

# PENETRATOR

## X5 MOBILE FALL PROTECTION

# SAFETY & OPERATIONS MANUAL

**Do not throw away these instructions!**  
**Read and understand these instructions before using this product.**

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Online  
Safety & Operations  
Manual

Use these instructions as part of a training program as required by OSHA and any applicable state agency. The user must understand how to safely use the Penetrator and all safety equipment used in combination with the Penetrator Fall Protection device.

A competent person who is highly trained and experienced, assigned by the employer, must be responsible for all elements of a fall safety program, including the regulation, management, and application as it relates to the use of the Penetrator and related components.

**MADE**  
**\*IN THE\***  
**USA**

Instruction Sheet #08391  
E1859, Rev. 12/21/21

**TIE DOWN**  
MANUFACTURING INGENUITY

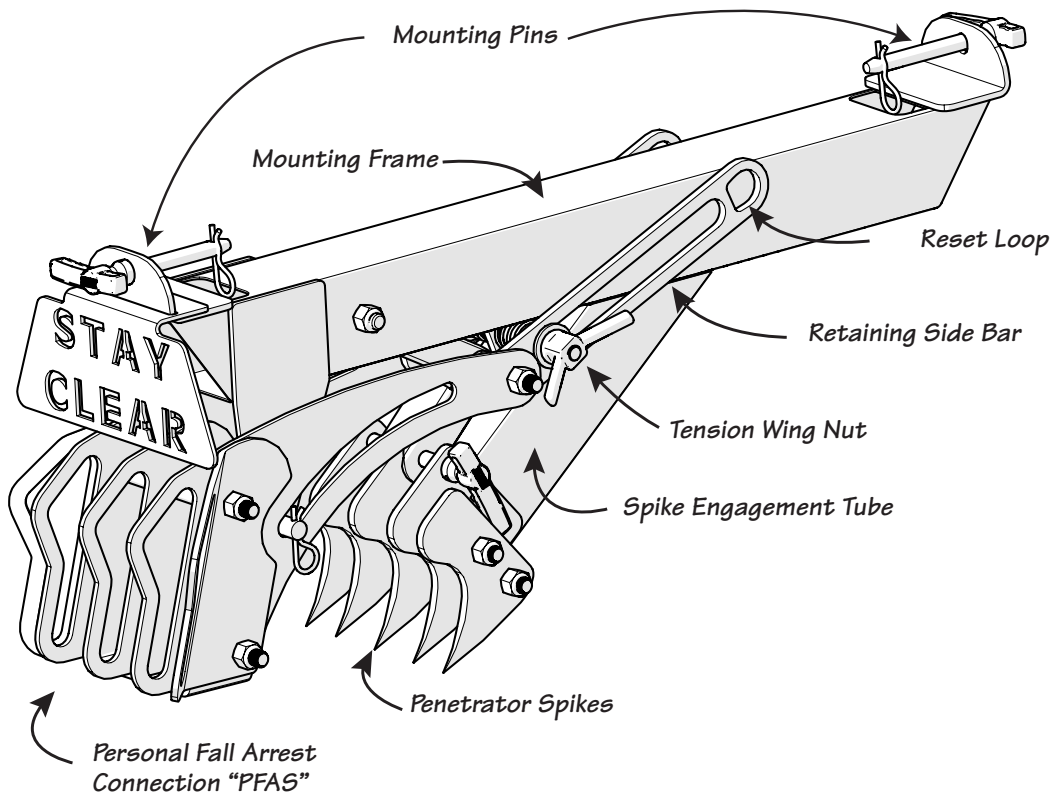
404-344-0000 • [www.tiedown.com](http://www.tiedown.com)  
605 Stonehill Drive SW, Atlanta, GA 30336  
[sales@tiedown.com](mailto:sales@tiedown.com)

# Introduction

## The industries' first lightweight and fully portable mobile fall protection device 5 Fall Arrest and 2 Fall Restraint

When a fall occurs, the powerful penetrating spikes engage, piercing into the roof insulation and metal decking, thus creating a safe, secure anchor. For use on most substrates, the Penetrator has been tested for use on Built-Up, TPO, ISO, PVC, EPDM, and other standard materials that are part of a finished roof system. The Penetrator is reusable and offers the lightest mobile fall protection system available on the market today.

New OSHA Rule in affect: Walking-Working Surfaces, #1910.28, please comply with this as well as all Local, State and Federal OSHA rules. The Penetrator is compliant with OSHA Fall Protection Regulation 1926.502

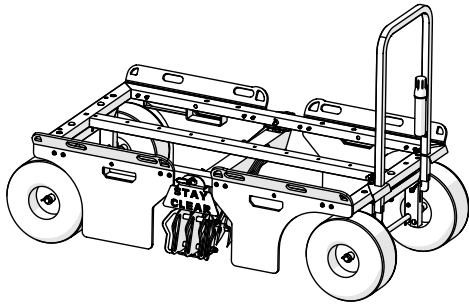


## ⚠️ WARNING ⚠️

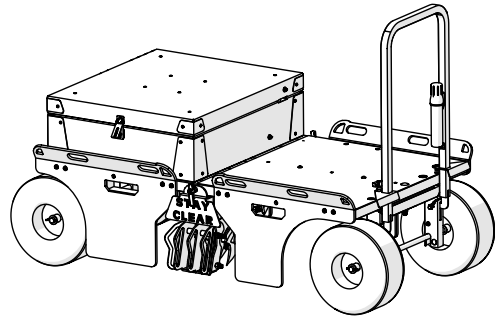
Serious injury or death may occur if this equipment is used for purposes other than intended. Tie Down provides the following instructions for the use and care of this equipment. It is the responsibility of the user to understand and convey proper instruction to any and all individuals who use this product for Fall Arrest and or Fall Restraint. The Penetrator complies with the requirements set forth by the Federal Occupational Safety and Health Administration (OSHA) when used according to the manufacturers' instructions.

The Penetrator X5 device was designed and tested only to be used on the Penetrator Roofing Cart with Flat Free Tires.

# Penetrator X5 Model Configurations



**Original - PX5**  
Part ID: 72838

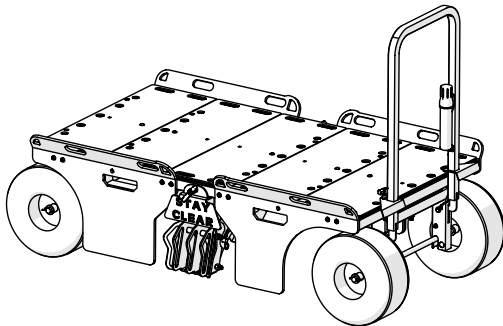


**Professional - PX5**  
Part ID: 72836

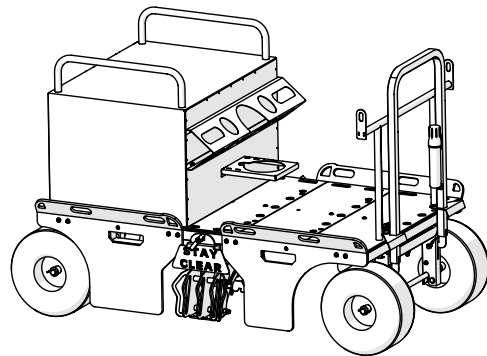
## Recommended Surfaces:

Gypsum Deck, Modified Bitumen Membranes, Built-up Roofing (BUR) Membrane, Modified PVC Membranes, Thermoplastic Polyolefin (TPO) Membranes, Polyisocyanurate (ISO), Expanded Polystyrene (EPS), EPDM Roofing Membranes, Ballasted EPDM Membrane, Hardboard, Flat Surfaces to slopes up to 1:12, Metal Deck (20 ga. And 22 ga. ONLY), Dens Deck & Plywood.

**NOT FOR USE ON CONCRETE**



**Multi-Pro - PX5**  
Part ID: 72839



**Sentinel - PX5**  
Part ID: 72833

## Recommended Surfaces:

Gypsum Deck, Modified Bitumen Membranes, Built-up Roofing (BUR) Membrane, Modified PVC Membranes, Thermoplastic Polyolefin (TPO) Membranes, Polyisocyanurate (ISO), Expanded Polystyrene (EPS), EPDM Roofing Membranes, Ballasted EPDM Membrane, Hardboard, Flat Surfaces to slopes up to 1:12, Metal Deck (20 ga. And 22 ga. ONLY), Dens Deck & Plywood.

## PX5 Spike Tube Removed:

Concrete

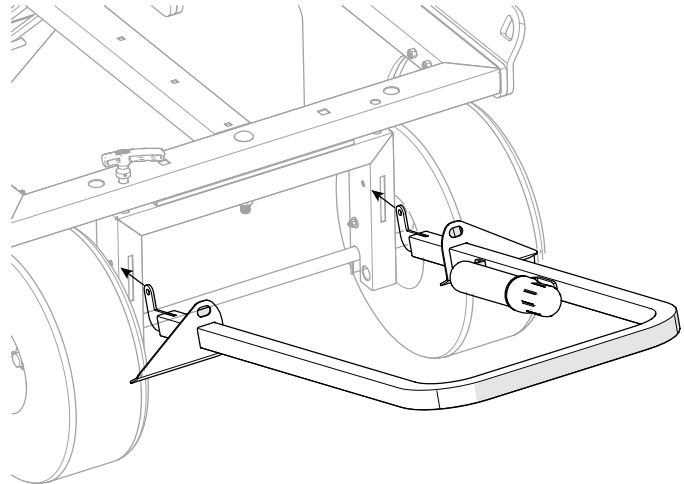
# Penetrator X5 Handle Installation

Some Penetrator X5 models may ship from the manufacture with the tow handle not installed. If your model arrives without the tow handle installed follow the directions below.

Cut shipping strap or remove shipping material around the handle.

Align the tow handle with the end tabs in upward position. The handle brakes will be on the below the tow handle.

Insert the tow handle into the slots on the front axle. Align the mounting holes with the handle and axle.

