



# **MVR Series**

## **Mechanical Truck**

## **Restraints**

LoadingDockSupply.com

1-800-741-1258

PO Box 15 Ashley, OH 43003

The **MVR** is designed for grade mounting at dock face. Proper performance relies on adequate preparation and installation. Read the manual to fully familiarize yourself with the added value of this safety equipment. When properly installed and operated the MVR will provide many years of optimal service.

Be sure adequate electrical service is offered (MVR-103 and MVR-105) to insure proper operation of all electrical circuits.

If any information provided herein is not fully understood contact your local **PIONEER** representative or **PIONEER** direct.

## Safety Procedures



**WARNING:** Read and understand all safety practices and operating instructions. Before installing, operating or servicing the dock leveler. Failure to follow the safety practices and operating instructions may result in property damage, serious bodily injury and/or death.

**If you do not understand the safety procedures or the instructions, ask your supervisor to explain the safety procedures and/or teach you how to use the vehicle restraint.**



**CAUTION:** The installer and/or operator **MUST** be very familiar with the operation, function and various parts of the PIONEER vehicle restraint **PRIOR** to installation and/or operation. If this is not the case, it is **IMPERATIVE** that the installer and/or operator read, and fully understand, the entire contents of this manual. **Be certain to read and understand all warning and caution statements contained in this manual prior to any installation, operation or servicing of this unit.**

- 1 Do not operate this equipment while under the influence of drugs or alcohol.
- 2 Do not stand in the driveway between the vehicle restraint and a truck backing or pulling away.
- 3 Be sure the truck wheels are chocked, or the truck is held in place by a restraining device, before attempting to load or unload the truck.
- 4 Do not use the vehicle restraint if it looks broken or does not seem to work correctly. Lock out/tagout the defective equipment and tell your supervisor immediately.
- 5 Make sure the vehicle restraint is clear of all objects and debris before attempting to operate.
- 6 Be certain that equipment, material and/or people are not between the vehicle restraint and incoming/departing truck.
- 7 Keep clear of the vehicle restraint when it is moving. Never place your hands, arms, feet, or legs in the position where a moving vehicle restraint could cause injury. **If in doubt, do not do it!**
- 8 If the vehicle restraint is not working properly, as described in the operation instructions in this manual, **do not use.** Contact your authorized PIONEER representative.
- 9 Never attempt to work on the vehicle restraint, for service or repair, without proper placement of traffic barricades.
- 10 Damage to the vehicle restraint, personal injury or death can result from abuse and/or negligent use of this equipment.
- 11 If you have any questions, or if a malfunction occurs which is not understood, ask your supervisor to contact your authorized PIONEER representative for assistance **PRIOR** to attempting any corrective measures.



**THIS IS THE SAFETY ALERT SYMBOL. IT IS USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO AVOID POSSIBLE INJURY AND/OR DEATH.**



## **WARNING**

**INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN SERIOUS INJURY AND/OR DEATH.**



**KEEP THIS MANUAL AND ALL SAFETY PROCEDURES IN A SECURE LOCATION WITH EASY ACCESS.**



**WARNING! READ AND UNDERSTAND THIS ENTIRE MANUAL PRIOR TO OPERATING.**



**WARNING! A VEHICLE RESTRAINT CAN BE A POTENTIAL THREAT TO PERSONS AND PROPERTY, IF NOT USED PROPERLY. SAFE OPERATION IS THE RESPONSIBILITY OF THE OPERATOR.**



**WARNING! DO NOT ENTER THE AREA IN FRONT OF OR BELOW THE VEHICLE RESTRAINT. SERIOUS PERSONAL INJURY AND/OR DEATH MAY RESULT.**



**WARNING! DO NOT ATTEMPT TO INSTALL, MAKE REPAIRS OR ADJUSTMENTS. ONLY A TRAINED AND AUTHORIZED SERVICE TECHNICIAN SHOULD PERFORM REPAIRS OR ADJUSTMENTS. ONLY A QUALIFIED CONTRACTOR/SUB-CONTRACTOR SHOULD PERFORM THE INSTALLATION PROCESS. CONTACT YOUR LOCAL PIONEER DEALER FOR ASSISTANCE.**

# “IMPORTANT”

Visually inspect the unit each time it is used.

Make special note of proper caution light operation (MVR103 & MVR105) and correct hook movement.

Standard Lock Out / Tag Out procedures must be enforced in case of any of the following:

- *LED light failure*
- *Hook doesn't move because of debris or damage.*
- *Any type of electrical or mechanical malfunction.*

