Scorpion II® Truck Mounted Attenuator Assembly Manual and Mounting Instruction Guide

For Model:

Scorpion II® Metro MASH TL-2 TMA

PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE PROCEEDING WITH THE INSTALLATION

Version 1.3

September 2026

TMA Intended Use Disclaimer – MUST READ

Intended use: Truck-Mounted Attenuators (TMAs) are designed and certified under NCHRP-350 & MASH for crash attenuation only. They are not approved for any purpose other than crash attenuation.

Operational limit: TMAs must only be deployed at speeds up to 50 km/h. Use above 50 km/h or in any unauthorised configuration is prohibited.

Restrictions: Do not modify, alter, relocate, or combine with non-approved equipment. Only personnel trained or authorised by TrafFix Devices Inc (OEM) shall install, inspect, maintain, or remove TMAs.

Warranty & liability: Any use outside these conditions voids all warranties. RTL (distributor) and TrafFix Devices Inc disclaim liability for damages resulting from prohibited use; remedies where permitted are limited to repair or replacement.

Contact: For written authorisation, training, or technical support contact RTL.

TMA Checks, Greasing, Maintenance & Annual Inspections

Note: TMAs require regular maintenance.

RTL recommends daily checks, monthly greasing and an annual TMA inspections with RTL.

For more information, visit www.rtl.co.nz, contact our Service Team or call 0800 785 744.

Scorpion® & Scorpion II® ATTENUATORS

BEST PRACTICE MAINTENANCE SCHEDULE: BEFORE USE + WEEKLY

TASK — BEFORE USE	TMA	TA
Wash off road salt and grime ***AFTER*** each use	✓	✓
Verify TMA raises and lowers properly	✓	
Verify function of all lighting (Tail Lights, Side Marker Lights, etc.)	✓	✓
Verify that reflective sheeting is present and in good condition	✓	✓
Check TMA for hydraulic fluid leaks	✓	
Verify that jack crank handles fold up tightly and do not hang down	✓	✓
Verify that energy absorbing modules and tubes are secure and in good condition	✓	✓
Check TA tires for proper inflation, tread, and condition		✓

TASK — WEEKLY	TMA	TA
Check ride height, adjust if it does not meet 12" ± 1" specification	✓	✓
Check for loose or missing fasteners and hardware	✓	✓
Check energy absorbing tube assemblies for cracks and gouges	✓	✓
Check energy absorbing tube assemblies for broken welds	✓	✓
Check energy absorbing modules for large dents, punctures, or missing rivets	✓	✓
Verify TMA Strut tensioning straps are intact	✓	
Check TA Breakaway Brake System is properly connected and charged		✓
Check TA Brake function by pulling lanyard pin and verifying brakes apply		✓
Check TA attachment to the host vehicle ensuring that the Pintle Hook is secure and safety chains are properly attached and not dragging		✓
Check TA TARS contact zone is correct		✓

TrafFix Devices Inc.
Engineered Products for Safer Highways

For technical questions contact
(949) 361-5663 *or* ***scorpionhelp@traffixdevices.com***

Scorpion® & Scorpion II® ATTENUATORS

BEST PRACTICE MAINTENANCE SCHEDULE: MONTHLY + ANNUALLY

TASK — MONTHLY	TMA	TA
Grease pivot points and lockout arm	✓	
Grease jack casters	✓	✓
Check TMA hydraulic components, valves, and pivot pins of dirt and debris	✓	
Check TA Pintle Hook for wear		✓
Check TA Lunette Eye for wear		✓
Check TA wheel bearings for proper lubrication and adjustment		✓
Check TA Inner TARS tube stop to ensure there is no gap between the outer tube		✓

TASK — ANNUALLY	TMA	TA
Verify overall dimensions are still within specification	✓	✓
Clean all electrical connections on pump power and controller circuits	✓	
Verify structural integrity of all steel attenuator components	✓	✓
Verify structure integrity of truck side mounting components	✓	
Verify structure integrity of pintle		✓
Verify integrity of all welds	✓	✓
Clean/remove rust and repaint as needed	✓	✓
Drain TMA hydraulic system and replace fluid	✓	
Check TA set screws for TARS system; tighten all loose fasteners		✓
Service TA trailer brake system/hubs		✓
Repack TA wheel bearings		✓

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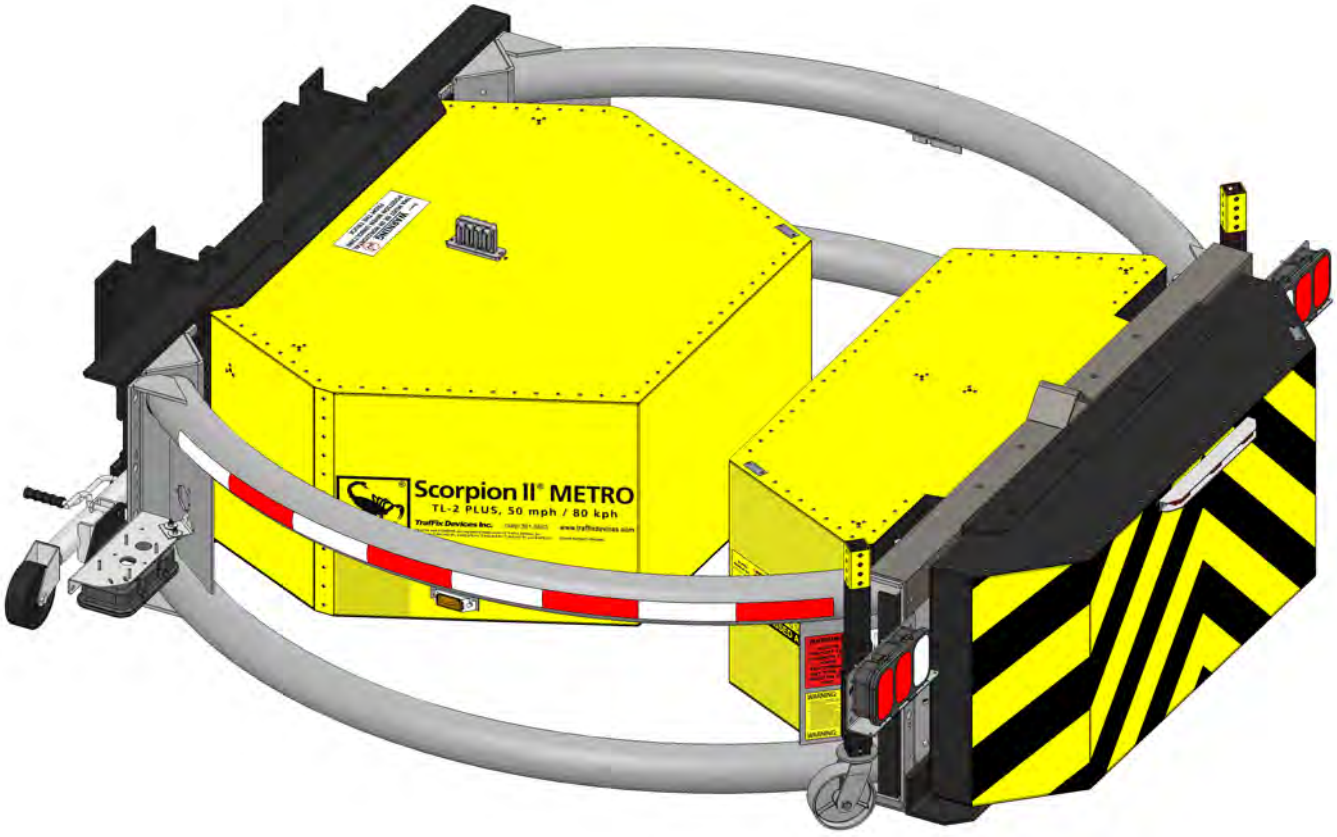
Scorpion II® METRO Truck Mounted Attenuator Assembly Manual and Mounting Instruction Guide

(For Model: Scorpion II®METRO 10000 Series TMA)

This Manual is Available at www.traffixdevices.com

TrafFix Devices Inc.
Engineered Products for Safer Highways

MASH ✓
Manual for Assessing Safety Hardware
TESTED, PASSED AND ELIGIBLE



TrafFix Devices Inc.

160 Avenida La Pata
San Clemente, CA 92673

P/N 13089 Rev A Dated 4/13/2020

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Scorpion II® METRO TMA

Introduction to Assembly and Mounting Instruction Guide

160 Avenida La Pata
San Clemente, CA 92673
www.traffixdevices.com orders@traffixdevices.com

Important: These instructions pertain only to the assembly and mounting of the Scorpion II Metro Truck Mounted Attenuator (TMA) TL-2 PLUS. These instructions are only for the assembly of the models and/or accessories cited in each section. Any deviation from the models and accessories shown would require consultation with the appropriate highway authority engineer and/or certified TrafFix Devices, Inc. representatives. Contact information of these representatives can be found on the last page of this manual (Pg.42).

Proper Installation of the Scorpion II Metro TMA is essential for proper performance of the system. For this reason, contacting a TrafFix Devices, Inc. Certified Attenuator Installer for assistance in mounting the system is recommended. Contact TrafFix Devices, Inc. to obtain a list of Certified Installers in the area. Please read this manual in its entirety before assembling, installing, or operating the Scorpion II Metro TMA. The information in this Manual supersedes all previous versions and manuals, with updated illustrations and other information available at time of printing; however; TrafFix Devices, Inc. reserves the right to make changes at any time. **For any questions on proper Installation and Operation of the Scorpion II Metro, please contact us at (949) 361-5663.**

Important: This manual applies to the Scorpion II® METRO TMA by TrafFix Devices, Inc. It pertains only to the models referenced herein. It requires that all Assembly, Mounting, Service and Repair parts be Genuine Scorpion II METRO parts that have not been modified or repaired from the original in any way, unless with prior knowledge, consultation and approval by TrafFix Devices, Inc. Engineering.

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Limitation and Warnings

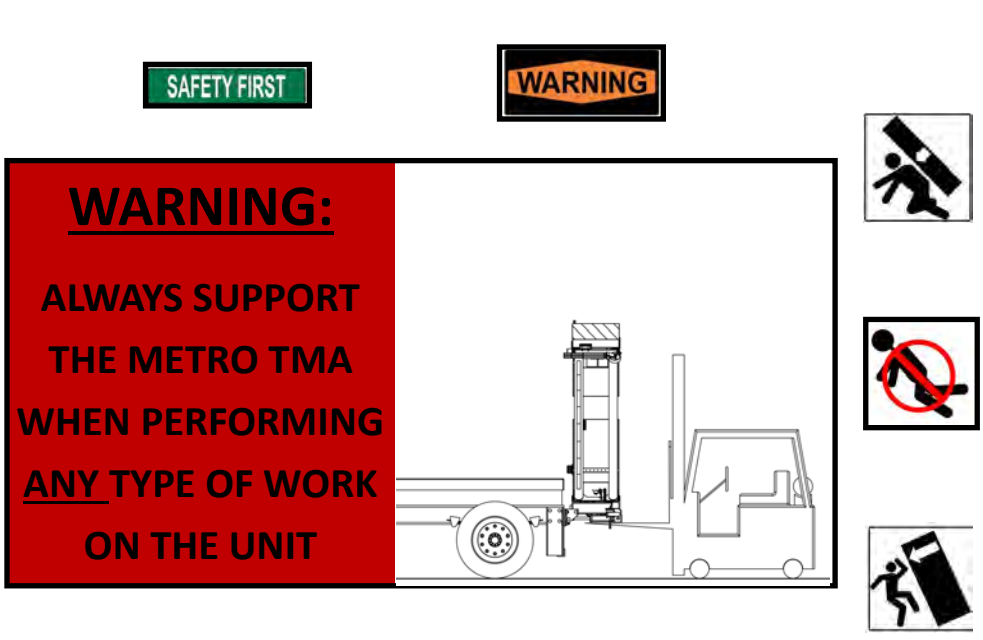
TrafFix Devices Inc. (TDI), in compliance with the Manual for Assessing Safety Hardware (MASH) recommended procedures for the Safety Performance of Highway Features. TDI contracts with ISO accredited testing facilities to conduct crash tests, evaluation of tests, and submittal of results to the Federal Highway Administration for Eligibility for Federal-Aid Reimbursement. The Scorpion II Metro Truck Mounted Attenuator (TMA) system was tested to meet the safety evaluation guidelines of MASH. The Scorpion II Metro has been tested at TL-2 PLUS (50 mph/80 km/hr) speed conditions. These tests are intended to evaluate product performance by simulating those impacts outlined by MASH involving a range of vehicles on the roadways. From cars with an approx. weight of 2425 lbs (1100 kg) to trucks with an approx. weight of 5004 lbs (2270 kg). The Scorpion II Metro TMA is a TL-2 PLUS tested device is capable of decelerating and stopping light and heavy weight vehicles 2425 lbs [1100 kg] and 5004 lbs [2270 kg] in accordance with the criteria of Tests 2-50, 2-51, 2-52, and 2-53 for FHWA Eligibility (Reference FHWA Eligibility Letter CC-158). TrafFix Devices does not represent nor warrant that the results of these controlled tests show that vehicle impacts with the products in other conditions would necessarily avoid injury to person(s) or property. Impacts that exceed the system's specifications may not result in acceptable crash performance as outlined in MASH; relative to structural adequacy, occupant risk, and vehicle trajectory. TDI expressly disclaims any warrant or liability for injury or damage to person(s) or property resulting from any impact, collision, or harmful contact with products, other vehicles, or nearby hazards or objects by any vehicle, object or person, whether or not the products were installed by third parties. The Scorpion II Metro TMA system is intended to be assembled, and maintained in accordance with specific State and Federal guidelines. TDI offers a reflective delineator panel for its TMA line of products. However, the material is only intended to supplement delineation required by the Department of Transportation's "Manual on Uniform Traffic Control Devices" (MUTCD). The appropriate highway authority approved engineer should be careful to properly select, assemble, and maintain the product. Careful evaluation of the speed, traffic direction, and visibility are some of the elements that require evaluation for the proper selection of a safety appurtenance by the appropriate specifying highway authority.

Operating Instructions

Proper Operation includes knowledge of TMA use in Work Zones, both Moving and Stationary, including the proper spacing, to allow for "roll-ahead". Before use, the Operator should have prior knowledge/ discussion of the Work Zone in which the TMA will be deployed and that the TMA model used has been tested and passed to Test Level 2 PLUS, 50 mph/80 kph. <u>TMA's should only be operated by individuals properly trained in their use in work zones.</u>

Pre-Use Inspection

1. Walk around the unit inspecting for damaged, loose, or missing bolts, pins, cotter pins and safety snaps.
2. Inspect for damage to the energy absorbing modules and aluminum tubes, checking for deep gouges, deep scratches, warping, or cracking.
3. Inspect the steel structure for damage, looking for warping, cracks, breaks or other damage.
4. Inspect all lights for proper operation (including arrow/message board if applicable).
5. Cycle the unit from stowed to deployed and back to stowed position (see directions below), ensuring proper sequence and function (including arrow/message board lift system if attached) pay close attention for any binding or "slop" during operation and that the alarm is functioning properly.
6. Check road clearance of TMA in deployed mode, to ensure it is in specification (12 inches ±1 inch).
7. Ensure that retroreflective sheeting is in place and meets requirements for job.
8. Check visually for hydraulic leaks.
9. Check to ensure that there are no loose items on the truck that can become a projectile during an impact.
10. Make sure items in the cab of the vehicle are secure and cannot come loose and become a projectile should an impact occur.
11. Adjust the headrest properly for the driver of the vehicle.
12. Any deficiencies should be corrected before use.



To Raise ("Store") the Unit for Transport

1. Ensure that both the truck bed and area above the rear of the host vehicle is clear.
2. Locate the desired controller, either the in-cab controller (if installed) or the rear plug-in. If using the rear plug-in, and it is not already plugged in, plug it into the socket on the TMA near the rear passenger side of the truck.
3. If the unit is to be transported, ensure that the drop jacks are fully retracted and pinned and that the swivel jacks are fully retracted and rotated to the stored and locked position.
4. If using the rear plug-in controller unplug and store in the cab.

To Lower ("Deploy") the Unit for removal or Use

1. Ensure that both the area above and to the rear of the host vehicle is clear.
2. Plug in the controller (see #2 above) **or** locate the in-cab controller (if installed).
3. If the unit is being removed, the swivel jacks should be rotated to the deployed position and the drop jacks lowered and pinned to the correct height. **If the unit is being deployed for use, all jacks should remain in the stored position.**
4. **Being careful to avoid the pinch points,** push the **"Down"** button until the TMA is fully deployed to a horizontal position.
5. **Continue** to hold the **Down** button for 4 more seconds after the Arrow/Message Board Lift System (if attached) or the TMA has stopped moving. This will ensure the TMA is fully deployed and the hydraulic system is at the proper pressure to hold it in position.
6. Make sure the Arrow/Message Board is displaying the proper message.

Note: TMA must be in the stowed position for travel to and from the Work Zone

SAFETY INSTRUCTIONS & PRECAUTIONS

A. Before attempting to install or operate the Scorpion II Metro TMA this manual should be read and understood. Those areas with warnings or cautions should be carefully followed.

B. Before raising or lowering the TMA the operator should check that the area around the TMA is clear and that personnel are not in or near the area.

C. Before operation on the roadway, check all 1” diameter pins and bolts at the back-up and hinge areas for tightness and excessive wear. Also, check that all cotter pins are in place.

D. Check that the two drop jacks are fully retracted and that the safety pins are in place. Also, check that the crank jacks are fully retracted and rotated to the up and locked position.

E. For correct operation of the TMA in the deployed position (horizontal position), the TMA should be 12" ± 1” above the ground and horizontal to the roadway.

F. The responsible agency for the support vehicle should check that the following specifications are met: The support vehicle should weigh a minimum of 7,300 lbs (3,300 kg). If the support vehicle is ballasted, the ballast should be properly anchored to the support vehicle frame to prevent movement during an impact. The support vehicle should be equipped with proper operator safety equipment such as seat belts, headrest, etc.

