

CONTINENTAL RAILWORKS

MANUAL

INSTALLATION - OPERATION – PARTS – SERVICE

MODEL H-12B HI-RAIL UNIT

(Full Size Pickup Trucks)

May 2018

Revision 2

CONTINENTAL RAILWORKS

7380 Vérité, St-Laurent, QC, Canada, H4S 1C5

Phone : 514-956-8081 Fax : 514-956-0737

INTRODUCTION	4
GENERAL INFORMATION	5
GENERAL DESCRIPTION	5
OPTIONS	6
<i>TPMS Sensors</i>	6
<i>Emergency Hand Pump</i>	6
<i>Shunting Kit</i>	6
<i>8" Wheels</i>	6
CURRENTLY APPROVED CHASSIS MODELS	6
INSTALLATION	7
NOTE.....	7
SPECIAL CONSIDERATIONS.....	8
<i>Vehicle Condition</i>	8
<i>Speedometer Recalibration</i>	8
<i>Vehicle Rear Springs</i>	8
<i>Exhaust Tailpipe</i>	8
<i>Spare Tire</i>	8
<i>Modifications to Hi-Rail or Mounting Components</i>	8
INSTALLATION – FORD 2017+	9
<i>Front Mounting Plates</i>	9
<i>Front Hi-Rail</i>	11
<i>Rear Mounting Plate</i>	12
<i>Rear Hi-Rail</i>	14
INSTALLATION – GM 2015-2018	15
<i>Front Mounting Plates</i>	15
<i>Front Hi-Rail</i>	18
<i>Rear Mounting Plate</i>	19
<i>Rear Hi-Rail</i>	22
WHEEL MODIFICATION	23
<i>20" Aluminum Rims</i>	23
<i>19.5" Steel Rims and Spacers</i>	23
STEERING STOPS AND CLEARANCES.....	24
STEERING WHEEL LOCK	24
HYDRAULICS AND ELECTRICAL.....	25
TRACK SIGNAL SHUNT KIT	26
<i>General Description</i>	26
<i>Installation</i>	27
<i>Adjustment</i>	28
ALIGNMENT AND ADJUSTMENT	29
ALIGNMENT PROCEDURE	29
PRESSURE ADJUSTMENT	31
STOPPER ASSEMBLIES	32
OPERATION	33
ON ROAD	33
<i>Reduced Turning Radius</i>	33
<i>Vehicle Dimensions</i>	33

<i>Vehicle Payload</i>	33
ON RAIL	33
<i>Rear Unit</i>	33
<i>Front unit</i>	34
<i>Steering Wheel Lock</i>	34
<i>Speed Limits</i>	34
<i>Track Curvature</i>	34
PARTS	35
H-12B ASSEMBLY PARTS.....	35
FRONT / REAR H-12B UNIT.....	35
SERVICE	37
RECOMMENDED MAINTENANCE INTERVALS	37
WHEEL WEAR	38
WHEEL BEARING ADJUSTMENT.....	38
GREASE POINTS	38
RECOMMENDED GREASE	38
RECOMMENDED HYDRAULIC FLUID.....	38
CONTACT INFORMATION.....	39
LIMITED WARRANTY INFORMATION.....	39
APPENDIX 1	40
BOLT TORQUE TABLE.....	40
APPENDIX 2	41
HYDRAULIC SCHEMATICS	41
APPENDIX 3	42
ELECTRICAL SCHEMATICS	42
APPENDIX 4	43
ALIGNMENT DIAGRAM	43
APPENDIX 5	44
ALIGNMENT AND PRESSURE DATA FORM	44
APPENDIX 6	45
FRONT / REAR H-12B DRAWINGS	45
APPENDIX 7	54
PACKING LIST	54

INTRODUCTION

The following operation, parts, and service manual has been prepared to be used with the Continental Railworks model **H-12B** hi-rail unit on a **Full Size Pickup truck** (Ford F250/F350, GMC/Chevrolet 2500/3500).

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-12B 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 H-12B 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 H-12B 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 H-12B 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.

EMERGENCY HAND PUMP

Continental offers an optional emergency hand pump to complement the hydraulic power pack. This can be used to deploy or retract the hi-rail in the event of an electrical or mechanical failure at the power pack.

SHUNTING KIT

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

8" WHEELS

Continental offers the H-12B with 8" wheels on request, which translates to a weight saving of about 80 lbs on the vehicle.

CURRENTLY APPROVED CHASSIS MODELS

MAKE	MODEL	MODEL YEAR	NOTES
Ford	F250	2008 - 2016	- 4x4 recommended - All cab styles
Ford	F250	2017 +	- All box lengths - No rear mounted fuel tanks
Ford	F350	2008 - 2016	- Single Rear Wheel only - 4x4 recommended - All cab styles
Ford	F350	2017 +	- All box lengths - No rear mounted fuel tanks
GM	2500	2007 - 2014	- 4x4 recommended - All cab styles
GM	2500	2015 - 2018	- All box lengths - No rear mounted fuel tanks
GM	3500	2007 - 2014	- Single Rear Wheel only - 4x4 recommended - All cab styles
GM	3500	2015 - 2018	- All box lengths - No rear mounted fuel tanks

GENERAL INFORMATION

Options

INSTALLATION

NOTE

This manual covers the installation of the H-12B on current model year 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 – FORD 2017+

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 front mounting plate from hi-rail assembly by removing the five (5) 5/8-11 x 2" Grade 8 bolts, washers and nylon insert locknuts between the hi-rail and mounting plate mating plates. Conserve hardware.

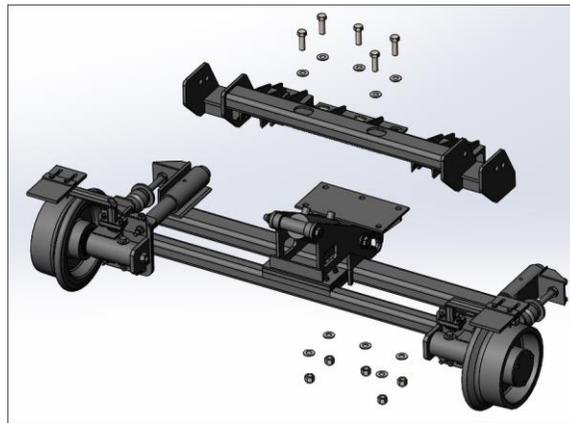


Figure 1: Front mounting plate removed

- 4- Ensure the stopper assemblies are loose or pushed all the way back to allow adjustment when the hi-rail is first deployed.
- 5- Position the front mounting plate on the frame horns so that :
 - a. The bottom of the frame horns meet the bottom of the mounting plate pockets.
 - b. The front of the frame horns line up with the front of the mounting plate pockets.
 - c. The side holes in the mounting plate line up with the holes on the frame horns.

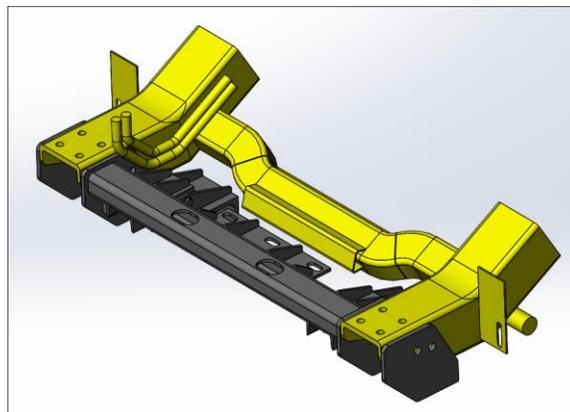


Figure 2: Front mounting plate positioned

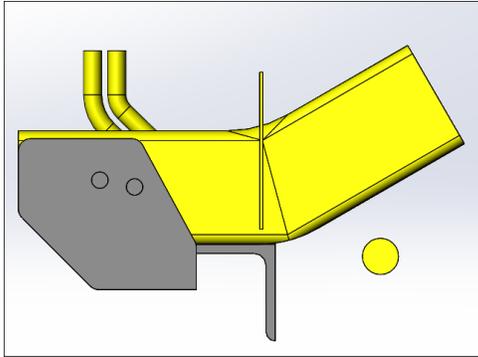


Figure 3: Front mounting plate positioned

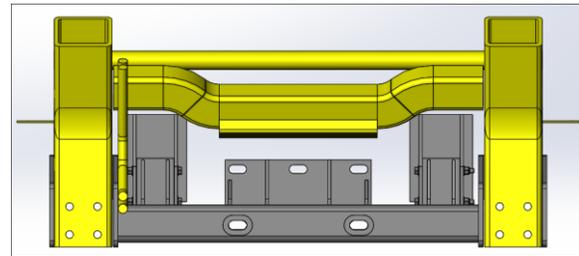


Figure 4: Front mounting plate positioned

NOTE - Because of the frame tolerances on the vehicles, it is normal to have to shim laterally so the frame horns fit tightly in the mounting plate pockets. By design, there is a lateral functional play of about 1/8" between the inside faces of the pockets and the width of the frame horns. Use steel shims to close the gaps and to ensure that all surfaces mate properly.

- 6- Secure the mounting plate to the frame horns using the provided eight (8) 5/8-11 x 2-1/2" Grade 8 bolts, washers and stover locknuts, four (4) per side as follows and shown below:
- Two (2) through the outside face of the mounting plate pocket and outside wall of the frame horn.
 - One (1) through the inside face of the mounting plate pocket and inside wall of the frame horn.
 - One (1) through the bottom face of the mounting plate pocket and bottom wall of the frame horn.

NOTE – Because of the frame tolerances on the vehicles, the installer may have to open up some holes on the frame horns to ensure proper alignment.

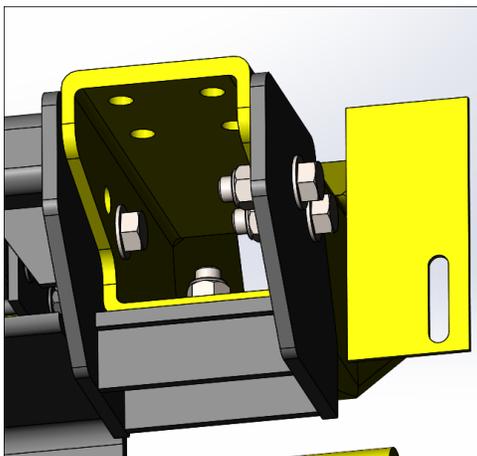


Figure 5: Mounting plate secured to frame horn

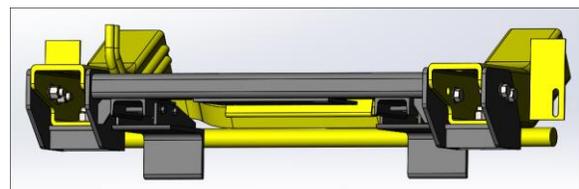


Figure 6: Mounting plate secured to frame horns

- 7- Tighten all bolts to specifications (see Appendices). It is recommended to start by tightening the bottom bolts, to ensure that the mounting plate makes good contact with the underside of the frame horns.

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 three (3) 5/8-11 x 2" Grade 8 bolts and two (2) 5/8-11 x 2-1/2" bolts, washers and nylon insert locknuts. Do not fully tighten at this point.

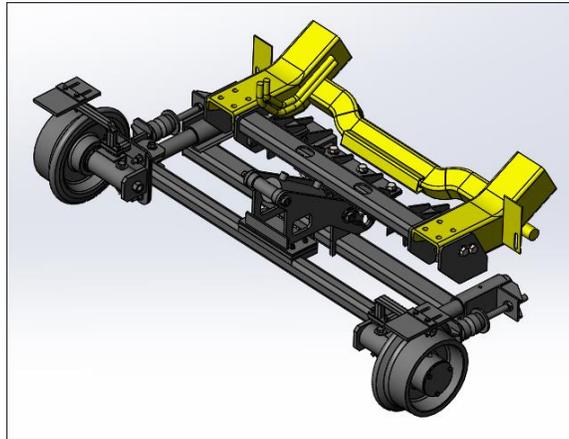


Figure 7: Front hi-rail installed

- 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 spaced out by about 1/2", which can be done with flat bar or washers.