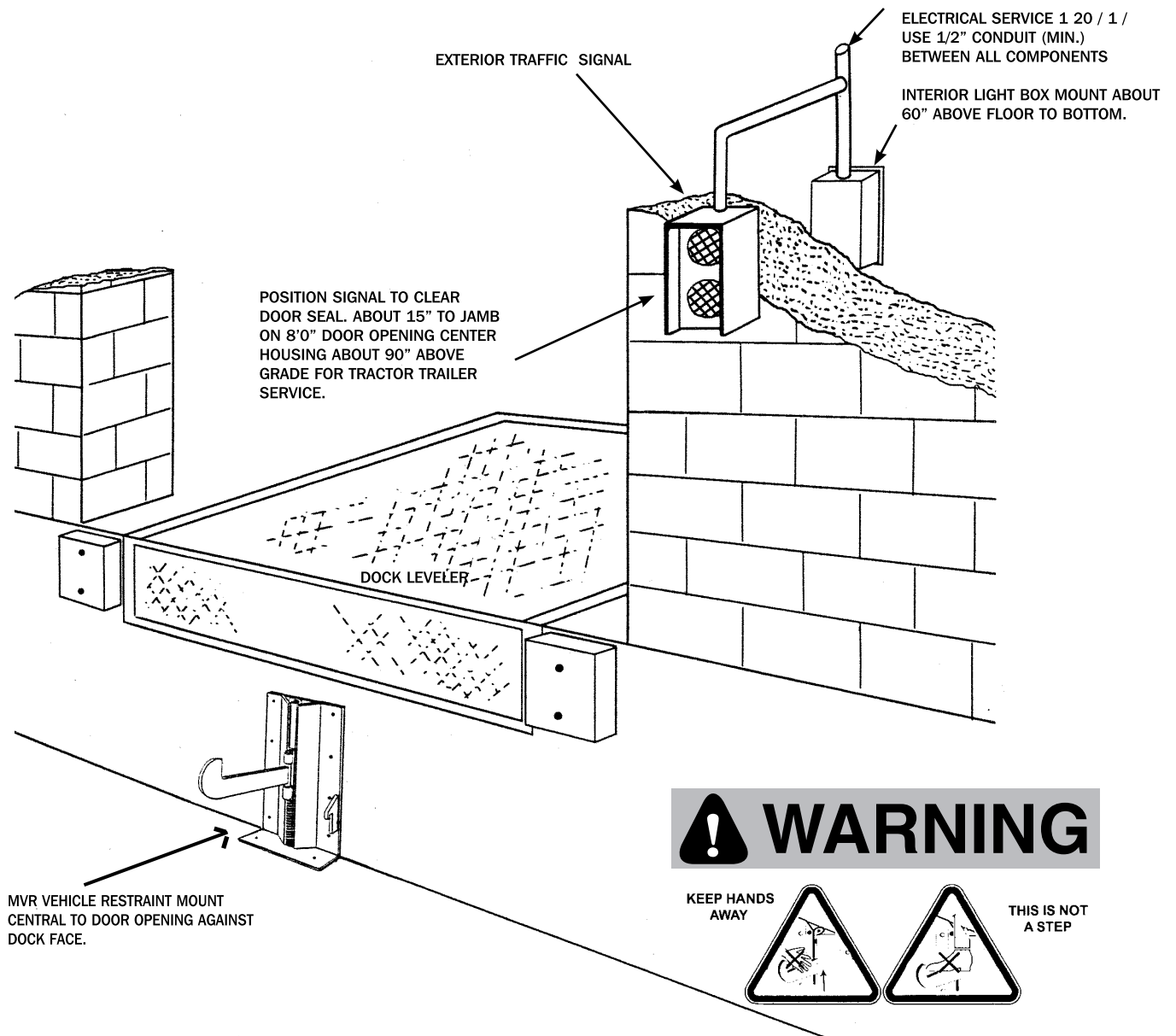
## **WARNING**

**Premature trailer departure could result in severe injury or even death. Always visually inspect the unit to make sure it is secured to the ICC bar.**