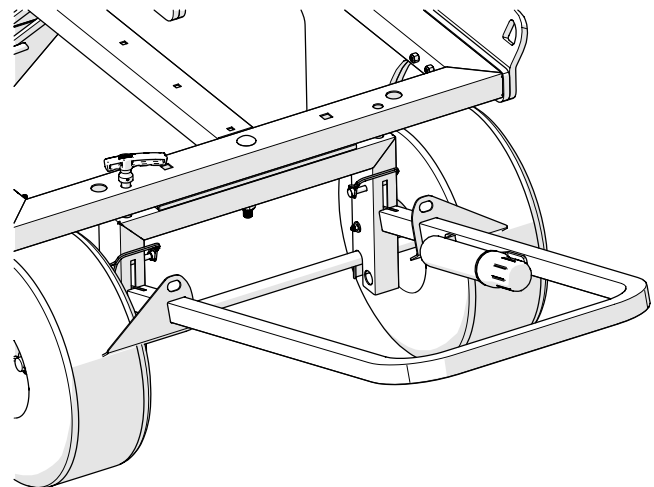
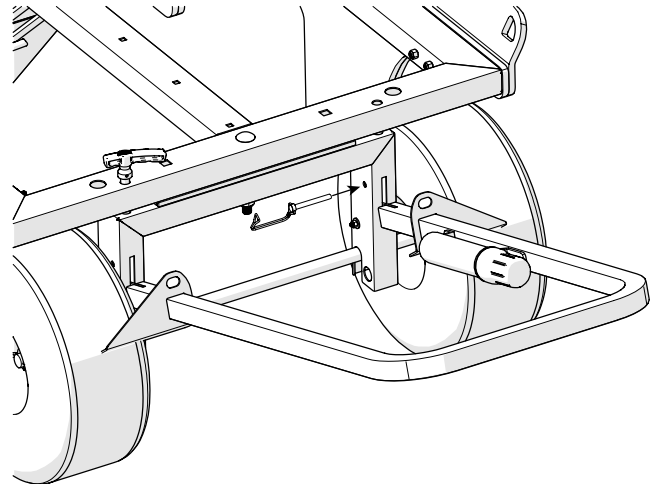


Locate the two safety pins needed for the tow handle.

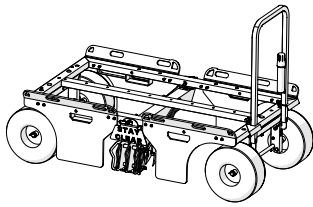
Open the end of the safety pin

Working from the inside of the axle, insert safety pin through the axle and tow handle coming out the opposite side of the axle. Secure the Safety pin by placing the clip around the axle and pulling the clip over the tip of the safety pin.

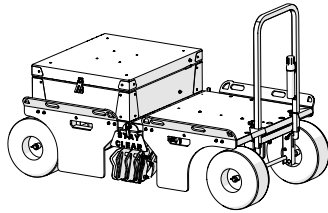
Repeat for the other side tow handle.



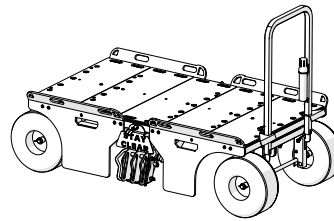
# Penetrator X5 Operations



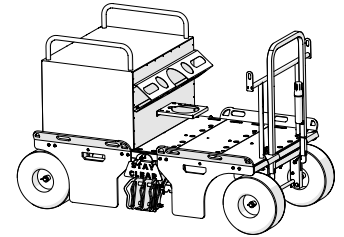
**Original - PX5**  
Part ID: 72838



**Professional - PX5**  
Part ID: 72836



**Multi-Pro - PX5**  
Part ID: 72839



**Sentinel - PX5**  
Part ID: 72833

## Applications

When set up properly the Penetrator X5 allows for five workers to be tied off for fall arrest using the specially designed fall arrest connection mechanism with three individual attachment points. An additional two workers can be tied-off for fall restraint at the specified attachment points.

The Penetrator X5 in conjunction with the Roof cart may be used as an anchor point in a complete mobile fall protection system. The Penetrator X5 with cart allows both worker mobility and fall protection. See [www.osha.gov](http://www.osha.gov) for all regulations and standards.

**Fall Restraint System** – A fall restraint system (FRS) prevents the user from falling. The system is comprised of a body harness along with an anchorage, connectors and other equipment. The components typically include a lanyard and also may include a lifeline and other devices. **The Penetrator X5 can be used as an anchorage in a fall restraint system for up to two workers.**

**Personal Fall Arrest System** – A personal fall arrest system (PFAS) arrests a fall after a fall incident has occurred. The system is comprised of an anchor point, connecting device, body harness, connectors, and a body harness and must include a deceleration system, or suitable combinations. Note that a PFAS does NOT prevent a fall from occurring. **The Penetrator X5 can be used as an anchorage in a PFAS for up to Five workers.** A Personal Fall Arrest System must meet the following OSHA requirements:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;
- Be rigged (lifeline plus deceleration device) so that an employee can neither free-fall more than 6 feet (1.8 meters) nor contact any lower level;
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to OSHA 3.5 feet (1.07 meters); and 4 ft. per ANSI 359.
- Have sufficient strength to withstand twice the potential impact energy of an employee free-falling a distance of 6 feet (1.8 meters) or the free-fall distance permitted by the system, whichever is less.

**Anchorage** — An anchorage is a secure point of attachment for lifelines, lanyards, or deceleration devices. The Penetrator is a mobile anchorage.

**Penetrator X5 Use** - For use on low slope surfaces only.

# Applications: Surfaces

## Recommended Surfaces:

- ✓ Gypsum Deck
- ✓ Built-up Roofing (BUR) Membrane
- ✓ Thermoplastic Polyolefin (TPO) Membranes
- ✓ Expanded Polystyrene (EPS)
- ✓ Ballasted EPDM Membrane
- ✓ Flat Surfaces to slopes up to 1:12.
- ✓ Dens Deck
- ✓ Modified Bitumen Membranes
- ✓ Modified PVC Membranes
- ✓ Polyisocyanurate (ISO)
- ✓ EPDM Roofing Membranes
- ✓ Hardboard
- ✓ Metal Deck (20 ga. And 22 ga. ONLY)
- ✓ Plywood

## Do Not Use on the Following Surfaces:

- ✗ Concrete
- ✗ Snow
- ✗ Tectum Deck
- ✗ Metal Deck less than 22 ga. Or over 20 ga. (Structural Deck)
- ✗ Loose laid material not part of a complete finished system.
- ✗ Ice

# Roofing Load Requirements

**Before the Penetrator and cart are hoisted to any roofing deck the user MUST VERIFY THAT THE DECK CAN ACCOMMODATE THE LOAD REQUIREMENTS.**

Verify that the surface that the Penetrator X5 will be used on is capable of supporting both the unit and personnel using it. Inspect that the entire area to determine if the working surfaces have the strength and to support users safely.

**CAPACITY:** The Penetrator X5 Mobile Fall Protection System is designed for a maximum of five persons for fall arrest and two for fall restraint with a combined weight (clothing, tools) of no more than 310 lbs. per person. No more than five persons may be connected to the Penetrator at any time.

**IMPORTANT:** DO NOT start work for which fall protection is required until the Penetrator and corresponding FRS or PFAS have been completely installed. Do NOT disable any part of the FRS or PFAS, including the Penetrator unit, or reposition the unit, until work for which fall protection is required has ceased.

# Placement/Repositioning of the Penetrator X5 Safety Cart

## Prior to Positioning the Penetrator X5:

Verify that the surface is capable of supporting the Penetrator X5, and all personnel using it.

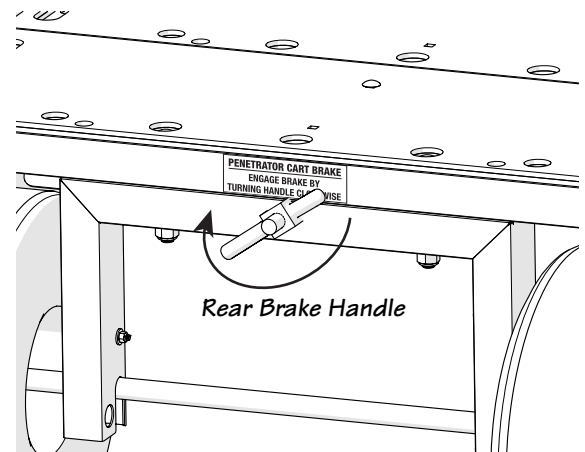
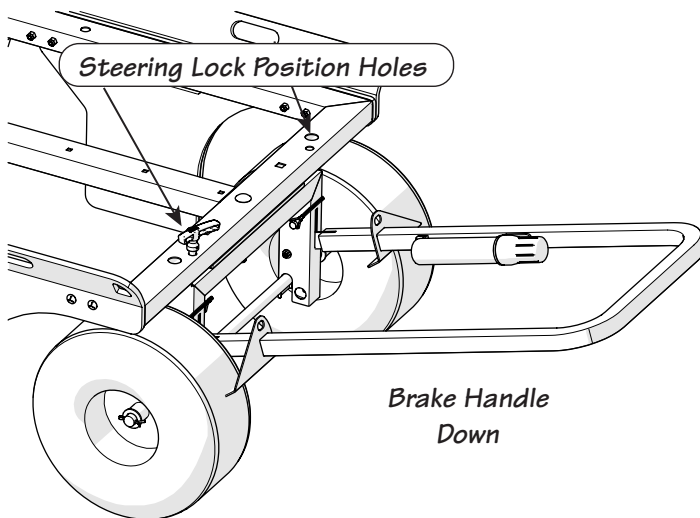
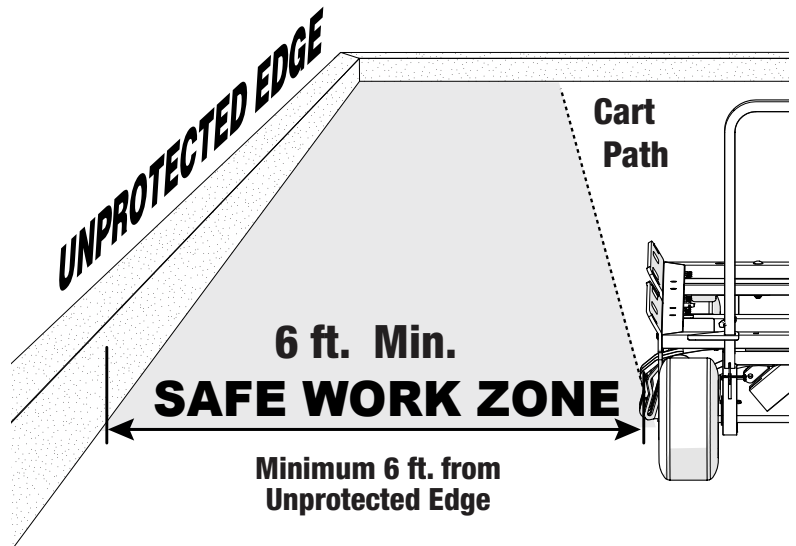
## During Repositioning the Penetrator X5:

Active fall restraint is maintained by a maximum length of seven feet less than the distance of the cart to the leading edge.

