



MANUAL

INSTALLATION – OPERATION – PARTS – SERVICE

60 SERIES HI-RAIL UNIT

(56,000 to 89,000 lbs GVWR TRUCKS)

G-60 FRONT

G-60 REAR

May 2022

Revision 1

CONTINENTAL RAILWORKS

7380 Vérité, St-Laurent, QC, Canada, H4S 1C5
Phone : 514-956-8081 Fax : 514-956-0737

INTRODUCTION	5
GENERAL INFORMATION	6
GENERAL DESCRIPTION	6
OPTIONS	7
<i>Rear Air Brakes.....</i>	<i>7</i>
<i>Auxiliary Hydraulic Brakes (Front).....</i>	<i>7</i>
<i>Auxiliary Hydraulic Brakes (Front and Rear)</i>	<i>7</i>
<i>Hydraulic Power Pack.....</i>	<i>7</i>
<i>Emergency Hand Pump.....</i>	<i>7</i>
<i>Track Signal Shunt Kit</i>	<i>7</i>
<i>Pneumatic Suspension Kit</i>	<i>7</i>
APPROVED CHASSIS MODELS.....	7
INSTALLATION	8
SPECIAL CONSIDERATIONS.....	8
<i>Vehicle Condition</i>	<i>8</i>
<i>Vehicle Rear Suspension.....</i>	<i>8</i>
<i>Exhaust Tailpipe</i>	<i>8</i>
<i>Modifications to Hi-Rail or Mounting Components</i>	<i>8</i>
FRONT UNIT INSTALLATION	9
<i>Chassis Preparation.....</i>	<i>9</i>
<i>Front Cam Modification</i>	<i>9</i>
<i>Installation – Universal Front Mounting Brackets</i>	<i>11</i>
<i>Installation – Universal Front Spring hangers.....</i>	<i>12</i>
<i>Installation – Universal Front Cross tube</i>	<i>15</i>
REAR UNIT INSTALLATION	17
<i>Rear Mounting Plates</i>	<i>17</i>
<i>Rear Hi-Rail Unit.....</i>	<i>19</i>
STEERING WHEEL LOCK	20
HYDRAULICS.....	21
<i>PTO / Pump Setup</i>	<i>21</i>
<i>Hydraulic Power Pack Setup.....</i>	<i>22</i>
PNEUMATIC BRAKE VALVE KIT	23
<i>General Description.....</i>	<i>23</i>
<i>Operation</i>	<i>23</i>
<i>Installation</i>	<i>24</i>
TRACK SIGNAL SHUNT KIT	27
<i>General Description.....</i>	<i>27</i>
<i>Installation</i>	<i>27</i>
PNEUMATIC SUSPENSION KIT	29
<i>General Description.....</i>	<i>29</i>
<i>Installation – H105E003 Tandem Axle Trucks.....</i>	<i>30</i>
<i>Installation – H105E004 Single Axle Trucks</i>	<i>34</i>
<i>Adjustment.....</i>	<i>38</i>
ALIGNMENT AND ADJUSTMENT	39
G-60 FRONT SIDE TO SIDE ALIGNMENT	39
G-60 REAR SIDE TO SIDE ADJUSTMENT	40
ALIGNMENT PROCEDURE STANDARD HI-RAIL	41
PRESSURE ADJUSTMENT	43
STOPPER ASSEMBLIES	44
<i>Purpose</i>	<i>45</i>
<i>Adjustment.....</i>	<i>45</i>

TRACK TEST.....	46
FINALIZING ALIGNMENT / ADJUSTMENT	47
OPERATION	49
ON ROAD	49
<i>Vehicle Dimensions</i>	49
<i>Vehicle Payload</i>	49
ON RAIL	49
<i>Rear Unit</i>	49
<i>Front unit</i>	50
<i>Steering Wheel Lock</i>	50
<i>Speed Limits</i>	50
<i>Track Curvature</i>	50
PARTS	51
FRONT G-60 UNIT	51
REAR G-60 UNIT	52
REAR G-60 UNIT (NO REAR BRAKES).....	53
G-60 SPINDLE ASSEMBLY PARTS.....	54
SERVICE	55
RECOMMENDED MAINTENANCE INTERVALS	55
WHEEL WEAR	56
WHEEL BEARING ADJUSTMENT	56
SPINDLE REMOVAL	56
BRAKE SHOE ADJUSTMENT.....	56
BRAKE SHOE REPLACEMENT	57
GREASE POINTS	57
RECOMMENDED GREASE	57
RECOMMENDED HYDRAULIC FLUID.....	57
CONTACT INFORMATION.....	58
LIMITED WARRANTY INFORMATION	58
APPENDIX 1	59
BOLT TORQUE TABLE	59
APPENDIX 2	60
MOUNTING ENVELOPE.....	60
APPENDIX 3	61
HYDRAULIC SCHEMATICS	61
APPENDIX 4	64
PNEUMATIC BRAKE DIAGRAM.....	64
APPENDIX 5	67
SHUNT KIT	67
APPENDIX 6	69
PNEUMATIC SCHEMATICS – H105E003 TANDEM AXLE TRUCKS	69
PNEUMATIC SCHEMATICS – H105E004 SINGLE AXLE TRUCKS.....	70
ELECTRICAL SCHEMATICS – H105E003 TANDEM AXLE TRUCKS.....	71
ELECTRICAL SCHEMATICS – H105E004 SINGLE AXLE TRUCKS	72
APPENDIX 7	73

ALIGNMENT DIAGRAM	73
APPENDIX 8	74
ALIGNMENT AND PRESSURE DATA FORM	74
APPENDIX 9	75
FRONT G-60 DRAWINGS	75
APPENDIX 10	78
REAR G-60 DRAWINGS	78
APPENDIX 11	84
REAR G-60 DRAWINGS (NO BRAKES).....	84
APPENDIX 12	91
G-60 SPINDLE ASSEMBLY DRAWINGS	91
APPENDIX 13	93
UNIVERSAL MOUNTING BRACKET SYSTEM DRAWINGS.....	93
APPENDIX 14	ERROR! BOOKMARK NOT DEFINED.
PACKING LIST	ERROR! BOOKMARK NOT DEFINED.

INTRODUCTION

The following installation, operation, parts, and service manual has been prepared to be used with the Continental Railworks **60 SERIES** hi-rail unit on a 56,000 to 89,000 lbs GVWR heavy truck.

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 60 Series is designed for tandem/tridem axle heavy trucks with a GVWR between 56,000 and 89,000 lbs. For this application, the 60 Series is the only model currently available that does not require manual locking mechanisms such as pins, 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 14" guide wheels offer good service life due to the depth of hardness. Material selection in key areas (pins, slots, structural assemblies) ensure adequate wear resistance and improve the overall service life of the hi-rail unit.

Rubber aeon suspension in the rear unit improves ride quality on rail and contributes to maintaining proper rail contact over crossings or irregular rail sections. Braking is achieved using front air brakes (front standard, rear optional) or hydraulic brakes (front and rear available). Traction is adjustable by preloading the rear rubber suspension.

The combined weight of the 60 Series hi-rail, mounting plates and all necessary valves is approximately 2350 lbs for a G-60 front and G-60 rear combination.

OPTIONS

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

REAR AIR BRAKES

Front air brakes are standard on all G-60 hi-rail units, but rear brakes are available if required. The same components are used on the rear unit as on the front unit. Plumbing the air lines to the rear brakes is detailed in the Pneumatic Brake Valve Kit section of the manual.

AUXILIARY HYDRAULIC BRAKES (FRONT)

Front air brakes can be substituted for hydraulic brakes if the chassis is equipped with hydraulic brakes. The brakes are powered by a separate hydraulic power pack and are pressure adjustable. Details can be found in the Auxiliary Hydraulic Brake Kit section of the manual.

AUXILIARY HYDRAULIC BRAKES (FRONT AND REAR)

Front and rear (optional) air brakes can be substituted for hydraulic brakes if the chassis is equipped with hydraulic brakes. The brakes are powered by a separate hydraulic power pack and are pressure adjustable. Details can be found in the Auxiliary Hydraulic Brake Kit section of the manual.

HYDRAULIC POWER PACK

A hydraulic power pack can be supplied to substitute the typical PTO/pump hydraulic power source, used to deploy and retract the hi-rail. Electrical and hydraulic schematics can be found in the Appendices.

EMERGENCY HAND PUMP

Continental Railworks offers an optional emergency hand pump to complement the hydraulic PTO/pump setup. This can be used to deploy or retract the hi-rail in the event of an electrical or mechanical failure at the main hydraulic power source. Hydraulic schematics can be found in the Appendices.

TRACK SIGNAL SHUNT KIT

Continental Railworks offers an option to temporarily shunt track signals by overriding the spindle insulators on demand through a switch in the cab. Details can be found in the Track Signal Shunt Kit section of the manual.

PNEUMATIC SUSPENSION KIT

Continental Railworks offers an option to allow proper chassis air bag adjustability when installing hi-rail on an air ride truck. Regulating the air pressure in the suspension is required to maintain proper traction on track. Details can be found in the Pneumatic Suspension Kit section of the manual.

APPROVED CHASSIS MODELS

International 7600
Freightliner M2, 114SD
Western Star 4700SB
Etc

Truck needs to have front frame extensions (integral recommended) for installation of front hi-rail.

See mounting envelope in Appendices for minimal space requirements.

INSTALLATION

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.

VEHICLE REAR SUSPENSION

If the vehicle is equipped with rear air bag suspension, a Pneumatic Suspension Kit will be required to bypass the chassis' OEM leveling valve. This will ensure that the vehicle provides consistent and reliable traction while on rail. Vehicles equipped with leaf springs or rubber suspension only require proper height and pre-load adjustment.

EXHAUST TAILPIPE

If the truck is equipped with a horizontal exhaust system, 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.

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, hood hinges, 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.

! 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

CONTACT CONTINENTAL RAILWORKS PRIOR TO MODIFYING ANY PART OF THE HI-RAIL OR MOUNTING HARDWARE

DO NOT ATTACH OTHER EQUIPMENT OR ACCESSORIES TO THE HI-RAIL OR MOUNTING PLATES

FRONT UNIT INSTALLATION

Continental Railworks provides a universal mounting bracket system that is designed to adapt the hi-rail to any chassis. Refer to the drawings in the Appendices for more details.

CHASSIS PREPARATION

- 1- Start by ensuring the chassis is parked on a flat and level surface.
- 2- Remove the front bumper and place in a safe location to avoid damage. The bumper may be reinstalled at the end of the front hi-rail installation.
- 3- Remove the frame mounted tow hooks. Tow hooks may be reinstalled at the end of the front hi-rail installation.
- 4- Remove the frame mounted bumper brackets. Reinstall at the end of the front hi-rail installation if required.
- 5- Disconnect the truck batteries.
- 6- For ease of access and an easier alignment, it is recommended to raise the chassis on 12" blocks for the duration of the hi-rail installation and alignment.

FRONT CAM MODIFICATION

The Continental Railworks 60 Series front rail gear is now delivered with extended cams. The front cam assembly is designed for chassis that have an axle to end of frame distance greater than 48".

If the distance is 48" or less, the front cam arms can be shortened by observing the following steps:

- 1- Start by removing items 1 (Spring Hanger Pins) and items 2 (Spring Hanger Mounts) from both sides.

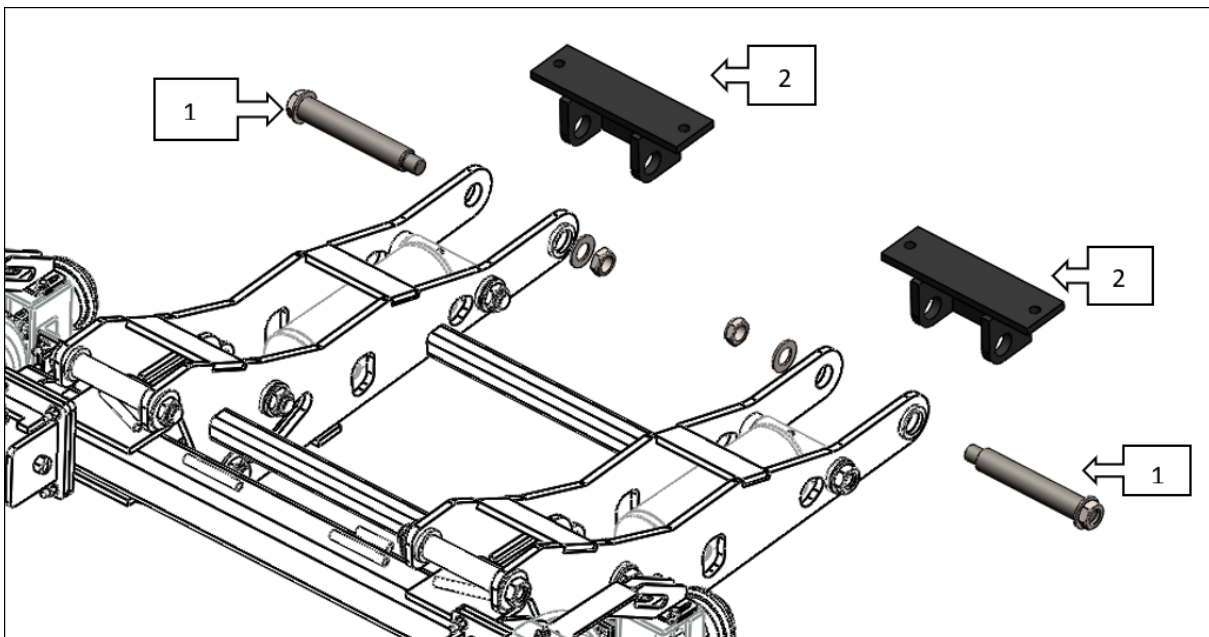


Figure 1: G-60 front components – Long cam plates

- 2- Measure back $\frac{3}{4}$ " from the reinforcement on the cylinder pin (Item 3) and make a vertical line as shown below. Repeat this on all 4 cam plates.

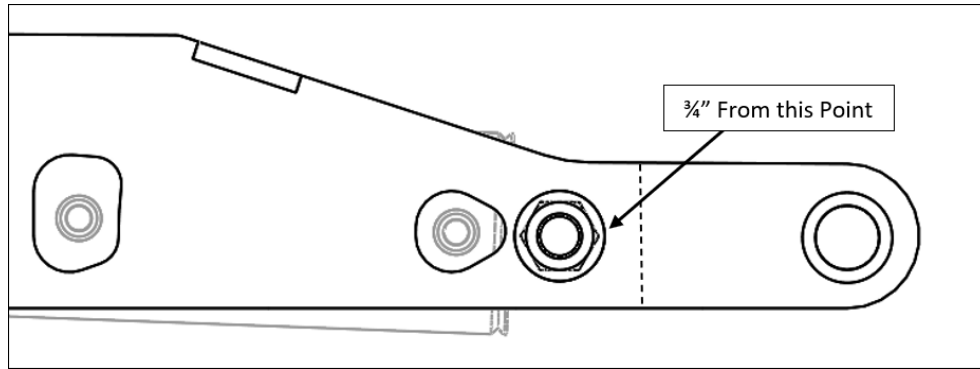


Figure 2: Cam modification cut line

- 3- Trim the cam plates at the line made previously.
- 4- Grind the cut edges smooth and round the corners.
- 5- Remove items 3 (Cylinder Pins – 1 per side) and items 4 (Cylinder Spacers – 2 per side).

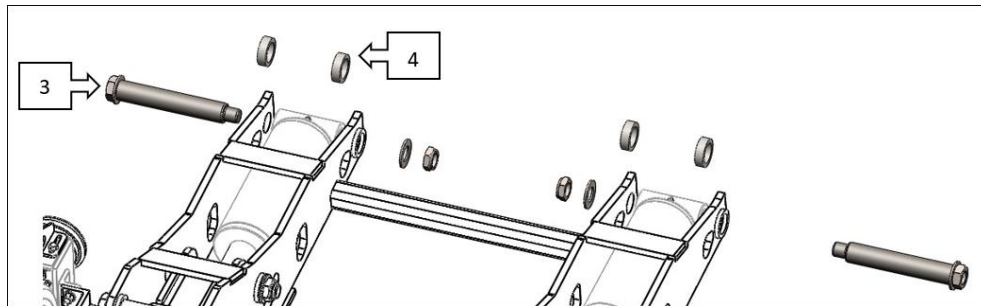


Figure 3: G-60 front components

- 6- Reinstall items 2 (Spring Hanger Mount) between the cam plates and cylinder bushing on each side then reinstall items 3 (Cylinder Pins) and reinstall the hardware.

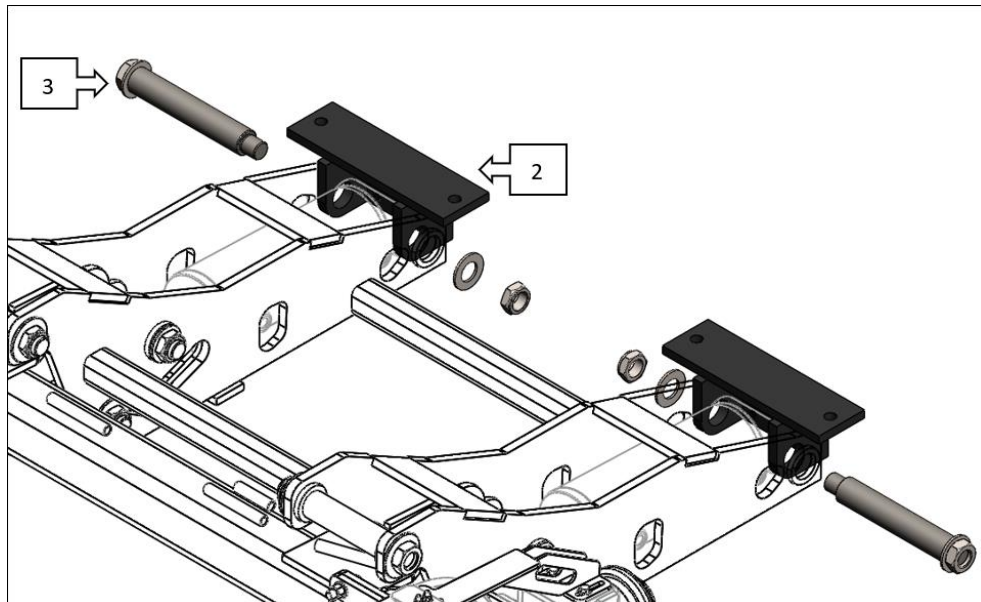


Figure 4: G-60 front components - Short cam plates

INSTALLATION – UNIVERSAL FRONT MOUNTING BRACKETS

Continental Railworks provides a Universal Front Mounting Bracket system that is designed to adapt to the majority of heavy chassis and to provide optimal ground clearance and liftoff. Refer to the drawings in the Appendices for details and nomenclature.

The image below shows the front hi-rail properly positioned, at 11" above the ground. Pin heights and cam plate heights shown are $\pm \frac{1}{2}$ ".

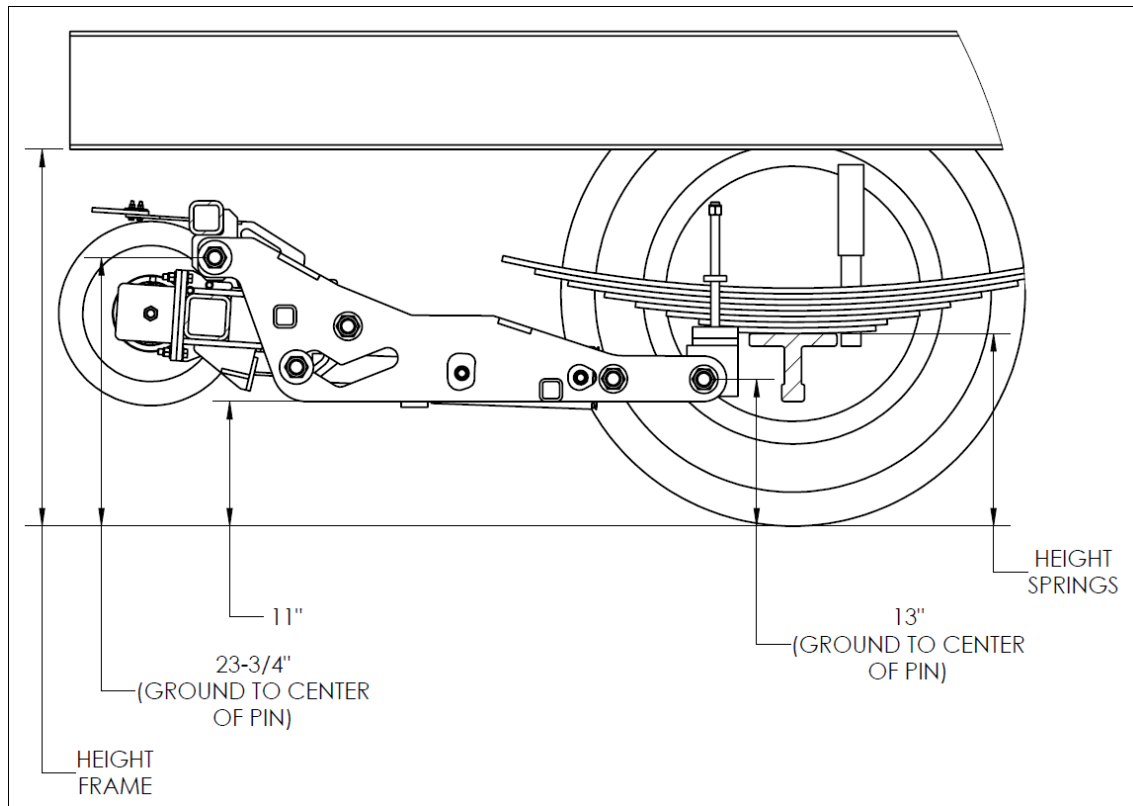


Figure 5: G-60 front mounting height

INSTALLATION – UNIVERSAL FRONT SPRING HANGERS

- 1- Remove the front spring hangers from the rear of the front hi-rail unit.
- 2- Remove the following items form the spring hangers:
 - a. Item 5 – Nyloc nuts
 - b. item 6 – Jam nuts
 - c. item 7 – Flat washers
 - d. item 8 – Top 1" shim
 - e. item 9 – Rubber pad
 - f. item 10 – Rubber bushings

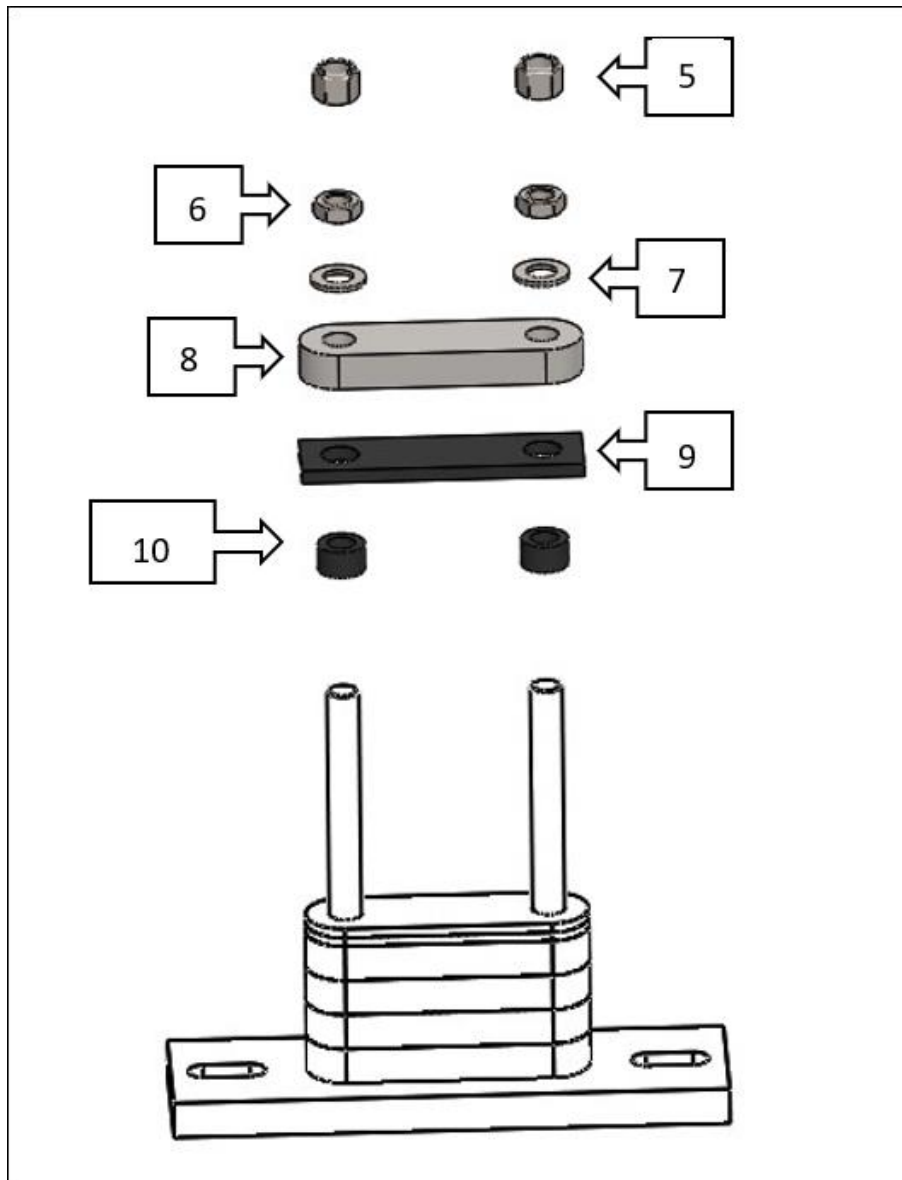


Figure 6: Spring hanger components

- 3- Measure from the ground to the bottom of the leaf springs. Then subtract 13" from the measurement that was just taken. This will give you the amount of shim required for the rear pin to be at 13" from the ground.
NOTE – The Height of the spring hanger without any spacer is 4-1/2"
- 4- With the proper amount of shim added, re-install the rubber spacers onto the threaded rods.
- 5- Position the spring hangers a minimum of 1" away from axle or shock absorber and not to exceed 8" from the front of the axle.
NOTE – Chassis equipped with tapered leaf springs. The shims should be positioned on the flat sections of the leaf and not hanging over the edge.
- 6- Raise the spring hangers up until the spacer contact the bottom of the leaf spring and the reinstall the rubber pad and 1" spacer.
- 7- Using the supplied jam nuts, tighten by hand until the rubber pad starts to deform.
- 8- While holding the jam nut in position, tighten the ¾"-10 nuts over the jam nuts. Torque nuts adequately. Refer to the Bolt Torque Table in the Appendices.
- 9- If required, cut the excess threaded rods, leaving a minimum of 1/2" above the nuts.
- 10- Position the front hi-rail under the front of the truck and lift it until the spring mounting brackets on the hi-rail touch the spring hangers installed on the truck.
- 11- Align the hi-rail to the spring hangers and the reinstall the supplied 5/8" grade 8 hardware. Do not tighten at this step.
- 12- Ensure the hi-rail is centered on the truck's leaf springs, by measuring the overhang of the spring hangers over the spring mounting brackets.
- 13- Once centered tighten the two (2) 5/8" grade 8 bolts, making sure the square washers are directly over the slots in the spring hangers.