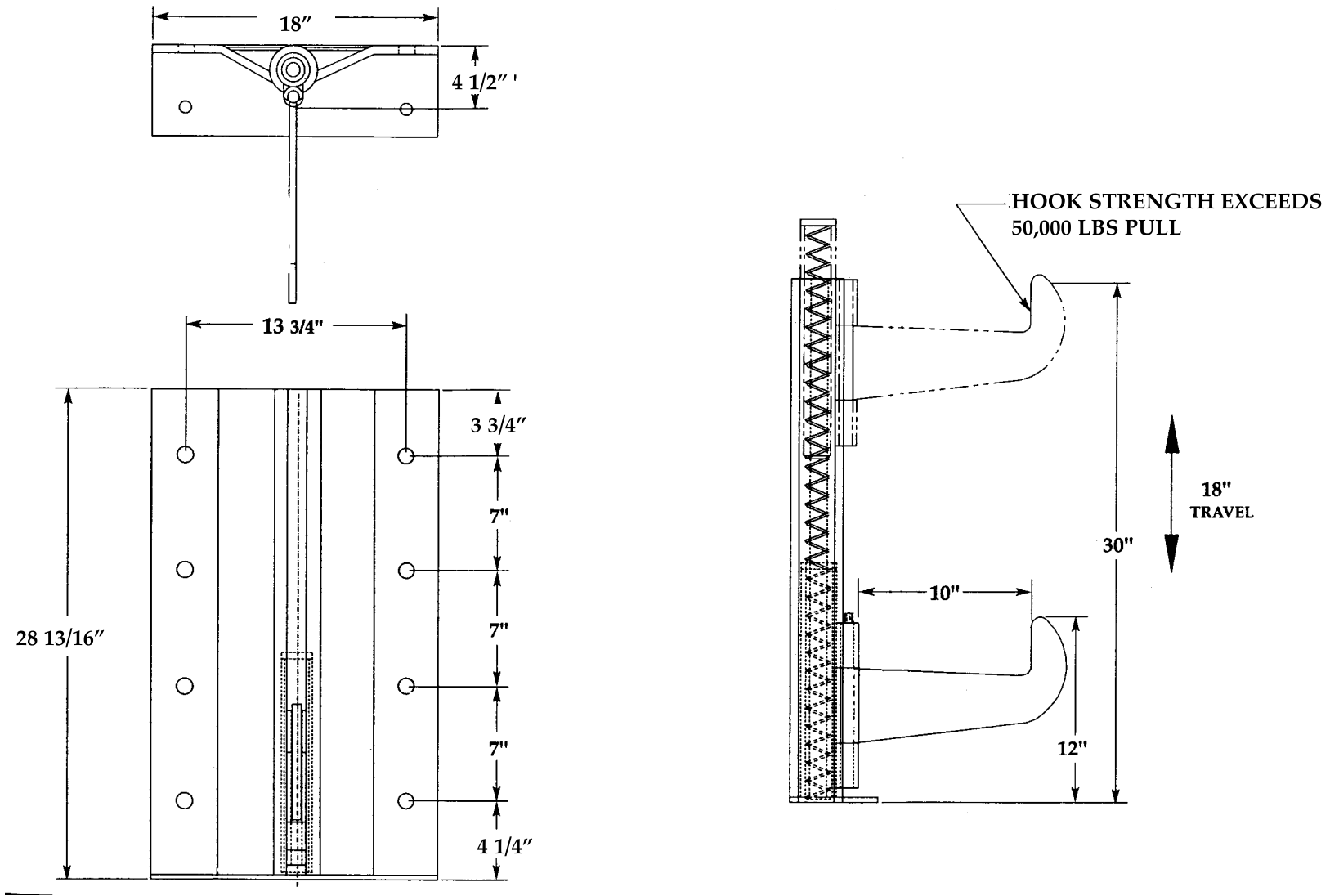
# ARRANGEMENT OF THE DOCK AREA

This unit is designed for grade level location. If local conditions warrant, the Restraint Console may be located above grade. PIONEER recommends limiting above grade mounting to less than 2" to maintain clearance for projected new standards allowing lower ICC frame sections.

The success and strength of any installed product relies heavily on the conditions of the material surrounding the installation site. This will include the dock face and adjoining drive area for the MVR-100 (MVR-103 & MVR-105) Vehicle Restraint. Repair any structural defects to the dock face and/or drive prior to attempting equipment installation. If necessary, prepare alternate attachment methods to accommodate on-site conditions or contact your local representative or PIONEER to assist in preparation of accessories needed to adequately secure this product.



# "MVR" Series Mechanical Truck Restraint Submittal Drawing



## ARRANGEMENT OF THE DOCK AREA

**NOTE:** Attachment of this unit places anchor components in shear and tension rather than direct tension for added strength. Your best results will be achieved when all mounting holes are used.

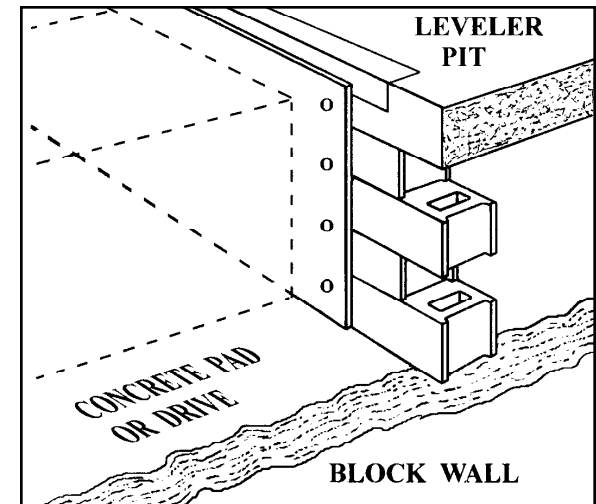
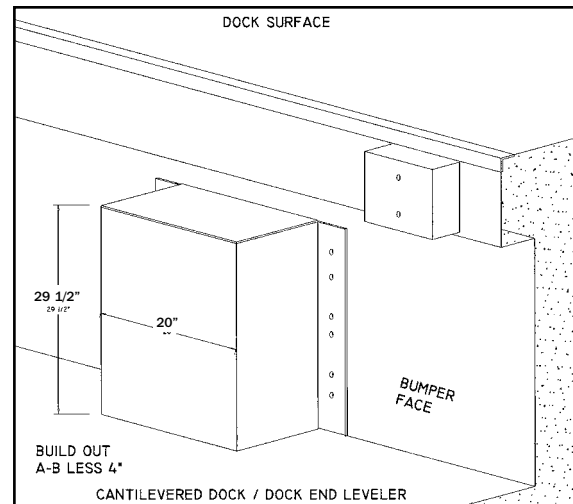
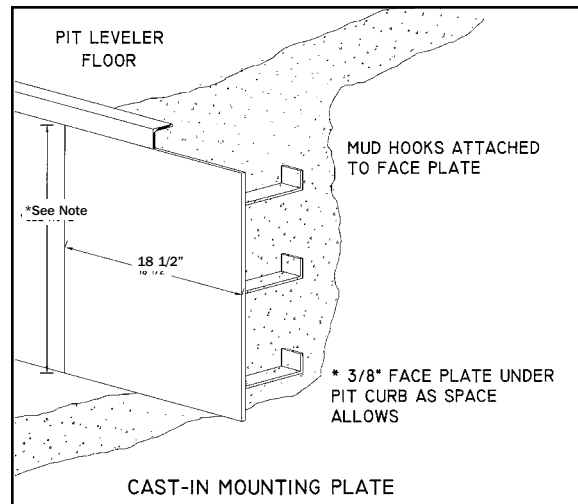
### OPTIONAL INSTALLATION NEEDS:

**New Construction:** Preplanned use of the MVR will afford the opportunity to use a cast in place anchor plate offered by PIONEER or prepared by others to become a fixed component of the dock face. These plates offer maximum strength and ease of installation. When imbedded in a new wall or during remodeling, the MVR becomes a weld-on installation.

**Leveler Overhang:** Should building design offer a cantilevered dock shelf, extended bumpers or dock end mounted leveler (Edge-of-Dock product), the MVR Restraint console must be mounted ahead of the dock wall a distance equal to the location of the dock bumper face from the foundation wall, less 4". The console size is designed

to accommodate industry standard 4" - 6" dock bumping. Any bumper projection more than 6" from dock face necessitates console positioning ahead of dock wall. PIONEER will prepare the MVR per order to satisfy your dock conditions if known in advance. PIONEER can also prepare field adapters for these mounting needs. Discuss with your representative or local fabricator as on-site conditions require.

**Cinder Block Wall:** Usually a block wall offers minimal longevity to face mounted equipment. It is, therefore, necessary to take added measures to assure improved anchoring. A face plate welded to pit slab curb steel and extending to grade level with extra anchoring will be beneficial, allowing for a weld-on installation of the MVR. Additionally, firm foot anchoring is highly recommended. If a concrete approach is not available, a pad should be prepared 8" deep by 6' wide by 4', with two layers (separated) of reinforcement mesh not less than 4' by 4'. A cast-in anchor base is also recommended for weld-in place installation in these situations.





## SECTION 1

## INSTALLATION PROCEDURE

Read and understand all instructions prior to installation or operation of this safety equipment.

The MVR is shipped completely assembled and factory tested. This product displayed proper operation under factory conditions prior to shipment and is ready to install. Inspect all materials received and review arrangement layout included to preview installation setup needs.

Review the dock face area directly beneath the location where truck docking occurs. Remove or relocate any obstacles which would prevent flush and secure mounting of this product. Repair any weakness observed in the mounting area. If conditions warrant, prepare a slab for base mounting of the MVR.

**NOTE:** Base mounting in conjunction with wall mounting provides the ultimate opportunity to maximize the installed strength of this safety equipment and is highly recommended particularly when wall conditions may not be optimum. However, local conditions including floating yard slabs or poor drive construction may negate or minimize the value of this feature. Particular attention should be given other opportunities to offer a maximum installed strength of this product in the event a portion of the prescribed installation method requires deviation from that noted. (See list of optional mounting alternatives.)

Position Restraint console and mark dock face and grade for anchors. Unit should be positioned to sit plumb (vertical) and level (horizontal) and as firmly against dock face as possible. Shim beneath bottom mounting rails as needed to provide firm footing. Shims should be steel and welded into position to avoid creepage or accidental dislocation. This unit is prepared for 5/8" diameter anchors. Minimum length recommended is 5" for wedge type anchors. (See other instructions if dock is not poured concrete construction). Eight (8) hole locations are provided for wall attachment and should all be prepared for anchors.

Grade attachment should be offered as allowed by conditions. Use same technique as wall mount if yard has concrete pad or drive. Compensate length of anchor for any shim addition under mounting plate. For black top or hard compacted drives provide anchor rods of 1/2" diameter by about 15" long.\* These should be prepared with a modestly pointed nose to be driven into the ground surface through the mounting holes offered. The top end should then be welded to secure rod to Restraint base.

The operating range of the MVR offers engagement of most legally mounted ICC frame members. The unit performance will be limited to the position and strength of the ICC frame section which varies by manufacturer and design as well as its condition due to the extent of its maintenance, age and possible abuse. The MVR will accept very high stress and pulling forces, however, this too can be limited by installation technique, anchors and materials and / or the condition of the dock wall and drive area. Conditions or equipment failure due to accident or inadequate preparations and / or reasonable maintenance of the dock area and its equipment could result in further property damage or personal injury.

\*Use 1/2" diameter rebar or similar for good grip characteristics.

