

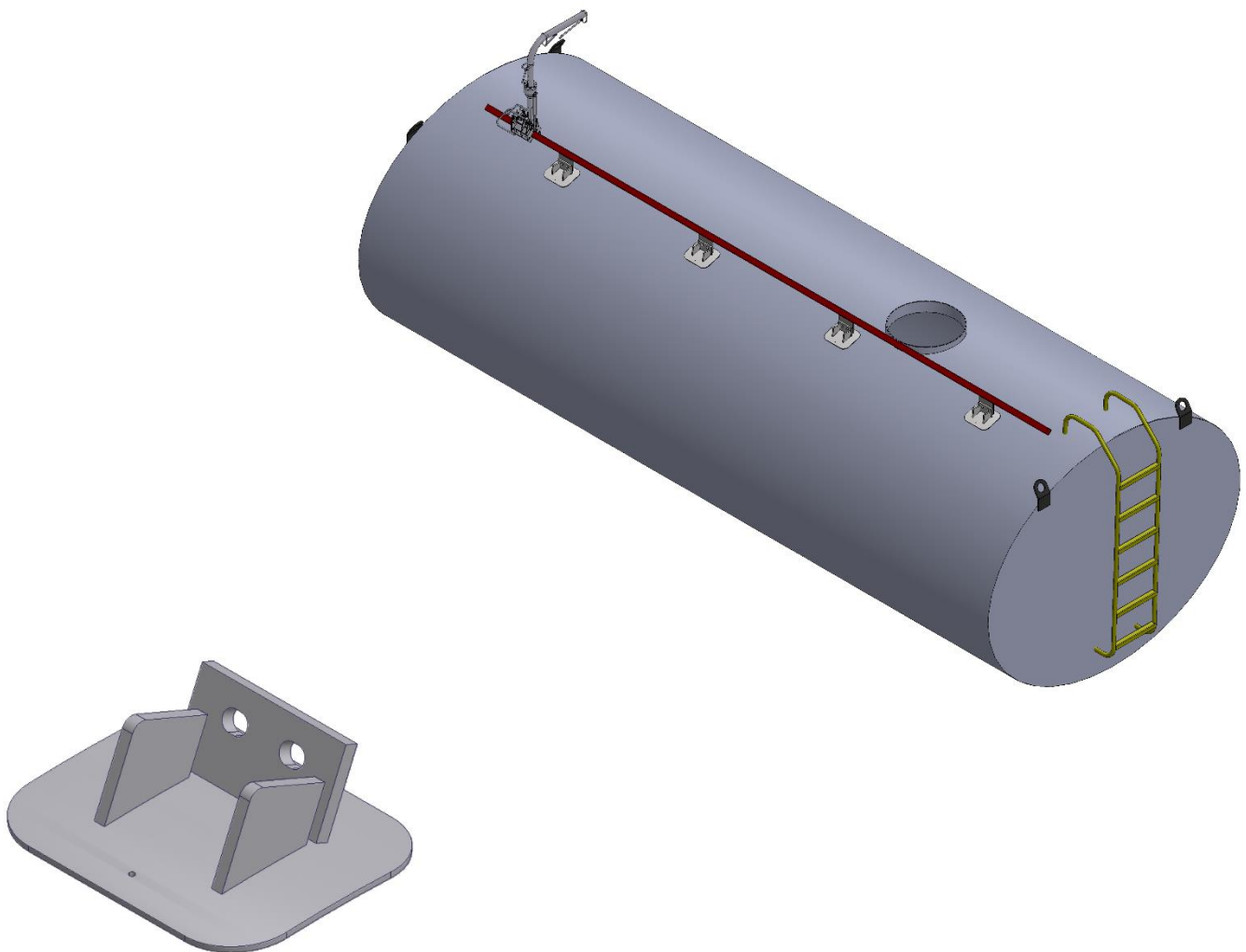
TRAM INSTALLATION GUIDE

BARREL MOUNT BLOCKS, welded

TR-30-34 Mild Steel

TR-30-35 Stainless Steel

TR-30-36 Aluminum

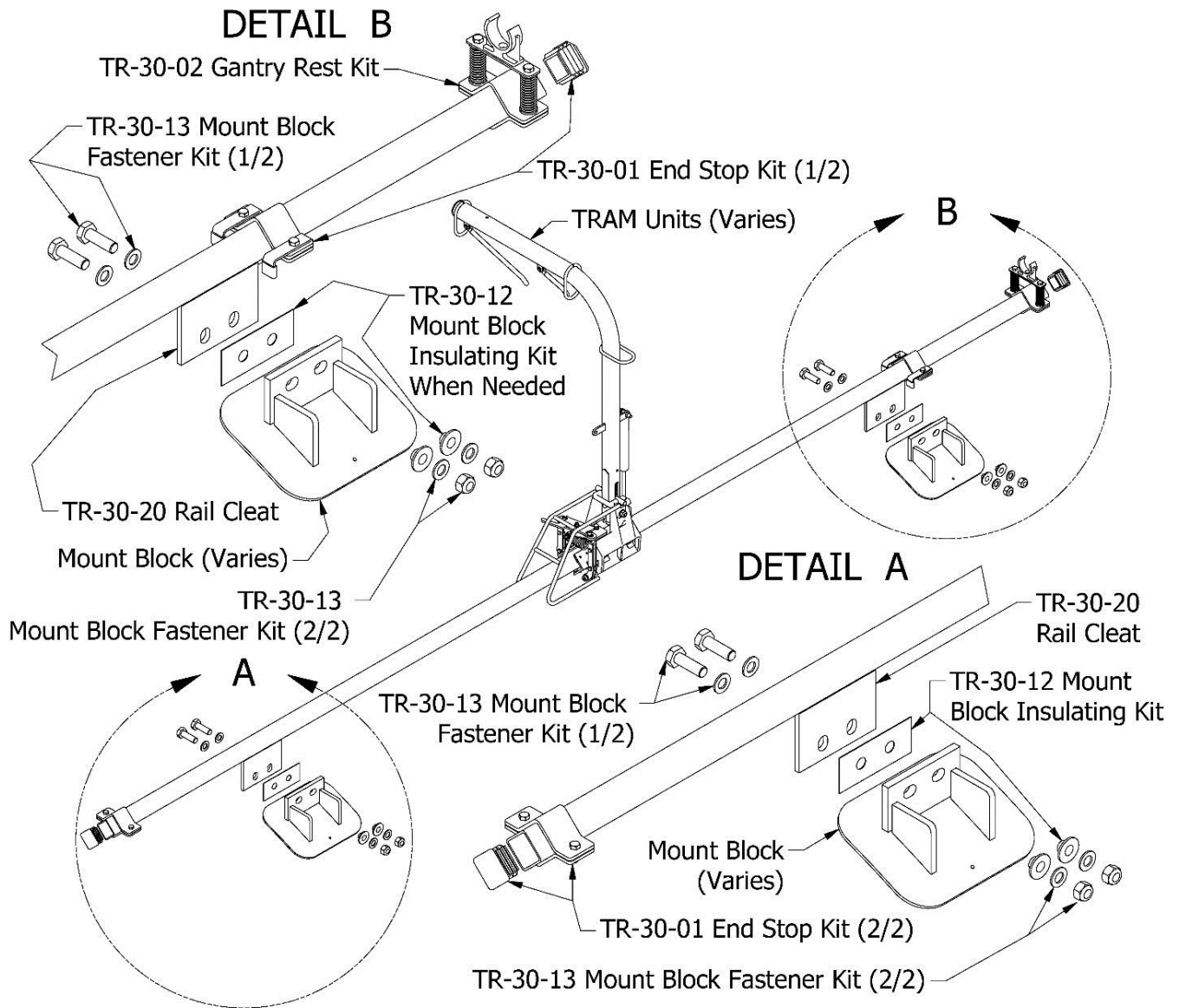


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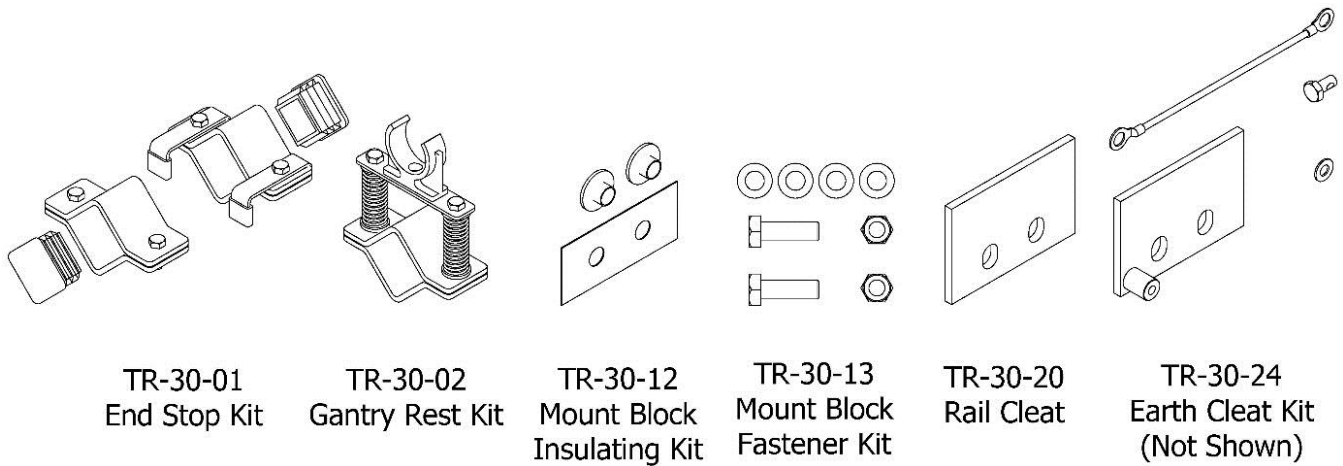


1. DESCRIPTION OF EQUIPMENT

Below is an overview of a typical TRAM System, your system may vary. Contact your Standfast Representative with any questions. The TRAM System consists of a TRAM Unit to which the operator is attached using either with a restraint belt or a fall restraint harness and the TRAM Installation. The TRAM Installation consists of the TRAM Rail and mounting parts which attach the TRAM Rail to the platform being accessed. The most common types of mount hardware are shown below (your system may vary).



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1.1. Equipment Materials and Specifications

TRAM Unit

The TRAM unit is mostly constructed of various grades of stainless steel as well as some non-corroding plastic. See technical manual for maintenance and service requirements.