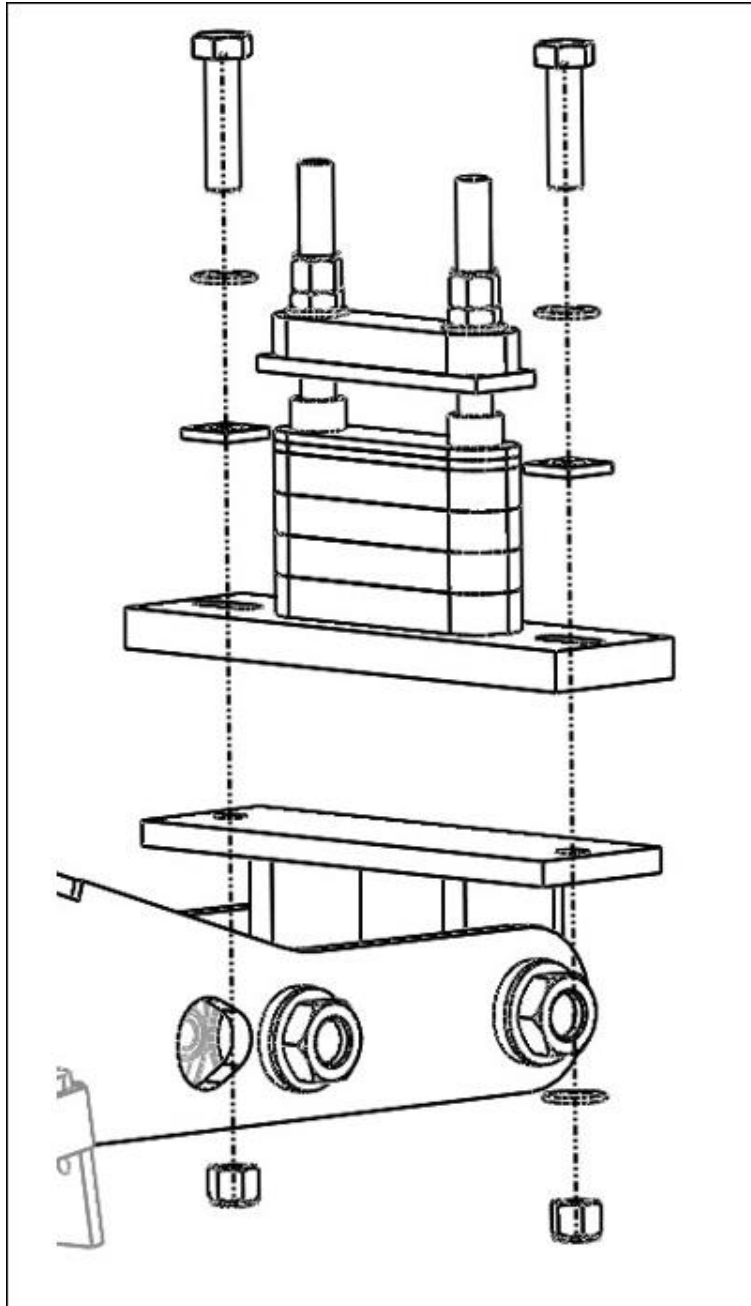


Figure 7: Front hi-rail to spring hanger connection

INSTALLATION – UNIVERSAL FRONT CROSS TUBE

The G-60 is supplied with a front cross tube that can be used in two height positions. The cross tube is centered on the hi-rail with equal amounts of side shims (see alignment section for details).

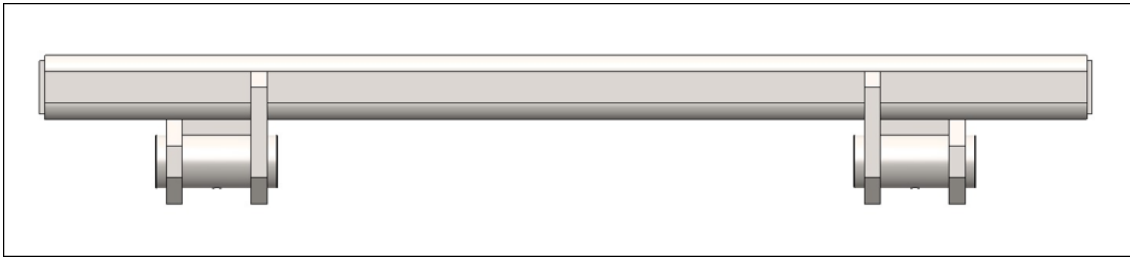


Figure 8: Front cross tube

Depending on the chassis or equipment installed, the hi-rail may need to be slid forward on the leaf springs to allow clearance between the cams and components below the frame. It is recommended to verify clearances considering the full front axle suspension stroke (frame to bump stops).

If the rail gear needs to be slid forward, loosen the spring hangers and slide forward until the front pin heights are obtained. Secure the spring hangers as previously explained.

- 1- Using a pallet jack or forklift, raise the front of the rail gear until the front pin is 23-3/4" from the ground.
- 2- Verify that the underside of the cam is parallel to the ground and at 11" off the ground.
NOTE – Depending on the frame height of the chassis, the cross tube may need to be rotated to get the pin to the correct height.
- 3- Measure between the underside of the frame extensions to the top of the cross tube and then cut solid flat bar shims to fill the space.
NOTE – Shims should be the same width of the cross tube and long enough to extend past the width of the frame rail.

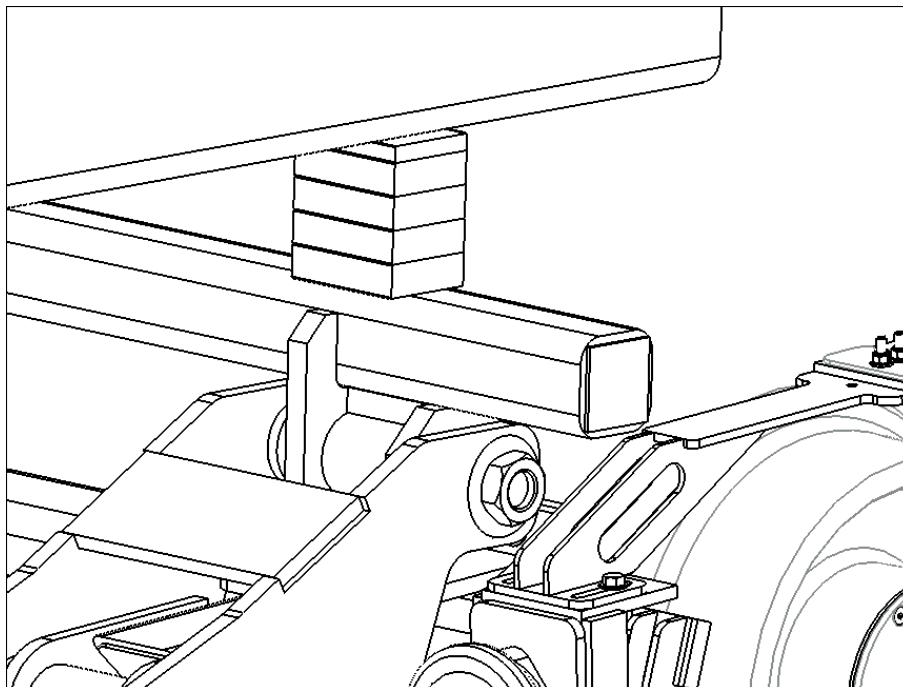


Figure 9: Shims between cross tube and frame

- 4- Tack the shims in place on the cross tube and ensure they are level and in contact with the frame.

- 5- Center the front cross tube to the frame.

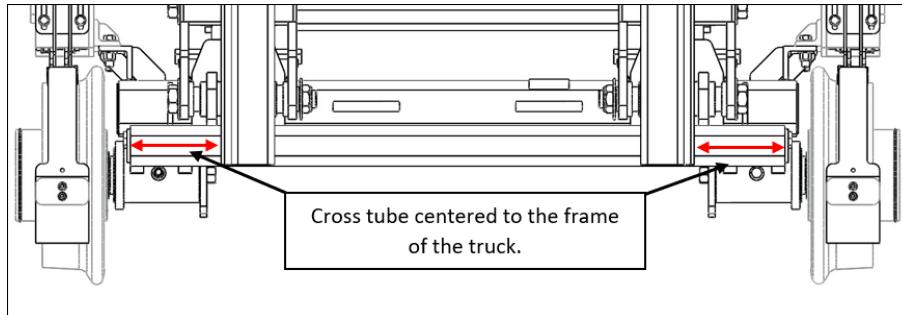


Figure 10: Front cross tube centered

- 6- Tack the shims and the cross tube to the frame of the truck on both sides of the frame extensions.
NOTE – Do not fully weld at this point. Tack the unit well enough to keep it from falling. This will be fully welded after alignment.

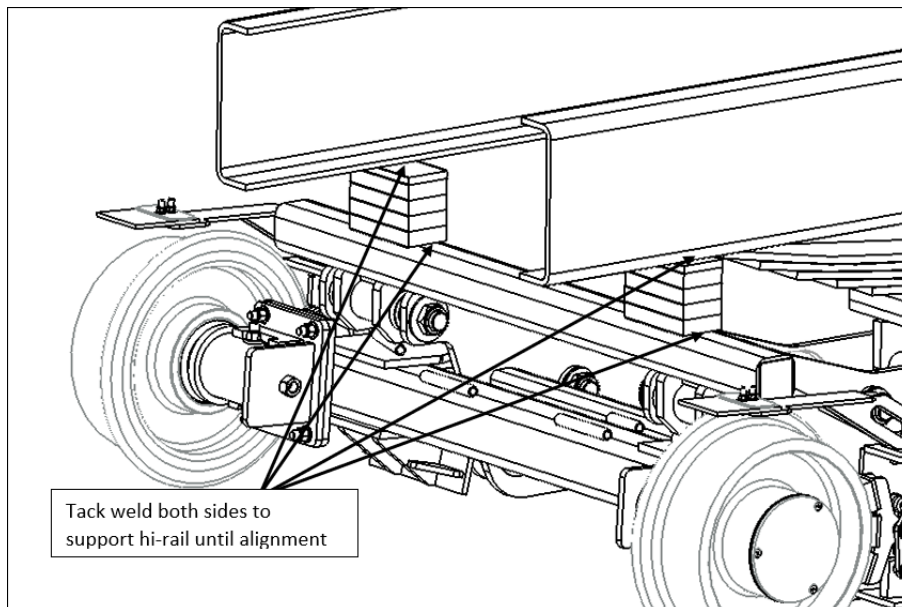


Figure 11: Tack weld locations

- 7- If required, reinstall the front bumper mounts, front bumper, and tow hooks.

REAR UNIT INSTALLATION

REAR MOUNTING PLATES

The rear mounting plates are manufactured to adapt to different chassis heights through added shims. Measuring the chassis height and following the tables below will provide proper deployment height for adequate traction and adjustability.

The rear mounting plates are specific to driver and passenger sides, with the spring support plate always pointing towards the front of the vehicle.

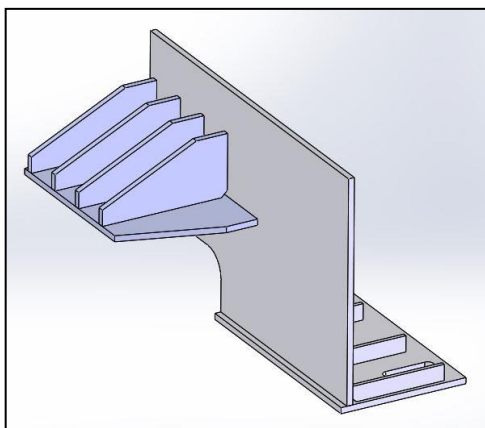


Figure 12: Driver side rear mounting plate

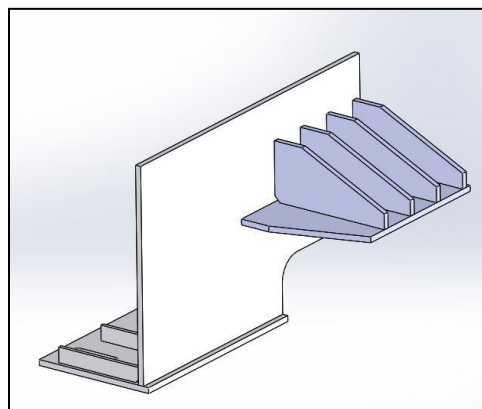


Figure 13: Passenger side rear mounting plate

- 1- If installed, remove the rear mounting plates from the hi-rail assembly and conserve hardware.
- 2- Measure the distance from the ground to the underside of the vehicle frame where the rear mounting plates will be installed (front edge at 34" from center of the rear axle as explained below).
- 3- The mounting plates supplied are designed for an empty vehicle (no body or crane) with a 31" frame height. Any frame height higher than 31" will require shims to be installed between the mounting plates and the underside of the frame rails. Solid flat bar is to be used for shims. Refer to the tables below for shim thicknesses:

BARE AND UNLADEN CHASSIS (NO BODY OR CRANE INSTALLED)	
DIMENSION UNDERSIDE OF FRAME TO GROUND	SHIM THICKNESS
31 "	0"
32"	1"
33"	2"
34"	3"

NOTE: For 3" and over, confirm with the factory

LOADED CHASSIS (BODY OR CRANE INSTALLED)	
DIMENSION UNDERSIDE OF FRAME TO GROUND	SHIM THICKNESS
29"	0"
30"	1"
31"	2"
32"	3"

NOTE: For 3" and over, confirm with the factory

Figure 14: Frame Height vs Shim Thickness

Note – Chassis equipped with air bag suspension should refer to the "Bare and Unladen Chassis" Table, whether the installation occurs on a loaded or unloaded chassis.

- 4- Place the mounting plates on the chassis frame with the spring support plate pointing towards the front of the vehicle.
- 5- Position the front edge of the mounting plates at 34" from the center of the rear axle.
NOTE – Having the mounting plate installed closer to the axle will prevent the hi-rail from functioning as it should and may lead to premature failure.

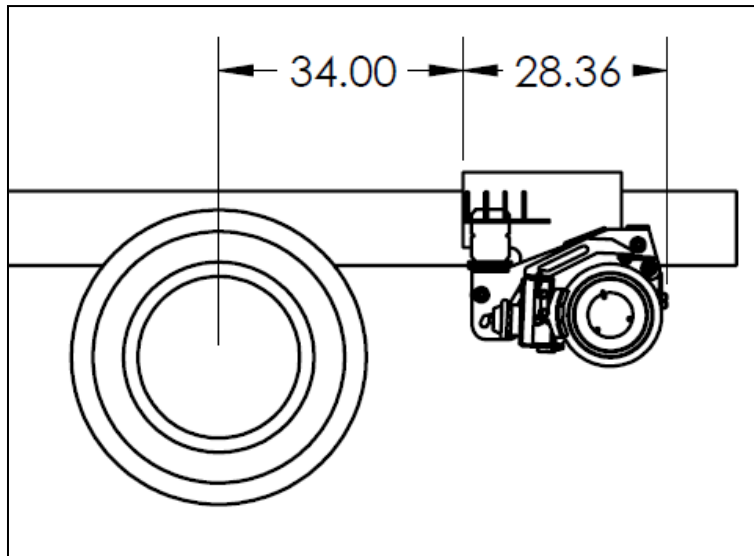


Figure 15: Location of Rear Mounting Plates

- 6- Ensure the mounting plates make contact with the bottom of the chassis frame, then clamp in place and mark holes for securing, using the provided 5/8" Grade 8 bolts, washers and stover nuts. Use a minimum of 6 bolts per side, with 3 bolts in the spring support plate area and 3 bolts towards the rear of the mounting plates.



Figure 16: Rear Mounting Plate Driver Side



Figure 17: Rear Mounting Plate Bolt Pattern

- 7- Torque bolts adequately. Refer to the Bolt Torque Table in the Appendices.

REAR HI-RAIL UNIT

- 1- Position the rear hi-rail unit under the rear mounting plates with the wheels pointing towards the rear of the vehicle (axle rotates towards the truck tires).
- 2- Install the rear rubber springs if not already installed.
 - a. Place one ½" thick plastic shim under the spring and bolt in place using a 3/8" bolt of adequate length, washer and nylon insert locknut (hardware not provided).
 - b. Place one spring center plate on top of each rear rubber spring.
 - c. The spring center plates will be centered and tacked after alignment.

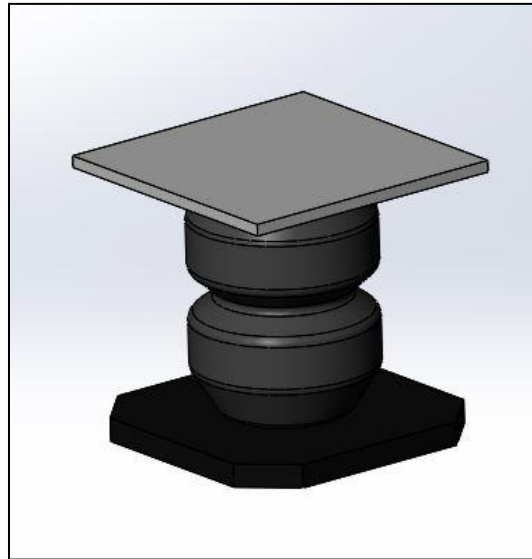


Figure 18: Plastic Shim, Rubber Spring and Spring Center Plate

- 3- Raise the hi-rail unit so the hi-rail frame comes in contact with the underside of the mounting plates.
- 4- Align the holes in the hi-rail frame with the side to side slots in the mounting plates.
- 5- Bolt in position using the provided 5/8" Grade 8 bolts, washers and nylon insert locknuts.
- 6- Do not fully tighten the bolts at this point (after alignment).

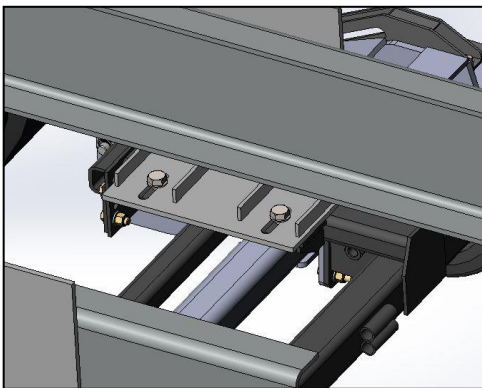


Figure 19: Rear Hi-Rail Unit Mounted

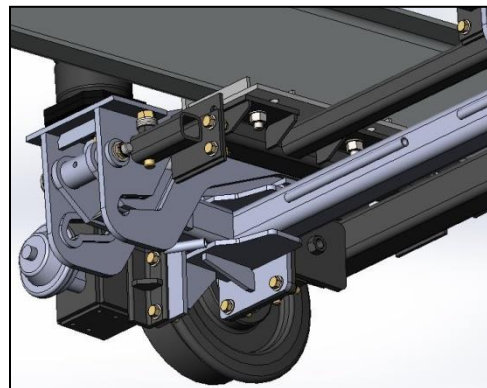


Figure 20: Rear Hi-Rail Unit Mounted

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 a narrow Velcro tape (hooks) on the dash to hold the Velcro lock when not in use.
- 3- Install a narrow Velcro tape (hooks) on the steering column.
- 4- Install a narrow Velcro tape (hooks) on the steering wheel.
- 5- Cover both Velcro tapes with the wide Velcro steering lock pad (loops) 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

PTO / PUMP SETUP

The hi-rail system requires a working pressure of 2500 psi and a flow rate of 5 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.

In all cases, the minimum hydraulic hose to be used is a steel braided 1/4" diameter hose, with a minimum working pressure of 4000 psi. Hoses 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 schematic in the Appendices and to the following steps:

- 1- Install the front and rear operating valves in a suitable location, preferably on the driver's side of the vehicle.
- 2- Run a 1/2" hydraulic hose from the pressure source (either PTO / Pump or a diverter valve) to the front hydraulic valve and connect it to the pressure port of the valve to allow flow through the valve.
- 3- Run a 1/2" hydraulic hose from the discharge port of the front valve to the pressure port of the rear valve.
- 4- Run a 1/2" hydraulic hose from the discharge port of the rear valve to the return line to the tank.
- 5- Connect the two ports on the front hydraulic valve to the front hydraulic cylinders, through T fittings to split the flow to both cylinders.
- 6- Connect the two ports on the rear hydraulic valve to the rear hydraulic cylinders, through T fittings to split the flow to both cylinders.
- 7- Secure all hoses in a way to avoid pinching or rubbing, but also to allow enough play for the hi-rail units to travel their full range of motion.
- 8- Verify the entire system for leaks.

HYDRAULIC POWER PACK SETUP

An electric / hydraulic power pack can be supplied to replace the PTO / Pump on the vehicle and provide adequate performance to power the hi-rail. The power pack will provide approximately 2.5 gpm, which translates in a slower deployment and retraction than with a typical PTO / Pump.

In all cases, the minimum hydraulic hose to be used is a steel braided 1/4" diameter hose, with a minimum working pressure of 4000 psi. Hoses 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 schematic in the Appendices and to the following steps:

- 1- Install the front and rear push button remotes in a suitable location, preferably on the driver's side of the vehicle and protected from the elements.
- 2- Install the power pack in a suitable location, either under the hood or in a compartment of the vehicle's service body.
- 3- Connect the two push button remotes to the pump mounted electric directional valves, identifying each one as front and rear.
- 4- Connect the front pump mounted directional valve ports to the front hi-rail cylinders, through a T fitting to split the flow to both cylinders.
- 5- Connect the rear pump mounted directional valve ports to the rear hi-rail cylinders, through a T fitting to split the flow to both cylinders.
- 6- Test the system to ensure the remote buttons actuate the proper functions (up – down / front – rear).
- 7- Adjust the pump pressure to 2500 psi.
- 8- Secure all hoses in a way to avoid pinching or rubbing, but also to allow enough play for the hi-rail units to travel their full range of motion.
- 9- Verify the entire system for leaks.

