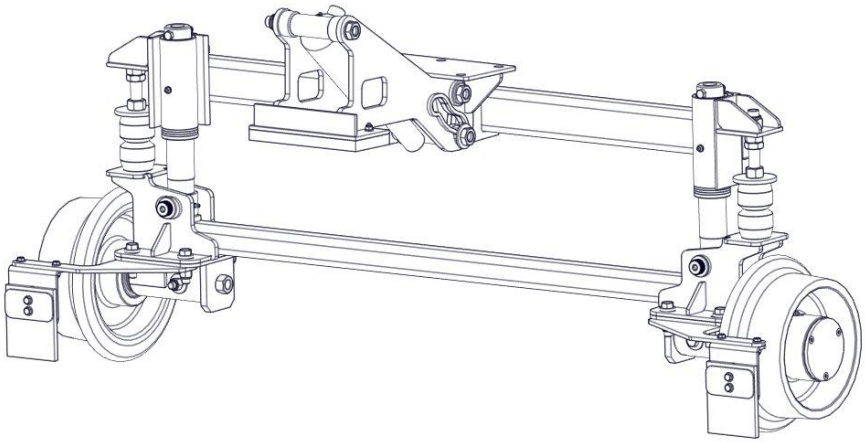
CONTINENTAL RAILWORKS



MANUAL

INSTALLATION - OPERATION – PARTS – SERVICE

MODEL H-12C HI-RAIL UNIT

(Ram 2500 /3500 SRW)

Nov 2022
Revision 1

CONTINENTAL RAILWORKS
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INTRODUCTION

The following operation, parts, and service manual has been prepared to be used with the Continental Railworks model **12 Series** hi-rail unit on a **Full Size Dodge 2500/3500 SRW Pickup**.

All Continental Railworks hi-rail kits are designed to make operation and service as simple as possible. There is no adjustment required when varying loads are placed on a vehicle. The use of independent mounting plates provides for easy complete unit removal and re-installation when required, as well as a complete range of adjustment to tailor the hi-rail unit to the vehicle.

At any time technical assistance can be obtained from the hi-rail manufacturer. A simple phone call to Continental Railworks can eliminate many time consuming problems or questions. Technical assistance is available Monday to Friday, from 8:30 a.m. to 4:30 p.m. ET, by calling **(514) 956-8081**, faxing **(514) 956-0737** or emailing **admin@continentalrailworks.com**. Support personnel are frequently available during off-peak hours as well, so please do not hesitate to call or fax outside the hours listed above, including nights and weekends. It is also possible to leave a message at any time, and your call will be returned as soon as possible.

GENERAL INFORMATION

GENERAL DESCRIPTION

The Continental Railworks Model H-12C is designed for ¾ ton or 1-ton full size pickup trucks with a GVWR of up to 12,000 lbs. For this application, the 12 Series is the only model currently available that does not require manual locking mechanisms such as pins, hooks, levers or cables. The hydraulic actuation effectively and automatically locks and unlocks the hi-rail unit in position, in both raised and lowered positions.

Drop forged 10" guide wheels offer incredible service life compared to conventional cast and surface treated steel wheels, or rubber composite wheels. Wear rings and nylon bushings are used to eliminate virtually all steel-on-steel contact throughout the hi-rail unit, greatly reducing maintenance and lubrication requirements.

Rubber aeon suspension in the front and rear units improve ride quality on rail and contribute to maintaining proper rail contact over crossings or irregular rail sections. Traction and braking is achieved by maintaining all four truck tires on the rail. Wheel modification kits are offered, in either steel or aluminum.

The 12 Series offers the possibility of reinstalling the front and rear bumpers as well as the rear hitch receiver with minimal modifications. The simple hydraulic power pack is typically mounted under the hood and uses mechanical actuation valves (cold weather package) for improved reliability over electronic remote-control boxes.

The combined weight of the 12 Series hi-rail is approximately 965 lbs. (no wheel modification or hydraulic power pack included).

OPTIONS

Options are available upon request, please contact Continental Railworks for more details.

TPMS SENSORS

Continental offers optional TPMS (Tire Pressure Monitoring System) sensors that mount to the rims' valve stem holes. The vehicle can be operated without any sensors in the wheels, but these sensors need to be installed in order to benefit from this feature.

POWER UNIT OPTIONS

Continental offers two optional actuation packages for the hydraulic power unit, one that features orange 2-button remote boxes (with in-cab retraction switch) and an other that features full wireless controls.

SHUNTING KIT

Continental offers an option to temporarily shunt track signals by overriding the spindle insulators on demand through a switch in the cab.

INSTALLATION

NOTE

This manual covers the installation of the 12 Series Gear on current model year Dodge vehicles.

Please contact Continental Railworks for installation instructions for previous model year vehicles.

! SAFETY WARNING !

DO NOT WELD ON THE VEHICLE FRAME.

TAKE PROPER INSULATION MEASURES IF WELDING ON THE VEHICLE IS REQUIRED, INCLUDING DISCONNECTING BOTH BATTERY CABLES.

REFER TO BOLT TORQUE TABLE IN APPENDIX 1, AND TO MANUFACTURER'S SPECIFICATIONS FOR WHEEL STUDS

NEVER REUSE NYLOC LOCKING NUTS OR STOVER LOCKING NUTS

SPECIAL CONSIDERATIONS

VEHICLE CONDITION

Prior to installing hi-rail, it should be determined that the vehicle is in good working order. More specifically, the vehicle's suspension and frame need to be inspected and in good condition.

SPEEDOMETER RECALIBRATION

Because of the required wheel modification, the tires' overall diameter will change. It is recommended to have the speedometer recalibrated at the dealer to ensure there is no discrepancy between the speed reading and the actual speed of the vehicle.

VEHICLE REAR SPRINGS

To prevent suspension sag, it is recommended to have an extra pair of leaf springs (de-arched) installed at the rear. This will allow the vehicle to retain its stance and ground clearance given the permanent additional weight installed. Factory springs can be installed at the dealer. Aftermarket self-adjusting leaf spring enhancers are also available at www.supersprings.com. This manual does not cover suspension modifications.

EXHAUST TAILPIPE

The exhaust tailpipe may need to be modified to make room for the rear hi-rail. It is recommended to have this performed at a specialized shop, especially for a Diesel engine, where the manufacturer's guidelines are more stringent. This manual does not cover exhaust tailpipe modifications.

SPARE TIRE

In order to install the hi-rail, the rear mounted spare tire needs to be removed and relocated. The OEM spare tire cannot be used on rail but could be used on road for an emergency situation. Please ensure the operator is aware of this.

MODIFICATIONS TO HI-RAIL OR MOUNTING COMPONENTS

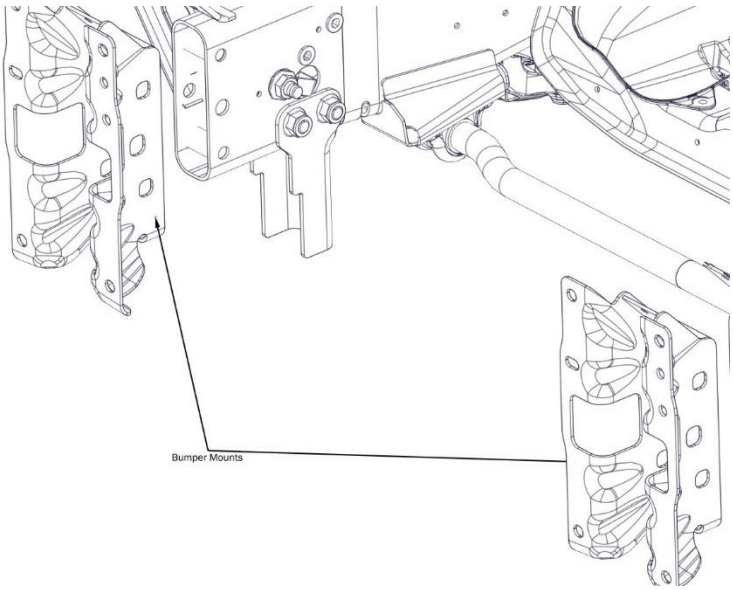
Although the mounting components delivered with the hi-rail are custom to every vehicle, there might be unforeseen interferences with some vehicle components (frame mounted equipment, radiators, bumper mounts, etc.). Modifications to the mounting components are allowed, but please contact Continental Railworks for guidance. Modifications to the hi-rail units should not be required and would void the warranty if performed without Continental Railworks' consent.

INSTALLATION – DODGE 2020+

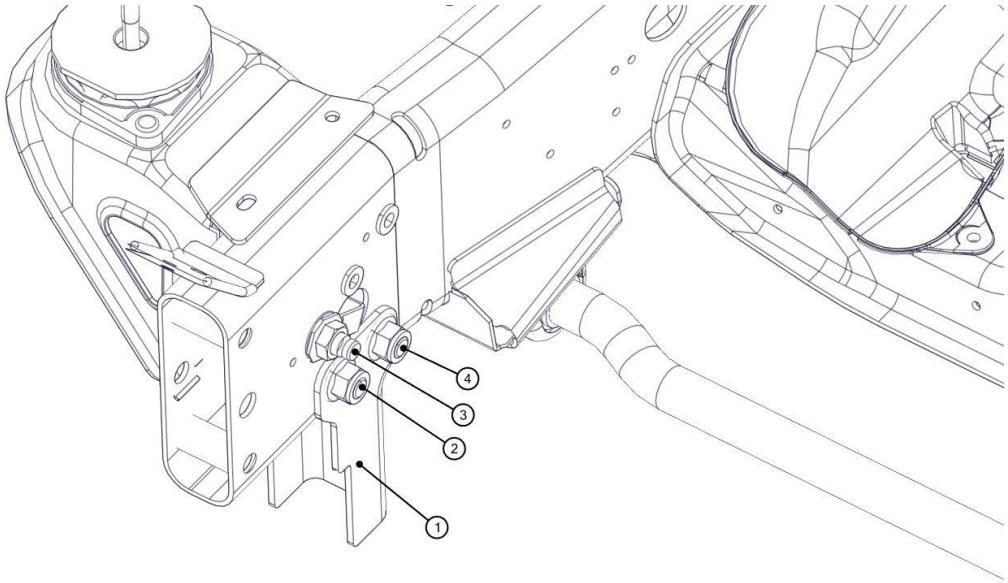
FRONT MOUNTING PLATES

1- **Remove the front bumper and store in a safe location.**

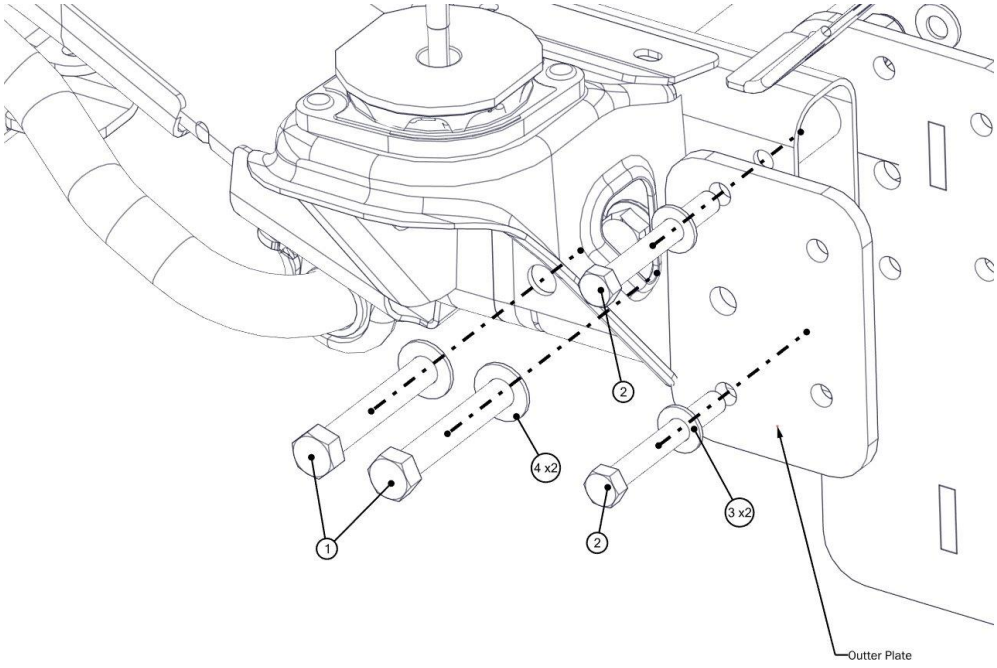
2- **Remove front frame mounted tow hooks and bumper brackets.**



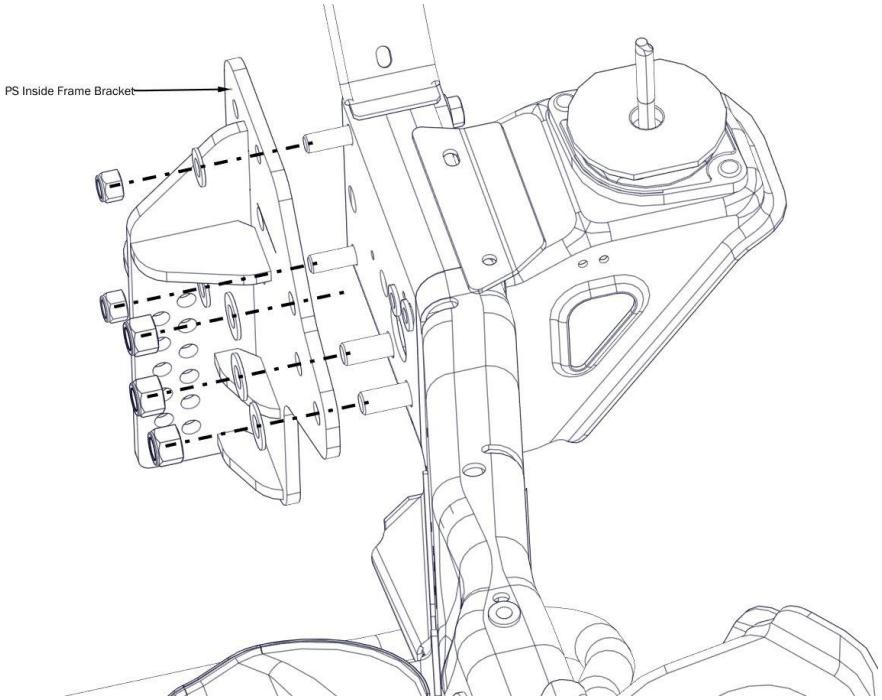
3- **Remove the mounting brackets Item (1) that stick below the frame and the Bolts and Nuts Items (2-4), if equipped.**



4- Locate the outside mounting plate and algin the holes in the plate with the holes for the bumper brackets and install three (3) 5/8” x 4” bolts and washers and two (2) 1/2" x 4 bolts and washers as shown below.

