



# Assembly and Parts Manual

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

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On-line  
Safety and 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.



On-line  
Assembly and Parts  
Manual

Tie Down Roofing Products Division  
ISO 9001:2015 Certification  
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**MADE**  
**★IN THE★**  
**USA**

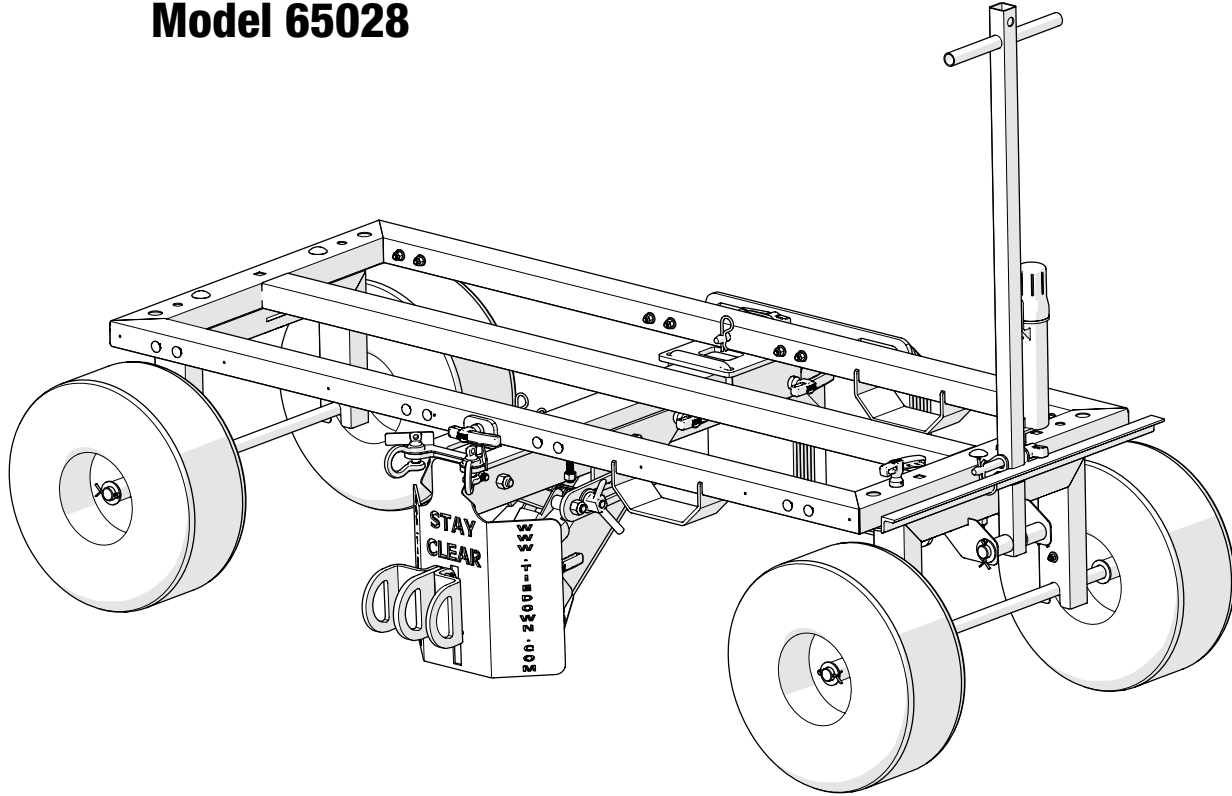
Instruction Sheet #08338  
E1728, Rev. 1/13/21

**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)

# Penetrator Cart Assembly

## Penetrator Cart Assembly Instructions Model 65028

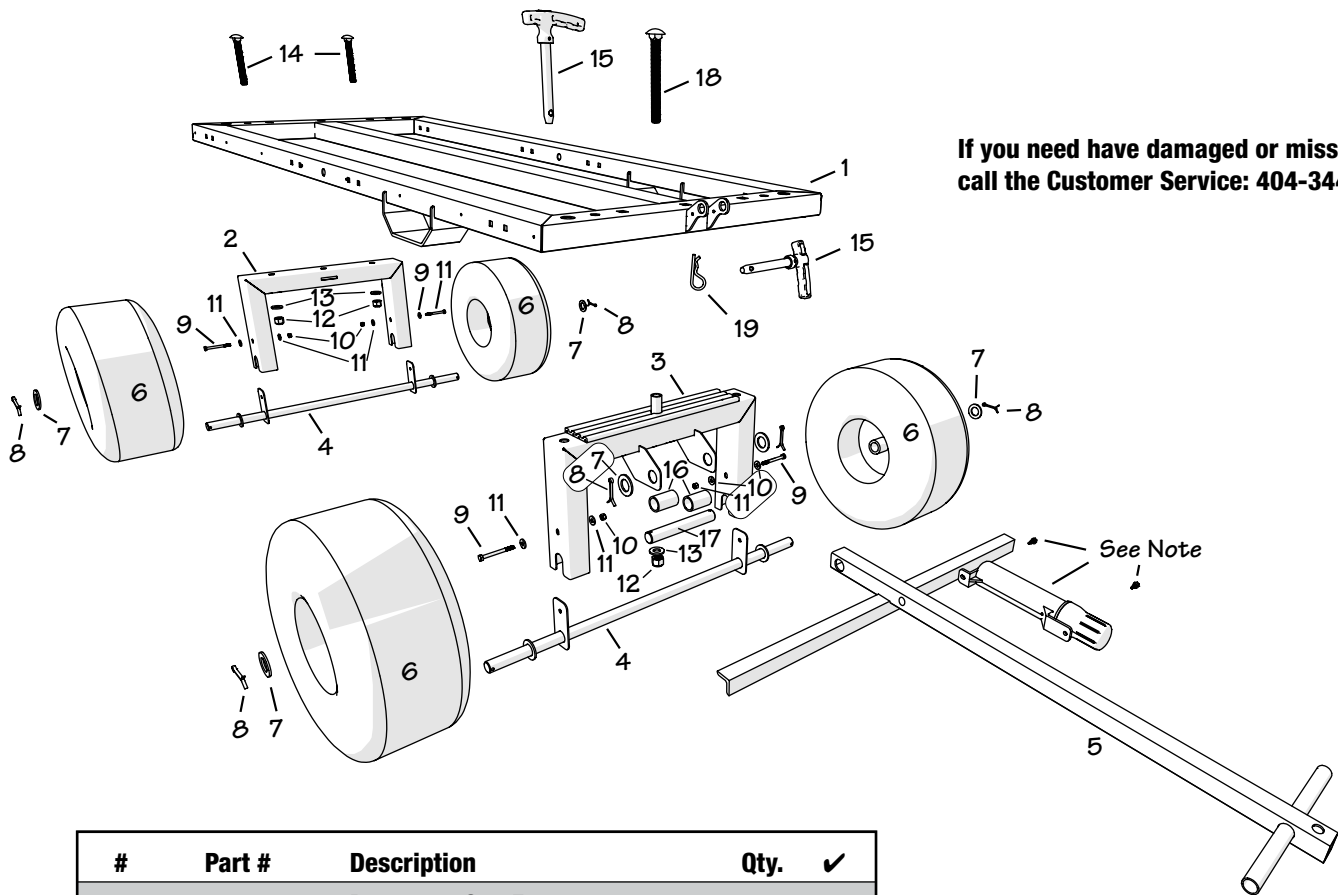


### Important – Please Read These Instructions Fully Before Starting Assembly

- Check you have all the components listed on the next page.
- Remove all parts from the plastic bags and separate them into their groups.
- Keep children and animals away from the work area, small parts could choke if swallowed.
- Make sure you have enough space to layout the parts before starting.
- Assemble on a hard level surface.
- Assembly of the axles/frame will be easier with 2 people.

