



ULTRATECH
INTERNATIONAL, INC.

Ultra-Track Pan Installation Instructions

Before beginning the installation process, a detailed review of your Ultra-Track 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 904-292-1611.

- **Do not attempt to install your Track 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
- UltraTech offers no-charge, pre-installation meetings with installation teams to review these instructions, and address any questions or concerns. Please contact us to schedule - 904-292-1611.

NOTE: Proper personal protection equipment must be worn while installing Ultra-Track 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 Track Pan installation process.

THE FOLLOWING INSTALLATION INSTRUCTIONS HAVE BEEN PREPARED WITH THE ASSUMPTION THAT A COMPLETE TRACK PAN SYSTEM (i.e., Center Track Pans and Side Track Pans on both sides) IS BEING INSTALLED.

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

Tools required to install Ultra-Track Pans

1. Metal Rake
2. House Broom
3. Two (2) Shovels (1 Flat, 1 spade)
4. Sledge Hammer (8 pound)
5. Circular Saw (7 1/4 inch)
6. Wood cutting blade for circular saw
7. Metal Cutting (abrasive) blade for the circular saw (May not be needed.)
8. Metal pry bar
9. Channel Lock pliers (12 inch)
10. Drill motor with #2 Phillips bit
11. Tape measure
12. Carpenter's yellow marking crayon
13. Two (2) bar clamps or irwin clamps (deep reach with 12" opening).

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 Track Pan system.

SITE PREPARATION:

- 1. INSTALLATION AREA:** Before installing Ultra-Track Pans, minor preparation of the installation area is, in most cases, required.
 - Outline the area in which the Ultra-Track Pans are to be installed. Ultra-Track 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 Track 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 Track 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 Track 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 Track 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-Track Pan System.

Disclaimer: UltraTech International, Inc. assumes no liability for damages incurred to Ultra-Track Pans or the Ultra-Track 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-Track Pans or the Ultra-Track Pan system or loss of containment by the Ultra-Track Pan system caused by failure to remove and replace track joint bars or splice bars.

GENERAL INSTALLATION GUIDELINE

With NO Below Grade Piping:

UltraTech recommends that all Center Track Pans be completely installed BEFORE beginning installation of the Side Track Pans. The installation of the NON-PIPED system will be more efficient as a result.

WITH Below Grade Piping:

Center Track Pans and Side Track Pans (if ordered) must be installed concurrently to allow for proper positioning of the piping and filling of the pipe trenches under the Track Pans.

PVC piping is strongly recommended. PVC has adequate strength and the necessary flexibility to give a long-lasting installation.

Installation of Treated Lumber for Center Track Pan

Treated support boards (lumber) of an appropriate length for your Track 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 Track Pan

Treated support boards of an appropriate length for your Track 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 Track Pans

It is best to begin the installation process by positioning the Overlap Lip of the initial Track Pan to be installed at the very beginning of the Track Pan System. (See Diagram 1 below) Then place the Overlap Lip of the next Track Pan to be installed over the top of the installed Pan. The Lip allows the next Pan to “pivot” downward. Once the second Pan is laying flat on the top of the railroad ties, the “flow-through” male and female ports will be correctly aligned.

NOTE: It is important to note that your Track Pan order has been customized to meet your needs. The Track Pan walls that will be located at the very beginning and the very end of each System have NOT been drilled out to allow flow-through. These “non-drilled” parts are marked as END PAN. Make sure that these “non-drilled” ends are positioned correctly as shown:

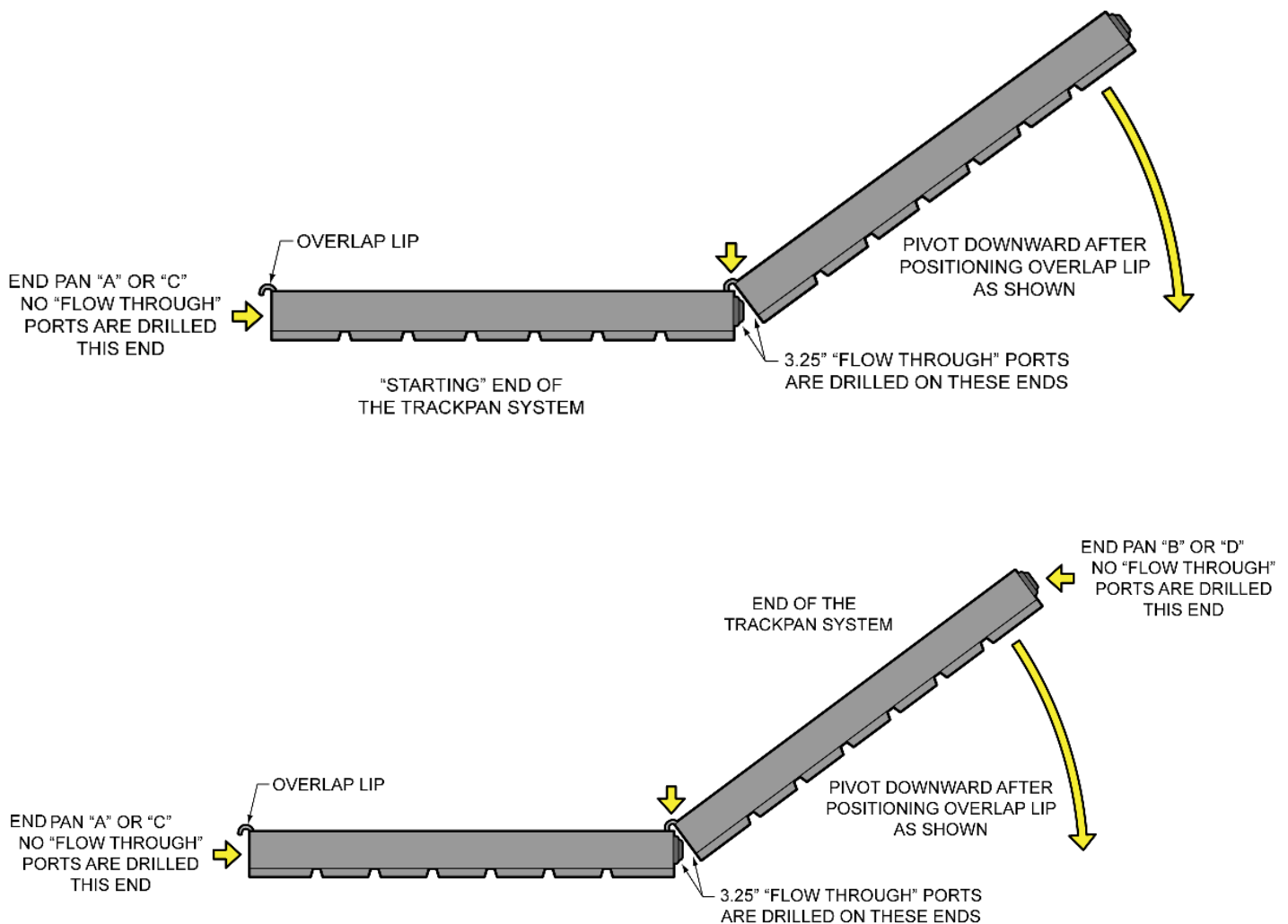


Diagram 1

Installation of Center Track 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 Track Pan should be installed with the “overlap lip” at the STARTING END of the Track pan System. See Illustration A.
3. It is important to install the Center Track Pans so that they are centered between the two rails. This will facilitate the installation of the Center Track 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 Track Pans centered between the two rails while assembling. See Diagram 2.
4. Two (2) 3/4” NPT drain fittings are shipped with each Center Track Pan. Each drain fitting includes one (1) donut-shaped flexible gasket. 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 B.

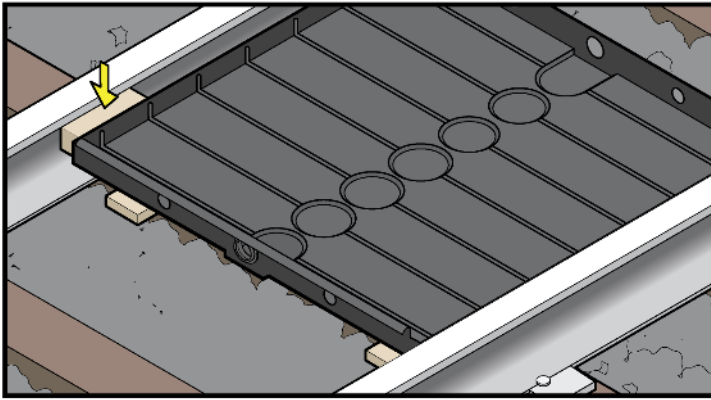


Illustration A

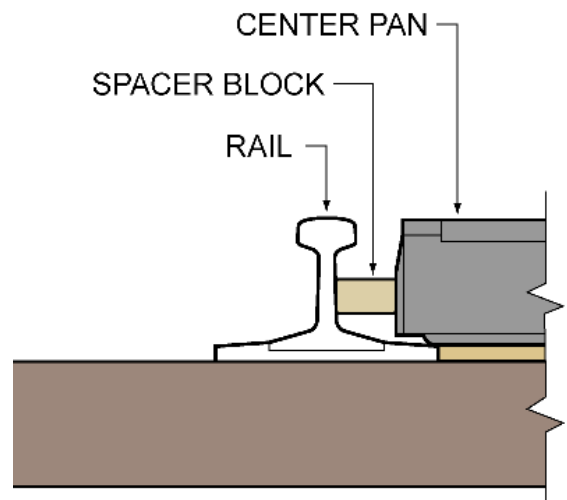


Diagram 2

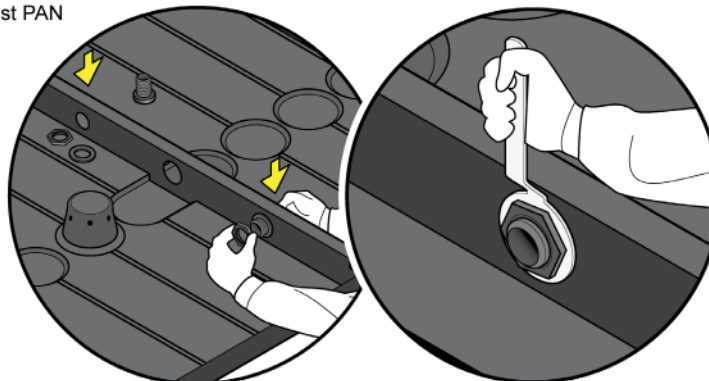
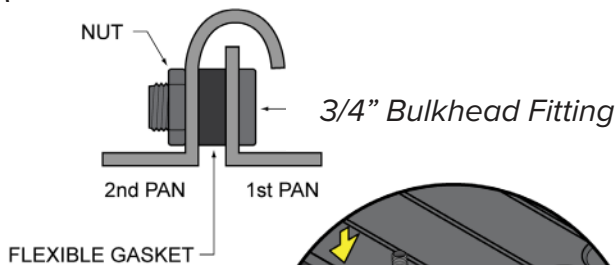


Illustration B

5. With the two (2) bulkhead 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 bulkhead 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 bulkhead fittings and prevent them from being dislodged by the second Center Track Pan.