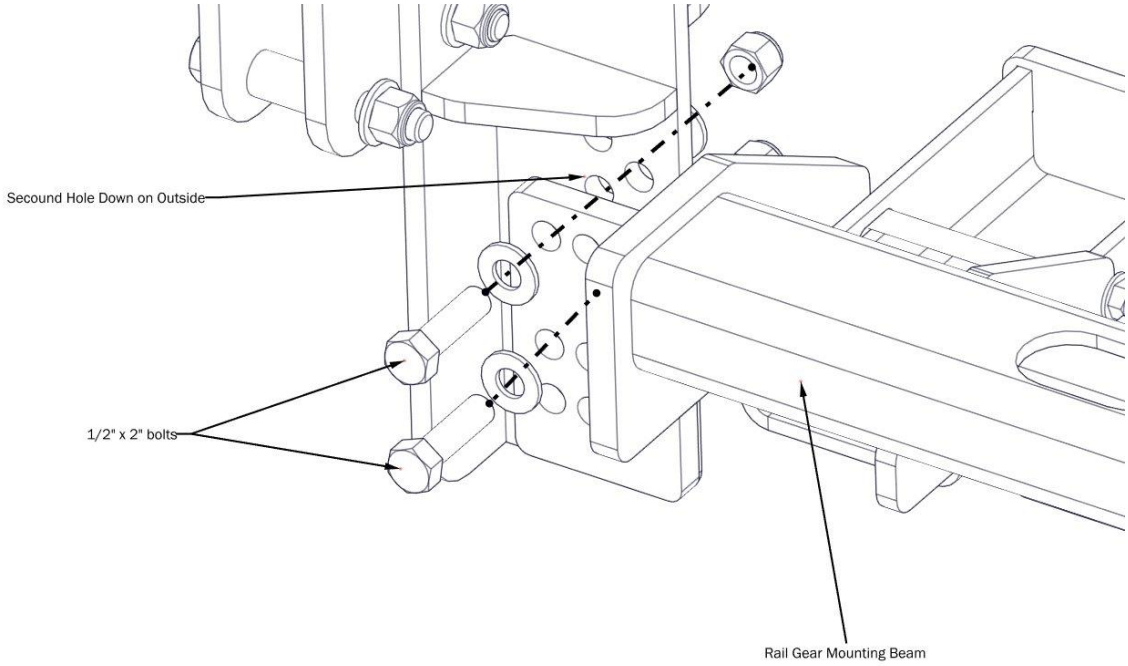


5- Position the inside mounting so that the holes in the bracket line up with the bolts installed in the frame in step 4. Install the 5/8” and 1/2" washers and Nyloc nuts and torque properly using the table in the appendix.



6- Repeat Steps 4-5 on the opposite side.

7- Locate the Front Railgear mounting bracket and align the outside top hole in the bracket with the second hole from the top on the outside of the frame bracket.

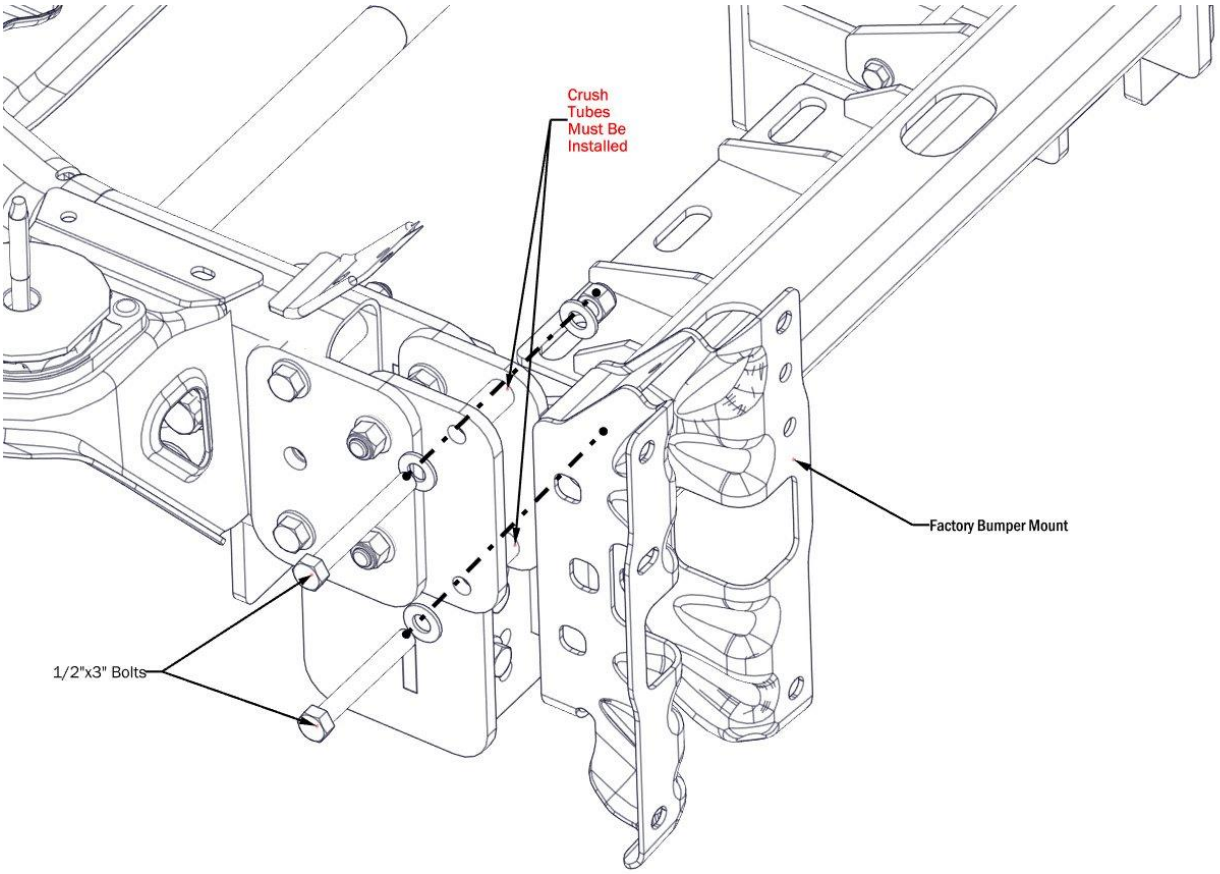


8- Using the supplied 1/2" x 2" GR8 bolts, washers and Nyloc nuts secure the mounting beam to the frame brackets, two (2) bolts per side.

9- Repeat steps 7-8 on the opposite side of the mounting bracket.

Note: The Rail Gear mounting bracket will need to be adjusted to get the proper weight settings.

10- Locate the Factory Bumper mount that was removed is step 1 and slide it onto the end of the frame extension.



11- Using the supplied crush tubes, 1/2" x 3" GR8 Bolts, washers and Nyloc nuts, Bolt the bumper mount to the frame extension and then torque the bolts to the correct spec using the chart in the appendix, two (2) bolts per side.

12- Repeat Steps 10 – 11 on the opposite side.

Note: Do not reinstall the Bumper at this time. The bumper should be installed after the alignment, weights and final welding have been performed.

FRONT HI-RAIL

1- With the front mounting plate secured to the truck frame horns and the stopper assemblies out of the way, position the hi-rail under the mounting plate with the wheels pointing towards the front of the vehicle.

2- Secure the hi-rail to the mounting plate by raising into position and securing with the provided five (5) 5/8-11 Grade 8 bolts, washers and nylon insert locknuts. Do not fully tighten at this point.

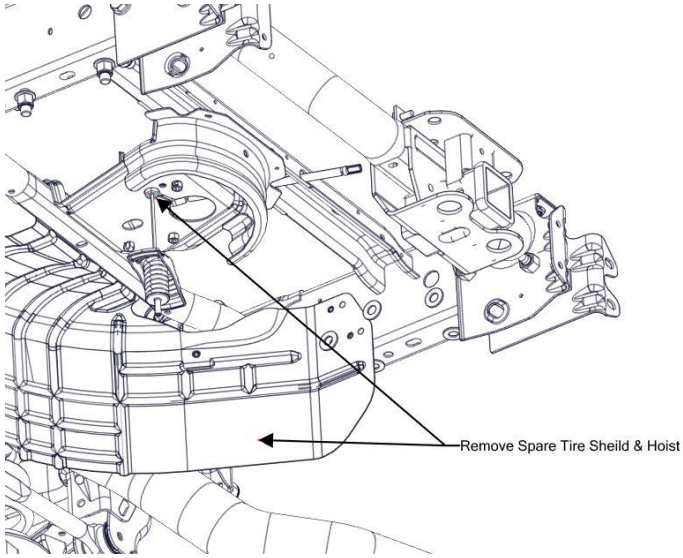
3- Complete the installation, plumbing and alignment before fully tightening the five (5) bolts and adjusting the stopper assemblies (see next sections of the manual).

4- Reinstall the front bumper. Depending on the vehicle trim, the front bumper may need to be trimmed (for wheels, rail sweep brackets, cylinder or cam assembly) and to be installed on the new holes on the mounting brackets. Alternatively, the bumper can be reinstalled in its original location by trimming more extensively.

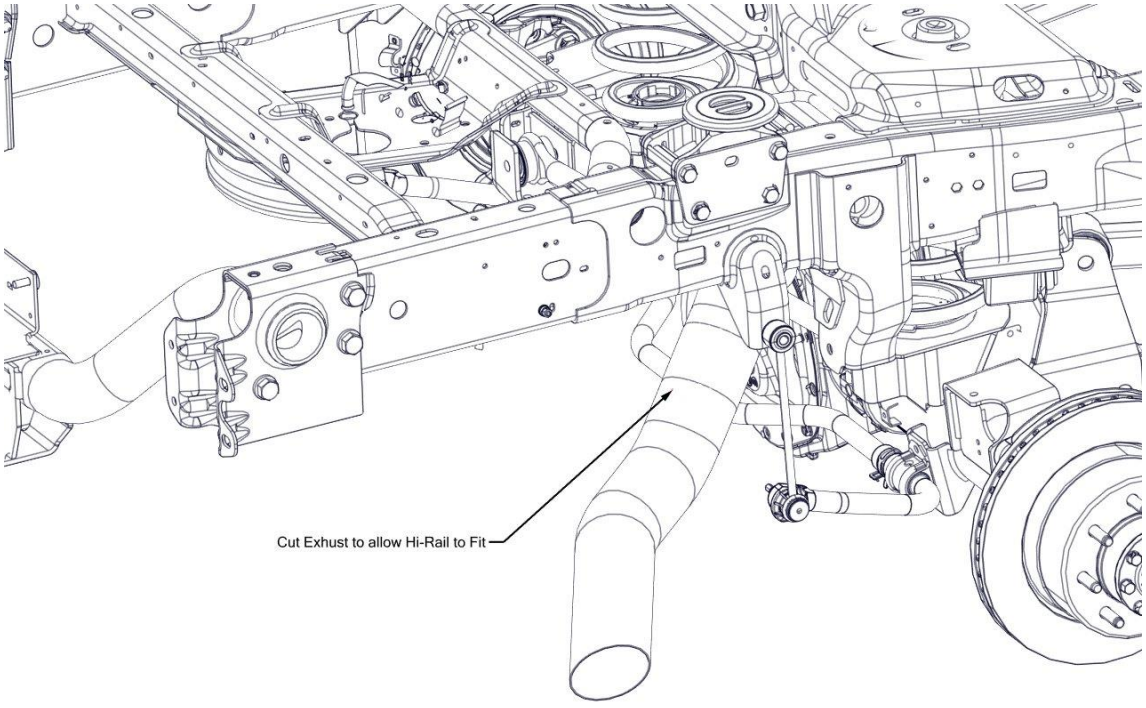
REAR MOUNTING PLATE

1- Remove the rear bumper and store in a safe location.

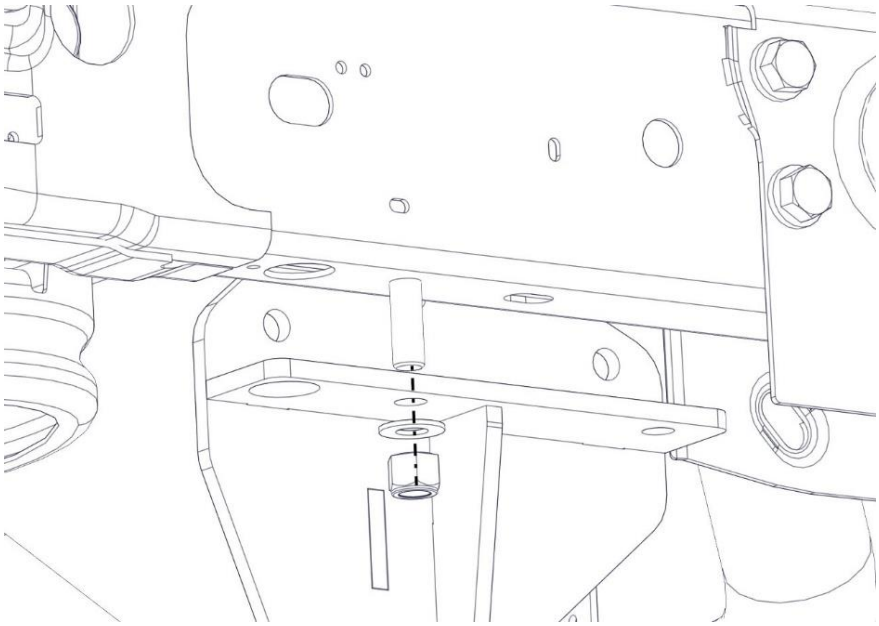
2- Remove spare tire, shield and hoist.



3- Cut the exhaust so that when the rail gear lowered it will not hit.
Note: that the exhaust should be redirected so it will not blow heat onto the rail gear.



4- Start by inserting the captured bolt through the existing large hole in the frame at the rear of chassis. Note: The existing Factory frame may need to be drilled out to fit a 5/8" bolt.