TRAM Mount Blocks

TRAM Mount Blocks are directly attached to the supporting platform by welding, bolting, riveting, or adhesives depending on the application. In most cases, especially if welding is involved, the mount blocks are constructed of the same material as the supporting platform. Mount Blocks are available in numerous styles and material combinations, however due to the versatility of the TRAM System custom Mount Blocks are sometimes required, contact your Standfast Representative for further information on custom Mount Blocks.

TRAM Rail Weldment

The TRAM Unit slides along a 2"x2" or 50x50mm grade 304 stainless steel square tubing that is referred to as the TRAM Rail. The rail is supported by stainless steel Rail Cleats which are welded to the rail at 8 foot (2400mm) centers or less!

IMPORTANT! When the mount blocks used to attach the TRAM System to the supporting platform are aluminum, material separation gaskets (TR-30-14 MB INSULATION KIT) are required. When these gaskets are used, one Earth Cleat Kit per rail is required to ground the system and replaces 1 of the standard cleats. Earth Cleat Kits come in the same size as a cleat specified for a particular installation.



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2. Installation Overview

Installation Assessment

After a work site safety check these steps include determining the length and location of the TRAM Rail required for the installation. Determination of the location and spacing of the Mount Blocks required.

Mount Blocks Installation

Install Mount Blocks where determined during assessment using the installation method appropriate to the Mount Block. Ensure that Mount Block can withstand the loads specified in the TRAM Loading Specifications.

TRAM Rail Dry Fitment

Install TRAM Rail assembly without any permanent attachments. Verify all cleat locations match Mount Block locations and all clearances are maintained. Mark and perform any rail modifications needed prior to Rail Weldment Fabrication.

