LINK

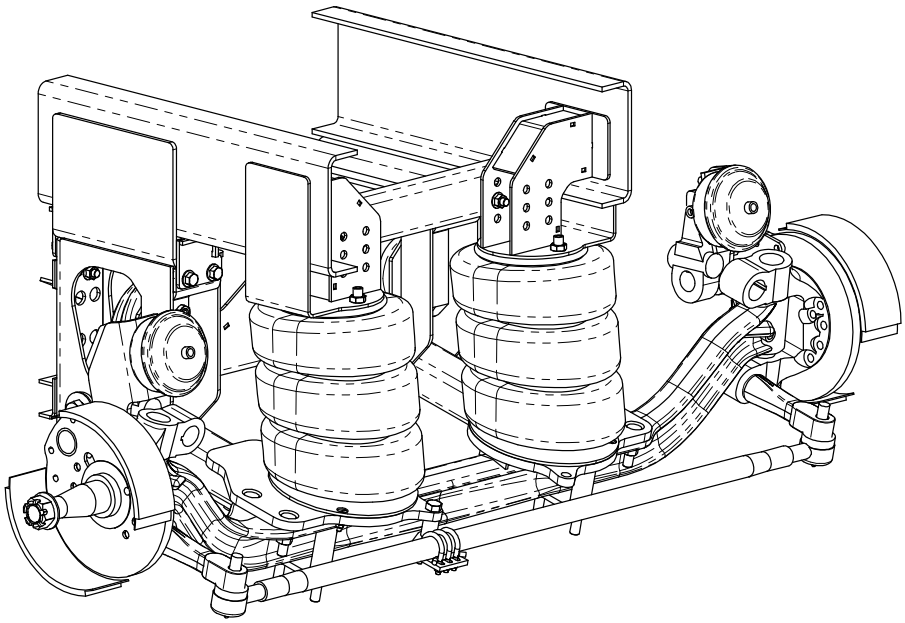
LINK

LIFTABLE

SUSPENSIONS

INSTALLATION INSTRUCTIONS

MODEL 6000 FOR ROLL-OFF APPLICATIONS



AVAILABLE IN 13.2K CAPACITY ONLY

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SERVICE
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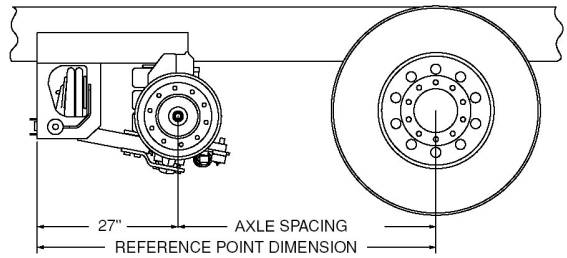
041105
80000224

IMPORTANT: UPON RECEIVING YOUR LINK SUSPENSION, INSPECT IT FOR DAMAGED OR MISSING PARTS. CAREFULLY READ AND UNDERSTAND THIS INSTRUCTION MANUAL AS WELL AS THE SERVICE PARTS LIST ON PAGE 5 BEFORE INSTALLING THE SUSPENSION AND THE TASK WILL BE MUCH EASIER.

INSTALLATION

1. Determine the distance the liftable axle center will be located from an existing axle center. This is the axle spacing (Fig. 1).

FIG. 1



2. A reference point is needed to locate the liftable suspension on the vehicle frame rails. The distance from the existing axle center to the suspension is the frame reference point dimension (Fig. 1). **NOTE:** A pusher axle is a liftable axle installed in front of the drive axle(s). A tag axle is a liftable axle installed behind the drive axle(s).