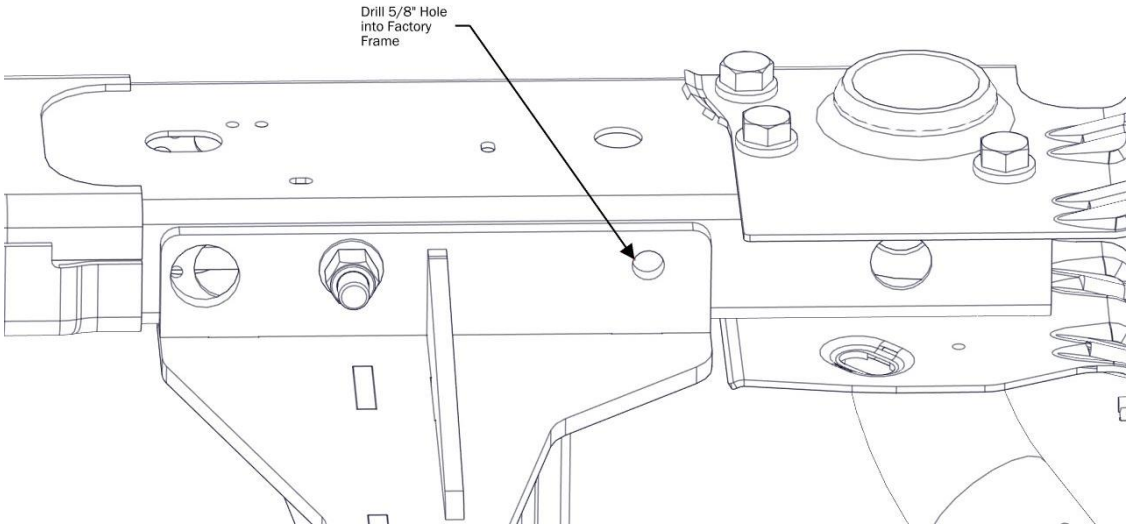


5- Position the rear mounting plate on the vehicle so that:

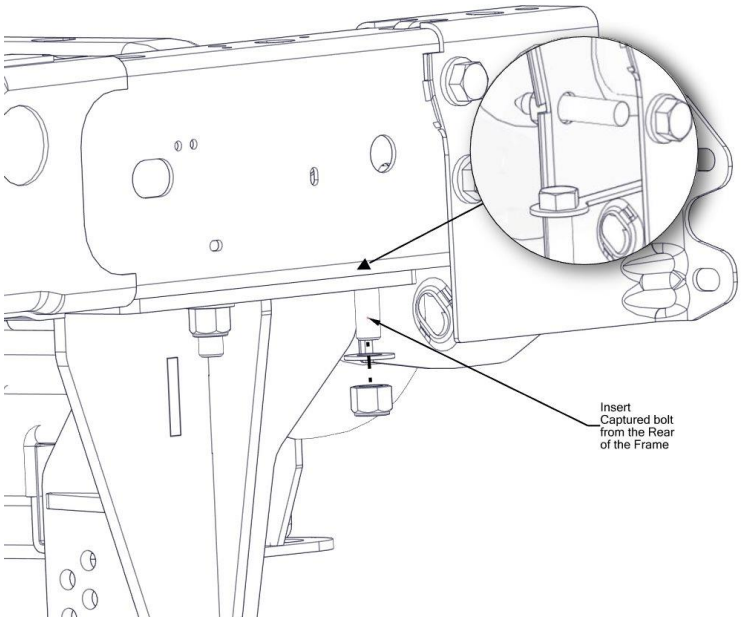
a. The large hole in mounting bracket faces toward the front of the chassis.
b. The smaller hole lines up with the bolt installed in the frame.
c. The gusset faces towards the outside of the chassis.

6- Tighten Nyloc nut to secure the mounting bracket to the frame and ensure that its sitting flush to the bottom & inside of the frame.

7- Using the existing hole in the mounting bracket as a guide. Drill the bottom of the frame to fit a 5/8" bolt.

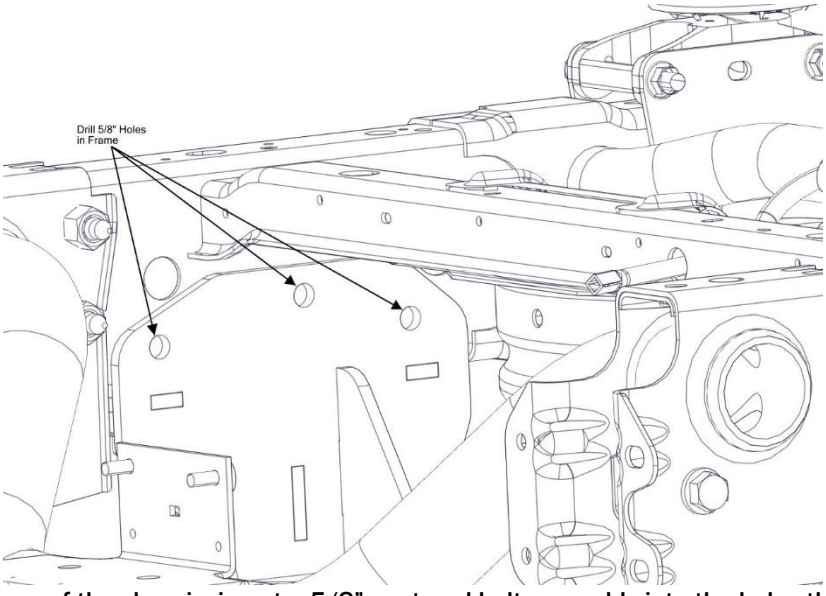


8- From the rear of the chassis, slide in a 5/8” captured bolt assembly in to frame of the chassis. It should go through the hole that was just drilled and the rail gear mounting bracket.



9- Use the supplied 5/8” Nyloc nut and washer, tighten the bolt and nut.

10- Using the 3 holes on the inside face of the mounting bracket. Drill the frame to fit a 5/8” bolt.



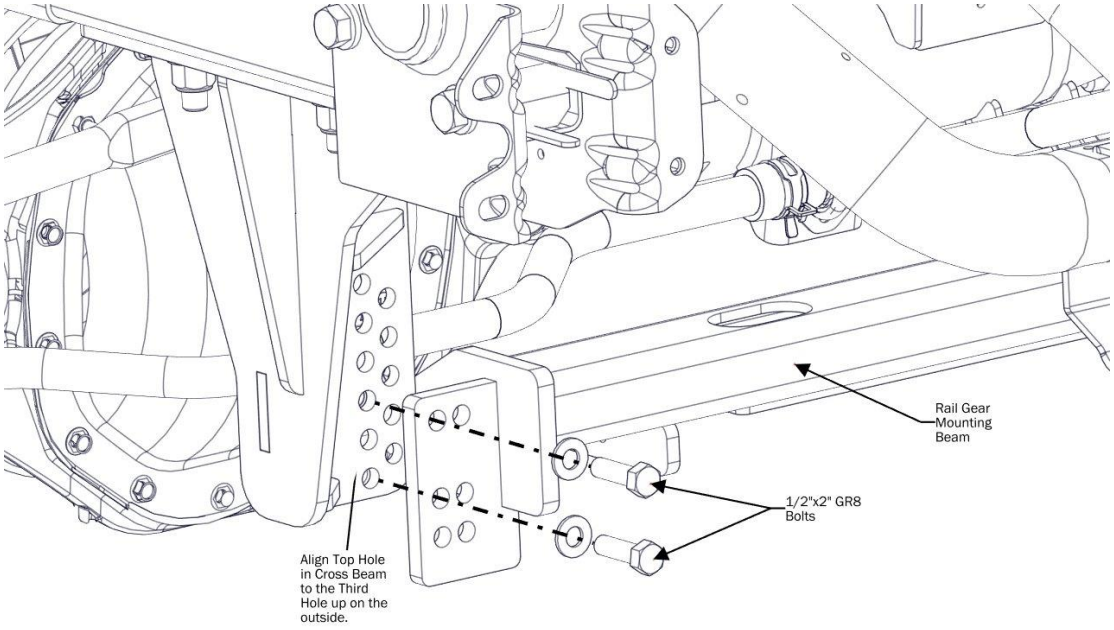
11- From the rear of the chassis, insert a 5/8” captured bolt assembly into the holes that were drilled in step 10.

12- Then install the 5/8” Nyloc nuts and washers onto the captured bolts and tighten and torque all the bolts using the supplied chart in the appendix.

13- Repeat steps 4 – 12 on the opposite side of the chassis.

14- Install the Rail Gear mounting tube to the Frame Brackets by:

a. Ensure that the stoppers are facing towards the rear axle of the chassis.
b. Ensure that Rail gear mounting bracket is on the rearward face of the frame brackets.
c. Position the Top hole in the mounting bracket so it aligns with the third hole up on the frame brackets.

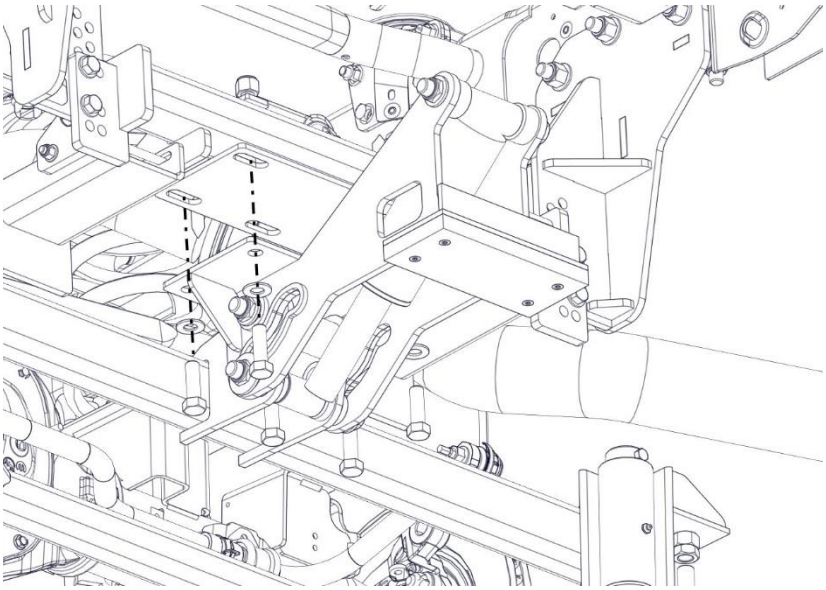


15- Using the supplied ½" x 2 GR8 bolts, washer and Nyloc nuts. Secure the Rail gear mounting beam to the frame brackets. Using the Chart in the Appendix, properly torque the bolts.

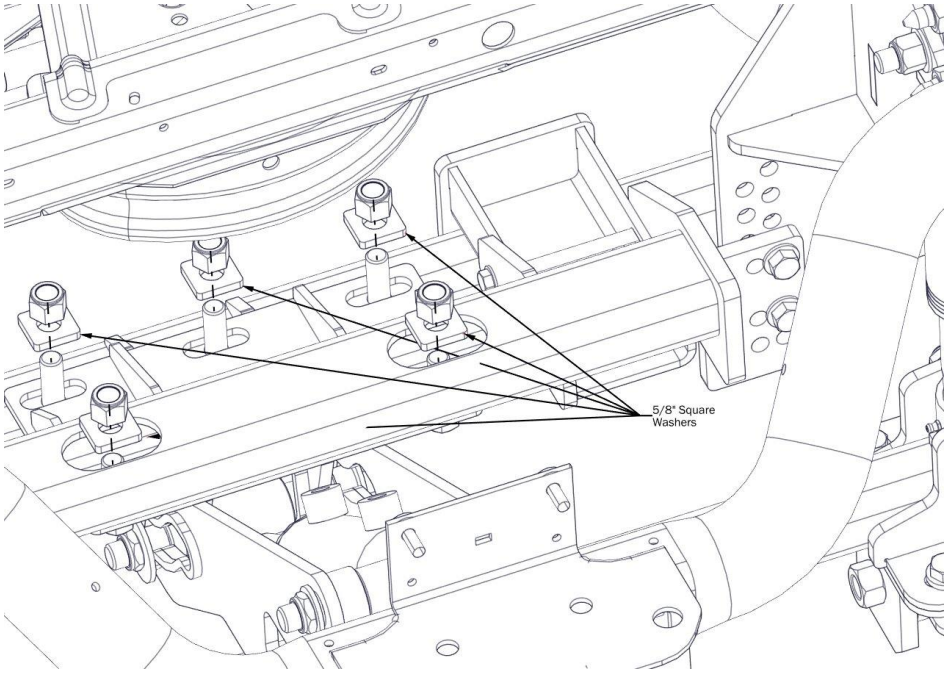
Note: The Railgear mounting beam will need to be adjusted to make sure the rail wheel weights are set properly.

REAR HI-RAIL

1- With the rear mounting plate secured to the truck frame and the stopper assemblies out of the way, position the hi-rail under the mounting plate with the wheels pointing towards the rear of the vehicle.



2- Secure the hi-rail to the mounting plate by raising into position and securing with the provided five (5) 5/8-11 Grade 8 bolts, washers and nylon insert locknuts. Do not fully tighten at this point.



3- Complete the installation, plumbing and alignment before fully tightening the five (5) bolts and adjusting the stopper assemblies (see next sections of the manual).

4- Reinstall the rear bumper as originally installed.

WHEEL MODIFICATION

! SAFETY WARNING!

With the installation of the new rims and tires, original clearances in the wheel well will change and need to be verified / corrected. Brake lines and ABS sensor wires will need to be re-routed or tied differently to allow proper clearances. When doing so, allow for enough slack to permit the wheels' complete range of motion (steering and suspension travel).

OEM wheels and tires need to be replaced in order for the vehicle to properly sit on the track rails. Continental Railworks offers the option for either conventional 19.5" steel rims and spacers, or 20" aluminum rims.

It is recommended to have the wheels and tires changed prior to installing the hi-rail units.

