

Installation Manual



AIR SUSPENSION KIT

Toyota Tundra (4WD)*

Use the most advanced air springs on the market to eliminate your vehicle's sag, sway and bottoming out. This heavy duty air suspension kit levels your truck's stance while providing added support for an overall smooth and safe ride.

* See application guide for proper fitment.

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Thank you and congratulations on the purchase of an Air Suspension kit. Please read the entire manual prior to starting the installation to ensure you can complete it once started.

IMPORTANT

This air suspension kit will not increase the GVWR (*Gross Vehicle Weight Rating*), as the GVWR is determined by the vehicle manufacturer. **Do not exceed the maximum capacity listed by the vehicle manufacturer.**

For safe and proper operation of the vehicle, never exceed a maximum of 100PSI in the air springs. Staying under the pressure limit will ensure maximum air spring life. **Failure in doing so may result in damage to your vehicle and/or a void warranty.**

SAFETY WARNINGS!

! Please read and abide the instructions found in this manual, paying close attention to the helpful, cautionary or dangerous warning icons highlighting important safety recommendations and maintenance suggestions throughout this manual.

+ **HELPFUL INSTALL TIP**
Additional information that could potentially make the job a little easier.

! **PLEASE USE CAUTION**
Unsafe practices could result in damage to you or your vehicle, or others.

! **DANGER WARNING**
Hazards which could result in severe personal injury or death.

! Serious personal injury or death may result from an air spring failure or accident due to improper installation or air spring pressure operation or maintenance.

! Inflating an unsecured air spring is dangerous. If it bursts, it could be hurled into the air with explosive force resulting in serious personal injury or death. Never inflate an air spring unless it is secured to the vehicle.

! Removing and replacing air springs can be dangerous. This is only a job for a qualified service professional. Never perform air spring service procedures without proper training, tools, and equipment.

BEFORE STARTING THE INSTALLATION

- Ensure the application information is correct for the make, model and year of the vehicle you are installing the kit on.
 - Some vehicles are equipped with a rear wheel brake proportioning valve. Check with the manufacturer before installing the air spring kit, as it may affect braking performance.
 - It is recommended to use a good quality anti-seize on all fasteners. This will reduce the chance of corrosion on the fasteners and will help facilitate removal, if required at a later date.
- !** **PLEASE NOTE:** *This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon air line will distort the line and cause the connection to leak. The air line must be cut off squarely with the hose cutter provided in this kit, or a sharp utility knife. Failure to do so may void the warranty.*

! **WARNING:** This product can expose you to the chemical Hexavalent Chromate, which is known to the State of California to cause cancer and birth defects or other reproductive harm. **For more information go to www.P65Warnings.ca.gov**

KIT CONTENTS

Please confirm the items below are provided in your kit before starting the installation. Reference the kit explosion diagram on the following page for part assembly.

KIT CONTENTS		QTY	PART #
A	7" Sleeve Style Air Spring*	2	HP10173
B	Bracket, Upper	2	HP1365
C	Bracket, Lower	2	HP0045
D	Spacer	2	HP0113
E	Jounce Bumper Spacer	2	HP1366
F	U-Bolt, 3/8" - 16 x 4.25 x 3.5	2	HP2029
G	Bolt, 3/8" - 16 x 1.25" Self Threading	6	HP1078
H	Bolt, 1/2" - 13 x 7/8" Hex Head	2	HP1077
I	Bolt, 3/8" - 16 x 1.25" Hex Head	2	C10464
J	Nut, 3/4" Jam	2	HP1076
K	Nut, 3/8" - 16 Nylon Lock Flange	6	HP1975
L	Washer, 3/8" Flat	2	C653
M	Washer, 1/2" x 2" OD Thin Flat	2	HP1010
N	90° Swivel Fitting, 1/4" Hose to 1/8" NPT	2	HP1019
O	Heat Shield	1	HP0012
P	Worm Gear Ring Clamp	2	HP1001
Q	Air Line / Valve Assembly	1	HP1344
R	Tie Straps	6	C11618