REAR MOUNTING PLATE

- 1- Remove the rear bumper and store in a safe location.
- 2- Remove the hitch assembly.
- 3- Remove front mounting plate from hi-rail assembly by removing the five (5) 5/8-11 x 2" Grade 8 bolts, washers and nylon insert locknuts between the hi-rail and mounting plate mating plates. Conserve hardware.

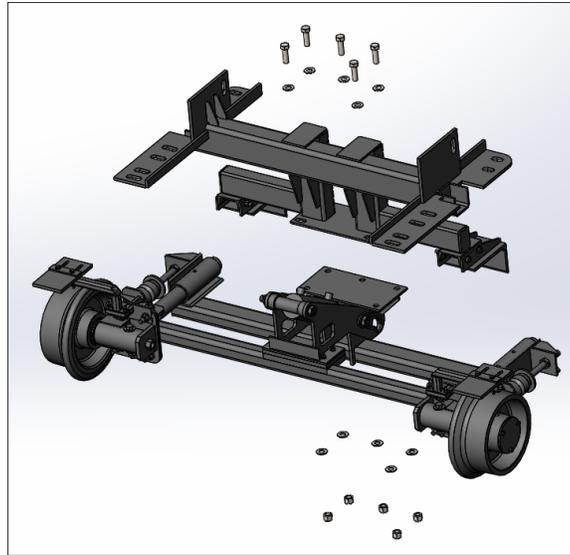


Figure 8: Rear mounting plate removed

- 4- Ensure the stopper assemblies are loose or pushed all the way back to allow adjustment when the hi-rail is first deployed.
- 5- Position the rear mounting plate on the vehicle so that:
 - a. The mounting plate rests on the underside of the truck frame.
 - b. The hitch assembly rests on the underside of the mounting plates.
 - c. The slotted holes on the horizontal plates of the mounting plate line up with the slotted holes on the frame and hitch assembly.

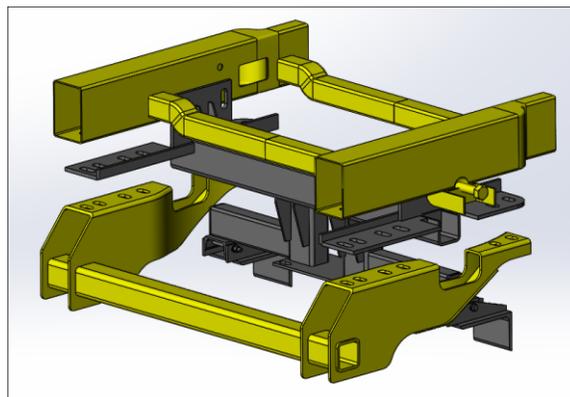


Figure 9: Rear mounting plate positioned

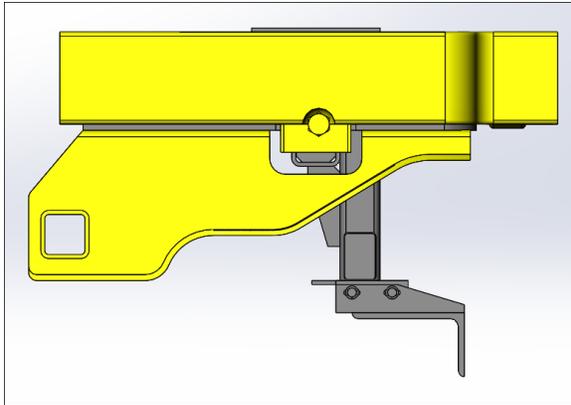


Figure 10: Rear mounting plate positioned

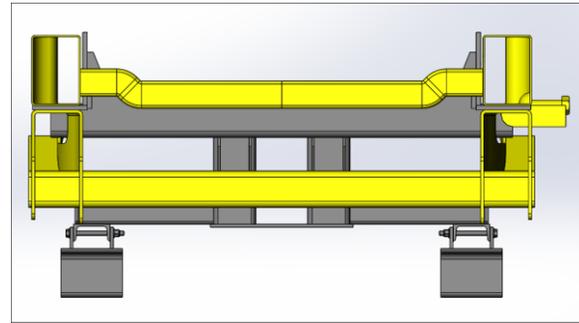


Figure 11: Rear mounting plate positioned

NOTE - Because of the frame tolerances on the vehicles, it is normal to have to shim laterally so the mounting plate fits tightly and centered between the frame rails. Steel shims are provided for the rear mounting plate, but may need to be changed or modified.

- 6- Secure the mounting plate to the frame using the provided hardware, seven (7) per side as follows and shown below:
 - a. One (1) per side 5/8-11 x 2" Grade 8 bolts, washers and stover locknuts through the mounting plate vertical plate and the inner vertical frame wall.
 - b. Six (6) per side 5/8-11 x 2-1/2" Grade 8 bolts, washers and stover locknuts through the mounting plate horizontal plates, the bottom wall of the truck frame and the upper wall of the hitch assembly.

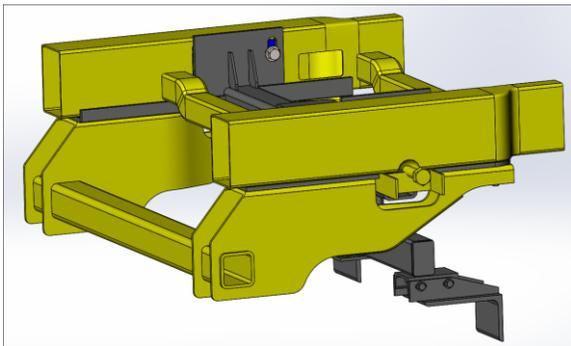


Figure 12: Mounting plate secured to frame

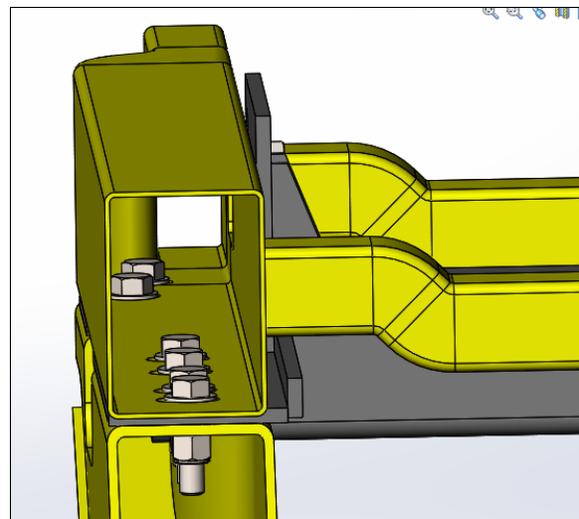


Figure 13: Mounting plate secured to frame

- 7- Tighten all bolts to specification (see Appendices). It is recommended to start by tightening the bottom bolts, to ensure that the mounting plate makes good contact with the underside of the frame horns

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 x 2" Grade 8 bolts, washers and nylon insert locknuts. Do not fully tighten at this point.

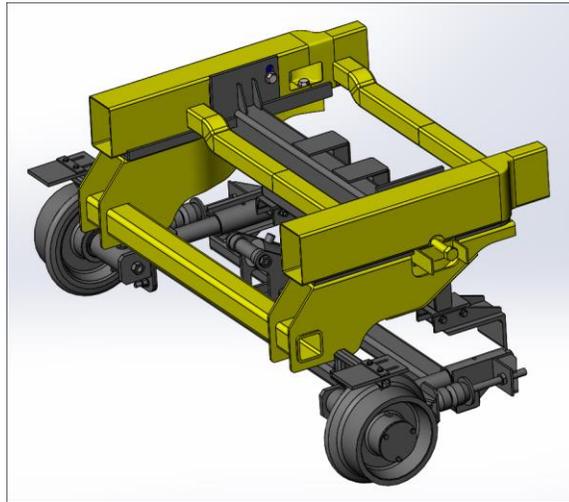


Figure 14: Rear hi-rail installed

- 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.

INSTALLATION – GM 2015-2018

FRONT MOUNTING PLATES

- 1- Remove the front bumper and store in a safe location. Conserve hardware.
- 2- Remove front frame mounted tow hooks and bumper brackets.
- 3- Remove front mounting plate from hi-rail assembly by removing the five (5) 5/8-11 x 2" Grade 8 bolts, washers and nylon insert locknuts between the hi-rail and mounting plate mating plates. Conserve hardware.

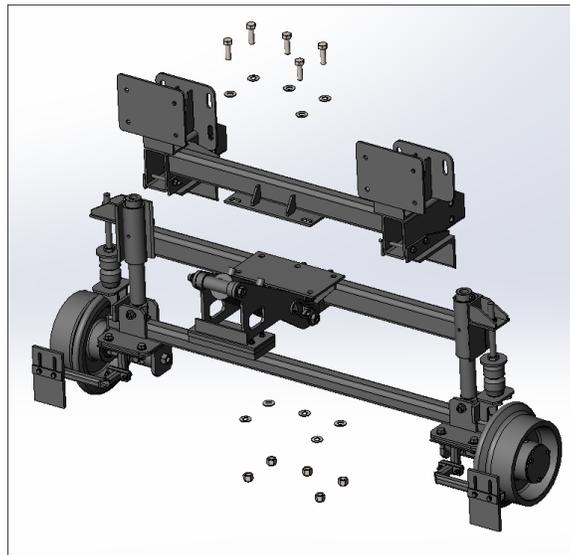


Figure 15: Front mounting plate removed

- 4- Ensure the stopper assemblies are loose or pushed all the way back to allow adjustment when the hi-rail is first deployed.
- 5- Position the front mounting plate on the frame horns so that :
 - a. Both mounting plate tubes are inserted into the frame horns.
 - b. Both slotted vertical plates align with the original bumper support plates on the frame horns.
 - c. The holes on the side of the frame horns align with the hole on the mounting plate tubes.

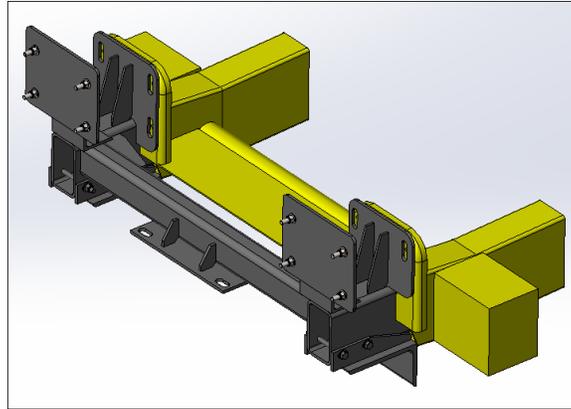


Figure 16: Front mounting plate positioned

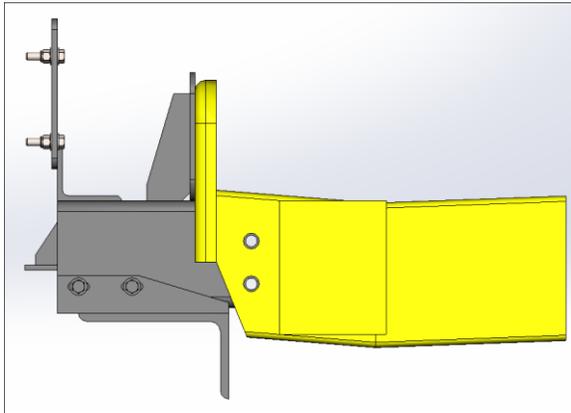


Figure 17: Front mounting plate positioned

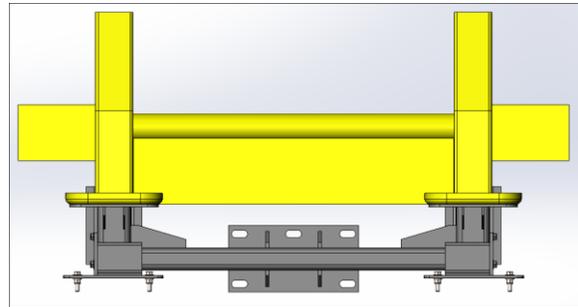


Figure 18: Front mounting plate positioned

NOTE - Because of the frame tolerances on the vehicles, it is normal to have to shim laterally so the frame horns fit tightly in the mounting plate pockets. By design, there is a lateral functional play of about 1/8" between the inside faces of the pockets and the width of the frame horns. Use steel shims to close the gaps and to ensure that all surfaces mate properly.

