

**INSTALLATION OF R-230 FRONT RAILGEAR KIT
STANDARD / IN-CAB / FULL IN-CAB CONTROLS
2005-2012 GMC CANYON/ CHEVROLET COLORADO
2017-PRESENT FORD RANGER (MEXICO)
2019-PRESENT FORD RANGER (U.S.)**

INSTALLATION SAFETY PRECAUTIONS

If any installation problems are encountered, please call G&B Specialties, Inc. 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 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 to protect the vehicle's electrical system.
- Ensure all removed components are given to the vehicle owner after the installation of the railgear. These components must be re-installed if the railgear is removed from the vehicle.
- Railway Company rules governing rail travel must always be observed.
- Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating (GAWR), or the wheel or tire load ratings are exceeded.
- Max vehicle speed on rail not to exceed 45 MPH.

The following procedure details the installation of the front railgear kit.

Table 1: Railgear Kit Installation Parts

Part Number	Description	Qty
R-20342	R-230 24" Upper Unit Assembly (Standard/In-Cab)	1
R-20363	R-230 24" Upper Unit Assembly (Full In-Cab)	
R-20060	Rail Wheel Assembly	2
R-20242D	Rail Sweep	1
R-20242P	Rail Sweep	1
R-990KIT-283 Wheel Mounting Hardware	1/2" UNC Gr. 8 Bolt x 1.50"	4
	1/2" UNC Gr. 8 Bolt x 1.75"	4
	1/2" Gr. 8 Washer	16
	1/2" UNC Gr. 8 Nylon Insert Lock Nut	8

1. Ensure that the front mounting kit has been installed on the vehicle prior to installing the railgear kit.
2. To install the railgear at the correct height, ensure that the vehicle is resting on its four properly inflated tires. The recommended minimum tire size is 235/75R15.
3. Measure from the bottom of the railgear mounting bracket to the ground as shown and subtract 1/2" from that measurement. (1/2" is the estimated drop in suspension with the railgear mounted) Determine what combination of railgear mounting shims are required to set the railgear mounting surface at approximately 14 1/2"- 15" from the ground. Railgear mounting shims are supplied with the respective mounting kit. If this height cannot be achieved with the supplied shims, the vehicle suspension will need to be modified. This modification is not included with the Rafna railgear.

Example:

Initial measurement from mounting bracket to ground: 17"
 Subtract 1/2" from initial measurement: 17" - 1/2" = 16 1/2"
 Use 16 1/2" to determine the amount of railgear shim to be used:
 16 1/2" - 14 3/4" = 1 3/4" shim

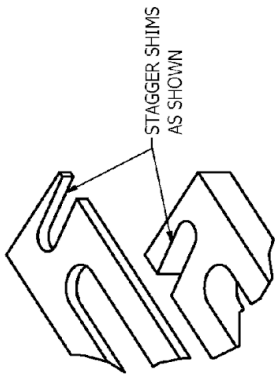
4. If using more than one shim, it is important to stagger the shims as shown.
5. The hydraulic cylinder should be facing towards the front of the vehicle when installed.
6. Raise the railgear to the mounting plates using the railgear mounting shims as required between the mounting plates and the railgear. Align the holes in the railgear and shims with the slots in the mounting plates. Center the railgear on the mounting plate slots. Ensure that the railgear does not contact any vehicle components (the vehicle exhaust system and bumpers can be modified as noted later in this procedure). Fasten the railgear

and shims to the mounting plates using four suitably long 5/8" bolts, eight 5/8" washers, and four 5/8" nuts.

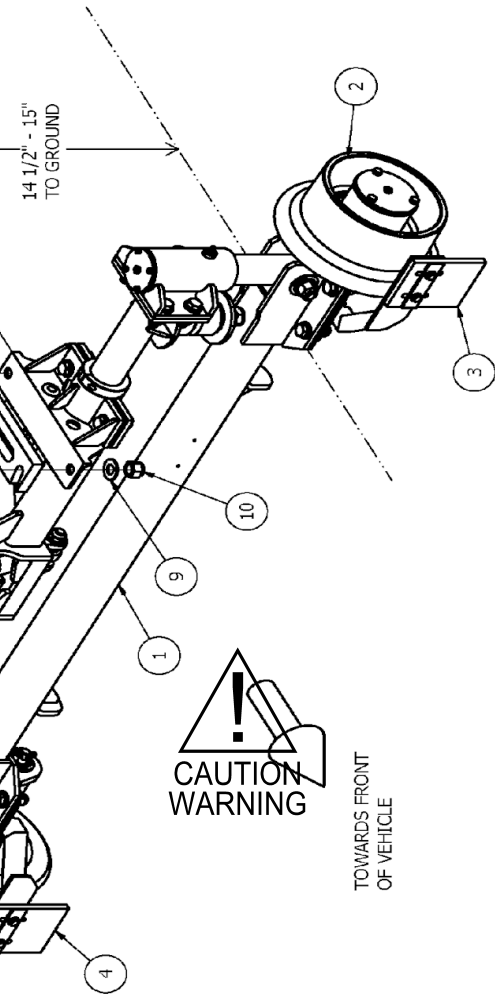
7. Check the railgear mounting height after the railgear is installed. The mounting height should be between 14 1/2" -15" from the ground.
8. If the mounting height needs to be adjusted: loosen but do not remove the 5/8" railgear mounting bolts to allow shims to be removed or added as required to achieve the proper mounting height. Be sure to stagger the shims as shown.
9. Tighten but do not torque the 5/8" fasteners as they will be torqued following the railgear alignment procedure.
10. Manually rotate the railgear to mid travel in to ease installation of the rail wheels and rail sweeps.
11. Place the rail wheels below the mounting tables on the railgear axle. Place the rail sweeps in front of the rail wheels and below mounting tables. Fasten the rail wheels and rail sweeps to the mounting tables with the supplied 1/2" hardware.
12. Tighten but do not torque the 1/2" fasteners as they will be torqued following the railgear alignment procedure.

Proceed to install the railgear hydraulic system as per the Hydraulic Kit Installation manual before continuing with the following steps.

13. Follow the Railgear Over-Center Adjustment procedure detailed in the Railgear Kit Operation, Service and Parts manual. Ensure the cylinder rod-end lock nut is re-tightened following this adjustment.
14. With the railgear fully raised to the road position, ensure that the railgear lock pin properly engages the lock cam. It may be necessary to grind the lock cam slightly to ensure proper fit.
15. Follow the Rail Wheel Load Adjustment procedure detailed in the Railgear Kit Operation, Service and Parts manual.
16. Follow the Railgear Alignment procedure detailed in the Railgear Kit Operation, Service and Parts manual.
17. Follow the Rail Sweep Adjustment procedure detailed in the Railgear Kit Operation, Service and Parts manual.
18. Torque all fasteners as detailed in the Railgear Kit Operation, Service and Parts manual.
19. Grease the railgear at all lubrication points as detailed in the Railgear Kit Operation, Service and Parts manual.



DETAIL A



G & B SPECIALTIES INC. MANUFACTURER OF QUALITY RAILROAD PRODUCTS BERWICK, PENNSYLVANIA (610) 752-5901 FAX: (570) 752-6397		DESIGN - ENGINEERING - MANUFACTURING		R-230 FRONT RAILGEAR INSTALLATION	
REVISIONS		DATE	BY	APPR'D	ECN #
A REVISION AS RELEASED		02/03/22	SMM	JMP	
DESCRIPTION OF CHANGES					
ALL WELDS TO CONFORM TO AWS D1.1					
DRAWING NUMBER: MIO-R23RXF20342		DATE DRAWN: 02/03/22		PART NUMBER: K-R18RXF20342	
DRAWN BY: JIMMY		CHECKED BY: JIMMY		REV: 001	
DESIGNED BY: JIMMY		APPROVED BY: JIMMY		REV: 001	
CHECKED BY: JIMMY		DATE: 02/03/22		REV: 001	
APPROVED BY: JIMMY		DATE: 02/03/22		REV: 001	
DATE: 02/03/22		BY: SMM		APPR'D: JMP	
BY: SMM		APPR'D: JMP		ECN #	
APPR'D: JMP		ECN #		REV: 001	
ECN #		REV: 001		REV: 001	

20. Install the vehicle bumper. Rotate the railgear up to the road position. Take note of where the railgear, rail wheels, and/or rail sweeps contact the vehicle bumper. Trim and reinforce the bumper as required. Ensure there is enough clearance to accommodate side-to-side adjustment and rail wheel load adjustment of the railgear.

OPERATION, SERVICE, AND PARTS OF R-230 FRONT RAILGEAR KIT STANDARD / IN-CAB / FULL IN-CAB CONTROLS 2005-2012 GMC CANYON/ CHEVROLET COLORADO 2017-PRESENT FORD RANGER (MEXICO) 2019-PRESENT FORD RANGER (U.S.)

OPERATION AND SERVICE SAFETY PRECAUTIONS

If any operating, services or parts problems are encountered, please call G&B Specialties, Inc. for technical assistance.

- 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 operation of the railgear equipped vehicle.
- Operating instructions provided below only address the RAFNA railgear equipment. Applicable railway company procedures and policies must be adhered to.

- Railway company rules governing rail travel must be observed at all times.
- Ensure that the position and function of all railgear controls are known before attempting operation.

- Ensure the railgear is locked in road or rail position before starting road or rail travel respectively.
- Ensure all body parts and loose clothing are clear of any moving parts of the equipment.
- If misalignment of the railgear equipment is indicated, promptly perform the alignment procedure.
- Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

With the railgear kit installed on this vehicle, it may be operated as normal, however the vehicle has decreased ground clearance and angles of approach and departure due to the railgear. Caution must be used when operating the vehicle.

Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

Refer to the Hydraulic Kit Operation, Service, and Parts manual for information on the location and operation of the railgear hydraulic system controls.

Placing the Vehicle on Rail - To Lower the Railgear:

1. Disengage the lock pin by pulling on the locking cable handle. Do not force the locking cable. If the lock pin cannot be disengaged, raise the railgear slightly.
2. Hold the locking cable handle in the disengaged position.
3. Lower the railgear and release the locking cable handle once the railgear has rotated past the road locked position.
4. As the railgear is being deployed, it will start taking some of the vehicle's load. (If this is not the case, **DO NOT use the railgear**. Inspect the railgear for lubrication and damage.)
5. Continue lowering the railgear until the hydraulic cylinder is fully extended and the lock pin re-engages in the rail position. Some railgear models have a lock cam converter

installed to prevent the lock pin from engaging in the rail position; they have a hydraulic lock instead.

6. Ensure that the railgear is fully deployed and about 2° - 3° over-center before proceeding.

Removing the Vehicle from Rail - To Raise the Railgear:

1. Disengage the lock pin by pulling on the locking cable handle. Do not force the locking cable. If the lock pin cannot be disengaged, lower the railgear slightly. Some railgear models have a lock cam converter installed to prevent the lock pin from engaging in the rail position in which case the lock pin does not need to be disengaged.
2. Raise the railgear and release the locking cable handle once the railgear has rotated past the rail locked position.
3. Continue raising the railgear until the lock pin clicks into the road locked position. The hydraulic cylinder should be completely retracted.



OPERATION OF RAILGEAR KIT (FULL IN-CAB CONTROLS)

With the railgear kit installed on this vehicle, it may be operated as normal, however the vehicle has decreased ground clearance and angles of approach and departure due to the railgear. Caution must be used when operating the vehicle.

Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

Refer to the Hydraulic Kit Operation, Service, and Parts manual for information on the location and operation of the railgear hydraulic system controls.

Placing The Vehicle On Rail - To Lower The Railgear:

1. Prior to approaching the rail crossing, remove the manual safety lock pins from the front and rear railgear. It may be necessary to raise the railgear off the lock pins. Store the lock pins in secure place in the vehicle.
2. Lower the railgear.
3. As the railgear is being deployed, it will start taking some of the vehicle's load. (If this is not the case, **DO NOT use the railgear**. Inspect the railgear for lubrication and damage.)
4. Continue lowering the railgear until the hydraulic cylinder is fully extended.
5. Ensure that the railgear is fully deployed and about 2° - 3° over-center before proceeding.

Removing The Vehicle From Rail - To Raise The Railgear:

6. Raise the railgear.
7. Continue raising the railgear until the hydraulic cylinder is completely retracted.
8. Once the vehicle is clear of the rails, insert the manual safety lock pin through the lock guides.



The railgear kit must be serviced regularly to avoid damage to the equipment. Table 1 below provides the Recommended Service Schedule and the detailed service procedures follow.

Non-standard fastener torque values relative to this railgear are shown in Figure 1. Table 2 provides all other Standard Fastener Torque Values.

Grease fittings are provided at all railgear lubrication points as shown in Figure 2. The recommended lubricant for all lubrication points on this railgear is MYSTIK JT-6 LOW TEMP grease or equivalent. In cold weather areas/seasons, SHELL DARINA XL102 or equivalent may be used.

Table 1: Recommended Service Schedule

Service Required	Daily	Weekly	Monthly	3 Months	6 Months	12 months
Visually inspect the railgear for damaged or worn parts	✓	✓	✓	✓	✓	
Check for loose rail wheels and fasteners (re-torque if required)	✓	✓	✓	✓	✓	
Ensure railgear lock pin is functioning correctly	✓	✓	✓	✓	✓	
Ensure the vehicle is in good operating condition	✓	✓	✓	✓	✓	
Inspect the rail wheel flanges for wear (use Rafna wear gauge)				✓	✓	
Inspect all hydraulic components for leaks or wear	✓	✓	✓	✓	✓	
Check and adjust rail sweeps			✓	✓	✓	
Grease railgear inner and outer guide tubes		✓	✓	✓	✓	
Grease railgear inner tube lower pivot point			✓	✓	✓	
Grease railgear locking pin			✓	✓	✓	
Check and adjust rail wheel bearing end-play			✓	✓	✓	
Grease rail wheel bearings (every 3000 rail kms or 1900 rail miles)				✓	✓	✓
Check and adjust rail wheel load						✓
Check and adjust rail wheel alignment						✓
Check and repack rail wheel bearings						✓

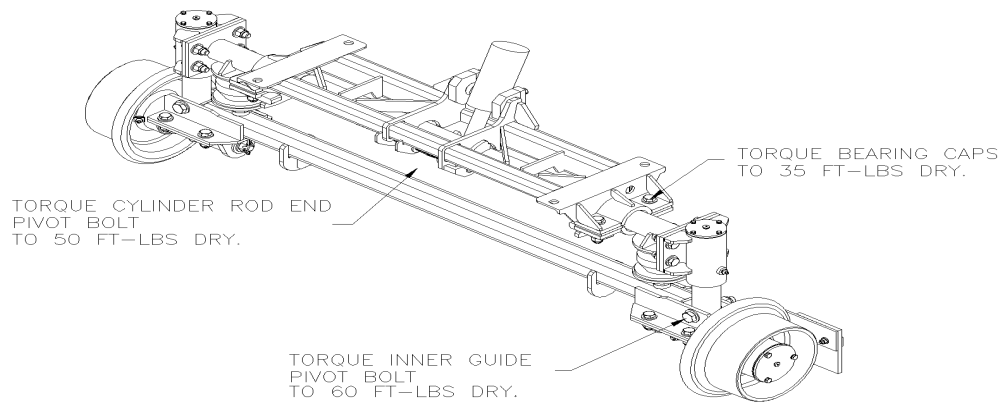


Figure 1: Non-standard torque values

Table 2: Standard Fastener Torque Values	
Fastener Size	Fastener Torque Value (ft-lbs) Dry
5/8" UNC Gr. 8 Fasteners	150
1/2" UNC Gr. 8 Fasteners	100
3/8" UNC Gr. 8 Fasteners	40
1/4" UNC Gr. 8 Fasteners	12

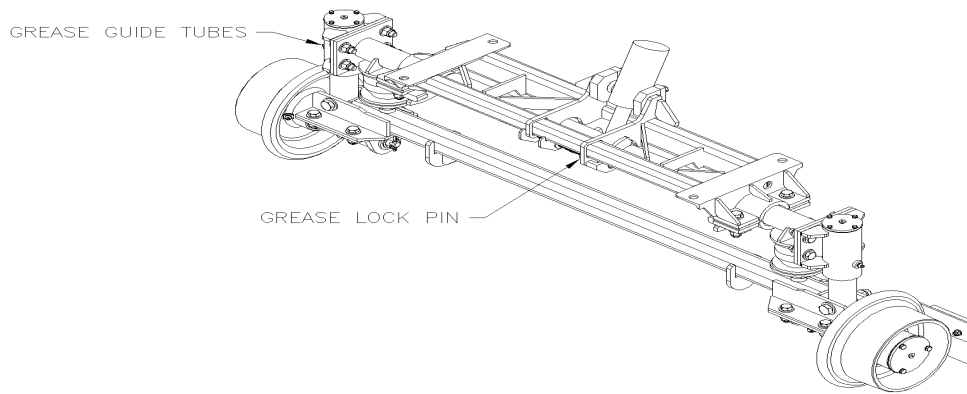


Figure 2: Railgear lubrication

The railgear is designed to rotate slightly past vertical into the rail position in order to provide a secondary safety feature in the event of a hydraulic and / or lock pin failure. With this additional rotation, the railgear would have to lift the vehicle before it could rotate out of the rail position. This additional rotation past vertical is called the over-center angle and is adjustable via a threaded rod end on the end of the hydraulic cylinder. The location of the railgear in the road position is also a function of the over-center adjustment, however, DO NOT use the over-center adjustment to adjust the road position of the railgear. This will have adverse effects on the over-center safety feature.

The over-center angle is defined as the angle between the vertical edge of the outer guide tubes and the vertical. It can be measured with the vehicle on a level section of rail with the railgear in the rail position using an angle meter. The over-center angle must be 2-3° past vertical. If this is not the case, adjust as follows:

1. Unload the railgear hydraulic cylinder by raising the railgear just off rail.
2. Loosen the jam nut on the hydraulic cylinder rod end and adjust the rod end out to increase the over-center angle or in to decrease the over-center angle. Note that the cylinder rod can be turned instead of turning the rod end.
3. Re-deploy the railgear to the rail position and re-check the over-center angle. Re-adjust as necessary. Ensure that the cylinder is at full stroke.
4. Tighten the jam nut on the hydraulic cylinder rod end.

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5. Following the over-center angle adjustment, the railgear may contact the vehicle if not enough clearance was left during installation. Check the railgear clearance to all vehicle components throughout the full range of railgear and railgear suspension movement. If there is interference with the vehicle bumper and/or exhaust, it can be trimmed and reinforced as required. If vehicle exhaust modifications are necessary, ensure any exhaust system modifications conform to applicable laws and regulations.
6. With the railgear fully raised to the road position, ensure that the railgear lock pin properly engages the lock cam. It may be necessary to grind the lock cam slightly to ensure proper fit.
7. Note that some hydraulic kit installations provide a lock cam converter to prevent the railgear lock pin from engaging in the rail position. If such a lock cam converter was installed, skip this step. Otherwise, with the railgear fully lowered to the rail position, ensure that the railgear lock pin properly engages the lock cam. It may be necessary to grind the lock cam slightly to ensure proper fit.



The rail wheel bearings require periodic adjustment in order to keep the end-play within specification. If the rail wheel bearings are not correctly adjusted, failure may occur and will not be covered under the railgear warranty. Check and adjust the bearing end-play with the railgear in the road position and with the rail wheels free to turn.

Use a magnetic base dial gauge to measure the end-play of each rail wheel bearing. The bearing end-play must be between 0.001" and 0.005". If this is not the case, adjust as follows:

1. Remove the rail wheel hubcap and gasket by removing the three ¼" bolts and ¼" lock washers. Remove and discard the cotter pin from the ¾" slotted spindle nut.
2. Ensure the wheel bearing cavity is full of grease.
3. While rotating the rail wheel forward, torque the spindle nut to 20 ftlbs. Then loosen the spindle nut and re-torque it to 6 ft-lbs. Re-Check and re-adjust the bearing end-play if required. If no torque wrench is available, tighten the spindle nut until the rail wheel is difficult to turn by hand. Then loosen the spindle nut and retighten it just until no loose can be felt in the bearings. Re-adjust the bearing end-play with a torque wrench as soon as possible.
4. Install a new cotter pin through the spindle nut. Tighten the spindle nut slightly if needed to insert the cotter pin.

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5. Re-install the hubcap and gasket using the ¼” bolts and new ¼” split lock washers. Blue Loctite can be used on the bolts as an added safety measure. Tighten and torque the ¼” fasteners to 12 ft-lbs dry. Do not over torque.

The distance between the rail sweep rubber and the rail is adjustable and should be maintained at approximately 1/8”. To adjust the rail sweep rubber, with the railgear in the rail position, loosen the two ¼” fasteners which secure the rail sweep rubber to the rail sweep bracket. Slide the rail sweep rubber up or down for the correct clearance. Tighten and torque the ¼” fasteners to 12 ft-lbs dry. Do not over torque.

During rail travel, the railgear removes a predetermined portion of the vehicle’s load from the vehicle’s wheels and carries it on the rail wheels. A minimum amount of load must be maintained on the rail wheels to avoid derailment. Likewise, a minimum amount of load must be maintained on the vehicle wheels to provide traction for acceleration and braking, this load at installation must be a minimum of 450 lbs and a maximum of 700 lbs and is checked as described below using a bottle jack equipped with a gauge.

The rail wheel load should be adjusted following the installation of the railgear and once the vehicle has had all its permanent load (service body, crane, welders, etc) installed. The rail wheel load requires periodic checks; however, it should only require re-adjustment if the railgear is moved, the permanent vehicle equipment is changed, or the vehicle suspension settles or is changed. The rail wheel load should be checked at regular intervals that coincide with regular maintenance schedule for the vehicle or minimally once a year during vehicle annual FRA inspection. As non-permanent load is added to and/or removed from the vehicle, the rail wheel load will change also. This is acceptable if the weight ratings of the vehicle, axles, wheels, tires and railgear are not exceeded and as long as the minimum rail wheel load is maintained and the maximum wheel load of 1500 lbs per wheel is not exceeded.

Check each rail wheel load as follows:

1091131248. Place the vehicle on a straight and level section of rail with the railgear lowered to the rail position. Ensure the railgear is taking load through the tread of the rail wheel and not on the flange of the rail wheel. The vehicle should only be carrying the permanently attached load (service body, crane, etc.) and any always carried non-attached load (welders, etc.) during this procedure. Do not include the operator or passengers. Ensure the vehicle tires have been inflated to the manufacturer’s recommended air pressure and that they are not in contact with any obstructions except the rails.

1091131249. Place the hydraulic bottle jack on a solid surface beneath the rail wheel spindle housing and jack the rail wheel off the rail.

1091131250. Insert a piece of paper between the rail and the rail wheel. Lower the jack until the rail wheel squeezes the paper so that it cannot be pulled out.

1091131251. Slowly jack up the rail wheel while pulling on the paper and observe the jack gauge. When the paper can be pulled out, stop jacking.

1091131252. Record the load or pressure reading on the jack gauge. If necessary, convert the pressure reading to a load reading using the supplied table.

Table 3: Rail Wheel Load vs Jack Pressure and Bore

Jack Pressure (PSI)	Jack Cylinder Bore Diameter (inches)								
	7/8	15/16	1	1 1/16	1 1/8	1 3/16	1 1/4	1 5/16	1 3/8
300	180	210	240	270	300	330	370	410	450
310	190	210	240	270	310	340	380	420	460
330	200	230	270	300	330	360	400	450	490
340	200	230	270	300	340	380	420	460	500
350	210	240	270	310	350	390	430	470	520
360	220	250	280	320	360	400	440	490	530
370	220	260	290	330	370	410	450	500	550

The load on the rail wheels is adjusted by adding or removing railgear shims as necessary to attain the proper rail wheel load. The same number of shims should be used on both sides of the railgear. The threaded adjustment rods can be used to fine tune the rail wheel load **but should not be used for the primary rail wheel load adjustment.**

1. Raise the railgear until the rail wheels are off the rails.
2. Loosen, but do not remove, the 5/8" fasteners securing the railgear to the railgear mounting brackets. Let the railgear drop far enough to enable shims to be added or removed.
3. It is recommended that shims be added or removed in 1/4"-1/2" increments.
4. **Ensure that the railgear shims are staggered as shown.**
5. Tighten the 5/8" railgear mounting bolts.
6. Lower the railgear to the road position and check the rail wheel load. The railgear suspension spring should be compressed approximately 5/8"-1" under the recommended rail wheel load of 450 - 700lbs.
7. Repeat steps 1 thru 5 until the proper rail wheel load is achieved.
8. Following the rail wheel load adjustment, the railgear may contact the vehicle if not enough clearance was left during installation. Check the railgear clearance to all vehicle components throughout the full range of railgear and railgear suspension movement. If there is interference with the vehicle bumper, it can be trimmed and reinforced as required.

The railgear must be correctly aligned to perform properly, safely, and avoid excessive wear and derailment. The rail wheels can be independently aligned for toe-in/toe-out and the railgear can be adjusted side to side (laterally) on the vehicle. A parallel line system and the following procedure should be used to perform the railgear alignment.

The rail wheel loads should be checked and adjusted, the vehicle should have had a four-wheel alignment (with the complete railgear package installed on the vehicle and any suspension modifications done) and the tires should be properly inflated prior to performing the railgear alignment.

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The railgear alignment is done with the vehicle on a straight and level section of rail with the railgear in the rail position and the vehicle wheels pointing straight ahead. The individual rail wheel alignment should be done first, followed by the lateral alignment of the railgear.

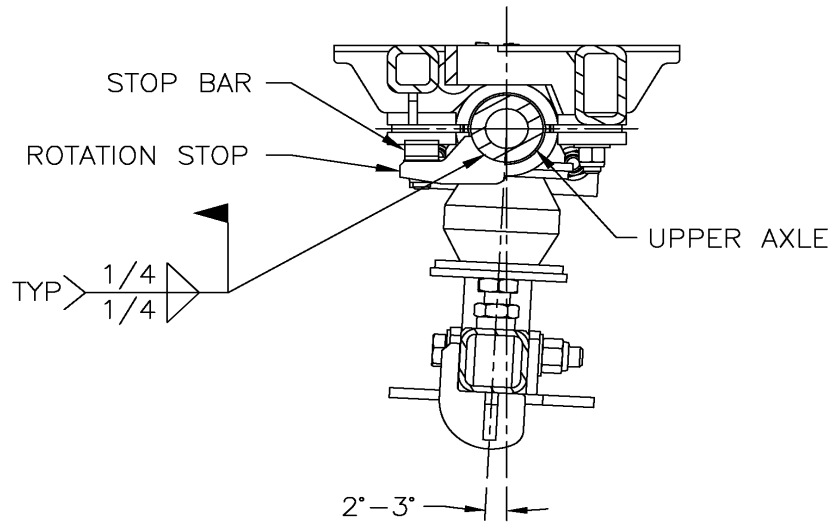
Each rail wheel is aligned by loosening the four ½” fasteners which secure it to the railgear axle. The rail wheel is then turned into alignment. The four ½” fasteners should then be tightened and torqued to 100 ft-lbs dry. Do not over torque.

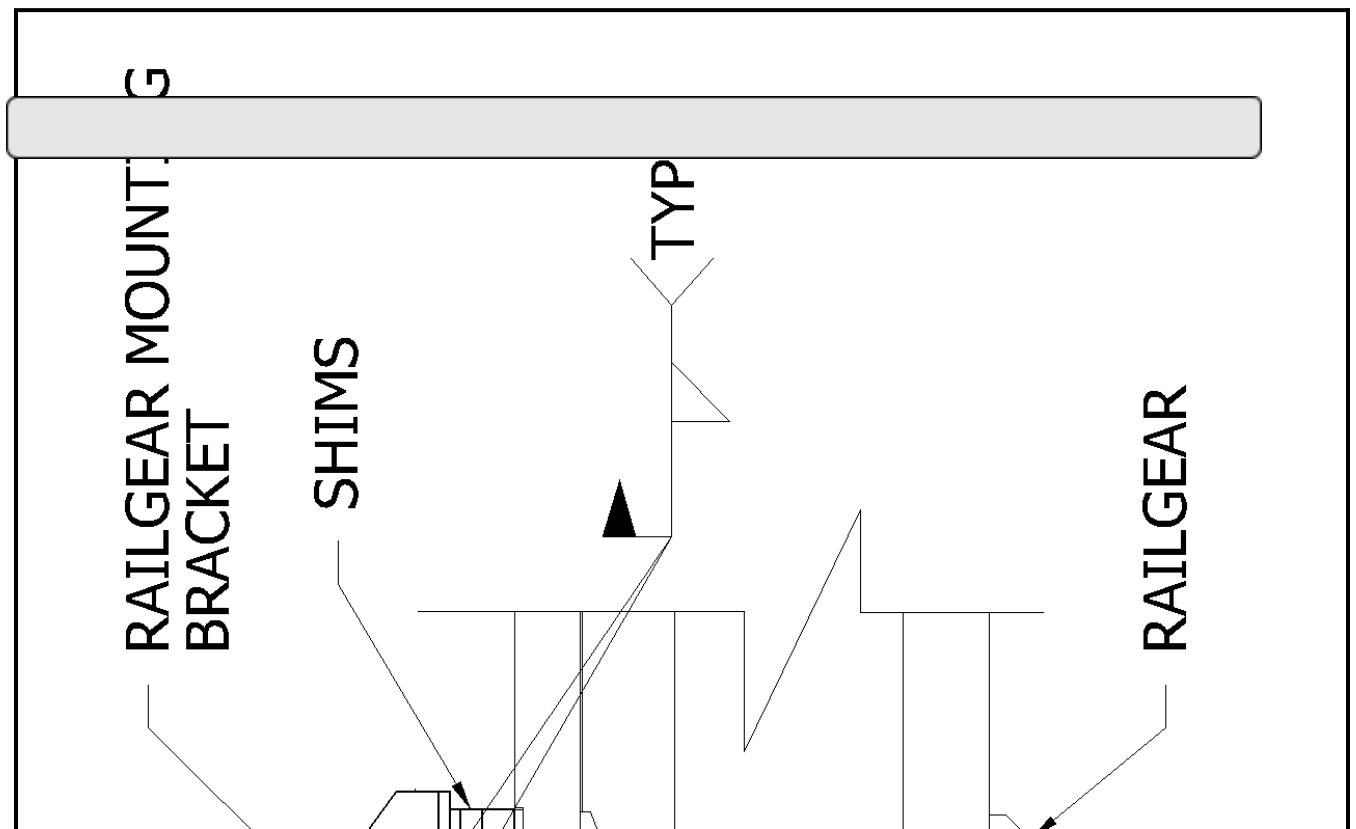
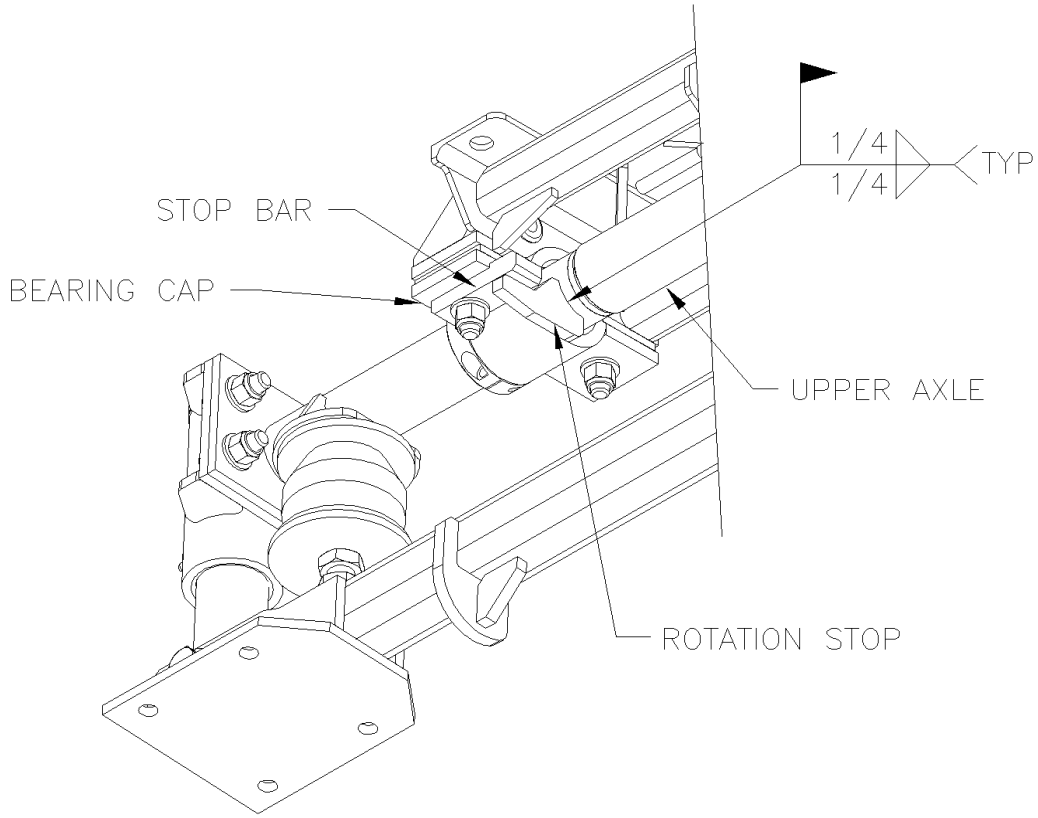
The railgear is aligned laterally by loosening the four 5/8” fasteners which secure it to the mounting plates and shaft collars. The railgear is then moved sideways into alignment. It may be necessary to raise the railgear off the rails to move the railgear side to side. Do not use any force against the railgear guide tubes as this may damage them and restrict suspension movement. The four 5/8” fasteners should then be tightened and torqued to 150 ft-lbs dry. Do not over torque. Tighten shaft collars.

The railgear shims need to be tack welded to each other and to the railgear and railgear mounting bracket as shown. This is not to be done until all rail wheel loads have been adjusted and the railgear has been properly aligned.

Following the railgear alignment, the railgear may contact the vehicle if not enough clearance was left during installation. Check the railgear clearance to all vehicle components throughout the full range of railgear and railgear suspension movement. If there is interference with the vehicle bumper, it can be trimmed and reinforced as required.

Once the railgear alignment and the over center adjustment are complete, it will be necessary to weld the rotation stops to the railgear upper axle as shown.





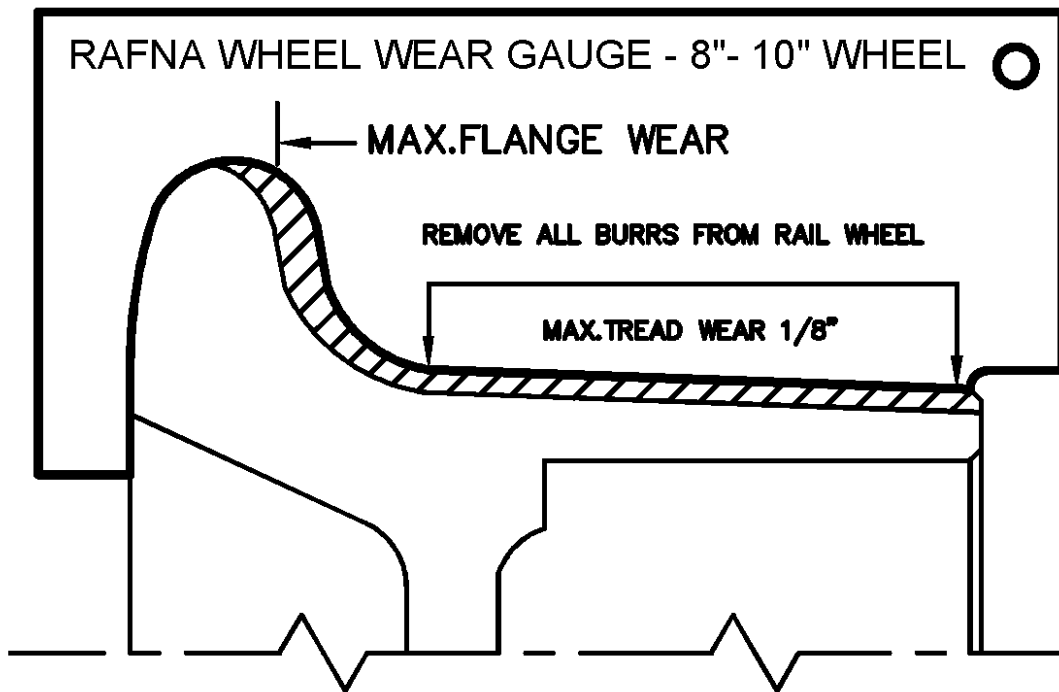
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The maximum flange wear is indicated on the rail wheel gauge. When the gauge is placed on the rail wheel, if a gap is seen between the gauge and the maximum flange wear line, the rail wheel needs to be replaced.

Tread Wear Limits:

For tread wear, use the following chart in conjunction with the appropriate rail wheel gauge.

NOMINAL RAIL WHEEL DIAMETER (INCHES)	MIN. ALLOWABLE WHEEL DIAMETER (INCHES)
8	7 3/4



RAFNA RAILGEAR ALIGNMENT RACK DATA

GAS OR DIESEL _____ VIN# _____

VEHICLE MAKE: _____ VEHICLE MODEL: _____ VEHICLE YEAR: _____
 DOOR STICKER GVWR: _____ DOOR STICKER GAWR FRT: _____ DOOR STICKER GAWR RR _____
 RAILGEAR S/N: FRT _____ RR _____ VEHICLE UNIT #,S/N: _____
 RAILGEAR TYPE: _____ INSTALLER: _____ DATE: _____

SET UP PARALLEL STRING LINES
 A & B MUST BE EQUAL WITHIN 1/32"
 C & D MUST BE EQUAL WITHIN 1/32"

ADJUST STRING LINES AROUND VEHICLE
 E, F, G, & H MUST BE EQUAL WITHIN 1/16"
 I, J, K, & L MUST BE EQUAL WITHIN 1/16"
 (E, F, G, & H MAY NOT EQUAL I, J, K, & L)

ADJUST RAIL WHEEL ALIGNMENT
 M & O MUST BE EQUAL WITHIN 1/16"
 N & P MUST BE EQUAL WITHIN 1/16"
 Q & S MUST BE EQUAL WITHIN 1/16"
 R & T MUST BE EQUAL WITHIN 1/16"

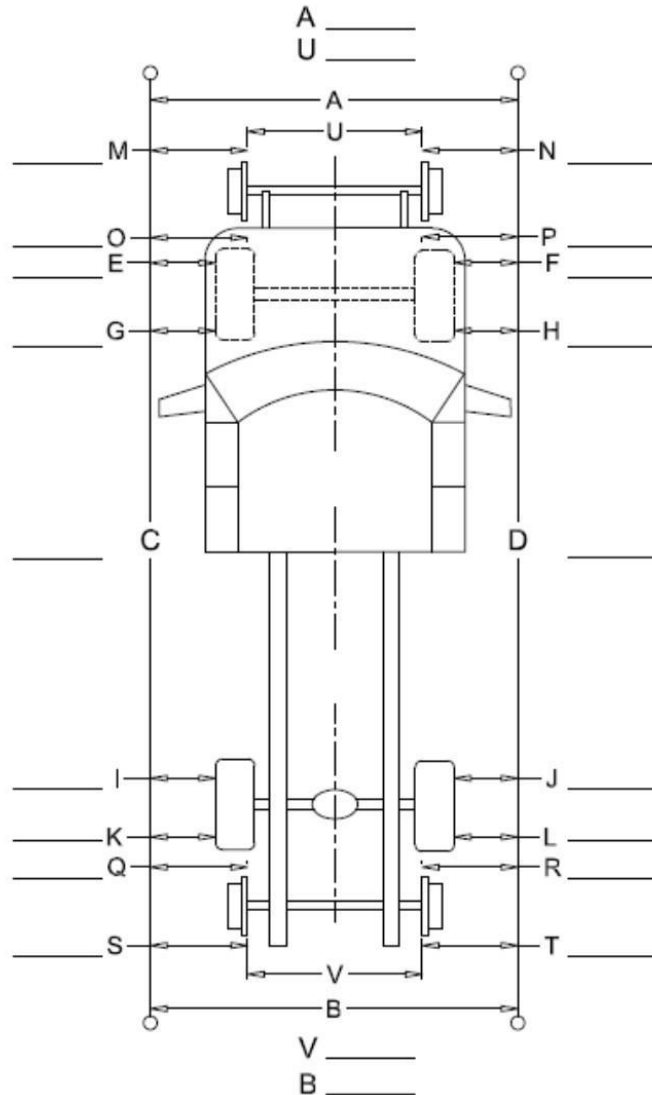
ADJUST RAILGEAR LATERAL ALIGNMENT
 M & O MUST EQUAL N & P WITHIN 1/8"
 Q & S MUST EQUAL R & T WITHIN 1/8"

ENSURE THAT U & V ARE BETWEEN
 53-7/16" AND 53-9/16"

OVER-CENTER ANGLE (DEGREE)
 FRONT _____
 REAR _____

RAIL WHEEL LOADS (LBS)
 LEFT FRONT _____ RIGHT FRONT _____
 LEFT REAR _____ RIGHT REAR _____

RAIL WHEEL FLANGE TO GROUND CLEARANCE
 LEFT FRONT _____ RIGHT FRONT _____
 LEFT REAR _____ RIGHT REAR _____



MOUNTING HEIGHT FRONT: _____ MOUNTING HEIGHT REAR: _____
 STOCK TURNING DIAMETER: _____ MODIFIED TURNING DIAMETER: _____
 OEM: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____
 MODIFIED: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____

FAX COMPLETED FORM TO JAKE SANUTE AT FAX # 570-802-0491

MAY 31, 2018 REV "D"

RAFNA RAILGEAR PORTABLE ALIGNMENT DATA

GAS OR DIESEL _____ VIN# _____

VEHICLE MAKE: _____ VEHICLE MODEL: _____ VEHICLE YEAR: _____

DOOR STICKER GVWR: _____ DOOR STICKER GAWR FRT: _____ DOOR STICKER GAWR RR _____

RAILGEAR S/N: FRT _____ RR _____ VEHICLE UNIT #, S/N: _____

RAILGEAR TYPE: _____ INSTALLER: _____ DATE: _____

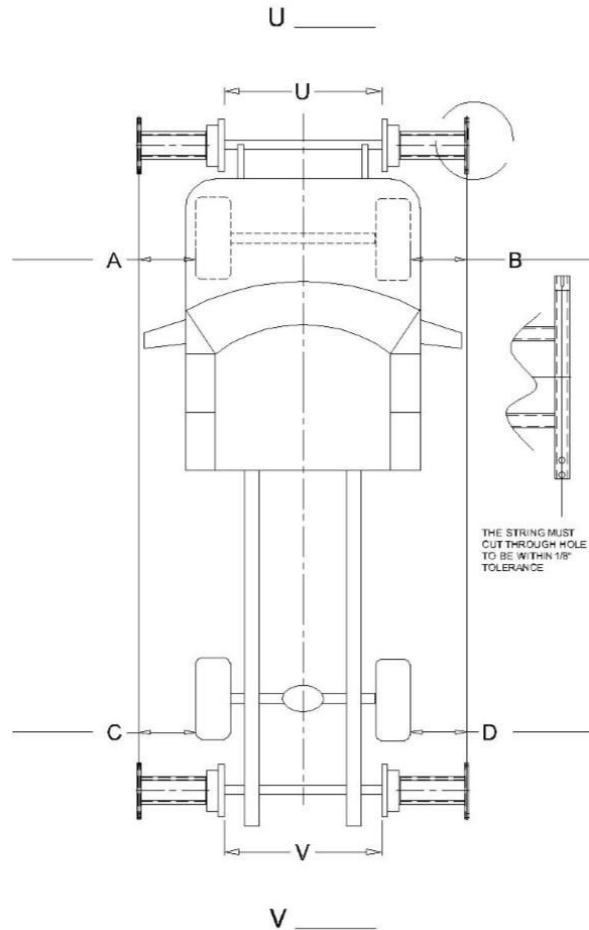
ADJUST RAILGEAR LATERAL ALIGNMENT
A MUST EQUAL B WITHIN 1/8"
C MUST EQUAL D WITHIN 1/8"

ENSURE THAT U & V ARE BETWEEN
53- 7/16" AND 53-9/16"

OVER-CENTER ANGLE (DEGREE)
FRONT _____
REAR _____

RAIL WHEEL LOADS (LBS)
LEFT FRONT _____ RIGHT FRONT _____
LEFT REAR _____ RIGHT REAR _____

RAIL WHEEL FLANGE TO GROUND CLEAR-
ANCE
LEFT FRONT _____ RIGHT FRONT _____
LEFT REAR _____ RIGHT REAR _____



MOUNTING HEIGHT FRONT: _____ MOUNTING HEIGHT REAR: _____

STOCK TURNING DIAMETER: _____ MODIFIED TURNING DIAMETER: _____

OEM: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____

MODIFIED: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____

FAX COMPLETED FORM TO JAKE SANUTE AT FAX # 570-802-0491

MAY 31, 2018 REV B



PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	R-20342	R-230 FRONT UNIT	1
2	R-20060	8" WHEEL ASSEMBLY	2
3	R-20242D	RAIL SWEEP, DRIVERS SIDE	1
4	R-20242P	RAIL SWEEP, PASSENGERS SIDE	1
5	-	DS ASSY, FRNT MNTG BRKT	1
6	-	PS ASSY, RANGER FRNT MNTG BRKT	1
7a	R-20040	SHIM, 3/4"	AS NEEDED
7b	R-20042	SHIM, 1/2"	AS NEEDED
7c	R-20041	SHIM, 1/4"	AS NEEDED
8	-	SCREW, 5/8" GR 8 HEX CAP Z/Y	4
9	990600-062-002	WASHER, 5/8" SAE THRU HARD FLAT Z/Y	8
10	990316-062-22	NUT, 5/8" GR 8 HEX NYLOCK Z/Y	4

NOTES
1. REFERENCE MOUNTING KIT FOR MOUNTING BRACKET PART NUMBERS AND 5/8" MOUNTING HARDWARE

STAGGER SHIMS AS SHOWN

DETAIL A

14 1/2" - 15" TO GROUND

TOWARDS FRONT OF VEHICLE

REV DESCRIPTION OF CHANGES	DATE	BY	APPRVD	ECN #
A. REVISION A RELEASED	02/03/22	SMM	JMP	

JMP	SMM	JMP	SMM
APPROVED	DESIGN	APPROVED	DESIGN

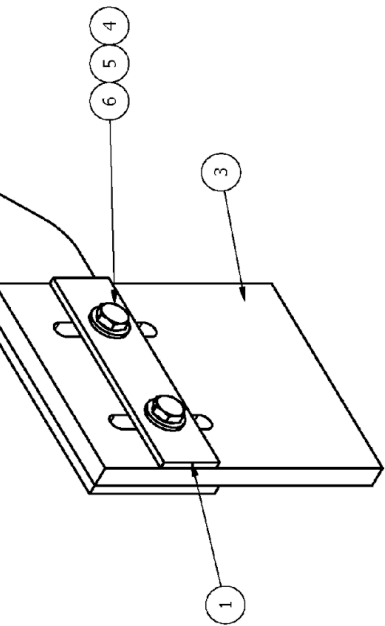
G & B SPECIALTIES INC. 535 WEST 3RD STREET, BERWICK, PA 17004
TEL: (570) 752-5901 FAX: (570) 752-6397
WWW.GANDBSPECIALTIES.COM

DESIGN - ENGINEERING - MANUFACTURING

R-230 FRONT RAILGEAR INSTALLATION

1 K R18RXF20342 02/03/22 K-R18RXF20342 1 A

ALL WELDS TO CONFORM TO AWS D1.1



		G & B SPECIALTIES INC. MANUFACTURER OF QUALITY RAILROAD PRODUCTS BERWICK, PENNSYLVANIA, (717) 752-5901, FAX: (717) 752-5387		DESIGN - ENGINEERING - MANUFACTURING		R-230 PS RAIL SWEEP ASSY		REV/SCT B
ALL WELDS TO CONFORM TO AWS D1.1		AML		DESIGN - ENGINEERING - MANUFACTURING		R-230 PS RAIL SWEEP ASSY		REV/SCT B
REV/DESCRIPTION OF CHANGES		DATE	BY	APPRVD	ECN #	DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
A REVISION A RELEASED		12/29/09	AML	JMP	ECN-22-076	DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
B UPDATED BORDER		02/03/22	SMM			DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
						DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
						DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
						DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
						DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
						DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
						DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B
						DESIGN - ENGINEERING - MANUFACTURING		REV/SCT B

G&B Specialties LLC

MIO-R23RXF20342 Rev C