shelters, <input type="checkbox"/> Elevating Docks, <input type="checkbox"/> Lift Tables	
*Serial Number(s):	Invoice # (if available):	
Dealer Name:	Sales Rep.:	
Manual Verification *Manual Number:		

\*Indicates information that must be provided.

Please return to:

Pentalift Equipment Corporation  
P.O. Box 1510,  
Buffalo, NY 14240-1510

or

Pentalift Equipment Corporation  
21 Nicholas Beaver Rd  
Puslinch, Ontario N0B 2J0

Attention: Service Department

Or Fax to (519) 763-2894

# SAFETY INFORMATION AND WARNINGS



READ THESE SAFETY PRACTICES BEFORE INSTALLING, OPERATING OR SERVICING THE MFR32 VEHICLE RESTRAINT. FAILURE TO FOLLOW THESE SAFETY PRACTICES MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH.

THE OPERATION OF THIS EQUIPMENT IS SUBJECT TO CERTAIN HAZARDS THAT CAN BE PROTECTED AGAINST ONLY BY THE EXERCISE OF CARE AND COMMON SENSE AND NOT BY MECHANICAL MEANS. IT IS, THEREFORE, ESSENTIAL TO HAVE COMPETENT, QUALIFIED OPERATORS TRAINED IN THE SAFE OPERATION AND CARE OF THIS TYPE OF EQUIPMENT. ALL PERSONNEL MUST COMPLETELY UNDERSTAND THIS SAFETY INFORMATION BEFORE WORKING ON OR NEAR THIS EQUIPMENT.



**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION**, used with the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



**NOTICE** is used to address practices not related to personal injury.



Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.



Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.



Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.



It is the responsibility of others to ensure the proper mounting of any wall mounted equipment such as remote power units, control panels and light packages and to ensure that the mounting surface is capable of fully supporting the loads generated by the equipment.



Regarding use with Vertical Storing Dock levelers:  
In order to manually engage or disengage the vehicle restraint using the vehicle restraint push bar the operator must enter the operating path of the vertical storing dock leveler. To prevent possible injury, it is imperative that prior to entering the operating path of the vertical storing dock leveler for any reason, including for the purpose of activating or storing the MFR restraint, that the operator confirms that the vertical storing dock leveler maintenance stand has been engaged. Once the vehicle restraint has been operated, confirm that the vertical storing dock leveler maintenance stand has been disengaged before attempting to operate the vertical storing dock leveler.

1. Do not load/unload any truck without visually confirming that the vehicle restraint has securely engaged the truck's R.I.G. (Rear Impact Guard) as indicated by the operating instructions in this Owners Manual. If unable to properly engage the vehicle with the restraint, other suitable means must be used to restrain the vehicle.
2. Never stand between the dock and a truck.
3. Stay clear of operating path at all times.
4. Do not operate, use, maintain or install this equipment if you are impaired in any manner.
5. When not in use, the restraint must always be in the stored position.
6. Regular inspection and maintenance must be performed to keep the equipment in proper operating condition in accordance with the detailed instructions in this manual. (See the MAINTENANCE & LUBRICATION section of this manual on page 23)
7. Ensure that the equipment is not used by anyone if you believe that any part of it might be in disrepair (e.g. bent structural members, broken welds, etc.). See Warranty Section.
8. If you have any questions, contact your immediate supervisor or your authorized Pentalift representative for assistance.

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

# OWNER RESPONSIBILITY

The Owner's Responsibilities include the following:

- 6.3.1 The owner should recognize inherent danger of the interface between dock and transport vehicle. The owner shall, therefore, train and instruct loading dock operating personnel in the proper use of restraining devices in accordance with information provided in Section 6.1.2.
- 6.3.2 Nameplates, cautions, instructions, posted warnings and communication lights shall not be obscured from the view of loading dock operating personnel or maintenance personnel for whom such warnings are intended (also see 6.1.3 and 6.3.5).
- 6.3.3 Manufacturer's recommended periodic maintenance and inspection procedures in effect at date of shipment shall be followed, and written records of the performance of these procedures should be kept.
- 6.3.4 Restraining devices that are structurally damaged shall be removed from service, inspected by the manufacturer's authorized representative, and repaired as needed before being placed back in service.
- 6.3.5 The manufacturer shall supply replacement nameplates, communication lights, caution or instructional labels, and operating and maintenance manuals upon request of the owner. The owner shall see that all nameplates, communication lights, and caution and instruction markings or labels, are in place and legible and that the appropriate operating and maintenance manuals are provided to users (see also 6.1.3 and 6.3.2).
- 6.3.6 Modifications or alterations of restraining devices shall be made only with written permission of the original manufacturer. These changes shall be in conformance with all applicable provisions of this standard and shall be at least as safe as the equipment was before modification. These changes shall also satisfy all safety recommendations of the original equipment manufacturer for the particular application of the restraint.
- 6.3.7 When industrial vehicles are driven on or off a transport vehicle during loading or unloading operation, the parking brakes on the transport vehicle shall be applied and wheel chocks or another vehicle restraint that provides equal or better protection shall be engaged. Also, whenever possible air-ride suspension systems should have the air exhausted prior to performing said loading or unloading operations.
- 6.3.8 When a vehicle restraint is unable to properly engage a transport vehicle, the user shall activate the applicable communication if so included, or provide an alternate method to address a "not restrained vehicle condition" to alert and or protect the loading dock operating personnel.
- 6.3.9 When selecting a restraining device, it is important to consider not only present requirements but also future plans or adverse environments.
- 6.3.10 The restraint should never be used in a manner not intended by its design. It must also be compatible with the loading dock equipment and other conditions relating to the loading dock area.

**⚠ DANGER** **NOTE:** The MH30 Committee recognizes the devices intended to secure a transport vehicle to a loading dock by mechanical means. The NHTSA Standard 49CFR ch.V 571.223 specifies the strength of the rear impact guard and 49 CFR Ch.V 571.224 specifies the size and locations of the rear impact guard. It is, therefore, recommended that users of such positive restraint devices review:

- The means of attachment to the transport vehicle
- The strength of the overall connection
- The proper coordination of the actuation of devices with any signaling system used
- The need to use wheel chocks

**⚠ DANGER** Unless specifically agreed to in writing by Pentalift Equipment Corporation at the time the equipment is ordered and prior to the equipment's manufacture, this equipment is sold as a complete package. It is not to be altered, changed or added to in any way or form, in its configuration and function, without the written permission of Pentalift Equipment Corporation.

If requested by a customer, Pentalift Equipment Corporation is not supplying control components for the equipment's application. The controls constitute important safety and functional aspects of the equipment. It is the customer's responsibility to address the operational and safety issues associated with providing the required controls to satisfy the operational and safety requirements of the equipment.

The customer's decision to supply control components indicates that the customer is taking full responsibility for any and all possible operational, safety and liability issues associated to the product and its configuration. The customer also agrees to absolve Pentalift Equipment Corporation from any and all possible operation, safety and liability issues.

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# SAFETY LABELING

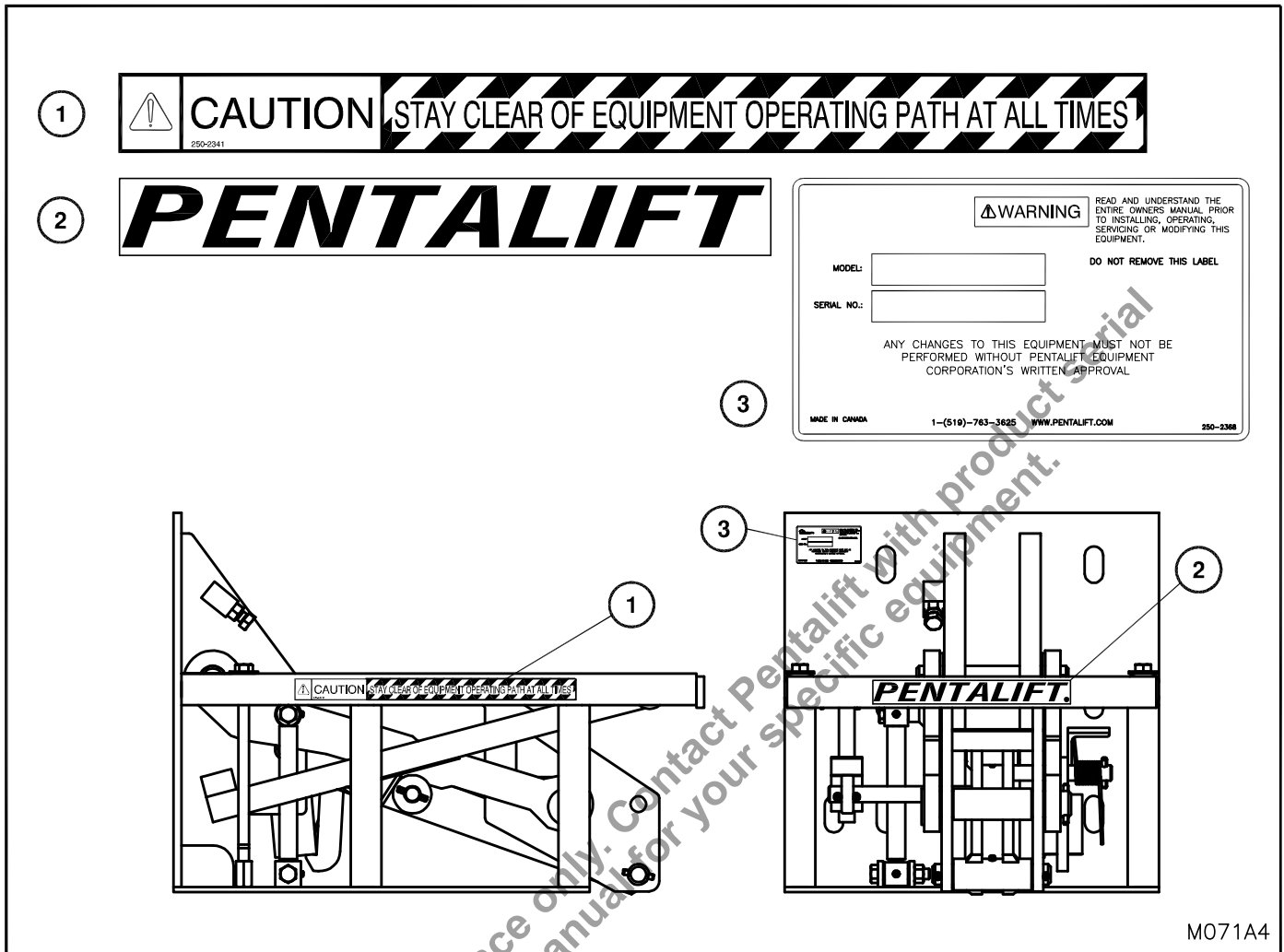


Figure 1: Safety Labels and Decals


Be sure that all labeling is in place and intact when the unit is received. If any of the safety labels or decals are missing or illegible, contact your Pentalift representative for immediate replacement.

**NOTE:** In some instances, product configuration and / or product options may dictate that the product labels will not be placed as indicated on the drawing (Figure 1: Safety Labels and Decals). Different label locations will be selected at the factory, when required, to avoid an impaired view of the labels. Note the label locations as supplied on the product when it is received to accommodate future label replacement requirements.


**NOTE:** It is the owner's responsibility to ensure that all safety labeling remains legible and in its original position throughout the life of the product. It is also the owner's responsibility to ensure that all labels are and will continue to be readily visible to the operators and people working with or around the equipment. If the visibility of any label is compromised for any reason then; either 1) Rectify the situation to allow the label to be readily visible 2) Order replacement label(s) from Pentalift for installation in a location that does facilitate complete visibility. Inspection shall be done during regular maintenance and lubrication (See "MAINTENANCE AND LUBRICATION" on page 23).

**WARNING**  
 FOLLOW ALL INSTRUCTIONS! READ AND FULLY UNDERSTAND THE ENTIRE CONTENTS OF THE OWNERS MANUAL PRIOR TO USING THIS EQUIPMENT. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH.

**RED LIGHT**  
 DO NOT LOAD or UNLOAD VEHICLE.



**GREEN LIGHT**  
 USE CAUTION WHILE LOADING or UNLOADING VEHICLE



**WARNING:** ENTER ON GREEN ONLY  
**WARNING:** VISUALLY CONFIRM THAT THE VEHICLE HAS BEEN RESTRAINED BY SUITABLE MEANS

(IF EQUIPPED WITH MANUAL RESTRAINT) VISUALLY CONFIRM THAT THE RESTRAINT HAS PROPERLY ENGAGED THE REAR IMPACT GUARD BEFORE LOADING OR UNLOADING. IF UNABLE TO PROPERLY ENGAGE THE VEHICLE WITH THE RESTRAINT, OTHER SUITABLE MEANS MUST BE USED TO RESTRAIN THE VEHICLE.  
**CAUTION:** ALWAYS ENSURE THAT THE RESTRAINT (IF EQUIPPED) IS LOCKED IN THE LOWERED POSITION WHEN NOT IN USE.

MANUALLY SWITCH LIGHTS ONCE TRUCK IS SUITABLY RESTRAINED TO ILLUMINATE GREEN INSIDE LIGHT. IMMEDIATELY AFTER DISENGAGING VEHICLE, SWITCH INSIDE LIGHT TO RED.

**PENTALIFT** 519 763 3625  
 PENTALIFT EQUIPMENT CORPORATION  
 DO NOT REMOVE THIS LABEL 250-2458

5 6 (INCLUDED WITH OPTIONAL LIGHT PACKAGE)

**WARNING**  
 FOLLOW ALL INSTRUCTIONS! READ AND FULLY UNDERSTAND THE ENTIRE CONTENTS OF THE OWNERS MANUAL PRIOR TO USING THIS EQUIPMENT. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH

**STORED POSITION:**  
 ALWAYS ENSURE THAT THE RESTRAINT IS LOCKED IN THE LOWERED POSITION WHEN NOT IN USE.

**LOADING / UNLOADING:**  
 VISUALLY CONFIRM THAT THE RESTRAINT HAS PROPERLY ENGAGED THE REAR IMPACT GUARD BEFORE LOADING OR UNLOADING. IF UNABLE TO PROPERLY ENGAGE THE VEHICLE WITH THE RESTRAINT, OTHER SUITABLE MEANS MUST BE USED TO RESTRAIN THE VEHICLE.

**PENTALIFT** DO NOT REMOVE THIS LABEL 250-2376

4 (INCLUDED WHEN OPTIONAL LIGHT PACKAGE IS NOT TAKEN)

**WARNING**

**Visually confirm that vehicle is properly restrained.  
 Enter on green only.  
 See owner's manual**

250-1904C

7 (INCLUDED WITH OPTIONAL LIGHT PACKAGE)

M071A5

Figure 1a: Safety Labels and Decals Continued

<u>Item</u>	<u>Part No.</u>	<u>Qty/Unit</u>	<u>Description</u>
1	250-2341	2	"CAUTION Stay clear of equipment..."
2	250-1143	1	"Pentalift"
3	250-2368	1	Specification Plate
4*	250-2376	1	Wall Mounted Instruction Sign (Note: Not included with units ordered with the optional light package.)
5*	250-2458	1	Wall Mounted Instruction Sign (Note: Included with units ordered with the optional light package.)
6*	312-0072	1	Label Mounting Plate (Note: Included with units ordered with the optional light package.)
7*	250-1904	1	Indoor traffic sign (Note: Included with units ordered with the optional light package.)

\* SHIPPED LOOSE

**NOTE:** State Model # and Serial # when ordering replacement parts.

# INSTALLATION INSTRUCTIONS



**Do not install, operate or service this product unless you have read and fully understand the entire contents of this manual. Failure to do so may result in property damage, bodily injury or death.**

**NOTE:** A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalift factory trouble shooting assistance.

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## IMPORTANT PREPARATION PRIOR TO INSTALLATION

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Follow all installation instructions in the precise consecutive order that they are written. If the equipment cannot be installed in the order as outlined below, contact Pentalift Equipment Corporation for written instructions on how to proceed. Do not proceed with an alternate installation method unless written confirmation has been provided by Pentalift Equipment Corporation. To accommodate a complete installation there is a blank space provided beside each numbered step in the installation instructions. Please check off the steps sequentially as they are completed. This will assist in confirming a complete installation.



**Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.**



**Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.**



**Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.**



**MAKE SURE LIFTING AND SLINGING DEVICES ARE OF SUFFICIENT CAPACITY, USED IN THE CORRECT MANNER AND ARE IN GOOD WORKING ORDER. ALL LIFTING, POSITIONING AND INSTALLATION, AS WELL AS THE BREAK-IN AND PERFORMANCE CHECK MUST BE DONE BY QUALIFIED PERSONNEL TRAINED AND EXPERIENCED IN NECESSARY SAFETY PROCEDURES.**



**It is the responsibility of others to ensure the proper mounting of any wall mounted equipment such as remote power units, control panels and light packages and to ensure that the mounting surface is capable of fully supporting the loads generated by the equipment.**

## **WARNING**

THIS RESTRAINT IS DESIGNED TO OPERATE WITH THE FACE OF THE DOCK BUMPERS EXTENDED 4" PAST THE POSITION OF THE BACK PLATE OF THE RESTRAINT ONCE IT IS INSTALLED. THIS DIMENSION RELATIONSHIP IS CRITICAL TO ASSURING THE PROPER OPERATIONAL POSITIONING OF THE RESTRAINT. PRIOR TO COMMENCING WITH THE INSTALLATION, CONFIRM THAT THE ABOVE NOTED RELATIONSHIP BETWEEN THE DOCK BUMPER AND THE RESTRAINT WILL EXIST ONCE THE INSTALLATION IS COMPLETED. ONCE THIS IS CONFIRMED, COMMENCE THE INSTALLATION. IF THE PROPER RELATIONSHIP WILL NOT EXIST, A RESTRAINT INSTALLATION EXTENSION PLATE MAY BE REQUIRED. CONSULT YOUR AUTHORIZED REPRESENTATIVE FOR ASSISTANCE.

1. \_\_\_ Ensure concrete and anchor bolts have sufficient strength to meet the draw pull forces which will be applied simultaneously. (See "Figure 2: Draw Pull Forces" on page 5).
2. \_\_\_ Mark the centerline of the dock and the centerline of the restraint back plate.
3. \_\_\_ Position the MFR32 by matching the centerline of the dock and the centerline of the restraint back plate (See "Figure 3: Shim Locations" on page 6).

## **NOTICE**

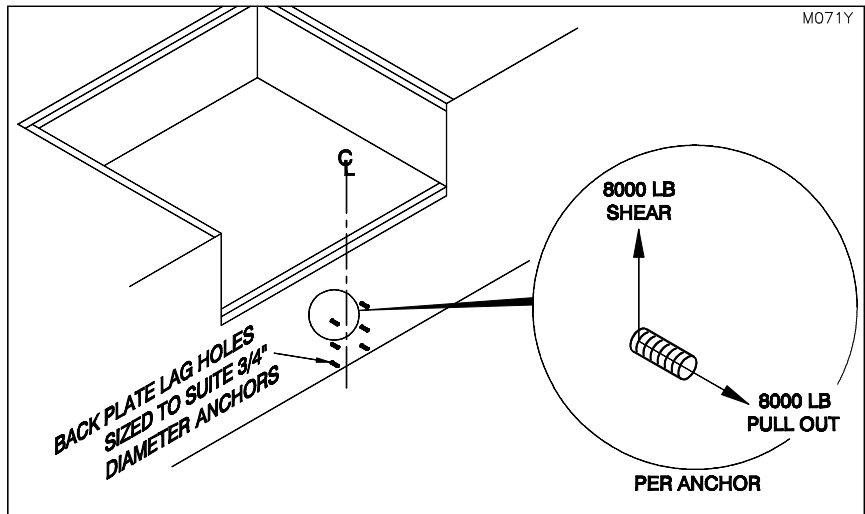
THE RESTRAINT MUST BE AT FINISHED DRIVEWAY LEVEL AND FLUSH WITH THE FOUNDATION WALL.

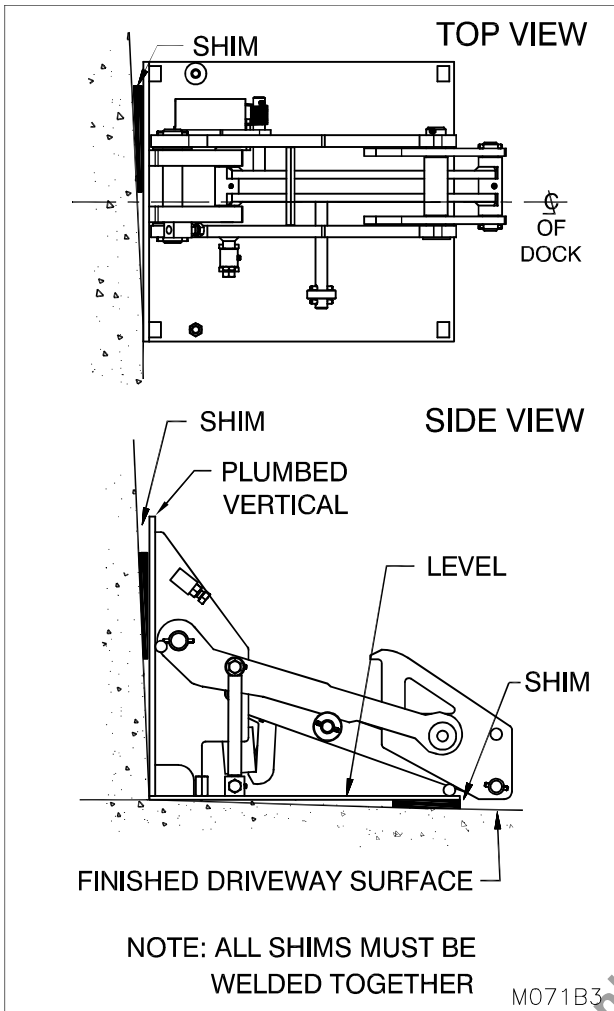
4. \_\_\_ Remove the guard assembly from the restraint (See "Figure 4: Remove/Replace the Guard Assembly" on page 6).
5. \_\_\_ If the wall and/or ground are not square with respect to the back plate and the bottom plate of the restraint, metal shims must be inserted to prevent the back plate from twisting during lagging to the wall (See "Figure 3: Shim Locations" on page 6).
6. \_\_\_ If the dock face is equipped with a cast in weld plate, proceed to step 8. Otherwise, drill the required holes into the foundation wall, using the back plate of the restraint as a template.

7. \_\_\_ Recommended fasteners are  $\frac{3}{4}$ " diameter x minimum 7" long wedge anchors with a minimum shear value of 18,500 lbs (8,390kg), and a tension value of 16,400 lbs (7,440 kg). Torque to manufacturers specifications.

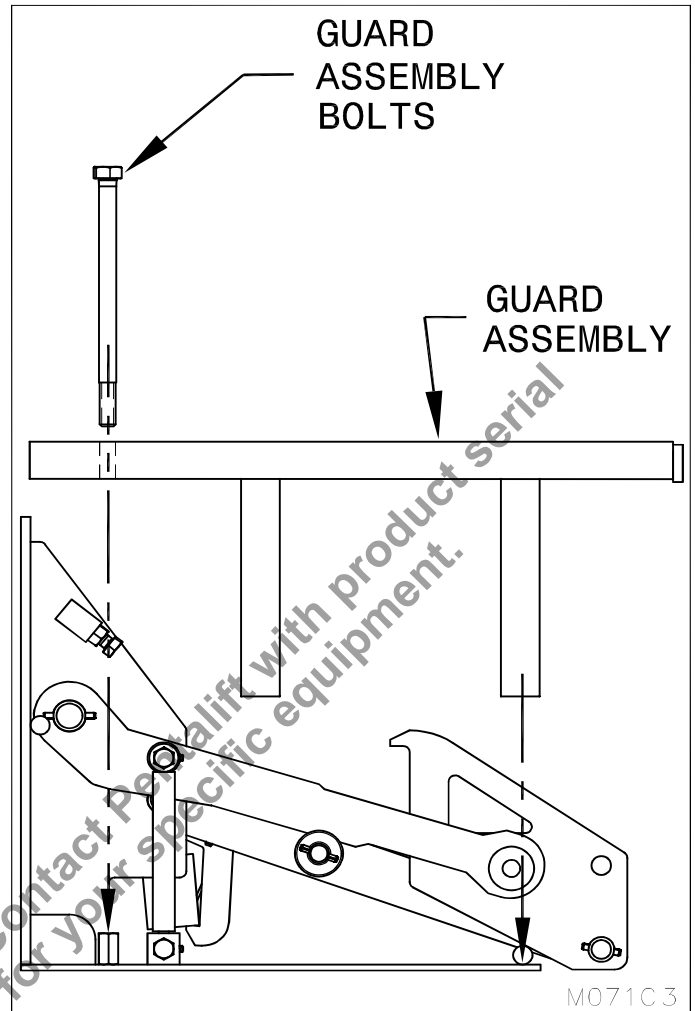
8. \_\_\_ If a weld plate has been pre-cast into the foundation, apply a  $\frac{3}{8}$ " fillet weld 3" long at 6" intervals around the two sides and the top of the back plate. Also, weld all slots in the back plate to the foundation weld plate. For more information, see WELDING REFERENCE INFORMATION on page 7 as well as "Figure 6: Weld Locations" on page 7.

9. \_\_\_ Weld all shims in a stack to each other as well as to the back plate.



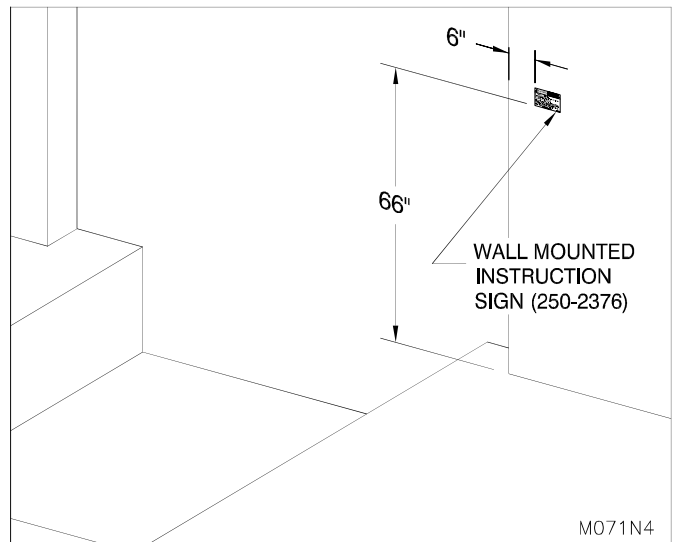


**Figure 3: Shim Locations**



**Figure 4: Remove/Replace the Guard Assembly**

10. \_\_\_ Lubricate all pivot points (See "MAINTENANCE AND LUBRICATION" on page 23).
11. \_\_\_ Clean and Paint Welds using Tremclad High Performance Rust Enamel (Gloss Dark Machine Grey) if unit is not zinc coated. If unit is zinc coated, use Tremclad Gloss Aluminum Rust paint.
12. \_\_\_ Re-install the Guard Assembly (See "Figure 4: Remove/Replace the Guard Assembly" on page 6).
13. \_\_\_ Mount the wall mounted instruction sign in a location that ensures complete legibility of the operation instructions during the operation of all loading dock equipment, including the forklifts.
14. \_\_\_ Test operation (see "OPERATION AND PERFORMANCE CHECK" on page 15)
15. \_\_\_ Check the raised height of the restraint and ensure that it is properly set. If adjustment is required follow the adjustment instructions. (see "Figure 31: Raised Height Adjustment" on page 25)



**Figure 5: Interior Warning Label Location**

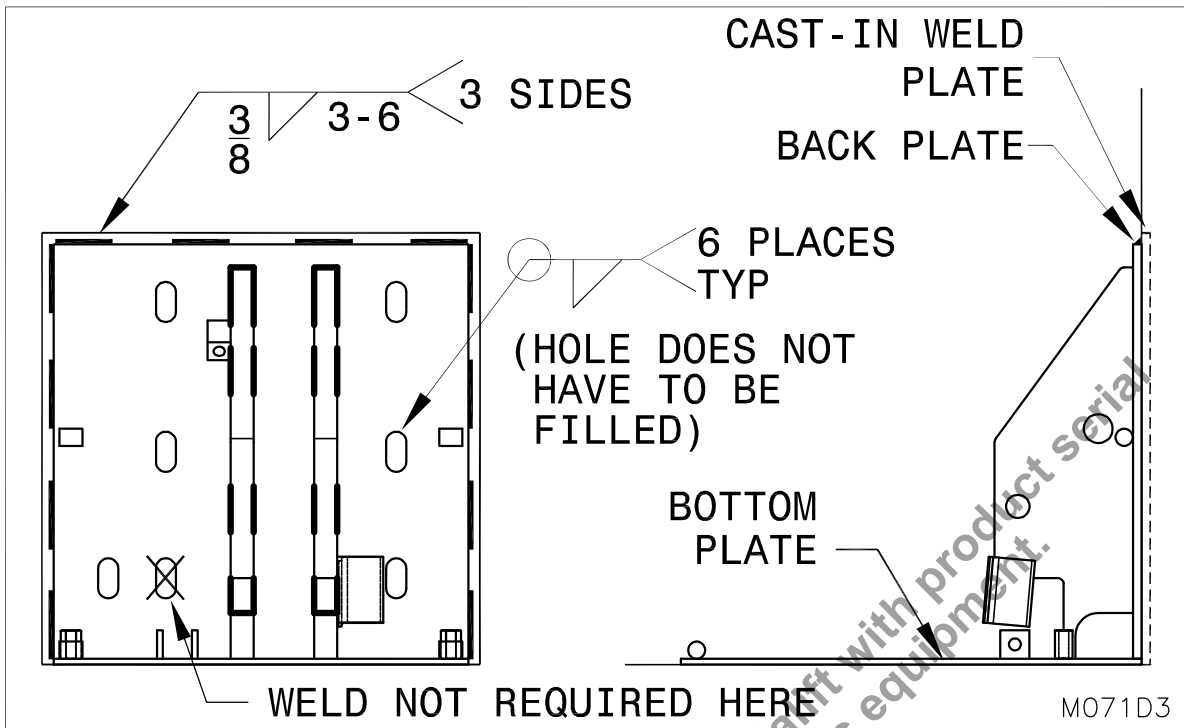


Figure 6: Weld Locations

### WELDING REFERENCE INFORMATION

- Observe and obey all welding safety requirements per AWS D1.1-92. (W117.2-74 in Canada.)
- Welding electrodes are to be clean and free from moisture.
- Material to be welded must be clean and free of oils, excessive millscale/rust etc.
- All craters are to be filled to a minimum of 85% of the cross sectional area of the weld.
- All under cutting is to be removed by either welding, grinding or a combination of both.
- Maximum reinforcement on butt welds is 1/8".
- Use highest current possible per chart below to obtain satisfactory weld.

Electrode	E7018	
Diameter	1/8"	5/32"
Amperage	130-150	140-180



**FAILURE TO PROPERLY INSTALL THE PENTALOCK MFR32 VEHICLE RESTRAINT MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH AND WILL VOID ALL WARRANTIES.**

16.  Confirm that all steps of Installation Instructions have been completed. Fill out the following information.

\_\_\_\_\_  
**Installer Name (Print)**

\_\_\_\_\_  
**Installer Signature**

\_\_\_\_\_  
**Date Installation Completed**

## OPTIONAL EXTENSION PLATE INSTALLATION INSTRUCTIONS



Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.