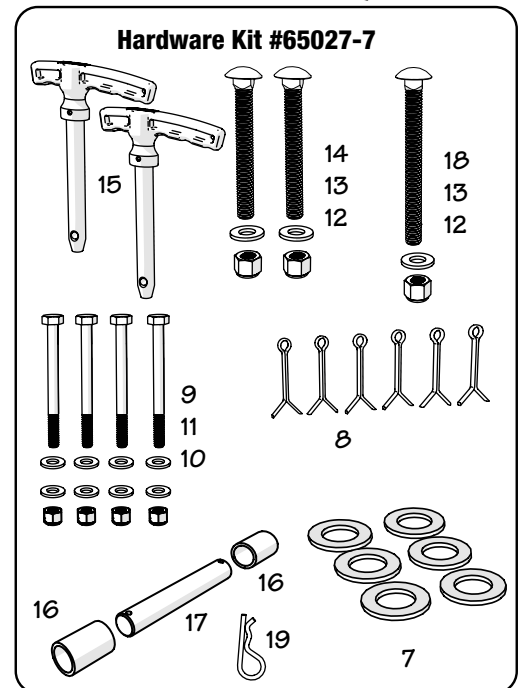
If you need have damaged or missing parts, call the Customer Service: 404-344-0000

# Components - Complete Parts List



If you need have damaged or missing parts,  
call the Customer Service: 404-344-0000

#	Part #	Description	Qty.	✓
1	65027-1	Penetrator Cart Frame	1	
2	65027-6	Rear Axle Frame	1	
3	65027-2A	Front Axle Frame	1	
4	65027-5	Axle Assembly	2	
5	65027-3	Handle/Brake Assembly	1	
6	13844	Flat Free Tire - 18"	4	
<b>Hardware Kit #65027-7 (In one box)</b>				
7	10520Z	Flat Washer - 1" zinc	6	
8	10691	Cotter Key - 3/16" x 2"	6	
9	10461	Bolt - 1/4-20 x 2.75" Zinc	4	
10	10027	Nylock Nut - 1/4"-20	4	
11	10028	Washer - 1/4"	8	
12	10628	Nyloc Nut - 5/8 -11 zinc Grade 2	3	
13	10513Z	Flat Washer - 5/8" Zinc	3	
14	10455	Carriage Bolt - 5/8x11 x 5"	2	
15	70509	Pull Pin - 5/8" x 3"	1	
16	65027-3-3	Bushing - Cart Handle	2	
17	65018-4-2Z	Handle Pin - 1"	1	
18	10456	Carriage Bolt - 5/8-11 x 6"	1	
19	10604	Safety Pin	1	



**Note:** Instruction Tube is Preinstalled.

Replacement Parts:

Instruction Tube Part #MAX-WT100  
Self Tapping Screws (2) Part #10495

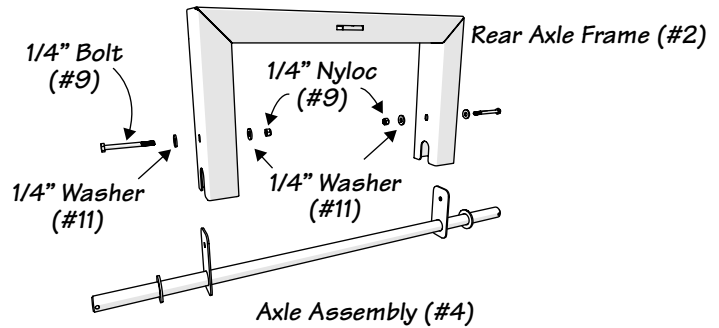
If you need have damaged or missing parts, call the Customer Service: 404-344-0000

# Penetrator Cart Assembly

## Step 1

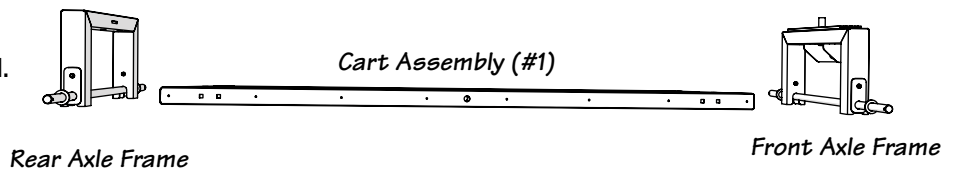
Slide the axle assemblies onto the front/rear axle frames, the axle brackets will be on the outside of the axle frames.

Attach the axle to the frame with 1/4" bolt, washer and nyloc nut.



## Step 2

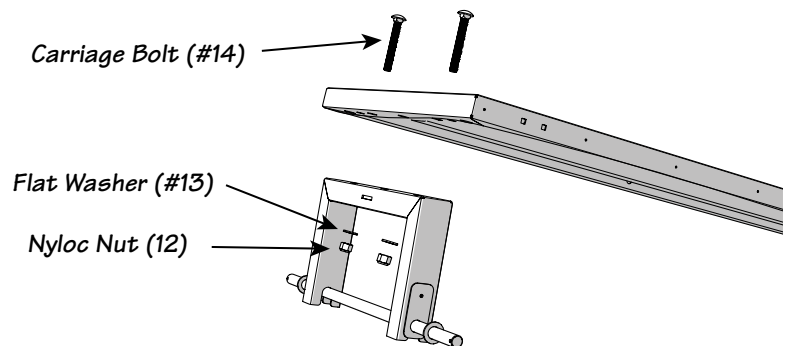
Lay the cart frame flat on hard ground. Position axle frames front and back of the cart. The axle frames will stand on their own.



## Step 3

Lift the rear cart frame (may require two people). Align the mounting holes with the axle and cart frame.

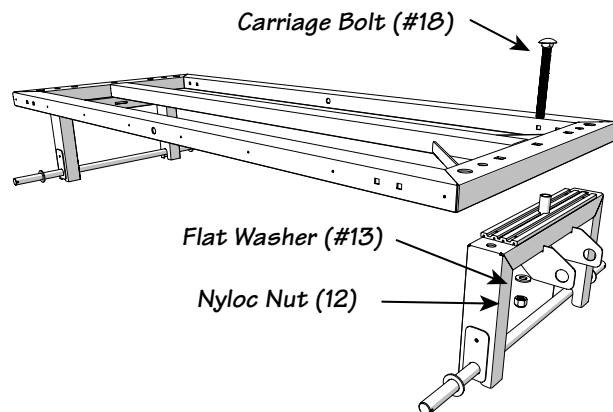
Insert carriage bolts through cart frame and axle frame, attach with washers and nyloc nuts. Use a 15/16" socket wrench to tighten the nuts/bolts.



## Step 4

Lift the front cart frame (may require two people). Align the center mounting hole with the axle and cart frame.

Insert carriage bolt through cart frame and axle frame, attach with washer and nyloc nut. Use a 15/16" socket wrench on the nut/bolt and tighten to 35 ft. lbs, then counter rotate 1/4 turn. Rotate the axle frame making sure that it turns freely.