! PLEASE NOTE:
 *Do not apply air pressure to the air spring until advised to in Step 10



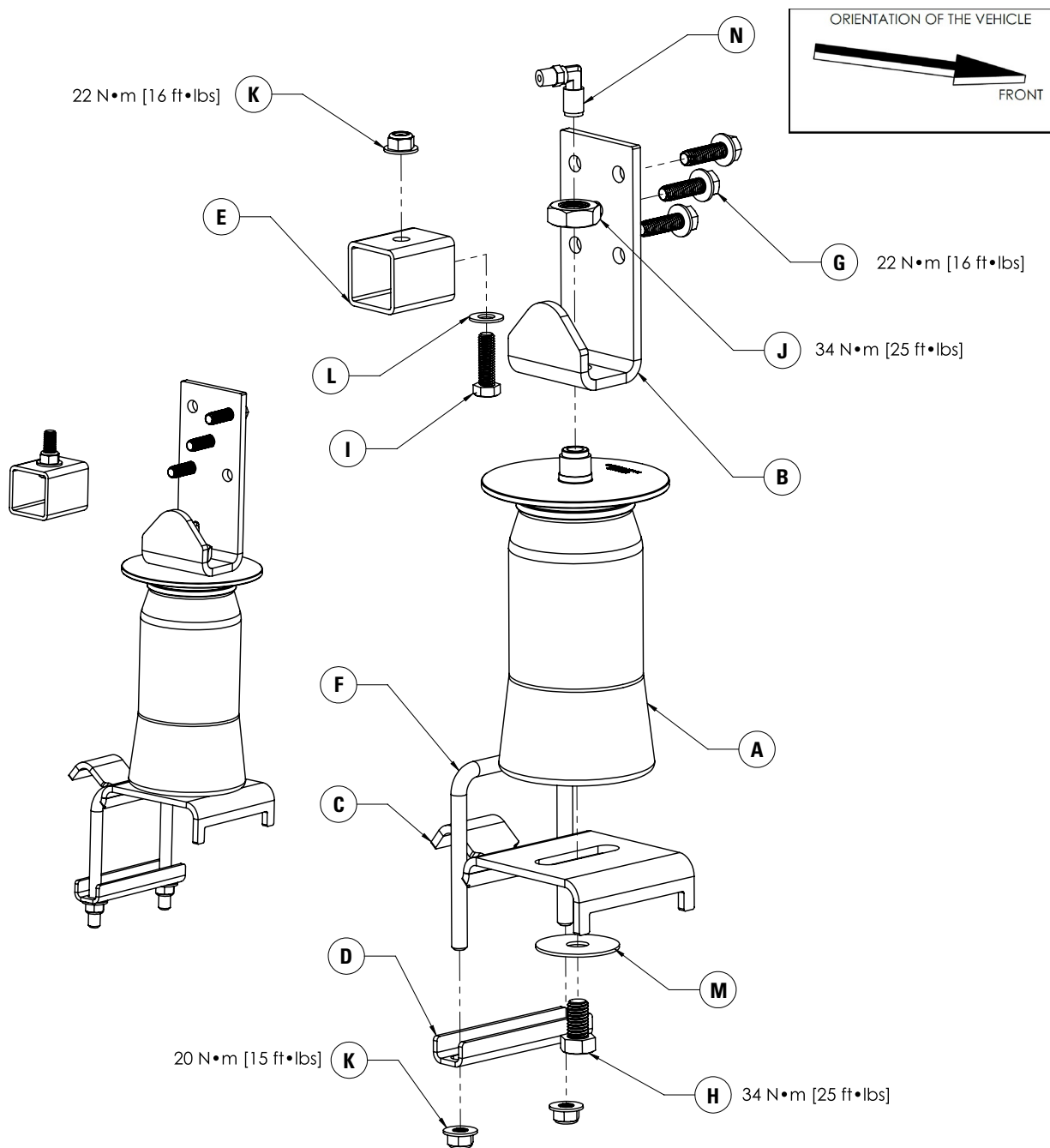
REQUIRED TOOLS

- Hoist or Floor Jack
- Safety Stands
- Safety Glasses
- Torque Wrench
- 1/2", 7/8", 9/16" Open End or Box Wrenches
- 5/16" & 3/8" Drill Bits
- 9/16" & 1/2" Deep Well Sockets
- 7/8" Crowsfoot Socket
- Heavy Duty & Right Angle Drill
- Hose Cutter (included) or Sharp Utility Knife
- Pipe Thread Sealant
- Spray Bottle with Dish Soap/Water
- Air Compressor/Compressed Air Source (to test/fill air springs)

KIT EXPLOSION DIAGRAM

DRIVER SIDE ASSEMBLY SHOWN

(Passenger side assembly is mirrored)



! PLEASE NOTE:
*Do not apply air pressure to the air spring until advised to in Step 10

INSTALLATION INSTRUCTIONS

1 MEASURE STOCK RIDE HEIGHT & CLEARANCE

Park the vehicle on a level surface and remove any unnecessary weight from the vehicle to attain a "Normal Ride Height".

Using a measuring tape, measure the distance between the center of the wheel hub and the bottom of the fender well (see Figure 1 for reference) this will give you your stock Normal Ride Height.

Note the ride height for all four tires.