The attachment tie-off anchor points must be pointed toward the leading edge and the cart is set to travel parallel to the unprotected edge or leading edge.

Position the Penetrator X5 such that the front guard plate is min. 6 feet from the leading edge, and in line with the center of the area to be worked.

**IMPORTANT:** When repositioning the Penetrator X5, active fall restraint is maintained by a maximum length of seven feet less than the distance of the cart to the leading edge. Once repositioned, the handle must be in the down position in order to lock the wheels and the steering locking pin must be inserted into the steering mechanism (shown below). The rear brake must be engaged by turning the brake handle clockwise until tire brake actively engages the tires.

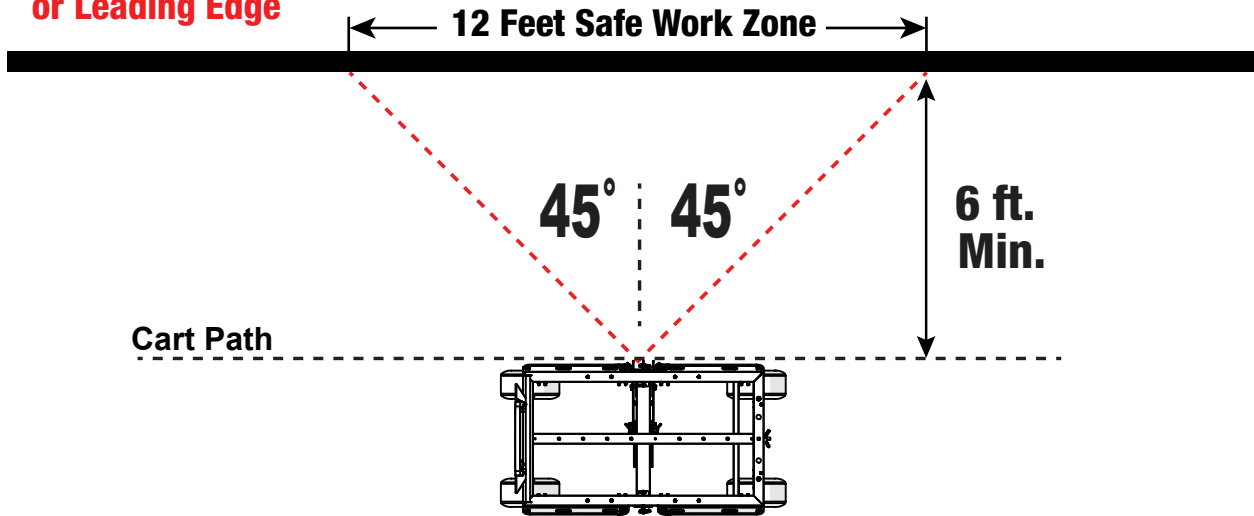


Make sure the handle/tire brake mechanism is in the down position and the brake stop rests firmly against the front tires. Place the Pull Pin into the front axle fork through the appropriate hole located on either side of the cart by aligning with the roof cart frame tube with the front axle fork. This will prevent the cart from turning.

Set the rear by turning the handle clockwise. Stop turning once you feel a firm grip in the tension of the handle

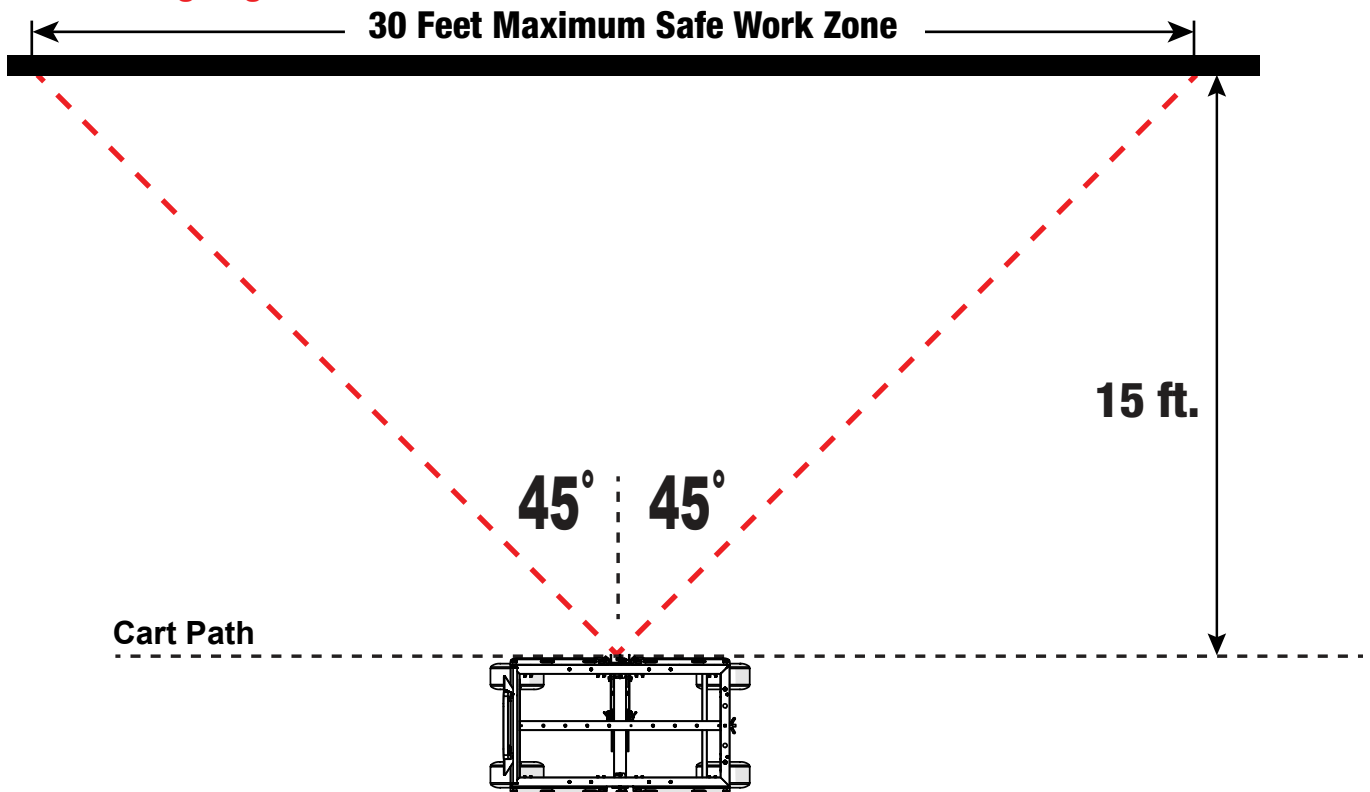
# Range of Use

**Unprotected Edge  
or Leading Edge**



**Range of Use is double the distance from the leading edge up to 15 feet.**

**Unprotected Edge  
or Leading Edge**



**After 15 feet the maximum Range of Use is 30 feet.**



# Connecting to the Penetrator X5

**DO NOT hook Personal Fall Arrest System (PFAS) to any point except a Fall Arrest or Fall Restraint Tie-off Anchor Point**

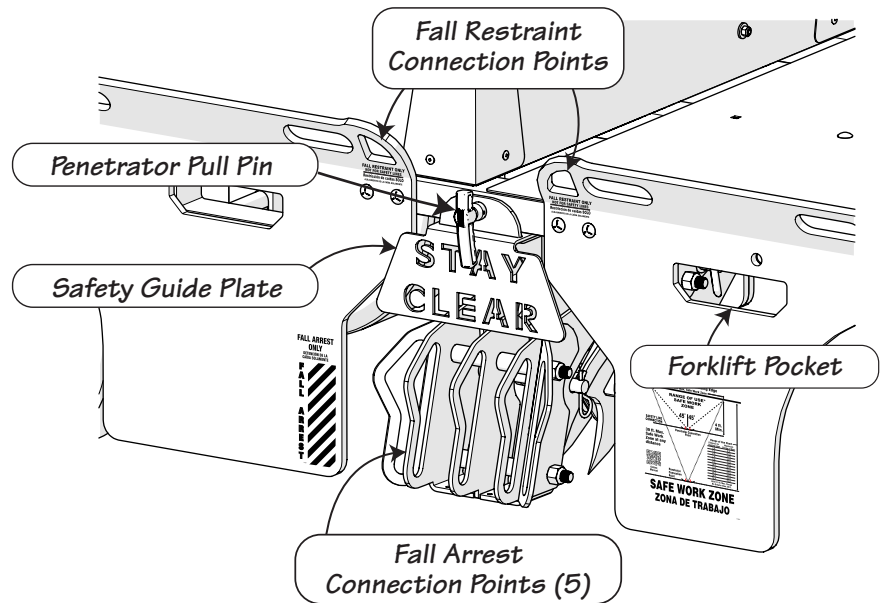
When making connections, only use double-locking snap hooks with this equipment. Only use connectors that are suitable to each application. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure that all connectors are fully closed and locked.

