



## INSTALLATION INSTRUCTIONS

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5097 & 5098

### UNIVERSAL AIR ASSIST SPRING KIT

**Congratulations! You were selective enough to choose a BELLTECH PRODUCT. We have spent many hours developing our line of products so that you will receive maximum performance with minimum difficulty during installation.**

- Note:** Confirm that all of the hardware listed in the parts list is in the kit. **Do not** begin installation if any part is missing. Read the instructions thoroughly before beginning this installation.
- Warning:** **DO NOT** work under a vehicle supported by only a jack. Place support stands securely under the vehicle in the manufacturer's specified locations unless otherwise instructed.
- Warning:** **DO NOT** drive vehicle until all work has been completed and checked. Torque all hardware to values specified.
- Reminder:** Proper use of safety equipment and eye/face/hand protection is absolutely necessary when using these tools to perform procedures!
- Note:** It is very helpful to have an assistant available during installation.

#### RECOMMENDED TOOLS:

- Properly rated floor jack and 4 support stands
- Wheel chocks
- Drill motor with 3/8" and 1/2" twist drill bit
- Standard socket and box wrench set
- 1/2" drive torque wrench (lb-ft)
- Tape measure (inches)
- Felt-tipped pen
- Steel construction square
- Hammer and center-punch
- Spray bottle filled with soap and water

**! Please note:** For your safety and to prevent possible damage to your vehicle, do not exceed the maximum load recommended by the vehicle manufacturer (GVWR). It is also important to make sure that there is a minimum of 7 1/2 inches of space available between the rear tires and the frame before installing this kit. The maximum inflation pressure of this system is 100 p.s.i. This pressure **MUST NOT** exceed this maximum at any time.

**⚠SAFETY REMINDER: PROPER USE OF SAFETY EQUIPMENT AND EYE/FACE/HAND PROTECTION IS ABSOLUTELY NECESSARY WHEN USING THESE TOOLS TO PERFORM PROCEDURES**

#### KIT INSTALLATION

This installation must be performed on a firm flat and level surface. The use of safe and properly maintained equipment is very important!

##### 1. JACKING , SUPPORTING AND PREPARING THE VEHICLE

- a) Block the front wheels of the vehicle with appropriate wheel chocks.

- b) Loosen, but **do not** remove, the rear wheel lug nuts.
- c) Using a properly rated floor jack, lift the rear of the vehicle off the ground. Lift the vehicle so that the rear tires are approximately 6-8 inches off the ground surface.
- d) Support the rear of the vehicle using two (2) support stands, rated for the vehicle's weight. One stand should be positioned on each of the frame rails. Prior to lowering the vehicle onto stands, make sure the supports will securely contact the straight, flat portions of the frame rails.
- e) Support the rear axle with support stands, one located on each end. Be careful not to lift vehicle off of support stands when supporting the axle assembly.

**!** It is very important that the vehicle is properly supported during this installation to prevent vehicle damage and personal injury! Make sure that the support stands are properly placed prior to performing the following procedures.

**SAFETY REMINDER:** It is very important that the vehicle is properly supported during this installation to prevent vehicle damage and personal injury. Never work underneath a vehicle supported only by a jack. Always use properly rated support stands to support the vehicle

## 2. PRE-ASSEMBLING THE KIT

- a) Pre-assemble the air springs to the brackets; see Figures A and B (page 7 for 5097 full size kit or page 8 for 5098 mini kit). Align the holes/studs of the air springs with those of the upper brackets as shown. Make sure the air inlets are visible through the access holes in the upper brackets. Fasten the brackets to the air springs using the 3/8"-16 Flange Nuts or 3/8-16 x 3/4 Hex Bolts. Tighten and torque hardware to 45 lb-ft.
- b) Install the elbow fittings into the air springs through the access holes in the upper brackets. Tighten the air fittings securely to engage the thread sealant. Position the elbows so as to point in the anticipated location of the air inflation valve. See "Air Line and Inflation Valve Installation" below for more information regarding inflation valve locations.
- c) Fasten the lower brackets to the air springs using 3/8"-16 x 3/4 Hex Bolts inserted through a selected 1/2" hole in the bracket and into the threaded hole in the bottom of the air spring (*Figure A*). Note: There are five 1/2" holes in the lower air spring brackets to locate the air springs. Choose the hole that allows the most clearance between the air spring and frame rail for your vehicle. Tighten and torque hardware to 45 lb-ft.