**NOTE: Where possible, weld the back of the restraint to the embedded curb angle at the front / leading edge of the pit leveler.**

**CAUTION: Before you start to install the restraint, use proper safety signs and barriers to separate the work area from the remainder of the dock.**

## SECTION 2

## INSTALLATION INSTRUCTIONS

### MOUNTING INSIDE AND OUTSIDE LIGHTS

Mount Inside Light Package (MVR 103 & MVR 105) to convenient location which provides a good view for dock attendant of loading area. We recommend left side of opening looking “out” as shown in dock arrangements diagram as this simplifies installation. Right side of doorway mounting is fine if installation conditions warrant.

Mount exterior traffic light on truck driver’s side of exterior wall (left side facing out) in area clearly visible to driver. Be certain to offer clearance for future or current installations of seal/shelter products. Light housing should be 8-9’ above grade as noted on arrangement diagram.

Route conduit (MVR 103 & MVR 105) and connectors (supplied by electrical installer) to join inside and outside light box (wire also to be supplied by installer). Make connections per diagram provided in light package.

Install trucker’s instruction signs above and below traffic light where clearly visible to incoming traffic.

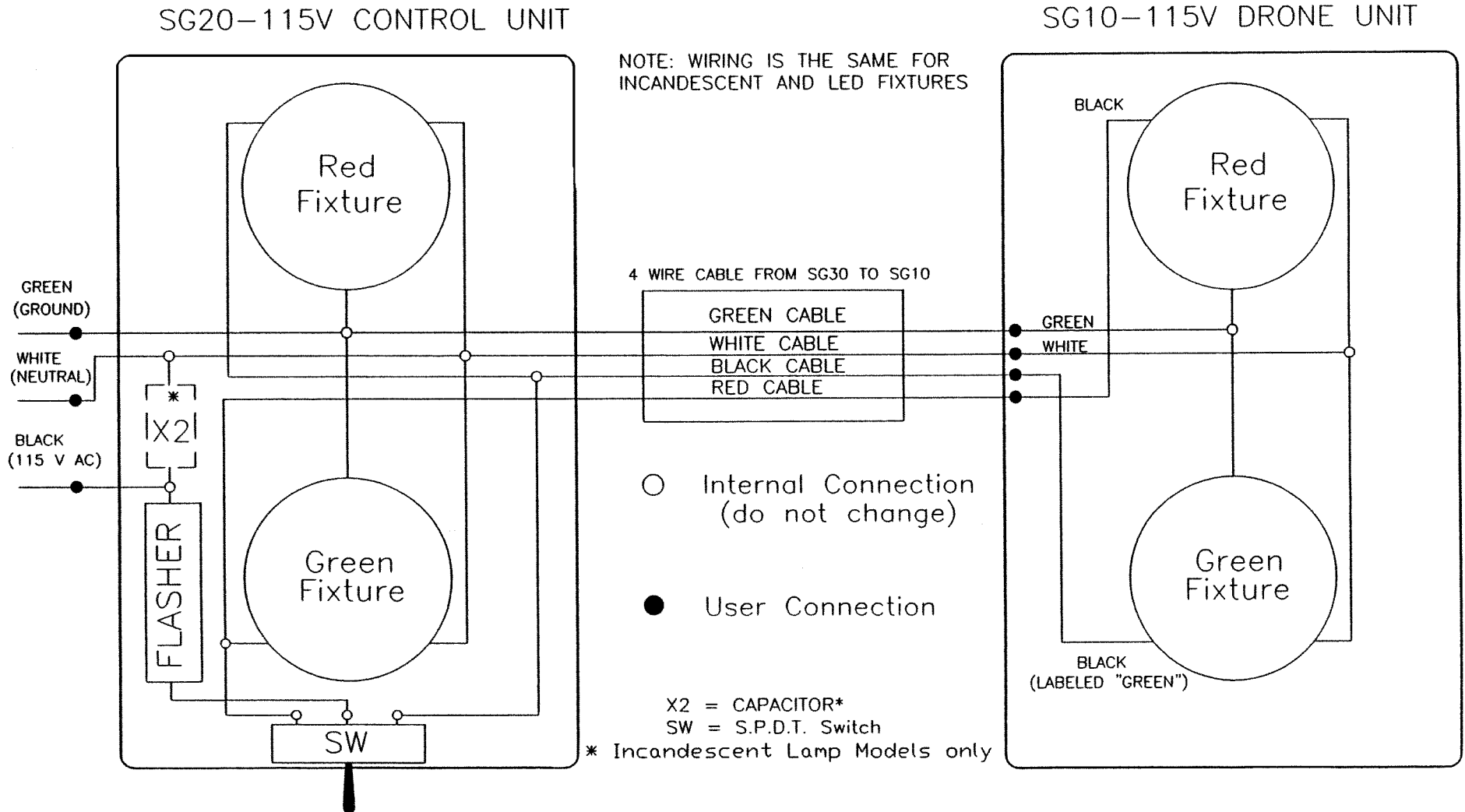
Supply and connect incoming electrical power light boxes per enclosed diagram.



