

INSTALLATION OF R-490 VEHICLE AXLE LOCKUP 2019 AND UP INTERNATIONAL CV515/CHEVY SILVERADO 4500-6500

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.
- 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 AXLE LOCK KIT

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

Table 1: Front Axle Lock Kit Installation Parts List (K-FAL49XR20437)

Part Number	Description	Qty
R-20437	Axle Lockup Bracket Assembly	2
R-20442	Hook Extension	2
R-20440	P.S. Hook	1
R-5679	Hydraulic Cylinder	1
R-5635	Nylon Washer	4
R-20440A	D.S. Hook	1
S-002002	Single PO Check Valve	1
HY-848FSO-04-06	Hydraulic Adapter	2
HY-849FSO-04-06	Hydraulic Adapter	2
HY-854FS-04-06	Hydraulic Adapter	2
HFS2-04-008	Hose, 8" Lg.	2
R-990KIT-453	Hex Screw, 3/8" UNC X 2" Long, Gr. 8	4
	Flat Washer, 3/8" Type A, Gr. 8	8
	Nylock Nut, 3/8" UNC Reg, Gr. 8	4
	Hex Screw, 1/2" UNC X 2 1/4" Long, Gr. 8	4
	Flat Washer, 1/2" Type A, Gr. 8	8
	Nylock Nut, 1/2" UNC Reg, Gr. 8	4
	Hex Screw, 3/4" UNC X 3" Long, Gr. 8	2
	Hex Screw, 3/4" UNC X 3 1/2" Long, Gr. 8	2
	Flat Washer, 3/4" Type A, Gr. 8	8
Nylock Nut, 3/4" UNC Reg, Gr. 8	4	

1. Locate the front cross member, this is where we will be focused.
2. Remove the original fasteners from the bottom of the frame. New/longer hardware will be used during installation. (Figure 1)
3. Once removed, place Axle Lockup Bracket (R-20437) against bottom of frame and install using provided 1/2" x 2 1/4" bolts and associated hardware. (Figure 2)
4. Next install the Hook Extension (R-20442) onto the Axle Lockup Bracket using the supplied 3/4" x 3 1/2" bolts and associated hardware. The nylon washers (R-5635) will go between the Hook Extension and ears of the Axle Lockup Bracket. This hardware will not be torqued. It is to remain slightly loose for proper function of the hooks. (Figure 2)
5. Ensure to install the correct hook on the correct side. The DS Hook will have an angled hook, and the PS will be flat. (DS/PS is determined by sitting in the vehicle) (Refer to figure 2 for clarity)

6. Follow the Front Axle Lock Hook Clearance Adjustment procedure in the Front Axle Lock Kit Operation, Service, and Parts Section. Use air to extend and retract the hydraulic cylinder at this point.
7. Once the Front Axle Lock is completely adjusted, check for sufficient clearance between the Front Axle Lock and all vehicle components through their full range of motion.
8. The same steps will apply to the opposite side for the install.
9. With both brackets installed and hooks fully adjusted on vehicle, install the 3/8" NPT to 1/4" JIC 45° fittings in each end of the cylinder.
10. Install fittings in PO Check Valve and plumb per Figure 3.
11. Refer to the Hydraulic Manual for proper connection points for the Front Axle Lock Hydraulics.
12. Fabrication of hoses from the PO check to the valve will be necessary.
13. Ensure that all hoses do not contact any sharp edges or hot surfaces. Secure hoses in place where necessary. Ensure that there is enough slack in the hoses through the full operation of the lockup.
14. Test the operation of the Front Axle Lock and ensure proper function and engagement of the lockup.

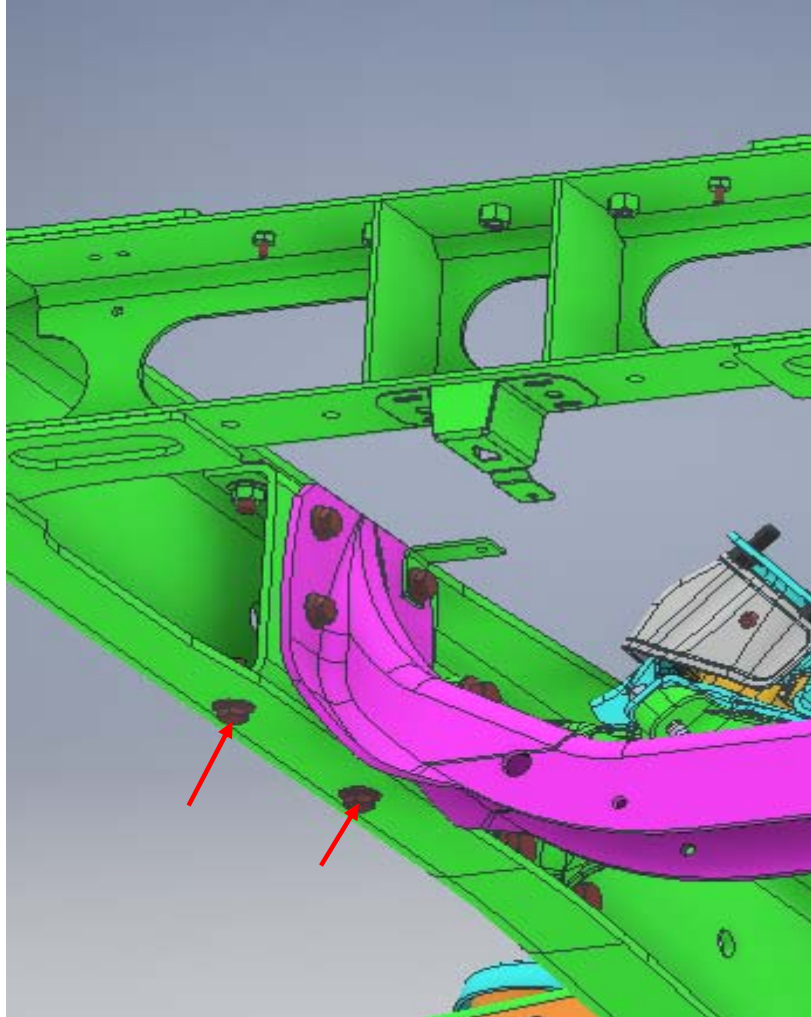
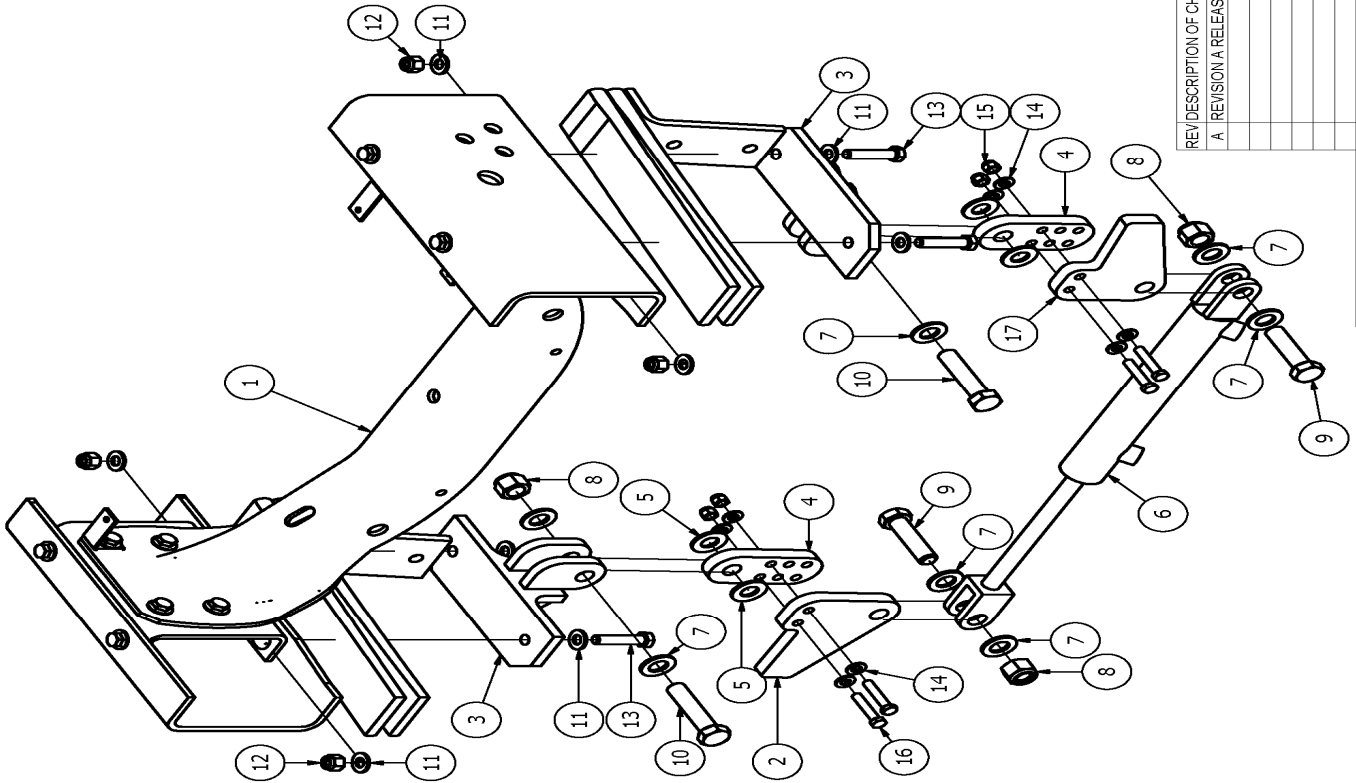
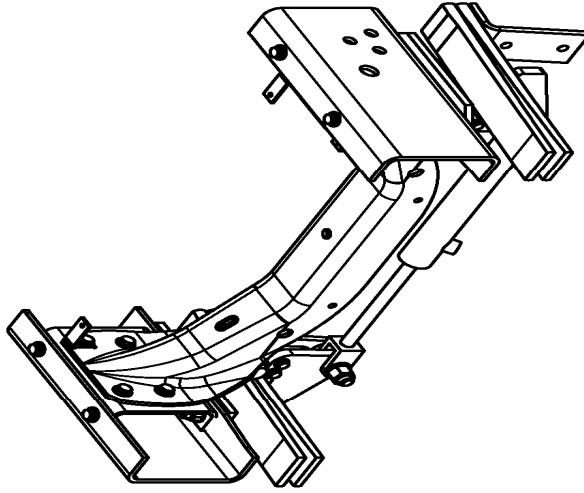