Check the clearance between the outside of the frame and the inside of the rear tires (as shown in red in Figure 1B), a minimum of 5" is required for adequate air spring clearance.

2 REMOVE REAR WHEELS

Place wheel chocks in front of and behind both front wheels.

Raise the rear of the truck high enough to remove both wheels and attain a comfortable working height.

Place two jack stands under rear axle (as shown in Figure 1B).

Lower the vehicle until the axle is supported by the jack stands and then remove the rear wheels.

PLEASE NOTE: The following instructions are shown for the Driver side of the vehicle.

3 PREPARING THE AIR SPRINGS

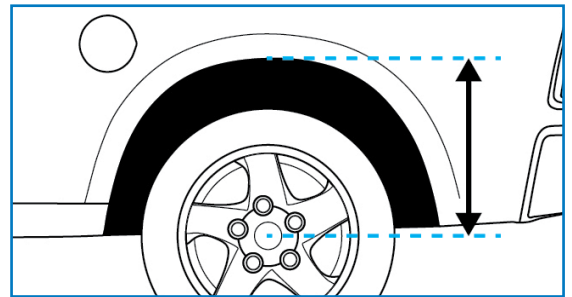
The air springs need to be collapsed with the rubber part of the bag folded over the bottom end cap (as shown in Figure 3).

4 UPPER AIR SPRING BRACKET ASSEMBLY

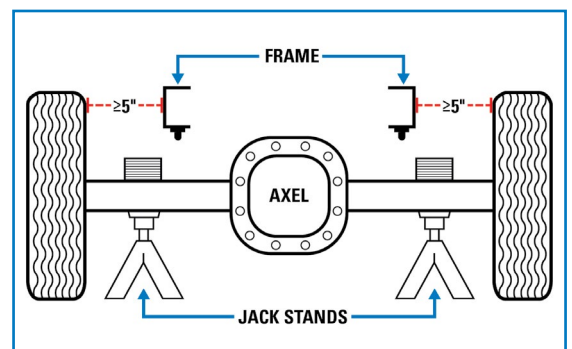
Set the upper bracket over the air spring inlet port fitting and thread the jam nut onto the thread post (as shown in Figure 4A). Hand tighten the jam nut, ensuring that the bracket is tight to the roll plate.

Using an open end wrench install the 90° air fitting into the air spring inlet port (as shown in Figure 4B) finger tight plus an additional 1.5 turns.

