



PENTALIFT EQUIPMENT CORPORATION

PENTALIFT RVR32 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.

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

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:		

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 PENTALIFT RVR32 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.

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) and the appropriate signal lights are illuminated as indicated by the operating instructions in the Owners Manual and on the control panel. If the vehicle restraint fails to engage the truck's R.I.G. for any reason, be certain to restrain the truck with appropriate alternate means and to follow the override procedures listed in this manual before proceeding with any loading/unloading.
2. Never stand between the dock and a truck.
3. Stay clear of operating path at all times.
4. When not in use, the restraint must always be in the stored position.
5. 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 30.)
6. Ensure that the equipment is not used by anyone if you believe that any part of it might be in disrepair (e.g. loose wires, bent structural members, broken welds, etc.). See Warranty Section.
7. If you have any questions, contact your immediate supervisor or your authorized Pentalift representative for assistance.
8. Do not operate, use, maintain or install this equipment if you are impaired in any manner.

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.*

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*



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 all or some of the power unit and / or control components for the equipment's application. The power unit and 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 and power units to satisfy the operational and safety requirements of the equipment.

The customer's decision to supply all or some of these 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.

EXPLANATION OF CALIFORNIA'S PROPOSITION 65

The product(s) reference by this manual comply with California's Proposition 65 (Prop 65).

Prop 65 is a voter initiative passed in 1986. This law regulates substances officially listed by California as having a 1 in 100,000 chance of causing cancer over a 70-year period or birth defects or other reproductive harm in two ways. The first statutory requirement of Prop 65 prohibits businesses from knowingly discharging listed substances into drinking water sources, or onto land where the substances can pass into drinking water sources. The second prohibits businesses from knowingly exposing individuals to listed substances without providing a clear and reasonable warning. There are several states that regulate or list similar substances. The chemicals do not need to be in liquid form; the consumer only needs to be exposed to them at certain levels.

On August 30, 2016 California adopted amendments to the regulations that govern clear and reasonable warnings under Prop 65. The new regulation took effect August 30, 2018.

A warning label is required which permits our products to be used in California after August 30, 2018. The label need only be in English language. The label meets the guidelines of ANSI Z535.4 which we follow. There is one size (1" h x 2 1/2" w) for all products. It is placed in the proximity of other precautionary labels. A minimum of one label per machine. Proving every listed chemical present would result in levels (micro-grams/day) below the Prop 65 requirement is impractical. To avoid the complication for having labels which are specific to the most prevalent chemical in each unique model the truncated label is acceptable under the California law. In order to use the truncated label, the label must be on the product.



This is the warning label which meets the Prop 65 requirements..

This abbreviated label can also be used for the pre-sale notification. For this responsibility to the law advice is added to our terms and conditions of sale. The owner's manual also supports the notification using this notice:

Additional detail about Prop 65 is available at <https://www.p65warnings.ca.gov/>

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SAFETY LABELING

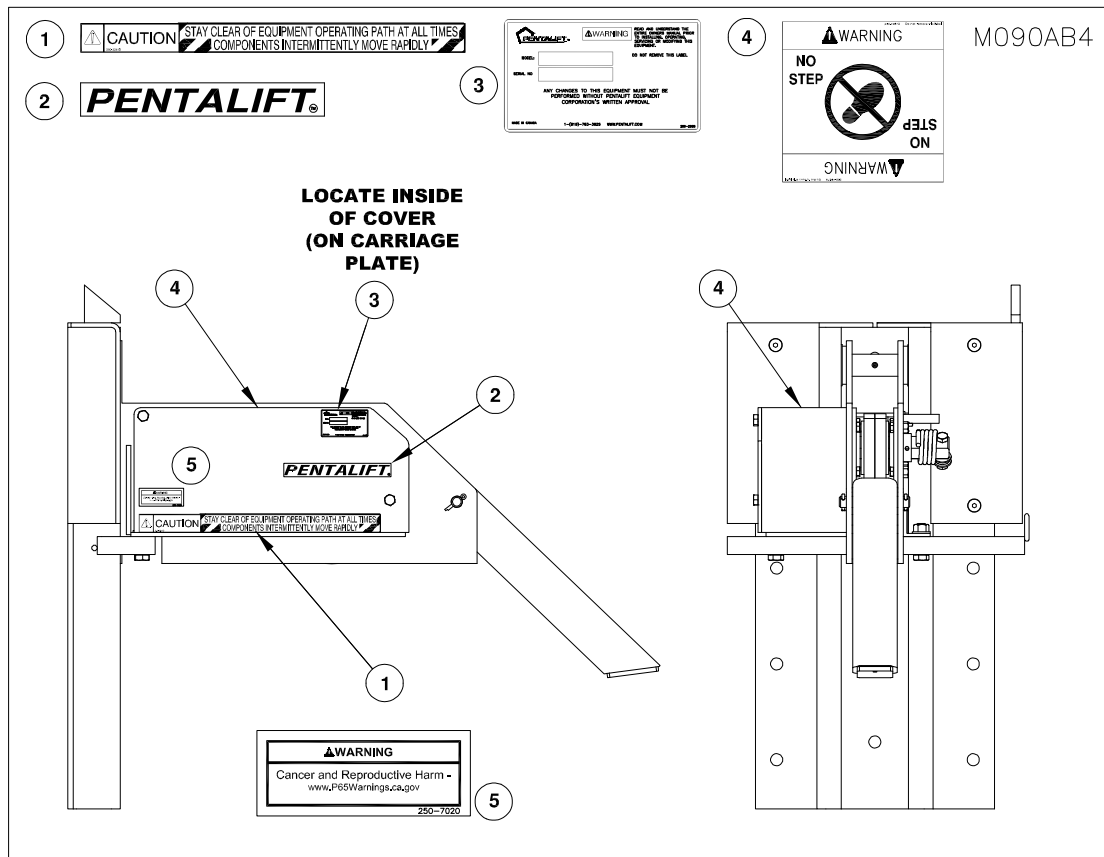


Figure 1: Safety Labeling

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 (See “Figure 1: Safety Labeling” on page 2). 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 visibility of any of 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. If any of the safety labels or decals are missing or illegible, contact your Pentalift representative for immediate replacement. Inspection shall be done during regular maintenance and lubrication (See “MAINTENANCE AND LUBRICATION” on page 30)

To re-order labels and decals, use the following part numbers:

<u>Item</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	250-2341	2	“CAUTION Stay clear of equipment...”
2	250-1144	1	“Pentalift”
3	250-2368	1	Specification Plate
4	250-4967	1	“WARNING NO STEP”
5	250-7020	1	decals;warning;reproductive;cancer

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

INSTALLATION INSTRUCTIONS



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IMPORTANT

PREPARATION PRIOR TO INSTALLATION

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.



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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.



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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.

NOTICE

THE RESTRAINT MUST BE 1/2" OFF THE FINISHED DRIVEWAY LEVEL AND FLUSH WITH THE FOUNDATION WALL.

IMPORTANT: DO NOT install the RVR32 vehicle restraint on docks without a dock bumper and without a 4" bumper projection regardless if there is a dock leveler or not. For thicker bumpers, a restraint extension will be required. Consult factory for proper application.

Read the installation instructions carefully before commencing any work. There are 6 installation sections to follow:

1. ☐ Inspect RVR32 vehicle restraint package.
2. ☐ Install roller track weldment assembly.
3. ☐ Install RVR32 carriage assembly into roller track weldment assembly.
4. ☐ Electrical & hydraulic installations
5. ☐ Install signage.
6. ☐ Operation and Performance Check

INSPECT RVR VEHICLE RESTRAINT PACKAGE

Carefully unpack the RVR32 vehicle restraint package and inspect all components. Immediately report any missing or damaged items. Read all accompanying instructions and study the RVR32 assemblies before proceeding with the rest of the installation procedures.

INSTALL ROLLER TRACK WELDMENT

The RVR32 vehicle restraint comes completely assembled. The carriage assembly must be removed from the roller track weldment before the rest of the installation can commence. To disassemble (See "Figure 2: Removing Carriage Assembly" on page 4):

1. ☐ Remove the cover.
2. ☐ Remove left-hand and right-hand spring covers.
3. ☐ Remove the two nuts holding the carriage assembly to the lower spring bar.
4. ☐ Raise the carriage assembly upwards from the roller track weldment. Take care to keep the rollers on the axle.
5. ☐ Remove the four springs from the lower spring bar and the roller track weldment assembly.

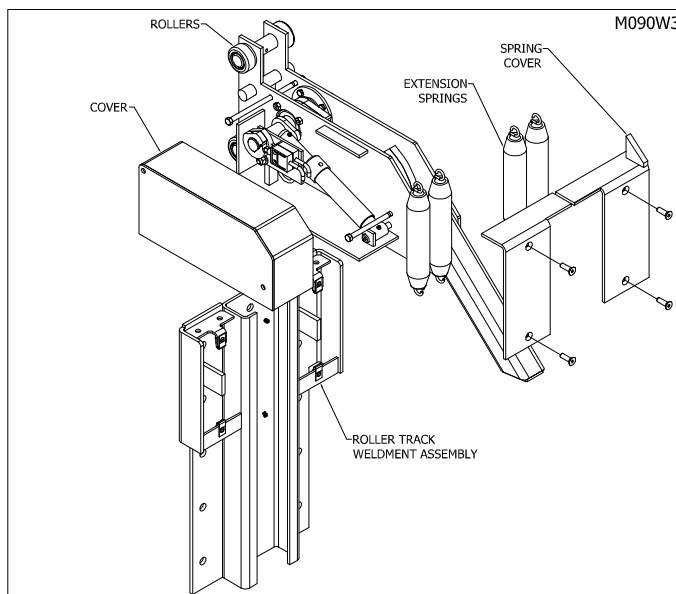


Figure 2: Removing Carriage Assembly

The roller track weldment can be installed onto the dock face by either welding it to a cast-in plate or by bolting the roller track assembly to the concrete face using 15 concrete anchor bolts. In addition, roller track assembly can be welded to an extension plate. (See “Figure 6: Extension Plate Installation” on page 8)

For installation requirements other than the ones described above, contact Pentalift factory.

IMPORTANT:

- A plumb and perpendicular dock face is required.
- The roller track weldment assembly must not be damaged, bent or deformed.

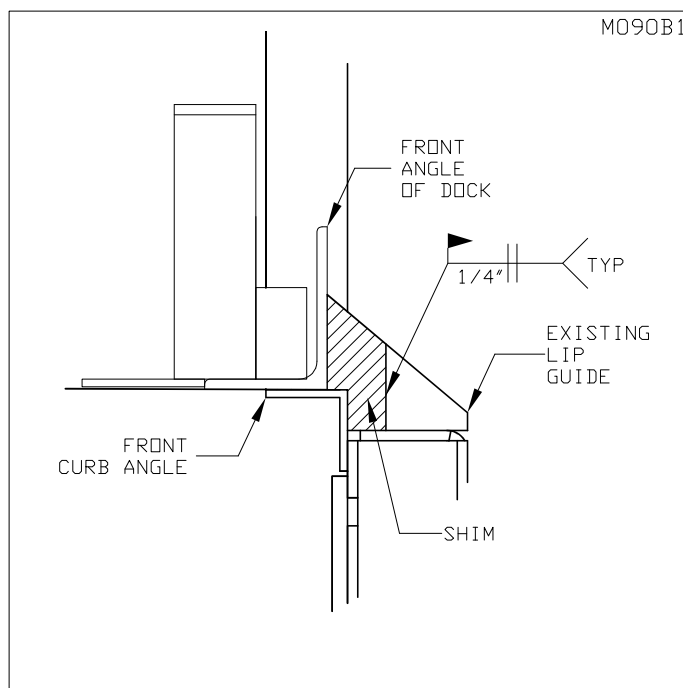


Figure 3: Front Angle Lip Guide

NOTICE

DUE TO ACTUAL CONDITIONS, TOTAL MOUNTING HEIGHT MAY BE DIFFERENT. REFER TO PENTALIFT APPLICATION GUIDELINES PROVIDED AT TIME OF ORDER FOR ACTUAL MOUNTING HEIGHT.

NOTICE

ENSURE THAT THE REQUIRED CONDUITS ARE IN PLACE. (SEE “FIGURE 12: CONDUIT / OUTSIDE LIGHT / OUTSIDE SIGN LOCATIONS” ON PAGE 17)

⚠ WARNING

RECOMMENDED FASTENERS ARE 5/8” DIAMETER X 4” LONG POWER BOLT HEAVY DUTY SLEEVE ANCHORS (CAT. #6942) OR POWERBOLT WEDGEBOLT SCREW ANCHOR (CAT. #7262) WHEN MOUNTING THE RVR32 DIRECTLY TO THE FACE OF THE DOCK.

RECOMMENDED FASTENERS ARE 3/4” DIAMETER X 7 1/4” LONG POWER BOLT HEAVY DUTY SLEEVE ANCHORS (CAT. #6956) OR 3/4” DIAMETER X 6” LONG POWERBOLT WEDGEBOLT SCREWANCHOR (CAT. #7286) WHEN USING THE OPTIONAL EXTENSION PLATE.

TENSION AND SHEAR IS DEPENDENT ON MINIMUM EMBEDMENT DEPTH AND THE MINIMUM COMPRESSION STRENGTH OF THE CONCRETE. PLEASE REFER TO THE LAG BOLT MANUFACTURER SPECIFICATIONS FOR FURTHER INFORMATION.

⚠ WARNING

NEVER INSTALL RVR32 VEHICLE RESTRAINT DIRECTLY ONTO CONCRETE BLOCK OR BRICK DOCK FACE.

Installer Name (Print)

Installer Signature

Date Installation Completed

ANCHOR INSTALLATION INSTRUCTIONS

1. ☐ Position roller track weldment assembly in the required position.
2. ☐ Drill hole 5/8 inches in diameter and at a minimum depth as specified by lag bolt manufacturer's instructions. Clean out the holes.
3. ☐ Assemble the anchor with nut and washer so that the top of the nut is flush with the top of the anchor. Insert and drive the anchor flush with the back plate of the Roller Track Weldment.
4. ☐ Install all anchors and torque to 100 ft-lbs (See "Figure 4: Anchoring Roller Track Weldment" on page 6).
IMPORTANT: Do not use standard wedge anchors. Head of bolt may interfere with vertical movement of Carriage Assembly)
5. ☐ Some dock levelers may be set back from the front face of the dock pit. A shim must be cut to suit the gap between the back of the roller track plate and the face of the front angle of the dock leveler frame. "Figure 3: Front Angle Lip Guide" on page 5 shows a sample configuration (See the cross hatched area). The shim must be a minimum of 1/2" thick steel material. The shim must be positioned and welded in place.
6. ☐ 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.
7. ☐ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

IMPORTANT: Never weld on the RVR32 vehicle restraint after motor is wired into the control box and power to the control box is on. Electrical current from the welder can feedback through the circuit and damage other components.

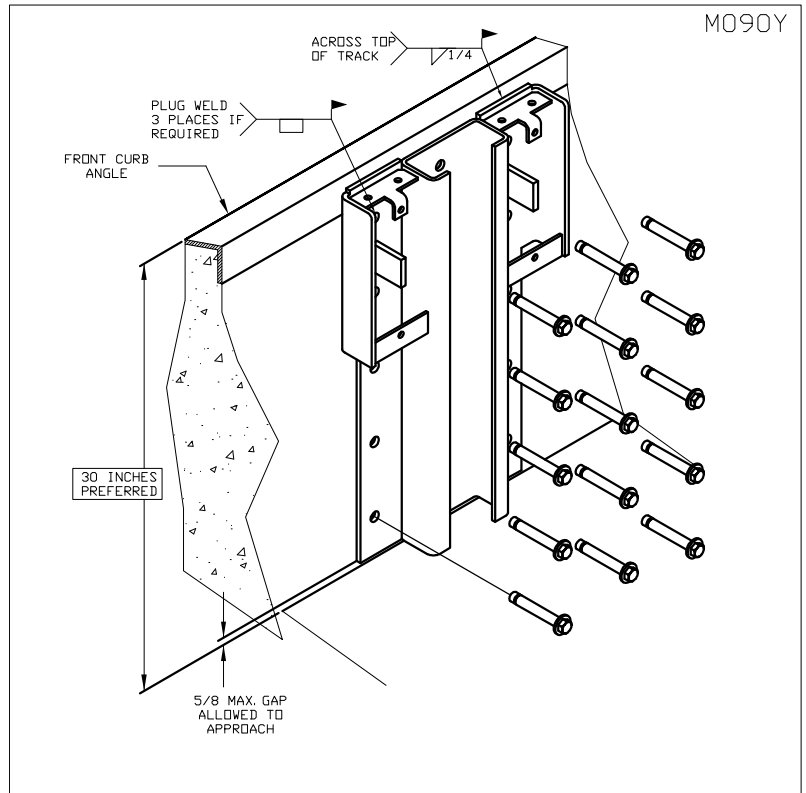


Figure 4: Anchoring Roller Track Weldment

Installer Name (Print)

Installer Signature

Date Installation Completed

CAST- IN PLATE INSTALLATION INSTRUCTIONS

WARNING: Installation being worked on is a “reinstallation”. The following electrical connections must be disconnected prior to welding. Make sure to LOCKOUT/TAGOUT the power at the fused disconnect, then confirm motor and limit switch connections in the junction box are not completed.

1. ☐ When welding the roller track assembly to the cast-in plate, disconnect power and ground leads to leveler.
2. ☐ Plumb and square roller track assembly both vertically and horizontally.
3. ☐ Shim as required. Shims must be the full length of the roller track weldment assembly. Refer to “WELDING REFERENCE INFORMATION” on page 18.

4. ☐ Plug weld all holes that are in contact with the cast-in plate. All 15 holes must be plug welded. To ensure proper weld strength is achieved, make sure electrode strength is similar to the strength of the base metal (44,000 psi)

5. ☐ Some dock levelers may be set back from the front face of the dock pit. A shim must be cut to suit the gap between the back of the roller track plate and the face of the front angle of the dock leveler frame. “Figure 3: Front Angle Lip Guide” on page 5 shows a sample configuration (See the cross hatched area). The shim must be a minimum of 1/2” thick steel material. The shim must be positioned and welded in place.

6. ☐ 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.