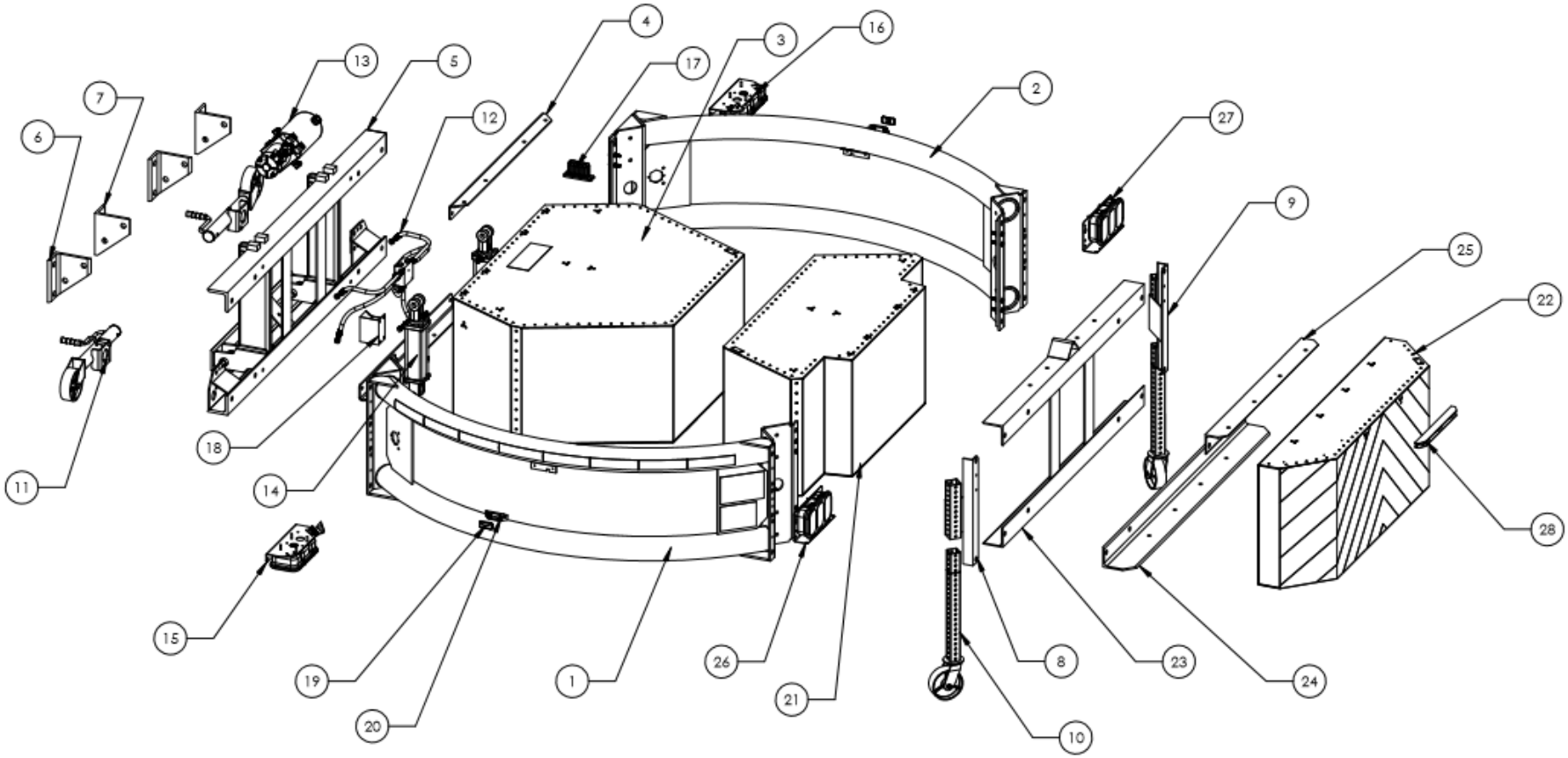
G. The support vehicle should have a straight frame design. An over axle (bent) frame design is not appropriate for use on a TMA support vehicle.

H. Before disconnecting the TMA from the support vehicle, make sure the TMA is in the horizontal position with all jack fully deployed

Special Warnings

1. **After a vehicle impacts the TMA, do not drive the support vehicle with the damaged TMA. Remove the TMA at the backup and have the TMA transported back to the maintenance yard.**
2. **Check the TMA model to make sure that the posted speed matches the TMA capacity.**
   Scorpion II Metro = TL-2 PLUS, 50 mph (80 kph).

Notes:



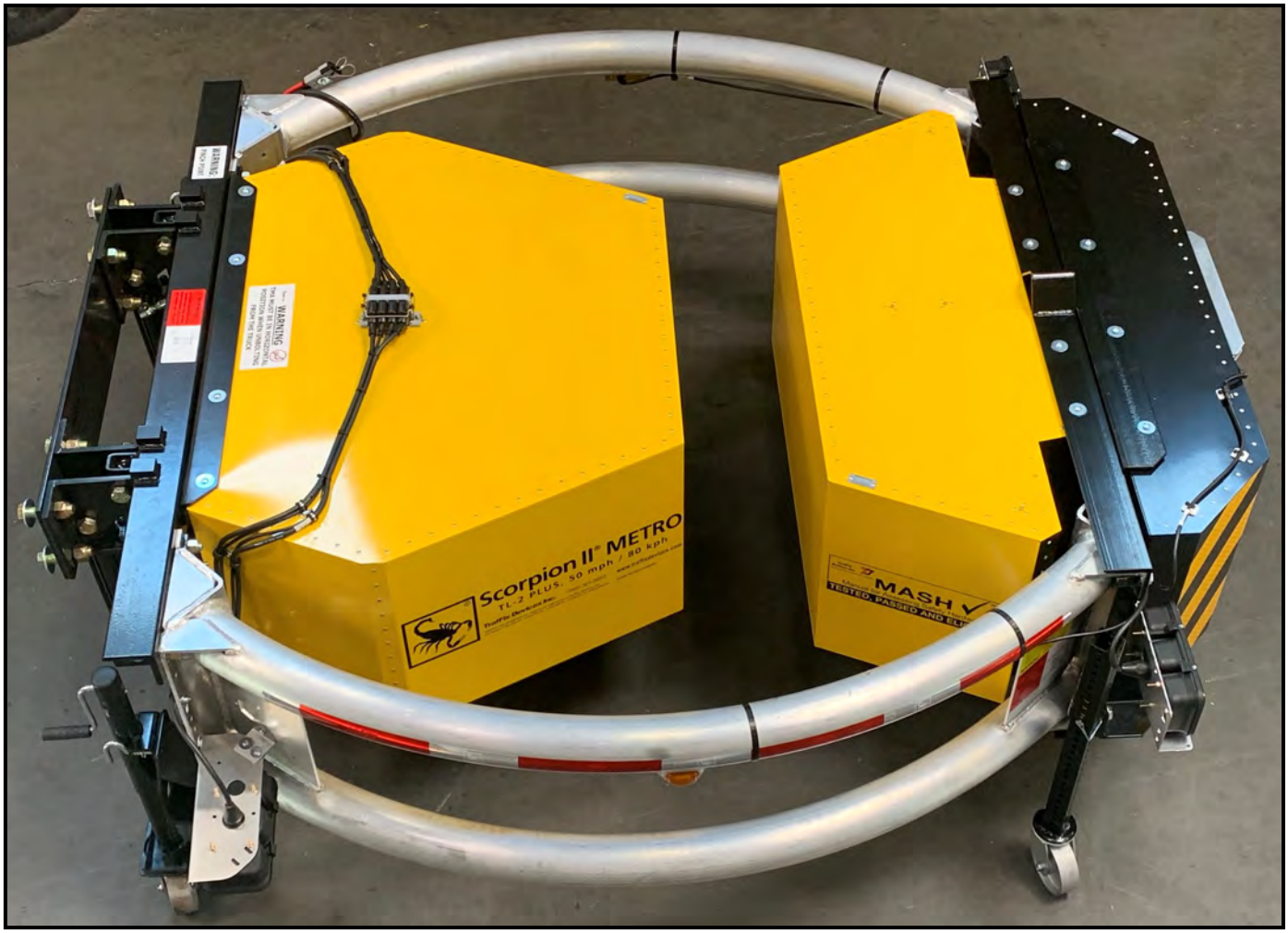
Scorpion II Metro TL-2 Plus

Major Components

Scorpion II Metro TMA Parts List - Major Components

Item #	Part #	Item Description	QTY/TMA
1	10100L-Metro-HPP-KIT	Cartridge Tube Assy, LH, Includes: C-Tape, Warning Labels, Side Marker Bracket Installed	1
2	10100R-Metro-HPP-KIT	Strut Tube Assy, RH, Includes: C-Tape, Warning Labels, Side Marker Bracket Installed	1
3	11400E	Module E, Absorbing Scorpion II Metro	1
4	11325	Angle, Module E Mounting	2
5	10300	Backup, Powder Coated Black	1
6	10352	Hydraulic Bracket, LH	2
7	10351	Hydraulic Bracket, RH	2
8	10750L	Drop Jack Bracket, LH	1
9	10750R	Drop Jack Bracket, RH	1
10	10725	Drop Jack w/ 6” Caster	2
11	10701	Swivel Jack w/ 6” Caster	2
	10701MNJ	Heavy Duty Swivel Jack w/ 6” Caster	
12	10600TL2	Hydraulic Hose Kit, Scorpion II TL2	1
13	11010	Hydraulic Power Unit, 12V, Field Service Replacement	1
	11011	Hydraulic Power Unit, 24V, Field Service Replacement	
14	11200A	Hydraulic Cylinder, 3” Bore, 8” Stroke, Fittings Installed	2
15	10508E-LED	Tail Light Assy, LH, 10-30 Volt LED, Color Pattern: Red/Red/White	1
	10504E-LED-RYR	Tail Light Assy, LH, 10-30 Volt LED, Color Pattern: Red/Amber/Red	
	10504E-LED-YRW	Tail Light Assy, LH, 10-30 Volt LED, Color Pattern: Amber/Red/White	
16	10516E-LED	Tail Light Assy, RH, 10-30 Volt LED, Color Pattern: Red/Red/White	1
	10505E-LED-RYR	Tail Light Assy, RH, 10-30 Volt LED, Color Pattern: Red/Amber/Red	
	10505E-LED-YRW	Tail Light Assy, RH, 10-30 Volt LED, Color Pattern: Amber/Red/White	
17	10518	Junction Block	1
18	10507C	Motion Alarm, 10-30 Volt	1
19	10573	Side Marker Light, Amber, 10-30 Volt LED	2
20	10520	Housing, Side Marker Light	2
21	11400C-Metro	Module C, Energy Absorbing, Scorpion II	1
22	10400A	Module A, Energy Absorbing, 4” Yellow Avery MVP Sheeting	1
23	11300H	Rear Diaphragm, Cartridge, Powder Coated Black	1
24	11327	Bottom Angle, Cartridge, Powder Coated Black	1
25	10465	Top Angle, Cartridge, Powder Coated Black	1
26	10508A-LED	Cartridge Tail Light Assy, LH, 10-30 Volt LED, Color Pattern: Red/Red/White	1
	10504A-LED-RYR	Cartridge Tail Light Assy, LH, 10-30 Volt LED, Color Pattern: Red/Amber/Red	
	10504A-LED-YRW	Cartridge Tail Light Assy, LH, 10-30 Volt LED, Color Pattern: Amber/Red/White	
27	10516A-LED	Cartridge Tail Light Assy, RH, 10-30 Volt LED, Color Pattern: Red/Red/White	1
	10505A-LED-RYR	Cartridge Tail Light Assy, RH, 10-30 Volt LED, Color Pattern: Red/Amber/Red	
	10505A-LED-YRW	Cartridge Tail Light Assy, RH, 10-30 Volt LED, Color Pattern: Amber/Red/White	
28	10557	ICC Bar Light Assy	1

Assembly of Scorpion II Metro TMA



Metro TMA (TL-2) Assembly

1. **IMPORTANT:** Before beginning Assembly, please read and review the Installation Section of this manual, paying close attention to the checklist at the beginning of the section.
2. Inspect the two pallets containing the Metro and Module A, shown in Figure 1, inspect for shipping damage and completeness against the packing list. If there is anything missing or not complete, contact a TrafFix Devices representative as soon as possible.
3. ***WARNING: TOP HEAVY–*** Indicates to move pallets with extreme caution. The use of a forklift is preferred when handling pallets. All personnel should be kept clear when the pallets are being moved.
4. Remove the shrink-wrap from the pallets using a utility knife. **Caution: Be careful not to cut any wires or parts!**

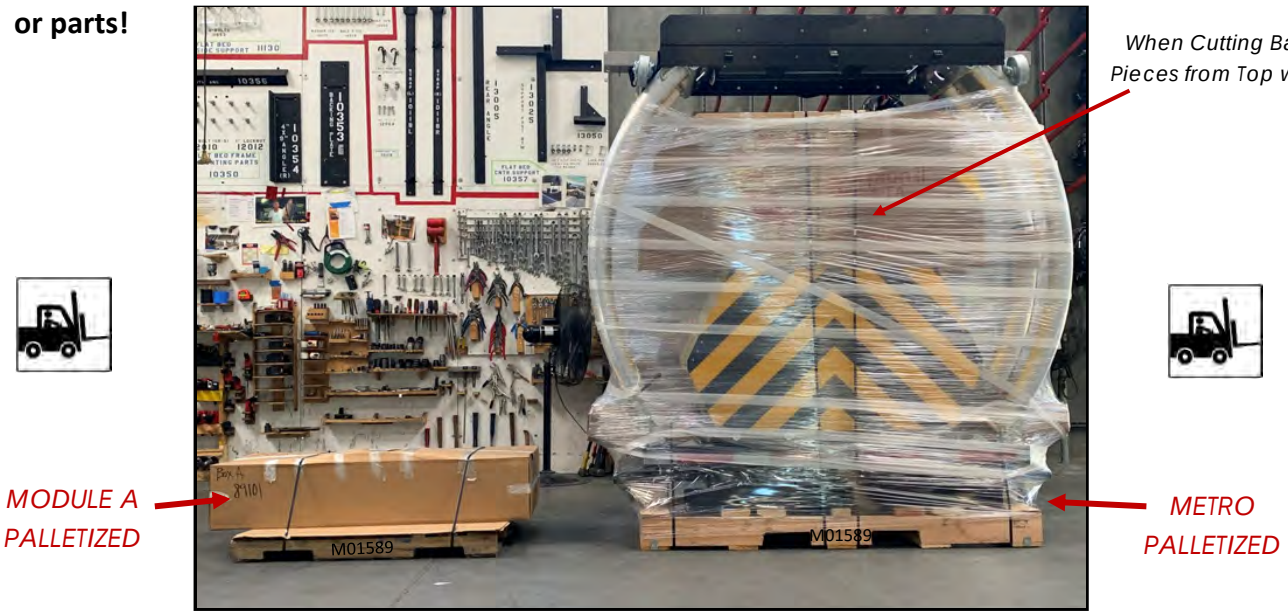


Figure 1

Recommended* Assembly Tools

1. Hammer
2. Tapered Pry Bar
3. Tape Measure
4. 12” Crescent Wrench
5. 1/2” Drive Socket Wrench
6. 1/2” Drive Socket (1-7/16”)
7. Open End Wrenches (1-7/16”, 3/4”, 7/16”)
8. 3/8” Drive Socket Wrench
9. 3/8” Drive Socket (7/16”, 3/4”)
10. Allen Wrench
11. Wire Cutter/Crimper
12. Floor Jacks or Stands (2 Ea.)
13. Forklift

*More or less tools may be needed.

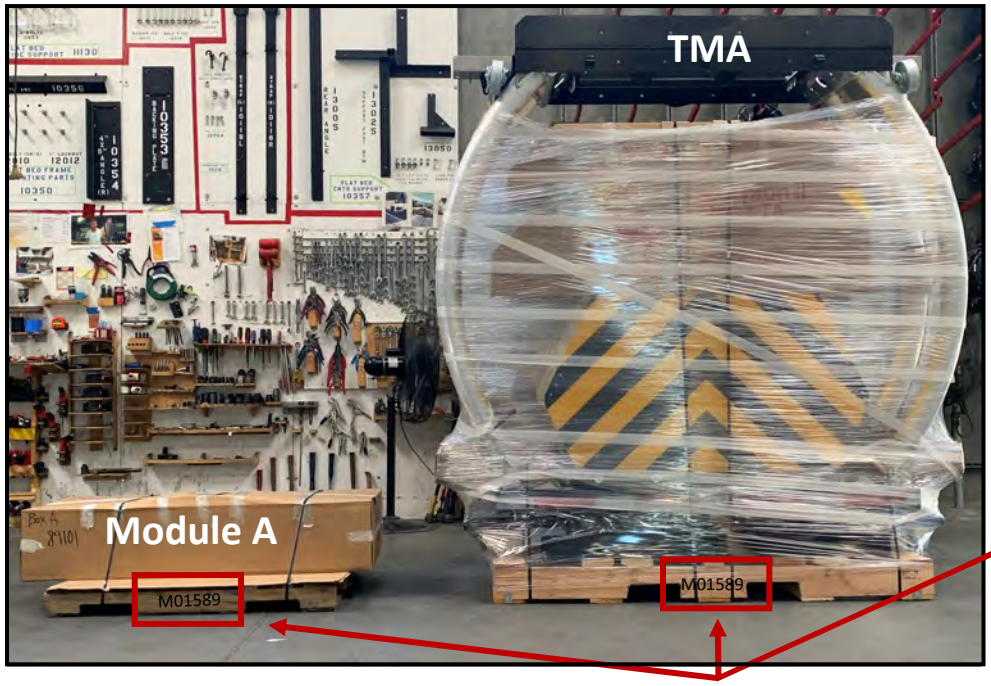
Pre-Assembly Checklist

Initial Inspection: Compare the Packing List with the original order to ensure all items have been delivered. Should any damage be found, or any items missing, contact the freight company as well as a TrafFix Devices representative as soon as possible.

