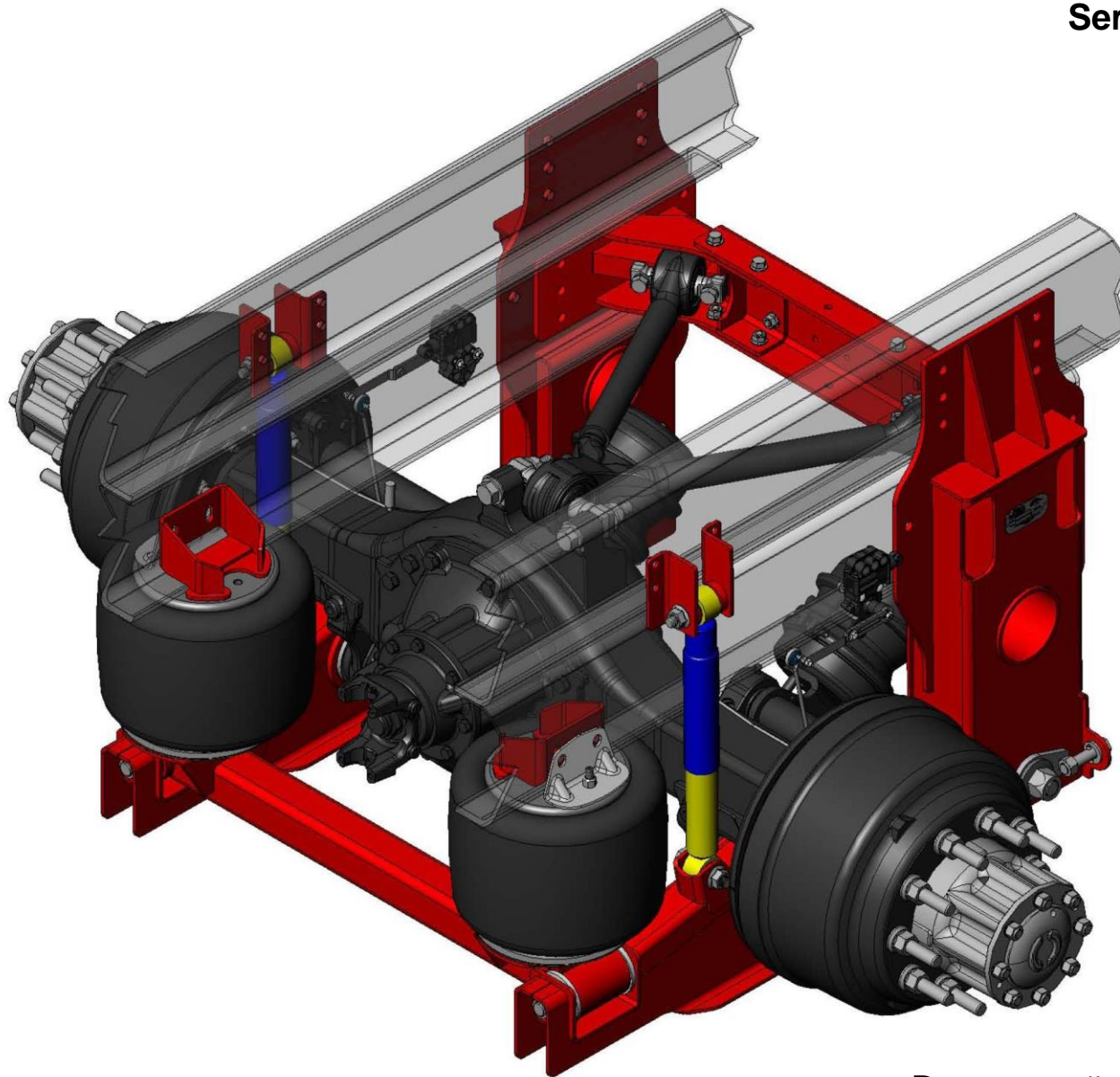


# **RD2300** | Parallelogram Rear Drive Suspension

**Maintenance Instructions  
Service Parts**



Document #: D707409  
Revision: F  
Revision Date: 10/13

**1-800-753-0050**

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# RD2300NR SUSPENSION SERVICE MANUAL

## Service Notes

This Service Manual describes the correct service and repair procedures for the ReycoGranning® RD2300NR Rear Drive Suspension.

The information contained in this manual was current at the time of printing and is subject to change without notice or liability.

You must follow your company safety procedures when you service or repair the suspension. Be sure you read and understand all the procedures and instructions before you begin work on the suspension.

ReycoGranning® uses the following types of notes to give warning of possible safety problems and to give information that will prevent damage to equipment.

### **WARNING**

**A warning indicates procedures that must be followed exactly. Serious personal injury can occur if the procedure is not followed.**

### **CAUTION**

**A caution indicates procedures that must be followed exactly. Damage to equipment or suspension components and personal injury can occur if the procedure is not followed.**

### **NOTE**

**A note indicates an operation, procedure or instruction that is important for correct service.**

Some procedures require the use of special tools for safe and correct service. Failure to use these special tools when required can cause personal injury or damage to suspension components.

ReycoGranning® Air Suspensions reserves the right to modify the suspension and/or procedures and to change specifications at any time without notice and without incurring obligation.

# Section 1

## Introduction

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### Introduction

ReycoGranning® Air Suspensions has developed this service manual to aid in the maintenance of ReycoGranning®'s rear suspensions.

The following table lists the various models and their respective capacities.

Model	Capacity	Axle Cap
RD2300NR-T	20,000 lbs	20,000 lbs
RD2300NR-T	23,000 lbs	23,000 lbs
RD2300NR-WR	23,000 lbs	23,000 lbs

Overloading the suspension may result in adverse ride and handling characteristics.

# Section 1

## Introduction

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### Identification

The serial number is used by ReycoGranning® for control purposes and should be referred to when servicing the suspension (**See Figure 1**). The suspension model and serial number are stamped on an aluminum tag that is riveted to the driver side upper Hanger Weldment (**See Figure 2&3**).