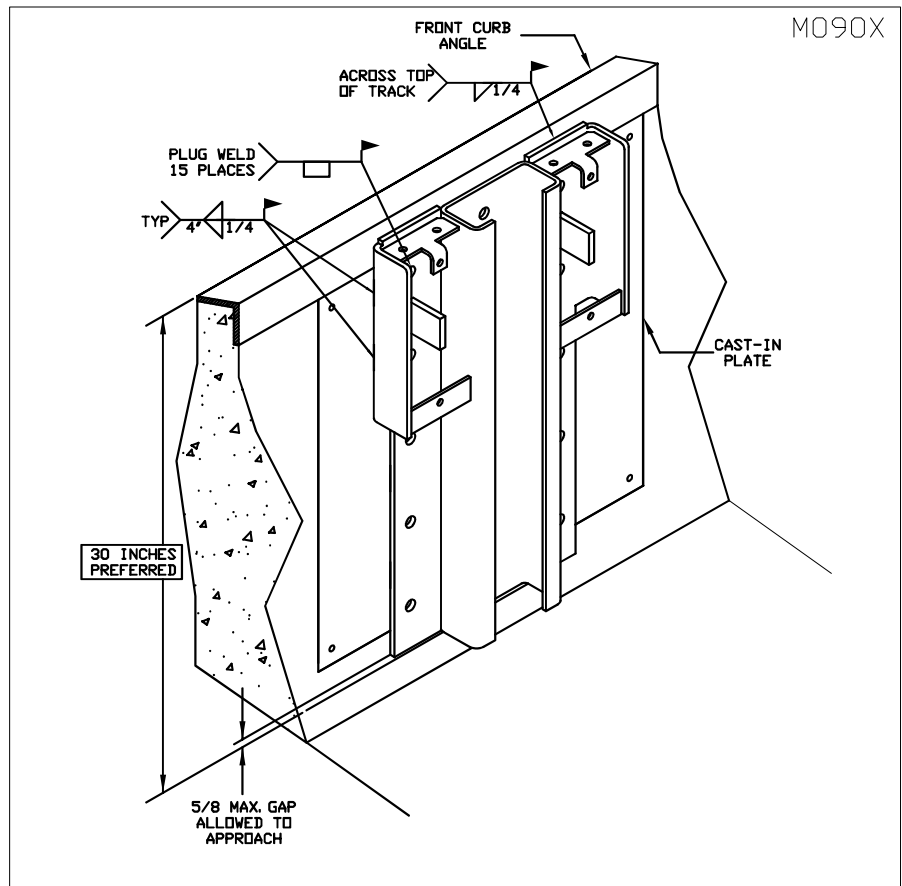


Figure 5: Cast- In Plate Installation

7. ☐ 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 EXTENSION PLATE INSTALLATION INSTRUCTIONS

1. ☐ Mark the center line of the dock, the center line of the roller track weldment assembly between the mounting holes, and the center line of the extension back plate.
2. ☐ Center the extension back plate on the center line of the dock.
3. ☐ Shim extension plate as required. Shims must be the full length of the extension plate.
4. ☐ Using the extension back plate as a template, drill a hole 3/4 inches in diameter and at a minimum depth as specified by lag bolt manufacturer's instructions. Clean out the holes. Normal wedge anchors can be used (minimum tension of 4,420 lbf and minimum shear of 3,145 lbf).
5. ☐ Assemble the anchor with nut and washer so that the top of the nut is flush with the top of the anchor. Insert and drive the anchor flush with the back plate of the extension plate.
6. ☐ Install all anchors and torque to 120 ft-lbs. (See "Figure 6: Extension Plate Installation" on page 8)
7. ☐ Position the center line of the roller track assembly and the center line of the extension plate.
8. ☐ Shim roller track weldment as required. Shims must be the full length of the roller track weldment assembly. (See "WELDING REFERENCE INFORMATION" on page 18)
9. ☐ Plug weld all holes that are in contact with the extension plate. In addition, weld using a minimum 1/4 inch leg on the welds and 2 inch long welds on 4 inch centers. (See "Figure 6: Extension Plate Installation" on page 8)
10. ☐ 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.
11. ☐ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

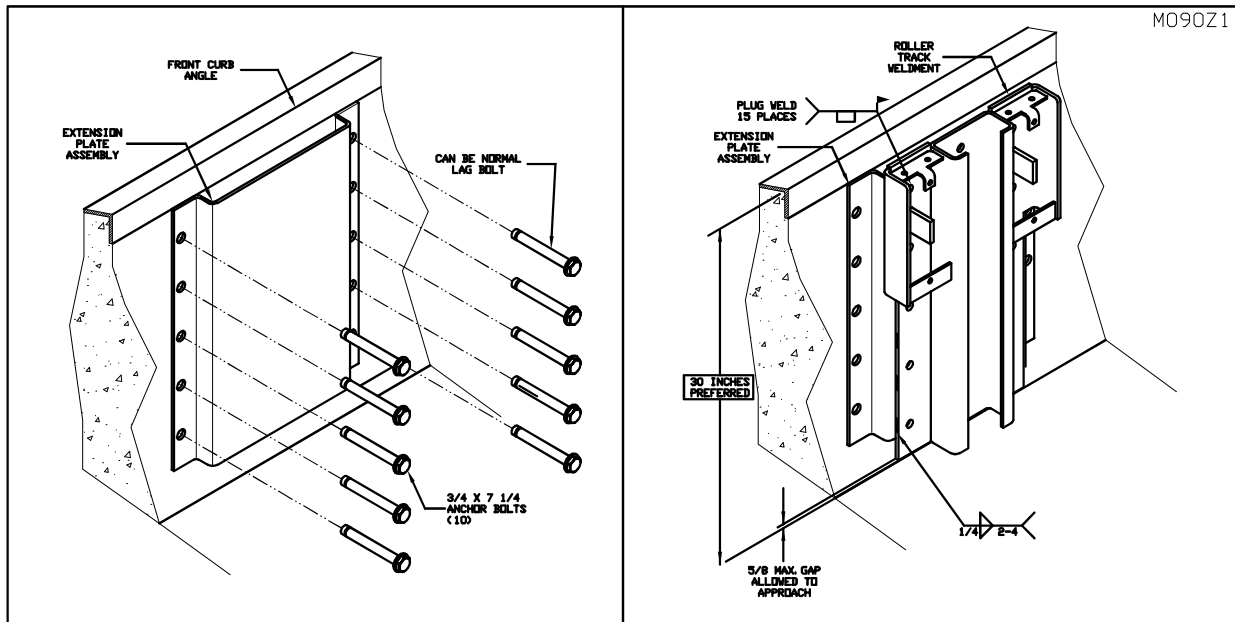


Figure 6: Extension Plate Installation

Installer Name (Print)

Installer Signature

Date Installation Completed

OPTIONAL HORIZONTAL SURFACE MOUNTING BOX INSTALLATION INSTRUCTIONS

⚠ 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.

⚠ 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.

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 RVR32 and surface mounting box for damage. If there is damage, rectify the damage by ordering genuine replacement parts from Pentlift. 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 RVR32 with the surface mounting box and fasten using the supplied hardware, with the nut at the rear of the surface mounting box, in the order as shown in "Figure 7: Horizontal Surface Mounting Box Installation" on page 9. Insert the bolt from the front of the surface mounting box and torque each nut to a value of 150 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

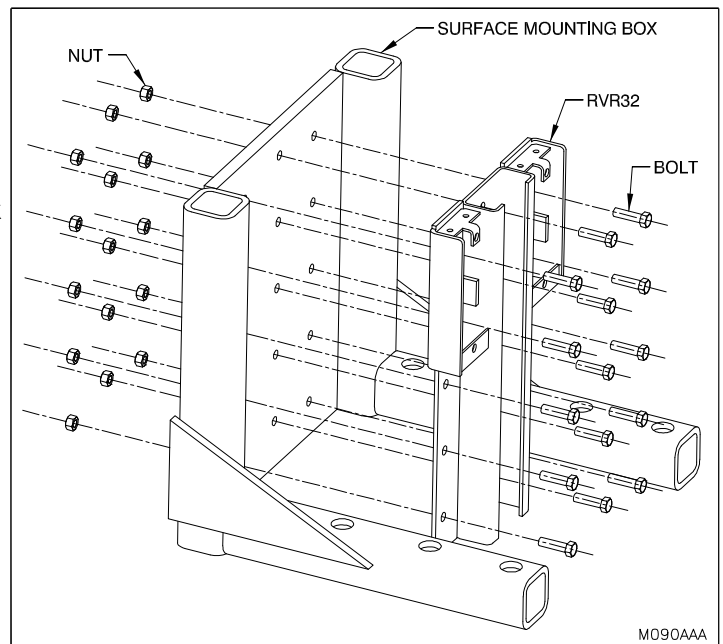


Figure 7: Horizontal Surface Mounting Box Installation

of 5,000 lbs and a minimum tension value of 4,000 lbs. **Note: Lagging bolts are supplied by others.**

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. ☐ Refer to "INSTALL RVR32 INTO ROLLER TRACK WELDMENT ASSEMBLY" on page 11 to install RVR32 into roller track weldment assembly.
11. ☐ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

Installer Name (Print)

Installer Signature

Date Installation Completed

INSTALL RVR32 INTO ROLLER TRACK WELDMENT ASSEMBLY

1. ☐ Re-install the 4 extension springs to the lower spring bar.
2. ☐ Pull springs upward and slide the hook end of the spring over the top spring mount on the roller track weldment plate.
3. ☐ Insert the carriage assembly into the roller track weldment assembly from the top.
4. ☐ Position and bolt the lower spring bar to the carriage assembly.
5. ☐ Install the spring covers.
6. ☐ Lubricate all pivot points. (See "MAINTENANCE AND LUBRICATION" on page 30)
7. ☐ Confirm that all steps of the installation instructions have been completed. Fill out the following information.

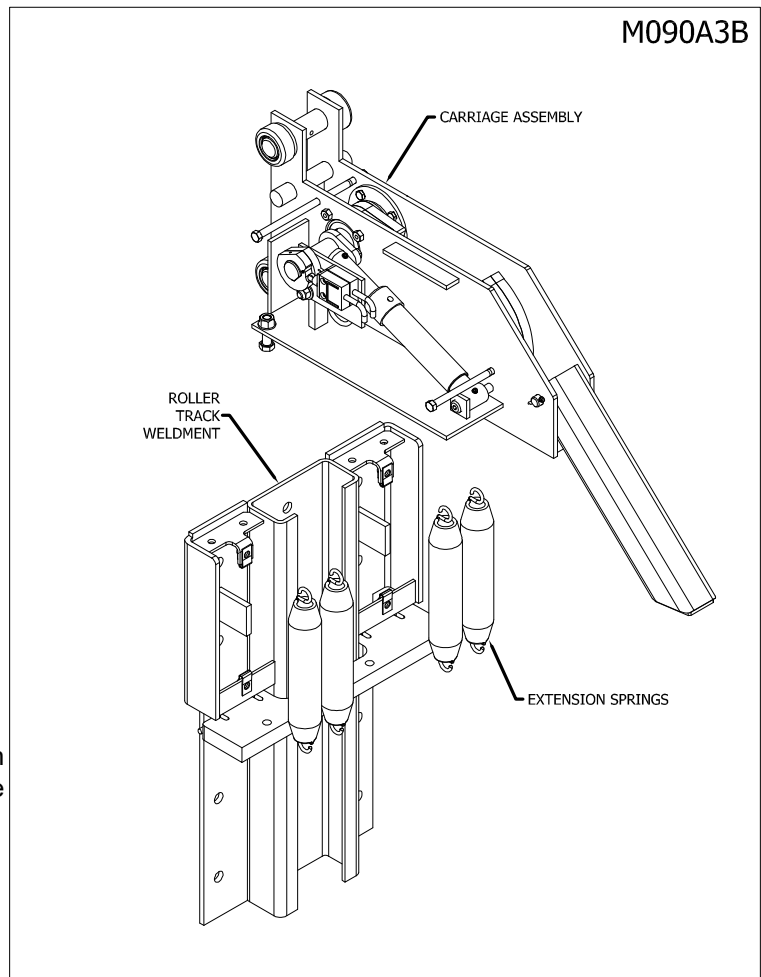


Figure 8: Roller Track Assembly



WHEN LIFTING CARRIAGE (APPROX. 150 LBS.) USE LIFTING DEVICE (EX. CRANE, JACK). LIFTING BY HAND MAY CAUSE SERIOUS INJURY.

Installer Name (Print)

Installer Signature

Date Installation Completed

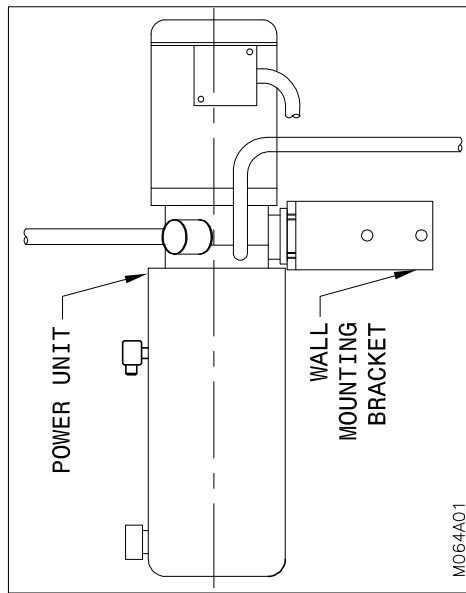


Figure 9: Wall Mounted Power Unit

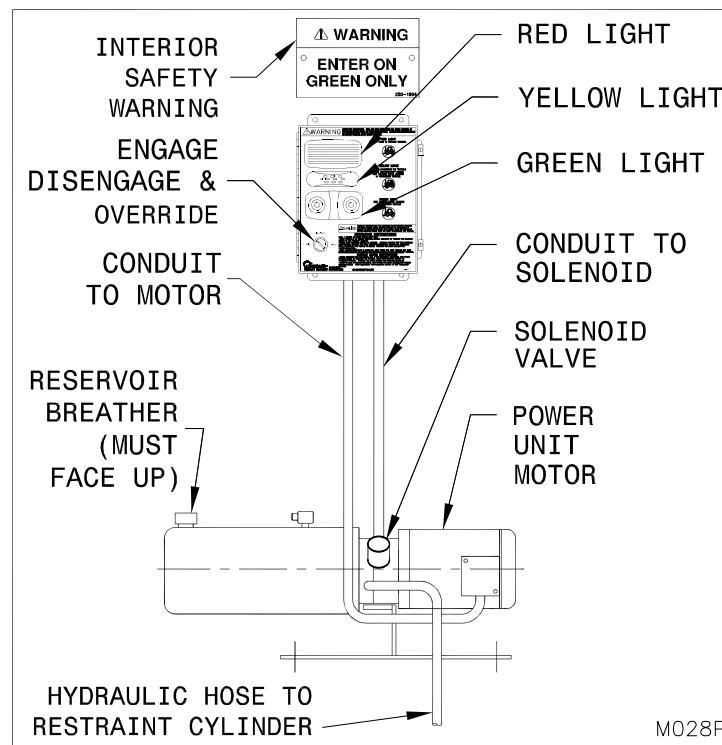


Figure 10: Power Unit and Control Panel

INSTALL OUTSIDE LIGHTS AND SIGNAGE / ELECTRICAL & HYDRAULIC INSTALLATION INSTRUCTIONS

1. ☐ Mount the power unit horizontally with the reservoir breather facing up (See “Figure 10: Power Unit and Control Panel” on page 12). When mounting the power unit on a wall, position the power unit above the wall bracket keeping the ½” wall mount holes below the power unit. This ensures easier access to all the wall bracket holes when mounting the power unit (See “Figure 9: Wall Mounted Power Unit” on page 12). Note: The hydraulic power unit and the control panel are important components of the equipment. It is important that they be installed in a location that is free from dirt, debris and splashing and / or wash down. The location should also be free from the likelihood of impacts. Each application has different conditions and design features. Evaluation of the specific site conditions and parameters in conjunction with common sense should be used to determine the appropriate hydraulic power unit and control panel installation location.

Note: If restraint is not a standalone unit, meaning the restraint will be hydraulically driven by the dock leveler power unit, then refer to Figure “Figure 6B: DOCK LEVELER/RESTRAINT COMBO UNIT” on page 14, “Figure 6C: VERTICAL DOCK LEVELER/RESTRAINT COMBO UNIT” on page 15 or “Figure 6D: 100K DOCK LEVELER/RESTRAINT COMBO UNIT” on page 16 for the appropriate hook up of the restraint to the leveler power unit.

REFER TO THE DOCK LEVELER OWNER MANUAL FOR SUPPORTING THE DOCK LEVELER FOR MAINTENANCE.

2. ☐ Feed the hydraulic hose through the conduit from the power unit to the cylinder on the restraint (See “Figure 11: Hose Routing” on page 17). Connect and secure.
3. ☐ Install the cover.
4. ☐ Mount the outside light approximately 90” high from the finished driveway level (See “Figure 12: Conduit / Outside Light / Outside Sign Locations” on page 17).
5. ☐ Mount the mirror image “Caution” sign above the outside light and normal vision “Caution” sign below the outside light.
6. ☐ Connect all electrical lines as per the instructions on page 19 and the wiring diagram which is inside the electrical control panel.
7. ☐ Test operation (See “OPERATION AND PERFORMANCE CHECK” on page 21).
8. ☐ Confirm that all steps of the installation instructions have been completed. Fill out the following information.