TRAM Rail Weldment Fabrication

If required, weld sections of TRAM Rail together. Weld Rail Cleats, and Earth Cleat if required, to TRAM Rail at spacing determined during assessment and corresponding with either pre-slotted locations or Mount Block placements. Maintain proper angle between rail center line and cleat face.

Always use a TR-30-90 Rail Joiner when butt welding multiple rail sections. If the rail utilized is slotted, use a TR-30-90-S Slotted Rail Joiner (for cleats at joint locations) and TR-30-22 through cleats!

TRAM Unit Fit Up

Bolt TRAM Rail Weldment to Mount Blocks, install TRAM Unit on TRAM Rail, install End Stop Kit and Ground Cable (if required) and install System Installation Label (if required).



3. INSTALLATION PROCEDURE

3.1. STEP 1 – Installation Assessment

Perform Safety Check

IMPORTANT! Perform a full safety check of the worksite where work is to be performed.

Fill out and file all relevant safety checks and procedures, including hot work if required. Know and follow all safe work practices for the location where work is being performed!

Adequately prepare for the installation process by:

- reading and understanding this installation guide;
- ensuring all required materials and equipment are present;
- ensuring personnel with the required skills and certifications are available; and
- preparing the worksite.

Checklists 1 and 2 may assist with this task.

Determine Rail Length and Parts Required

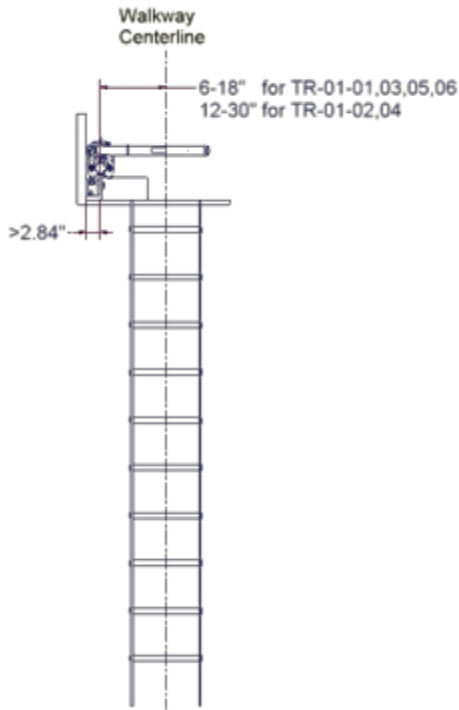
The TRAM Rail should run the length of the area of the platform being accessed. In most cases this will be the entire length. However the length does not need to run the entire length of the platform as in the down position of the TRAM Arm.

RAIL LENGTH

- Determine the rail length using the diagrams below and/or documentation drawings (if supplied).
- Lay out the entire system and verify completeness of the kit (per packing list and system drawings).



- Choose a rail length which gives system operators access to all areas required for their work. If your installation uses engineered rail lengths verify proper lengths, orientation and their locations prior to Dry Fit.



PARTS REQUIRED

- Mount Blocks with Fastening Hardware
- Rail Joiners (TR-30-90 and/or TR-30-90-S)
- Rail Cleats (Model # Varies)
- End Stop Kit
- Welding Filler to match material being welded



