



ULTRATECH
INTERNATIONAL, INC.

Ultra-Pellet Pan - Polyethylene Installation Instructions

Before beginning the installation process, a detailed review of your Ultra-Pellet Pan order is recommended to make sure that all items have been received and are not damaged. Please refer any questions or problems immediately to your UltraTech Distributor or to UltraTech International, Inc., at (800) 353-1611.

- **Do not attempt to install your Pellet Pan system** if any parts are missing or damaged.
- All installation personnel should **read these instructions in their entirety BEFORE** the installation process begins.
- We strongly recommend that all installation personnel also **view the installation video** in its entirety BEFORE the installation process begins. The installation video is available at www.TrackPans.com

NOTE: Proper personal protection equipment must be worn while installing Ultra-Pellet Pans. All safeguards must be taken to insure that the area of track where installation is to take place will have no rail traffic or other activity that may present hazards to installation personnel.

All applicable OSHA, DOT and other governing regulations must be followed. UltraTech International, Inc. is not responsible in any manner for equipment, property or personnel used in the Pellet Pan installation process.

THE FOLLOWING INSTALLATION INSTRUCTIONS HAVE BEEN PREPARED WITH THE ASSUMPTION THAT A COMPLETE PELLET PAN SYSTEM (i.e., Center Pellet Pans, Side Pellet Pans IS BEING INSTALLED.

If, as an example, your installation requires center Pellet Pans only, disregard all references to the installation of Side Pellet Pans.

Tools required to install Ultra-Pellet Pans

1. Metal Rake
2. House Broom
3. Two (2) Shovels (1 Flat, 1 spade)
4. Sledge Hammer (8 pound)
5. Metal pry bar
6. Channel Lock pliers (12 inch)
7. Tape measure
8. Carpenter's yellow marking crayon
9. Two (2) bar clamps (deep reach with 12" opening) (deep reach bar clamps are available through W.W. Grainger, catalog # 4CN60.)

Additional materials needed for installation:

1. Two (2) wooden support boards: 1" x 4" x 4'
2. Two (2) pieces of lumber: 2" x 4" x 8'
3. Fasteners appropriate for fastening 5/4 treated lumber to the ties in your system, for example;
 - 3 inch spiral-shank nails
 - 3 inch galvanized deck screws for wooden ties
 - 2 1/2 inch concrete screws for concrete ties
 - 1 1/2 inch flat head machine screws for steel ties.

There will be 2 fasteners used for each length of lumber used under your Pellet Pan system.

SITE PREPARATION:

- 1. INSTALLATION AREA:** Before installing Ultra-Pellet Pans, minor preparation of the installation area is, in most cases, required.
 - Outline the area in which the Ultra-Pellet Pans are to be installed. Ultra-Pellet Pans are approximately 4'6" in length.
 - Multiply 4.5 x the number of Center Pans in your system and this will give you the approximate length of the system.
 - With an appropriate tape measure and marking crayon, mark the beginning and end of the system on the foot of the rails. Within this area you should be able to place the eight foot 2x4 on its edge and see that it rests on the tops of the railroad ties.
 - If it rests on ballast, weeds, or other debris then whatever is higher than the top of the ties needs to be removed.
 - Before Pellet Pans are installed the ballast in this area needs to be flush with or lower than the tops of the ties.
 - If your system includes Side Pellet Pans then the ballast on the field side of the rails will need to be flush with or lower than the tops of the ties and away from the rail three to five feet from the web of the rail depending on the width of the Side Pellet Pans used in your installation.
- 2. JOINT BARS:** Joint Bars hold two pieces of rail together. They are typically placed on the gauge side and field side of the rail web and are bolted together with six bolts (three bolts facing in toward the middle of the track and three facing out.) If possible, remove joint bars and the bolts and weld rails together. If this is not possible inspect joint bars and the bolts and make sure they are fully tightened using an appropriate wrench. Once they are securely tightened, place the metal cutting blade on the circular saw, and wearing proper hearing and eye protection, cut off the excess threads of these bolts. If your system only contains Center Pellet Pans then the bolts facing out do not need to be cut off.
- 3. RAIL ANCHORS:** Rail anchors prevent the rails from moving on the railroad ties as the locomotive pulls or stops the train. You will notice them in the area between the rails. Usually they are opposite one another and against the ties. Depending on your situation these anchors may need to be removed and replaced with a low profile anchor or removed altogether. Contact UltraTech and/or the railroad for additional guidance.
- 4. SPIKES:** Check all railroad spikes to see that they are all driven down tight to the foot of the rail.
- 5. DIRT & DEBRIS:** Remove dirt and other debris that may have collected on the inside and outside web surfaces of both rails.
- 6. SWEEP:** Finally, sweep off the tops of the ties leaving a clean surface on which to install the Ultra-Pellet Pan System.

Disclaimer: UltraTech International, Inc. assumes no liability for damages incurred to Ultra-Pellet Pans or the Ultra-Pellet Pan system due to installation on railroad ties that are in poor condition and thus enabling the rail anchors to damage the pans. UltraTech International, Inc. also assumes no liability for damages incurred to the Ultra-Pellet Pans or the Ultra-Pellet Pan system or loss of containment by the Ultra-Pellet Pan system caused by failure to remove and replace track joint bars or splice bars.

GENERAL INSTALLATION GUIDELINE

Installation of Treated Lumber for Center Pellet Pan

Treated support boards (lumber) of an appropriate length for your Pellet Pan system will be sent with your order. The boards should be placed with one edge against the tie-plate edges. If there are no tie-plates, install the boards 7 ½ inches from the web of the rails. (The “web” is the recessed, vertical surface located between the base of the rail and the top of the rail).

Fasten the treated support boards to the ties, with an appropriate fastener for the type of tie in your system (See suggested fasteners - page 2 - Additional Materials - Item 3), by using one fastener near each end of each treated support board.