⊕ *The use of Teflon tape or thread sealant is recommended.*



1A



1B



3



4A



4B

5 LOWER AIR SPRING BRACKET ASSEMBLY

Loosely attached the lower bracket to the bottom of the air spring using a $\frac{1}{2}$ " x 2" flat washer and $\frac{1}{2}$ " -13 x 7/8" hex head bolt (as shown in Figure 5) but do not fully tighten to allow for adjustments later in the install.



5

6 INSTALLING THE JOUNCE BUMPER SPACER

Place the jounce bumper spacer flush with the back bottom edge of the stock strike plate and mark the mounting hole location.

Centerpunch and drill a $\frac{3}{8}$ " hole in the stock strike plate using a right angle drill and attach the jounce bumper spacer onto the stock plate using a $\frac{3}{8}$ " - 16 x 1.25" hex head bolt, a $\frac{3}{8}$ " washer and $\frac{3}{8}$ " nyloc nut.

Torque to 22 N•m (16 ft-lbs)

⊕ *If you do not have a right angle drill, it might be necessary to lower the axle to gain more room to drill.*



6

7 SECURING THE LOWER BRACKET TO THE LEAF SPRING

⊕ *If you raised the body in the previous step, you will need to lower it back down*

Set the air spring assembly on the leaf spring (forward of the axle), with the hook end of the lower bracket over the factory U-bolt (as shown in Figure 7A).

Secure the lower bracket to the leaf spring with a U-bolt.

Slide a clamp bar on the U-bolt and secure each side with a $\frac{3}{8}$ " - 16 nyloc nut (as shown in Figure 7B).

Torque to 20 N•m (15 ft-lbs)



7A



7B

8 SECURING THE LOWER BRACKET TO THE LEAF SPRING

- ⊕ Ensure that the upper bracket is parallel and perpendicular to the lower bracket (as shown in Figure 8A)

Align the upper bracket so that the top edge of the shorter flange touches the bottom of the frame rail (highlighted in Figure 8A with a white arrow). Using the upper bracket as a template, centerpunch one of the 5 holes (as shown in Figure 8B).

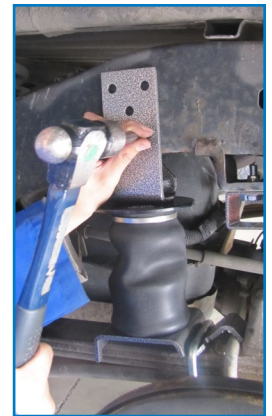
- ⊕ It will be necessary to use any three of the five holes for mounting the assembly to the frame securely.
- ⚠ Before drilling, ensure that the backside of the frame is free from brake lines, fuel lines or electrical wires.

Drill one 5/16" hole and install one 3/8" - 16 x 1.25" self-tapping bolt. Torque to 22 N•m (16 ft-lbs)

Before drilling the next two holes, ensure that the upper and lower brackets are still parallel and perpendicular to each other. Centerpunch and drill the two remaining holes and install the 3/8" - 16 x 1.25" self-tapping bolt. Torque to 22 N•m (16 ft-lbs)



