CONTINENTAL
RAILWORKS

MANUAL

INSTALLATION – OPERATION – PARTS – SERVICE

20 SERIES HI-RAIL UNIT

(19,000 to 26,000 lbs. GVWR TRUCKS)

G-20 FRONT
SC-20A REAR

June **2020**
Revision G-3

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INTRODUCTION

The following installation, operation, parts, and service manual has been prepared to be used with the Continental Railworks **20 Series** hi-rail unit on a 17,500 to 26,000 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 adjustments 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**, or emailing **admin@continentalrailworks.com**. Support personnel are frequently available during off-peak hours as well, so please do not hesitate to call or email 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 20 Series Railgear is designed for Single axle trucks with a GVWR between 17,500 and 26,000 lbs. For this application, the 20 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 mechanically, in both raised and lowered positions.

Drop forged 10” 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 unit contributes to maintaining proper rail contact over crossings or irregular rail sections. Rear air brakes are optional although all front hi-rail units come standard with air brakes. Traction is adjustable by simply shimming the rear unit higher or lower on the frame.

The combined weight of this configuration of the 20 series hi-rail and all necessary valves is approximately 1325 lbs.

CONFIGURATIONS

The 20 Series is available in many configurations from combining the adequate front and rear models for the application.

FRONT MODELS

G-20 – Rotary front (on frame extensions only)
V-20 – Vertical front
CV-20 – Rotary front (on leaf springs)

REAR MODELS

G-20 – Rotary rear (requires frame extensions)
SC-20 – Rotary (no frame extensions)

OPTIONS

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

REAR HYDRAULIC BRAKES

Front hydraulic brakes are standard on all 20 series hi-rail units, but rear brakes are available for the 20 series if required. Plumbing the hydraulic to the rear brakes is detailed in the Hydraulic Brake Valve Kit section of the manual.

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.

POWER PACK

Continental Railworks offers an option to run the rail gear off a 12-volt power unit. This power unit is required if the chassis will not be equipped with a PTO and Pump. While we supply a 12v pump to run the braking system, this pump is required in addition to the braking system pump to run the rail gear.

APPROVED CHASSIS MODELS

Ford F450/550
International CV series
Dodge 5500's
Chevy 4500-6500 models

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. The truck axles should be aligned as well.

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

In case of unforeseen interferences with some vehicle components (frame mounted equipment, radiators, hood hinges, bumper mounts, etc) small modifications to the mounting components may be required. 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

For ease of installation, Continental Railworks hi-rail units are designed with independent mounting plates front and rear, driver, and passenger sides. In general, the mounting plates are positioned in place, the holes marked and drilled, and then bolted in place. Wherever possible, factory bolt holes are used.

CHASSIS PREPARATION

1- Inflate tires to recommended pressure.

2- Prior to measuring the frame height, ensure the air bags are properly inflated, if equipped and required.

3- Disconnect the truck batteries.

4- Ensure the rear axles are aligned laterally to the truck frame. If the axles are misaligned by more than 1/2", have the axles aligned and centered.

5- For ease of access and alignment, it is recommended to raise the chassis on 12” blocks for the duration of the hi-rail installation and alignment.

FRONT MOUNTING PLATES

1- Remove the front bumper of the vehicle. Store the bumper in a safe location to avoid damage. The bumper will not be reused.

2- Start by sliding the Front Frame brackets (Item 1 in Figure 2 below) on to the frame of the chassis, making sure to line up the bolt holes in the bracket and frame.

3- Bolt bracket into place leaving the front bolt hole open.

4- Position the Lower frame supports front mounting angles in line with the front hole on the frame horns. The Short bracket goes on the inside of the frame and the long bracket goes on the outside. See figure 3.

5- Using the supplied 5/8” bolt and crush tube, bolt the lower frame supports on to the frame on each side.

6- Using 4 – 1/2 “bolts, fasten the frame extension (Figure 2, Item 2) to the frame bracket.

7- Torque all bolts connecting to the frame following specifications.

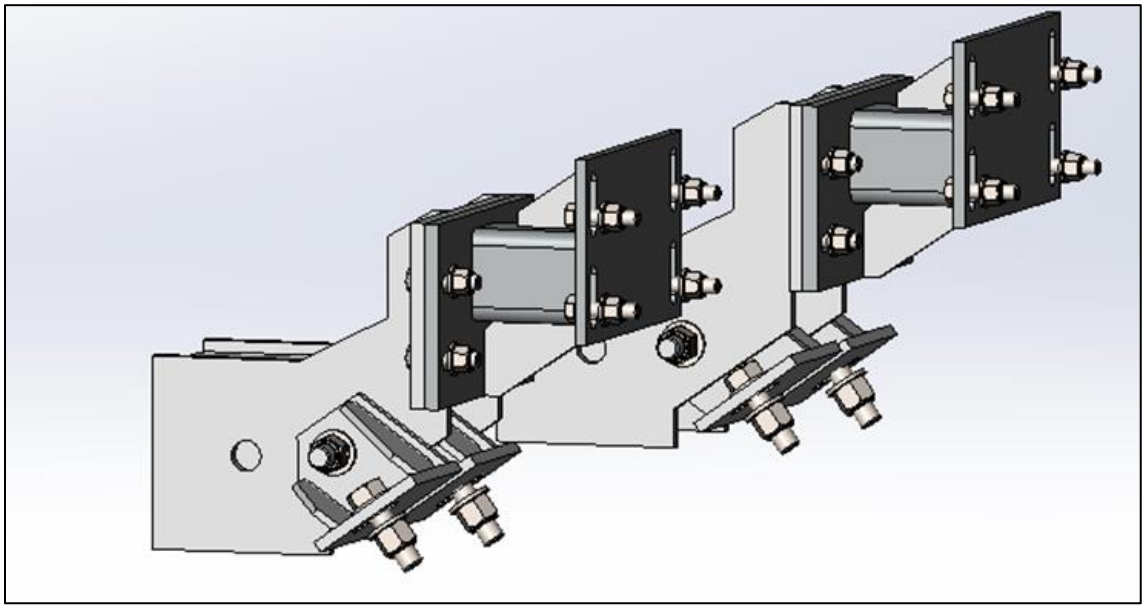


Figure 1 : Front mounting bracket assembly

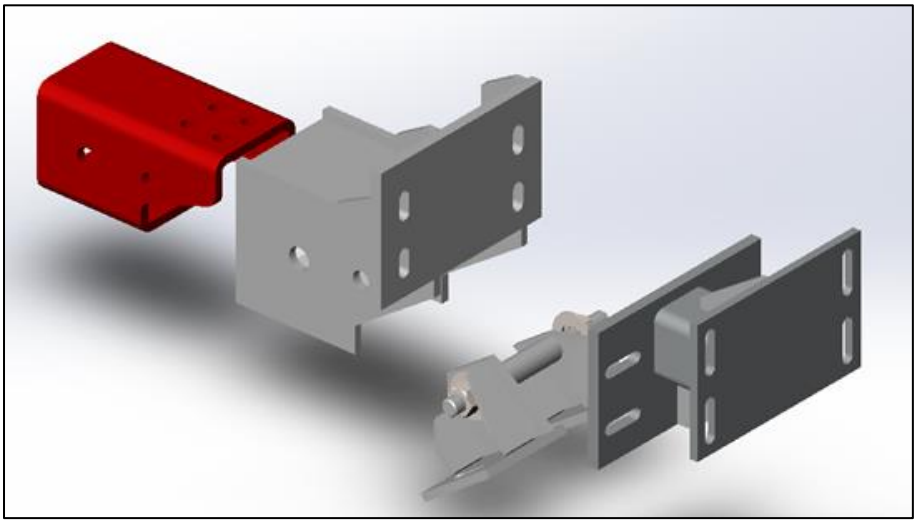


Figure 2 : Installation of frame extensions

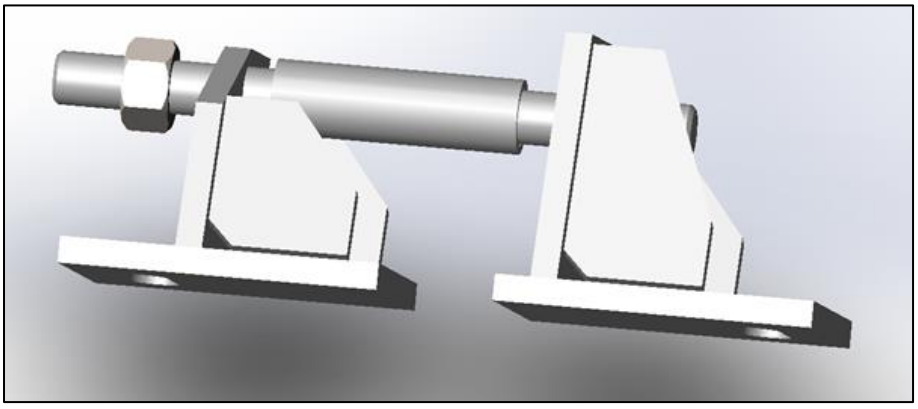


Figure 3 : Lower frame support

FRONT HI-RAIL UNIT

1- Raise the hi-rail unit into position with the wheels pointing towards the front of the vehicle.

2- Align the holes in the hi-rail unit with the holes in the mounting plates and the holes on the mounting angles.

3- Bolt in position using grade 8 bolts, washers, and nylon insert lock nuts. Do not fully tighten the nuts at this time.

4- Install the supplied tread plate front bumper on the front hi-rail unit, using the supplied bolts and hardware.

5- NOTE: Examine the position of the front frame extension in relation to the truck radiator or any other interference. Trim the top of frame extension as required to ensure ½" of clearance.

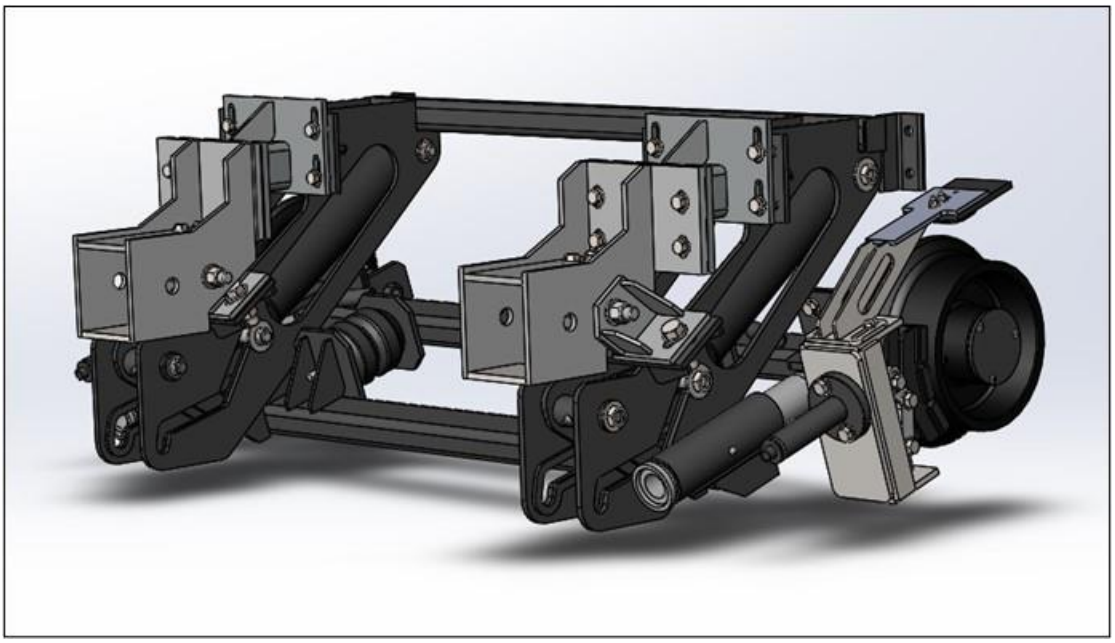


Figure 4: Front hi-rail unit installed

REAR UNIT INSTALLATION

REAR MOUNTING PLATES

1- Loosen all bolts connecting the hi-rail to the mounting plates' components.

2- Remove all lateral shims and conserve for later use.

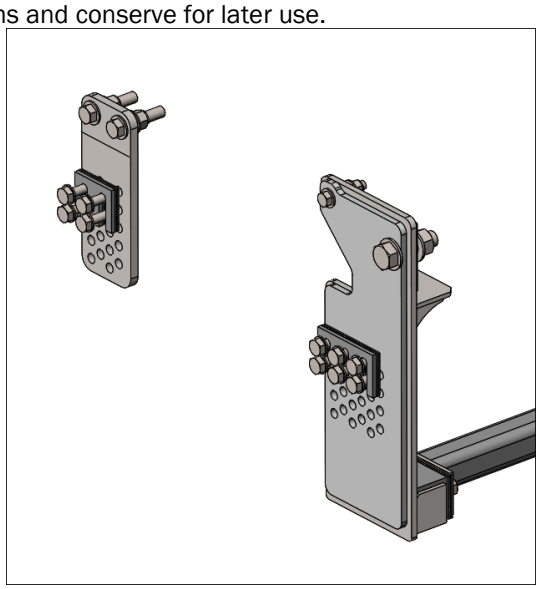


Figure 5: Lateral shims (rear, front, cross beam)

3- Remove front mounting plates and cross beam from the hi-rail unit.

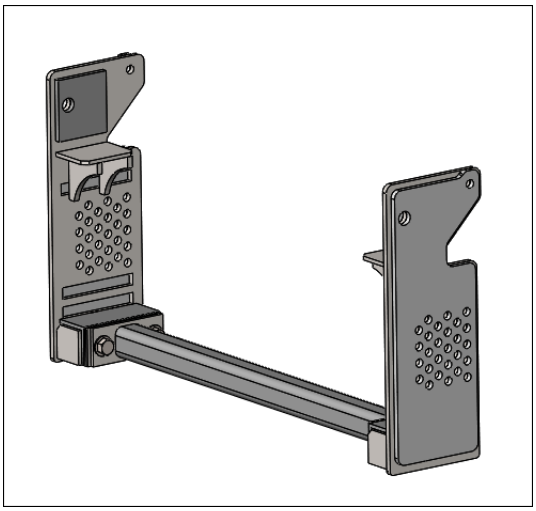


Figure 6: Front mounting plate and cross beam assembly

4- Install front mounting plate assembly on the truck frame using the supplied hardware and reusing the factory hardware as required.

   a. The driver side front mounting plate may need to be trimmed for ease of install.

   b. Position the mounting plates so that the 7/8”-9 bolt aligns with the hole on the frame, and the 1/2”-13 bolt aligns with the top shackle mount bolt as shown below.

   c. Secure mounting plate using supplied Grade 8 hardware. The OEM shackle mount flange bolt can be reused if desired.

   d. Adjust the cross beam effective length with the supplied shims to ensure the mounting plates are parallel and vertical.

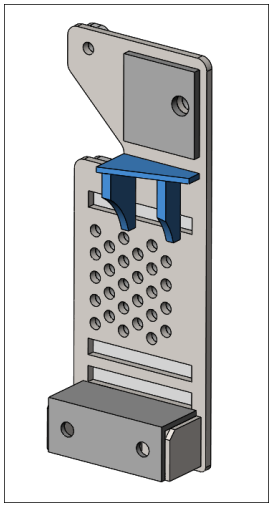


Figure 7: Trimmed front mounting plate (driver side)

Figure 8: Contact to frame

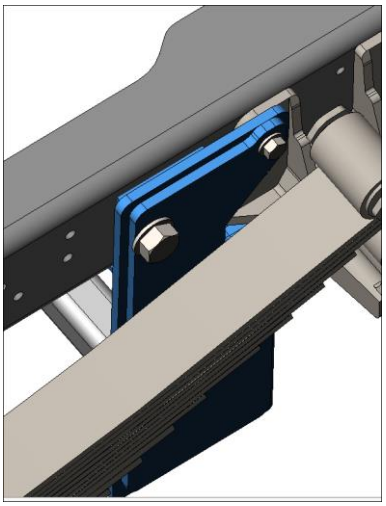


Figure 9: Front mounting plate installation

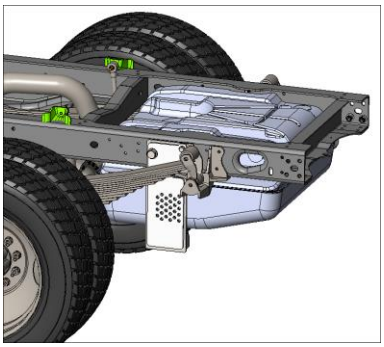


Figure 10: Front mounting plate installation

5- The rear mounting plates can stay on the hi-rail unit for the next steps.

6- Torque all bolts connecting to the frame following specifications.

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- Raise the hi-rail unit so the front mounting holes line up with the front mounting plates.

3- For a new installation, position the hi-rail in the lowest hole setting – For a retrofit installation, any of the other hole setting may be adequate, with the exact setting depending on weight an truck suspension wear.

4- Connect the hi-rail to the front mounting plate using one (1) bolt per side to allow lifting the rear into place.

5- Align the rear mounting plates to the bottom two holes at the rear of the frame, and secure suing the provided 5/8" Grade 8 hardware.

6- Torque all bolts connecting to the frame following specifications.

7- Insert all bolts connecting the hi-rail to the front and rear mounting plates, insert all shims but leave hardware loose until alignment.

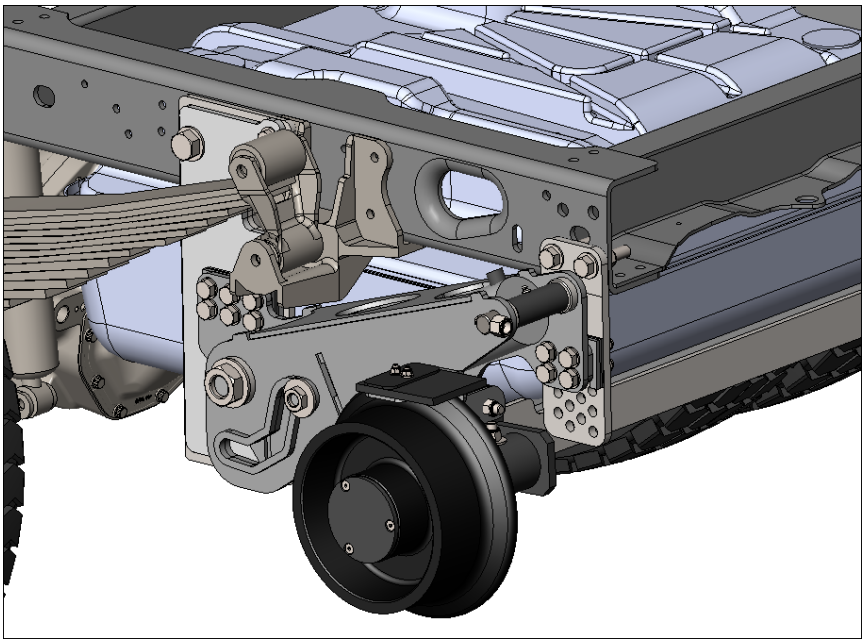


Figure 11: Rear hi-rail unit installed

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.