## The Fall Restraint Connection Points

Two Fall Restraint Anchor points are located above the red Stay Clear guard. The Fall Restraint Anchor points DO NOT arrest falls. The user must insure that the Fall Restraint worker is personally equipped with lanyards, harnesses, safety lines, etc., when working in conjunction with potential fall arrest workers. **Do Not allow the fall restraint user to work close to any roof edge.**

## FALL ARREST TIE-OFF Points

The five Fall Arrest Tie Off points are located on the lower side of the Penetrator X5, just below of the stay clear guard. The user must insure that the lanyards and harness are properly attached.



**IMPORTANT: DO NOT allow workers to cross paths (cross lines) at anytime! Fall Restraint/Fall Arrest lines must never cross over each other. Crossed lines will cause the unit to not function as intended. Failure to maintain clear lines may cause a accident or death.**

# Before Using the Penetrator X5

OSHA requires that before operating the system there must be an inspection for damaged equipment.

- 1 Check for loose, bent or damaged parts, including the four penetrating spikes.
- 2 Check welded components for distortion, cracks, or other damage.
- 3 Check Tie-off points for distortion or damage and confirm that they are properly tightened.
- 4 Check retaining slide bars for rusting and/or wear before each use.
- 5 All labels must be present and fully legible. (Copies of all labels are attached at the back of this section for accurate inspection.)
- 6 Check for all pull pins that they are fully inserted and the safety cotter pin clips are attached to each pull pin.

**IMPORTANT: BEFORE USING THIS UNIT, A RESCUE PLAN MUST BE ADOPTED.**

OSHA requires employers to provide a quick rescue of employees in the event of a fall or employers shall assure that employees are able to rescue themselves. It is impossible to guarantee that an employee can rescue himself because he may be unconscious or injured as a cause or result of the fall. Therefore, a procedure involving rescuers must be adopted.

**Consult with your roofing distributor/supplier for fall rescue equipment.**

**DO NOT OPERATE DAMAGED EQUIPMENT. DO NOT OPERATE EQUIPMENT THAT HAS BEEN MODIFIED.**

(Please use the Inspection and Maintenance Log contained within the instructions manual )

## Maintenance and Care

- ✓ Inspect Penetrator X5 before and after each use.
- ✓ Keep wheels free from roofing debris. Any asphalt or adhesives on the tires can cause the wheel brake to function improperly.
- ✓ Regularly inspect for damaged or missing parts and do not place the Penetrator into service until all missing and or damaged parts have been replaced.
- ✓ Store the Penetrator X5 in a place protected from weather and where only authorized employees have access.
- ✓ Maintain finish to prevent corrosion.

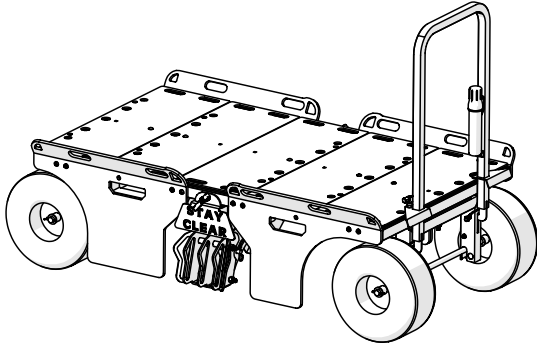
## General Safety Precautions

- USE COMMON SENSE! Most accidents can be avoided by using common sense and concentrating on the job at hand. Look around and confirm a safe distance from the roof edge is being maintained.
- The Penetrator should not be used by persons whose ability or alertness is impaired by fatigue, intoxicating beverages, illegal or prescription drugs, or any other physical cause that exposes the user or others to injury.
- Always wear proper safety attire.
- Keep hands and feet clear of moving parts. DO NOT stick hands or fingers in the equipment when workers are attached to the Penetrator.
- Do not operate the equipment near electrical power lines. **ELECTRICITY KILLS!**
- Do not allow passengers to ride on safety cart.
- Allow handle to drop and set brake when not in use. Insert the Pull Pin into the axle fork in order to prevent unwanted turning of the roof cart.
- Ensure that all areas directly underneath, and in front of the cart, are clear and free of debris.
- Do not use on roofs with ice or snow.
- Only use the unit on a surface or roof composition for which it has been tested.
- Do not set unit atop unfastened materials. Materials may slide if not mechanically attached to the roof.
- Depending on added weight loaded on the Roof Cart / Penetrator unit (including all materials) additional workers may be required to safely move the unit. Always use caution when moving the unit.

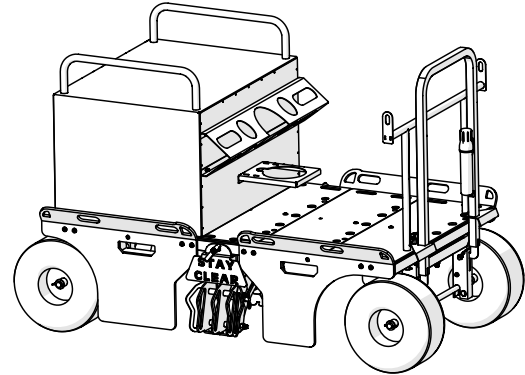
## Hoisting Safety Precautions

- When hoisting by crane, a spreader bar must be used.
- Loads may slip, if the Penetrator is not hoisted properly, this could result in injury or death.
- Do not use with damaged slings or chains.
- Utilize appropriate rigging gear for overhead lifting.
- Utilize rigging gear within the industry standards and the manufacturer's recommendations.
- Conduct regular inspection and maintenance of the rigging gear.
- DO NOT hook to the fall arrest or fall restrain shackle safety line connectors when lifting the cart.
- Do Not lift Penetrator Cart with materials on the cart when hoisting.

# Multi-Plus and Sentinel Operations For CONCRETE



**Multi-Pro - PX5**  
Part ID: 72839



**Sentinel - PX5**  
Part ID: 72833



## WARNING



**THE SET UP PROCEDURE FOR CONCRETE REMOVES THE PENETRATOR X5 SPIKE TUBE AND CAN NOT BE USED ON ANY SURFACE OTHER THAN CONCRETE!**

## Concrete Applications

The Multi-Plus and Sentinel Penetrator X5's may be used as an anchor point in a complete mobile fall protection system. The Penetrator with cart allows both worker mobility and fall protection. See [www.osha.gov](http://www.osha.gov) for all regulations and standards.

**Fall Restraint System** – A fall restraint system (FRS) prevents the user from falling. The system is comprised of a body harness along with an anchorage, connectors and other equipment. The components typically include a lanyard and also may include a lifeline and other devices. **The Concrete Penetrator can be used as an anchorage in a fall restraint system for up to two workers.**

### **Personal Fall Arrest System OPTION:**

**The Multi-Plus and Sentinel Penetrator X5 cart can be used on other acceptable roofing surfaces, providing the roof can safely support the full cart weight. If your concrete system is used on non-concrete surfaces please refer to the Penetrator X5 Safety Instructions at the beginning of this manual.**

**Personal Fall Arrest System** – A personal fall arrest system (PFAS) arrests a fall after a fall incident has occurred. The system is comprised of an anchor point, connecting device, body harness, connectors, and a body harness and must include a deceleration system, or suitable combinations. Note that a PFAS does NOT prevent a fall from occurring. **The Penetrator X5 can be used on concrete in a PFAS for up to two workers.** A Personal Fall Arrest System must meet the following OSHA requirements:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;
- Be rigged (lifeline plus deceleration device) so that an employee can neither free-fall more than 6 feet (1.8 meters) nor contact any lower level;
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to OSHA 3.5 feet (1.07 meters); and 4 ft. per ANSI 359.
- Have sufficient strength to withstand twice the potential impact energy of an employee free-falling a distance of 6 feet (1.8 meters) or the free-fall distance permitted by the system, whichever is less.

**Anchorage** — An anchorage is a secure point of attachment for lifelines, lanyards, or deceleration devices. The Penetrator is a mobile anchorage.

**Penetrator X5 Use** - For use on low slope surfaces only.

# Applications: Concrete Surfaces Only

## Recommended Surfaces (PX5 device removed):

- ✓ Concrete

## Do Not Use on the Following Surfaces:

- ✗ Ice
- ✗ Snow
- ✗ Tectum Deck
- ✗ Metal Deck less than 22 ga. Or over 20 ga. (Structural Deck)
- ✗ Loose laid material not part of a complete finished system.

# Roofing Load Requirements

**Before the Penetrator and cart are hoisted to any roofing deck the user MUST VERIFY THAT THE DECK CAN ACCOMMODATE THE LOAD REQUIREMENTS.**

Verify that the surface that the Penetrator will be used on is capable of supporting both the unit and personnel using it. Inspect that the entire area to determine if the working surfaces have the strength and to support users safely.

**CAPACITY:** The Penetrator Mobile Fall Protection System is designed for a maximum of two persons for fall arrest and two for fall restraint with a combined weight (clothing, tools) of no more than 310 lbs. per person. No more than five persons may be connected to the Penetrator at any time.

**IMPORTANT:** DO NOT start work for which fall protection is required until the Penetrator and corresponding FRS or PFAS have been completely installed. Do NOT disable any part of the FRS or PFAS, including the Penetrator unit, or reposition the unit, until work for which fall protection is required has ceased.