THIS RESTRAINT IS DESIGNED TO OPERATE WITH THE FACE OF THE DOCK BUMPERS EXTENDED 4" PAST THE POSITION OF THE BACK PLATE OF THE RESTRAINT ONCE IT IS INSTALLED. THIS DIMENSION RELATIONSHIP IS CRITICAL TO ASSURING THE PROPER OPERATIONAL POSITIONING OF THE RESTRAINT. THE OPTIONAL EXTENSION IS REQUIRED ONLY WHEN THIS RELATIONSHIP BETWEEN THE DOCK BUMPER AND THE RESTRAINT WILL NOT EXIST ONCE THE INSTALLATION IS COMPLETED. ONCE IT IS CONFIRMED THAT A RESTRAINT INSTALLATION EXTENSION PLATE IS REQUIRED, FOLLOW THESE INSTRUCTIONS TO INSTALL IT PROPERLY. (CONSULT YOUR AUTHORIZED PENTALIFT REPRESENTATIVE FOR ASSISTANCE IN ACQUIRING THE CORRECT EXTENSION)

1. Ensure concrete has sufficient strength to meet the draw pull forces which will be applied (See "Figure 2: Draw Pull Forces" on page 5).
2. Mark the centerline of the dock, the centerline of the restraint back plate between the mounting holes and the centerline of the extension back plate. If a weld plate has been pre-cast into the foundation, proceed to instruction #6.
3. Position the extension back plate by matching the centerline of the dock and the marked centerline of the plate. Drill the required holes into the foundation wall, using the extension back plate as a template.
4. If required, shim behind the extension back plate (as shown in "Figure 7: Shim Locations for Optional Extension" on page 8) to ensure the extension back plate is plumb and flush with the foundation wall.
5. Recommended fasteners are  $\frac{3}{4}$ " diameter x minimum 7" long wedge anchors with a minimum shear value of 18,500 lbs (8,390kg), and a tension value of 16,400 lbs (7,440 kg). Torque to manufacturers specifications.

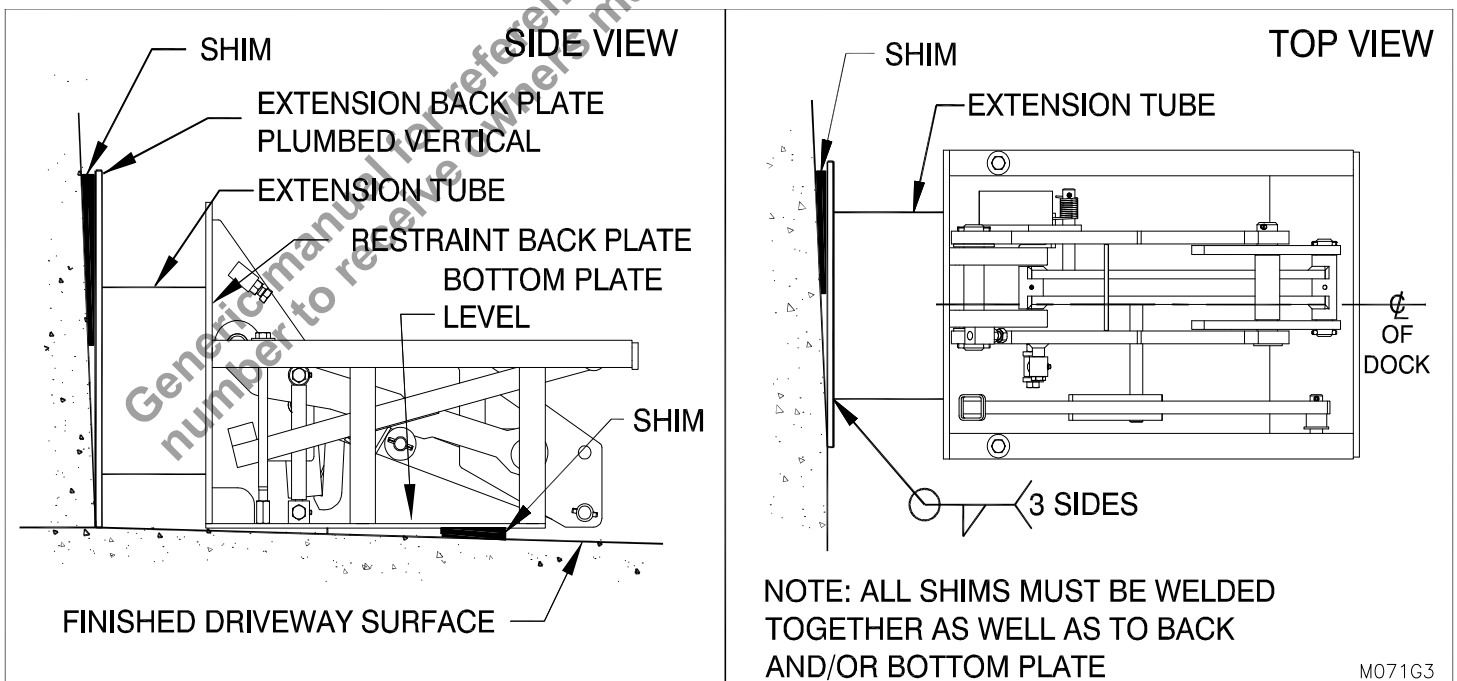
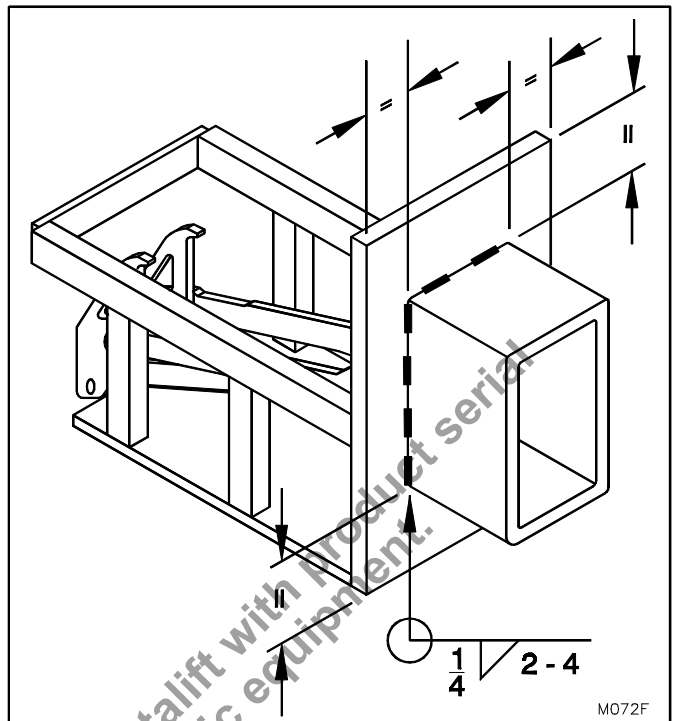


Figure 7: Shim Locations for Optional Extension

6. \_\_\_ Weld the extension tube to the restraint backplate, centered both vertically and horizontally between the mounting holes, as shown in “Figure 8: Optional Extension” on page 9, and weld using a minimum  $\frac{1}{4}$ ” leg on the welds and 2” long welds on 4” centers. (Refer to the “WELDING REFERENCE INFORMATION” on page 7)
7. \_\_\_ Position the restraint, complete with extension tube, centered vertically and horizontally in front of the dock by matching the centerline of the dock and the centerline of the restraint back plate.
8. \_\_\_ If required, shim beneath the restraint as shown in “Figure 7: Shim Locations for Optional Extension” on page 8.
9. \_\_\_ Weld the extension tube to the extension back plate (or cast-in weld plate) using the same weld specifications as noted for welding the extension tube to the back plate of the restraint in “Figure 8: Optional Extension” on page 9.
10. \_\_\_ Weld all shims in a stack to each other as well as to the back plate and/or bottom plate.



**Figure 8: Optional Extension**

11. \_\_\_ Lubricate all pivot points (See “MAINTENANCE AND LUBRICATION” on page 23).
12. \_\_\_ Clean and paint welds using Tremclad High Performance Rust Enamel (Gloss Dark Machine Grey) if unit is not zinc coated. If unit is zinc coated, use Tremclad Gloss Aluminum Rust paint.
13. \_\_\_ Test operation (See “OPERATION AND PERFORMANCE CHECK” on page 15).
14. \_\_\_ Check the raised height of the restraint and ensure that it is properly set. If adjustment is required follow the adjustment instructions. (See “ADJUSTMENT OF RESTRAINT ENGAGE HEIGHT” on page 25).
15. \_\_\_ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

\_\_\_\_\_  
**Installer Name (Print)**

\_\_\_\_\_  
**Installer Signature**

\_\_\_\_\_  
**Date Installation Completed**

# OPTIONAL HORIZONTAL SURFACE MOUNTING BOX INSTALLATION INSTRUCTIONS



Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.



**THIS RESTRAINT IS DESIGNED TO OPERATE WITH THE FACE OF THE DOCK BUMPERS EXTENDED 4" PAST THE POSITION OF THE BACK PLATE OF THE RESTRAINT ONCE IT IS INSTALLED. THIS DIMENSION RELATIONSHIP IS CRITICAL TO ASSURING THE PROPER OPERATIONAL POSITIONING OF THE RESTRAINT.**

**Important note:** A horizontal surface mounting box creates the ability for the vehicle restraint to be installed at any location on the driveway. The dimensional location of the vehicle on the loading dock is critical in maximizing the restraints functionality and ability to properly restrain truck and trailers. When installing the surface mount box, install the restraint so that it is centered laterally on the loading dock door and in a location from the dock face so that the back plate of the restraint (not including the horizontal mounting box) is located 4" behind the face of the loading dock bumpers.

1. \_\_\_ Inspect the MFR32 and surface mounting box for damage. If there is damage, rectify the damage. If there is no damage, proceed with the installation.

Note: It is important that the surface that the restraint is being attached to is sufficiently strong to accept the high forces that the vehicle restraint could subject it to.

2. \_\_\_ Align the MFR32 with the surface mounting box and fasten using the supplied hardware, with the bolt at the rear of the surface mounting carriage, in the order as shown in "Figure 9: Horizontal Surface Mounting Box Installation" on page 10. Insert bolts from the back of the surface mounting box and torque each nut to a value of 266 ft-lbs.

3. \_\_\_ Clean surface mounting area of all debris.

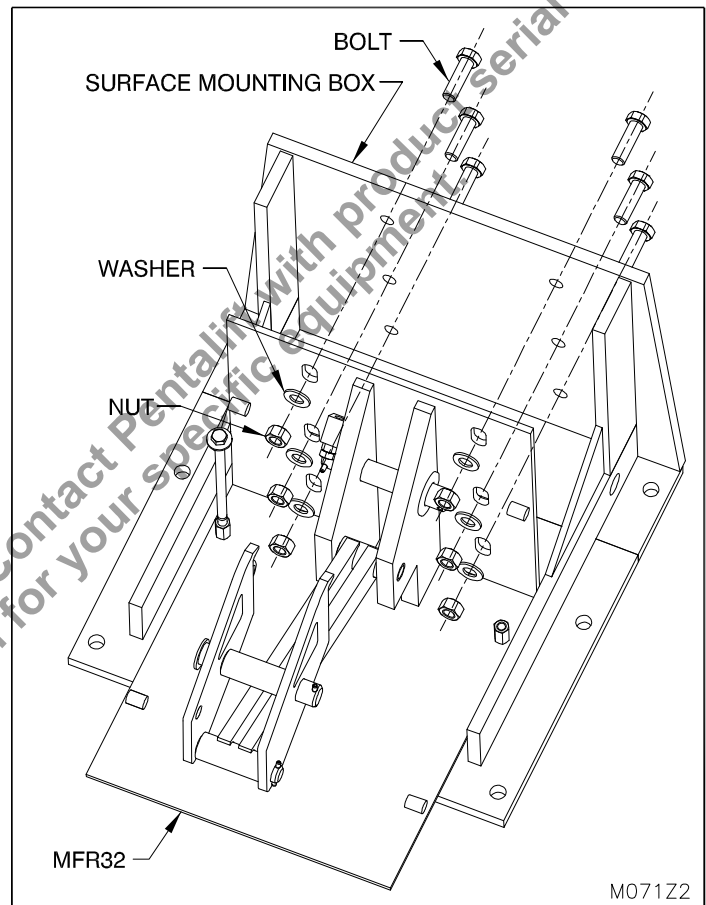
4. \_\_\_ Mark the center line of the dock leveler and the center line of the surface mounting box.

5. \_\_\_ Center the surface mounting box with the centerline of the dock leveler.

6. \_\_\_ Orient the restraint at the appropriate distance that places the back of the restraint 4" behind the front face of the loading dock bumper.

7. \_\_\_ Use a level to ensure that the surface mounting box is level side to side and front to back. Shimming may be required. All shims must be welded together and to the bottom of the surface mounting box.

8. \_\_\_ Lag the surface mounting box to the supporting surface using 3/4" diameter lag bolts with a minimum shear value of 5,000 lbs and a minimum tension value of 4,000 lbs. **Note: Lagging bolts are supplied by others.**



**Figure 9: Horizontal Surface Mounting Box Installation**

9.      Clean and paint welds using Tremclad High Performance Rust Enamel (Gloss Dark Machine Grey) if unit is not zinc coated. If unit is zinc coated, use Tremclad Gloss Aluminum Rust paint.
  
10.      Confirm that all steps of the installation instructions have been completed. Fill out the following information.

\_\_\_\_\_  
**Installer Name (Print)**

\_\_\_\_\_  
**Installer Signature**

\_\_\_\_\_  
**Date Installation Completed**

*Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.*

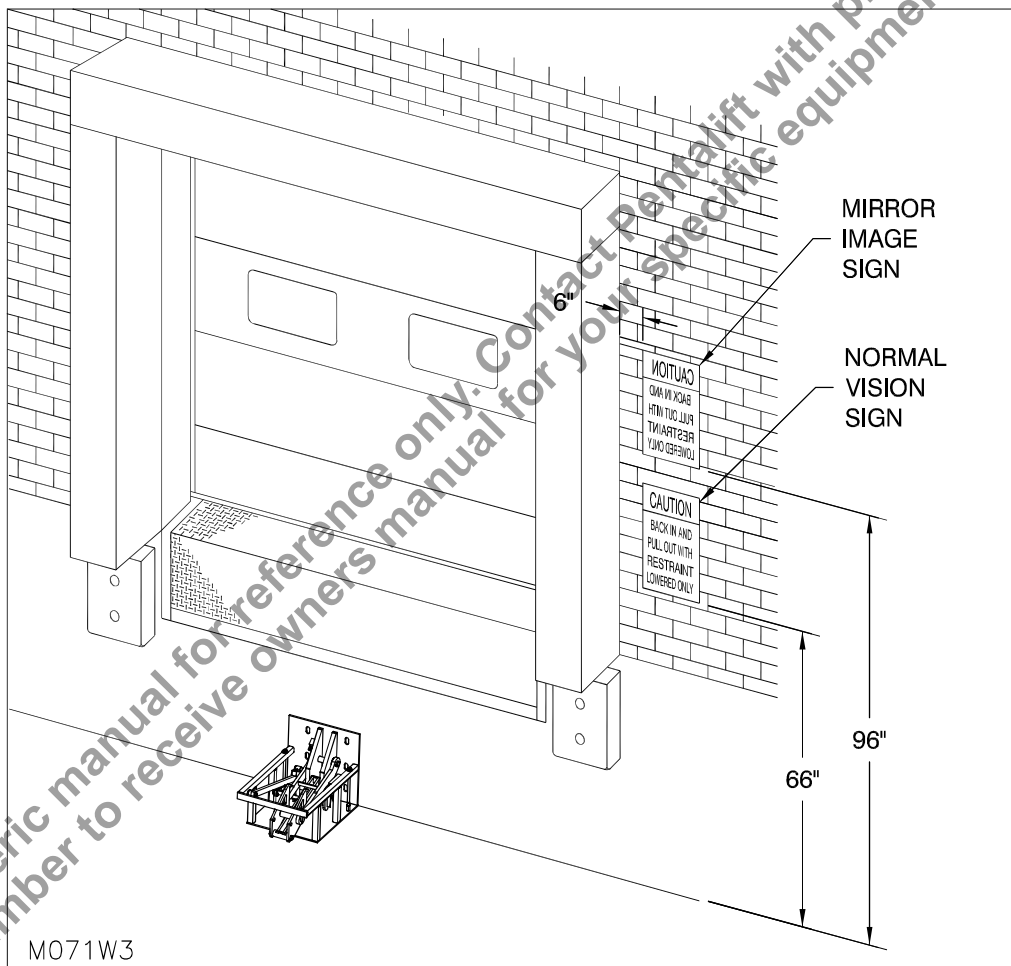
## INSTALLING OPTIONAL SIGN PACKAGE



Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.