20" ALUMINUM RIMS

Recommended Tires:	Goodyear Wrangler AT Adventure
Recommended Tire Size:	LT275/65R20 Load Range E
Recommended Tire Inflation Pressure:	85 psi / 585 kPa

Installation

1- If required, install TPMS sensors on each rim prior to having the tires mounted.
2- Have recommended LT275/65R20 tires mounted on all rims.
3- Have wheels / tires balanced and inflated to recommended pressure.
4- Install on vehicle in the same way as the OEM wheel package.
5- Torque wheel nuts to vehicle manufacturer's specifications.
6- Road test to ensure the wheels or tires are staying clear of any other chassis parts (brake lines, steering components, etc.).
7- Re-torque all wheel nuts after 100 km of use.

19.5" STEEL RIMS AND SPACERS

Recommended Tires:	Goodyear G622 RSD
Recommended Tire Size:	245/70R19.5 Load Range G
Recommended Tire Inflation Pressure:	85 psi / 585 kPa

Installation

1- If required, install TPMS sensors on each rim prior to having the tires mounted.
2- Install steel spacers on vehicle hubs using OEM studs and wheel nuts. Torque to manufacturer's recommendations.
3- Cut down OEM studs to provide clearance to the back of the new rims.
4- Have recommended 245/70R19.5 tires mounted on all rims.
5- Have wheels / tires balanced and inflated to recommended pressure.
6- Install rims and tires on steel spacers using supplied wheel studs and nuts; torque to 125 ft-lbs (manufacturer recommendations).
7- Road test to ensure the wheels or tires are staying clear of any other chassis parts (brake lines, steering components, etc.).
8- Re-torque all wheel nuts after 100 km of use.

STEERING STOPS AND CLEARANCES

Modifying the wheels will reduce the clearances between the rim / tire and the truck's frame and / or suspension components. Steering stops may have to be installed to maintain proper clearances.

1- Turn the steering wheel completely in one direction until the tire or rim contacts an obstruction.

2- Back off the steering wheel so that a minimum of 1" clearance is maintained with the obstruction.

3- Install a spacer on the steering stop to restrict the radius.

4- Repeat for the other side.

5- As mentioned above, ensure there is proper clearance between the rim / tire and the brake hoses or ABS sensor wires, in all positions (steered left and right, suspension stretched or contracted). Reroute as required.

STEERING WHEEL LOCK

1- Clean all surfaces with adequate cleaning solution to ensure proper adhesion of the Velcro pads. Note – Because of the different chassis models and equipment, the exact location of the Velcro pads is left unspecified.

2- Install the smallest Velcro tape on the dash to hold the Velcro lock when not in use.

3- Install one Velcro tape on the steering column.

4- Install one Velcro tape on the steering wheel.

5- Cover both Velcro tapes with the Velcro steering lock pad and ensure adequate adhesion.

NOTE – Ensure that the installation of the steering wheel lock does not interfere with the normal operation of the steering wheel, turn signal indicators, or any other function located on the steering wheel or steering column.

HYDRAULICS AND ELECTRICAL

The hi-rail system requires a working pressure of 2500 psi and a flow rate of approximately 1 gpm. The system may not function adequately at a pressure below 2500 psi. The system will function at a lower flow rate but will function more slowly.

The hi-rail system requires 12V electrical power to run the hydraulic power pack. Signal should be taken from the IGNITION ON circuit.

In all cases, hoses and wires run along the vehicle must be adequately secured to the body or frame of the vehicle and kept well away of any moving or rotating parts.

REFER TO THE HYDRAULIC POWER UNIT MANUAL FOR FULL DETAILS AND SCHEMATICS

! SAFETY WARNING!

ENSURE HYDRAULIC LINES AND WIRES ARE SECURED PROPERLY AND HELD AWAY FROM ANY MOVING OR ROTATING PARTS TO PREVENT PINCHING OR RUBBING WHICH MAY LEAD TO FAILURE

ALIGNMENT AND ADJUSTMENT

ALIGNMENT PROCEDURE

The simplest method of aligning the hi-rail unit to the vehicle is to use a set of parallel strings attached to heavy mobile objects on the floor, such as jack stands or pylons (string line).

The goal is to achieve the following:

- The rear hi-rail unit is centered on the rear axle.
- The center of the rear truck wheel is the same distance to the center of the rear hi-rail wheel on both sides of the vehicle.
- The front hi-rail unit is centered on the rear axle.
- The center of the rear truck wheel is the same distance to the center of the front hi-rail wheel on both sides of the vehicle.

The directions for aligning the vehicle are as follows. Please refer to the alignment diagram in the Appendices. Use the Alignment and Pressure Data Form in the Appendices to record final values.

Note – A straight edge (approximately 2' in length) can be clamped onto the hi-rail wheels in order to adjust the wheels' toe-in and toe-out.

1- Ensure the vehicle is on a hard flat surface with the front wheels pointing straight ahead. Place 2" blocks under all four wheels.

2- Lower the front hi-rail unit completely.

3- Lower the rear unit completely.

4- Set up pylons at the four corners of the vehicle.

5- Attach 2 high tension strings of exactly equal length (dimension A) to the pylons, running them along the length of the vehicle (strings are not required along the front and rear of the vehicle).

6- Position the pylons so that the strings are an equal distance from each rear rim (dimension C), an equal distance from each frame rail at the front (dimension E), and the pylons are an equal distance apart front and rear (dimension B).

7- Adjust the rear hi-rail toe-in and toe-out so that the wheel faces are parallel to the strings on both sides. This can be performed by adjusting the swiveling spindle housings. Once adjusted, the spindle housing can be welded to the axle with a 1" tack weld on the front face of the axle to allow easy replacement.

8- Adjust the rear hi-rail position and gauge so that the distance from the rear hi-rail wheel to the string is equal on both sides of the vehicle (dimension D). This can be performed by sliding the whole hi-rail from side to side (loosen the five (5) bolts between the hi-rail and mounting plate) and by sliding the spindle in the spindle housing (a 3/4" bolt can be used through the nut welded at the back of the spindle housing). An inside distance of 53-1/2" between the flanges of the hi-rail wheels must be maintained while performing this adjustment. Once the gauge is adjusted, a ½" washer can be welded to the spindle housing to transform the adjustment slot into a hole and lock in the adjustment.

9- Adjust the front hi-rail toe-in and toe-out so that the wheel faces are parallel to the strings on both sides. This can be performed by adjusting the swiveling spindle housings. Once adjusted, the spindle housing can be welded to the axle with a 1" tack weld on the front face of the axle to allow easy replacement.

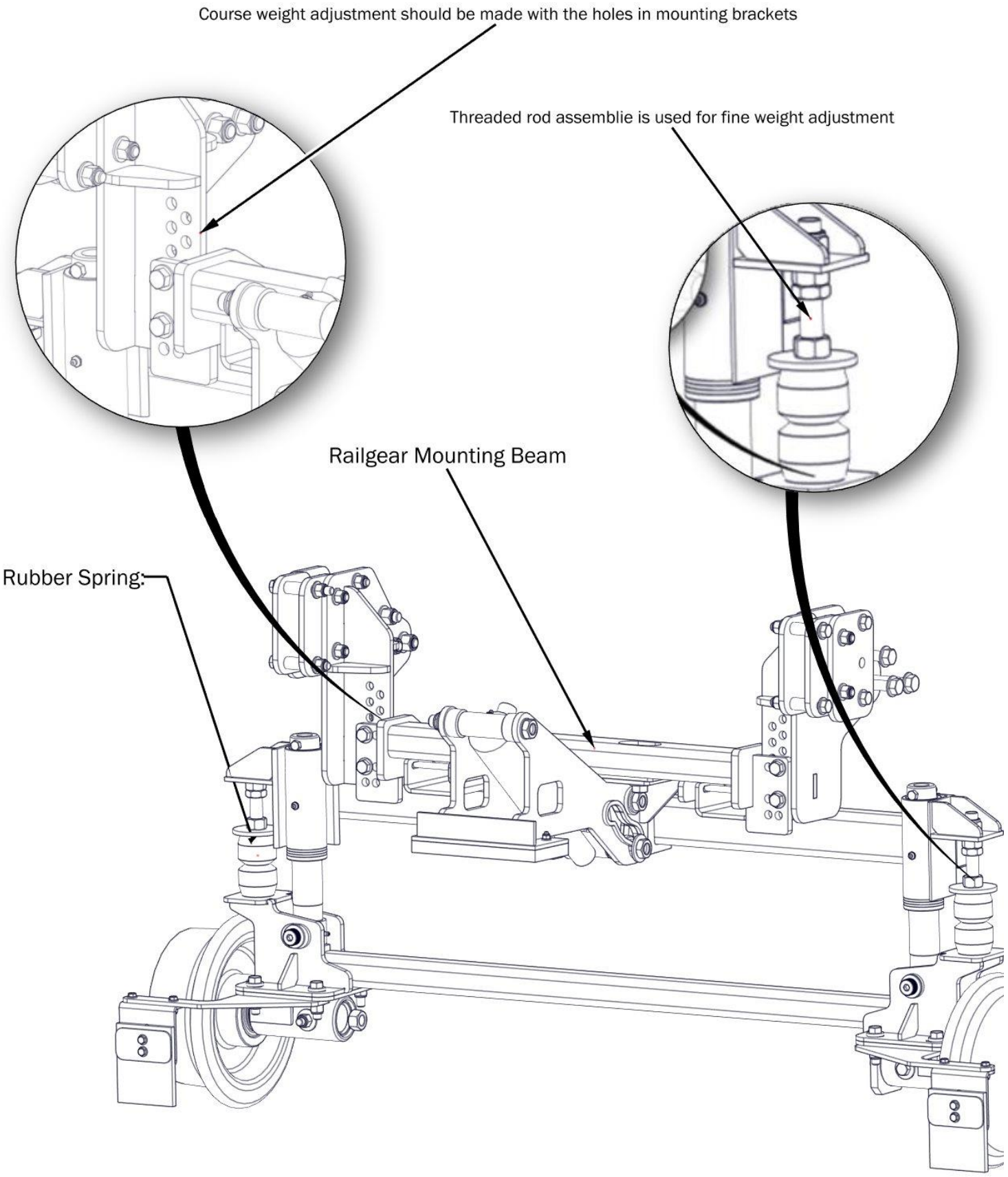
10- Adjust the front hi-rail so that the distance from the front hi-rail wheel to the string is equal on both sides of the vehicle (dimension D). This can be performed by sliding the whole hi-rail from side to side (loosen the five (5) bolts between the hi-rail and mounting plate) and by sliding the spindle in the spindle housing (a 3/4" bolt can be used through the nut welded at the back of the spindle housing). An inside distance of 53-1/2" between the flanges of the hi-rail wheels must be maintained while performing this adjustment. Once the gauge is adjusted, a ½" washer can be welded to the spindle housing to transform the adjustment slot into a hole and lock in the adjustment.

11- Ensure all mounting plate adjustment bolts are properly tightened and torqued after adjusting the unit. Please see the bolt torque chart in Appendix 1.

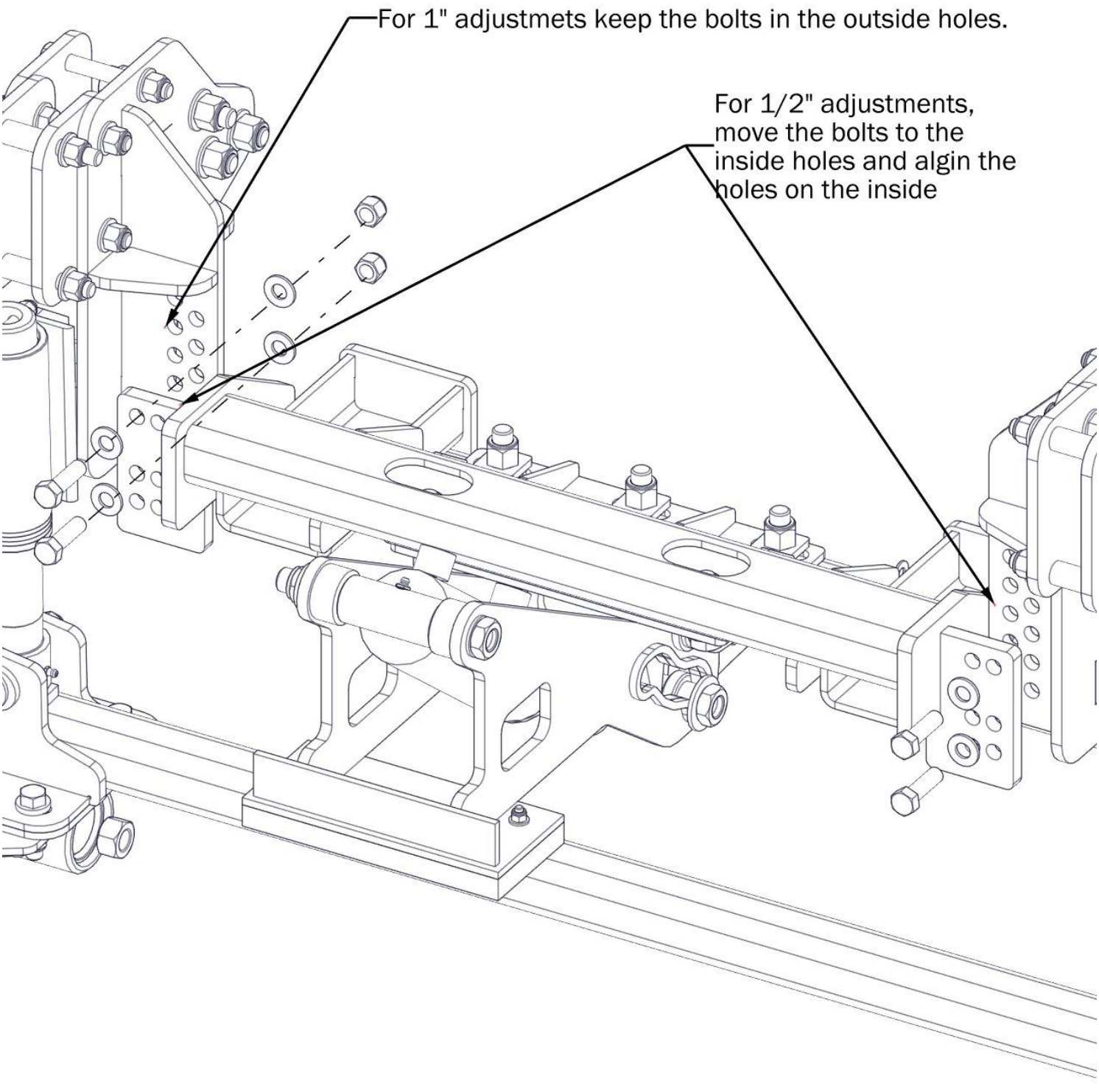
12- Tighten the gauge adjustment bolts on the front and rear hi-rail units, locking the wheel spindles in place.