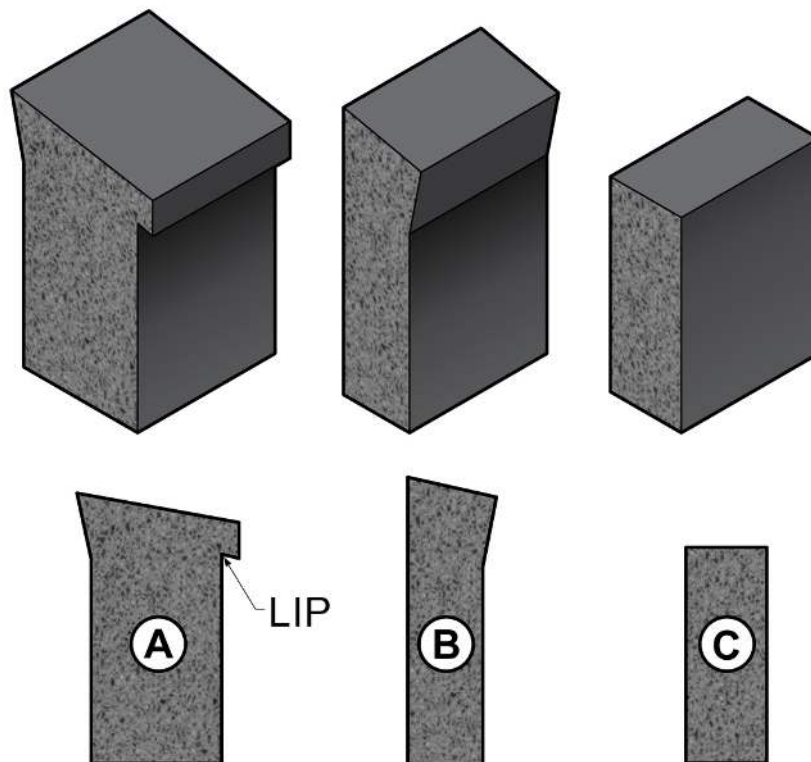
NOTE THAT THE BULKHEAD FITTINGS ARE REVERSE (LEFT HAND) THREADED WITH A SPECIAL (BUTTRESS) THREAD. THE NUT WILL ONLY TIGHTEN ON THESE FITTINGS IF IT IS PLACED WITH THE WORD “TIGHTEN” FACING OUTWARD AND IS TURNED IN A COUNTERCLOCKWISE DIRECTION.

6. 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.
7. Two (2) track sealing gaskets without a lip and two (2) track sealing gaskets with a lip are shipped in a separate box marked “Component Parts” with each Center Track 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 Track Pan.

Note: Larger Track Pan systems do not include individually boxed Track Pans. All components such as the track sealing gaskets are bulk packed.

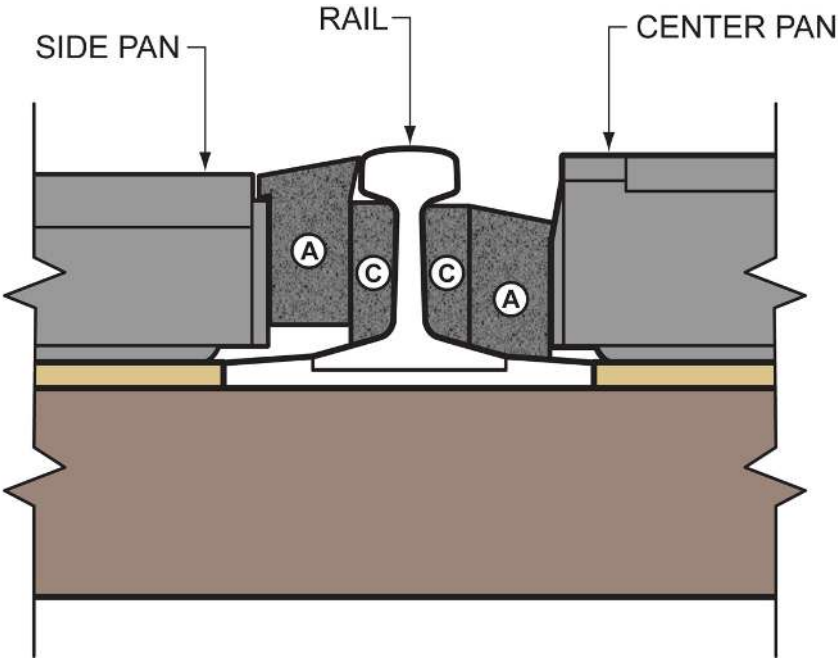
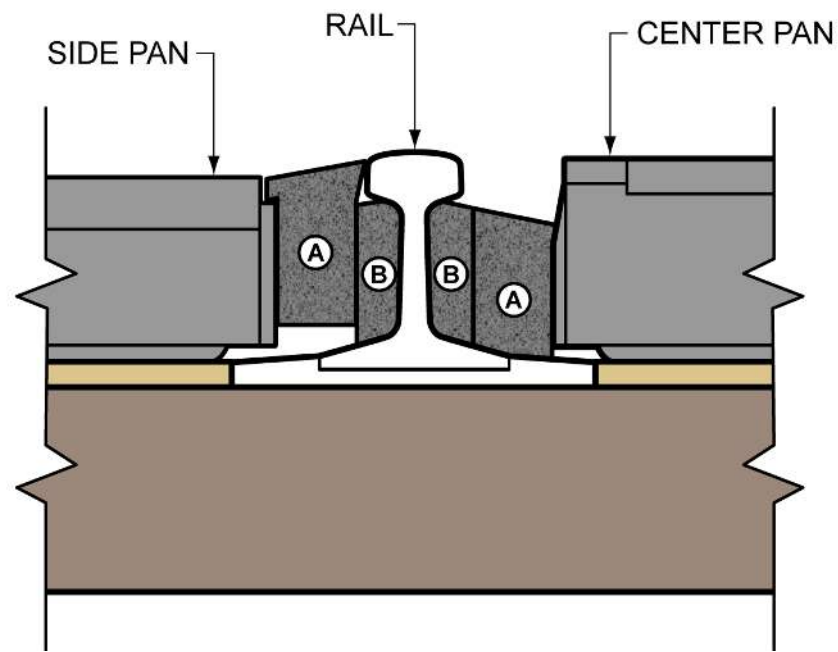
Note: there are many different sizes of rails in use. As a result, UltraTech offers various gasket configurations. Your shipment includes the correct gasket configuration to fit the rail size specified by your personnel at the time your order was placed.