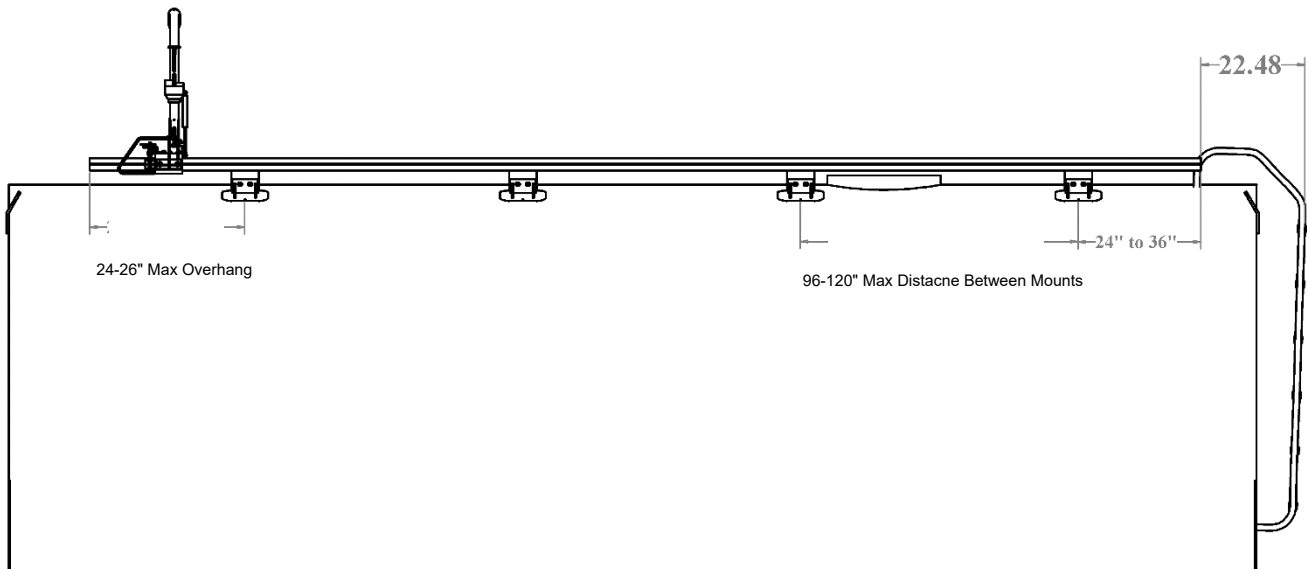
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TRAM ALL PROTECTION SYSTEMS

3.2. STEP 2 – Mount Block Installation

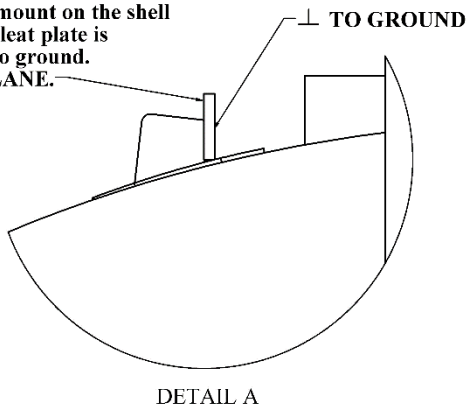
Perform a temporary installation of mount blocks to verify design accuracy and determine proper placement.

When locating mount blocks follow these steps:

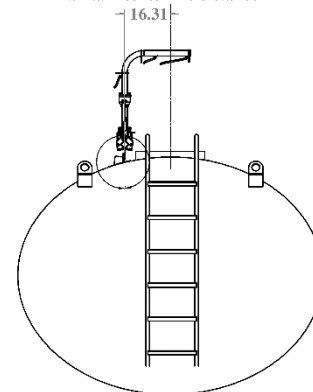
- Determine the vertical plane of the mount blocks. To ensure appropriate clearance the horizontal center line of the mount block must be no more than 1.75" below the top level of any obstructions (See figure above and below).
- Space the mount blocks at maximum center distances of 120", adhering to the specifications shown in the diagrams above.
- Once the correct placement of the mount blocks is verified, attach the mount blocks using the method appropriate for the mount block being used (If in doubt, ask! Same mount blocks may have multiple installation options).
- **It may be necessary to dry fit mount blocks with the entire TRAM system prior to any permanent attachments are made.**



When locating mount on the shell make sure the cleat plate is perpendicular to ground. VERTICAL PLANE.



Maintain centerline distance



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3.3. STEP 3 – TRAM Rail Dry Fitment

Perform a temporary installation of rail assembly, to verify design accuracy and determine proper placement. It is helpful to use temporary fasteners between mount blocks and rail system at this time.