PNEUMATIC BRAKE VALVE KIT

(STANDARD WITH AIR BRAKE CHASSIS)

GENERAL DESCRIPTION

The Continental Railworks Pneumatic Brake Valve Kit has been designed to isolate the hi-rail air brakes from the chassis' main air brake system. It features brake pedal proportionality and pressure adjustability to fine tune the braking performance on rail.

The valve kit is designed to be installed between the frame rails of the vehicle.

Part number for replacement of the Pneumatic Brake Valve Kit is H105A020 (front brakes or front and rear brakes).

OPERATION

On Rail

The Pneumatic Brake Valve Kit is designed to replicate the proportionality of the chassis' main brake system, based on the input from the foot pedal. No additional input is required from the operator for the hi-rail brakes to apply.

The hi-rail brake application force can be adjusted by varying the air pressure with the supplied regulator (pre-set to 50 psi).

On Road

The supplied ball valve assembly is designed to completely isolate the hi-rail brakes from the chassis brakes when closed.

It is recommended to close the ball valve when operating the vehicle off rail.

! SAFETY WARNING !

ALL MODIFICATIONS TO THE CHASSIS AIR BRAKE SYSTEM PERFORMED BY THE INSTALLER MUST CONFORM TO FMVSS 121 (US VEHICLES) OR CMVSS 121 (CANADIAN VEHICLES)

ENSURE AIR LINES AND WIRES ARE SECURED PROPERLY TO PREVENT PINCHING OR RUBBING WHICH MAY LEAD TO FAILURE

INSTALLATION

Contents of Kit

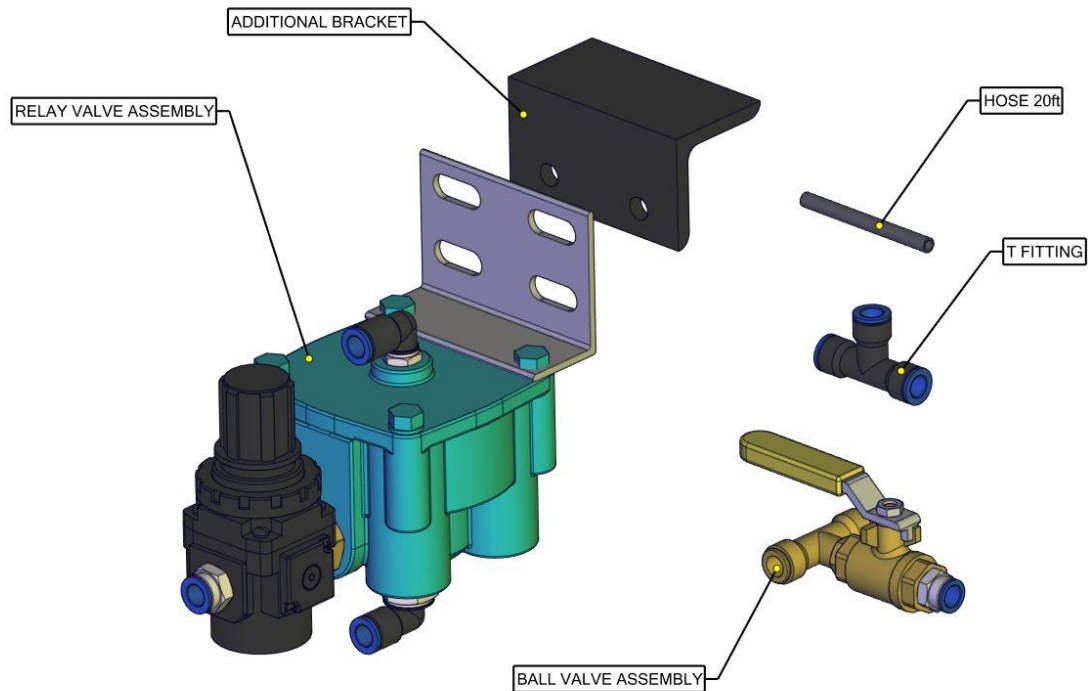


Figure 21: Pneumatic Brake Valve Kit

INCLUDED

- RELAY VALVE ASSEMBLY
- ADDITIONAL BRACKET
- 20ft of 3/8" HOSE
- T FITTING (for optional rear brakes)
- BALL VALVE ASSEMBLY

Note: Components may be slightly different in appearance.

NOT INCLUDED

- Various fittings for connection to chassis air system
- Various fittings for connection of the hi-rail brakes
- Mounting hardware

Location and Mounting

- 1- Find a suitable location between the vehicle's frame rails to mount the valve kit. The valve kit needs to be accessible relatively easily for pressure adjustment.

NOTE – The relay valve needs to be mounted vertically, with the exhaust pointing down and the service port pointing up.

- 2- Secure the valve assembly to one of the vehicle's cross members using the mounting bracket located on the relay valve. An additional angle bracket is also provided for more mounting options.
- 3- Ensure the pneumatic brake valve assembly will not interfere with the vehicle's body, crane, or other accessory.

Plumbing

REFER TO THE PNEUMATICS SCHEMATICS IN THE APPENDICES FOR DETAILS

- 1- Find an adequate air source to power the system:
 - a. The system needs to feed from the secondary or auxiliary air tanks.
 - b. The air source needs to be pressure protected.
 - c. DO NOT CONNECT DIRECTLY TO MAIN CHASSIS AIR BRAKE PRESSURE LINE.
 - d. DO NOT CONNECT TO THE CHASSIS' PRIMARY AIR TANK CIRCUIT.
- 2- Using 3/8" air brake tubing, make the following connections:
 - a. Connect the main air source to the fitting on the regulator attached to the SUPPLY port on the relay valve.
 - b. Connect the bottom DELIVERY port of the relay valve to the hi-rail brakes:
 - i. For a front brake only application, connect the DELIVERY port fitting to the front hi-rail air brake chambers through the T fitting installed on the hi-rail unit that splits the flow adequately between the left and right side chambers.
 - ii. For a front and rear brake application, connect the DELIVERY port fitting to the supplied T fitting, then connect the T fitting to the front and rear hi-rail air brake chambers through the T fittings installed on the hi-rail units.

NOTE – Ensure the air hose lengths going to the front and rear T fittings are approximately the same length to provide adequate brake timing.
- 3- Locate an adequate air brake signal line between the foot pedal and the OEM relay valve.
- 4- Install the supplied ball valve assembly on the main signal line.

NOTE - The ball valve needs to be accessible so the operator can shut the system off if/when required. The ball valve assembly is supplied with DOT rated fittings. DO NOT REPLACE FITTINGS ON THE BALL VALVE ASSEMBLY.

- 5- Run an air line between the ball valve and the SERVICE port of the relay valve assembly.
- 6- Pressurize the system and verify for air leaks.

Adjustment

- 1- The regulator is supplied already adjusted to 50 psi.
- 2- Perform a track test with the vehicle and assess the hi-rail brakes' performance.
- 3- Adjust the pressure value as required to provide enough braking force without locking the wheels in usual track conditions.

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 E077A300 (individual shunt).

INSTALLATION

Contents of Kit

INCLUDED

- 2 or 4 x Individual assembled plastic bushings and hardware
- 1 x Installation / Operation manual

Note: Components may be slightly different in appearance.



Figure 22: Shunt - Exploded View

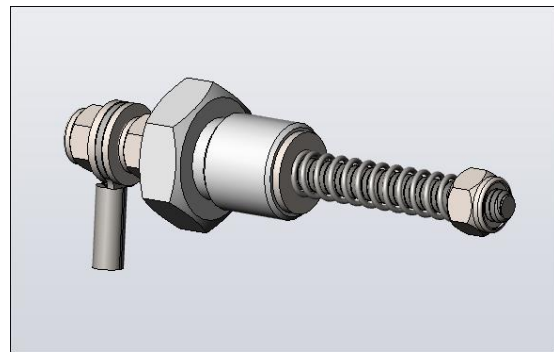


Figure 23: Shunt - Assembled

NOT INCLUDED

- 14-16 awg electrical wire
- Momentary or Maintained switch (if required)

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.

Electrical

- 1- Using 14-16 awg 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 wheels of the axle where the shunt kit is installed. The resistance value can be taken between the two rail wheels by poking 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.

Length Adjustment

Depending on the hi-rail model or the state of alignment (spindles pushed to one side), the effective length of the shunt may need to be adjusted. A $\frac{1}{4}$ " washer on the spindle side of the threaded rod can be removed to shorten the shunt to the appropriate length.

See the drawing in the Appendices for details and measurements.

PNEUMATIC SUSPENSION KIT

(OPTIONAL WITH AIR BRAKE CHASSIS)

GENERAL DESCRIPTION

The Continental Railworks Pneumatic Suspension Kit has been designed to provide a means of regulating the chassis' air bag pressure to ensure a constant ride height and wheel pressure while traveling on rail. It offers additional guidance / traction adjustability and is adaptable to many suspension types.

Some single axle trucks require a different system that diverts the air pressure going to the OEM leveling valve. This manual covers both systems:

Part number for replacement of the Pneumatic Suspension Override Kit is H105E003 for tandem axle trucks.

Part number for replacement of the Pneumatic Suspension Override Kit is H105E004 for single axle trucks with air bag pressure sensors.

! SAFETY WARNING !

AIR NEEDS TO BE SOURCED FROM SECONDARY OR AUXILIARY AIR TANK

ENSURE AIR LINES AND WIRES ARE SECURED PROPERLY TO PREVENT PINCHING OR RUBBING WHICH MAY LEAD TO FAILURE

INSTALLATION – H105E003 TANDEM AXLE TRUCKS

Contents of Kit



Figure 24: Suspension Assembly with Regulator

INCLUDED

- Suspension Assembly with Regulator

Note: Components may be slightly different in appearance.

NOT INCLUDED

- 3/8" OD Nylon Air Brake Tubing (SAE J844 compliant)
- Various fittings for connection to chassis air system
- Electrical proximity switch for hi-rail
- Electrical relays, wire and connectors
- Mounting hardware

Note: The electrical proximity switch for hi-rail (sending signal to the air valves) is not supplied. The choice of the type of switch is left to the customer / installer.

Location and Mounting

- 1- Find a suitable location between the truck frame rails or in a compartment of the vehicle to mount the valve assembly.
- 2- Secure the mounting bracket to the vehicle in a way that allows access to the pressure regulator unit.

Note – The valve kit needs to be mounted with the quick exhaust valve (release port EXHAUST) pointing down, as shown in pictures and drawings below.

- 3- Select and install a proximity switch for the rear hi-rail.

Note – Mechanical proximity switches are not recommended for reliability reasons. Continental Railworks recommends the use of either magnetic or induction proximity switches.

Note – The proximity switch needs to be installed on the rear hi-rail so the system adjusts as soon as possible (rear hi-rail gets deployed first).

Electrical

Refer to the electrical schematic in the next pages and to the following steps:

- 1- Select and install a method of activating the system:
 - a. A proximity switch installed on the rear hi-rail unit (magnetic or induction type recommended)
 - b. A toggle switch installed in the cab (not recommended)
- 2- The air solenoid valves need to be energized to redirect air pressure from the leveling valves (normal mode) to the air regulator (override mode).
- 3- Install a 12V automotive relay close to the Pneumatic Suspension Override Kit.
- 4- Feed the relay from the chassis' IGNITION ON circuit.
- 5- Connect the relay with:
 - a. The two (2) solenoid valves in parallel
 - b. The hi-rail sensor / switch in series with the solenoid valves

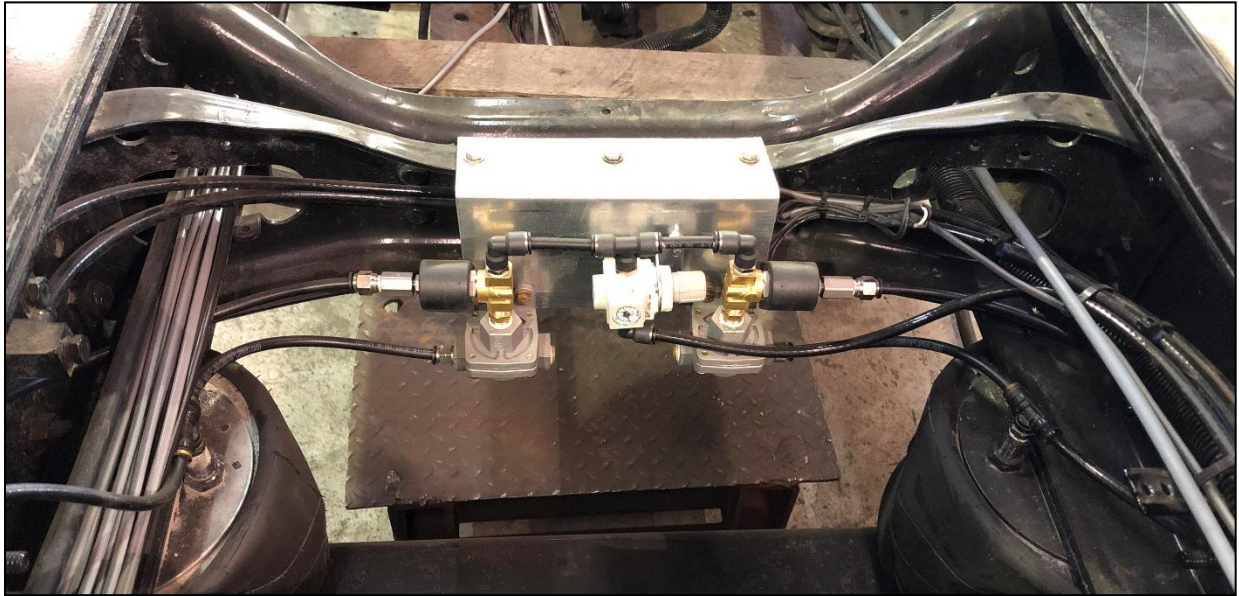


Figure 25: Typical air line routing

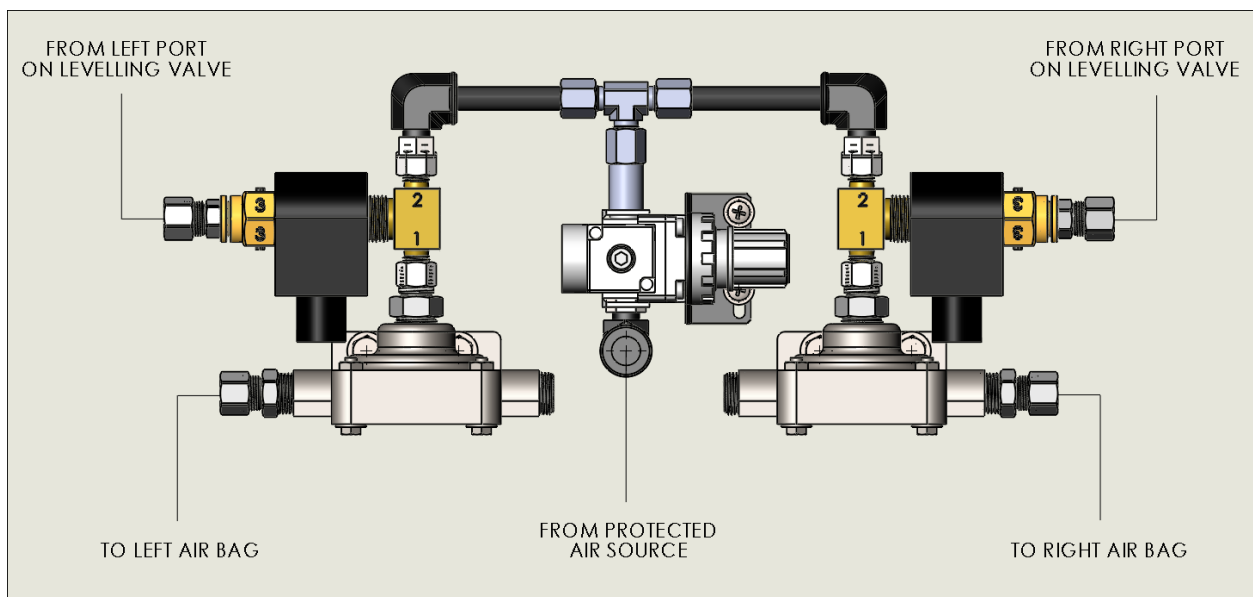


Figure 26: Simplified representation

Refer to the pneumatic schematic in the next pages and to the following steps:

- 7- Find an adequate air source to power the system:
 - a. The system needs to feed from the secondary or auxiliary air tanks
 - b. The air source needs to be pressure protected
 - c. DO NOT CONNECT DIRECTLY TO MAIN CHASSIS AIR BRAKE SYSTEM
 - d. DO NOT CONNECT TO THE CHASSIS' PRIMARY AIR TANK CIRCUIT

NOTE – The most convenient and safe place to connect the air source is to tee off from the supply line of the load leveling valve.

- 8- Using 3/8" air brake tubing, make the following connections:
 - a. Connect the main air source to the Pressure Regulator Unit.
 - b. Connect the left side output from the chassis' leveling valve to the left side Port #3 on the air solenoid valve.
 - c. Connect the right side output from the chassis' leveling valve to the right side Port #3 on the air solenoid valve.
 - d. Connect the left side chassis air bags to the DELIVERY port on the left side quick exhaust valve.
 - e. Connect the right side chassis air bag to the DELIVERY port on the right side quick exhaust valve.
- 9- Pressurize the system and verify for air leaks.

INSTALLATION – H105E004 SINGLE AXLE TRUCKS

Contents of Kit



Figure 27: Suspension Assembly

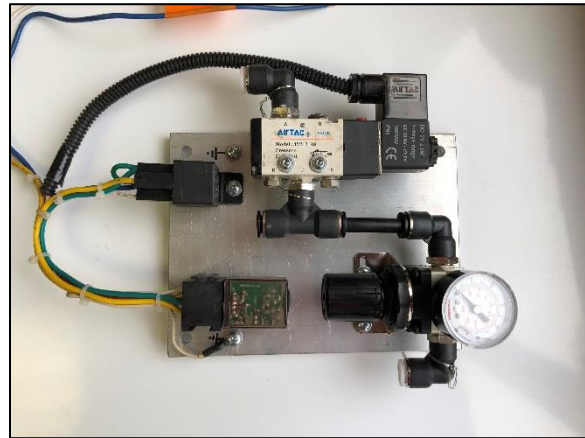


Figure 28: Diverter Valve Assembly

INCLUDED

- Suspension Assembly
- Diverter Valve Assembly with Regulator

Note: Components may be slightly different in appearance.

NOT INCLUDED

- 3/8" OD Nylon Air Brake Tubing (SAE J844 compliant)
- Various fittings for connection to chassis air system
- Electrical proximity switch for hi-rail
- Electrical relays, wire and connectors
- Mounting hardware

Note: The electrical proximity switch for hi-rail (sending signal to the air valves) is not supplied. The choice of the type of switch is left to the customer / installer.

Location and Mounting

- 1- Find a suitable location between the truck frame rails or in a compartment of the vehicle to mount the Suspension Assembly.
- 2- Secure the mounting bracket to the vehicle.

Note – The valve kit needs to be mounted with the quick exhaust valve (release port EXHAUST) pointing down, as shown in pictures and drawings below.

- 3- Find a suitable location inside the vehicle cab or inside a compartment to mount the Diverter Valve Assembly.
- 4- Secure the plate to the vehicle in a way that allows access to the pressure regulator.
- 5- Select and install a proximity switch for the rear hi-rail.

Note – Mechanical proximity switches are not recommended for reliability reasons. Continental Railworks recommends the use of either magnetic or induction proximity switches.

Note – The proximity switch needs to be installed on the rear hi-rail so the system adjusts as soon as possible (rear hi-rail gets deployed first).

Electrical

Refer to the electrical schematic in the Appendices and to the following steps:

- 1- Select and install a method of activating the system:
 - a. A proximity switch installed on the rear hi-rail unit (magnetic or induction type recommended)
 - b. A toggle switch installed in the cab (not recommended)
- 2- The air solenoid valves need to be energized to redirect air pressure from the leveling valves (normal mode) to the air regulator (override mode).
- 3- Connect the IGN + wire to the vehicle's ignition on circuit.
- 4- Connect the GROUND VIA SENSOR wire to the proximity switch's ground lead.
- 5- Connect the TO SUSPENSION OVERRIDE VALVE wire to the solenoid wires on the Suspension Assembly (in parallel).

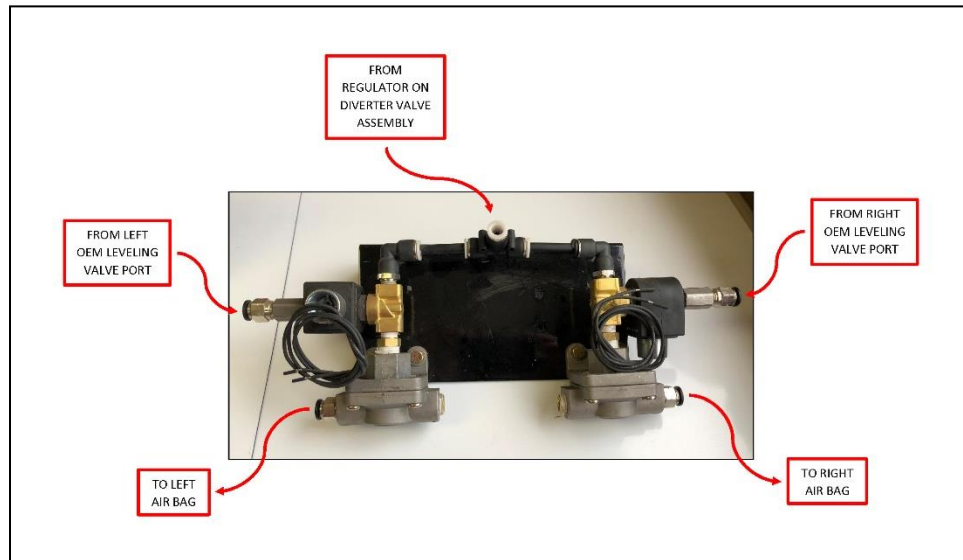


Figure 29: Suspension Assembly

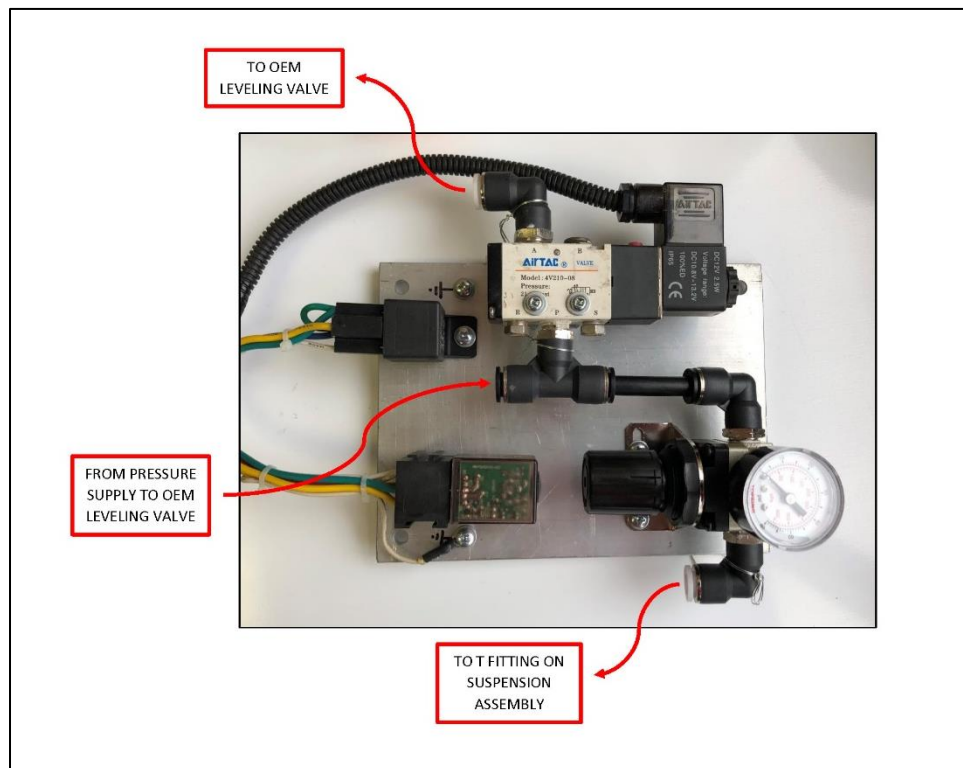


Figure 30: Diverter Valve Assembly with Regulator

Refer to the pneumatic schematic in the next pages and to the following steps:

- 1- Using 3/8" air brake tubing, divert the air pressure going to the OEM leveling valve.
 - a. Connect the air line leading to the leveling valve (pressure source) to the P port of the 5-way solenoid valve.
 - b. Connect an air line to feed the OEM leveling valve from the A port on the 5-way solenoid valve (neutral state).
- 2- Using 3/8" air brake tubing, connect the Diverter Valve Assembly to the Suspension Assembly
 - a. Connect an air line between the air regulator on the diverter valve assembly to the T fitting on the Suspension Assembly
- 3- Using 3/8" air brake tubing, make the following connections:
 - a. Connect the left side output from the chassis' leveling valve to the left side Port #3 on the air solenoid valve.
 - b. Connect the right side output from the chassis' leveling valve to the right side Port #3 on the air solenoid valve.
 - c. Connect the left side chassis air bags to the DELIVERY port on the left side quick exhaust valve.
 - d. Connect the right side chassis air bag to the DELIVERY port on the right side quick exhaust valve.
- 4- Pressurize the system and verify for air leaks.

ADJUSTMENT

- 1- With the vehicle on rail (hi-rail deployed) and all air and electrical connections complete, perform initial adjustment to the Pneumatic Suspension Override Kit assembly as follows:
 - a. Ensure that the chassis air tanks are full before performing any tests or adjustments.
 - b. Pull up on the pressure regulator knob and adjust to approximately 25 psi.
 - c. Adjust air pressure as required in 5 psi increments until the tire contact patch reaches an acceptable dimension (see individual hi-rail manuals for details).
 - i. Raise pressure to increase contact patch and traction.
 - ii. Lower pressure to reduce contact patch and traction.
- 2- Ensure there are no air leaks in the system.
- 3- Ensure the air lines and wiring are properly secured and kept away from moving or rotating parts of the vehicle.
- 4- Perform a track test with the vehicle and ensure proper suspension functionality both on road and on rail.

ALIGNMENT AND ADJUSTMENT

G-60 FRONT SIDE TO SIDE ALIGNMENT

While adjusting the alignment, if the front hi-rail needs to be adjusted side to side, it can be done as follows:

- 1- Start by deploying the front hi-rail until the wheels touch the ground (supported).
- 2- Remove the Nyloc nuts and washers from the front pins.
- 3- Loosen the two (2) 5/8" bolts that hold the cams to the Spring hangers on both sides.

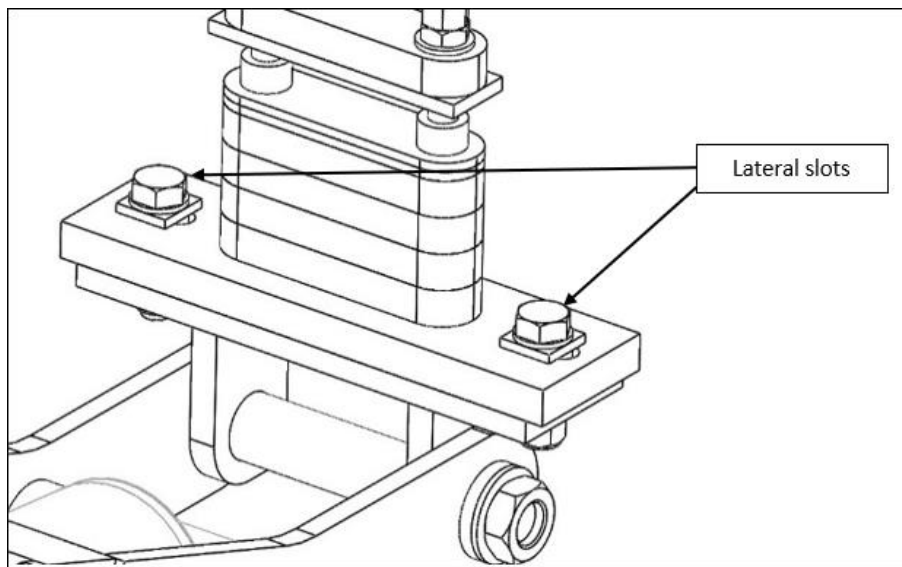


Figure 31: Spring hanger bolts

- 4- Slide the front pins out far enough to remove the shims. The pins should not be more than halfway out during alignment.
- 5- Rearrange the shims to move the hi-rail side to side as required, using a pry bar to stack the hi-rail against the shims.

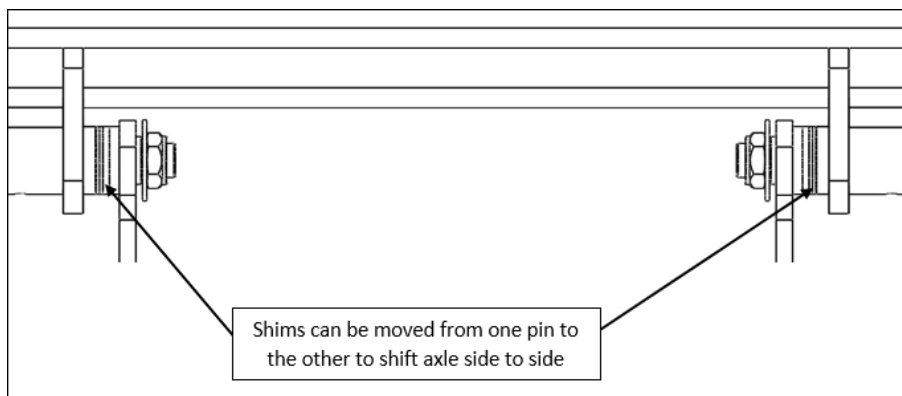


Figure 32: Front cross beam shims

- 6- Reinstall the pins, washers and Nyloc nuts.

- 7- By measuring the spring hangers on the leaf springs and spring mounting brackets on the hi-rail, ensure that the rear of the hi-rail has moved side to side by the same amount as the front.
- 8- Torque the two (2) 5/8" bolts on both sides of the spring hangers.

G-60 REAR SIDE TO SIDE ADJUSTMENT

While adjusting the alignment, if the rear hi-rail needs to be adjusted side to side, it can be done as follows:

- 1- Start by deploying the rear hi-rail until the wheels touch the ground (supported).
- 2- Loosen the four (4) 5/8" bolts connecting the hi-rail to the mounting plates.
- 3- The mounting plates have lateral slots that allow for side to side adjustment.

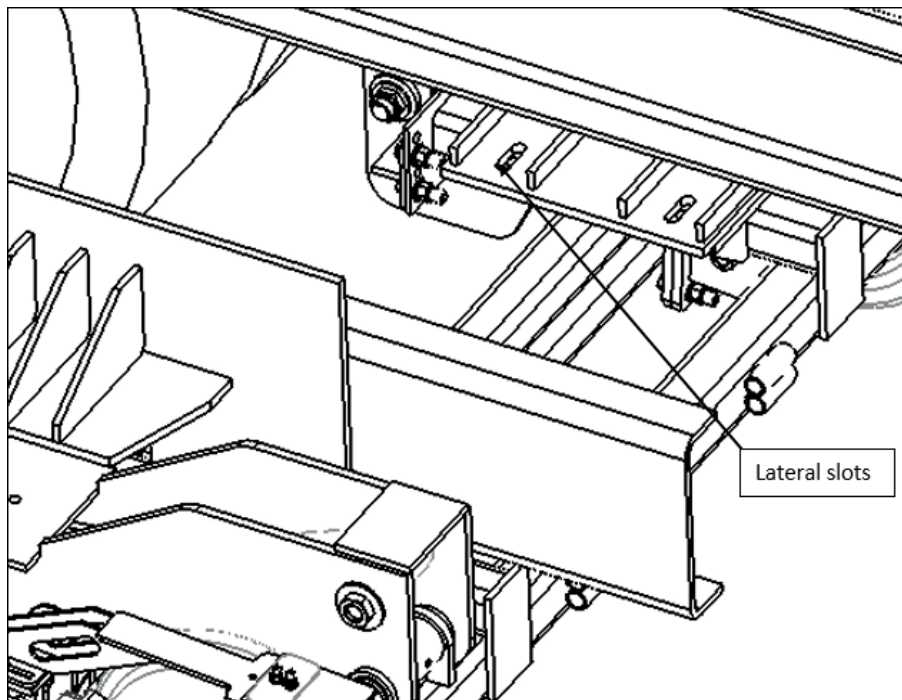


Figure 33: Rear hi-rail lateral slots

- 4- Slide the rear hi-rail side to side as required.
- 5- Torque the four (4) 5/8" bolts.

ALIGNMENT PROCEDURE STANDARD HI-RAIL

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 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 side of the frame rails 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 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 shifting the whole hi-rail unit from side to side. The hi-rail gauge needs to be adjusted and maintained by sliding the spindle in the spindle housing (a 3/4" threaded rod 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 back 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 shifting the whole hi-rail unit from side to side. The hi-rail gauge needs to be adjusted and maintained 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 the Appendices.
- 12- Install shims (various thicknesses supplied) on the front main support pins to lock the Alignment Adjustment in place. The shims should be installed on the inside surface, towards the centerline of the vehicle, on both pins.
- 13- Tighten the gauge adjustment bolts on the front and rear hi-rail units, locking the wheel spindles in place.
- 14- With the rear hi-rail unit lowered and the rubber springs fully compressed, determine the location where the spring centers should be located to ensure the rubber springs are vertical when in operation. Tack weld the spring centers on top of the rear rubber springs to the mounting plates, ensuring the rubber spring will remain centered when the rear hi-rail suspension is active.
- 15- Perform a track test on the unit ensuring there is no excessive flanging.

PRESSURE ADJUSTMENT

The rear unit may require adjustment to allow for the proper balance between traction and guidance. The following adjustment procedure is for an empty, unladen vehicle. As the vehicle is loaded, the additional weight will be distributed between the truck springs and the hi-rail suspension. It will be normal for the contact patch of the tires in that condition to increase beyond the maximum indicated below.

- 1- With the vehicle on track, measure the length of the tire contact patch of the rearmost axle with the rail head. The measurement should be between 10" and 12".
- 2- If less than 10", the traction of the vehicle must be increased. This is achieved by removing the ½" shims installed under the rear rubber springs, which will in effect raise the hi-rail unit and increase the vehicle traction. To remove the shim, do the following:
 - a. Remove the vehicle from the track
 - b. Lower the hi-rail unit completely
 - c. Remove the 2 stopper assemblies restricting the downward motion of the rear cam assembly (see next section)
 - d. Raise the hi-rail unit, which will in effect lower the rear cam assemblies and make the rubber springs completely accessible
 - e. Remove the shim (or shims), and reverse the order to re-install.
- 3- If more than 12", the traction of the vehicle must be decreased. This is achieved by adding shims under the rubber spring for small adjustments, or adding shims between the rear hi-rail unit and the mounting plates for larger adjustments. Please contact the factory for assistance.
- 4- If the vehicle is loaded, the tire contact patch measurement should be typically between 12" and 14". A fully loaded vehicle may have a tire contact patch as high as 14".

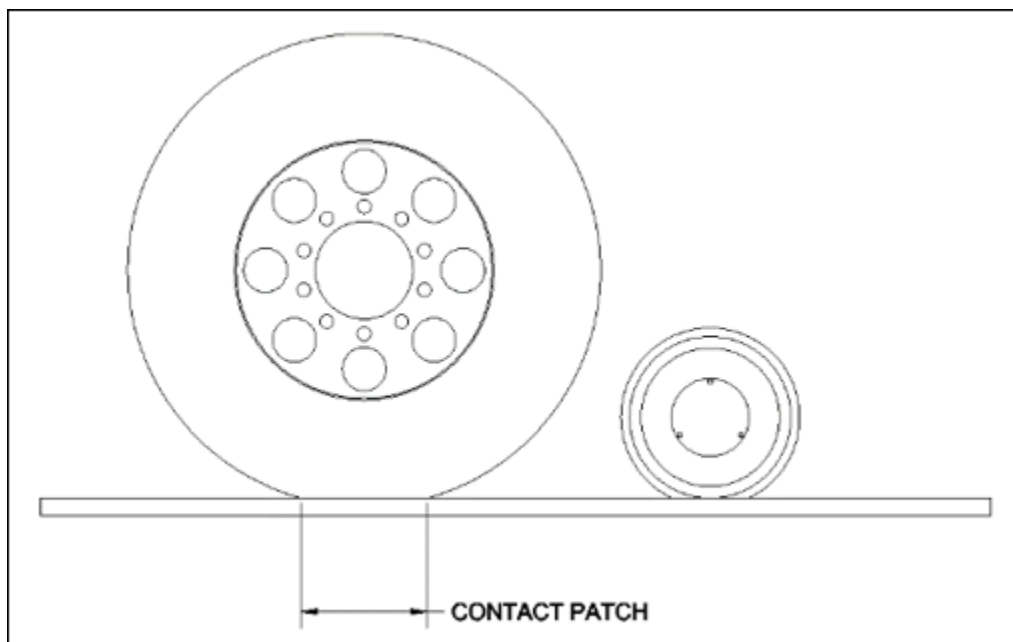


Figure 34: Contact patch

STOPPER ASSEMBLIES

The rear hi-rail features removable and adjustable Stopper Assemblies to restrict the motion of the cam assemblies. It is important to understand the purpose and means of adjustment to ensure the hi-rail functions as it should.

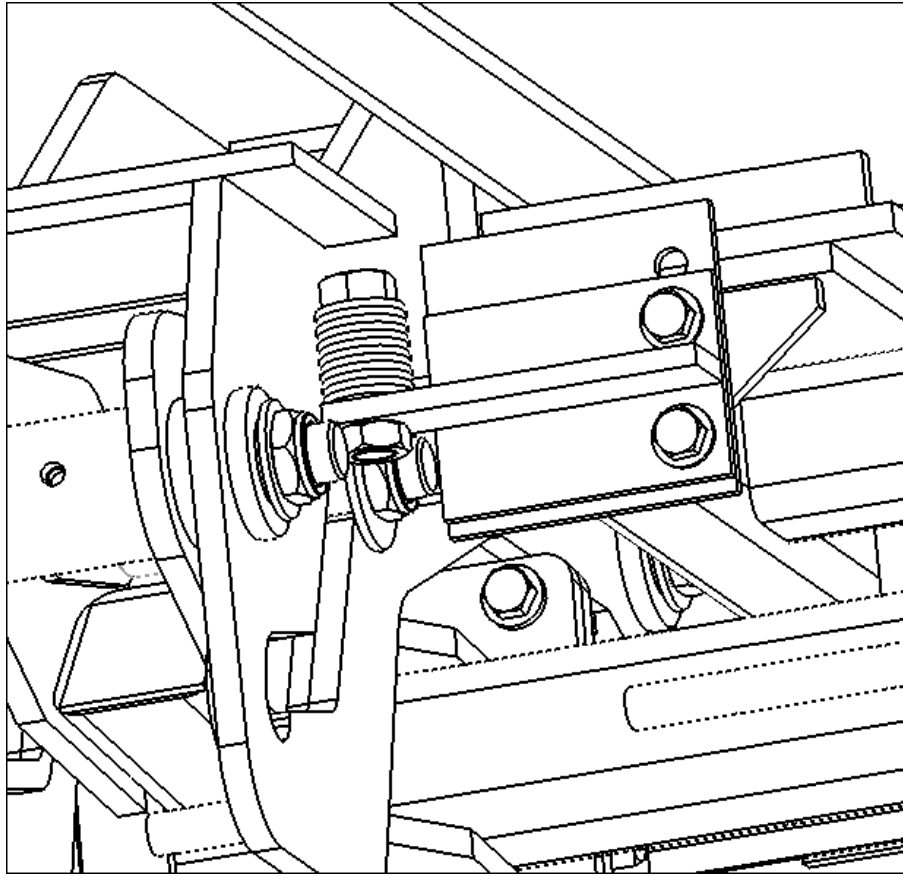


Figure 35: Stopper assembly installed

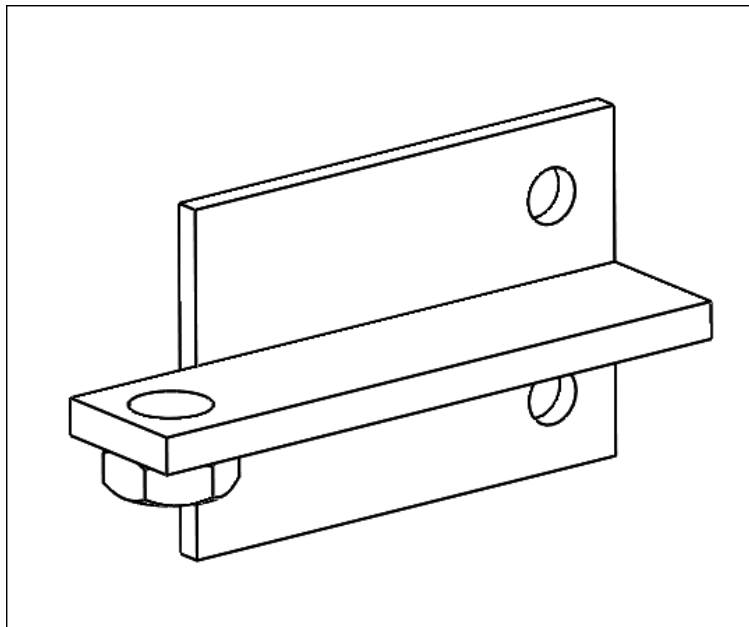


Figure 36: Stopper assembly

PURPOSE

The Stopper Assemblies are attached to the rear hi-rail frame and restrict the downward motion of the cam assemblies when the hi-rail is retracted.

They are made to be removable in order to adjust the hi-rail spring pressure as seen in the Pressure Adjustment section.

ADJUSTMENT

The idea is to have the downward motion of the cam (rotating about the lower rear pin) restricted so that the rubber spring is only barely compressed when the hi-rail is retracted (after spring shims have been installed and the pressure has been adjusted).

The Stopper Assemblies should be adjusted so that the rubber spring has a compressed height of 7" when the hi-rail in is road position (free height of the spring is 7-1/4", meaning a 1/4" pre-compression).

The Stopper Assemblies can be adjusted in many ways to achieve the right height:

- Adjust the number of washers
- Remove the bolt
- Use the different sets of holes on the hi-rail frame
- Rotate the stopper beam assembly 180 degrees

WARNING

Not adjusting the stopper beam to a proper height can cause the hi-rail to malfunction. Having the stopper beam too low can damage the rubber springs by allowing it to come out of the spring center plate. Having the stopper beam too high can restrict the spring from expanding to its full height, potentially restricting the hi-rail wheels from keeping contact with the rail over a high crossing or similar obstacle.

TRACK TEST

When putting the vehicle on track, first lower the rear unit and then lower the front unit after re-positioning the vehicle as required (see OPERATION section below for details).

Verify the following items:

- 1- Ensure the units raise and lower easily, and that hydraulic hoses are all of adequate length and that hydraulic fittings have adequate clearance.
- 2- Ensure the hi-rail units deploy completely, forming a straight and linear connection from the top of the unit all the way to the wheel.
- 3- Adjust the front and rear rail sweep brackets as necessary so that the rubber sweeps just contact the rail with the hi-rail in the lowered position.
- 4- Verify that there is 2" to 3" of clearance between the front tires and the rail head.
- 5- Verify that there is an 8" to 10" contact patch on the rearmost tires with the rail, with the vehicle empty. (This dimension will increase with a loaded vehicle).
- 6- Ensure the vehicle tracks properly down the track, and that there is no excessive flanging of the hi-rail wheels.
- 7- Ensure there is no excessive vibration of the vehicle when on track.

FINALIZING ALIGNMENT / ADJUSTMENT

Once the weights are set, the alignment is set, and the unit was track tested the following places must be welded and finalized:

- Weld spindle housing cross bolts – Weld the thick washer installed on the $\frac{1}{2}$ " spindle housing cross bolt to the spindle housing, on both sides, to transform the gauge adjustment slot into a hole to lock in the gauge adjustment.
- Weld spindle housings – Tack weld (about 1") the spindle housing top plate to the axle plate, to lock in the toe adjustment.

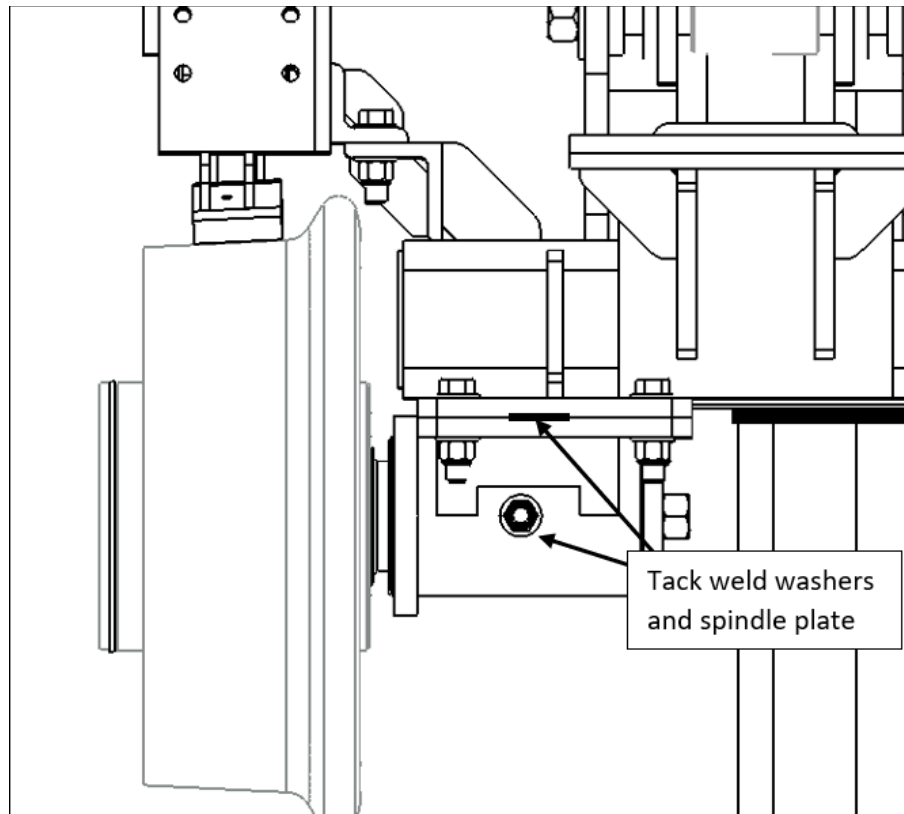


Figure 37: Tack welds on spindle housings

- Weld spring hangers – Tack weld the spring hanger washers to lock in the side to side adjustment

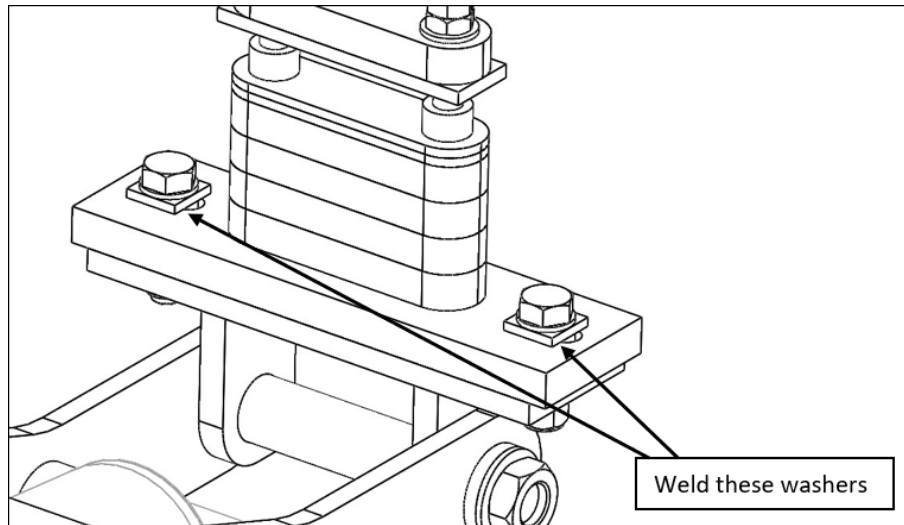


Figure 38: Tack welds on spring hangers

- Stopper position – The stoppers should be adjusted so that the rubber springs are compressed by about $\frac{1}{4}$ " from their free length, when the hi-rail is retracted.
- Position and weld spring center plate – The top spring center plate should be positioned so that the spring is vertical when compressed. The spring should not be allowed to "shear" under compression.

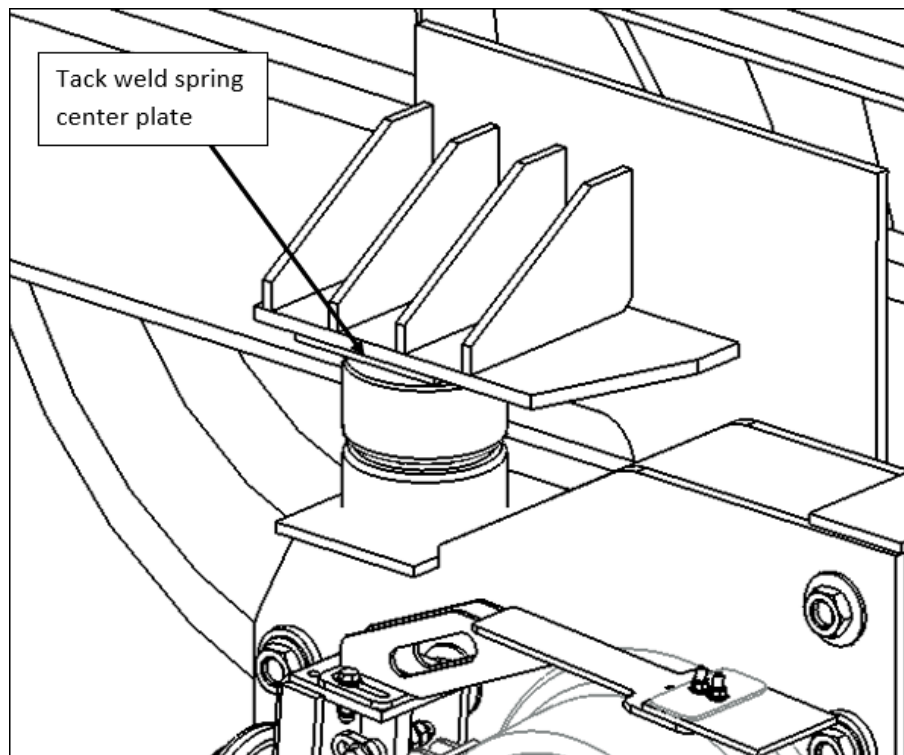


Figure 39: Tack welds on spring center plate

OPERATION

ON ROAD

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

VEHICLE DIMENSIONS

Once modified with hi-rail, the vehicle's dimensions, ground clearances and approach / departure angles change considerably. 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 PTO / pump or turn on the dash mounted switch to activate power pack.
- 3- Actuate the rear hydraulic valve or push button remote 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- Stroke the cylinders completely when lowering the hi-rail until the control valve or pump relieves. Ensure the cylinders are completely stroked and the cylinder pins have moved into their locking slots.

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 PTO / pump or turn on the dash mounted switch to activate power pack.
- 3- Actuate the front hydraulic valve or push button remote 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- Stroke the cylinders completely when lowering the hi-rail until the control valve or pump relieves. Ensure the cylinders are completely stroked and the cylinder pins have moved into their locking slots.

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 G-60 hi-rail unit is 40 kilometers per hour (25 miles per hour) on tangent (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 G-60 hi-rail depends on numerous factors (truck wheelbase, hi-rail wheelbase, rear axle spread, rear axle length, tire sizes, tread type, etc). Continental Railworks can assist in determining the maximum track curvature for a given vehicle.

! PLEASE DRIVE SAFELY !

PARTS

FRONT G-60 UNIT

G-60 FRONT COMPONENTS		
PART NUMBER	DESCRIPTION	QTY
D008RF00	FRONT AXLE ASS'Y	1
E008A001	WHEEL 14" ASSEMBLY W/ SPINDLE HOUSING	2
F078R500	HIRAIL MTG BRACKET	2
F088R003	SPACER	4
F108RF00	FRONT CAM ASS'Y	1
H028K010	5" HYDRAULIC CYLINDER X 8" STROKE	2
H077CFD0	AIR BRAKE ASS'Y DRIVER'S SIDE	1
H077CFP0	AIR BRAKE ASS'Y PASSENGER'S SIDE	1
P008K010	1-3/4" PIN X 9.625" ASS'Y	6
P008K020	1-3/4" PIN X 9.000" ASS'Y	4
R007GB00	UNIVERSAL RAILSWEPT BRKT 14"	2
	3/8" REGULAR FLAT WASHER	8
	1/2" UNC GR.8 BOLT X 2.250" LONG	8
	1/2" UNC GR.8 BOLT X 2.000" LONG	4
	3/8" UNC GR.8 BOLT X 1.500" LONG	4
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	12
	3/8" UNC GR.8 NYLON INSERT LOCKNUT	4
	1/2" REGULAR FLAT WASHER	24
	1-1/4" REGULAR FLAT WASHER	6
	1-1/4" WIDE FLAT WASHER	4
	1-1/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	10

REAR G-60 UNIT

G-60 REAR COMPONENTS		
PART NUMBER	DESCRIPTION	QTY
D008PB00	REAR AXLE ASS'Y	1
E008A001	WHEEL 14" ASSEMBLY W/ SPINDLE HOUSING	2
F008PB01	REAR FRAME ASS'Y	1
F108BB00	REAR CAM ASS'Y	2
F117D000	STOPPER ASSEMBLY PASSENGER	1
F117P000	STOPPER ASSEMBLY DRIVER	1
H028A010	3-1/2" HYDRULIC CYLINDER x 8" STROK	2
H077BBD0	AIR BRAKE ASS'Y DR. SIDE	1
H077BBP0	AIR BRAKE ASS'Y PASSENGER'S SIDE	1
P008A040	1-1/2" PIN x 6.875" ASS'Y	4
P008A050	1-1/4" PIN x 6.125" ASS'Y	4
R007GB00	UNIVERSAL RAILSWEPT BRKT 14"	2
	3/8" UNC GR.8 BOLT x 1.500" LONG	4
	3/4" UNC GR.8 BOLT x 2.500" LONG	2
	3/8" FLAT WASHER	8
	3/8" UNC GR.8 NYLON INSERT LOCKNUT	4
	1/2" UNC GR.8 BOLT x 2.000" LONG	8
	1/2" UNC GR.8 BOLT x 2.500" LONG	8
	1/2" HEAVY WASHER	8
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	16
	1" WIDE FLAT WASHER	2
	1" FLAT WASHER	6
	1" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	8
	1/2" REGULAR FLAT WASHER	24
	3/4" REGULAR FLAT WASHER	24

REAR G-60 UNIT (NO REAR BRAKES)

G-60 REAR NO BRAKES COMPONENTS		
PART NUMBER	DESCRIPTION	QTY.
D008PB00	REAR AXLE ASS'Y	1
E008A001	WHEEL 14" ASSEMBLY W/ SPINDLE HOUSING	2
F008PB01	REAR FRAME ASS'Y	1
F108BB00	REAR CAM ASS'Y	2
F117D000	STOPPER ASSEMBLY PASSENGER	1
F117P000	STOPPER ASSEMBLY DRIVER	1
H028A010	3-1/2" HYDRULIC CYLINDER x 8" STROK	2
P008A040	1-1/2" PIN x 6.875" ASS'Y	4
P008A050	1-1/4" PIN x 6.125" ASS'Y	4
R007GB00	UNIVERSAL RAILSWEET BRKT 14"	2
R018CD00	RAILSWEET ADAPTER DRIVER'S SIDE	1
R018CP00	RAILSWEET ADAPTER PASSENGER'S SIDE	1
	1/2" HEAVY WASHER	8
	1/2" UNC GR.8 BOLT x 2.500" LONG	8
	1/2" UNC GR.8 BOLT x 2.000" LONG	8
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	16
	3/8" UNC GR.8 BOLT x 1.500" LONG	4
	3/8" UNC GR.8 NYLON INSERT LOCKNUT	4
	1" WIDE FLAT WASHER	2
	1" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	8
	1/2" REGULAR FLAT WASHER	24
	3/8" REGULAR FLAT WASHER	8
	1" REGULAR FLAT WASHER	6
	3/4" UNC GR.8 BOLT x 2.500" LONG	2
	3/4" REGULAR FLAT WASHER	24

G-60 SPINDLE ASSEMBLY PARTS

G-60 SPINDLE ASSEMBLY COMPONENTS		
PART NUMBER	DESCRIPTION	QTY
E0114B01	14" WHEEL	1
E0214B01	14" WHEEL SPINDLE	1
E047A001	12" SPINDLE INSULATOR	1
E058A006	ISOLATING TUBE .500 ID	1
E067A001	1-1/2" UNF CASTLE NUT	1
E067A002	1-1/2" FLAT WASHER	1
E068A001	3/16" COTTER PIN 2.500"	1
E088C000	14" WHEEL SPINDEL HOUSING	1
E1214A01	14" WHEEL HUB CAP	1
E14A0302	TIMKEN 643	2
E14A0303	TIMKEN 632	2
E14A1101	WHEEL 14" GREASE SEAL NATIONAL 417496	1
E178A001	14" HUB CAP GASKET	1
ZQ88	1/8 NPT GREASE FITTING	1
	1/2" HEAVY WASHER	2
	1/2" UNC GR.8 BOLT x 5.500" LONG	1
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	1
	1/4" REGULAR SPRING LOCK WASHER	3
	1/4" UNF GR.8 BOLT x 1.000" LONG	3

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

SPINDLE REMOVAL

If the spindles need to be removed or replaced, it is recommended to melt the black plastic insulator before prying out the spindle from the spindle housing. The plastic insulator swells up by absorbing moisture and locks the housing and spindle together. The insulator will need to be replaced when removing a spindle.

BRAKE SHOE ADJUSTMENT

The brake boxes feature an adjustable linkage that allows for slack adjustment. The yoke can be moved down on the threaded rod from the air chamber / hydraulic cylinder in order to maintain a space between the wheel and brake shoe of about 1/8".

BRAKE SHOE REPLACEMENT

Brake shoes need to be replaced when the compound is worn to about 5/16" (when the rivet is showing). When installing a new brake shoe, ensure it is oriented the right way, with the vertical plate with a hole towards the inside as pictured below.

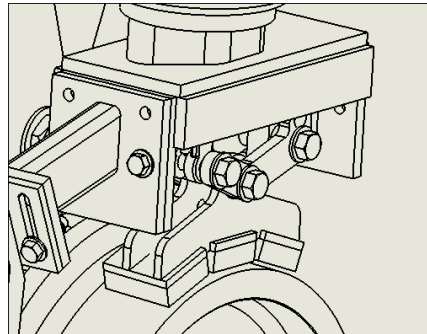


Figure 31: Brake shoe installation

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 + US
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

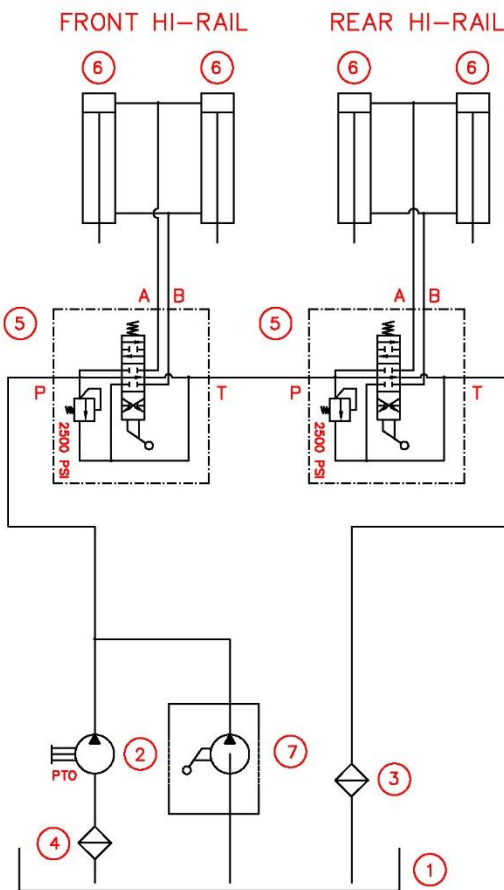
BOLT TORQUE TABLE

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 3

HYDRAULIC SCHEMATICS

PTO AND PUMP SETUP

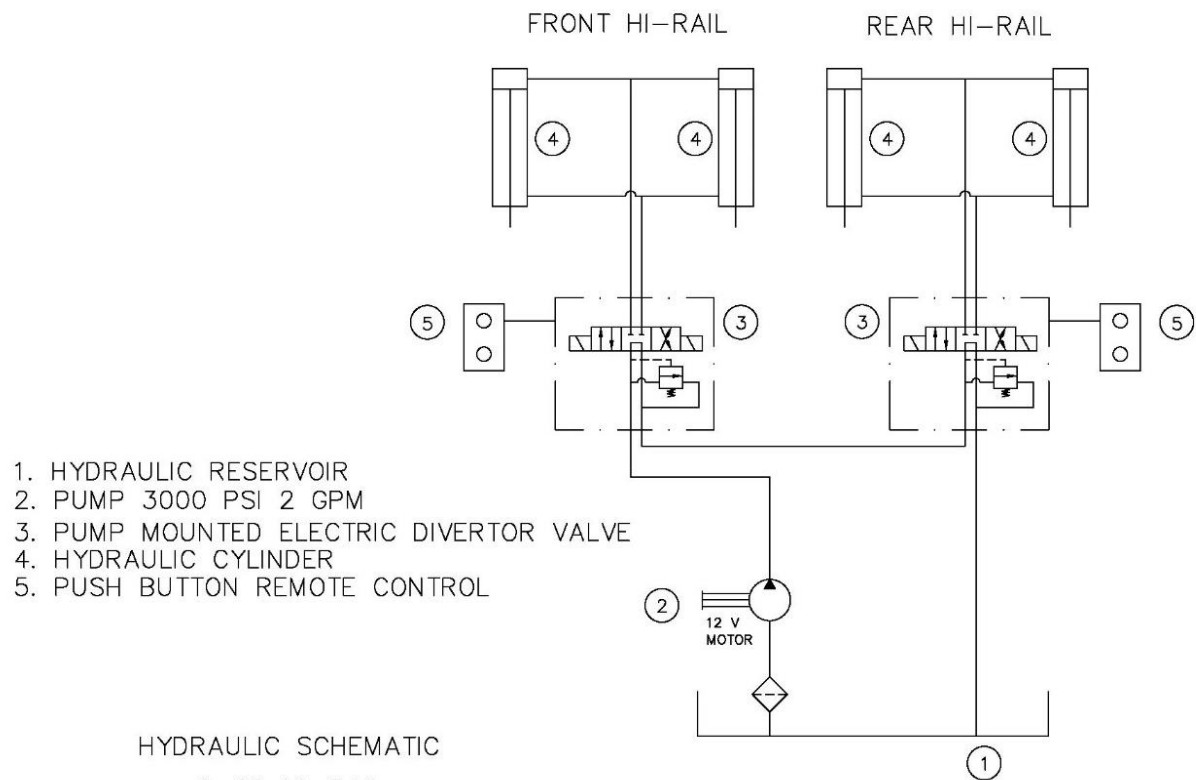


HYDRAULIC SCHEMATIC

G-60

- 1 - HYDRAULIC RESERVOIR (NOT SUPPLIED)
- 2 - PUMP (NOT SUPPLIED) - Min 2500 PSI / 5 GPM
- 3 - RETURN OIL FILTER (NOT SUPPLIED)
- 4 - SUCTION STRAINER (NOT SUPPLIED)
- 5 - MANUAL CONTROL VALVE (H105A001)
- 6 - HYDRAULIC CYLINDER (VARIES - SEE MANUAL)
- 7 - EMERGENCY PUMP (OPTIONAL)

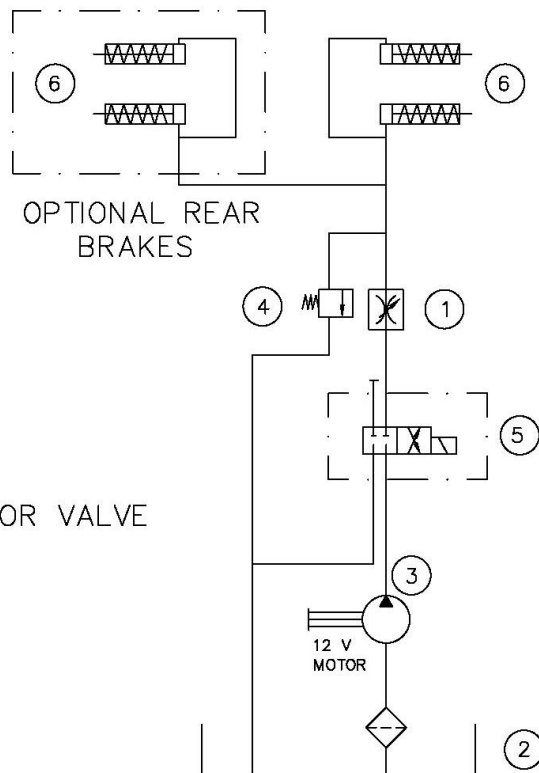
12V POWER PACK SETUP



OPTIONAL HYDRAULIC BRAKES

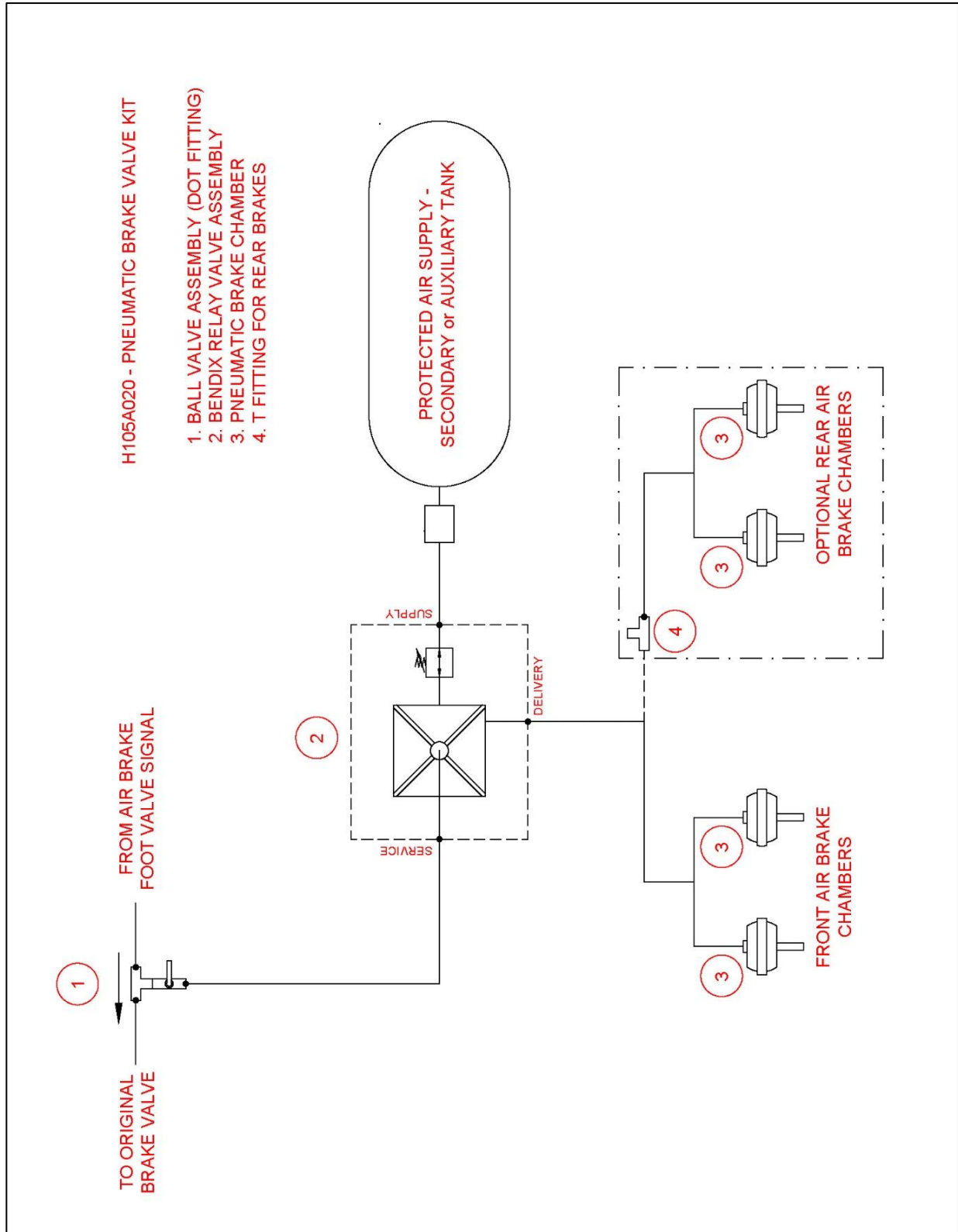
1. FLOW CONTROL VALVE
2. HYDRAULIC RESERVOIR
3. PUMP 3000 PSI 2 GPM
4. RELIEF VALVE 2500 PSI
5. PUMP MOUNTED ELECTRIC DIVERTOR VALVE
6. HYDRAULIC BRAKE CYLINDERS

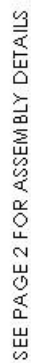
HYDRAULIC SCHEMATIC
G-60 HI-RAIL
FRONT HYDRAULIC BRAKES



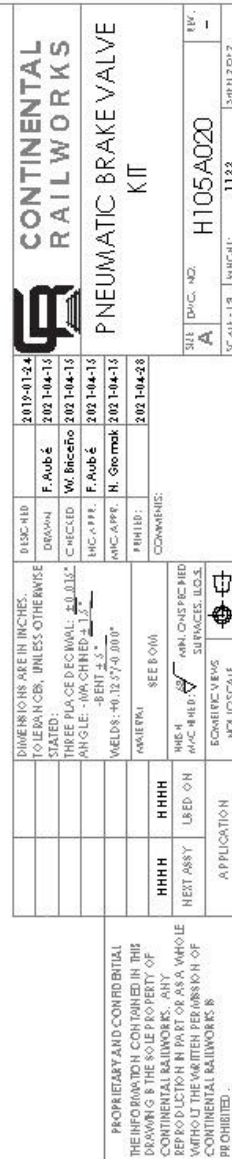
APPENDIX 4

PNEUMATIC BRAKE DIAGRAM



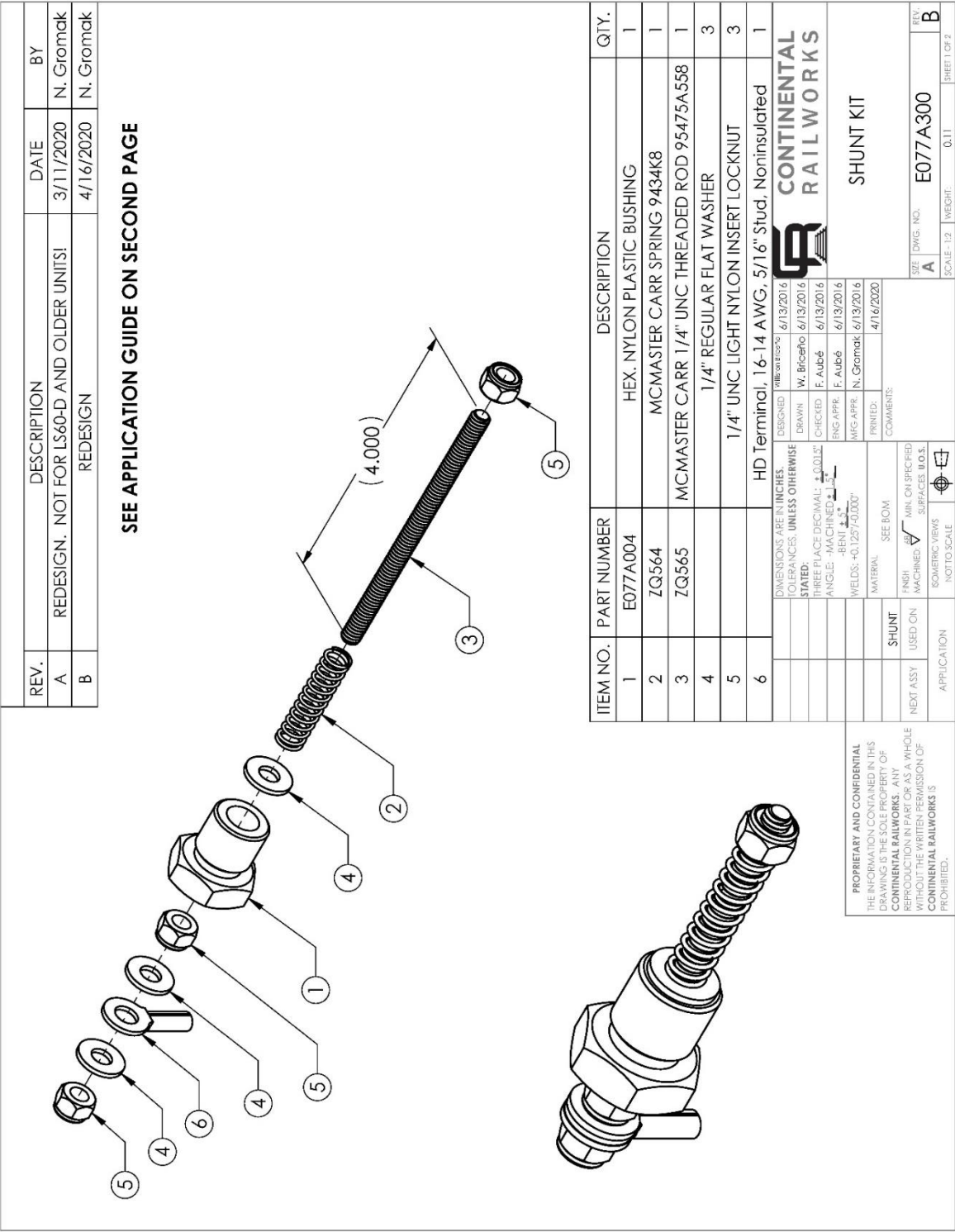


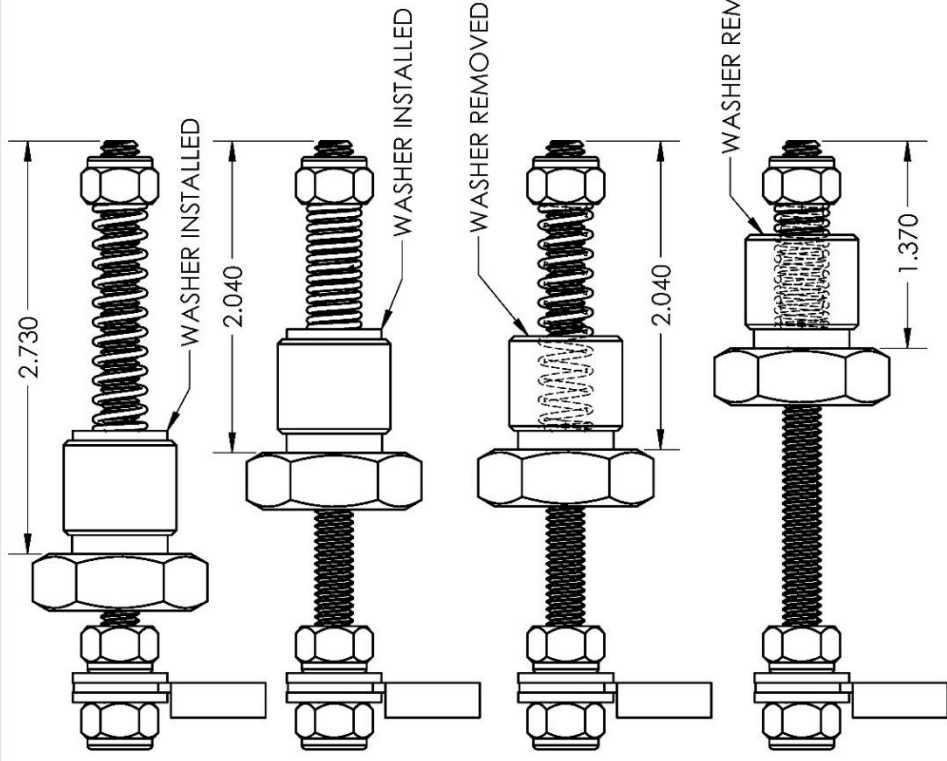
PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS
DRAWING IS THE SOLE PROPERTY OF
CONTINENTAL RAILWORKS. ANY
REPRODUCTION IN PART OR AS A WHOLE
WITHOUT THE WRITTEN PERMISSION OF
CONTINENTAL RAILWORKS IS
PROHIBITED.



APPENDIX 5

SHUNT KIT

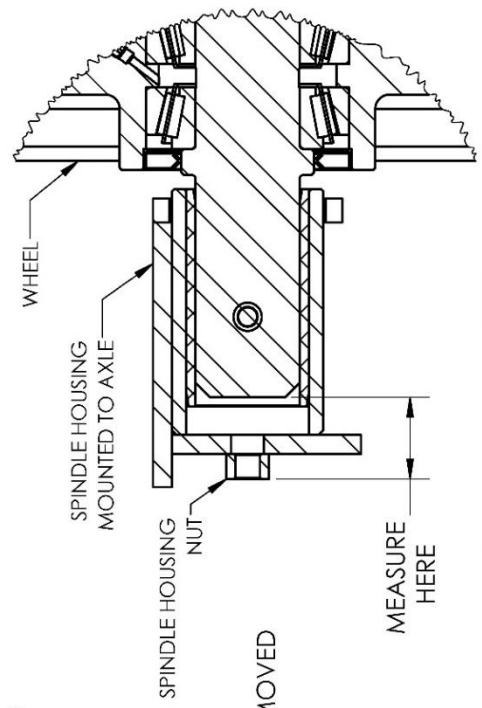




USING A SUITABLE INSTRUMENT, MEASURE THE DISTANCE FROM THE SPINDLE HOUSING NUT TO THE SPINDLE BACK. SEE BELOW.

IF THE MEASUREMENT IS ABOVE 2.040", LEAVE THE 1/4" WASHER INSTALLED.

IF THE MEASUREMENT IS BELOW 2.040", REMOVE THE WASHER AND ALLOW THE SPRING TO FALL INTO THE RECESS IN THE PLASTIC AND RE-ASSEMBLE.



CONTINENTAL RAILWORKS

SHUNT KIT

SIZE: DWG. NO. **E077A300** REV. **B**

SCALE: 1:1 WEIGHT: 0.11 SHEET 2 OF 2

DESIGNED: 6/13/2016
 DRAWN: W. Brice/Ph 6/13/2016
 CHECKED: F. Aubé 6/13/2016
 ENG APPR: F. Aubé 6/13/2016
 MFG APPR: N. Gromak 6/13/2016
 PRINTED: 4/16/2020
 COMMENTS:

DIMENSIONS ARE IN INCHES
 TOLERANCES, UNLESS OTHERWISE
 STATED:
 THREE PLACE DECIMAL: ±0.015"
 ANGLE: MACHINED ±1.5°
 BENT ±3°
 WELDS: ±0.125/0.000"

MATERIAL: SEE BOM

FINISH: MACHINED

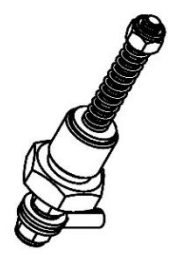
GEOMETRIC VIEWS: NOT TO SCALE

SHUNT KIT

USED ON

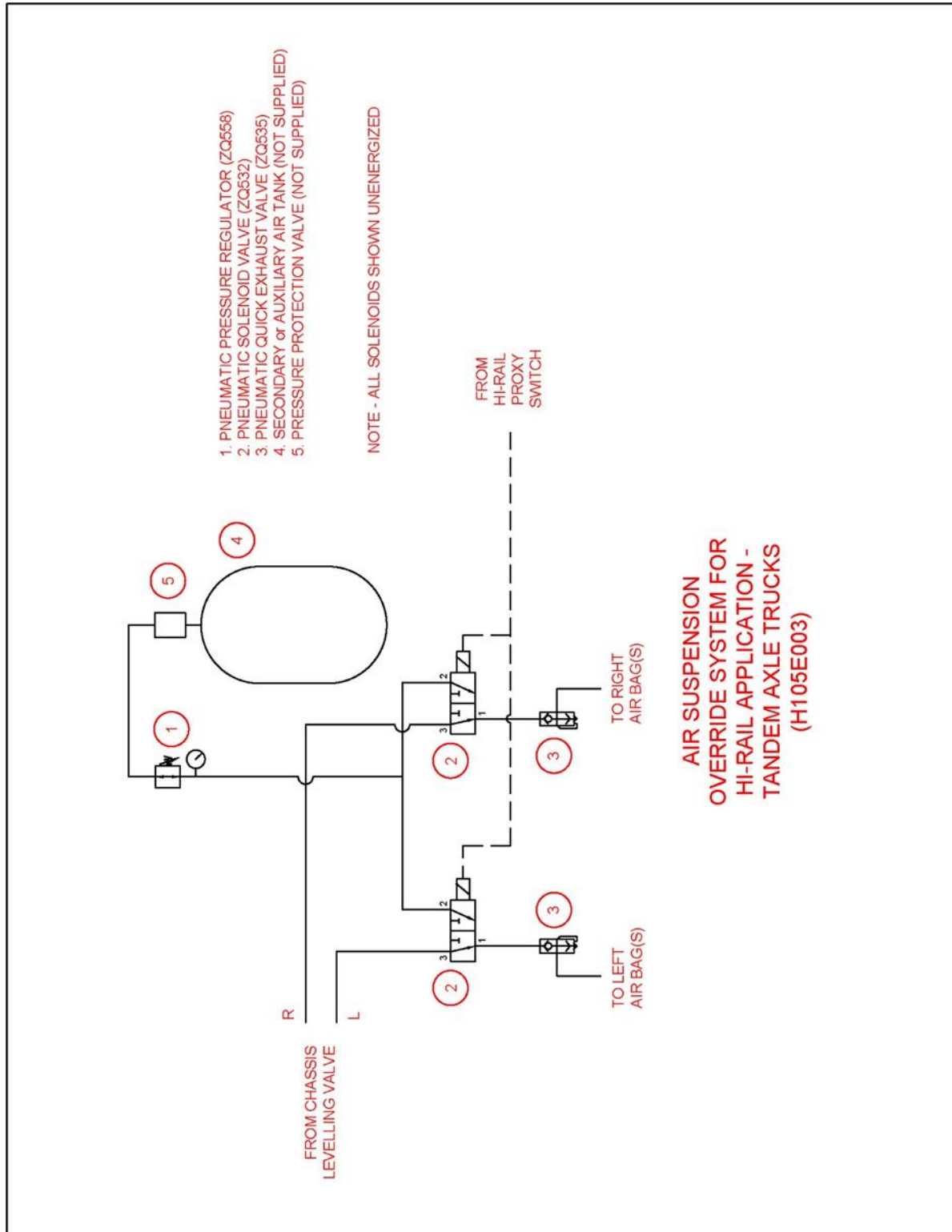
APPLICATION

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.

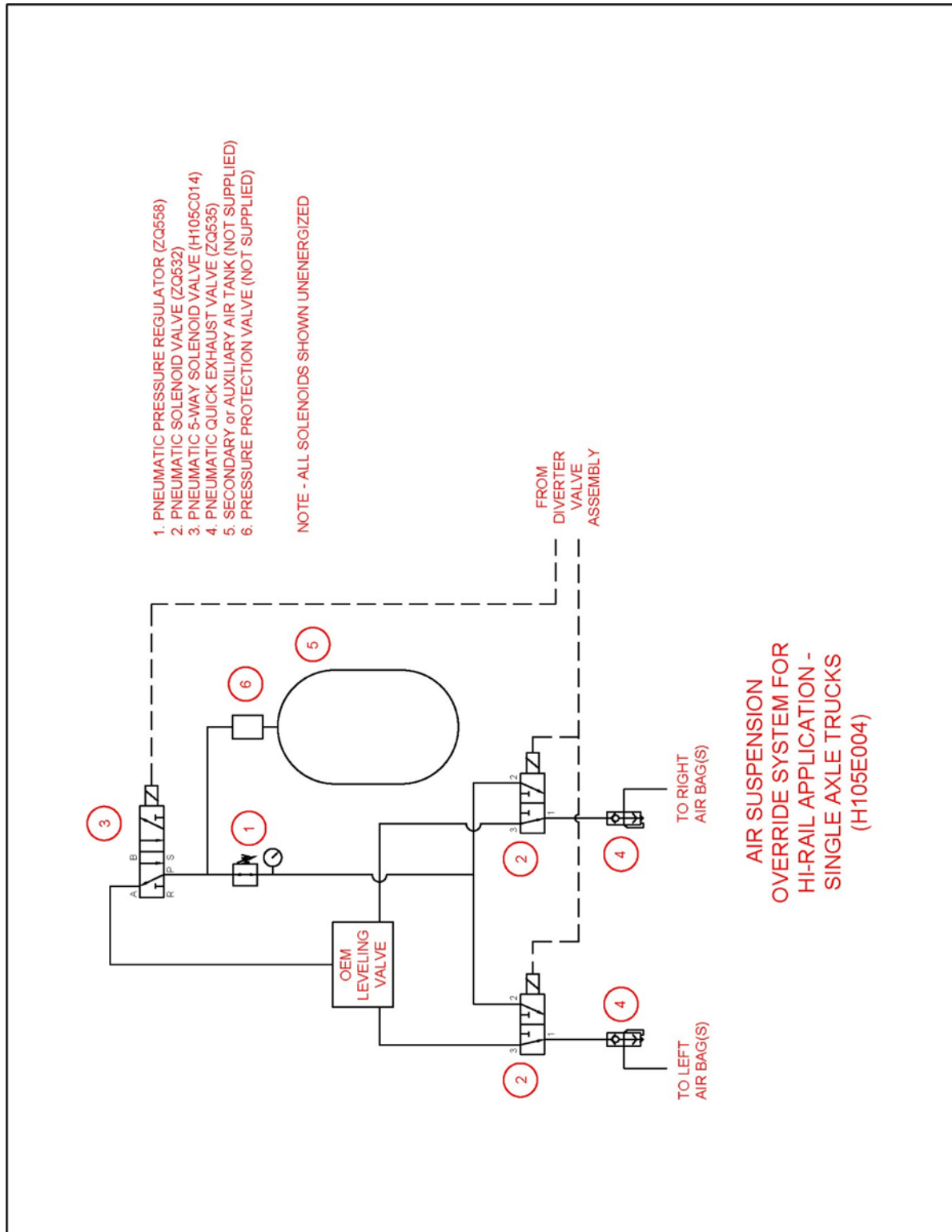


APPENDIX 6

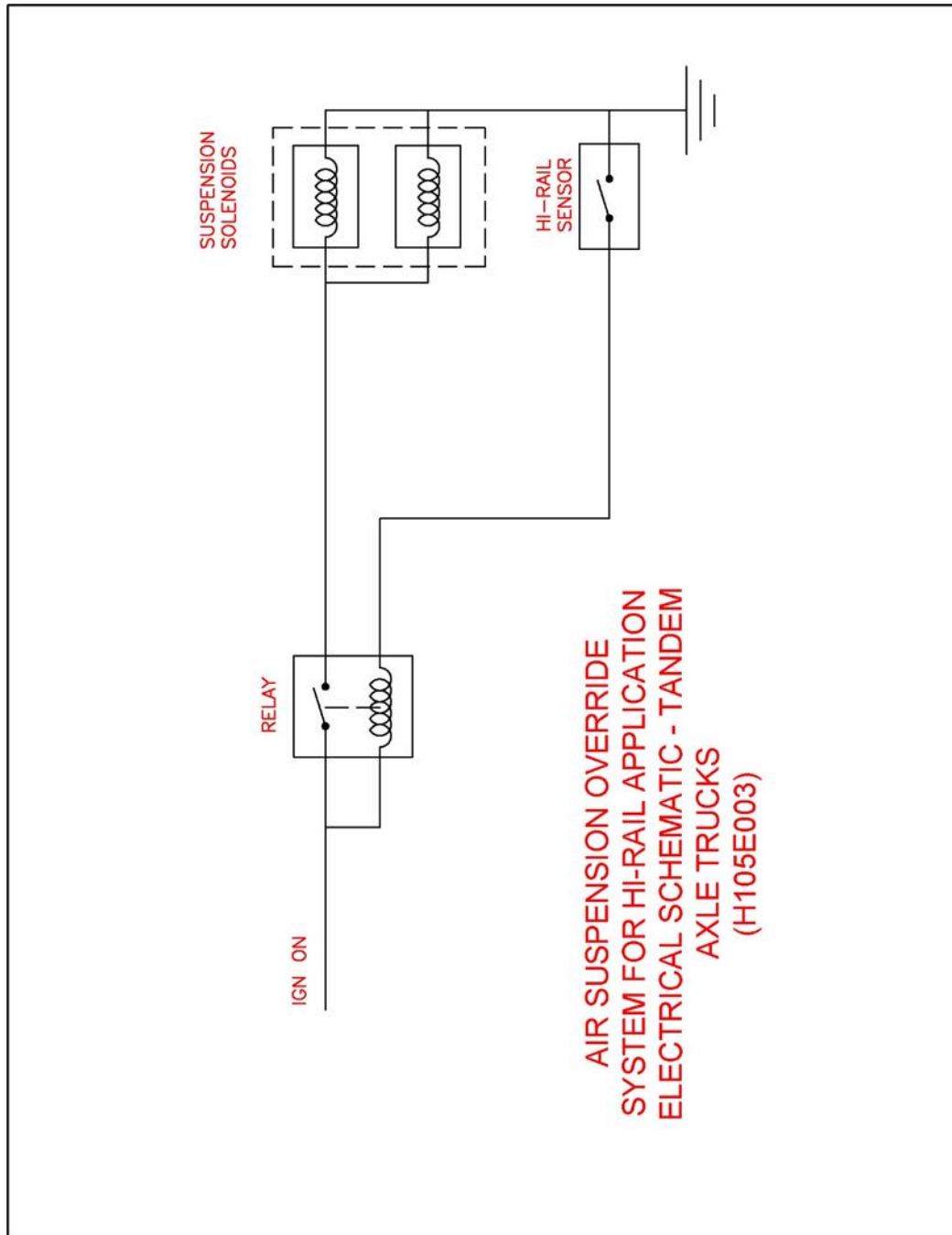
PNEUMATIC SCHEMATICS – H105E003 TANDEM AXLE TRUCKS



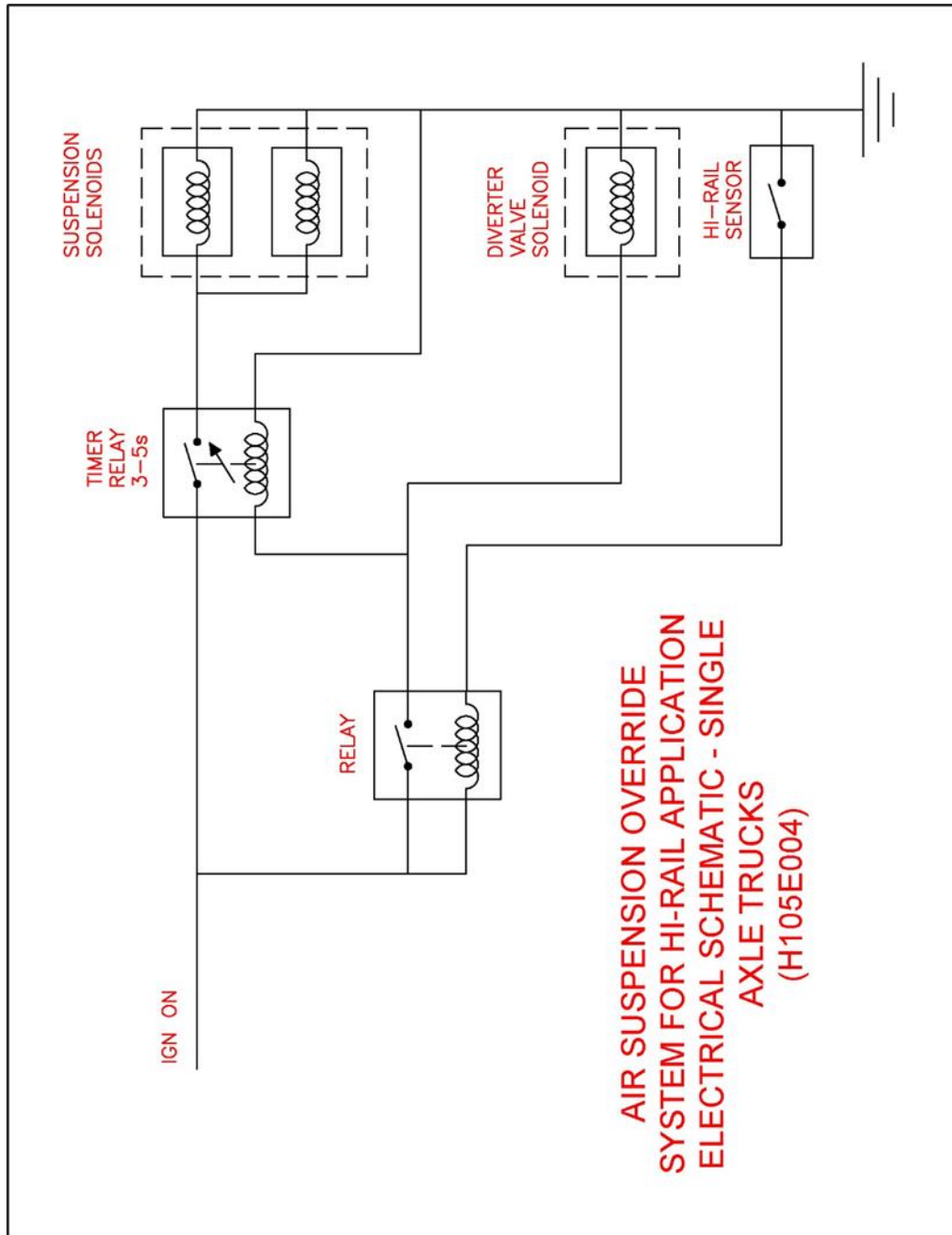
PNEUMATIC SCHEMATICS – H105E004 SINGLE AXLE TRUCKS



ELECTRICAL SCHEMATICS – H105E003 TANDEM AXLE TRUCKS



ELECTRICAL SCHEMATICS – H105E004 SINGLE AXLE TRUCKS



APPENDIX 7

ALIGNMENT DIAGRAM



7380 Rue Verite, St- Laurent, QC H4S 1G5 Tel: 514-95-8081

Annual Rail Gear Inspection Form

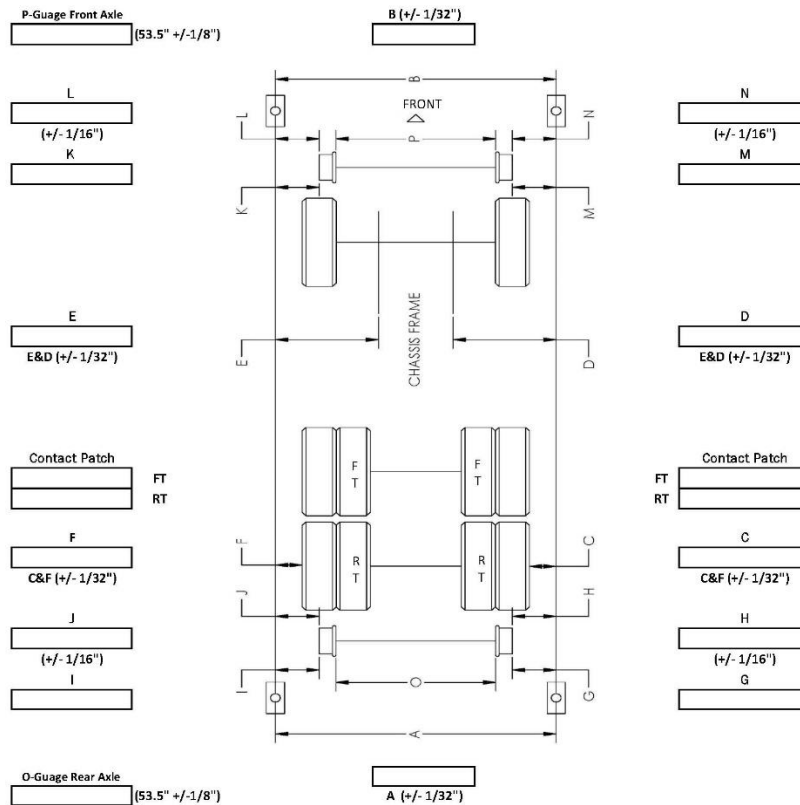
Customer: _____
 Vehicle Number: _____ Year: _____
 VIN: _____

License: _____
 Mileage: _____
 Date: _____

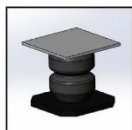
Hi-Rail Model Front: _____ Year: _____
 Hi-Rail Model Rear: _____ Year: _____

Serial: _____
 Serial: _____

Rail Gear Alignment

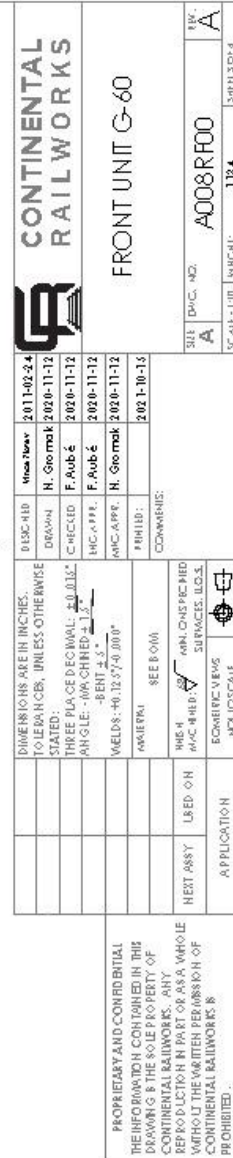


Height of Rear spring in the stowed position

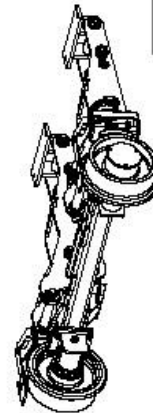



Drivers Side : _____
 Passenger Side : _____

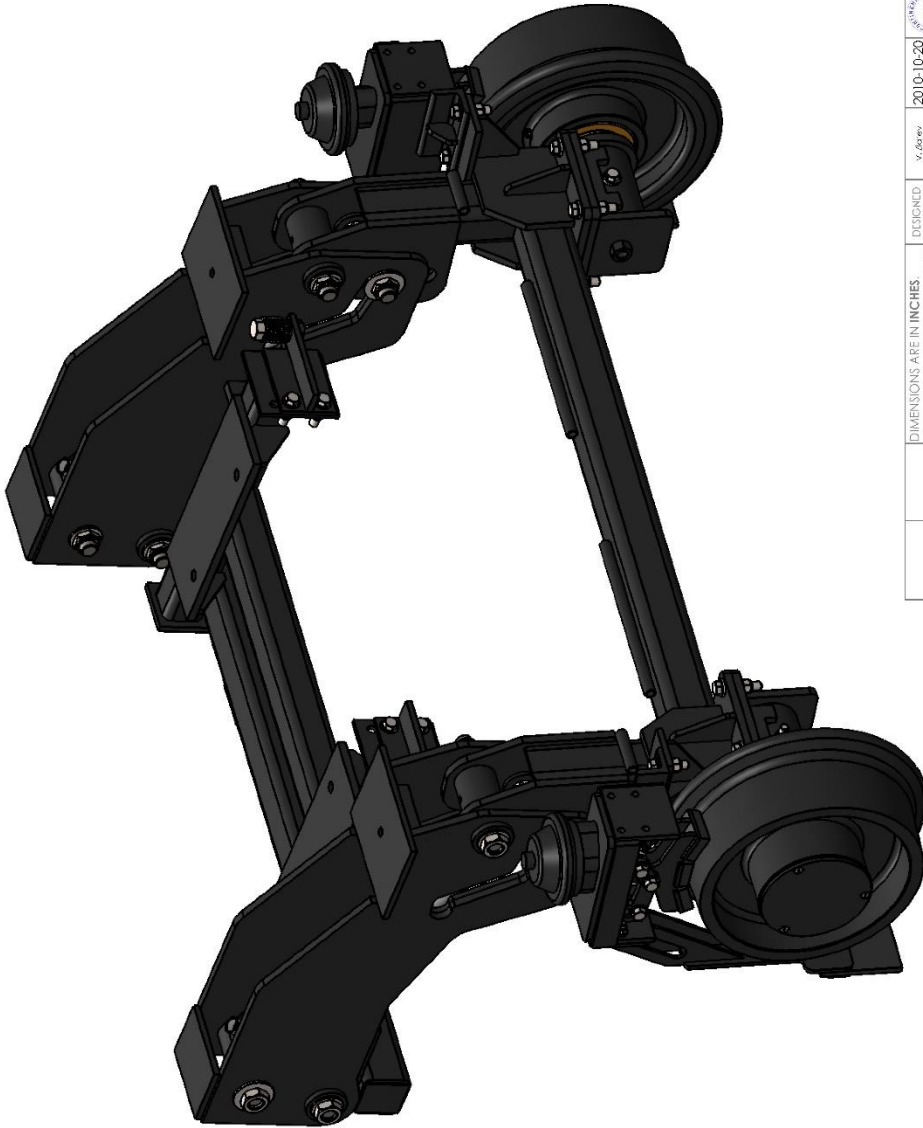
Note: If compressed more than 6-3/4" stoppers will to be adjusted.
 See Manual for Instructions



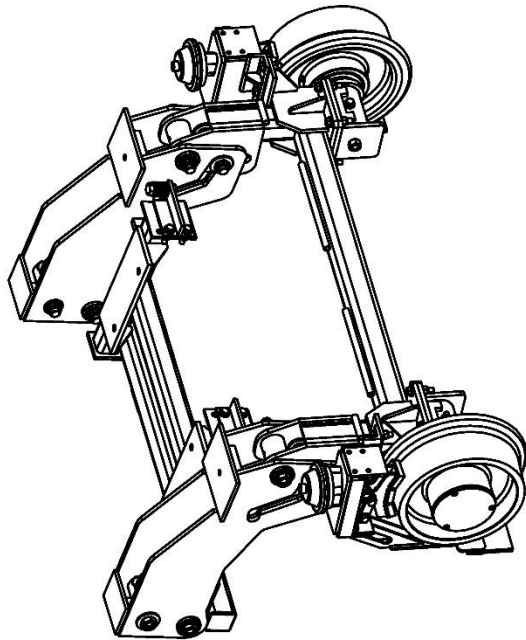
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	D008RF00	FRONT AXLE ASS'Y	1
2	E008A001	WHEEL 14" ASSEMBLY W/ SPINDLE HOUSING	2
3	F078R500	HIRAIL MTG BRACKET	2
4	F068R003	SPACER	4
5	F108RF00	FRONT CAM ASSY	1
6	H028K010	5" HYDRAULIC CYLINDER X 8" STROKE	2
7	H077CFD0	AIR BRAKE ASS'Y DRIVER'S SIDE	1
8	H077CFP0	AIR BRAKE ASS'Y PASSENGER'S SIDE	1
9	P008K010	1-3/4" PIN X 9.625" ASSY	6
10	P008K020	1-3/4" PIN X 9.000" ASSY	4
11	R007GB00	UNIVERSAL RAILSWEEP BRKT 14"	2
12		3/8" REGULAR FLAT WASHER	8
13		1/2" UNC GR.8 BOLT X 2.250" LONG	8
14		1/2" UNC GR.8 BOLT X 2.000" LONG	4
15		3/8" UNC GR.8 BOLT X 1.500" LONG	4
16		1/2" UNC GR.8 NYLON INSERT LOCKNUT	12
17		3/8" UNC GR.8 NYLON INSERT LOCKNUT	4
18		1/2" REGULAR FLAT WASHER	24
19		1-1/4" REGULAR FLAT WASHER	6
20		1-1/4" WIDE FLAT WASHER	4
21		1-1/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	10



 CONTINENTAL RAILWORKS		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13
		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13
DIMENSIONS ARE IN INCHES TO LEAN ON, UNLESS OTHERWISE STATED: THREE PLACE DECIMAL, ±0.015" ANGLE - MACHINED ±1.2° -8 BENT ±.5° WELDS -10.12 57.0 .000" ASSEMBLY SEE BOM		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	
NEXT ASSY USED ON APPLICATION		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	
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.		FRONT UNIT G-60		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	
2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13		2011-02-24 2020-11-12 2020-11-12 2020-11-12 2020-11-12 2021-10-13	

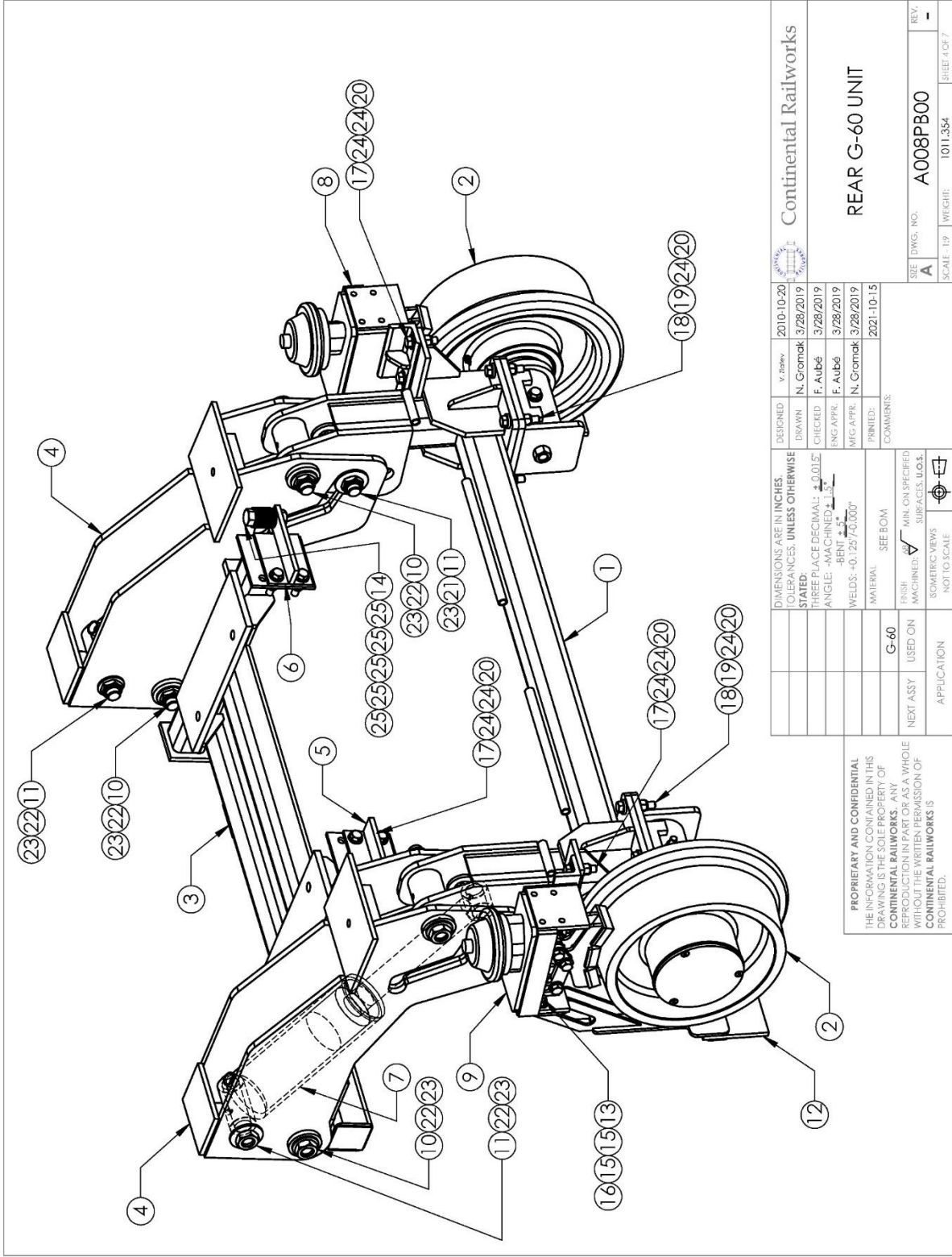


<p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.</p>		<p>REAR G-60 UNIT</p>		<p>Continental Railworks</p>	
<p>CONTINENTAL RAILWORKS</p>		<p>DATE: 2010-10-20</p>	<p>REV: A</p>	<p>SIZE: 1011.354</p>	<p>SHEET: 2 OF 7</p>
<p>CONTINENTAL RAILWORKS</p>		<p>DESIGNED: N. Gromak</p>	<p>DATE: 3/28/2019</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>DRAWN: F. Aubé</p>	<p>DATE: 3/28/2019</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>CHECKED: F. Aubé</p>	<p>DATE: 3/28/2019</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>ENG APPR: F. Aubé</p>	<p>DATE: 3/28/2019</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>MFG APPR: N. Gromak</p>	<p>DATE: 3/28/2019</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>PRINTED: 2021-10-15</p>	<p>DATE: 2021-10-15</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>COMMENTS:</p>	<p>DATE: 2021-10-15</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>MATERIAL: SEE BOM</p>	<p>DATE: 2021-10-15</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>FINISH: MACHINED</p>	<p>DATE: 2021-10-15</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>USED ON: G-60</p>	<p>DATE: 2021-10-15</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>
<p>CONTINENTAL RAILWORKS</p>		<p>APPLICATION:</p>	<p>DATE: 2021-10-15</p>	<p>SCALE: 1:1</p>	<p>WEIGHT: 1011.354</p>



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	D008PB00	REAR AXLE ASSY	1
2	E008A001	WHEEL 14" ASSEMBLY W/ SPINDLE HOUSING	2
3	F008PB01	REAR FRAME ASSY	1
4	F1088B00	REAR CAM ASSY	2
5	F117D000	STOPPER ASSEMBLY PASSENGER	1
6	F117P000	STOPPER ASSEMBLY DRIVER	1
7	H028A010	3-1/2" HYDRAULIC CYLINDER x 8" STROKE	2
8	H077BBD0	AIR BRAKE ASSY DR. SIDE	1
9	H077BBP0	AIR BRAKE ASSY PASSENGER'S SIDE	1
10	P008A040	1-1/2" PIN x 6.875" ASSY	4
11	P008A050	1-1/4" PIN x 6.125" ASSY	4
12	R007GB00	UNIVERSAL RAILSWEPT BRKT 14"	2
13		3/8" UNC GR.8 BOLT x 1.500" LONG	4
14		3/4" UNC GR.8 BOLT x 2.500" LONG	2
15		3/8" FLAT WASHER	8
16		3/8" UNC GR.8 NYLON INSERT LOCKNUT	4
17		1/2" UNC GR.8 BOLT x 2.000" LONG	8
18		1/2" UNC GR.8 BOLT x 2.500" LONG	8
19		1/2" HEAVY WASHER	8
20		1/2" UNC GR.8 NYLON INSERT LOCKNUT	16
21		1" WIDE FLAT WASHER	2
22		1" FLAT WASHER	6
23		1" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	8
24		1/2" REGULAR FLAT WASHER	24
25		3/4" REGULAR FLAT WASHER	24

CONTINENTAL RAILWORKS	2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20		2010-10-20	
-----------------------	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--	------------	--



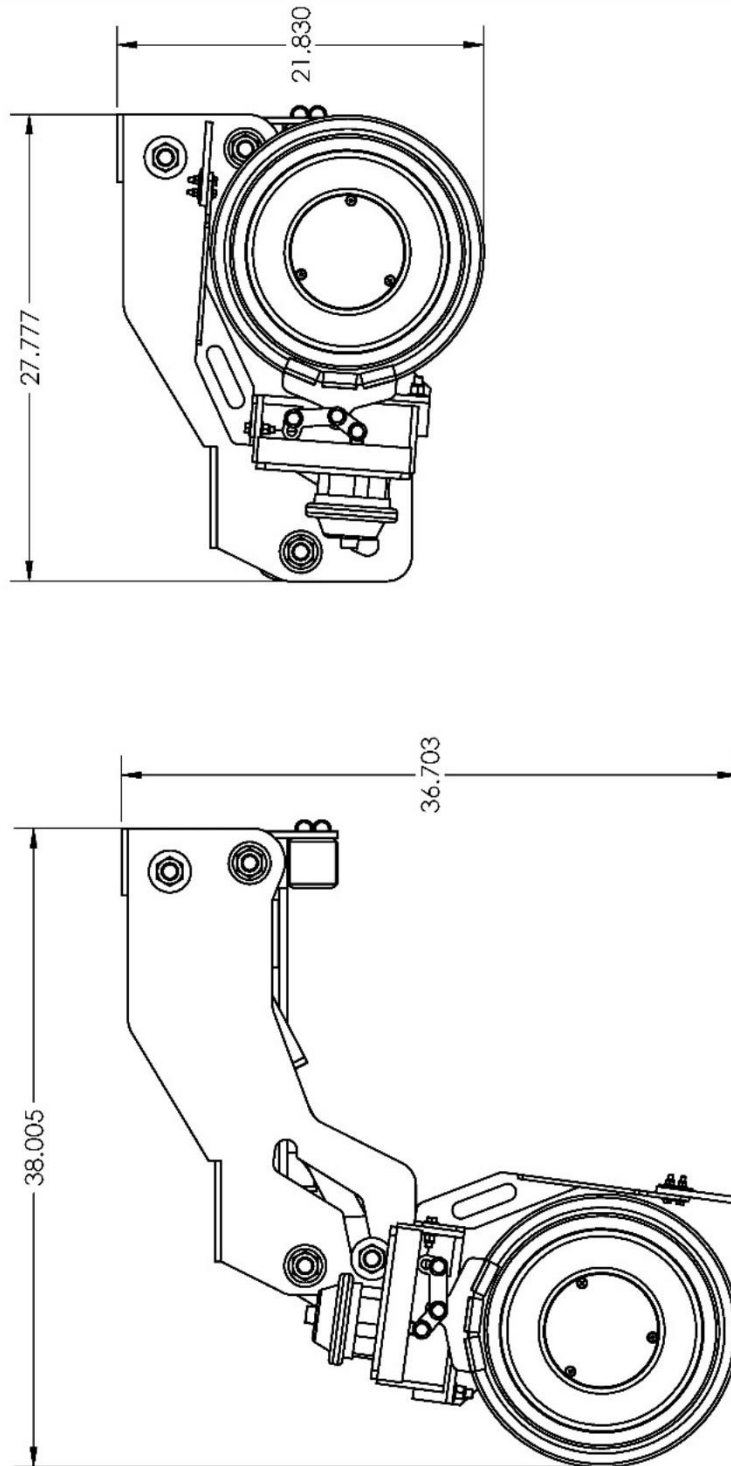
Continental Railworks

REAR G-60 UNIT

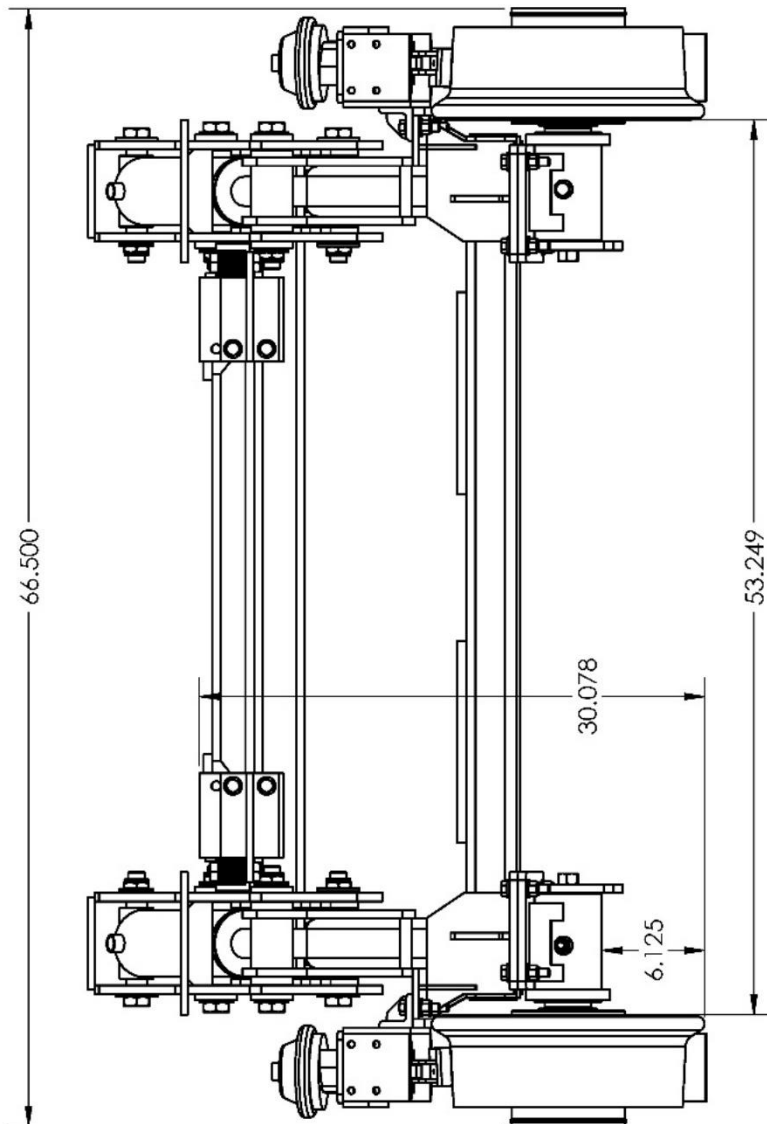
DESIGNED	2010-10-20	V. J. J. J.	N. Gromak
DRAWN	3/28/2019	F. Aubé	
CHECKED	3/28/2019	F. Aubé	
ENG APPR.	3/28/2019	N. Gromak	
MFG APPR.	3/28/2019		
PRINTED:	2021-10-15		
COMMENTS:			
DIMENSIONS ARE IN INCHES TOLERANCES, UNLESS OTHERWISE STATED: THREE PLACE DECIMAL: $\pm 0.015"$ ANGLE: $\pm 5^\circ$ WELDS: ± 0.125 TO $0.007"$			
MATERIAL	SEE BOM		
FINISH	MIN. ON SPECIFIED		
MACHINED	SURFACES U.O.L.		
ISOMETRIC VIEWS	NOT TO SCALE		
APPLICATION	USED ON		
NEXT ASSY	G-60		

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.