## 3. AIR SPRING INSTALLATION

- a) With the rear of the vehicle supported, remove the rear wheels.
- b) Loosen and remove the U-bolt nuts from the rear axle assembly. Remove the U-bolts and the U-bolt plates.
- c) Place an air spring assembly on the top of the appropriate leaf spring pack (*Figure B*). The air spring should be towards the rear of the vehicle in relation to the axle. Align the lower air spring bracket so that it is centered over the leaf spring. The long portions of the lower brackets should be installed between the leaf springs and axle mounts or U-bolt clamps as shown. Depending on the application, the lower bracket may have to be moved forwards or backwards, using any of the four 3/4" adjustment holes, to prevent interference with U-bolts, leaf spring retainers, brake drums, etc. **Note:** There are four 3/4" holes in the lower air spring brackets for front-to-back location adjustment. Choose the hole that allows the most clearance
- d)

around the air spring for your vehicle, but be sure to keep the air springs as close to the axle as possible. Install the air spring assemblies so that the same adjustment holes are utilized on each side of vehicle.

- e) Re-install the U-bolts and U-bolt plates. Be sure to tighten and torque the U-bolts to the vehicle manufacturer's recommendations.

#### 4. **INSTALLING THE UPPER BRACKETS**

- a) Locate the upper bracket onto the frame rail, making sure that it sits flat against the side of the rail as shown (Figure B). **NOTE:** Make sure that the upper bracket is positioned as shown. If there are any alignment issues with the upper bracket, you may need to move the air spring to another hole on the lower air spring bracket.
- b) Use a steel construction square to align the upper bracket to the frame rail as necessary. Make sure that the upper bracket is aligned so that the air spring is aligned vertically (not twisted or bound). **NOTE:** It is important that the upper brackets are properly positioned vertically on the frame rails. The position of the brackets will affect the final vehicle ride height and system pressure when the system is inflated.
- c) Using the bracket as a template, use a hammer and a punch to mark the center of the holes.
- d) Using a drill motor with 3/8" (mini) or 1/2" (full-size) bit, drill the mounting holes through the frame rail. Paint all bare metal surfaces to prevent rust.

**!** Caution: Before drilling the holes, make sure that all electric wiring, and brake/fuel lines are cleared from the path of the drill. In order to prevent damage, it is recommended to place a thick block of wood between the frame rail and potentially vulnerable components, such as fuel tanks, lines, etc. After drilling the holes, be sure to re-attach any items previously removed or detached and remove the block.

- e) Attach the upper bracket to the frame rail with the hardware as shown in *Figure B*. Tighten and torque hardware to 45 lb-ft.
- f) Repeat for the other side of vehicle.

#### 5. **AIR LINE AND INFLATION VALVE INSTALLATION / INSPECTION**

- a) Uncoil the air tubing and cut off a sufficient length to run from one air spring to the other. **NOTE: DO NOT** fold or kink the tubing. Make the end-cut as square as possible!
- b) Insert one end of the length of tubing into the elbow fitting installed in the top of one air spring. Push the tubing into the fitting as far as possible (Figure C).
- c) Route the airline through (or over) the frame rail to the center of the chassis. **NOTE:** On some applications(vehicles) it may be necessary to drill a 5/16" hole in each frame rail for the airline to pass through. Insert the loose end into the other air spring's elbow fitting so that the airline runs from one air spring to another. Cut the tubing at the center of the vehicle and install the supplied T-Fitting (refer to Figure C).
- d) Select a location on the vehicle for the air inflation valve. The valve can be installed on the rear bumper or any easily accessible location where the valve will not be easily damaged. Make sure that there is enough air line remaining to reach the location you've chosen. Referring to Figures C and D, use the remaining length of tubing to connect the air inflation valve to the T-

fitting. Drill a 5/16" hole and install the air inflation valve using two 5/16" flat washers and a nut as shown in Figure D.