- While performing the dry fitment, no welding is necessary, however dry fitment process will result in correct placement and ultimately will become the final placement and location of the TRAM system. If mount blocks were properly spaced and clearance is maintained, block mount welding prior to rail welding is recommended (You can perform this by following block mount welding procedure from next step). **Correct installation may require multiple dry fitments!**
- Install rail cleats with temporary means to the previously fitted mount blocks. Insert rail joiners between rail lengths to verify overall length and clearances. Mark extended welds or rails that might need to be corrected for a good fit.
- When installing continuous rail lengths, it is necessary to clamp rails together with C clamps and flat bars. Flat bars should be no less than 10" and no more than 12" long. Flat bars should be 1.5" to 1.75" wide and at least ¼" thick to allow the joint inspection.
- At this time, determine the location of the end stop kit and mark excess rail for cutting. **Cut off excess rail lengths prior to any welding is performed to ease rail handling.**
- **If you are installing an engineered system, follow cleat and joiner location schedule provided in the documentation drawings.**
- Once the correct placement of the rail system is verified, perform rail corrections (if necessary) for precise installation, including edge chamfering. Grind a chamfer at the ends of each rail to prepare the rail for welding.
- Reassemble rail to dry fit position after rail corrections and chamfering is completed. **Verify Fit!**

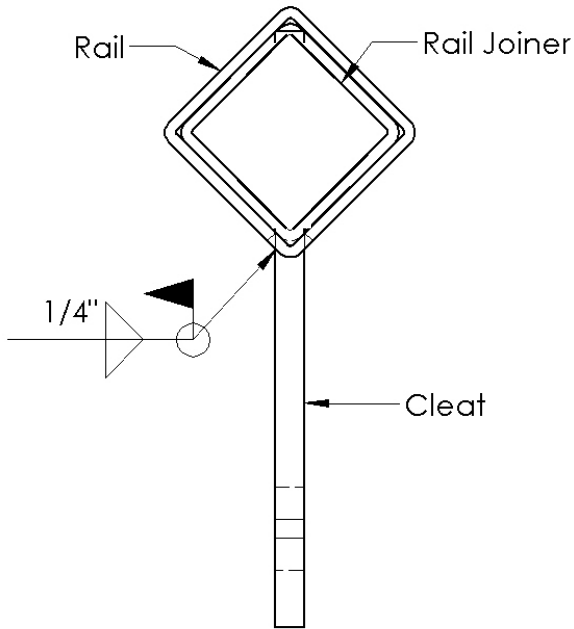
3.4. STEP 4 – TRAM Rail Weldment Fabrication

Once Dry Fit is performed and verified, proceed with Weldment Fabrication.

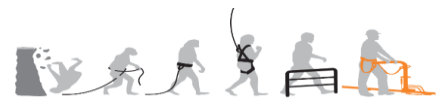
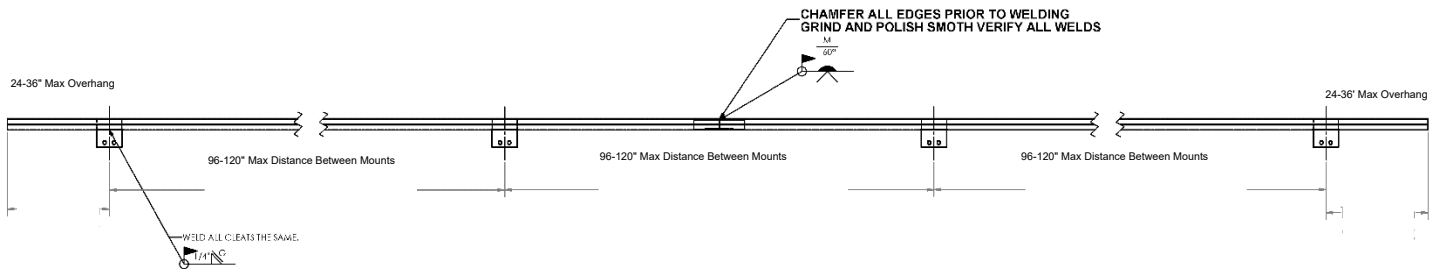
- **Weld all mount blocks to surface after performing Steps 1 and 2. This will ensure no free movement in the rail assembly. Follow all Safety Notices!**
 - Mark the cleat locations from dry fitment.
 - Weld the cleats to the rail, using a continuous ¼" fillet weld on all sides. Correct alignment of the cleats with the rail is important. **It is helpful to use jigs or fixtures during welding.**
- IMPORTANT! Follow rail welding details below.**
- Depending on length of the installation, the rail system itself can be welded as continuous rail or multiple pieces:
 - Option 1: If conditions permit, rail can be continuously welded after dry fit, minimizing the rail disassembly and reducing the chance of an error.
 - Option 2: It may be necessary to weld rail in multiple sections away from the dry fit process. At this point, it is necessary to tack weld sections into manageable lengths while they are dry fitted and continue installation while re-checking the dry-fit of removed sections prior to final welding.
 - Complete the welding procedure while following SWPS.