Figure 1: Bolt Location Removal

PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	OEM	CV 515 FRAME	1
2	R-20440	HOOK	1
3	R-20437	AXLE LOCKUP BRKT ASSY	2
4	R-20442	HOOK EXTENSION	2
5	R-5635	INSULATION WASHER	4
6	R-5679	CYLINDER FOR R-490 AXLE LOCKUP	1
7	990600-075-002	WASHER, 3/4" SAE FLAT Z/Y	8
8	990316-075-02	NUT, 3/4" REG HEX NYLOCK Z/Y	4
9	990731-300-22	SCREW, 3/4" X 3" GR.8 HEX Z/Y	2
10	990731-350-22	SCREW, 3/4" X 3 1/2" GR.8 HEX Z/Y	2
11	990600-050-002	WASHER, 1/2" SAE FLAT Z/Y	8
12	990316-050-02	NUT, 1/2" REG HEX NYLOCK Z/Y	4
13	990727-225-22	SCREW, 1/2" X 2 1/4" GR.8 HEX Z/Y	4
14	990600-037-002	WASHER, 3/8" SAE FLAT Z/Y	8
15	990316-037-02	NUT, 3/8" REG HEX NYLOCK Z/Y	4
16	990725-200-22	SCREW, 3/8" X 2" GR.8 HEX Z/Y	4
17	R20440A	HOOK	1