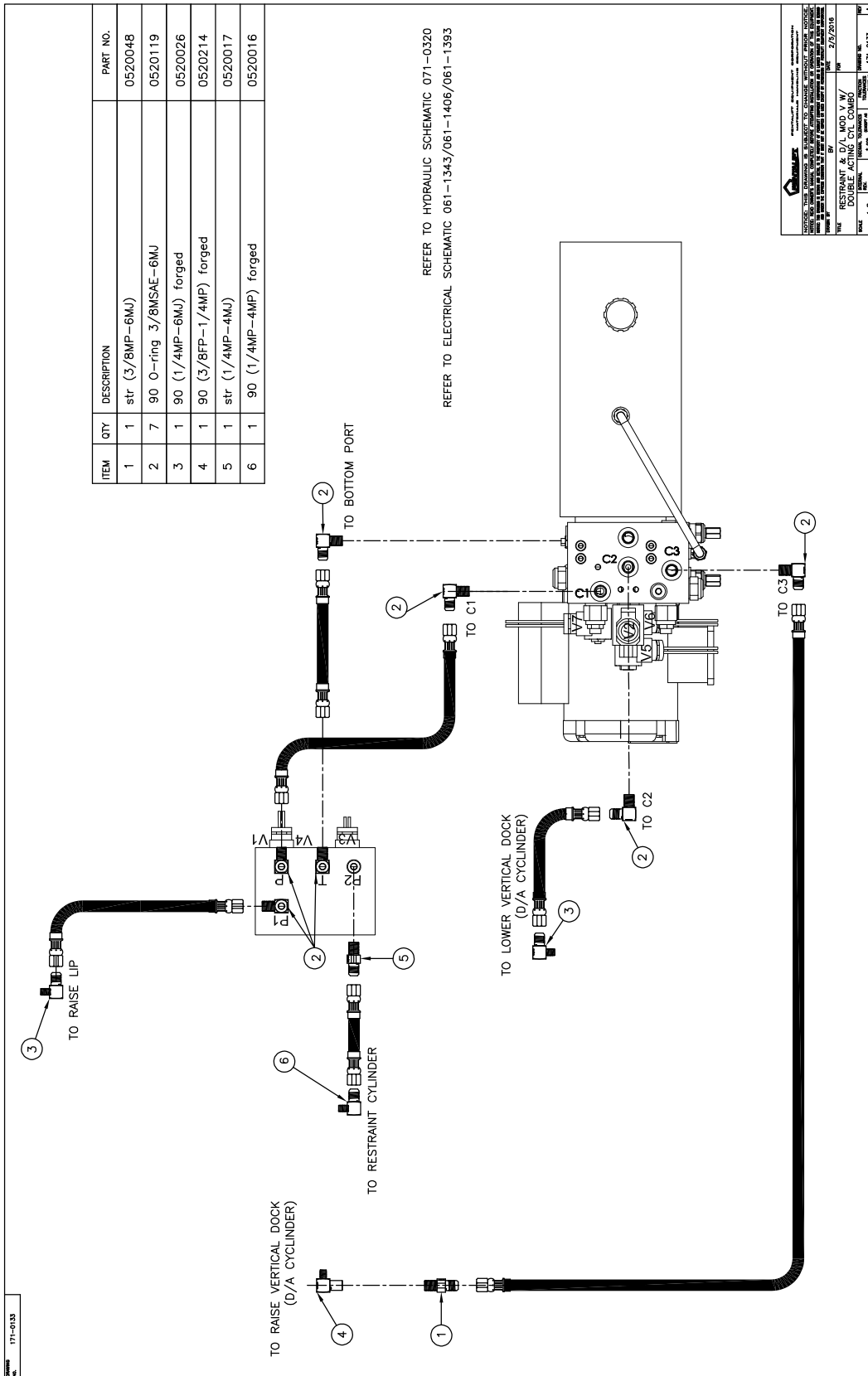


Figure 6C: VERTICAL DOCK LEVELER/RESTRAINT COMBO UNIT
(Reference drawing 171-0133)

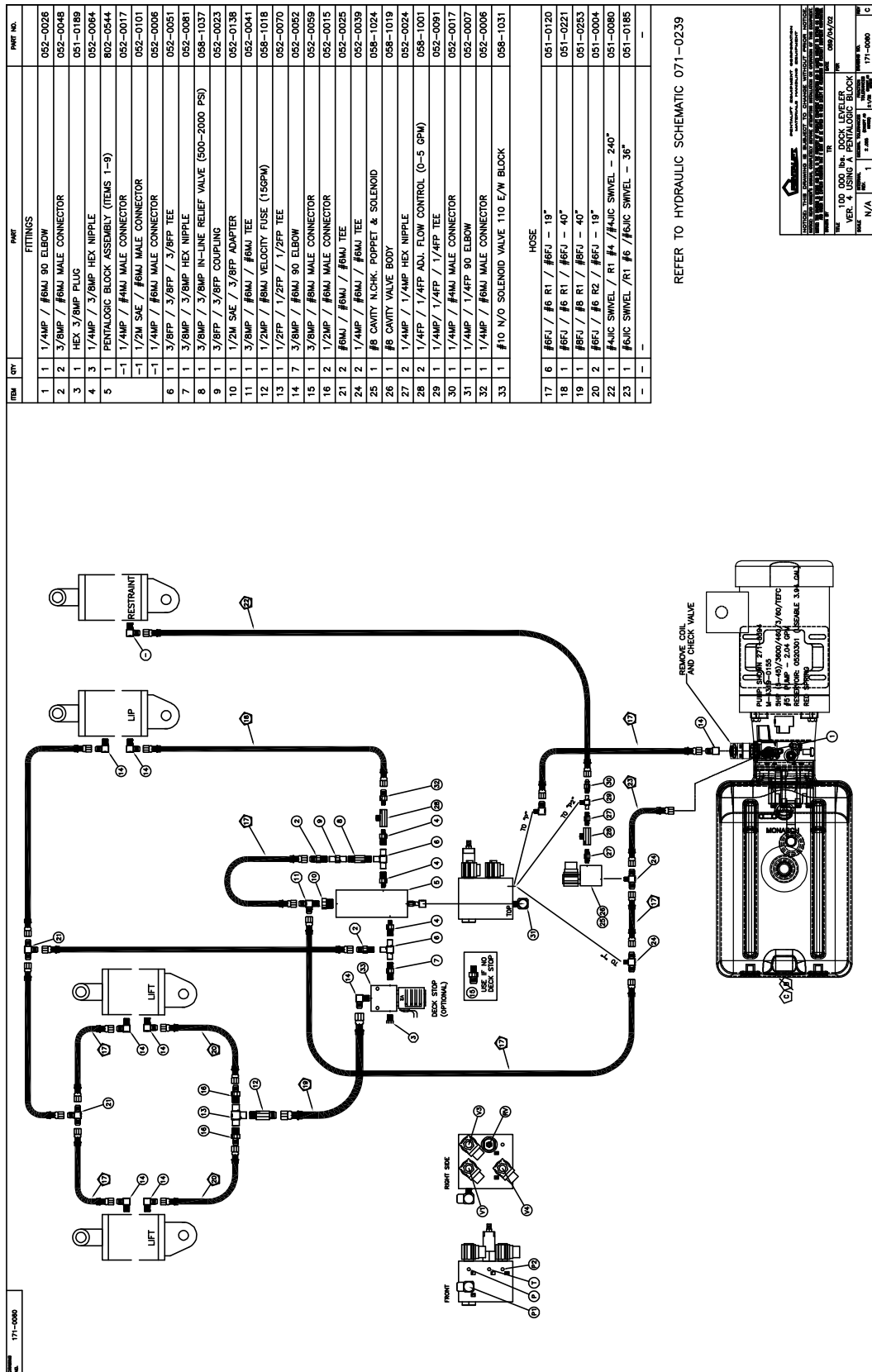


Figure 6D: 100K DOCK LEVELER/RESTRAINT COMBO UNIT
(Reference drawing 171-0060)

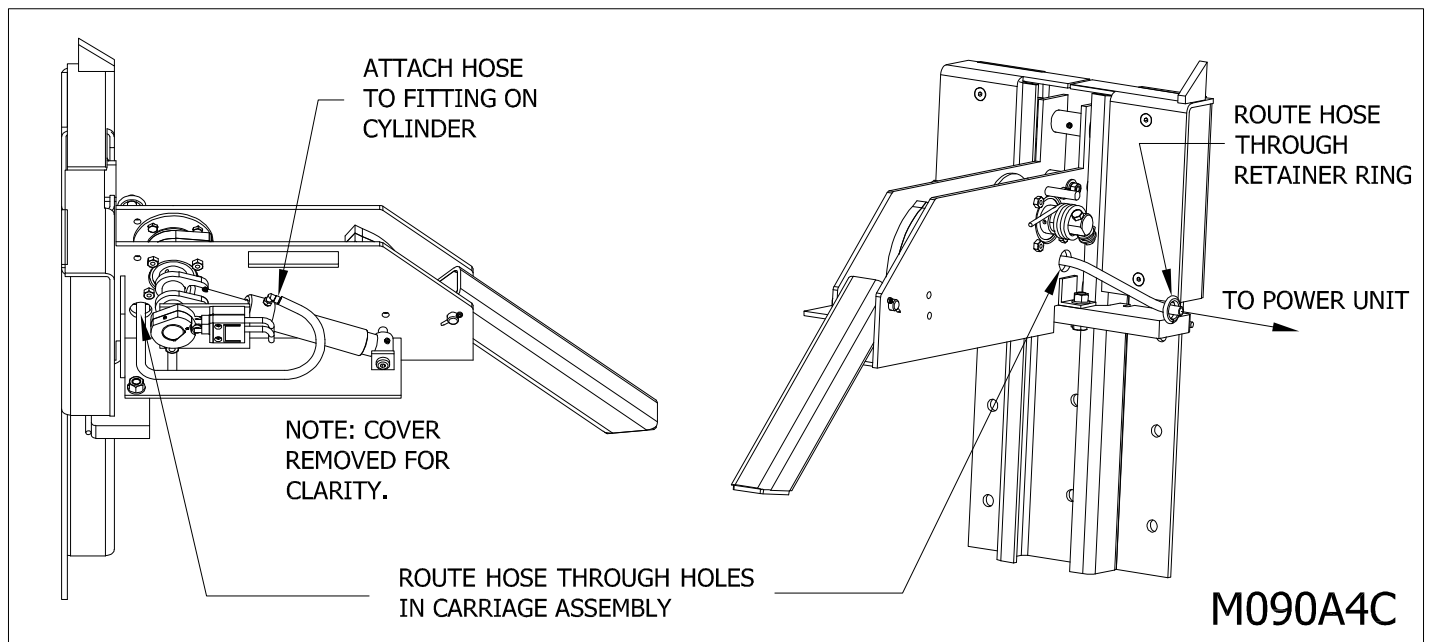


Figure 11: Hose Routing

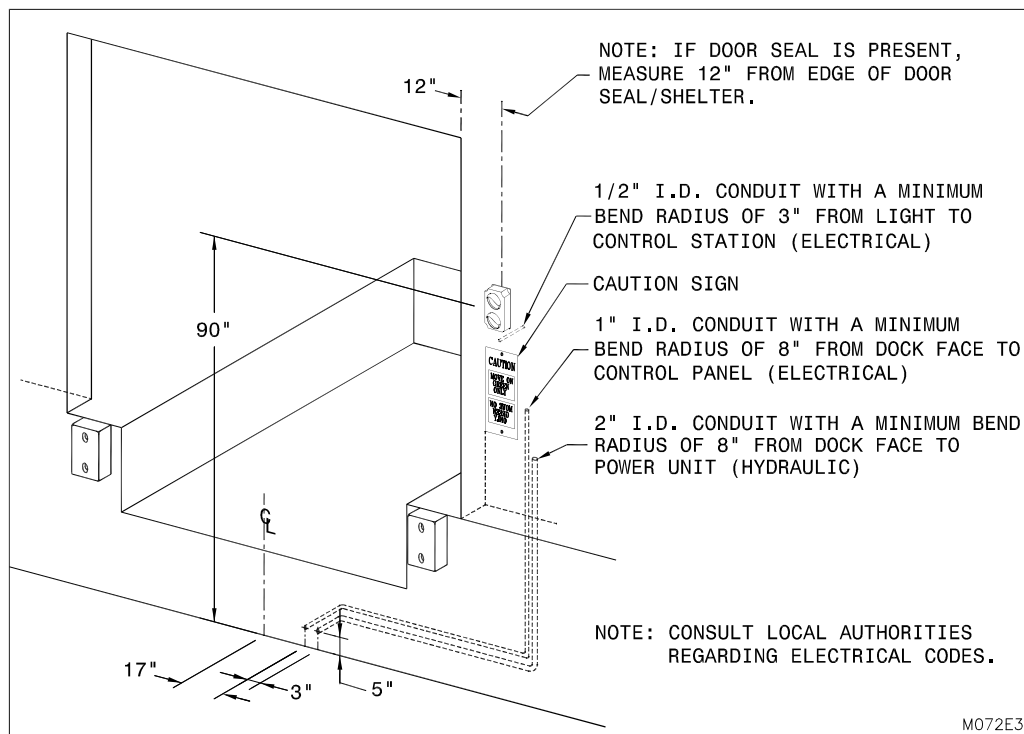


Figure 12: Conduit / Outside Light / Outside Sign Locations



FAILURE TO PROPERLY INSTALL THE PENTALIFT RVR32 MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH AND WILL VOID ALL WARRANTIES.

Installer Name (Print)

Installer Signature

Date Installation Completed

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.

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

ELECTRICAL INSTALLATION INSTRUCTIONS

The PENTALIFT RVR32 system is supplied in four separate main components consisting of the power unit, control panel, outside lights and the restraint. Each component is internally wired at the factory. They must all be connected to each other on site.



- **WIRING MUST BE DONE BY A QUALIFIED ELECTRICIAN.**
- **ALWAYS USE APPROPRIATE LOCK-OUT PROCEDURES DURING ANY ELECTRICAL INSTALLATIONS.**
- **ENSURE SUPPLY VOLTAGE IS CORRECT.**
- **ON 3 PHASE UNITS ENSURE PHASE POLARITY IS CORRECT. INCORRECT POLARITY WILL CAUSE THE MOTOR TO RUN BACKWARDS RESULTING IN CAVITATION AND POSSIBLE DAMAGE TO THE PUMP.**
- **ALWAYS OBSERVE ALL APPLICABLE ELECTRICAL CODES.**



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.

The following instructions apply to standard units:

1. ☐ Run 7 wires or one 8-conductor cable rated SJ or SOW (minimum 18 AWG – check all applicable codes) from the control panel to a water proof junction box on the outside wall (junction box by others).
2. ☐ Attach wires to the control panel. Carefully compare to the wiring schematic (located inside the control panel) to make sure that all limit switches are wired properly.
3. ☐ Run two 2-conductor cables, one from each of the limit switches on the vehicle restraint, to the waterproof junction box (supplied by others) and connect to the appropriate leads.
4. ☐ Run 3 wires (minimum 18 AWG – please check applicable codes) from the control panel terminal strip to the outside signal lights.
5. ☐ For units equipped with a motor starter assembly, ensure that the thermal overload is set to match the full load current as shown on the motor name plate. Confirm motor full load amps and size the supply cable accordingly, starting with 12 AWG as a minimum.
6. ☐ Connect the motor power leads to the overload/starter assembly for 208-230V 1 phase or 3 phase units. For stand alone units with 120V 1 phase, the motor neutral connects to the terminal “N” and the hot connects to Terminal “6”.
7. ☐ Connect the AC Power supply.

NOTE: Unit requires full voltage at motor. Wire size should be sufficiently sized to prevent line voltage drop when the motor is under load.

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 21)
9. ☐ Unit is ready to operate. Test operation to ensure unit is operating properly.
10. ☐ Confirm that all steps of the installation instructions have been completed. Fill out the following information.



FAILURE TO PROPERLY INSTALL THE PENTALIFT RVR32 MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH AND WILL VOID ALL WARRANTIES.

Installer Name (Print)

Installer Signature

Date Installation Completed

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 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.

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 **STORED** position (hook fully lowered). The **inside RED** light and the **outside GREEN** light must be illuminated. The audible alarm must be off (See "Figure 13: Hook Parked Position" on page 23).
2. Turn the selector switch to the "**ENGAGE**" position. The Restraint must move to the **FULLY** raised position (Upper Unsafe Zone). The **inside RED** light must be flashing (1 second on 1 second off) while the **outside RED** light is also illuminated (solid) and the audible alarm must be pulsing (1 second on, 1 second off) ("Figure 16A: Over Travel Simulation" on page 23). Return vehicle restraint to the **STORED** position and remove bolt after testing.
3. Insert a 3/8 bolt long enough to span the side plates through hole locations "**B**" (See "Figure 15: Hook Simulation Safe Zone" on page 23). Turn selector switch to "**ENGAGE**". The **inside GREEN** light must be illuminated. The **outside RED** light must be illuminated and the audible alarm must be off. This simulates R.I.G. has been engaged. Return vehicle restraint to the **STORED** position and remove bolt after testing.
4. Insert a 3/8 bolt long enough to span the side plates through hole locations "**A**" (See "Figure 14: Hook Simulation Lower Unsafe Zone" on page 23). Turn selector switch to "**ENGAGE**". The **inside RED** light must be illuminated flashing (1 second on 1 second off). The **outside RED** light must be illuminated (solid) and the audible alarm must be pulsing (1 second on, 1 second off). This simulates an obstruction. Return vehicle restraint to the **STORED** position and remove bolt after testing.
5. To test the **DISENGAGE** sequence, turn the selector switch to the "**DISENGAGE**" position when the hook has

stopped at any condition. In transition, the **inside RED** light must be illuminated while the **outside RED** light is also illuminated and the audible alarm must be off. When the hook has reached the stored position, the conditions are the same as in step 1.

6. To test the **OVERRIDE** feature, insert 3/8 bolt in location "C" and follow the entire sequence outlined in Step 2. With the restraint in the fully raised position (See "Figure 16A: Over Travel Simulation" on page 23) and with the audible alarm must be pulsing (1 second on 1 second off), turn the selector switch to the **"OVERRIDE"** position. The hook will automatically return to the parked position, and the audible alarm will be silenced. The **outside RED** light must be illuminated and the **inside YELLOW** light must be illuminated. (See "Figure 23: Inside Light Yellow" on page 28, and "Figure 24: Secure Vehicle by Other Means" on page 28). Remove bolt after testing.
7. To test the hook blocked return alarm raise the hook to the fully raised position. Insert a 3/8 bolt long enough to span the side plates through hole locations "A". Lower the hook. The lowering path of the hook will be stopped by the bolt. After approximately 4 seconds the inside red light will flash and the audible alarm will pulse (2 seconds on, 2 seconds off). Raise the hook by turning the selector switch to engage. Remove the bolt. Turn the selector switch to disengage. The hook will lower to the full lowered position. The inside red light will be illuminated. The outside green light will be illuminated. The audible alarm will be off. (see "Figure 16B: Obstruction Simulation Downward Hook Travel" on page 24)
8. Replace any burnt out light bulbs on the control panel or defective LED modules immediately.
9. Lubricate all pivot points as outlined in the MAINTENANCE & LUBRICATION Section on page 30.
10. 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.

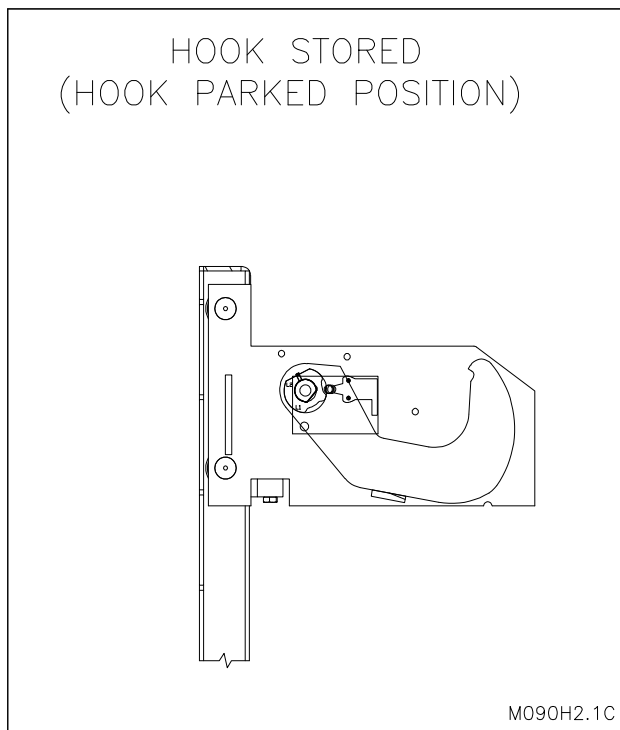


Figure 13: Hook Parked Position

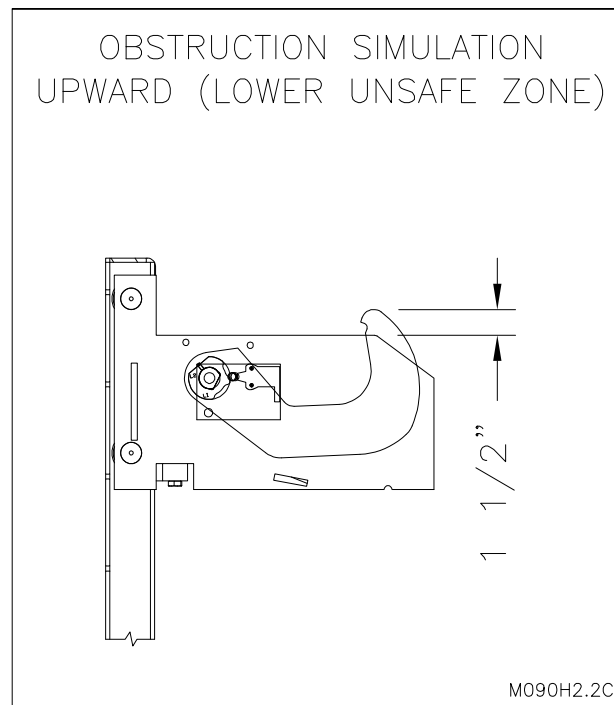


Figure 14: Hook Simulation Lower Unsafe Zone

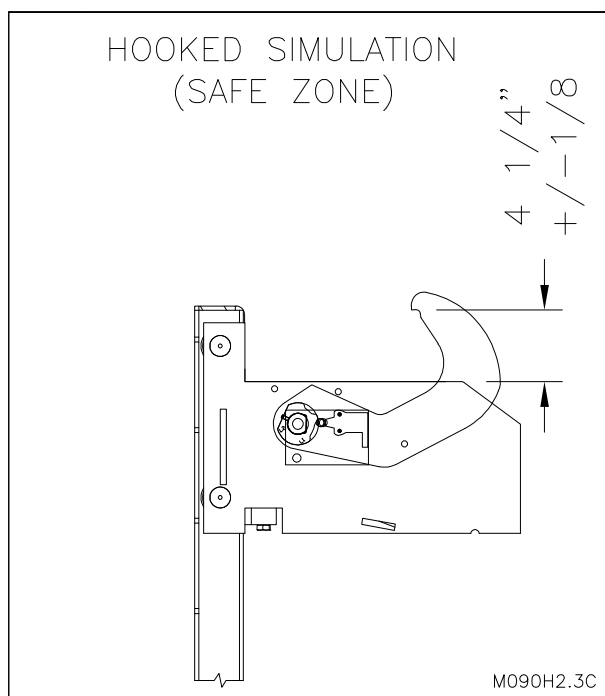


Figure 15: Hook Simulation Safe Zone

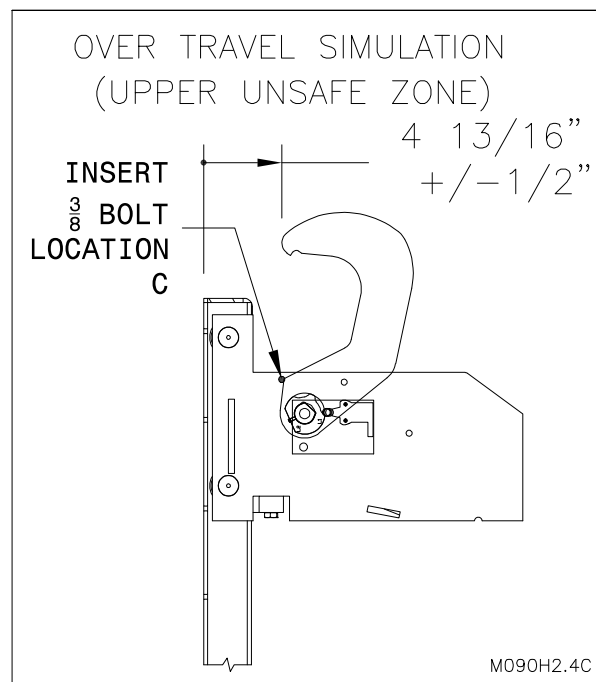
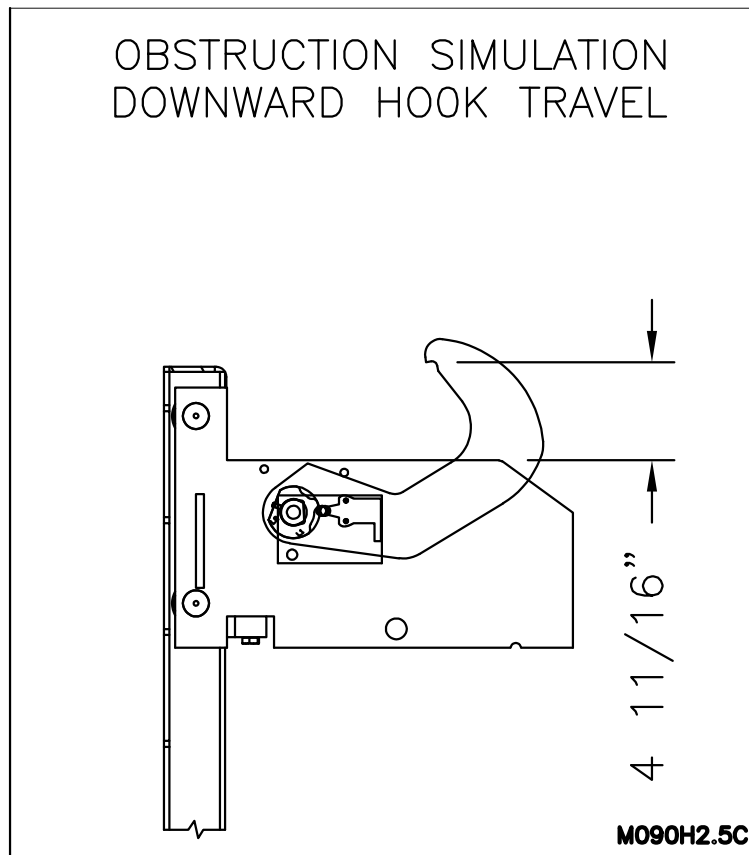


Figure 16A: Over Travel Simulation



**Figure 16B: Obstruction Simulation Downward
Hook Travel**

OPERATING INSTRUCTIONS



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.

SELECTOR SWITCH: ENGAGE

With the hook in the normal parked/stored position. The outside green light will be illuminated, indicating that the truck / trailer can approach the dock. The inside red light is illuminated, indicating that is not safe to load / unload. The outside red light, inside green light and audible alarm are all off. The hook is in the normal parked/stored position. With the truck positioned properly against both bumpers, the dock attendant selects the restraint to the **engage** position. The outside red light illuminates, and the outside green light shuts off. The hook rotates upward to the engaged position. In the event the hook's progress is stopped within the "safe zone", the power unit runs (attempting to continue hook rotation) for approximately 4 seconds. After approximately 4 seconds the cylinder rotation of the hook times out and the inside green light illuminates. The dock operator must visually confirm the hook has properly captured the rear impact guard. Under these conditions, loading or unloading of the vehicle is permitted. The inside red and yellow lights and the outside green lights are all not illuminated. The audible alarm is off. If, during the engagement process, the hook is unable to rotate up to the "safe zone", the hook's rotation is stopped, the outside red light remains illuminated, the audible alarm sounds pulsing (1 second on, 1 second off), inside red light will be flash pulsing (1 second on, 1 second off). If the hook over rotates to the end of the rotation travel, the outside red light remains on, the hook's rotation is stopped and the audible alarm sounds pulsing (1 second on, 1 second off), the inside red light will be flash pulsing (1 second on, 1 second off). This indicates that loading or unloading of the vehicle is not permitted and it is unsafe for the truck / trailer to drive away (Figure 21: Inside Light Red and Audible Alarm Sounding on page 28) and (Figure 22: R.I.G. Not Secure on page 28). The inside and outside green lights are not illuminated. The reason for the alarm situation is to be corrected or the truck is to be held by alternate means (wheel chocks) and the override operation feature should be utilized (see "SELECTOR SWITCH: OVERRIDE" on page 26). In the event that the initial hook position was in the safe zone, but then moves from the safe zone to an unsafe zone (upper or lower), the audible alarm will sound pulsing (1 second on 1 second off), the outside red light remains red and the inside red light will be flashing (1 second on, 1 second off). Inside and outside green lights will be off. As well, if the visual inspection indicates the rear impact guard cannot be properly captured then follow selector switch override on page 26.

NOTE: When the restraint is in engaged mode, the power unit will turn on for four seconds every 10 minutes and re-engage the restraint hook to the R.I.G. This is meant to ensure that the restraint hook does not drift out of the engage position.

NOTE: Refer to "RVR ALARM INFORMATION TABLE" on page 26 for more information regarding alarms.

HYDRAULIC DRIFT ERROR WARNING

When the restraint is in the engaged mode and the hook has successfully engaged the R.I.G., the power unit will turn on for 4 seconds every 10 minutes to re-engage the restraint hook to the R.I.G. This is features attempts to ensure that the restraint hook does not drift out of the engaged position. As well if the hook lowers out of the "safe zone" the inside red light will illuminate (without pulsing) and hydraulic pump will attempt to rotate the hook upwards into the "safe zone". After 4 seconds if the hook moves back into the safe zone normal engagement will resume. The inside red light will turn off and the inside green light back on. If it is unable to rotate the hook into the safe zone then the under rotation alarm status described above will occur.

If the hook rotates down out of the engagement “safe zone” more than 6 times in 10 minutes the restraint will lower, the inside red, yellow and green lights and the audible alarm will pulse (3 seconds on 3 seconds off).

Turn the selector to the disengage position to turn off the alarm notice. Review and address the cause of the alarm and attempt to engage the R.I.G. again if loading / unloading is to continue. If the cause of the alarm cannot be addressed then follow instructions under override mode.

RVR ALARM INFORMATION TABLE

ALARM NAME	ALARM ITEMS ACTIVATED	FREQUENCY
Unsuccessful Engagement Under Travel	Red Light & Audible Alarm	Pulsing 1 second on 1 second off for 1 hour then both solid
Unsuccessful Engagement Over Travel	Red Light & Audible Alarm	Pulsing 1 second on 1 second off for 1 hour then both solid
Unsuccessful Lowering	Red Light & Audible Alarm	Pulsing 2 seconds on 2 seconds off for 1 hour then both solid
Drift Error (more than 6 times in 10 minutes).	Audible Alarm, Red, Green and Yellow Light	Pulsing 3 seconds on 3 seconds off for 1 hour then all solid

SELECTOR SWITCH: DISENGAGE

When loading / unloading is completed, the restraint must be released from the engagement mode or from the override mode. Turn the selector switch to the **disengage** position. The inside green or yellow lights will turn off. The inside red light will illuminate. The hook rotates to the stored position. When the hook reaches the fully parked/stored position, the outside red light will turn off and the outside green light will illuminate. Visually confirm the hook has moved to the fully lowered position. If, while attempting to lower to the stored position, the hook encounters an obstruction and is unable to reach the fully parked/stored position, the outside red light remains on, the inside red light will be pulsing and the audible alarm will pulse (both pulsing at 2 seconds on 2 seconds off) indicating that loading or unloading is not permitted, it is unsafe for the vehicle to drive away and that the condition is to be corrected. The inside and outside green lights, and the yellow light are all off. If this situation occurs, rectify the impediment to the hooks retraction and turn the selector switch to **engage** and then back to **disengage** immediately to reset the disengage cycle and allow the hook to rotate down to the fully stored position. Again, visually confirm the hook has moved to the fully lowered position completing the disengage cycle. The truck driver is free to depart from the loading dock once the outside green light is illuminated.

SELECTOR SWITCH: OVERRIDE

This mode is selected in the event the truck / trailer’s RIG can not be properly secured as described in the engagement mode. The restraint should be in the disengaged position with the hook in the stored position. The operator restrains the vehicle with alternate means (wheel chocks) and turns the selector switch to **override**. When the selector is turned to **override**, the yellow light illuminates. The outside red light will be illuminated. The inside and outside green lights and the inside red light are all not illuminated. The audible alarm will be off. Loading and unloading of the truck can take place.

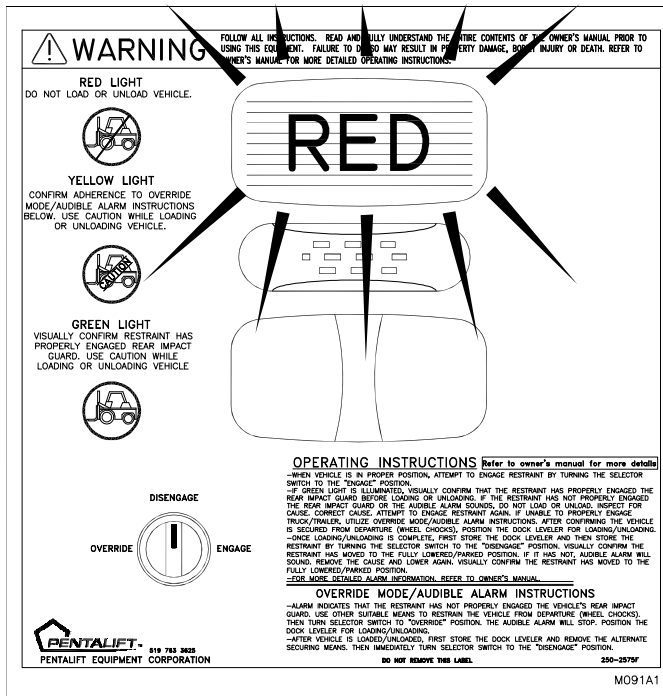


Figure 17: Inside Light Red

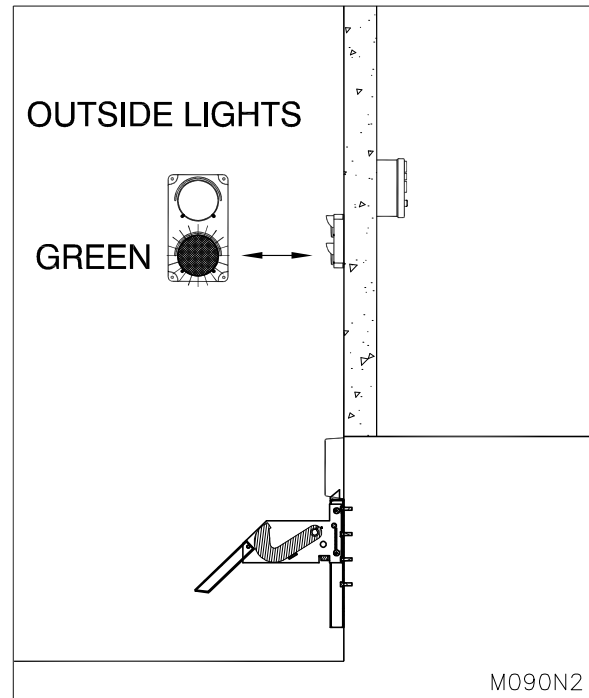


Figure 18: Restraint Stored

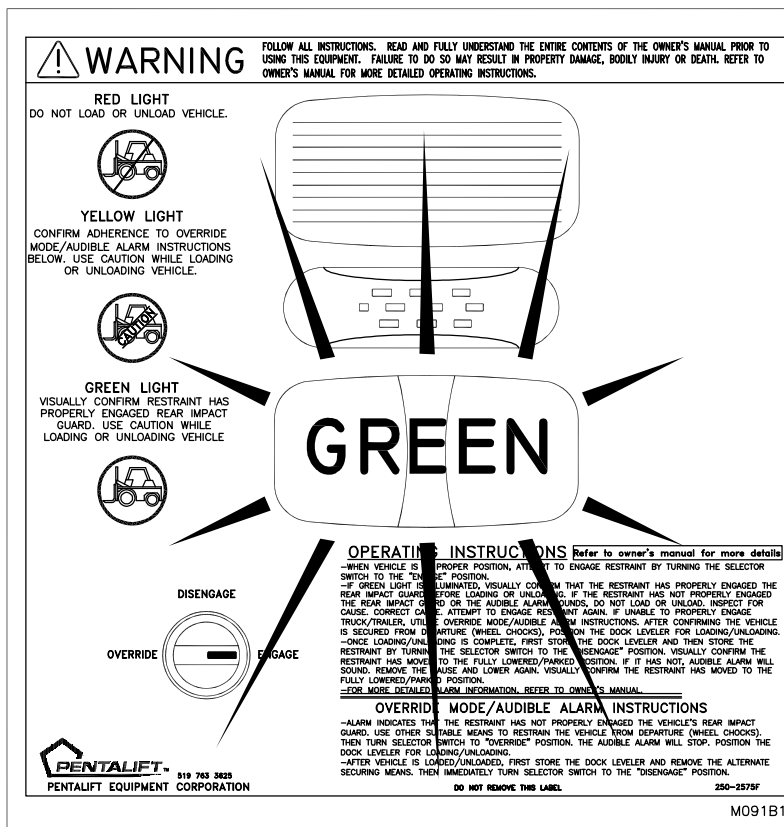


Figure 19: Inside Light Green

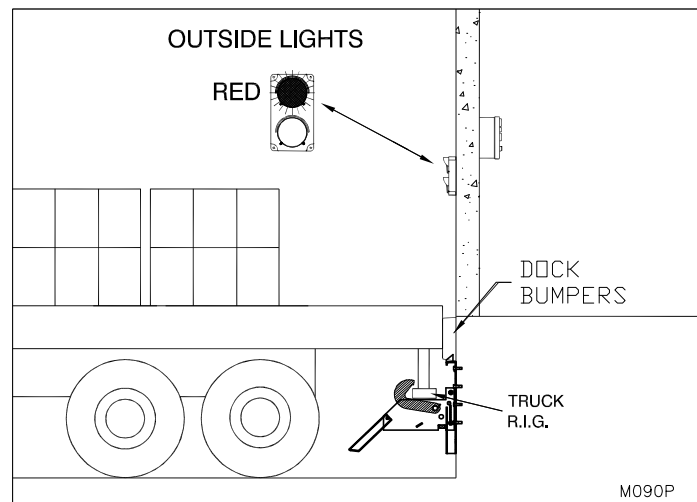


Figure 20: Vehicle in Position

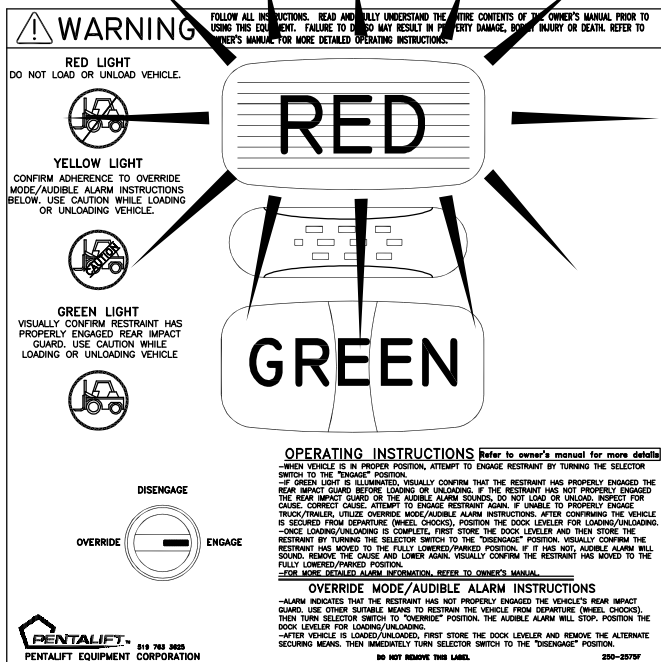


Figure 21: Inside Light Red and Audible Alarm Sounding

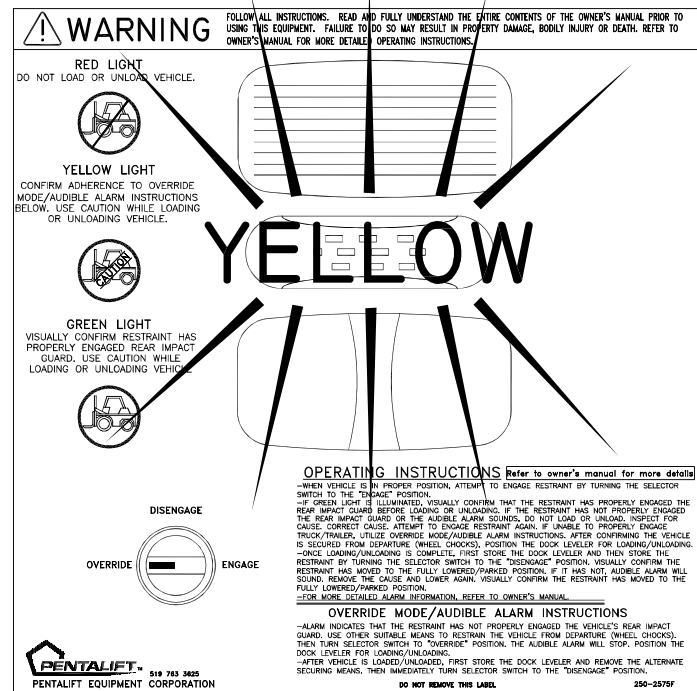


Figure 23: Inside Light Yellow and Audible Alarm Sounding

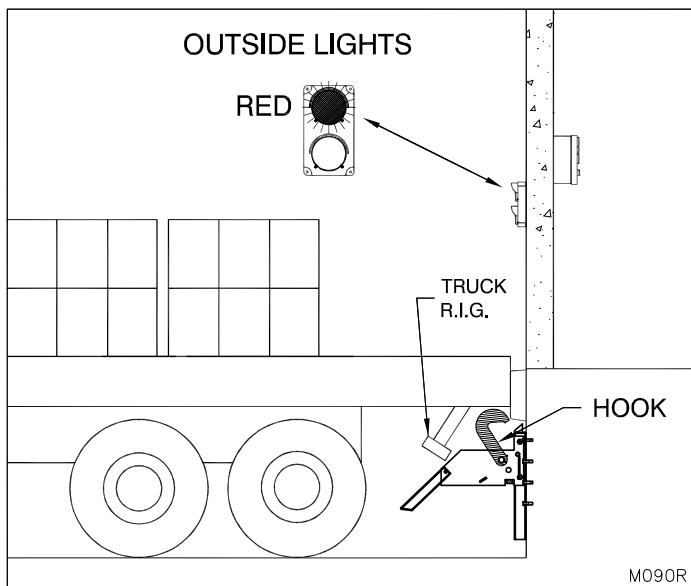


Figure 22: R.I.G. Not Secure

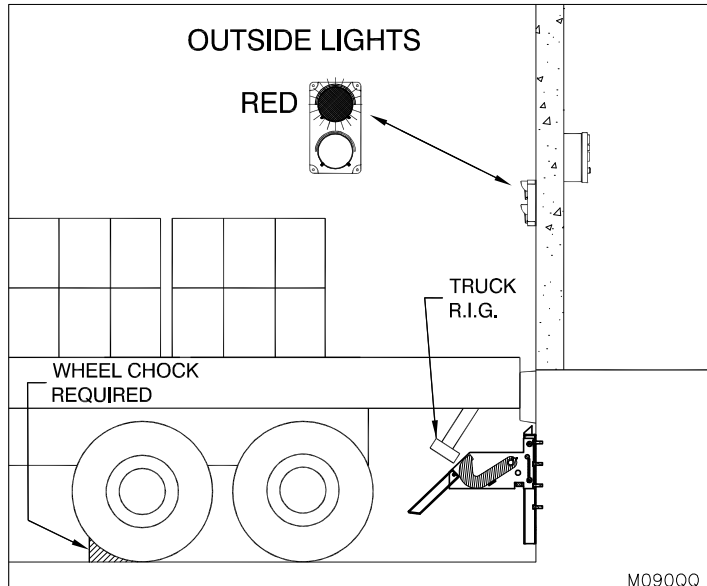


Figure 24: Secure Vehicle by Other Means

END LOADING/UNLOADING

BELOW LEVEL END LOADING

Below level end loading is required when the truck bed is below dock height and the cargo at the rear of the truck does not allow the lip to fully extend. In this instance, end loading/unloading cannot be completed with the leveler in its stored position. To position the leveler for end loading/unloading, follow the procedures outlined below.

⚠ DANGER

Follow below level end loading instructions as per the dock leveler manufacturers operating instructions and manuals. When the cargo at the rear of the truck does not allow the lip to fully extend and rest firmly on the truck bed as outlined under the operating instructions, then the end loading/unloading procedures must be used as outlined under the operating instructions. During end loading/unloading there will be a gap present between the dock leveler and the truck bed. Ensure that the front wheels of the fork truck never fall into the gap between the stored dock leveler and the truck. Immediately after the end loads are removed, the dock leveler is to be used with the lip extended as indicated under operating instructions.

⚠ WARNING

In instances in which the dock leveler is activated for below level end loading and the lip of the dock leveler rests on the carriage of the RVR32 restraint. Restore the dock leveler to the stored / parked position. Release the restraint by turning the selector switch to the disengage position. Restrain the vehicle by alternate means (wheel chocks). Turn the selector switch to the override position (See “Figure 23: Inside Light Yellow” on page 28). Reposition the dock leveler to the below level end loading position. Following this procedure releases the hook of the restraint and allows the lip of the dock leveler to push the RVR32 restraint carriage down without resistance. Failure to follow this procedure could damage the vehicle restraint, damage the vehicle, and/or damage the dock leveler. It could also result in instability of the dock leveler deck, which in extreme cases, could cause the fork lift to tip.

Once the below level end loading process is complete, follow the normal procedures and process for use of the restraint and dock leveler.

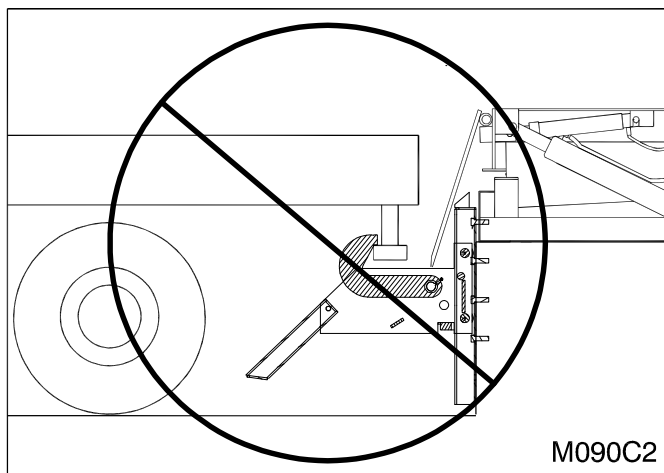


Figure 25: Wrong

Wrong: Restraint must not be set to the engaged position. Hook engagement with rear impact guard impedes the dock leveler from moving to the full below level position.

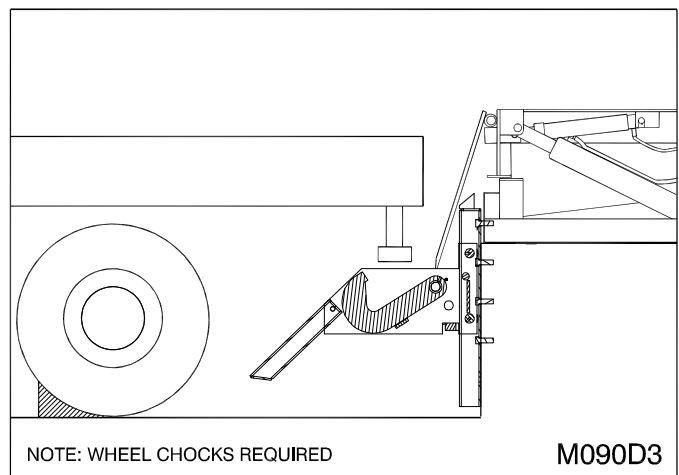


Figure 26: Correct

Correct: Truck is restrained by alternate means. Restraint is disengaged. Restraint carriage can be pushed by dock leveler lip to lowest required position.

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 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.

Conduct the steps listed in the OPERATION AND PERFORMANCE CHECK Section of this manual (See page 21). Any issues encountered during this check are to be rectified before operating the restraint.

THE RELIEF VALVE ON THE POWER UNIT IS PRESET AT THE FACTORY. IT IS AN IMPORTANT SAFETY DEVICE. DO NOT ADJUST OR REMOVE THE RELIEF VALVE.



THERE MAYBE STORED MECHANICAL ENERGY AND CARRIAGE CAN MOVE RAPIDLY UPWARD.

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 RVR32 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. The RVR32 vehicle restraint carriage assembly will move down the track as the truck / trailer approaches the dock. To avoid damage to the vehicle restraint and / or truck / trailer and / or building, ensure the path of the restraint and the driveway area under the vehicle restraint are clear of debris, ice, snow, or any other obstructions at all times.

CHECK ON A DAILY BASIS:

Replace defective LED modules, immediately. Due to the continuous duty of dock traffic light systems, daily inspection of the light system should be performed. Spare 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. Ensure that the restraint has not been damaged by improper impacts. **USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS.**

CHECK AT 180 DAYS:

1. Check that all concrete anchor bolts are torqued to their correct values as per bolt manufacturer requirements.
2. Perform operational test after all maintenance, repair and adjustments.
3. Check dock bumpers are in place. Replace any damaged bumpers. Four inches of projection is required.

NOTE: Read the SAFETY INFORMATION AND WARNINGS before servicing the RVR32 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 Section, 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.

NOTE: At every maintenance interval, inspect the RVR32 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.

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.

Lubricate the restraint utilizing the 4 grease fittings (See "Figure 27: Lubrication Points" on page 32).

Also note that the power unit fluid should be changed every 12 months. The required hydraulic oil is **HVI-22**.

NOTICE: HYDRAULIC FLUID

The standard hydraulic oil supplied with the equipment is HVI-22 Hydraulic fluid. This fluid is suitable for use from approximately -30° C (-22F) minimum to +35°C (+95°F) unless otherwise specified on the specific equipment order. The equipment can be operated in temperatures slightly higher and lower than the temperatures stated on an intermittent basis. Operating the equipment for extended periods of times at temperatures higher or lower than the stated temperatures above may result in functional issues for the equipment. It may also result in damage and issues to hydraulic components. As the actual temperature the equipment is used in moves further away from the recommended temperature range the concern points increase. Abuse and overuse in this regard will void all warranty. The standard replacement Hydraulic Fluid is HVI-22 hydraulic fluid which accommodates the temperature range stated above. There are special hydraulic fluids available to accommodate temperatures that are consistently and or significantly lower or higher than those stated above. In many cases the use of these types of specialty fluids will result in the requirement for hydraulic fluid changes during seasonal yearly temperature changes.

Recommended for colder temperatures is Hydraulic Fluid 5606A
Recommended for warmer temperatures is Hydraulic Fluid HVI-32

If the hydraulic oil provided from the factory is non-standard, refer to the hydraulic reservoir fluid label which will specify the particular oil requirements.

Note: When approaching or operating in temperature beyond the high and low temperature ranges of the ratings for the hydraulic fluids, there may be some adverse effects to the functionality of the equipment. This could include (but not be limited to) harmonics and vibration of cylinders, inhibited or reduced equipment performance and function, slower cycle times, hydraulic leaks unwanted activation of velocity fuses. To address concerns of this nature a change in hydraulic fluid or a special oil additive maybe required. Contact your Pentalift representative for more information.

Note: The remote installation location of the hydraulic power unit can also help address concerns with hydraulic fluid temperature ranges. For example if the equipment is purchased with a remote power unit, the power unit can be installed in a warmer (indoor) location. In this arrangement, even though the main equipment and it's hydraulic components maybe exposed to more extreme temperatures, the hydraulic power unit and the hydraulic fluid stored in it will be exposed to and therefore absorb the more moderate and desirable internal temperature. During operation the oil in the power unit will quickly mix with the oil in the equipment and will typically mix to a more desirable temperature level.

Note: That if the hydraulic power unit is installed in a pit, as is usually the case for dock levelers, the pit will have moderating effect on the temperature the hydraulic power unit is exposed to. This should be part of the consideration of hydraulic fluid selection.

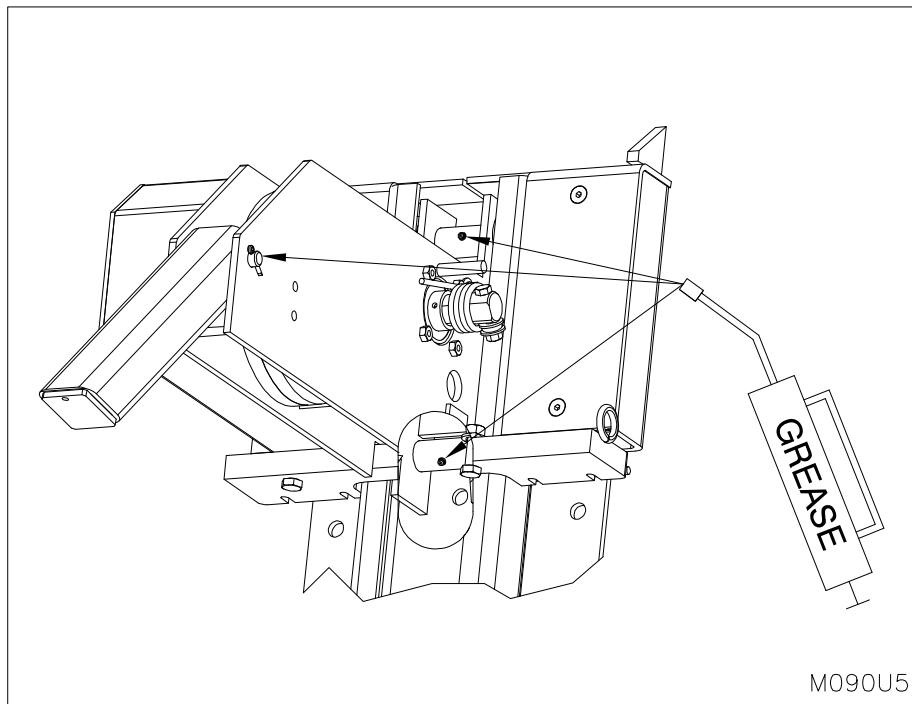


Figure 27: Lubrication Points

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.



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NOTICE

See page 28 for recommended hydraulic oil.

Restraint does not operate correctly:

- Examine all moving parts for obstructions or binding.
- Check that hydraulic fluid level is approximately two inches from the top of the reservoir when the restraint hook is completely lowered.
- Check all wiring and hydraulic connections.
- Confirm that power is reaching the power unit.
- If the problem cannot be solved, consult 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.

LIMIT SWITCH AND HOOK POSITION CHART

DESCRIPTION	LS1 (INNER LIMIT SWITCH)	LS2 (OUTER LIMIT SWITCH)	INSIDE LIGHT	OUTSIDE LIGHT	BUZZER	EXAMPLE FIGURE
STORED POSITION (HOOK PARKED)	ACTIVATED (DEPRESSED)	NOT ACTIVATED	RED	GREEN	OFF	Fig. 29 page 34
OBSTRUCTION (LOWER UNSAFE ZONE)	ACTIVATED (DEPRESSED)	ACTIVATED (DEPRESSED)	RED	RED	ON	Fig. 30 page 34
HOOKE POSITION (HOOK RAISED)	NOT ACTIVATED	ACTIVATED (DEPRESSED)	GREEN	RED	OFF	Fig. 31,32 page 35
OVER TRAVEL (UPPER UNSAFE ZONE)	ACTIVATED (DEPRESSED)	ACTIVATED (DEPRESSED)	RED	RED	ON	Fig. 33 page 35
OVERRIDE (HOOK LOWERED)	ACTIVATED (DEPRESSED)	NOT ACTIVATED	YELLOW	RED	OFF	Fig. 29 page 34

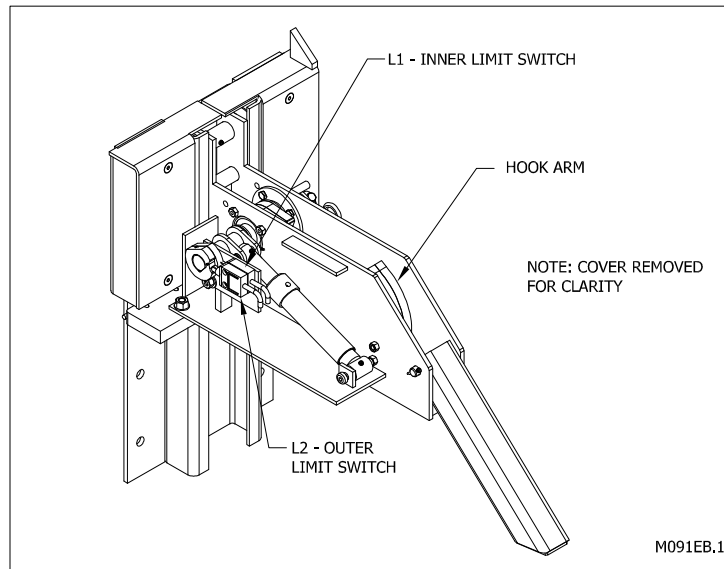


Figure 28: Limit Switch Positions

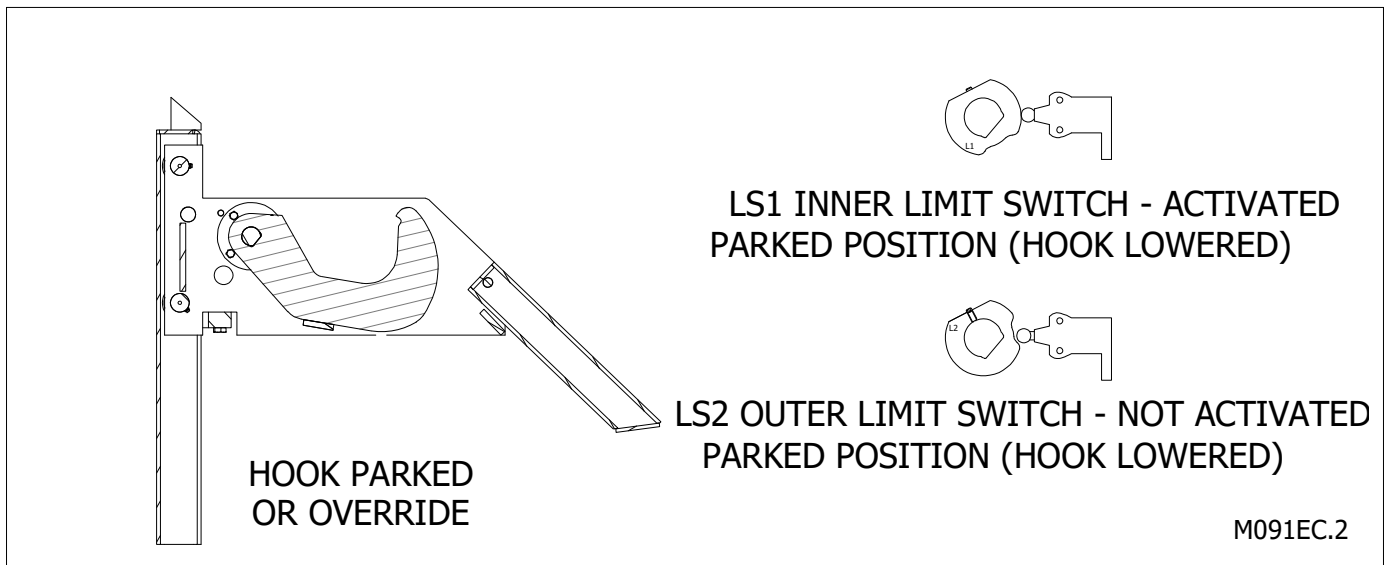


Figure 29: Limit Switch Positions - Hook Lowered & Parked

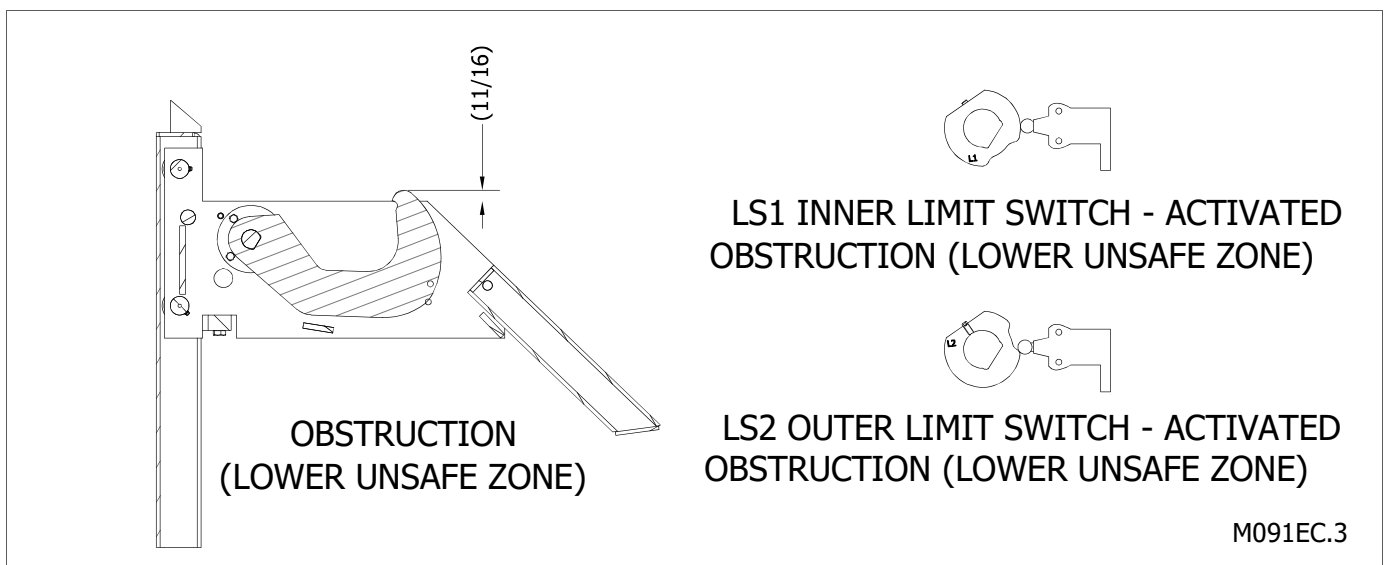


Figure 30: Limit Switch Positions - Obstruction (Lower unsafe zone)

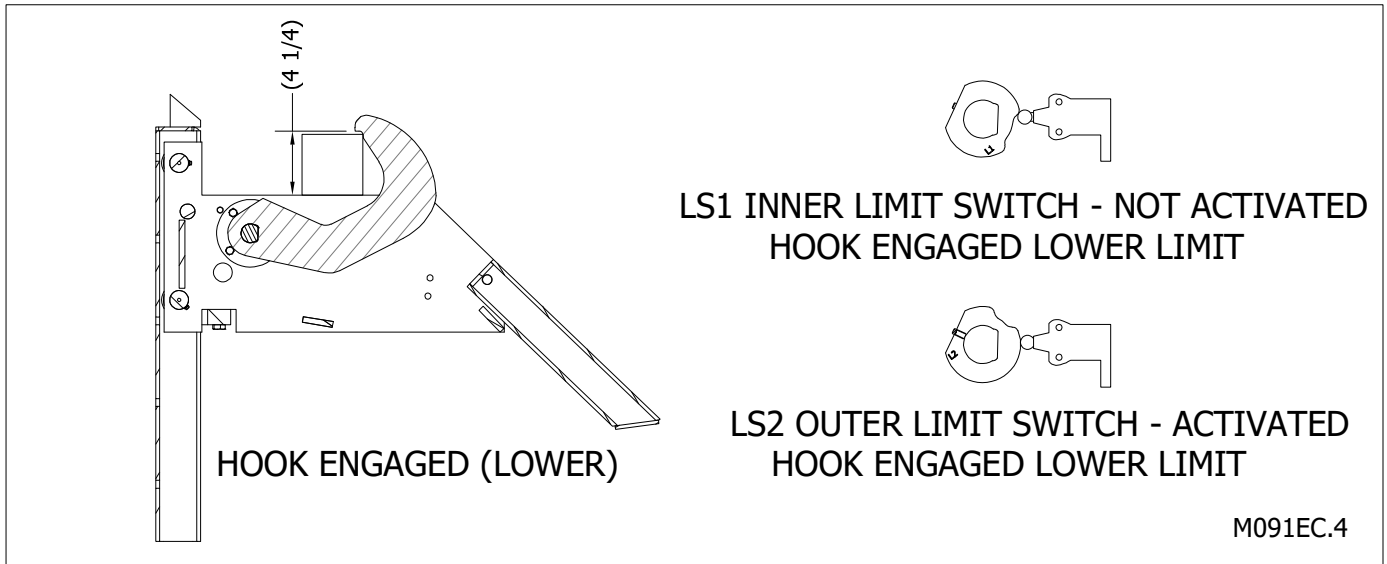


Figure 31: Limit Switch Positions - Hook Engaged (Lower)

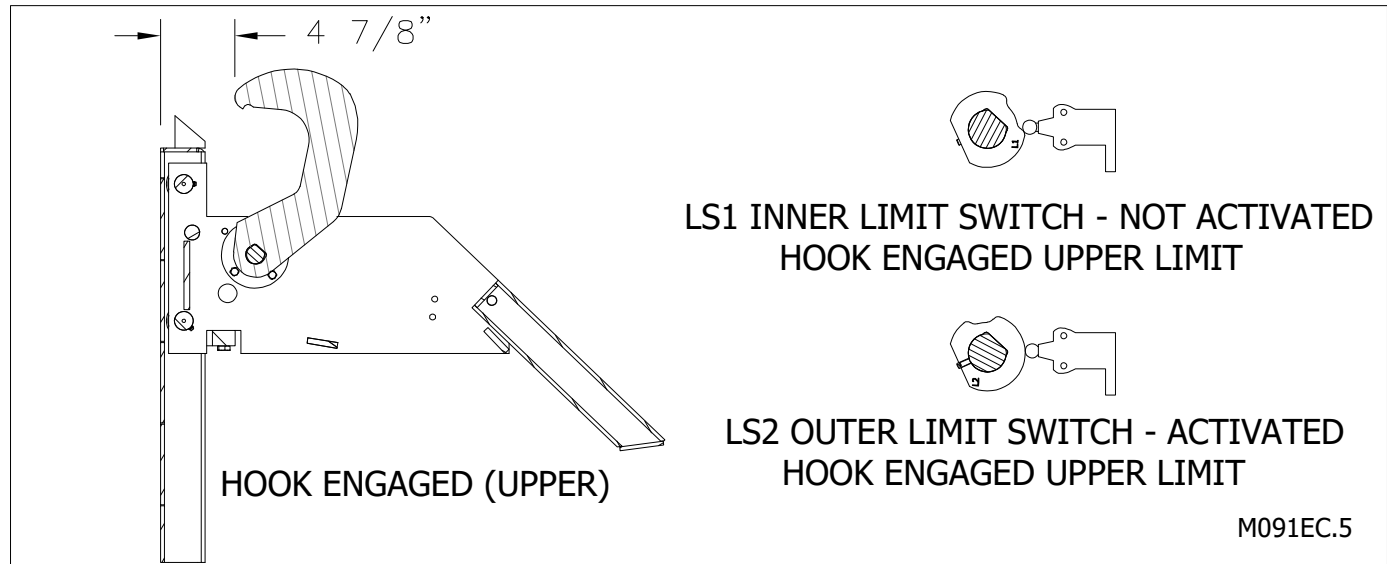


Figure 32: Limit Switch Positions - Hook Engaged (Upper)

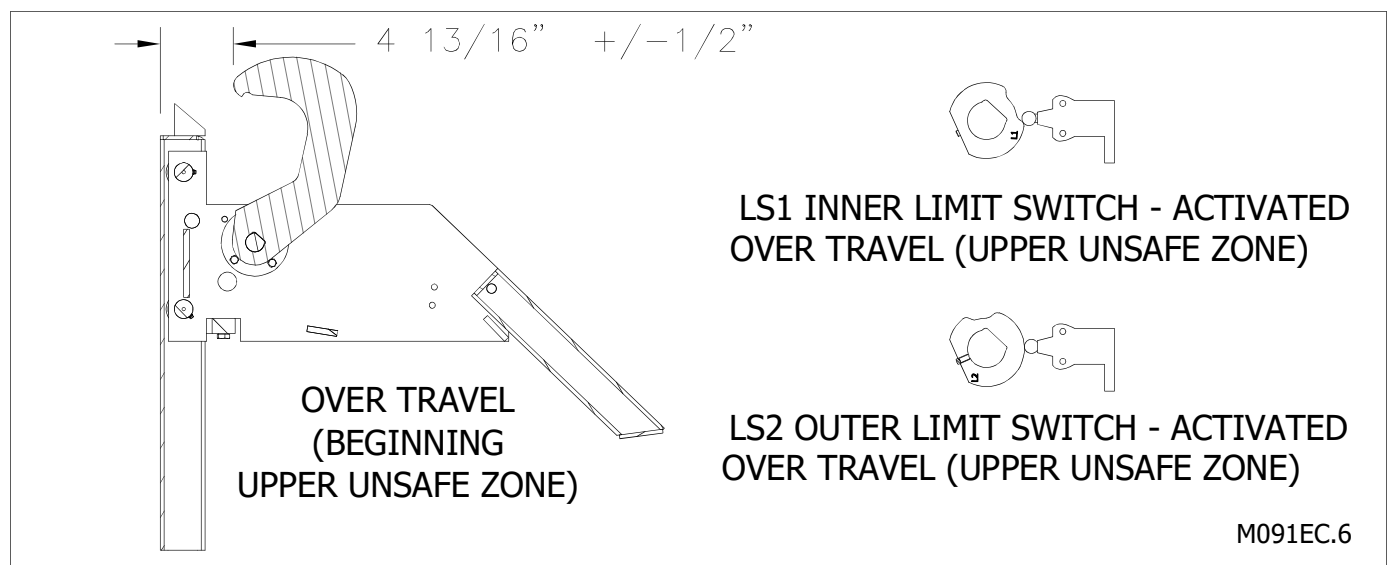


Figure 33: Limit Switch Positions - No R.I.G. (Upper unsafe zone)

	PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
1	Inside lights not illuminated Outside lights not illuminated Hook does not raise Alarm does not sound	1. Power source malfunction 2. Blown F1 Fuse 3. Incorrect wiring	1. Check incoming voltage 2. Replace F1 fuse 3. Check wiring with electrical schematics.
2	Inside lights illuminated Outside lights illuminated Hook does not raise Alarm sounds after 4 seconds	1. Low incoming voltage 2. Blown F2 fuse 3. No hydraulic fluid 4. Incorrect wiring 5. Defective power unit	1. Check Voltage 2. Replace F2 fuse 3. Check fluid level, look for leaks 4. Verify Relay output 2 is sending power to the pump motor 5. Motor, pump or lowering valve has failed replace components or entire power unit
3	Inside lights all flash Outside lights illuminated Hook drops to parked position Alarm pulses on 3 second intervals	1. Truck movement has forced the hook out of the engagement zone 2. There is a hydraulic leak	1. Put vehicle restraint in override mode and use wheel chock 2. If no leak is observed externally the power unit is leaking internally
4	Inside lights not illuminated Outside lights not illuminated Hook operates normally Alarm does not sound	1. Burnt out lights 2. Incorrect wiring 3. 12 Volt transformer faulty	1. Replace lights 2. Check wiring with electrical schematics 3. Replace transformer
5	Inside lights Green Outside lights Green Hook in the parked position Alarm does not sound	1. The inside lights are wired backwards 2. Logic relay failure	1. Correct light wiring 2. Replace Logic relay- Note Logic relay requires correct program
6	Trying to disengage: Inside lights Red Outside lights Red Hook in any position Alarm sounds after 4 seconds	1. Restraint hook is not lowered completely 2. Hydraulics not releasing 3. Limit switch incorrectly positioned, stuck or broken. 4. Incorrect wiring, will give an error when engaging too.	1. Ensure no obstructions in the operating path of the hook. 2. Verify Relay output 1 is sending power the lowering valve 3. Ensure Limit switches are operating by rotating cam. Look for state change on relay input 3&4 4. Check wiring of limit switches at control and junction box.

7	Inside lights illuminated Outside lights illuminated Hook raises but moving jerky Alarm does not sounds	1. Inadequate hydraulic fluid	1. Check that hydraulic fluid level is approximately 2 inches from the top of reservoir when the hook is in the stored position.
8	Pump continues to run: Inside lights illuminated Outside lights illuminated Hook always raise Alarm does not sounds	1. Logic relay failure 2. Motor contactor welded	1. Replace Logic relay Note Logic relay requires correct program 2. Replay contactor 3. Contact Pentalift
9	Inside lights illuminated Outside lights illuminated Hook raises to and stops in engaged position Alarm sounds after 4 seconds	1. Incorrect Limit switch wiring 2. Broken/ stuck limit switch	1. Verify Limit switch wiring 2. Ensure Limit switches are operating by rotating cam. Look for state change on relay input 3&4

REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS



TO ENSURE PROPER FUNCTIONING, DURABILITY AND SAFETY OF THE PRODUCT, ONLY GENUINE PENTALIFT REPLACEMENT PARTS MUST BE USED. ALTERING THE PRODUCT FROM ITS ORIGINAL MANUFACTURED CONFIGURATION MUST NOT BE DONE. PENTALIFT 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 Pentalift representative:

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

Fuse I.D.	Single Phase	
	Part No.	Description
F1	060-0537	2 Amp / 250V Fuse
F2	060-0328	10 Amp / 250V Fuse
F3	060-0316	1 Amp / 250V Fuse

Fuse I.D.	Three Phase		
	Voltage	Part No.	Description
F1 and F2	575V	060-0024	1/2 Amp / 600V
	460V	060-0024	1/2 Amp / 600V
	230V	060-0300	1 Amp / 600V
	208V	060-0030	1 Amp / 600V
F3	120V	060-0537	2 Amp / 250V
F4	12V	060-0316	1 Amp / 250V

3 PHASE TRANSFORMER AND OVERLOAD

Three Phase Control Box Replacement Parts		
Power Unit Voltage	Part Numbers	
	Transformer	Overload
575 / 120V	060-0937	060-0070
460 / 120V	060-0937	
230 / 120V	060-0943	060-0069
208 / 120V	060-0955/060-0958	

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

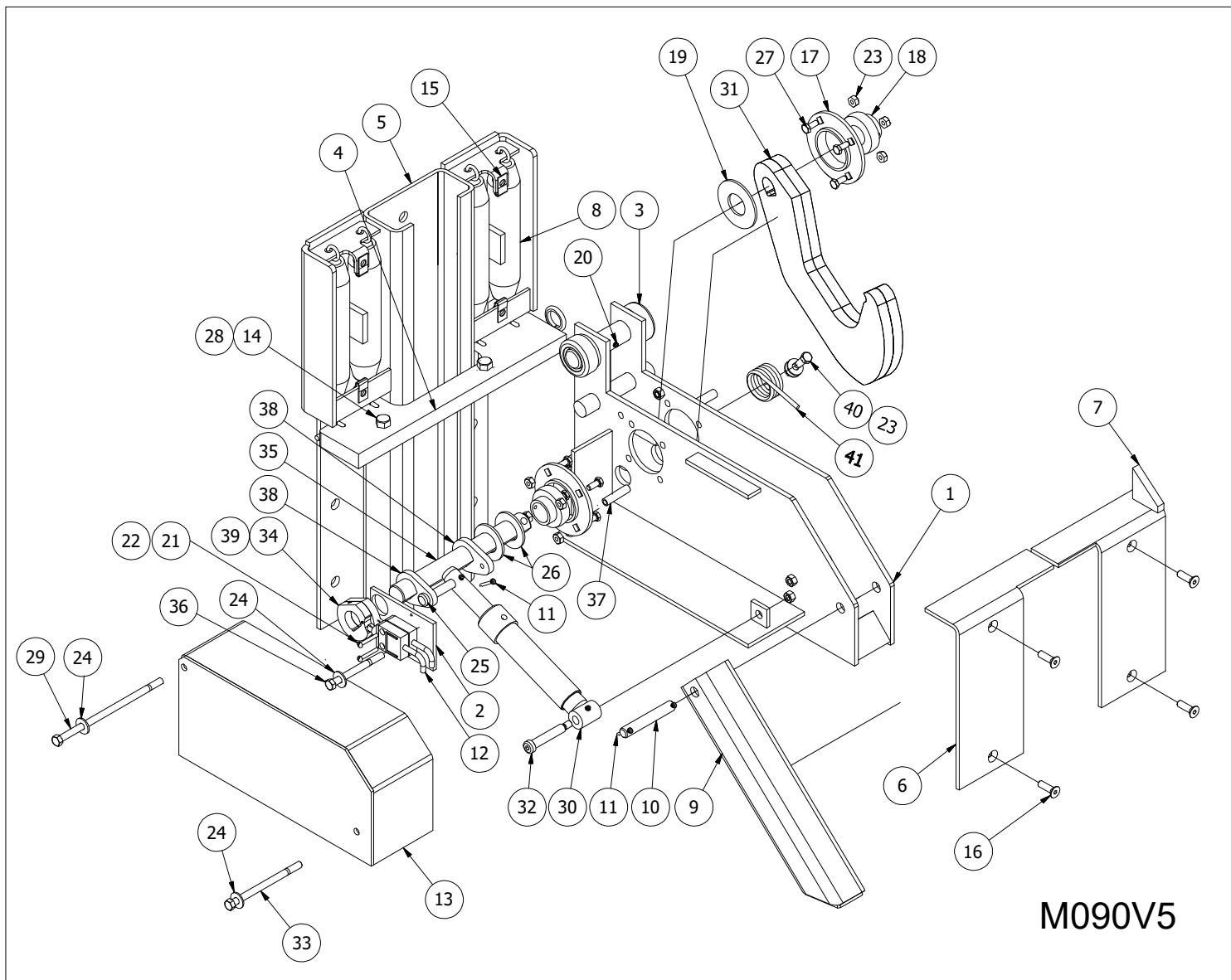


Figure 34: Replacement Parts

RESTRAINT REPLACEMENT PARTS LIST

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

<u>Item #</u>	<u>Part No.</u>	<u>Description</u>
1	820-0021	Carriage Weldment
2	320-0094	Limit Switch Mounting Plate
3	820-0006	Carriage Roller
4	820-0001	Lower Spring Bar Mtg. Plate
5	820-0015	Roller Track Weldment
6	320-0010	Spring Cover- Left Hand
7	820-0002	Spring Cover- Right Hand Assy.
8	097-0046	Extension Spring
9	820-0013	Slope Extension Weldment
10	320-0054	5/8" dia. x 3 5/8" Clevis Pin
11	082-0001	1/8" x 1" Cotter Pin
12	060-1064	Limit Switch SPDT Roller Plunger Metal
13	820-0027	Cover, Weldment
14	070-0006	1/2-13 Hex Nut gr 2 Zinc
15	070-0090	3/8-16 UNC Extruded Nut
16	072-0263	Socket Flat Cap Screw 3/8-16 x 1-1/4"
17	090-0043	RA Flangette Bearing Unit
18	090-0041	Ball Bearing Insert
19	074-0062	Washer 1-1/4 (3 OD x 1-3/8 ID x .148)
20	052-0170	Drive in Zerk Fitting
21	072-0257	Machine Round Slot 10-32 x 1-1/2" zinc
22	070-0009	10-32 Hex Head nut zinc
23	070-0124	3/8-16 Flanged Locknut Zinc
24	074-0016	3/8" Flat Washer
25	080-0040	Clevis Pin 1/2" x 1-5/8"
26	074-0088	1-3/8" Shim Ring
27	072-0341	3/8-16 Carriage Bolt x 1" Zinc
28	072-0355	1/2-13 Hex Head Bolt x 1-3/4" Zinc
29	072-0390	3/8-16 Hex Head Bolt x 8-1/2" Zinc
30	812-0018	Cylinder Assembly
31	820-0034	Hook Weldment
32	072-0361	3/8-16 Socket Head Shoulder Bolt 1/2" Dia. x 2-1/2"
33	072-0360	3/8-16 Hex Head Bolt x 5-1/2" Zinc
34	820-0024	Cam Weldment
35	320-0106	Hook Shaft
36	072-0125	3/8-16 Hex Head Bolt x 4" Zinc
37	3120047	3" Spacer tube
38	320-0109	Actuator Arm
39	072-0365	Hex socket set screw - cup point
40	072-0040	3/8-16 Hex Head Bolt x 2"
41	320-0105	Torsion Spring

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

CONTROL PANEL REPLACEMENT PARTS

SINGLE PHASE STANDALONEREF: 161-0466

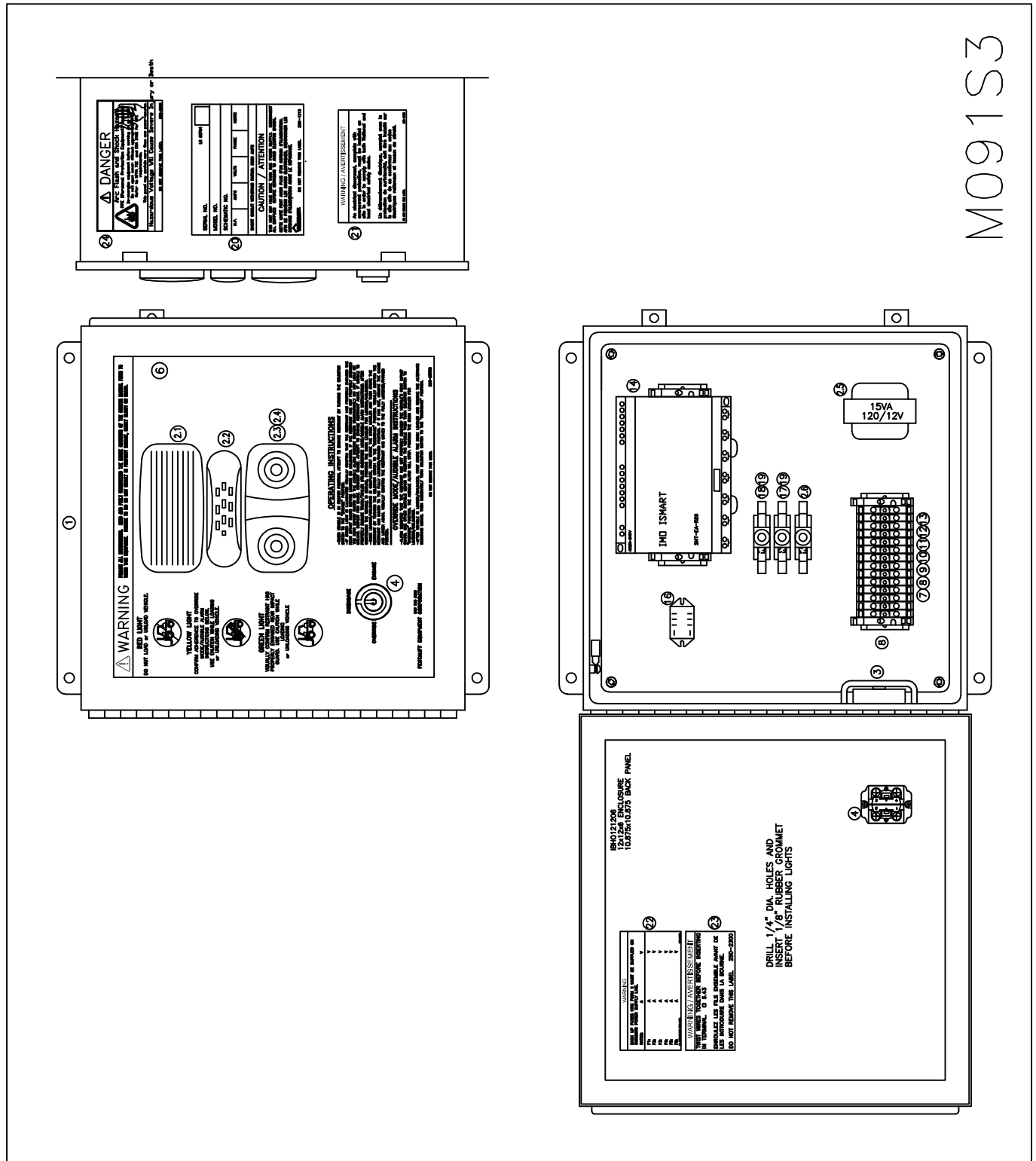
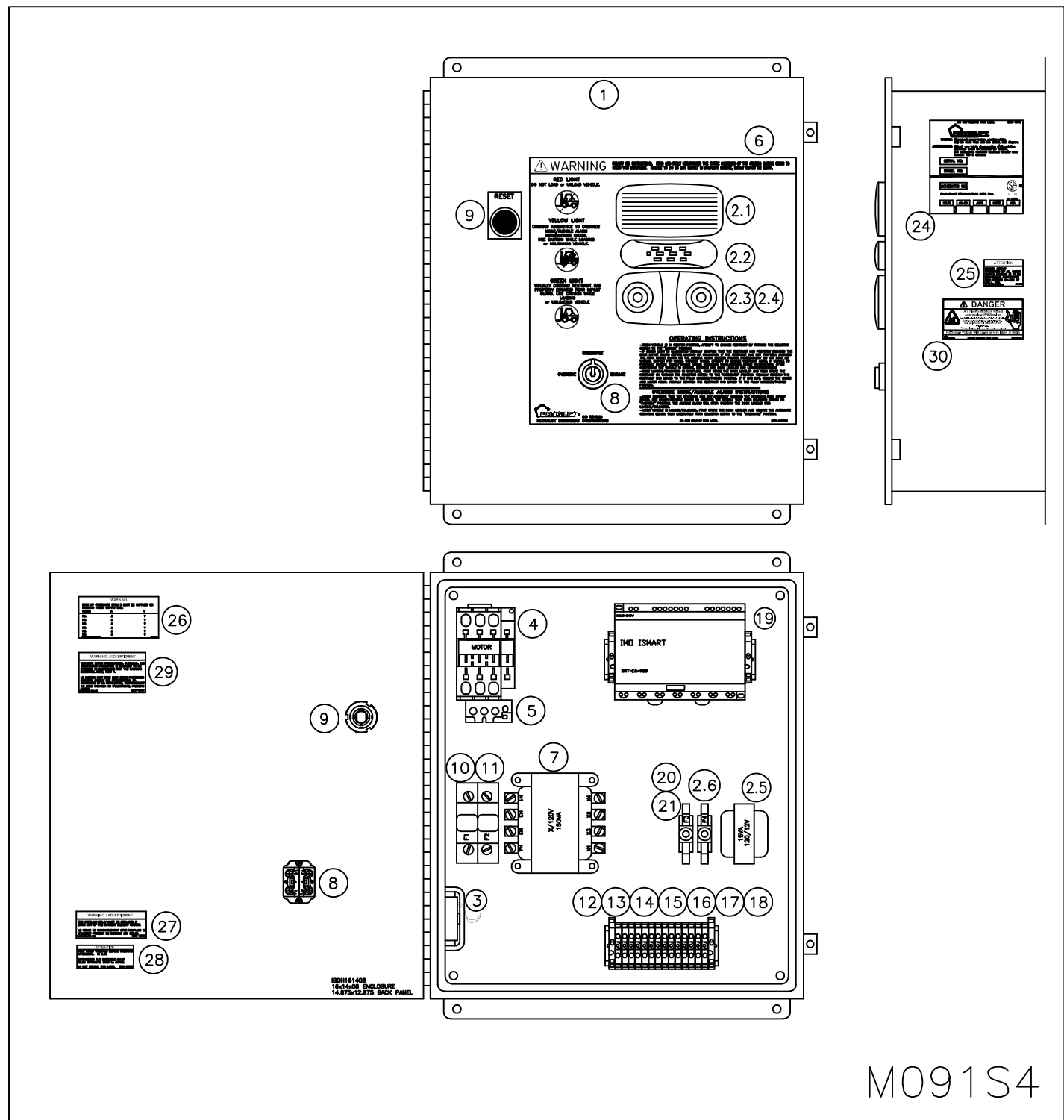


Figure 35: Single Phase Standalone Control Panel

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	060-0233	Electrical Enclosure 12" x 12" x 6"
2	161RGA	Red Green Amber Light Assembly
2.1	060-0772	light;panel;red;led
2.2	060-0502	assembly;light;amber
2.3	060-0201	light;panel;green
2.4	060-0202	lens;light;green
2.5	060-0209	15VA 120/12V Transformer
2.6	060-0316	fuse;glass;time delay;spiral;1a;250v
3	161BUZ	120Vac Buzzer Assembly
4	161VRSW	Restraint Switch Assembly
5	060-0701	Exterior Light Package (not shown)
6	250-2575	Control Panel Label
7	060-0549	Jumper Bar 32A 10 Pole
8	060-0293	Din Rail Mounting Bar
9	060-0590	Terminal Block, Green
10	060-0548	Terminal Block, Beige
11	060-0463	Terminal Ends
12	060-0466	Terminal Makers
13	060-0464	Terminal Stops
14	060-0933	relay;logic;100~240v;20i/o;12in;8out
16	060-0552	120Vac DPDT Relay
17	060-0496	fuse;glass;spiral;time delay;7a;250v
18	060-0537	fuse;delay;2a;250v;glass;spiral;wound
19	060-0380	holder;fuse;16a;250v;1pl;glass;1/4;quick
20	060-0380	1/4" Fuse Holder
21	250-2296	CSA Label - Branch CCT
22	250-2297	CSA Label - Fuses
23	250-2300	CSA Label - Twist Wires
24	250-2508	Arc Flash Danger Decal

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



M091S4

Figure 36: Three Phase Standalone Control Panel

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	060-0248	Electrical Enclosure 16 x 14 x 6
2	161RGA	Red Green Amber Light Assembly
2.1	060-0772	light;panel;red;led
2.2	060-0502	assembly;light;amber
2.3	060-0201	light;panel;green
2.4	060-0202	lens;light;green
2.5	060-0209	15VA 120/12V Transformer
2.6	060-0316	fuse;glass;time delay;spiral;1a;250v
3	161BUZ	120Vac Buzzer Assembly
4	060-0184	Contactors
5	see page 38	Thermal Overload
6	250-2575	Instruction Label
7	see page 38	150VA Transformer
8	161VRSW	Selector Switch Restraint 3 POS
9	161RS	Manual Reset Push Button/Rod
10	060-0381	Class CC Fuse Holder
11	see page 38	Primary Fuses
12	060-0590	Terminal Block, Green
13	060-0548	Terminal Block, Beige
14	060-0463	Terminal Ends
15	060-0466	Terminal Makers
16	060-0464	Terminal Stops
17	060-0293	Din Rail Mounting Bar
18	060-0549	Jumper Bar 32A 10 Pole
19	060-0933	Logic Relay
20	060-0380	Fuse Holder
21	060-0537	Fuse, 2a/250V - Time Delay
22	060-0380	1/4" Fuse Holder
23	060-0537	Fuse, 2A/250V - Time Delay
24	250-1313	CSA Label - S/N
25	250-2296	CSA Label - Branch CCT
26	250-2297	CSA Label - Fuses
27	250-2299	CSA Label - Replace Overload
28	250-2300	CSA Label - Twist Wires
29	250-2301	CSA Label - Separate Motor Overcurrent
30	250-2508	CSA Label - Arc Flash Danger