13- Perform a track test on the unit ensuring there is no excessive flanging.

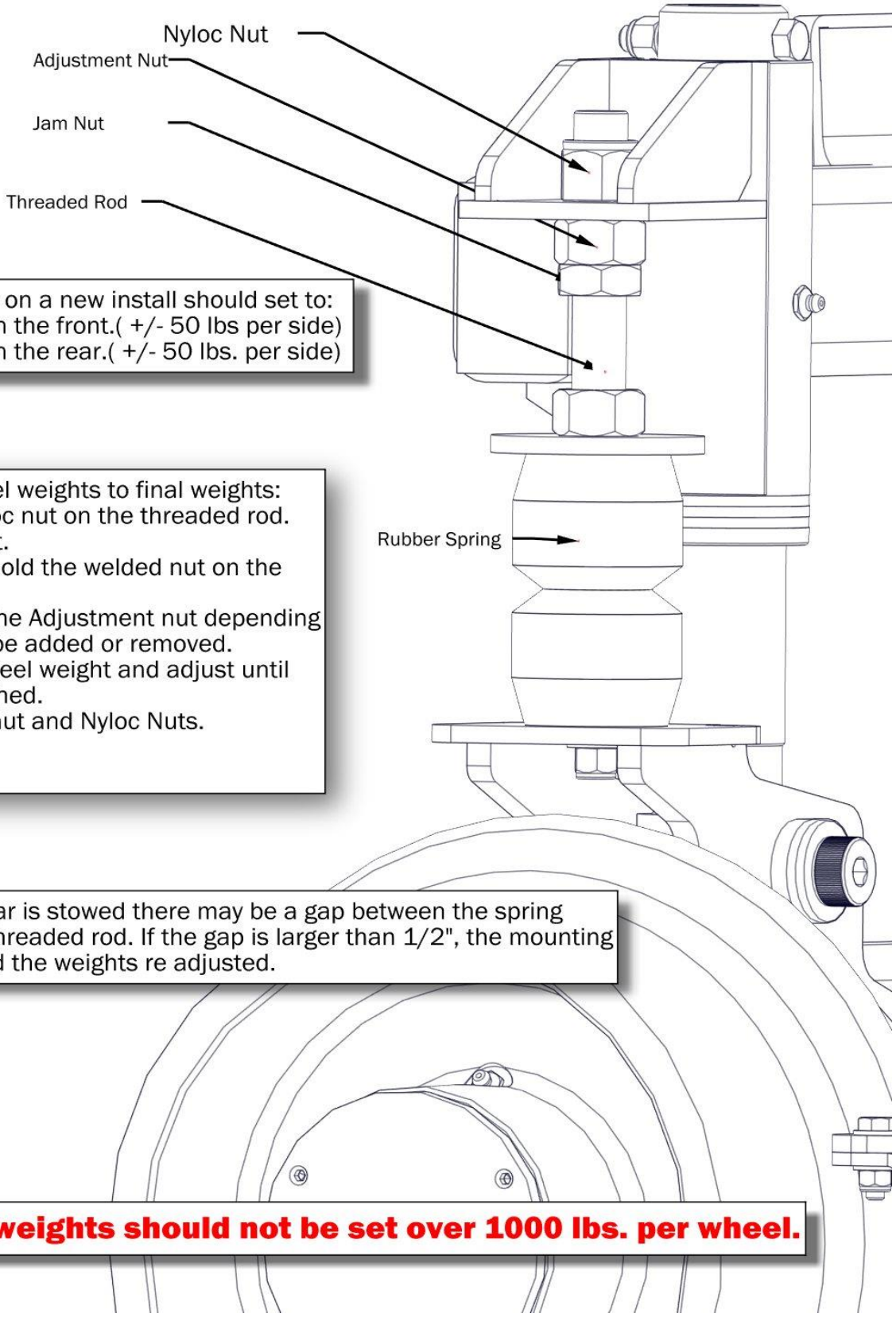
Rail Wheel Weight Adjustment



Course Weight Adjustment



Fine Weight Adjustments



The rail wheel weights on a new install should set to:
- 750 lbs. per wheel on the front.(+/- 50 lbs per side)
- 550 lbs. per wheel on the rear.(+/- 50 lbs. per side)

To adjust the rail wheel weights to final weights:
1- Loosen the the Nyloc nut on the threaded rod.
2- Loosen the Jam Nut.
3- Use a wrench and hold the welded nut on the threaded rod.
4- Tighten or Loosen the Adjustment nut depending on if weight needs to be added or removed.
5- Recheck the rail wheel weight and adjust until desired weight is reached.
6- Re tighen the Jam nut and Nyloc Nuts.

Note: When the railgear is stowed there may be a gap between the spring and the plate on the threaded rod. If the gap is larger than 1/2", the mounting should be lowered and the weights re adjusted.

Rail wheel weights should not be set over 1000 lbs. per wheel.

WHEEL WEIGHT ADJUSTMENT

The hi-rail unit requires adjustment to allow for the proper balance between traction and guidance. With the broader height adjustment performed, the wheel weight can be tuned to the desired values by adjusting the rubber spring preload.

1- With the vehicle on track and the front and rear hi-rail units lowered, position the front axle over a railway tie.

Alternatively, the vehicle can be placed on flat ground with the hi-rail and tires resting on 3" x 3" x 3/8" tubing.

2- Using a small hydraulic bottle jack equipped with a pressure gauge, raise one wheel by jacking up the spindle housing. Insert a thin piece of paper between the wheel and the rail and lower the wheel back down onto the track.

3- While pulling on the piece of paper, slowly increase the pressure in the hydraulic jack until the paper just pulls out from under the wheel. Note the pressure required to lift the wheel.

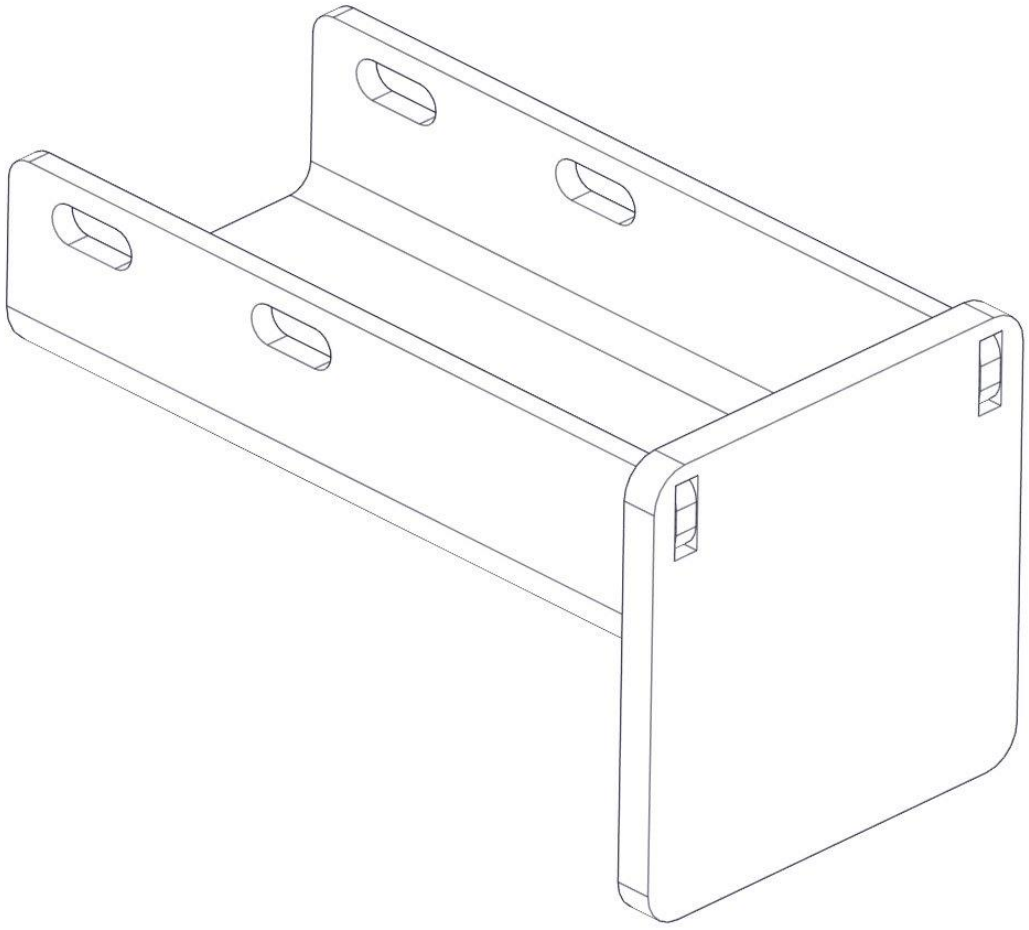
$$WEIGHT = (0.7854 * BORE^2) * PRESSURE$$

With WEIGHT in lbs
BORE in inches = hydraulic jack cylinder diameter
PRESSURE in psi = measured on jack gauge

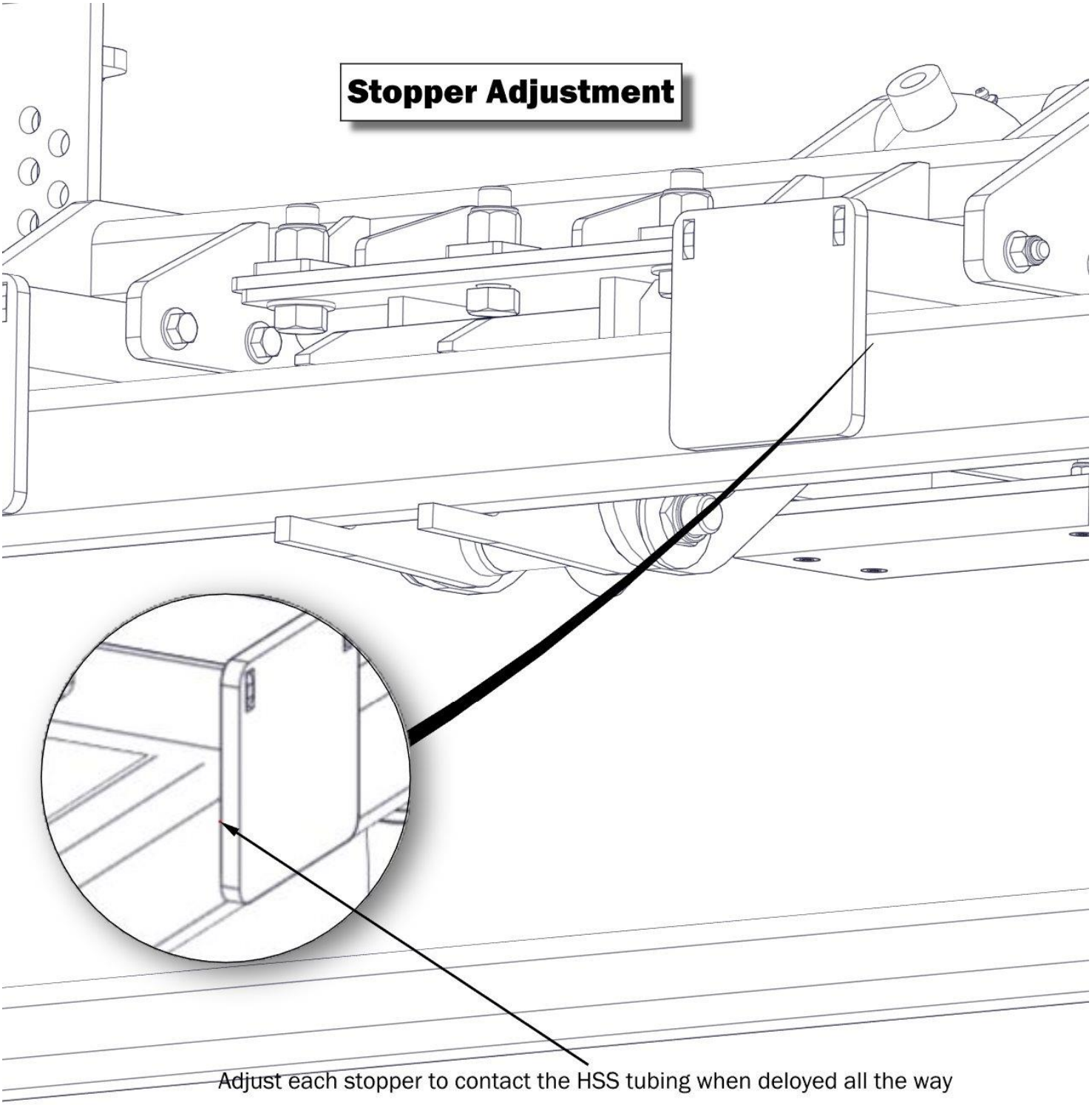
4- Repeat for the other 3 wheels.

5- Perform a track test on the unit ensuring traction and braking are adequate.