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

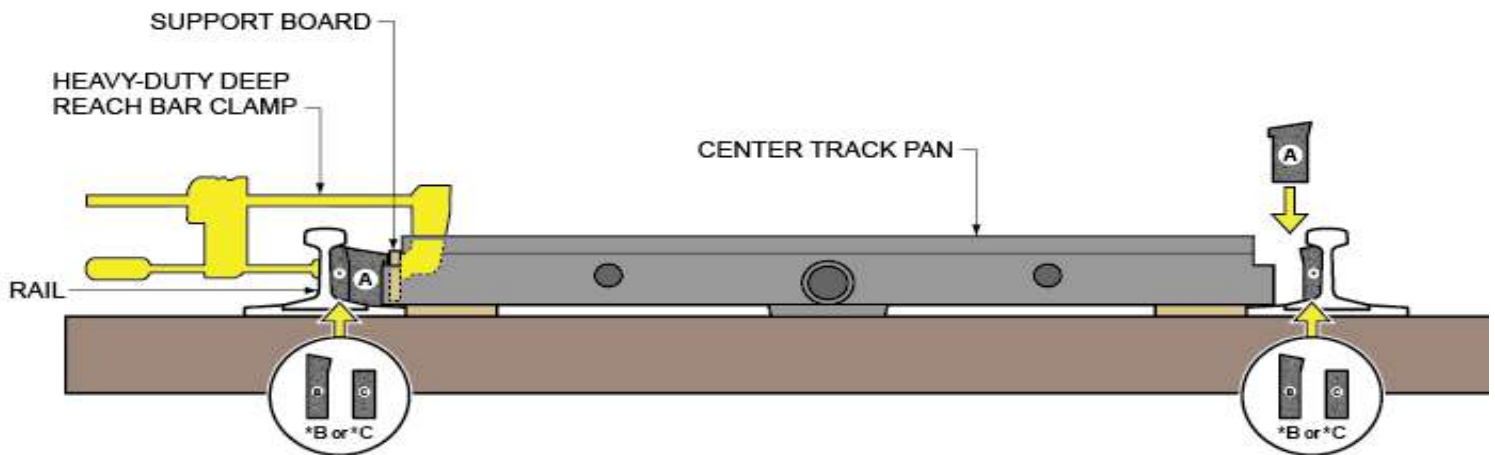


Ultra-Track Pan Gasket Configurations

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 Track 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-Track 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 Track Pans.
9. 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 Track Pan and the already-installed gasket. The first gasket is put into place by shifting the Center Track Pan slightly toward the opposite side. Refer to the drawing located on page 8 titled “Ultra-Track Pan Gasket Configurations” for proper position of the gaskets.
10. 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 Track Pan will now be installed.