- 6- Drill additional holes on the frame horns to secure the front mounting plate. Drill a 3/4" hole through both walls of the frame horns, 2" above the existing hole used to secure the mounting plate, as shown below:

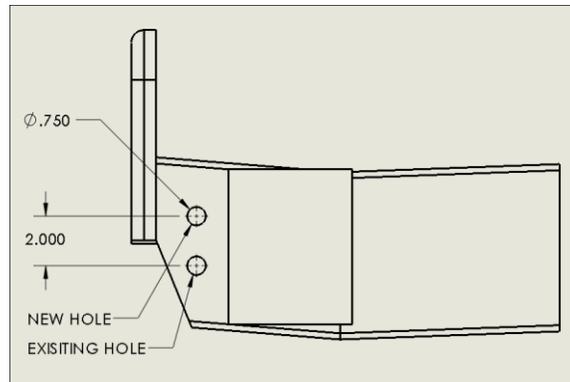


Figure 19: Additional holes to drill

- 7- Secure the mounting plate to the frame horns using the provided four (4) 1/2-13 x 4-1/2" Grade 8 bolts, washers and stover locknuts, two (2) per side as follows and shown below:
- Two (2) (one per side) in the lower hole existing in the frame, capturing the frame horns and mounting plate bushing.
 - Two (2) (one per side) in the newly drilled hole in the frame, capturing the frame horns and mounting plate bushing.

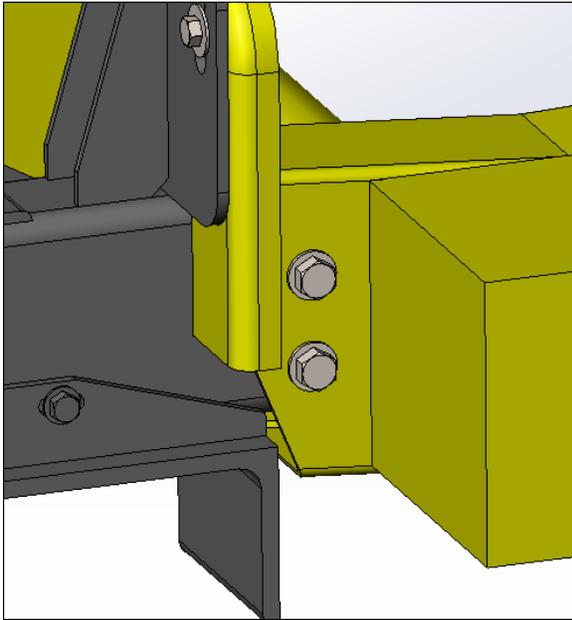


Figure 20: Mounting plate secured to frame horns

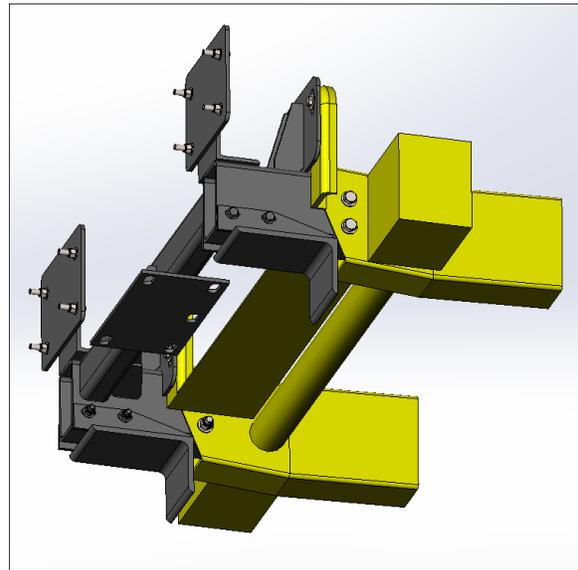


Figure 21: Mounting plate secured to frame horns

- 8- Secure the mounting plate to the original bumper support plates using six (6) of the eight (8) factory M8 bolts and washers previously removed.

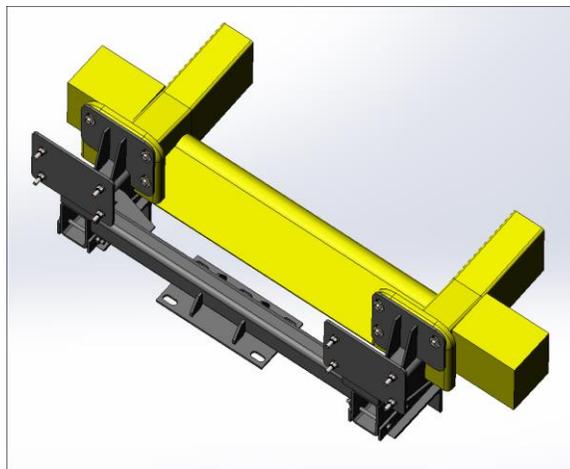


Figure 22: Mounting plate secured to bumper support plates

- 9- Tighten all bolts to specifications (see Appendices).

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 x 2" Grade 8 bolts, washers and nylon insert locknuts. Do not fully tighten at this point.

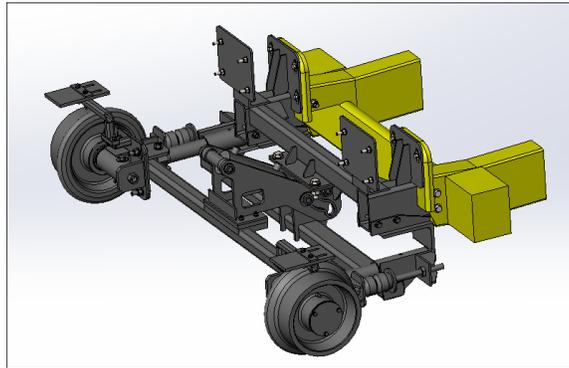


Figure 23: Front hi-rail installed

- 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 onto the new offset bumper plates using the provided eight (8) 3/8-16 x 1-1/2" Grade 8 bolts, washers and nylon insert locknuts. Depending on the vehicle trim, the front bumper may need to be trimmed (for wheels, rail sweep brackets, cylinder or cam assembly).

REAR MOUNTING PLATE

- 1- Remove the rear bumper and store in a safe location.
- 2- Remove the hitch assembly.
- 3- Remove front mounting plate from hi-rail assembly by removing the five (5) 5/8-11 x 2" Grade 8 bolts, washers and nylon insert locknuts between the hi-rail and mounting plate mating plates. Conserve hardware.

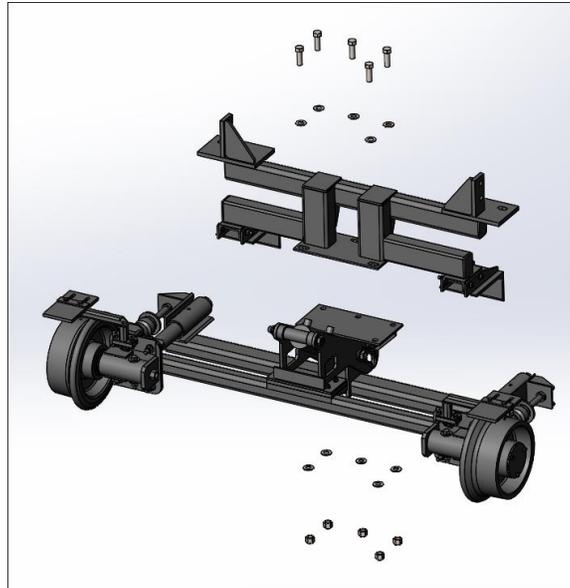


Figure 24: Rear mounting plate removed

- 4- Ensure the stopper assemblies are loose or pushed all the way back to allow adjustment when the hi-rail is first deployed.
- 5- Position the rear mounting plate on the vehicle so that:
 - a. The mounting plate rests on the underside of the truck frame.
 - b. The hitch assembly rests on the underside of the mounting plate.
 - c. The slotted holes on the horizontal plates of the mounting plate line up with the two (one per side) forward hitch assembly mounting holes (mounting plate ahead of the frame crossmember).
 - d. The two slotted shims are inserted between the frame rails and hitch assembly, behind the frame crossmember and with slotted holes lining up with the four (two per side) rear mounting holes on the hitch assembly.

NOTE - Because of the frame tolerances on the vehicles, it is normal to have to shim laterally so the mounting plate fits tightly and centered between the frame rails. Steel shims are provided for the rear mounting plate, but may need to be changed or modified.

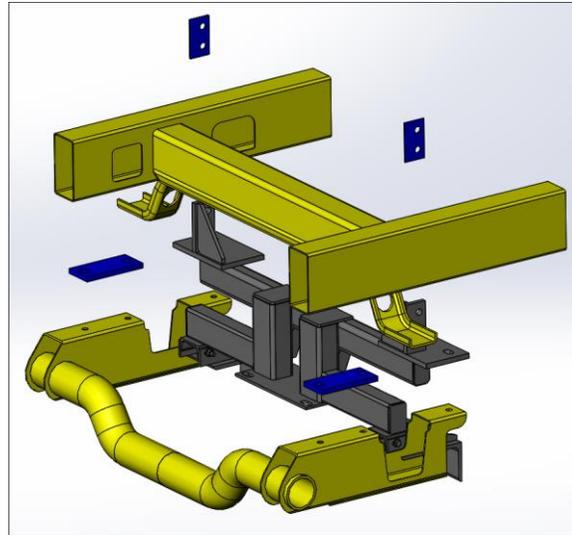


Figure 25: Rear mounting plate - exploded view

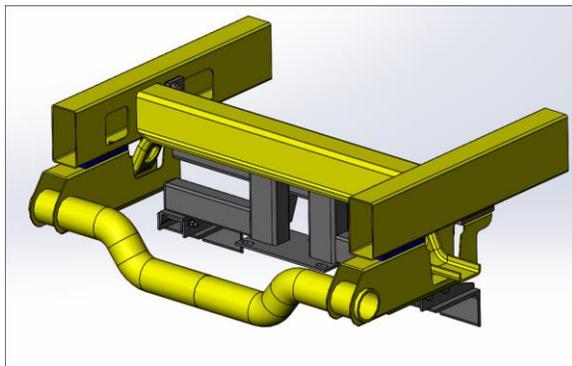


Figure 26: Rear mounting plate positioned

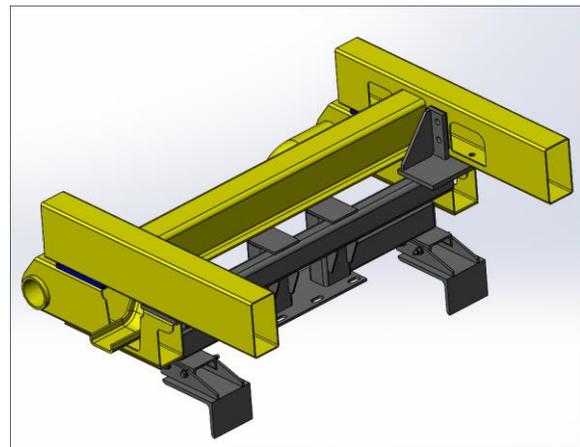


Figure 27: Rear mounting plate positioned

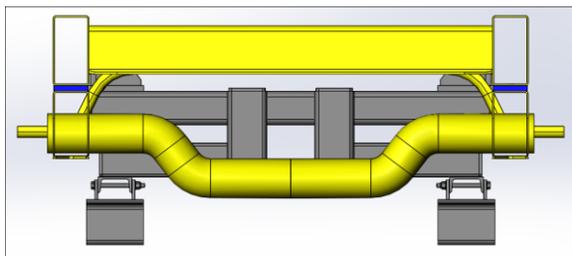


Figure 28: Rear mounting plate positioned

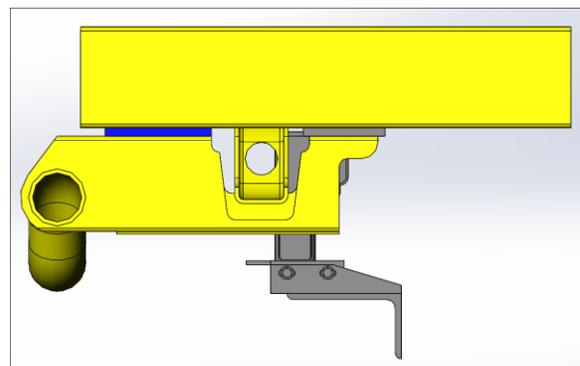


Figure 29: Rear mounting plate positioned

- 6- Drill additional holes on the inside walls of the frame rails to secure the rear mounting plate. Drill four (4) 21/32" holes (two (2) per side) through the inside wall of the frame rails, using the mounting plate as a guide as shown below.