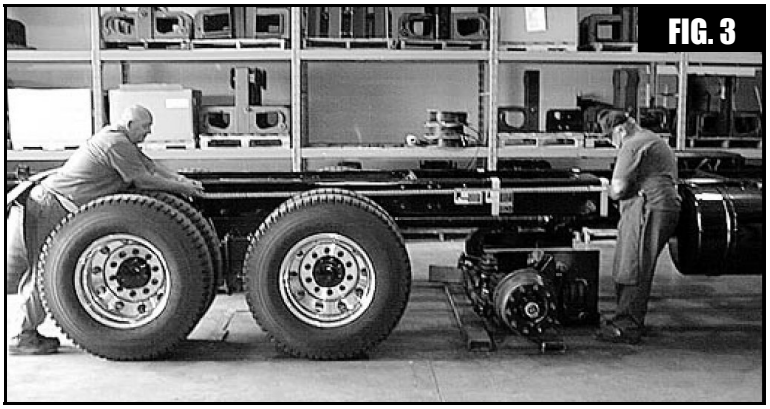
a. To determine the reference point dimension on the vehicle frame for a pusher **add** 27" to the axle spacing, for a tag **subtract** 27" (Fig. 1).

FIG. 2

3. Mark the location of the reference point on both vehicle frame rails. Do this by measuring the reference point dimension from the existing axle center (Fig. 2).

a. It is possible that the existing axle is slightly out of square due to small inaccuracies in the springs, arms and bushings in the existing suspension. Because of these inaccuracies, it may be necessary to adjust the reference point marks on the vehicle frame rails. Do this by measuring from the reference point mark on the frame rails to a suspension mounting bolt (Fig. 3). (The bolt holes in the frame rails are accurately located.)

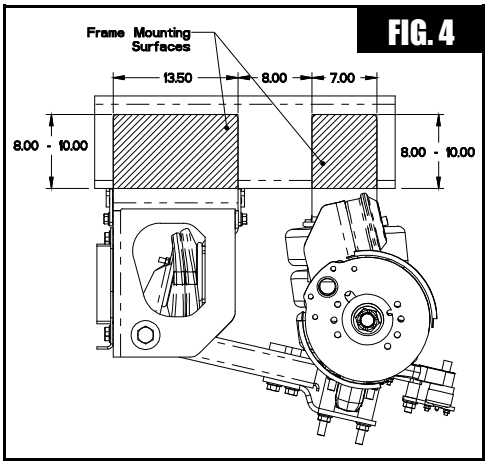
FIG. 3



b. After measuring on both frame rails, compare the measurements. Adjust the reference point marks to the larger of the two measurements if there is a difference from right to left frame rails.

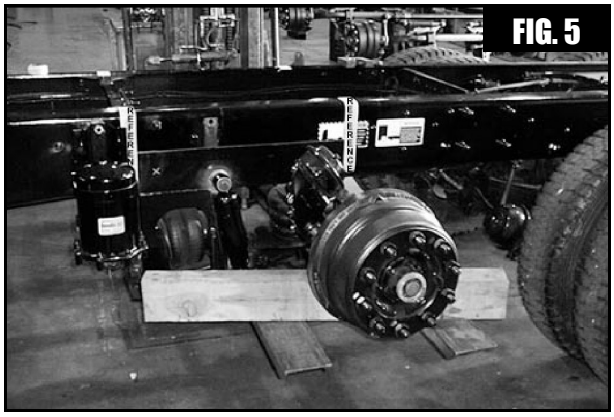
4. The suspension frame brackets and air spring brackets will require a mounting area on the frame rails as referenced by the shaded area in Fig. 4. The height of this area will be 8.00" if a frame height spacer (Item #6 on Parts List) is used or 10.00" if your suspension is not supplied with this frame height spacer. At this time remove any bolts or brackets that may be in this area. Bolts that would pass through the edge of the frame bracket may remain in place and the frame bracket should be notched for clearance. **NOTE:** A set of extended forks for your forklift will help with installation. If you don't have a forklift, two floor jacks will do.