**NOTE:** This section is for units purchased with the optional sign package and without the optional light package. Units purchased with Optional Light Package see “INSTALLING OPTIONAL LIGHT PACKAGE” on page 13.

1.      Mount the mirror image “Caution” sign 96” (8 ft) above finished driveway surface and 6” away from the edge of the door. (If a door seal is present, mount the sign 6” away from the edge of the door seal.)
2.      Mount the normal vision “Caution” sign 66” (5 1/2 ft) above finished driveway surface (below the outside light) and 6” away from the edge of the door. (If a door seal is present, mount the sign 6” away from the edge of the door seal.)
3.      Confirm that all steps of the installation instructions have been completed. Fill out the following information.



**Figure 10: Optional Sign Package**

\_\_\_\_\_  
**Installer Name (Print)**

\_\_\_\_\_  
**Installer Signature**

\_\_\_\_\_  
**Date Installation Completed**

## INSTALLING OPTIONAL LIGHT PACKAGE

### **⚠ DANGER**

Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.

### **⚠ DANGER**

- WIRING MUST BE DONE BY A QUALIFIED ELECTRICIAN.
- ALWAYS USE APPROPRIATE LOCK-OUT PROCEDURES DURING ANY ELECTRICAL INSTALLATIONS.
- ENSURE SUPPLY VOLTAGE IS CORRECT.
- ALWAYS OBSERVE ALL APPLICABLE ELECTRICAL CODES.

### **⚠ DANGER**

Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.

### **⚠ DANGER**

Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.

The following instructions apply to standard units:

1.  Ensure an electrical conduit is in place to bring the signal light control panel wiring from inside to the signal light outside.
2.  Install the control panel and interior warning sign, "Enter on Green Only", in a location that ensures complete legibility of the operating instructions during the operation of all loading dock equipment, including the forklifts. (see "Figure 12: Interior Warning Labels for Optional Light Package" on page 14)
3.  Mount outside light set approximately 90" high from the center of the light to the finished driveway level (see "Figure 11: Light, Sign and Conduit Locations" on page 13).
4.  Mount the mirror image "Caution" sign above the outside light and the normal vision "Caution" sign below the outside light.
5.  Connect all electrical lines as per the wiring diagram inside the electrical control panel.
6.  Test operation (see "OPERATION AND PERFORMANCE CHECK" on page 15).
7.  Check the raised height of the restraint and ensure that it is properly set. If adjustment is required follow the adjustment instructions. (See "ADJUSTMENT OF RESTRAINT ENGAGE HEIGHT" on page 25).

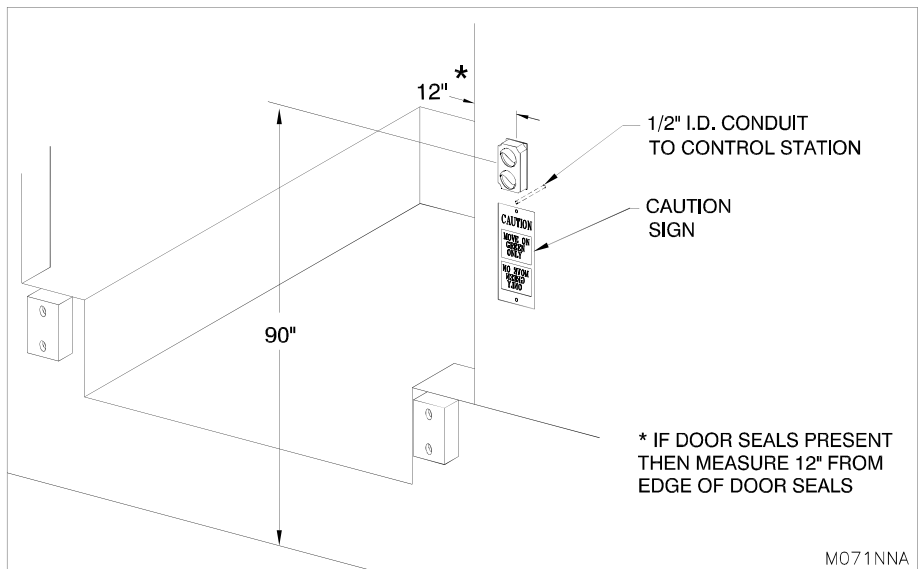


Figure 11: Light, Sign and Conduit Locations

8.  Fully raise and lower the unit a minimum of 10 times and check the performance of the switches and lights to ensure correct operation. (See "OPERATION AND PERFORMANCE CHECK" on page 15)
9.  Confirm that all steps of the installation instructions have been completed. Fill out the following information.

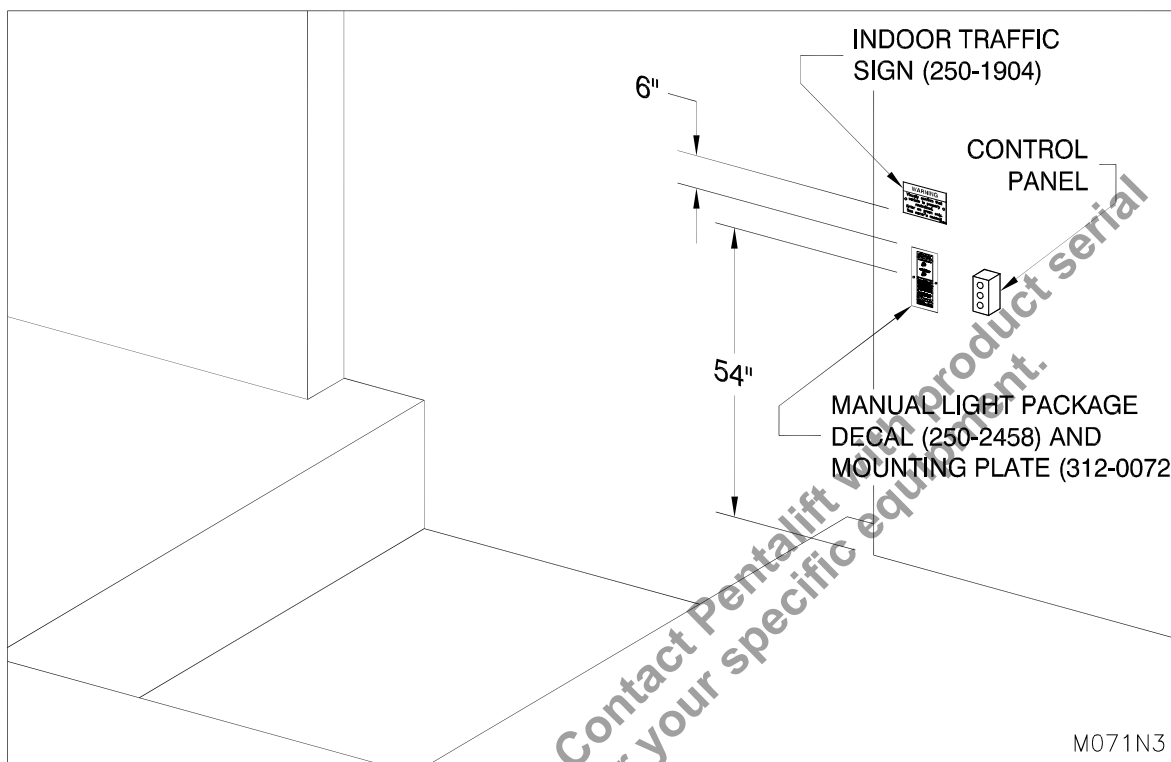


Figure 12: Interior Warning Labels for Optional Light Package

\_\_\_\_\_  
 Installer Name (Print)

\_\_\_\_\_  
 Installer Signature

\_\_\_\_\_  
 Date Installation Completed



**FAILURE TO PROPERLY INSTALL THE PENTALOCK MFR32 MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH AND WILL VOID ALL WARRANTIES.**

## OPERATION AND PERFORMANCE CHECK



Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.



Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.



Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.



**FAILURE TO CONFIRM THE CORRECT OPERATION OF THE VEHICLE RESTRAINT IN ACCORDANCE WITH THESE INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH.**

**NOTE:** A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalfit representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalfit factory trouble shooting assistance.



**Regarding use with Vertical Storing Dock levelers:**

In order to manually engage or disengage the vehicle restraint using the vehicle restraint push bar the operator must enter the operating path of the vertical storing dock leveler. To prevent possible injury, it is imperative that prior to entering the operating path of the vertical storing dock leveler for any reason, including for the purpose of activating or storing the MFR restraint, that the operator confirms that the vertical storing dock leveler maintenance stand has been engaged. Once the vehicle restraint has been operated, confirm that the vertical storing dock leveler maintenance stand has been disengaged before attempting to operate the vertical storing dock leveler.

**NOTE: IN SOME CASES THERE IS A CONSIDERABLE AMOUNT OF TIME BETWEEN THE SHIPMENT DATE AND USE OF YOUR VEHICLE RESTRAINT. THIS INITIAL BREAK-IN AND PERFORMANCE CHECK SHOULD BE PERFORMED BEFORE YOU BEGIN REGULAR USE OF YOUR VEHICLE RESTRAINT TO ENSURE THAT IT IS OPERATING PROPERLY.**

1. Ensure the vehicle restraint has been returned to the fully stored position and that the latch securely engages to maintain the vertical lock arm in the stored position (See "Figure 14: Restraint Latched in Stored Position" on page 17)
2. Use the operating "T" handle to push firmly on the top of the latch. This releases the restraint from the stored position and allows the gas spring system to raise the vertical lock arm with an upward bias (see "Figure 14: Restraint Latched in Stored Position" on page 17).
3. Place the operating "T" handle into the locating detent on the push down arm. Push firmly and swiftly for the entire travel on the handle to return the restraint to the fully stored position (see "Figure 19: To Release the Vehicle Restraint" on page 19). The latch must hook under the catch to hold the restraint in the fully stored position (see "Figure 14: Restraint Latched in Stored Position" on page 17).

## OPERATION AND PERFORMANCE CHECK FOR UNITS WITH OPTIONAL LIGHT PACKAGE

4. When the selector switch is set so that the red light on the control panel is illuminated the green outside light must also be illuminated. The green light on the control panel and the red outside light must not be illuminated (see “Figure 20: Dock Ready to Receive Vehicle” on page 20 and “Figure 21: Set selector switch so inside red light is illuminated when ready to receive a vehicle” on page 20).
5. Turn the switch and the inside green light on the control panel and the outside red light must be illuminated (see “Figure 24: Set selector switch so inside green light is illuminated indicating safe to load” on page 21 and “Figure 25: Driver Signal” on page 21) while the inside red light on the control panel and the outside green light must not be illuminated.
6. Return the switch to the appropriate position.
7. Return the restraint to the stored position.
8. Replace defective LED modules on the control panel immediately.

The above steps describe and confirm the correct operation of this important piece of safety equipment. If the unit you have does not meet the requirements listed above, discontinue its use and/or repair it immediately. See the Troubleshooting section to correct problems. Contact your Pentalift representative for any required assistance.

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

# OPERATING INSTRUCTIONS

## **⚠ DANGER**

Use by untrained people can result in property damage, bodily injury or death. Read, know, and obey all operating instructions and safety information. Follow all OSHA regulations regarding the use of this equipment. Do not use the vehicle restraint if any part of it looks broken or if it does not seem to operate properly. If repairs are needed, contact your pentalift representative.

**NOTE:** It is common for this product to be supplied in combination with other Pentalift Products. When the product supplied with other Pentalift products it is quite common for a combination control panel to be provided. The combination control panel will be a single control panel from which more than one product will be controlled and operated. If your installation incorporates the use of such a common control panel then read and follow all the instructions on the panel. If the instructions on the control panel conflict with instructions in this manual then follow the instructions on the control panel.

1. Truck/trailer is to back into the loading dock only when the restraint is in the Stored position (see "Figure 13: Restraint Stored - Dock Ready to Receive" on page 17).

## **⚠ WARNING**

Regarding use with Vertical Storing Dock levelers:

In order to manually engage or disengage the vehicle restraint using the vehicle restraint push bar the operator must enter the operating path of the vertical storing dock leveler. To prevent possible injury, it is imperative that prior to entering the operating path of the vertical storing dock leveler for any reason, including for the purpose of activating or storing the MFR restraint, that the operator confirms that the vertical storing dock leveler maintenance stand has been engaged. Once the vehicle restraint has been operated, confirm that the vertical storing dock leveler maintenance stand has been disengaged before attempting to operate the vertical storing dock leveler.

2. With the truck/trailer in position, centered in front of the loading dock and parked tight against both dock bumpers, use the operating "T" handle to push firmly on the top of the latch. This releases the restraint from the stored position and allows the gas spring system to raise the vertical lock arm with an upward bias (see "Figure 14: Restraint Latched in Stored Position" on page 17).

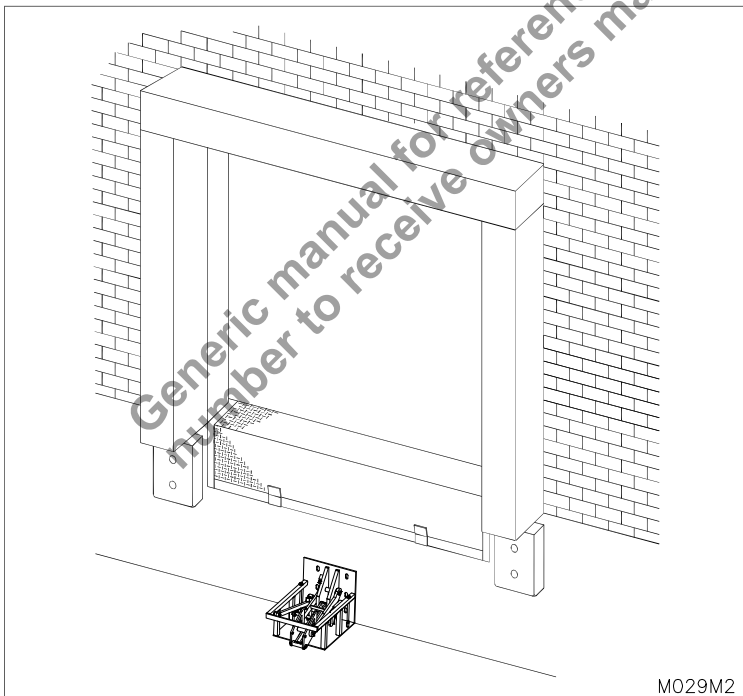


Figure 13: Restraint Stored - Dock Ready to Receive

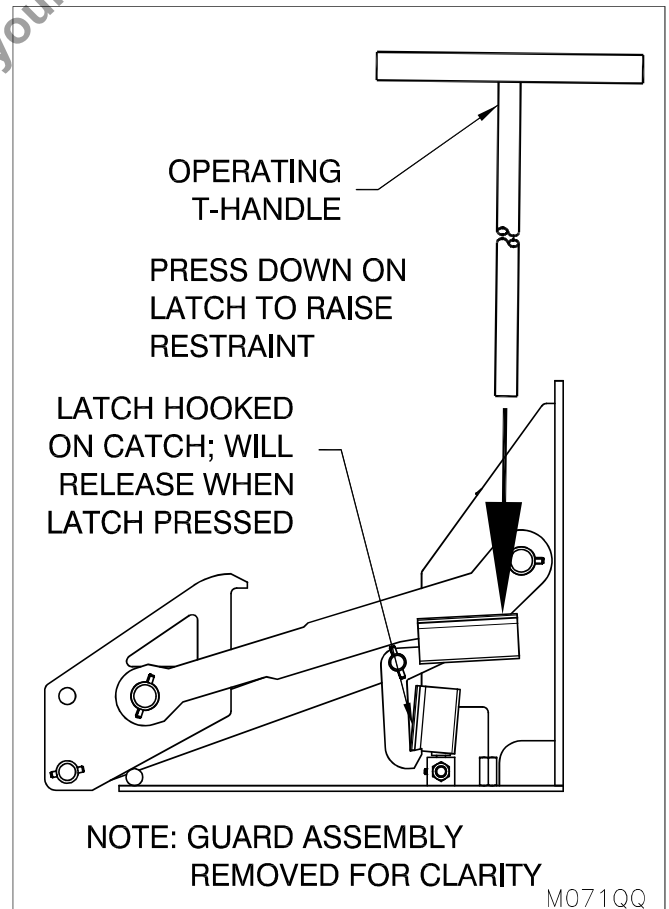


Figure 14: Restraint Latched in Stored Position

3. Visually confirm that the restraint has properly engaged the rear impact guard (see “Figure 15: Vertical Locking Arm Position” on page 18 and “Figure 16: Vehicle Ready to Load/Unload” on page 18), before loading or unloading. If unable to properly engage the vehicle with the restraint, other suitable means must be used to restrain the vehicle (see “Figure 18: Secure Trailer by Other Suitable Means” on page 19).

