

INSTALLATION, OPERATIONS & SERVICE MANUAL R-1130 FRONT RAILGEAR

1.0 INSTALLATION

INSTALLATION SAFETY PRECAUTIONS

If any installation problems are encountered, please call G&B Specialties for technical assistance before continuing with the installation process.



- ☐ Failure to heed to any of the following warnings could result in severe bodily injury and/or equipment damage.
- ☐ Read and understand this manual completely before attempting installation of the equipment.
- ☐ Installation instructions provided below only address the Rafna Industries railgear equipment. Applicable railway company procedures and policies must be adhered to.
- ☐ Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- ☐ Beware of all pinch points on the railgear and keep all parts of the body clear.
- ☐ Always disconnect the vehicle's battery when welding on the vehicle or railgear in order to protect the vehicle's electrical system.

SECTION	<u>TABLE OF CONTENTS</u> DESCRIPTION	PG.
1.0	Installation	1
	Safety Precautions	1
	General Information	3
	Work Area:	3
	Truck Condition:	3
	Preliminary Installation	4
	Front Railgear Installation	4
	Front Railgear Alignment	8
	To align to Link Arms, check:	8
	To check the spring bracket location, check:	8
	Final Front Installation	9
	Hydraulics	11
	New Hydraulic System	11
	Existing Hydraulic System	11
	Railsweep Installation	13
	Units with Brakes	13
	Units without Brakes	13
	Rail Sweep Adjustment	13
2.0	Operation	15
	Daily Inspection	15
	Placing Truck on Rails	15
	Lower Rear Guide Wheels	15
	4.1.2 Lower Front Guide Wheels	15
	Removing Truck from Rail	16
	While on Rail	16
3.0	Maintenance	17
	Maintenance Intervals	17
	Daily	17
	Weekly	17
	Bi-annually	17
	Lubrication	17
4.0	Parts/Schematics	18
	Standard Gauge	18
	BART Gauge	26
	Miscellaneous	30

GENERAL INFORMATION

Work Area:

The work area in which the railgear is to be installed should meet these minimum requirements in order to facilitate the installation and conditions that allow the work to be completed in a safe, accurate and timely manner.

- Floor - The floor should be level in order to provide good measurements required to check alignment of the railgear. The floor should also be sufficiently hard to prevent damage by the railgear wheels.
- Lighting - The work area should be adequately lighted.
- Space - There should be enough space to maneuver the railgear components into position and to safely work around other equipment.

Truck Condition:

Before installation, the truck should be checked in some important areas.

- Tires - the tire pressure should be checked for the manufacturer's recommended inflation and checked for consistent pressure readings from all tires. This will ensure correct traction of the tires on the rails. In addition, the condition of the rear tires must be determined. If they are worn, they should be replaced.
- Alignment - Rear truck axle should be square with the truck frame. G&B Specialties recommends that a reputable alignment shop should check this. 0- degree thrust angle (which can be different than the manufacturer's specification) is required for proper railgear operation.
- Frame and Suspension - On a new truck these should be in good condition. On a used truck, the frame should be inspected for damage. The suspension components should also be checked for damage or wear. If any problems in these areas are not corrected, it will cause difficulty aligning and operating the railgear.

PRELIMINARY INSTALLATION

Remove front truck bumper.

Bolt/Weld the Frame Extension to the truck frame as req'd. Make sure that tilt cabs or hoods will clear the frame extensions. Trim the brackets and gusset as necessary. All truck frame extensions that have bolt on brackets must use 5/8"-11 bolts minimum, hardened steel washers and grade-8 prevailing torque locknuts. All of the grade-8 hardware should be tightened to the manufacturer's specifications. Check that the frame extensions are level and square with the truck frame.

In normal applications, mount the front valve plate assembly between the front frame extensions (with the hydraulic valve underside and the handle facing forward) and weld valve plate in place. In case this is not possible, mount the valve plate in the most appropriate and easily accessible location.

NOTE:

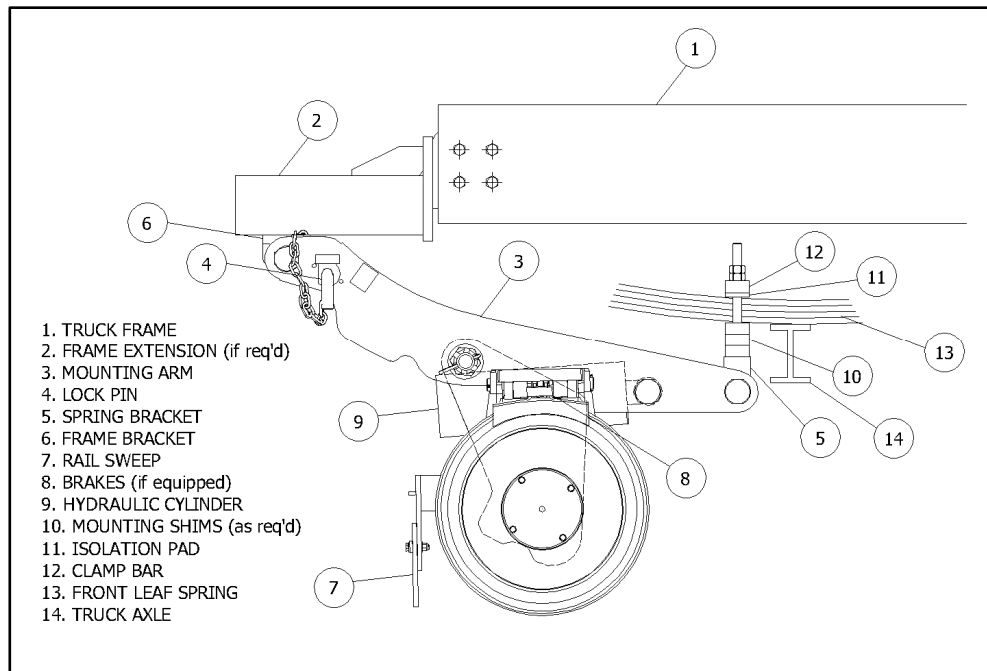
If the vehicle has been supplied with an integral extended front frame then frame extensions will not be required. The front valve plate can be welded directly to the extended front frame.

FRONT RAILGEAR INSTALLATION

NOTE:

Before starting the Front Railgear installation, check the spacing on the front tires on your vehicle. There must be a minimum spacing of 65" between the front tires. If there is not, contact G&B Specialties for further assistance.

With the front railgear under the truck, spacer thickness can be determined. Spacers may be needed to place the front railgear at the proper mounting height. Measure the ground clearance of the front spring just in front of the axle beam. The correct distance from the ground to the center of the rear-mounting pin should be 12 ¾". In order to obtain this 12 ¾" distance, 1" spacers should be used between the spring and the spring bracket. There are 1" spacers provided with the front railgear. The top spacer is used for clamping purposes only and doesn't affect mounting height. Spacers can be added or removed as required to allow for proper mounting height. If additional spacers are required, beyond what is supplied with the railgear, it is to be the responsibility of the installer to fabricate and supply as req'd.



The req'd spacers are to be placed between the spring bracket and the underside of the truck spring. After lifting the Link Arms into place, attach the spring brackets to the truck spring, using two $\frac{3}{4}$ "-10 hex nuts per stud. Push the spring brackets against the axle beam and tighten the hex nuts onto the top spacer to cage the springs.

The front railgear can now be actuated with the hydraulic system, which will raise the front of the Link Arms to the frame extensions. The frame needs to be raised just enough to touch the frame extensions or truck frame.

CAUTION - Do not raise all the way to lift truck frame and raise the front truck tires.

In order to install the front of the front railgear at the correct height, the center of the front mounting pins must be located 24"-25 $\frac{1}{2}$ " from the ground (with the truck steering tires on the ground). If necessary, shim the frame-mounting bracket to obtain the proper measurement. All shims should be load bearing members, do not use thin wall tubing. If necessary, a different frame-mounting bracket can be used to obtain the proper mounting height.

Check for interference with the truck frame, springs, steering gear or other truck components, with the railgear. Front mounting pin ground clearance may be reduced to as low as 24" in order to provide for proper fit.

!WARNING!

Before rotating front gear, ensure axle is positioned correctly or damage to the cylinders could occur. (figure 1.2.1)

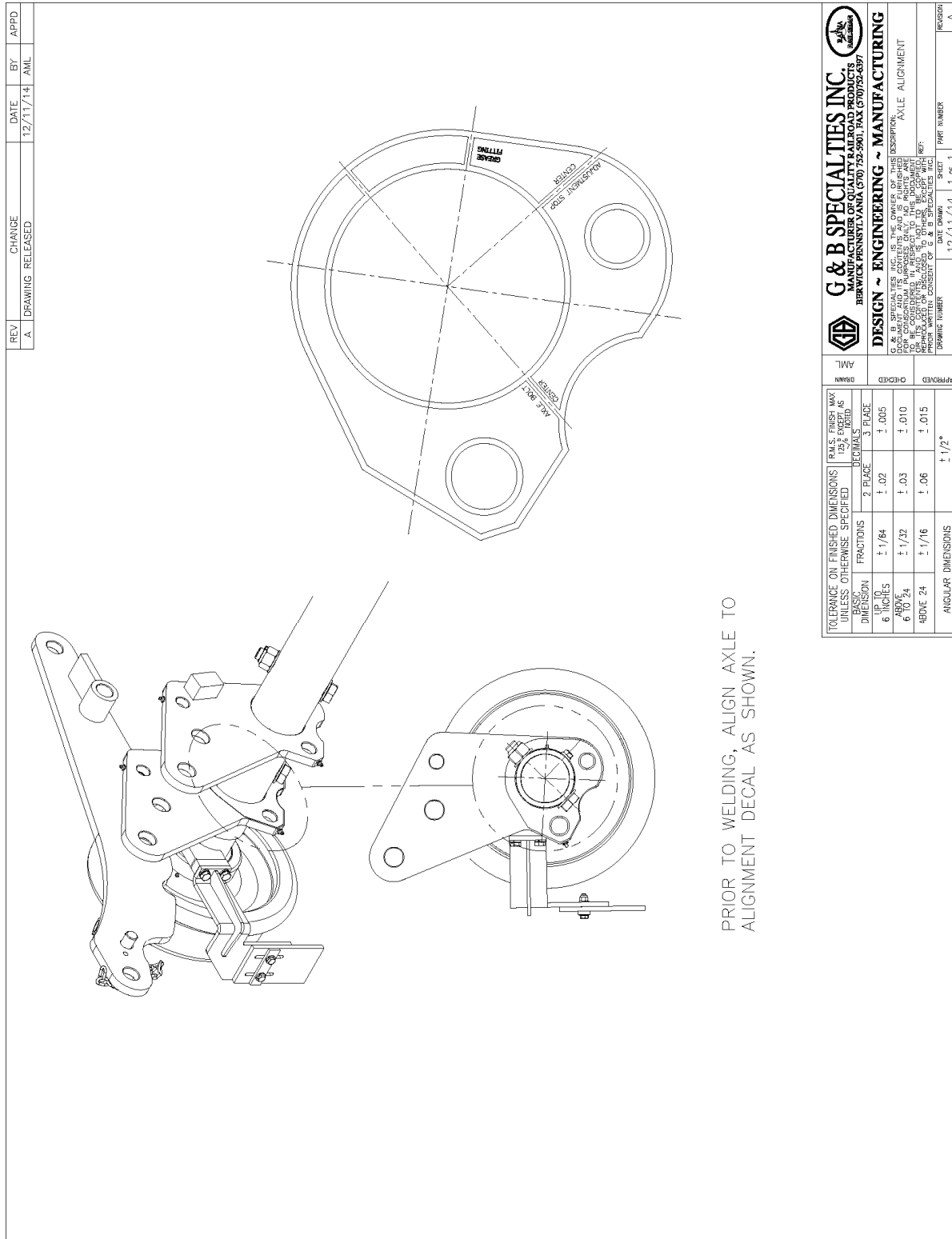
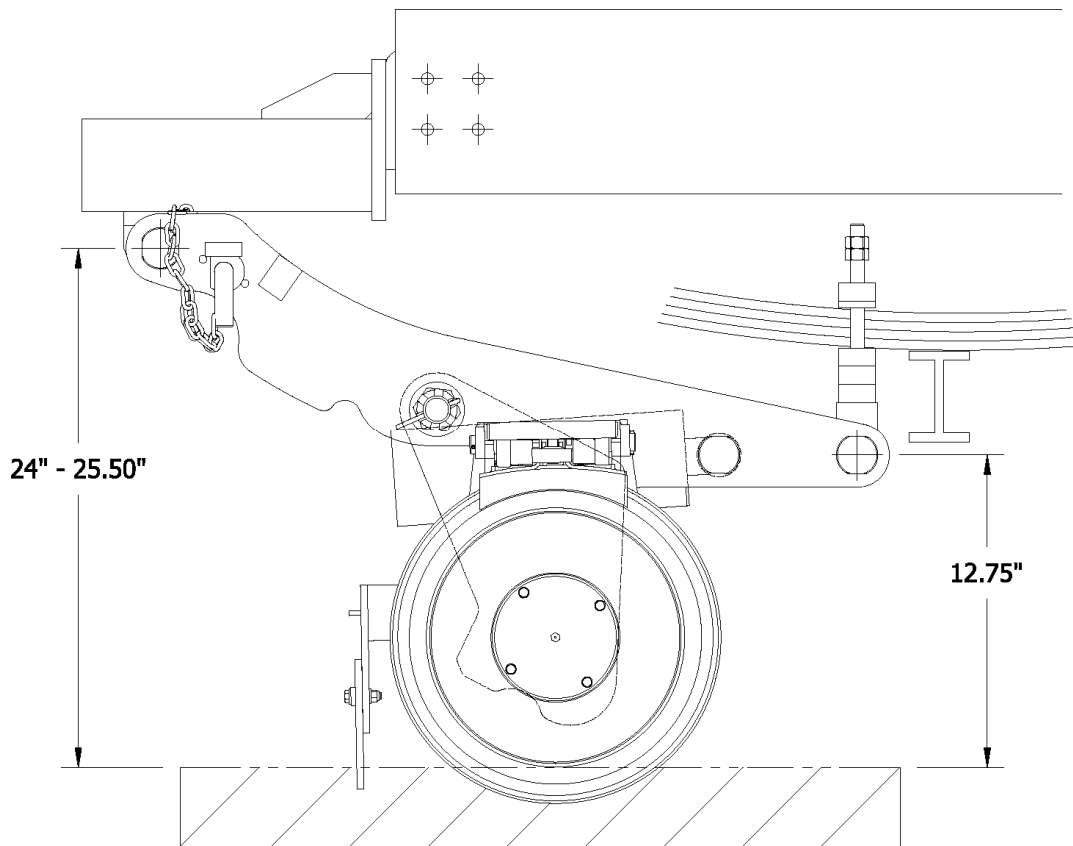


Figure 1.2.1



NOTE:

If the vehicle has been supplied with an integral extended front frame then frame extensions are not necessary. The frame-mounting bracket can be brought up to the extended frame as show. Follow all instructions for finding the proper ground clearance with frame extensions. Solid or load bearing spacers may be required to obtain the proper ground clearance to the front mounting pin.

Clearance Note:

Proper clearance will allow the railgear to move up and down with the truck's front suspension. As the truck tire bumps on the road, the truck spring allows the front axle to move upward. Since the railgear is attached to the spring just forward of the front axle, sufficient clearance must be allowed to prevent interference with other truck parts. The front mounting pin does not move in relation with the truck frame because it is fastened to the frame extension or the truck frame. As the front mounting pin does not move and the rear-mounting pin does, the railgear effectively rotates around the front mounting pin. Therefore, the part of the railgear near the rear mounting pin moves more that the part near the front mounting pin and attention needs to be paid to possible clearance problems that this movement may cause.



FRONT RAILGEAR ALIGNMENT

The front railgear is now ready to be aligned and squared. Three measurements need to be taken in order to insure that everything is properly aligned.

To align to Link Arms, check:

- (1) That they are parallel with each other and the truck frame.

The distance between the Link Arms should be the same at the front mounting pin as it is at the rear-mounting pin. This prevents the railgear from binding during up and down movements. In addition, the distance from the truck frame to the Link Arms should be uniform on both sides of the railgear.

- (2) That they are the same distance forward.

Measure the distance from the front mounting pin to the common point on the truck frame. If the measurements are off, square the railgear by loosening the nuts on spring hanger and move the appropriate distance, then re-tighten.

To check the spring bracket location, check:

- (3) That the spring bracket to truck axle is the same on both sides.

Measure the distance from each spring hanger back to the truck axle. Since the forward position of the Link Arms has been verified in step (2), an off measurement here probably means that the truck axle is miss-aligned and needs to be corrected.

After these alignment checks and after ensuring that there is sufficient clearance, the frame mounting brackets can be tack welded to the frame extensions.

NOTE:

Do not attach welding ground clamp to the railgear wheels. This will cause arcing across the bearings and lead to premature bearing failure.

Raise the front rail wheels just above the floor, making sure there is enough room to slide the front installation rails under the railgear wheels.

Because the railgear axle assembly is not fixed to the pivot arms, the rail wheels will need to be centered. To center, measure the distance from the inside of the rail wheels to the truck frame. If the measurements are off, slide the axle assembly in the appropriate direction and re-check rail wheel to truck frame distances. With the axle tube now centered, tack weld the axle tube to the outer pivot arms.

The front railgear is now ready to be lowered onto the installation rails. When the railgear is completely lowered, the front truck tires should be about 2" off the top of the installation rails. If the railgear will not lift the truck, check that the system pressure relief valve is set high enough that the front hydraulic control valve relief is set high enough. Check that the cylinders are not cross plumbed. As a final review, recheck the center alignment of the railgear wheels to the truck frame. If it is off, break the tacks between the outer pivot arms and the axle tube, move the axle tube to the correct position and retack.

!CAUTION!

This railgear unit is shipped with an adjustable axle (Std/Brd Gg) as standard equipment. It is important that the axle be rotated to the proper location, as indicated by the alignment decal, prior to any welding.

FINAL FRONT INSTALLATION

Ensure that the hex nuts on the spring hangers are tight and secured with Loctite Red. Remove the excess stud length from both spring hangers. Leave approx 1" of threaded above hex nuts. If these studs are not trimmed, they may cause a clearance problem with other parts of the truck.

- Weld inboard side of outside pivot arms to axle tube all the way around.
- Fully weld, on all sides, front mounting blocks / cross tubes to truck frame.
- If shims were required, fully weld shims into place on all sides for each shim location.

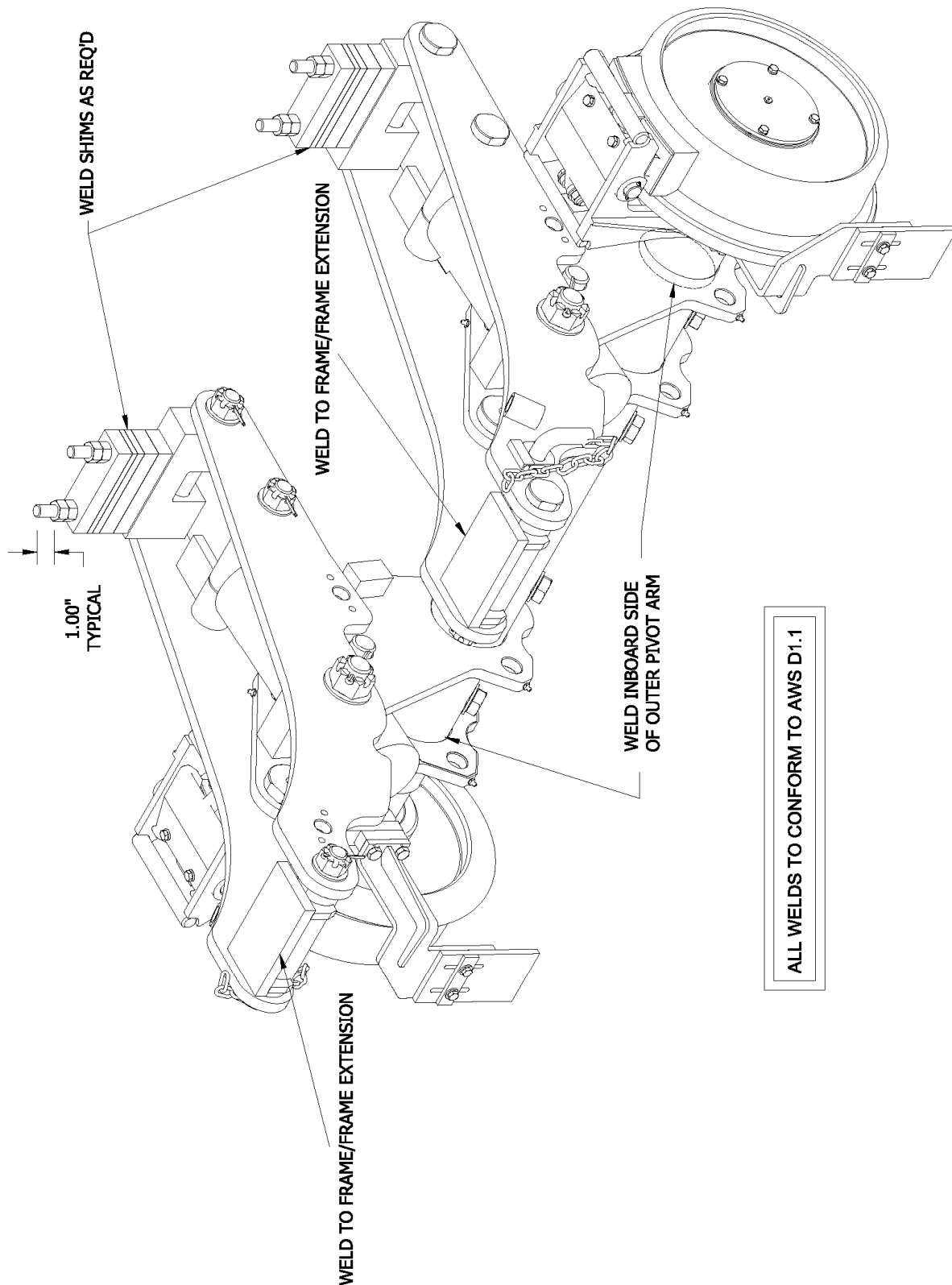


Figure 1.4



HYDRAULICS

New Hydraulic System

If G&B Specialties' railgear is to be the only hydraulic components and there is not an existing hydraulic system, equip the truck with a 5 to 7 GPM, 2500-PSI pump, Suction Filter and a 5-gallon reservoir. The tank should have a minimum of one suction port, one return port and a tank filler-breather. Fill the tank with UNAX Oil Rx 46 or equivalent hydraulic oil.

Route a pressure line from the pump to the center of the front bumper. The in port of the hydraulic control valve is connected to the pressure line. The outlet port of the front hydraulic control valve is routed to the inlet port of the rear hydraulic control valve. The outlet port of the rear hydraulic control valve is connected to the return port in the hydraulic reservoir. The remaining ports on the front valve are connected to the front cylinders. The bottoms of the both cylinders connect, with a tee at the valve, to the same valve port. Check that proper hose clearance is obtained to avoid chafing and shield hoses if necessary.

!WARNING!

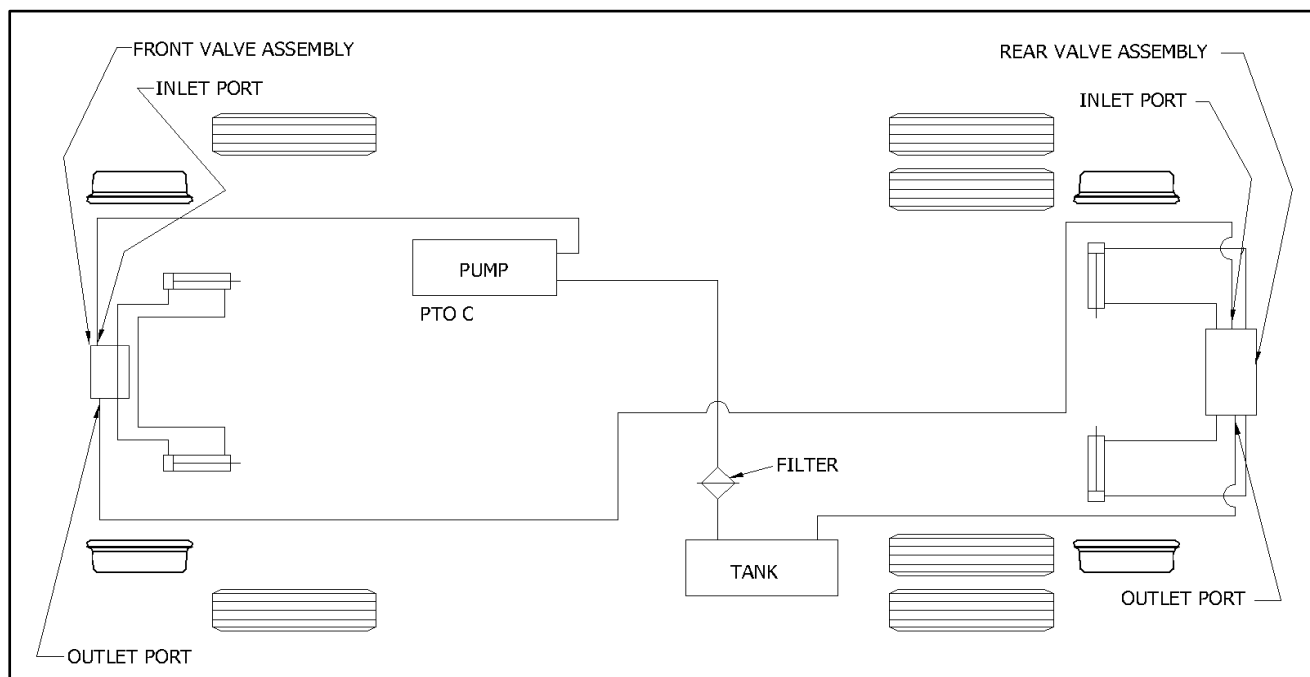
Be certain that front and rear valves are plumbed correctly. Each valve port is marked "INLET" or "OUTLET". Plumbing valve backwards will result in an unsafe condition, possible injury and/or damage.

Existing Hydraulic System

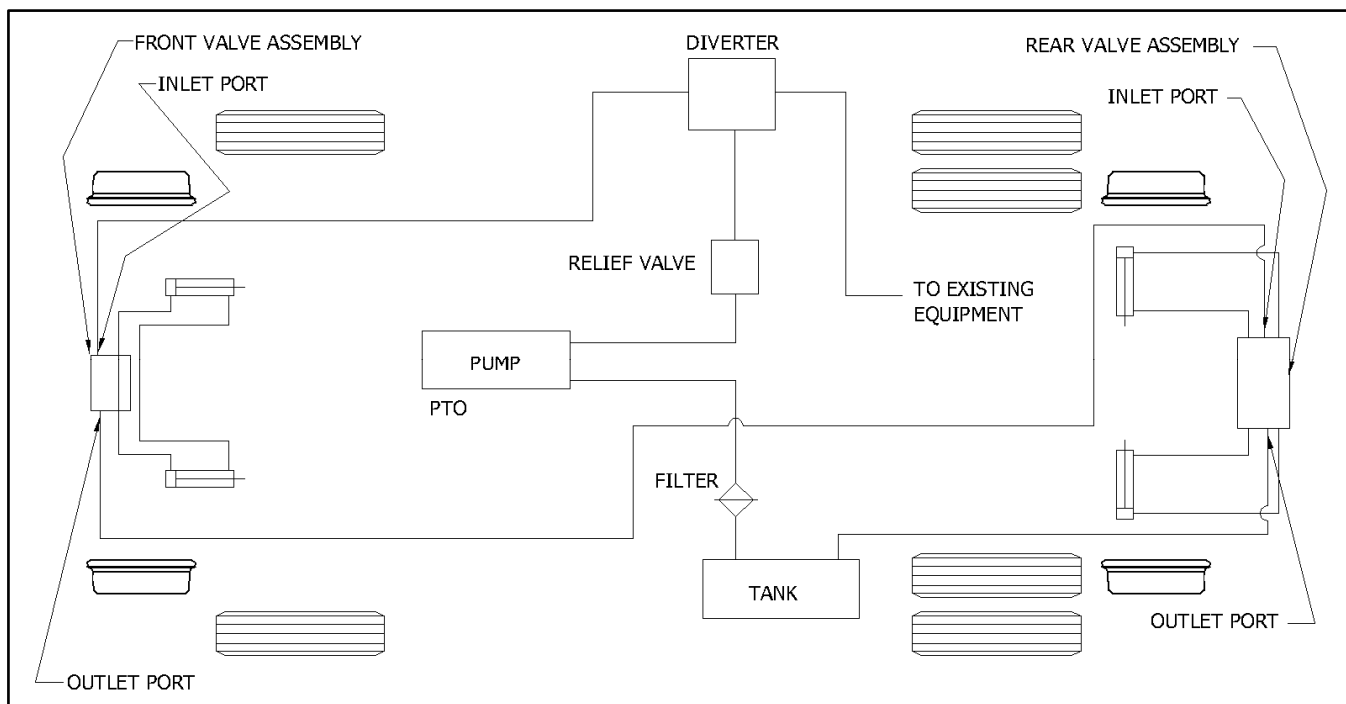
If the truck has an existing hydraulic system, install an appropriate sized diverter valve in the pressure line after the pump and before any existing equipment valves. One-outlet routes to the existing valves and the other to the center of the front bumper. The in port of the hydraulic control valve is connected to the pressure line. The outlet port of the front hydraulic system valve is routed to the inlet port of the rear hydraulic control valve. The outlet port of the rear hydraulic control valve is connected to the return port in the hydraulic reservoir. The remaining ports on the front valve are connected to the front cylinders. The bottoms of both cylinders connect, with a tee at the valve, to the same valve port. Check that proper hose clearance is obtained to avoid chafing and shield hoses if necessary. Directly after the pump, it is good practice to install a relief valve, set for the system pressure to provide overpressure protection for the pump.

NOTE

Railgear valves have built in pressure reliefs and the hydraulic working pressure of the system is 2000 PSI. The front valve is preset to 2000 PSI at the relief and the rear valve is preset to 1500 PSI. All other components supplied by G&B Specialties are rated 2500 PSI. Care must be exercised that the relief pressures at the valves don't exceed this. To ensure proper system pressure, check with a gauge



New Hydraulic Installation (figure 2.0)



Existing Hydraulic Installation (figure 2.1)

RAILSWEEP INSTALLATION

Units with Brakes

On units equipped with brakes, front and/or rear, the rail sweeps attach to the brake housing as shown in front brake kit installation manual.

Units without Brakes

On units without brakes, the front rail sweeps are supplied loose with the unit and need to be welded to the front railgear axle as shown.

Rail Sweep Adjustment

Adjust the rubber sweep by loosening the bolts securing the sweep plate to the rail sweep bracket. Lower or raise the rubber sweep as required so that the bottom of the sweep is just above the top of the rail head. Tighten sweep plate bolts.

The sweeps should be adjusted with the front railgear unit in the fully lowered rail position with the sweep mounting bracket parallel to the running surface of the rail.

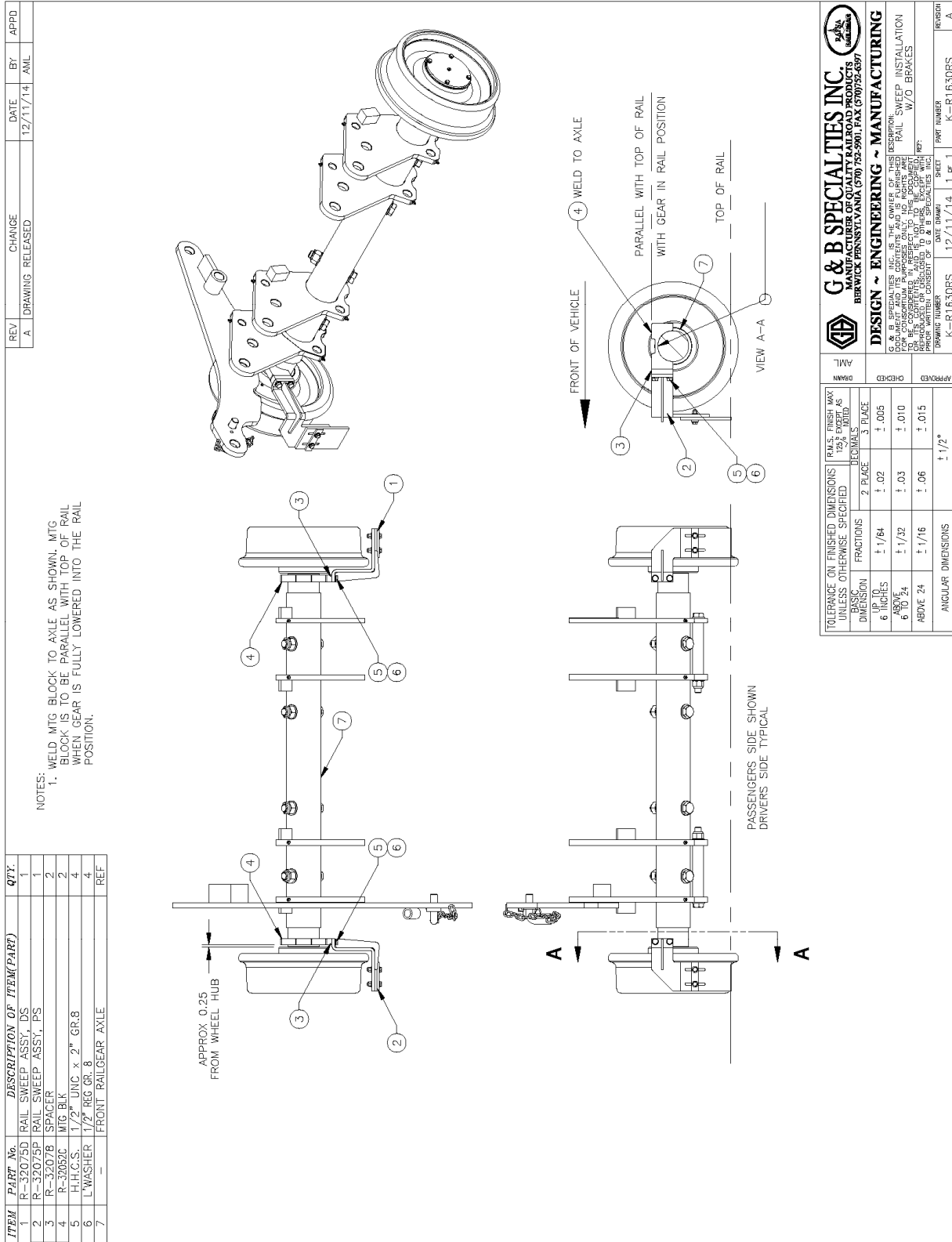


Figure 3.1



2.0 OPERATION

DAILY INSPECTION

Daily Inspection

Check to be sure that the railgear is in good operating condition.

Inspections should include:

All air and hydraulic fittings

Brake operation

Rail wheel wear

All air and hydraulic hoses

Railgear parts for damage

Hydraulic fluid level

PLACING TRUCK ON RAILS

Lower Rear Guide Wheels

1. If the Railgear has brakes, turn brake switch on.
2. Engage the hydraulic system for the railgear unit.
3. Remove the safety pin-off pins.
4. Lower wheels and engage rail.
5. You can use the valve handles independently to lower one side at a time to engage the rail, at which point you can then lower the opposite side. This will cause your vehicle to side-shift and align itself with the rail.
6. When both wheels are fully down and properly engaging rail, replace safety pin-off pins.

4.1.2 Lower Front Guide Wheels

7. If necessary, position the truck to line up the front guide-wheels with the rail.
8. Ensure that the hydraulic system for the railgear unit is engaged.
9. Check and make sure that the front guide wheels line up with the rail.
10. Remove lock pin.
11. Push valve handle to lower wheels and engage rail.
12. If equipped, ensure lock for rail position is engaged.

NOTE:

As a standard, the front railgear unit is designed to operate rotated over center and does not require a railgear lock when in rail position. Depending on options, the front railgear unit may have an optional lock in the rail position. If this is the case ensure that the lock is engaged when in the rail position

REMOVING TRUCK FROM RAIL

13. Engage railgear hydraulic system.
14. Disengage lock pins (if applicable) for the railgear unit being operated.
15. Lift both sets of Railgear (there is no preference for removal order).
16. Ensure all lock pins are engaged on both units in highway position.
17. Disengage the switch that controls the Railgear brakes (if applicable).
18. Disengage the railgear hydraulic system.

WHILE ON RAIL

Do not exceed posted track speed limit, and at no time exceed 30 MPH while on the track

- Be aware that some hi-rail gear is insulated, and will not operate the crossing circuits.
- It is the responsibility of the operator to know if your hi-rail equipped vehicle has insulated or non- insulated wheels.
- All railroad rules and safety guidelines should be observed.
- Reduce speed while in reverse and/or at all crossings, curves, branch lines, switches and frogs.
- Traction is reduced on the track. Tire damage may result from spinning wheels on track.
- Braking distance is increased on the track. Do not slide tires or guide wheels on track.
- Do not exceed the maximum rated capacity of the equipment.

3.0 MAINTENANCE

MAINTENANCE INTERVALS

If your hi-rail vehicle is high-use or operated under extreme conditions, the levels of inspections listed below may need to be performed more frequently than stated.

Daily

- Visually inspect for hydraulic fluid leaks
- Visually inspect all hoses for wear or damage
- Visually inspect railgear units for damaged or worn parts
- Check and make sure that all threaded fasteners are secured
- Inspect wheel flanges for excessive wear
- Ensure that the railgear unit hydraulic system and brakes (if equipped) are in good operating condition

Weekly

Perform standard daily inspection points as listed above, and then check the following:

- Grease and lubricate all grease fittings on front and rear railgear and guide wheels
- Check level of hydraulic oil and all other fluids.
- Check air pressure in tires and inflate to proper inflation pressure (if required).

Bi-annually

Perform standard daily and weekly inspection points as listed above, and then check the following:

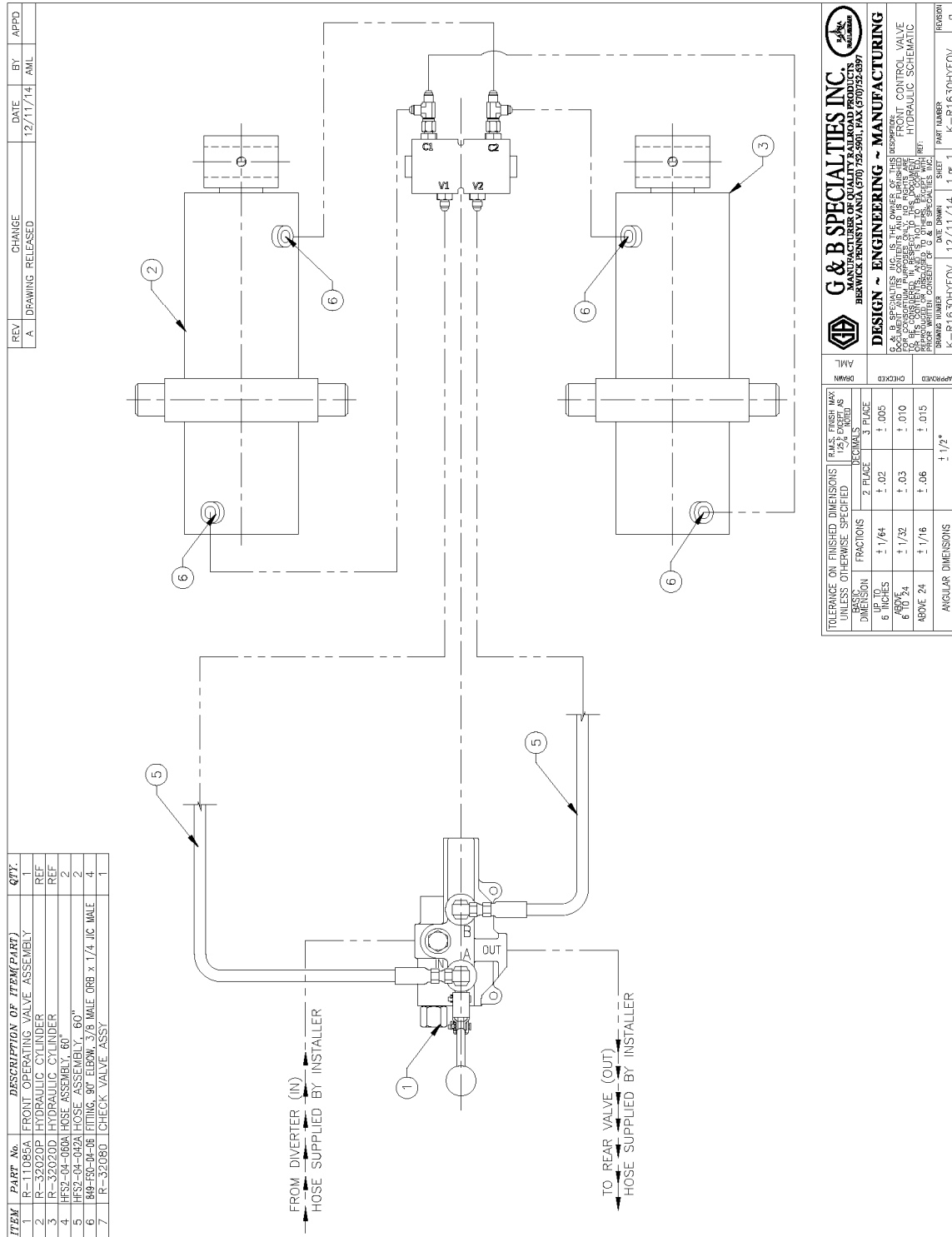
- Remove the hubcaps from the rail wheels and inspect for deterioration or loss of wheel bearing grease
- Clean the strainer / filter in the hydraulic power unit tank
- Rail test for proper traction and adjust as appropriate
- Rail test for proper braking and adjust as appropriate
- Check Railgear alignment

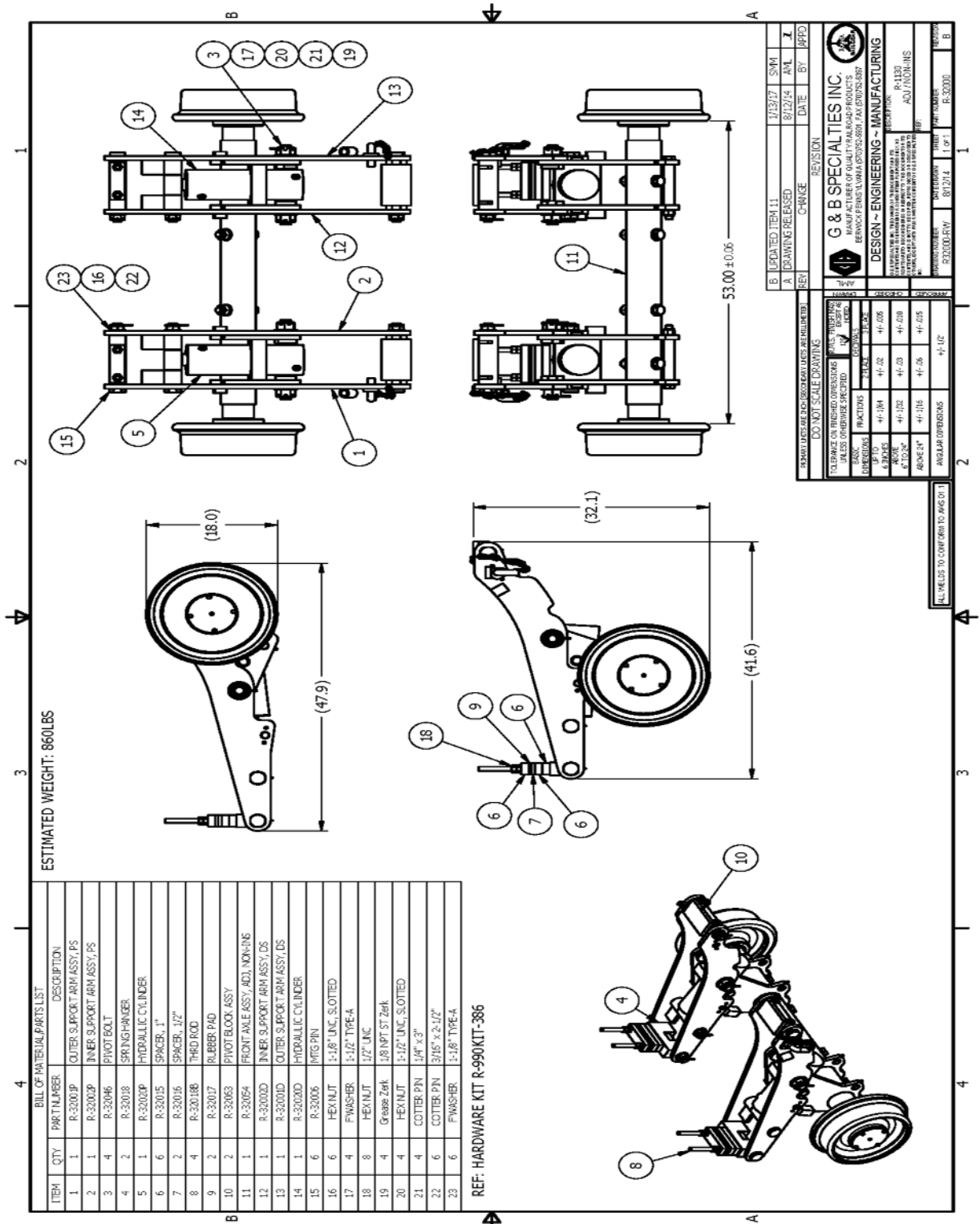
LUBRICATION

Grease fittings are provided at all railgear lubrication points. The recommended lubricant for all lubrication points on this railgear is ESSO LONAX EP2 grease or equivalent. In cold weather, -20F or colder, SHELL DARINA XL102 or equivalent may be used.

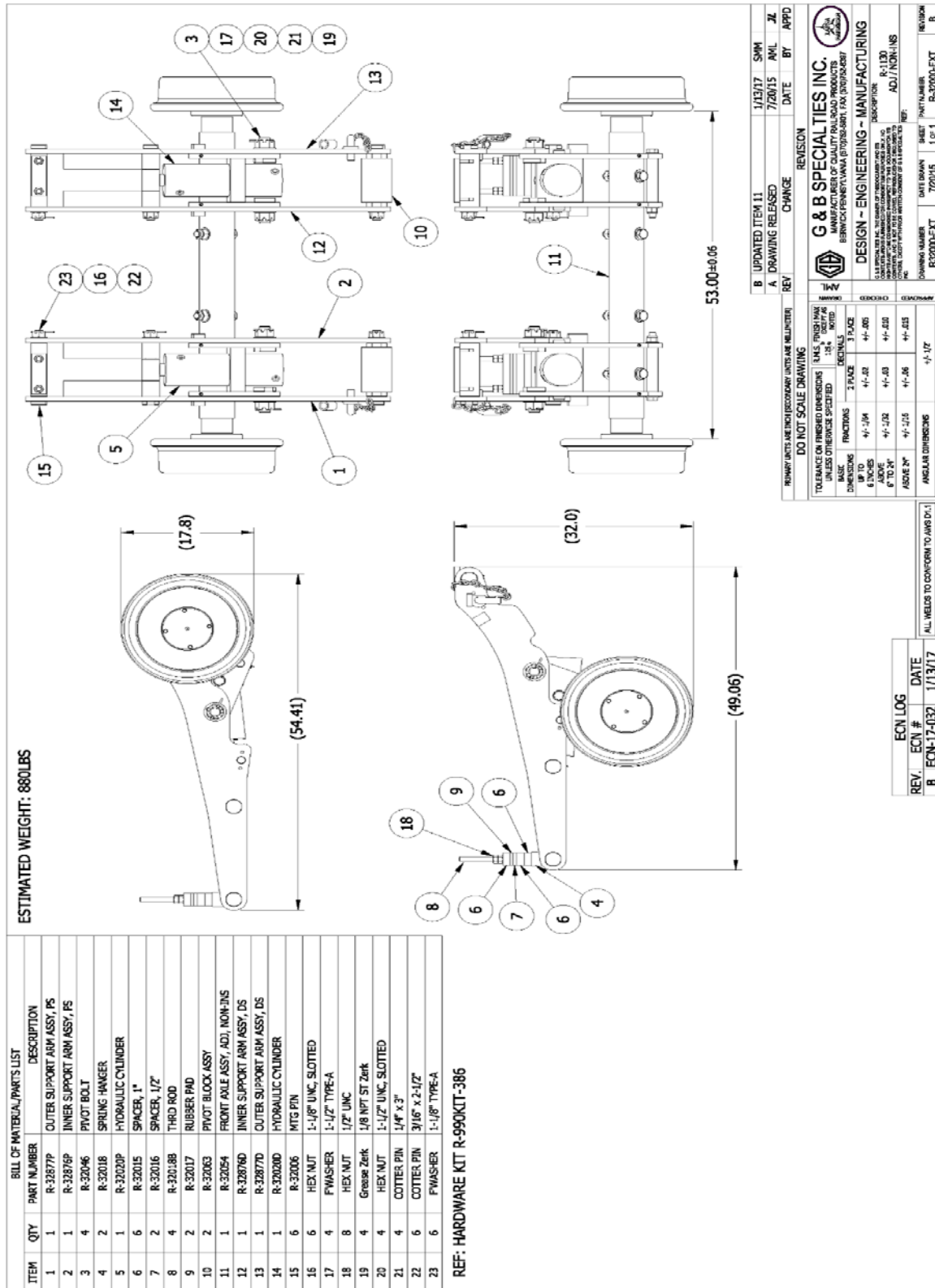
4.0 PARTS/SCHEMATICS

STANDARD/BROAD GAUGE

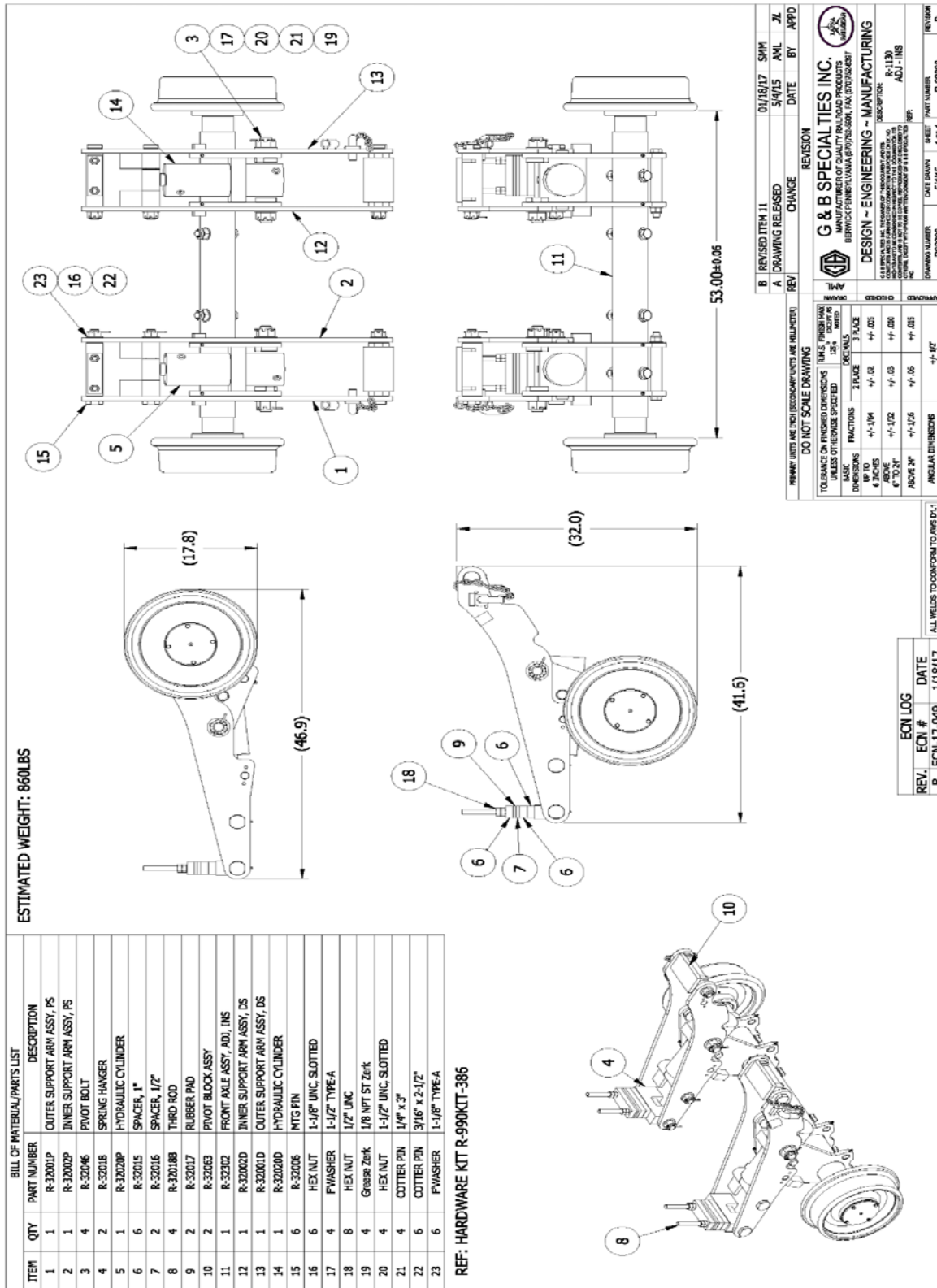


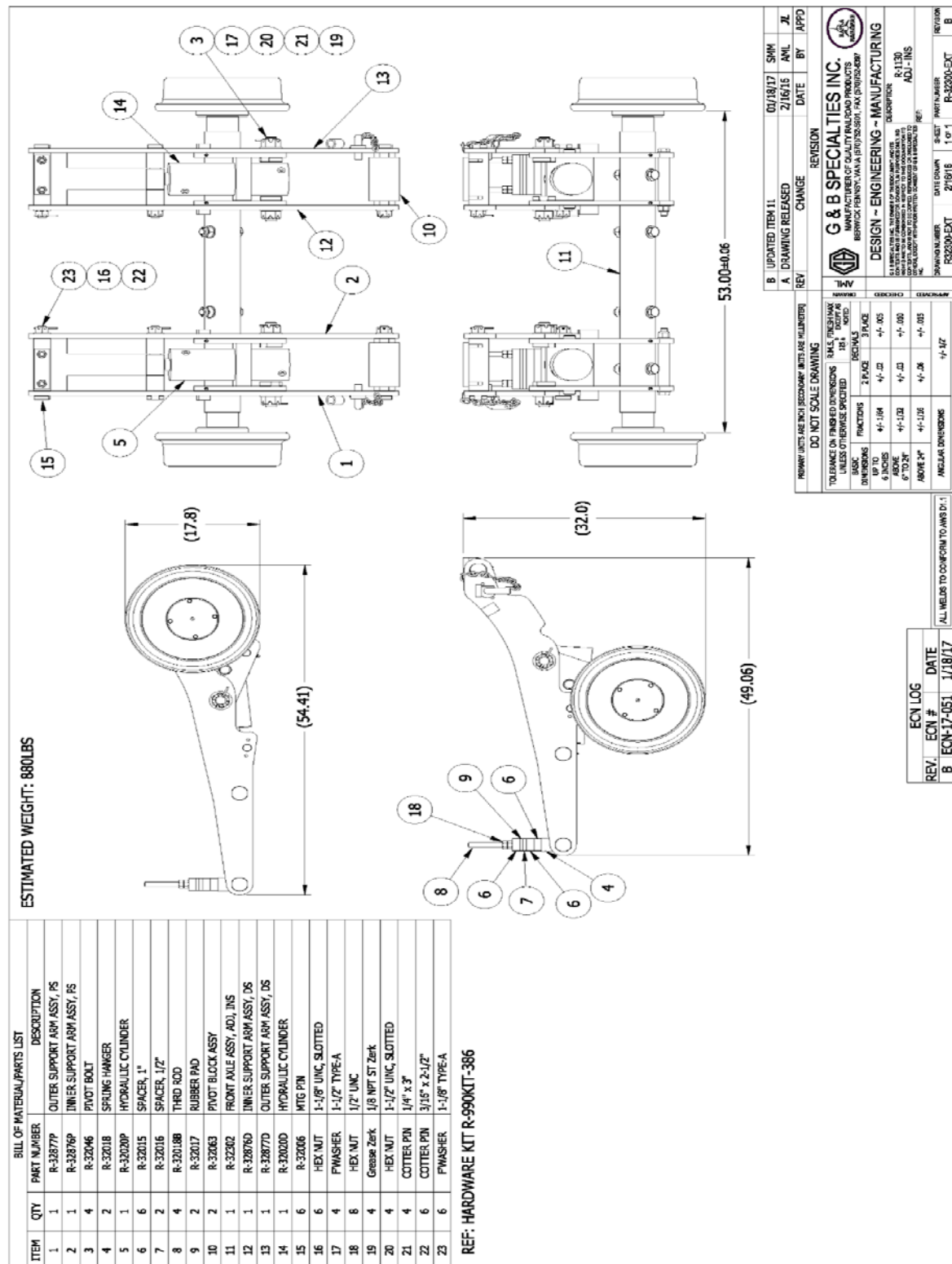


R-32000 (NON-INSULATED ASSY)

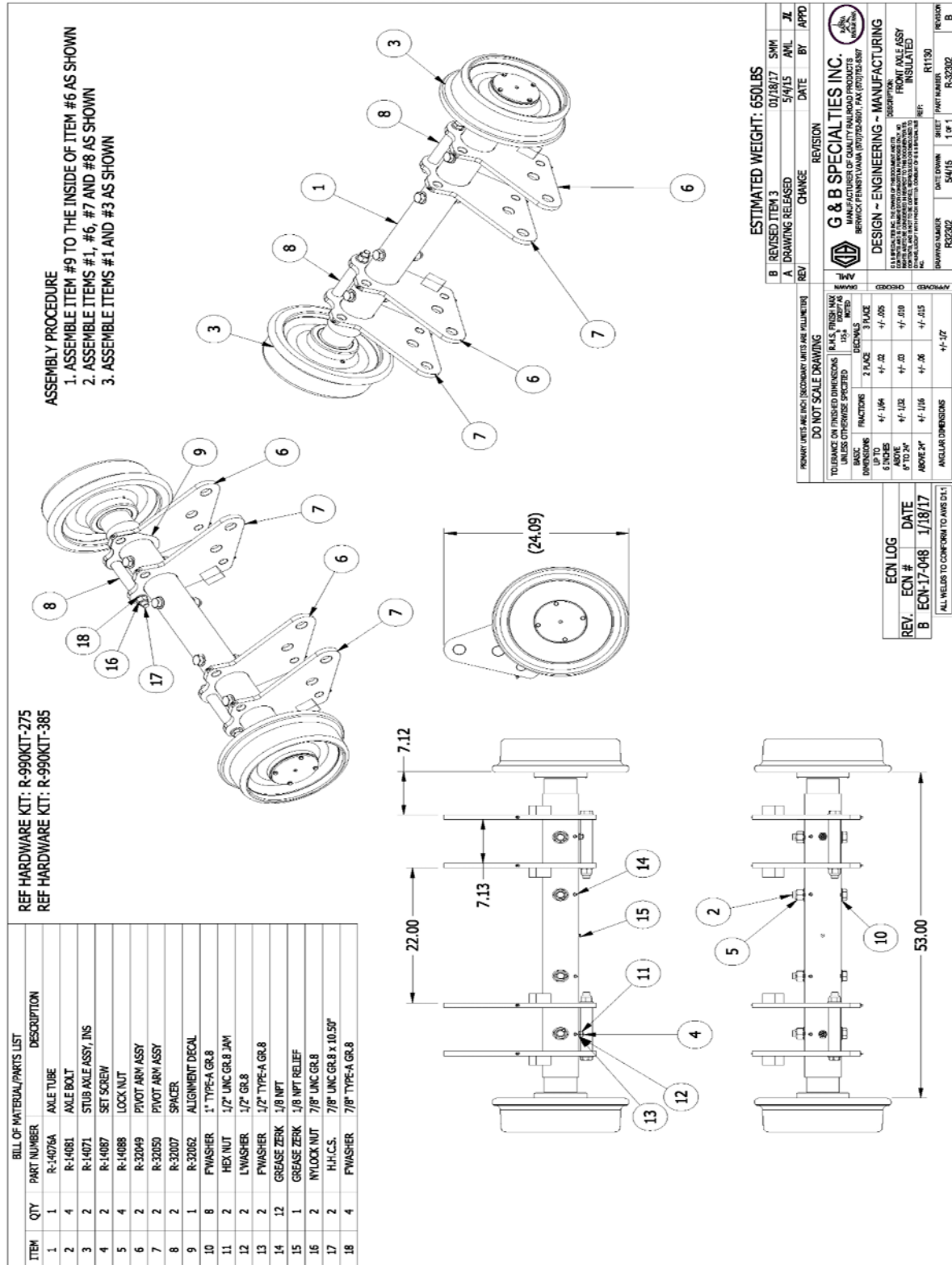


R-32000-EXT (NON-INSULATED EXTENDED ARM ASSY)



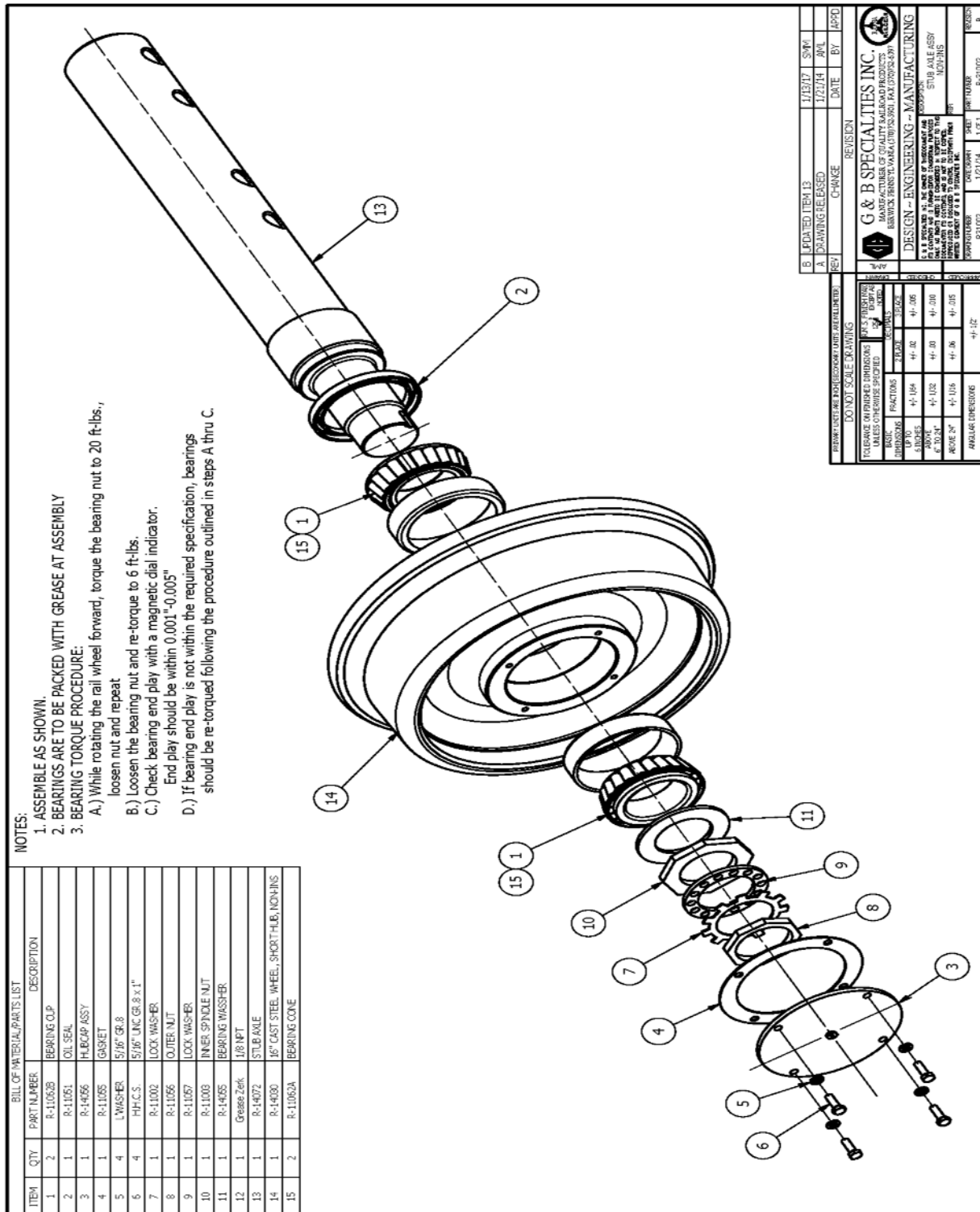


R-32300-EXT (INSULATED EXTENDED ARM ASSY)

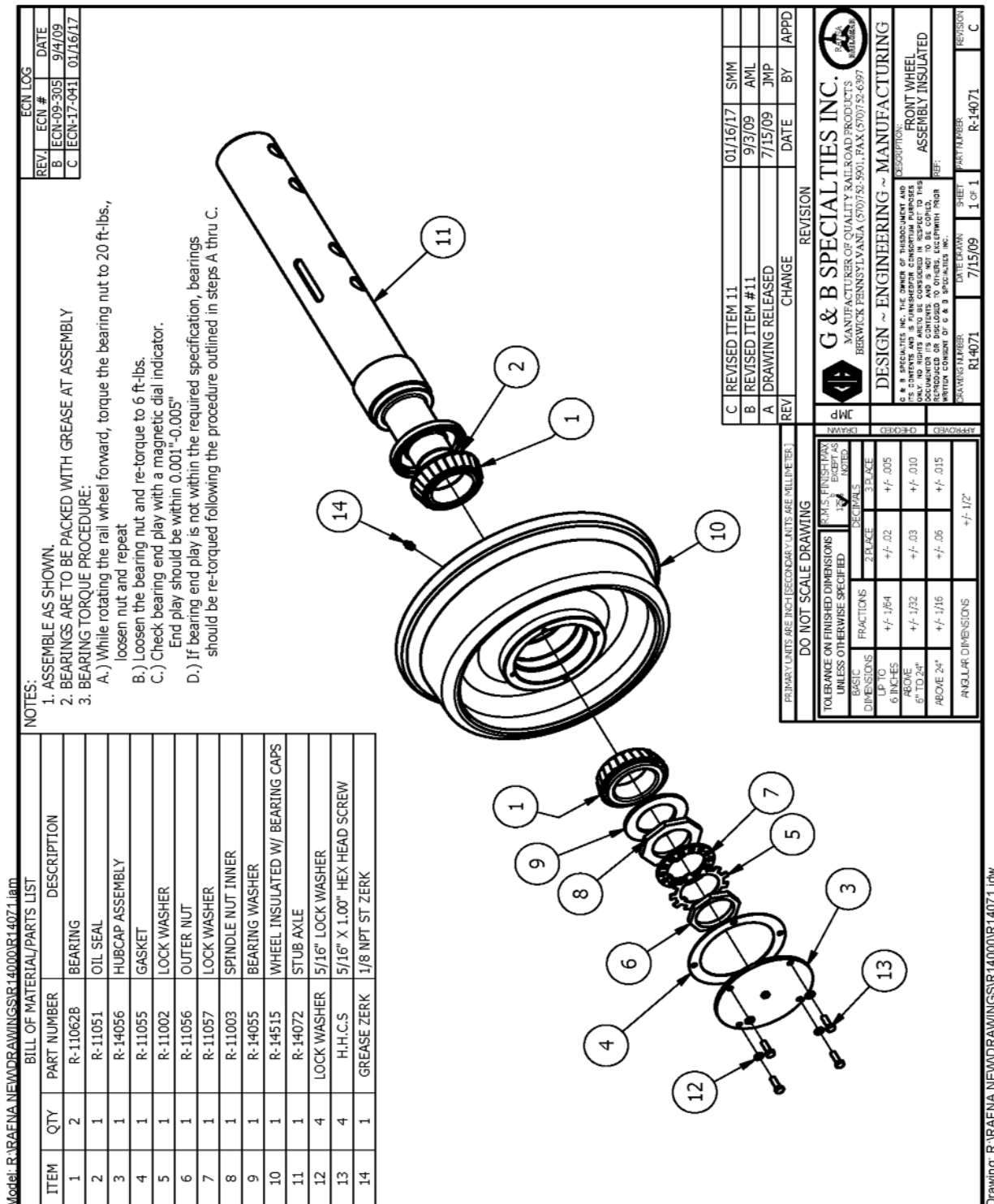


R-32054 (NON-INSULATED AXLE ASSY)

R-32302 (INSULATED AXLE ASSY)

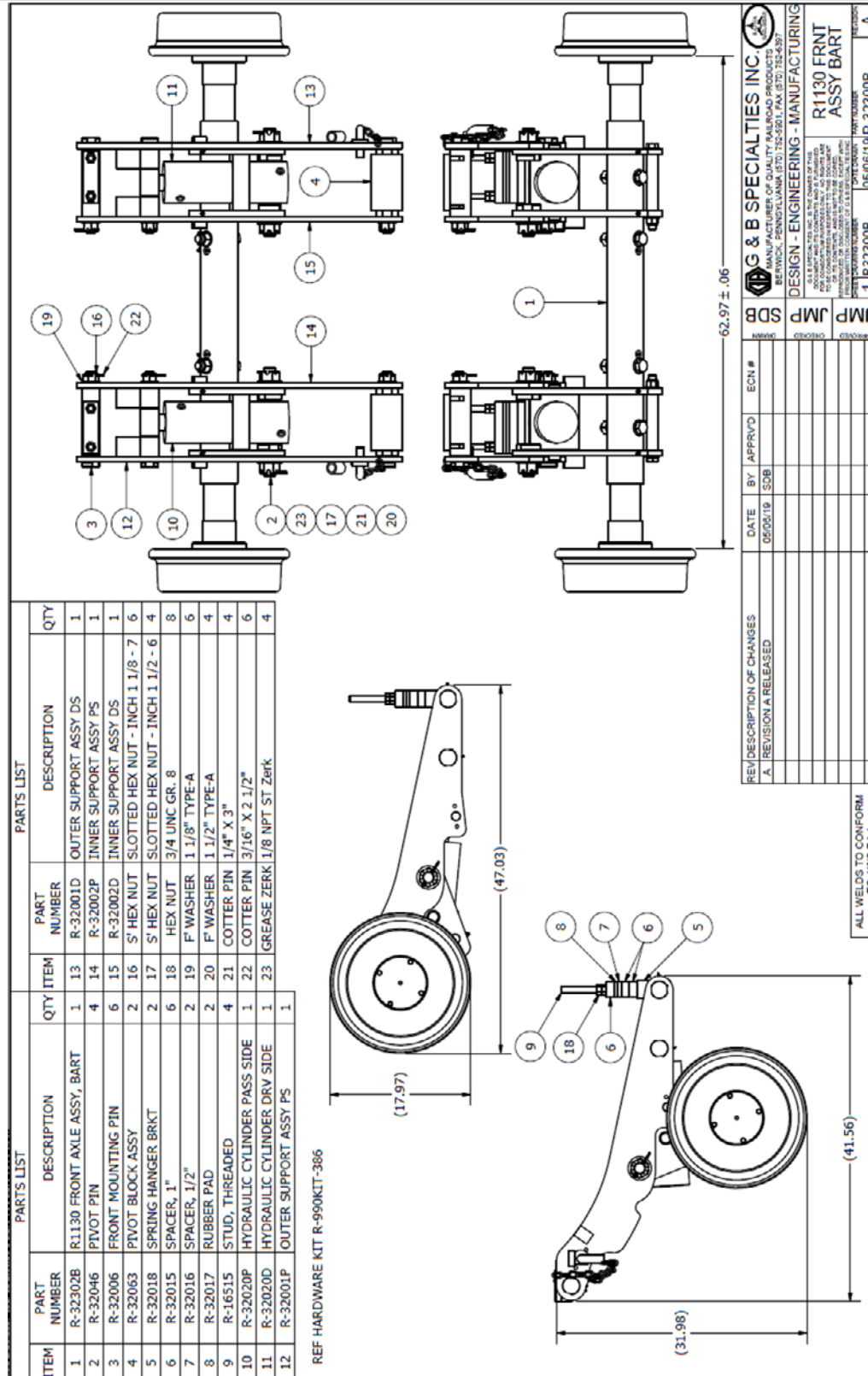


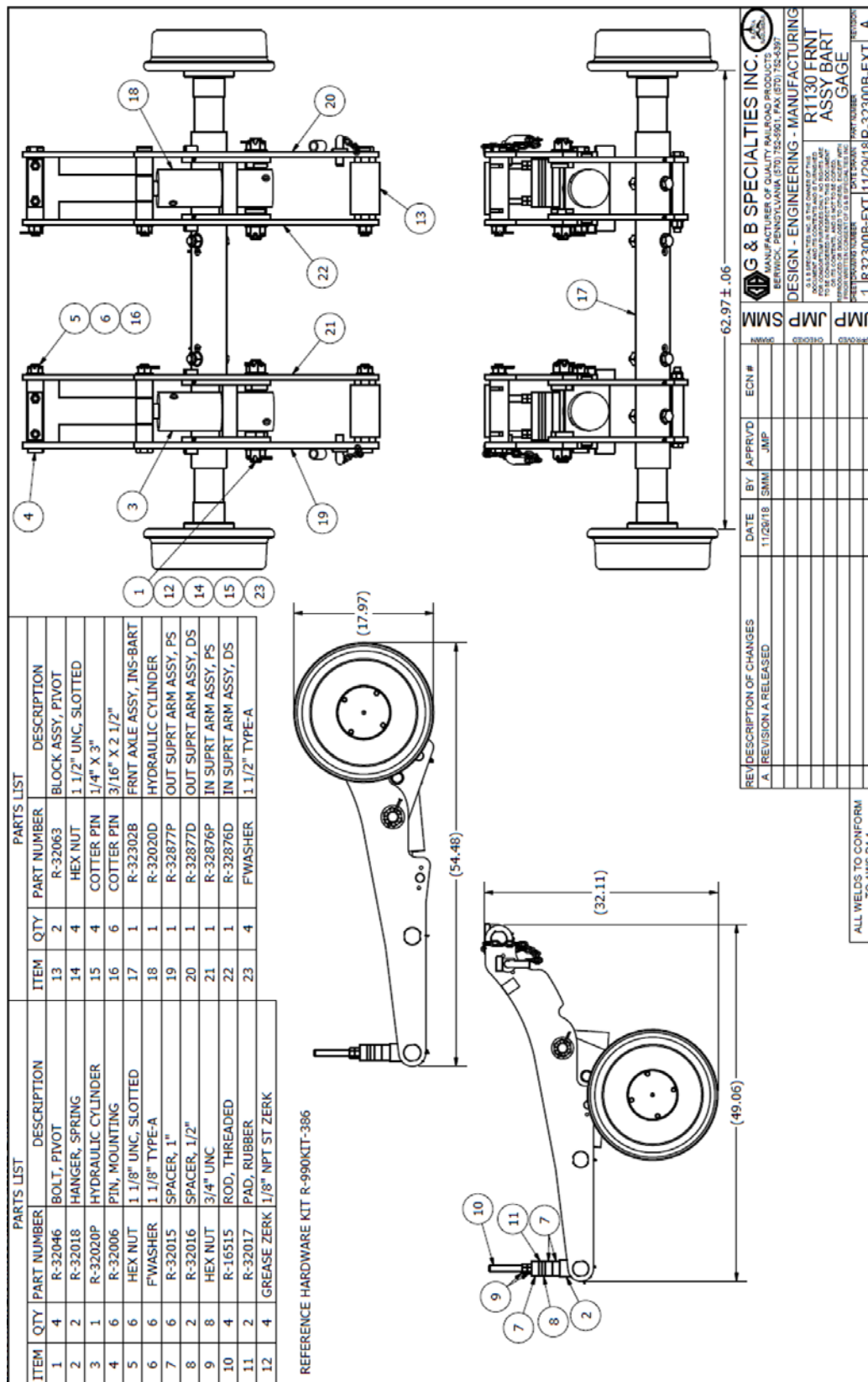
R-31002 (NON-INSULATED STUB AXLE ASSY)

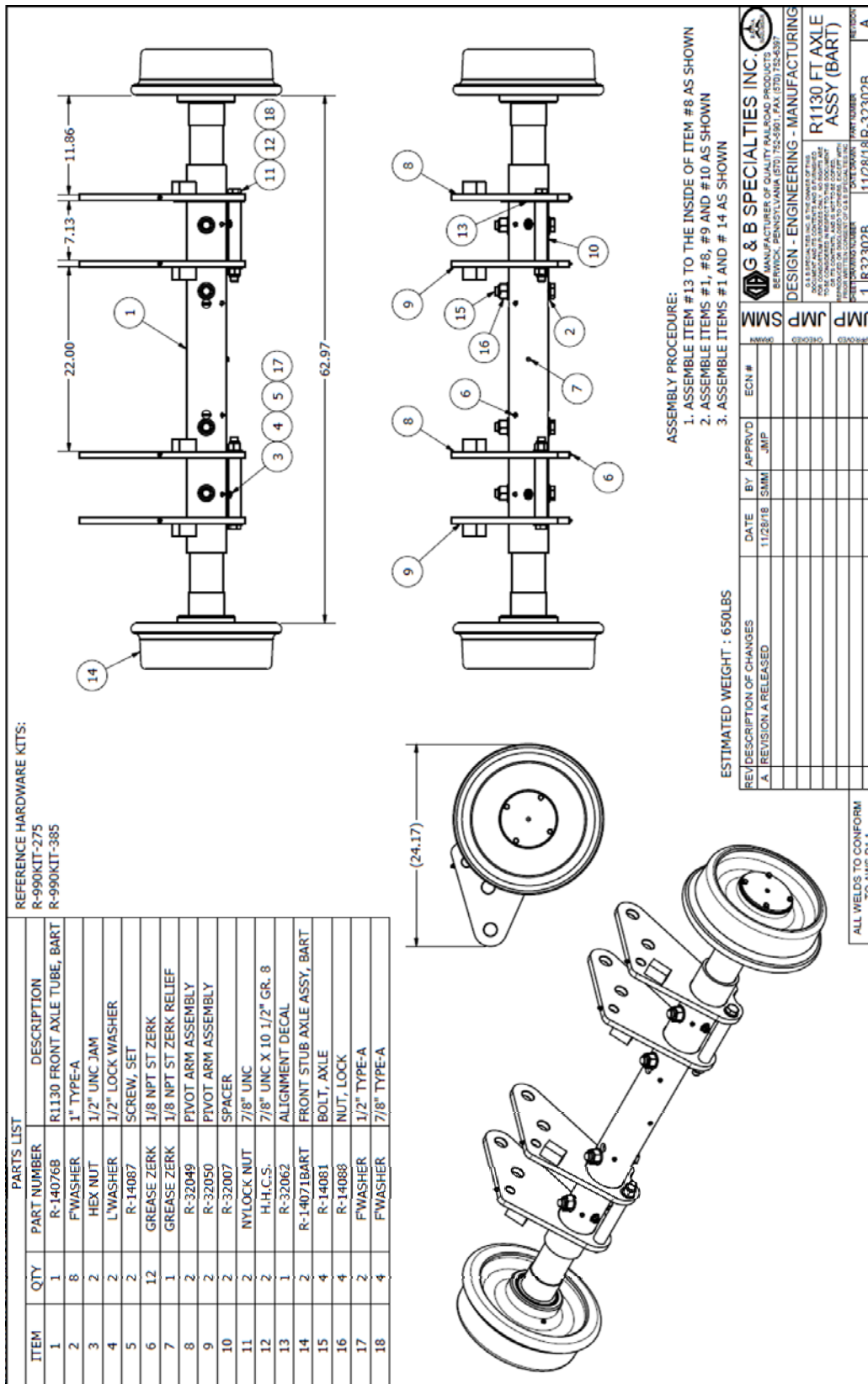


R-14071 (INSULATED STUB AXLE ASSY)

BART GAUGE









NOTES:

1. ALL BEARINGS MUST BE PACKED WITH GREASE ENSURING COMPLETE COVERAGE
2. INSTALL BEARING INTO THE FLANGE (INBOARD) SIDE OF WHEEL
3. PACK WITH GREASE, COMPLETELY COATING BACK SIDE OF BEARING
4. INSTALL GREASE SEAL BY TAPPING GENTLY WITH HAMMER, UNTIL FLUSH WITH HUB (DO NOT REUSE GREASE SEALS)
5. INSTALL WHEEL ONTO AXLE
6. PACK GREASE INTO SPACE BETWEEN BEARINGS AND AXLE UNTIL FLUSH WITH OUTBOARD RACE
7. INSERT BEARING INTO OUTBOARD SIDE OF WHEEL
8. INSTALL INNER AXLE NUT
9. SET END PLAY BY DOING THE FOLLOWING:
 - A. TIGHTEN INNER AXLE NUT TO 200 FT-LBS WHILE ROTATING WHEEL
 - B. LOOSEN INNER AXLE NUT ONE FULL TURN
 - C. RETIGHTEN INNER AXLE NUT TO 50 FT-LBS WHILE ROTATING WHEEL
 - D. LOOSEN INNER AXLE NUT BY 30° (HALF A WRENCH FLAT).
10. INSTALL LOCK WASHER ENSURING THAT PIN IN AXLE NUT IS ALIGNED WITH A HOLE IN THE LOCK WASHER
11. INSTALL TABBED LOCK WASHER (DO NOT REUSE LOCK WASHERS)
12. INSTALL OUTER AXLE NUT, TORQUE TO 100 FT-LBS
13. VERIFY END PLAY OF WHEEL IS WITHIN .001" - .005"
14. BEND THREE TABS OF LOCK WASHER UPWARD TO PREVENT NUT ROTATION
15. FILL OUTBOARD CAVITY WITH GREASE
16. INSTALL HUBCAP AND SECURE WITH PROVIDED HARDWARE

HARDWARE KIT: R-990KIT-274

PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	QTY
1	R-110628	BEARING	2
2	R-11051	OIL SEAL	1
3	R-14056	HUBCAP ASSEMBLY	1
4	R-11055	GASKET	1
5	LOCK WASHER	WASHER, 5/16" LOCK REG Z/Y	4
6	H.H.C.S.	SCREW, 5/16" X 1.00" UNC Z/Y	4
7	R-11002	TABBED LOCK WASHER	1
8	R-11056	AXLE NUT, OUTER	1
9	R-11057	AXLE LOCK WASHER	1
10	R-11003	AXLE NUT, INNER	1
11	R-14055	BEARING WASHER	1
12	GREASE ZERK	1/8" NPT ST ZERK	1
13	R-14515	WHEEL INSULATED W/ RACES	1
14	R-140728	STUB AXLE, FRONT-BART	1

WABTEC
MANUFACTURER OF QUALITY RAILROAD EQUIPMENT
SERVING THE RAILROAD INDUSTRY FOR OVER 50 YEARS
DESIGN - ENGINEERING - MANUFACTURING
FRONT STUB AXLE ASSY (BART)

REVISIONS

REV	DESCRIPTION OF CHANGES	DATE	BY	APPROVED	ECN #
A	REVISION A RELEASED	11/28/18	SM	JMP	ECN-18-305
B	REVISION B RELEASED	05/07/19	SOB	JMP	

ALL WELDS TO CONFORM TO AWS D1.1



MISCELLANEOUS

BILL OF MATERIAL / PARTS LIST			ECN LOG	
ITEM	QTY	PART NUMBER	REV	DATE
1	1	R-2411B	B	02/06/15
2	1	R-5561A		
3	1	R-32079D		
4	4	FWASHER		
5	2	H.H.C.S.		
6	2	NYLOCK NUT		

REF: R-990KIT-395

R-32075D

DO NOT SCALE DRAWING		TOLERANCE ON FINISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED		DIMENSIONS FINISH MAX UNLESS OTHERWISE SPECIFIED	
BASIC DIMENSIONS	FRACTIONS	DECIMALS	INCHES	INCHES	INCHES
UP TO 6 INCHES	+/- .164	+/- .02	+/- .005		
6 INCHES TO 24 INCHES	+/- .132	+/- .03	+/- .010		
ABOVE 24 INCHES	+/- .116	+/- .06	+/- .015		
ANGULAR DIMENSIONS			+/- 1/2°		

PRIMARY UNITS ARE INCH [SECONDARY UNITS ARE MILLIMETER]

G & B SPECIALTIES INC.		REVISION	
REV	CHANGE	DATE	BY
B	REVISED SWEEP TO R-2411B	02/06/15	JMP
A	DRAWING RELEASED	12/8/14	AML
			APPD

ALL WELDS TO CONFORM TO AWS D1.1

G & B SPECIALTIES INC.		REVISION	
DRAWING NUMBER	DATE DRAWN	SHEET	PART NUMBER
R32075D	12/8/14	1 of 1	R-32075D

DESIGN ~ ENGINEERING ~ MANUFACTURING

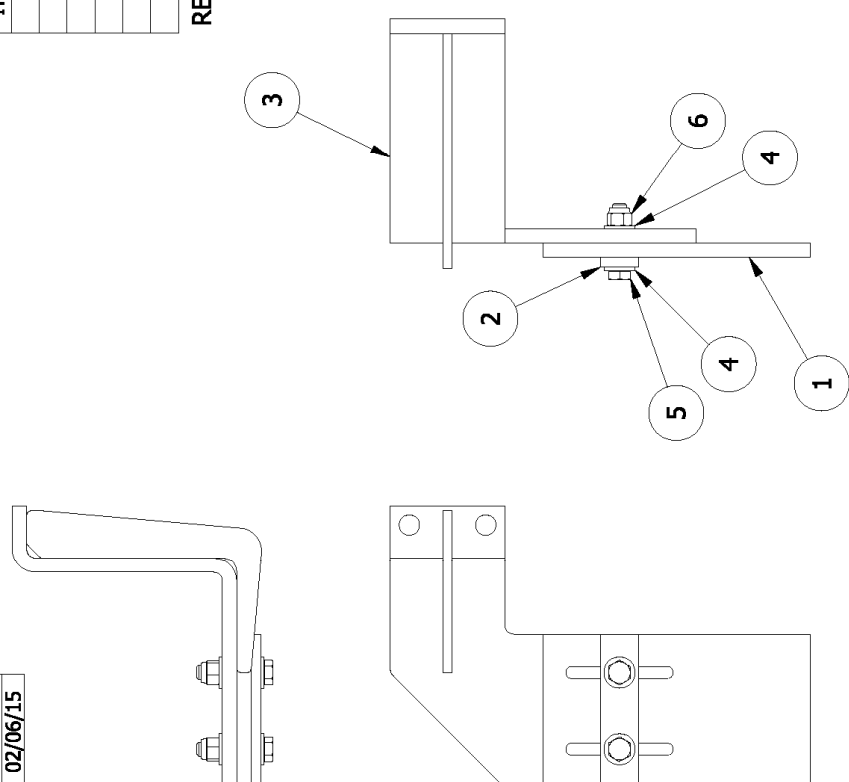
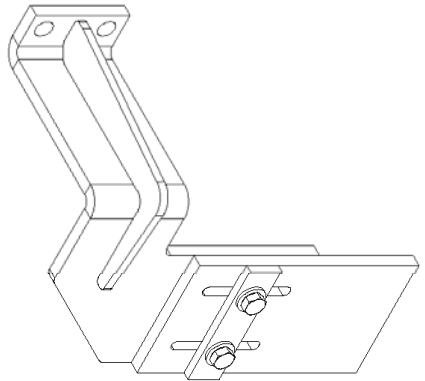
RAILSWEEP ASSY
DRIVERS SIDE

0.8 B SPECIALTIES INC. THE OWNER OF THE DOCUMENT AND ITS CONTENTS SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED HEREIN. NO WARRANTIES ARE MADE BY 0.8 B SPECIALTIES INC. OTHER THAN AS STATED HEREIN. THE INFORMATION IS PROVIDED AS IS WITHOUT WARRANTY OF ANY KIND, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE USER SHALL BE RESPONSIBLE FOR THE PROPER USE OF THE INFORMATION PROVIDED HEREIN.

ECN LOG		REV. #		DATE	
B		ECN-15-038		02/06/15	

BILL OF MATERIAL/PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	R-2411B	RUBBER SWEEP
2	1	R-5561A	SWEEPER PLATE
3	1	R-32079P	BRKT ASSY, DS
4	4	FWASHER	3/8" GR.8
5	2	H.H.C.S.	3/8" UNC GR.8 x 1.75"
6	2	NYLOCK NUT	3/8" UNC GR.8



REF: R-990KIT-395

DO NOT SCALE DRAWING			
PRIMARY UNITS ARE INCH [SECONDARY UNITS ARE MILLIMETER]			
TOLERANCE ON FINISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED		R.A.S. FINISH MAX 125°	
BASIC DIMENSIONS		DECIMALS	
FRACTIONS		3 PLACE	
UP TO 6 INCHES	+/- 1/64	+/- .02	+/- .005
6 INCHES ABOVE 6" TO 24"	+/- 1/32	+/- .03	+/- .010
24" ABOVE 24"	+/- 1/16	+/- .06	+/- .015
ANGULAR DIMENSIONS		+/- 1/2°	

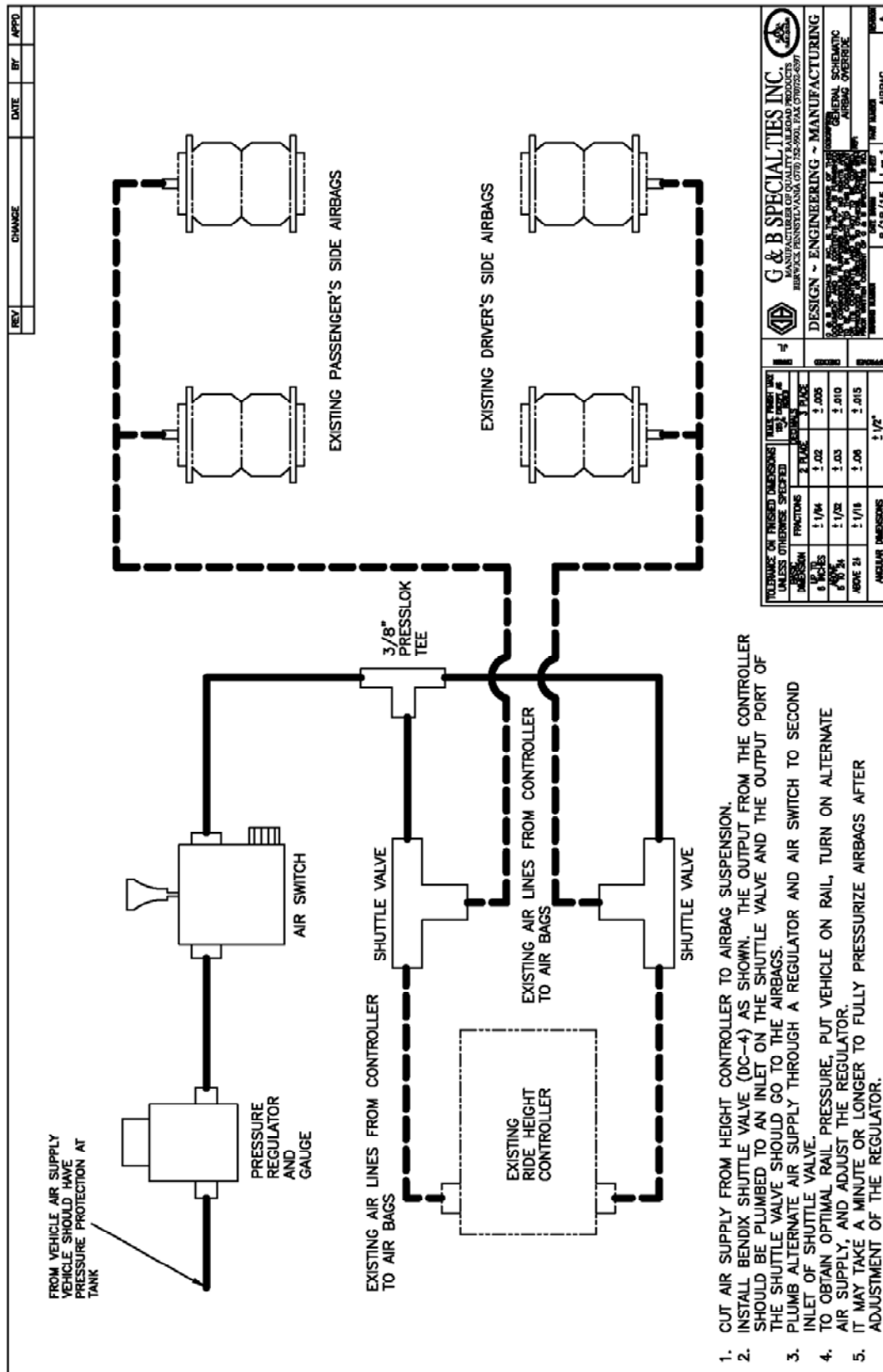
APPROVED		CHECKED		DRAWN	
AWM		AWM		AWM	

REVISION					
REV	CHANGE	DATE	BY	APPD	JL
B	REVISED SWEEP	02/06/15	JMP		
A	DRAWING RELEASED	12/8/14	AML		

G & B SPECIALTIES INC.	
	
MANUFACTURER OF QUALITY RAILROAD PRODUCTS BERWICK PENNSYLVANIA (570) 752-5901 FAX: (570) 752-6397	
DESIGN ~ ENGINEERING ~ MANUFACTURING	
DESCRIPTION: RAILSWEEP ASSY PASSENGERS SIDE REF:	

DRAWING NUMBER		SHEET		PART NUMBER		REVISION	
R32075P		1 of 1		R-32075P		B	

R-32075P





OPERATION OF RAFNA GUIDE WHEEL UNIT



TO PLACE VEHICLE ON RAIL:

1. Drive vehicle on crossing, centering it over tracks.
2. Once centered over tracks, remove front and rear safety pins.
3. Lower rear wheels first:
 - A. If rear is not completely centered (within 4"), rear rail wheels will center truck on rail
 - B. With the rear wheels fully extended and properly seated on rail, install safety pin into lower hole on both sides.
4. Center front rail wheels over rail:
 - A. If front is not completely centered over rail, maneuver truck so that it is.
 - B. Front vehicle wheels must be straight ahead.
 - C. Lower front rail wheels until cylinders are fully retracted. Front rail unit incorporates an over-center design.
 - D. Install front safety pins in rail position.
5. Check all rail wheel flanges to assure they are seated properly on rail.
6. Ensure that the rear safety pins are installed properly.
7. Engage vehicle steering wheel lock.

SAFE OPERATING SPEEDS ON RAIL WILL BE GOVERNED BY TRACK CONDITIONS AND EXISTING RAILROAD RULES AND REGULATIONS.
UNDER NO CIRCUMSTANCES SHOULD THIS VEHICLE BE OPERATED OVER 30MPH WHILE ON TRACK.

RAFNA RAILGEAR, G&B SPECIALTIES

(570) 752-5901

BERWICK, PA

R-11210-1

TO REMOVE VEHICLE FROM RAIL:

1. Drive vehicle on to crossing.
2. Either front or rear unit may be activated first.
3. Front Unit:
 - A. Remove safety pins.
 - B. Retract front rail wheels completely.
 - C. Re-install safety pins.
4. Rear Unit:
 - A. Remove safety pins.
 - B. Retract rear rail wheels completely.
 - C. Re-install safety pins.
5. Check to ensure that all safety pins are in their proper location.
6. Disengage steering wheel lock.



OPERATION INSTRUCTIONS:

1. REMOVE SAFETY PINS.
2. ACTIVATE VALVE:
 - A. PUSH - RAIL POSITION
 - B. PULL - ROAD POSITION
3. REPLACE SAFETY PINS IN PROPER LOCATION.

R-11210-2



OPERATION INSTRUCTIONS:

1. REMOVE SAFETY PINS.
2. ACTIVATE VALVE:
 - A. PUSH - RAIL POSITION
 - B. PULL - ROAD POSITION
3. REPLACE SAFETY PINS IN PROPER LOCATION.

R-11210-2

LOCKING PINS

PULL TO OPEN



PUSH TO CLOSE

REAR RAILGEAR

R-11210-4

R-11210 REV C



R-11210-A REV C

INSPECTION AND MAINTENANCE OF RAFNA GUIDE WHEEL UNIT

DAILY:

1. Visually inspect railgear unit for hydraulic leaks, loose fasteners, and excessive wear.
- y. Spin all four rail wheels and note any bearing noise or resistance.
3. Check hydraulic fluid level.
4. Check rail wheel flanges for irregular wear.

Weekly:

1. Grease all fittings on front and rear railgear units:
 - A. Twentyfour (24) on front unit
 - B. Fifteen (15) on rear unit
2. Inspect bearing grease every 2,000 miles or 6 months (whichever comes first)
3. Inspect bearings and grease cavity by removing hubcaps. Unless bearing problem is suspected, the bearings do not need to be removed or repacked.
4. Install new hubcap gasket. If necessary replace hubcaps.

R-11210-5

R-11210-6

THINK FIRST
DRIVE WITH CARE!



CAUTION
RELIEF VALVE SETTINGS:
FRONT: 2000 PSI, 2500 PSI MAX.
REAR: 1500 PSI, 2000 PSI MAX.
DO NOT BOTTOM-OUT RELIEFS, IF ADJUSTED.

R-11210-7



CAUTION
RELIEF VALVE SETTINGS:
FRONT: 2000 PSI, 2500 PSI MAX.
REAR: 1500 PSI, 2000 PSI MAX.
DO NOT BOTTOM-OUT RELIEFS, IF ADJUSTED.

R-11210-7



R-11210-9

**LOCK STEERING WHEEL ONLY WHEN
FRONT WHEELS ARE PARALLEL TO RAIL**

R-11210-10

RAILGEAR VEHICLE COMPLETED BY: _____

WITH RAILGEAR INSTALLED AND FINISHED
BODY, THIS VEHICLE HAS _____ LBS OF
AVAILABLE PAYLOAD.

DATE OF COMPLETION OF RAILGEAR
INSTALLATION: _____ mo _____ yr

CAUTION:

THIS VEHICLE HAS SPECIAL DESIGN AND EQUIPMENT
FEATURES FOR OFF-HIGHWAY USE. IT HANDLES
DIFFERENTLY FROM ORDINARY PASSENGER VEHICLES IN
DRIVING CONDITIONS WHICH MAY OCCUR ON AND OFF
HIGHWAY.

WEIGHT AND LOCATION OF PAYLOAD MAY ALSO AFFECT
THE HANDLING OF THIS VEHICLE.

PRIOR TO OPERATION, PLEASE READ THIS VEHICLES
OWNERS MANUAL, THE RAIL GEAR OPERATIONS, AND
SERVICE MANUAL.

R-11210-11