# Penetrator Cart Assembly

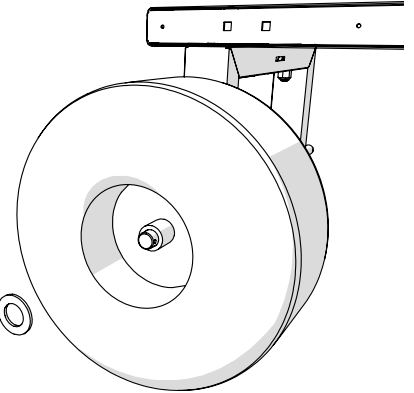
## Step 5

Lift the front or the rear cart (may require two people).  
Slide the flat free tires onto the axle.

Install a washer over the axle shaft, insert cotter key through the axle mounting hole. Split the cotter key securing the tire to the axle frame. Repeat for all four tires.

Flat Washer (#7)

Cotter Key  
(#8)

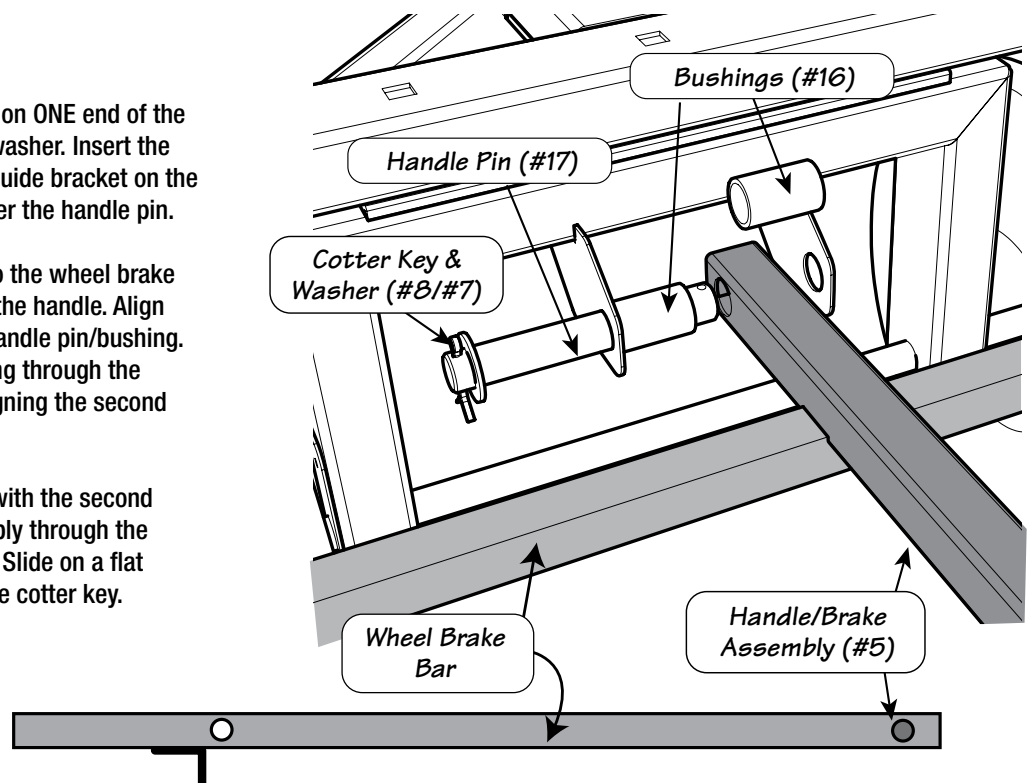


## Step 6

Install and split open cotter key on ONE end of the handle pin (#17), slide on ONE washer. Insert the handle pin through the handle guide bracket on the front axle. Slide one bushing over the handle pin.

Position the handle assembly so the wheel brake bar is located on the bottom of the handle. Align the handle assembly with the handle pin/bushing. Slide the handle pin with bushing through the handle assembly tube while aligning the second bushing with the handle pin.

Once the handle pin is aligned with the second bushing, slide the entire assembly through the opposite handle guide bracket. Slide on a flat washer, install and split open the cotter key.

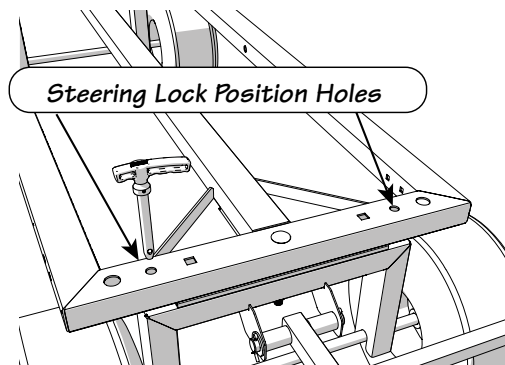


**IMPORTANT:** Side view of the handle brake assembly with the wheel brake bar (on the bottom side).

## Step 7

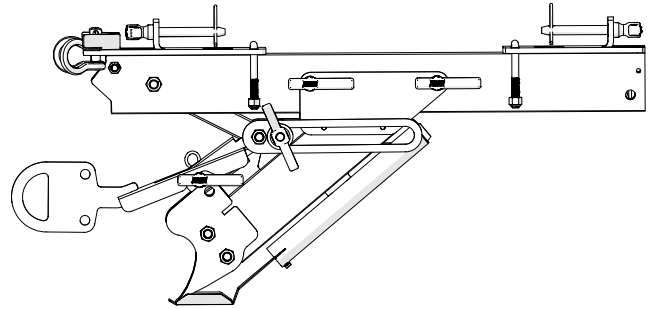
The Penetrator Roofing Cart has the option of locking the steering with a pull pin (both sides).

To lock the front steering: place the pull pin into the smaller inside round hole.



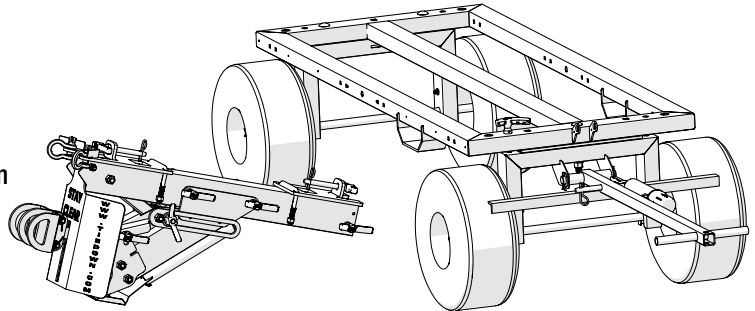
# Penetrator Installation

When you open the Penetrator Fall Protection device for the first time, some minor assembly will be required. The Penetrator device is shipped as shown to the right. The front guard plate, cleats and cart assembly must be assembled before use.