Installation of Treated Lumber for Side Pellet Pan

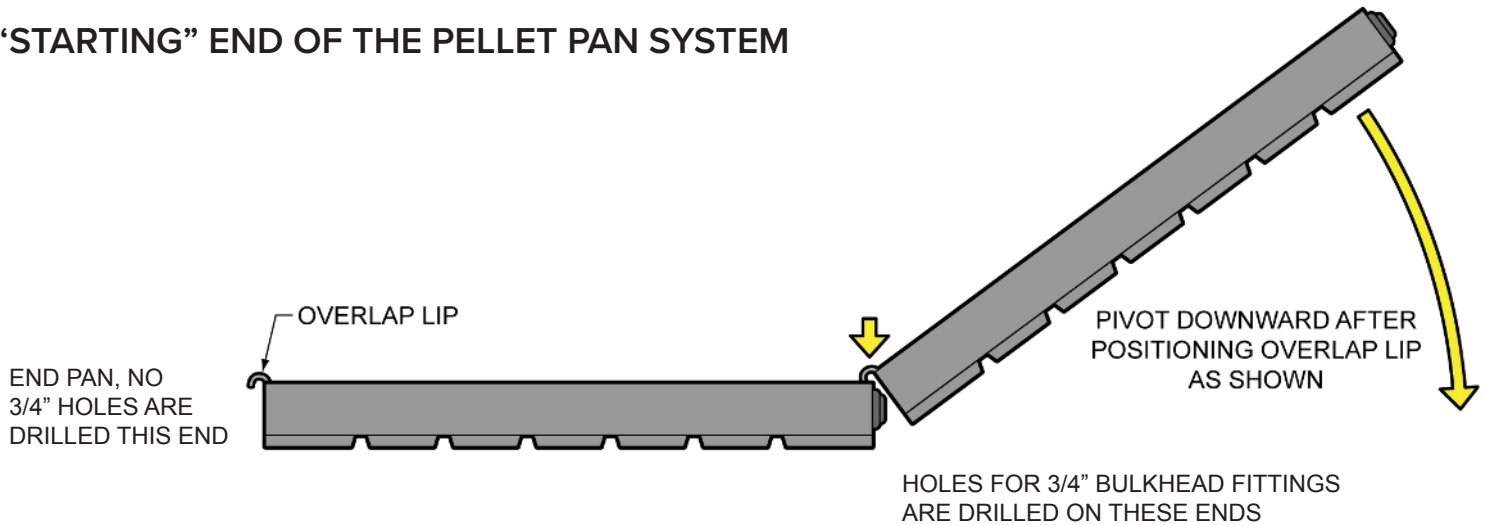
Treated support boards of an appropriate length for your Pellet Pan system will be sent with your order. The boards should be placed with one edge against the tie-plate edges. If there are no tie-plates, install the boards 7 ½ inches from the web of the rails. (The “web” is the recessed, vertical surface located between the base of the rail and the top of the rail)

Fasten the treated support boards to the ties, with an appropriate fastener for the type of tie in your system, by using one fastener near each end of each treated support board.

Helpful Hint for the Installation of the Center or Side Pellet Pans

It is best to begin the installation process by positioning the Overlap Lip of the initial Pellet Pan to be installed at the very beginning of the Pellet Pan System. (See Diagram 1 below) Then place the Overlap Lip of the next Pellet Pan to be installed over the top of the installed Pan. The Lip allows the next Pan to “pivot” downward.

“STARTING” END OF THE PELLET PAN SYSTEM



END OF THE PELLET PAN SYSTEM

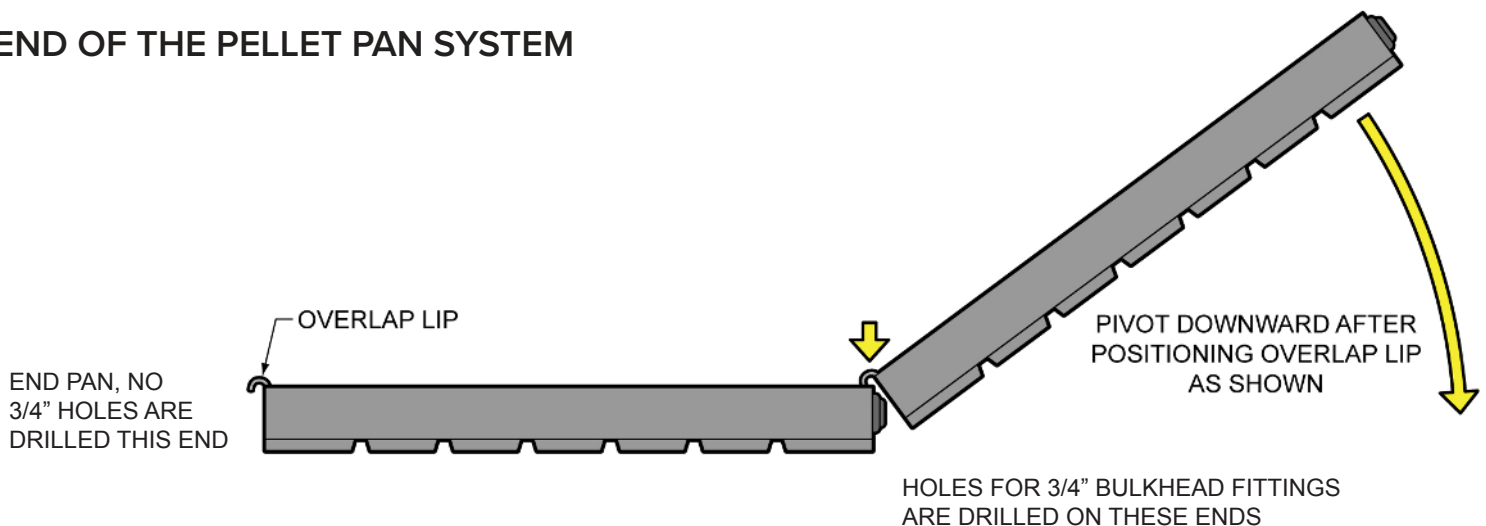


Diagram 1

Installation of Center Pellet Pans

1. Remove grates from center pans as each is being prepared for installation. Do not remove all grates from all center pans prior to installation. The grates help the Pans resist warping in hot environments.
2. The BEGINNING Center Pellet Pan should be installed with the “overlap lip” at the STARTING END of the Pellet Pan System. See Diagram 1.
3. It is important to install the Center Pellet Pans so that they are centered between the two rails. This will facilitate the installation of the Center Pellet Pan gaskets at the end of this process. In order to keep them centered UltraTech recommends cutting two blocks of wood 6 inches long and 2 1/2 inches wide depending on the thickness of the rail web and the spacing of the rails from a piece of 2 x 4. These blocks are to be used as spacers to keep the Center Pellet Pans centered between the two rails while assembling. See Diagram 2.