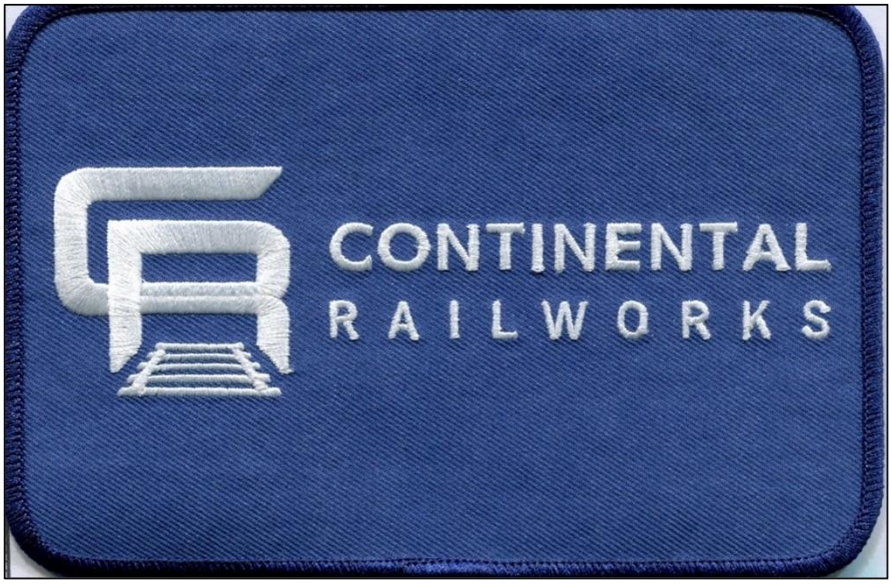


Figure 12: Steering wheel lock

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 control valves in a suitable location, preferably on the driver's side of the vehicle and close to the hi-rail units.

2- Run a ½" hydraulic hose from the pressure source (either PTO / Pump or a diverter valve) to the front hydraulic control valve and connect it to the pressure port (P) of the control valve to allow flow through the valve.

3- Run a ½" hydraulic hose from the discharge port (T) of the front control valve to the pressure port (P) of the rear control valve.

4- Run a ½" hydraulic hose from the discharge port (T) of the rear control valve to the return line to the tank.

5- Connect the two ports on the front hydraulic control valve to the front hydraulic cylinders, through T fittings to split the flow to both cylinders.
   a. Connect the A port to the piston side of the cylinders (retraction).
   b. Connect the B port to the rod side of the cylinders (deployment).

6- 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.

7- Verify the entire system for leaks.

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 1.0 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 manual supplied with the power unit for full details.

HYDRAULIC BRAKE KIT

GENERAL DESCRIPTION

The Continental Railworks 20 Series is delivered with front hydraulic brakes and optional rear hydraulic brakes. The brakes are actuated through a hydraulic power unit that is controlled from the vehicle's brake signal (foot pedal).

A single power unit can be used for the hi-rail deployment and brake actuation. For a PTO application, a separate power unit is supplied to actuate the brakes.

In both cases, a brake timer and brake release valve ensures the power unit shuts off after prolonged used (stationary with foot on brake pedal), keeping the fluid in the brake cylinders until the foot pedal is released.

Refer to the hydraulic schematic in the Appendices and to the instructions below for details.

LOCATION AND MOUNTING

1- Install the brake power unit in a suitable location (under the hood or in the vehicle's service body).

2- Secure the power pack adequately, with access to the fluid filler cap.

3- Install the brake timer unit (black plastic box) inside vehicle cab, with means of running wiring to the brake power unit.

PLUMBING

1- Using ¼" steel braided hydraulic hose, make the following connections:

   a. PTO and BRAKE PUMP

      i. Connect Power unit P to Brake release valve P

      ii. Connect Power unit T to Brake release valve T

      iii. Connect Brake release valve FB to brake cylinders, through T fitting to split the flow

   b. SINGLE PUMP (BRAKE and DEPLOYMENT)

      i. Connect Power unit P to Brake release valve P

      ii. Connect Power unit T to Brake release valve T

      iii. Connect Brake release valve FB to brake cylinders, through T fitting to split the flow

      iv. Connect Brake release valve PB to Front control valve P

      v. Connect Front control valve T to Rear control valve P

      vi. Connect Rear control valve T to Power unit T

2- Ensure the hydraulic hoses are of sufficient length to go through the entire range of motion of the hi-rail unit(s).

3- Secure hydraulic hoses adequately.

4- Adjust the Power unit pressure relief to 2500 psi.

5- Adjust the Brake release valve pressure relief to 300 psi.

ELECTRICAL

1- Locate an available OEM upfitter switch powered feed and connect to the BLUE wire on brake timer unit.

2- Locate the vehicle's brake light switch and connect to the RED wire on brake timer unit.

3- Connect the WHITE wire on brake timer unit to the vehicle ground.

4- Connect the BLACK wire on brake timer unit to the BLACK wire on the Brake release valve.

5- Connect the YELLOW wire on brake timer unit to the brake pump solenoid signal lug.

6- Install the supplied circuit breaker near the battery.

7- Connect 12V IGN ON battery power to the brake pump solenoid through the circuit breaker.

8- Connect ground to the brake pump solenoid.

9- Test the system

   a. With the dash switch on, the brake pump should activate and the hi-rail brakes should apply when the vehicle brakes are applied.

   b. Before releasing the brakes, the pump should run for 30 seconds and turn off but keep fluid in the brake cylinders.

   c. When the vehicle brakes are released, the brake pump should de-activate (if within 30 sec from application) and the pressure in the brake lines should dissipate.

   d. With the dash switch off, the brake pump should not activate when the vehicle brakes are applied.

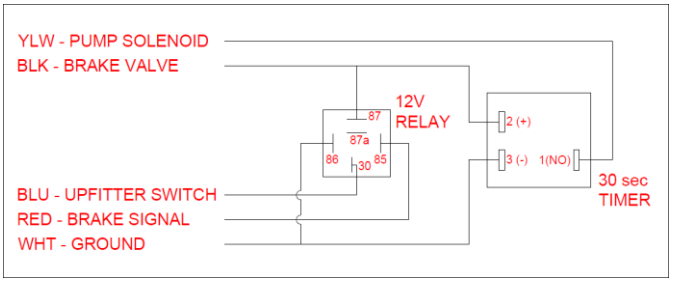
10- Test track the vehicle.

   a. Adjust the brake release valve pressure relief for the particular vehicle application until the front brakes are able to lock the hi-rail wheels.

   b. Reduce the pressure by 50 psi.

11- Verify the entire system for leaks.

YELLOW	TO PUMP RELAY
BLACK	TO BRAKE MANIFOLD
BLUE	12V FROM DASH SWITCH
RED	FROM BRAKE LIGHT SIGNAL
WHITE	GROUND



TRACK SIGNAL SHUNT KIT

(OPTIONAL)

GENERAL DESCRIPTION

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

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

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

! SAFETY WARNING !

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

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

INSTALLATION

Contents of Kit

INCLUDED

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

Note: Components may be slightly different in appearance.

NOT INCLUDED

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

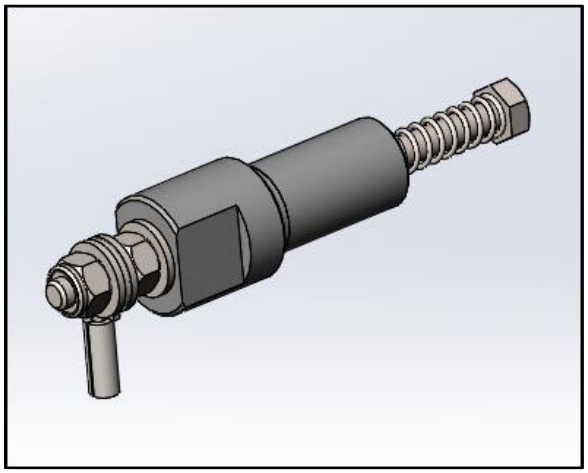


Figure 15: Shunt - assembled

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 ¾" 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.

Figure16: Shunt - installed

Electrical

1- Using 10 gauge electrical wire, connect the two terminals on the assembled plastic bushings. Connection can be established as follows:
   a. Wire directly from one side to the other, to allow permanent track signal shunting, or;
   b. Wire to a momentary switch installed in the cab, to allow momentary track signal shunting, or;
   c. Wire to a maintained switch installed in the cab, to allow maintained track signal shunting.

2- Ensure all wires are properly secured and kept away from moving parts.

ADJUSTMENT

1- With all electrical connections complete, perform a resistance test by measuring resistance between each wheels of the axle where the shunt kit is installed. The resistance value can be taken between the rail wheel and any part of the axle, but through the paint layer.

2- With a megohmmeter, ensure values are as follows:
   a. Shunt position (switch ON or hard wired): Lower than 22 kΩ
   b. Insulated position (switch OFF): Higher than 22 kΩ

3- If values are not satisfactory, review all wiring connections and ensure the plastic bushing is inserted so that the bolt head comes in contact with the spindle.

ALIGNMENT AND ADJUSTMENT

ALIGNMENT PROCEDURE STANDARD GEAR

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 12" blocks under all wheels.

2- Lower the front hi-rail unit so the axle is perpendicular to the ground (a few degrees before full deployment).

3- Lower the rear unit so the axle is perpendicular to the ground (a few degrees before full deployment).

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 using the lateral shims at the front and rear mounting plates. 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 ½" washer can be welded to the spindle housing to transform the adjustment slot into a hole and lock in the adjustment.

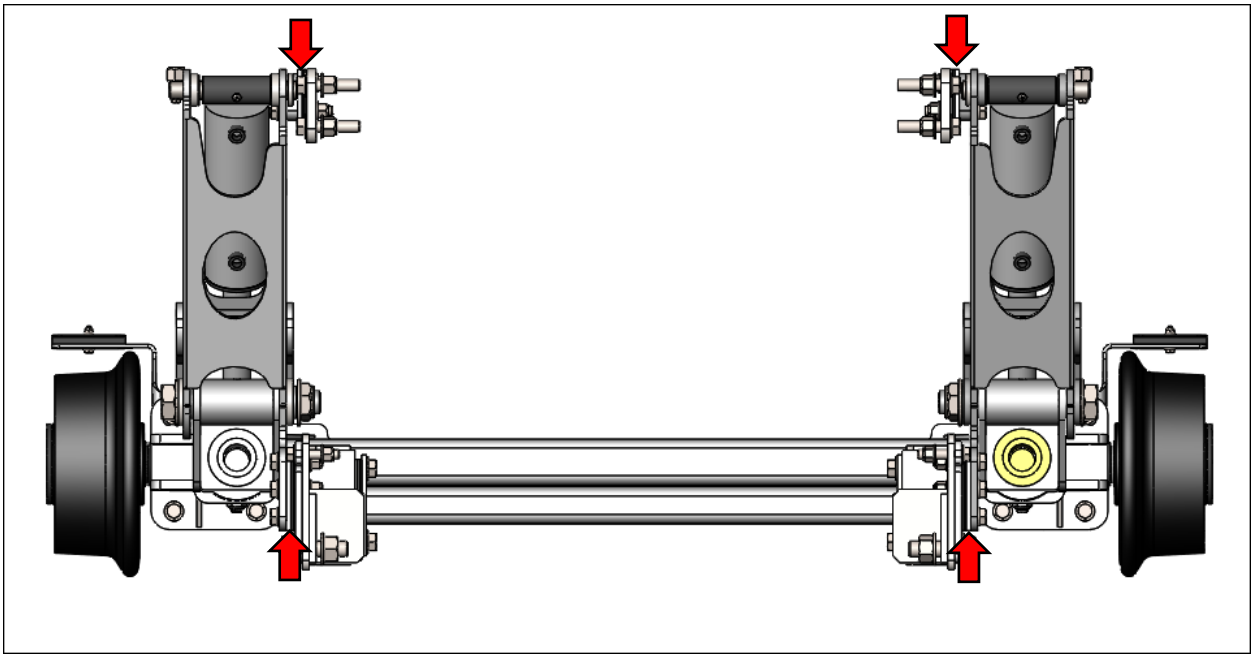
9- Adjust the front hi-rail toe-in and toe-out so that the wheel faces are parallel to the strings on both sides. This can be performed by adjusting the swiveling spindle housings. Once adjusted, the spindle housing can be welded to the axle with a 1" tack weld on the back face of the axle to allow easy 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 (there are lateral slots on the front hi-rail mating plates). 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- Tighten the gauge adjustment bolts on the front and rear hi-rail units, locking the wheel spindles in place. Tack weld the cross bolt washer to the spindle housing to lock in the gauge adjustment.

13- 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.

1. Verify the tire inflation pressures of the tires making contact with the track.

2. 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 8” and 10” for an operational truck.

3. If less than 8”, the traction of the vehicle must be increased. This is achieved by moving the hi-rail up on its mounting plates (weight is transferred from the hi-rail to the tires).

4. If more than 10”, the traction of the vehicle must be decreased. This is achieved by moving the hi-rail down on its mounting plates (weight is transferred from the tires to the hi-rail).

5. Perform adjustments by following these steps:

    a. Retract the hi-rail and remove the vehicle from the track.
    b. Support the rear hi-rail using a forklift, pallet jack or other means.
    c. Remove all bolts from the front and rear mounting components (6 per side at front, 4 per side at rear).
    d. Raise or lower the hi-rail as required. The mounting components offer 1” increments for adjustments.
    e. Secure the hi-rail at its adjusted height and torque all bolts to specification.

6. The weight adjustment should not affect the hi-rail alignment, but please perform a track test to ensure proper alignment. Please contact the factory for assistance if required.

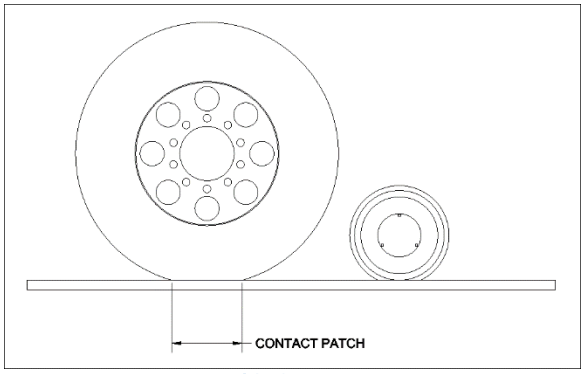


Figure 13: Contact patch

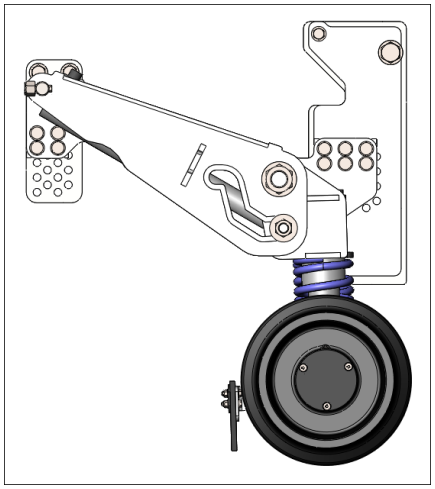


Figure 14: Adjustment bolts

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:

- Ensure the units raise and lower easily, and that hydraulic hoses are all of adequate length and that hydraulic fittings have adequate clearance.

- 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.

- 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.

- Verify that there is 2” to 3” of clearance between the front tires and the rail head.

- 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).

- Ensure the vehicle tracks properly down the track, and that there is no excessive flanging of the hi-rail wheels.

- Ensure there is no excessive vibration of the vehicle when on track.

FINALIZING ALIGNMENT / ADJUSTMENT

As explained in the sections above, ensure that the following steps are performed to finalize the alignment and adjustment:

- Weld spindle housing cross bolts – Weld the thick washer installed on the ½" 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 21: Welded spindle housing (toe and gauge adjustment)

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

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

Turn on PTO / pump or turn on the dash mounted switch to activate power pack.

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.

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.

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

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.

Turn on PTO / pump or turn on the dash mounted switch to activate power pack.

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.

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.

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.

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

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 20 Series 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 a 20 Series 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-20 UNIT (HYDRAULIC BRAKES)

G-20 FRONT COMPONENTS (HYDRAULIC BRAKES)		
PART NUMBER	DESCRIPTION	QTY
B005B000	INNER TUBE ASS'Y	2
D005CF00	FRONT AXLE ASS'Y	1
E002L000	10" WHEEL ASSEMBLY H-12B & G-20	2
F005BF00	FRONT FRAME ASS'Y	1
F105BF00	FRONT CAM ASS'Y	1
H026A010	HYDRAULIC CYLINDER	2
H075AFD0	HYDRAULIC BRAKE ASS'Y 10" WHEEL DRIVER'S SIDE	1
H075AFP0	HYDRAULIC BRAKE ASS'Y 10" WHEEL PASSENGER'S SIDE	1
P005A030	3/4" PIN x 3.125" ASS'Y	2
P006B020	1" PIN x 4.875" LONG ASS'Y	4
P006B030	1" PIN x 5.375" LONG ASS'Y	2
R005CA00	UNIVERSAL REAILSWEEP BRKT 10"	2
V005A002	RUBBER SPRING 540-65	2
V015A001	WEAR RING W2-2500-0750	4
ZQ88	1/8 NPT GREASE FITTING	4
	3/8" UNC GR.8 BOLT x 1.500" LONG	14
	3/8" REGULAR FLAT WASHER	2
	3/8" UNC GR.8 NYLON INSERT LOCKNUT	1
	1/2" UNC GR.8 BOLT x 2.000" LONG	2
	1/2" UNC GR.8 BOLT x 2.500" LONG	1
	1/2" REGULAR FLAT WASHER	7
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	4
	3/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	6
	3/4" REGULAR FLAT WASHER	2
	3/4" WIDE FLAT WASHER	2
	7/16" REGULAR FLAT WASHER	29
	5/8" UNC GR.8 NYLON INSERT LOCKNUT	14

FRONT G-20 UNIT (AIR BRAKES)

G-20 FRONT COMPONENTS (AIR BRAKES)		
PART NUMBER	DESCRIPTION	QTY
B005B000	INNER TUBE ASS'Y	2
D005CF00	FRONT AXLE ASS'Y	1
E002L000	10" WHEEL ASSEMBLY H-12B & G-20	2
F005BF00	FRONT FRAME ASS'Y	1
F105BF00	FRONT CAM ASS'Y	1
H026A010	HYDRAULIC CYLINDER	2
H077CFD0	AIR BRAKE ASS'Y DRIVER'S SIDE	1
H077CFP0	AIR BRAKE ASS'Y PASSENGER'S SIDE	1
P005A030	3/4" PIN x 3.125" ASS'Y	2
P006B020	1" PIN x 4.875" LONG ASS'Y	4
P006B030	1" PIN x 5.375" LONG ASS'Y	2
R005CA00	UNIVERSAL REAILSWEEP BRKT 10"	2
V005A002	RUBBER SPRING 540-65	2
V015A001	WEAR RING W2-2500-0750	4
ZQ88	1/8 NPT GREASE FITTING	4
	3/8" UNC GR.8 BOLT x 1.500" LONG	4
	3/8" REGULAR FLAT WASHER	8
	3/8" UNC GR.8 NYLON INSERT	4
	7/16" REGULAR FLAT WASHER	23
	1/2" UNC GR.8 BOLT x 2.000" LONG	12
	1/2" UNC GR.8 BOLT x 2.500" LONG	2
	1/2" REGULAR FLAT WASHER	9
	1/2" UNC GR.8 NYLON INSERT	8
	5/8" UNC GR.8 NYLON INSERT	8
	3/4" REGULAR FLAT WASHER	2
	3/4" WIDE FLAT WASHER	2
	3/4" UNC GR.8 LIGHT NYLON INSERT	6

REAR SC-20A UNIT

SC-20A REAR COMPONENTS		
PART NUMBER	DESCRIPTION	QTY
B005M000	INNER TUBE ASS'Y	2
D005M100	AXLE ASSEMBLY	1
E002L000	10" WHEEL ASSEMBLY H-12B & G-20	2
F105MD10	DRIVER SIDE CAM	1
F105MP10	PASSENGER SIDE CAM ASSEMBLY	1
H025A300	3" HYDRAULIC CYLINDER X 6" STROKE	2
P005M010	1" PIN X 6.500" LONG ASS'Y	2
P005M020	1-3/4" PIN X 6.500" ASS'Y	2
P005M030	PIN ASSEMBLY	2
R005MD10	DRIVER SIDE RAILSWEEP ASSY	1
R005MP10	PASSENGER SIDE RAILSWEEP ASSY	1
V005M001	COIL SPRING	2
F005M000	GUIDE TUBE ASSEMBLY	2
V015A001	WEAR RING W2-2500-0750	4
	1/4" UNC GR.8 BOLT X 1.500" LONG	2
	1/4" UNC GR.8 NYLON INSERT LOCKNUT	2
	1/2" UNC GR.8 BOLT X 1.750" LONG	8
	1/2" REGULAR FLAT WASHER	16
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	8
	5/8"-11 FLANGE NYLON LOCKNUT	2
	SHOULDER BOLT Ø 3/4" X 3.5" LONG - 5/8"-11	2
	3/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	2
	3/4" REGULAR FLAT WASHER	2
	3/4" WIDE FLAT WASHER	2
	1-1/4" REGULAR FLAT WASHER	2
	1-1/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	2