- ! The airline tubing should not be bent or curved sharply. Secure the tubing in place with the nylon ties provided. Route the tubing from the T-Fitting to the inflation valve so as to avoid direct heat from the drive train and exhaust system. Be sure to keep it away from any sharp edges and moving parts.

## 6. FINALIZING THE INSTALLATION

- a) Re-install the wheels and torque to the Manufacturer's specifications.
- b) Check that all components and fasteners have been properly installed, tightened and torqued.
- c) Lift the vehicle and remove the support stands. Carefully lower the vehicle to the ground.
- d) Check brake hoses, cables and other components for any possible interference.
- e) Check for air spring to chassis/wheel interference. **NOTE:** The air springs cannot rub on ANY surface. Any interference or contact will cause premature air spring failure and **MUST** be avoided.

## 7. CHECKING THE AIR ASSIST SPRING SYSTEM

- a) After completing the air spring system installation, temporarily fill it with 70psi of compressed air through the inflation valve using a compressed air source. Using a spray bottle filled with a solution of soap and water, check the connections between all lines, fittings, and air springs for air leaks by watching for bubbles. If a leak is detected, push in the air inflation valve to allow all compressed air to escape from the system. Remove the tubing from the fitting in question and check to make sure that the tubing's end was cut square and that it is pushed completely into the fitting. To remove the tubing from the fittings, push the collar towards the body of the fitting while pulling on the tubing. If a leak is detected where an elbow fitting screws into an air spring, remove the tubing as described above and screw the fitting into the air spring one additional turn. If the leak persists, remove the fitting, clean the threads, apply additional Teflon™ thread sealant, and reinstall the fitting. Reinstall the tubing and refill the system to check for other leaks. Repeat the above procedures until all leaks are eliminated.
- b) Check once again to be sure you have proper clearance all around the air springs. With your vehicle fully loaded and the system inflated to the **MAXIMUM** operating pressure, you must have at least 1/2" clearance around the air springs. **FOR the BEST RIDE**, use only enough air pressure to level the vehicle when viewed from the side. This pressure will vary depending on the weight and location of load, condition of existing suspension and personal preference. **DO NOT INFLATE THIS SYSTEM BEYOND 100psi** at any time.
- c) Immediately test-drive the vehicle in a remote location so that you can become accustomed to the revised driving characteristics and handling.
- d) Check all of the hardware and re-torque at intervals for the first 10, 100, and 1000 miles.

### # 5097 Parts List

#### (Universal Full-Size Air Assist Spring Kit)

Part #	Description	Quantity
5097-010	Upper Bracket	2
5098-005	Lower Bracket	2
5000-001	Air Bag Small	2
110258	3/8 -16 x 3/4 HHCS	6
110625	3/8 A325 Flat Washer	6
110674	3/8-16 Flange Nut	4
110408	1/2-20 x 1 1/4HHCS	8
110403	1/2-20 Lock Nut	8
110660	1/2 A325 Washer	16
5096-015	1/4 Elbow	2
5096-020	1/4 "T" Fitting	1
5096-017	Schrader Valve	1
9999-975	Nylon Black Cable Tie 7"	6
5096-013	Airline D.O.T. 30" – 1/4"	1

### # 5098 Parts List

#### (Universal Mini-Size Air Assist Spring Kit)

Part #	Description	Quantity
5098-010	Upper Bracket	2
5098-005	Lower Bracket	2
5000-200	Air Spring	2
110258	3/8 -16 x 3/4 HHCS	6
110625	3/8 SAE Flat Washer	22
112094	3/8-16 x 1 1/4 HHCS	8
110255	3/8-16 Lock Nuts	8
5096-017	Schrader Valve	1
5096-015	1/4 Elbow	2
5096-020	1/4 "T" Fitting	1
9999-975	Nylon Black Cable Tie 7"	6
5096-013	Airline D.O.T. 30" – 1/4"	1

# 5097 Full-Size Universal Air Assist Spring Kit

**FIGURE "B"**

## KIT TO FRAME ASSEMBLY

NOTE: Kit to frame illustration shows the drivers side of the vehicle. The passenger side is the exact opposite of the driver's side.

**FIGURE "A"**

## PRE-ASSEMBLY

Upper Bracket  
5097-010

1/4 Elbow  
5096-015

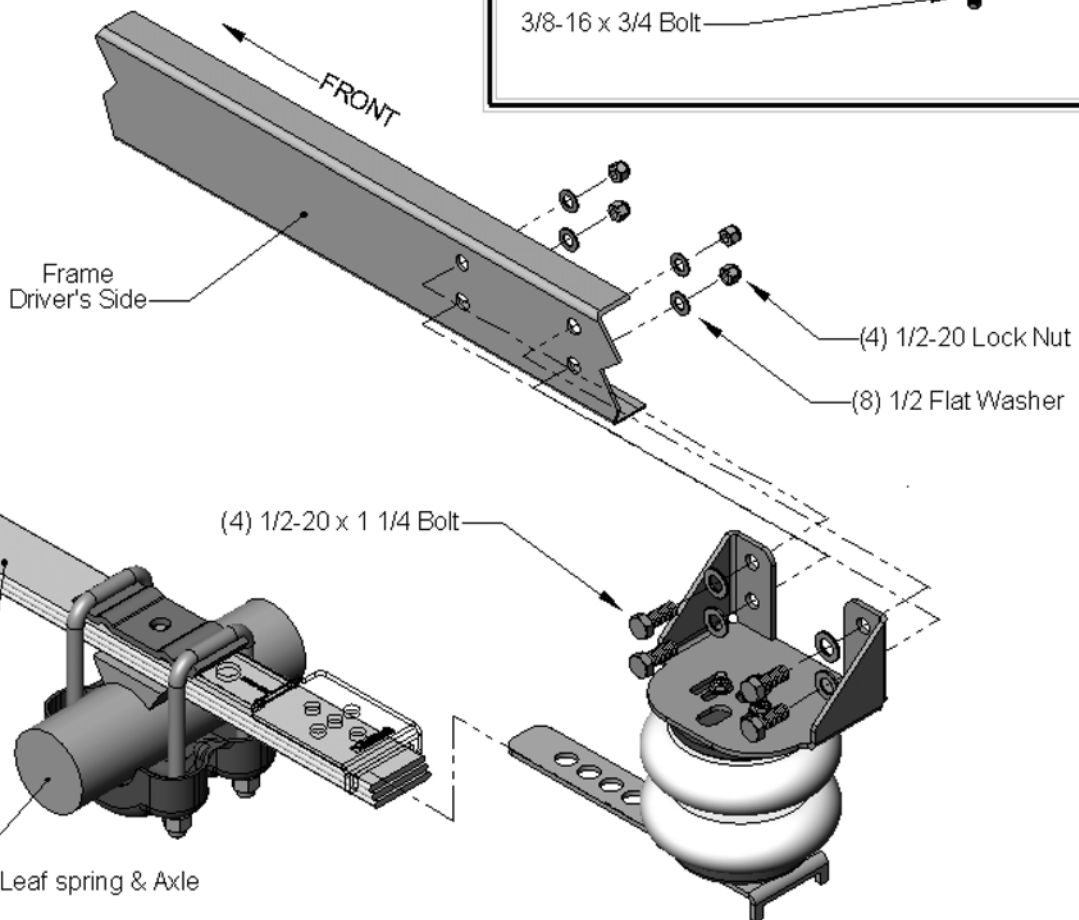
(2) 3/8-16  
Flange Nut

Air Bag  
5000-100

Lower Bracket  
5098-005

3/8 Washer

3/8-16 x 3/4 Bolt

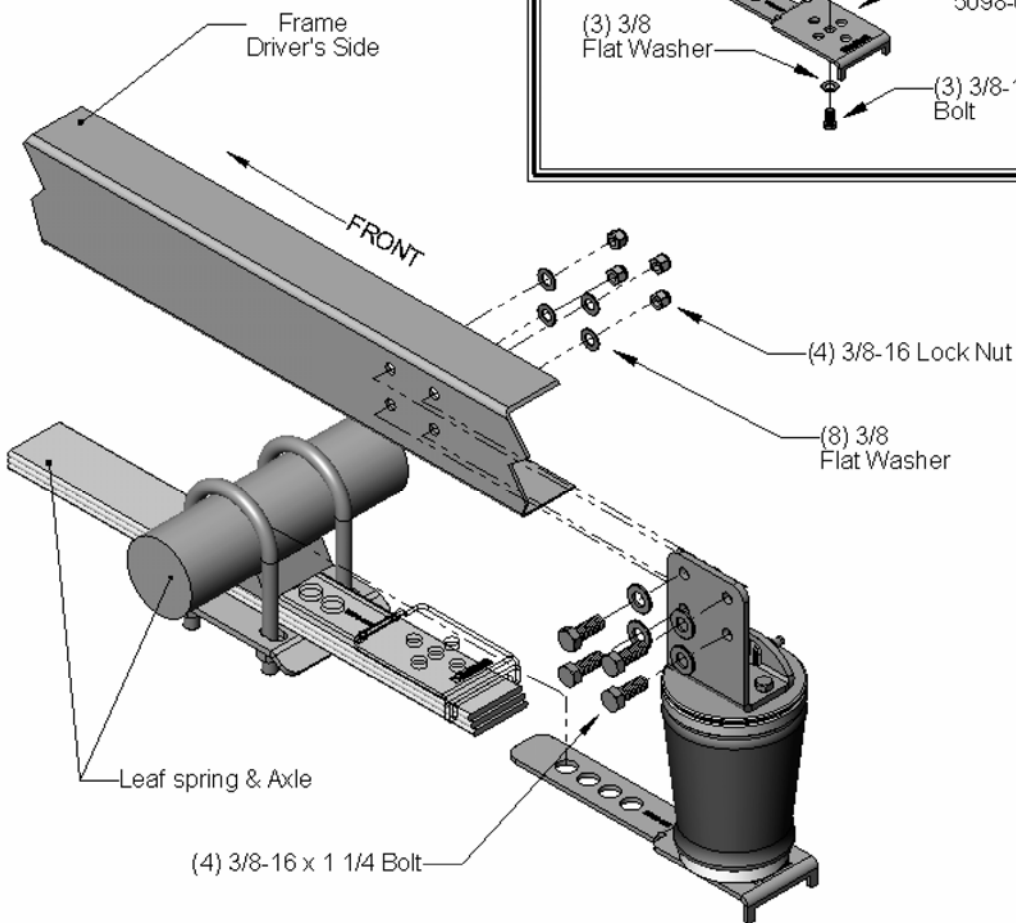


# 5098 Mini Universal Air Assist Spring Kit

**FIGURE "B"**

## KIT TO FRAME ASSEMBLY

NOTE: Kit to frame illustration shows the drivers side of the vehicle. The passenger side is the exact opposite of the driver's side.



**FIGURE "A"**

## PRE-ASSEMBLY