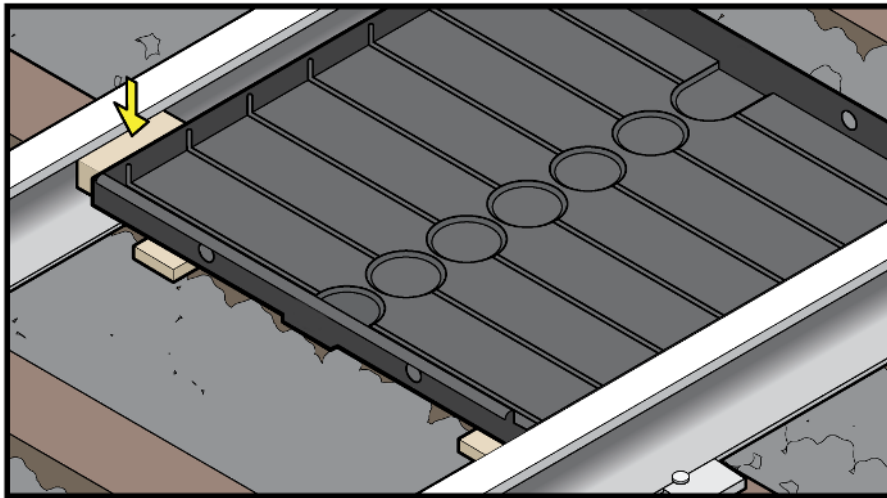
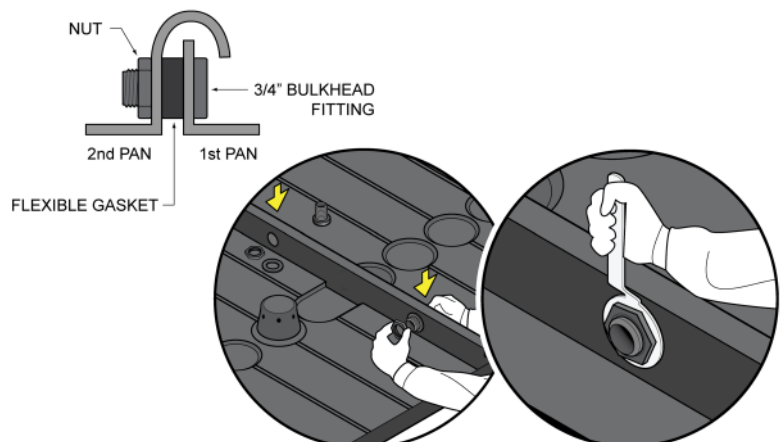


Diagram 2

4. Place the “overlap lip” of the second Center Pellet Pan on the endwall of the first Center Pellet Pan. Keep the second Center Pellet Pan on a 45 degree angle to begin with and slowly lower it down until it is in place.
5. Two (2) 3/4” NPT drain fittings are shipped with each Center Track Pan. Each drain fitting includes one (1) donut-shaped flexible gasket and a rigid washer (Discard the rigid washer). Insert the male portion of the drain fittings through the two smaller holes in the end of the already placed Pan. Place the flexible rubber gasket over the male portion. (The flexible rubber gasket will end up between the two pans) See Picture A.
6. Two (2) track sealing gaskets without a lip and two (2) track sealing gaskets with a lip are shipped inside a box with each Center Pellet Pan. One (1) gasket without a lip and one (1) gasket with a lip are considered to be a “set.” The following steps will position one gasket set on each side of the Center Pellet Pan.



Picture A

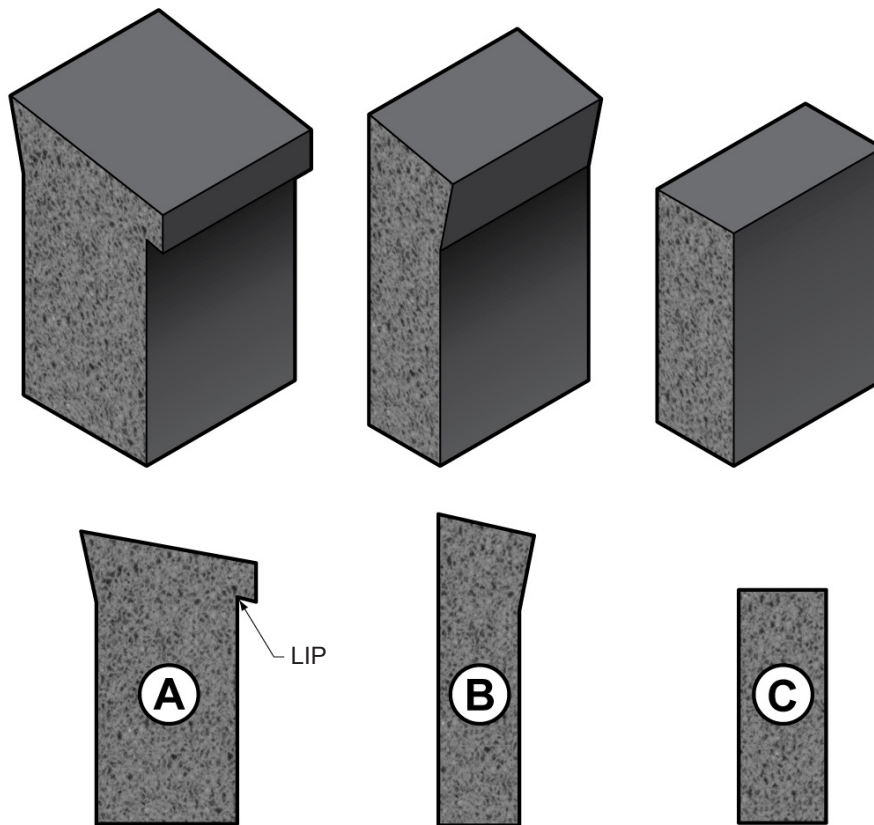
7. With the two (2) drain fittings started through the endwall of the first Center Track Pan place the “overlap lip” of the second Center Track Pan on the endwall of the first Center Track Pan. Keep the second Center Track Pan on a 45 degree angle to begin with and slowly lower it down until the drain fittings protrude through the endwall of this second pan. Three installers are best. The two kneeling in the first pan each keep a hand on the drain fittings and prevent them from being dislodged by the second Center Track Pan.

NOTE THAT THE DRAIN FITTINGS ARE REVERSE (LEFT HAND) THREADED WITH A SPECIAL (BUTTRESS) THREAD. THE NUT WILL ONLY TIGHTEN ON THESE FITTINGS IF IT IS PLACED WITH THE WORD “TIGHTEN” FACING OUTWARD AND IS TURNED IN A COUNTERCLOCKWISE DIRECTION.

8. Once the second Center Track Pan is fully lowered, tighten the nuts 1/4 turn beyond hand tight using the channel lock pliers. Do not over tighten the nuts. Repeat steps 4-6 until all Center Track Pans are connected together. Note: Larger Pellet Pan systems do not include individually boxed Pellet Pans. All components such as the track sealing gaskets are bulk packed.