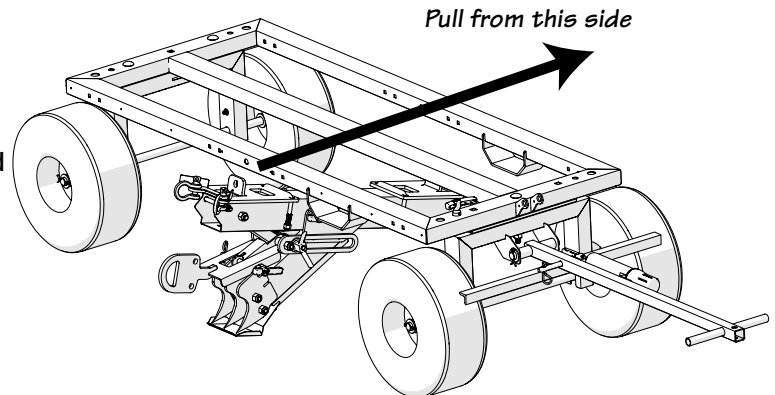
## Step 1

Position the Cart and Penetrator as close as possible to the final assembly. Stand up the Penetrator on its extension arm and safety plate.



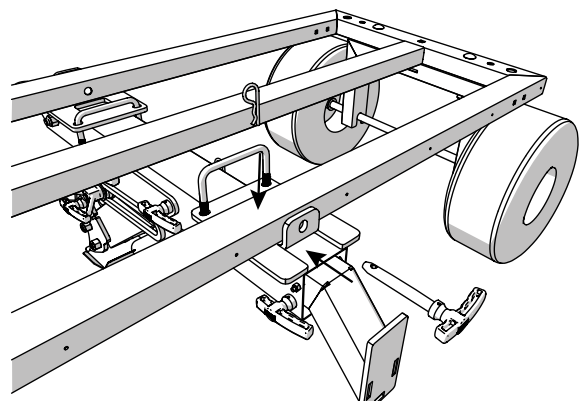
## Step 2

Pull the Penetrator device under the cart from the opposite side of the cart. Stop pulling when the pull pin stop is aligned with the cart.



## Step 3

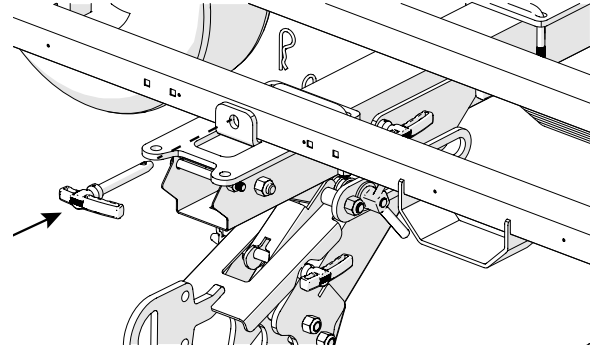
From the weight side of the Penetrator, lift up on the pull pin mounting bracket. Align the holes with the Penetrator and the pull cart. Insert the pull pin through the bracket and cart. Attach safety pin to the pull pin.



# Penetrator Installation

## Step 4

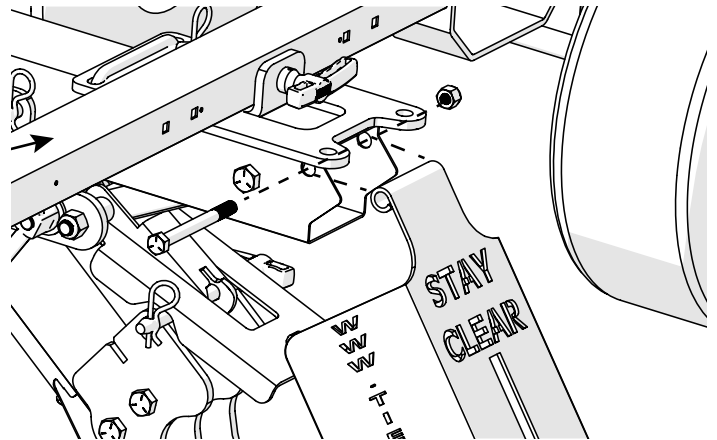
From the front side of the Penetrator, lift up on the pull pin mounting bracket. Align the holes with the Penetrator and the roof cart. Insert the pull pin through the bracket and cart. Attach safety pin to the pull pin.



## Step 5

Locate the 5/8" Hex Head Bolt and 5/8" nyloc nut from the hardware bag.

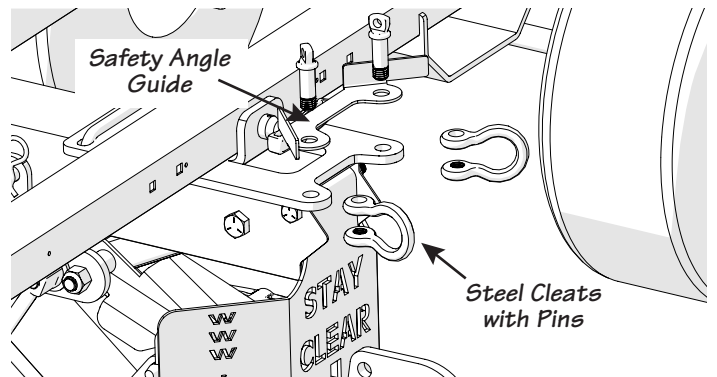
Working from the front side of the Penetrator, Align the front guard plate to the top right mounting hole located on the Penetrator base. Insert the hex head bolt through the base and front guard plate, attach nyloc nut. Tighten with a 5/8" wrench. The front guard plate must be able to pivot outward without any resistance (Do not over tighten).



## Step 6

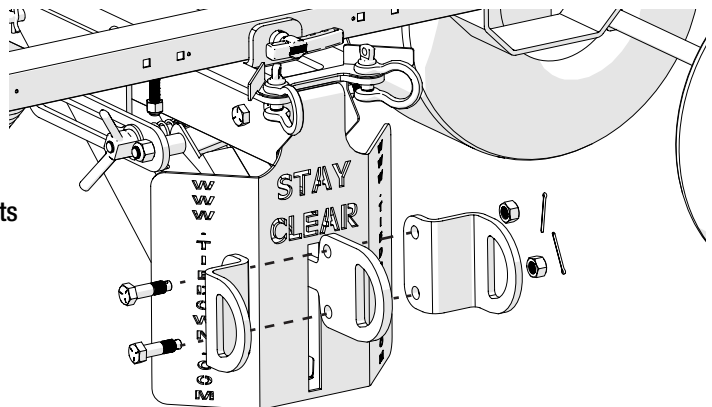
Locate the 2 anchor shackles and the Safety Angle Guide from the hardware bag.

Working from the front side of the Penetrator, place the Safety Angle Guide over the two fall restraint mounting holes. Install the two anchor shackles for fall restraint on top position holes passing through the angle guide.



## Step 7

Position two "D" rings as shown on the right illustration. Fasten with two security bolts and nuts. Tighten the nuts to 30 foot pounds. Place the cotter pins through the security bolts and open up the end of the pins.