**DO NOT STAND between truck restraint and truck. Failure to follow this warning could result in serious injury and/or death.**

# MVR 103

## AC 115V SG30 STOP & GO WIRING DIAGRAM

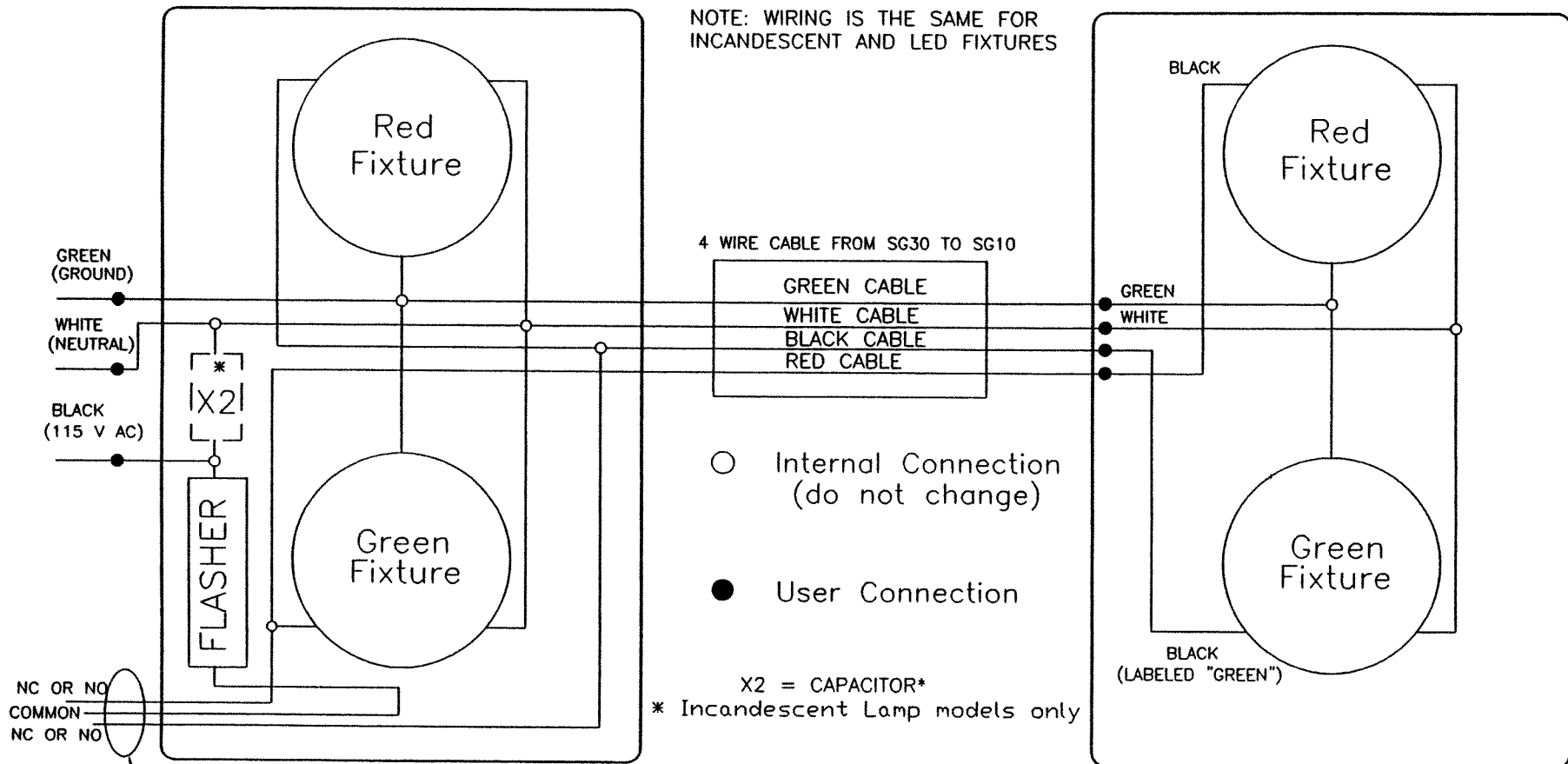


# MVR 105

AC 115V SG30 STOP & GO WIRING DIAGRAM  
(WITHOUT SWITCH—FOR EXTERNALLY CONTROLLED CIRCUITS)