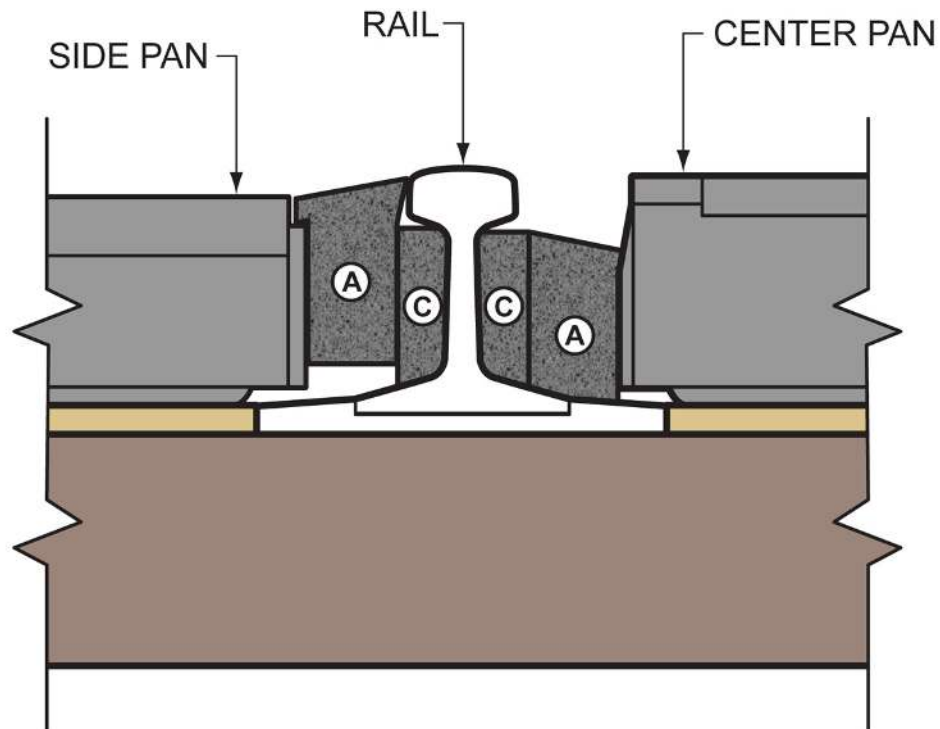
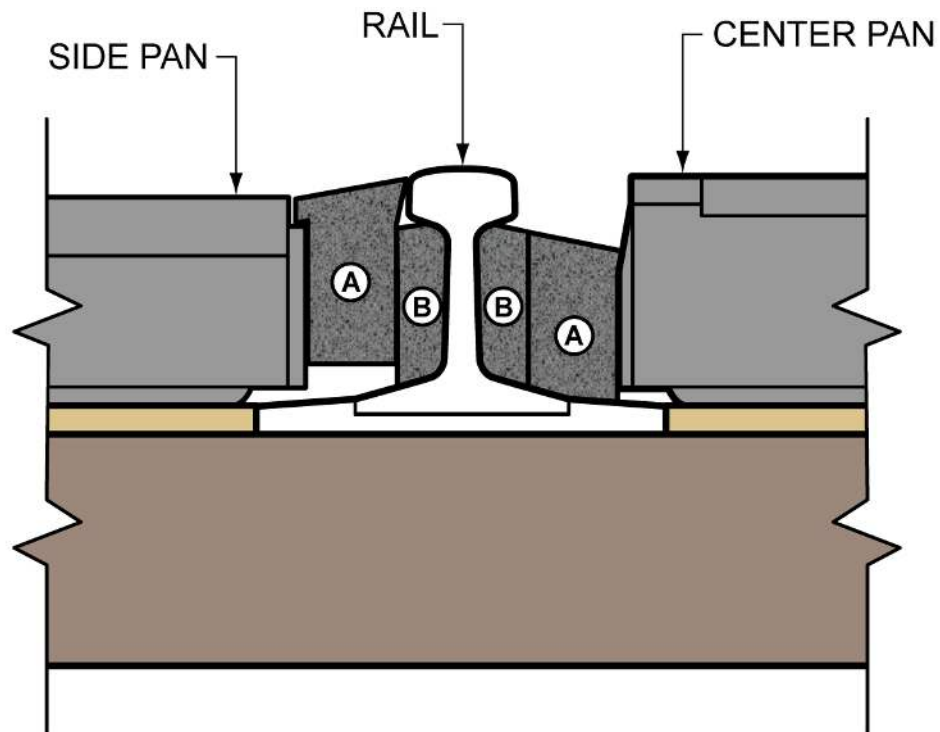
Note: there are many different sizes of rails in use. As a result, UltraTech offers various gasket configurations. Your shipment includes the correct gasket configuration to fit the rail size specified by your personnel at the time your order was placed.

Below are the various track sealing gasket designs available from UltraTech:

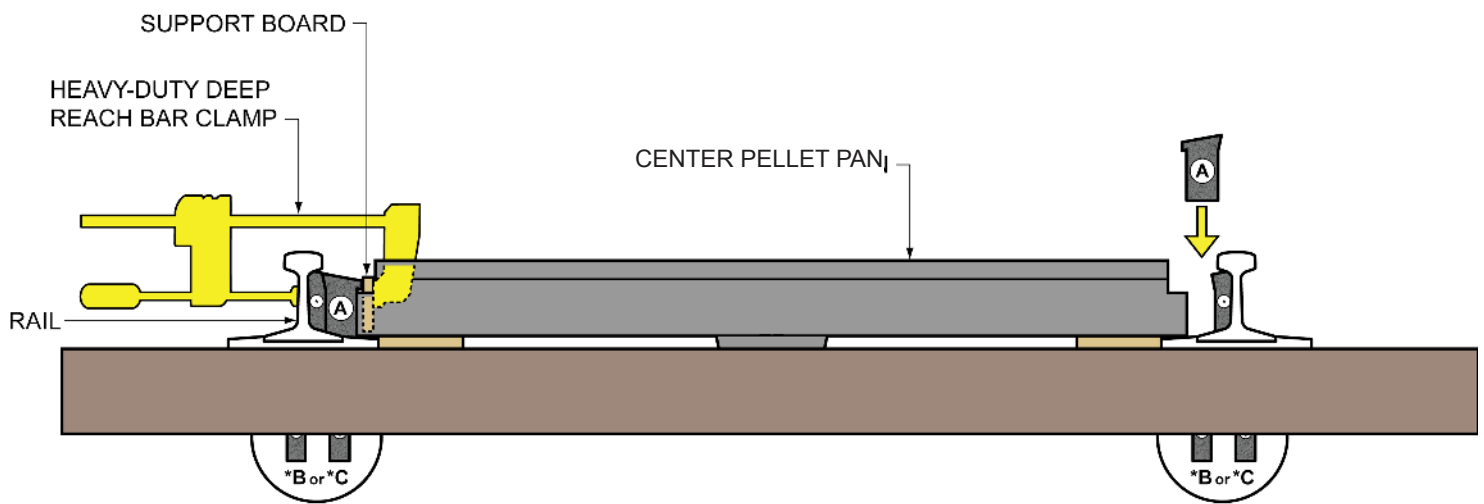


Ultra-Pellet Pan Gasket Configurations

Important: Refer to the appropriate sketch below as a guide for proper gasket orientation and installation.