12 Series Stopper Assembly



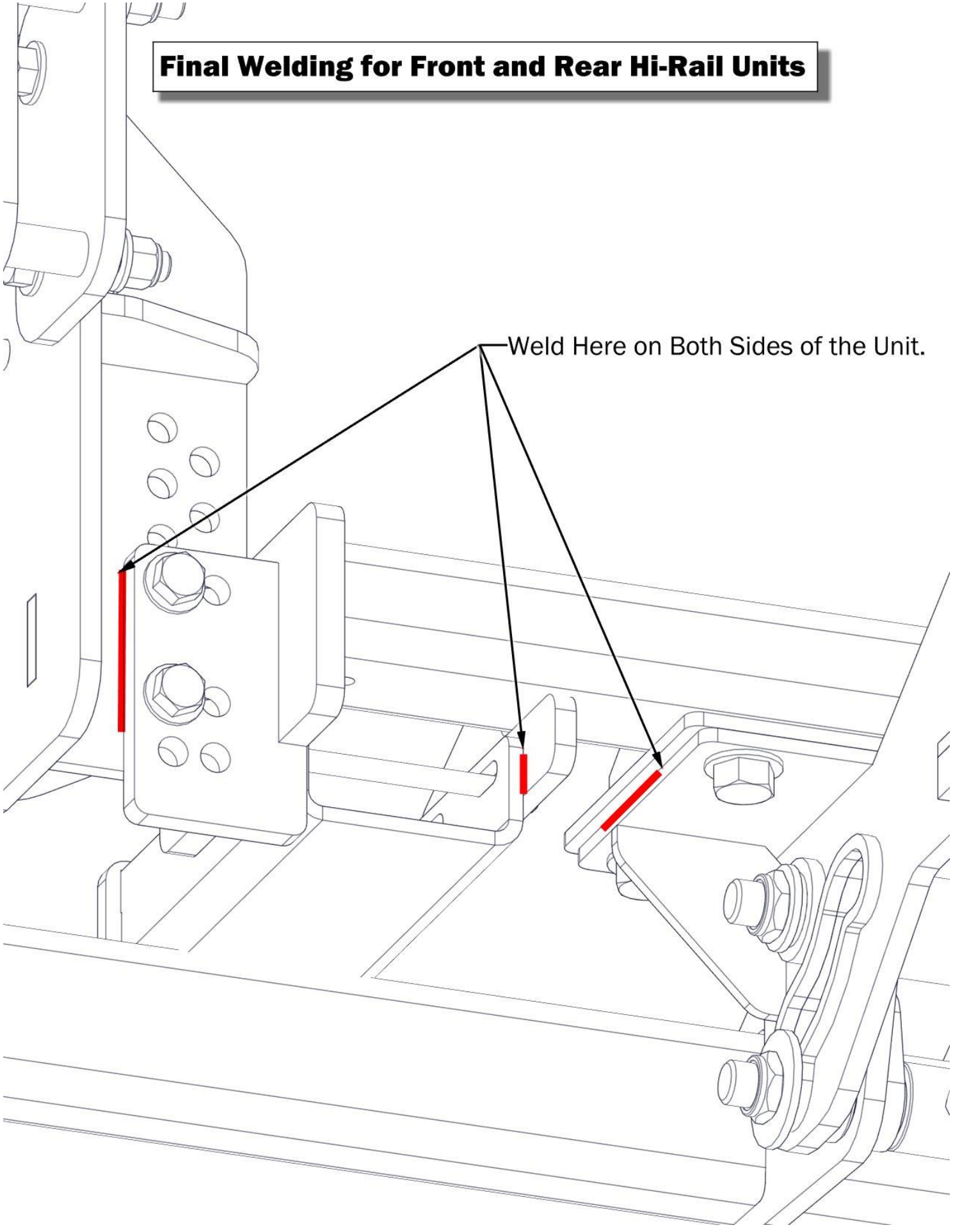
Stopper Adjustment



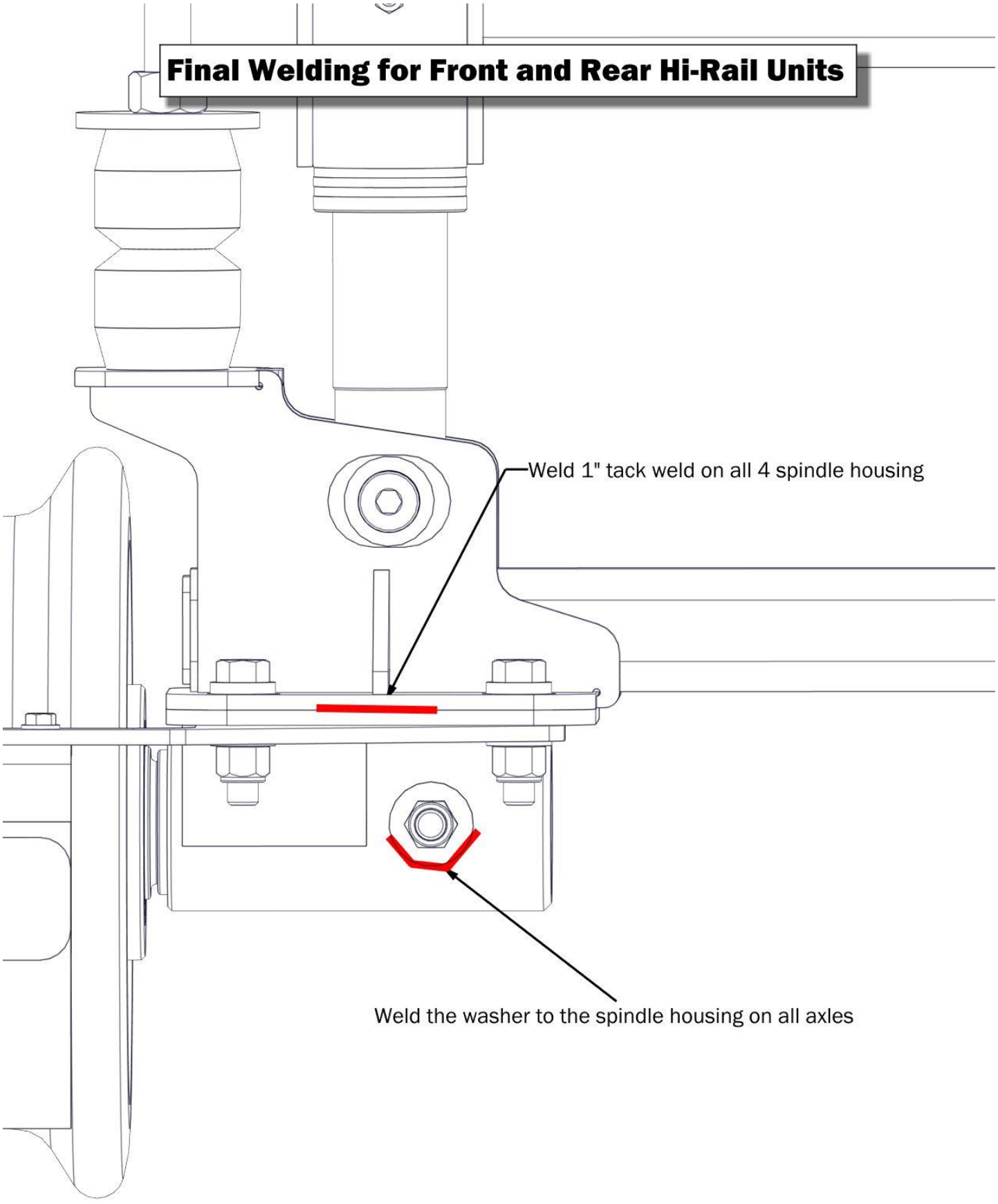
Adjust each stopper to contact the HSS tubing when deloyed all the way

To Adjust the Stoppers:
1- Lower the Railgear until it's resting on the ground.
2- Loosen the 2- 1/2" bolts & Nyloc Nuts.
3- Push the stoppers all the way back in the slots.
4- Lower railgear fully until the pump reliefs.
5- Using a hammer, Tap the stoppers until they sit Flush with back of the HSS.
6- Tighten the 2-1/2" bolts and Nylock Nuts.

Final Welding for Front and Rear Hi-Rail Units



Final Welding for Front and Rear Hi-Rail Units



OPERATION

ON ROAD

A few factors should be taken into consideration when operating a hi-rail vehicle on road:

REDUCED TURNING RADIUS

The wheel modification kit usually requires the installation of steering stops because of the wheels' increased negative offset. Operators should be cautious and familiar with the truck's new turning radius.

VEHICLE DIMENSIONS

Once modified with hi-rail, the vehicle's dimensions, ground clearances and approach / departure angles change considerably. Again, operators should be familiar with the truck's new dimensions.

VEHICLE PAYLOAD

The addition of hi-rail to a vehicle reduces its available payload. The operator needs to be conscious of the weight of the vehicle in operating conditions to determine the remaining payload.

ON RAIL

To place the vehicle on track, the vehicle must be positioned parallel to the rails over a level crossing or a similar access point in a rail yard where the track is approximately level with the pavement. The vehicle must be placed on the track rear unit first, so that the front unit can be steered into position afterwards as required.

REAR UNIT

1- Position the vehicle so that the rear hi-rail wheels are directly over the track and aligned with the track rails.

2- Turn on dash mounted switch to activate power pack (pump will only run with momentary buttons depressed).

3- Depress the momentary switch to activate the hydraulic power pack and actuate the hydraulic valve to lower the rear hi-rail unit.

Note – The rear hi-rail unit has an automatic locking and unlocking mechanism. It is not necessary to manually disengage any hooks, pins or levers.

4- Lower the hi-rail unit to engage the hi-rail wheels with the track. Adjust the position of the vehicle if necessary to ensure proper alignment.

5- Lower the hi-rail unit completely and stroke the cylinder. Ensure the cylinder is completely stroked and the cylinder pin has moved into its locking slot.

FRONT UNIT

1- Adjust the position of the vehicle if necessary so that the front hi-rail wheels are directly over the track and aligned with the track rails. Turn the vehicle steering wheel so that the tires are pointed straight ahead.

2- Turn on dash mounted switch to activate power pack (pump will only run with momentary buttons depressed).

3- Depress the momentary switch to activate the hydraulic power pack and actuate the hydraulic valve to lower the front hi-rail unit.

Note – The front hi-rail unit has an automatic locking and unlocking mechanism. It is not necessary to manually disengage any hooks, pins or levers.

4- Lower the hi-rail unit to engage the hi-rail wheels with the track. Adjust the position of the vehicle if necessary to ensure proper alignment.

5- Lower the hi-rail unit completely and stroke the cylinder. Ensure the cylinder is completely stroked and the cylinder pin has moved into its locking slot.

STEERING WHEEL LOCK

The steering wheel lock must be engaged when the unit operates on rail. The wheels are to be locked straight ahead to ensure proper operation of the vehicle on track.

1- After the vehicle has been placed on track, position the steering wheel so that the wheels are pointed straight ahead.

2- Lock the steering wheel in position by removing the Velcro pad from its stowing location on the dash and applying it over the steering column and steering wheel corresponding Velcro pads.

SPEED LIMITS

The maximum speed limit of a vehicle equipped with a model H-12B hi-rail unit is 40 kilometers per hour (25 miles per hour) on straight sections of track, and 30 kilometers per hour (20 miles per hour) on curved sections of track. This is the maximum speed limit of the unit in ideal conditions, and this speed limit must be reduced during poor weather conditions, reduced visibility, slippery track surfaces, or when being operated on poorly maintained rail.

Despite this speed limit, local railway dictated speed limits must also be observed, and must be followed if lower than 40 kilometers per hour.

Remember to perform regular braking distance tests, initially and as track or weather conditions change.

TRACK CURVATURE

The maximum track curvature a truck equipped with H-12B hi-rail depends on numerous factors (truck wheelbase, hi-rail wheelbase, tire sizes, tread type, etc). Continental Railworks can assist in determining the maximum track curvature for a given vehicle.

! PLEASE DRIVE SAFELY !

SERVICE

RECOMMENDED MAINTENANCE INTERVALS

ITEM	FREQUENCY	DESCRIPTION
Nuts and Bolts	Every week	Inspect for loose fasteners. Tighten.
Grease Fittings	Every month	Lubricate as required.
Wheels	Every month	Inspect for excessive wear in tread or flange, cracking or pitting. Replace as required.
Wheel Bearings	After 8 hours of operation	Remove hub caps. Visually inspect bearings. Adjust and lubricate bearings as required.
	Every 6 months	Remove wheels and bearings. Clean bearings and inspect for excessive wear, burning, pitting or discoloration. Replace as required. Repack and reinstall.
Wheel Insulators	Every month	Visually inspect for damage.
	Every 6 months	Inspect for excessive wear or cracking. Replace as required.
Wheel Spindles	Every 6 months	Inspect surfaces for excessive wear, burning, pitting or discoloration. Replace as required.
Inner Tubes	Every 2 years	Inspect surfaces for excessive wear. Replace as required.
Inner Tube Wear Rings	Every 2 years	Inspect for excessive wear. Ensure a good fit with inner tube. Replace as required.
Axle and Frame Assemblies	Every month	Visually inspect for damage, cracks or broken welds. Repair or replace as required.
	Every 2 years	Inspect all pins for excessive wear. Replace as required. Inspect all holes and slots for excessive wear. Repair or replace as required.
Rubber Springs	Every 6 months	Visually inspect for cracks or deformation. Replace as required.
Hydraulics	Every day	Inspect for leaks.
	Every month	Inspect for leaking or damaged hoses, fittings or cylinders. Repair or replace as required.
Pneumatic Components	Every week	Inspect for leaks.
	Every month	Inspect for leaking or damaged hoses, fittings or cylinders. Repair or replace as required.
Electrical Components	Every week	Inspect for proper connections or loose wires.
	Every month	Test for proper resistance and functionality of the system.

WHEEL WEAR

The hi-rail wheels need to be replaced when worn as follows:

5/16” wear on flange
3/16” wear on tread

Wheel wear gauges are available on request.

WHEEL BEARING ADJUSTMENT

Wheel installation procedure

1- Press bearing cups into wheel
2- Insert grease seal at the back of the wheel
3- Pack bearing cone with grease
4- Insert one cone over the spindle
5- Slide wheel onto the spindle
6- Insert the other bearing cone over the spindle
7- Insert wheel washer over the threaded end of the spindle
8- Thread the castle nut onto the spindle
9- Torque lightly
10- Shake the wheel and ensure there is no play
11- Turn the castle nut counterclockwise by half a turn
12- Turn the castle nut clockwise by a quarter turn
13- Adjust the castle nut to line up a notch with the hole in the spindle
14- Insert and lock the cotter pin
15- Add grease between the bearings through the grease fitting until grease flows through the bearings
16- Reinstall hub cap gasket and hub cap with bolts and lock washers

GREASE POINTS

All pins (pivoting or traveling through a slot) feature a grease fitting.

Pins and slots should be greased every month to ensure a smooth operation and to minimize wear.

RECOMMENDED GREASE

Continental Railworks uses and recommends the use of Castrol Pyroplex Blue 2 (Product Code: 55178 (US) – 01050-18 (Canada)).

RECOMMENDED HYDRAULIC FLUID

For best performance in cold weather, Continental Railworks recommends the use of low viscosity – low temperature hydraulic fluid such as Petro Canada Hydrex XV or Shell Tellus S4 VX.

CONTACT INFORMATION

To order parts or for technical support, please contact Continental Railworks from Monday to Friday, 8:30 a.m. to 4:30 p.m. ET, by calling **(514) 956-8081** or faxing **(514) 956-0737**. Please have the hi-rail assembly's serial number available for easier tracking.