Scorpion II Metro Registration

1. Once unpacked, ensure that the Scorpion II Metro TMA Serial Number matches with the number shown on the Packing List and the pallet. Once confirmed that they are the same, record the Serial Number below with all the serialized components to retain for personal records. TrafFix Devices, Inc. will require this Serial Number for any possible repairs, warranty claims, and maintenance records.

Identify Serial Number for Scorpion II Metro Truck Mounted Attenuator (TMA): _____



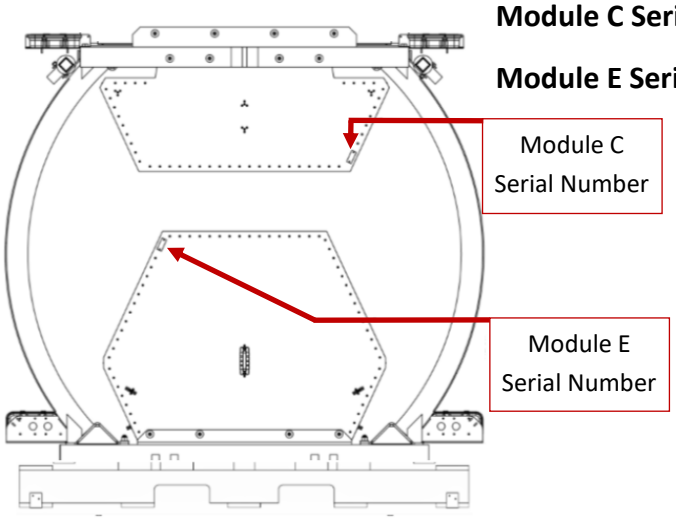
All Serial Numbers must coincide with each other

Module A Serial Number:_____

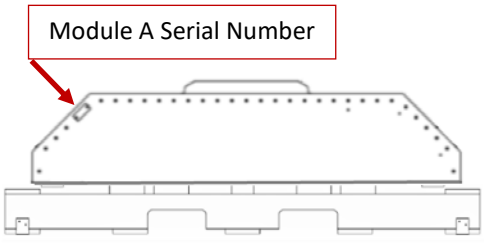
Module C Serial Number:_____

Module E Serial Number:_____

Sample of
Module Serial Number



Metro Palletized



Module A Palletized

Removing Packaging for Inspection

2. Observe the warning signs before unwrapping.

Module A

TMA

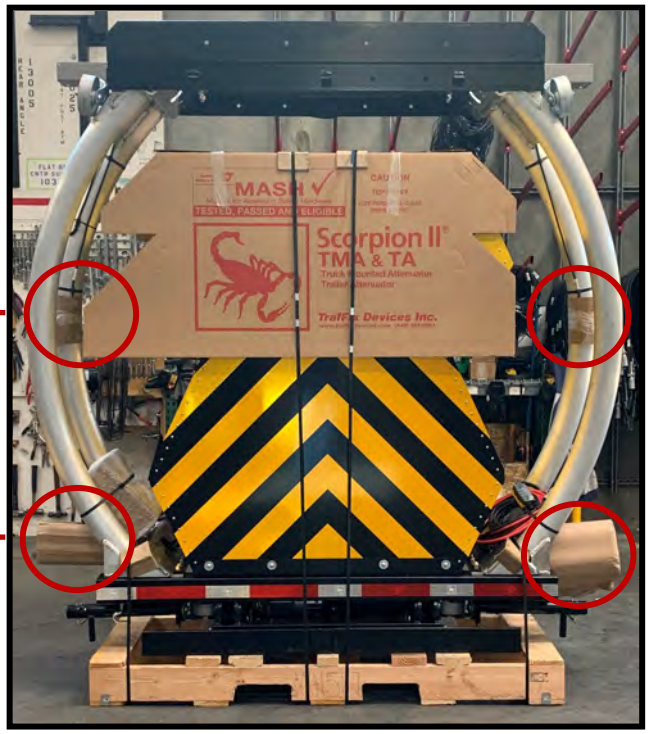
- Remove plastic wrap and cardboard with utility knife.

  *Be careful not to cut any wires or parts.

Unwrap and Inspect: Tail Lighting and Side Marker Lights

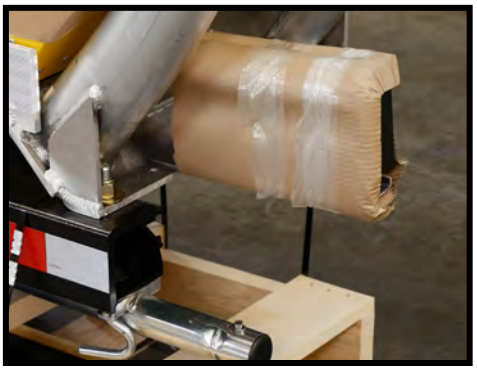
3. Remove all cardboard from lights and inspect for damage.

Side Marker:



TMA

Tail Lighting:

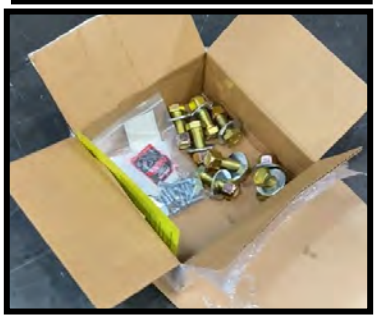


Metro TMA Assembly Overview

1. Cut and remove Steel bands and cardboard from the TMA.

2. Remove Module A from the pallet and open the box.

3. Remove Module C from the TMA.

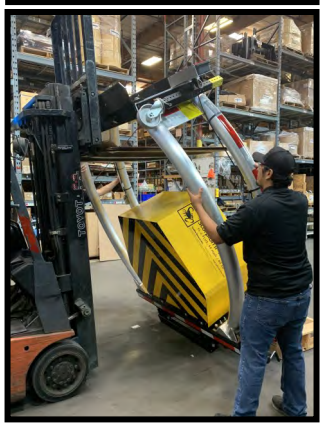


4. Open parts and accessory box, confirm contents.

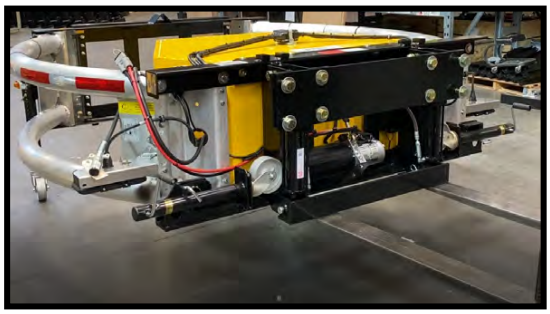
5. Place a piece of cardboard on the forklift to prevent damage to the TMA diaphragm.

Metro TMA Assembly Overview

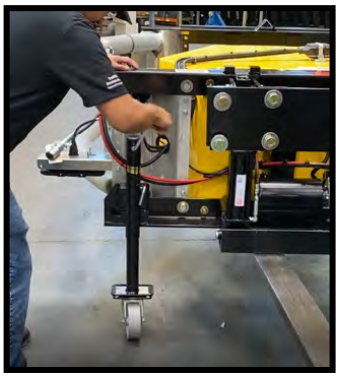
6. Lift the TMA off the pallet using a forklift.
7. Remove mounting brackets from the pallet.



8. Reposition the TMA on the edge of the pallet.
9. Lower drop jacks so that the yellow paint is not showing.



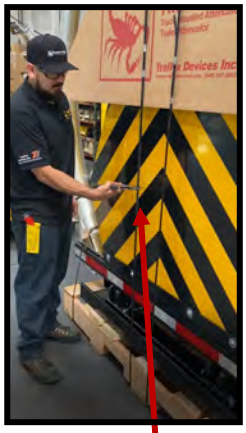
10. Move the lifting straps towards the Back-up of the TMA and lift, using a forklift, until the unit is level.



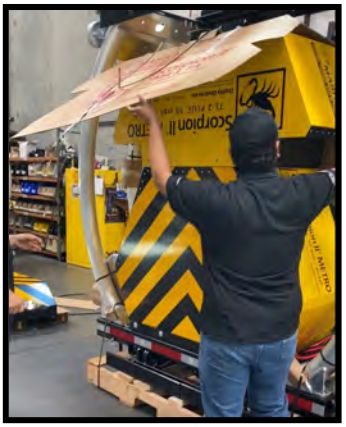
11. Lower the swivel jacks so the TMA is no longer supported by the forklift.

Metro TMA Assembly

1. Cut the Steel bands that are holding the components to the TMA. One person should be holding the components in place, while another person cuts the bands. **WARNING: Watch for falling components when cutting the Steel Bands.** Remove the components and the cardboard from the TMA.



Steel Bands



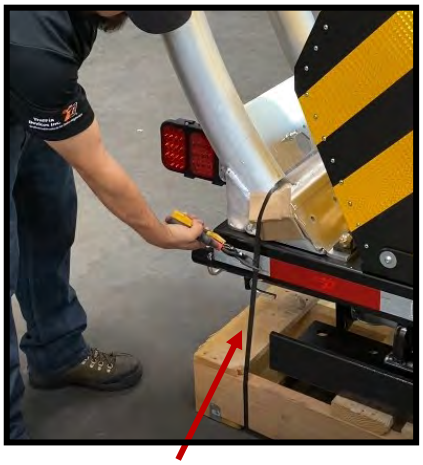
2. Remove Module C from the TMA.

Module C

Module E

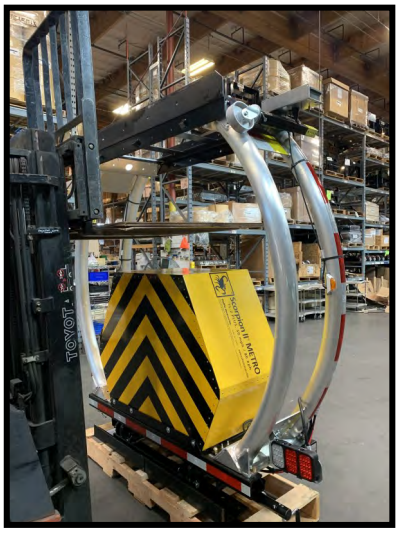
Metro TMA Assembly

1. Cut and remove the steel bands that hold the TMA to the pallet.



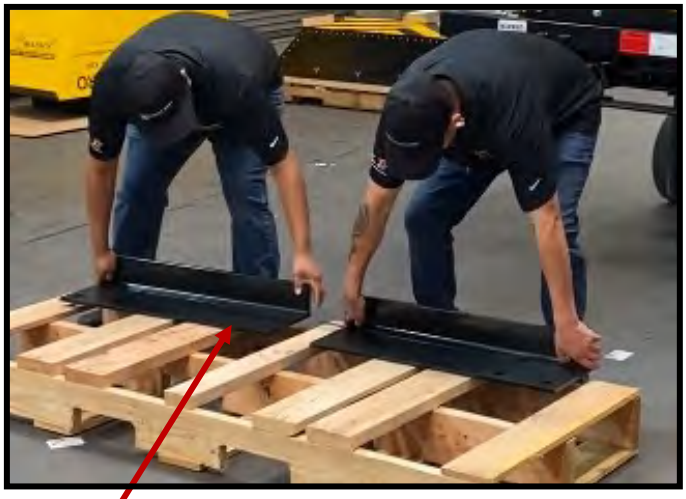
Steel Bands

2. To prevent paint from getting damaged, place a piece of cardboard on the blades of the forklift. Use the forklift to lift the TMA diaphragm off the pallet.



3. Using a forklift, lift the TMA off the pallet. **CAUTION: Be sure the drop jacks are facing the forklift before lifting the TMA.** Once the TMA is safely off the pallet, remove the mounting brackets that are on the pallet.

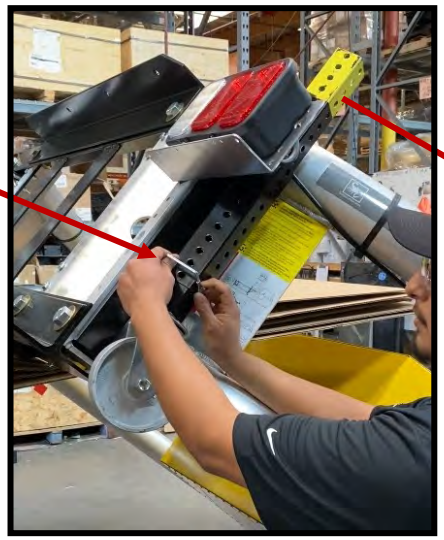
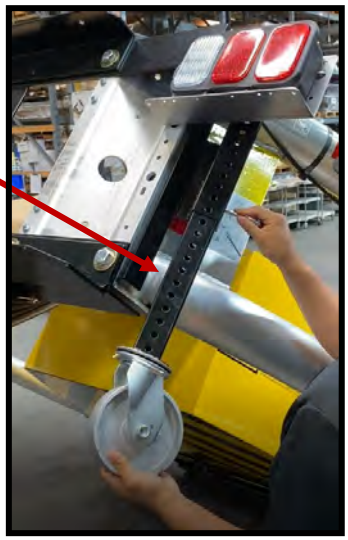
Mounting Brackets

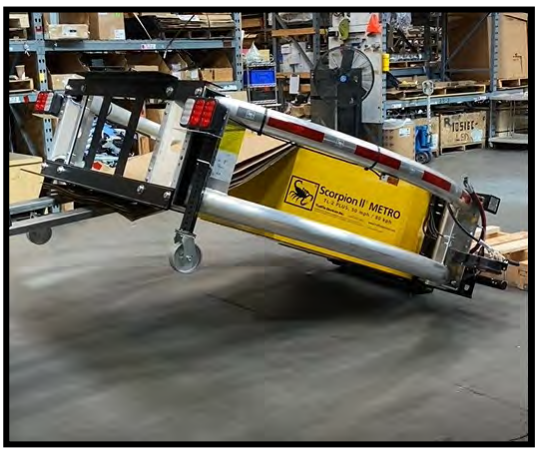


Metro TMA Assembly

4. Position the TMA on the edge of the pallet then slowly start lowering the TMA.

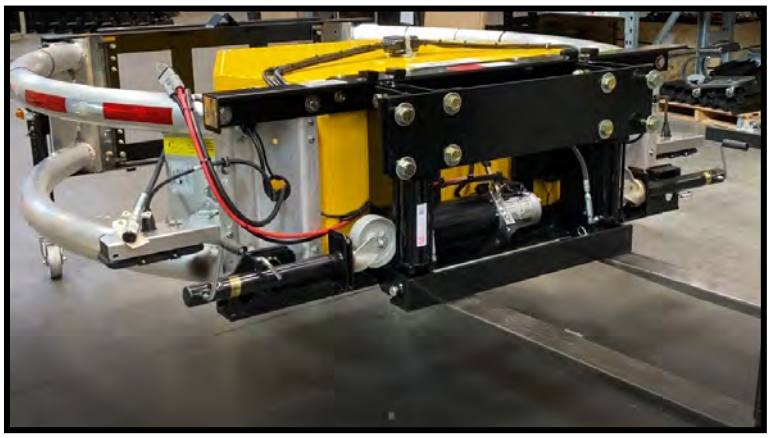
5. Once the drop jacks can safely be reached, do not lower the TMA any further. Extend the drop jacks so that the yellow painted edge is aligned with the bottom of the drop jack mounting bracket. Secure the drop jacks in place with the safety snap. Continue to lower the TMA until the drop jacks have reached ground level.

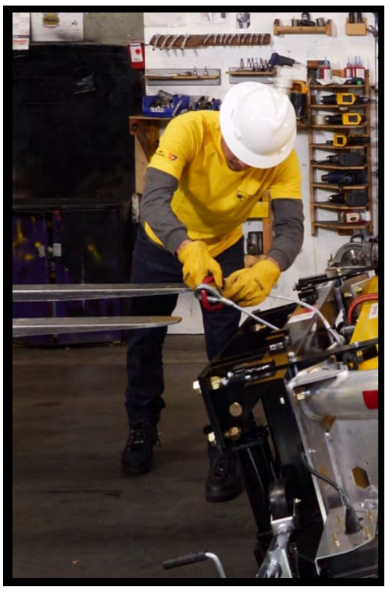





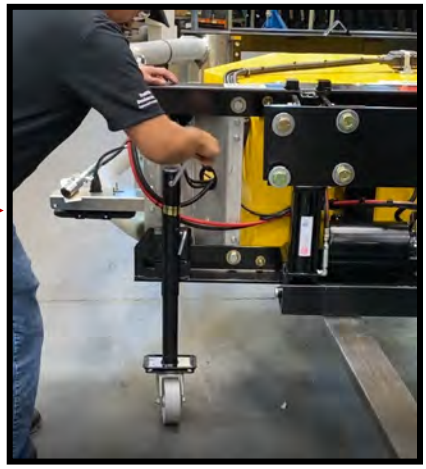
Metro TMA Assembly

6. Use the forklift to lift the Back-up diaphragm off the ground or use lifting straps, place them on the Back-up of the TMA. Lift the TMA until it is level to the drop jacks previously extended.



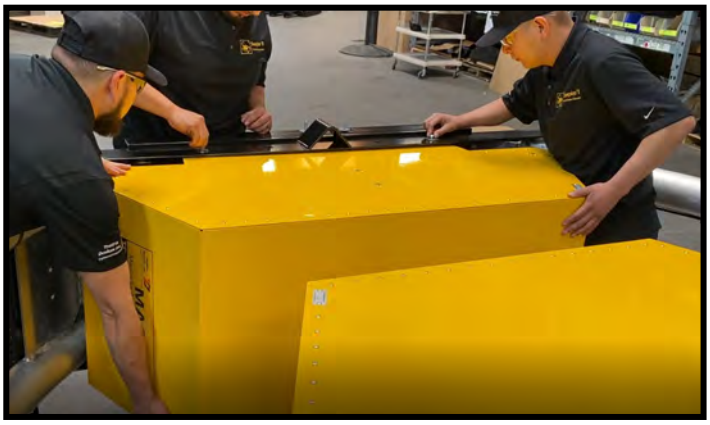


7. Rotate and lower the swivel jacks so that the TMA is level. The TMA should no longer be supported by the forklift once the swivel jacks are deployed.