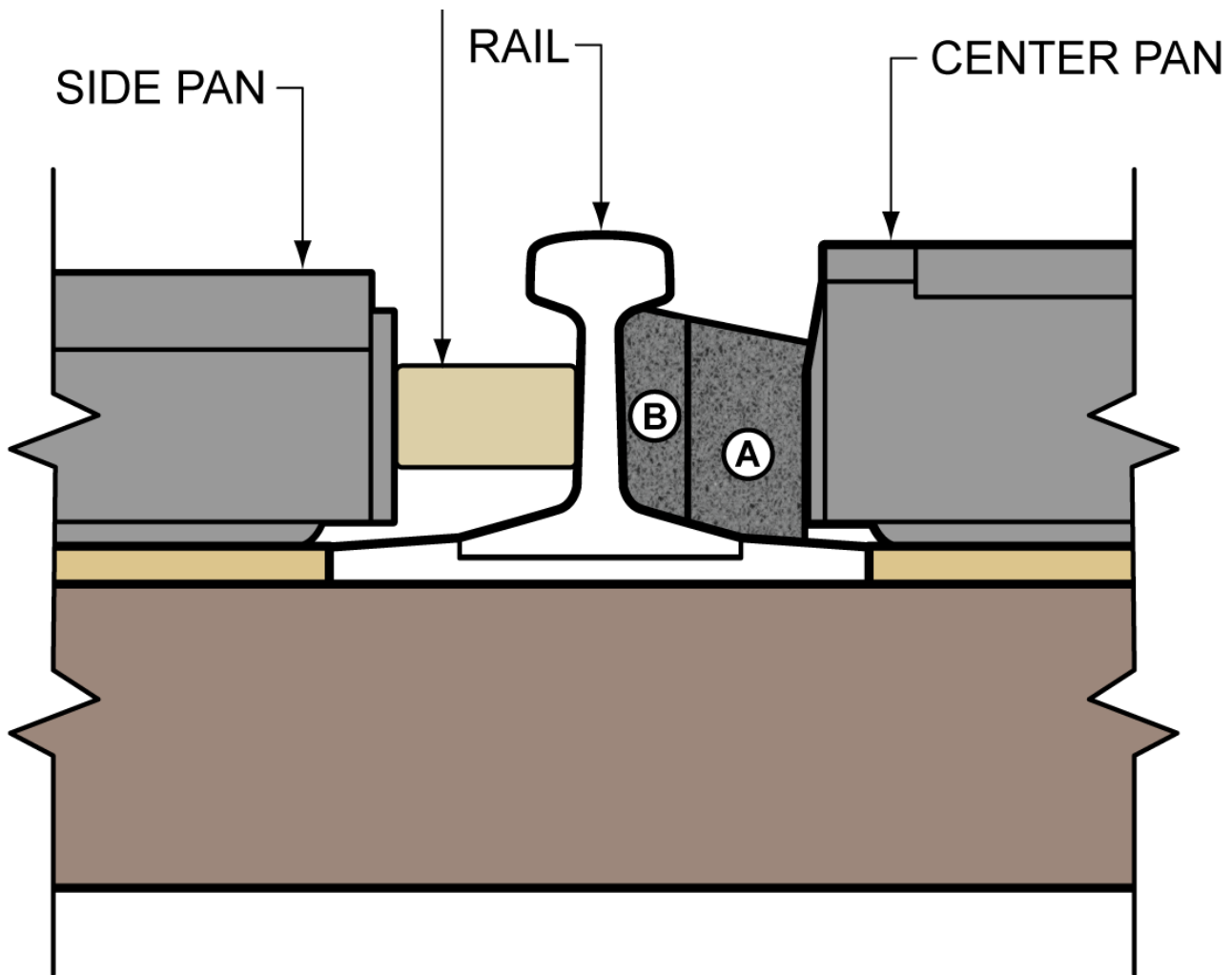
NOTE: VARYING DISTANCE BETWEEN RAILS: The distance between rails can vary by as much as 1/2”. If the distance between the rails you are working on is at the low end of the distance range, the fourth gasket will be an extremely tight fit. Use a block of wood or other blunt (wrapped with several layers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

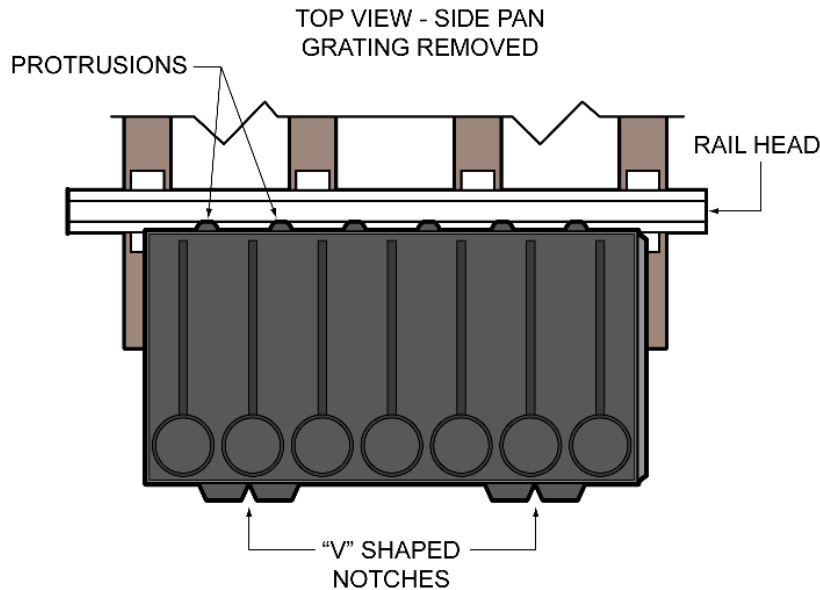
NOTE: Disconnected brake lines or other hoses that hang below the top of the rail will damage the Center Track Pans of a Track Pan system. A metal ramp, asphalt or maintained ballast must be installed against the “starting” and “ending” Center Pans to ramp up from tie level to the top, leading edge of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

Installation of Side Track Pans

1. Remove grates from Side Track 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 Track Pan should be installed with the “overlap lip” at the STARTING END of the Track 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 Track 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 TRACK 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 Track 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 Track Pan in place. These notches make the Side Track Pans run opposite directions on the two sides of the track. One set of Side Track Pans will start with a BEGINNING pan and the other set will start with an ENDING pan. Both of these are labeled "END PAN".