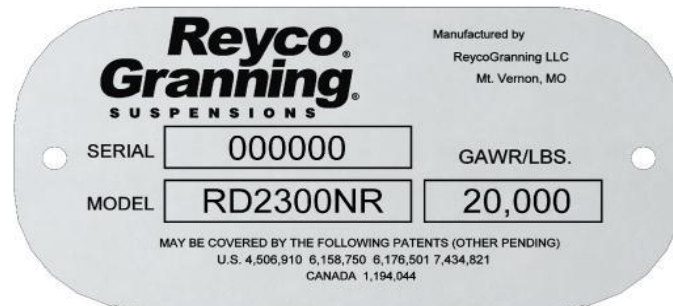


Figure 1 – Suspension Identification

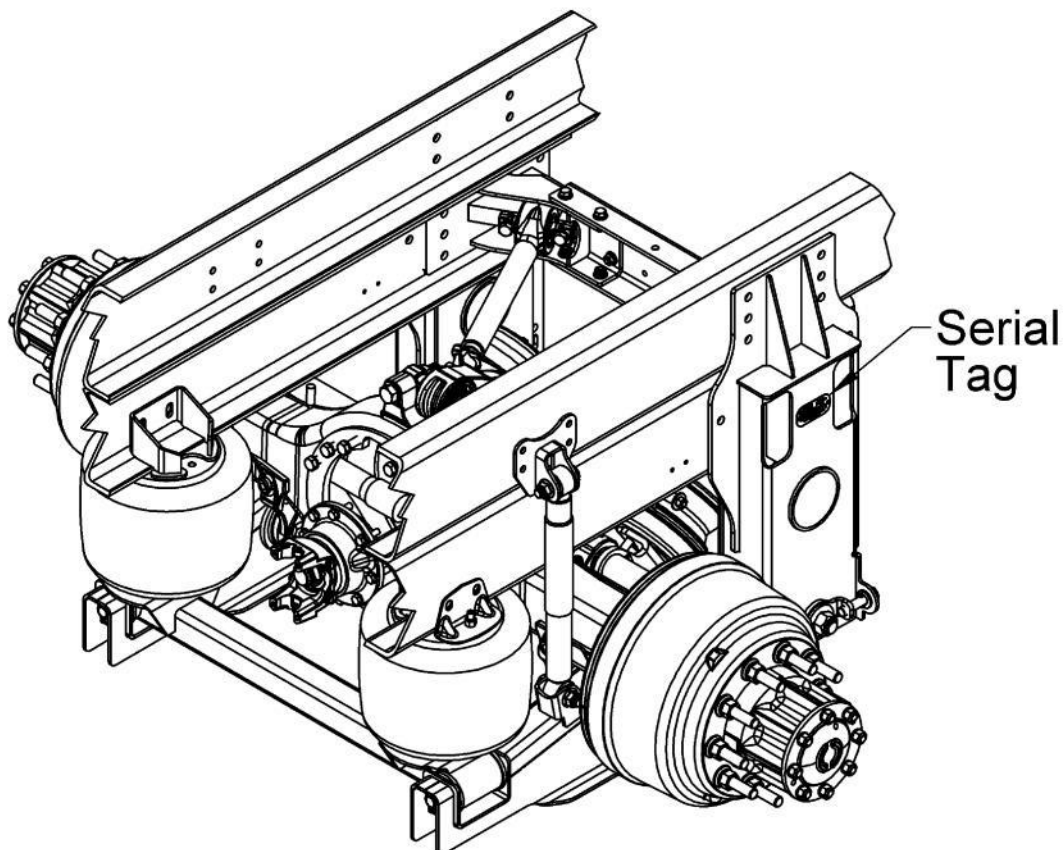


Figure 2 - Suspension Identification Location (Standard)

# Section 1

## Introduction

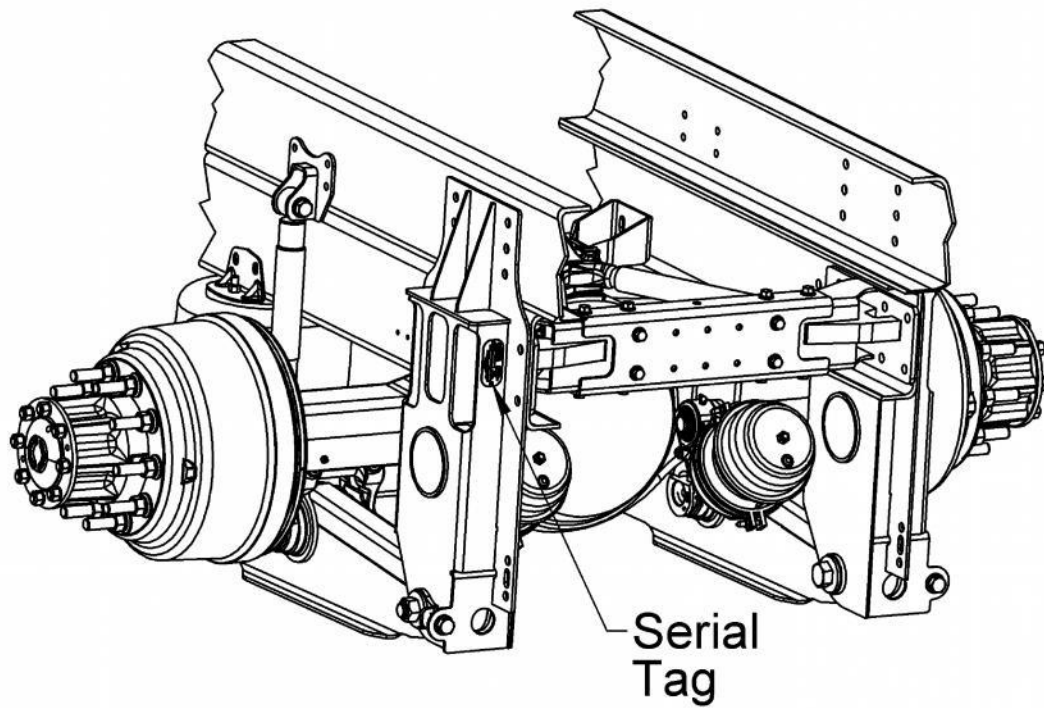


Figure 3 – Suspension Identification Location (-WR)