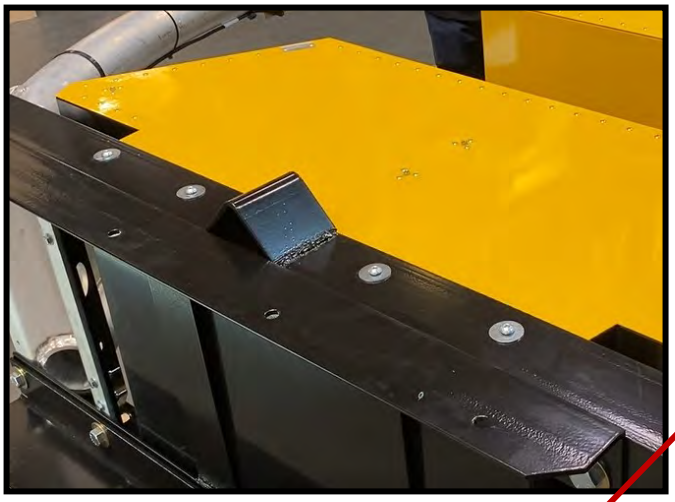


Module C Installation

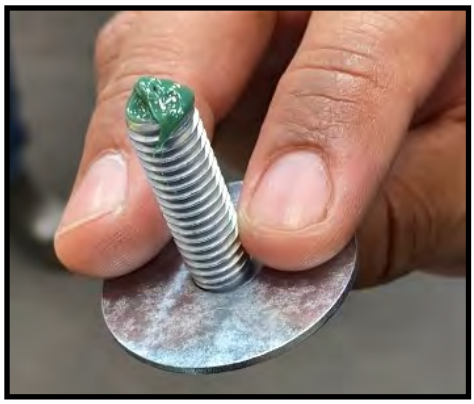
1. Lift Module C into position on the TMA.

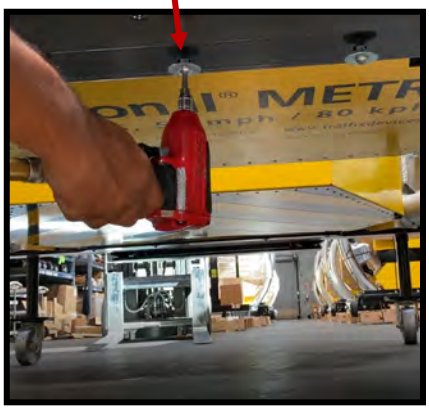


2. Secure Module C with washers and Button head bolts. Use grease on all bolts and tighten to a minimum of 20 ft-lbs.



Appropriate to use either a Ratchet and Socket or Impact Wrench when tightening bolts.

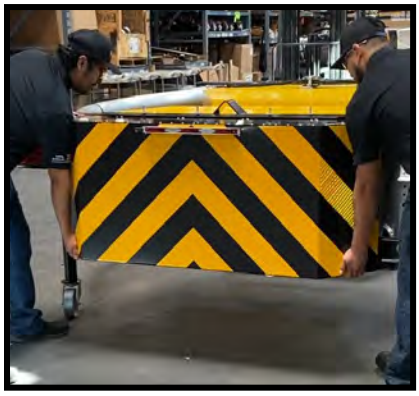


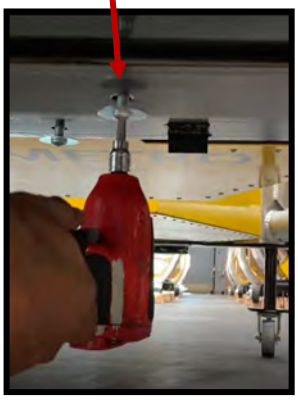


Module A Installation

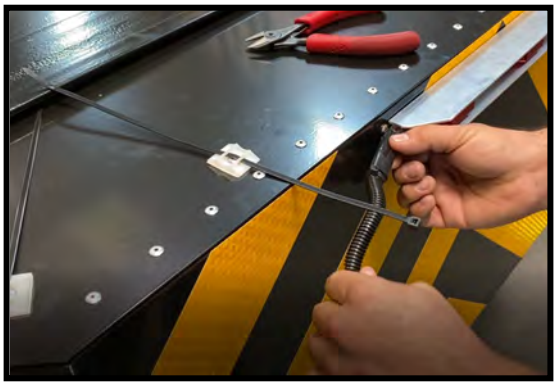
1. Lift Module A into position on the TMA and secure with bolts and washers. Use grease on all bolts and tighten to a minimum of 20 ft-lbs.

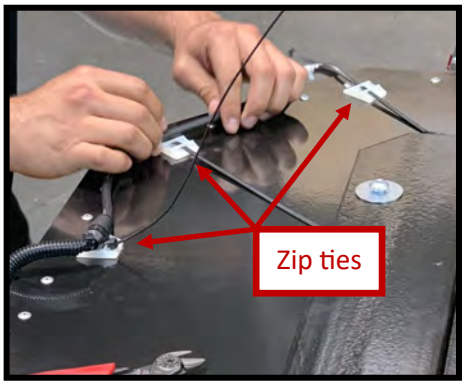
Appropriate to use either a Ratchet and Socket or Impact Wrench when tightening bolts.



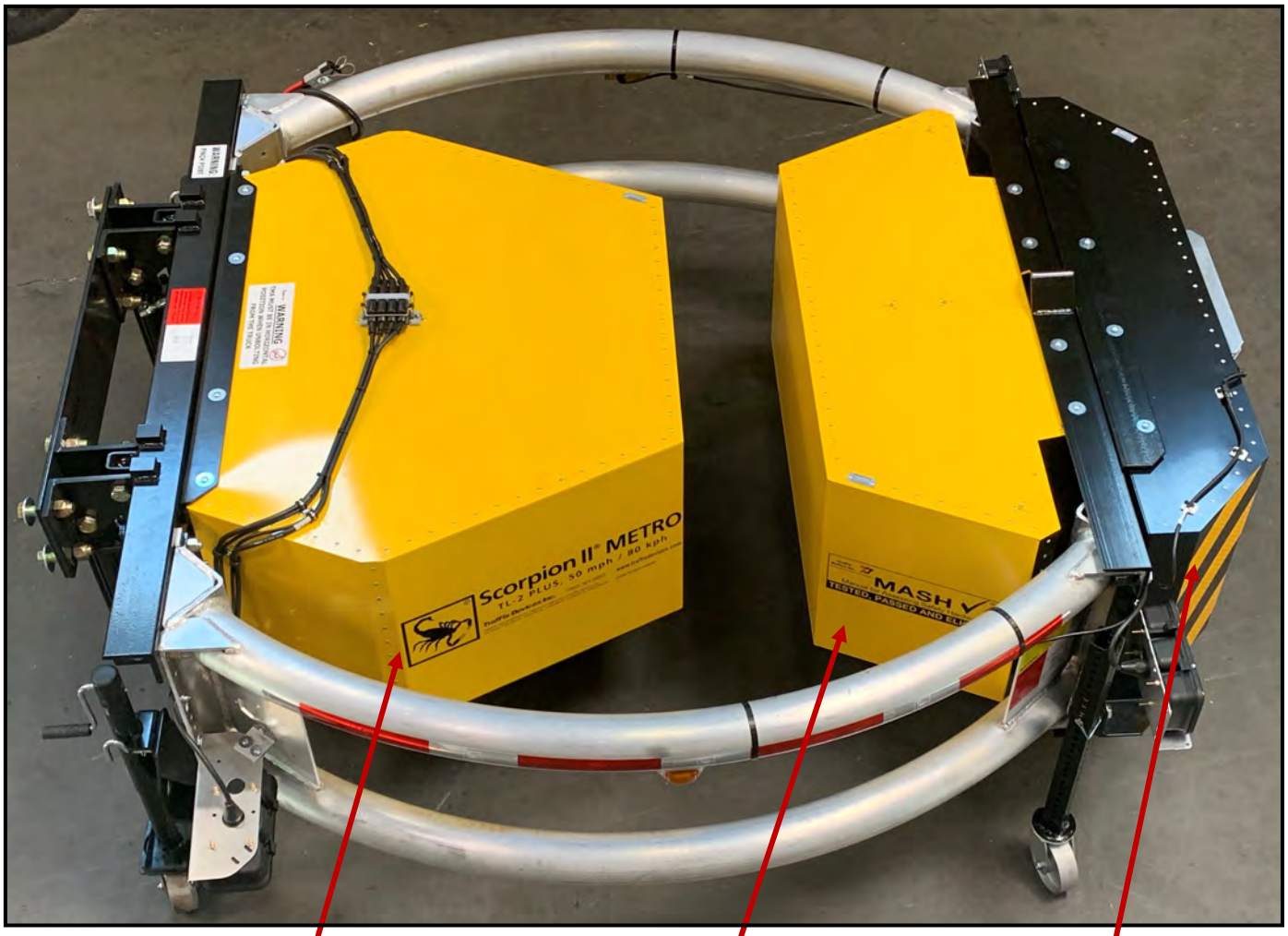


2. Cut the zip tie that is holding the ICC Bar Light and attach it to the cable that is located in the back of Module A. Secure the cables to the top of Module A using zip ties.





Complete Assembly of Metro TMA



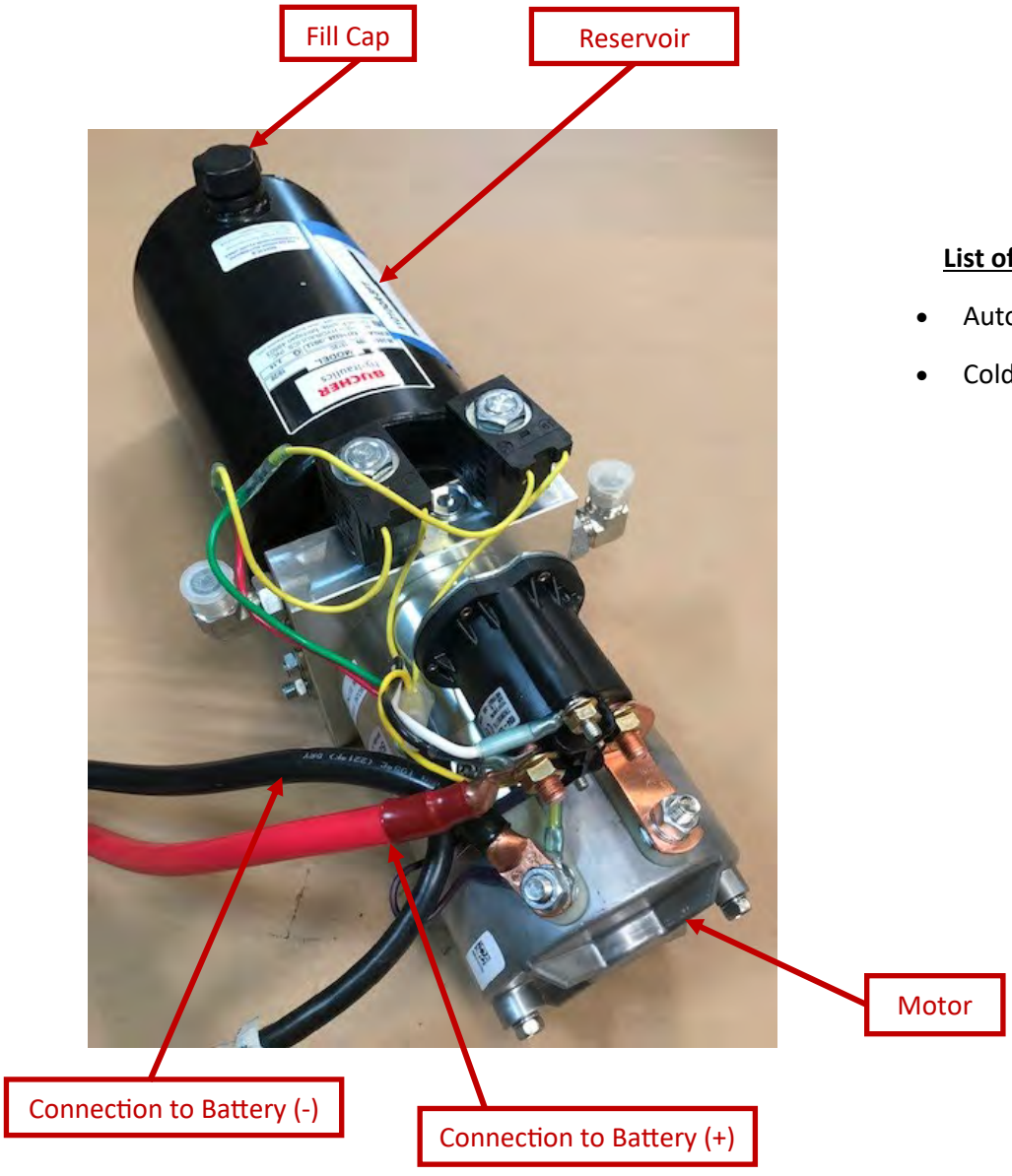
Module E

Module C

Module A

Hydraulic Pump Assembly

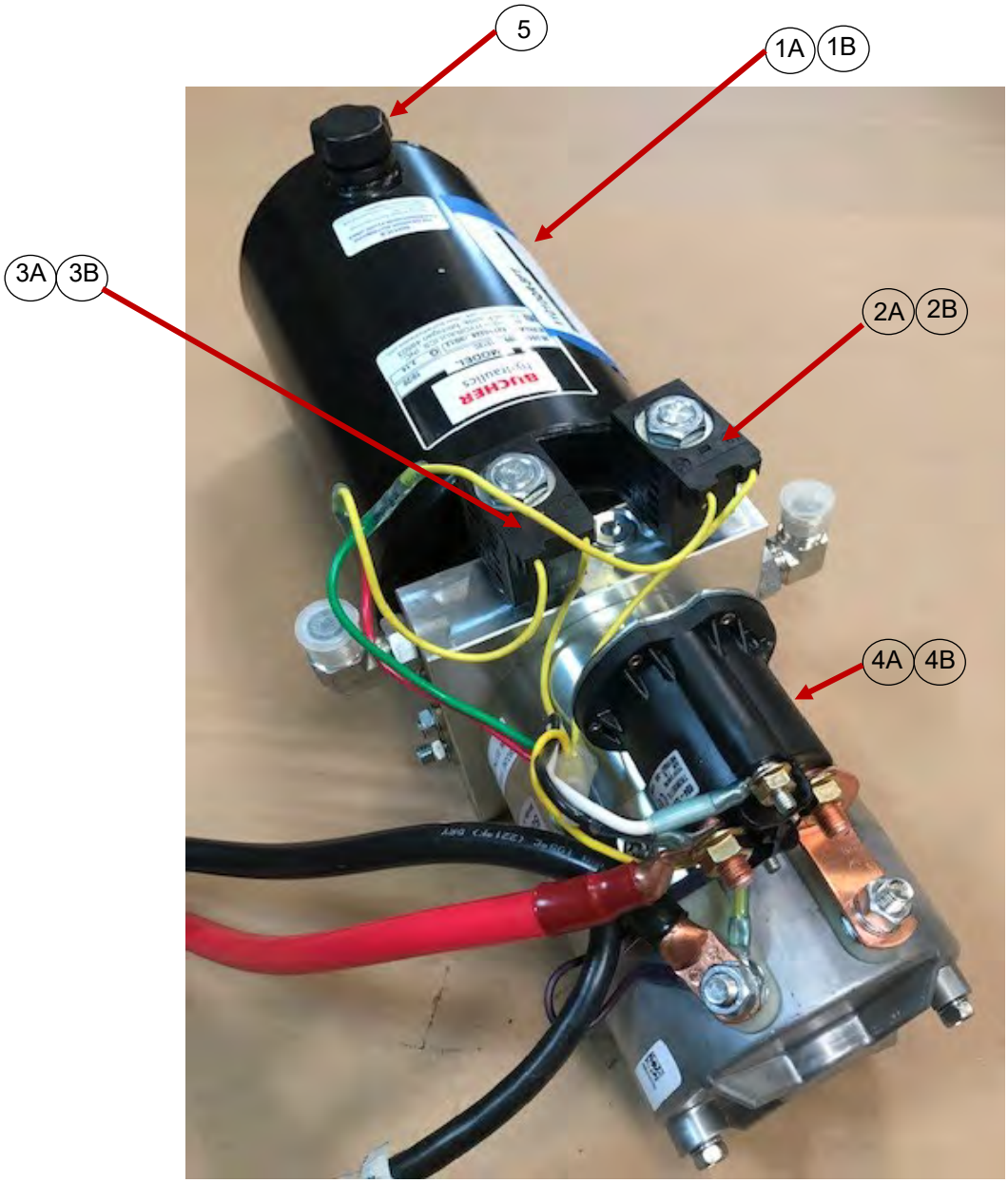
1. Fill the reservoir on the hydraulic pump with three gallons of Automatic Transmission Fluid (ATF) and attach the electrical wires (minimum gauge size of #1 battery cable for both the positive and negative hydraulic motor connections) to the motor cables. Push the “up” button on the yellow controller to raise the TMA to its stored position.
2. Fill the reservoir a second time with two more quarts. Cycle the system two times waiting 3 minutes between cycles to remove the air bubbles from the system. Fill the rest of the reservoir with two quarts of hydraulic fluid.
3. Roll the TMA back to the host vehicle and bolt the four hydraulic angle brackets to the backing plate first, before installing the TMA onto the host vehicle. Use full manual torque with a breaker bar and a wrench to fasten the brackets to the backing plate.
4. Finish with the TMA in the deployed position to mount onto the host vehicle. Terminology for the hydraulic pump and the motor are illustrated below:



List of Acceptable Hydraulic Fluids

- Automatic Transmission Fluid (ATF)
- Cold Weather Hydraulic Fluid

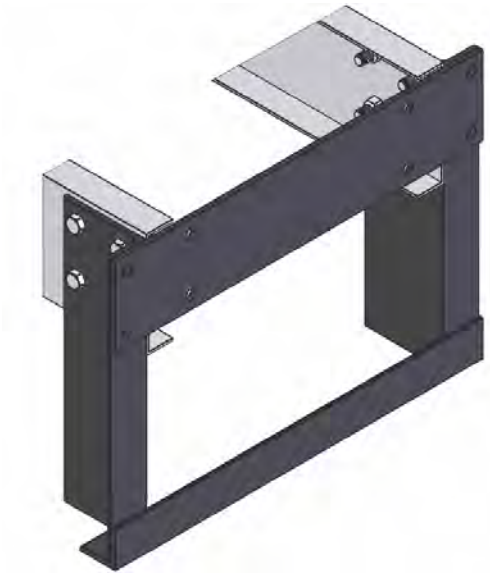
Hydraulic Pump Parts List



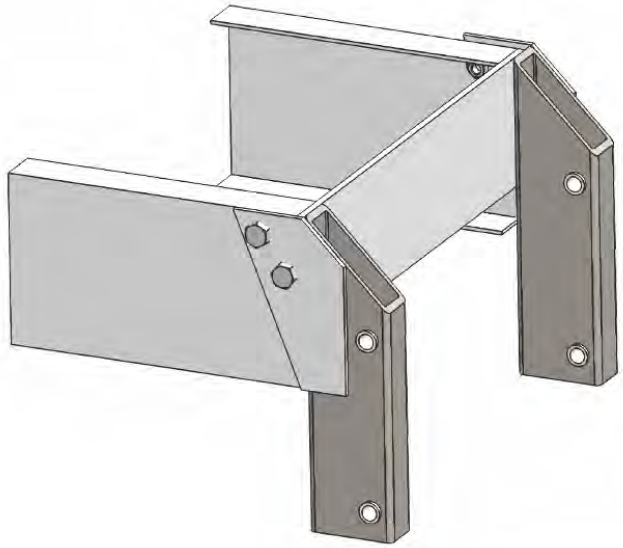
Item #	Part #	Item Description	QTY/TMA
1A	11010	12 Volt Motor w/ Hydraulic Pump - Complete	1
1B	11011	24 Volt Motor w/ Hydraulic Pump - Complete	1
2A	11020-12	Valve w/ 12V Coil, controls "up"	1
2B	11020-24	Valve w/ 24V Coil, controls "up"	1
3A	11021-12	Valve w/ 12V Coil, controls "down"	1
3B	11021-24	Valve w/ 24V Coil, controls "down"	1
4A	11024	12 Volt Solenoid	1
4B	11025	24 Volt Solenoid	1
5	11012NJ-CAP	Filler Cap for TMA Motor	1

Standard Truck
Mounting Installation

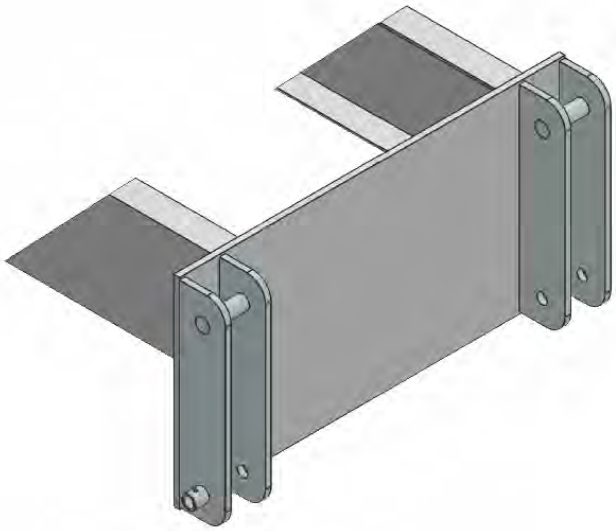
Flat Bed Mount



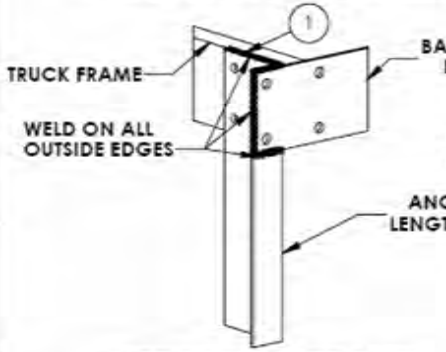
Dump Truck Mount



Fast Trak Swift Connect Mount



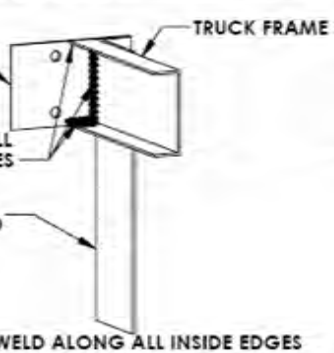
OUTSIDE
Weld per Good Commercial Practice



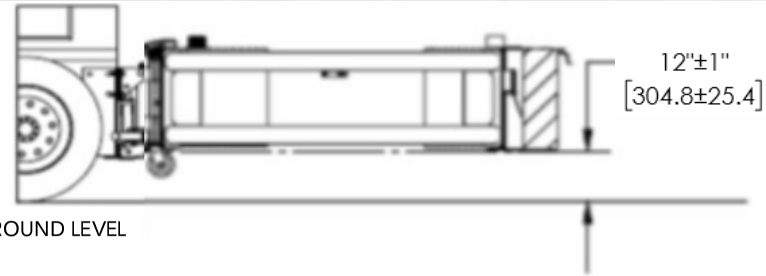
WELD ALONG TOP AND BOTTOM EDGES WHICH COME INTO CONTACT WITH FRAME SURFACE

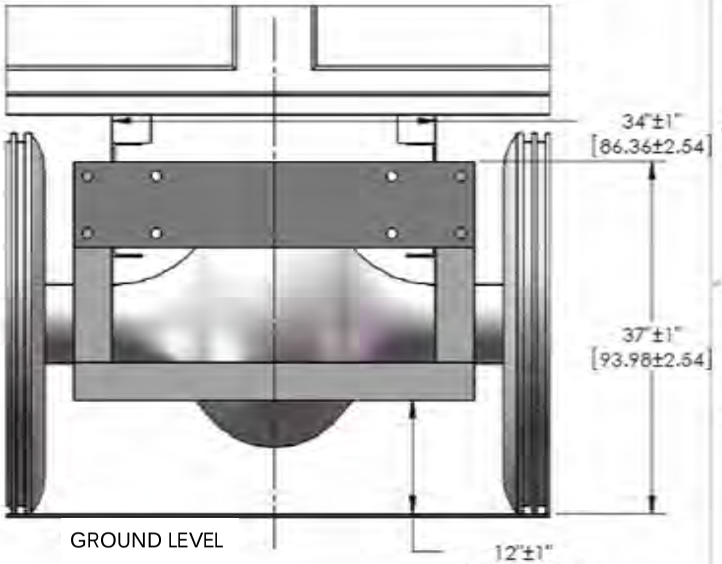
(1) WELD ALONG ALL OUTSIDE EDGES WHICH COMES INTO CONTACT BETWEEN BACKING PLATE AND ANGLE.

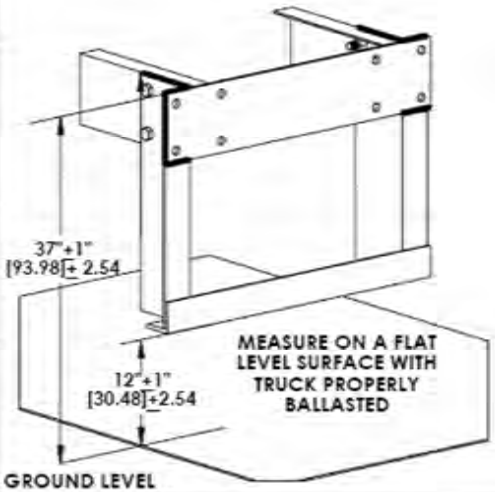
INSIDE
Weld per Good Commercial Practice



WELD ALONG ALL INSIDE EDGES WHICH COMES INTO CONTACT BETWEEN BACKING PLATE AND ANGLE.







10353-BACKING PLATE
QTY1

10355-LEFT 4" X 9" ANGLE
QTY1

10354-RIGHT 4" X 9" ANGLE
QTY1

10356-4" X 4" BOTTOM ANGLE
QTY1

DIMENSIONS: INCHES
[CENTIMETERS]

TrafFix Devices Inc.
150 Avenida La Pata
San Clemente, CA 92673
(949) 361-5663
FAX (949) 361-6205
www.traffixdevices.com

TITLE:
FLAT BED MOUNTING HARDWARE INSTALLATION

SIZE	DWG. NO.	REV
B	900-124	A

SHEET 1 OF 1

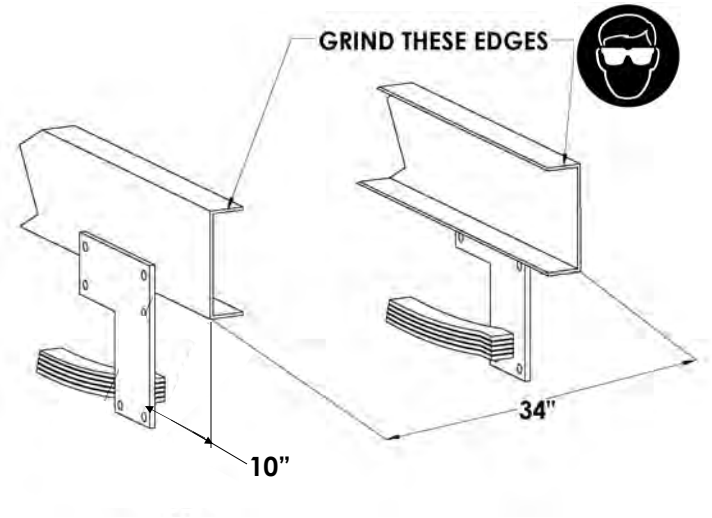
Standard Flatbed Truck Mounting Installation

Truck Installation Model C

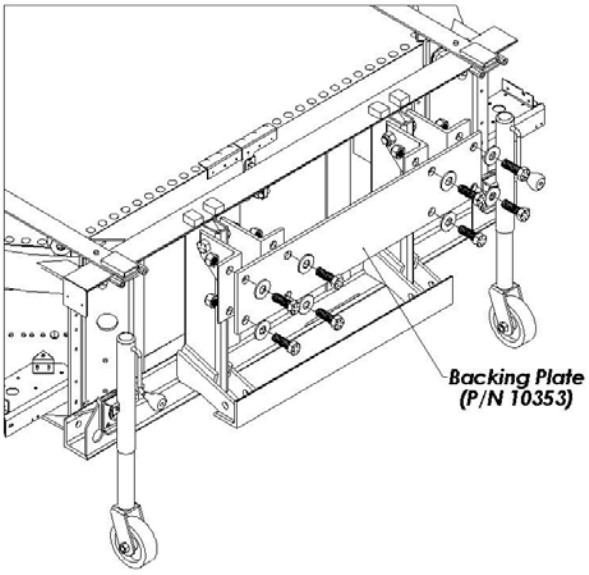
Before attempting to install the TMA to a host vehicle truck, ensure that the truck meets the following criteria: Truck weight specifications vary from state to state; however, it is recommended that the truck weighs a minimum of 7,300 lbs.

Adding ballast can affect the truck bed height, so it is preferred to ***ballast the truck before attaching the TMA.*** Check the truck frame to ensure that it is structurally sound and rust-free. Also, check the amount of frame extension in back of the spring brackets – a minimum of 10" is needed. Check that the bed of the truck does not extend beyond the back of the frame more than 4" . This is necessary for vertical clearance of the TMA. Check the frame for a cross tie plate connecting one side to the other if the frame extends to the rear more than expected. It is preferred to keep the frame from extending more than 24" from the back of the spring support bracket. Also check the height of the truck side gates. These should be less than 8' 6" from the ground to allow clearance if the double 90° tilt is used.

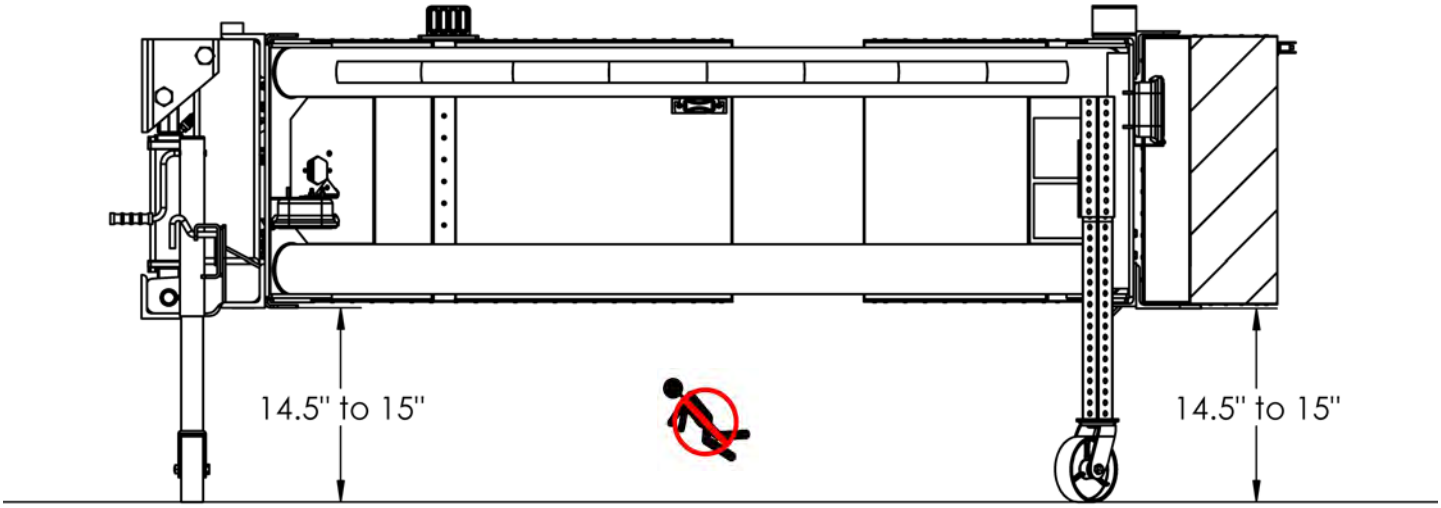
1. The truck frame consists of two C-channels spaced approximately 34" apart. Grind the inside and outside of the ends of the frame, as shown in this figure (right), in preparation for tack welding process. The frame should be square from side to side. Use a carpenter's square tool or any other square device to verify that the frame is indeed level and straight. Also measure the distance from the frame ends to the back of the spring brackets.



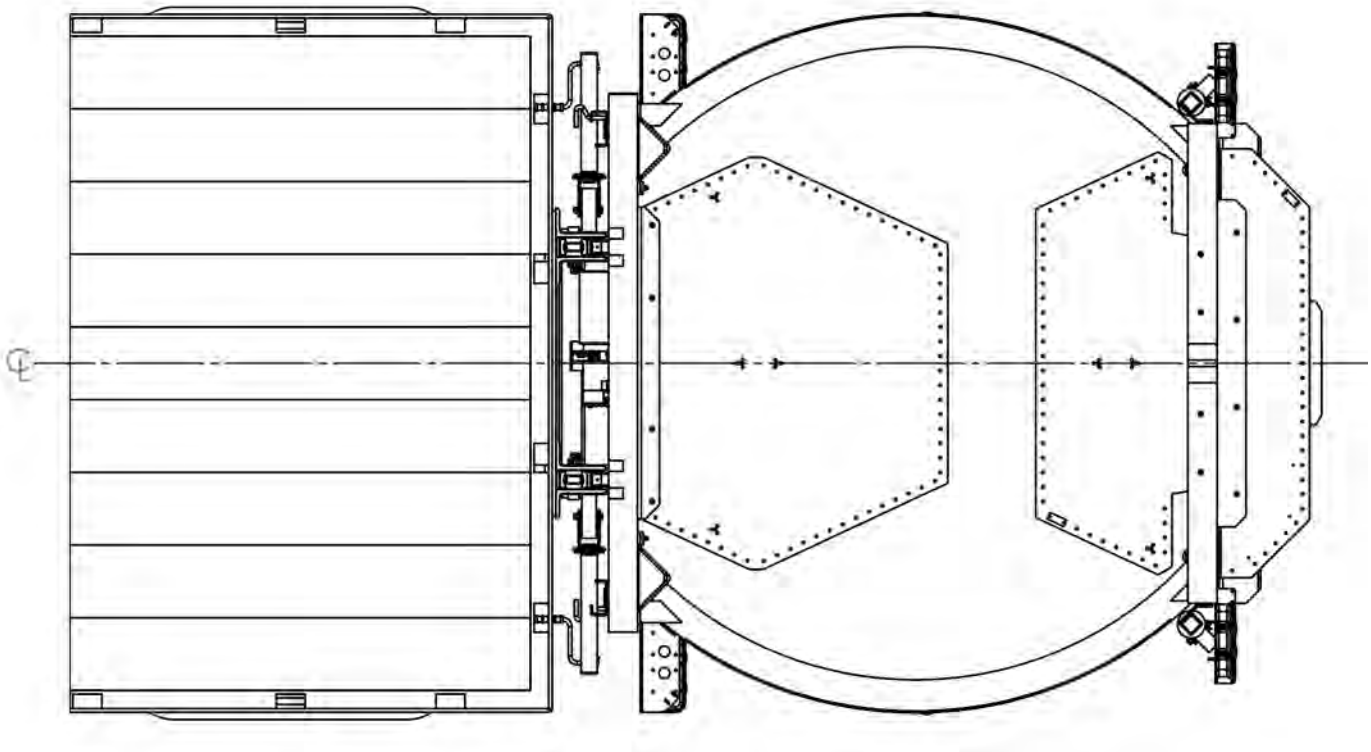
2. Mount the Backing Plate (P/N: 10353) onto the backup of the TMA as shown in this figure (right). Mounting the backing plate onto the TMA will simplify the alignment process when mounting the backing plate onto the truck frame of the host vehicle.



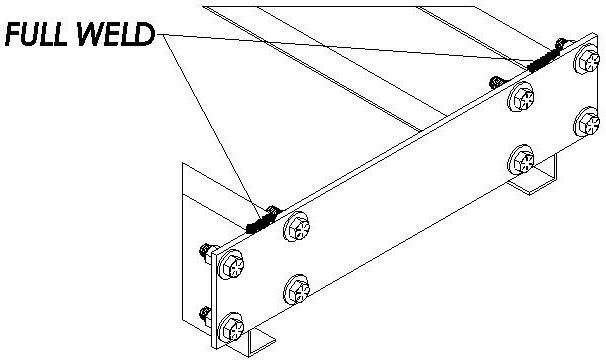
3. With the assembled TMA in the deployed position, deploy and adjust all four jacks on a flat-leveled surface (shown in the figure below) to a height that measures approximately 14 1/2”- 15” from the underside of the TMA to the flat surface. This height is to account for the settling of about 2” that the truck will experience after the TMA is mounted onto the frame when the jacks are raised in their stored position. It is essential to measure and verify the recommended height of 14 1/2”-15” on both sides of each diaphragm. The figure below also illustrates the locations of where that specified height should be measured.

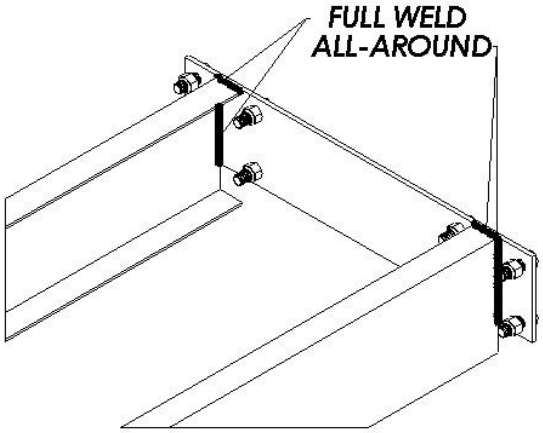


4. With the jacks deployed, roll the deployed TMA to the rear of the host vehicle and align the TMA centerline with the vehicle, as shown in the following figure. The backing plate that is bolted onto the TMA (See step 2) should be flush with the ends of the truck frame.

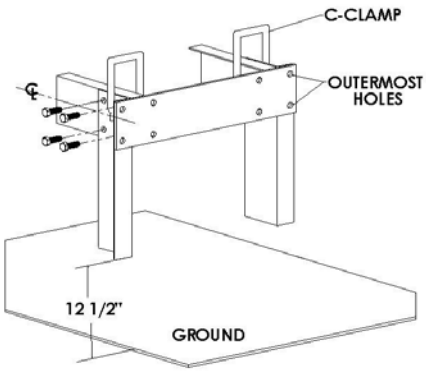


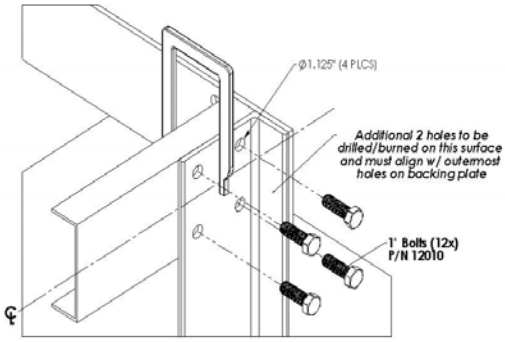
5. After proper confirmation of the backing plate being level and 90° to the horizontal surface, deploy the drops jacks and unbolt the TMA from the backing plate that is already tacked onto the host vehicle. Fully weld the backing plate on both the inside and outside of the frame rails. Proper welding locations are specified in the figure below:

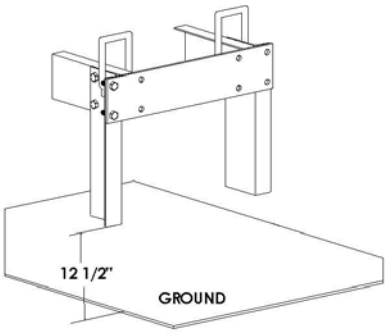




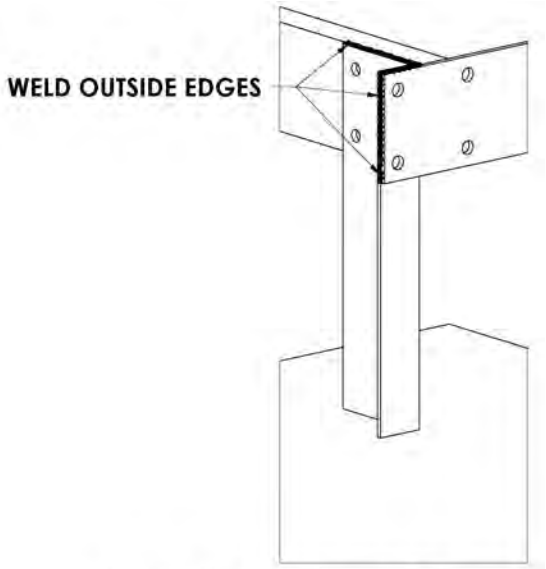
6. Position the 9” x 4” vertical angles with C-clamps on to the side of the frame as shown in first figure (bottom left). Notice there is a left and right side vertical angle and the flanges should be positioned toward the rear of the truck. Four holes are located in the angle for bolting to the frame (refer to middle figure). ***<u>Center the holes vertically on the frame</u>*** and drill/burn 4 holes in the frame on both sides. Also, drill/burn 2 holes on the angle to align with the outermost holes of the backing plate as shown in the middle figure as well. Bolt the vertical angles onto the frame with the 1” bolts as shown in the last figure (bottom right).





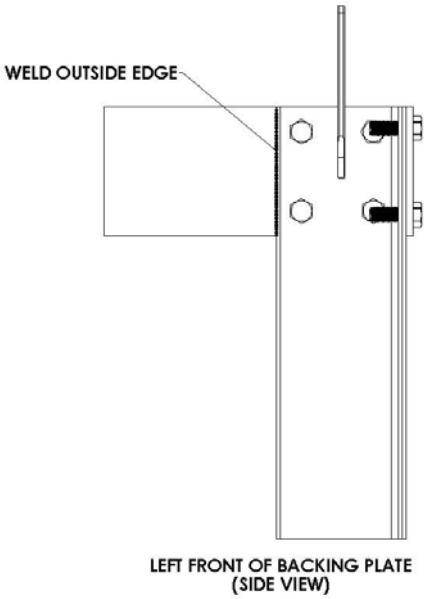


7. Weld the angles in place at the rear of the angle. Refer to the figure below for proper welding locations.



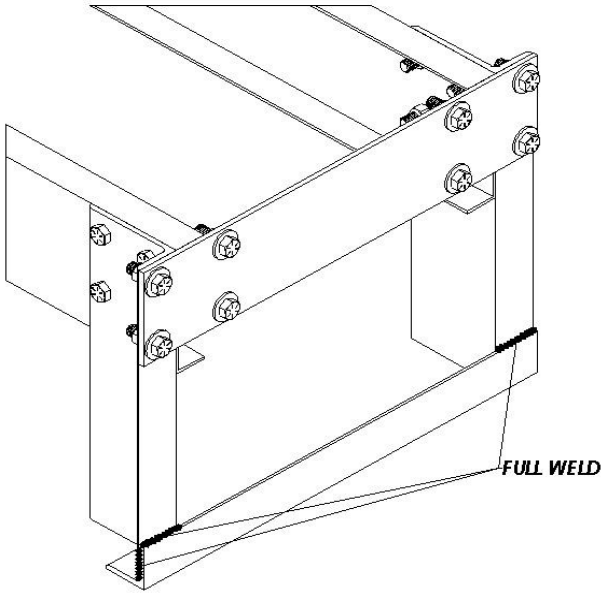
LEFT FRONT OF BACKING PLATE

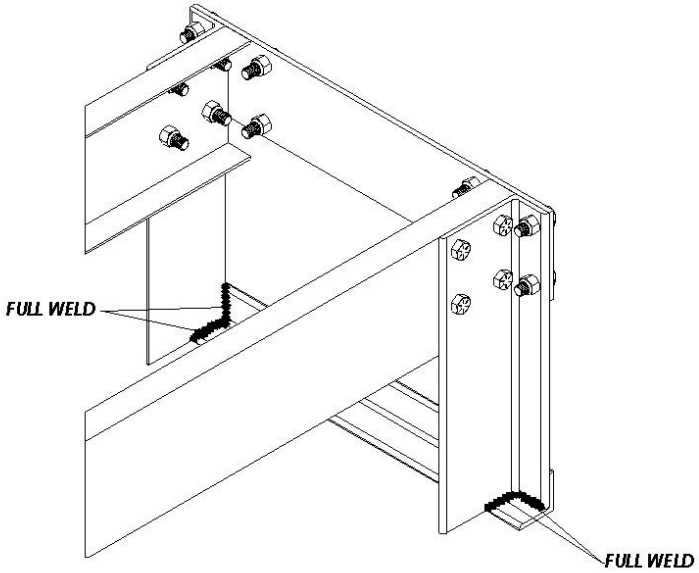
(DRIVER SIDE)



LEFT FRONT OF BACKING PLATE
(SIDE VIEW)

8. Install the lower bottom angle (P/N: 10356) and fully weld the angle in place. Refer to the following figure for proper welding locations.





9. Proceed to the Section titled "Support Installation" and follow the Installation that matches the type of Supports you ordered.

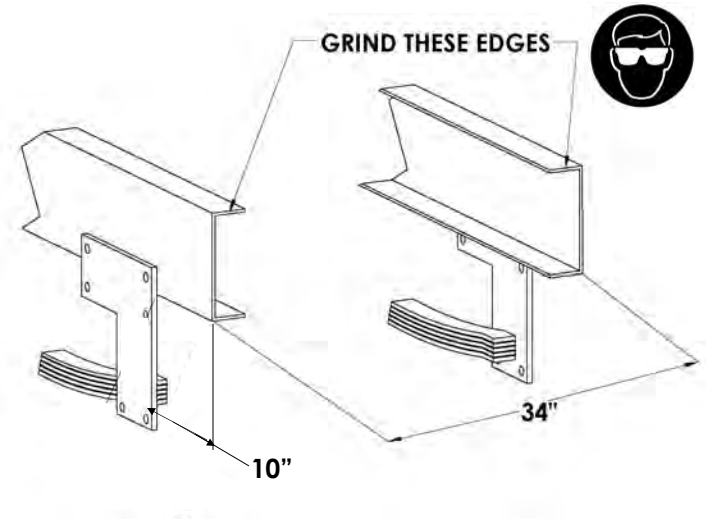
Dump Truck Mounting Installation

Installation of Extension Frame

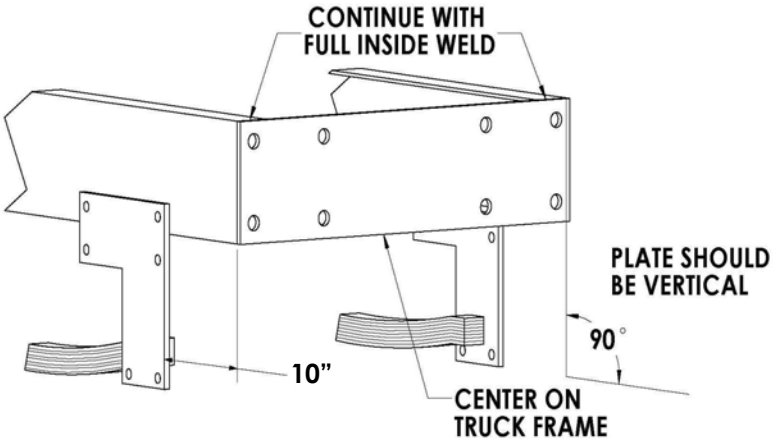
Before attempting to install the TMA to a host vehicle truck, ensure that the truck meets the following criteria: Truck weight specifications vary from state to state; however, it is recommended that the truck weighs a minimum of 7,300 lbs.

Adding ballast can affect the truck bed height, so it is recommended to ***ballast the truck before attaching the TMA.*** Check the truck frame to ensure it is structurally sound and rust-free. Also, check the amount of frame extension in back of the spring brackets – a minimum of 4" is needed. Verify that the bed of the truck does not extend beyond the back of the frame more than 15". This is necessary for vertical clearance of the TMA when in the stored position. Ensure that the truck side gates are measured at a maximum height of 8' 6" from the ground to allow clearance if a Model C TMA is being used and is in the stored position.

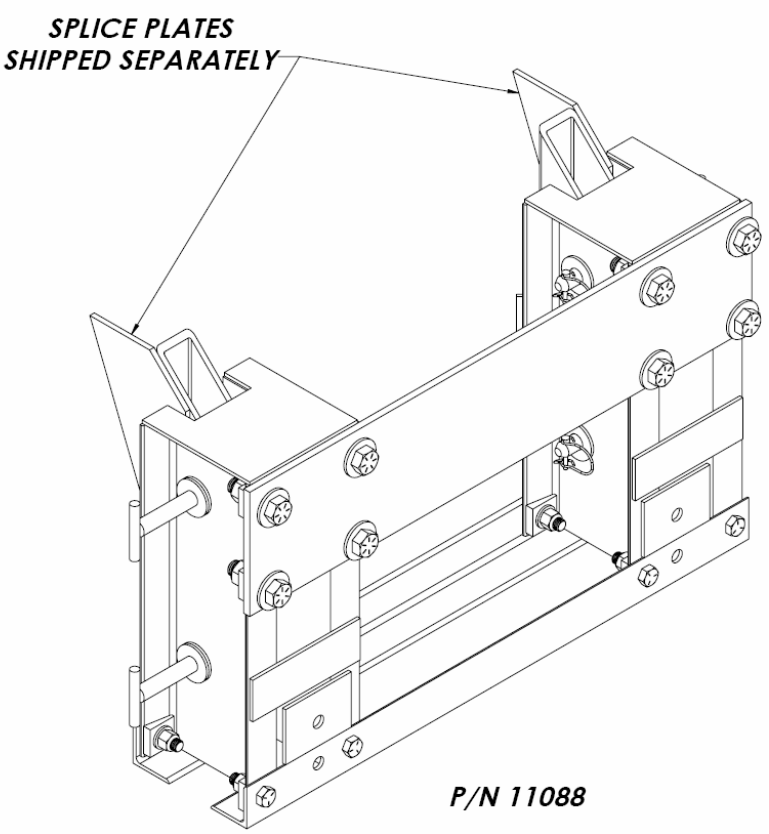
1.The truck frame consists of two C-channels spaced approximately 34" apart. Dump trucks often have a ½" thick plate welded across the back of the frame. A plate must first be installed before the extension frame can be mounted if a plate is not present. Grind the inside and outside edges of the frame, as shown in this figure (right), to prepare for a weld. Verify that the frame is square from side to side, using a carpenter's square tool or any other square device. Also measure the distance from the frame ends to the back of the spring brackets.



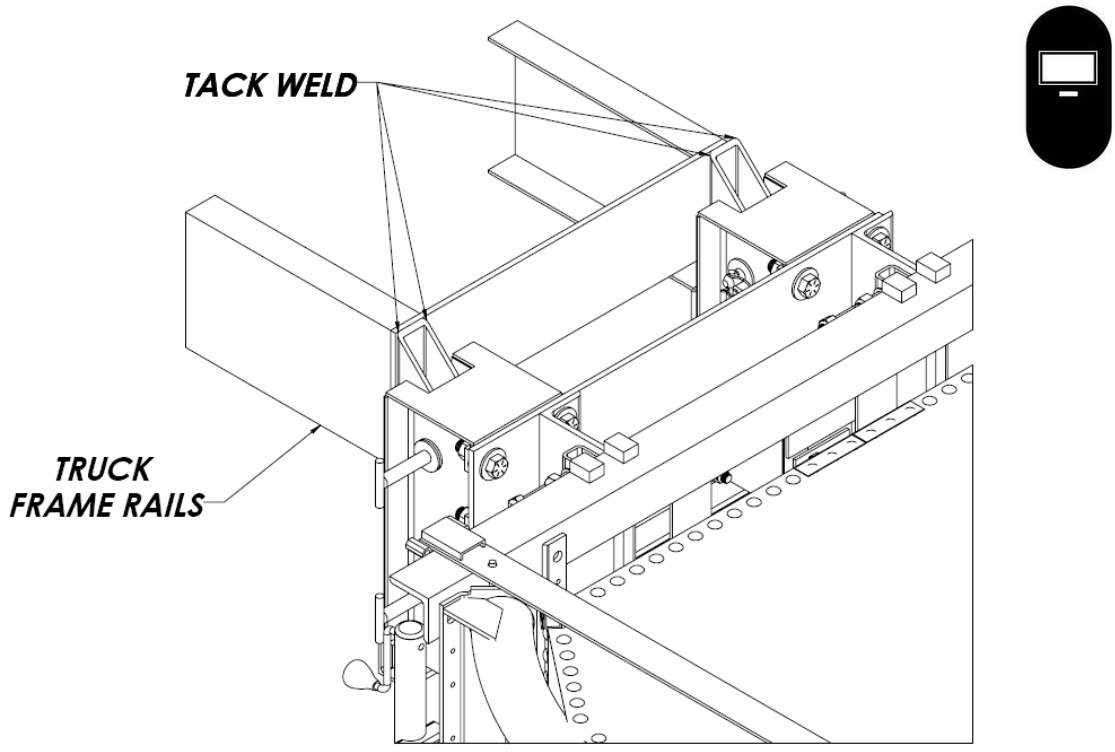
2. A backing plate (33" x 10") should be centered on the back of the truck frame. Note where the frame will be welded to the plate and grind the plate in this location. Tack weld the rear plate into position and make sure that the rear plate is positioned vertically at 90° to horizontal. Continue by welding the inside of the frame end to the plate.