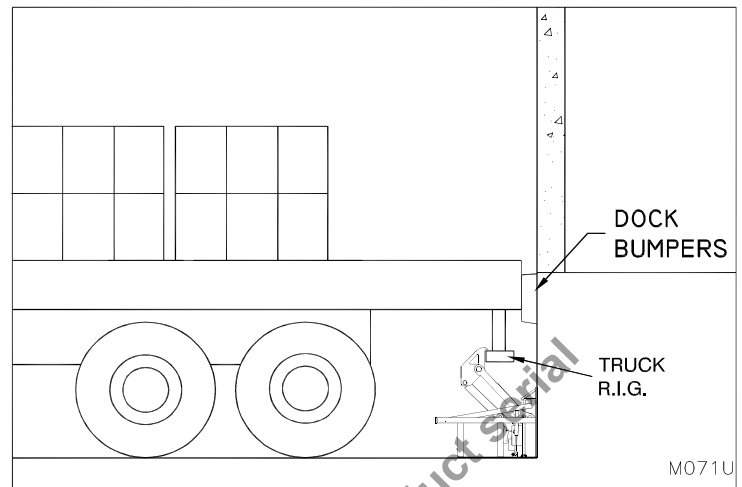


Figure 16: Vehicle Ready to Load/Unload

**⚠ DANGER** THE TOP OF THE R.I.G. OF THE TRUCK/TRAILER MUST ALWAYS BE LOWER THAN THE OVERHANG ON THE FRONT FACE OF THE VERTICAL LOCK ARM AND LOCATED BETWEEN THE FRONT FACE OF THE VERTICAL LOCK ARM AND THE RESTRAINT BACK PLATE (See “Figure 15: Vertical Locking Arm Position” on page 18). IF THE TRUCK/TRAILER IS NOT PROPERLY ENGAGED AS PER THESE INSTRUCTIONS, LOWER THE RESTRAINT (See “WHAT TO DO IF THE R.I.G CANNOT BE ENGAGED BY THE RESTRAINT” on page 19) AND DO NOT LOAD/UNLOAD UNTIL THE TRAILER IS SECURED BY OTHER MEANS (I.E. WHEEL CHOCKS). See “Figure 18: Secure Trailer by Other Suitable Means” on page 19.

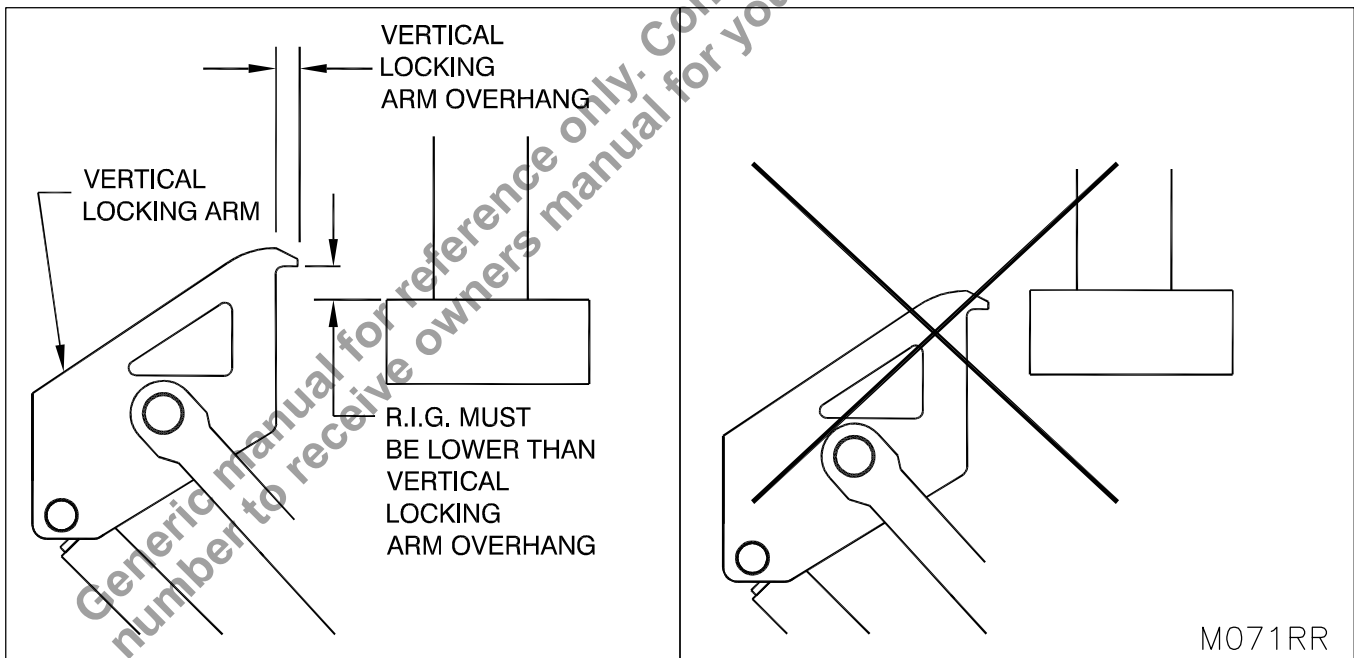
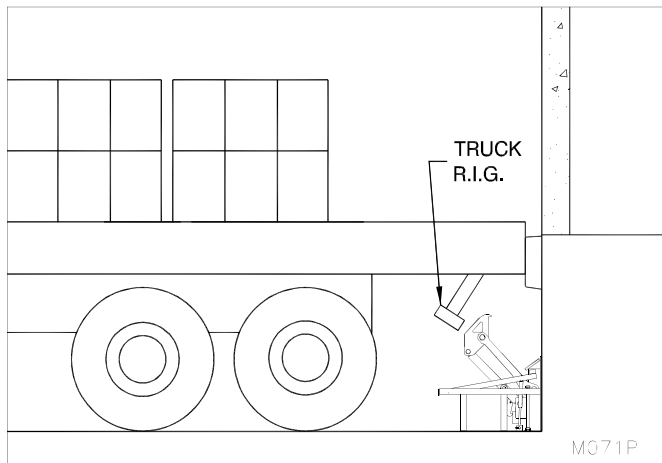
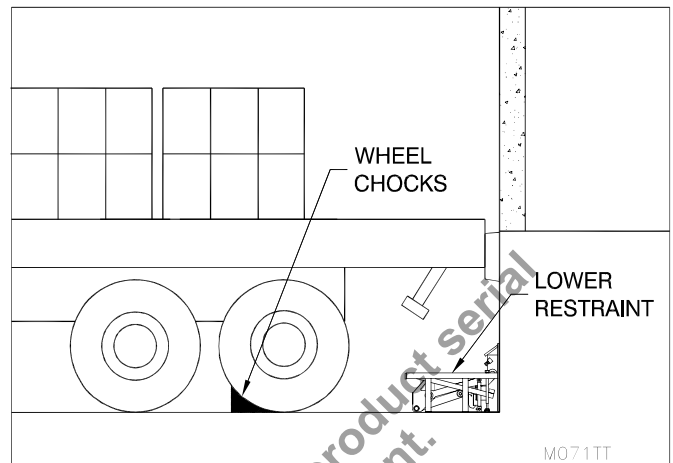


Figure 15: Vertical Locking Arm Position

# WHAT TO DO IF THE R.I.G CANNOT BE ENGAGED BY THE RESTRAINT



**Figure 17: R.I.G. Not Secure**



**Figure 18: Secure Trailer by Other Suitable Means**

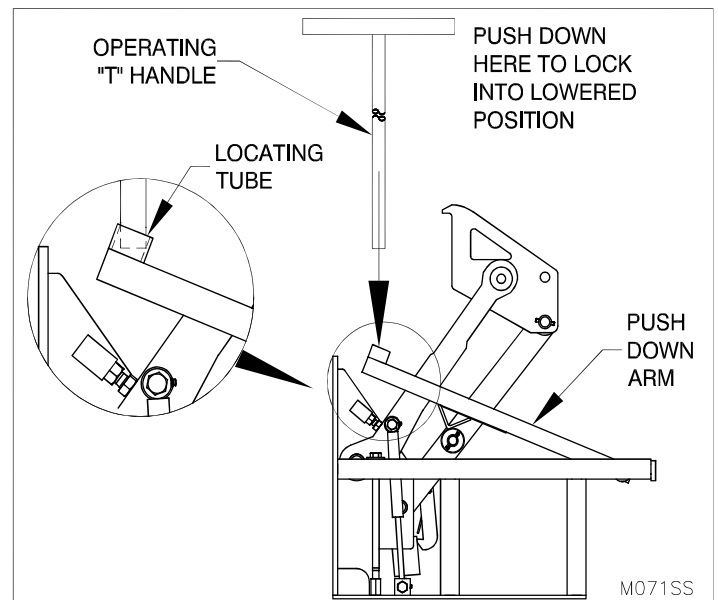
- a. Lower the restraint (See "LOADING / UNLOADING COMPLETE" on page 19)
- b. Ensure the trailer is secured by other suitable means before loading or unloading.  
**NOTE:** Wheel chocks are other suitable means.
- c. Loading/unloading may commence.

## LOADING / UNLOADING COMPLETE

4. When loading/unloading is complete, place the operating "T" handle into the locating tube on the push down arm. Push firmly on the handle to return the restraint to the fully stored position (see "Figure 19: To Release the Vehicle Restraint" on page 19). The latch must hook under the catch to hold the restraint in the fully stored position (see "Figure 14: Restraint Latched in Stored Position" on page 17). The truck is free to depart and the dock is ready to receive another truck.

**NOTE:** If trailer was secured by other means remove them at this time.

**NOTE:** If the vehicle R.I.G. has moved forward during loading / unloading (truck "creep" has occurred), there may be draw pull force and friction holding the restraint in in the engaged position. If the restraint will not release, move the trailer back toward the dock to release the tension on the restraint, allowing it to lower.



**Figure 19: To Release the Vehicle Restraint**

# OPERATING INSTRUCTIONS FOR UNITS EQUIPPED WITH OPTIONAL MANUAL LIGHT PACKAGE



Use by untrained people can result in property damage, bodily injury or death. Read, know, and obey all operating instructions and safety information. Follow all OSHA regulations regarding the use of this equipment. Do not use the vehicle restraint if any part of it looks broken or if it does not seem to operate properly. If repairs are needed, contact your pentalift representative.

## VEHICLE RESTRAINT STORED/DOCK EMPTY

1. Ensure the vehicle restraint is in the stored position and the selector switch is in the position so that the outside green light is illuminated, indicating to drivers that it is safe to approach the dock. The inside red light on the control panel is illuminated, indicating to personnel that it is unsafe to load/unload the trailer/vehicle.

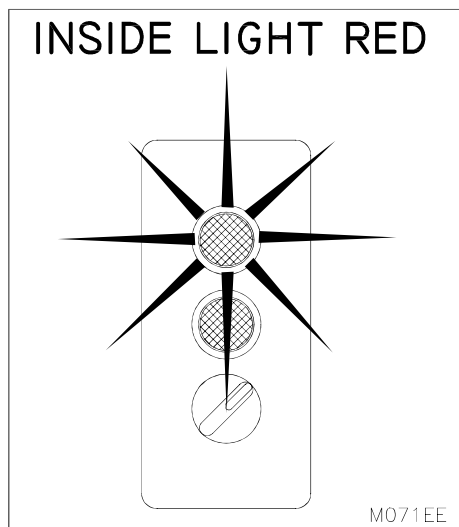


Figure 21: Set selector switch so inside red light is illuminated when ready to receive a vehicle

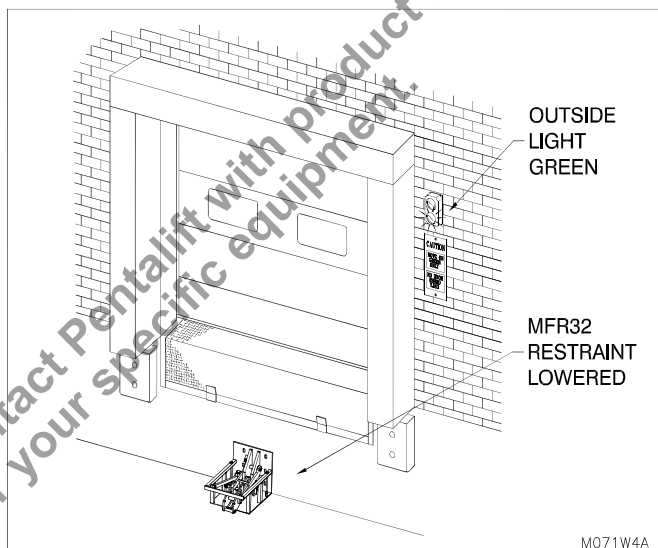


Figure 20: Dock Ready to Receive Vehicle

## TRAILER IN POSITION

2. With the truck/trailer in position, centered in front of the loading dock and parked tight against both dock bumpers, use the operating “T” handle to push firmly on the top of the latch. This releases the restraint from the stored position and allows the gas spring system to raise the vertical lock arm with an upward bias (see “Figure 22: Push on Latch to Raise Restraint” on page 20).



THE TOP OF THE R.I.G. OF THE TRUCK/TRAILER MUST ALWAYS BE LOWER THAN THE OVERHANG ON THE FRONT FACE OF THE VERTICAL LOCK ARM AND LOCATED BETWEEN THE FRONT FACE OF THE VERTICAL LOCK ARM AND THE RESTRAINT BACK PLATE (See “Figure 23: Vertical Locking Arm Position” on page 21). IF THE TRUCK/TRAILER IS NOT PROPERLY ENGAGED AS PER THESE INSTRUCTIONS, LOWER THE RESTRAINT (See “WHAT TO DO IF THE R.I.G CANNOT BE ENGAGED BY THE RESTRAINT” on page 22) AND DO NOT LOAD/UNLOAD UNTIL THE TRAILER IS SECURED BY OTHER MEANS (I.E. WHEEL CHOCKS). See “Figure 28: Secure Trailer by Other Suitable Means” on page 22.