# Section 1

## Introduction

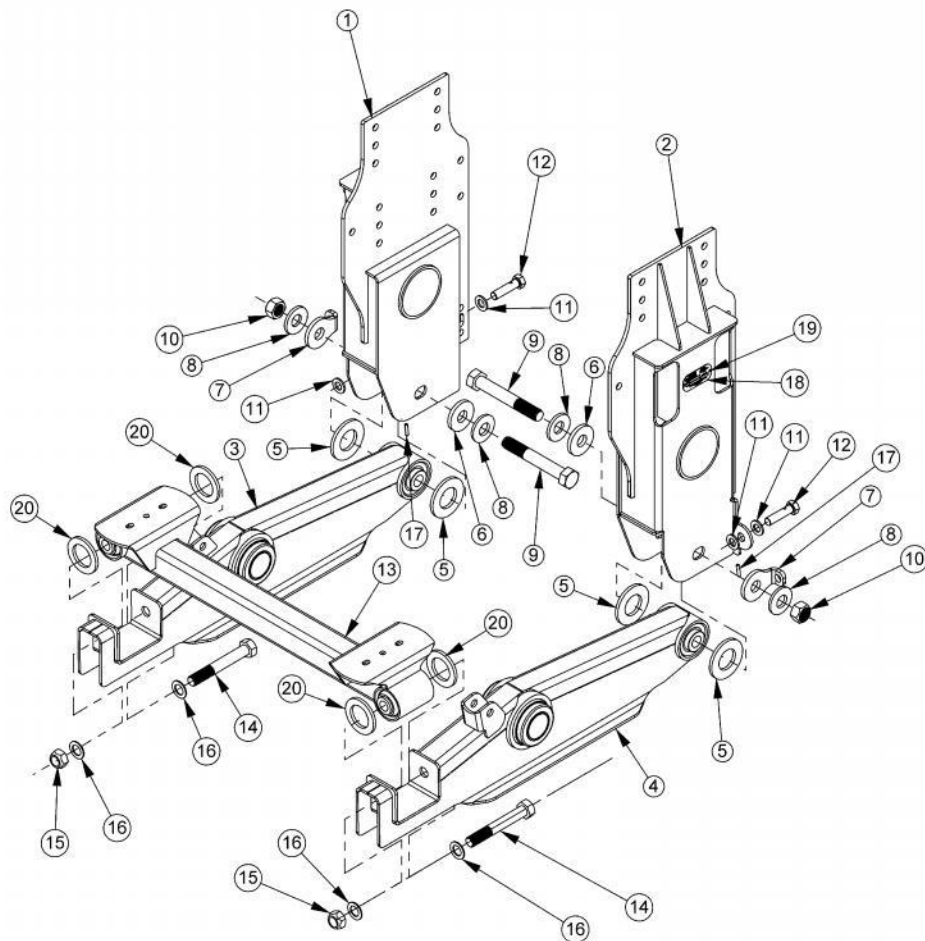
### (Kit One) - Hangers and Lower Control Arms (Standard K707366)

Item	Part No.	Description	Item	Part No.	Description
1	707373-01	Weldment, Hanger (LH)	10	166	*LN 1 1/8-12 GR C ZY
21	710276-01	Weldment, Hanger (LH) (-WR Only)	11	103003	*HFW 3/4 X .812x1.475 X .150N
2	707373-02	Weldment, Hanger (RH)	12	705456-01	*Rey-Align Adjustment Shaft
22	710276-02	Weldment, Hanger (RH) (-WR Only)	13	705446-01	Assembly, Cross Tube, W/ Bushings
3	707365-02	***Assembly, Lower Control Arm (RH)	14	700020-01	**HHB 1-14 x 7 GR 8 ZN
4	707365-01	***Assembly, Lower Control Arm (LH)	15	89422312	**LN 1-14 GR C CP
5	705450-01	*Wear Spacer, Polyethylene	16	89429523	**FW 1" 1.062x1.75x.10 PL
6	705454-02	*Washer (non-flanged)	17	24453-01	*Coiled Spring Pin
7	710513-01	*Rey-Align Tension Plate	18	2617	**Plate-Serial No.
8	705453-01	*Washer, Disk Spring	19	188	**Pop Rivet 1/8" dia. x .525" long
9	702516-02	*HHB 1 1/8-12 x 7 3/4 GR 8 ZN	20	706260-01	Wear Spacer, Polyethylene

\* Part of K706285 Rey-Align Fastener Kit

\*\* Part of K711160 Hanger & LCA Hardware Kit

\*\*\* Includes 705429-07 Thru Bolt Bushing Kit

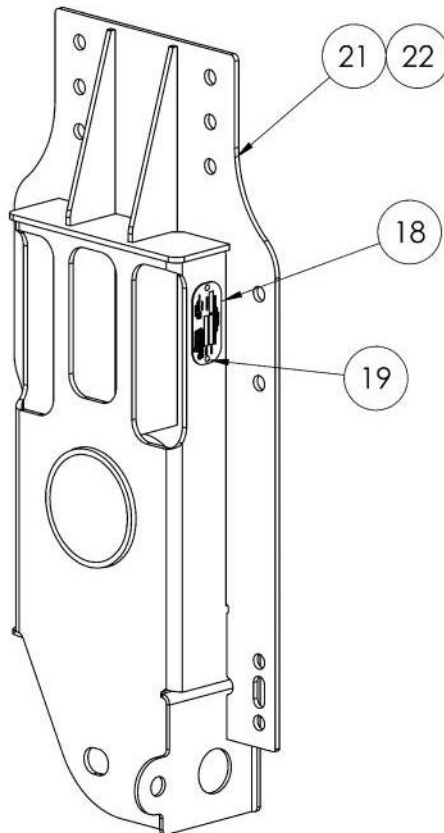


# Section 1

## Introduction

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### (Kit One) - Hangers and Lower Control Arms (-WR K710295)



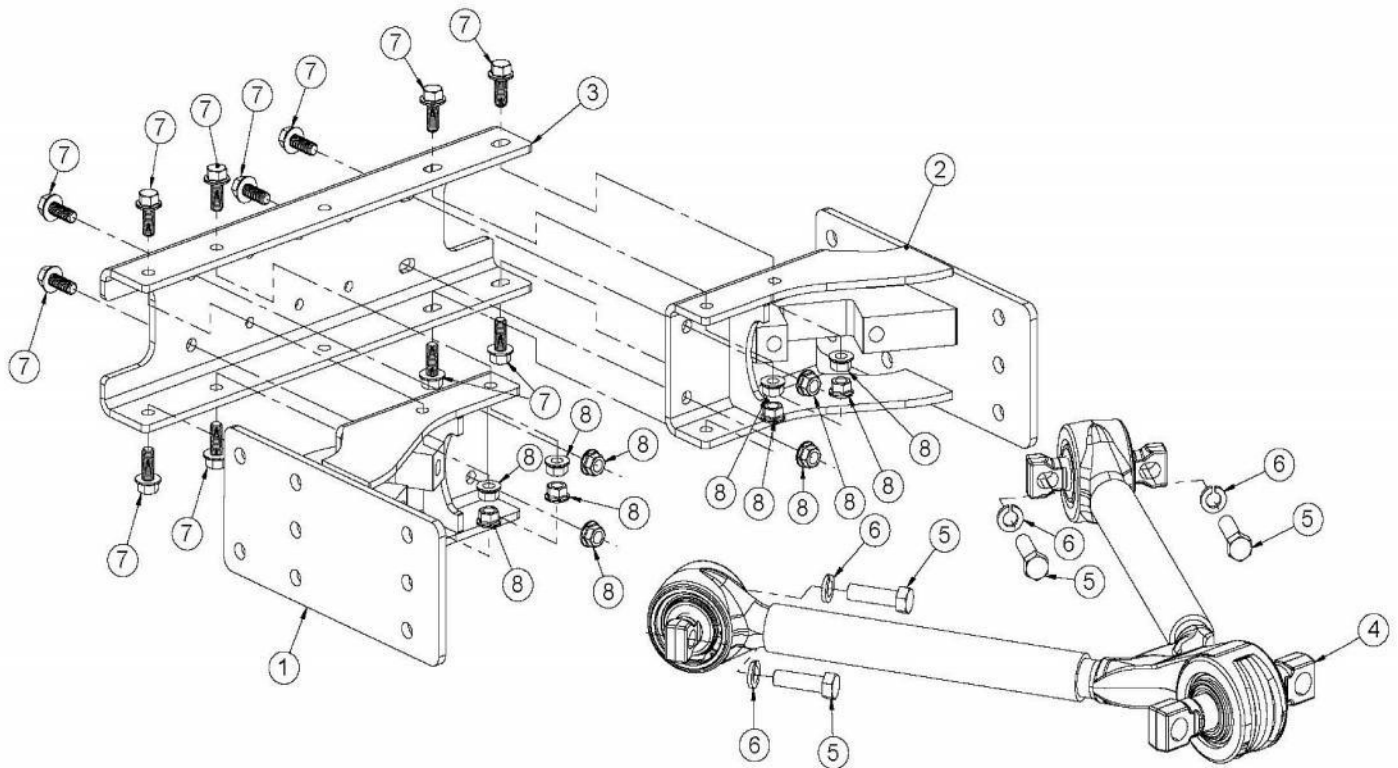
# Section 1

## Introduction

### (Kit Two) – Upper Control Arm K707379

Item	Part No.	Description	Item	Part No.	Description
1	707378-01	Weldment, V-Link Mount (LH)	5	2858	*HHB 5/8-11 X 2 1/4 GR 8
2	707378-02	Weldment, V-Link Mount (RH)	6	8455851	*SLW 5/8 .651 x 1.250 x .166 ZN
3	707377-01	Cross Member	7	309	*FHB 1/2-13 x 1.25 GR 8 ZN
4	705435-01	V-Link	8	308	*LFN 1/2-13 GR G ZN

\* Part of K711156 Upper Control Arm Hardware Kit





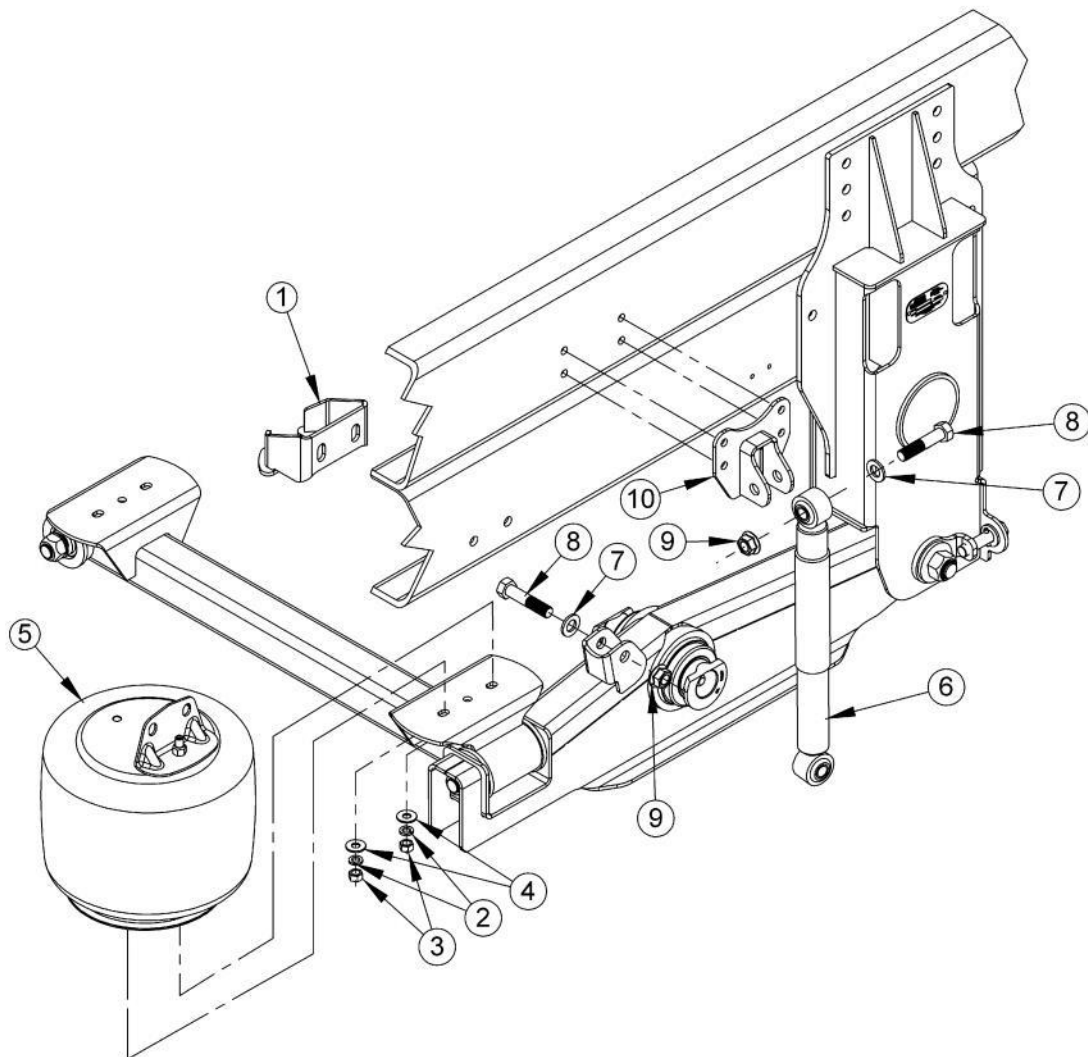
# Section 1

## Introduction

### (Kit Three) Ride Control - K707387 (One Per Side) Shock & Air Spring

Item	Part No.	Description	Item	Part No.	Description
1	706924-01	Air Spring Support	6	706206-02	Shock Absorber
2	8103323	*SLW 1/2 .523x.873x.135 PL	7	103003	*HFW 3/4 .812 x 1.475 x .150
3	8120378	*N 1/2 -13 GR 5 ZP	8	8223831	*HHB 3/4-16 x 3 1/2 GR 8 ZN
4	89415543	*FW 1/2 .531x1.25x.100 ZN	9	178	*LFN 3/4-16 GR G PH
5	707402-01	Air Spring (Firestone)	10	707923-01	Shock Bracket

\* Part of K711157 Ride Control Hardware Kit



# Section 1

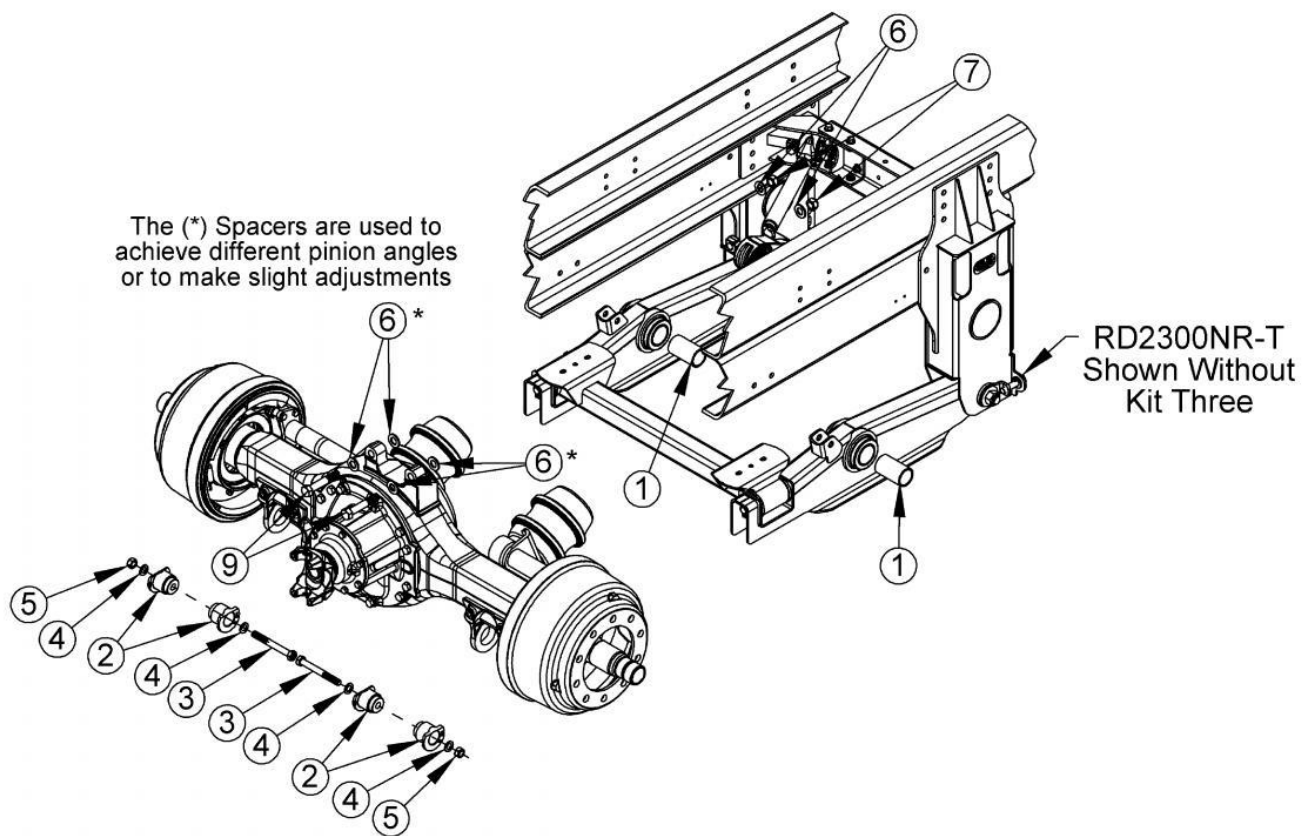
## Introduction

### Description - Axle Thru Bolt Mounting Components

Item	Part No.	Description	Item	Part No.	Description
1	705429-02	*Tube, Inner Spacing	6	104098	**HFW 7/8 .968 x 1.780 x .160 ZP
2	705429-03	*Boss, Mounting	7	100122-P1	**LN 7/8-9 UNC Stover GR C ZP
3	705429-04	*HHB 3/4-16 X 6.500	8	None	Customer Supplied Axle
4	705429-05	*FW 3/4 .811 X 1.375 X .104	9	8223552	**HHB 7/8-9 X 5.00 GR 8 ZN
5	705429-06	*LN 3/4-16			

\* Part of 705429-07 Thru Bolt Bushing Kit

\*\* Part of K707389 Pinion Spacer Kit



## Section 2

# Troubleshooting

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### Suspension System - General

SYMPTOMS	POSSIBLE CAUSES	REMEDIES
Tires wear out quickly or have uneven tire tread wear Note: Wear pattern will indicate possible cause(s). Consult tire manufacturer for guidance.	<ol style="list-style-type: none"> <li>1) Tires have incorrect pressure</li> <li>2) Tires out of balance</li> <li>3) Incorrect ride height</li> <li>4) Incorrect rear axle alignment</li> <li>5) Improper (mismatched) tires and wheels</li> </ol>	<ol style="list-style-type: none"> <li>1) Inflate tires to specified pressure</li> <li>2) Balance or replace tires</li> <li>3) Adjust ride height to specified setting</li> <li>4) Align rear axle to specified thrust angle</li> <li>5) Install correct tire and wheel combination</li> </ol>
Vehicle rolls side to side excessively	<ol style="list-style-type: none"> <li>1) Front and/or rear shock absorbers worn</li> <li>2) Shock mounting loose</li> <li>3) Shock eye bushings worn</li> <li>4) Trailing Arm bushings worn</li> <li>5) Check for air leak including the height control valve</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace shock absorbers as needed</li> <li>2) Check and tighten as required</li> <li>3) Check and replace as needed</li> <li>4) Inspect and replace as required</li> <li>5) Check HCV and replace as needed</li> </ol>
Vehicle ride is too harsh and/or suspension contacts stops excessively	<ol style="list-style-type: none"> <li>1) Shock absorbers worn</li> <li>2) Incorrect ride height</li> <li>3) Vehicle overloaded</li> <li>4) Air spring supply lines leaking or obstructed</li> <li>5) Vehicle system air pressure below specification</li> <li>6) Jounce bumper in air spring worn or broken</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace shock absorbers as needed</li> <li>2) Adjust ride height to specified setting</li> <li>3) Check wheel loads and correct as needed</li> <li>4) Check air line connections and remove obstructions</li> <li>5) Check air pressure and correct as needed</li> <li>6) Check and replace air spring as required</li> </ol>
Vehicle ride is too soft	<ol style="list-style-type: none"> <li>1) Shock absorbers worn</li> <li>2) Incorrect ride height</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace shock absorbers as needed</li> <li>2) Adjust ride height to specified setting</li> </ol>
Suspension does not maintain ride height	<ol style="list-style-type: none"> <li>1) Air leak</li> <li>2) Internal leak in height control valve</li> <li>3) Height control valve linkage loose</li> <li>4) Air spring chafed or worn</li> </ol>	<ol style="list-style-type: none"> <li>1) Check connections with soapy water solution and repair or replace as needed</li> <li>2) Check height control valve and replace as required</li> <li>3) Check and tighten linkage as needed</li> <li>4) Check air spring and replace as needed</li> </ol>

## Section 3

# Inspection

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### General Inspection

Perform a thorough visual inspection of the suspension to ensure proper assembly and to identify broken parts and loose fasteners each time the vehicle suspension is serviced. Do the following during an inspection.

- **Wheel Alignment** - Follow the guidelines in Section 5 for wheel alignment inspection intervals. Check wheel alignment if excessive steering effort, vehicle wander, or abnormal tire wear is evident.
- **Fasteners** - Check that all the fasteners are tightened to the proper tightening torque. Use a calibrated torque wrench to check torque.
- **Wear and Damage** - Inspect components of the suspension for wear and damage. Look for bent or broken components. Replace all worn or damaged components.
- **Operation** - Check that all components move freely through the complete turning arc.



#### CAUTION:

**ReycoGranning® recommends replacing any damaged or out-of-specification components.**

**Reconditioning or field repairs of major rear suspension components is not permitted.**

NOTE: Refer to Section 1 for identification of components.

### Checking the Trailing Arm Bushings for Wear

**NOTE: ReycoGranning® recommends the use of a maintenance pit or full vehicle lift during the inspection of components.**

#### Preparation

1. Chock the front wheels to prevent vehicle movement.
2. Raise the rear of the vehicle until the wheels are off the ground. Support raised vehicle with safety stands. Do not place jacks or safety stands under the Trailing Arms to support the vehicle.
3. Remove the tires.



#### WARNING:

**Never work under a vehicle supported by only a jack. Jacks can slip or fall over and cause serious personal injury. Always use safety stands.**

#### Inspection

1. Inspect rubber bushings for large splits, tears, and major wear. Replace bushings as needed.
2. Check that the Trailing Arm mounting bolts are tight. The recommended torque is **210-240 ft-lb** ( See Torque Table).

## Section 3

# Inspection

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### Checking the Shock Absorber

**NOTE: ReycoGranning® recommends the use of a maintenance pit or full vehicle lift during the inspection of components.**

#### Preparation

1. Set the parking brake and block the drive wheels to prevent vehicle movement.

#### Inspection

1. Check shock absorber for oil leakage, bent components, missing or broken components, excessive corrosion, or worn bushings. Replace shock if any of the above items is present.

### Checking the Air Spring and Height Control Valve

#### Preparation

1. Set the parking brake and block the drive wheels to prevent vehicle movement.
2. Refer to Firestone Preventative Maintenance Checklist for additional air spring information.

#### Air Spring Inspection

1. Check the outside diameter of the air spring for irregular wear or heat checking.
2. Check air lines to make sure contact does not exist between the air lines and the outside diameter of the air spring. Re-secure air lines to prevent contact as needed. Check for air line and fitting leaks with soapy water solution.

3. Check to see that there is a minimum of 1 inch clearance around the circumference of the air spring while it is energized with air.
4. Check the air spring piston for buildup of foreign material. Remove any foreign material that is present.

#### Height Control Valve Inspection

1. Check the height control valve and linkage for damage. Replace components as needed.
2. Measure the ride height of the suspension. The ride height should be 7.00 inches. It is measured at the axle centerline and is the distance from the bottom of the chassis frame rail to the center of the wheel.
3. The actuation arm of the height control valve should be horizontal at ride height. See **Section 5** for adjusting to correct ride height.

## Section 3

# Inspection

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## Checking the V-Link Bolts and Bushings

### Preparation

1. Chock the front wheels to prevent vehicle movement.
2. Raise the rear of the vehicle until the wheels are off the ground. Support raised vehicle with safety stands. Do not place jacks or safety stands under the Trailing Arms to support the vehicle.



### **WARNING:**

**Never work under a vehicle supported by only a jack. Jacks can slip or fall over and cause serious personal injury. Always use safety stands.**

### Inspection

- 1) Inspect rubber bushings for large splits, tears, and major wear. Replace bushings as needed.
- 2) Check that the V-Link to V-Link Mount Weldment mounting bolts are tight. The recommended torque is **150-180 ft-lb** (See Torque Table).
- 3) Check that the V-Link Axle Mounting bolts are tight. The recommended torque is **400-495 ft-lb** ( See Torque Table).

## Section 4

### Maintenance

#### MAINTENANCE SCHEDULE

GENERAL MAINTENANCE	SERVICE TO BE PERFORMED	MILEAGE IN THOUSANDS							
		12	24	36	48	60	72	84	96
Trailing Arm Bushings	Check bolt torque		X		X		X		X <sup>1</sup>
	Inspect for contact between control arm and mount	X	X	X	X	X	X	X	X <sup>1</sup>
	Inspect for bushing wear	X	X	X	X	X	X	X	X <sup>1</sup>
Air Springs	Inspect for proper clearance (1" minimum all around)	X							
	Check upper mount nut and lower mount bolt torque	X							
	Inspect for signs of chafing or wear	X	X	X	X	X	X	X	X <sup>1</sup>
	Check for air line fitting torque	X							
	Inspect for air leaks using soapy water solution	X							
Height Control Valve Linkage	Inspect for signs of bending, binding, or slippage	X	X	X	X	X	X	X	X <sup>1</sup>
Shock Absorbers	Check stud mount and lock nut torque.	X							
	Inspect shocks for signs of fluid leak, broken eye ends, loose fasteners, or worn bushings	X	X	X	X	X	X	X	X <sup>1</sup>
Rear Alignment	Inspect (after first 1000-3000 miles)		X		X		X		X <sup>1</sup>
Air Fittings and Air Lines	Inspect for air leaks using soapy water solution	X							
	Inspect for signs of chafing, cracking, or wear	X	X	X	X	X	X	X	X <sup>1</sup>

1. Continue to perform specified maintenance every 12,000 miles or at previous interval

# MAINTENANCE RECORD

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## Section 5

# Adjustments and Alignments

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### Adjusting Suspension Ride Height

The height control valve and linkage should be checked regularly for proper clearance, operation and adjustment. The ride height of the rear suspension is the distance from the bottom of the chassis frame rail to the center of the axle. Properly adjusted ride height results in correct suspension travel and alignment. The ride height should not be adjusted to adjust chassis rake angle.

#### Preparation

1. Park the vehicle on a level surface.
2. Set the parking brake and block the drive wheels to prevent vehicle movement.
3. Check that the front suspension is adjusted to the correct ride height per the vehicle manufacturers specifications.
4. Check height control valve plumbing to ensure there are not any air leaks.
5. Make sure shock mounts are mounted securely and not bent.

#### Adjustment

1. Measure the distance from the bottom of the frame to the center of the axle. If the distance measured is not within 7.00±.25 inches, then adjust as follows.
2. Loosen the clamp on the vertical link of the height control linkage.
3. Adjust the length of the vertical link to achieve specified ride height. If the ride height is less than 7.00", then increase the length of the vertical link. If the ride height is greater than 7.00", then decrease the length of the vertical link.

4. Deflate the rear suspension.
5. Inflate the rear suspension.
6. Wait 30 seconds for the suspension to settle after adjusting to verify correct adjustment.

**NOTE: The horizontal link must remain horizontal during adjustment to ensure proper operation of the height control valve.**

7. Tighten the clamp on the vertical link.

### Inspection Before Alignment

Check the following before conducting front wheel alignment measurements.

#### Inspection

See "General Inspection" in Section 3.

#### Wheels and Tires

1. Check that the rear tires are inflated to the appropriate pressure based on the wheel loading.
2. Check that the rear tires are the same size and type.
3. Check that all the wheel nuts are tightened to the specified torque.
4. Check that the wheels are balanced.
5. Check that all fasteners are tightened to the specified torque.
6. Check the suspension ride height and adjust as needed to specified height.
7. Check that all connection joints between the suspension and axle are secure.

## Section 5

# Adjustments and Alignments

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8. Check for worn suspension bushings or damaged suspension components.
9. Check that the frame is not bent.
10. Loosen the Rey-align nut but do not remove.
11. Rotate the adjusting fastener to move the rear axle fore and aft on each side. Continue until you achieve the correct alignment.
12. Re-torque the Pivot Bolt to **950-1050 ft-lb** (See Torque Table) in steps.
  - Step 1: **150 ft-lb**
  - Step 2: **250 ft-lb**
  - Step 3: **400 ft-lb**
  - Step 4: **650 ft-lb**
  - Step 5: **950-1050 ft-lb**

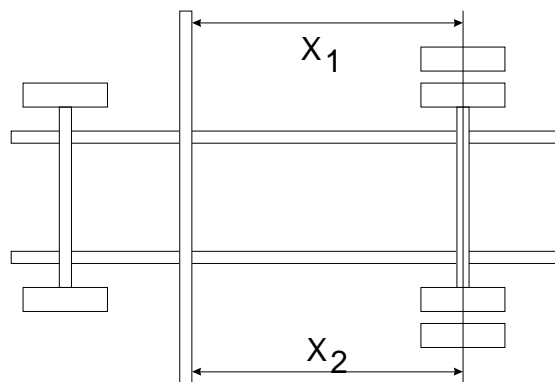
**NOTE: Total vehicle alignment is recommended when aligning the rear suspension.**

## Rear Axle Alignment

### Measurement

1. Place the unloaded vehicle on a level floor area. Move it back and forth several times, slowly and without using the brakes, to free all suspension joints.
2. Chock the front wheels with the brakes released.
3. Clamp an 8 foot piece of straight bar stock or angle iron securely after positioning it squarely across the frame. The use of a carpenter's square is recommended to be certain the bar is square to the frame.
4. The cross bar should be positioned as far forward of the drive axle as room will permit.
5. Beginning on the passenger side, measure from the bar stock to the center line of the rear drive axle on both sides.

6. If the measurements,  $X_1$  and  $X_2$ , vary more than  $1/8"$ , alignment adjustment should be made.
7. Once the rear drive axle is properly aligned, the front axle should be aligned as per the recommended procedure.



**Diagram 1 - Alignment measurements**

8. Following the alignment of both axles, it is recommended that it be driven through a short series of turns and then returned to the shop to have the alignment rechecked, after again freeing all suspension joints by moving back and forth several times.

### Adjustment

1. Chock the front wheels.
2. Securely support the rear frame of the vehicle.



### **WARNING:**

**Never work under a vehicle supported by only a jack. Jacks can slip or fall over and cause serious personal injury. Always use safety stands.**

3. Exhaust the air from the air springs to remove the load to the Trailing Arm.
4. Loosen the Rey-align nut but do not remove.

## Section 5

# Adjustments and Alignments

---

5. Rotate the adjusting fastener to move the rear axle fore and aft on each side. Continue until you achieve the correct alignment.

**NOTE: +/- 3/8" Total adjustment is available (3/16" / Side x 2 adjustment points)**

6. Re-torque the Pivot Bolt to **950-1050 ft-lb** (See Torque Table).
  - Step 1: **150 ft-lb**
  - Step 2: **250 ft-lb**
  - Step 3: **400 ft-lb**
  - Step 4: **650 ft-lb**
  - Step 5: **950-1050 ft-lb**

# Section 6

## Repair

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### Repairing of Parts

#### **WARNING:**

**The repair or reconditioning of rear suspension components is not allowed. ReycoGranning® recommends replacing damaged or worn components. Several major components are heat treated and tempered. The components cannot be bent, welded, heated or repaired in any way without reducing the strength or life of the component and voiding the warranty.**

#### **WARNING:**

**If you use cleaning solvents, hot solution tanks or alkaline solutions incorrectly, serious personal injury can occur. To prevent injury, follow the instructions supplied by the manufacturer. Do NOT use gasoline to clean parts. Gasoline can explode.**

### Cleaning the Parts

#### Ground or Polished Parts

Use a cleaning solvent to clean ground or polished parts and surfaces. Do NOT clean ground or polished parts with hot solution tank or with water, steam or alkaline solutions. These solutions will cause corrosion of the parts.

#### Rough Parts

Rough parts can be cleaned with the ground and polished parts. Rough parts also can be cleaned in hot solution tanks with a weak alkaline solution. Parts should remain in the hot solution tanks until they are completely cleaned.

### Drying

Parts must be dried immediately after cleaning. Parts should be dried with clean paper, rags, or compressed air.

### Preventing Corrosion

Apply light oil to cleaned and dried parts that are not damaged and are to be immediately assembled. If the parts are to be stored, apply a good corrosion preventative to all surfaces and place them inside special paper or containers that prevent corrosion.

## Removing and Installing the Trailing Arm Assemblies

### Preparation

1. Chock the front wheels.
2. Firmly support the rear vehicle frame.

#### **WARNING:**

**Never work under a vehicle supported by only a jack. Jacks can slip or fall over and cause serious personal injury. Always use safety stands.**

### Removal

1. Exhaust the air from the air spring.
2. Detach the air spring from the Cross Member.
3. Remove the Lower Cross Member
4. Remove Axle Bolts.
5. Remove Shocks and Height Control Valve Linkages.
6. Loosen the pivot bolt nut.

## Section 6

### Repair

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#### Installation

1. Slide the trailing arm assembly into the pivot hanger.
2. Insert the pivot bolt with all Rey-Align components.
3. Torque the Pivot Bolt to **950-1050 ft-lb**. See Torque Table.  
Step 1: **150 ft-lb**  
Step 2: **250 ft-lb**  
Step 3: **400 ft-lb**  
Step 4: **650 ft-lb**  
Step 5: **950-1050 ft-lb**

#### Replacing the Trailing Arm Bushings

1. Remove the Trailing Arm assembly as described above.
2. Push the bushing out using a properly sized bushing press.
3. Push in new bushing.
4. Reinstall as per the previous instructions.

#### Replacing the Shock Absorber

##### Preparation

1. Set the parking brake and block the front wheels to prevent vehicle movement.

##### Removal

1. Loosen and remove the upper shock absorber mount bolt from the upper Shock Mount.
2. Loosen and remove the lower shock absorber mount bolt from the trailing Arm.

#### Installation

1. Install the upper shock absorber.
2. Fasten using the bolt.
3. Install the lower shock absorber bolt loosely to the trailing arm assembly.
4. Raise or lower the suspension to approximately ride height.
5. Torque both mount fasteners to **90-110 ft-lb** (See the Torque Table).

#### Replacing the Air Spring

When replacing the air spring be sure that the correct replacement air spring is installed. The use of a substitute air spring that is not recommended by ReycoGranning® may cause unequal load sharing between the air springs which may be detrimental to vehicle ride and handling.

##### Preparation

1. Set the parking brake and block the front wheels to prevent vehicle movement.
2. Firmly support the rear of the vehicle frame.



#### **WARNING:**

**Never work under a vehicle supported by only a jack. Jacks can slip or fall over and cause serious personal injury. Always use safety stands.**

3. Deflate the air springs.

## Section 6

# Repair

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### Removal

1. Disconnect the air line at the air spring and remove the connection fitting.
2. Remove the bolts that secure the air spring to the lower crossmember assembly.
3. Remove the nuts and washers from the upper frame rail mount.
4. Remove the air spring.

### Installation

1. Assemble the nuts and washers that connect the air spring to the frame rail. Tighten the nuts to appropriate torque per chassis MFG requirement.
2. Assemble the air spring to the crossmember assembly. Tighten the bolts to **20-30 ft-lb** (See Torque Table).
3. Install the connection fitting into the air spring. Use Permatex or equivalent thread sealant.
4. Connect the air line to the air spring.
5. Lower the vehicle frame and inflate the air springs.
6. Check the air fittings for leaks.

## Replacing the Height Control Valve

### Preparation

1. Set the parking brake and block the front wheels to prevent vehicle movement.
2. Firmly support the rear vehicle frame.



### WARNING:

**Never work under a vehicle supported by only a jack. Jacks can slip or fall over and cause serious personal injury. Always use safety stands.**

3. Deflate the air springs.

### Removal

1. Mark air line connections for re-assembly. Disconnect the air lines from the HCV. If any other plumbing fixtures are connected to the HCV, mark them for re-assembly.
2. Disconnect the vertical link from the trailing arm.
3. Remove the mounting bolts, nuts, washers, and HCV from the Frame Rail.
4. Remove any other plumbing fixtures from the HCV.

### Installation

1. Assemble the actuation arm and the vertical link of the replacement HCV the same as the removed HCV.
2. Assemble any other plumbing fixtures to the HCV as marked for re-connection.
3. Mount the replacement HCV to the frame rail with bolts, nuts, and washers. Tighten the nuts to **60-80 in-lb** (See Torque Table).
4. Reconnect air lines and check for proper operation and leaks.
5. Check and adjust ride height per Adjusting Suspension Ride Height Section.

# Section 6

## Repair

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### Replacing the V-Link

#### Preparation

1. Set the parking brake and block the front wheels to prevent vehicle movement.
2. Firmly support the rear vehicle frame.



**WARNING:**  
**Never work under a vehicle supported by only a jack. Jacks can slip or fall over and cause serious personal injury. Always use safety stands.**

3. Deflate the air springs.
4. Support the rear axle to relieve any pressure being applied to the V-link

#### Removal

1. Disconnect the V-Link from the axle and remove the bolts and pinion angle spacers.
2. If the bolts are not easily removed the axle needs to be either raised or lowered to relieve excessive pressure on the V-Link.
3. Remove both inner bolts on the V-Link so that it is still supported by the two outer V-Link bolts.
4. Make sure the V-Link assembly is fully supported before removing the final two bolts holding it place.



**WARNING:**

**V-link is very heavy.**

5. Remove the V-Link Assembly.

#### Installation

1. Replace the V-Link in the same order in which it was removed. Torque the 4 bolts holding the V-link to the Cross member to **150-180 ft-lb** ( See Torque Table).
2. Reconnect the Axle to the V-Link. Be sure to use the proper spacers to maintain the desired Pinion Angle, and then torque the nut to **400-495 ft-lb** ( See TorqueTable).
3. Relieve any support holding the axle up allowing it to float.
4. Re-inflate the air springs so that the vehicle can be lowered
5. Check and adjust ride height per Adjusting Suspension Ride Height Section.

## Section 6

### Repair

## TORQUE SPECIFICATIONS

Most threaded fasteners are covered by specifications that define required mechanical properties, such as tensile strength, yield strength, proof load, and hardness. These specifications are carefully considered in initial selection of fasteners for a given application. To assure continued satisfactory vehicle performance, replacement fasteners used should be of the correct strength, as well as the correct nominal diameter, thread pitch, length, and finish.

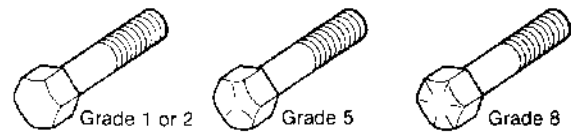


Figure 4 – Grade Markings on Bolts



Grade	Lock Nut Grade B,F	Lock Nut Grade C,G
Identification	 3 Dots	 6 Dots

Figure 5: Grade Markings on Lock Nuts

Table 1 – Fastener Torque

APPLICATIONS	FASTENER SIZE	TORQUE SPECIFICATION (ft-lb) (CLEAN AND DRY)
Spring Beam Pivot Nut	1-1/8"-12 GR C	950-1050
Shock Absorber Mounting Bolt	3/4"-16 GR 8	90-110
Upper Air Spring Mounting Nut	1/2"-13 GR 8	30-40
Lower Air Spring Mounting Nut	1/2"-13 GR 5	20-30
Height Control Linkage Stud Mount	5/16"-18 GR 2	8-12
V-Link to Cross Member Bolt	5/8"-11 GR 8	150-180
V-Link to Axle	7/8"-9 GR 8	400-495
Axle Thru Bolt (For Main Axle Bushing)	3/4"-16 GR 8	210-240
Air Spring Cross Member Mounting Bolt	1"-14 GR 8	600-750



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