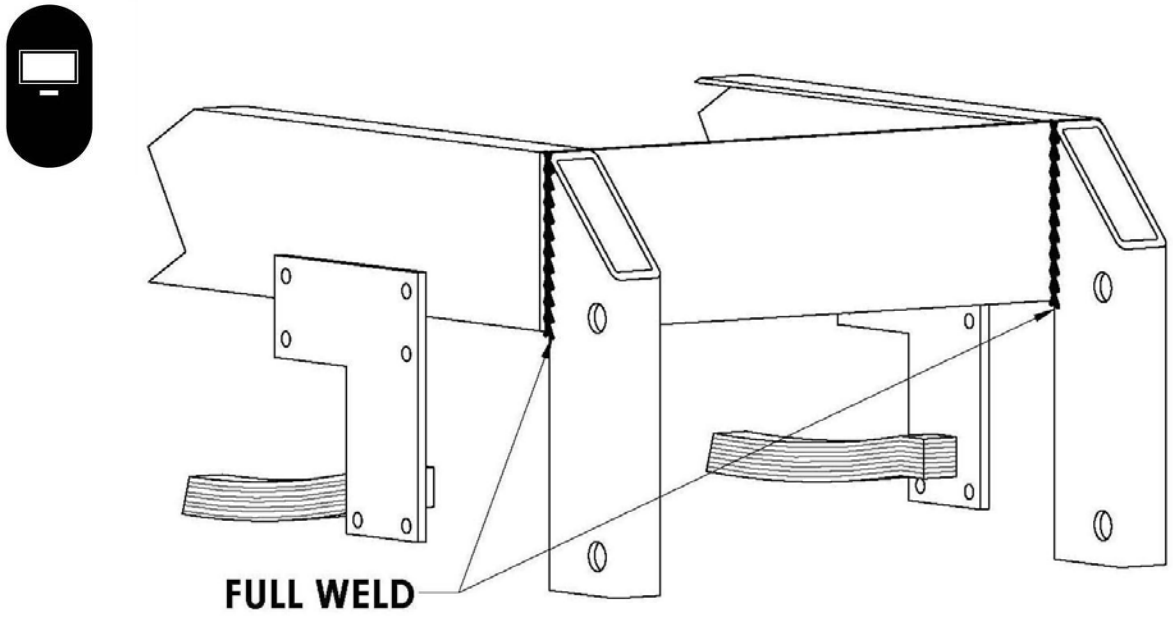
3. The extension frame comes with the right and left vertical tubes bolted in place in the right and left frame sections as shown in the first figure below. For ease of attachment to the truck, mount the extension frame to the TMA , as seen in the below second figure, and roll the TMA with the extension frame to the back of the truck,. Make sure the TMA is at 14 ½”- 15” in height, measured from the underside of the TMA to the ground. This height is to account for the settling of about 2” that the truck will experience after the TMA is mounted onto the frame when the jacks are raised in their stored position.



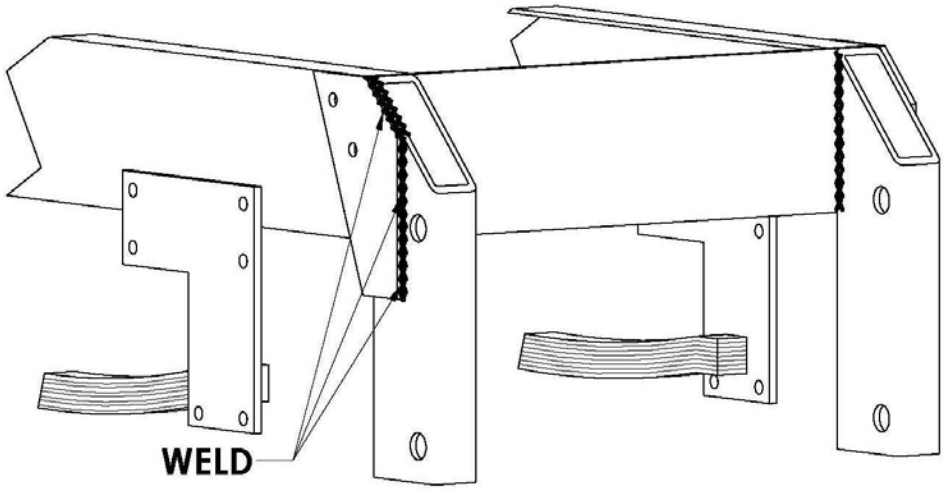
4. Once the TMA is rolled towards the back of the host vehicle, tack weld the tubes in place at the outermost and innermost four corners where the tubes touch the frame. This image below illustrates ideal tack welding locations to hold the tubes in place.



5. Remove the four 1” bolts from the vertical tubes and roll the TMA rearward to pull the extension frame free from the vertical tubes. Fully weld the tubes in place on all four sides where the tubes touch the frame and the back plate. Refer to following figure for details.



6. Position the splice plates, as shown here in this figure below, against the sides of the frame and the vertical tubes. Mark on the plate the position of two holes for ¾" bolts. Drill these holes in the plates and the frame. Weld the edge of the plate to the vertical tube. The truck frame weld areas should be spray painted to prevent rust.



7. After the splice plates have been welded on the tubes, Install the four ¾" bolts in the designated holes that were drilled into the plates to reinforce the splice plates as well as the tubes..

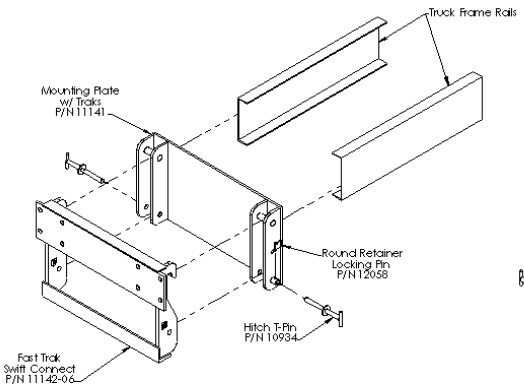
8. To reattach the TMA to the truck, either use the 1" bolts supplied or use the T-pins, if the T-pins were purchased as an option.

9. Proceed to the Section titled "Support Installation" and follow the Installation procedures that match the type of Supports that were ordered.

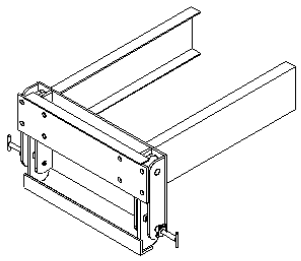
Installing the Fast-Trak SwiftConnect™ for the Scorpion Truck Mounted Attenuator (TMA)

(Follow the Directions for the Configuration received)

Configuration 1

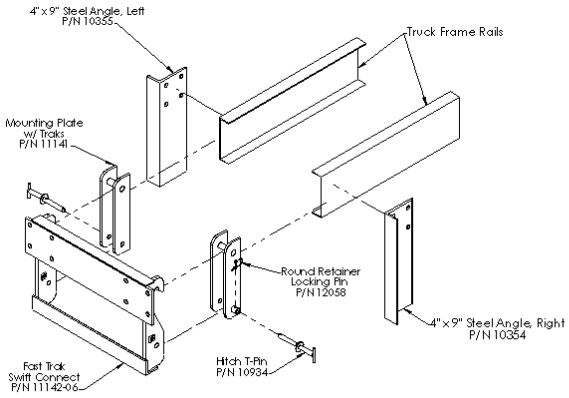


EXPLODED VIEW OF FAST TRAK QUICK SWIFT CONNECT CONFIGURATION 1

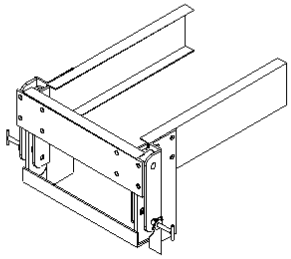


ASSEMBLED VIEW OF FAST TRAK QUICK SWIFT CONNECT CONFIGURATION 1

Configuration 2

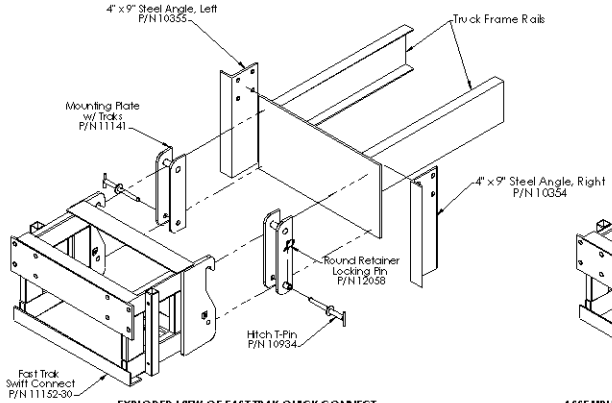


EXPLODED VIEW OF FAST TRAK QUICK CONNECT CONFIGURATION 2

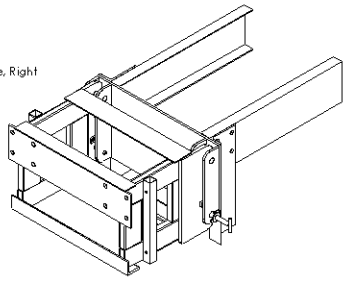


ASSEMBLED VIEW OF FAST TRAK QUICK CONNECT CONFIGURATION 2

Configuration 3



EXPLODED VIEW OF FAST TRAK QUICK CONNECT CONFIGURATION 3



ASSEMBLED VIEW OF FAST TRAK QUICK CONNECT CONFIGURATION 3

Fast-Trak SwiftConnect™ Configuration 1

(Configuration 1 is for trucks where the back end of the truck has no plate and only the truck frame rails are exposed.)

PN: 11140-06 used for illustration, other lengths are installed in the same way.

Adding ballast can affect the truck bed height, so it is advisable to ballast the truck before attaching the TMA. Check the truck frame to make sure that it is structurally sound and not rusted. Also check the amount of frame extension in back of the spring brackets – a minimum of 10" is needed. Check that the bed of the truck does not extend beyond the back of the frame more than 4" (see Fig. 3). This is necessary for vertical clearance of the TMA. Check the frame for a cross tie plate connecting one side to the other if the frame extends to the rear more than a few feet. It is preferred to keep the frame from extending more than 24" from the back of the spring support bracket. Also check the height of the truck side gates. These should be less than 8' 6" from the ground to allow clearance if the double 90° tilt is used.

Part number 11141 truck mount comes with a plate to be welded to the truck frame rails. Before fully welding part number 11141 truck mount to the frame rails, tack in the part to ensure proper alignment and height recommendations from the ground. Refer to the Scorpion TMA Dump Truck Mount recommendations. Once fully welded, use Figure 1 below for installation and assembly for all of the components for Configuration 1.

1. The truck frame should be two c-channels spaced 34" apart. Start by grinding the inside and outside of the end of the frame to prepare for a weld. Make sure that the frame is square from side to side by measuring the same distance from the frame ends to the back of the spring shackles.

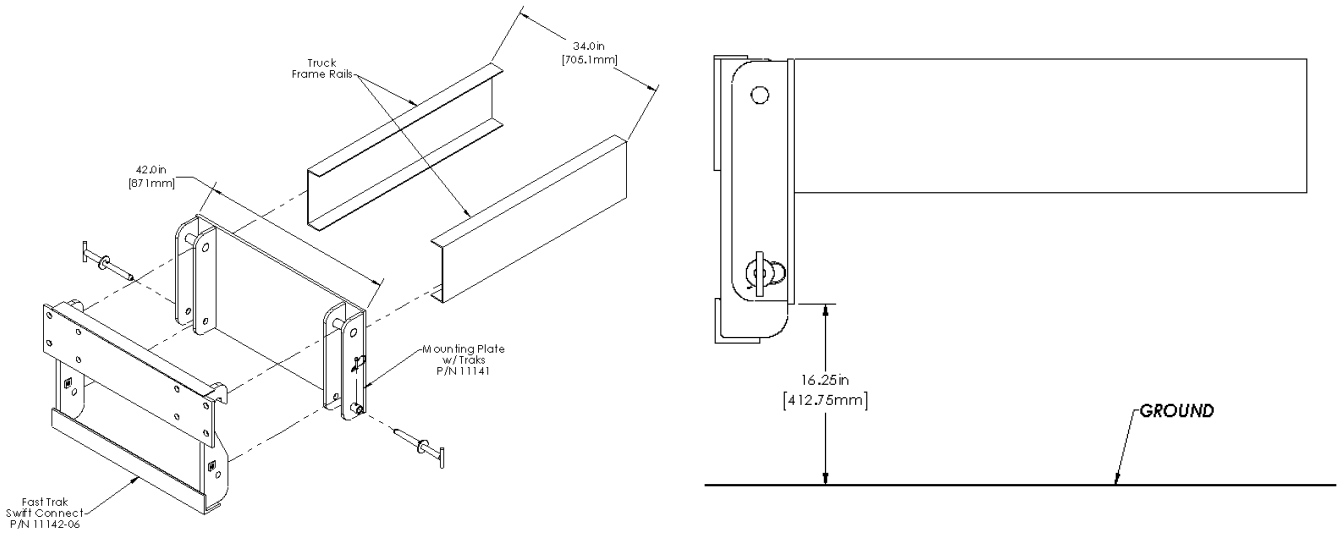


Figure 1: Exploded and assembled view of Configuration 1.

2. The rear plate (42" x 22") (shipped with the strut) will be centered on the back of the truck frame and the bottom of the Truck Mount Frame will be 16-1/4" above the ground. The truck will settle about ½" after installation of the TMA and this is accounted for. REMEMBER THAT THE TRUCK MUST BE BALLASTED BEFORE WELDING THE REAR PLATE ON THE TRUCK FRAME. Note where the frame will be welded to the plate and grind the paint off the plate in this location.

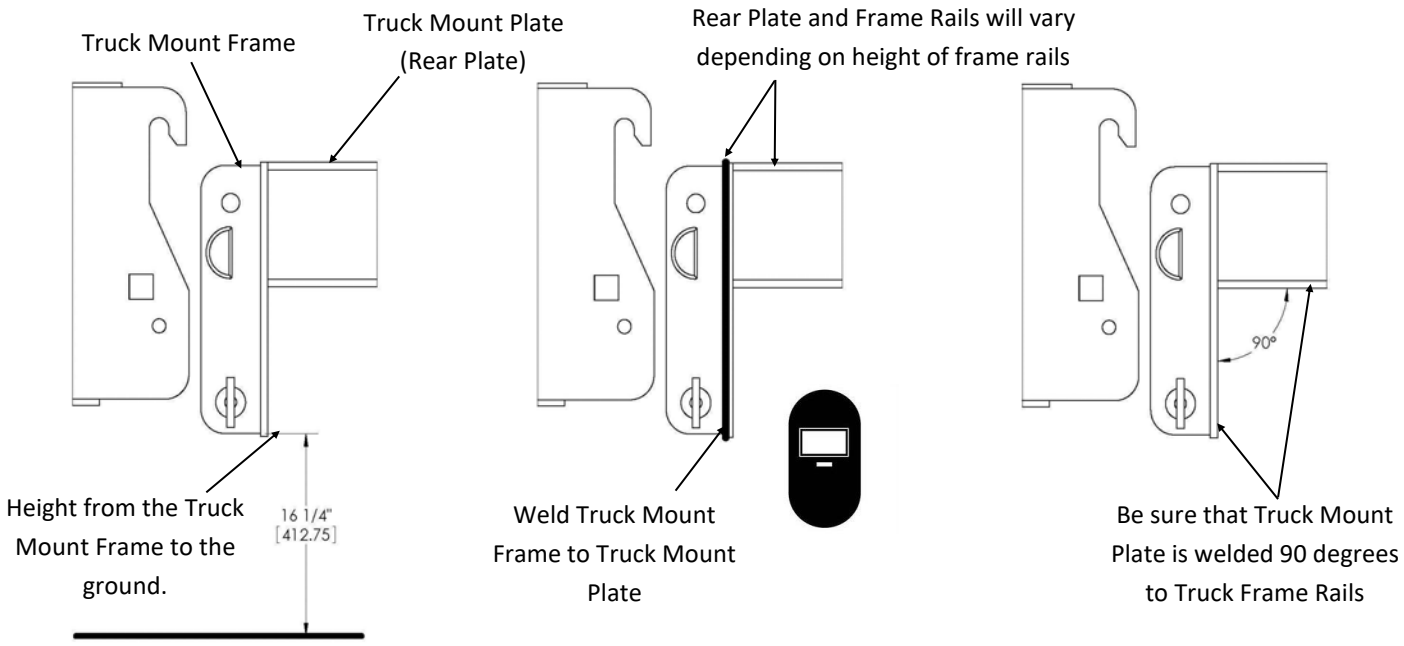


Figure 2: General information on the Fast-Trak/SwiftConnect.

3. Tack weld the rear plate into position and make sure that the Truck Mount Frame is at 16-1/4" above ground, is level across the top, and positioned vertically at 90° to horizontal. Continue by welding the inside and outside frame end to the plate. Note: If the rear plate cannot be positioned on the truck frame rails to allow the truck mount frame be at 16-1/4" above ground, then cut the welds between the Truck Mount Frame and the Rear Plate. Position and weld the Rear Plate first as mentioned above. Then position and weld the Truck Mount Frame to the Rear Plate as mentioned above.