FIG. 4

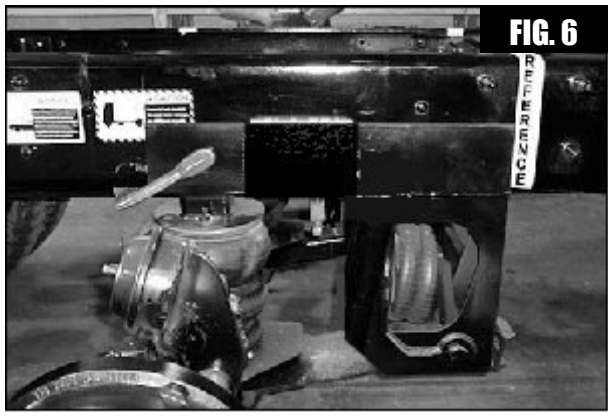


CAUTION: Any cutting of the frame or air spring brackets must be confined to within one inch of the edges and only that which is necessary for clearance. Any cutting or modification to the Link suspension other than that described above, done without the written approval of Link engineering, will void the warranty.

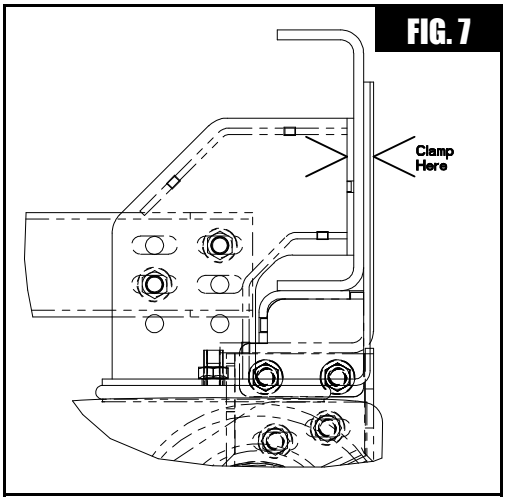
5. Slide the liftable suspension under the vehicle in the approximate location for installation (Fig. 5). Raise up to the truck frame using forklift or floor jacks as discussed in the previous note.



6. Position and clamp the suspension frame brackets to the vehicle frame rails making sure they are pushed up tight to the bottom of the frame aligning the front edge of the frame brackets to the reference points on the vehicle frame rails (Fig. 6). Now position the air spring brackets to the frame aligning the top of these brackets with the top of the frame brackets; this is indicated by the white line in Fig. 6. These brackets should be spaced 8.00" from the frame brackets as referenced in Fig. 4. Place the air spring support brackets on top of the air spring brackets and push them tight against the inside of the frame rails making sure they are directly in-line with the air spring brackets as the fasteners for these brackets will pass though the air spring bracket, the frame rails as well as the air spring support bracket. Clamp the air spring bracket and the air spring support bracket to the frame. (Fig. 7). **NOTE:** Make sure that all brackets are clamped **tightly** as instructed.

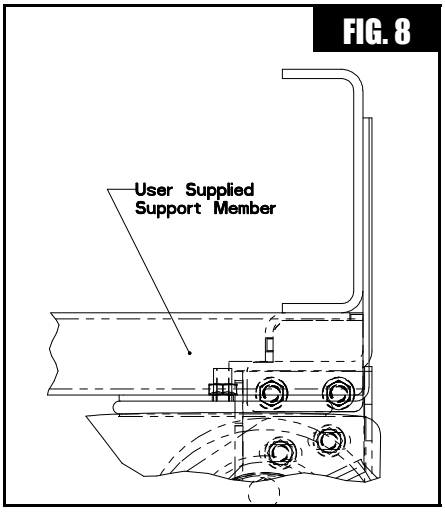


a. If the supplied air spring support brackets cannot be used because of interferences, it is possible to use a separate supporting member to support these brackets. This support member must pass between the air spring brackets and the bottom of the frame rails and fill the void completely. It must pass across the frame and be placed directly over the centerline of the load air springs (See Fig. 8). If this suspension is in front of the drive axle you must also verify that there will be at least 1" of clearance with the drive line at its maximum position. The cross-member must be made of 1/4" thick steel c-channel or rectangular tubing and be welded solid to the top of the air spring brackets using 1/4" fillet welds on both sides of the cross-member.



b. If the bottom of the frame rails are tapered, a wedge or separate spacer is necessary. In order to keep the frame bracket parallel to the top of the truck frame, the wedge must completely fill the void caused by the tapered portion and be made of 1/4" thick steel. Weld the wedge to the frame bracket (or frame height spacer if your suspension is supplied with them) at both ends and center. Use a minimum of 1/4" filet 2" long.

