

INSTALLATION OF R-450 ROD ACTUATED FRONT TRUCK AXLE LOCK 2014 - PRESENT RAM 4500/5500 CHASSIS CAB

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 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.
- 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.
- Always disconnect the vehicle's battery when welding on the vehicle or railgear in order to protect the vehicle's electrical system.

INSTALLATION OF FRONT TRUCK AXLE LOCK KIT (ROD)

The following procedure details the installation of the front truck axle lock kit. The hardware required for this installation is listed in Table 1.

Table 1: K-R45AVXDX04, Rod Actuated Front Axle Lock Installation Parts

Part Number	Description	Qty
R-4912C	Axle Lock-up Hook	2
R-6948B	Pull Rod	2
R-32961	Actuator Plate	2
R-6944	Rod Guide	2
R-19047	Spacer	2
R-6947	Lock Tab	4
R-19046	Pivot Stud	2
R-19045	Mounting Block	2
R-19049	Self-Locking Setscrew	4
R-4686	Quick Release Pin	2
R-1650	Plate	2
R-32960	Brake Line Relocation Bracket	2
R-32930	Brake Line/Hook Guard	2
R-990KIT-419	5/8" UNC Gr. 8 Bolt x 6" Long	2
	5/8" Gr. 8 Type-A Washer	6
	5/8" UNC Gr. 8 Nylon Insert Lock Nut	2
	3/4" Gr. 8 Type-A Washer	10
	3/4" UNC Gr. 8 Heavy Jam Nylon Insert Lock Nut	2
R-990KIT-416A	5/16" UNC Gr. 8 Bolt x 1" Long	2
	5/16" Gr. 8 Type-A Washer	4
	5/16" UNC Gr. 8 Nylon Insert Lock Nut	2
R-990KIT-417A	1/2" Gr. 8 Type-A Washer	4
	Cotter Pin, 3/16" X 1 1/4"	2

1. Remove the front OEM wheels.

Note:

Make sure the truck is supported by the axle so the suspension/axle does not drop.

2. Remove the existing hardware that attaches the upper trailing arm to the front axle.
3. Replace the removed hardware with a 5/8" x 6" grade 8 bolt, SAE flat washers, spacer, guard and a nylock nut as shown. Torque to 120 ft. lbs. as specified by RAM service department.
4. Bench assemble the mounting block, pivot stud, and self-locking setscrews making sure the setscrews fasten tight against the flats on the pivot stud as shown in Figure 1.
5. Place the axle lockup hook on the pivot stud, and hold lockup hook underneath the spacer, leaving about 1/4" between the hook and the spacer. Weld the mounting block to the shock tower.

6. Remove the hook, and assemble both hooks with two or three 3/4" washers, and one heavy jam nylock nut and the actuator plate as shown. Do not over tighten as the hook needs to swing freely by hand, and will need to be removed later for welding.
7. Tack weld the Actuator Plate to the hook. Position the Actuator Plate towards the rear of the vehicle as shown in Photo #1. The location of the Actuator Plate will depend on how the pull rods are routed around and through the vehicle's accessories. **Note:** The number of washers will be determined by how much the hook needs to be spaced out. The hook should be centered within the spacer when engaged.
8. Remove the OEM brake line support bracket attached to the front axle.
9. Bolt the brake line relocation bracket, as shown in photo #2, to the same location as the OEM bracket, using the OEM hardware. The bend on the bracket with the two holes should be facing forward.
10. Bolt the OEM brake line support bracket to the relocation bracket, using the supplied 5/16" hardware, as seen in photo #2. The OEM bracket should be bolted to the outer most hole (closest to the tire) in the relocation bracket.
11. Remove the front bumper, and cut a 2" X 3" access hole in the bumper mounting bracket, as shown in photo #3. This will be used as a clearance hole for the installation of the pull rod. Now turn the bumper over to install a hole for the pull rod, as shown in photo #4.
12. If you have removed the inner fender, reinstall it and drill a clearance hole for the rod to pass through, as shown in photo #5.
13. Bend the pull rod to clear any obstructions such as shock tower, etc., as shown in photo #5.
14. With the rod bent and positioned where needed, you will need to place a 1/2" washer on the rod and weld in place to keep the rod from moving in and out. Drill a hole for the cotter pin, as shown in photo #6.
15. Remove the hook, and finish welding the actuator plate to the hook, as shown in photo #6
16. Re-install the hook weldment, and tighten the nut. Do not over-tighten; the hook must move freely.
17. Install the pull rod into actuator plate, and install the cotter pin.
18. Find a suitable location for the rod guide, and weld it in place, as shown in photo #7.
19. Pull the rod forward until the hook clears the lock-up bolt, and weld the rear lock tab into position on the pull rod, as shown photo # 8.
20. Push the pull rod until the hook is fully engaged onto the lock up bolt. Now weld the front lock tab into position on the pull rod, as shown in photo #8.
21. Bend a handle on the end of the pull rod and cut off excess material.
22. Repeat this process for the opposite side.

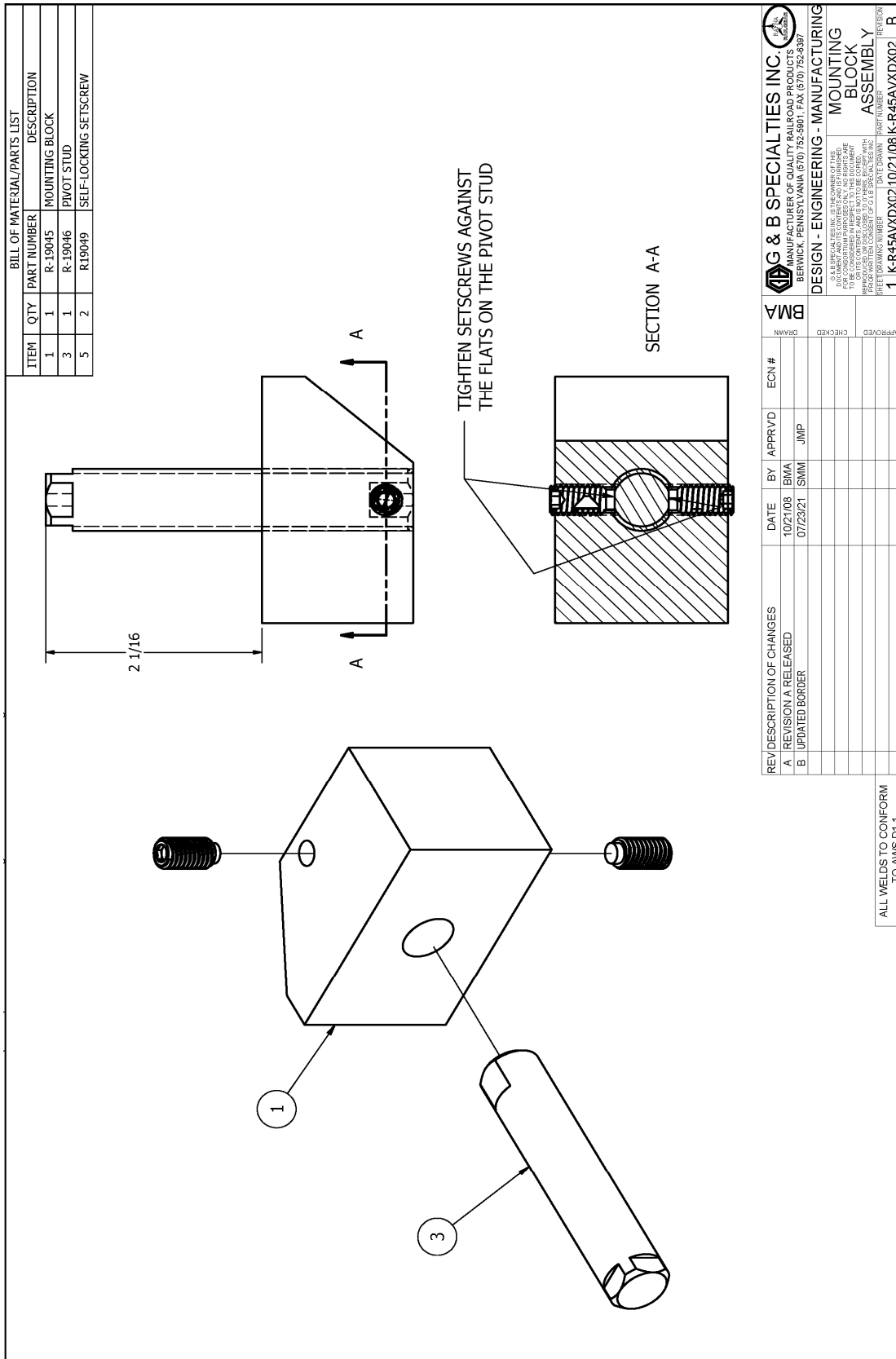


Figure 1: Mounting Block Assembly

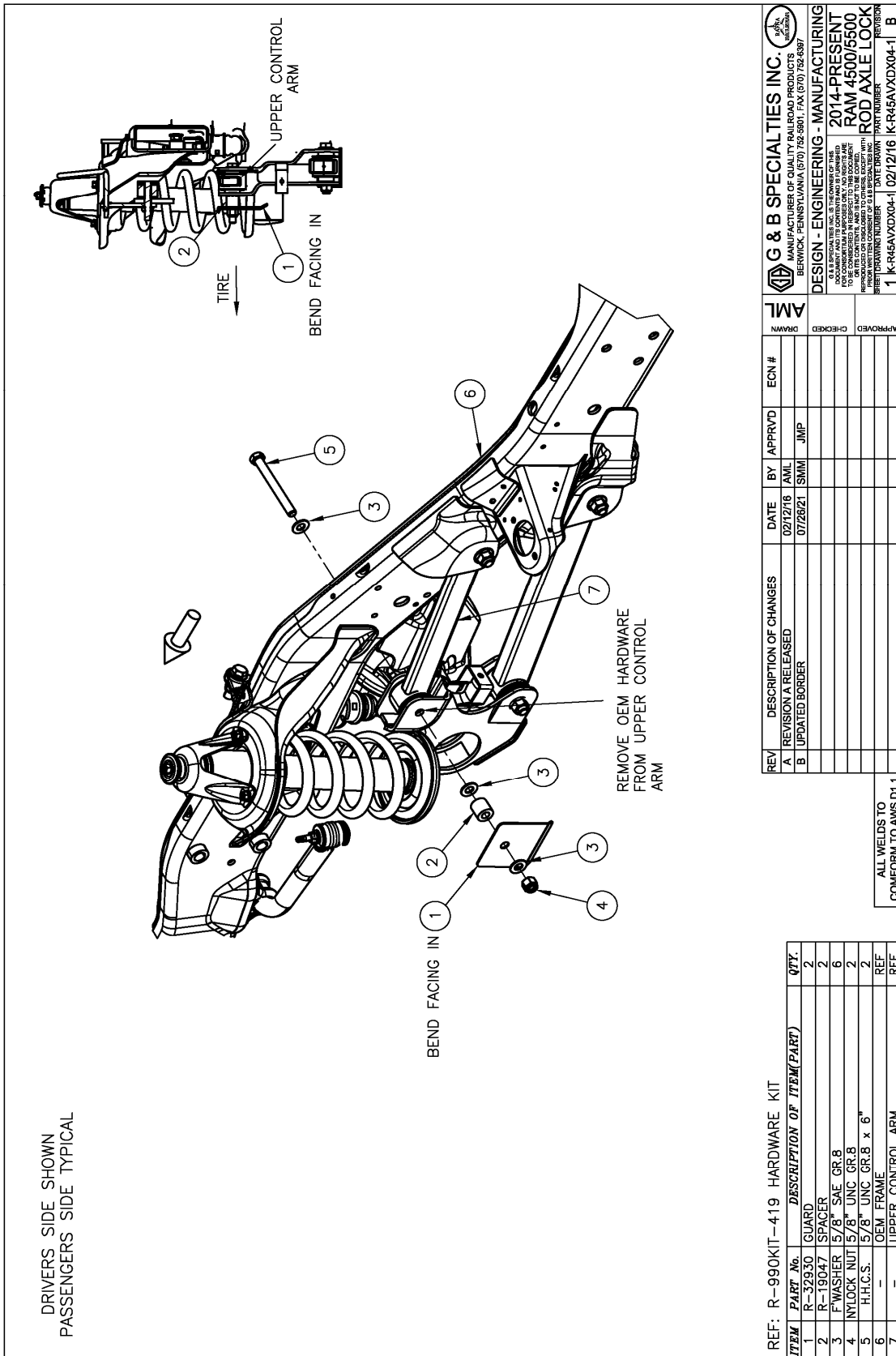


Figure 2: Axle Lock Installation, Sheet 1

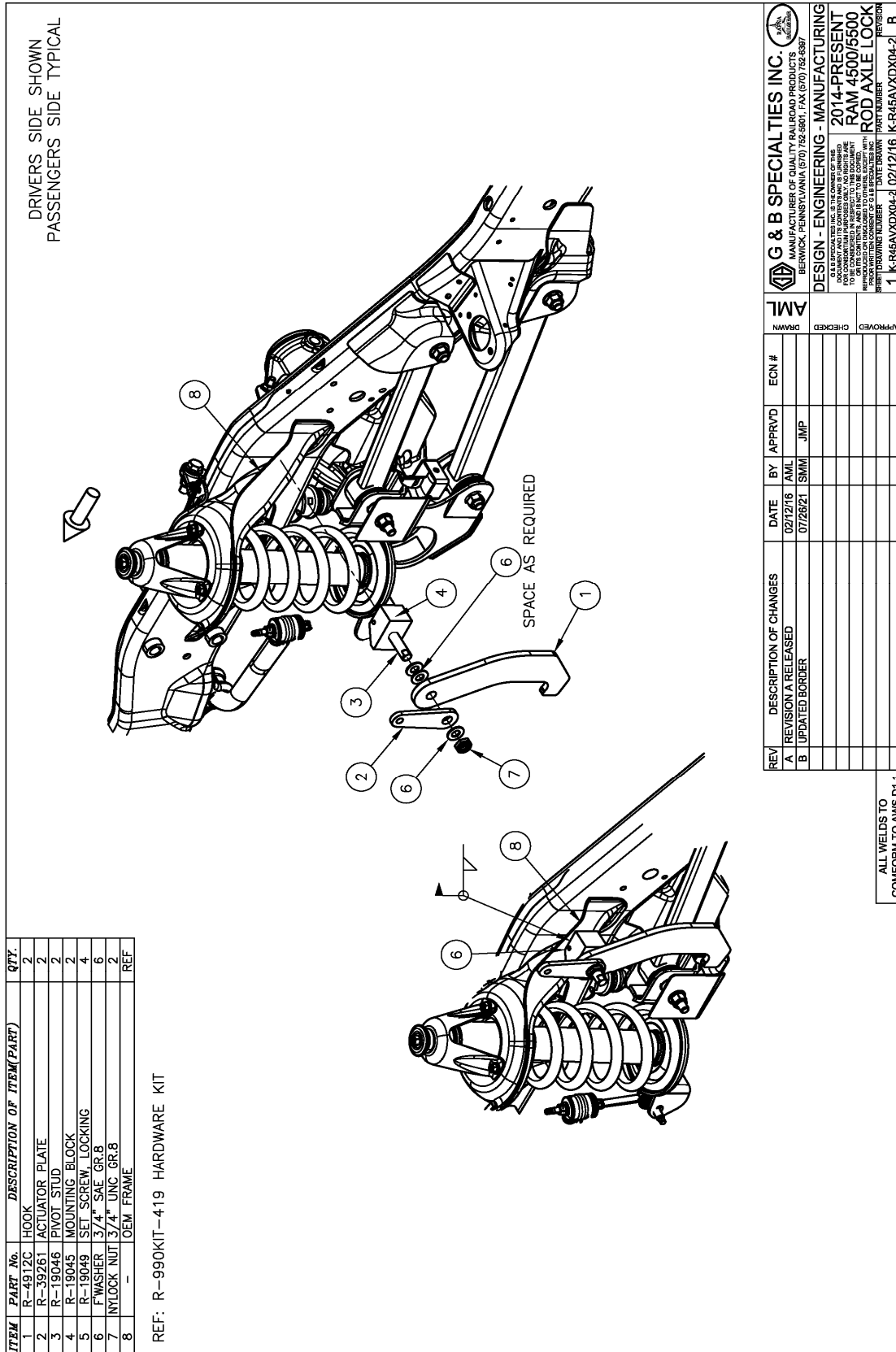


Figure 3: Axle Lock Installation, Sheet 2

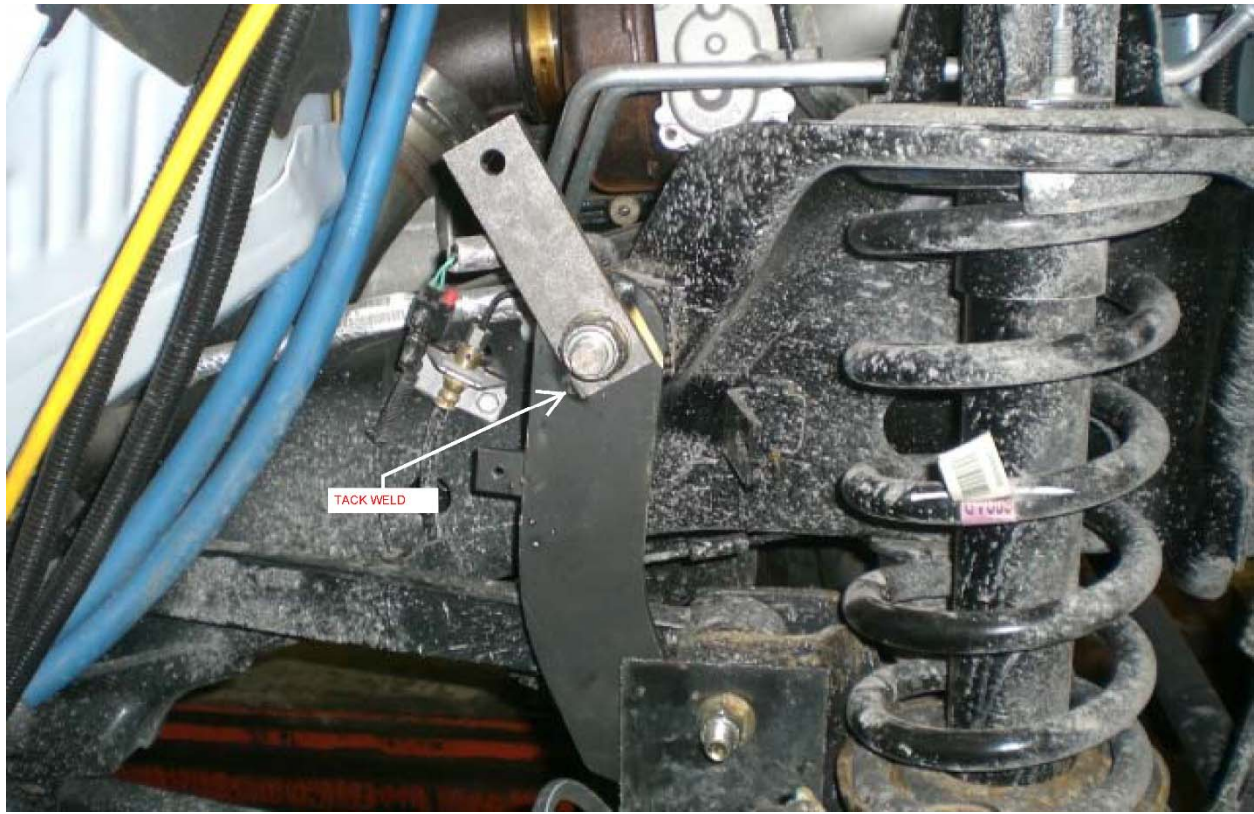


Photo 1

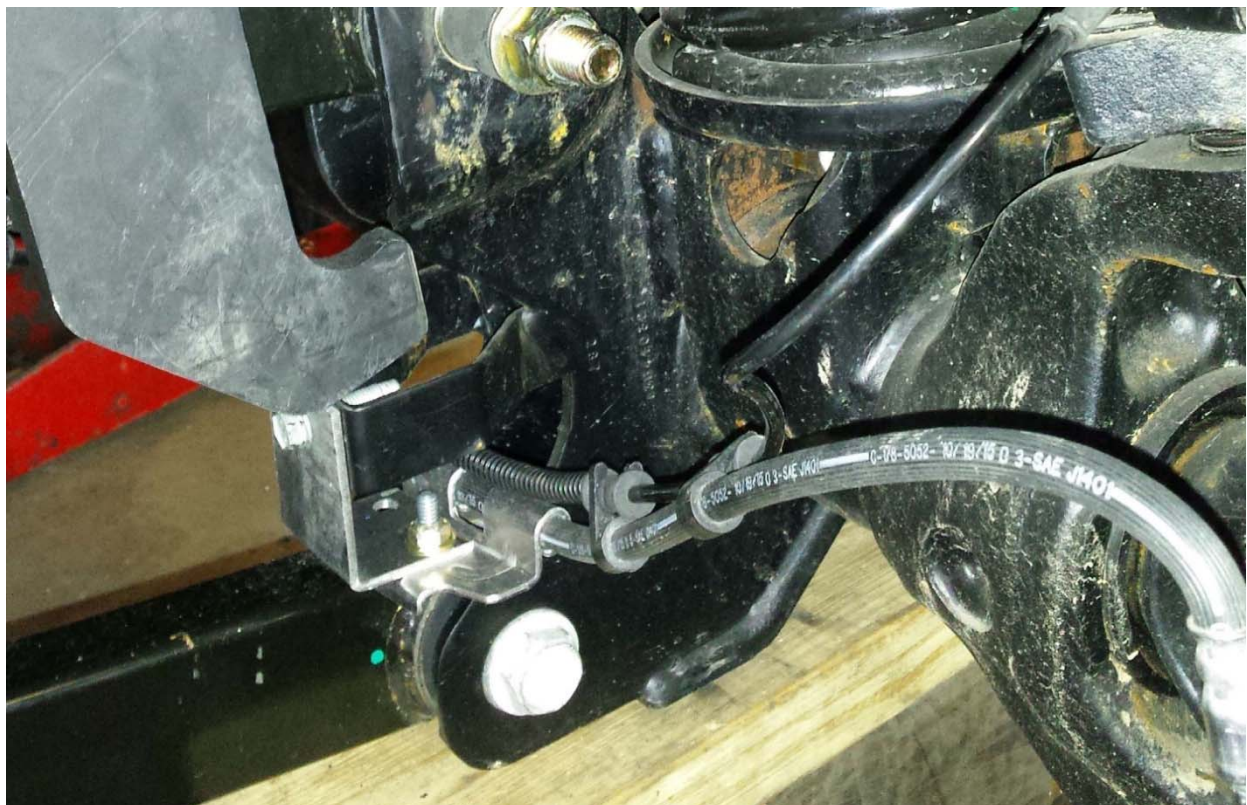


Photo 2

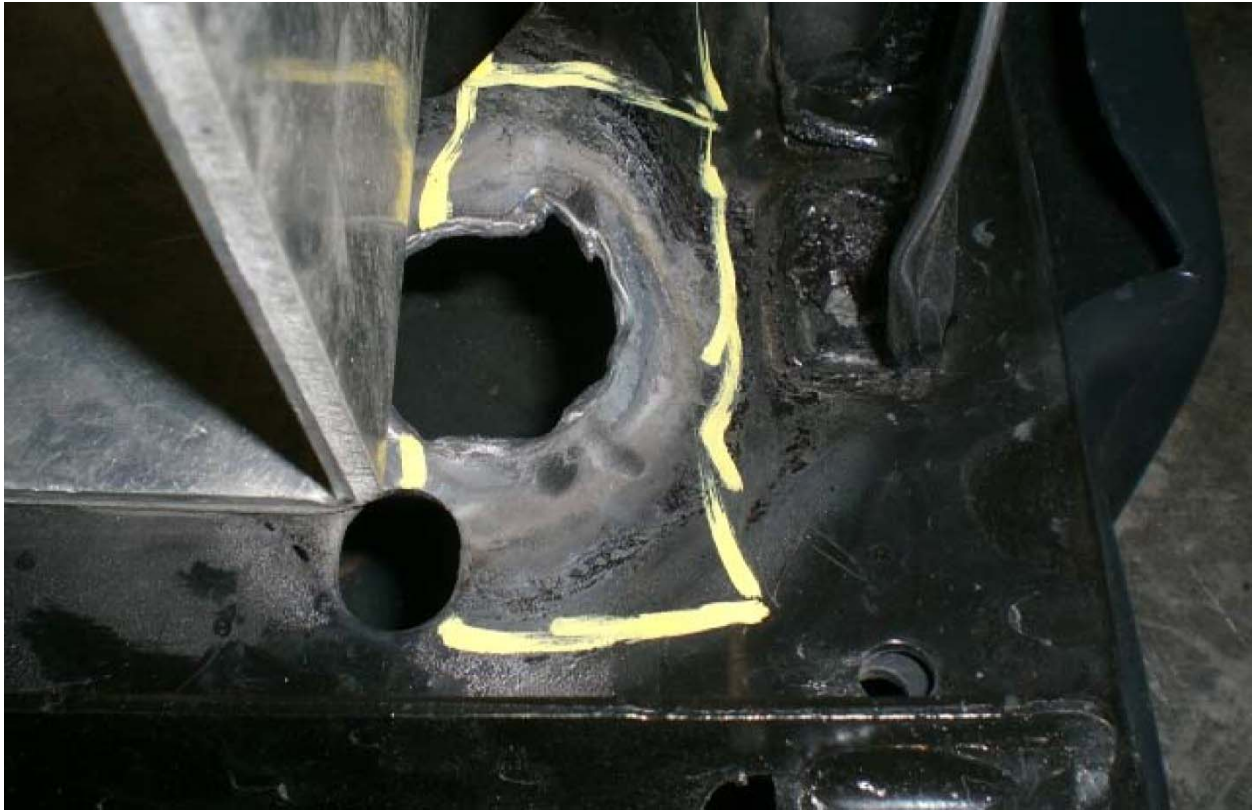


Photo 3



Photo 4

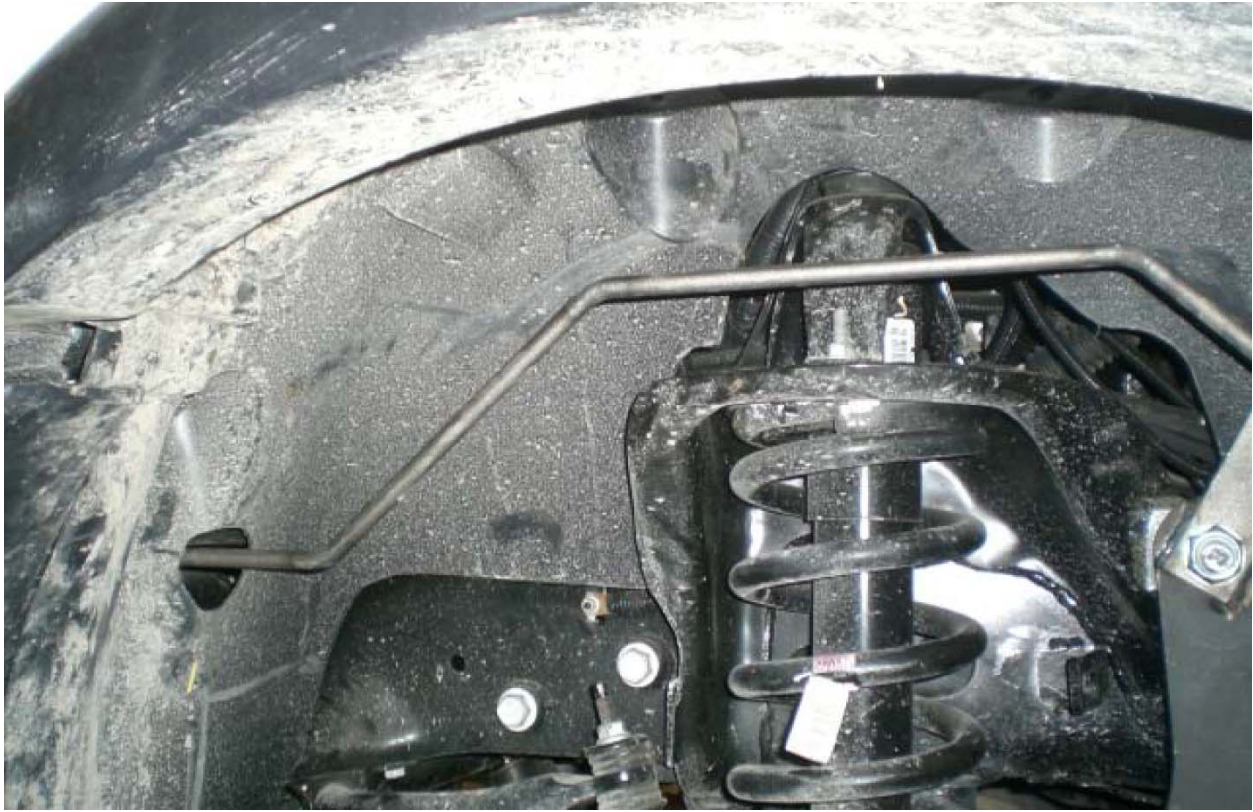


Photo 5



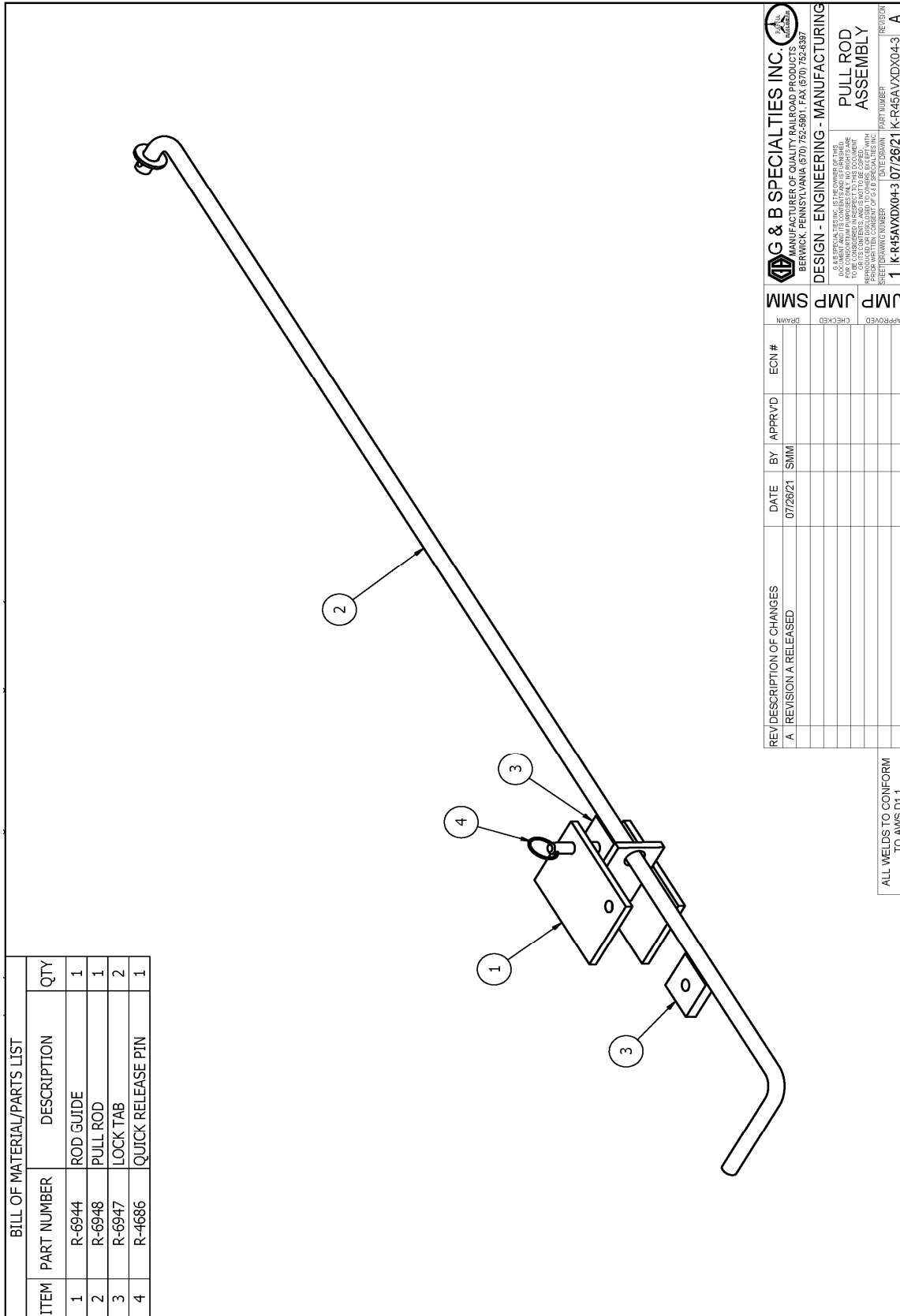
Photo 6




Photo 7



Photo 8



Pull Rod Assembly

 G & B SPECIALTIES INC. MANUFACTURER OF QUALITY RAILROAD PRODUCTS BERWICK, PENNSYLVANIA (670) 752-5901, FAX (670) 752-6397		PULL ROD ASSEMBLY PART NUMBER: K-R45AVDX04-3 REVISION: A	
DESIGN - ENGINEERING - MANUFACTURING DATE DRAWN: 07/26/21		SHEET DRAWING NUMBER: 1 PART NUMBER: K-R45AVDX04-3 REVISION: A	
APPROVED	JMP	DATE	07/26/21
CHECKED	JMP	BY	SMM
DRAWN	SMM	APPRVD	
		ECN #	
REV/DESCRIPTION OF CHANGES A REVISION A RELEASED			
ALL WELDS TO CONFORM TO AWS D1.1			

OPERATION OF R-450 ROD ACTUATED FRONT TRUCK AXLE LOCK 2014 - PRESENT, RAM 4500/5500 CHASSIS CAB

OPERATION 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 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.
- Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- 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.
- Always disconnect the vehicle's battery when welding on the vehicle or railgear in order to protect the vehicle's electrical system.

OPERATION OF MANUAL FRONT AXLE LOCK KIT (ROD)

With the front axle lock kit installed on this vehicle, it may be operated as normal.

The front axle lock should only be engaged for rail travel and should always be disengaged for road travel. Never operate the vehicle on road with the front axle lock engaged.

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.

To Engage The Front Axle Lock:

1. Grasp the handle for the axle lock rod (one for each side), pull the pin and push the rod in toward the front bumper. Insert pin to lock in place.
2. Visually inspect that both axle lock-up hooks have fully engaged the hook catches welded to the front suspension arms.
3. Proceed to lower the front railgear unit.
4. As the front rail wheels engage the rail, the front of the vehicle will begin to rise.
5. Continue to lower the front railgear unit until the cylinders are fully extended and the railgear lock up hook has engaged.
6. With the front railgear unit in the fully locked rail position, the front tires should be approximately 2" to 3" above the rail head.

To Disengage the Front Axle Lock:

1. Disengage the railgear lock and raise the railgear to the full locked road position.
2. Grasp the handle for the axle lock rod (one for each side), pull the pin and pull the rod out away the front bumper. Insert pin to lock in place.
3. Visually inspect that both axle lock-up hooks have fully retracted from the hook catches welded to the front suspension arms.

ROD OPERATED FRONT AXLE LOCK ADJUSTMENT

The manual front axle lock is adjusted when the vehicle is resting on its tires in its minimum loaded condition with the railgear in the road position and the axle lock engaged. For the axle lock to function properly, there are three adjustments to be made:

1. There should be a clearance of 1/8" to 3/8" between the hooking surface of each hook and hook catch. If the clearance is larger than 3/8", steel shims can be welded to the bottom of the hook catch. If the clearance is less than 1/8", any previously installed shims can be removed. If there are no shims to remove, the hook catch can be cut off the bracket and re-welded higher up on the bracket using a 3/8" all around fillet weld.
2. The rear vertical edge of each hook should rest flat against the forward edge of the hook catch when the axle lock is fully engaged. This can be adjusted by cutting the hook catch off the bracket and re-welding it in place using a 3/8" all around fillet weld.
3. Each hook must clear the suspension arm by at least 1/2" through its full range of motion. The hooks can be moved inboard and outboard on the hook hanger pivot post by adjusting the number of plastic washers on each side of the hook.
4. Paint all welded areas after the axle lock is properly adjusted.
5. Ensure that there is sufficient clearance between the front axle lock components and all vehicle components through their full range of motion.

SERVICE OF FRONT AXLE LOCK KIT

The Front Axle Lock Kit must be serviced regularly to avoid damage to the equipment. Table 2 below provides the Recommended Service Schedule and the detailed service procedures follow.

Do not torque the 3/4" fasteners that hold the hooks; these fasteners should only be tightened sufficiently to hold the hook from falling off the pivot stud. Table 3 provides all other Standard Fastener Torque Values.

Table 2: Recommended Service Schedule

Service Required	Daily	Weekly	Monthly	3 Months	6 Months
Inspect front axle lock fasteners (re-torque if required)	✓	✓	✓	✓	✓
Check / adjust front axle lock hook clearance (see procedure)					✓

Table 3: Standard Fastener Torque Values

Fastener Size	Fastener Torque Value (ft-lbs) Dry
1" UNC Gr. 8 Fasteners	250
3/4" UNC Gr. 8 Fasteners	175
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