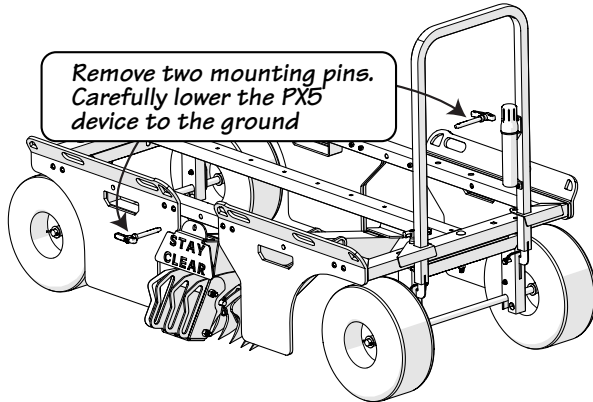
# Penetrator X5 Device Set Up for Concrete



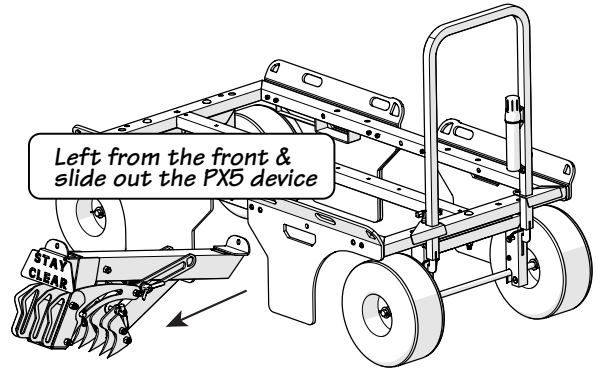
## WARNING



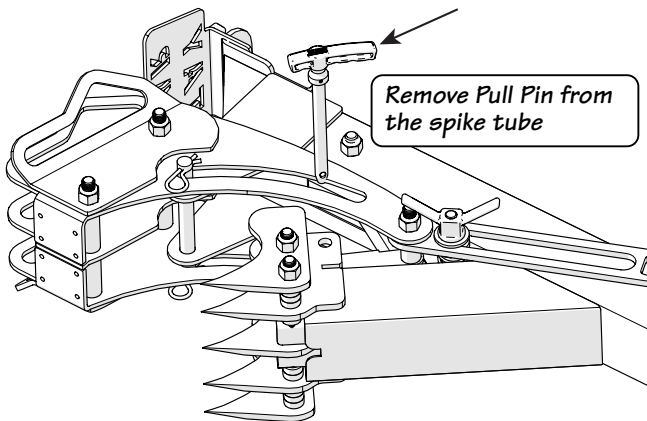
**THE SET UP PROCEDURE FOR CONCRETE REMOVES THE PENETRATOR X5 DEVICE AND CAN NOT BE USED ON ANY SURFACE OTHER THAN CONCRETE!**



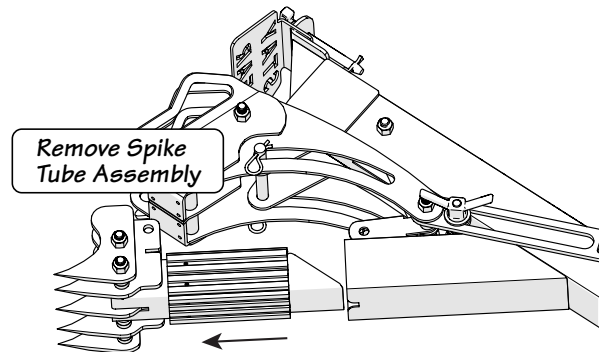
Always use proper PPE. Using two workers remove the safety pins from the top two mounting pins. While holding the PX5 with one hand, remove the mounting pins and carefully lower the PX5 device to the ground



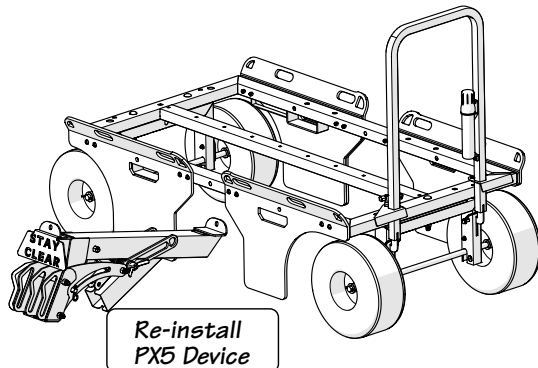
From the front of the PX5 device, lift up the front while pulling the device outward. Be careful not to drag the spikes on the ground. Remove the safety pin from the spike assembly pull pin.



Use extreme caution and lay the PX5 device on its side. Remove the pull pin for the side of the spike assembly.



Use extreme caution and pull/slide the spike assembly out of the spike tube. **Use extreme care when handling the spike assembly. The five spikes are extremely sharp.**



Using two workers, upright the PX5 device. Lift and position the device under the roof cart. With one hand lift the PX5 up and secure the device to the roof cart by replacing the mounting pulls. Reinstall the safety pin to each mounting pin.

**Use extreme caution when handling the spike assembly. Carefully store the spike assembly in a safety location.**

# Placement/Repositioning of the Penetrator X5 for Concrete

## Prior to Positioning the Penetrator X5:

Verify that the surface is capable of supporting the Penetrator X5, and all personnel using it.

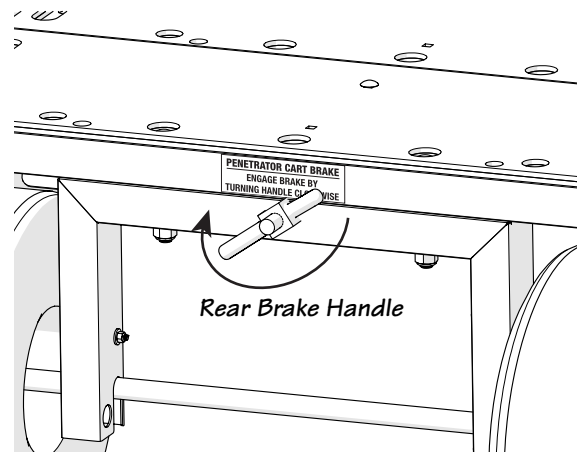
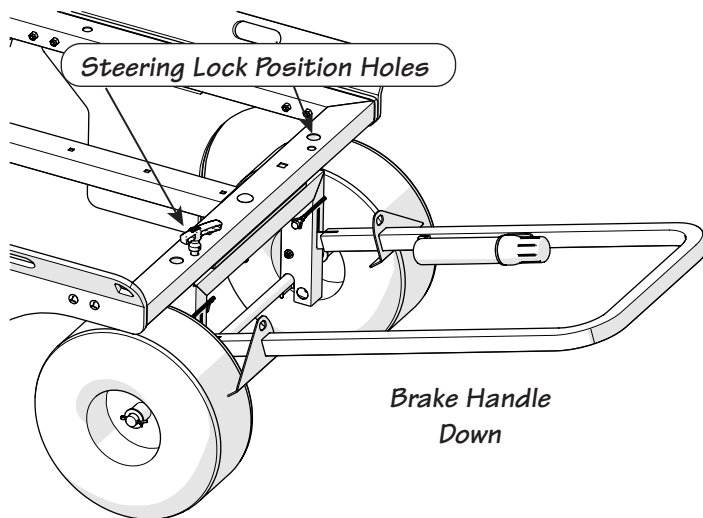
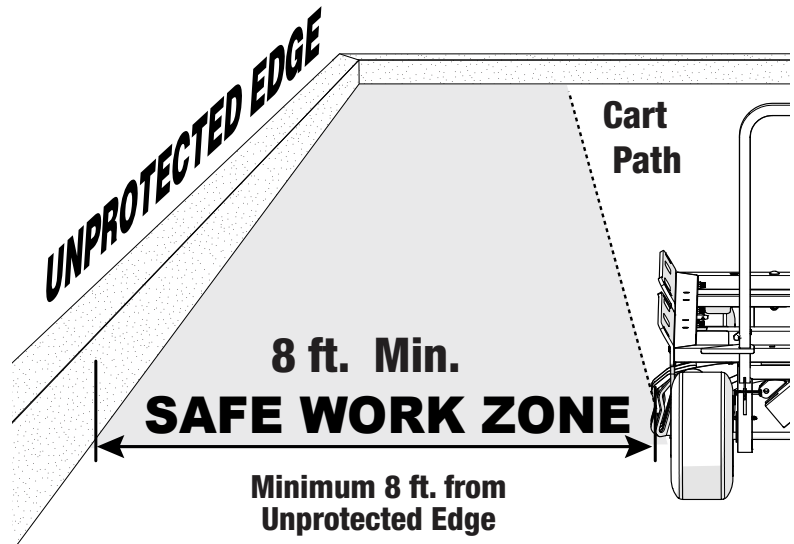
## During Repositioning the Penetrator X5:

Active fall restraint is maintained by a maximum length of five feet less than the distance of the cart to the leading edge.

The attachment tie-off anchor points must be pointed toward the leading edge and the cart is set to travel parallel to the unprotected edge or leading edge.

Position the Penetrator X5 such that the front guard plate is min. 8 feet from the leading edge, and in line with the center of the area to be worked.

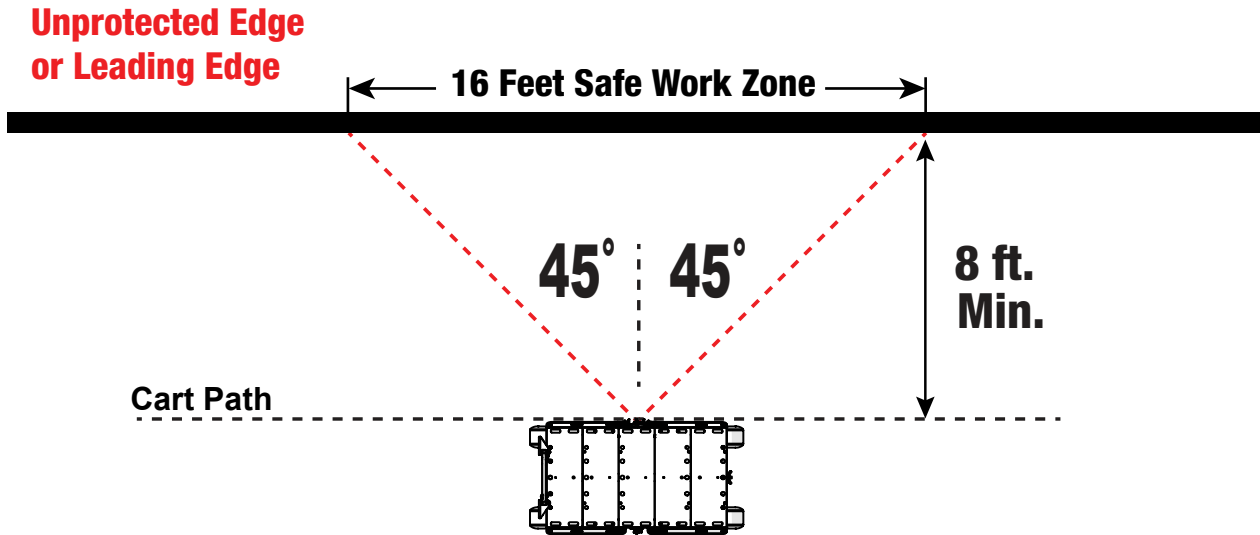
**IMPORTANT: When repositioning the Penetrator X5, active fall restraint is maintained by a maximum length of five feet less than the distance of the cart to the leading edge. Once repositioned, the handle must be in the down position in order to lock the wheels and the steering locking pin must be inserted into the steering mechanism (shown below). The rear brake is engaged by turning the brake handle clockwise**