CANADA
Continental Railworks 7380 Vérité St-Laurent, QC, H4S 1C5 (514) 956-8081

LIMITED WARRANTY INFORMATION

The following warranty applies to all products manufactured by Continental Railworks.

Continental Railworks (hereinafter referred to as "Continental") warrants to the original purchaser that all equipment supplied shall be free from defects in material and workmanship for a period of 12 months from the date of purchase. If such a defect appears during the warranty period, Continental will repair or replace the defective part or product (at its option) without charge if applicable claim procedures are followed.

The product must have been properly installed, adjusted, maintained, and serviced in order to be eligible for warranty.

The warranty does not cover defects or damage to products that have been improperly installed, abused, misused, or damaged due to accident. Continental disclaims liability for indirect, incidental, and consequential damages, such as damage incurred during shipping and handling. This disclaimer applies during and after the warranty period.

Warranty claims may be made by contacting our Customer Service Department at the address indicated above, or by calling (514) 956-8081. All claims must be made in writing.

Continental or its authorized representative reserves the right to inspect products claimed to be defective for warranty purposes and dispose of the claim as it sees fit, including repair or replacement. Unauthorized repair or replacement prior to inspection may void the warranty. Use of non-OEM parts will immediately void the warranty.

All products or parts claimed to be defective must be returned to Continental for warranty consideration within 30 days of the claim. All items shipped from Continental for warranty reasons will be sent freight prepaid, and all items returned to Continental must be sent freight prepaid.

Labor performed for warranty reasons must be done by an authorized Continental representative or by a person or company pre-approved by Continental in writing. Labor performed without prior written approval will not be warranted.

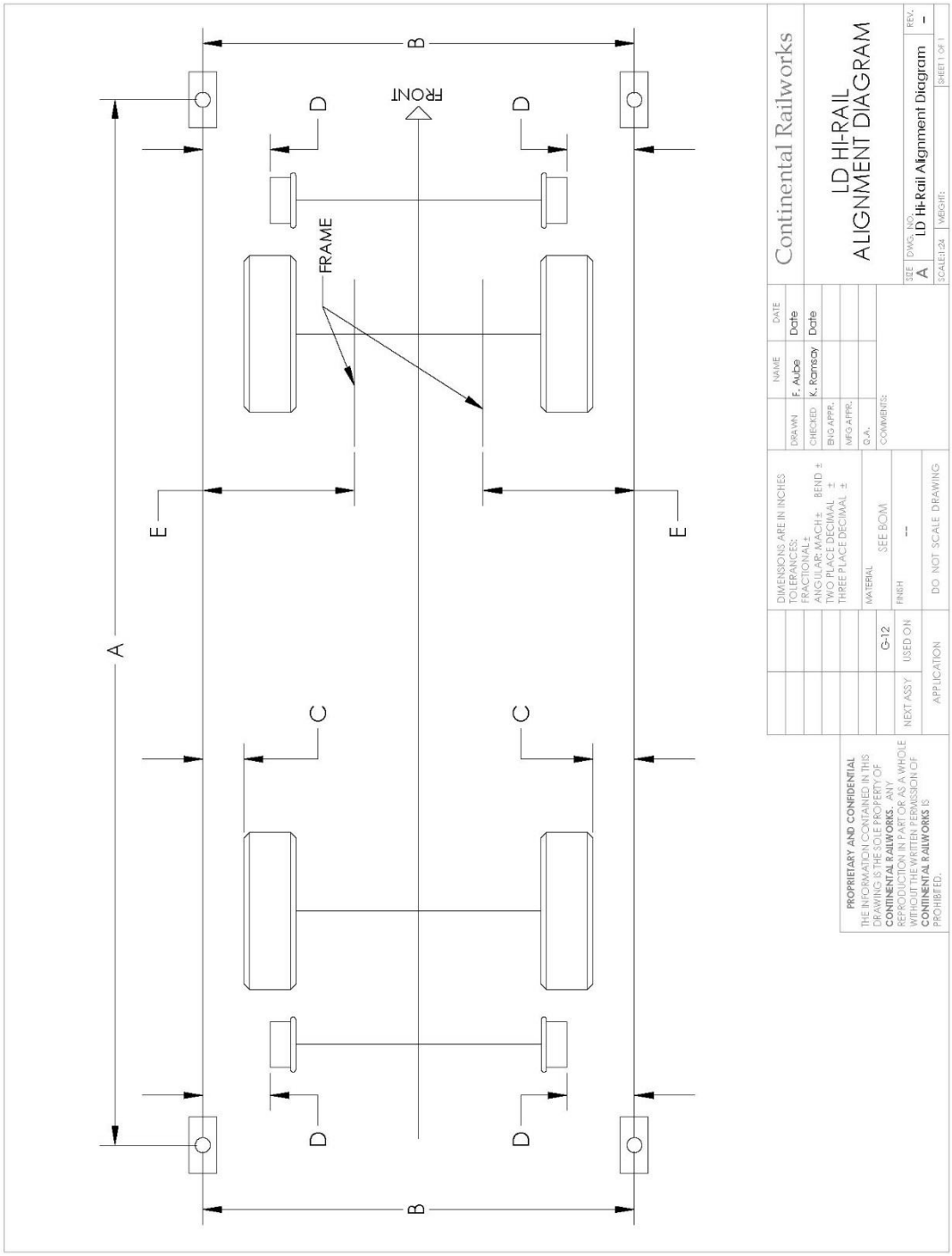
APPENDIX 1

BOLT TORQUE TABLE

Bolt Torque Requirements Grade 8 Fasteners	
Bolt Diameter *(in)*	**Torque (Lub.)** *(ft-lbs)*
3/8"	35
1/2"	80
5/8"	170
3/4"	280
1"	680

APPENDIX 2

ALIGNMENT DIAGRAM



APPENDIX 3

ALIGNMENT AND PRESSURE DATA FORM

Continental Railworks
7380 rue Vérité
St-Laurent, QC H4S 1C5

Tel : 514-956-8081
Fax : 514-956-0737

ALIGNMENT AND PRESSURE DATA FORM

Customer: _____ License: _____
Vehicle Number: _____ Year: _____ Mileage: _____
VIN: _____ Date: _____

Hi-Rail Manufacturer: _____
Hi-Rail Model Front: _____ Year: _____ Serial: _____
Hi-Rail Model Rear: _____ Year: _____ Serial: _____

DRIVER FRONT		PASSENGER FRONT
STRING TO RAIL WHEEL _____ (in)		STRING TO RAIL WHEEL _____ (in)
STRING TO RAIL WHEEL _____ (in)	HI-RAIL WHEEL — INSIDE TO INSIDE _____ (in)	STRING TO RAIL WHEEL _____ (in)
WEIGHT or PRELOAD _____ (lbs or in)	< DEPLOYED > (LD HI-RAIL)	WEIGHT or PRELOAD _____ (lbs or in)
TIRE CLEARANCE _____ (in)	< DEPLOYED > (HD HI-RAIL)	TIRE CLEARANCE _____ (in)
WHEEL CLEARANCE _____ (in)	< RETRACTED > (LD / HD HI-RAIL)	WHEEL CLEARANCE _____ (in)
TIRE PRESSURE _____ (psi)	< VEHICLE > (LD / HD HI-RAIL)	TIRE PRESSURE _____ (psi)

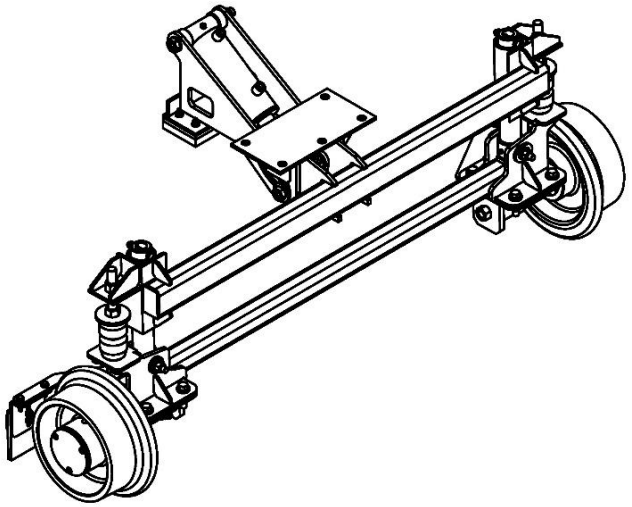
DRIVER REAR		PASSENGER REAR
STRING TO RAIL WHEEL _____ (in)		STRING TO RAIL WHEEL _____ (in)
STRING TO RAIL WHEEL _____ (in)	HI-RAIL WHEEL — INSIDE TO INSIDE _____ (in)	STRING TO RAIL WHEEL _____ (in)
WEIGHT or PRELOAD _____ (lbs or in)	< DEPLOYED > (LD HI-RAIL)	WEIGHT or PRELOAD _____ (lbs or in)
CONTACT PATCH _____ (lbs)	< DEPLOYED > (HD HI-RAIL)	CONTACT PATCH _____ (lbs)
WHEEL CLEARANCE _____ (in)	< RETRACTED > (LD / HD HI-RAIL)	WHEEL CLEARANCE _____ (in)
TIRE PRESSURE _____ (psi)	< VEHICLE > (LD / HD HI-RAIL)	TIRE PRESSURE _____ (psi)

NOTES

APPENDIX 4

FRONT / REAR H-12C DRAWINGS

NOTE – Some components may differ slightly from drawings shown.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	A012L001	H-12 PIN SPACER	2
2	B002LC10	INNER TUBE	2
3	D002LA00	NEW H-12 AXLE	1
4	E002L000	10" WHEEL ASSEMBLY H-12B & G-20	2
5	F002LC00	H-12 FRONT FRAME	1
6	F082L013	3/8" STOPPER PLATE SHIM FOR H-12 MODELS	1
7	F102LA00	H-12 M-2017 CAM ASS'Y	1
8	F112L300	TREADED ROD ASS'Y	2
9	H026A050	2-1/2" HYDRAULIC CYLINDER x 4" STROKE	1
10	P002L010	1" PIN x 6.281" LONG ASS'Y	1
11	P002L020	1" PIN x 5.875" ASS'Y	1
12	P002L030	1-1/4" PIN x 6.375" ASS'Y	1
13	P008F030	3/4" PIN x 3.375" ASS'Y	2
14	R002LL00	LEFT SIDE RAIL SWEEP	1
15	R002LR00	RIGHT SIDE RAIL SWEEP	1
16	V002A003	H-12 RUBBER STOPPER	1
17	V002B001	RUBBER SPRING	2
18	V012B001	WEAR RING W2-2125-0750	4
19	ZQ553	1/4"-28 UNF GREASE FITTING	2
20	ZQ88	1/8 NPT GREASE FITTING	3
21		SOCKET CS SCREW 1/4" UNC x 2.000"	4
22		1/4" FLAT WASHER	4
23		1/4" UNC LIGHT NYLON INSERT LOCKNUT	4
24		3/8" UNC GR.8 BOLT x 2.500 LONG	2
25		3/8" UNC GR.8 NYLON INSERT LOCKNUT	2
26		1/2" UNC GR.8 BOLT x 2.000" LONG	8
27		1/2" HEAVY WASHER	8
28		1/2" FLAT WASHER	10
29		1/2" UNC GR.8 NYLON INSERT LOCKNUT	10
30		5/8" WIDE FLAT WASHER	2
31		3/4" REGULAR FLAT WASHER	2
32		3/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	5
33		3/4" UNC GR.8 NYLON INSERT LOCKNUT	2
34		3/4" WIDE FLAT WASHER	1

NEXT ASSY | USED ON

APPLICATION

DIMENSIONS ARE IN **INCHES**.
TOLERANCES, **UNLESS OTHERWISE STATED:**
THREE PLACE DECIMAL: ± 0.015"
ANGLE: -MACHINED ± 1.5°
-BENT ± 5°
WELDS: +0.125"/-0.000"

MATERIAL: SEE BOM

FINISH: 63 MACHINED. MIN. ON SPECIFIED SURFACES. **U.O.S.**

ISOMETRIC VIEWS NOT TO SCALE

DESIGNED	Williron Briceño	2020-01-22
DRAWN	W. Briceño	2020-01-22
CHECKED	F. Aubé	2020-01-22
ENG APPR.	F. Aubé	2020-01-22
MFG APPR.	N. Gromak	2020-01-22
PRINTED:		3/31/2020

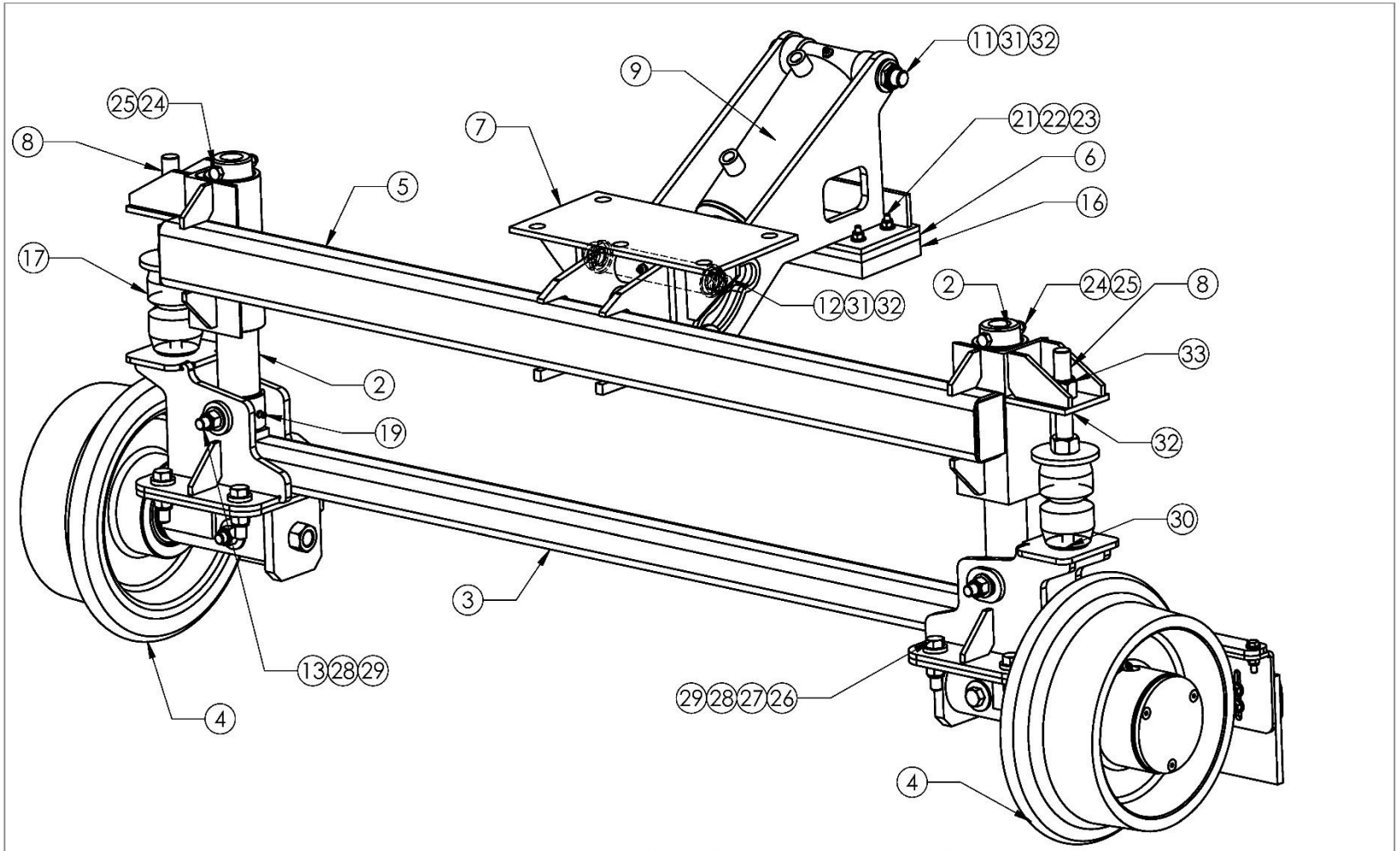
COMMENTS:

CONTINENTAL RAILWORKS

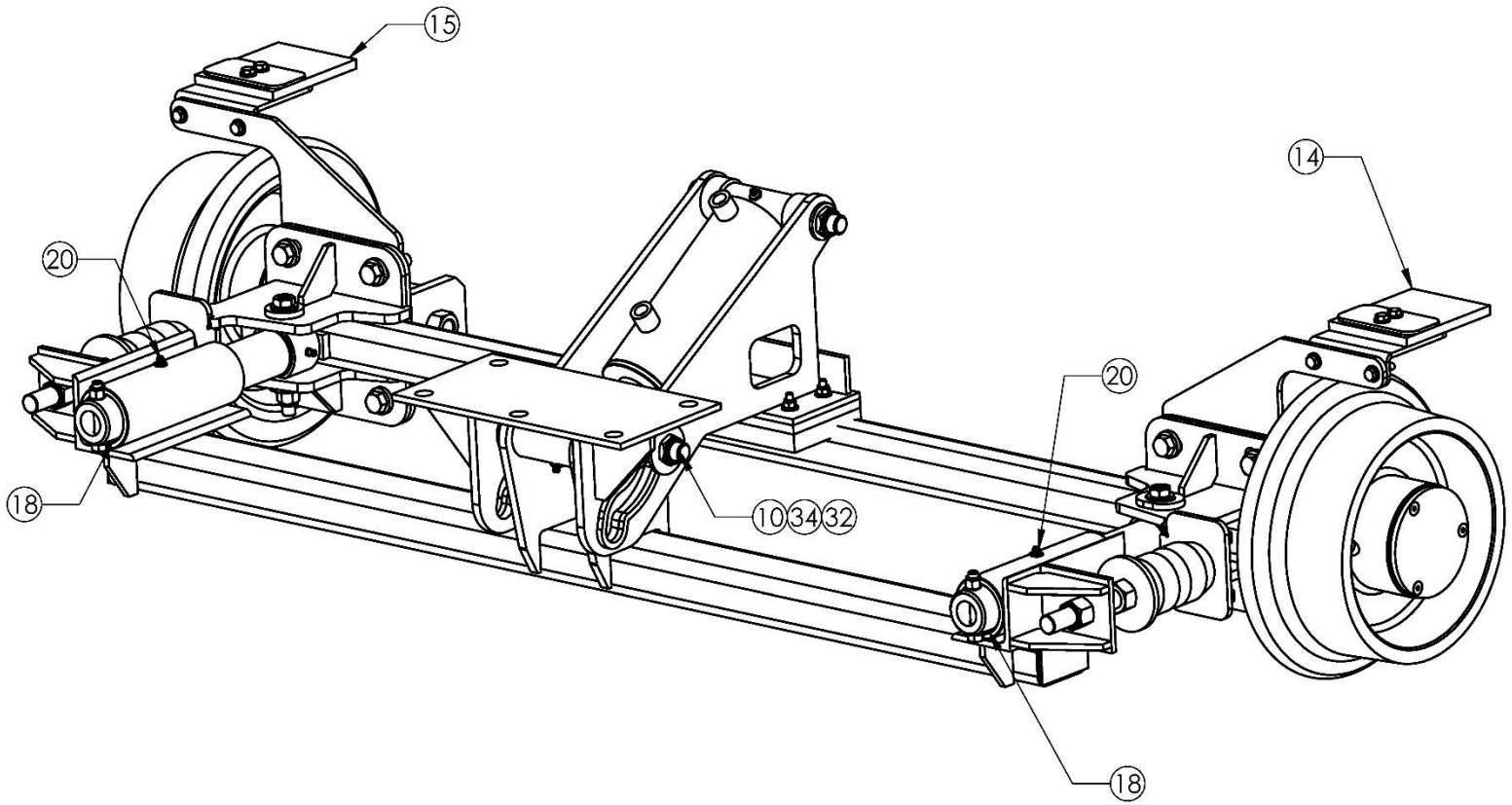
H-12C FINAL ASSEMBLY (H-12 WITH 10" WHEEL)

SIZE	DWG. NO.	REV.
A	A002LC00	-

SCALE - 1:16 | WEIGHT: 329.39 | SHEET 3 OF 8



		DIMENSIONS ARE IN **INCHES**. TOLERANCES, **UNLESS OTHERWISE STATED:**	DESIGNED	William Briceño	2020-01-22	CONTINENTAL RAILWORKS
		THREE PLACE DECIMAL: ± 0.015"	DRAWN	W. Briceño	2020-01-22	
		ANGLE: -MACHINED ± 1.5°	CHECKED	F. Aubé	2020-01-22	
		-BENT ± 5°	ENG APPR.	F. Aubé	2020-01-22	
		WELDS: +0.125"/-0.000"	MFG APPR.	N. Gramak	2020-01-22	H-12C FINAL ASSEMBLY (H-12 WITH 10" WHEEL)
		MATERIAL SEE BOM	PRINTED:		3/31/2020	
			COMMENTS:			
NEXT ASSY.	USED ON	FINISH MACHINED: 63 MIN. ON SPECIFIED SURFACES. **U.O.S.**				SIZE A | DWG. NO. A002LC00 | REV. -
APPLICATION		ISOMETRIC VIEWS NOT TO SCALE				SCALE - 1:6 | WEIGHT: 329.39 | SHEET 4 OF 8



		DIMENSIONS ARE IN **INCHES**. TOLERANCES, **UNLESS OTHERWISE STATED**: THREE PLACE DECIMAL: ± 0.015" ANGLE: -MACHINED ± 1.5° -BENT ± 5° WELDS: +0.125"/-0.000"	DESIGNED	William Briceño	2020-01-22
			DRAWN	W. Briceño	2020-01-22
			CHECKED	F. Aubé	2020-01-22
			ENG APPR.	F. Aubé	2020-01-22
			MFG APPR.	N. Gramak	2020-01-22
		MATERIAL SEE BOM	PRINTED:		3/31/2020
NEXT ASSY	USED ON	FINISH MACHINED 63 MIN. ON SPECIFIED SURFACES. **U.O.S.**	COMMENTS:		
APPLICATION		ISOMETRIC VIEWS NOT TO SCALE			

CONTINENTAL RAILWORKS

H-12C FINAL ASSEMBLY (H-12 WITH 10" WHEEL)

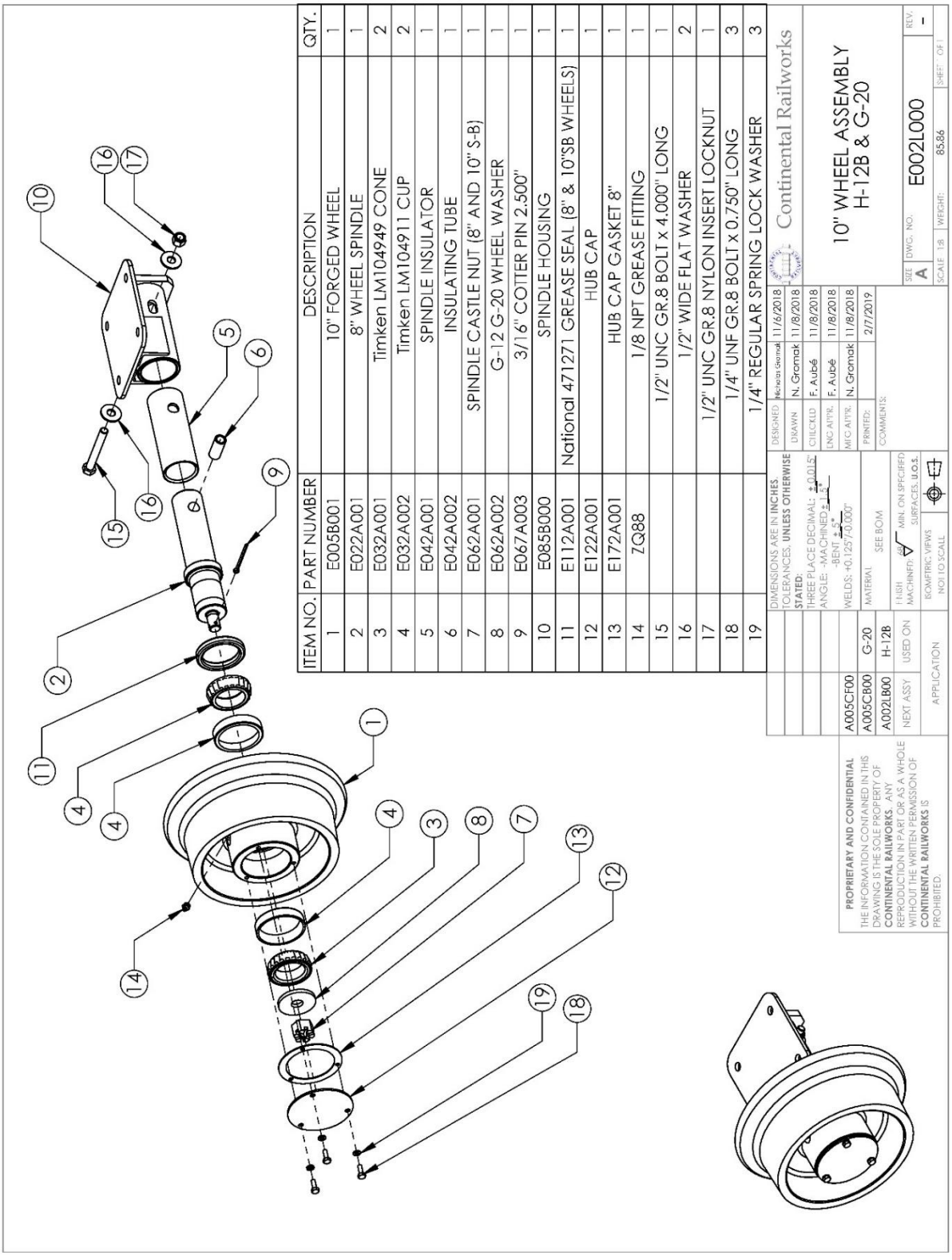
SIZE	DWG. NO.	REV.
A	A002LC00	-

SCALE - 1:6 | WEIGHT: 329.39 | SHEET 5 OF 8

APPENDIX 5

10” WHEEL ASSEMBLY DRAWINGS

NOTE – Some components may differ slightly from drawings shown.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	E005B001	10" FORGED WHEEL	1
2	E022A001	8" WHEEL SPINDLE	1
3	E032A001	Timken LM104949 CONE	2
4	E032A002	Timken LM104911 CUP	2
5	E042A001	SPINDLE INSULATOR	1
6	E042A002	INSULATING TUBE	1
7	E062A001	SPINDLE CASTLE NUT (8" AND 10" S-B)	1
8	E062A002	G-12 G-20 WHEEL WASHER	1
9	E067A003	3/16" COTTER PIN 2.500"	1
10	E085B000	SPINDLE HOUSING	1
11	E112A001	National 471271 GREASE SEAL (8" & 10"SB WHEELS)	1
12	E122A001	HUB CAP	1
13	E172A001	HUB CAP GASKET 8"	1
14	ZQ88	1/8 NPT GREASE FITTING	1
15		1/2" UNC GR.8 BOLT x 4.000" LONG	1
16		1/2" WIDE FLAT WASHER	2
17		1/2" UNC GR.8 NYLON INSERT LOCKNUT	1
18		1/4" UNF GR.8 BOLT x 0.750" LONG	3
19		1/4" REGULAR SPRING LOCK WASHER	3

DIMENSIONS ARE IN **INCHES**
TOLERANCES, **UNLESS OTHERWISE STATED:**
THREE PLACE DECIMAL: ±0.015"
ANGLE: -MACHINED- ±1°
-BENT- ±2°
WELDS: +0.125"/-0.000"
MATERIAL: SEE BOM
FINISH: 63 MIN. ON SPECIFIED MACHINED SURFACES, U.O.S.
ISOMETRIC VIEWS NOT TO SCALE

DESIGNED	Michael Gromak	11/6/2018
DRAWN	N. Gromak	11/8/2018
CHECKED	F. Aubé	11/8/2018
ENG APPR.	F. Aubé	11/8/2018
MFG APPR.	N. Gromak	11/8/2018
PRINTED:		2/7/2019

COMMENTS:

Continental Railworks

10" WHEEL ASSEMBLY
H-12B & G-20

SIZE	DWG. NO.	REV.
A	E002L000	-
SCALE: 1:8	WEIGHT: 85.86	SHEET 1 OF 1

APPLICATION	USED ON	NEXT ASSY
A005CF00		
A005CB00	G-20	
A002LB00	H-12B	