8. The two (2) track sealing gaskets WITHOUT a lip are to be installed at this time. Each will fit into the rail “web”. The “web” is the recessed, vertical surface located between the base of the rail and the top of the rail. There will be plenty of space available between each side of the Center Pellet Pan and the rails to place these gaskets into their proper position. Make sure to position both gaskets as shown in the appropriate drawing titled “Ultra-Pellet Pan Gasket Configurations” located on page 8. The gaskets MUST be positioned properly to allow spills that may occur on top of, or near, the tracks to be channeled effectively into the Center Pellet Pans.
8. The two (2) track sealing gaskets WITH a lip are to be installed at this time. Each will be positioned to fill the gap between the outer side wall of the Center Pellet Pan and the already-installed gasket. The first gasket is put into place by shifting the Center Pellet Pan slightly toward the opposite side. Refer to the drawing located on page 8 titled “Ultra-Pellet Pan Gasket Configurations” for proper position of the gaskets.
9. At this time, the two (2) bar clamps and one (1) support board will be used to temporarily compress the already-installed gasket set allowing more convenient installation of the fourth track sealing gasket. Position the board and clamps as shown below.



NOTE: One bar clamp should be positioned approximately 10” from each end of the support board. Hand tighten both bar clamps until the combination of the two (2) already-installed gaskets compress by approximately 3/8”. The fourth and final gasket for this Center Pellet Pan will now be installed.

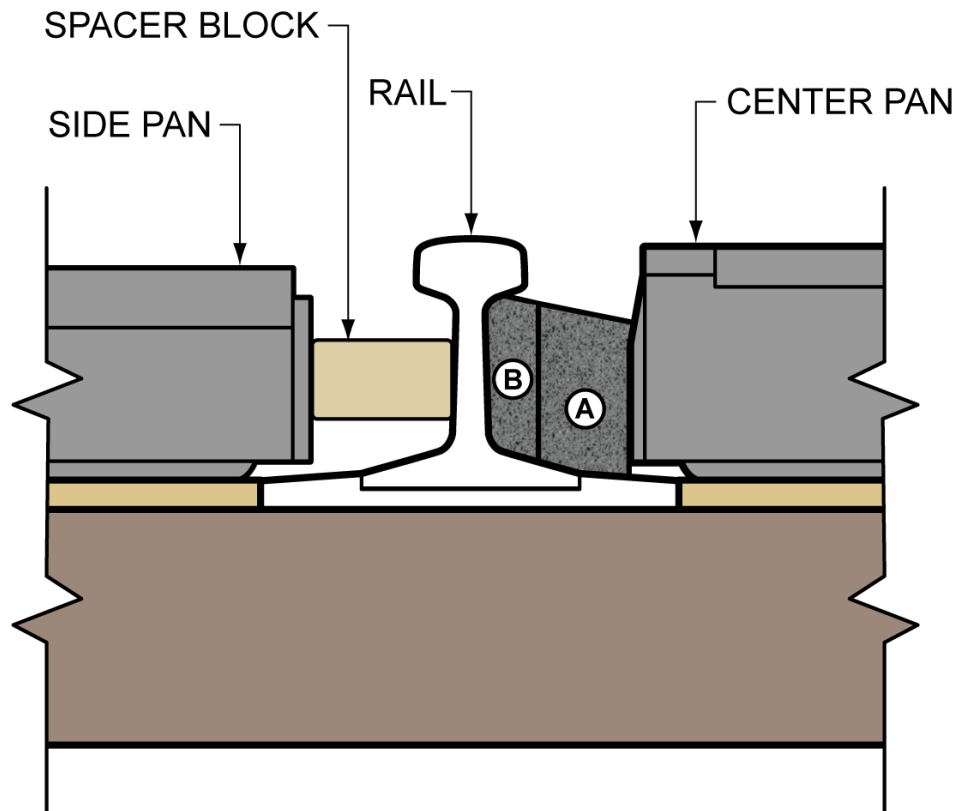
NOTE: VARYING DISTANCE BETWEEN RAILS: The distance between rails can vary by as much as 1/2”. If the distance between the rails you are working on is at the low end of the distance range, the fourth gasket will be an extremely tight fit. Use a block of wood or other blunt (wrapped with several layers of duct tape) device to apply pressure from above to fit the fourth gasket into its correct location.

At this time, remove both bar clamps and the support board.

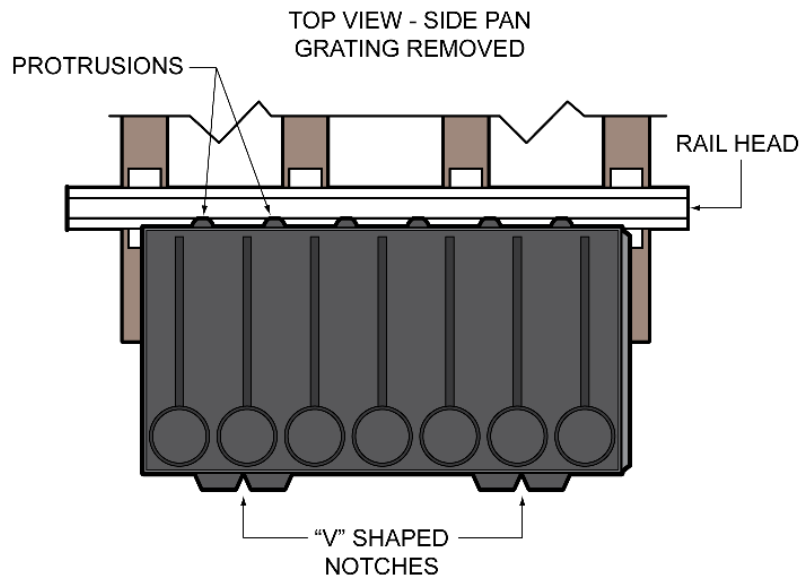
NOTE: Disconnected brake lines or other hoses that hang below the top of the rail will damage the Center Pellet Pans of a Pellet Pan system. A metal ramp, asphalt or maintained ballast must be installed against the “starting” and “ending” Center Pans to ramp up from tie level to the top, leading edge of the Center Pellet Pans.