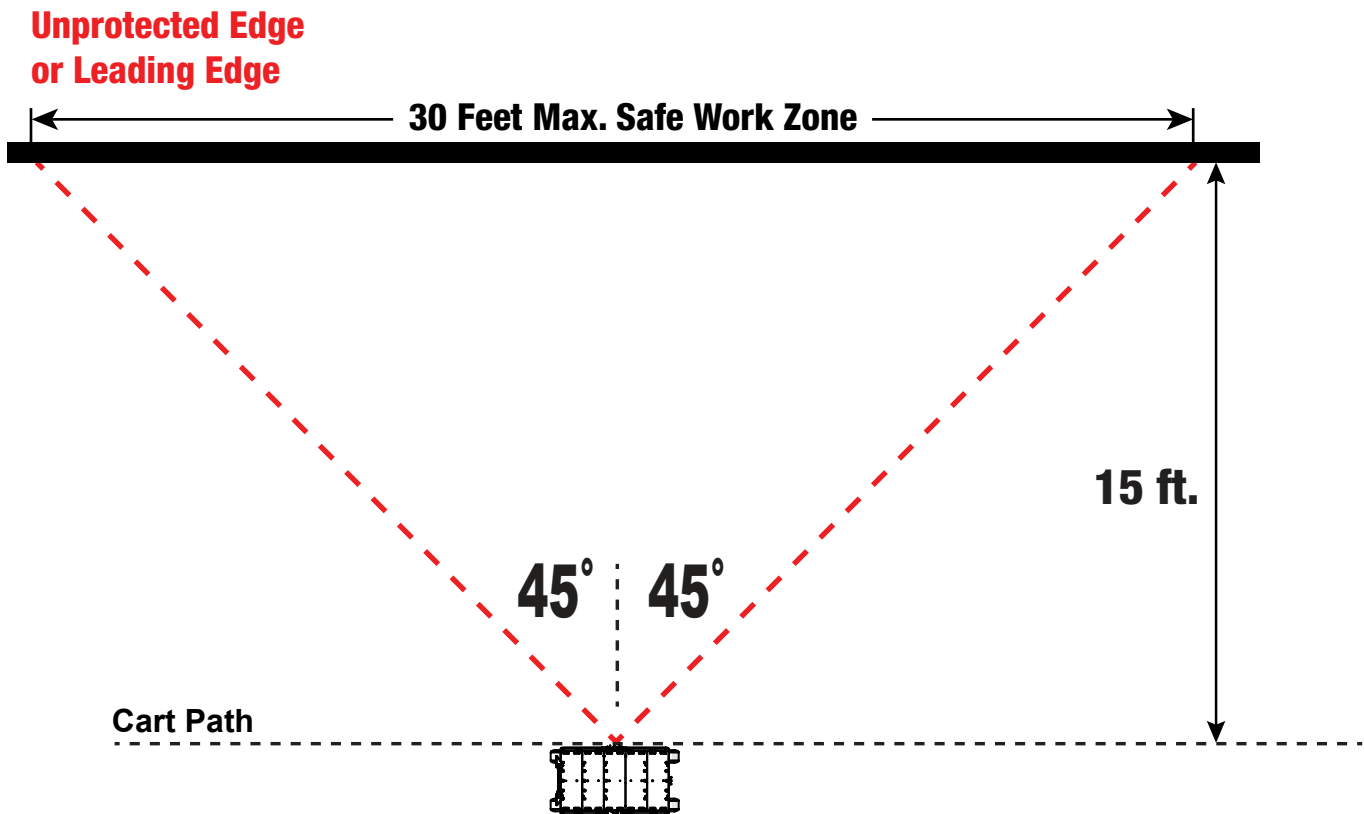
Make sure the handle/tire brake mechanism is in the down position and the brake stop rests firmly against the front tires. Place the Pull Pin into the front axle fork through the appropriate hole located on either side of the cart by aligning with the roof cart frame tube with the front axle fork. This will prevent the cart from turning.

Set the rear by turning the handle clockwise. Stop turning once you feel a firm grip in the tension of the handle

# Range of Use for Concrete



**Range of Use is double the distance from the leading edge up to 15 feet.**



**After 15 feet the maximum Range of Use is 30 feet.**

**IMPORTANT: BEFORE USING THIS UNIT, A RESCUE PLAN MUST BE ADOPTED.**

OSHA requires employers to provide a quick rescue of employees in the event of a fall or employers shall assure that employees are able to rescue themselves. It is impossible to guarantee that an employee can rescue himself because he may be unconscious or injured as a cause or result of the fall. Therefore, a procedure involving rescuers must be adopted.

**Consult with your roofing distributor/supplier for fall rescue equipment.**

**DO NOT OPERATE DAMAGED EQUIPMENT. DO NOT OPERATE EQUIPMENT THAT HAS BEEN MODIFIED.**

(Please use the Inspection and Maintenance Log contained within the instructions manual )

## Maintenance and Care

- ✓ Inspect Penetrator X5 before and after each use.
- ✓ Keep wheels free from roofing debris. Any asphalt or adhesives on the tires can cause the wheel brake to function improperly.
- ✓ Regularly inspect for damaged or missing parts and do not place the Penetrator into service until all missing and or damaged parts have been replaced.
- ✓ Store the Penetrator X5 in a place protected from weather and where only authorized employees have access.
- ✓ Maintain finish to prevent corrosion.

## General Safety Precautions

- **USE COMMON SENSE!** Most accidents can be avoided by using common sense and concentrating on the job at hand. Look around and confirm a safe distance from the roof edge is being maintained.
- The Penetrator should not be used by persons whose ability or alertness is impaired by fatigue, intoxicating beverages, illegal or prescription drugs, or any other physical cause that exposes the user or others to injury.
- Always wear proper safety attire.
- Keep hands and feet clear of moving parts. **DO NOT** stick hands or fingers in the equipment when workers are attached to the Penetrator.
- Do not operate the equipment near electrical power lines. **ELECTRICITY KILLS!**
- Do not allow passengers to ride on safety cart.
- Allow handle to drop and set brake when not in use. Insert the Pull Pin into the axle fork in order to prevent unwanted turning of the roof cart.
- Ensure that all areas directly underneath, and in front of the cart, are clear and free of debris.
- Do not use on roofs with ice or snow.
- Only use the unit on a surface or roof composition for which it has been tested.
- Do not set unit atop unfastened materials. Materials may slide if not mechanically attached to the roof.
- Depending on added weight loaded on the Roof Cart / Penetrator unit (including all materials) additional workers may be required to safely move the unit. Always use caution when moving the unit.

## Hoisting Safety Precautions

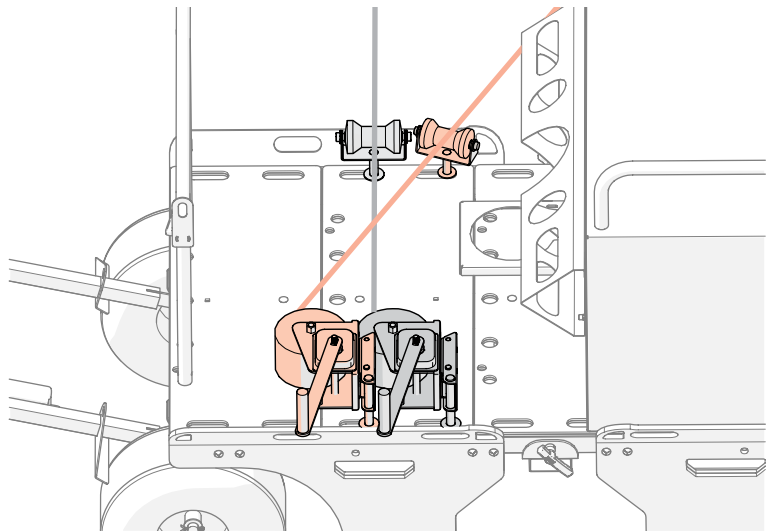
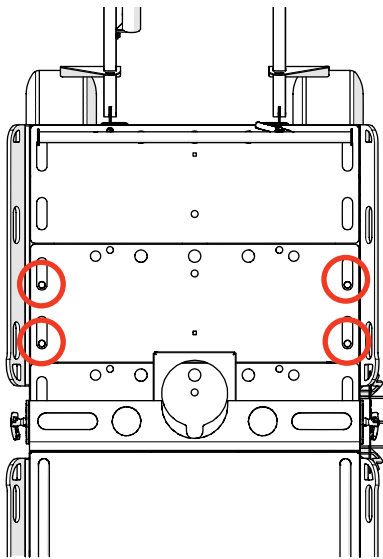
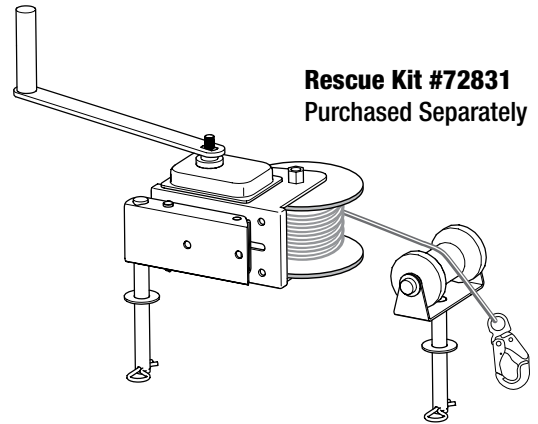
- When hoisting by crane, a spreader bar must be used.
- Loads may slip, if the Penetrator is not hoisted properly, this could result in injury or death.
- Do not use with damaged slings or chains.
- Utilize appropriate rigging gear for overhead lifting.
- Utilize rigging gear within the industry standards and the manufacturer's recommendations.
- Conduct regular inspection and maintenance of the rigging gear.
- **DO NOT** hook to the fall arrest or fall restrain shackle safety line connectors when lifting the cart.
- Do Not lift Penetrator Cart with materials on the cart when hoisting.



# Rescue Procedure After a Fall

**Before rescuing a fallen employee....**  
***\*It is recommended to call 911 before making rescue attempt\****

Any rescuer must be tied off in a FRS before attempting to aid in a rescue. The number of rescuers allowed to tie off to the Penetrator X5 is 3 (five) minus the number of fallen workers. Up to 2 (two) additional rescuers may tie off to the Penetrator X5 utilizing the two fall restraint tie-off shackles marked for FRS.



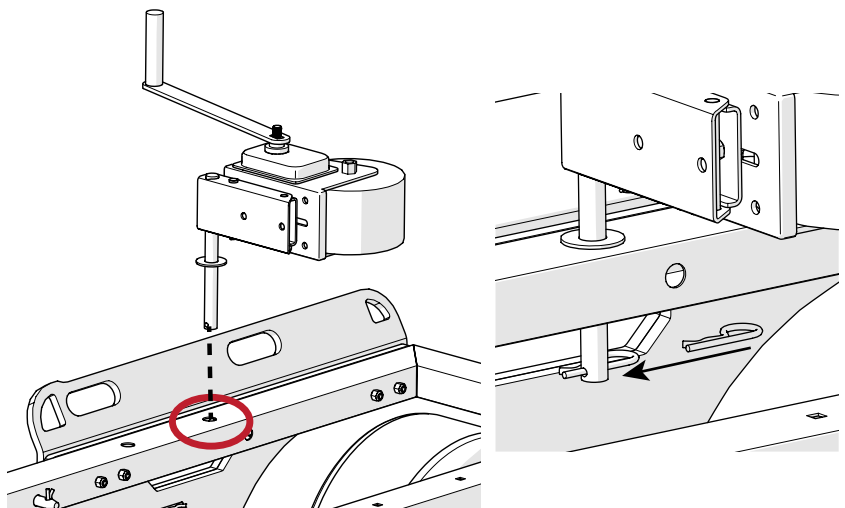
## Step 1 - Determine the Winch Mounting Locations

Multi-able mounting holes for the rescue winch and roller are shown above. Mount the winch and roller in the straightest and most direct line to the fallen worker.

## Step 2 - Mount Winch and Roller Assembly

Remove the safety pins from the bottom of both winch and roller assembly. Insert the winch mounting post into the appropriate mounting hole. The safety pin must be inserted into the post before use. Access to the safety pin is made through the forklift pocket hole on the side of the Penetrator X5.

Repeat for the Roller Assembly.  
Confirm the cable is going over the front roller on the cart.



# Rescue Procedure After a Fall

*\*It is recommended to call 911 before making rescue attempt\**

To use the Tie Down Rescue System for the Penetrator X5, you will need to also have a rescue pole accessible to properly reach the back dorsal Dring of the worker who is being rescued. **DO NOT ATTEMPT TO RESCUE THE WORKER UNLESS YOU ARE PROPERLY TIED OFF TO AN APPROPRIATE ANCHORAGE CONNECTION. ATTEMPTING TO RESCUE A WORKER WHEN NOT BEING PROPERLY CONNECTED TO AN APPROVE ANCHORAGE CONNECTION CAN RESULT IN SERIOUS INJURY INCLUDING DEATH.**

Workers must be properly trained in the use of the Tie Down Rescue System PRIOR to use. Do not use the Tie Down Rescue System unless you are trained by a competent person and that training must be documented to have been conducted prior to use. Failure to properly train on the safe use of the Tie Down Rescue System could result in serious injury including death.

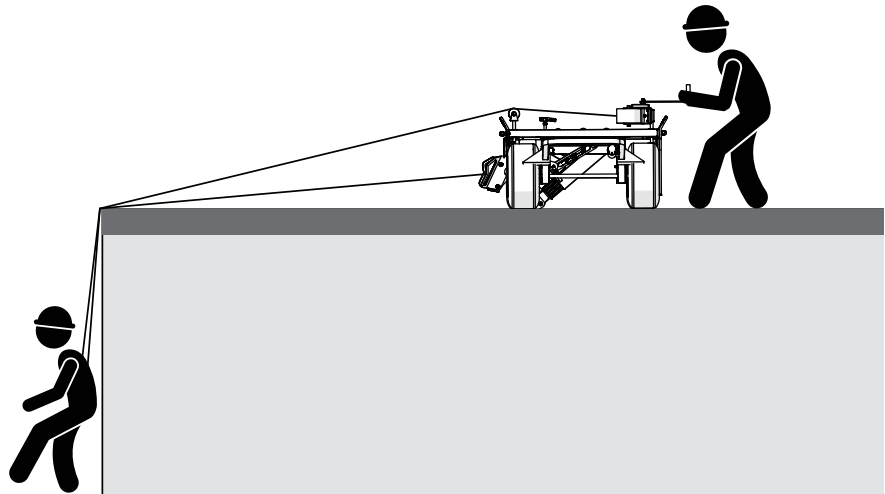
## Evaluate the situation

The event that led to the fall may create additional risk that need to be addressed. Determine weather the fallen worker is to be lifted back to the roof top or lowered to the ground.

### If the Worker is Conscious

Release the cable from the winch and lower it to the fallen worker. Have the fallen worker hook the cable to his harness.

If the cable length and ground conditions allow, it is recommended to lower the worker safely to the ground. If the ground environment is not save or the cable length is not long enough, then raise the fallen worker to the roof top.



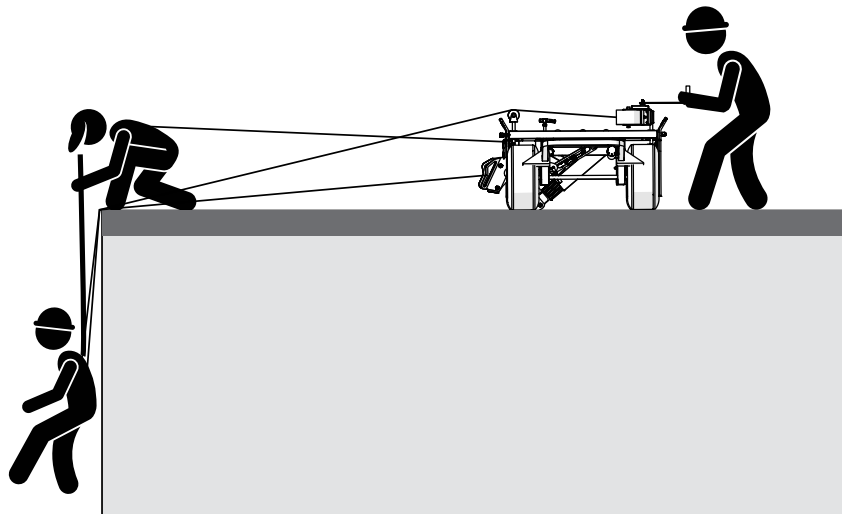
### If the Worker is Unconscious

If the fallen worker is unconscious or unable to hook themselves up to the rescue cable additional rescue help will be needed. The additional worker must be tied off to the Penetrator X5. Using a rescue pole attach the hook/cable to the fallen worker.

If the cable length and ground conditions allow, it is recommended to lower the worker safely to the ground. If the ground environment is not save or the cable length is not long enough, then raise the fallen worker to the roof top.

Treat the worker for suspension trauma and any other injuries.

Arrange for transportation to the nearest hospital.



# Procedure for Handling the Penetrator After a Fall

**Before rescuing a fallen employee, check that the Penetrator is secure.**

It is highly recommended that any rescuer be tied off in a FRS before attempting to aid in a rescue. The number of rescuers allowed to tie off to the Penetrator X5 is 3 (three) minus the number of fallen workers. Up to 2 (two) additional rescuers may tie off to the Penetrator utilizing the two fall restraint tie-off shackles marked for FRS.

**Prior to disengaging the Penetrator X5 after deployment as the result of an fall incident, make certain that the rescue procedure has been successfully completed.**

# Procedure for Reseting the Penetrator After a Fall

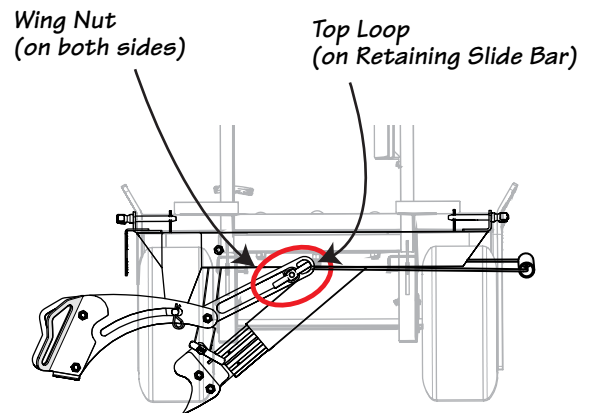
Prior to disengaging the Penetrator X5 after deployment as the result of an fall incident, make certain that the rescue procedure has been successfully completed.

The five penetrating spikes will be somewhat buried into the roof after activation.

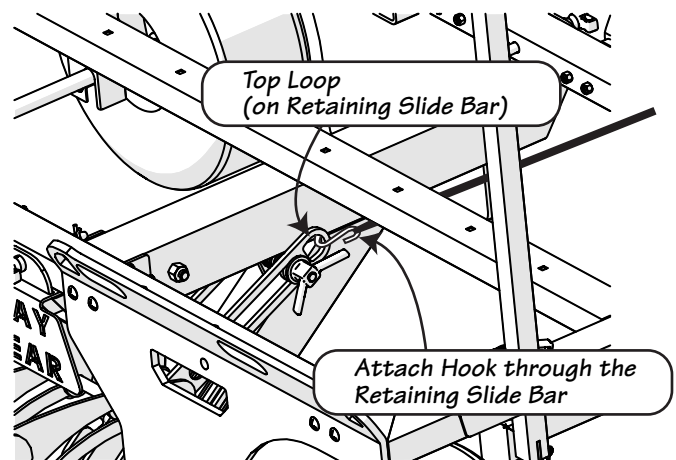
Follow these steps to reset the Penetrator X5 Device:

1. Loosen the large wing nuts on both sides of the PX5 device.
2. Attach the pull hooks to the top loop of the retaining slide bar. Repeat for opposite side.
3. With a firm pull, pull the handle outward away from the PX5 cart. The Spike assembly will slide back to it's original position.
4. Re-tighten the large wing nuts on both sides.