SG20NS-115V CONTROL UNIT

SG10-115V DRONE UNIT



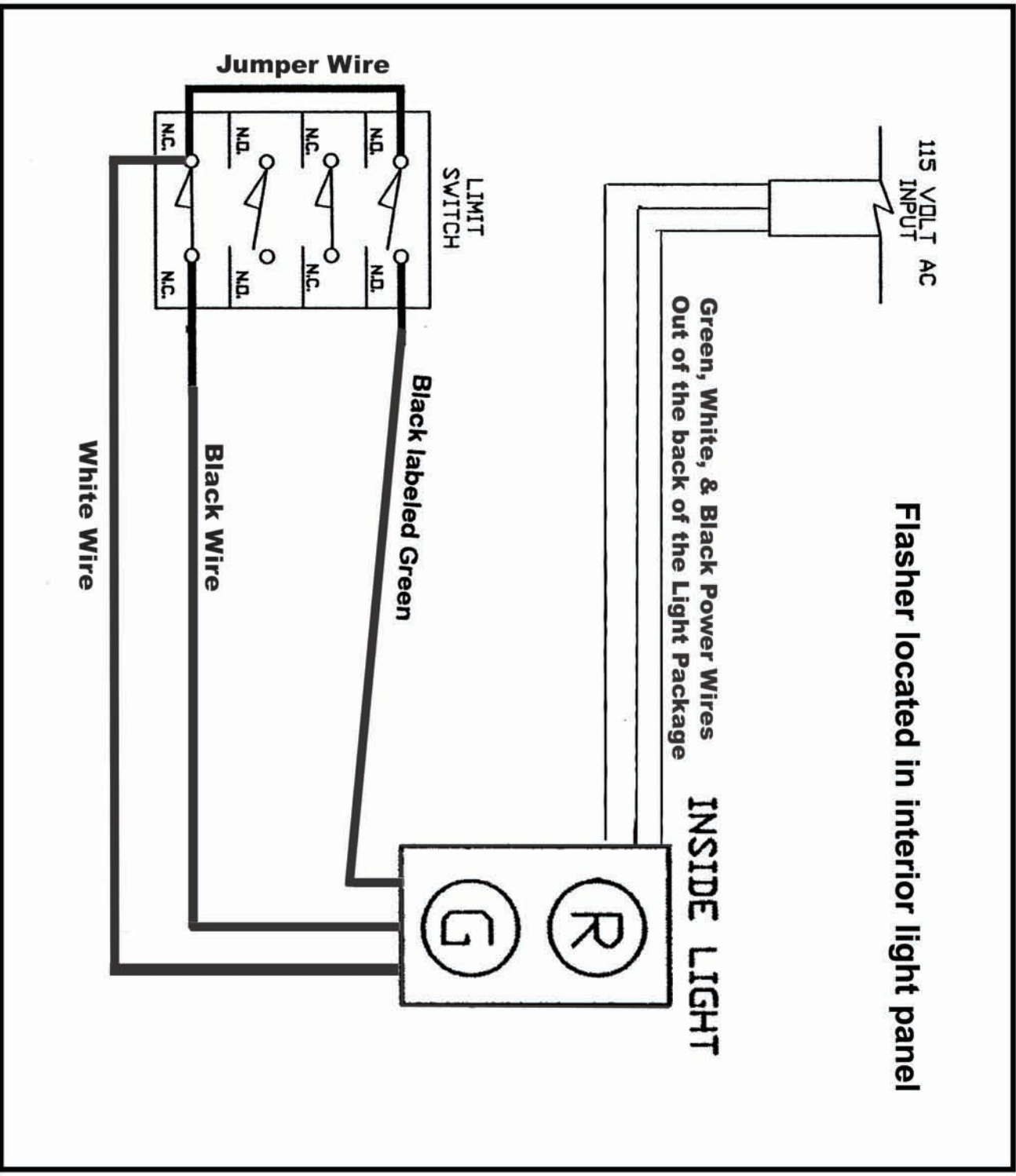
Three wires to external switch:  
Common connection is WHITE wire.  
GREEN lamp connection is BLACK wire with 'GREEN' tag.  
RED lamp connection is BLACK wire with no tag.

# PIONEER LOADING DOCK EQUIPMENT

## MVR105

### ELECTRIC SCHEMATIC

#### FOR LIMIT SWITCH



Properly installed and serviced this Vehicle Restraint will greatly enhance safety during truck loading/unloading operations and should offer many years of service without a regular maintenance schedule. This product is designed for use in the outdoor environment. Regional and seasonal climate variables offer a wide range of maintenance possibilities for equipment exposed to the elements. The factory adjustment of this product offered proper operation prior to shipment. Although the factory attempts to offer equipment which will display normal operation for most installations, local conditions may require attention at installation to cope with specific site needs.

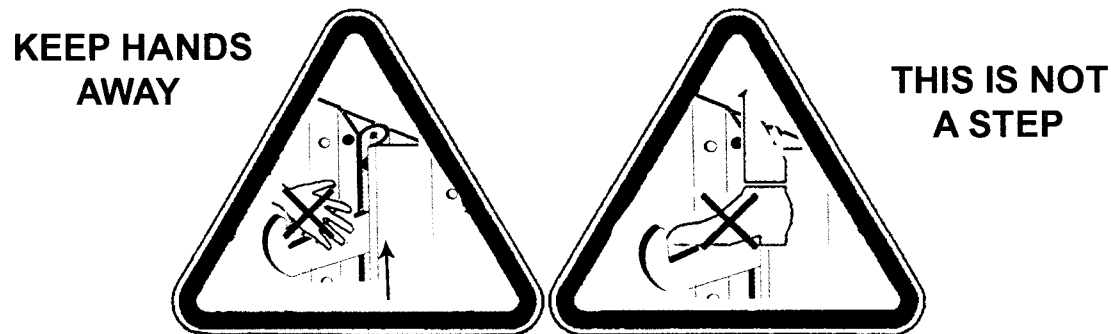
Please contact the factory to review any installation or equipment issue which is not covered by this manual or which is not fully understood.