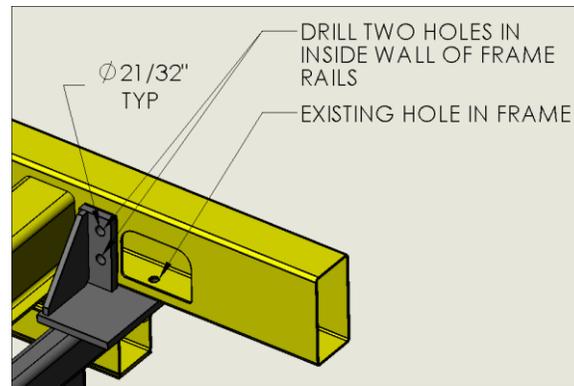


Figure 30: Location of new holes

- 7- Secure the mounting plate to the frame using the provided hardware, five (5) per side as follows and shown below:
- Two (2) per side 5/8-11 x 2-1/2" Grade 8 bolts, washers and stover locknuts through the mounting plate vertical plate and the inner vertical frame wall (in new holes previously drilled), capturing vertical steel shim between the mounting plate and inner frame wall if required.
 - Three (3) per side 5/8-11 x 2-1/2" Grade 8 bolts, washers and stover locknuts through the mounting plate horizontal plates, the bottom wall of the truck frame, the upper wall of the hitch assembly, capturing the horizontal steel shim between the frame and hitch assembly.

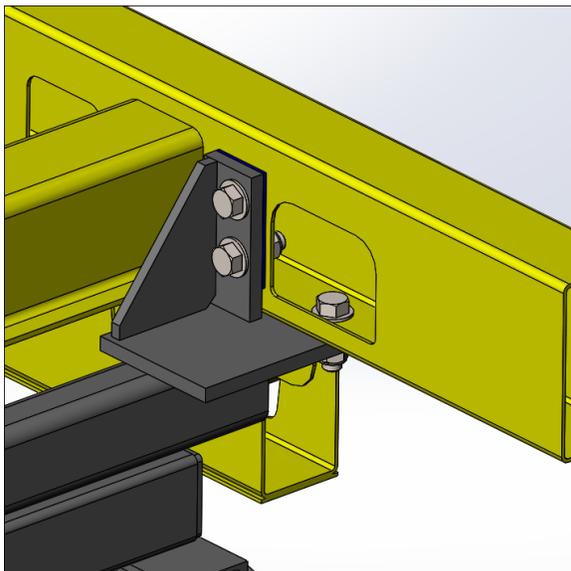


Figure 31: Mounting plate secured to frame rails

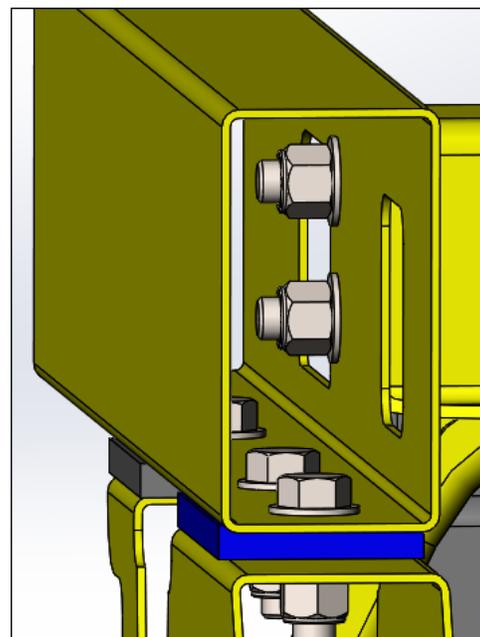


Figure 32: Mounting plate secured to frame rails

- 8- Tighten all bolts to specification (see Appendices). It is recommended to start by tightening the bottom bolts, to ensure that the mounting plate makes good contact with the underside of the frame horns

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 x 2" Grade 8 bolts, washers and nylon insert locknuts. Do not fully tighten at this point.

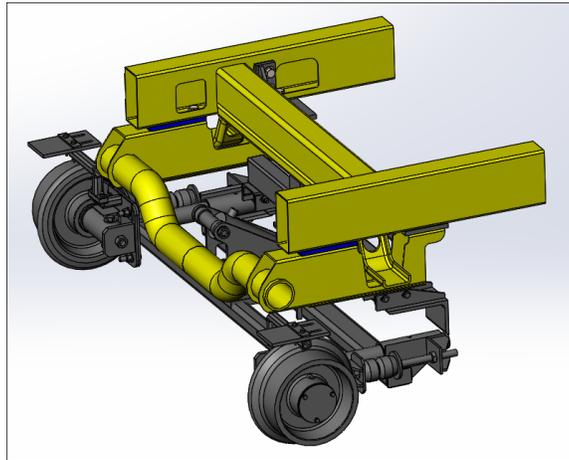


Figure 33: Rear hi-rail installed

- 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/S
Recommended Tire Size:	LT275/65R20 Load Range E
Recommended Tire Inflation Pressure:	80 psi / 550 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:	110 psi / 760 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.

INSTALLATION

Wheel Modification

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.

SUPPLIED PARTS	REQUIRED PARTS
Power pack	1/4" hoses – Various lengths
Power pack bracket	1/4" T fittings
Front valve	1ga electrical wire
Front switch	14ga electrical wire
Rear valve	Connectors – Various
Rear switch	

- 1- Install the hydraulic power pack bracket under the hood of the vehicle, where the second battery normally goes (on Diesel engine truck) or in another suitable location.
Note – The bracket provided was designed for a 2017+ Ford truck, but can be adapted / modified to fit other truck models. The bracket has nutserts to accept the power pack's bolt pattern.
- 2- Secure the bracket using adequate hardware.
- 3- Secure the power pack to the bracket using adequate hardware.
- 4- Install the front control valve and momentary switch (push button) at the front of the vehicle in a suitable location.
- 5- Install the rear control valve and momentary switch (push button) at the rear of the vehicle in a suitable location.
- 6- Run 1/4" hydraulic hoses between all components as indicated on the hydraulic schematics (see Appendix 2). The emergency hand pump and 2 way check valve indicated on the hydraulic schematic are optional.
- 7- Install hi-rail pump toggle switch in a suitable location on the vehicle's dashboard.
- 8- Run 1ga and 14ga wire between all components as indicated on the electrical schematics (see Appendix 3).

! 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

TRACK SIGNAL SHUNT KIT

(OPTIONAL)

GENERAL DESCRIPTION

The Continental Railworks Track Signal Shunt Kit has been designed to allow temporary or permanent track signal shunting by essentially removing the hi-rail insulation. Its purpose may be for testing of track signals or to comply with company policy.

The shunt kit is designed to be wired either through a switch in the cab (not supplied) to allow temporary shunting, or to be wired direct to allow permanent shunting.

Part number for replacement of the Track Signal Shunt Kit is E077A200K.

! SAFETY WARNING !

ENSURE WIRES ARE SECURED PROPERLY TO PREVENT PINCHING OR RUBBING WHICH MAY LEAD TO FAILURE.

ENSURE SHUNT KIT IS INCORPORATED IN THE HI-RAIL ANNUAL INSPECTIONS TO VERIFY ITS FUNCTIONALITY
INSTALLATION

Contents of Kit

INCLUDED

- 2 x Individual assembled plastic bushings and hardware
- 1 x Installation / Operation manual

Note: Components may be slightly different in appearance.

NOT INCLUDED

- 10 gauge electrical wire
- Momentary or Maintained switch (if required)

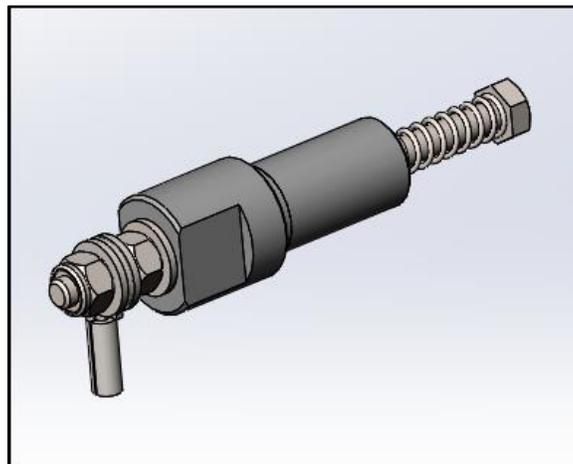


Figure 34: Individual Plastic Bushing and Hardware

Location and Mounting

- 1- The assembled plastic bushings can be installed once the hi-rail installation is complete and the rail gauge adjustment has been performed. Installing the bushings prior to performing the gauge adjustment may restrict the spindles from moving and prevent proper gauge adjustment.
- 2- The shunt kit can be installed either on the front or rear hi-rail unit. Installation on the front hi-rail is generally recommended due to the proximity to the cab and better accessibility for inspections.
- 3- Thread the plastic bushing through the $\frac{3}{4}$ " nut welded to the back of the spindle housings, until the bolt head makes contact with the spindle. Proper contact can be verified by following the "Adjustment" instructions that follow.



Figure 35: Installed Plastic Bushing and Hardware

Electrical

- 1- Using 10 gauge electrical wire, connect the two terminals on the assembled plastic bushings. Connection can be established as follows:
 - a. Wire directly from one side to the other, to allow permanent track signal shunting, or;
 - b. Wire to a momentary switch installed in the cab, to allow momentary track signal shunting, or;
 - c. Wire to a maintained switch installed in the cab, to allow maintained track signal shunting.
- 2- Ensure all wires are properly secured and kept away from moving parts.

ADJUSTMENT

- 1- With all electrical connections complete, perform a resistance test by measuring resistance between each wheel of the axle where the shunt kit is installed. The resistance value can be taken between the rail wheel and any part of the axle, but through the paint layer.
- 2- With a megohmmeter, ensure values are as follows:
 - a. Shunt position (switch ON or hard wired): Lower than 22 k Ω
 - b. Insulated position (switch OFF): Higher than 22 k Ω
- 3- If values are not satisfactory, review all wiring connections and ensure the plastic bushing is inserted so that the bolt head comes in contact with the spindle.

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 1/2" 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 1/2" 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.



Figure 36: Welded Spindle Housing (Toe and Gauge Adjustment Locked)

PRESSURE ADJUSTMENT

The hi-rail unit requires adjustment to allow for the proper balance between traction and guidance.

- 1- With the vehicle on track and the front and rear hi-rail units lowered, position the front axle over a railway tie.
- 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.
- 4- Adjust the rubber spring until the pressure required to lift the wheel is equivalent to 475 pounds of force. This is determined by multiplying the pressure (in pounds per square inch) by the surface area of the hydraulic ram (which is 3.14 times the square of the radius in inches).
- 5- Repeat for the other 3 wheels.
- 6- Perform a track test on the unit ensuring there is no excessive flanging.

STOPPER ASSEMBLIES

Once the hi-rail is functional and aligned, the stopper assemblies need to be adjusted on the front and rear mounting plates.

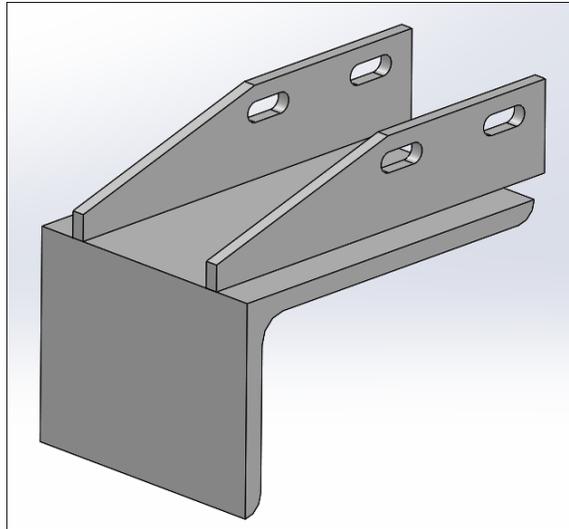


Figure 37: Stopper Assembly

There are two (2) stopper assemblies on the front mounting bracket and two (2) on the rear mounting bracket. Both the front and rear are adjusted in the same way.