Installation of Side Pellet Pans

1. Remove grates from Side Pellet Pans as each is being prepared for installation. Do not remove all grates from all Side Pans prior to installation. The grates help the Pans resist warping in hot environments.
2. The BEGINNING Side Pellet Pan should be installed with the “overlap lip” at the STARTING END of the Pellet Pan System.
3. Cut two (2) blocks of wood 6 inches long and 2 1/2 inches wide from a piece of 2 x 4. The 2 1/2 inch dimension is the one needed. Place two (2) of these blocks between the Side Pellet Pan and the rail effectively creating a space of 2 1/2 inch from outside of rail web to the side of the Pan.



NOTE: IT IS IMPORTANT TO NOTE THAT THERE ARE SIGNIFICANT DESIGN DIFFERENCES ON THE OUTSIDE SURFACE OF THE LONG SIDES OF THE SIDE PELLET PANS. ONE (1) SIDE HAS SIX (6) EQUALLY SPACED PROTRUSIONS NEAR THE BOTTOM EDGE. THIS IS THE SIDE THAT MUST BE POSITIONED TOWARD THE RAIL WEB. SEE DIAGRAM BELOW.



NOTE: The long side of the Side Pellet Pan that is farthest from the rails has two (2) molded, “V-shaped” notches, spaced approximately 19” apart. These molded, “V-shaped” notches will be used to fasten each Side Pellet Pan in place. These notches make the Side Pellet Pans run opposite directions on the two sides of the track. One set of Side Pellet Pans will start with a BEGINNING pan and the other set will start with an ENDING pan.

4. Place the first Side Pellet Pan directly on the treated lumber. With two (2) 2 1/2” spacer blocks in place apply pressure with the foot by pressing the Side Pellet Pan up against the spacer blocks and the web of the rail. While wearing safety equipment, hammer two (2) rebar fasteners in place. The rebar should be positioned as tightly against the “V-shaped” notch as possible. It is important to apply constant pressure on the rebar against the “V-shaped” notch as it is being driven into the ballast. The rebar should be driven in so that the top of the rebar leans slightly toward the center of the track and the top of the rebar should be at the same height as the sidewall of the Side Pellet Pan. Protective caps must be placed on the exposed ends of the rebar for safety reasons. See Illustration 1.

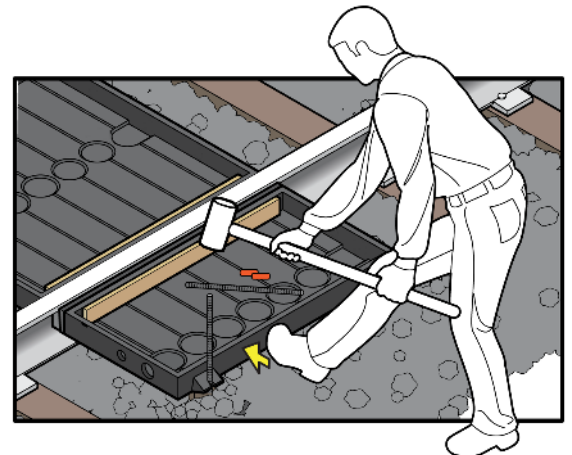
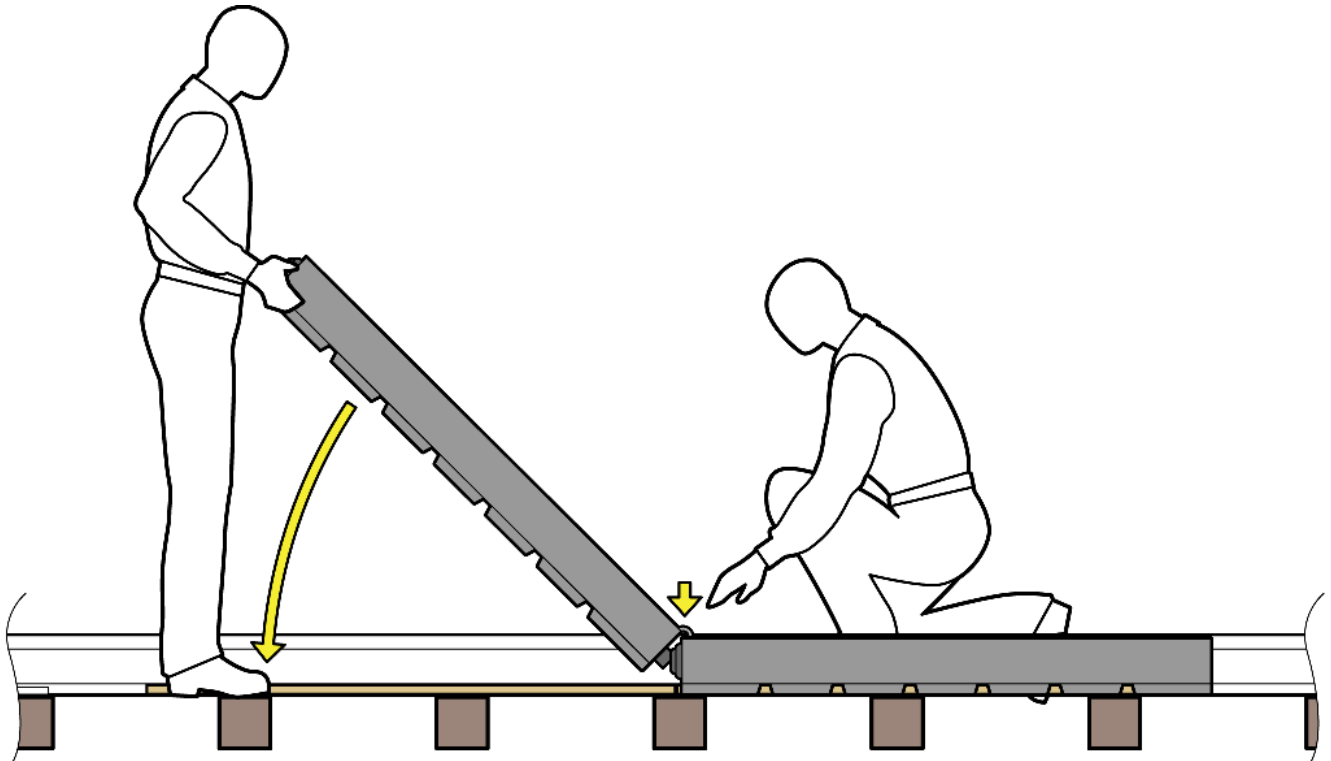


Illustration 1

8. Move the spacer blocks to be ready for the next Side Pellet Pan. If this rail system is built on other surfaces such as concrete, appropriate fasteners will need to be specified to secure the Side Pellet Pans in place (see page 2). Please contact UltraTech International, Inc. with any questions or needs related to proper fastening of Side Pellet Pans.