Contact your authorized PIONEER representative for required service or adjustments.

# **WARNING**

- \* Before loading or unloading a trailer, while using the MVR truck restraint, ALWAYS inspect to be sure that the ICC bar is functional so that it can be captured by the truck restraint. If a condition occurs that cannot be remedied by backing the trailer firmly against the dock bumpers, secure the trailer by other means.
- \* Be sure the area around the housing assembly is free of all objects, debris, or any other obstructions.
- \* ALWAYS operate the MVR truck restraint from top of the dock.
- \* Inspect all MVR truck restraint lights daily to make certain they work properly.
- \* Perform maintenance on the MVR truck restraint in accordance with the Maintenance procedures on page 11 of this manual.
- \* MVR truck restraints should only be operated by authorized personnel who have read and understand the Owner's Manual.
- \* Call your local PIONEER representative with any questions.
- \* DO NOT STAND between truck restraint and truck.

# **WARNING**



## SECTION 4

## OPERATION

The PIONEER MVR Vehicle Restraint uses a simple extension spring to engage and disengage the locking hook of this unit. This system eliminates the need for regular maintenance although an adjustment as previously noted may be in order. The Restraint hook is activated and retracted as follows:

With the truck docked firmly against the bumper face, the dock attendant simply engages the activation rod to push down and turn the hook so that it can rise and engage the ICC bar. He then flips the switch (MVR 103) on the inside light box and the exterior traffic signal will switch from green to red (the MVR 105 lights will change automatically via a limit switch) to advise the trucker not to attempt a departure. The inside light will switch to green to advise a good loading condition. A brief check of the engagement should show the ICC frame entrapped by the restraining hook of the MVR. If the truck

is noted to have a weak or missing ICC frame the attendant should advise supervision of the noted problem and see that other measures are taken to secure the truck prior to loading or unloading. The MVR should remain engaged to offer a secondary opportunity by controlling truck traffic with its exterior traffic light.

When the truck is ready to depart, the dock attendant engages the activation rod, pushes down on the hook and turns it to the left to secure it. He then flips the manual switch (MVR 103) on the inside light box and the exterior traffic light will switch from red to green to release the docked truck; (the MVR 105 lights will change automatically via a limit switch) and the interior visual display will switch to red to advise caution around the dock area because the MVR is now deactivated and the truck may leave at any time.

## SECTION 5

## MAJOR COMPONENTS

**Restraint Console:** A heavy steel housing, to enclose the operating components of the MVR, serves as the mounting framework for the unit installation. The console is offered for grade level mounting against the dock wall face. Alternate mounting options are available to satisfy unique local conditions.

**Restraint Hook:** Operates to engage the ICC frame section of the truck or trailer chassis. When engaged the Restraint hook offers resistance to truck movement. When disengaged the Restraint hook is stored flat against the housing to allow free passage of docking or departing vehicles.

**Extension Spring:** The MVR is activated by an extension spring and stored to the side by pushing down, turning to the left and releasing hook to engage storage hook.

**Activation Bar:** Bar is stored away from unit and is uniquely constructed to act as neutral counter balance to activation spring.

**Interior/Exterior Traffic Lights:** High impact polymer enclosures for housing red and green visual traffic control indicators to display docking or no-go conditions for trucker. To open light housing, screw clamps must be loosened to service lights or wiring.



## SECTION 6

## SPECIFICATIONS

**Electrical: 120V AC, 20A.**

**Wiring:** Refer to field arrangement drawing (Page 1) for conduit and wire needs. Wiring diagram included in light box.

**Limit Switches:** Industrial quality momentary contact type. Used to control traffic signals and stop cycle in motor control circuit. (MVR 105)

**Exterior Lights:** (Red and Green) Sealed beam lamps, 120V.

**Red LED lens:** Part No. 9489

**Green LED lens:** Part No. 9488

## SECTION 7

## MAINTENANCE

**Maintenance Procedure:** Shut off electrical power before lamp replacement.

**Quick Check:** Are all lamps on when required in cycle?

**Visual Indicator:** Proper traffic signals are critical to this safety equipment. Review functions on Page 7. Verify correct lamps on / off during lock / unlock cycles. See specifications on this page for replacement lenses. Shut power off before lamp replacement.

**Lubrication:** This product is designed to function without excessive lubrication. However, a squirt of white lithium grease or similar product on hook slide will help promote a smooth operation.

 **WARNING**

A safe work place requires all lights to be working properly. **DO NOT** use the MVR truck restraint if parts are broken or missing.

 **WARNING**

Post safety warnings and barricade the work area, at dock level and ground level, to prevent unauthorized use of the dock position.

 **CAUTION**

When lifting unit use a proper lifting device. Lifting by hand may cause serious injury and/or death.

# **IMPORTANT**

Maintenance may be required more frequently at loading docks exposed to harsh environments. Contact PIONEER if accelerated maintenance is required.