



Installation of the Tram Safety System

using:

Adjustable / Riveted Aluminum Coaming Mount Blocks (TR-06-1-131)

Aluminum Coaming Mount Blocks (TR3002)

Mild Steel Coaming Mount Blocks (TR-06-1-005)



Contents

Pre Installation	3
Cutting And Fitting Instructions	5
Setting Out And Installing Coaming Mount Brackets	9
Coaming Mount Brackets (Welded or Riveted Applications).....	9
Welded Application	9
Riveted Application (Huck 3/8" Air Operated Rivet Gun)	10
Install TRAM and Set Up	10
Post Installation Checklist	13

Pre Installation

- **Installation Check List:**
 - Confirm the status of the Trailer – has it been de-gassed or is does it contain fuel or vapours. This will determine the type of hot work or cold work to be conducted on the tanker. See definitions at bottom of page .
 - If the tanker is not de-gassed – do not conduct any hot work on or around the tanker.
 - Does the rail require welding – Cleats to Rail or Joining (if trailer is longer than 8m) , if so, have you:
 - Checked to confirm a “Gas Free” certificate has been issued and issued by a competent authority?
 - Confirmed that the welder is qualified for the task?
 - Confirmed a safe welding area, distanced from the trailer?
 - Been issued with a “Safe Work Permit”, JSA etc?
 - Confirmed installer’s insurance details?
- **Do you have:**
 - TRAM unit – ensure correct type i.e. left or right hand TRAM (refer - Product ID label (TRAM – V2 – 50L (left)**or** 50R(right)).
 - Correct number of Adjustable Mounting Blocks. i.e. maximum spacing of 2.4 metres between mounting blocks to suite tanker length (**See note 1**).
 - Equal number of mild steel cleats, gaskets (1 x gasket per cleat/adjustable mount bracket) and associated bolts, washers, nuts. *Note: All mount brackets for fuel carrying trailers require a static bond strap fitted.*
 - End Stop Kit.
 - TRAM Restraint Belt.
 - TRAM System Operators Manual.
 - The required length(s) of 50 x 50 x 5 mm ALLGAL RHS compared to the length of the tanker (**See note 2**).
- **Have You:**
 - Checked installation area and identified position for hazardous activity?
 - Identified an area for non-hazardous activity?
 - Ascertained working at height safety requirements?
 - The appropriate PPE?
 - Completed task Risk Analysis?

Note 1: Ensure you know what material the tanker is designed from as the Mounting Blocks will need to be of the same material, i.e. Aluminum Tanker = Aluminum Mounting Block; Steel Tanker = Steel Mounting Blocks.

Note 2: RHS generally comes in lengths of 8 metres – tankers will vary in length with many longer than 8m.

Definitions:

Cold Work – Is defined as repair or servicing work which will not result in the application of heat, the generation of a source of ignition or a dangerous rise in temperature.

Hot Work – Is defined as any activity likely to produce a source of ignition. It includes all forms of welding, gas cutting, soldering, blast cleaning and the use of spark producing tools such as non-flame proof electric equipment, both mains power and battery operated.

Cutting And Fitting Instructions

STEP 1 – Preparation of the 50X50X5 RHS – TRAM Rail

- Measure the combing rail length of the tanker to be fitted and cut RHS to suit. The rail should be cut leaving approximate 50-100mm at each end of the trailer (See illustration 1 page 3).

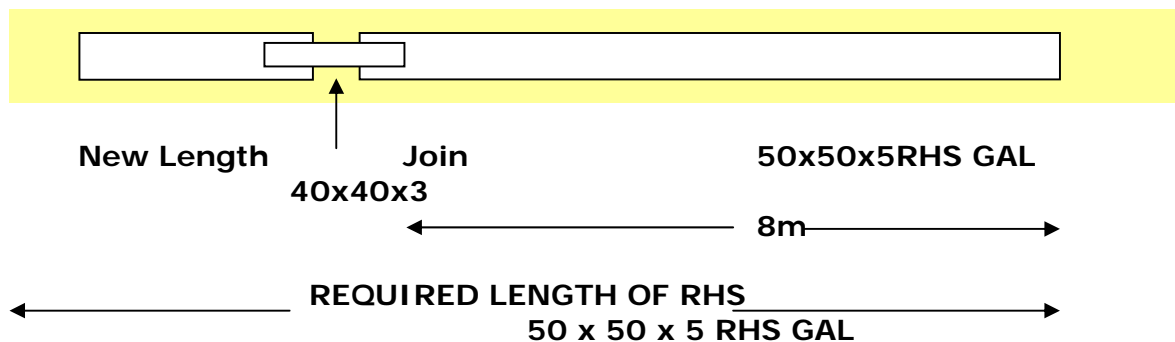


TRAM rail cut to leave a gap of between 50-100mm from each end.