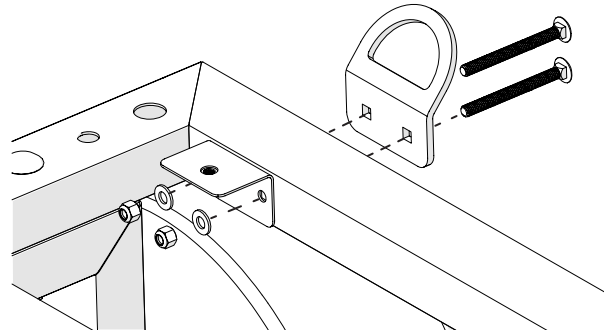




# Installation of Optional Equipment

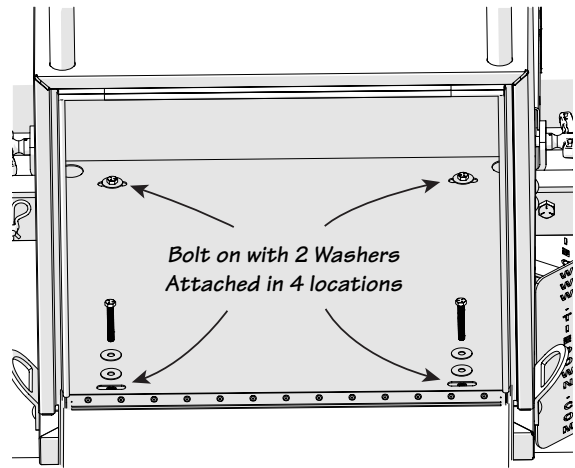
## Hoisting Rings and Mounting Bracket Installation

Align the hoisting ring/mounting bracket with the two holes located on each side/corner of the roofing cart. Insert each hex head bolt through the mounting bracket and passing out the opposite side of frame. Slide the "L" shaped mounting bracket over the two hex head bolts. Place washers over each bolt and tighten with nyloc nuts. Repeat for each corner.



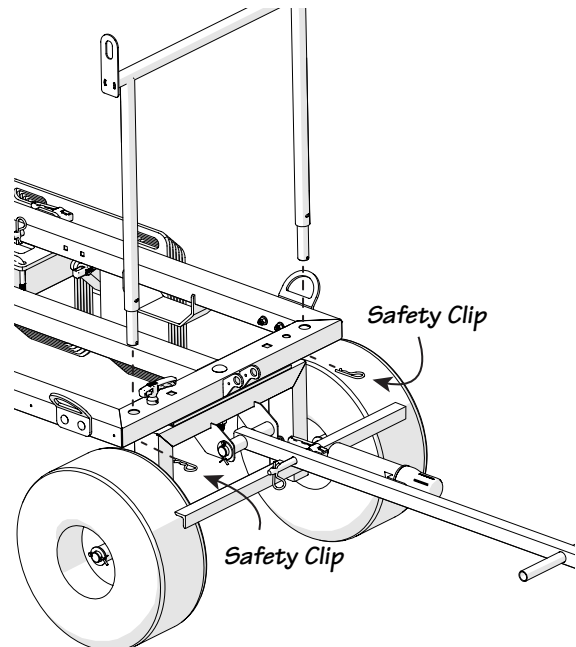
## Material Tool Box Installation

1. Two people are needed to lift the materials box safely on top of the Penetrator cart. Place the materials box on the back half of the cart aligning the four mounting holes over the cart mounting holes. Open the locking door and the mounting holes are located just inside the door edge and toward the front. Look through the holes and make sure you can see completely through the materials box and the cart frame. Use a screw driver or a center punch to align box/frame.
2. Place the washer over the hex head nut and insert the bolt through the material box and frame. The hex head bolt should pass through to the "L" shaped bracket. Once both bolts are aligned and fastened with the underside welded nut, tighten all bolts.



## Rolled Goods Rack

1. Align the rolled goods rack with the mounting holes located above the front axle. Insert the rolled goods post into the corresponding holes.
2. Secure the rolled goods rack by inserting the safety pin into the post hole underneath the cart frame.





# Installation of Optional Equipment

After being locked into place on the rear frame, the front handle of the Penetrator system can be raised, greatly reducing any tripping hazard and making the work area safer. The Quick-Brake comes completely assembled.

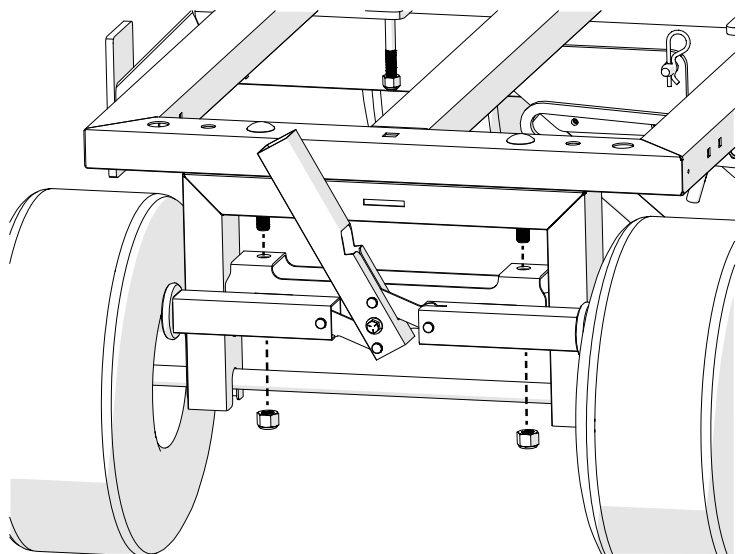
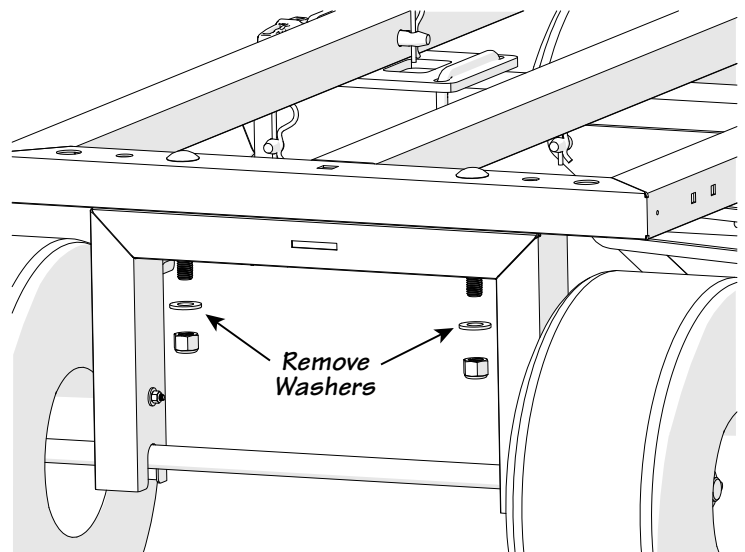
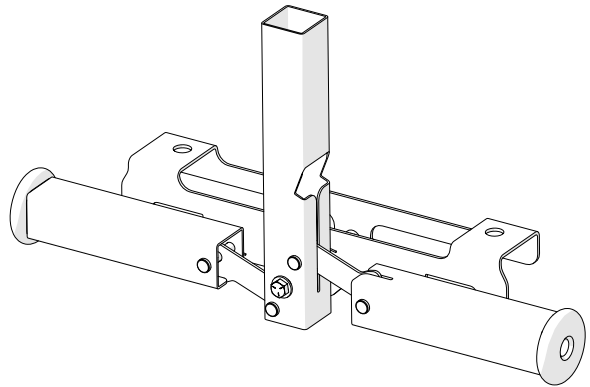
## Quick Brake Installation

1. Position the Penetrator cart on a flat service. Place blocks under the wheels and make sure the cart is free from any movement.
2. Remove the two 5/8" nuts and washers under the rear axle frame as shown right. The washers are no longer needed for any part of this installation.

### WARNING:

Once the nuts are removed the cart frame and rear axle frame are loose and may tilt forward or backwards. Do not rock the frame during installation.