4. Place the first Side Track 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 Track 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 Track Pan. Protective caps must be placed on the exposed ends of the rebar for safety reasons. See Illustration C.

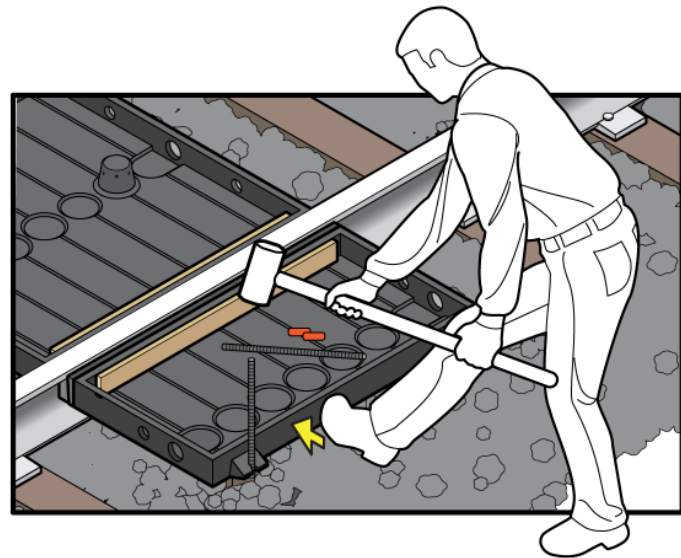


Illustration C

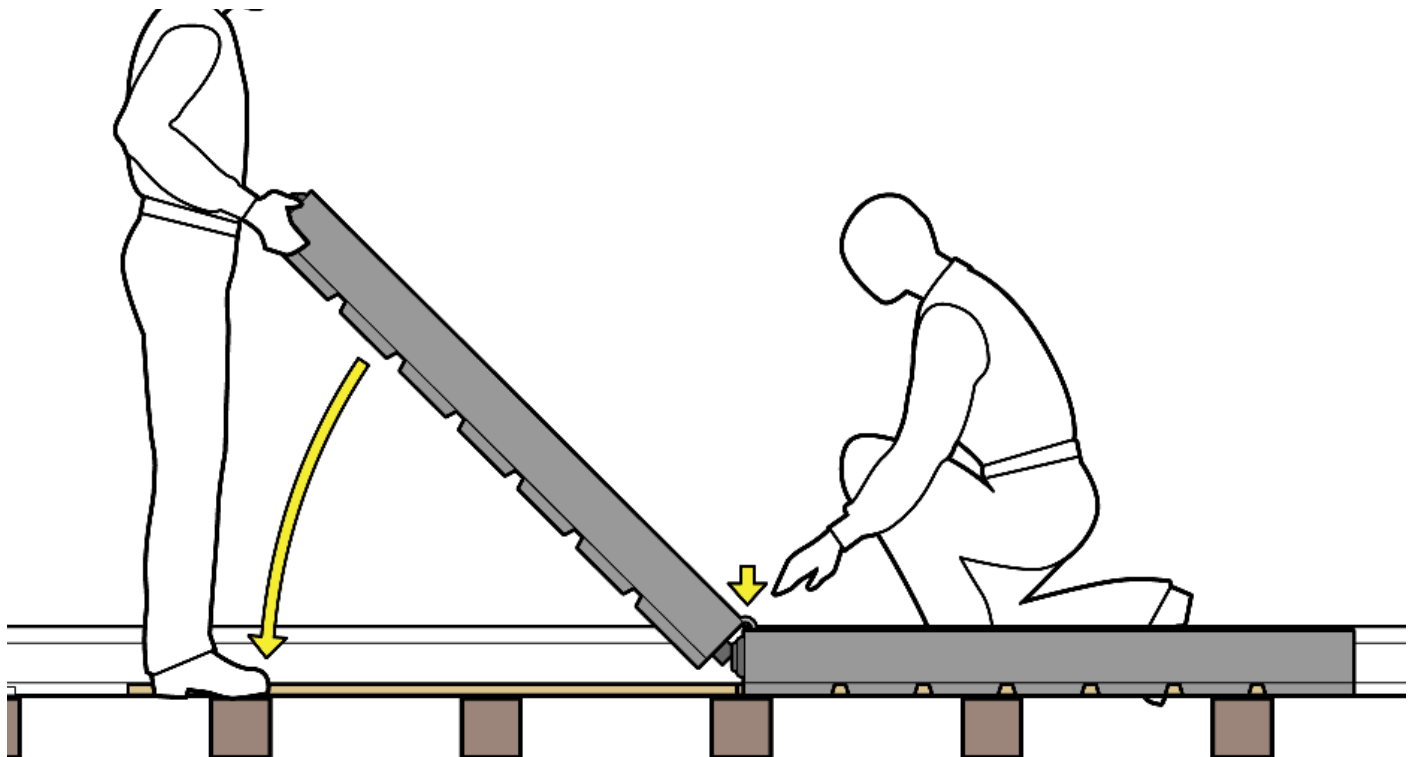
Move the spacer blocks to be ready for the next Side Track Pan. If this rail system is built on other surfaces such as concrete, appropriate fasteners will need to be specified to secure the Side Track Pans in place (see page 2). Please contact UltraTech International, Inc. with any questions or needs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