- 1- Loosen the two (2) Grade 8 3/8" x 4.5" bolts on each stopper to allow the stopper assembly to move freely.
- 2- Deploy the hi-rail unit until it reaches its fully deployed and locked rail position.
- 3- Move the stopper assemblies so they make contact with the frame's 3" x 2" HSS tube as shown below.
- 4- Tighten all bolts to specification (see Appendix 1) after adjusting the stopper assemblies.

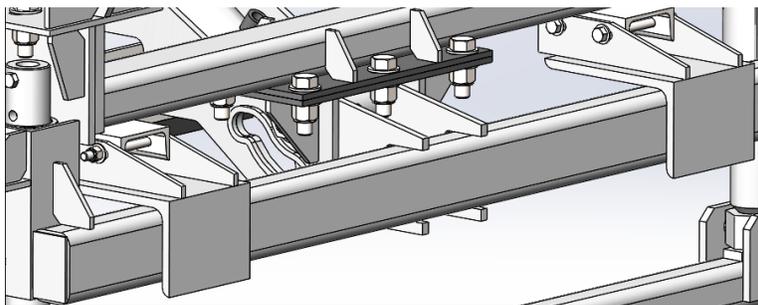


Figure38: Adjusted Stopper Assemblies

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 !

PARTS

H-12B ASSEMBLY PARTS

H-12B ASSEMBLY COMPONENTS		
PART NUMBER	DESCRIPTION	QTY
A002LB00	FRONT / REAR UNIT H-12B	2
See packing list	REAR MOUNTING BRACKET	1
See packing list	FRONT MOUNTING BRACKET	1
See packing list	CONTROL VALVE	2
See packing list	POWER PACK	1
See packing list	POWER PACK MOUNTING BRACKET	1
See packing list	PUSH BUTTON SWITCH	2
ZQ96	VELCRO STEERING LOCK	1
	BOLT KIT – REAR MTG BRACKET TO FRAME	1
	BOLT KIT – REAR HI-RAIL TO MTG BRACKET	1
	BOLT KIT – FRONT MTG BRACKET TO FRAME	1
	BOLT KIT – FRONT HI-RAIL TO MTG BRACKET	1
H-12B	H-12B MANUAL	1

FRONT / REAR H-12B UNIT

FRONT / REAR UNIT H-12B COMPONENTS		
PART NUMBER	DESCRIPTION	QTY
A012AA01	PIN ASSY 2.875" LONG	2
A012L001	H-12 PIN SPACER	2
B002LR00	H-12 INNER TUBE	2
D002L000	H-12 FRONT AXLE	1
E005B001	10" FORGED WHEEL	2
E022A001	8" WHEEL SPINDLE	2
E032A001	Timken LM104911 CUP	4
E032A002	Timken LM104949 CONE	4
E042A001	SPINDLE INSULATOR	2
E042A002	INSULATING TUBE	2
E062A001	SPINDLE CASTLE NUT (8" AND 10" S-B)	2
E062A002	G-12 G-20 WHEEL WASHER	3
E067A003	3/16" COTTER PIN 2.500"	2
E085B000	SPINDLE HOUSING	2
E112A001	National 471271 GREASE SEAL (8" & 10"SB WHEELS)	2
E122A001	HUB CAP	2
E172A001	HUB CAP GASKET 8"	2

F002LA00	H-12 FRONT FRAME	1
F082L012	STOPPER PLATE SHIM FOR H-12 MODELS	1
F102LA00	H-12 M-2017 CAM ASS'Y	1
F112L200	TREADED ROD ASS'Y	2
H026A050	2-1/2" HYDRAULIC CYLINDER x 4" STROKE	1
P002L010	1" PIN x 6.281" LONG ASS'Y	1
P002L020	1" PIN x 5.875" ASS'Y	1
P002L030	1-1/4" PIN x 6.375" ASS'Y	1
R001A300	RHS RAILSWEEP BRACKET FOR H-12B	1
R001A400	LHS RAILSWEEP BRACKET FOR H-12B	1
V002B001	RUBBER SPRING	2
V002A003	H-12 RUBBER STOPPER	1
V012B001	WEAR RING W2-2125-0750	4
	3/4" FLAT WIDE WASHER	1
	5/8" FLAT WIDE WASHER	2
	3/4" UNC JAM NUT	2
	3/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	5
	3/4" FLAT WASHER	2
	1/2" FLAT WASHER	18
	1/4" FLAT WASHER	4
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	12
	3/8" UNC GR.8 NYLON INSERT LOCKNUT	2
	1/4" UNC LIGHT NYLON INSERT LOCKNUT	4
	1/4" UNF GR.8 BOLT x 0.750" LONG	6
	1/2" UNC GR.8 BOLT x 4.000" LONG	2
	1/2" UNC GR.8 BOLT x 1.250" LONG	8
	3/8" UNC GR.8 BOLT x 1.250" LONG	2
	1/4" REGULAR SPRING LOCK WASHER	6
	SOCKET CS SCREW 1/4" UNC x 2.000"	4
	1/2" WIDE FLAT WASHER	4

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.