- Once the rail has adequately cooled, proceed with weld grinding and smoothing to bring all sections to a uniform dimension.
- Place the TRAM onto the TRAM rail. Test for free movement of the TRAM along the rail, particularly near weld joints.
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In Line View of Welded Rail Assembly



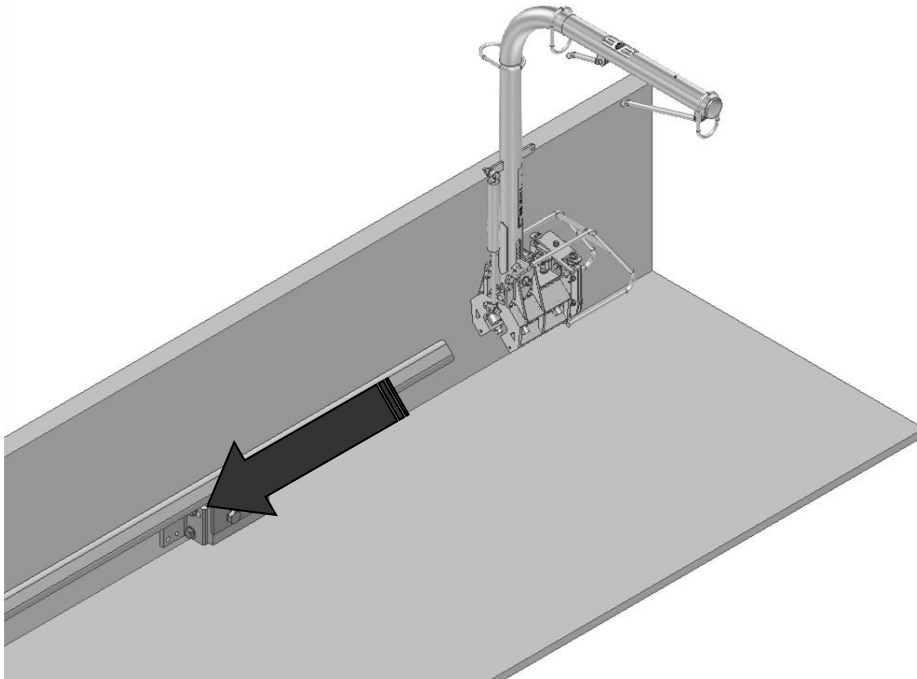
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ALL PRODUCTIONS SYSTEMS