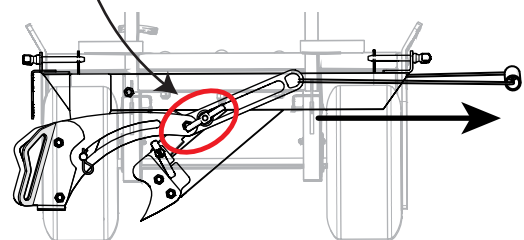
**Do not reuse the Penetrator X5 after incident until fully inspected and any damaged parts have been replaced and recertification and inspection has been performed. See inspection check list on back cover.**



**PX5 Device shown in the engaged position**



Tighten Wing Nut (on both sides)





MANUFACTURING INGENUITY

## DECLARATION OF CONFORMITY

Declaration Date: 08.11.2021  
Rev. 0

<b>DECLARATION NO.</b>	ETR-72836, 72838, 72833, 72839_R0
<b>PART NUMBER(S):</b>	72836, 72838, 72833, 72839
<b>PART DESCRIPTION:</b>	Penetrator X5 Carts
<b><u>ADDITIONAL INFORMATION REGARDING THIS DOCUMENT OR STANDARD(S) EVALUATED:</u></b>	
•	

**TIE DOWN ENGINEERING** DECLARES THAT THE PRODUCT(S) LISTED ABOVE IS IN CONFORMITY WITH THE REQUIREMENTS OF THE FOLLOWING PERFORMANCE STANDARDS.

<b>STANDARD(S):</b>
<ul style="list-style-type: none"><li>• OSHA 1926 Fall Protection Criteria</li><li>• OSHA 1910 Personal Fall Protection Systems</li></ul>

\*\*\* This certificate declares that the above standard(s) was met by the requirements of such standard(s). Testing was performed under normal operating measures. The results of testing apply only to the sample(s) tested and to the specific test(s) performed. This certificate is only issued for products which have passed the testing requirements of the standard(s) listed. The end-user is responsible for using the product(s) for its intended purpose(s) only and must review all manuals and instructional documentation prior to use. \*\*\*

Tie Down Engineering, Inc.  
605 Stonehill Drive, SW  
Atlanta, GA 30336

404-344-0000  
sales@tiedown.com  
www.tiedown.com

Test Report		
Test Operator(s):	Justin Alcober	
Test Date:	8/11/2021	
Part Number(s):	72836, 72838, 72833, 72839	
Part Revision:	0	
Internal Test Report:	ITR-72836, 72838, 72833, 72839_R0	
Third Party (if applicable):		
Test Summary		
Test Specification	Test Criteria	Test Result
OSHA 1910 Subpart I App D  OSHA 1926 Subpart M App C	<ul style="list-style-type: none"> <li>• 6 ft. freefall drop test using a 310 lb. test mass</li> <li>• Test performed with 6 ft. PEA's.</li> <li>• Test mass must not hit the ground or floor.</li> </ul>	PASS
OSHA 1910.140(d)	1910.140(d) <ul style="list-style-type: none"> <li>• Personal fall arrest systems—</li> </ul> 1910.140(d)(1) <ul style="list-style-type: none"> <li>• System performance criteria. In addition to the general requirements in paragraph (c) of this section, the employer must ensure that personal fall arrest systems:</li> </ul> 1910.140(d)(1)(i) <ul style="list-style-type: none"> <li>• Limit the maximum arresting force on the employee to 1,800 pounds (8 kN);</li> </ul> 1910.140(d)(1)(ii) <ul style="list-style-type: none"> <li>• Bring the employee to a complete stop and limit the maximum deceleration distance the employee travels to 3.5 feet (1.1 m);</li> </ul> 1910.140(d)(1)(iii) <ul style="list-style-type: none"> <li>• Have sufficient strength to withstand twice the potential impact energy of the employee free falling a distance of 6 feet (1.8 m), or the free fall distance permitted by the system;</li> </ul>	PASS

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## OSHA 1910 & OSHA 1926

All roof cart models have successfully passed drop testing with a 310 lb. test weight, up to 5 consecutive drops. Test weights did not hit the ground and penetrator device fully deploys into substrate to prevent the cart from moving. The models listed below satisfy the requirements.

Models	Test Material	Max Fall arrest
72836 72838	TPO 2" ISO 1/2" Plywood	3
	EPDM 2" ISO 1/2" Plywood	3
	18ga Steel Roof Deck 1/2" Plywood	5
	20ga Steel Roof Deck 1/2" Plywood	5
	22ga Steel Roof Deck 1/2" Plywood	5
	1/2" Plywood	5
72833 72839	Smooth Concrete	2

Part #	Description	Weight ESTIMATES	Minimum Distance from Leading Edge
72833	PX5 Sentinel Cart	1069 lbs	8 feet
72836	PX5 Pro Cart	629 lbs	4 feet
72838	PX5 Standard Cart	517 lbs	4 feet
72839	PX5 Multi-Plus Cart	1078 lbs	8 feet

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## PENETRATOR FALL PROTECTION LIMITED WARRANTY

Tie Down Engineering (TIE DOWN) will repair or replace, free of charge, any part, or parts of the Penetrator Fall Protection Devices (PENETRATOR) that are defective in material or workmanship or both. The limited warranty is in effect for 90 days from date of purchase. Return the defective unit to the dealer or contact Tie Down direct at 800-241-1806, x1525.

This warranty does not apply to damage or loss caused by any or all of the following circumstances or conditions:

- Damage caused during assembly or installation.
- Parts, accessories, materials or components used with or replacing any PENETRATOR part not obtained from or approved in writing by TIE DOWN.
- Misapplication, misuse and failure to follow the directions or observe cautions and warnings on installation, operation, application, inspection or maintenance specified in any TIE DOWN quotation, acknowledgment, sales literature, specification sheet or installation instruction and service manual ("applicable literature").
- Use of product in any other application other than those described in TIE DOWN's product information materials.

If any TIE DOWN products are found upon TIE DOWN's examination to have been defective when supplied, TIE DOWN will either: credit the purchaser's account for the purchase price of the TIE DOWN product; replace the TIE DOWN product; or repair the product. TIE DOWN has sole discretion in choosing which option to provide. For this LIMITED WARRANTY to apply, TIE DOWN must receive notice of the alleged defect within 30 days of either the discovery of the alleged defect or the expiration of the warranty period, whichever is earlier. Any claim not made within this period shall conclusively be deemed waived.

If requested by TIE DOWN, purchaser shall return the alleged defective product to TIE DOWN for examination at purchasers expense. TIE DOWN will not pay for expenses incurred in returning a product to TIE DOWN without TIE DOWN's prior written authority. TIE DOWN shall not be liable for any other expenses purchaser incurs to remedy any defect. Purchasers waive subrogation on all claims under any insurance.

**Limitation of Liability:** It is expressly agreed that the liability of TIE DOWN is limited and TIE DOWN does not function as an insurer. THE REMEDIES SET FORTH IN THIS WARRANTY SHALL CONSTITUTE THE EXCLUSIVE REMEDIES AVAILABLE TO THE PURCHASER OR USER AND ARE IN LIEU OF ALL OTHER REMEDIES, EXPRESS OR IMPLIED. THE LIABILITY OF TIE DOWN, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCT MANUFACTURED, SOLD OR SUPPLIED BY TIE DOWN.

**To Obtain Technical Assistance:** To enable TIE DOWN to respond to a request for assistance or evaluation of customer or user operating difficulty, please provide at a minimum the following information by calling 404-344-0000:

- Model number, serial number and all other data on the specific component which appears to be involved in the difficulty.
- The date and from whom you purchased your TIE DOWN product.
- State your difficulty, being sure to mention at least the following: Application, Environment, Working Surface, and Number of Workers.

**THIS WARRANTY DOES NOT COVER NOR EXTEND TO INCIDENTAL OR CONSEQUENTIAL DAMAGE.** Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

No representative has authority to make any representation, promise or agreement except as stated in this Limited Warranty. TIE DOWN reserves the right to make design and other changes upon its products without any obligation to install the same on any previously sold or delivered products.

**THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE DESCRIBED ABOVE. EFFECTIVE MAY 2017 THIS WARRANTY SUPERSEDES ALL PRIOR WARRANTIES, WRITTEN OR IMPLIED.**

E1541; 10-24-17



404-344-0000 • [tiedown.com](http://tiedown.com)  
605 Stonehill Drive SW, Atlanta, GA 30336



# Inspection Checklist and Maintenance Log



**Penetrator Model #** \_\_\_\_\_ **Date of Purchase:** \_\_\_\_\_  
**Serial Number:** \_\_\_\_\_ **Purchased From:** \_\_\_\_\_

<b>Roofing Cart</b>	<b>Date:</b>						
Frame: Free of Rust?							
Frame: Welded Connections?							
Steering Locking Pin Available?							
Steering Handle/Brake Works?							
Axles/Wheels Rotate Properly?							
Overall Cart Parts?							

<b>Penetrator X5 Device</b>	<b>Date:</b>						
Frame: Free of Rust?							
Frame: Welded Connections?							
Mounting Pins (2)?							
Penetrator Spikes Free of Damage?							
Retaining Slide Bar Clear of Any Obstructions?							
Wing Nut Tightened/Retaining Slide Bar?							
Inner/Outer Spike Tube Engaged? (If "Yes" DO NOT USE)							
Pull Pins (5) Secured with Safety Cotter Pin?							
Safety and Warning Labels Readable?							

**Date** \_\_\_\_\_ **Corrective Action Taken:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_