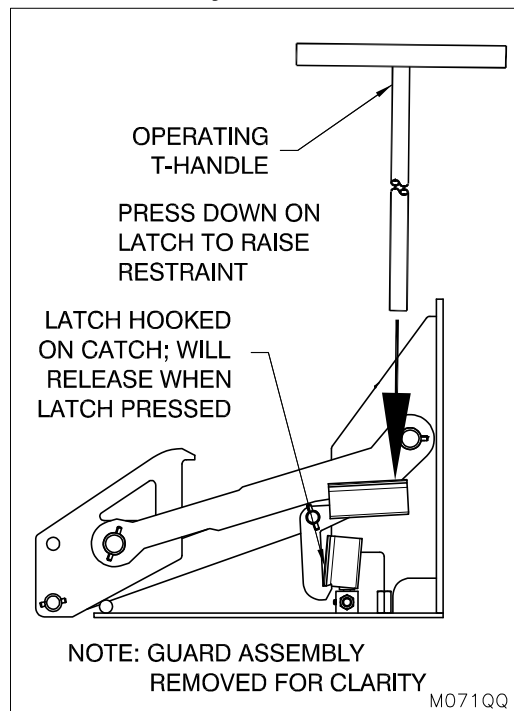
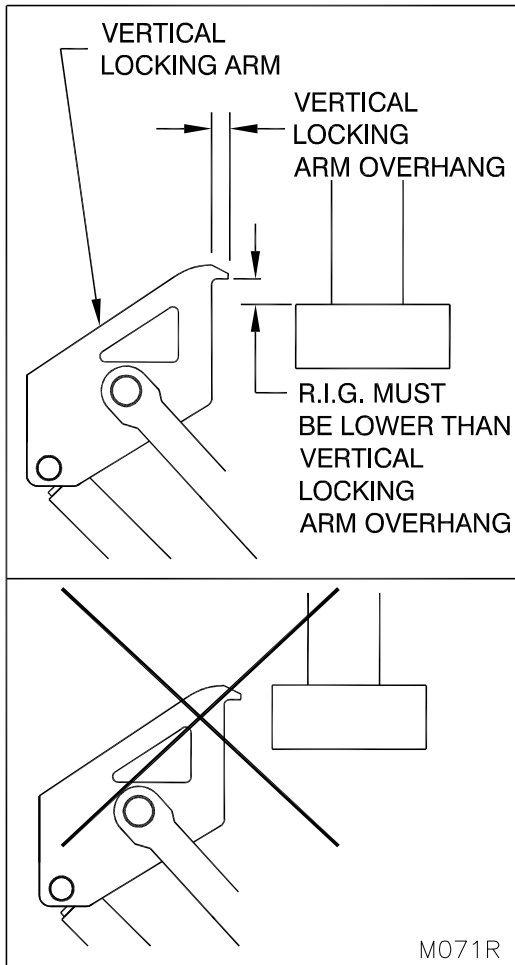
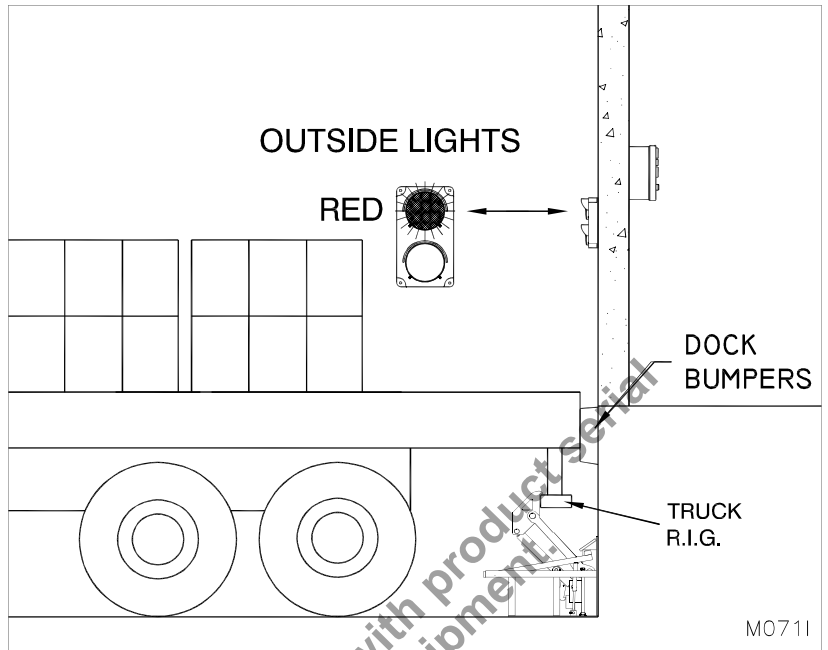


Figure 22: Push on Latch to Raise Restraint

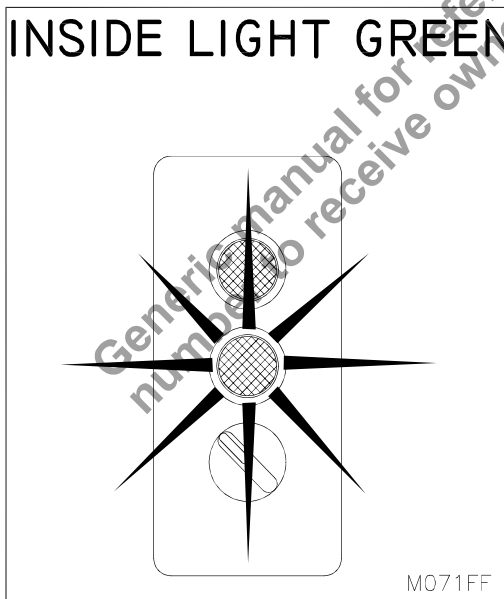


**Figure 23: Vertical Locking Arm Position**

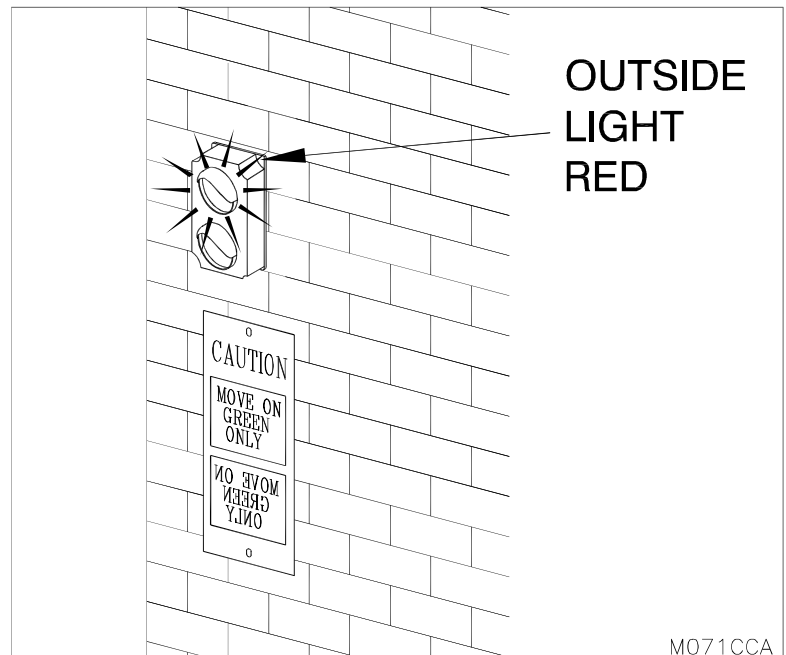


**Figure 26: Vehicle Secure**

3. Visually confirm that the restraint has properly engaged the rear impact guard (see "Figure 23: Vertical Locking Arm Position" on page 21), before loading or unloading. If unable to properly engage the vehicle with the restraint, other suitable means must be used to restrain the vehicle (see "Figure 28: Secure Trailer by Other Suitable Means" on page 22).
4. With the trailer properly secured as per step 2, turn the selector switch to the position so that the inside green and outside red will illuminate.
5. Loading/unloading may commence.

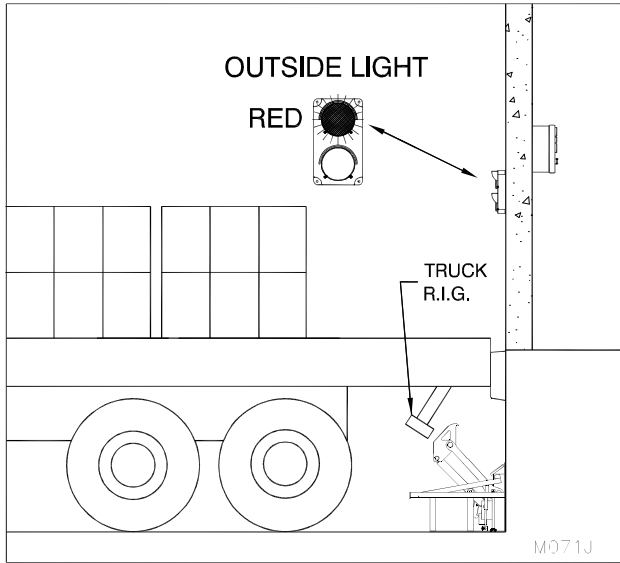


**Figure 24: Set selector switch so inside green light is illuminated indicating safe to load**

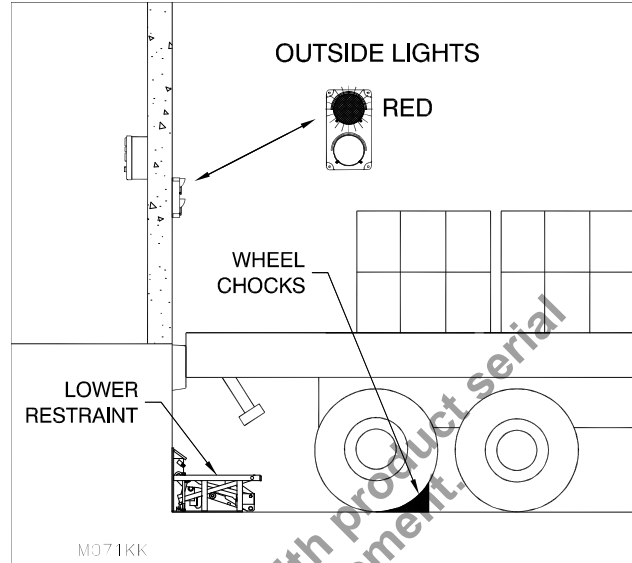


**Figure 25: Driver Signal**

# WHAT TO DO IF THE R.I.G CANNOT BE ENGAGED BY THE RESTRAINT



**Figure 27: R.I.G. Not Secure**



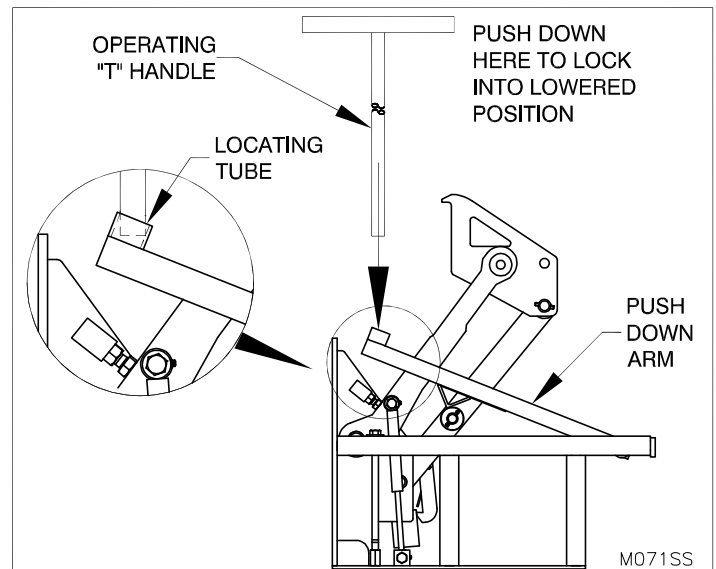
**Figure 28: Secure Trailer by Other Suitable Means**

- Ensure the selector switch is in the position so that the inside red light and outside green light are illuminated.
- Lower the restraint (See "LOADING / UNLOADING COMPLETE" on page 22).
- Visually confirm that the vehicle has been restrained by other suitable means before loading or unloading.  
**NOTE:** Wheel chocks are other suitable means.
- Turn the selector switch to the position so that the inside green light and outside red light will be illuminated.
- Loading/unloading may commence.

## LOADING / UNLOADING COMPLETE

- If restraint is engaged, place the operating "T" handle into the locating tube on the push down arm. Push firmly and swiftly for the entire travel on the handle to return the restraint to the fully stored position (see "Figure 29: To Release the Vehicle Restraint" on page 22). The latch must hook under the catch to hold the restraint in the fully stored position (see "Figure 14: Restraint Latched in Stored Position" on page 17). If the trailer was secured by other means, remove them at this time. Immediately turn the selector switch to the position so that the inside red and outside green will be illuminated. The truck is free to depart and the dock is ready to receive another truck.

**NOTE:** If the vehicle R.I.G. has moved forward during loading / unloading (truck "creep" has occurred), there may be draw pull force and friction holding the restraint in the engaged position. If the restraint will not release, move the trailer back toward the dock to release the tension on the restraint, allowing it to lower.



**Figure 29: To Release the Vehicle Restraint**

# MAINTENANCE AND LUBRICATION



**ONLY TRAINED AND QUALIFIED PERSONNEL SHOULD PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES.**



**Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.**



**Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.**



**Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.**

**NOTE:** A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentlift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentlift factory trouble shooting assistance.

**CLEANING:** The face of a loading dock is generally one of the dirtiest areas in a facility. Dirt and debris fall from the loading dock into and on the restraint area. The **MFR32 Vehicle Restraint** is designed to have a long trouble free operating life in this type of condition. However, the area around the restraint must be cleaned on a regular basis. Frequency will vary depending on the conditions at each individual location. Initially, cleaning must be done on a weekly basis. Thereafter, the frequency of cleaning can be adjusted to suit the specific individual installation conditions. Snow and ice must be cleaned away as soon as it accumulates.

**CHECK ON A DAILY BASIS:** Conduct the steps listed in the OPERATION AND PERFORMANCE CHECK section of this manual. (See page 15). Check the raised height of the restraint and ensure that it is properly set. If adjustment is required, follow the adjustment instructions. (See "ADJUSTMENT OF RESTRAINT ENGAGE HEIGHT" on page 25)

**NOTE:** Read the **SAFETY INFORMATION AND WARNINGS** before servicing the **MFR32 Vehicle Restraint**. (See page II.)

**NOTE:** It is the owner's responsibility to ensure that all labeling remains legible and in its original position throughout the life of the product (See "SAFETY LABELING" on page 2).

**NOTE:** Inspect equipment for protective coatings (i.e. paint) that have deteriorated or been removed. Prepare affected area and reapply protective coating as required using Tremclad High Performance Rust Enamel (Gloss Dark Machine Grey) if zinc coating not used.

**NOTE:** At every maintenance interval, inspect the **MFR32 Vehicle Restraint** for any damaged or worn parts. If any damaged or worn parts are found, discontinue use of the vehicle restraint and/or repair immediately.

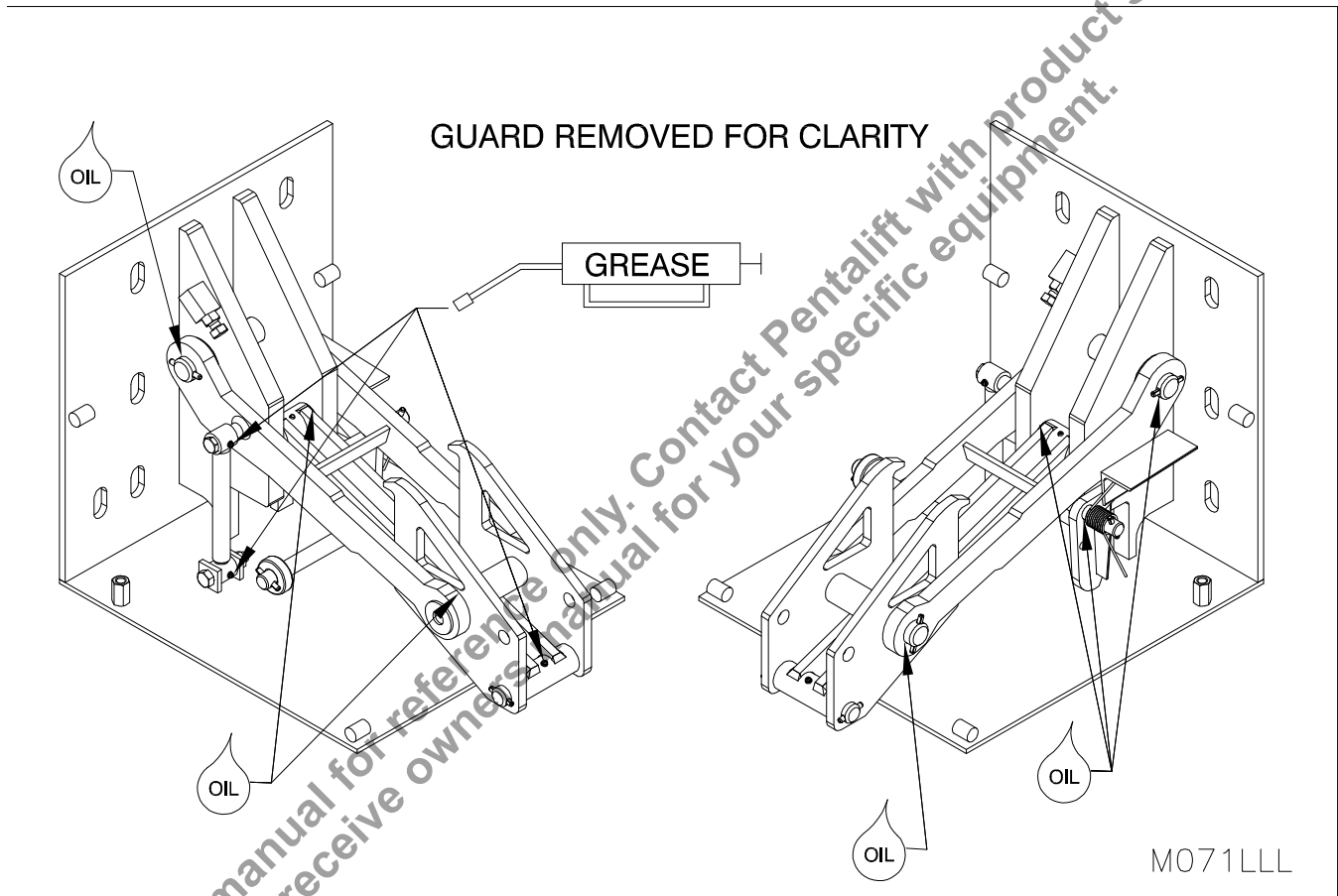
**LUBRICATION:**

As shown by “Figure 30: Lubrication Points” on page 24, three pivot points on the Vehicle Restraint must be lubricated regularly to help maintain the unit in proper working condition. The recommended lubrication **service interval is every 30 days** or at a greater frequency as required in severe environments. For maximum bearing life, the recommended **lubricant is NLGI Grade 2 grease with EP and MOS2 additives**. Oil all pivot points without grease fittings. **Dexron III Automatic Transmission Fluid is recommended**.