3.5. Step 5 – Fitting

PROPERLY FASTEN TRAM RAIL TO MOUNT BLOCKS

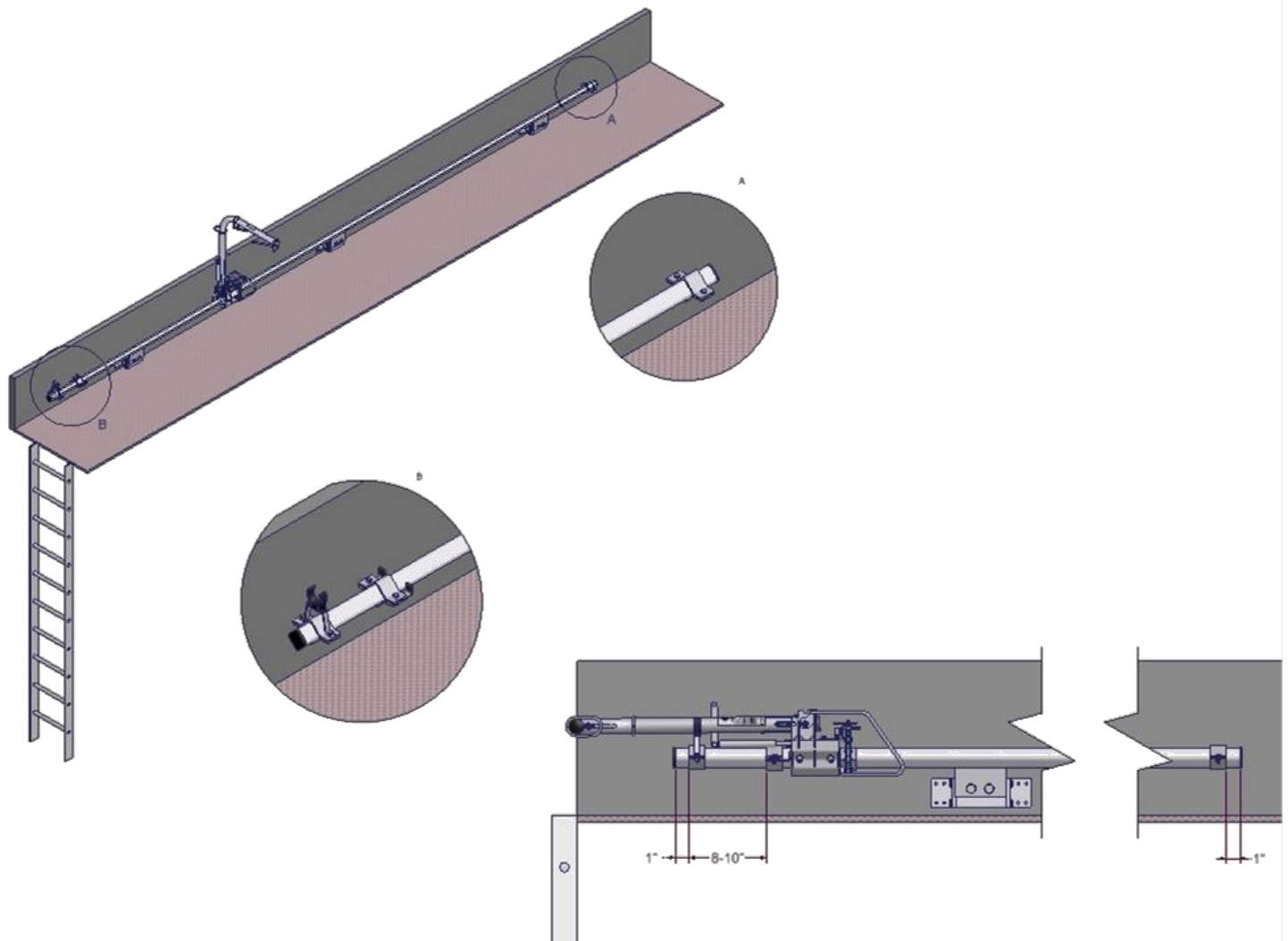
- If TRAM Rail was fitted to the mount blocks with temporary fasteners for dry fitment, replace all mounting hardware with fasteners supplied in the mount block kit.
Fasten the TRAM Rail to the mounting blocks using the fasteners and the procedure provided with the mount block kit.
- **FASTENING BOND STRAP (WHERE REQUIRED)**
 - Where necessary, install the equipotential bond strap using the procedure and components provided with the equipotential bond strap kit.
- **FIT TRAM TO RAIL**
 - Depress the TRAM brake lever and slide the TRAM onto the TRAM Rail as depicted below.
 - It is easier to install the TRAM from the end of the rail (Shown Below) as breaks will not interfere during initial sliding of the TRAM onto the rail.

Your installation may vary and may include reverse TRAM installation (Brake orientation and stow position will be affected)



- **FIT ENDSTOP KIT**

- Install the end stop kit as shown below, paying particular attention to the orientation of end stop components. Your system may not have all components shown, depending on design.
- Make sure to maintain all clearance and positioning distance.



3.7. Step 6 – Check Installation and Test TRAM System

- Clear all waste material from the worksite, and remove all tools and equipment.
- Test the TRAM system function and inspect the installation
- The installation of the TRAM system is now complete.