3. Position the Quick-Brake between the axle frame and directly below the two bolts (shown lower right). Raise the Quick-Brake upward till it is flush to the top of the axle frame.
4. Use one hand to hold the Quick-Brake in place, while using the other hand to loosely attaching both nuts.
5. Once the Quick-Brake is in place, use a long 5/8" socket/wrench to tighten both nuts.
6. Test the Quick-Brake by moving the handle left and right making sure the brake engages with the tires. With the brake engaged the cart should be free of any forward/backward movement.



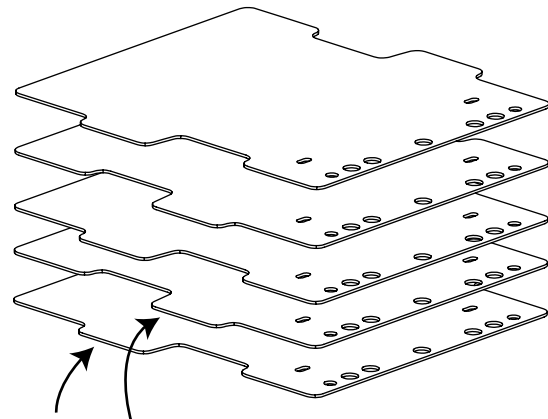
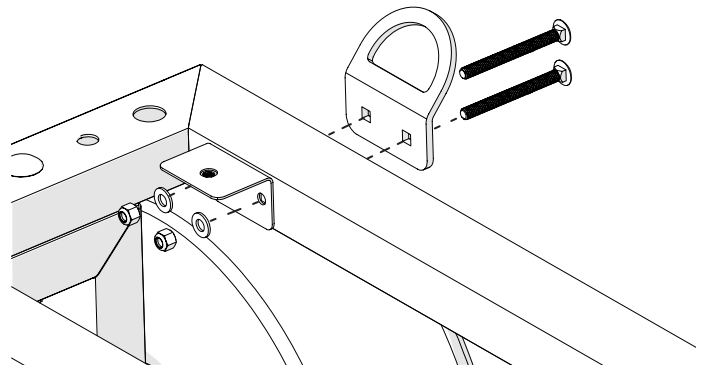
# Concrete Ballast Plate Installation

## Concrete Ballast Plate Installation

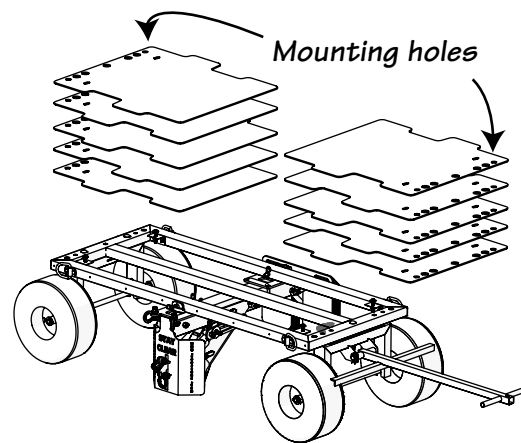
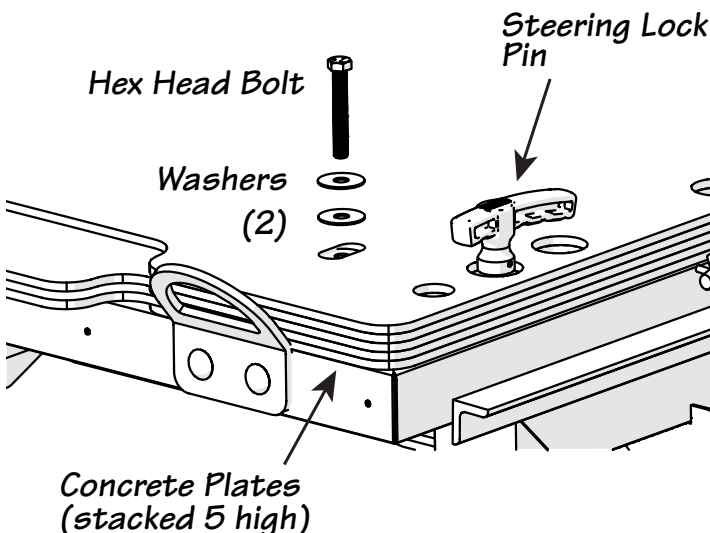
1. Align the hoisting ring/mounting bracket with the two holes located on each side/corner of the roofing cart. Insert each hex head bolt through the mounting bracket and passing out the opposite side of frame. Slide the "L" shaped mounting bracket over the two carriage bolts. Place washers over each bolt and tighten with nyloc nuts. Repeat for each corner.
2. Holes located on the end plate must be located facing forward while the opposite side stack facing backwards. Tabs in the center on the plates should alternate with each plate placement. This arrangement will allow you to pick up the plate without pinching fingers.
3. The concrete system requires 10\* concrete plates. Stack 5 plates facing forward and 5 plates facing backward (see Pict 3). Align all plates so that the steering lock pin will pass through to the frame. You can use the steering lock pin as a tool to aide in alignment.

\* If the roofing cart has a toolbox already installed, only 8 concrete plates are required.

4. Place the washer over the hex head nut and insert the bolt through the 5 concrete plates. If the plates are aligned properly the hex head bolt will pass through to the "L" shaped bracket. The bracket has a nut welded on the underside. Repeat for the opposite side on the same plate. Once both bolts are aligned and fastened with the underside nut, tighten both bolts. Repeat for the opposite side concrete stack.



*Place the plates so the tabs alternate*



## Penetrator Part List



#	Part #	Basic Parts Descriptions
8	40641-2	D-Ring
9	18312-1	Security Bolt
10	18312-2	Hex Head Nut
11	98338A195	Safety Pin