20 SERIES WHEEL ASSEMBLIES

20 SERIES WHEEL ASSEMBLIES		
PART NUMBER	**DESCRIPTION**	**QTY**
E005B001	10" FORGED WHEEL	1
E022A001	8" WHEEL SPINDLE	1
E032A001	Timken LM104949 CONE	2
E032A002	Timken LM104911 CUP	2
E042A001	SPINDLE INSULATOR	1
E042A002	INSULATING TUBE	1
E062A001	SPINDLE CASTLE NUT (8" AND 10" S-B)	1
E062A002	(LP) G-12 G-20 WHEEL WASHER	1
E067A005	3/16" COTTER PIN 1.500"	1
E085B000	SPINDLE HOUSING	1
E112A001	National 471271 GREASE SEAL (8" & 10"SB WHEELS)	1
E122A001	HUB CAP 8"- 10"	1
E172A001	HUB CAP GASKET 8"	1
ZQ88	1/8 NPT GREASE FITTING	1
	1/2" UNC GR.8 BOLT x 4.000" LONG	1
	1/2" WIDE FLAT WASHER	2
	1/2" UNC GR.8 NYLON INSERT LOCKNUT	1
	1/4" UNF COUNTERSINK SCREW	3

G-20 BRAKE BOX COMPONENTS

G-20 BRAKE BOX COMPONENTS		
PART NUMBER	**DESCRIPTION**	**QTY**
H067AFD0	BRAKE HOUSING 12" WHEEL (DRIVER)	1
H067AFP0	BRAKE HOUSING 12" WHEEL (PASSENGER)	1
H18A0702	SPACER	4
H18B0402	YOKE	2
H025A000	1" HYDRAULIC BRAKE CYLINDER x 1.7" STROKE	2
H186E001	(LP) LINKAGE	4
	1/2" UNC GR. 8 BOLT x 3.500" LONG	6
	1/2" UNC GR. 8 BOLT x 2.250" LONG	4
	1/2" FLAT WASHER	24
	1/2" UNC HEX JAM NUT	10
	1/2" UNC GR. 8 NYLON INSERT LOCKNUT	2
H088A000	14" WHEEL BRAKE SHOE	2

G-20 FRONT MOUNTING COMPONENTS

G-20 FRONT MOUNTING COMPONENTS		
PART NUMBER	**DESCRIPTION**	**QTY**
Q080D000	G-20 BUMPER	1
G005F3D0	FRAME EXTENSION DRIVER'S SIDE 2017	1
G005F3P0	FRAME EXTENSION DRIVER'S SIDE 2017	1
G005F220	INNER MOUNTING BRACKET DRIVER'S SIDE	1
G005F270	INNER MOUNTING BRACKET PASSENGER'S SIDE	1
G005F180	OUTER MOUNTING BRACKET DRIVER'S SIDE 2017	1
G005F190	OUTER MOUNTING BRACKETE PASSENGER'S SIDE 2017	1
G035B004	3/4" THREADED ROD	2
G035F002	BUSHING 2017	2
G005CF00	FRONT EXTENSION	2

SC-20A REAR MOUNTING COMPONENTS

SC-20A REAR MOUNTING COMPONENTS		
PART NUMBER	**DESCRIPTION**	**QTY**
G005MDF3	D.S. FRONT FORD MOUNT	1
G005MPF3	P.S. FRONT FORD MOUNT	1
G005M300	FORD BRACE	1
G025M005	REAR SIDE PLATE	2
G015M017	SHIM	4
G015M018	SHIM	2
G015M019	SHIM	4
G015M020	SHIM	2
G015M016	SHIM	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 always 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.

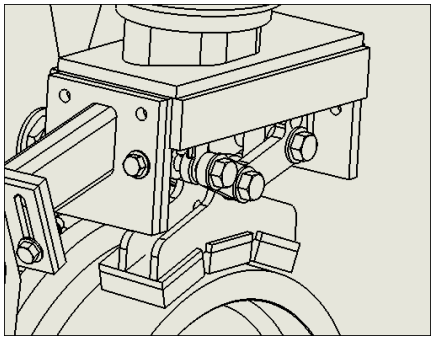


Figure 22: Brake shoe installation

GREASE POINTS

All bushings and pivoting pins feature grease fittings. Pins travelling through slots must have grease applied to them manually.

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

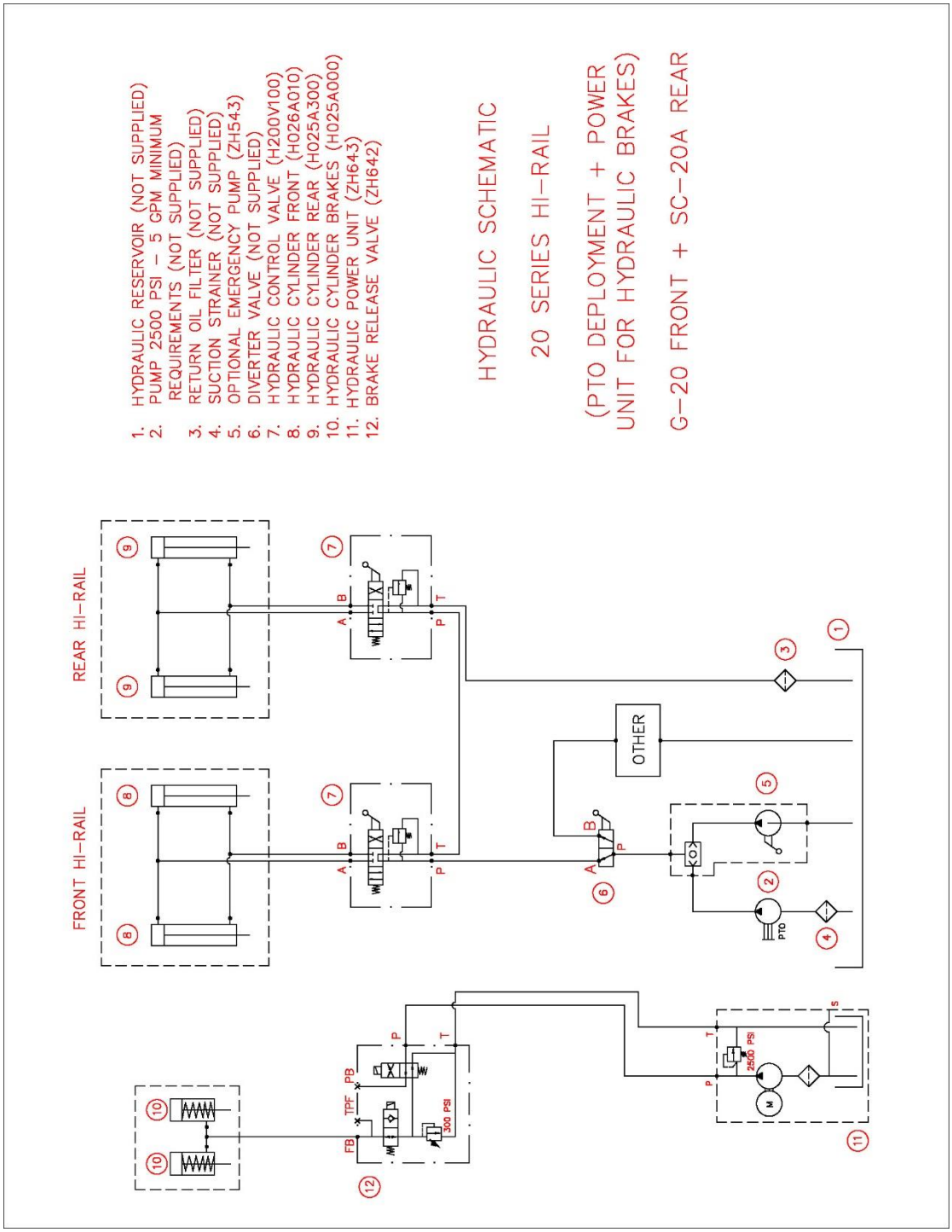
BOLT TORQUE TABLE

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

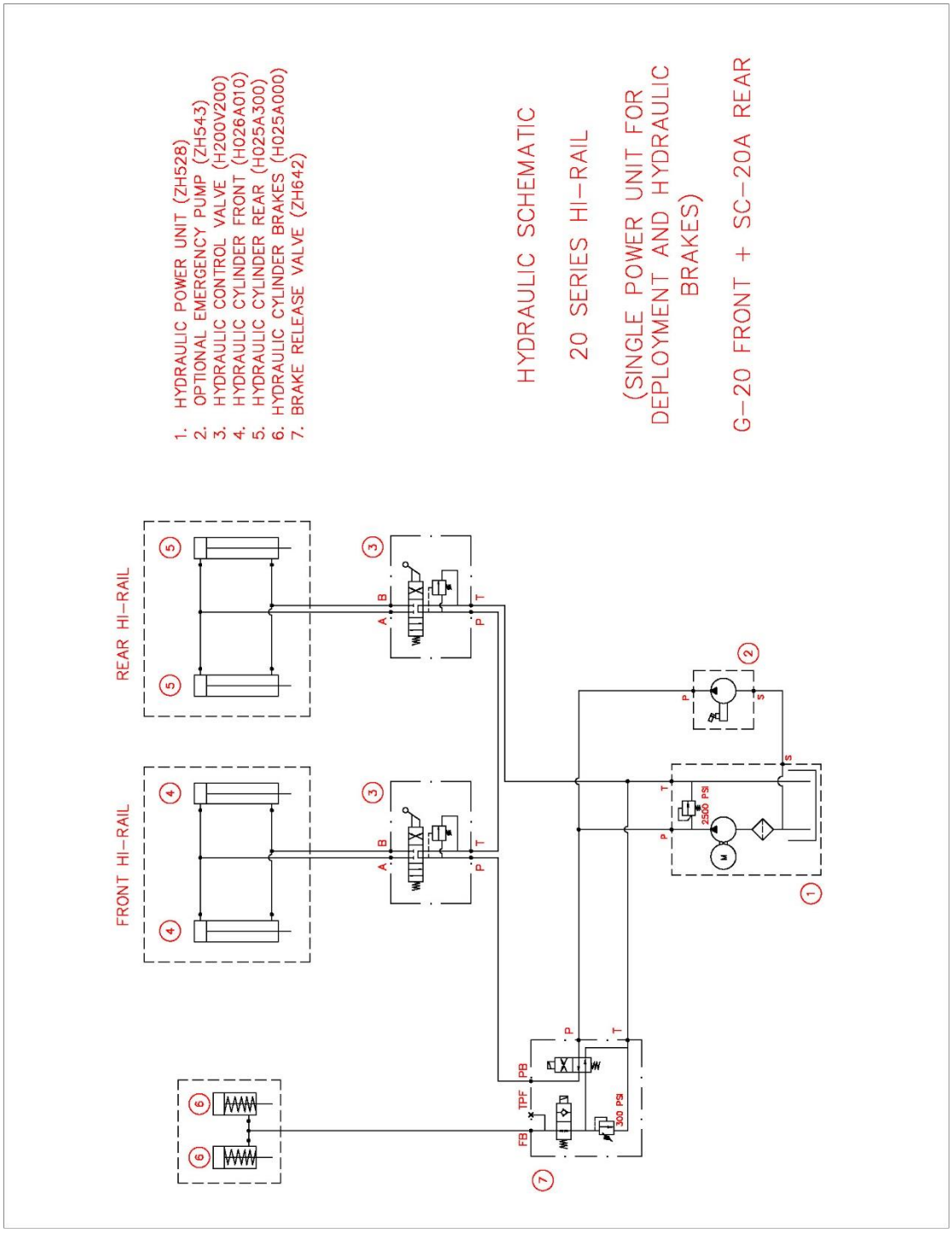
APPENDIX 2

HYDRAULIC SCHEMATICS

HYDRAULIC BRAKES
PTO DEPLOYMENT
POWER UNIT FOR BRAKES

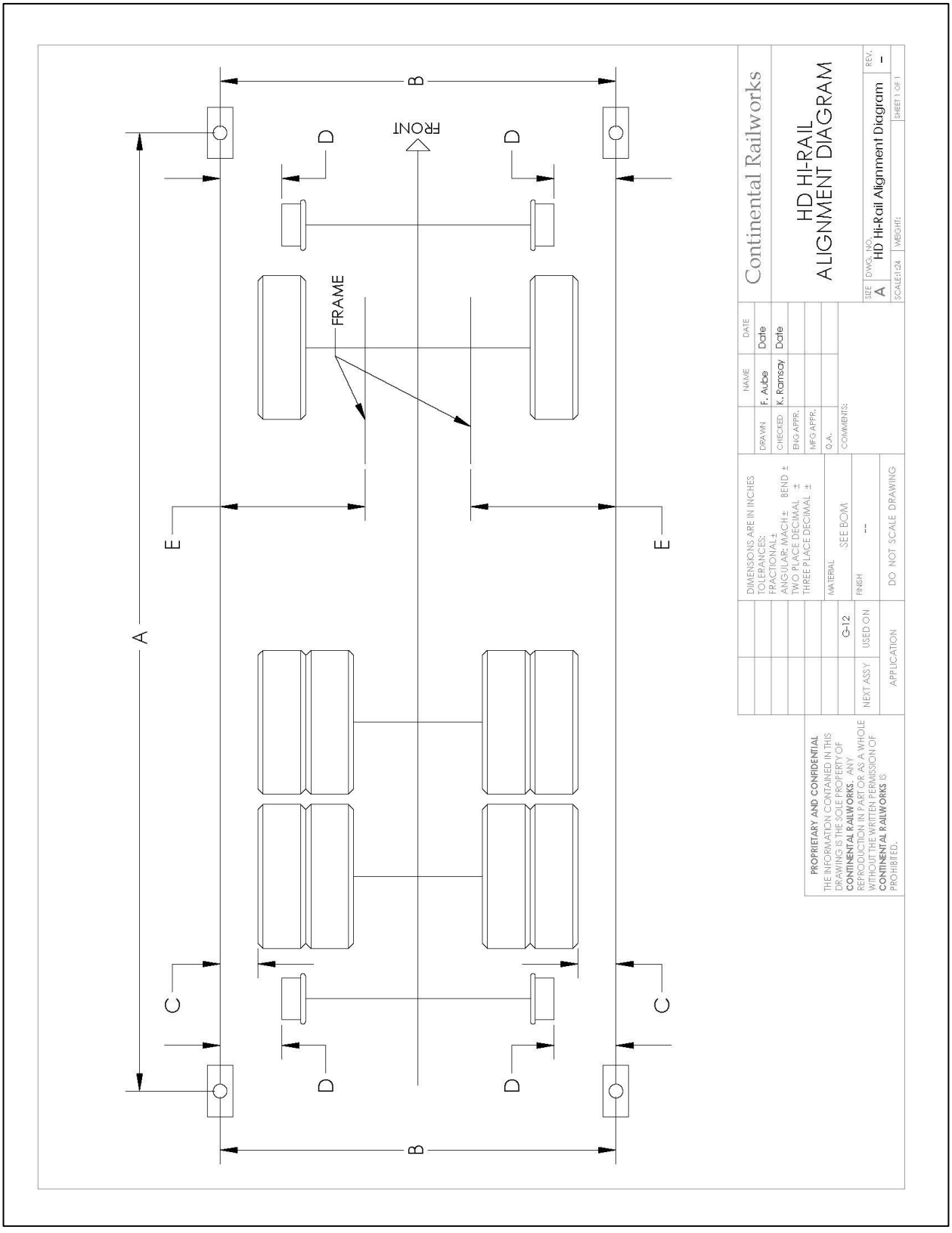


HYDRAULIC BRAKES
POWER UNIT DEPLOYMENT
POWER UNIT FOR BRAKES
(SINGLE PUMP)



APPENDIX 3

ALIGNMENT DIAGRAM



APPENDIX 4

ALIGNMENT AND PRESSURE DATA FORM

Continental Railworks
7380 rue Vérité
St-Laurent, QC H4S 1C5
Tel : 514-956-8081
Fax : 514-956-0737

ALIGNMENT AND PRESSURE DATA FORM

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

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

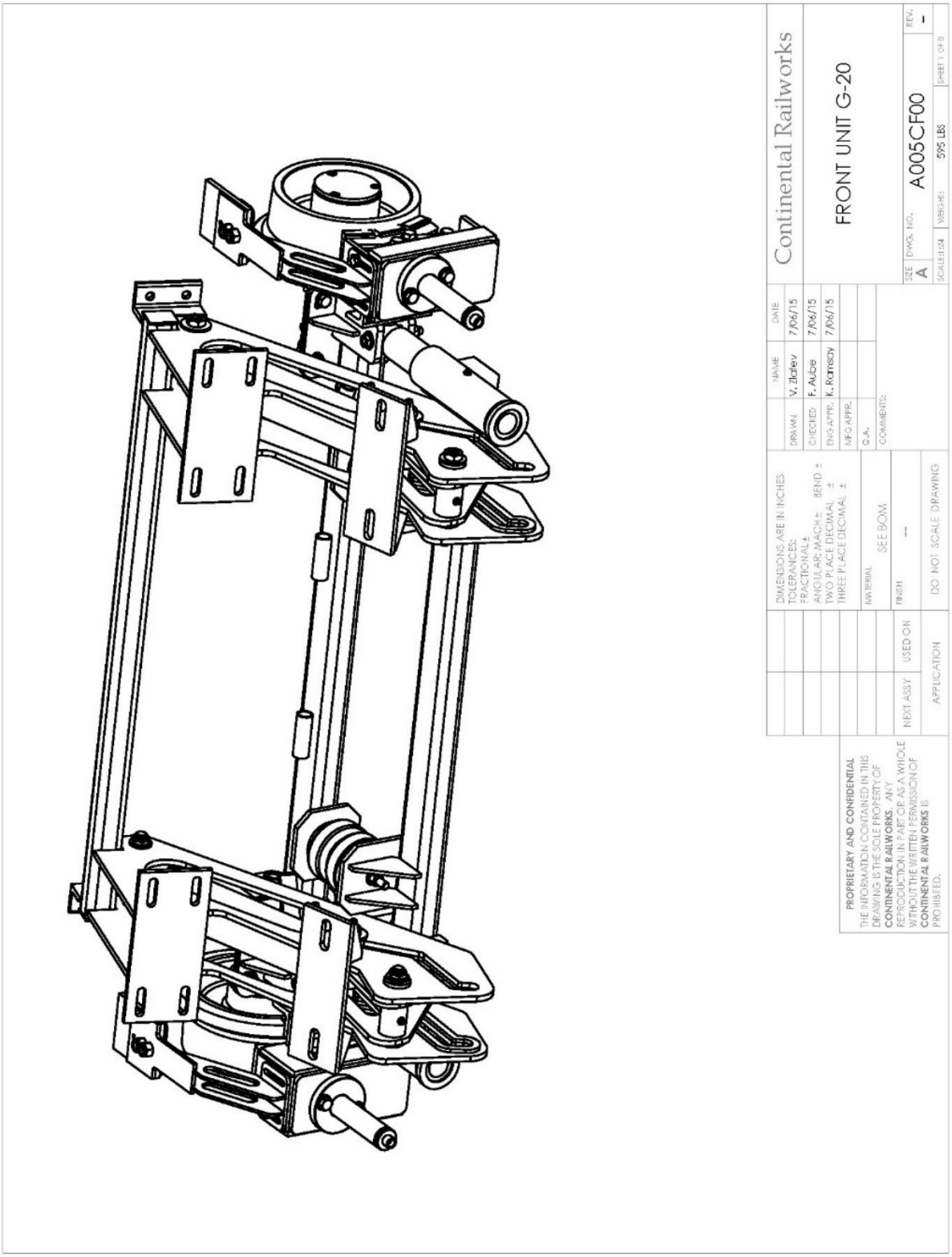
DRIVER FRONT		PASSENGER FRONT	NOTES
STRING TO RAIL WHEEL _____ (in)	HI-RAIL WHEEL	STRING TO RAIL WHEEL _____ (in)	
STRING TO RAIL WHEEL _____ (in)	INSIDE TO INSIDE _____ (in)	STRING TO RAIL WHEEL _____ (in)	
WEIGHT or PRELOAD _____ (lbs or in)	< DEPLOYED > (LD HI-RAIL)	WEIGHT or PRELOAD _____ (lbs or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

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

APPENDIX 5

FRONT G-20 DRAWINGS (HYDRAULIC BRAKES)

NOTE – Some components may differ slightly from drawings shown.


Continental Railworks
FRONT UNIT G-20
A005CF00
DRAWN V. Zlatev 7/06/15
CHECKED F. Aube 7/06/15
ENG APPR. K. Ramsay 7/06/15
MFG APPR.
Q.A.
COMMENTS:
SIZE A
SCALE 1:24
WEIGHT: 595 LBS
SHEET 1 OF 8
REV. -
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
MATERIAL SEE BOM
FINISH ---
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
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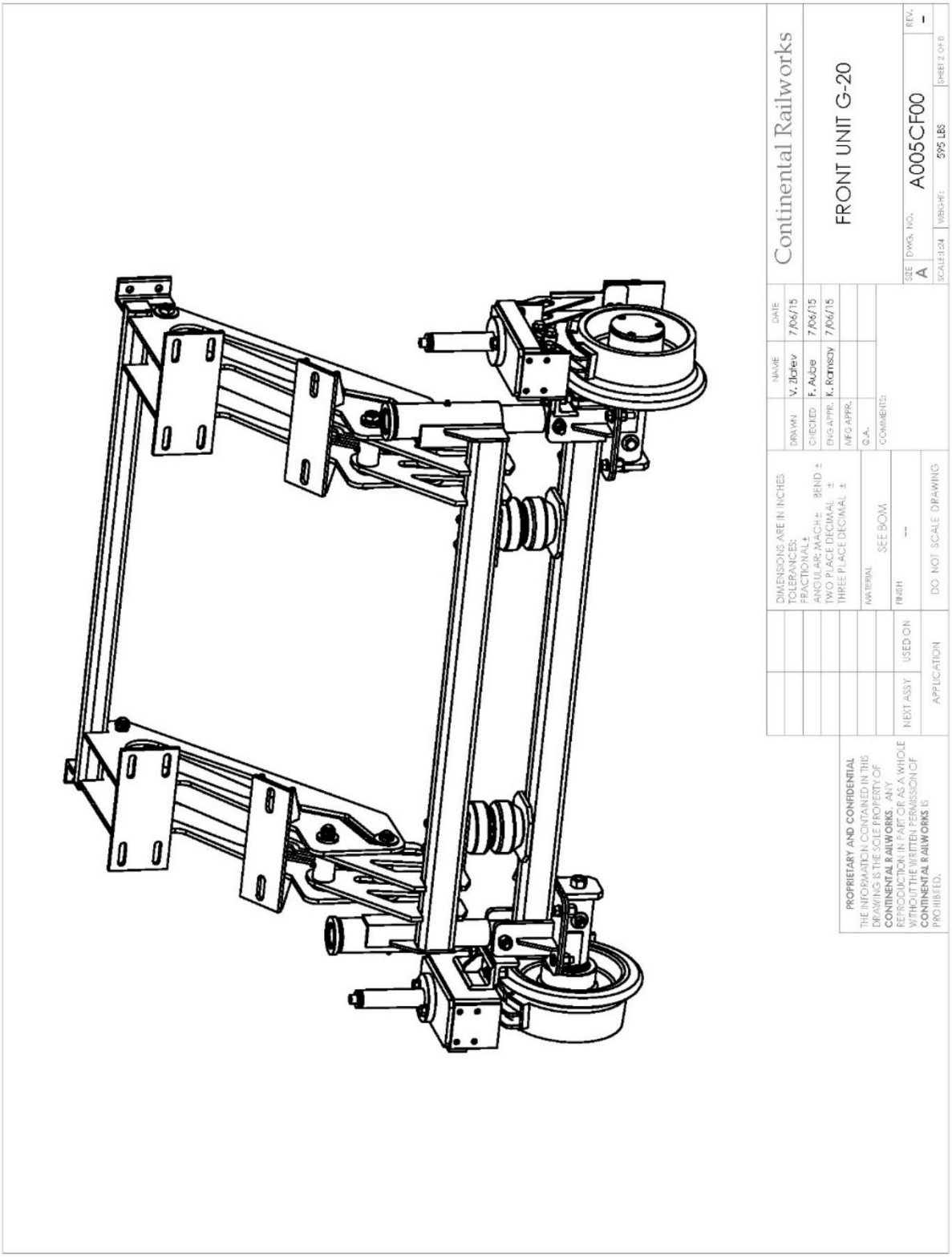
Continental Railworks
FRONT UNIT G-20
A005CF00
595 LBS
DRAWN V. Ilchev 7/06/15
CHECKED F. Adbe 7/06/15
ENG APPR. K. Ramsay 7/06/15
MFG APPR.
Q.A.
COMMENTS:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
MATERIAL SEE BOM
FINISH --
DO NOT SCALE DRAWING
NEXT ASSY
USED ON
APPLICATION
PROPRIETARY AND CONFIDENTIAL
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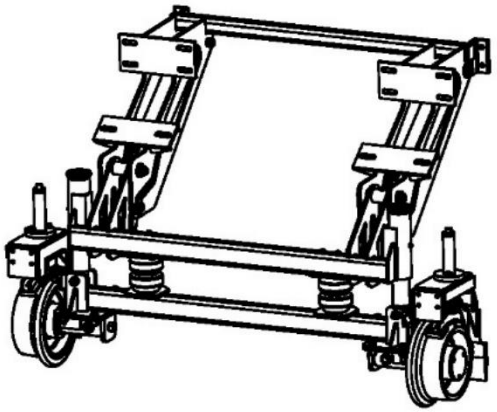


ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	B005B000	INNER TUBE ASS'Y	2
2	D005CF00	FRONT AXLE ASS'Y	1
3	E002L000	10" WHEEL ASSEMBLY H-12B & G-20	2
4	F005BF00	FRONT FRAME ASS'Y	1
5	F105BF00	FRONT CAM ASS'Y	1
6	H026A010	HYDRAULIC CYLINDER	2
7	H075AFD0	HYDRAULIC BRAKE ASS'Y 10" WHEEL DRIVER'S SIDE	1
8	H075AFP0	HYDRAULIC BRAKE ASS'Y 10" WHEEL PASSENGER'S SIDE	1
9	P005A030	3/4" PIN x 3.125" ASS'Y	2
10	P006B020	1" PIN x 4.875" LONG ASS'Y	4
11	P006B030	1" PIN x 5.375" LONG ASS'Y	2
12	R005CA00	UNIVERSAL REAILSWEEP BRKT 10"	2
13	V005A002	RUBBER SPRING 540-65	2
14	V015A001	WEAR RING W2-2500-0750	4
15	ZQ88	1/8 NPT GREASE FITTING	4
16		3/8" UNC GR.8 BOLT x 1.500" LONG	1
17		3/8" REGULAR FLAT WASHER	2
18		3/8" UNC GR.8 NYLON INSERT LOCKNUT	1
19		1/2" UNC GR.8 BOLT x 2.000" LONG	2
20		1/2" UNC GR.8 BOLT x 2.500" LONG	1
21		1/2" REGULAR FLAT WASHER	7
22		1/2" UNC GR.8 NYLON INSERT LOCKNUT	4
23		3/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	6
24		3/4" REGULAR FLAT WASHER	2
25		3/4" WIDE FLAT WASHER	2
26	Preferred Narrow FW 0.4375	7/16" REGULAR FLAT WASHER	29
27	hex bolt_ai		13
28	HHNNUT 0.6250-11-N-D	5/8" UNC GR.8 NYLON INSERT LOCKNUT	14

NEXT ASSY | USED ON
APPLICATION

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

MATERIAL: SEE BOM
FINISH: --

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	V. Zlatev	7/06/15
CHECKED	F. Aube	7/06/15
ENG APPR.	K. Ramsay	7/06/15
MFG APPR.		
Q.A.		

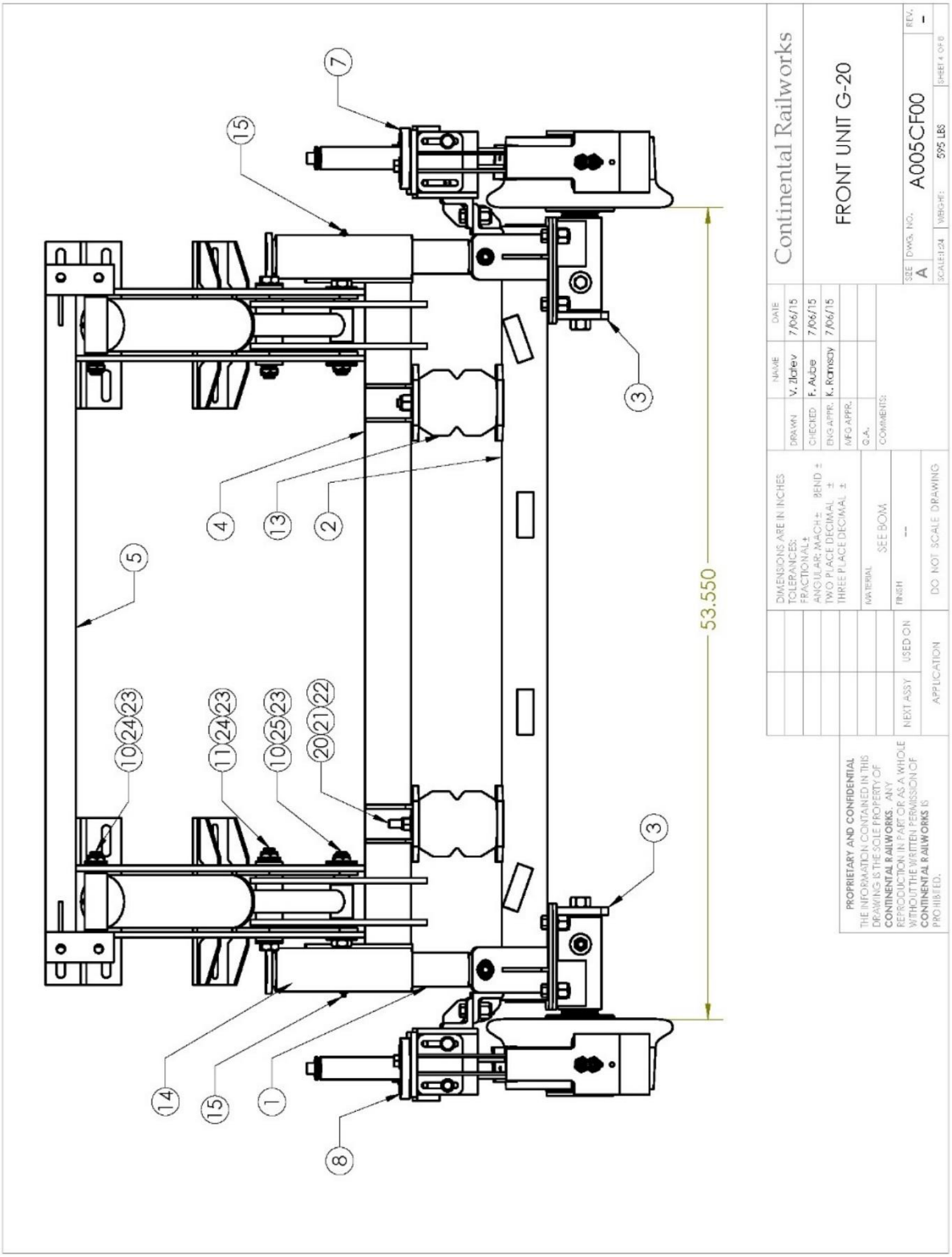
COMMENTS:

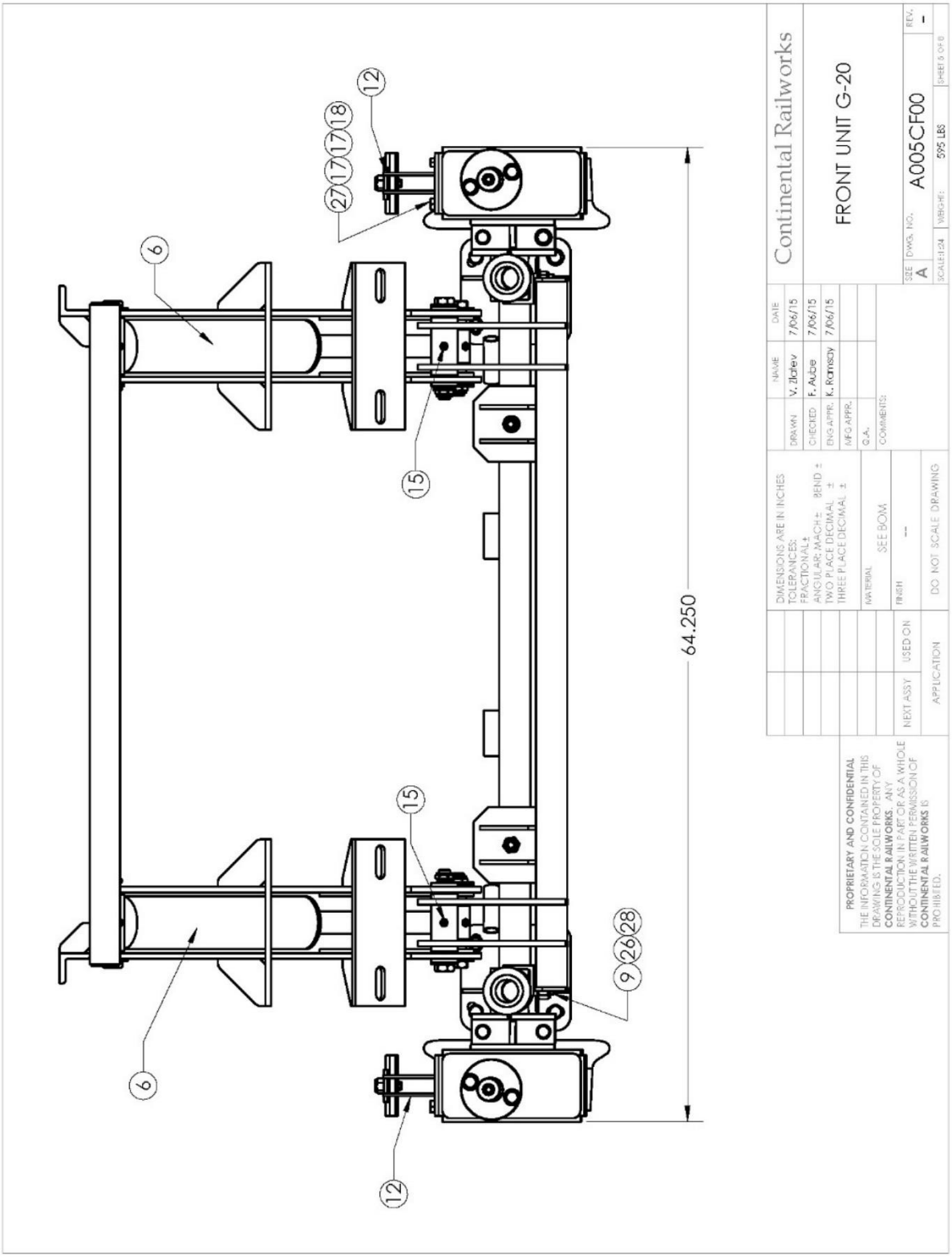
Continental Railworks

FRONT UNIT G-20

SIZE A | DWG. NO. A005CF00 | REV. -

SCALE:1:24 | WEIGHT: | SHEET 3 OF 8


53.550
Continental Railworks
FRONT UNIT G-20
A005CF00
PROPRIETARY AND CONFIDENTIAL


64.250
Continental Railworks
FRONT UNIT G-20
A005CF00
595 LBS
PROPRIETARY AND CONFIDENTIAL
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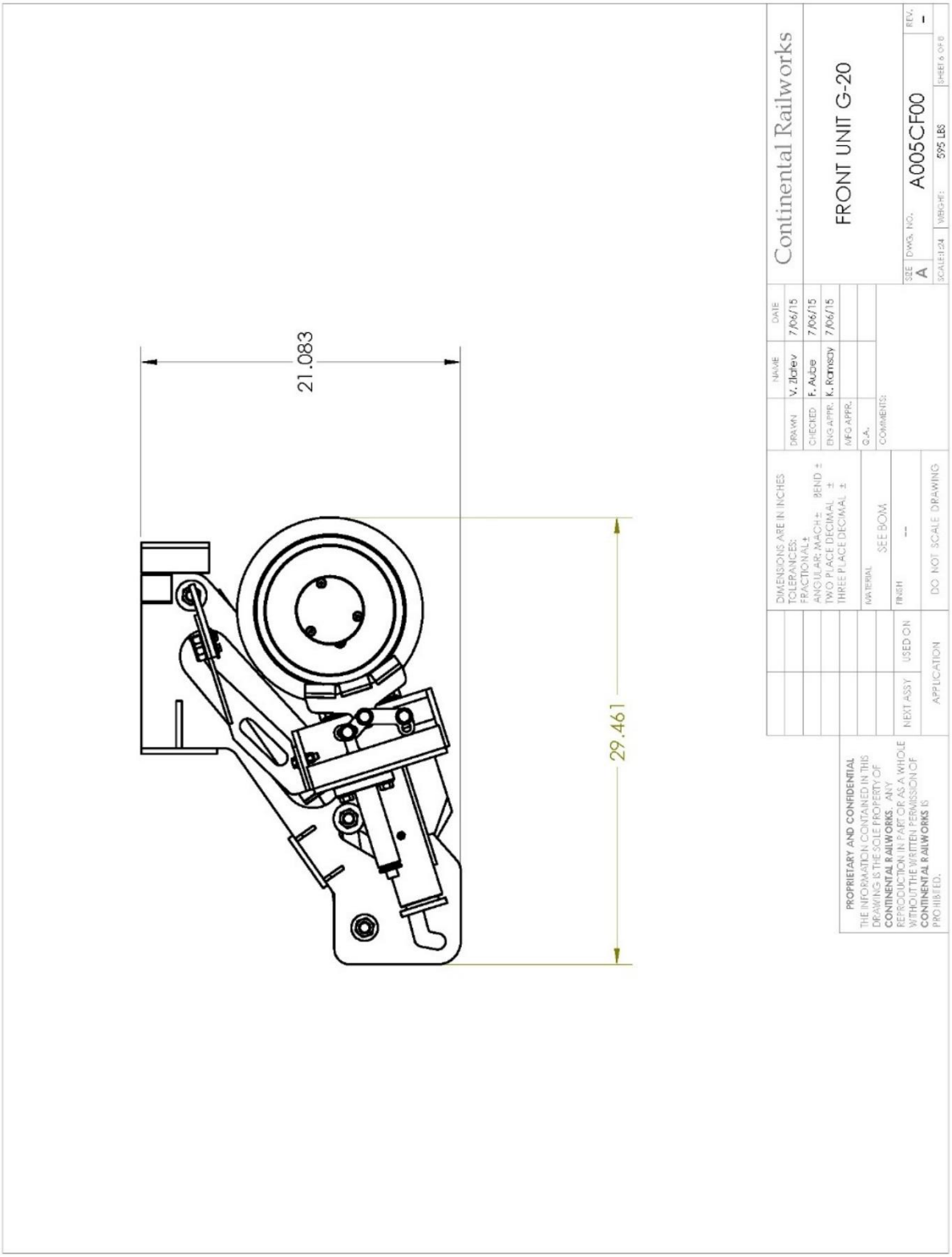
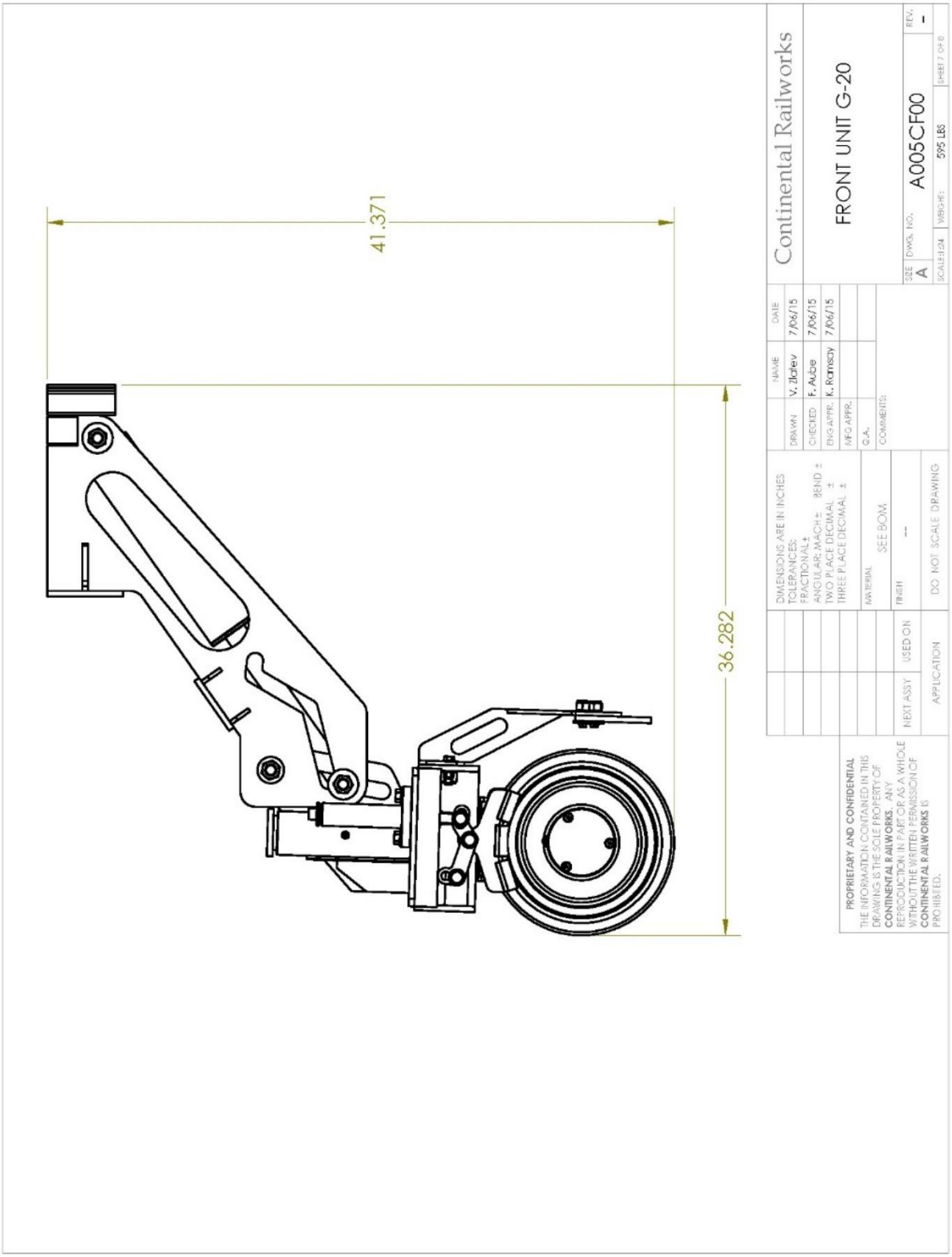
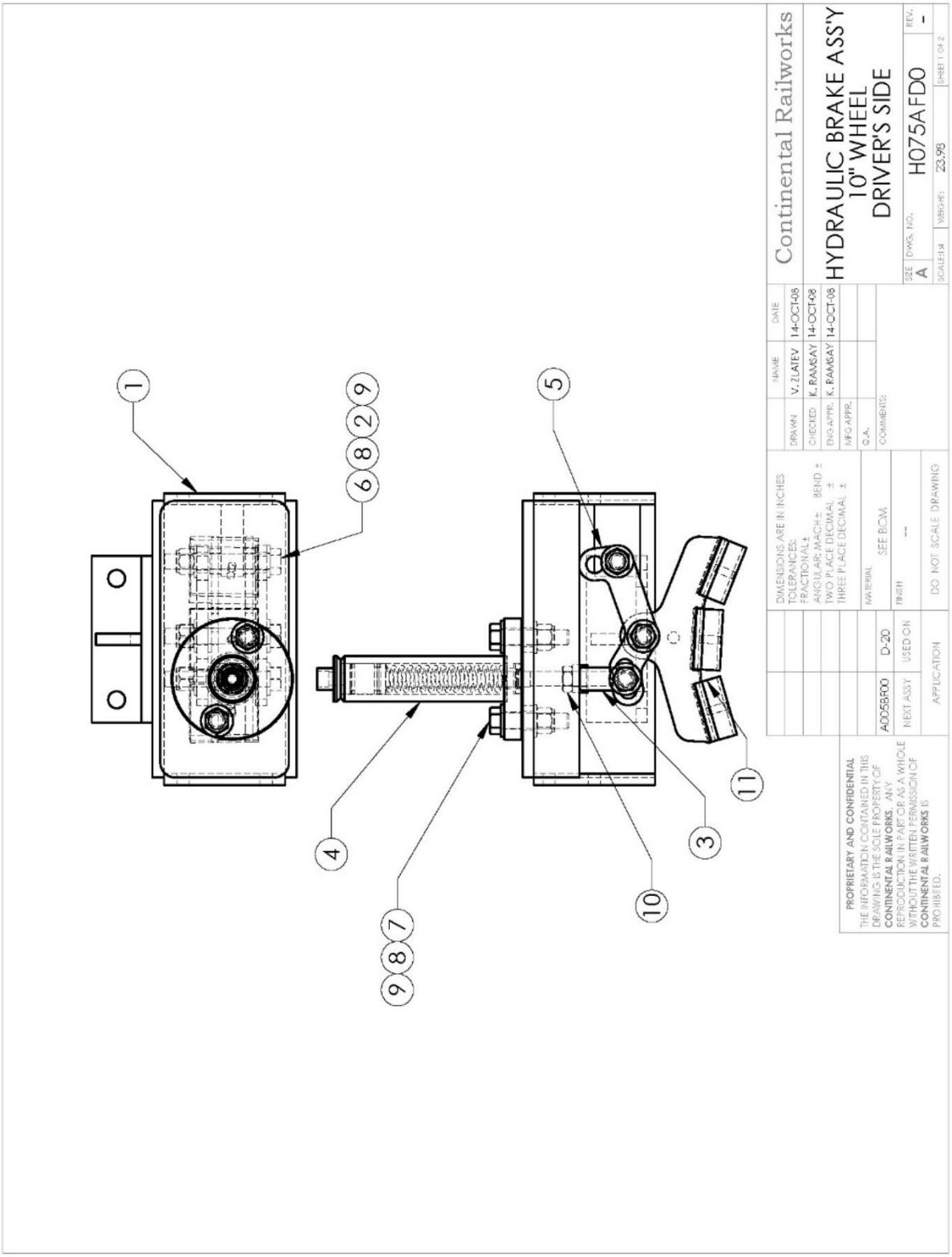
DO NOT SCALE DRAWING


21.083
29.461
Continental Railworks
FRONT UNIT G-20
A005CF00
DRAWN V. Ilchev 7/06/15
CHECKED F. Aube 7/06/15
ENG APPR. K. Ramsay 7/06/15
MFG APPR.
Q.A.
COMMENTS:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
MATERIAL SEE BOM
FINISH --
NEXT ASSY USED ON
APPLICATION
DO NOT SCALE DRAWING
PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.
SIZE A
DWG. NO.
SCALE:1:24
WEIGHT: 595 LBS
SHEET 6 OF 6
REV. -


41.371
36.282
Continental Railworks
FRONT UNIT G-20
A005CF00
595 LBS
V. Ilchev
F. Aube
K. Ramsay
7/06/15
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.
DO NOT SCALE DRAWING


1
6
8
2
9
5
4
9
8
7
10
3
11
Continental Railworks
HYDRAULIC BRAKE ASS'Y
10" WHEEL
DRIVER'S SIDE
H075AFDO
PROPRIETARY AND CONFIDENTIAL
DRAWN
CHECKED
ENG APPR.
MFG APPR.
Q.A.
COMMENTS:
V. ZLATEV
K. RAMSAY
K. RAMSAY
14-OCT-08
SIZE A
DWG. NO.
SCALE:1/4
WEIGHT: 23.9lb
SHEET 1 OF 2
REV. -
A0056F00
D-20
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING

REVISIONS

REV.	DESCRIPTION	DATE	BY
A	CHANGED H066BFD0 TO H067AFD0. BRAKE PAD TOO CLOSE TO WHEEL	5/28/2018	N. Gromak

ITEM NO.	PART NUMBER	DESCRIPTION	WEIGHT	QTY.
1	H067AFD0	BRAKE HOUSING 12" WHEEL	15.25	1
2	H18A0702	SPACER	0.03	2
3	H18B0402	YOKE	0.29	1
4	H025A000	1" HYDRAULIC BRAKE CYLINDER x 1.7" STROKE	4.51	1
5	H186E001	(LP) LINKAGE	0.51	2
6		1/2" UNC GR. 8 BOLT x 3.500" LONG		3
7		1/2" UNC GR. 8 BOLT x 2.250" LONG		2
8		1/2" FLAT WASHER		12
9		1/2" UNC HEX JAM NUT		5
10		1/2" UNC GR. 8 NYLON INSERT LOCKNUT		1
11	H088A000	14" WHEEL BRAKE SHOE	2.48	1

PROPRIETARY AND CONFIDENTIAL
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NEXT ASSY	A005BF00	
USED ON	D-20	
APPLICATION		

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

MATERIAL SEE BOM
FINISH ---
DO NOT SCALE DRAWING

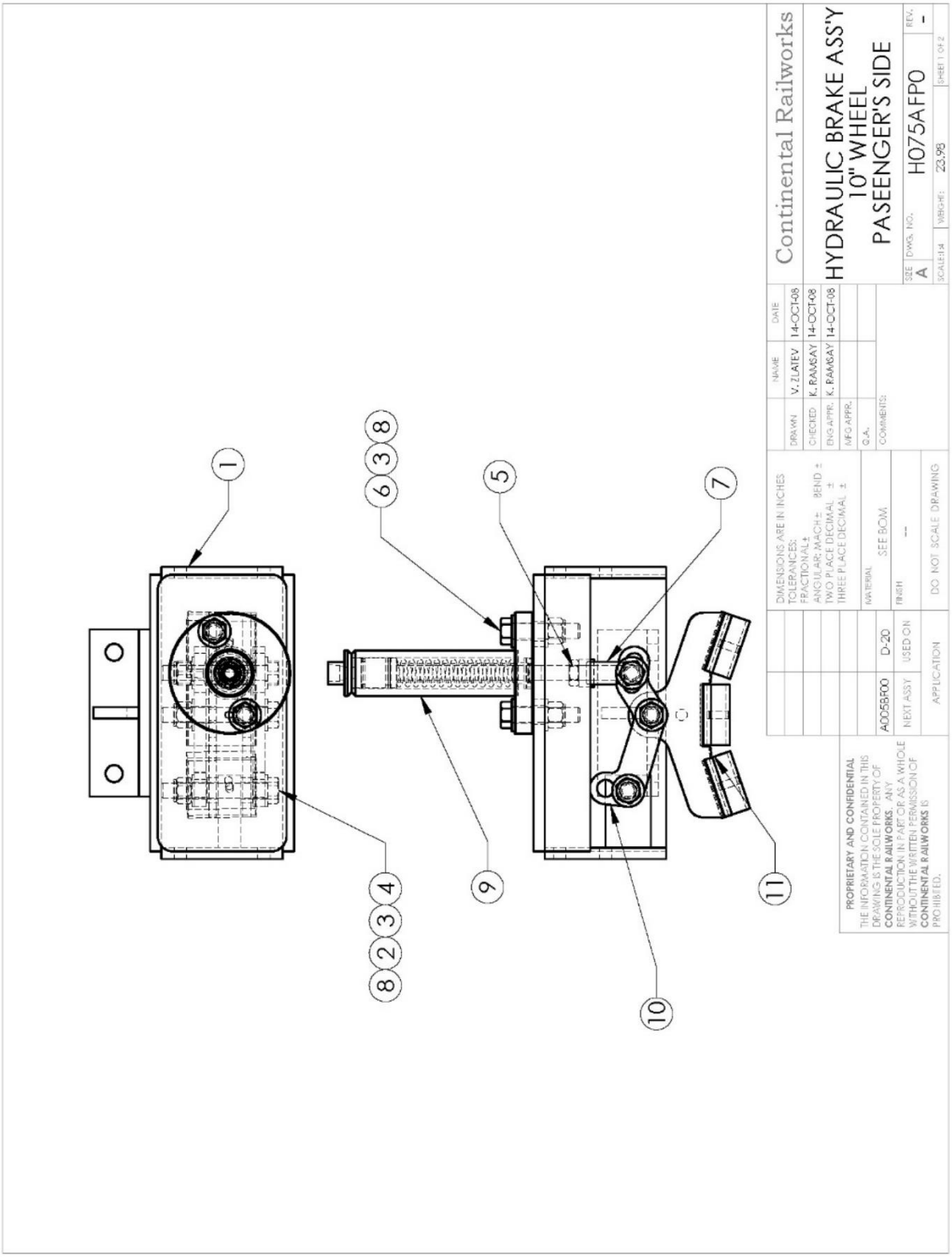
	NAME	DATE
DRAWN	V. ZLATEV	14-OCT-08
CHECKED	K. RAMSAY	14-OCT-08
ENG APPR.	K. RAMSAY	14-OCT-08
MFG APPR.		
PRINTED		2021-06-09

COMMENTS:

Continental Railworks

HYDRAULIC BRAKE ASS'Y
10" WHEEL
DRIVER'S SIDE

SIZE	DWG. NO.	REV.
A	H075AFD0	-
SCALE:1:4	WEIGHT: 23.98	SHEET 2 OF 2


Continental Railworks
HYDRAULIC BRAKE ASS'Y
10" WHEEL
PASSENGER'S SIDE
H075AFP0
PROPRIETARY AND CONFIDENTIAL
DRAWN
CHECKED
ENG APPR.
MFG APPR.
Q.A.
COMMENTS:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
MATERIAL
SEE BOM
FINISH

DO NOT SCALE DRAWING
SIZE
A
DWG. NO.
SCALE: 1/4
WEIGHT:
23.95
SHEET 1 OF 2
REV.
-

REVISIONS

REV.	DESCRIPTION	DATE	BY
A	CHANGED H0668FP0 TO H067AFP0. BRAKE TOO CLOSE TO WHEEL.	5/29/2018	N. Gromak

ITEM NO.	PART NUMBER	DESCRIPTION	WEIGHT	QTY.
1	H067AFP0	BRAKE HOUSING 12" WHEEL	15.25	1
2	H18A0702	SPACER	0.03	2
3		1/2" FLAT WASHER		12
4		1/2" UNC GR. 8 BOLT x 3.500" LONG		3
5		1/2" UNF HEX JAM NUT		1
6		1/2" UNC GR. 8 BOLT x 2.250" LONG		2
7	H18B0402	YOKE	0.29	1
8		1/2" UNF HEX JAM NUT		5
9	H025A000	1" HYDRAULIC BRAKE CYLINDER x 1.7" STROKE	4.50	1
10	H186E001	(LP) LINKAGE	0.51	2
11	H088A000	14" WHEEL BRAKE SHOE	2.48	1

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

MATERIAL: SEE BOM
FINISH: ---
COMMENTS:

	NAME	DATE
DRAWN	V. ZLATEV	14-OCT-08
CHECKED	K. RAMSAY	14-OCT-08
ENG APPR.	K. RAMSAY	14-OCT-08
MFG APPR.		
PRINTED:		2021-06-09

Continental Railworks

HYDRAULIC BRAKE ASSY
10" WHEEL
PASSENGER'S SIDE

SIZE A | DWG. NO. H075AFP0 | REV. -
SCALE:1.8 | WEIGHT: 23.98 | SHEET 2 OF 2

PROPRIETARY AND CONFIDENTIAL
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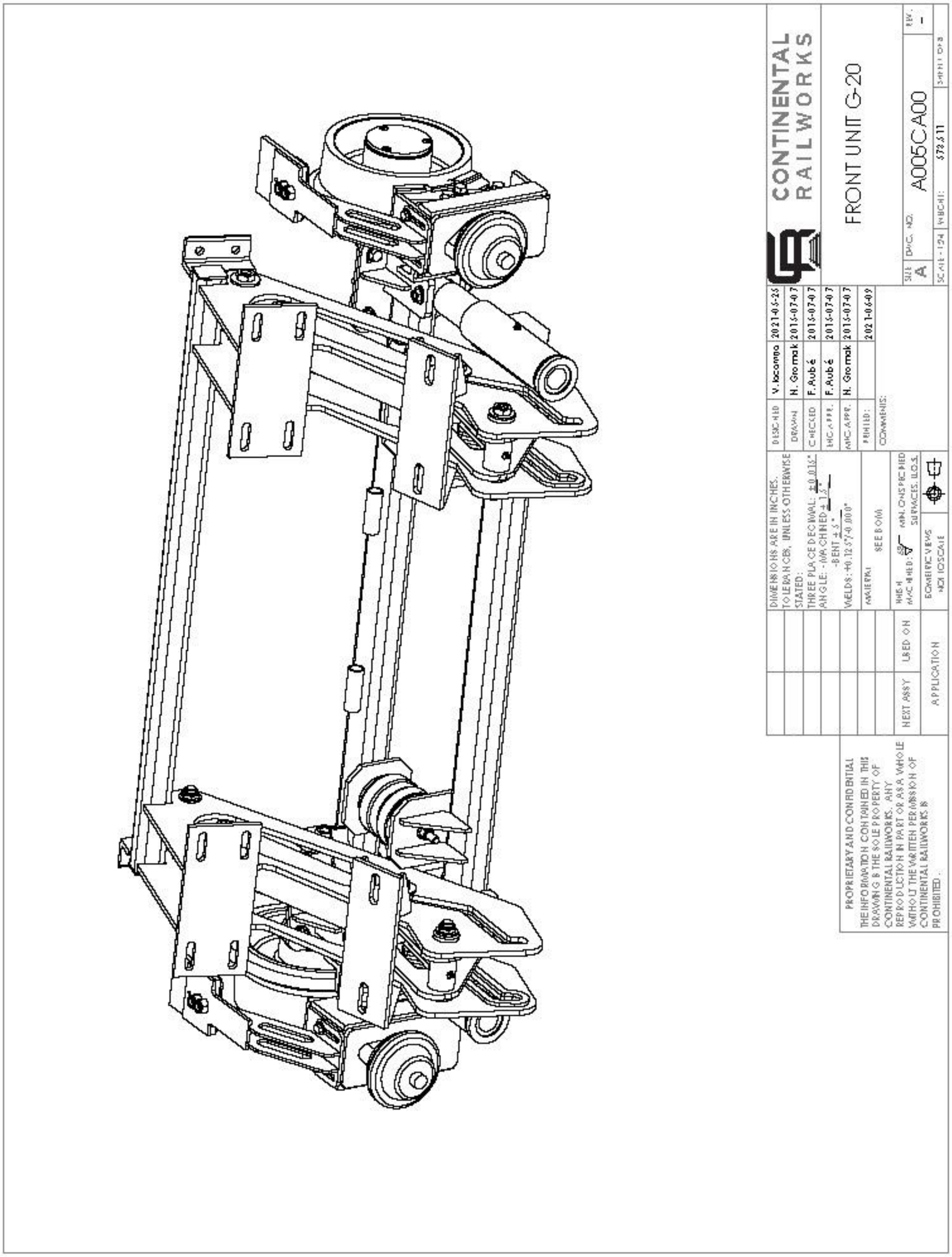
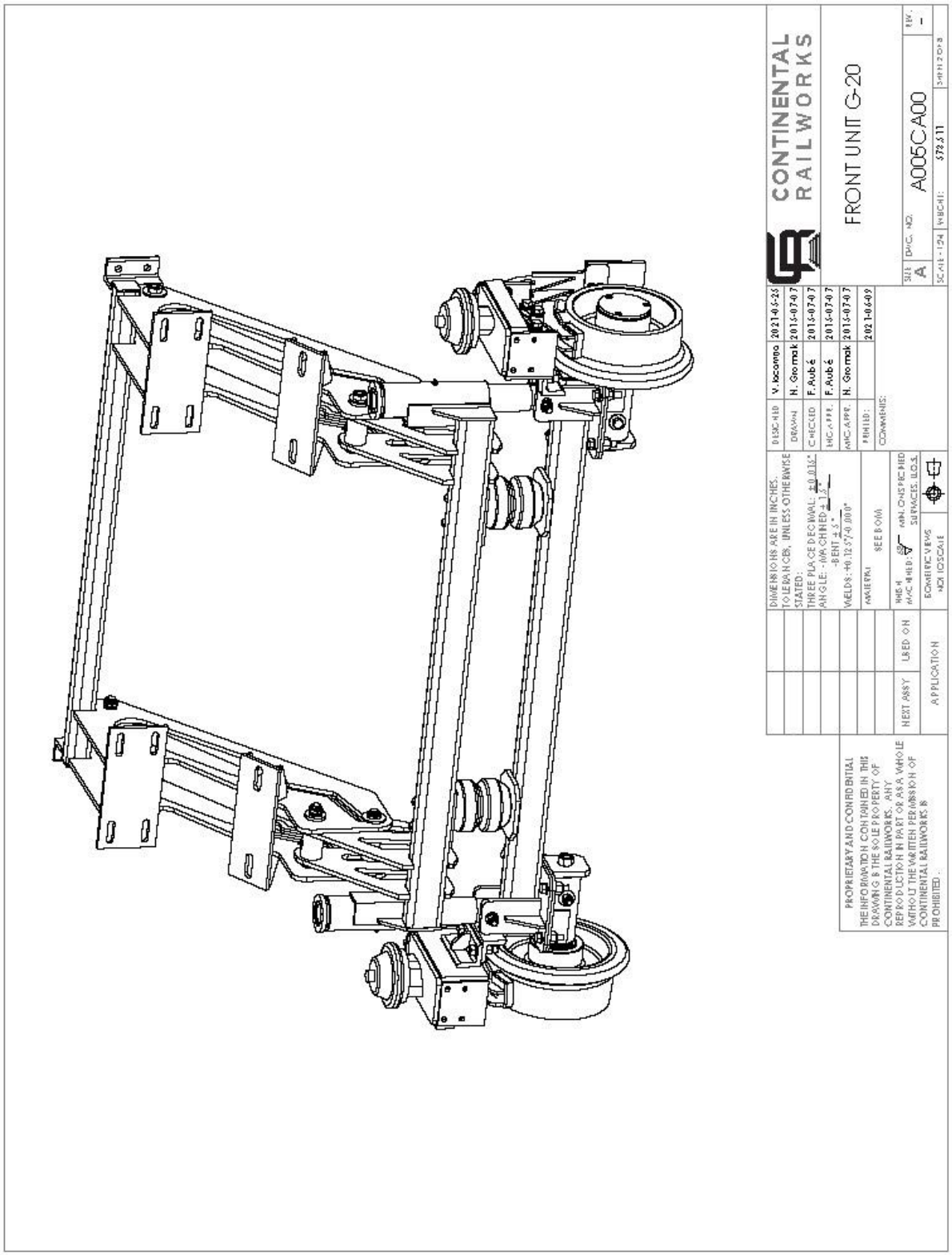
NEXT ASSY: A005BF00 | USED ON: D-20
APPLICATION: DO NOT SCALE DRAWING

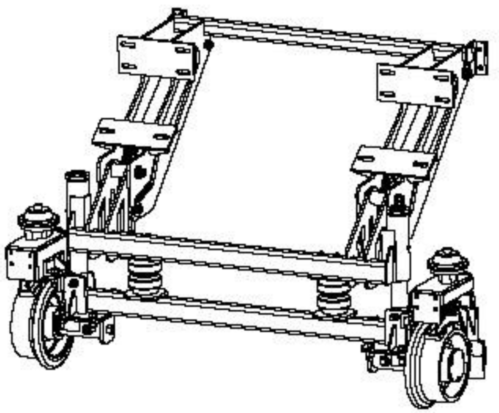
APPENDIX 6

FRONT G-20 DRAWINGS (AIR BRAKES)

NOTE – Some components may differ slightly from drawings shown.


CONTINENTAL RAILWORKS
FRONT UNIT G-20
A005CA00
PROPRIETARY AND CONFIDENTIAL


CONTINENTAL RAILWORKS
FRONT UNIT G-20
A005CA00
DRAWN
CHECKED
APPLICATION
PROPRIETARY AND CONFIDENTIAL



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	B005B000	INNER TUBE ASS'Y	2
2	D005CF00	FRONT AXLE ASS'Y	1
3	E002L000	10" WHEEL ASSEMBLY H-12B & G-20	2
4	F005BF00	FRONT FRAME ASS'Y	1
5	F105BF00	FRONT CAM ASS'Y	1
6	H026A010	HYDRAULIC CYLINDER	2
7	H077CFD0	AIR BRAKE ASS'Y DRIVER'S SIDE	1
8	H077CFP0	AIR BRAKE ASS'Y PASSENGER'S SIDE	1
9	P005A030	3/4" PIN x 3.125" ASS'Y	2
10	P006B020	1" PIN x 4.875" LONG ASS'Y	4
11	P006B030	1" PIN x 5.375" LONG ASS'Y	2
12	R005CA00	UNIVERSAL REAILSWEEP BRKT 10"	2
13	V005A002	RUBBER SPRING 540-65	2
14	V015A001	WEAR RING W2-2500-0750	4
15	ZQ88	1/8 NPT GREASE FITTING	4
16		3/8" UNC GR.8 BOLT x 1.500" LONG	4
17		3/8" REGULAR FLAT WASHER	8
18		3/8" UNC GR.8 NYLON INSERT LOCKNUT	4
19		7/16" REGULAR FLAT WASHER	23
20		1/2" UNC GR.8 BOLT x 2.000" LONG	12
21		1/2" UNC GR.8 BOLT x 2.500" LONG	2
22		1/2" REGULAR FLAT WASHER	9
23		1/2" UNC GR.8 NYLON INSERT LOCKNUT	8
24		5/8" UNC GR.8 NYLON INSERT LOCKNUT	8
25		3/4" REGULAR FLAT WASHER	2
26		3/4" WIDE FLAT WASHER	2
27		3/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	6

NEXT ASSY	USED ON		
APPLICATION			

DIMENSIONS ARE IN INCHES. TOLERANCES, UNLESS OTHERWISE STATED:
THREE PLACE DECIMAL: ±0.015"
ANGLE: - MACHINED ± 1.5°
- BENT ± 5°
WELDS: +0.125"/-0.000"
MATERIAL: SEE BOM
FINISH MACHINED: 63 MIN. ON SPECIFIED SURFACES, U.O.S.
ISOMETRIC VIEWS NOT TO SCALE

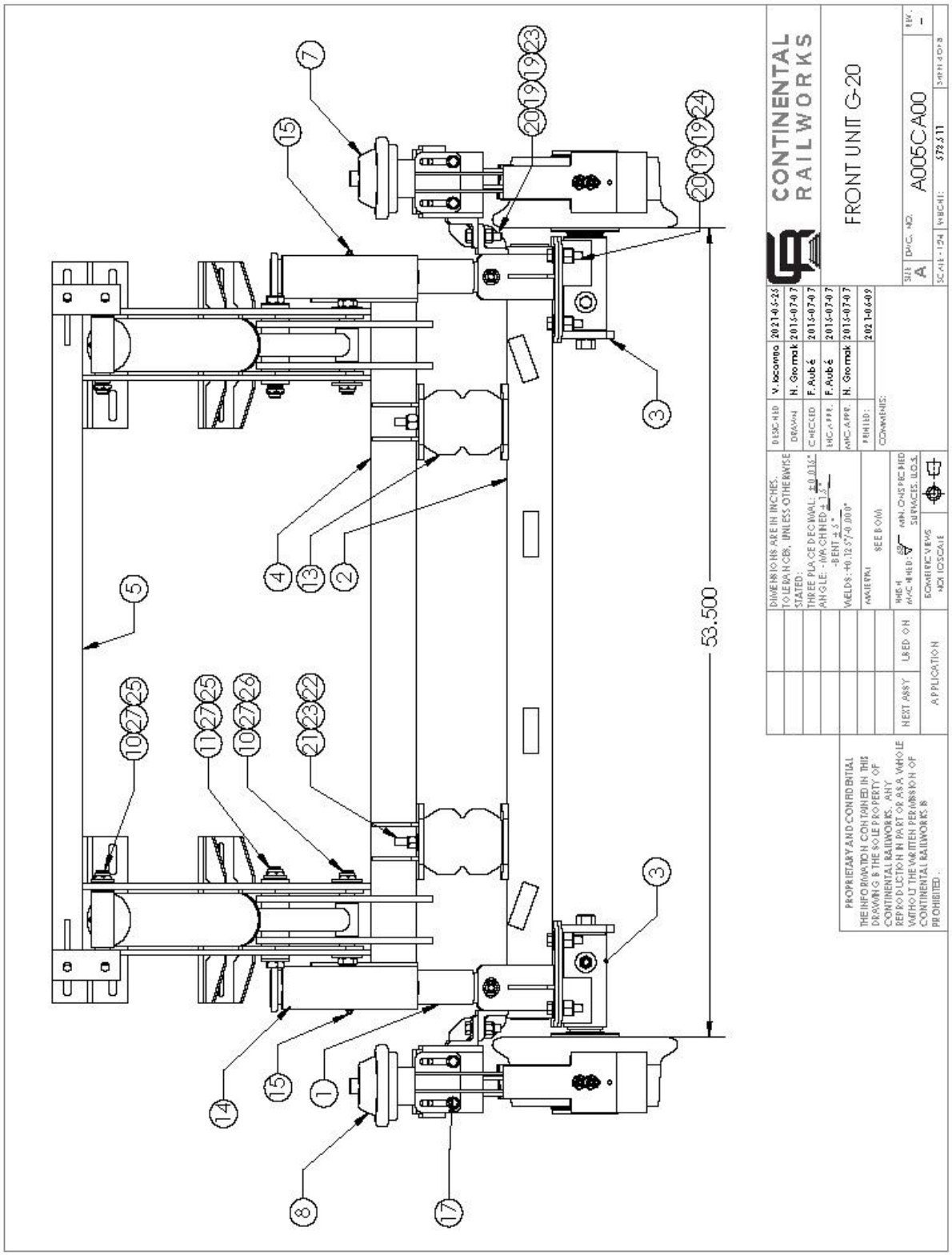
DESIGNED	V. Iacampo	2021-05-25
DRAWN	N. Gromak	2015-07-07
CHECKED	F. Aubé	2015-07-07
ENG APPR.	F. Aubé	2015-07-07
MFG APPR.	N. Gromak	2015-07-07
PRINTED:		2021-06-09
COMMENTS:		

CONTINENTAL RAILWORKS

FRONT UNIT G-20

SIZE: A | DWG. NO.: A005CA00 | REV.: -

SCALE: 1:24 | WEIGHT: 573.511 | SHEET 3 OF 8


CONTINENTAL RAILWORKS
FRONT UNIT G-20
A005CA00
53.500
2019023
2019024
PROPRIETARY AND CONFIDENTIAL
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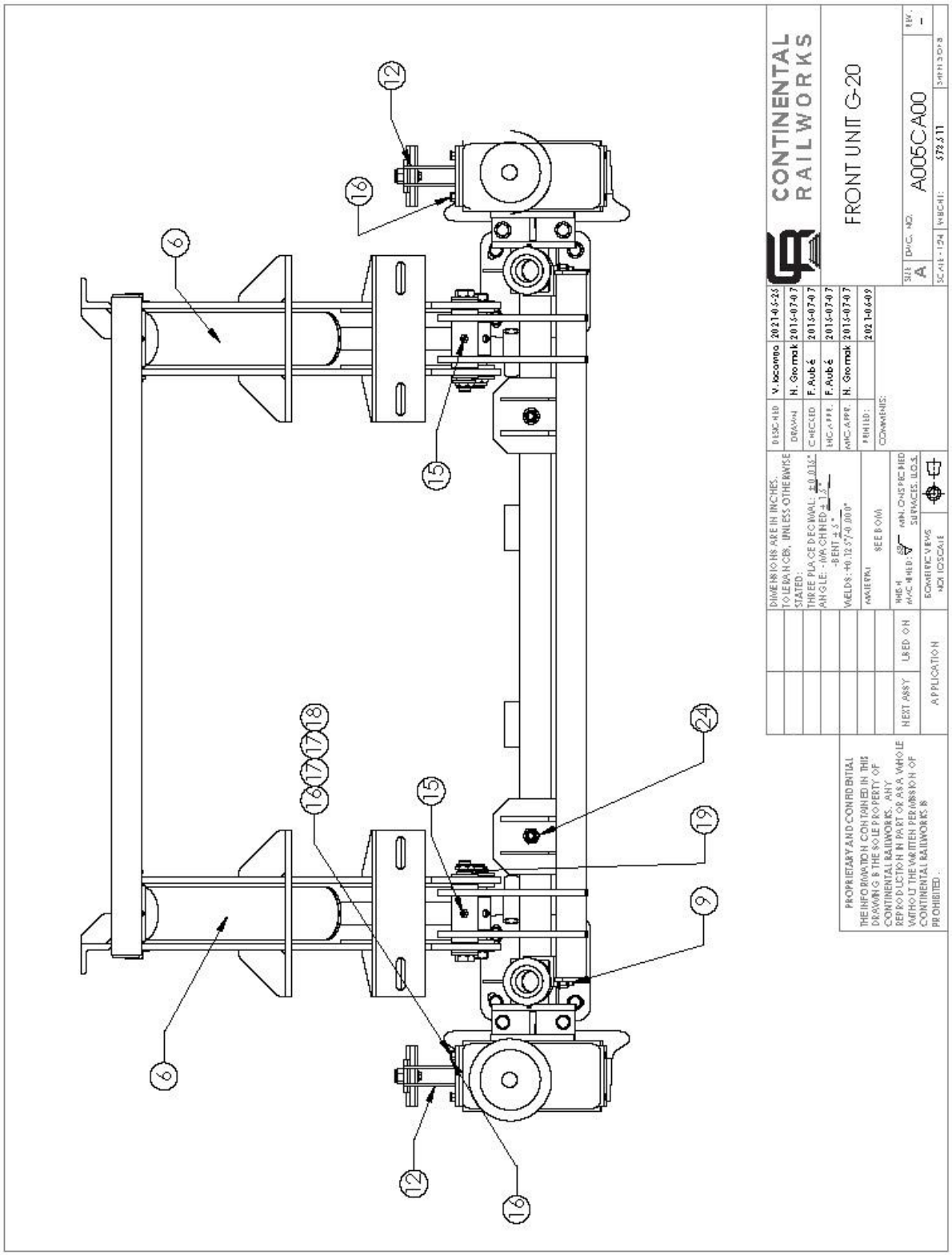
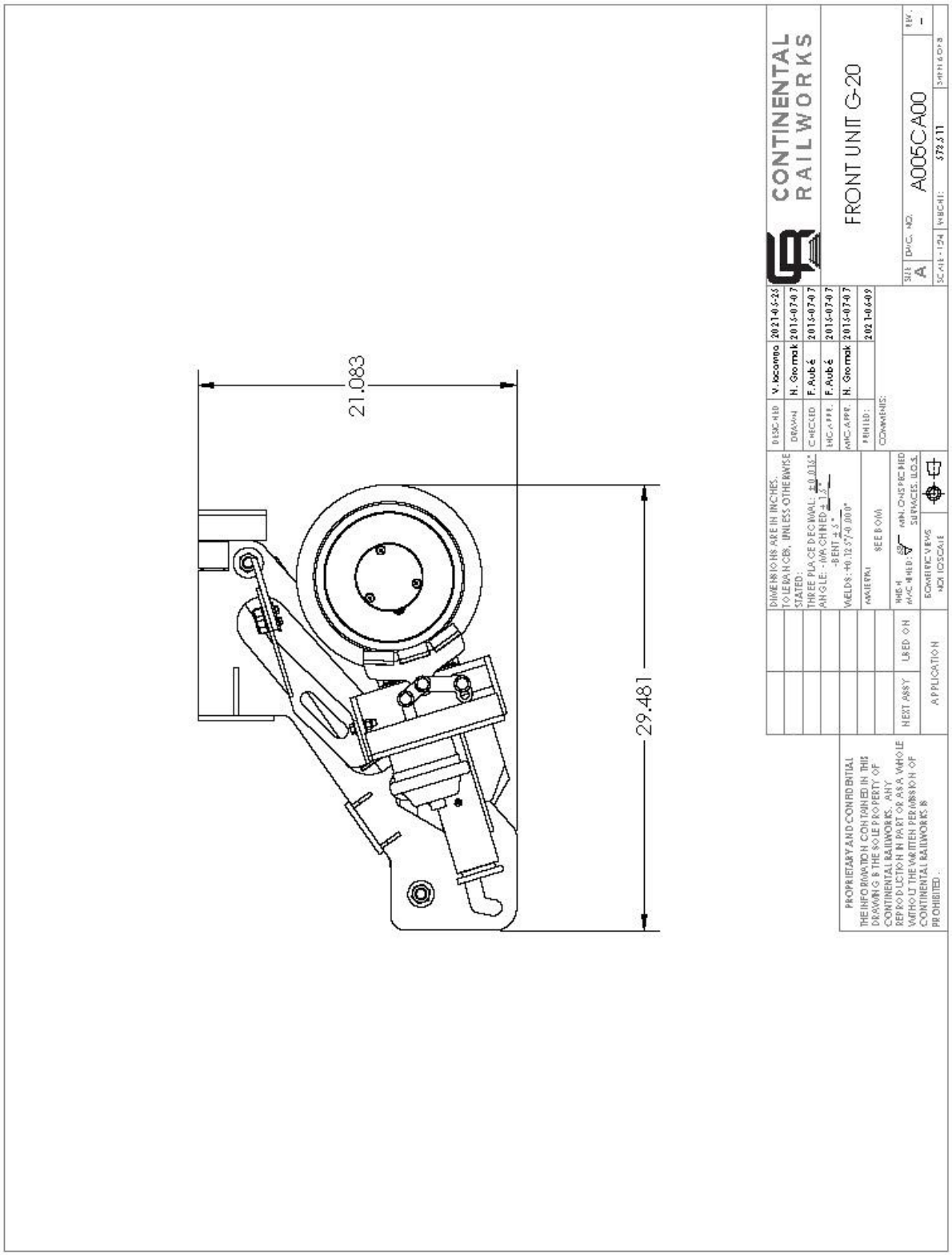

CONTINENTAL RAILWORKS
FRONT UNIT G-20
A005CA00
PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.
DIMENSIONS ARE IN INCHES. TOLERANCES, UNLESS OTHERWISE STATED:
THREE PLACE DECIMAL: ±0.016"
ANGLE: ±0°
BEND ±1°
WELDS: +0.125 -0.000"
V. Iacono 2021-05-25
H. Gromek 2015-07-07
F. Aubé 2015-07-07
F. Aubé 2015-07-07
H. Gromek 2015-07-07
2021-06-09
SEE BOM
BOM ITEMS
NEXT ASSY
USED ON
APPLICATION
SCALE: 1:24
WEIGHT: 378.11
SHEET 1 OF 1
REV. -


21.083
29.481
CONTINENTAL RAILWORKS
FRONT UNIT G-20
A005CA00
V. Iacanna 2021-05-25
H. Gromak 2015-07-07
F. Aubé 2015-07-07
F. Aubé 2015-07-07
H. Gromak 2015-07-07
2021-06-09
PROPRIETARY AND CONFIDENTIAL
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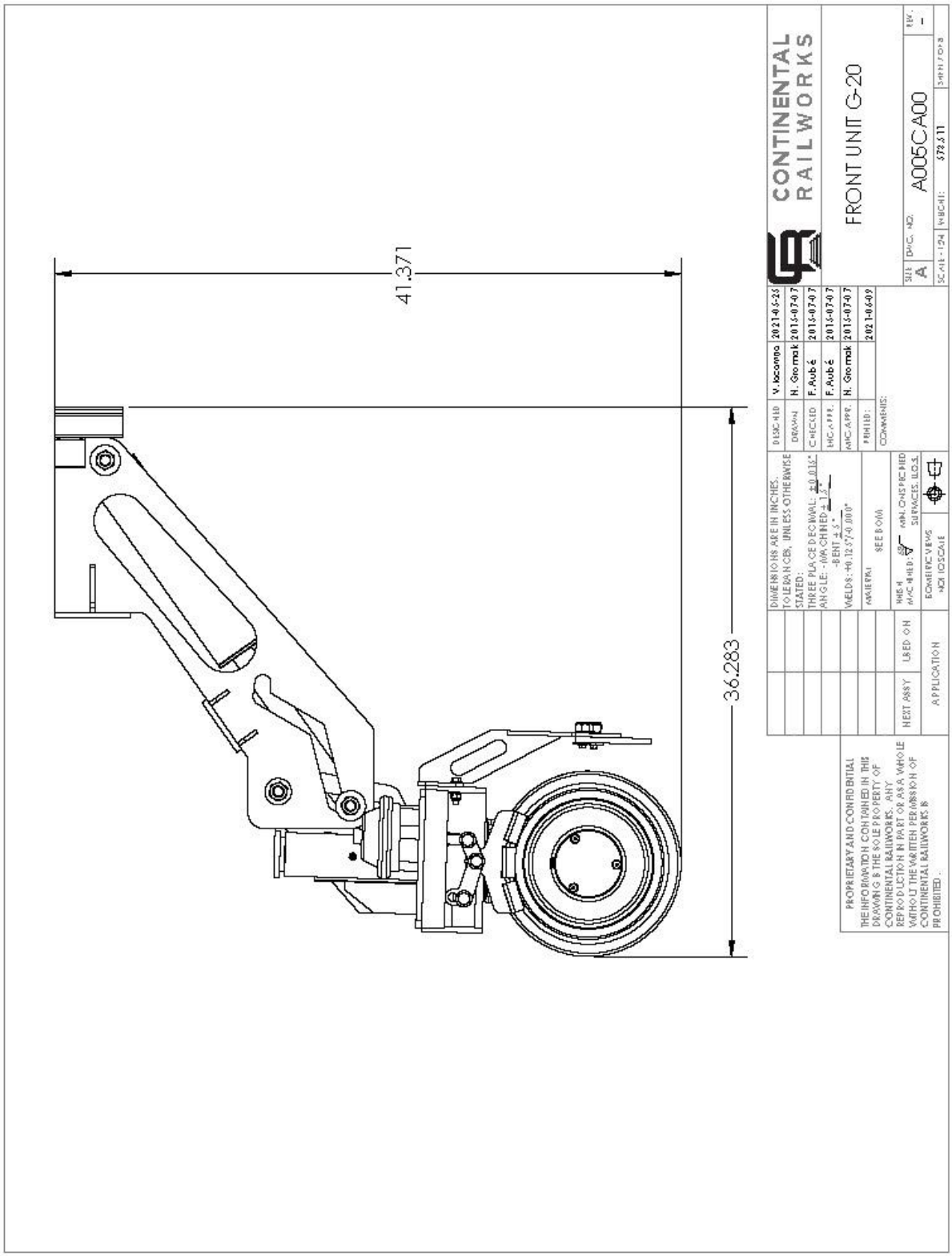
41.371
36.283
CONTINENTAL RAILWORKS
FRONT UNIT G-20
A005CA00
V. Iacanna 2021-05-25
H. Gromak 2015-07-07
F. Aubé 2015-07-07
F. Aubé 2015-07-07
H. Gromak 2015-07-07
2021-06-09
PROPRIETARY AND CONFIDENTIAL
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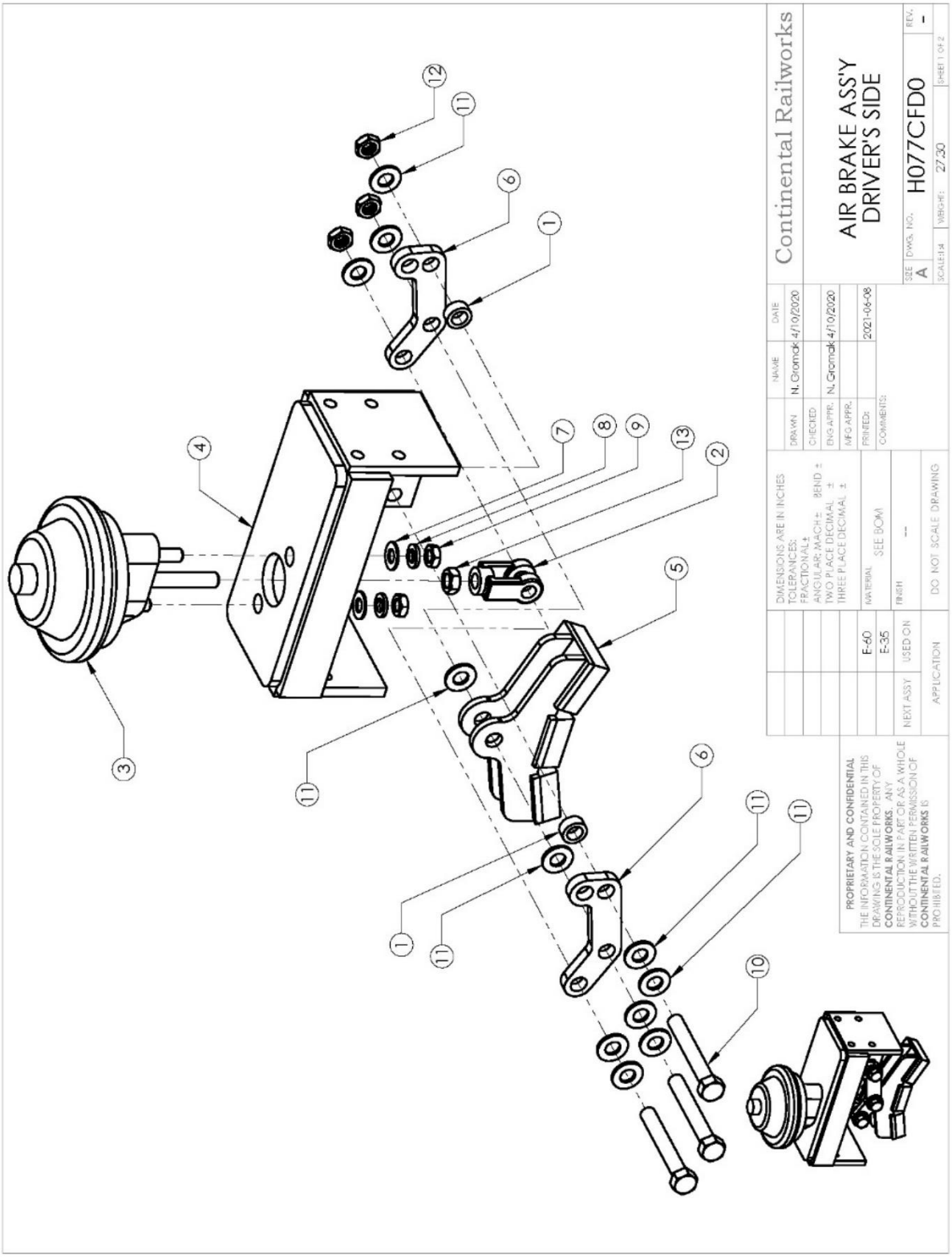
Continental Railworks
AIR BRAKE ASS'Y
DRIVER'S SIDE
H077CFD0
DRAWN N. Gromek 4/10/2020
CHECKED
ENG APPR. N. Gromek 4/10/2020
MFG APPR.
PROPRIETARY AND CONFIDENTIAL
DO NOT SCALE DRAWING

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	H18A0702	SPACER	2
2	H18B0402	YOKE	1
3	H048B001	AIR BRAKE CHAMBER	1
4	H067AFD0	BRAKE HOUSING 12" WHEEL	1
5	H088A000	14" WHEEL BRAKE SHOE	1
6	H186D001	LINKAGE	2
7		7/16" REGULAR FLAT WASHER	2
8		7/16" SPRING LOCK WASHER	2
9		7/16" UNC JAM NUT	2
10		1/2" UNC GR.8 BOLT X 3.500" LONG	3
11		1/2" REGULAR FLAT WASHER	11
12		1/2" UNC GR.8 LIGHT NYLON LOCKNUT	3
13		1/2" UNF HEX JAM NUT	1

PROPRIETARY AND CONFIDENTIAL
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DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

	NAME	DATE
DRAWN	N. Gromok	4/10/2020
CHECKED		
ENG APPR.	N. Gromok	4/10/2020
MFG APPR.		
PRINTED		2021-06-08
COMMENTS		

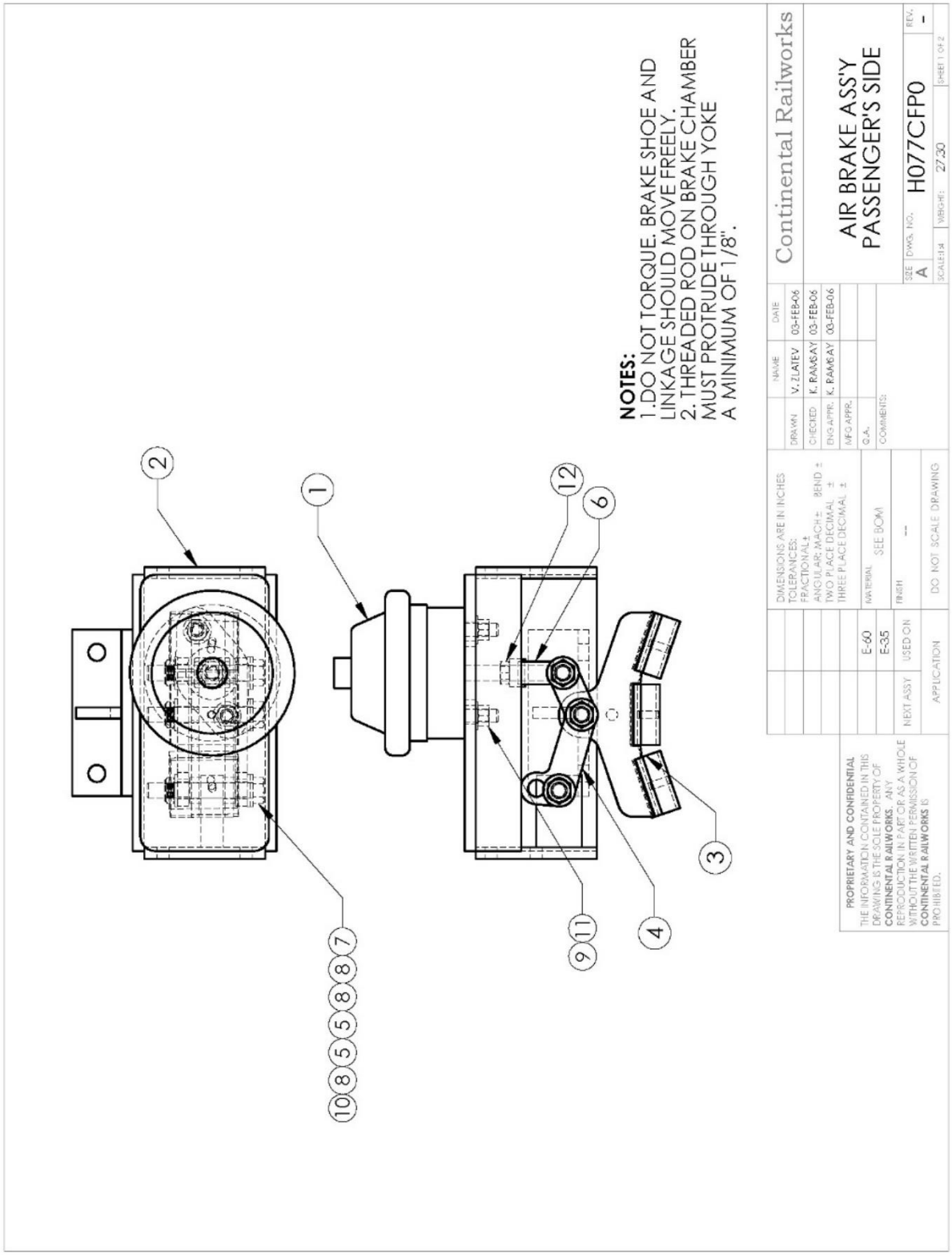
Continental Railworks

AIR BRAKE ASS'Y
DRIVER'S SIDE

NEXT ASSY	USED ON
APPLICATION	DO NOT SCALE DRAWING

F-60
E-35
MATERIAL SEE BOM
FINISH ---

SIZE A | DWG. NO. H077CFD0 | REV. -
SCALE:1:4 | WEIGHT: 27.30 | SHEET 2 OF 2


NOTES:
1.DO NOT TORQUE. BRAKE SHOE AND LINKAGE SHOULD MOVE FREELY.
2. THREADED ROD ON BRAKE CHAMBER MUST PROTRUDE THROUGH YOKE A MINIMUM OF 1/8".
Continental Railworks
AIR BRAKE ASS'Y
PASSENGER'S SIDE
H077CFP0
PROPRIETARY AND CONFIDENTIAL
DRAWN
CHECKED
ENG APPR.
MFG APPR.
Q.A.
COMMENTS:
DATE
V. ZLATEV 03-FEB-06
K. RAMSAY 03-FEB-06
K. RAMSAY 03-FEB-06
SIZE A
SCALE:1/4
WEIGHT: 27.30
SHEET 1 OF 2
REV. -
MATERIAL
SEE BOM
FINISH

NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING

ITEM NO.	PART NUMBER	DESCRIPTION	WEIGHT	QTY.
1	H048B001	AIR BRAKE CHAMBER	7.00	1
2	H067AFP0	BRAKE HOUSING 12" WHEEL	15.25	1
3	H088A000	14" WHEEL BRAKE SHOE	2.48	1
4	H186D001	LINKAGE	0.51	2
5	H18A0702	SPACER	0.03	2
6	H18B0402	YOKE	0.29	1
7		1/2" UNC GR. 8 BOLT x 3.500" LONG		3
8		1/2" REGULAR FLAT WASHER		11
9		1/2" UNF HEX JAM NUT		2
10		1/2" UNC GR. 8 NYLON INSERT LOCKNUT		3
11		7/16" UNC HEX NUT		2
12		7/16" SPRING LOCKWASHER		1

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

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

	NAME	DATE
DRAWN	V. ZLATEV	03-FEB-06
CHECKED	K. RAMSAY	03-FEB-06
ENG APPR.	K. RAMSAY	03-FEB-06
MFG APPR.		
Q.A.		
COMMENTS:		

MATERIAL: E-60 / E-35 — SEE BOM
FINISH: ---
NEXT ASSY — USED ON
APPLICATION — DO NOT SCALE DRAWING

Continental Railworks

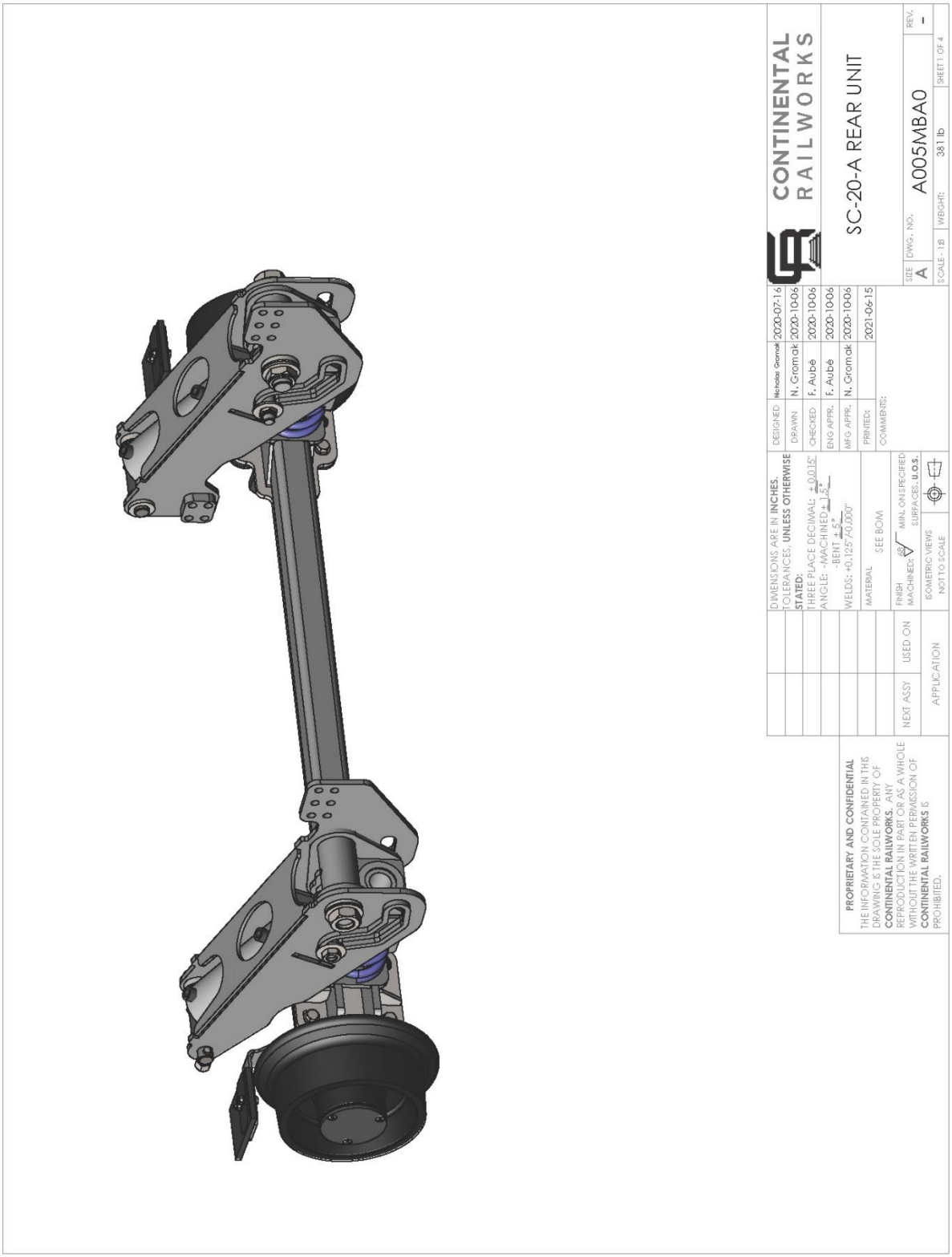
AIR BRAKE ASS'Y
PASSENGER'S SIDE

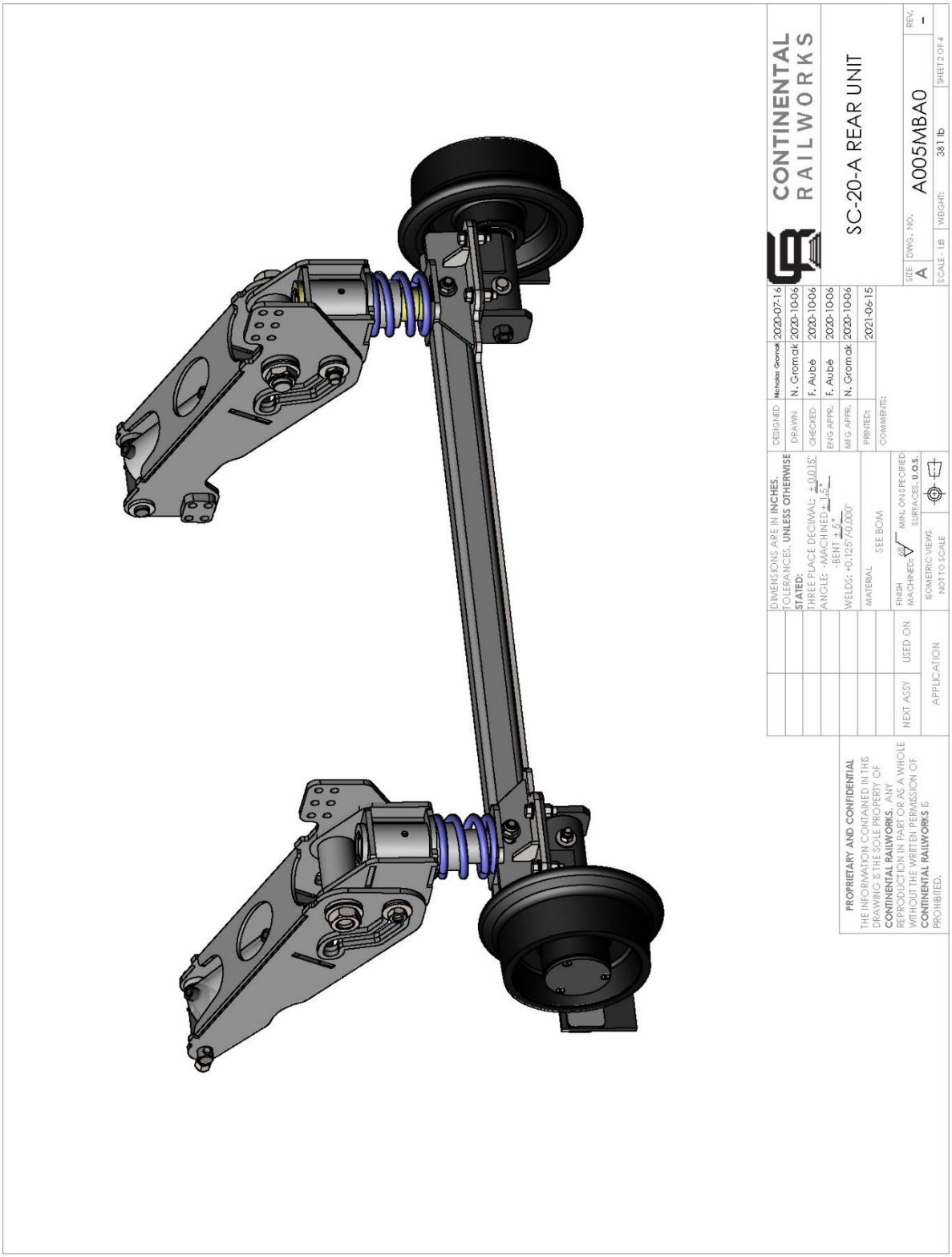
SIZE A | DWG. NO. H077CFP0 | REV. -
SCALE:1.8 | WEIGHT: 27.30 | SHEET 2 OF 2

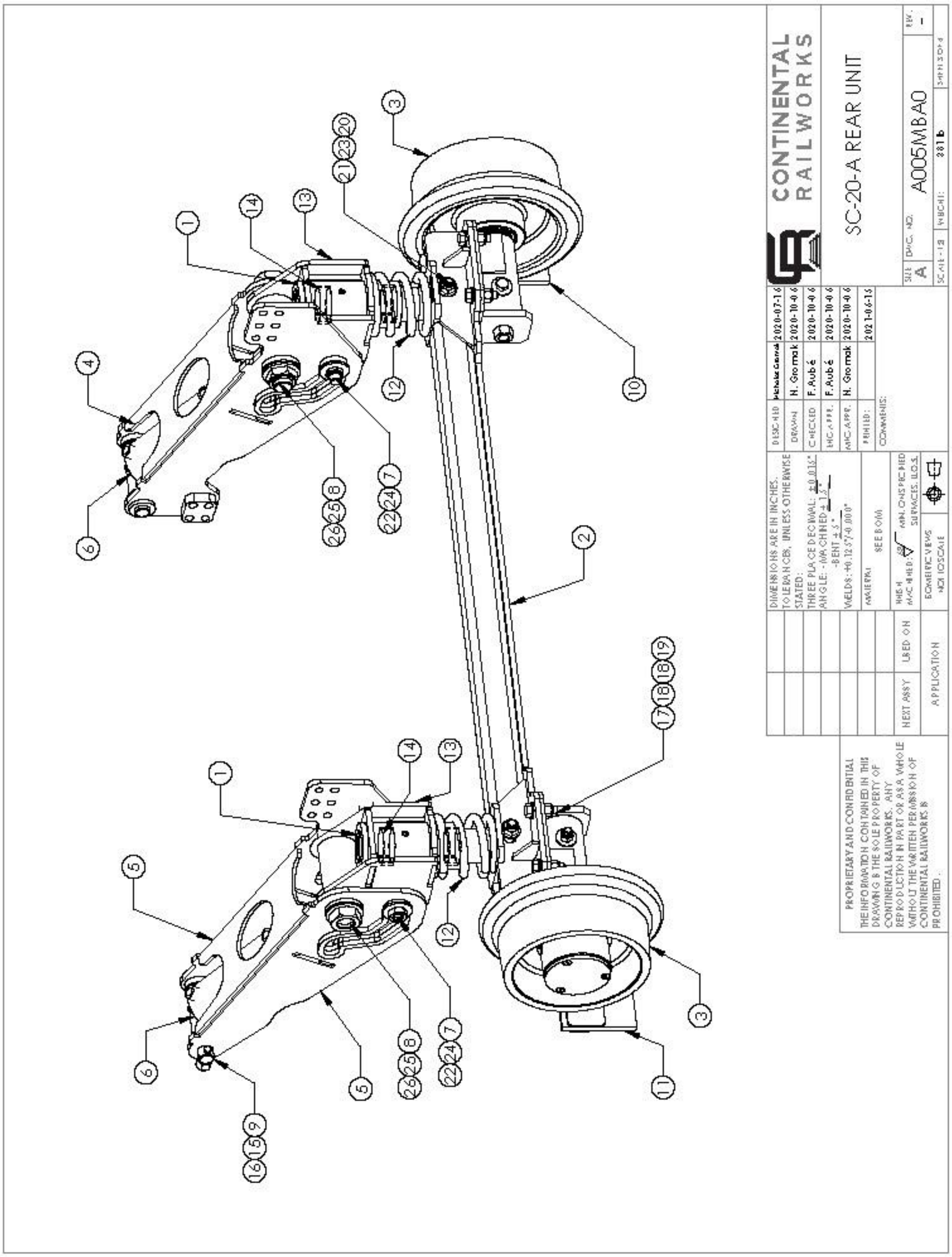
APPENDIX 6

REAR SC-20A DRAWINGS

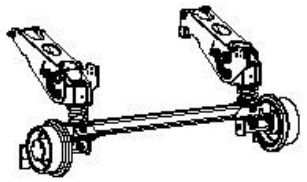
NOTE – Some components may differ slightly from drawings shown.


CONTINENTAL
RAILWORKS
SC-20-A REAR UNIT
A005MBA0
DESIGNED Nicholas Gromak 2020-07-16
DRAWN N. Gromak 2020-10-06
CHECKED F. Aubé 2020-10-06
ENG APPR. F. Aubé 2020-10-06
MFG APPR. N. Gromak 2020-10-06
PRINTED 2021-06-15
SIZE A
SCALE - 1/8
WEIGHT: 381 lb
SHEET 1 OF 4
REV. -
DIMENSIONS ARE IN INCHES.
TOLERANCES, UNLESS OTHERWISE STATED:
THREE PLACE DECIMAL: ±0.015"
ANGLE: -MACHINED ±1.5°
-BENT ±5°
WELDS: +0.125 -0.000"
MATERIAL SEE BOM
FINISH MACHINED: MIN. ON SPECIFIED SURFACES, U.O.S.
ISOMETRIC VIEWS NOT TO SCALE
NEXT ASSY
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.


CONTINENTAL RAILWORKS
SC-20-A REAR UNIT
A005MBA0
DESIGNED Nicholas Gromak 2020-07-16
DRAWN N. Gromak 2020-10-06
CHECKED F. Aubé 2020-10-06
ENG APPR. F. Aubé 2020-10-06
MFG APPR. N. Gromak 2020-10-06
PRINTED 2021-06-15
COMMENTS:
DIMENSIONS ARE IN INCHES.
TOLERANCES: UNLESS OTHERWISE STATED:
THREE PLACE DECIMAL: ±0.015"
ANGLE: - MACHINED ±1.5°
- BENT ±5°
WELDS: +0.125 -0.000"
MATERIAL SEE BOM
FINISH MACHINED: MIN. UNSPECIFIED SURFACES: U.O.S.
ISOMETRIC VIEWS NOT TO SCALE
NEXT ASSY
USED ON
APPLICATION
SIZE A
DWG. NO.
REV. -
SCALE - 1/8
WEIGHT: 381 lb
SHEET 2 OF 4
PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CONTINENTAL RAILWORKS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CONTINENTAL RAILWORKS IS PROHIBITED.


CONTINENTAL
RAILWORKS
SC-20-A REAR UNIT
A005MBA0

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	B005M000	INNER TUBE ASS'Y	2
2	D005M100	AXLE ASSEMBLY	1
3	E002L000	10" WHEEL ASSEMBLY H-12B & G-20	2
4	F105MD10	DRIVER SIDE CAM	1
5	F105MP10	PASSENGER SIDE CAM ASSEMBLY	1
6	H025A300	3" HYDRAULIC CYLINDER X 6" STROKE	2
7	P005M010	1" PIN X 6.500" LONG ASS'Y	2
8	P005M020	1-3/4" PIN X 6.500" ASS'Y	2
9	P005M030	PIN ASSEMBLY	2
10	R005MD10	DRIVER SIDE RAILSWEEP ASSY	1
11	R005MP10	PASSENGER SIDE RAILSWEEP ASSY	1
12	V005M001	COIL SPRING	2
13	F005M000	GUIDE TUBE ASSEMBLY	2
14	V015A001	WEAR RING W2-2500-0750	4
15		1/4" UNC GR.8 BOLT X 1.500" LONG	2
16		1/4" UNC GR.8 NYLON INSERT LOCKNUT	2
17		1/2" UNC GR.8 BOLT X 1.750" LONG	8
18		1/2" REGULAR FLAT WASHER	16
19		1/2" UNC GR.8 NYLON INSERT LOCKNUT	8
20		5/8"-11 FLANGE NYLON LOCKNUT	2
21		SHOULDER BOLT Ø 3/4" X 3.5" LONG - 5/8"-11	2
22		3/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	2
23		3/4" REGULAR FLAT WASHER	2
24		3/4" WIDE FLAT WASHER	2
25		1-1/4" REGULAR FLAT WASHER	2
26		1-1/4" UNC GR.8 LIGHT NYLON INSERT LOCKNUT	2



NEXT ASSY | USED ON
APPLICATION

DIMENSIONS ARE IN INCHES.
TOLERANCES, UNLESS OTHERWISE STATED:
THREE PLACE DECIMAL: ±0.016"
ANGLE: - MACHINED ± 1.5°
- BENT ± 5°
WELDS: +0.125"/-0.000"
MATERIAL: SEE BOM
FINISH: MACHINED: √ MIN. ON SPECIFIED SURFACES, U.O.S.
ISOMETRIC VIEWS NOT TO SCALE

DESIGNED	Nicholas Gromak	2020-07-16
DRAWN	N. Gromak	2020-10-06
CHECKED	F. Aubé	2020-10-06
ENG APPR.	F. Aubé	2020-10-06
MFG APPR.	N. Gromak	2020-10-06
PRINTED:		2021-06-15

COMMENTS:

CONTINENTAL RAILWORKS

SC-20-A REAR UNIT

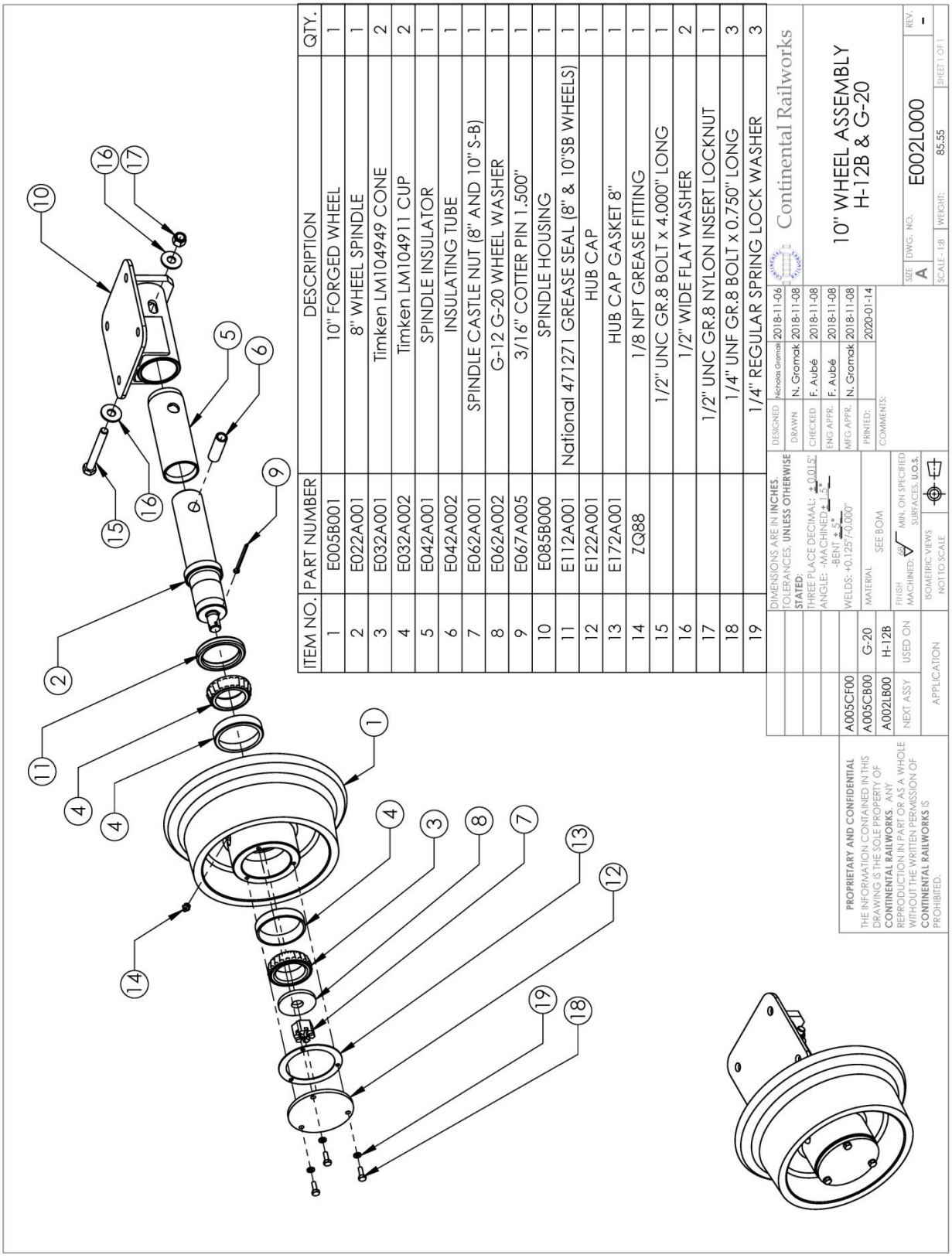
SIZE A | DWG. NO. A005MBA0 | REV. -

SCALE: 1:20 | WEIGHT: 381 lb | SHEET 1 OF 1

APPENDIX 7

10” WHEEL ASSEMBLY DRAWINGS

NOTE – Some components may differ slightly from drawings shown.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	E005B001	10" FORGED WHEEL	1
2	E022A001	8" WHEEL SPINDLE	1
3	E032A001	Timken LM104949 CONE	2
4	E032A002	Timken LM104911 CUP	2
5	E042A001	SPINDLE INSULATOR	1
6	E042A002	INSULATING TUBE	1
7	E062A001	SPINDLE CASTLE NUT (8" AND 10" S-B)	1
8	E062A002	G-12 G-20 WHEEL WASHER	1
9	E067A005	3/16" COTTER PIN 1.500"	1
10	E085B000	SPINDLE HOUSING	1
11	E112A001	National 471271 GREASE SEAL (8" & 10"SB WHEELS)	1
12	E122A001	HUB CAP	1
13	E172A001	HUB CAP GASKET 8"	1
14	ZQ88	1/8 NPT GREASE FITTING	1
15		1/2" UNC GR.8 BOLT x 4.000" LONG	1
16		1/2" WIDE FLAT WASHER	2
17		1/2" UNC GR.8 NYLON INSERT LOCKNUT	1
18		1/4" UNF GR.8 BOLT x 0.750" LONG	3
19		1/4" REGULAR SPRING LOCK WASHER	3

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APPLICATION	NEXT ASSY	MATERIAL	WELDS: -MACHINED $\pm\frac{1}{64}$" -BENT $\pm\frac{1}{16}$" ANGLE: -MACHINED $\pm 1^{\circ}$ -BENT $\pm 2^{\circ}$ THREE PLACE DECIMAL: $\pm$0.015" STATED: TOLERANCES. **UNLESS OTHERWISE** DIMENSIONS ARE IN **INCHES**.
A005CF00			
A005CB00	G-20	SEE BOM	
A002LB00	H-12B		

ISOMETRIC VIEWS NOT TO SCALE

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

DESIGNED	Nicholas Gromak	2018-11-06	Continental Railworks
DRAWN	N. Gromak	2018-11-08	
CHECKED	F. Aubé	2018-11-08	
ENG APPR.	F. Aubé	2018-11-08	
MFG APPR.	N. Gromak	2018-11-08	
PRINTED:		2020-01-14	

COMMENTS:

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

SIZE	DWG. NO.	REV.
A	E002L000	-
SCALE: 1:8	WEIGHT: 85.55	SHEET 1 OF 1

APPENDIX 9

PACKING LIST