**UNITS SOLD WITH OPTIONAL LIGHT PACKAGE:**

Replace burnt out light bulbs on the control panel, or defective LED modules, immediately. Due to the continuous duty of dock traffic light systems and the life span of light bulbs, daily inspection of the light system should be performed. Spare light bulbs and an LED module should be kept on hand at all times for immediate replacement. Ensure that the proper lens color is in the proper position after checking bulbs and LED modules.

**USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS**



**Figure 30: Lubrication Points**

## ADJUSTMENT OF RESTRAINT ENGAGE HEIGHT

**NOTE: THE RAISED HEIGHT IS PRESET AT THE FACTORY AND SHOULD NOT REQUIRE ADJUSTMENT.**

If adjustment is required, proceed with the following steps.

**IF RAISED HEIGHT IS TOO LOW:** Loosen stop block locking nut. Turn adjustment bolt **in** to **increase** raised height. When proper height is achieved, tighten lock nut against the adjustable stop block. (See "Figure 31: Raised Height Adjustment" on page 25)

**IF RAISED HEIGHT IS TOO HIGH:** Loosen stop block locking nut. Turn adjustment bolt **out** to **decrease** raised height. When proper height is achieved, tighten lock nut against the adjustable stop block. (See "Figure 31: Raised Height Adjustment" on page 25)

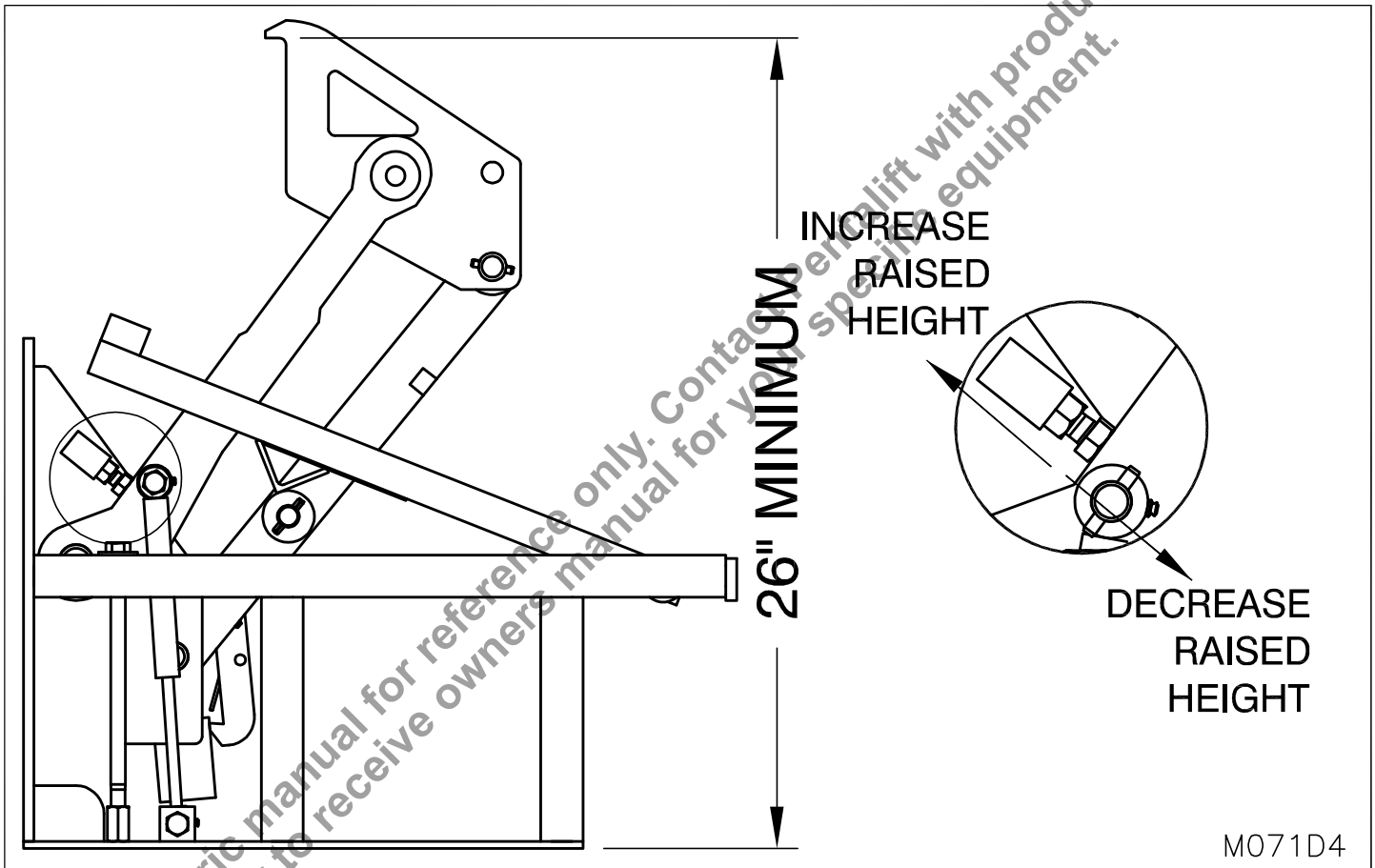


Figure 31: Raised Height Adjustment

## ADDITIONAL MAINTENANCE STEPS FOR UNITS EQUIPPED WITH OPTIONAL LIGHT PACKAGE

### **DANGER**

ONLY TRAINED AND QUALIFIED PERSONNEL SHOULD PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES.

### **DANGER**

Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.

### **DANGER**

Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.

### **DANGER**

Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.

#### CHECK ON A DAILY BASIS:

- Conduct the steps listed in the OPERATION AND PERFORMANCE CHECK FOR UNITS WITH OPTIONAL LIGHT PACKAGE section of this manual (see page 16).
- Replace defective LED modules immediately. Due to the continuous duty of dock traffic light systems and the life span of LED modules, daily inspection of the light system should be performed. Spare LED modules should be kept on hand at all times for immediate replacement. Ensure that the proper lens color is in the proper position after checking LED modules.

Generic manual for reference only. Contact Pentlift with product support number to receive owners manual for your specific equipment.

# TROUBLE SHOOTING GUIDE

**NOTE:** This equipment has been fully tested and confirmed to be operational at the factory. Historically, the majority of operating problems are caused by unnecessary tampering by unqualified personnel. To conform to the terms of the Warranty, contact your authorized Pentalift representative if you are having any difficulty with the restraint during the warranty period. Do not risk voiding the warranty by tampering with the equipment.

**⚠ DANGER** ONLY TRAINED AND QUALIFIED PERSONNEL SHOULD PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES.

**⚠ DANGER** Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.

**⚠ DANGER** Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.

**⚠ DANGER** Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.

**NOTE:** A very high level of field issues with this type of equipment can be directly attributed to improper or incomplete installation. The installation instructions and information provided for this equipment is thorough. A step by step sequence for installation is provided. All steps must be followed and completed to provide a complete installation. Incomplete or improper installations can lead to equipment malfunction and / or damage, create safety issues and void warranties. Please follow all installation and set ups steps as indicated in the installation instructions and owner's manual. If you are unclear or uncertain regarding any of the steps contact your Pentalift representative for clarification. A copy of the completed steps listing with the sign off and photos of the installation as indicated at the conclusion of the installation instructions will be required prior to any Pentalift factory trouble shooting assistance.

## 1. Restraint will not rise completely:

- Check for any obstructions or binding to ensure the hook can move freely.
- Check to see that the truck has backed up tight against the dock bumpers.
- Check that the latch is properly releasing from the catch.
- Confirm the gas spring is providing sufficient force to raise the restraint. NOTE: The colder the environment, the less force the gas spring will provide.
- Confirm the raised height is set properly. (see "ADJUSTMENT OF RESTRAINT ENGAGE HEIGHT" on page 25)
- Confirm restraint is properly lubricated.
- If the problem cannot be solved, consult your authorized Pentalift representative.

## 2. Restraint will not lower:

- Check for any obstructions or binding to ensure the hook can move freely.
- Check that the vertical lock arm is not caught on the R.I.G. of the truck. NOTE: If the vehicle R.I.G. has moved forward during loading / unloading (truck "creep" has occurred), there may be draw pull force and friction holding the restraint in the engaged position. If the restraint will not release, move the trailer back toward the dock to release the tension on the restraint.
- If the problem cannot be solved, contact your authorized Pentalift Representative.

## 3. Restraint lowers but will not stay stored:

- Check for any obstructions or binding to ensure the hook can move freely.
- Ensure that the latch is properly engaging the catch.
- If the problem cannot be solved, contact your authorized Pentalift Representative.

If damaged or worn parts are detected upon inspection, replacement must be undertaken immediately. **The vehicle restraint must not be used until replacement is completed.** Parts are readily available from your Pentalift representative.

## ADDITIONAL TROUBLE SHOOTING FOR THE OPTIONAL MANUAL LIGHT PACKAGE



ONLY TRAINED AND QUALIFIED PERSONNEL SHOULD PERFORM INSPECTION OR MAINTENANCE AND SERVICE PROCEDURES.



Before doing any installation, maintenance, inspection or trouble shooting, barricade all areas from traffic around the work area inside (and outside if applicable) for safety and post appropriate warning signs.



Before doing any electrical work, be certain that the power is disconnected with a fused disconnect, properly tagged and locked out. Fused disconnect and lockout device (supplied and installed by others) must meet with all applicable codes and regulations. All electrical work must be performed by a qualified electrician in accordance with all applicable codes and regulations.



Arc flash and shock hazard PPE (personal protection equipment) required. De-energize equipment before working on or inside. Do not open cover without appropriate PPE. Refer to NFPA 70E for PPE requirements. This panel may contain more than one power source. Hazardous voltage will cause severe injury or death.

### 1. Inside and/or outside lights will not illuminate:

- a. Check that the power supply to the unit is connected properly.
- b. Check all wiring.
- c. Confirm that the control panel LED modules are not loose or burnt out.
- d. Confirm that the exterior light LED modules are not burnt out.
- e. If the problem cannot be solved, consult your authorized Pentalift representative.

### 2. Illumination of lights will not reverse when the selector switch is turned:

- a. Confirm the selector switch is functioning properly.
- b. Check wiring.
- c. If the problem cannot be solved, consult your authorized Pentalift representative.

Generic manual for reference only. Contact Pentalift with product serial number to receive owners manual for your specific equipment.

# REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS



To ensure proper functioning, durability and safety of the product, only genuine pentlift replacement parts must be used. Altering the product from its original manufactured configuration must not be done. Pentlift equipment Corporation disclaims all liability for failure to comply with this warning. Warranties are specifically disclaimed in the event the purchaser fails to comply with this warning.

To expedite order processing when ordering parts, provide the following information to your Pentlift representative:

1. Model and Serial Number of equipment.
2. Part Number, Description and Quantity.
3. Shipping Instructions.

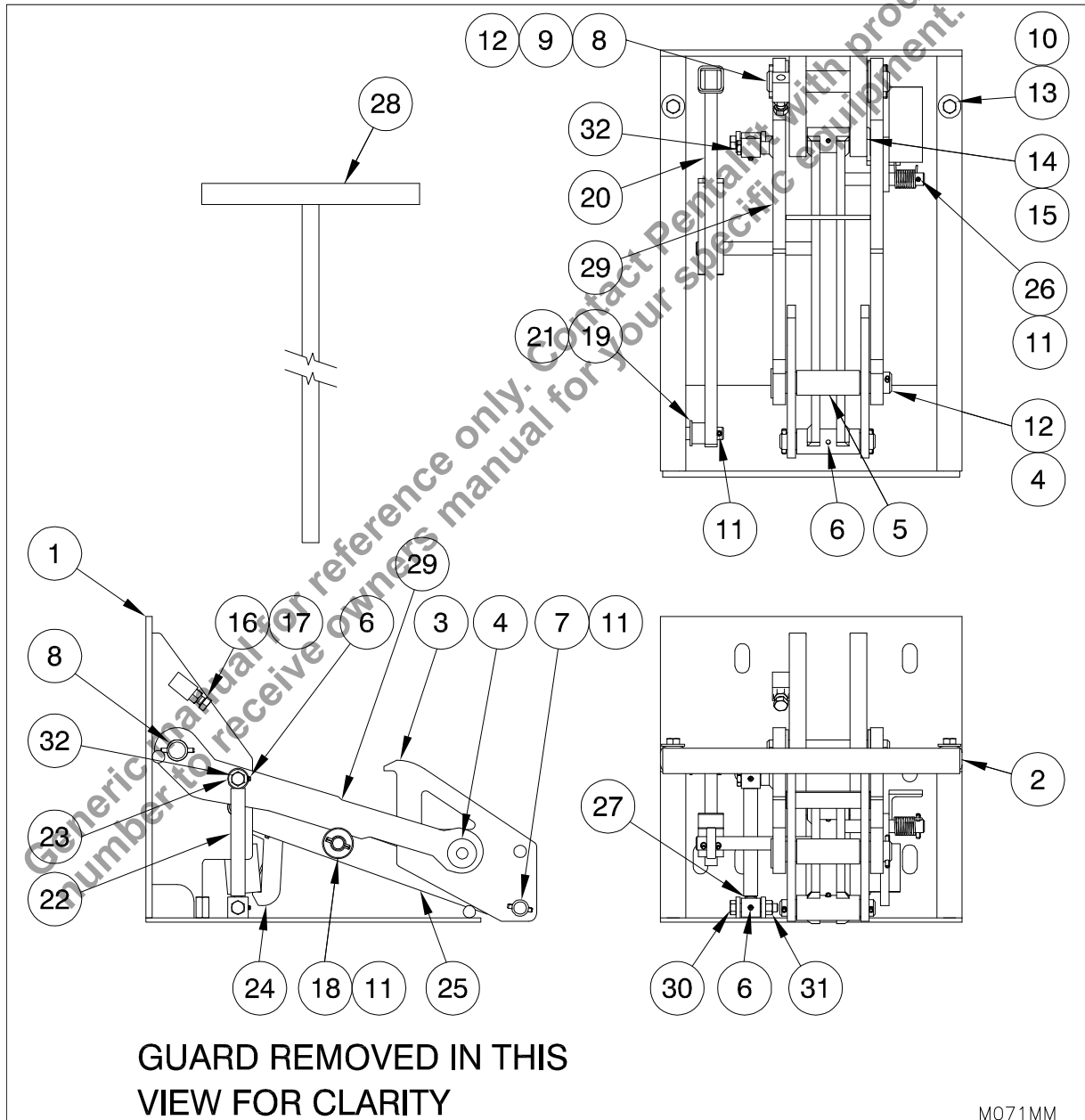


Figure 32: Replacement Parts Diagram

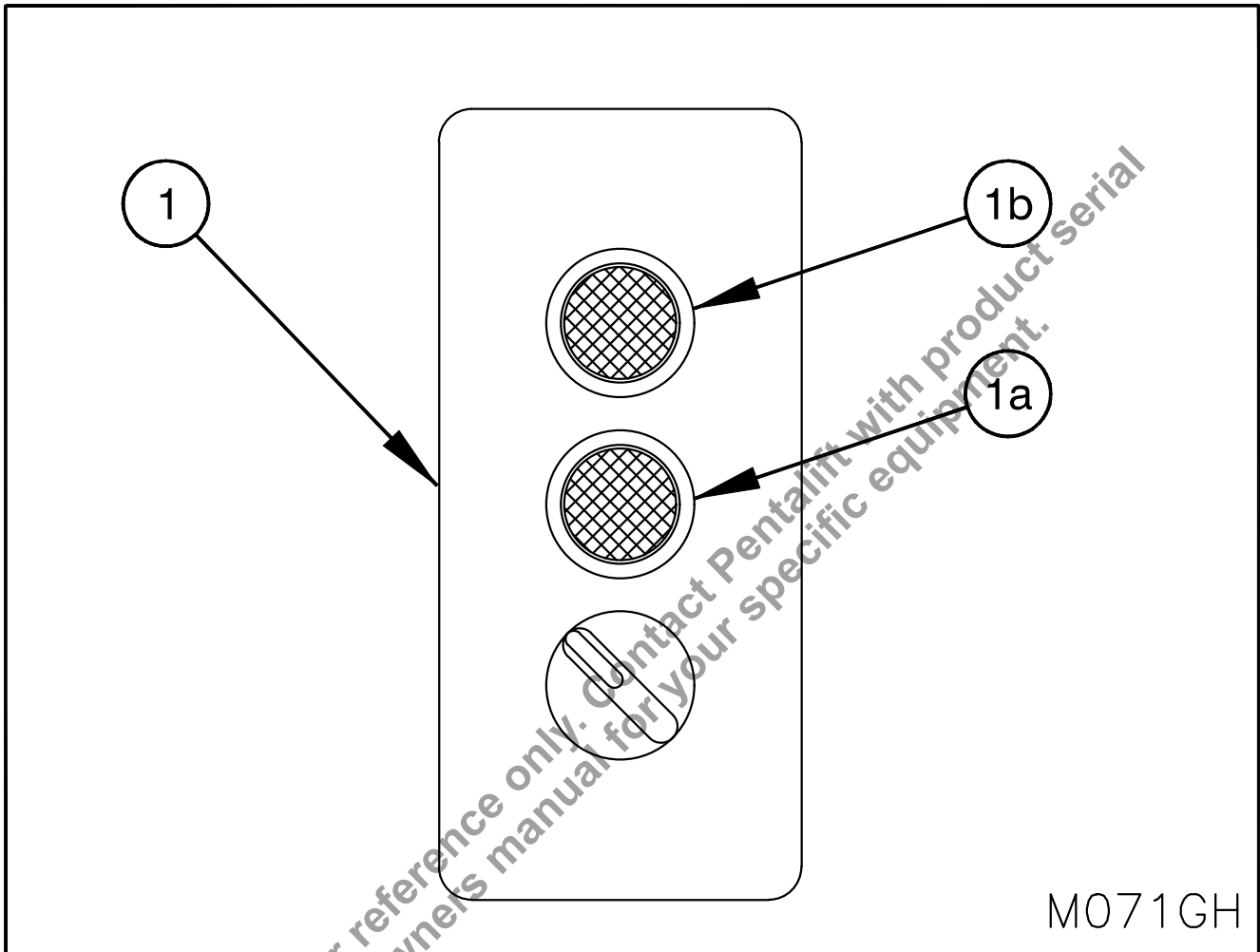
# RESTRAINT REPLACEMENT PARTS LIST

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

ITEM	PART NUMBER	DESCRIPTION
1	812-0047	Frame Weldment
2	812-0003	Guard Weldment
3	312-0077	Drilled Hook
4	812-0055	Upper Pin Weldment
5	312-0017	Hook Spacer
6	052-0170	Zerk Fitting
7	312-0112	Lower Arm Pin
8	312-0113	Upper Arm Pin
9	074-0092	1" Flat Washer
10	072-0275	Hex Bolt 1/2-13 UNC x 10" LG.
11	080-0001	Spring Pin 1/4" Dia. X 1 1/2" LG.
12	080-0004	Spring Pin 1/4" Dia. X 2" LG.
13	074-0004	1/2" AA Flat Washer - Zinc
14	312-0114	Lower Arm Flush Pin
15	080-0021	Spring Pin 1/4" Dia. X 1 1/4" LG.
16	070-0006	Hex Nut 1/2-13 UNC Zinc
17	072-0001	Hex Bolt 1/2-13 UNC 1 1/2" LG.
18	090-0006	Roller Bearing
19	074-0035	3/4" Flat Washer
20	812-0063	Push Down Arm Weldment
21	095-0050	Push Down Arm Bushing
22	097-0040	Gas Shock Spring
23	300-8112	Lower Gas Spring Pivot Tube
24	812-0064	Latch Weldment
25	812-0069	Lower Arm Beam Assembly
26	300-8130	Torsion Spring
27	074-0011	5/16" Flat Washer
28	800-8101	Push Bar Assembly
29	812-0076	Upper Arm Weldment Assembly
30	072-0141	Hex Bolt 1/2-13 UNC X 2 1/2" LG.
31	070-0017	Hex Nylock Nut 1/2-13 UNC - Zinc
32	072-0242	Shoulder Bolt 1/2" Dia. X 1 1/4" LG.

**NOTE:** State Model # and Serial # when ordering replacement parts.

**CONTROL PANEL REPLACEMENT PARTS FOR OPTIONAL LIGHT PACKAGE**  
**USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS**



**Figure 33: Control Panel for Optional Light Package**

Item	Part Number	Description
1	060-0921	Electrical Enclosure
1a	060-0931	Pilot Light Lamp Green LED
1b	060-0932	Pilot Light Lamp Red LED

**NOTE:** State Model # and Serial # when ordering replacement parts.

# DELUXE OUTSIDE LIGHT REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

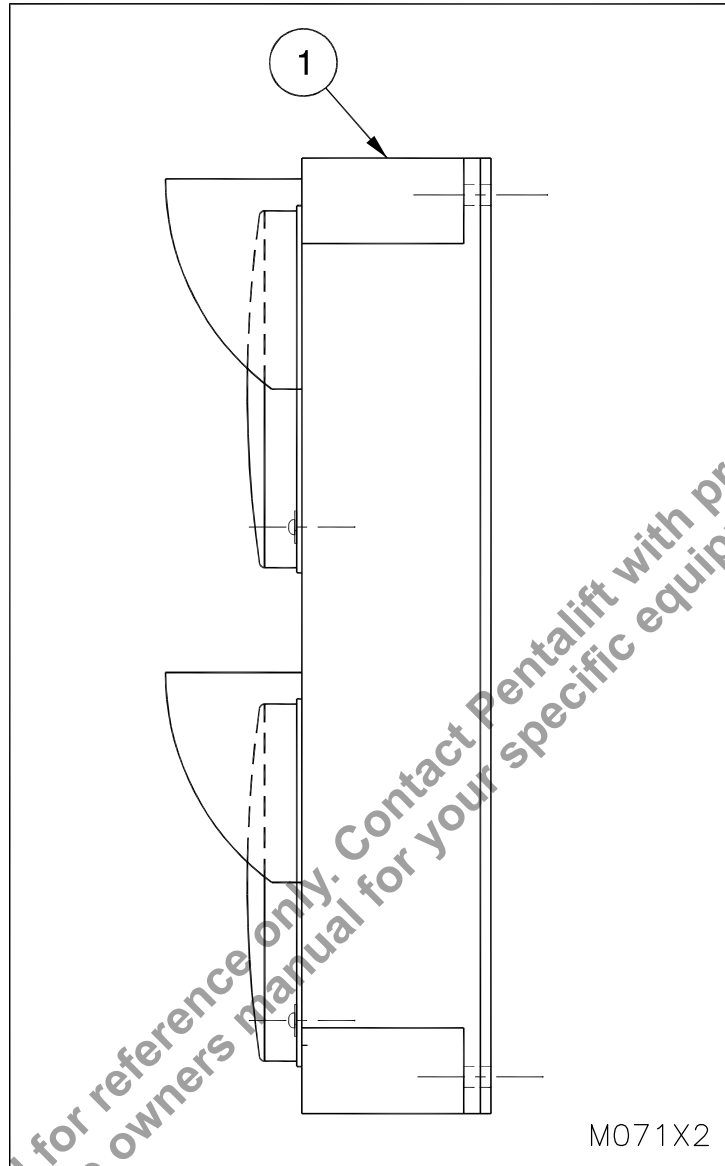
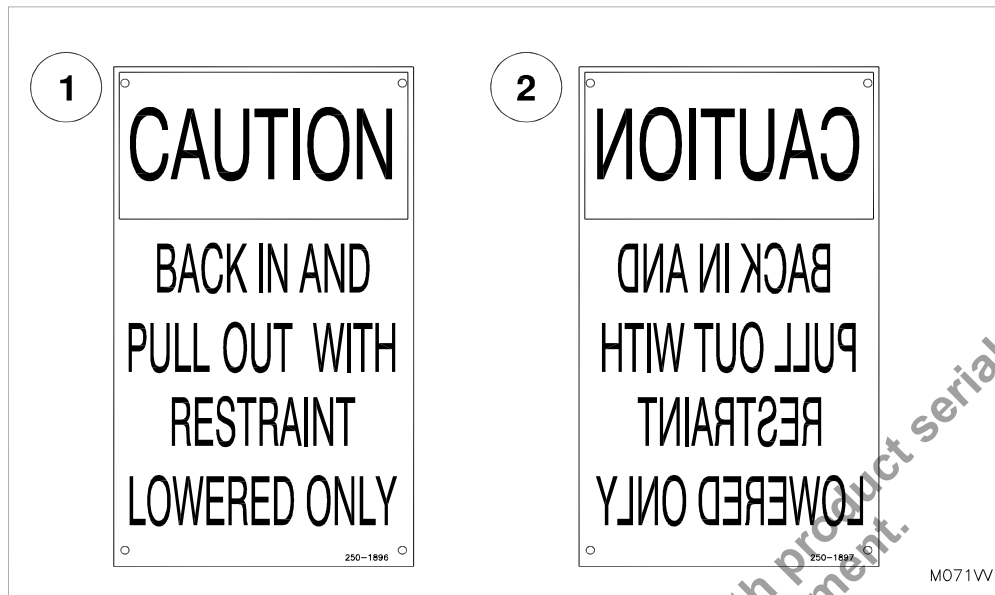


Figure 34: Traffic Light Replacement Parts

Item	Part Number	Description
1	060-1271	12V Traffic Light Fixture

**NOTE:** State Model # and Serial # when ordering replacement parts.

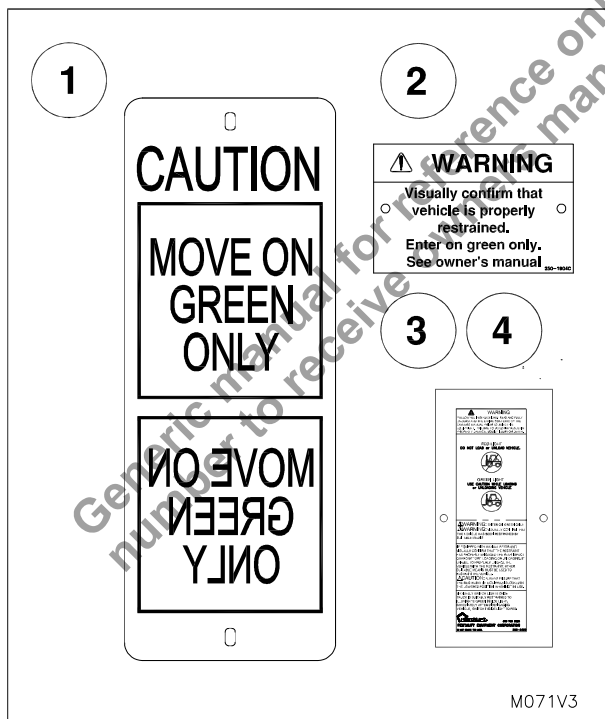
## OPTIONAL SIGN PACKAGE



**Figure 35: Optional Sign Package Replacement Parts**

Item	Part Number	Description
1	250-1896	Exterior Driver Sign
2	250-1897	Exterior Driver Sign - Mirror

## OPTIONAL LIGHT PACKAGE SIGNS



Item	Part Number	Description
1	250-6991	Caution Sign-Move on Green Only
2	250-1904	Interior Shipper/Receiver Sign
3	250-2458	Inside Label
4	312-0072	Label Mounting Plate

**Figure 36: Optional Light Package Sign Replacement Parts**

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# PENTALIFT EQUIPMENT CORPORATION WARRANTY

## WARRANTY

**Pentalift Equipment Corporation** expressly warrants that any product manufactured by **Pentalift Equipment Corporation** will be free from defects in material and workmanship under normal use for a period of one (1) year from the date of shipment of the equipment, provided the original purchaser maintains and operates the product in accordance with proper procedures. In the event the product proves defective in material or workmanship, **Pentalift Equipment Corporation** will at its option:

1. Replace the product or the defective portion thereof without charge to the purchaser; or
2. Alter or repair the product; on site or elsewhere, as **Pentalift Equipment Corporation** may deem advisable, without charge to the purchaser.

The warranty stated in the previous paragraph is that expressed by **PENTALIFT EQUIPMENT CORPORATION** AND IS IN LIEU OF ALL GUARANTEES AND WARRANTIES, EXPRESSED OR IMPLIED BY ANYONE OTHER THAN **PENTALIFT EQUIPMENT CORPORATION**. This warranty does not cover any failure caused by improper installation, misapplication, overloading, abuse, negligence, or failure to lubricate and adjust or maintain the equipment properly and regularly. Parts requiring replacement due to damage resulting from abuse, improper operations, improper or insufficient lubrication, lack of proper protection or vehicle impact are not covered by this warranty. **Pentalift Equipment Corporation** assumes no responsibility or liability for:

1. Consequential damages of any kind which result from use or misuse of the equipment.
2. Damage or failure resulting from the use of unauthorized replacement parts.
3. Damage or failure resulting from modification of the equipment.
4. Damage resulting from the misuse of the equipment.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, AND THERE IS NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

**Pentalift Equipment Corporation** warranties extend only to the original product itself. In no event shall **Pentalift Equipment Corporation** be responsible for or liable to anyone, including third parties, for special, indirect, collateral, punitive, incidental or consequential damages, even if **Pentalift Equipment Corporation** has been advised of the possibility of such damages. Such excluded damages include, but are not limited to, loss of good will, loss of profits, loss of use, interruption of business or other similar indirect financial loss.

**Pentalift Equipment Corporation** DISCLAIMS all liability arising out of the workmanship, methods and materials used by the installer.

**Pentalift Equipment Corporation** DISCLAIMS all liability for premature product wear, product failure, property damage or bodily injury arising from improper installation and application.

**Pentalift Equipment Corporation** will not accept any warranty for which the original purchaser does not notify **Pentalift Equipment Corporation's** Warranty Department of the defect within ninety (90) days after the product defect is discovered. A fully completed Product Registration Card is required prior to the review or processing of any warranty requests or claims.

WARRANTIES, whether expressed or implied, relating to workmanship and materials used in connection with the installation of **Pentalift Equipment Corporation** products are specifically DISCLAIMED.

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**NOTE:** All Pentalift Equipment Corporation products are subject to design improvement through modification without notice.