(Illustration 1)

- Position the RHS in a safe environment where hot work can be carried out.
- If the Trailer is longer than 8m the required length of the rail will need to be enhanced by adding the required amount of rail. This is achieved by:
 - Cutting the required amount of additional RHS.
 - Prepare a length of rail joiner (TR-RJ001 40x40x3mm RHS) for insertion between the two lengths. Preparation includes the grinding of both ends of the rail joiner; and
 - Insert the rail joiner (**Figure 1**) between the two ends of the RHS and complete a butt weld of the two lengths of RHS. Weld is to be in accordance with AS1554.

Side View



(Figure 1)

- Complete the join by smoothing the butt weld with a grinder. Ensure that the join is not scalloped (**see Illustration 2**), i.e. not enough weld to fill the join

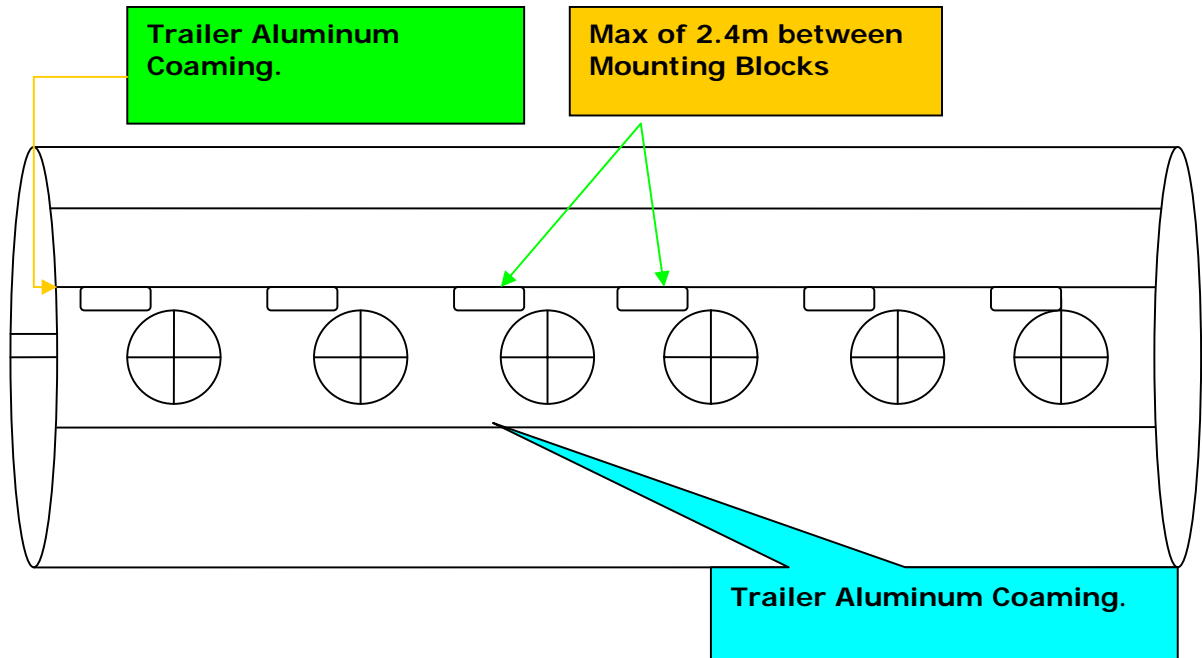


Photo illustrates an insufficient weld on the join resulting in scalloping. This should be amended prior to installation.

(Illustration 2)

- Spray the join with a layer of liquid cold gal silver spray.
- Ensure the joint is positioned at the opposite end to the ladder. This reduces the number of times that the TRAM will have to transverse the joint.
- Smooth and shave both ends of the RHS. This will allow easy transition of the TRAM onto the RHS
- Place the TRAM onto the rail and test the maneuverability of the TRAM along the rail, paying particular attention to the path over the rail join.
- Remove the TRAM once you have conducted this test.
- The RHS is now prepared for installation of the Mild Steel Cleats.

STEP 2 – Position of the Mild Steel Cleats (160mm x 100mm x 12mm flat plate) onto the TRAM Rail (Note: Cleats are to be positioned no more than 2.4m apart – see figure 2).



(Figure 2)

- Measure the rail and confirm it meets the required distance for the top of the trailer.



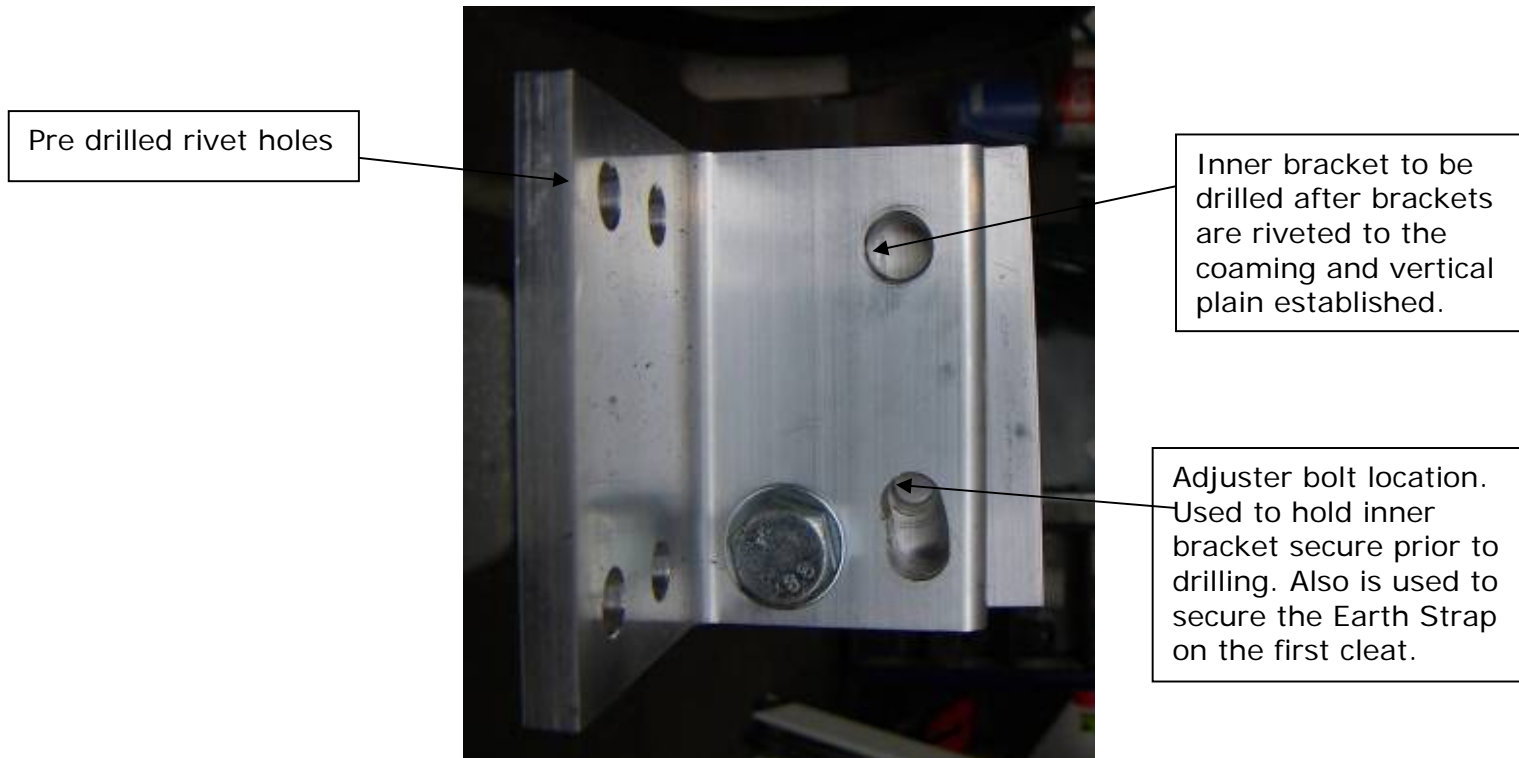
(Illustration 3)

- Working from the front of the trailer, mark the rail for with the position of the first Mild Steel Cleat with **Earth strap adaptor (see Illustration 3)**. i.e. approx 600mm from the rail end with a maximum of 900mm permissible. ***NOTE: ensure that the first cleat is the appropriate Earth cleat.***
- Working from the rear of the trailer, mark the position of the rear Mild Steel Cleat. i.e. approx 600mm from the rail end with a maximum of 900mm permissible. ***NOTE: at a later stage of the installation you will be required to fit an end stop kit. The position of the rear cleat may impact the location of the end bump stop if the rear cleat is mounted any closer than 600mm from the end of the rail.***
- Establish the distance between the front and rear cleats and equally divide this distance ensuring that a maximum of 2400mm is not exceeded. This will determine the number and location of the remaining Mild Steel Cleats.
- Weld the Mild Steel Cleats to the TRAM rail, ensuring that they are vertical to the rail.
- Spray the weld of the Mild Steel Cleats / Rail with a layer of liquid cold gal silver spray.
- Attach the TRAM to the rail and test the maneuverability of the TRAM along the rail, paying particular attention to the path over the Mild Steel Cleats.
- The TRAM may be left attached to the rail if desired
- Bolt the Mount Brackets to the Mild Steel Cleats ensuring the insulation gasket is inserted between the Mild Steel Cleat and Alloy Combing Mount Brackets along with the white Top Hat Bushes between the M16 gal bolts and Mild Steel Cleats.
- Move the rail with TRAM attached to the top of the Trailer.
- The rail and TRAM are now ready to be attached to the Coaming of the trailer

Setting Out And Installing Coaming Mount Brackets

STEP 1 – Coaming Mount Brackets (Welded or Riveted Application)

- The Adjustable Alloy Combing Mount Brackets have an adjuster bolt on each bracket (**see illustration 4**). These should be torque up slightly to hold the block into position whilst establishing position of the inner bracket.



(Illustration 4)

- Position the rail with blocks attached to the coaming in as lower position as practical. i.e. ensure that there is adequate room to position welder or riveter nozzle access to the bottom of the Adjustable Alloy Combing Mount Brackets. Ideally no higher than 60mm from the tanker walkway.

Welded Application

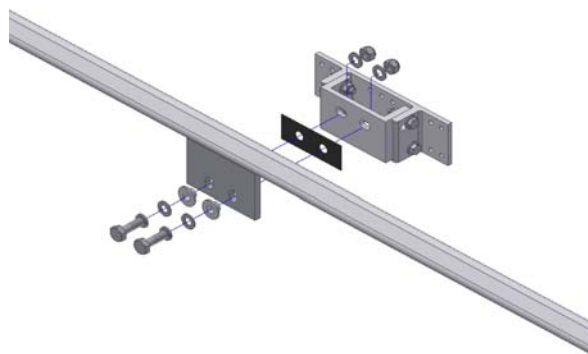
- Tack weld all Combing Mount Brackets into place ensuring uniformity of mounting bracket positioning to the trailer coaming.
- Weld the Adjustable Alloy Combing Mount Brackets to the trailer coaming ensuring that all sides of the blocks are welded in accordance AS1554.

Riveted Application (Huck 3/8" Air Operated Rivet Gun)

- **Rivets: MGLP-B8-10-AL-MAGNA-LOK BLIND FASTENERS are to be used.** The installation of rivets is to be in accordance with manufacturers recommendations.
- Using appropriate air operated drill, drill through the outer top two mounting block holes into trailer coaming. i.e. ensure uniformity of all Alloy Combing Mount Bracket to the trailer coaming prior to riveting all blocks into place.
- Drill and rivet all the Alloy Combing Mount Bracket to the coaming
- Fasten the Earth Cable to the Alloy Combing Mount Bracket utilizing and the Mild Steel Cleat – Earth.

Install TRAM and Set Up

- With the TRAM mounted onto the rail, lift the rail to the top of the tanker walkway. Position the rail in line with the Mount Brackets and insert bolts and torque to hold rail into position – **do not insert washers or gasket at this point in time.** Complete this along the length of the rail.
- Once the rail is affixed to the Mount Blocks ensure that the TRAM Gantry Arm is square relative to the tanker both in the vertical and horizontal position.
- Return to each Mount block and insert the washers and gasket. Sequence as follows:
 - Spring Washer onto bolt stem;
 - Galvanised Washer onto bolt stem;
 - Top Hat Washer (Polyester) onto bolt stem.



(Figure 3)

- Insert the bolt with washers through each bolt hole, ensuring the gasket is positioned between the Mount Block and the Rail Cleat, effectively separating the metals. On the inside of the Mount block ensure a second galvanised washer is inserted on the bolt stem then tighten nyloc nut (see figure 3).

- Tighten all remaining adjustable mount lock bolts (see **illustration 5 and 6**)



(Illustration 5)

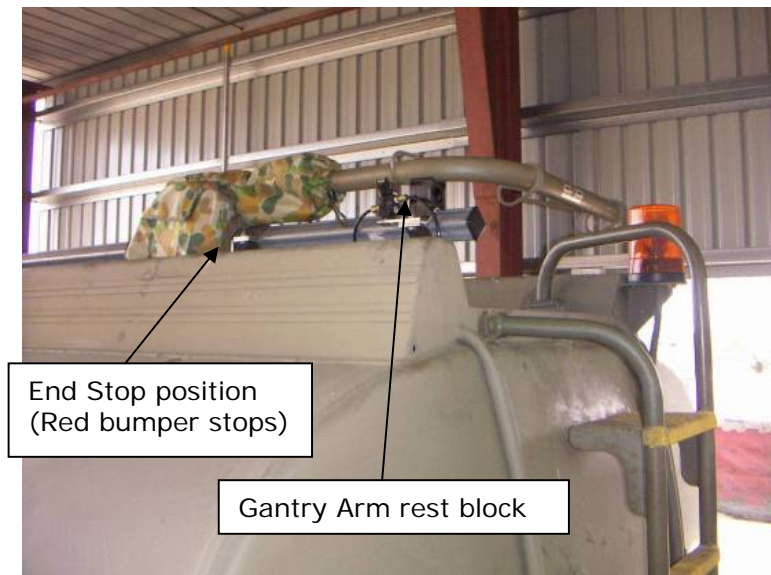


(Illustration 6)

- Drill out inner mounting bracket and fit M12 gal bolts, washers and nylon lock nuts.
- Install the plain metal only End Stop bracket approx 2" from the front of the rail.
- The ladder may impede the position of the gantry arm in the rest position. If this is the case you will find it necessary to make an alteration to the top of the ladder to accommodate the TRAM. Generally it is sufficient to alter only one side of the ladder (**see Illustration 7**).



(Illustration 7)



End Stop position
(Red bumper stops)

Gantry Arm rest block

(Illustration 8)

- With the Gantry Arm in the horizontal position, position the TRAM at the rear of the rail ensuring that the Gantry Arm is to the front of the ladder rungs vertical plain.

NOTE: *Position of the TRAM in the rest position should allow the operator to attached to the "D" rings without having to reach too far forward when on the ladder or have to lean back on the ladder to attached to the "D" rings.*

- Install the End Stop Bracket with red rubber bump stops under the rail and firmly up against the TRAM (**Illustration 8**).
- Install the Gantry Arm Rest bracket with black rubber rest so as it is positioned mid way between the upper gas strut mount and upper section of gantry arm (**Illustration 8**).
- Remove all aluminum drill swaths from the top of the tanker

Post Installation Checklist

- Check all fasteners ensuring they are tight and secure.
- Check all welds ensuring they are **in accordance with AS1554 or local jurisdiction equivalent**.
- Check areas of coaming close to welds ensuring they are clean and free from obstructions such as weld splash.
- Ensure all foreign matter such as tools and/or equipments are removed from the top of the tanker.
- Ensure the top of the tanker is cleaned (air hose) of all grind and/or weld material.
- Test the earth bonding strap and Bracket
- Ensure the TRAM Gantry is square (**see Illustration 9**) and appropriately positioned over the rear of the Tanker.
- Ensure the TRAM Safety System freely operates along the full length of the TRAM rail.
- Ensure the Tram Safety System freely operates with an operator attached via the TRAM Safety Harness.
- Ensure the Installer is satisfied with installation process.
- Validation of installation process.



(Illustration 9)