REVISION	DATE	BY	APPRVD	ECN #	APPROVED	CHECKED	DRAWN
A	04/15/20	SDB					

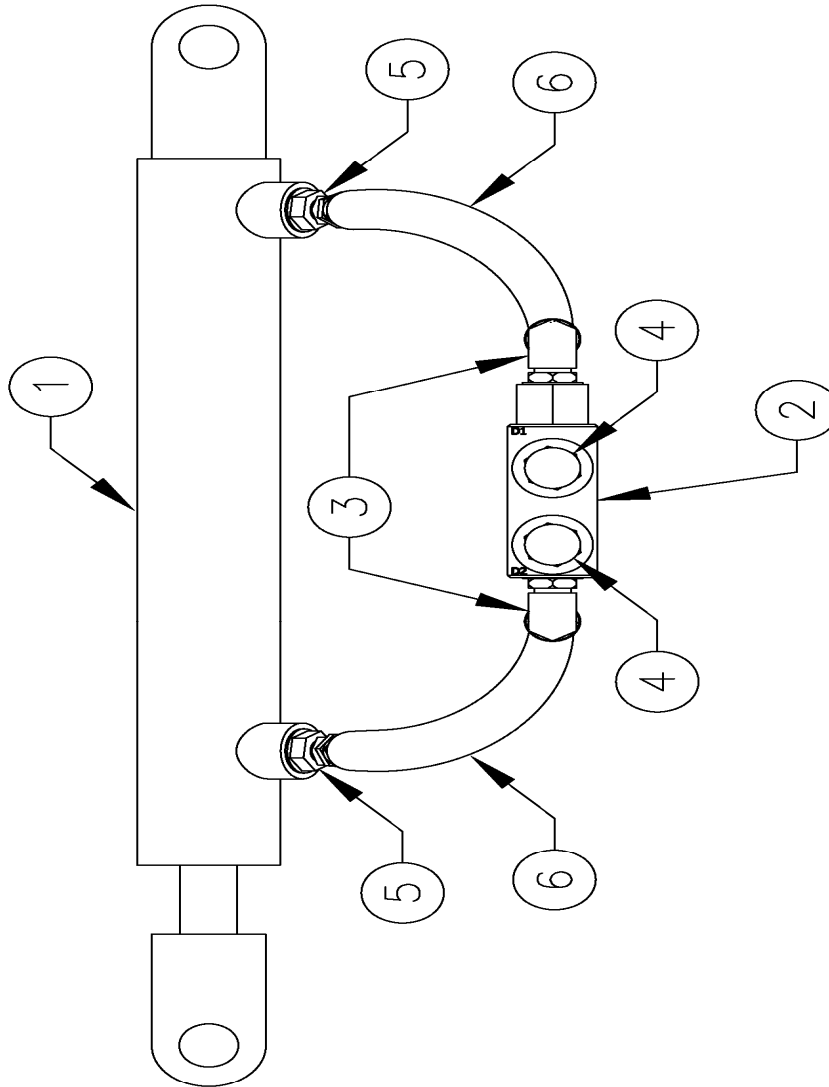
REV/DESCRIPTION OF CHANGES
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SM SMS M SDB
 G & B SPECIALTIES INC.
 MANUFACTURER OF QUALITY RAILROAD PRODUCTS
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DRAWING NUMBER: 04/15/20-K-FAL56XR20437
 PART NUMBER: CV515 AXLE LOCK
 REVISION: A

ALL WELDS TO CONFORM TO AWS D1.1

Figure 2: Axle Lockup Installation Diagram



NOTES

1. PO CHECK TO BE PLUMED TO FRONT CONTROL VALVE
2. REFERENCE HYDRAULIC MANUAL FOR FRONT CONTROL VALVE AND HYDRAULIC SCHEMATIC

REV	DESCRIPTION OF CHANGES	DATE	BY	APPRVD	ECN #
A	REVISION A RELEASED	06/12/20	SMM	JMP	

ITEM	PART No.	DESCRIPTION OF ITEM(PART)	QTY.
1	R-5679	CYLINDER, HYDRAULIC	1
2	S-002002	SINGLE PO CHECK VALVE	1
3	HY-846FS0-04-06	JIC (-4) TO MALE O-RING (-6), 90°	2
4	HY-846FS0-04-06	JIC (-4) TO MALE O-RING (-6), STRT	2
5	HY-854FS-04-06	JIC (-4) TO MALE NPT (-6), 45°	2
6	HFS2-04-008	HOSE, 8" LONG	2

APPROVED	JMP	CHECKED	JMP
DRAWN	SMM	CHECKED	JMP

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Figure 3 : PO Check Valve

OPERATION, SERVICE & PARTS OF VEHICLE FRONT AXLE LOCKUP 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 FRONT AXLE LOCK KIT

With the Front Axle Lock Kit installed on the 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.

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

To Engage the Front Axle Lock

1. The Front Axle Lock should be engaged **BEFORE** deploying the front Railgear to rail position.
2. Locate the appropriate lever on the control valve that operates the Vehicle's Front Axle Lockup.
3. Push lever to engage lock. Observe hooks are fully engaged under vehicle's leaf springs.
4. Proceed to lower the Railgear as per the Railgear Operation, Service, and Parts manual.

To Disengage the Front Axle Lock

1. The Front Axle Lock should only be disengaged once the front Railgear is fully returned to the road position and Railgear Lock is engaged.
2. Locate the appropriate lever for the Vehicle's Front Axle Lockup.
3. Pull the lever, removing the Lockup Hook from under the vehicle's leaf springs.
4. Ensure that the Hooks are fully disengaged from the springs and clear from all moving parts.
5. Proceed with road travel.

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 to follow.

Do not torque the 3/4" fasteners that connect the Hook Extensions to the Hook Brackets or the 3/4" fasteners that connect the Hooks to the Hydraulic Cylinder. These fasteners must remain slightly loose to allow the Hooks to swing freely. Table 3 provides all other Standard Fastener Torque Values.

Table 2: Recommended Service Schedule

Services Required		Daily	Weekly	Monthly	Every 6 Months
1	Inspect Front Axle Lock fasteners (Re-torque if Required)	✓	✓	✓	✓
2	Check Front Axle Lock for Oil Leaks (Repair if Required)	✓	✓	✓	✓
3	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

FRONT AXLE LOCK HOOK CLEARANCE ADJUSTMENT

Both the engaged and disengaged clearance between the Front Axle Lock Hooks and the vehicle's suspension must be correctly adjusted to ensure proper function and to avoid interference.

When the Front Axle Lock is engaged just before the front Railgear starts to lift the vehicle, the vertical side of the hooks should be vertical and pushing against the vertical side of the vehicle's leaf springs. Also, the top horizontal side of the hook should be 1/4" - 3/8" below the bottom horizontal side of the vehicle's leaf springs.

When the Front Axle Lock is disengaged with the Railgear in the road position, the hooks and all Front Axle Lock components should be at least 3/4" - 1" away from any vehicle components including moving parts of the vehicle's suspension.

There are a few ways to adjust the engaged and disengaged clearance. There are multiple holes in the Hook Extension to raise or lower the Hook. Shim stock can also be welded to the horizontal and vertical sides of the Hook in order to fine tune the clearances.

Once the correct hook to hook extension is obtained, tac weld the Hook and Hook Extension together using 1/4" fillet welds.

Once the Front Axle Lock is completely adjusted, check for sufficient clearance between the Front Axle Lock and all vehicle's components throughout their full range of motion. Torque all the Front Axle Lock fasteners to specifications.