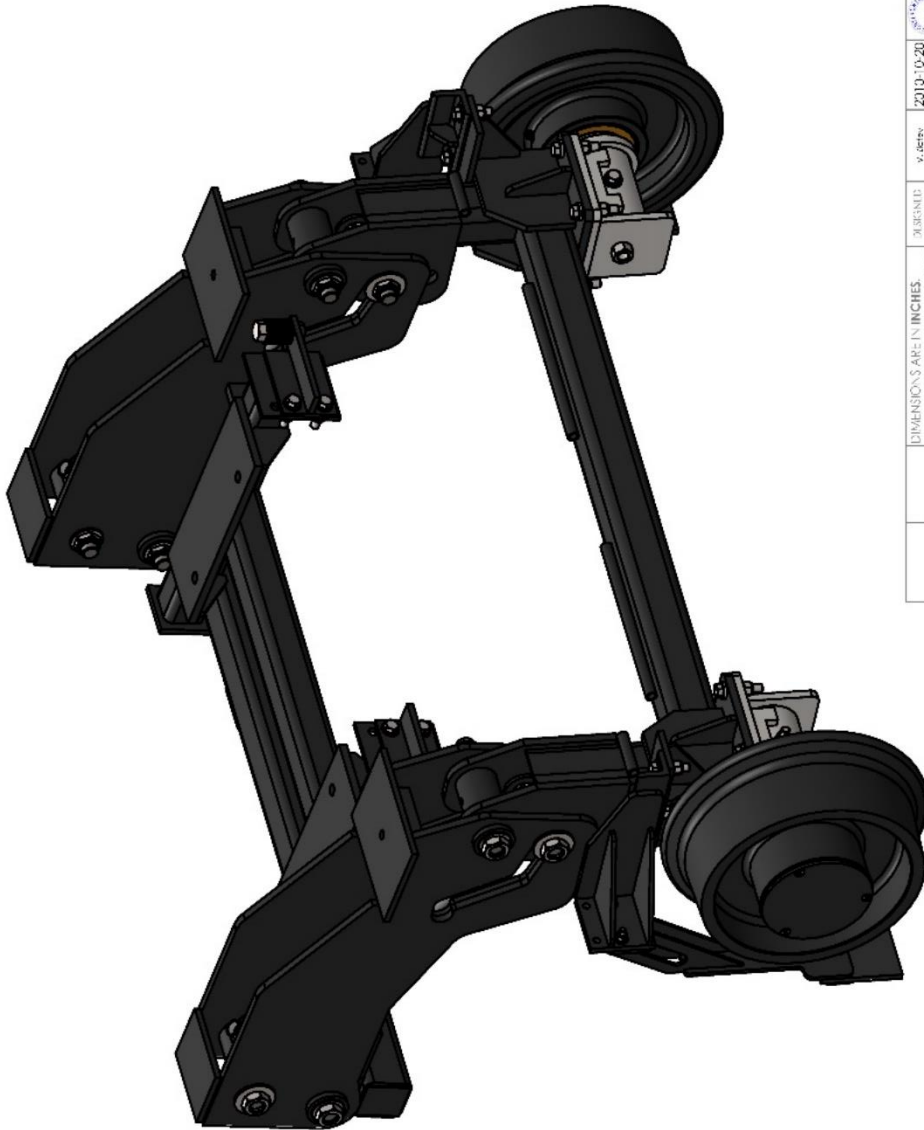
SIZE	DWG. NO.	REV.
A	A008PB00	-
SCALE: 1:19	WEIGHT: 1011.354	SHEET 4 OF 7



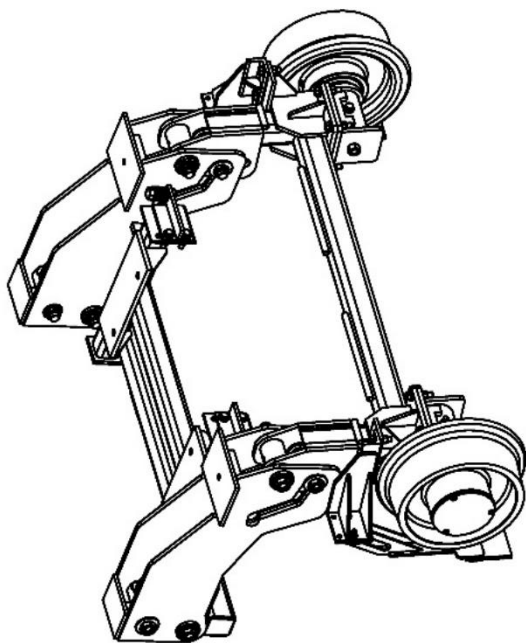
<p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.</p>		<p>CONTINENTAL RAILWORKS</p>		<p>2019-10-20</p>	<p>3/28/2019</p>	<p>3/28/2019</p>	<p>3/28/2019</p>	<p>3/28/2019</p>	<p>2021-10-15</p>	<p>REV. -</p>	
				<p>DESIGNED: N. Cronm</p>	<p>DRAWN: F. Aubé</p>	<p>CHECKED: F. Aubé</p>	<p>ENGINEER: N. Cronm</p>	<p>PRINTED: 3/28/2019</p>	<p>COMMENTS:</p>		
<p>DIMENSIONS ARE IN INCHES TOLERANCES, UNLESS OTHERWISE STATED: THREE PLACE DECIMAL ± 0.005 ANGLES $\pm 0.1^\circ$ WELDS: 0.125/16.000</p>		<p>SEE 304</p>		<p>MIN. 0.125/16.000</p>		<p>3/28/2019</p>		<p>3/28/2019</p>		<p>3/28/2019</p>	
<p>NEXT ASSY</p>		<p>USED ON</p>		<p>REMARKS</p>		<p>NOT TO SCALE</p>		<p>10:1.354</p>		<p>10:1.354</p>	
<p>APPLICATION</p>		<p>C-60</p>		<p>REAR G-60 UNIT</p>		<p>A008PB00</p>		<p>REV. -</p>		<p>10:1.354</p>	




Continental Railworks									
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.	DIMENSIONS ARE IN INCHES TOLERANCES, UNLESS OTHERWISE STATED: THREE PLACE DECIMAL ± 0.005 ANGLES - MACHINING $\pm 1.5^\circ$ WELDS: 0.125/16.000		REVISIONS	DATE	BY	CHKD	DATE	BY	CHKD
	MATERIAL: SEE SCH		DESIGNED	2019-10-20	N. Gromek	3/28/2019			
	FINISH: SEE SCH		DRAWN	3/28/2019	F. Aubé	3/28/2019			
	TREATMENT: SEE SCH		CHECKED	3/28/2019	F. Aubé	3/28/2019			
	WELDS: 0.125/16.000		ENG APPR	3/28/2019	N. Gromek	3/28/2019			
NEXT ASSY		C-60		USED ON		COMMENTS:		REV.	
APPLICATION								A	
								DWG. NO.	
								A008PB00	
								SCALE	
								10:1	
								SHEET	
								2 OF 2	

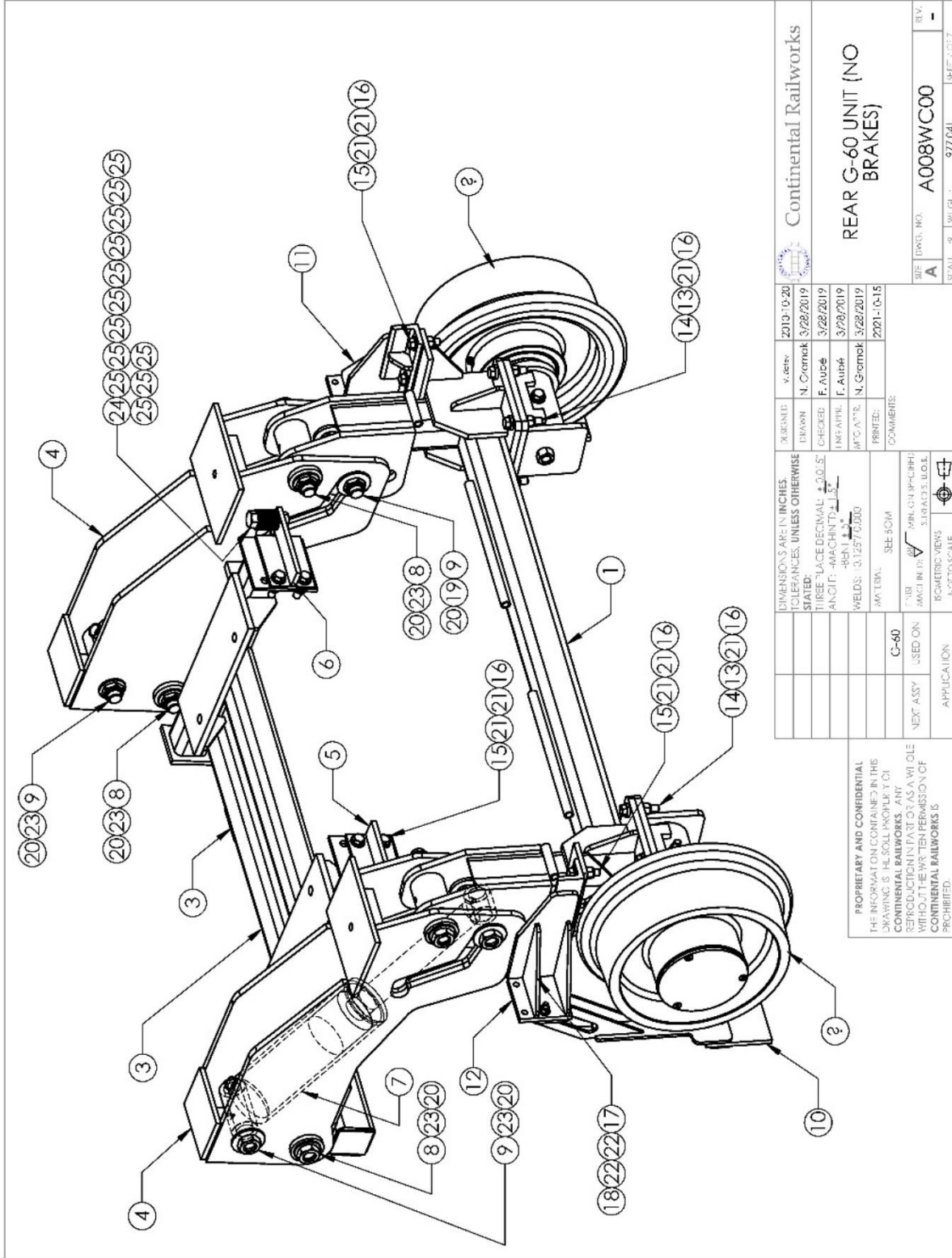


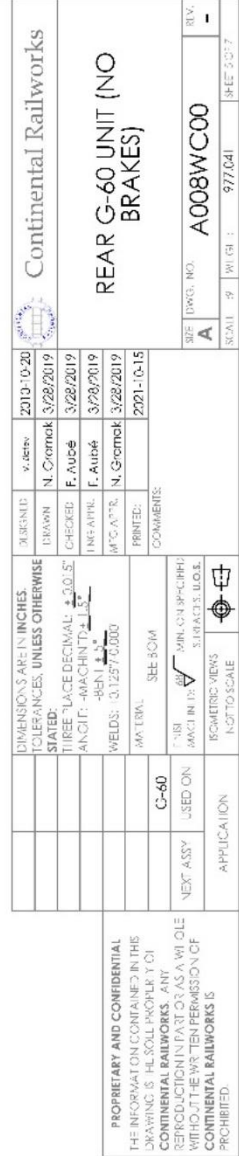
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.		DIMENSIONS ARE IN INCHES TOLERANCES, UNLESS OTHERWISE STATED: FRACTIONAL DECIMAL ± 0.015 ANGLES ± 0.01 WELDS: 0.125/16.000		DESIGNED N. Gromek 3/28/2019	2019-10-20 3/28/2019
		CHECKED F. Aubé 3/28/2019 INCHES F. Aubé 3/28/2019 PRINTED 2021-10-15 COMMENTS:		CONTINENTAL Railworks REAR G-60 UNIT (NO BRAKES)	
NEXT ASSY USED ON APPLICATION		MATERIAL SEE SCH FINISH UNLESS OTHERWISE SPECIFIED SURFACE TREATMENT GEOMETRIC VIEWS NOT TO SCALE	A DWG. NO. A008WC00 SCALE 1/8" = 1"	REV. - SHEET 2 OF 3	977041

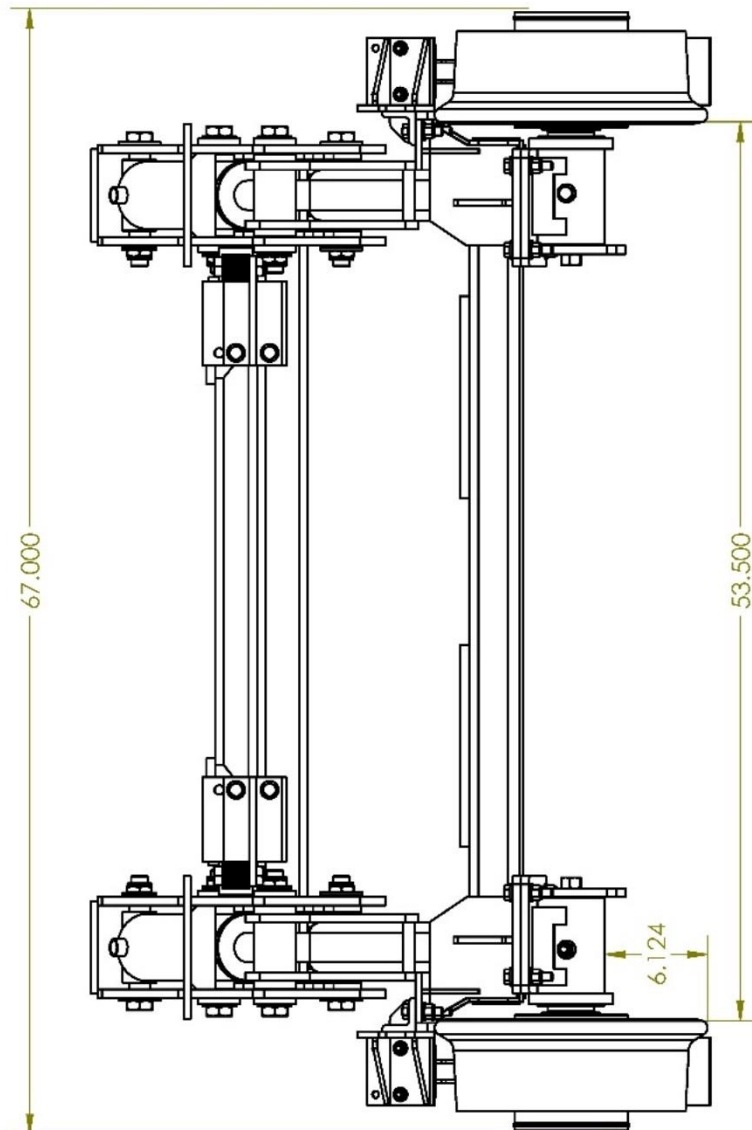


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	D008PB00	REAR AXLE ASS'Y	1
2	E008A001	WHEEL 14" ASSEMBLY W/ SPINDLE HOUSING	2
3	F008PB01	REAR FRAME ASS'Y	1
4	F108BB00	REAR CAM ASS'Y	2
5	F117D000	STOPPER ASSEMBLY PASSENGER	1
6	F117P000	STOPPER ASSEMBLY DRIVER	1
7	H028A010	3-1/2" HYDRAULIC CYLINDER x 8" STROKE	2
8	P008A040	1-1/2" PIN x 6.875" ASS'Y	4
9	P008A050	1-1/4" PIN x 6.125" ASS'Y	4
10	R007GB00	UNIVERSAL RAILSWEPT BRKT 14"	2
11	R018CD00	RAILSWEEP ADAPTER DRIVER'S SIDE	1
12	R018CP00	RAILSWEEP ADAPTER PASSENGER'S SIDE	1
13		1/2" HEAVY WASHER	8
14		1/2" UNC GR.8 BOLT x 2.500" LONG	8
15		1/2" UNC GR.8 BOLT x 2.000" LONG	8
16		1/2" UNC GR.8 NYLON INSERT LOCKNUT	16
17		3/8" UNC GR.8 BOLT x 1.500" LONG	4
18		3/8" UNC GR.8 NYLON INSERT LOCKNUT	4
19		1" WIDE FLAT WASHER	2
20		1" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	8
21		1/2" REGULAR FLAT WASHER	24
22		3/8" REGULAR FLAT WASHER	8
23		1" REGULAR FLAT WASHER	6
24		3/4" UNC GR.8 BOLT x 2.500" LONG	2
25		3/4" REGULAR FLAT WASHER	24

CONTINENTAL RAILWORKS		2019-10-20	J. Verley	DESIGNED	DIMENSIONS ARE IN INCHES TOLERANCES, UNLESS OTHERWISE STATED: THREE PLACE DECIMAL: ± 0.005 ANGLES: ± 0.1° WELDS: 0.125/16.000 FINISH: SEE SCAM MATERIAL: 304 SS HARDENING: 1/2" MIN. CH. 304-304H STRAIGHTENING: 1/2" MIN. CH. 304-304H SCAMING: 1/2" MIN. CH. 304-304H NOT TO SCALE	C-60 USED ON: NEXT ASSY:	APPLICATION:	CONTINENTAL RAILWORKS IS PROHIBITED.			
		3/28/2019	N. Gromek	3/28/2019					F. Aubé	3/28/2019	F. Aubé
REAR G-60 UNIT (NO BRAKES)											
DWG. NO. A008WC00		REV. -									
SCALE: 1:1		SHEET: 3 OF 3									





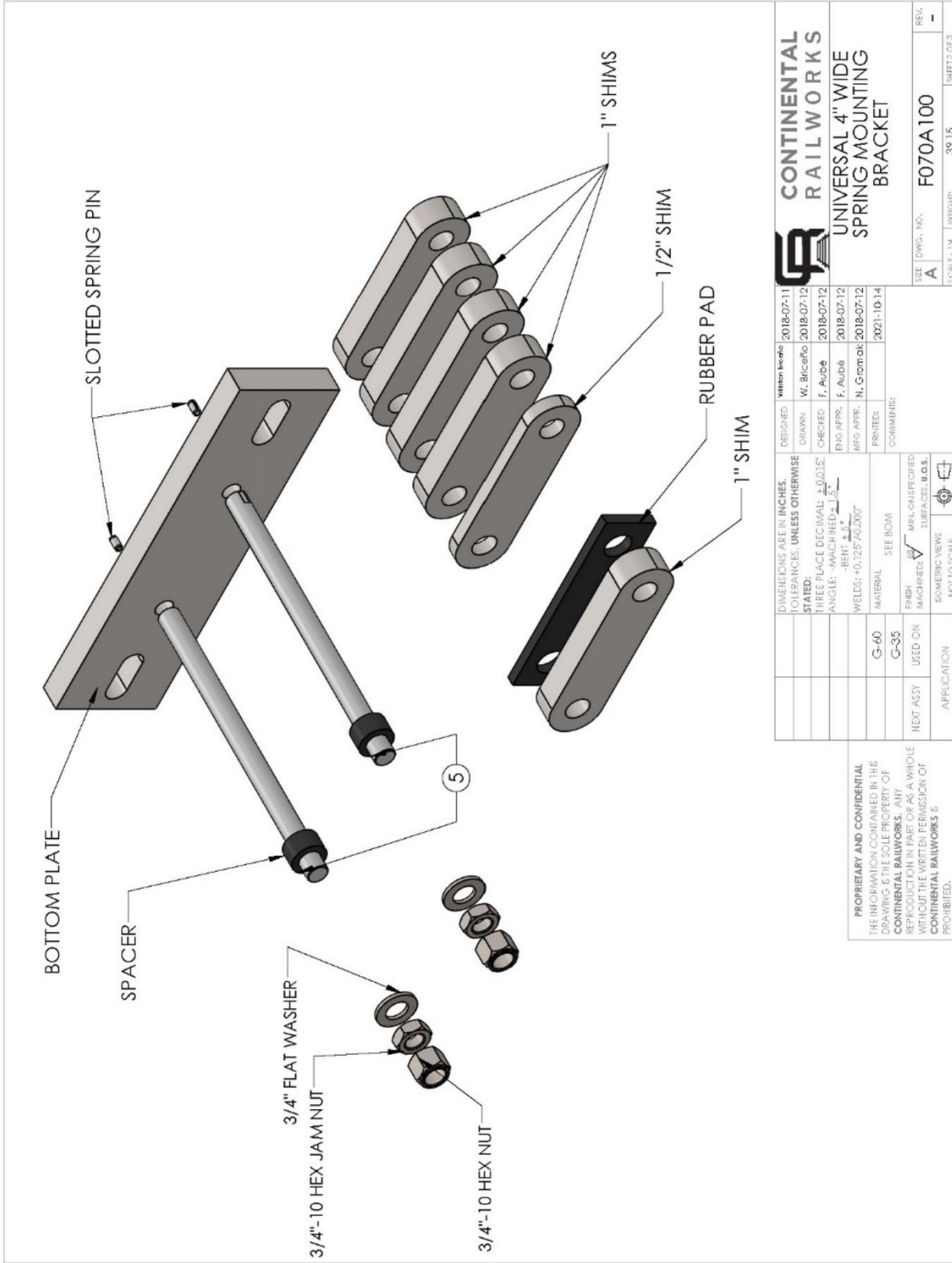


PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.		DIMENSIONS ARE IN INCHES TOLERANCES, UNLESS OTHERWISE STATED: THREE PLACE DECIMAL ± 0.005 ANGLES - MACHINED $\pm 1.5^\circ$ BENT $\pm 2^\circ$ WELDS: 0.125/16.000		DESIGNED: N. Gromek 3/28/2019	DATE: 2019-10-20
		CHECKED: F. Aubé 3/28/2019		DRAWN: N. Gromek 3/28/2019	DATE: 3/28/2019
USED ON: NEXT ASSY		MATERIAL: SEE SCH FINISH: SEE SCH WELDING: SEE SCH SURFACE: SEE SCH		COMMENTS: 2021-10-15	DATE: 2021-10-15
APPLICATION:		GEOMETRIC VIEWS: NOT TO SCALE		SCALE: 1" = 1"	SHEET: 2 OF 3
CONTINENTAL RAILWORKS		REAR G-60 UNIT (NO BRAKES)		DWG. NO.: A008WC00	REV.: -

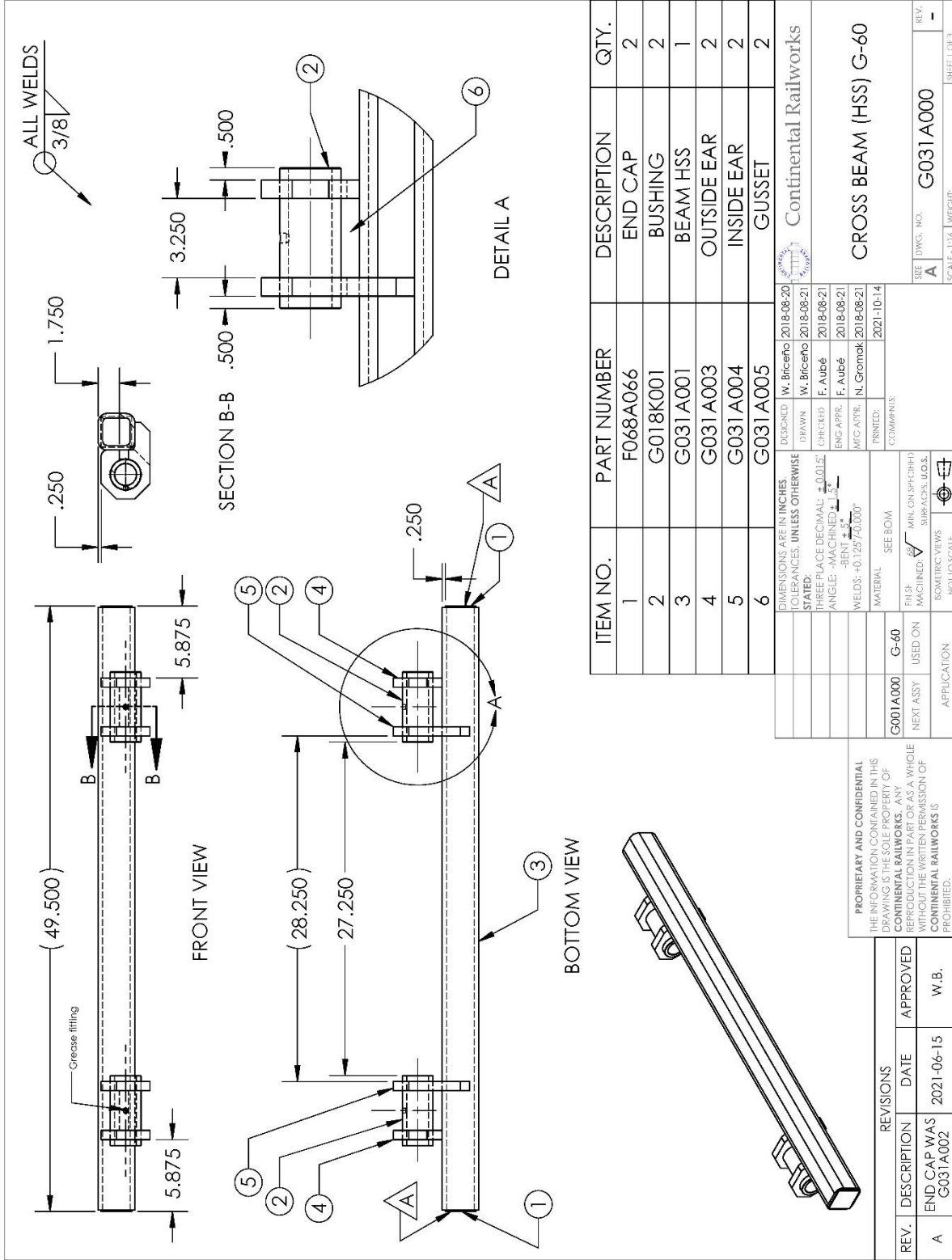
APPENDIX 12

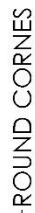
G-60 SPINDLE ASSEMBLY DRAWINGS

NOTE – Some components may differ slightly from drawings shown.



CONTINENTAL RAIL WORKS UNIVERSAL 4' WIDE SPRING MOUNTING BRACKET		DESIGNED	2018-07-11	W. Brice	2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
		DRAWN	2018-07-12	F. Aubé	2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
DIMENSIONS ARE IN INCHES TOLERANCES, UNLESS OTHERWISE STATED: THREE PLACE DECIMAL: $\pm 0.015"$ ANGLE: $\pm 0.5^\circ$ BENT: $\pm 0.005"$ WELDS: $\pm 0.125" \pm 0.005"$		CHECKED	2018-07-12	F. Aubé	2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
		ENG APPR.	2018-07-12	F. Aubé	2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
MATERIAL: SEE BOM FINISH: MACHINED MACHINING: MACHINING ELONGATION: 10.0%		PRINTED	2018-07-12	N. Gromak	2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
		COMMENTS:	2018-07-12		2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
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.		APPROVED	2018-07-12		2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
		DATE	2018-07-12		2018-07-12	2018-07-12	2018-07-12	2018-07-12	2021-10-14
NEXT ASSY USED ON		SCALE	1:1		1:1	1:1	1:1	1:1	1:1
		NOT TO SCALE							
APPLICATION		SCALE	1:1		1:1	1:1	1:1	1:1	1:1
		NOT TO SCALE							
F070A100		SCALE	1:1		1:1	1:1	1:1	1:1	1:1
		NOT TO SCALE							
SHEET 2 OF 3		SCALE	1:1		1:1	1:1	1:1	1:1	1:1
		NOT TO SCALE							





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.