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

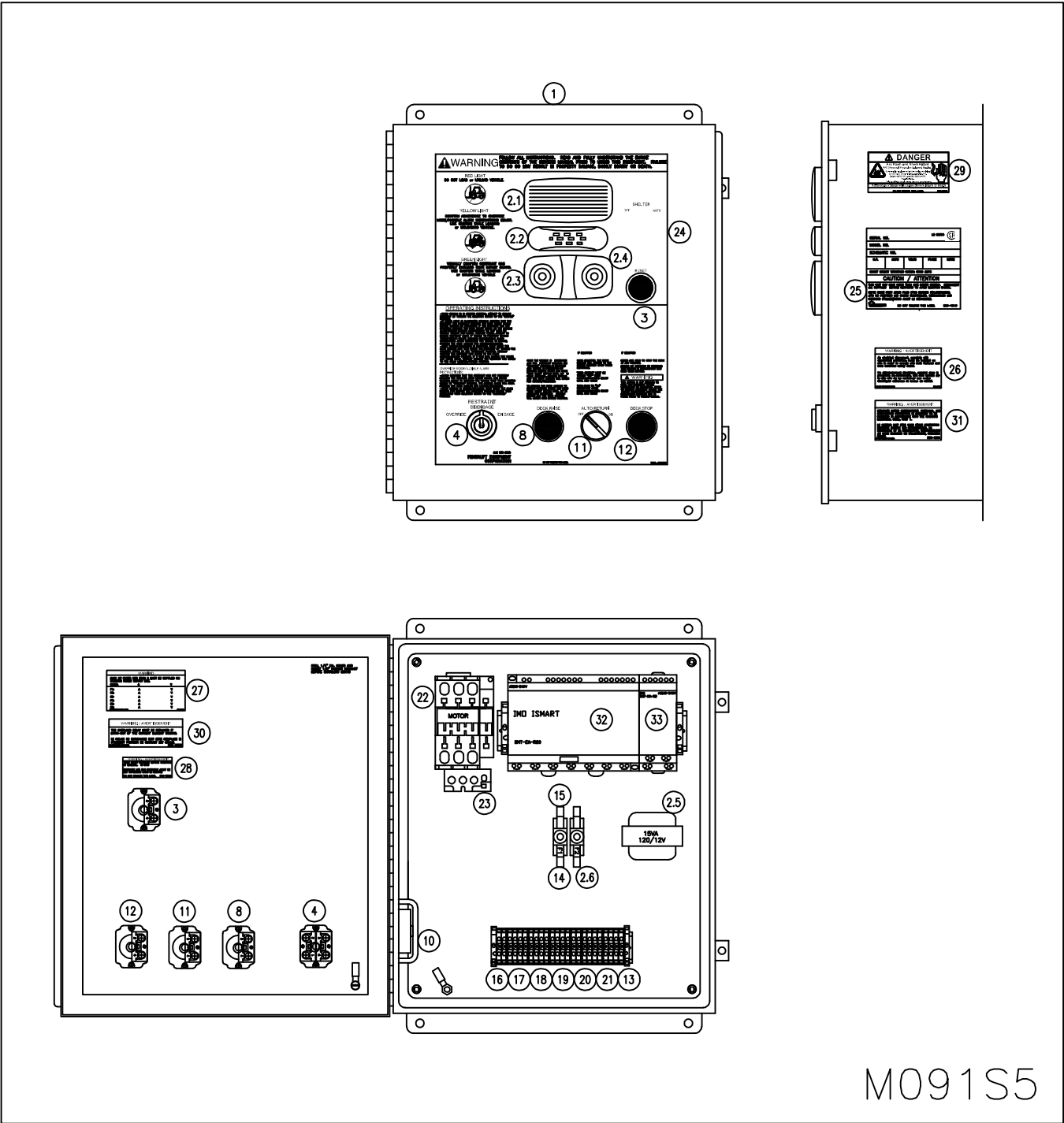


Figure 36A: Single Phase Combo Control Panel

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	060-0592	Electrical Enclosure 14 x 12 x 6
2	161RGA	Red Green Amber Light Assembly
2.1	060-0772	light;panel;red;led
2.2	060-0502	assembly;light;amber
2.3	060-0201	light;panel;green
2.4	060-0202	lens;light;green
2.5	060-0209	15VA 120/12V Transformer
2.6	060-0316	fuse;glass;time delay;spiral;1a;250v
3	161RB	Reset Push Button
4	161-VRSW	Selector Switch Restraint
7	060-0209	Transformer
8	161DR	Deck Raise Button
10	060-0097	120V Buzzer
11	161AR	Auto Return
12	161DS	Deck Stop
13	060-0293	Din Rail Mounting Bar
14	060-0298	Fuse, 2A/250V- Time Delay
15	060-0380	Fuse Holder
16	060-0548	Terminal Block, Beige
17	060-0590	Terminal Block, Green
18	060-0463	Terminal Block, End
19	060-0466	Terminal Marker
20	060-0464	Terminal Block End Stop
21	060-0549	Terminal Block Jumper Bar, 10 Pole
22	060-0184	Contact
23	see page 38	Thermal Overload
24	250-2580	Control Panel Label
25	250-1313	CSA Label - S/N
26	250-2296	CSA Label - Branch CCT
27	250-2297	CSA Label Fuses
28	250-2300	CSA Label Twist Wire
29	250-2508	CSA Label Arc Flash
30	250-2299	CSA Label - Replace Overload
31	250-2301	CSA Label - Separate Motor Overcurrent
32	060-0933	Logic Relay
33	060-0934	Logic Relay Expansion Module

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

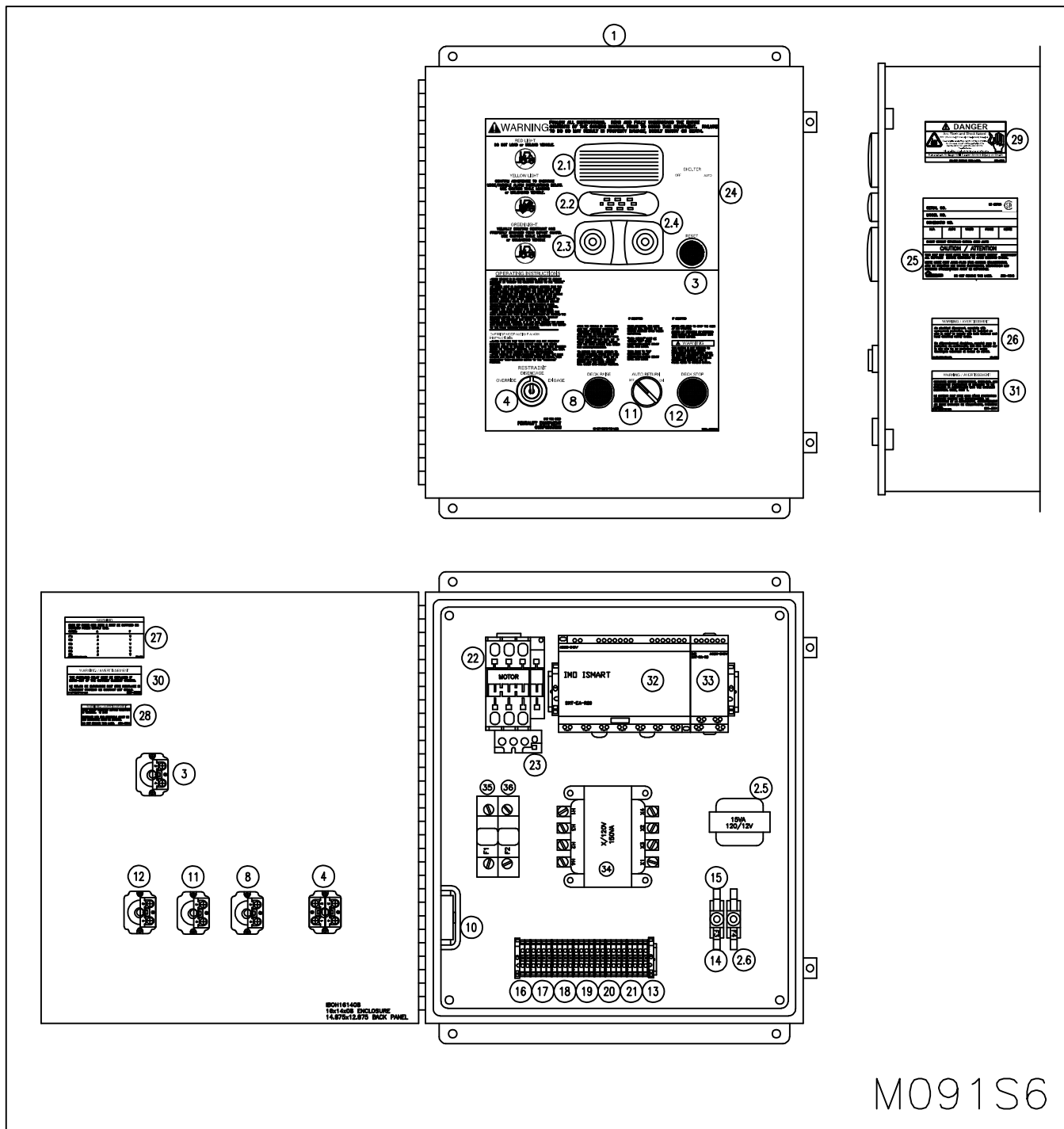


Figure 36B: Three Phase Combo Control Panel

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	060-0248	Electrical Enclosure 16 x 14 x 6
2	161RGA	Red Green Amber Light Assembly
2.1	060-0772	light;panel;red;led
2.2	060-0502	assembly;light;amber
2.3	060-0201	light;panel;green
2.4	060-0202	lens;light;green
2.5	060-0209	15VA 120/12V Transformer
2.6	060-0316	fuse;glass;time delay;spiral;1a;250v
3	161RB	Reset Push Button
4	161-VRSW	Selector Switch Restraint
7	060-0209	Transformer
8	161DR	Deck Raise Button
10	060-0097	120V Buzzer
11	161AR	Auto Return
12	161DS	Deck Stop
13	060-0293	Din Rail Mounting Bar
14	060-0298	Fuse, 2A/250V- Time Delay
15	060-0380	Fuse Holder
16	060-0548	Terminal Block, Beige
17	060-0590	Terminal Block, Green
18	060-0463	Terminal Block, End
19	060-0466	Terminal Marker
20	060-0464	Terminal Block End Stop
21	060-0549	Terminal Block Jumper Bar, 10 Pole
22	060-0184	Contactor
23	see page 38	Thermal Overload
24	250-2580	Control Panel Label
25	250-1313	CSA Label - S/N
26	250-2296	CSA Label - Branch CCT
27	250-2297	CSA Label Fuses
28	250-2300	CSA Label Twist Wire
29	250-2508	CSA Label Arc Flash
30	250-2299	CSA Label - Replace Overload
31	250-2301	CSA Label - Separate Motor Overcurrent
32	060-0933	Logic Relay
33	060-0934	Logic Relay Expansion Module
34	see page 38	Transformer, 150VA
35	060-0381	Fuse Holder
36	see page 38	Primary Fuses

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

DELUXE OUTSIDE LIGHT REPLACEMENT PARTS

USE ONLY GENUINE PENTALIFT REPLACEMENT PARTS

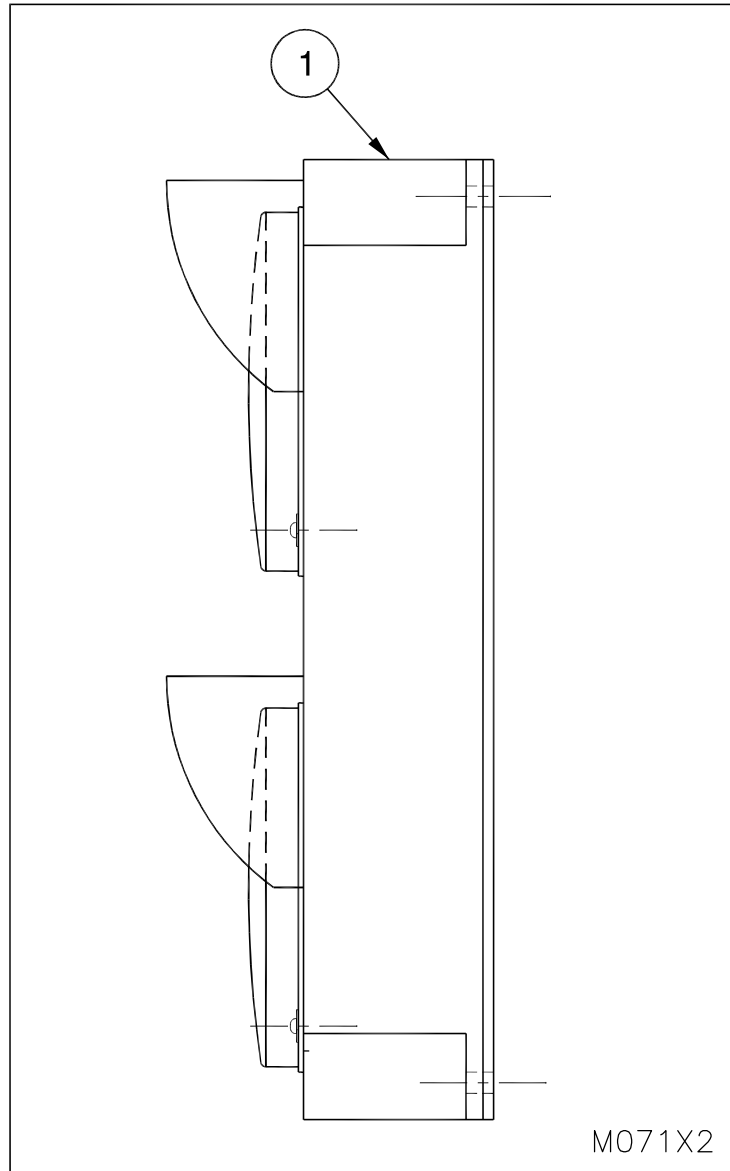


Figure 37: Outside Light Replacement Parts

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	060-0701	Traffic Light Fixture

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

REPLACEMENT SIGNS

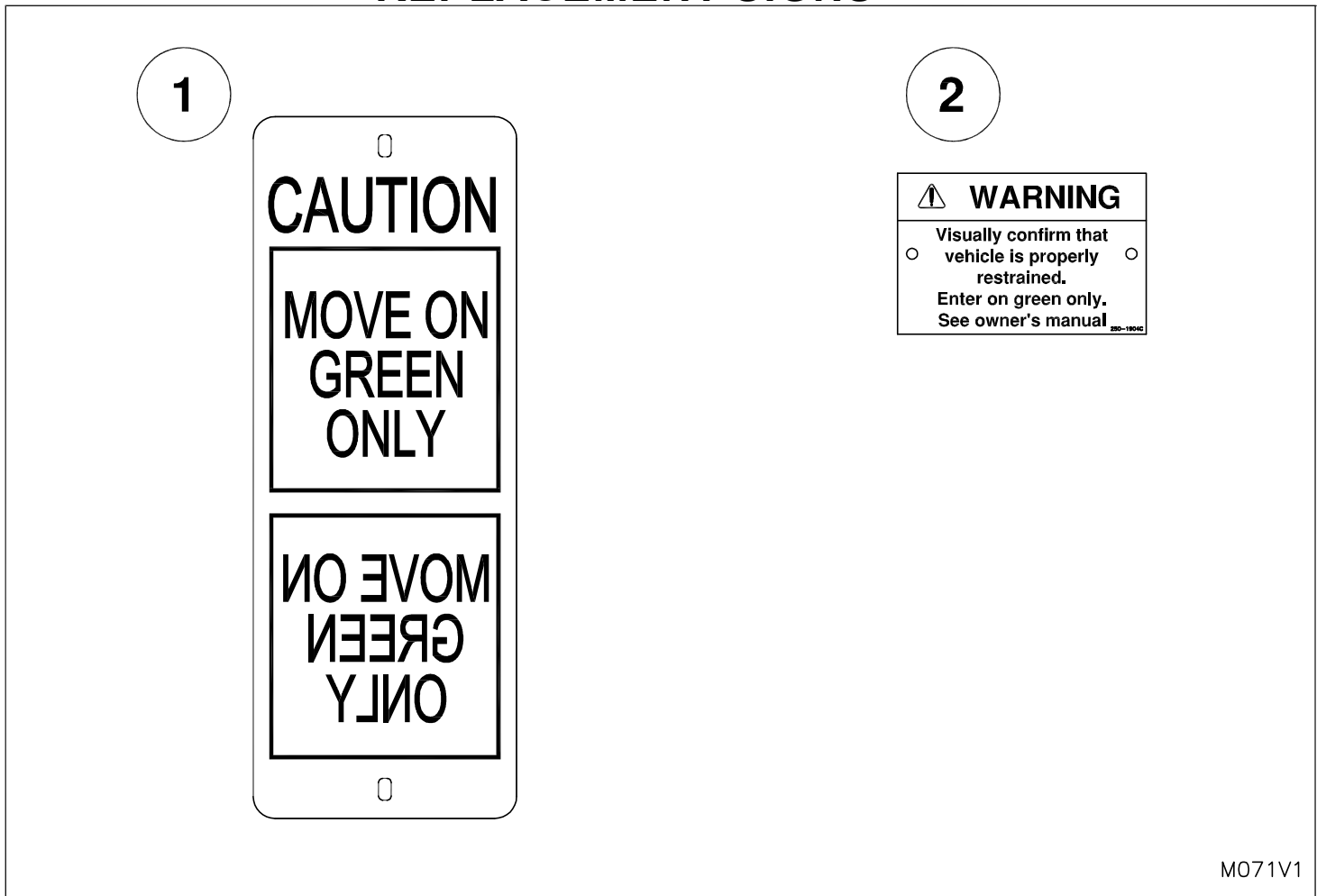


Figure 38: Replacement Signs

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	250-6991	Caution Sign-Move on Green Only
2	250-1904	Interior Shipper / Receiver Sign

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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:

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