7. Check for drive shaft clearance. With a tandem axle suspension, raise the rear drive axle until the front drive tires of the tandem are off the ground (Fig. 8).



a. At this point, the drive shaft is at the most extreme angle and is the closest it can get to the liftable axle and tie-rod. (Single drive axle vehicles require raising the frame until the drive tires are off the ground.) With the drive shaft at its lowest position, raise the liftable suspension to the maximum lift position with a jack under the axle center.

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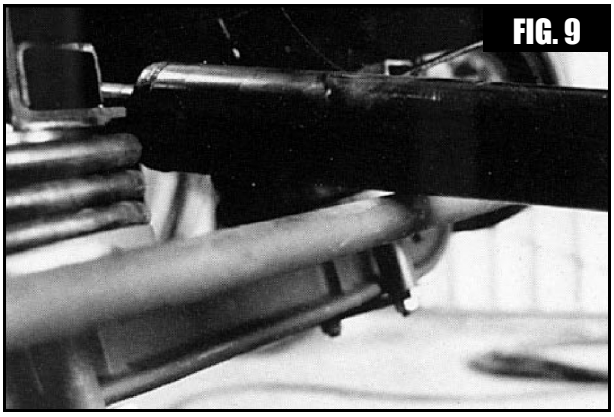
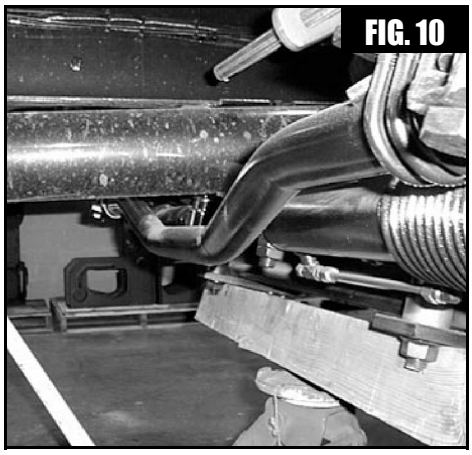


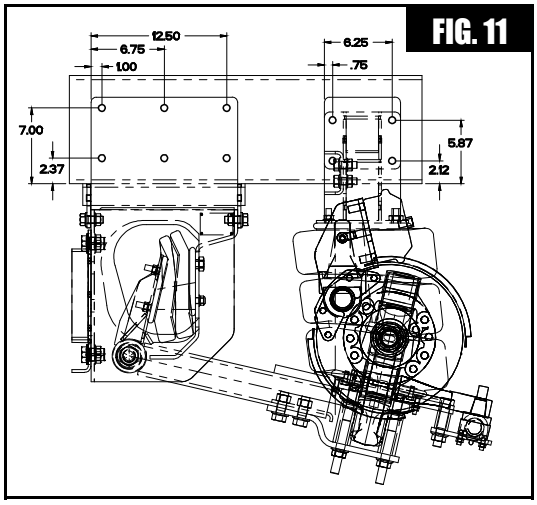
b. Check for clearance between any vehicle components and the liftable axle and suspension. One inch clearance is required. In the event of tie-rod to drive shaft interference, a dropped tie-rod is available (Fig. 9 & 10).

c. Now move to the front drive axle and raise the wheels until the rear drive tires of the tandem are off the ground. Using the 4 supplied Grade 8, 5/8" x 1.5" Flange bolts and nuts attach the cross-member (Service Parts List Item #1) to the front of the air spring support brackets. Mount the cross-member in the lowest possible hole pattern making sure there is still at least 1" of drive line clearance with the cross-member. Torque these fasteners to 245 ft. lbs. Let all drive wheels down.



IMPORTANT: Do not pressurize ride air springs until after tires are installed or unless the axle is supported on jack stands. **Over-extension can crush lift air springs.**

8. A minimum of ten 5/8" grade 8 flange head bolts with nuts as shown is required for fastening the frame brackets to the frame. Drill all holes for mounting the suspension using the recommended hole spacing as shown in Fig. 11. A tapered frame may require moving one or two of the bolts higher on the frame bracket . Any existing holes in the frame rails may be used as well for attaching the frame brackets to the frame rails. For fastening the air spring brackets and air spring support brackets to the frame follow the recommended hole spacing exactly as shown in Fig. 11 and drill through the air spring bracket, the frame rails, and the air spring support bracket as shown (do not drill through the air spring support bracket if step 6a is used). Install all bolts and nuts and torque to 245 ft. lbs.



9. Torque 3/4" axle mounting bolt nuts to 425 ft. lbs. Torque 1 1/8" pivot bolt nut to 480 ft. lbs. (Grade 5 with Antiseize applied). Re-torque all nuts and bolts after 30 days.

10. Toe in at hubs should be 0 to +1/16". Toe in at tires should be 0 to +3/16".

11. All pneumatic controls for your lift axle can be handled using separate air control kits that can be ordered through Link Mfg. Follow the schematics **closely** for installation of the controls. If you wish to supply your own air system components make sure to install a pressure protection valve (HS #10401B or equivalent) at the air tank before the feed to the controls. Also, an exhaust valve must be installed for the ride air springs. Plumb all connections using 3/8" D.O.T. approved fittings and airline and ensure that all wire and airline routings are attached securely and protected from heat and moving parts.

12. It is required to use a brake relay inline for the air supply to the brake chambers on the liftable axle. (Instructions included in brake relay inline kit)

13. If you wish to have a steerable axle you must order a steering stabilizer kit. If you want to have locked steering you now need to adjust the steering lock. Loosen the u-bolts that hold the steering lock bracket to the tie-rod with the axle down and 30 psi on ride air springs. Drive the vehicle straight ahead and stop. With vehicle in the straight ahead position, tighten u-bolts to 25 ft. lbs. torque.

15. CAUTION: MANDATORY LUBRICATION (Fig. 12):

- Grease kingpin and tie-rod bi-monthly
- Grease and repack bearings quarterly
- Before operating, vehicle hub cavity must be filled to proper level with an approved wheel bearing lubricant compatible with gear lube API Service Class GL-5
- Wheel bearings have been oil dipped for axle shipping only with 85-90W Hypoid gear oil that meets military specifications, MIL-L-2105C with API Service Class GL-5.

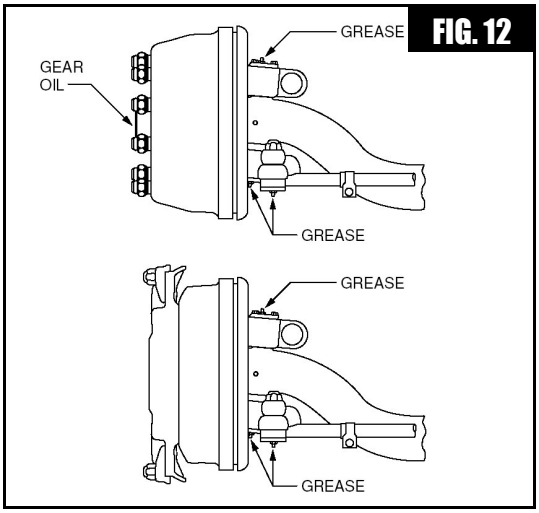
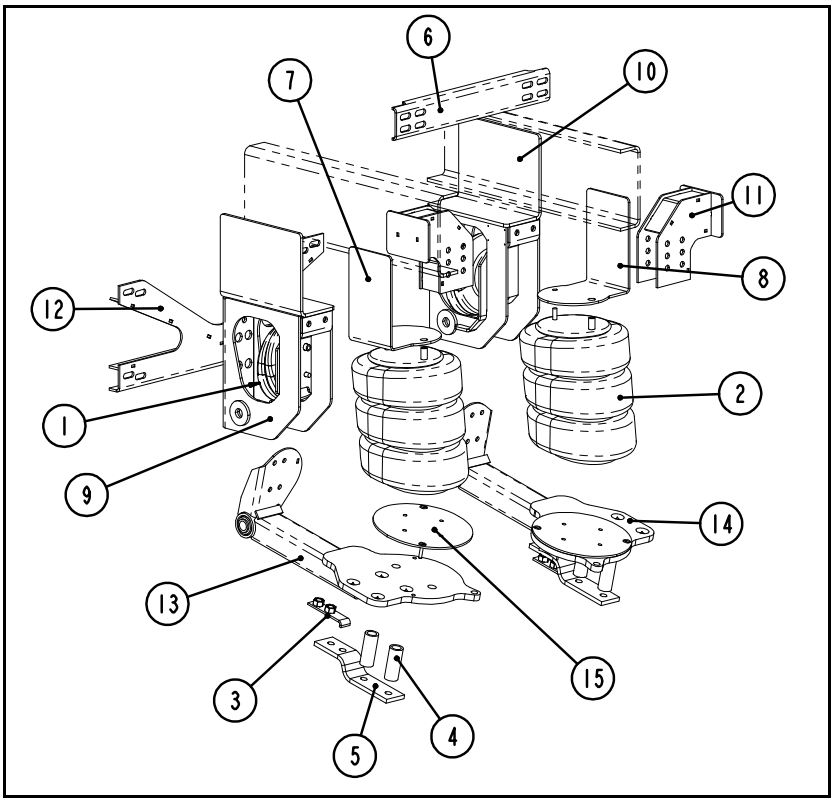


FIG. 12

SERVICE PARTS LIST



ITEM	PART #	DESCRIPTION	QTY
1	11030002	SPRING-AIR……	2
2	11030003	SPRING-AIR……..	2
3	80000005	NUT-STRAP ASSEMBLY…….	2
4	80000032	SPACER-MOUNT, AXLE……..	4
5	80000043	STRAP-MOUNT, AXLE……..	2
6	81000339	CROSS MEMBER……..	1
7	81000342	PLATE-SPRING, RIDE……..	1
8	81000343	PLATE-SPRING, RIDE……..	1
9	810A0081	BRACKET-HANGER……...	1
10	810A0082	BRACKET-HANGER……...	1
11	810A0084	BRACKET-SUPPORT, RIDE SPRING...	2
12	810A0085	CROSS MEMBER, K-BRACE……..	1
13	820A0081	ARM-SUSPENSION……...	1
14	820A0082	ARM-SUSPENSION……...	1
15	830A0013	PLATE-AIRSPRING……	2

AIR PRESSURE AXLE LOAD CHART*

LOAD IN LBS AT GROUND	LIFTABLE PSI
13,000	99
12,000	92
11,000	86
10,000	78
9,000	70
8,000	63
7,000	56
6,000	48
5,000	40
4,000	33

**To be used only as a guide assuming middle ride height. Actual loads will vary. Scale axle to desired loads.*

TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
Shimmy	Improper Caster	1. Check with truck loaded and on a level surface, put angle indicator on axle mounting plate. Angle should not be less than 3˚ for proper tracking. A) Check spring on truck to see if they are weak or broken, if so, replace them and redo step one. B) Install smaller tires on liftable axle if possible and redo step 1. C) Call factory for assistance.
	Excessive Toe In or Out	1. Check toe in or out. A) Adjust toe in to 0" to + 3/16" at tires or 0 to + 1/16" at hubs.
	Tires out of balance	1. Check A) Balance tires. B) Replace tires.
	Steering Stabilizer	1. Check for visible damage. A) If damaged, replace 2. Check tension in both directions on tie rod as it should center itself. B) If weak in one direction, replace. 3. Check for damping in stabilizer. You should not be able to move tires back and forth rapidly. C) If stabilizer appears to be soft, replace it.
	Worn Tie Rod Ends	1. Check for excessive wear. A) If worn or damaged, replace.
	Worn King Pins	
	Worn Rubber Bushings in Arm Ends at Pivot Point	
Axle will not stay up	Loose Air Fittings	Check and retighten.
	Damaged Air Lines	1. Check for excessive wear. A) If worn or damaged, replace.
	Damaged or Worn Air Springs	
Axle will not raise when the transmission is in reverse	Relay not grounded	Install ground wire from frame to relay.
	4-way Solenoid Valve not working	1. Check for excessive wear. A) If worn or damaged, replace.

MODEL 6000 IDENTIFICATION WORKSHEET

The following charts show the available lift based on frame, axle, and tire specs. To operate in the normal range it is recommended that your suspension be based on a 10" nominal lift. Use the following descriptions to determine which chart must be used to give you the correct specifications:

- **CHART 1:** Shows the available lift for lift axles that have **no frame height spacers** (Item #6 on the Service Parts List), and use an **axle with a 5.5" offset** (This is the vertical distance from the centerline of the axle spindles to the mounting surface on the axle.).
- **CHART 2:** Shows the available lift for lift axles that **have frame height spacers installed** (Item #6 on the Service Parts List), and use an **axle with a 5.5" offset** (This is the vertical distance from the centerline of the axle spindles to the mounting surface on the axle.).
- **CHART 3:** Shows the available lift for lift axles that have **no frame height spacers installed** (Item #6 on the Service Parts List), and use an **axle with a 3.5" offset** (This is the vertical distance from the centerline of the axle spindles to the mounting surface on the axle.).
- **CHART 4:** Shows the available lift for lift axles that **have frame height spacers installed** (Item #6 on the Service Parts List), and use an **axle with a 3.5" offset** (This is the vertical distance from the centerline of the axle spindles to the mounting surface on the axle.).

CHART 1	Ride Hieght 9" to 12" 5.5" Axle offset, No Frame Height Spacer								
LOADED FRAME HEIGHT ➡	26	27	28	29	30	31	32	33	
LOADED TIRE RADIUS ⬇									AVAILABLE LIFT (INCHES)
17"	7	8	9	10					
18"		7	8	9	10				
19"			7	8	9	10			
20"				7	8	9	10		
21"					7	8	9	10	

CHART 2	Ride Hieght 11" to 14" 5.5" Axle offset, With Frame Height Spacer								
LOADED FRAME HEIGHT ➡	28	29	30	31	32	33	34	35	
LOADED TIRE RADIUS ⬇									AVAILABLE LIFT (INCHES)
17"	7	8	9	10					
18"		7	8	9	10				
19"			7	8	9	10			
20"				7	8	9	10		
21"					7	8	9	10	

CHART 3	Ride Hieght 11" to 14" 3.5" Axle offset, No Frame Height Spacer								
LOADED FRAME HEIGHT ➡	28	29	30	31	32	33	34	35	
LOADED TIRE RADIUS ⬇									AVAILABLE LIFT (INCHES)
17"	7	8	9	10					
18"		7	8	9	10				
19"			7	8	9	10			
20"				7	8	9	10		
21"					7	8	9	10	

CHART 4	Ride Hieght 13" to 16" 3.5" Axle offset, With Frame Height Spacer								
LOADED FRAME HEIGHT ➡	30	31	32	33	34	35	36	37	
LOADED TIRE RADIUS ⬇									AVAILABLE LIFT (INCHES)
17"	7	8	9	10					
18"		7	8	9	10				
19"			7	8	9	10			
20"				7	8	9	10		
21"					7	8	9	10	

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