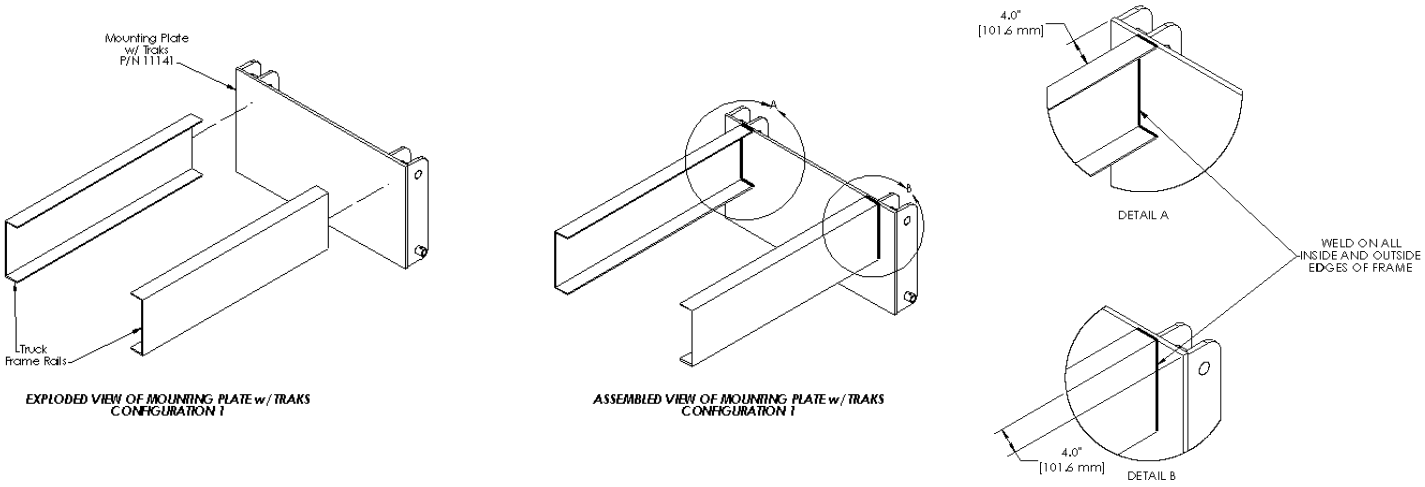


Figure 3: General information on the Fast-Trak/SwiftConnect.

Table 1: Configuration 1 components.

Configuration 1 (PN 11140-06) Components		
Part Number	**Description**	**Quantity**
11142-06	TMA Side Mount (FTSC 6")	1
11141	Mounting Plate w/ Traks (Truck Side Mount)	1
10934-FTSC	Hitch T-Pin	2
12058	Round Retainer Locking Pin	2

Fast-Trak SwiftConnect™ Configuration 2

Plate already welded on truck

PN: 11145-06 used for illustration, other lengths are installed in the same way.

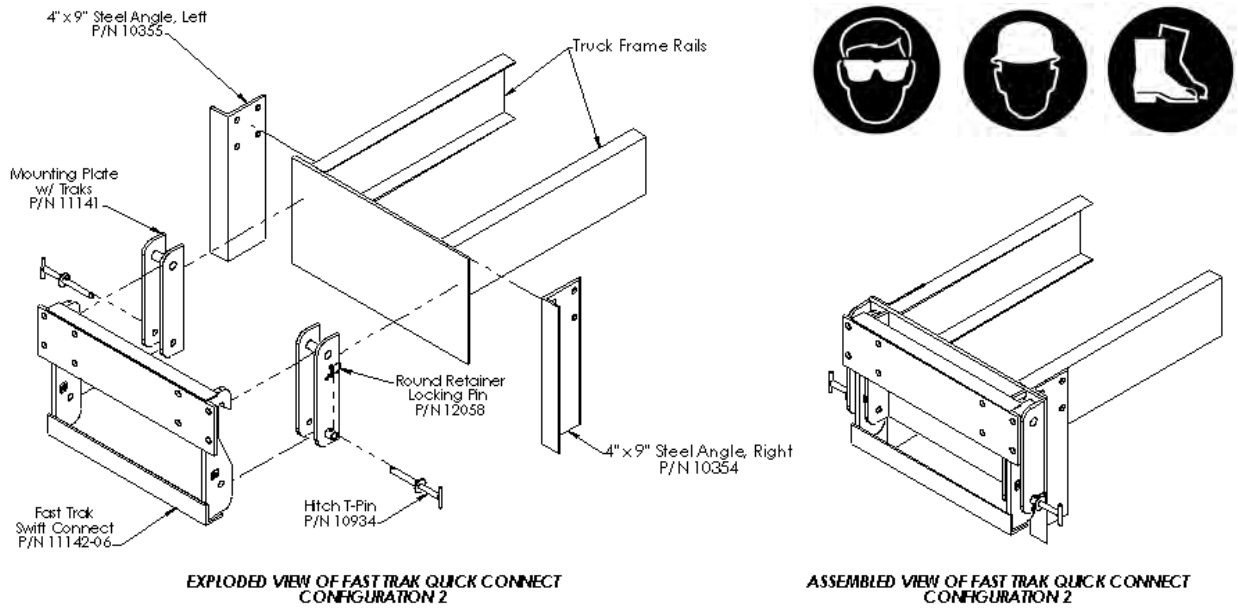


Figure 4: Exploded and assembled view of Configuration 2.

Configuration 2 is for trucks where the back end of the truck has a sturdy plate already welded to the truck frame rails. Before fully welding part number 11146 truck mount to the frame rails, tack in the part to ensure proper alignment and height recommendations from the ground. Refer to the Scorpion TMA Dump Truck Mount for recommendations. Once fully welded, use Figure 4 above for installation and assembly for all of the components for configuration 2. Additionally, refer to Step 3 of Configuration 1 for further instructions on positioning and welding PN 11146 to the Rear Plate.

Configuration 2 (PN 11145-06) Components		
Part Number	**Description**	**Quantity**
11142-06	TMA Side Mount (FTSC 6”)	1
11146	FTSC Side Traks (Truck Side Mount)	1
10354	4” x 9” Steel Angle, Right	1
10355	4” x 9” Steel Angle, Left	1
10934-FTSC	Hitch T-Pin	2
12058	Round Retainer Locking Pin	2

Fast-Trak SwiftConnect™ Configuration 3

Side mounts for truck side

PN: 11155-30 used for illustration, other lengths are installed in the same way.

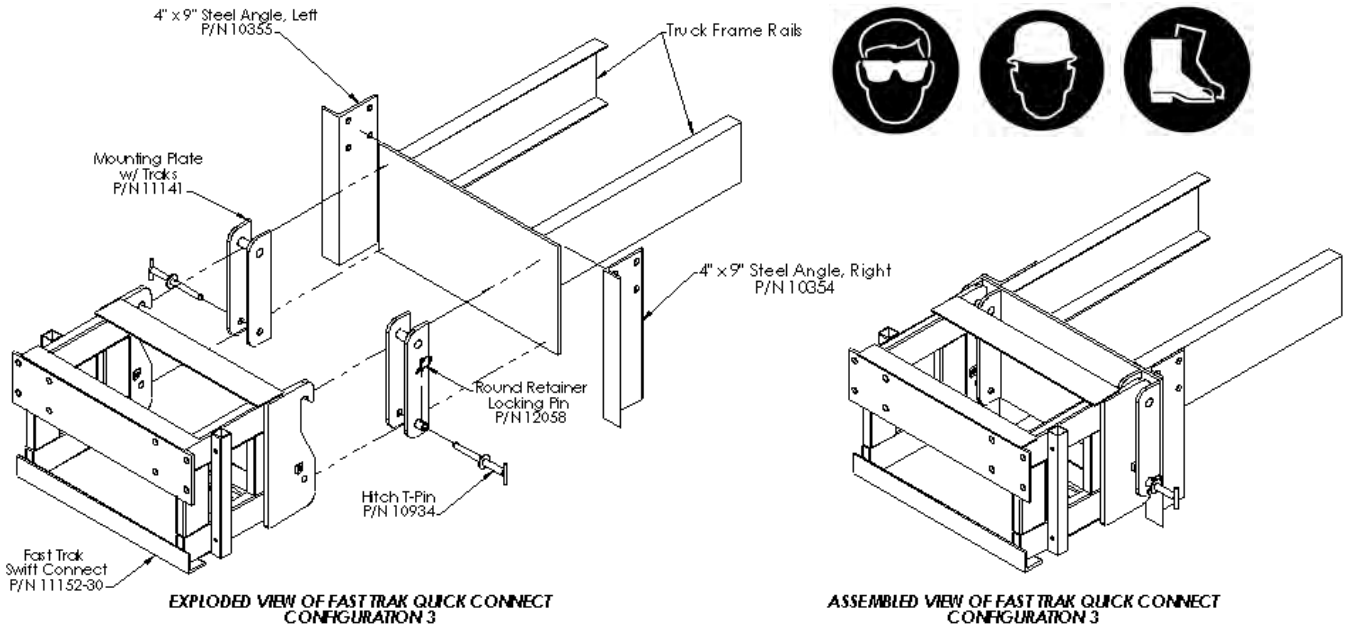


Figure 5: Exploded and assembled view of Configuration 3.

Configuration 3 is used for applications where an extension is required such as a bed overhang. Before fully welding the truck mount to the frame rails, tack in the part to ensure proper alignment and height recommendations from the ground. Refer to the Scorpion TMA Dump Truck Mount for recommendations. Once fully welded, use Figure 5 above for installation and assembly for all of the components for Configuration 3.

Table 4: Configuration 3 components.

Configuration 3 (PN 11155-30) Components		
Part Number	**Description**	**Quantity**
11152-30	TMA Side Mount (FTSC 30”)	1
11141	Mounting Plate w/ Traks (Truck Side Mount)	1
10354	4” x 9” Steel Angle, Right	1
10355	4” x 9” Steel Angle, Left	1
10934-FTSC	Hitch T-Pin	2
12058	Round Retainer Locking Pin	2

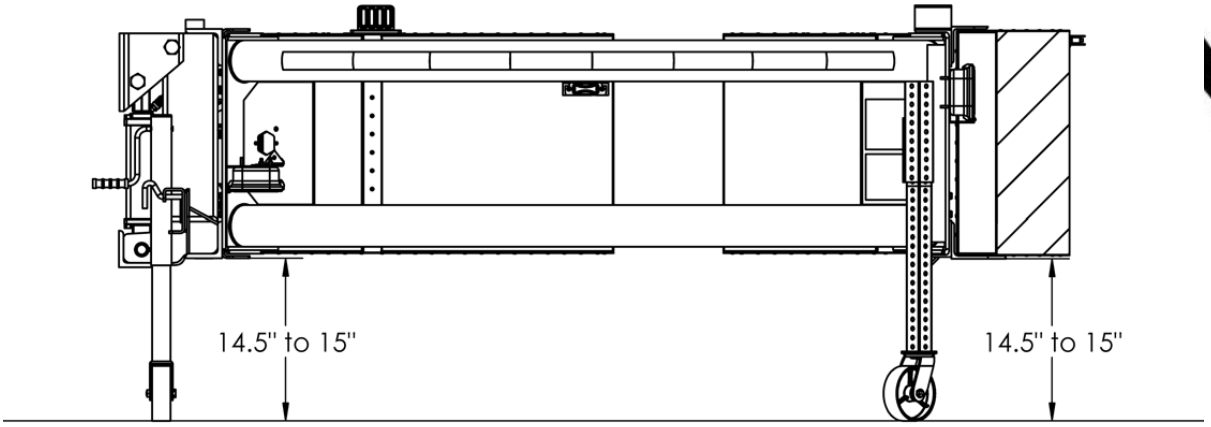
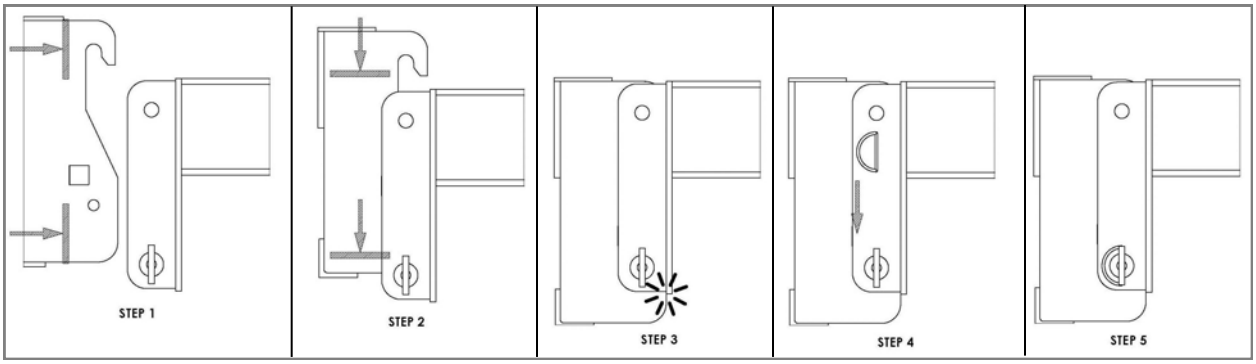


Figure 6: Display of Fast-Trak Swift Connect mounted onto TMA

This is what the TMA should look like when it is not installed onto a Truck, see Figure 6. All Jacks should be deployed and secure prior to installing the TMA onto a Truck. The Truck mounting side of the TMA should be high enough such that the hooks can go over the pins on the Truck-side mount, but the Truck side should be lower than the rear of the TMA by a couple of degrees. This can be achieved by adjusting the Drop Jacks prior to removal of the TMA from the truck to expose one yellow hole below the black Drop Jack Bracket and then use the Swivel Jacks until an appropriate angle and height is achieved.

Figure 7: Step-by-Step Process on how to mount FTSC onto Traks



Step 1	Step 2	Step 3	Step 4	Step 5
Be sure that the Hook on the TMA side is above the Pin on the Truck Side. Adjust accordingly if necessary. With the securing Pins and Clips removed from the Truck side, push the TMA up to the Truck Mount.	Using the Swivel Jacks, lower the TMA until the hook is fully engaged on the top Pin of the Truck Mount.	Momentarily push the "Up" button on the 2-Button Controller until the bottom of the TMA Side is against the bottom of the Truck Side.	Once the TMA is fully loaded on the Truck Mount top Pin, store away the Swivel Jacks and secure the TMA with the Pins and Clips.	Now that the TMA is fully secured on the Truck, use the controls to lift the TMA high enough to store the Drop Jacks. Once these Jacks are stored, the TMA is ready for the road.

TMA Limited Warranty

TrafFix Devices warrants to the purchaser that the Scorpion II Metro Truck Mounted Attenuator (TMA) is free from any defects in materials and workmanship. If this product proves to be defective in material or workmanship during the period of this warranty, TrafFix Devices will repair or replace, at its option, the defective product free of charge. The period of this warranty is the one year period beginning from the date the purchaser puts the unit into service or one year from the date of purchase.

To obtain warranty service, the purchaser or distributor must first fill out a warranty authorization form and email same to TrafFix Devices to have our technical services department evaluate the problem and recommend repair procedures. **TrafFix Devices will then issue a signed warranty work approval form** to authorize the distributor or customer to repair or replace any items, which TrafFix Devices deems to have been defective. All replacement parts claimed to be defective will be invoiced at the time of shipment, and upon receipt and evaluation a credit memo will be issued.

This warranty does not extend to any failure of the Scorpion II Metro TMA caused by misuse, abuse or material alteration of this product, or any negligence in connection with the installation, service, or use of this product. For the correct installation, service, or use of this product refer to the installation manual, the operator's deployment instructions, and the operator's checklist.

Warranty Authorization Form

Company Name _____

Address _____

Phone/E-Mail _____

Name of Customer _____

Date _____

Serial number of TMA near controller outlet: _____

List part numbers of replacement or repair items:

_____

_____

_____

9. Describe the problem and reason for failure: _____

_____

_____

10. Email this form with any pictures. Then phone TrafFix Devices technical services.

Phone: (949) 361-5663 E-mail: orders@traffixdevices.com

Notes:

Regional Sales Managers

Northeast Territory Office
VA, WV, DL, MD, NJ, NY, PA, CT, MA, RI, NH, VT, ME, D.C.
Mike Herlehy
Rochester, NY
(585) 267-9970 Office
(949) 573-9239 Fax
mherlehy@traffixdevices.com

Southeast Territory Office
TN, NC, SC, GA, MS, AL, FL
Lary Hudoff
Miami, FL
(770) 778-8281 Office
(949) 325-6059 Fax
lhudoff@traffixdevices.com

Northwest Territory Office
MT, UT, ID, WA, OR, NV, CO, WY
Cary LeMonds
St. George, UT
(801) 979-7099 Office
(949) 573-9290 Fax
clemonds@traffixdevices.com

Midwest Territory Office
OH, MI, IN, KY, IL, WI, MN, ND, SD, IA, MO
Dave H. Lindquist
Chicago, IL
(630) 605-1273 Office
(949) 573-9240 Fax
dlindquist@traffixdevices.com

Western Territory Office
CA, HI, AK, AZ
Lawrence Berg
San Diego, CA
(949) 350-7048 Office
(949) 573-9267 Fax
lberg@traffixdevices.com

Southwest Territory Office
TX, OK, KS, NE, NM, AR, LA
John Gense
Dallas, TX
(214) 704-1476 Office
(949) 573-9291 Fax
jgense@traffixdevices.com

VP International Sales & Marketing
Brent Kulp
San Clemente, CA
(949) 361-5663 Office
(949) 573-9264 Fax
bkulp@traffixdevices.com

To Place Orders

Email: orders@traffixdevices.com
Office: (949) 361-5663
Fax: (949) 573-9250

Key Contacts

Chris Giordano	Director Of Business Development	cgiordano@traffixdevices.com	(216) 233-3273
Geoff Maus	V.P. Engineering	gmaus@traffixdevices.com	(949) 361-5663
Felipe Almanza	V.P. New Product Development	falmanza@traffixdevices.com	(949) 361-5663
Brent Kulp	V.P. Int'l Sales & Marketing	bkulp@traffixdevices.com	(949) 573-9214
Scott Ryan	V.P. North American Sales	sryan@traffixdevices.com	(949) 573-9216
Jim Marshall	V.P. Marketing	jmarshall@traffixdevices.com	(949) 361-5663

Customer Support Services

Jim Abercrombie	Manager, Customer Support	jabercrombie@traffixdevices.com	(949) 573-9217
Diane Womack	Customer Service Rep.	dwomack@traffixdevices.com	(949) 573-9237
Mark Wages	Customer Service Rep.	mwages@traffixdevices.com	(949) 573-9240
Terry Glogow	Customer Service Rep.	tglogow@traffixdevices.com	(949) 573-9246

TrafFix Devices, Inc. Headquarters
160 Ave. La Pata, San Clemente, CA 92679 - P: (949) 361-5663 - F: (949) 361-9250
www.traffixdevices.com

TrafFix Devices Inc.

160 Ave. La Pata
San Clemente, California 92673
(949) 361-5663
FAX (949) 361-9205
www.traffixdevices.com

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