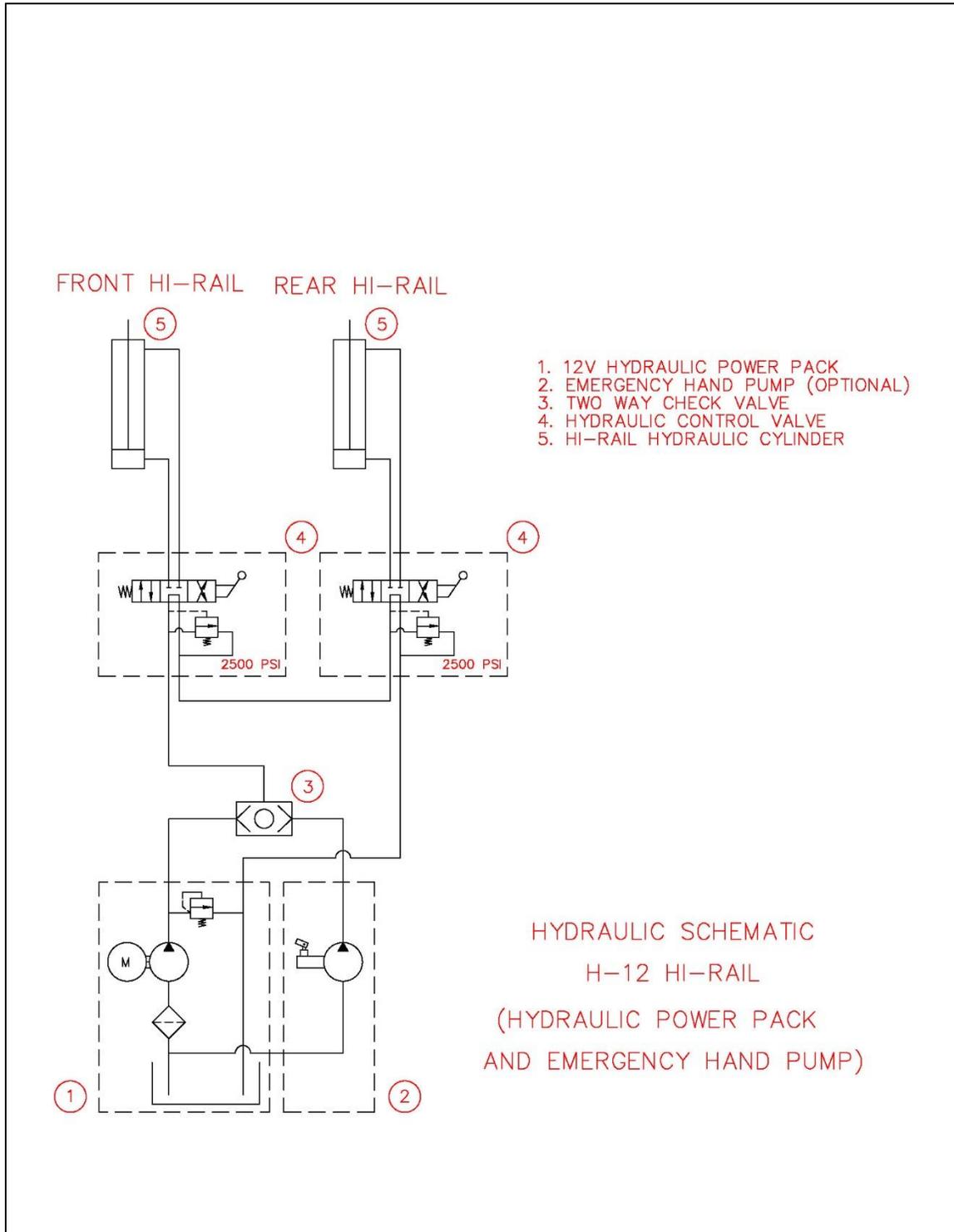
APPENDIX 1

BOLT TORQUE TABLE

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

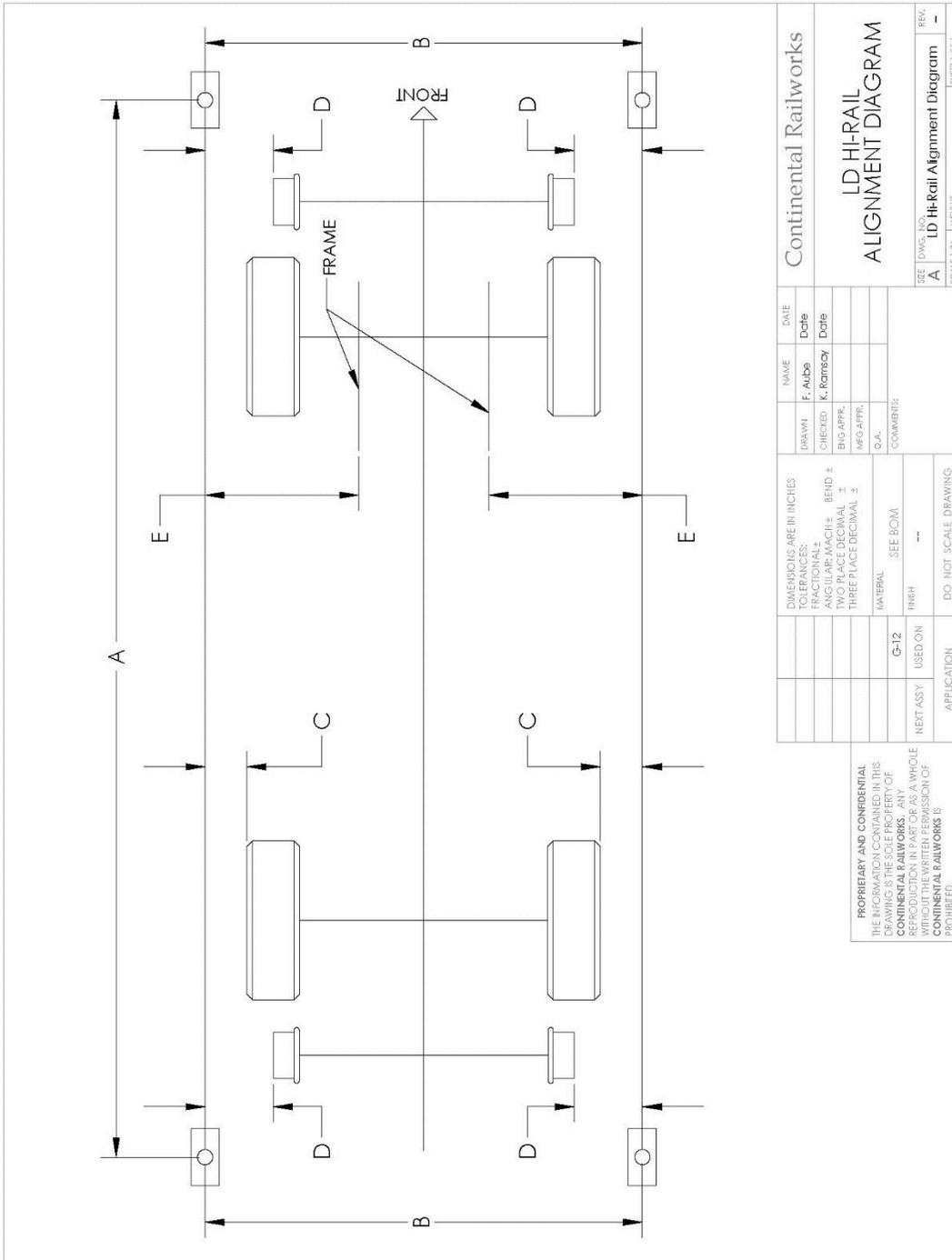
APPENDIX 2

HYDRAULIC SCHEMATICS



APPENDIX 4

ALIGNMENT DIAGRAM



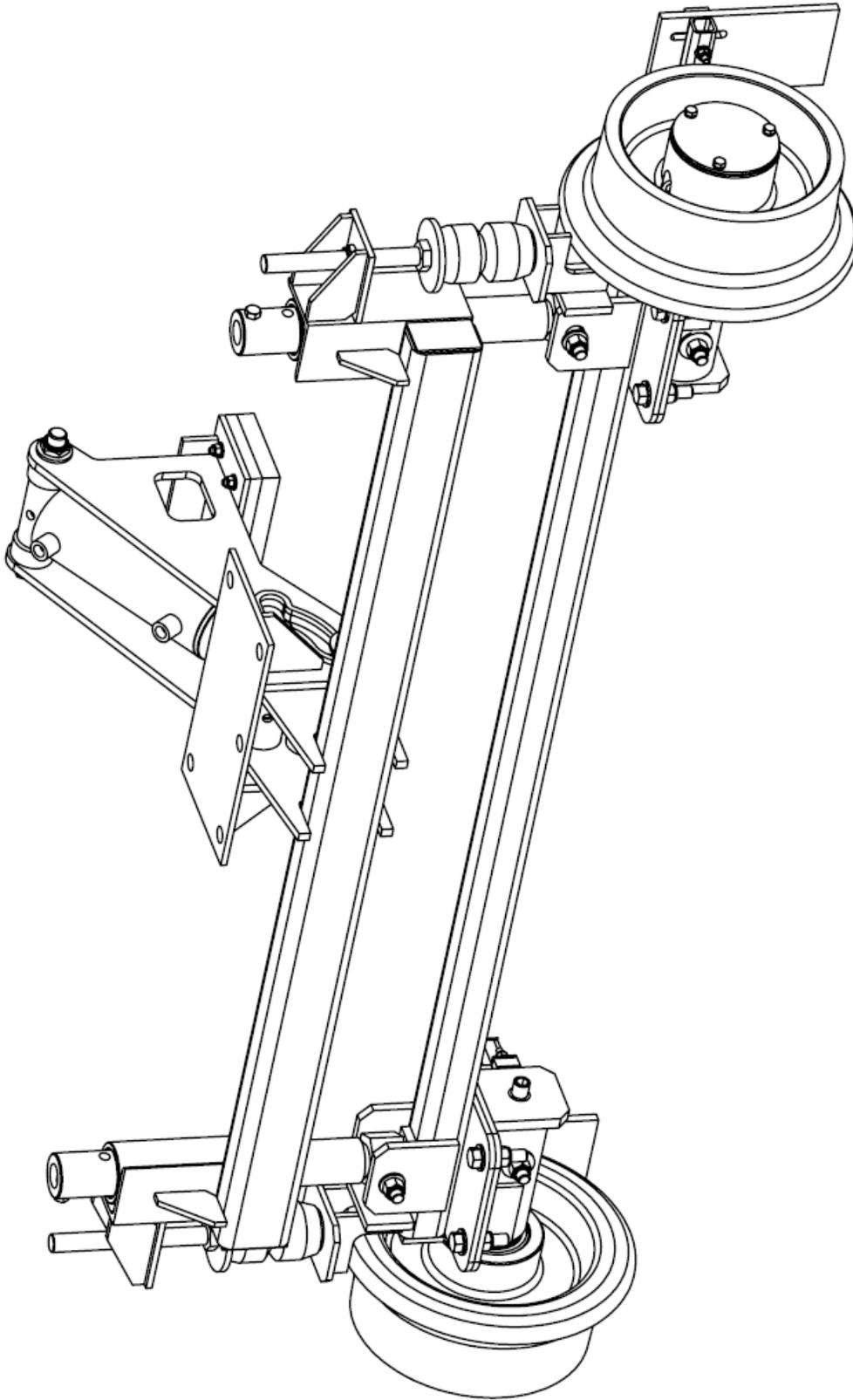
Continental Railworks		NAME	DATE
DRAWN	F. Aulsebrook	DATE	
CHECKED	K. Ramsay	DATE	
ENG APPR.			
MFG APPR.			
D.A.			
COMMENTS			
SEE DWG. NO. LD Hi-Rail Alignment Diagram			
SCALE: 1/2" = 1'-0"			
SHEET 1 OF 1			

LD HI-RAIL ALIGNMENT DIAGRAM	
<p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.</p>	<p>DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±</p> <p>MATERIAL SEE BOM FINISH ---</p> <p>DO NOT SCALE DRAWING</p>
<p>APPLICATION</p> <p>USED ON</p> <p>NEXT ASSY</p>	<p>APPENDIX 4</p> <p>ALIGNMENT DIAGRAM</p>

APPENDIX 6

FRONT / REAR H-12B DRAWINGS

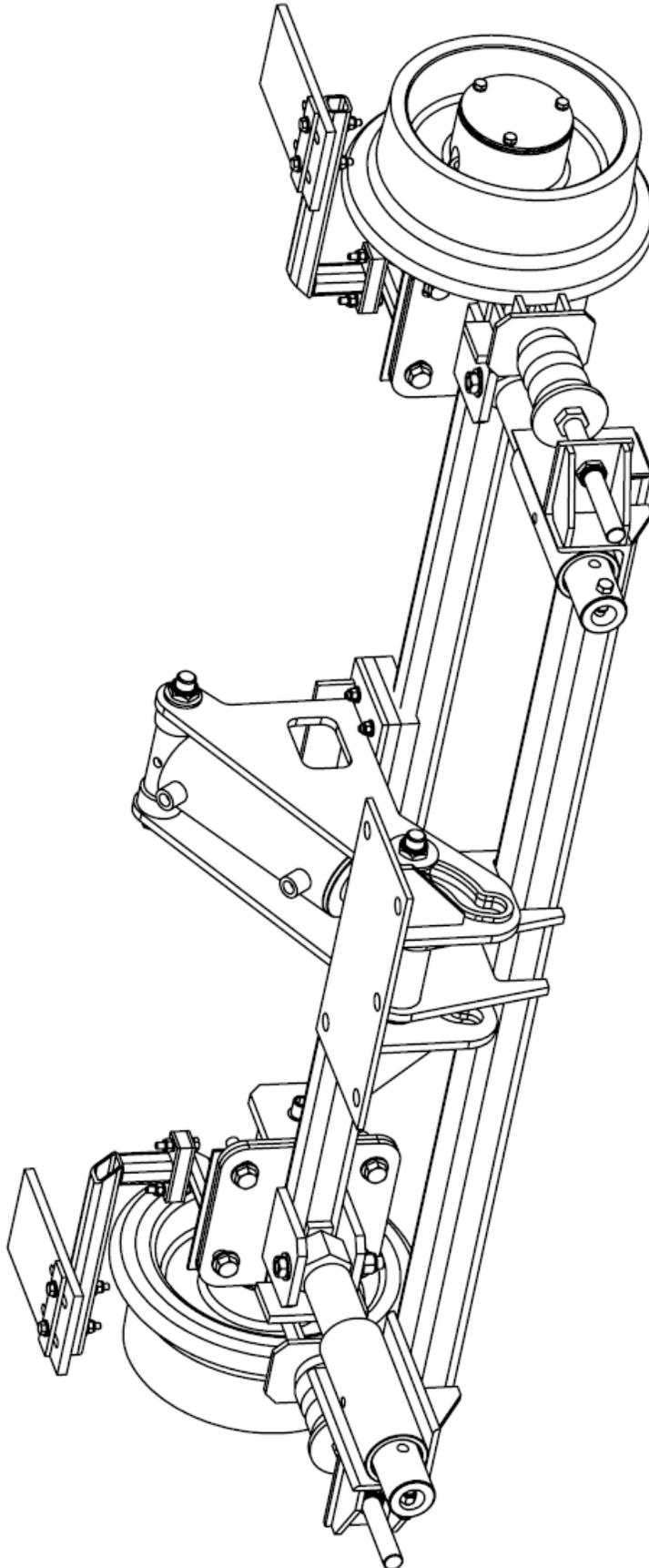
NOTE – Some components may differ slightly from drawings shown.



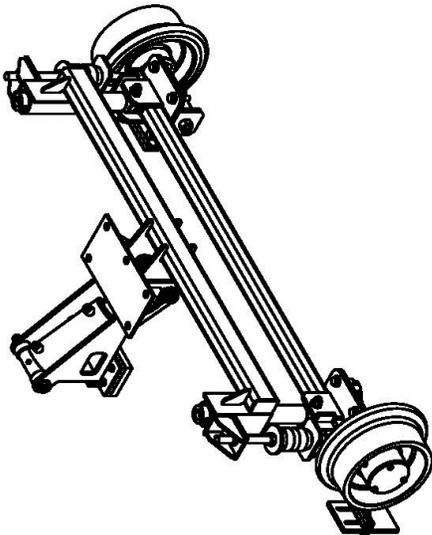
Continental Railworks H-12B FINAL ASSEMBLY (H-12 WITH 10" WHEEL)		DATE 11/22/2017
NAME N. Gromak	CHECKED F. Aubé	DATE 11/22/2017
DRAWN N. Gromak	ENG/APP F. Aubé	DATE 11/22/2017
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MACH: ± THREE PLACE DECIMAL: ±	MATERIAL: SEE BOM FINISH: --	DATE 12/1/2017
NEXT ASSY	USED ON	COMMENTS:
APPLICATION	DO NOT SCALE DRAWING	SCALE: 1:1

PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS
 DRAWING IS THE SOLE PROPERTY OF
 CONTINENTAL RAILWORKS. ANY
 REPRODUCTION IN PART OR AS A WHOLE
 WITHOUT THE WRITTEN PERMISSION OF
 CONTINENTAL RAILWORKS IS
 PROHIBITED.

SIZE A	DWG. NO. A002LB00	REV. -
SCALE: 1:1	WEIGHT: 328.77	SHEET 1 OF 8



CONTINENTAL RAILWORKS IS PROHIBITED. REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS. ANY CONTINENTAL RAILWORKS. ANY CONTINENTAL RAILWORKS. THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS.		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MACH: ± TWO PLACE DECIMAL: ± THREE PLACE DECIMAL: ±		DRAWN: N. Gromak CHECKED: F. Aubé ENG APPR: F. Aubé MFG APPR: PRINTED: COMMENTS:	NAME: N. Gromak DATE: 11/22/2017 11/22/2017 11/22/2017 12/1/2017	Continental Railworks H-12B FINAL ASSEMBLY (H-12 WITH 10" WHEEL)	REV. - A002LB00 328.77 SHEET 2 OF 8
		MATERIAL: SEE BOM FINISH: - DO NOT SCALE DRAWING	NEXT ASSY: USED ON APPLICATION:	SCALE: 1:1 WEIGHT:	SIZE: A		



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1				18	A012AA01	PIN ASSY 2.875" LONG	2
2		3/4" FLAT WIDE WASHER	1	19	A012L001	H-12 PIN SPACER	2
3		5/8" FLAT WIDE WASHER	2	20	B002LR00	H-12 INNER TUBE	2
4		3/4" UNC. JAM NUT	2	21	D002L000	H-12 FRONT AXLE	1
5		3/4" UNC. GR.8 LIGHT NYLON INSERT LOCKNUT	5	22	E003B001	10" FORGED WHEEL	2
6		3/4" FLAT WASHER	2	23	E022A001	8" WHEEL SPINDLE	2
7		1/2" FLAT WASHER	18	24	E032A001	Timken LM104911 CUP	4
8		1/4" FLAT WASHER	4	25	E032A002	Timken LM104949 CONE	4
9		1/2" UNC GR.8 NYLON INSERT LOCKNUT	12	26	E042A001	SPINDLE INSULATOR	2
10		3/8" UNC GR.8 NYLON INSERT LOCKNUT	2	27	E042A002	INSULATING TUBE	2
11		1/4" UNC LIGHT NYLON INSERT LOCKNUT	4	28	E062A001	SPINDLE CASTLE NUT (8" AND 10" S-B)	2
12		1/4" UNF GR.8 BOLT x 0.750" LONG	6	29	E062A002	G-12 G-20 WHEEL WASHER	2
13		1/2" UNC GR.8 BOLT x 4.000" LONG	2	30	E067A003	3/16" COTTER PIN 2.500"	2
14		1/2" UNC GR.8 BOLT x 1.250" LONG	8	31	E083B000	SPINDLE HOUSING	2
15		3/8" UNC GR.8 BOLT x 1.250" LONG	2	32	E112A001	Notional 471271 GREASE SEAL (8" & 10"SB WHEELS)	2
16		1/4" REGULAR SPRING LOCK WASHER	6	33	E122A001	HUB CAP	2
17		SOCKET CS SCREW 1/4" UNC x 2.000"	4	34	E172A001	HUB CAP GASKET 8"	2
				35	F002LA00	H-12 FRONT FRAME	1
				36	F082L012	1/2" STOPPER PLATE SHIM FOR H-12 MODELS	1
				37	F102LA00	H-12 M-2017 CAM ASSY	1
				38	F112L200	TREADED ROD ASSY	2
				39	H02&A050	2-1/2" HYDRAULIC CYLINDER x 4" STROKE	1
				40	P002L010	1" PIN x 6.281" LONG ASSY	1
				41	P002L020	1" PIN x 5.875" ASSY	1
				42	P002L030	1-1/4" PIN x 6.375" ASSY	1
				43	R001A300	RHS RAILSWEEP BRACKET FOR H-12B	1
				44	R001A400	LHS RAILSWEEP BRACKET FOR H-12B	1
				45	V002B001	RUBBER SPRING	2
				46	V002A003	H-12 RUBBER STOPPER	1
				47	V012B001	WEAR RING W2-2125-0750	4

Continental Railworks

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

NAME	DATE
N. Cromack	11/22/2017
DRAWN	CHECKED
F. Aub6	F. Aub6
ENG APPR.	11/22/2017
MFG APPR.	
PRINTED:	5/10/2018
COMMENTS:	

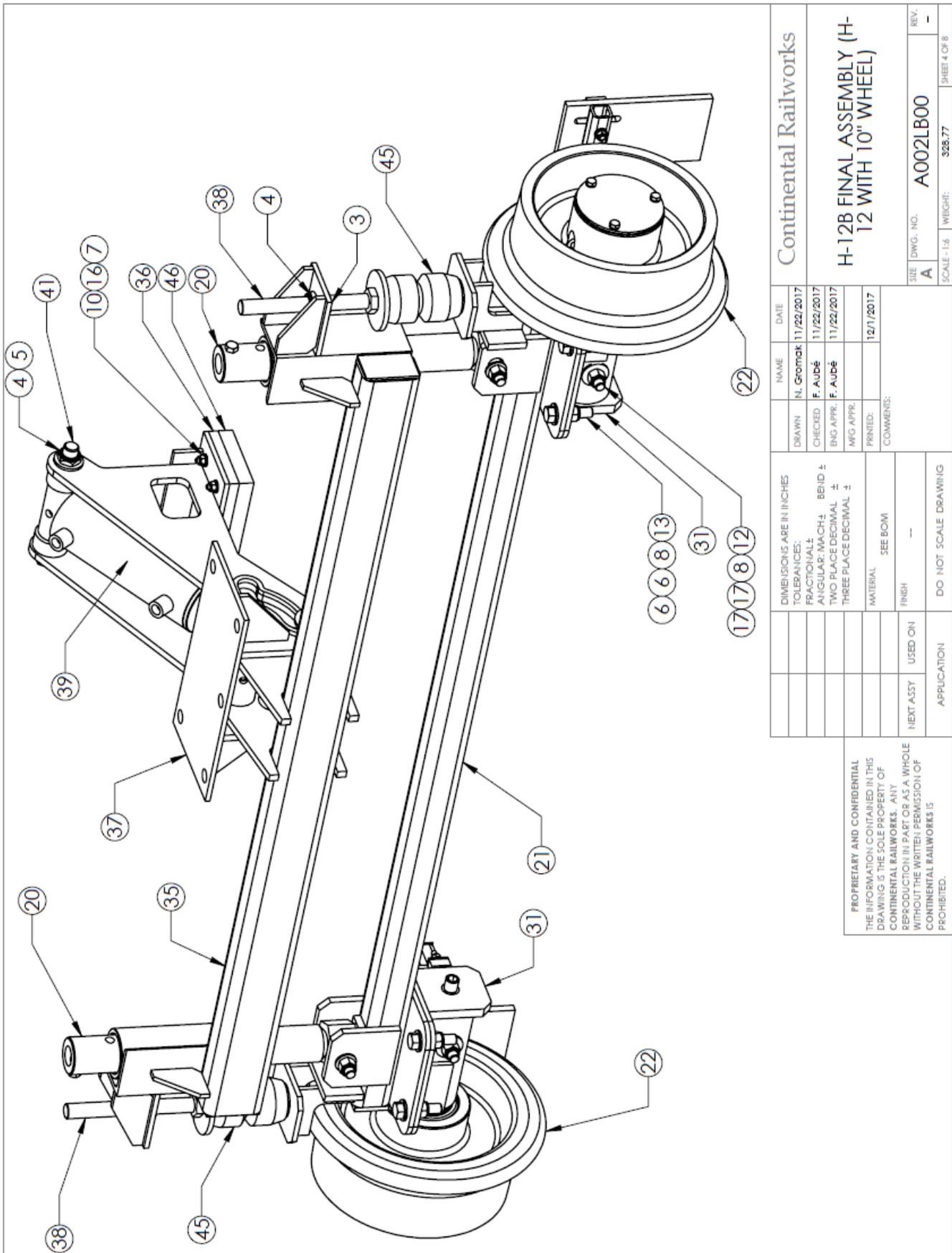
SEE DWG. NO. **A002LB00** REV. **-**

SCALE: 1:16 WEIGHT: 328.32 SHEET 3 OF 8

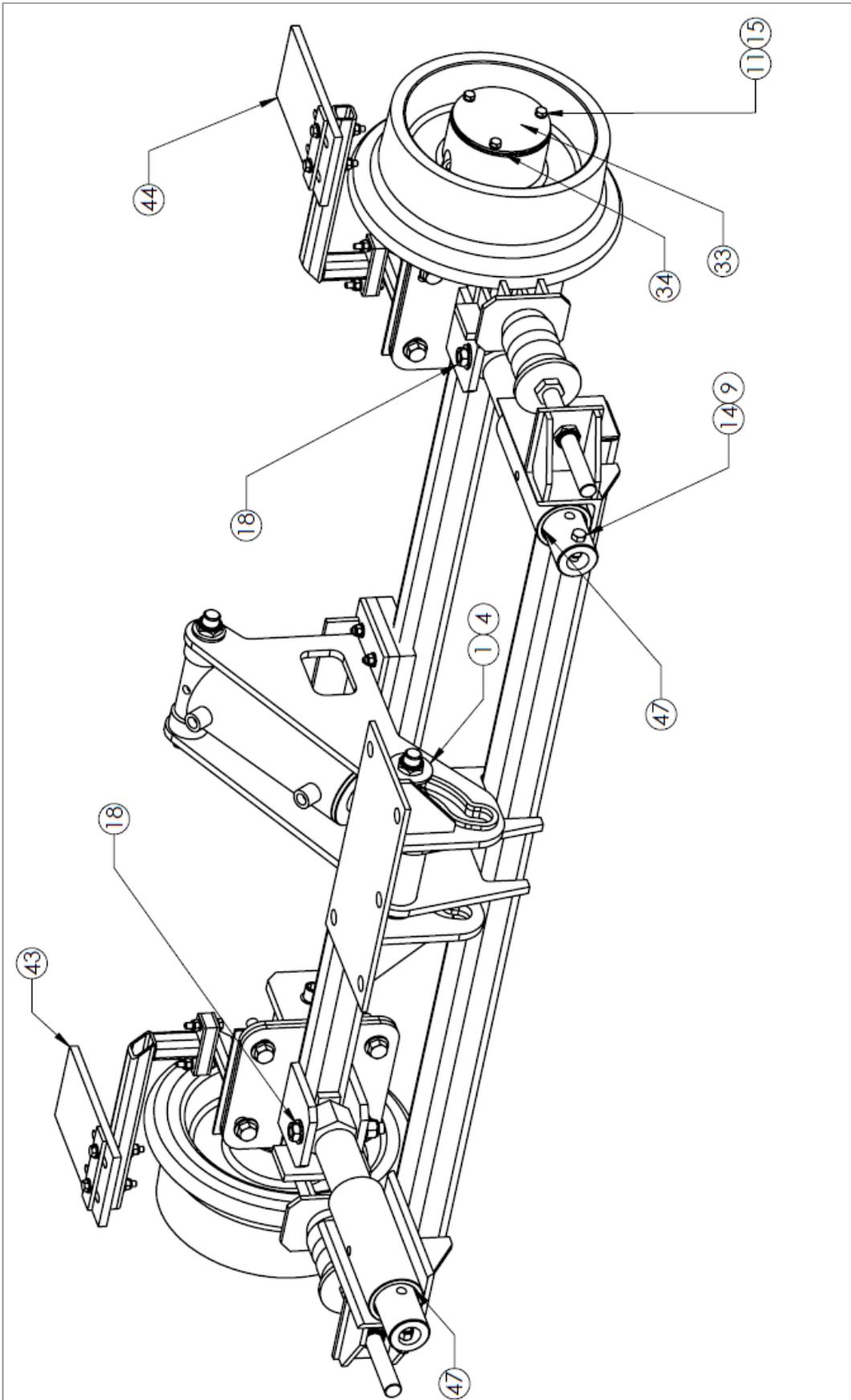
PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.

APPLICATION: NEXT ASSY USED ON

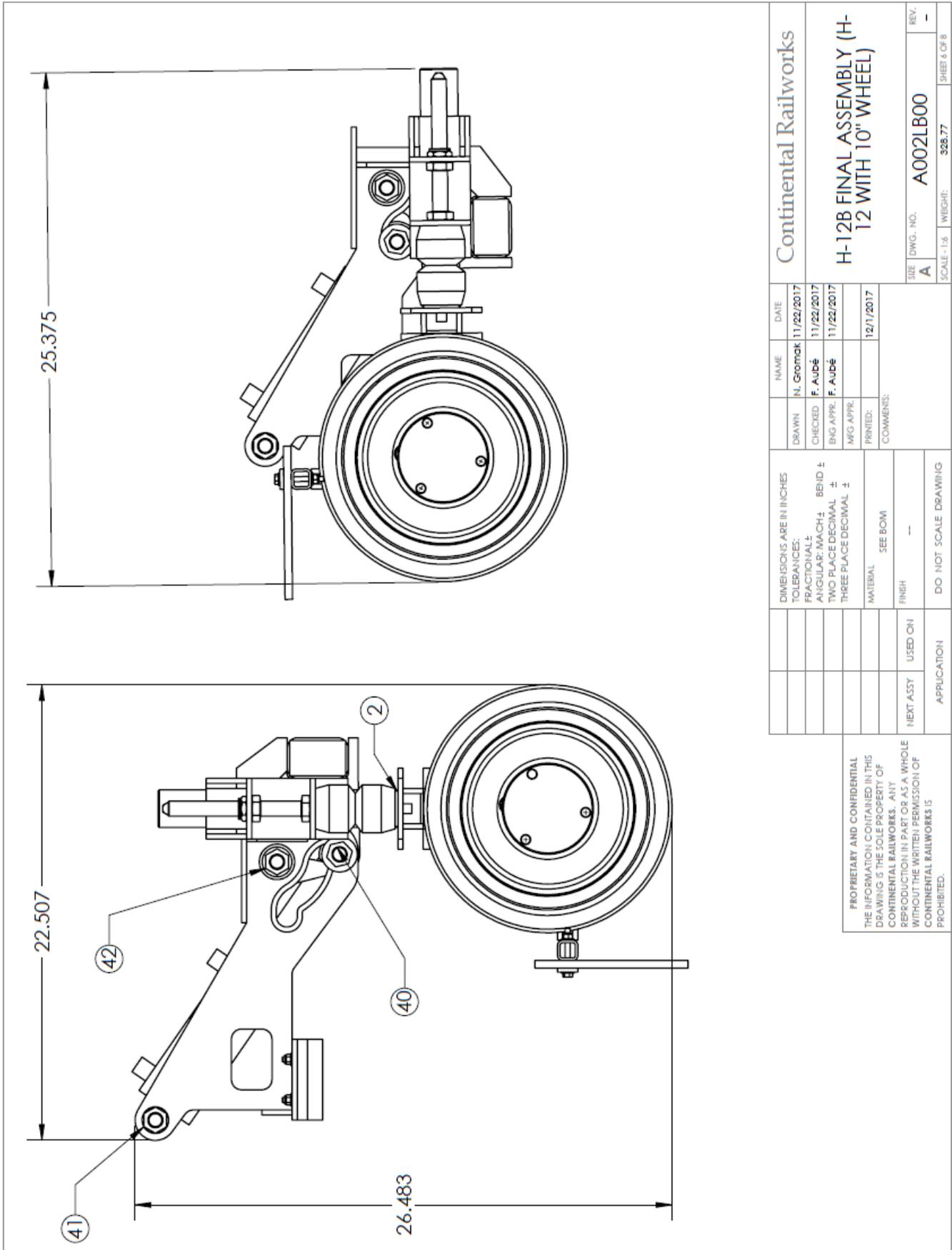
DO NOT SCALE DRAWING



APPENDIX 6
 FRONT / REAR H-12B DRAWINGS

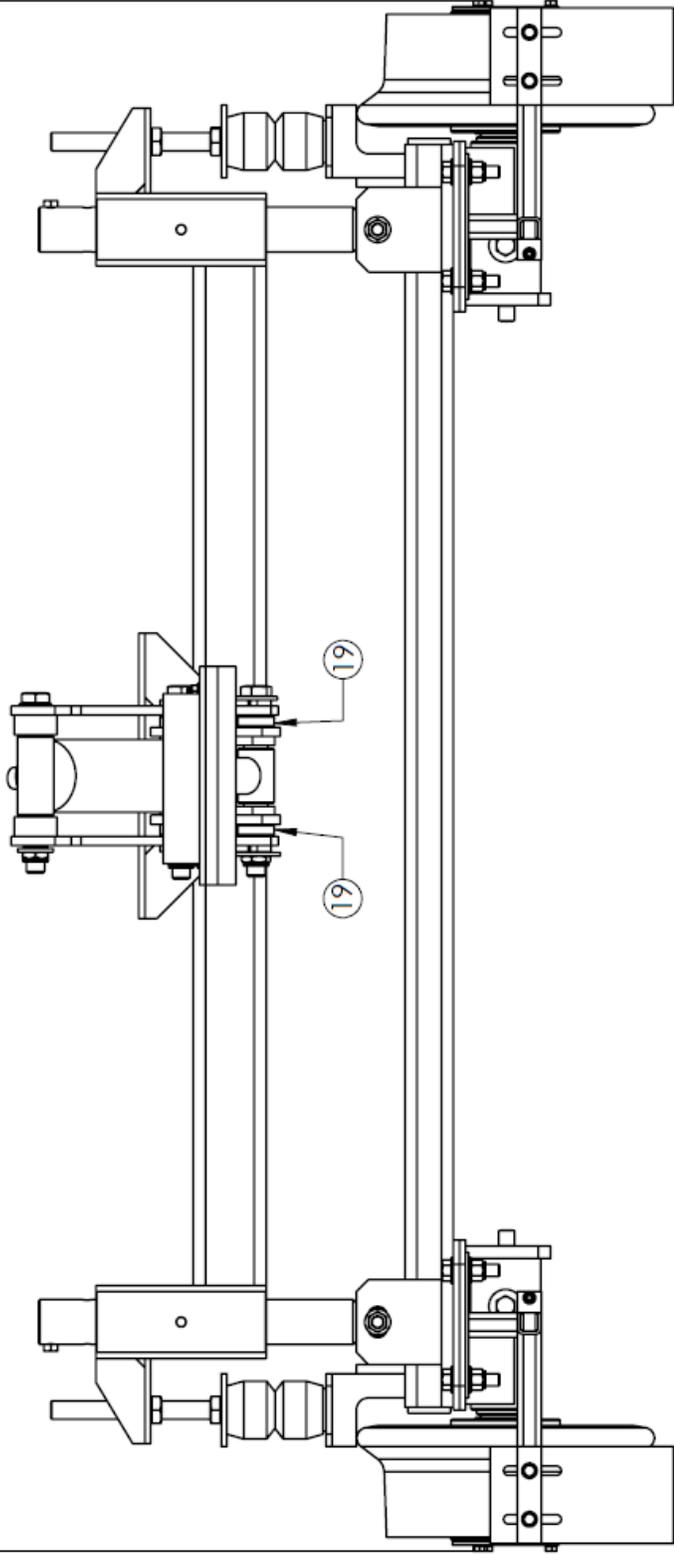


DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MACH: ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ± MATERIAL: SEE BOM FINISH: -- NEXT ASSY: USED ON APPLICATION: DO NOT SCALE DRAWING		NAME: N. Gromark DATE: 11/22/2017 CHECKED: F. Aubé DATE: 11/22/2017 ENG APPR: F. Aubé DATE: 11/22/2017 MFG APPR: PRINTED: 12/1/2017 COMMENTS:	Continental Railworks H-12B FINAL ASSEMBLY (H-12 WITH 10" WHEEL)
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.	SIZE: A DWG. NO.: A002LB00 WEIGHT: 328.77 SHEET 3 OF 8	REV: - SCALE: 1:1	

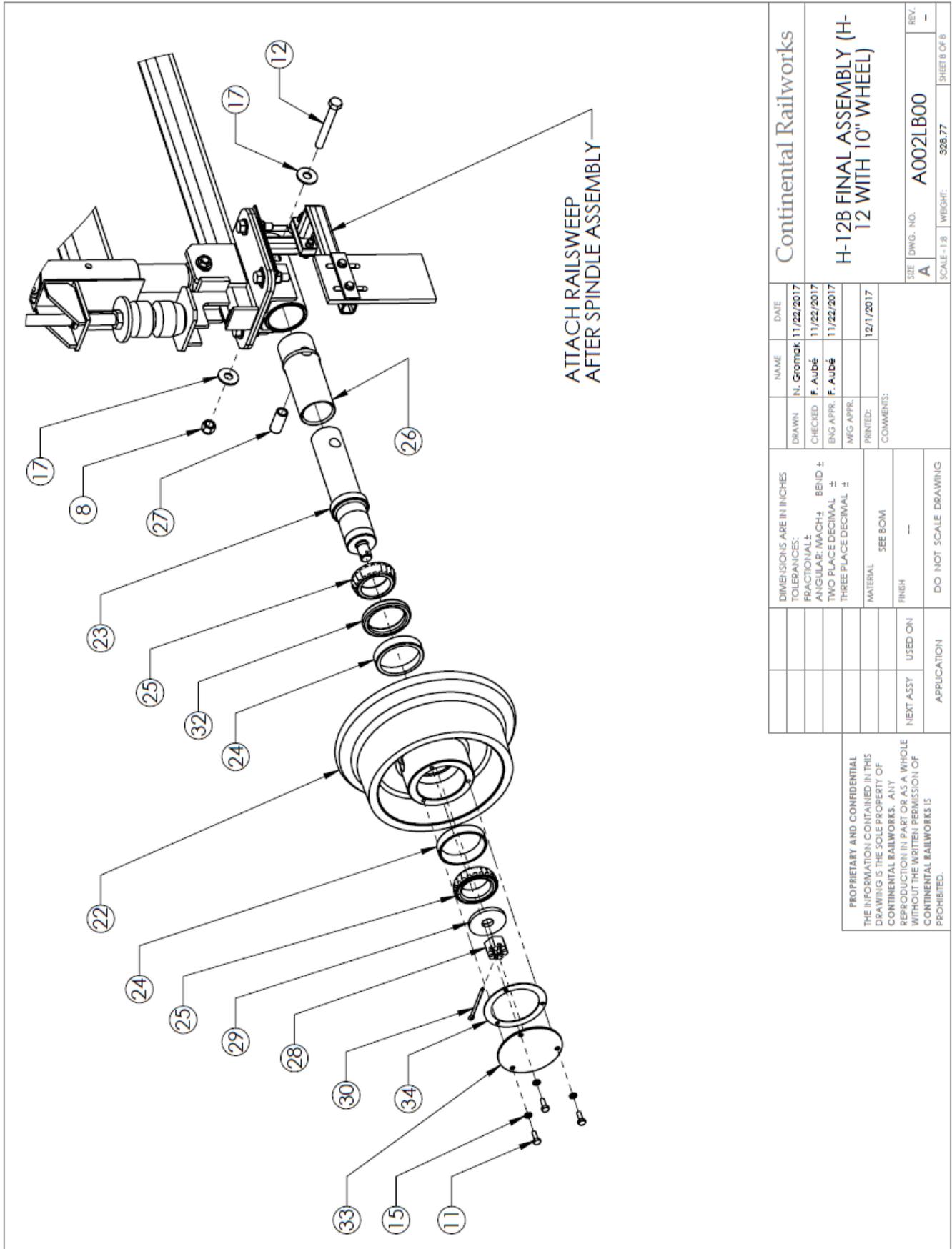


Continental Railworks			
DRAWN	N. Gromark	DATE	11/22/2017
CHECKED	F. Aubé	11/22/2017	
ENG APPR	F. Aubé	11/22/2017	
MFG APPR			
PRINTED:		12/1/2017	
COMMENTS:			
DIMENSIONS ARE IN INCHES			
TOLERANCES:			
FRACTIONAL: ±			
ANGULAR: MACH: ± BEHD: ±			
TWO PLACE DECIMAL ±			
THREE PLACE DECIMAL ±			
MATERIAL: SEE BOM			
FINISH: --			
DO NOT SCALE DRAWING			
NEXT ASSY	USED ON	APPLICATION	
<p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.</p>			
H-12B FINAL ASSEMBLY (H-12 WITH 10" WHEEL)		DWG. NO.	A002LB00
SCALE: 1:16	WEIGHT:	328.77	SHEET 6 OF 8

63.875



CONTINENTAL RAILWORKS H-12B FINAL ASSEMBLY (H-12 WITH 10" WHEEL)		DRAWN: N. Gromark CHECKED: F. Aubé ENG. APPR.: F. Aubé MFG. APPR.: PRINTED: 12/1/2017 COMMENTS:	NAME: N. Gromark DATE: 11/22/2017 NAME: F. Aubé DATE: 11/22/2017 NAME: F. Aubé DATE: 11/22/2017 NAME: DATE: 12/1/2017	DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MACH: ± BEND: ± TWO PLACE DECIMAL: ± THREE PLACE DECIMAL: ± MATERIAL: SEE BOM FINISH: -- NEXT ASSY: USED ON APPLICATION: DO NOT SCALE DRAWING	SITE: A DWG. NO.: A002LB00 SCALE: 1:1 WEIGHT: 328.77 SHEET 7 OF 8 REV.: -
		PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.			



Continental Railworks		NAME	DATE
DRAWN	N. Gromak	11/22/2017	
CHECKED	F. Aubé	11/22/2017	
ENG APPR.	F. Aubé	11/22/2017	
MFG APPR.			
PRINTED:		12/1/2017	
COMMENTS:			
DIMENSIONS ARE IN INCHES			
TOLERANCES:			
FRACTIONAL:			
ANGULAR: MACH	BEND:		
TWO PLACE DECIMAL	THREE PLACE DECIMAL		
MATERIAL:	SEE BOM		
FINISH:	---		
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE	DRAWING	

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS
DRAWING IS THE SOLE PROPERTY OF
CONTINENTAL RAILWORKS. ANY
REPRODUCTION IN PART OR AS A WHOLE
WITHOUT THE WRITTEN PERMISSION OF
CONTINENTAL RAILWORKS IS
PROHIBITED.

SIZE	DWG. NO.	REV.
A	A002LB00	-
SCALE: 1:8	WEIGHT:	SHEET 8 OF 8
328.77		

APPENDIX 7

PACKING LIST