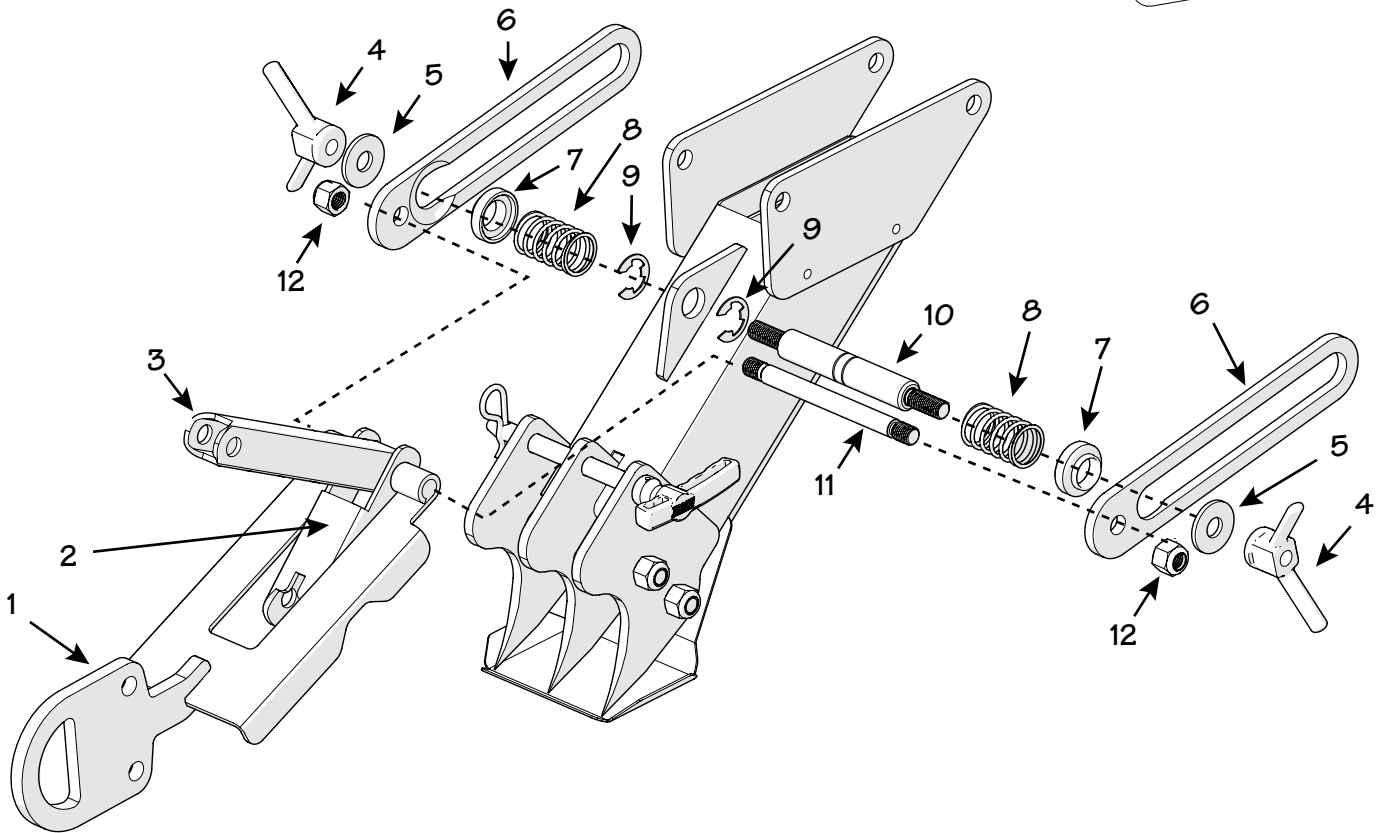
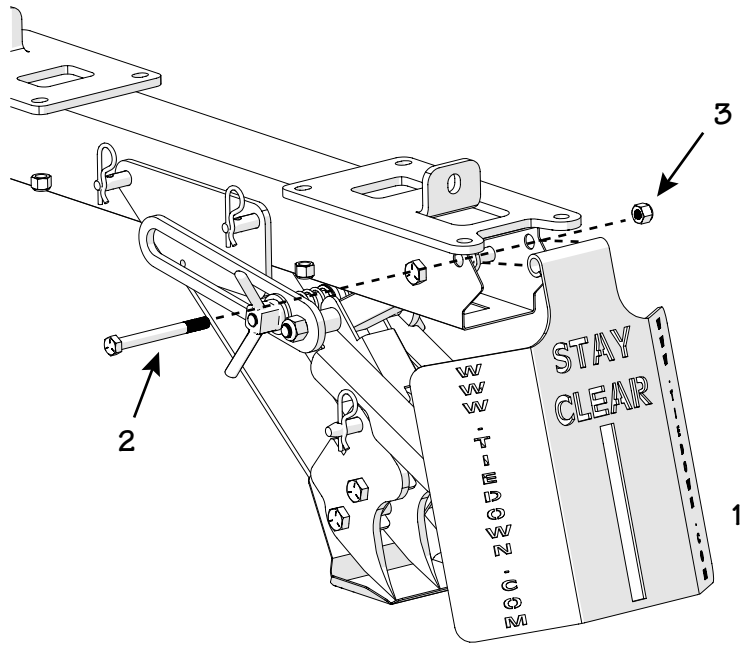


#	Part #	Basic Parts Descriptions
1	10458	Hex Head Bolt - 5/8"
2	10604	Cotter Pin 111-20
3	10453	Hex Head Bolt - 1/4"-20 x 4"
4	10027	Nyloc Nut - 1/4"-20
5	70509	Pull Pin - 5/8" x 4"
6	10628	Nyloc Nut - 5/8"-11
7	70512	Pull Pin - 5/8" x 5"

# Penetrator Part List

## Face Plate Components

#	Part #	Basic Parts Descriptions
1	40626	Front Guard Plate
2	10458	Hex Head Bolt - 5/8"-11 x 5"
3	10628	Nyloc Nut - 5/8"-11



## Cartridge Chute Components

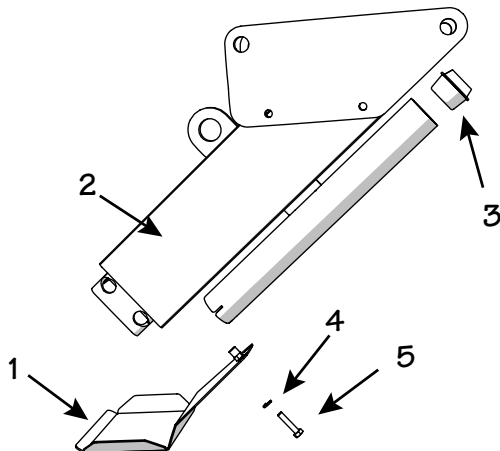
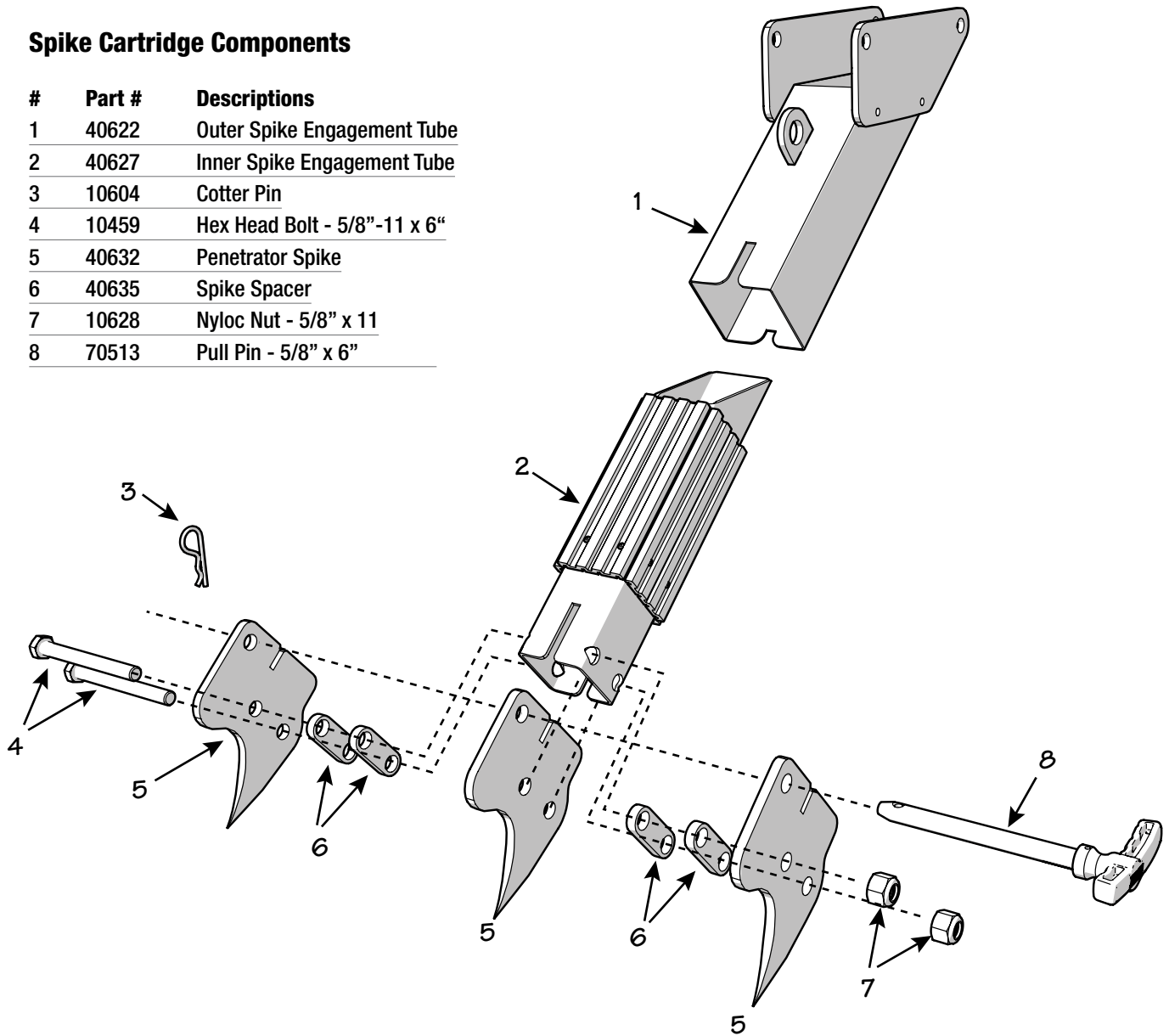
#	Part #	Descriptions
1	40623	Penetrator Horizontal Pull Bracket
2	40625	Penetrator Short Link
3	40624	Penetrator Long Link
4	48683	Wing Nut - 5/8" - 11
5	10513Z	Flat Washer
6	40628	Penetrator Retaining Slide Bar