NOTE: Most tracks are secured to wooden railroad ties. The ties typically rest on ballast (rocks) to provide secure footing. The soil below the ballast is engineered to withstand the dynamics associated with rail activity. UltraTech recommends using 24" long rebar pieces to secure Side Pellet Pans in place. Protective Caps must be placed on the exposed ends of the rebar for safety reasons. (These items are available from your UltraTech distributor. Part # 9584 is comprised of 20 rebar pieces and 20 protective caps.)

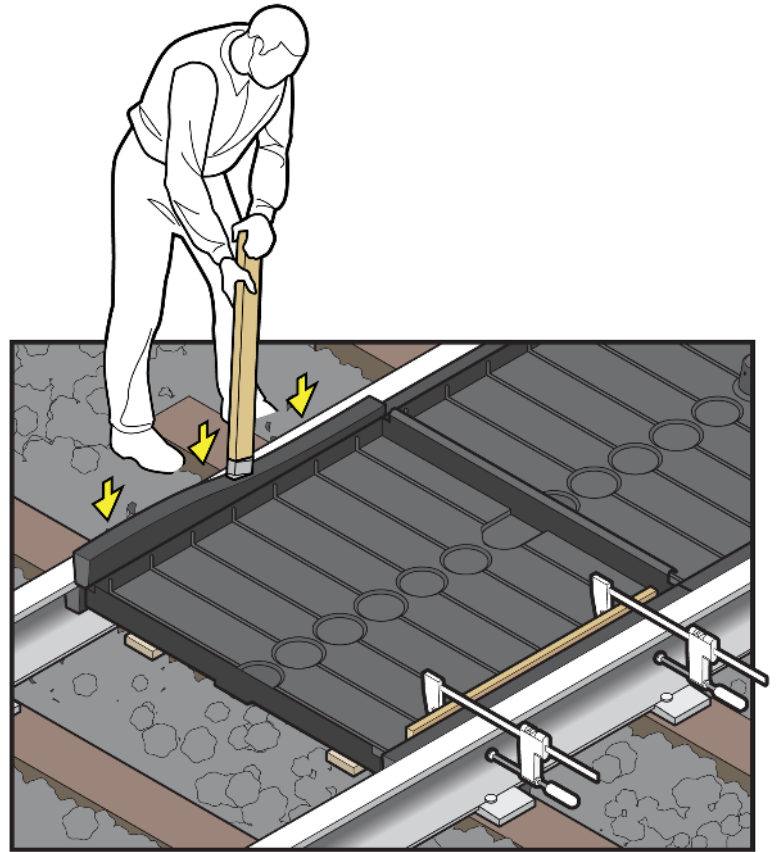
WARNING: BEFORE penetrating the soil or any other material found below grade near the rails, you must verify that the subsurface is free and clear of any obstructions that may present a hazard. It is important to review the area thoroughly to establish that no steam lines, gas lines, electrical, plumbing or other items are located in the pathway of the rebar fasteners or any other fasteners used to complete the installation of the Ultra-Pellet Pans.



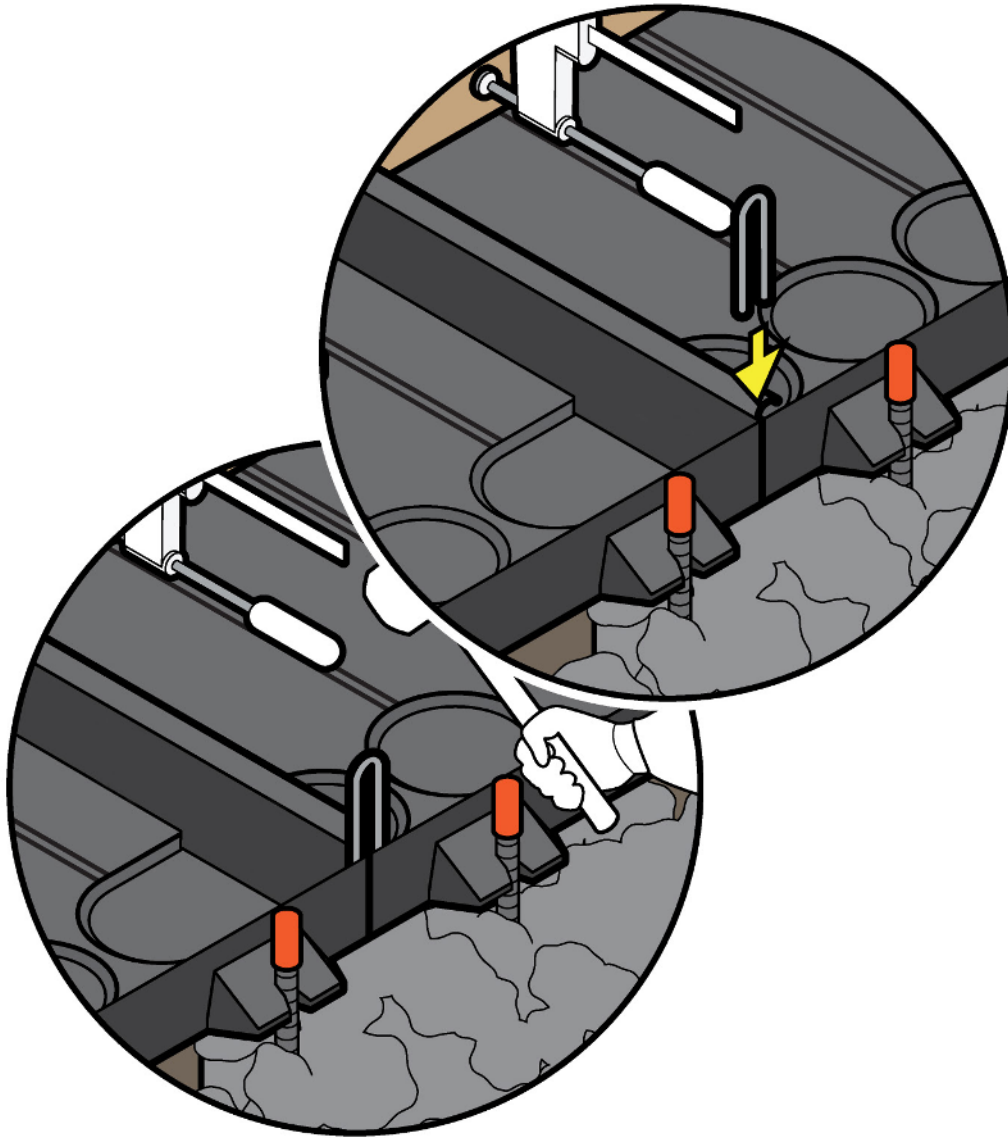
Repeat SIDE Pellet Pan INSTALLATION STEPS 1 - 4 to install all remaining Side Pellet Pans required to complete this side of the Pellet Pan System.

9. One (1) gasket without a lip and one (1) gasket with a lip are shipped inside the box with each Side Pellet Pan. One (1) gasket without a lip and one (1) gasket with a lip are considered to be a "set." The following steps will position one gasket set between the rail and its adjacent Side Pellet Pan side.

9. For 90 lb. rails and larger place gasket “B” against the web of the rail. The “B” gasket can fit into the web area in four different ways. Use the placement that makes the “B” gasket upper edge come flush with the side of the head of the rail. Butt the ends of all gasket “B” pieces together at the joints where the pans meet. For 75 lb. rails and smaller use gasket “C.” Both of these gaskets are without a lip. Each will fit against the rail “web.” The “web” is the recessed, vertical surface located between the base of the rail and the top of the rail. There will be plenty of space available between the side of the Side Pellet Pan and the rail to place these gaskets into their proper position. Make sure to position both gaskets as shown in the appropriate drawing titled Ultra-Pellet Pan Gasket Configurations found on page X. The gaskets **MUST** be positioned properly to allow spills that may occur on top of or near the tracks to be channeled effectively into the Side Pellet Pans.
10. Insert the gasket with the lip. The lip should be facing out away from the rail to allow liquids to flow into the Side Pellet Pans. Make certain to start in the middle of the Side Pellet Pan and work toward each end. Apply downward pressure utilizing a 2 foot piece of 2x4 with one end wrapped with several layers of duct tape. The tape will dull the sharp edges of the end of the 2x4 and prevent tearing the gasket material. See illustration below
11. Insert the gasket with the lip. The lip should be facing out away from the rail to allow liquids to flow into the Side Pellet Pans. Make certain to start in the middle of the Side Pellet Pan and work toward each end. Apply downward pressure utilizing a 2 foot piece of 2x4 with one end wrapped with several layers of duct tape. The tape will dull the sharp edges of the end of the 2x4 and prevent tearing the gasket material. See illustration below.

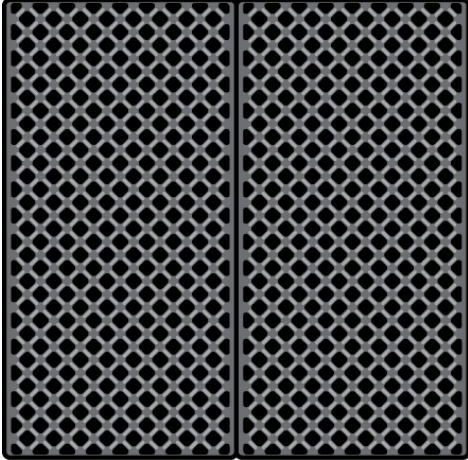


12. Once the Side Pellet Pans have been completely installed, the last step is to install the Side Pellet Pan Clips. These are heavy-gauge, steel clips that are formed in the shape of a “U.” Using a rubber mallet, the clips should be installed as shown below and driven on until fully seated.

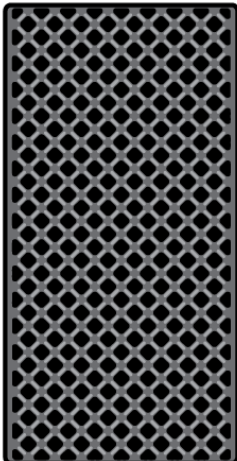


13. Put grates back into all Pellet Pans.

PUT GRATES BACK INTO ALL PELLET PANS



Set of Center Pellet Pan Grates for use with Center Pellet Pans

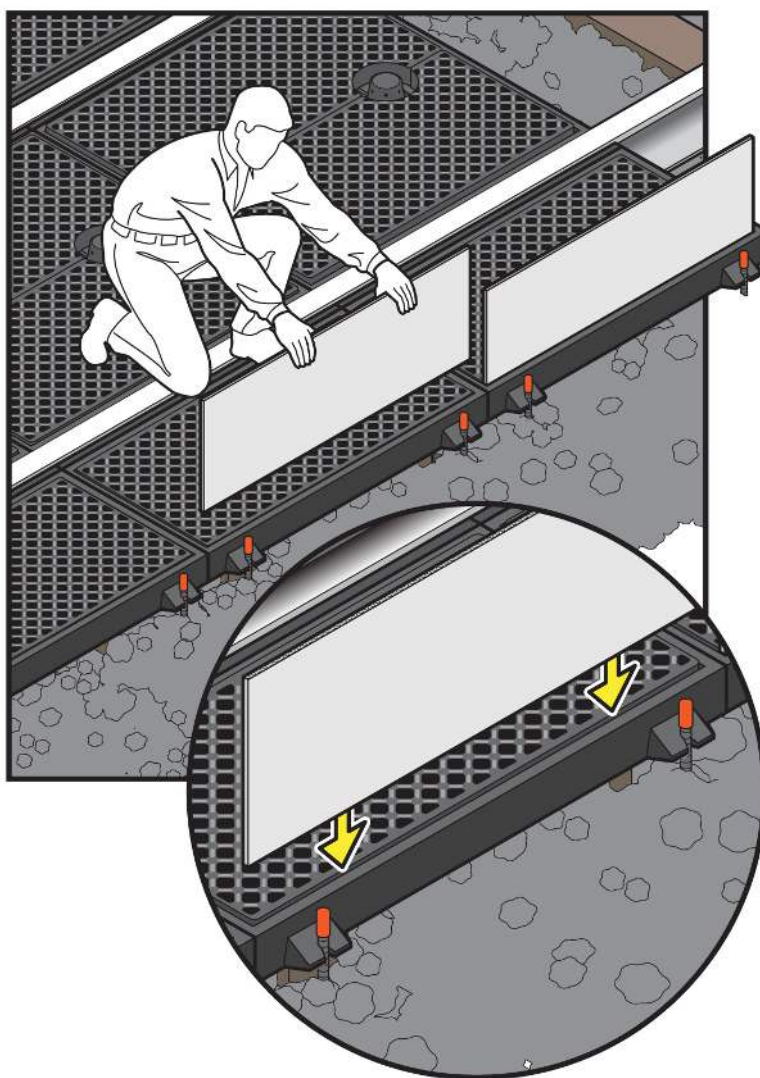


Side Pellet Pan Grate

After all Pellet Pan modules have been installed, a visual inspection of all Center Pellet Pan track sealing gaskets and Side Pellet Pan track sealing gaskets is required.

INSTALL DEFLECTORS:

On the field side of the Side Pellet Pans, slide the deflector in between the side wall of the pan and the grates. Push down until the deflector sits as far down as possible in the pan to provide protection from pellets bouncing out of the pan. See illustration below.



Please refer any related questions or problems to UltraTech International, Inc.