5. One (1) 3" NPT drain fitting is shipped with each Side Track Pan. The drain fitting includes one (1) donut-shaped flexible gasket. Insert the male portion of the drain fittings through the hole 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)
6. With the drain fitting started through the endwall of the first Side Track Pan place the "overlap lip" of the second Side Track Pan on the endwall of the first Side Track Pan. Keep the second Side Track Pan on a 45 degree angle to begin with and slowly lower it down until the drain fitting protrudes through the endwall of this second Pan. Two installers are best. One kneeling in the first pan to keep a hand on the drain fitting and prevent it from being dislodged by the second Side 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 COUNTER-CLOCKWISE DIRECTION.



Repeat SIDE TRACK PAN INSTALLATION STEPS 1 - 6 to install all remaining Side Track Pans required to complete this side of the Track Pan System.

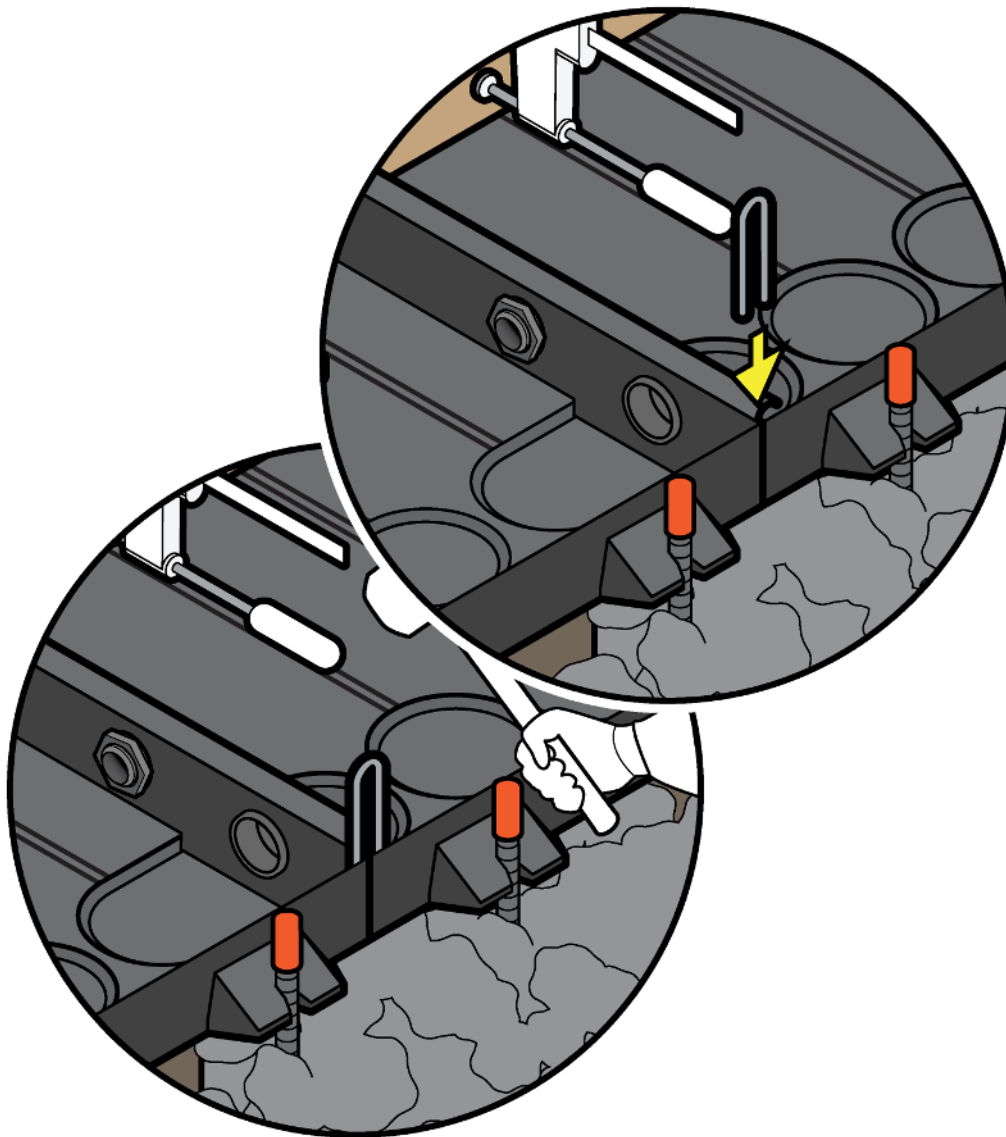
9. Once the second Side Track Pan is fully lowered, tighten the nut 1/4 turn beyond hand tight using the channel lock pliers. Do not over tighten the nut. Repeat steps 4-6 until all Side Track Pans are connected together.

NOTE: If the system being installed has piping (drains), the Side Pans should be installed at the same time as the Center Pans

10. One (1) gasket without a lip and one (1) gasket with a lip are shipped inside the box with each Side Track 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 Track Pan side.
11. Using the gasket without a lip first, place against the web of the rail. The gasket can fit into the web area in four different ways. Use the placement that makes the gasket upper edge come flush with the side of the head of the rail. Butt the ends of all gasket pieces together at the joints where the pans meet. 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 Track 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-Track Pan Gasket Configurations found 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 Side Track Pans.
12. Insert the gasket with the lip. The lip should be facing out away from the rail to allow liquids to flow into the Side Track Pans. Make certain to start in the middle of the Side Track 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.



- 12A. System with NO below grade piping. If your Track Pan System requires Side Track Pans on both sides of the rails, return to step 1 of Side Track Pan Installation and begin to install the other Side Track Pans at the opposite end of the system from where you began the first Side Track Pans.
- 12B. System WITH below grade piping. If your Track Pan system requires Side Track Pans on both sides of the rails, return to step 1 of Side Track Pan Installation and begin to install the other Side Track Pan at the same end of the system from where you began the first Side Track Pans. Notice that this set of pans will be installed with the overlap lip facing in the opposite direction as the first set. As a result, the “back” end of each successive pan will need to be lifted into position under the overlap lip of the previously installed pan. In systems with piping it is best to install the Center Pans and Side Pans concurrently along the system.
13. Once the Side Track Pans have been completely installed, the last step is to install the Side Track 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.
14. Reinstall all grates.



GASKET REVIEW

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

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

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Ultra-Track Pan installation steps are now completed (see below if installing below grade piping).

For future reference, refer to Appendix A (next page) for a complete list of Ultra-Track Pan Replacement Parts and Accessories.

Please refer any questions or needs to your UltraTech Distributor or contact UltraTech International for additional information.

Notes on installing below grade piping for Ultra-Track Pan Systems

If below grade piping is going to be installed, it is strongly suggested that it be PVC or CPVC. UltraTech has drawings showing suggested piping arrangements for the installation of drain piping under the pans. The installation will be more stable for the long term if these suggestions are incorporated into your installation. Some of the key reasons for the details of these recommendations are:

1. The 3-inch piping is used to avoid trenching below the bottom of the ties adjacent to the piping. Trenching lower than the tie bottom will reduce the stability of the ballast and allow a "SOFT" spot to develop in the track system.
2. The 4 x 3 reducer ell's are used to create a "slip" fit connection between the drain drain fitting and the pipe and to allow for slight misalignment. The "slip" fit allows the pans to be installed and removed without having to get underneath to tighten/loosen the connections to the piping.
3. The molding process used to make the Ultra-Track Pans uses only an external mold. The part once molded shrinks freely inside the mold. Shrinking freely is part of what gives the plastic it's chemical resistance. The drawback is that the pans are not all the same length. On a long system the misalignment from one side to the other of a system can become significant. Installation will be easier by NOT manifolding the pans across a system into a single pipe. The pans also vary in lateral placement due to gauge variation, joint bars, and flexing, making a single manifold length impractical.
4. The use of the flexible couplings is also important for the longevity of the system. The flexible couplings allow for differential "pumping" between the center portion of the pipes and the outer portions without causing breakage at the joints or "jacking" of the pan connections out of the fittings. The flexible couplings also allow for the slight bends that allow the far side pipe to come through the same trench with the center-pan pipe.
5. In almost all cases the PVC or CPVC will be adequate chemically because in a properly designed system the piping will only be exposed to the chemicals for a short period during an "event" then will dry out.

IF THIS SYSTEM WILL HAVE “DRIVE ON/OVER” TRAFFIC

The Ultra-Track Pans can only be driven on/over if they are installed on a bedding of adequate strength for the drive-over traffic and the bedding fully supports the underside of the pans.

The Ultra-Track Pans can only be driven on if installed as above and **only if the vehicle has rubber tires.** Any form of hard wheel will damage the grating.

The Ultra-Track Pans can only be driven on if installed as above and the drive over is in a relatively straight line. The anti-slip that is molded into the upper surface of the grating is very aggressive and **will be damaged by sharp turning of tires while a vehicle is on the grating.**

The Ultra-Track Pans can only be driven on if installed as above and any starts or stops of a vehicle while on the grating is done slowly. The anti-slip that is molded into the upper surface of the grating is very aggressive and will be damaged by rapid starting or stopping while a vehicle is on the grating.

The Ultra-Track Pans can only be driven on if installed as above and a “ramp” of adequate capacity (asphalt, concrete or other) is provided to raise the vehicle tires to the level of the upper surface of the grating. This “ramp-up” is required to avoid damage to the sides of the pans and grates.

Appendix A

Ultra-Track Pan Replacement Parts and Accessories

Description	Qty	Part
1. Gasket "A"	1 ea.	9569
2. Gasket "B"	1 ea.	9568
3. Gasket "C"	1 ea.	9563
4. 3" NPT Drain Fitting Assembly (includes nut, donut-shaped gasket and rigid washer)	1 ea.	1073
5. Threaded Plug for Drain Fitting	1 ea.	9960
6. Track Pan Grate	1 ea.	9573
7. 24" Rebar with Protective Caps	20-pack	9584
8. Wrench for Drain Fittings	1 ea.	0464
9. 3 1/4" diameter gasket to seal off large "flow throughs" in Center and Side Track Pans.	1 ea.	9557
10. 3" NPT Drain Fitting Assembly (includes nut, donut-shaped gasket and rigid washer)	1 ea.	9559