7	40629	Spring Lock Bushing
8	10132	Compression Spring
9	10800	Snap Clip
10	40630	Dual End Shoulder Bolt 1"
11	40631	Dual End Shoulder Bolt 5/8"
12	10628	Nyloc Nut - 5/8" - 11

# Penetrator Part List

## Spike Cartridge Components

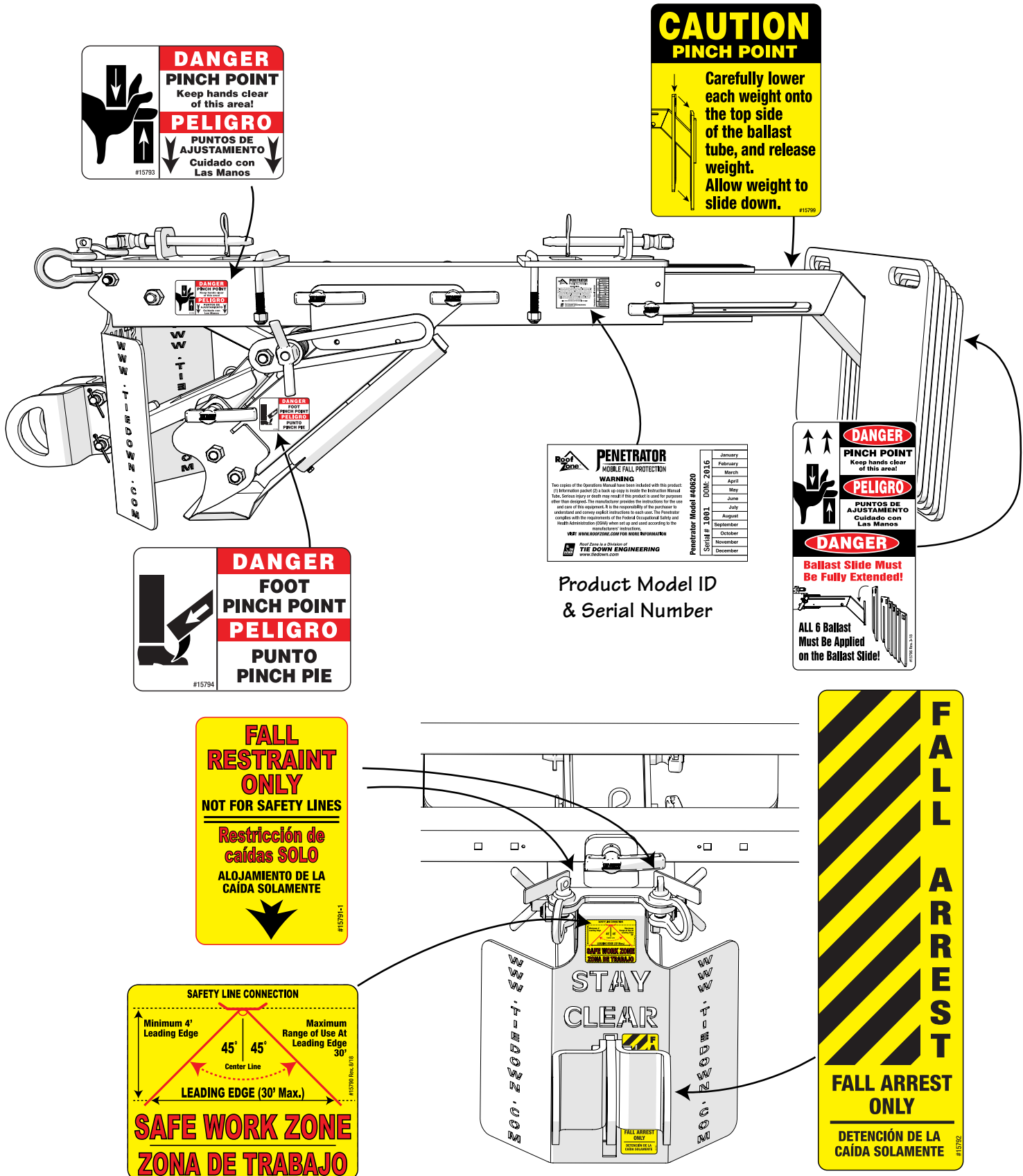
#	Part #	Descriptions
1	40622	Outer Spike Engagement Tube
2	40627	Inner Spike Engagement Tube
3	10604	Cotter Pin
4	10459	Hex Head Bolt - 5/8"-11 x 6"
5	40632	Penetrator Spike
6	40635	Spike Spacer
7	10628	Nyloc Nut - 5/8" x 11
8	70513	Pull Pin - 5/8" x 6"



## Safety Shield Components

#	Part #	Descriptions
1	40636	Spike Safety Guard Shield
2	40622	Outer Spike Engagement Tube
3	17514	Insert Plug
4	12177	Split Washer
5	10814	Hex Head Bolt - M6 x 1" x 30 mm.

# Warning and Product ID Labels





## 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





**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 Device</b>	<b>Date:</b>							
Frame: Free of Rust?								
Frame: Welded Connections?								
Mounting Pins (2)?								
Ballast Slide: Slides In and Out?								
Ballast Slide: Pin Available?								
Penetrator Spikes Free of Damage?								
All Ballast Weights Available (6)?								
Spike Guard Shield Present?								
Anchor Shackles and Pins Available (5)?								
Anchor Shackles and Pins Tightened?								
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: