

INSTALLATION OF HYDRAULIC KIT FOR PTO OPERATION 2019 AND UP INTERNATIONAL CV515/CHEVY SILVERADO 4500-6500 CREW CAB

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.
- Do not start the vehicle with the power steering hoses disconnected. Reconnect all hoses and secure the power steering cooler if the vehicle is started.
- Beware of all pinch points on the railgear and keep all parts of the body clear.
- When routing hydraulic hoses, ensure that the hoses do not contact any sharp edges or hot surfaces.
- When routing electrical wires, ensure that the wires do not contact any sharp edges or hot surfaces.
- All wire connections are to be soldered and heat shrink sealed to prevent further corrosion related problems.
- All wires must be covered with protective cable loom.
- 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 HYDRAULIC KIT W/ PTO OPERATION

The following procedure details the installation of the hydraulic kit. The items required for this installation are listed in Table 1.

Table 1: Hydraulic Kit Installation Parts (K-H49RFRR002)

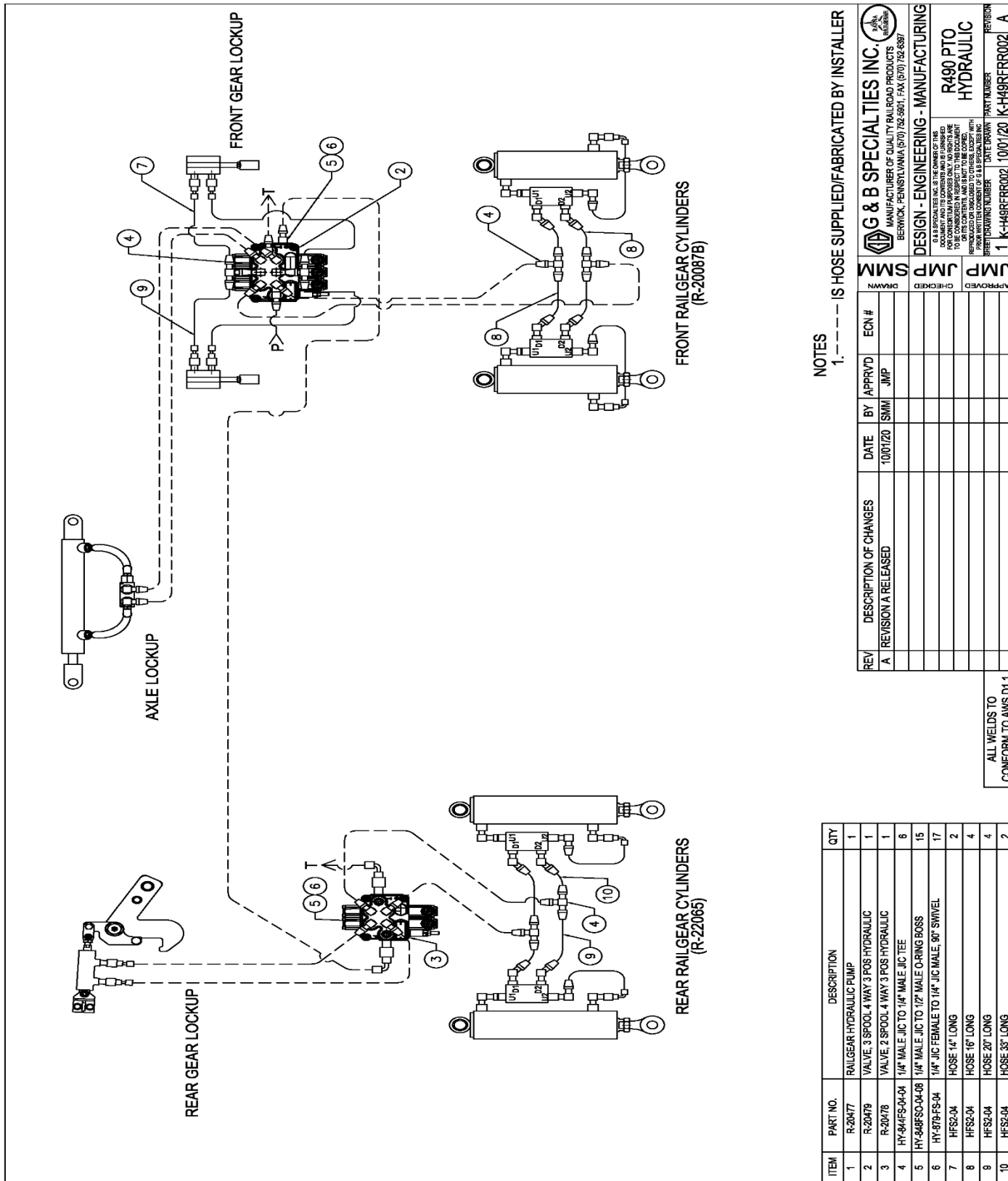
Part Number	Description	Qty
R-20478	Rear Operating Valve	1
R-20479	Front Operating Valve	1
	1/4" Male JIC to 1/4" Male JIC Tee	6
	1/4" Male JIC to 1/2" Male ORB	15
	1/4" JIC Female to 1/4" JIC Male, 90 Swivel	17
	Hydraulic Hose 14" Long	2
	Hydraulic Hose 16" Long	4
	Hydraulic Hose 20" Long	4
	Hydraulic Hose 33" Long	2
R-990KIT-463	Screw, 5/16" X 2 3/4" UNC Gr. 8 Z/Y	6
	Washer, 5/16" SAE Flat Z/Y	12
	Nut, 5/16" Gr. 8 Nylock Z/Y	6

If vehicle was ordered with Emergency Hand Pump, it must be installed in conjunction with this hydraulic kit. Refer to the Emergency Hand Pump Installation/Operation manual for additional details

1. The vehicle's PTO pump should be selected to supply 3-5 gallon per minute (GPM) of oil at 2000 PSI at the front and rear railgear operating valves.
2. Install the front and rear control valves in an easily accessible location. Ensure that there will be enough room for the operator to stand safely out of the way of moving parts. Brackets will need to be fabricated for mounting. Use the 5/16" hardware provided to fasten the valves to the fabricated mounting plates. Photo 1 below shows suggested front mounting position. Rear will vary and depend on the box/bed and what is going on the vehicle.
3. Install all appropriate fittings and install/fabricate all appropriate hoses as shown on the included hydraulic schematics. (Figure 1)
4. Ensure that none of the hoses contact any sharp edges or hot surfaces. Secure these hoses in place when needed. Ensure that there is enough slack in the hoses for the railgear to function.
5. Follow the Hydraulic System Relief Valve Setting procedure located in the Hydraulic Kit Operating, Service and Parts section of this manual.
6. Test the operation of the controls. Refer to the operation procedure in the Railgear Kit and Hydraulic Kit Operation, Service, and Parts section of this manual.



Photo 1 : Suggested Valve Mounting Location



NOTES
1. --- IS HOSE SUPPLIED/FABRICATED BY INSTALLER

REV	DESCRIPTION OF CHANGES	DATE	BY	APPRVD	EON #
A	REVISION A RELEASED	10/01/20	SMM	JMP	

APPROVED	CHECKED	DATE DRAWN	PART NUMBER	REVISION
JMP	SMM	10/01/20	K-H49RFRR002	A

ALL WELDS TO CONFORM TO AWS D1.1

ITEM	PART NO.	DESCRIPTION	QTY
1	R-2047	RAILGEAR HYDRAULIC PUMP	1
2	R-2047B	VALVE, 3 SPOOL 4 WAY 3 POS HYDRAULIC	1
3	R-2047B	VALVE, 2 SPOOL 4 WAY 3 POS HYDRAULIC	1
4	HY-944FS-04-04	1/4" MALE JIC TO 1/4" MALE JIC TEE	6
5	HY-948FSO-04-08	1/4" MALE JIC TO 1/2" MALE O-RING BOSS	15
6	HY-879-FS-04	1/4" JIC FEMALE TO 1/4" JIC MALE, 90° SWIVEL	17
7	HFS2-04	HOSE 14" LONG	2
8	HFS2-04	HOSE 16" LONG	4
9	HFS2-04	HOSE 20" LONG	4
10	HFS2-04	HOSE 33" LONG	2

G & B SPECIALTIES INC.
MANUFACTURER OF QUALITY RAILROAD PRODUCTS
BERWICK, PENNSYLVANIA (570) 752-5901, FAX (570) 752-6397

DESIGN - ENGINEERING - MANUFACTURING

R490 PTO HYDRAULIC

Figure 1: Hydraulic Schematic

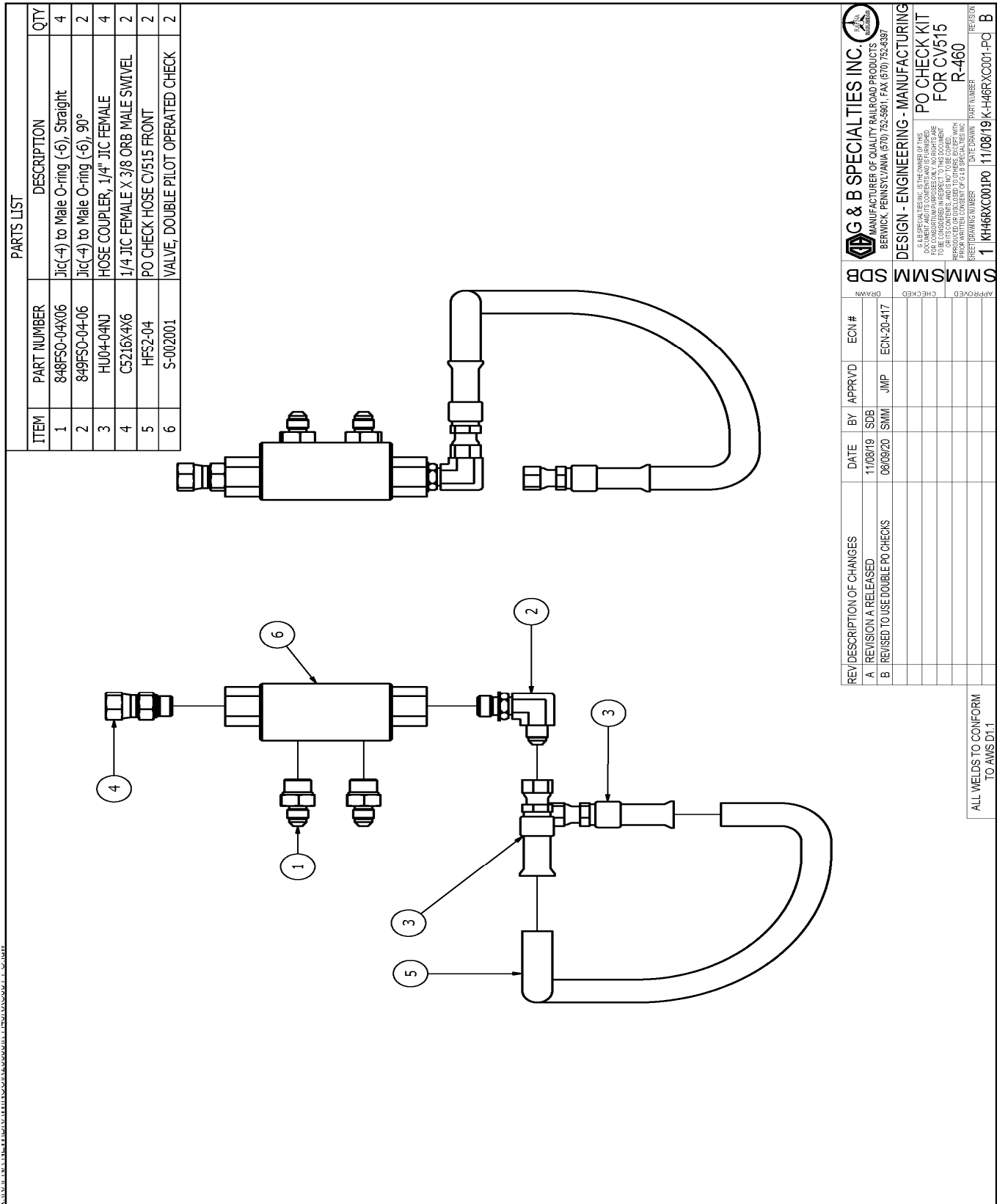


Figure 2: PO Check Valve Kit For Cylinders

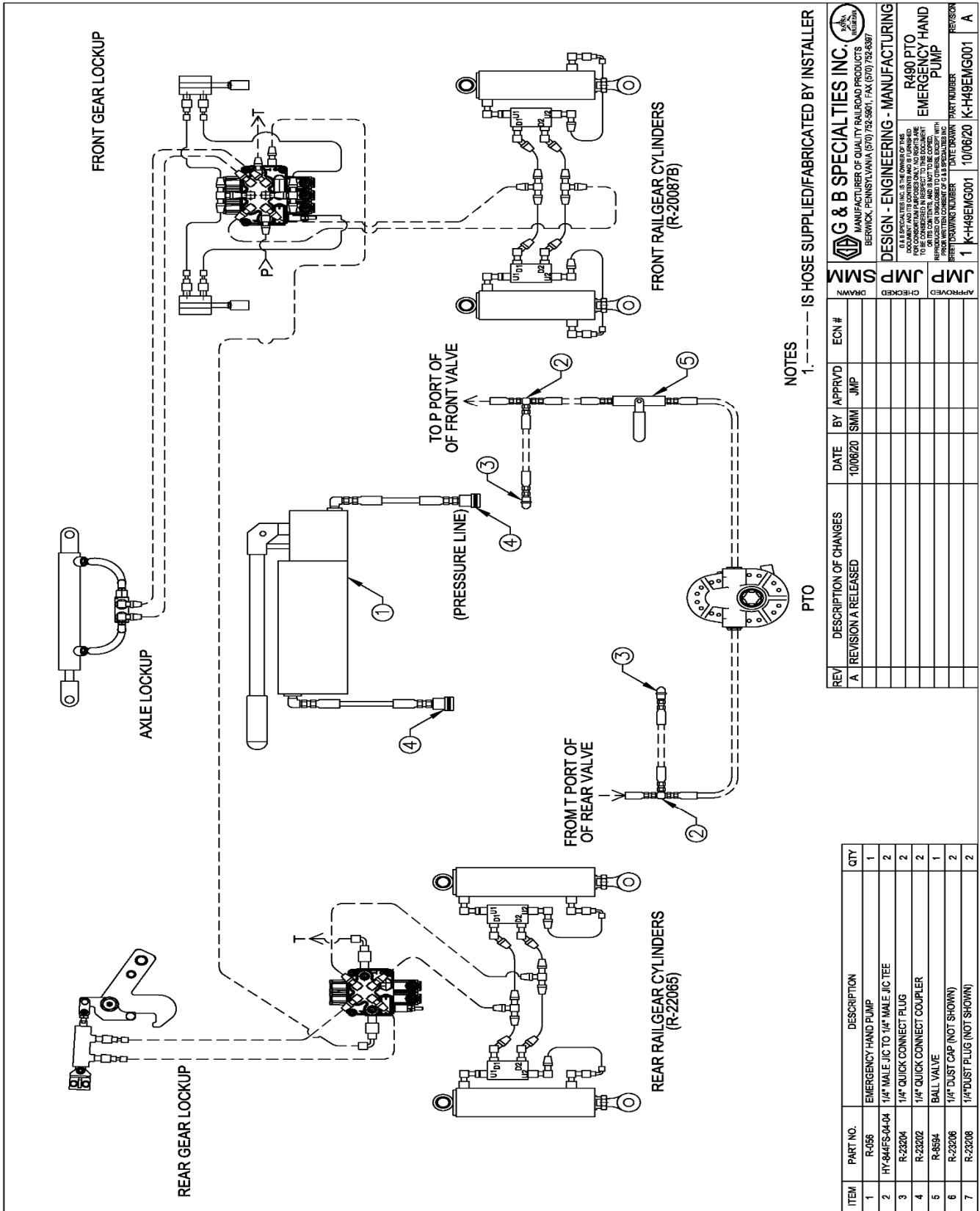


Figure 3: Emergency Hand Pump Reference

OPERATION/SERVICE OF R-490 HYDRAULIC KIT FOR PTO 2019 AND UP INTERNATIONAL CV515/CHEVY SILVERADO 4500-6500

OPERATION, SERVICE & PARTS SAFETY PRECAUTIONS

If any operating, service 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 always be observed.
- Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- Ensure all body parts and loose clothing are clear of any moving parts of the railgear. Be aware of all pinch points.
- If operating the railgear using the emergency hand pump, ensure that the correct manual valve over-ride is open for the desired railgear (front or rear) and desired direction of operation (raise or lower).
- Do not use the emergency hand pump to raise and lower the railgear on a routine basis. If the hydraulic pump or manifold should fail, have it repaired as soon as possible.
- Ensure the hydraulic pump has been de-energized before starting road or rail travel.

OPERATION OF HYDRAULIC KIT

With the hydraulic kit installed on this vehicle, it may be operated as normal.

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 Railgear Kit Operation, Service and Parts manual for information on the mechanical operation, service and parts of the railgear.

Location and Operation of the Railgear Hydraulic System Controls:

The railgear hydraulic system consists of a front control lever and a rear control lever.

1. The PTO must be engaged following the manufacturer's instructions. The railgear should not move until the operating valve is actuated.
2. The direction of the front or rear railgear movement is selected by pushing the lever or pulling the lever on the respected valve located near the railgear. The railgear should move only in the selected direction.
3. To stop the movement of the railgear, bring the lever back to the neutral/center position.
4. Disengage the PTO following the manufacturer's instructions.

SERVICE OF HYDRAULIC KIT

The hydraulic kit must be serviced regularly to avoid damage to the equipment. Table 2 below provides the Recommended Service Schedule and Table 3 provides Standard Fastener Torque Values.

The recommended oil for the railgear hydraulic system is **DEXRON III** or equivalent. In extremely cold weather areas/seasons, **ESSO Unavis J13** or equivalent may be used.

Table 2: Recommended Service Schedule

	Description	Daily	Weekly	Monthly	Every 6 Months
1	Inspect hydraulic kit fasteners (re-torque if required)				✓
2	Inspect all hydraulic fittings and hoses for leaks and wear.		✓		

Table 3: Standard Fastener Torque Values

Fastener Size	Fastener Torque Value (ft-lbs) Dry
1" UNC Gr. 8 Fasteners	250
¾" UNC Gr. 8 Fasteners	175
⅝" UNC Gr. 8 Fasteners	150
½" UNC Gr. 8 Fasteners	100
⅜" UNC Gr. 8 Fasteners	40
¼" UNC Gr. 8 Fasteners	12

HYDRAULIC SYSTEM RELIEF VALVE SETTING

The following procedure details how to adjust the railgear pressure relief valve settings. One relief valve is located on each operating valve and there may be one or more additional relief valves in the railgear hydraulic system. An adjustment of the relief valve settings should be carried out at installation and/or if ever there appears to be inadequate hydraulic pressure to operate the railgear.

1. Locate the hydraulic hose that connects the front railgear operating valve to the railgear hydraulic system pressure line. Release the pressure in the railgear hydraulic system and disconnect this hose from the front railgear operating valve.
2. Install a combination test gauge (up to 3000 PSI) and shutoff valve between the disconnected hydraulic hose and the front operating valve. The pressure gauge will indicate the relief valve setting, while the shutoff valve will enable a false load to be put on the hydraulic pump. Ensure that the shutoff valve is installed between the test gauge and front operating valve.
3. Engage the hydraulic pump.
4. Close the shutoff valve to enable the railgear hydraulic system relief valve to start releasing pressure. The pressure reading on the test gauge should indicate 2000 PSI. If this reading is incorrect, adjust the railgear hydraulic system relief valve accordingly.
5. Once the correct pressure on the railgear hydraulic system relief valve is obtained, open the shutoff valve.
6. Proceed to adjust each operating valve relief valve setting as follows:
 - A. Have an assistant watch the test gauge pressure reading while adjusting the relief valve settings. Ensure the shutoff valve has been completely opened.
 - B. With the railgear fully raised in road position, select "UP" on the operating valve. Hold in this position until the hydraulic oil passes over the relief valve and a reading is taken on the test gauge. The pressure should be 1800 PSI on the front and rear operating valves. Adjust the relief valve setting accordingly.
 - C. Proceed to adjust the second operating valve relief valve setting.
 - D. Release the pressure in the railgear hydraulic system and remove the test gauge and shutoff valve. Reconnect and tighten all hydraulic hoses