8A



8B

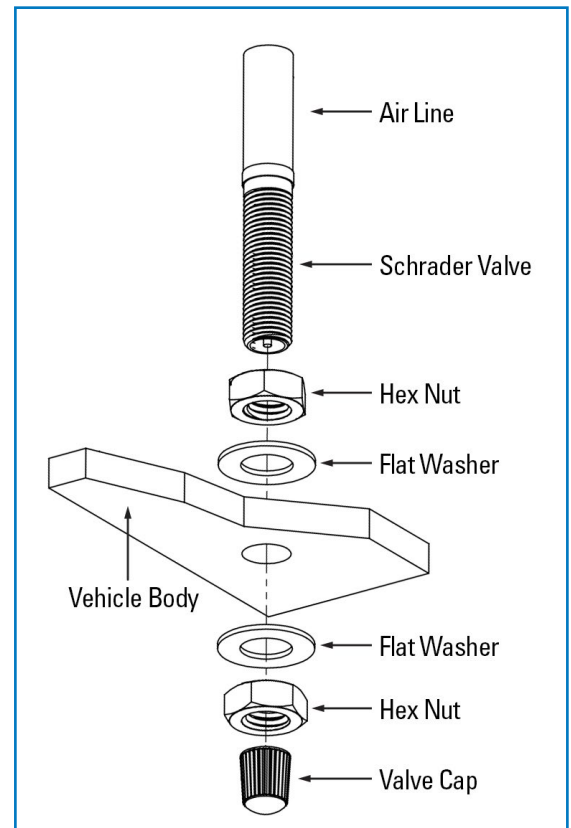
9 INSTALL THE AIR LINE

Provided in the basic air spring kit are two fill valves, the most common place to install them is to replace the license plate fasteners with the fill valves. Alternatively, two holes can be drilled in a convenient location. Cut the air line assembly into two equal lengths with the hose cutter provided in this kit or a sharp utility knife.

- ⚠ **PLEASE NOTE:** This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon air line will distort the line and cause the connection to leak. The air line must be cut off squarely with a hose cutter or a sharp utility knife.

Install one air line at a time starting at the fill valve location. Place a 5/16" nut on the air valve. Leave enough of the inflation valve in front of the nut to extend through the hole, install a flat washer, and 5/16" nut and cap (reference Figure 9 for assembly). There should be enough valve exposed after installation – approximately 1/2" – to easily apply a pressure gauge or an air chuck.

Route the air line back to the NPT fitting on the air spring, then cut the hose to length. Moisten the end of the air line prior to inserting it into the fitting and push it in until it stops. Secure the air lines using the provided tie-straps, away from any moving items and heat sources.



9

10 ALIGN THE AIR SPRING

Align the air spring, then tighten the ½" - 13 x 7/8" hex head cap screw - securing the air spring to the lower bracket.

⊕ *For stability, inflate the air spring to 10 psi*

Make sure the air spring is not crooked and adjust as necessary using the slot in the lower bracket.

Torque the ½" - 13 x 7/8" hex head cap screw to 34 N•m (25 ft-lbs).

⚠ **Deflate air spring before starting on the other side**

REPEAT STEPS 3-10 on the other side of the vehicle

11 CHECK SYSTEM FOR LEAKS

Inflate both air springs to 90 psi, then use a mixture of dish soap and water on all air line connections to detect any air leaks. Large, expanding bubbles indicate a leak.

Repair as necessary and retest.

Inflate air springs to a predetermined value and on following day recheck pressure. If one or both of air springs have lost pressure, an air leak is present.

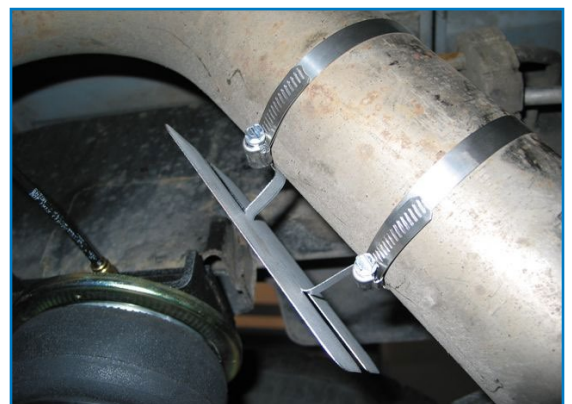
⚠ **Leak must be repaired, and then retested until no leaks exist.**

12 INSTALL HEAT SHIELD

A heat shield is supplied in this kit to provide increased protection from potential heat that can occur between the exhaust pipe and air spring.

Bend the tabs on the heat shields so the required ½" of dead space exists between the heat shield and exhaust when attached (example shown in Figure 12).

Attach the heat shields to the exhaust pipe using the provided worm gear ring clamps (in the approximate locations shown in Figure 12). Each clamp holds a tab against the exhaust pipe.



**Image used as visual representation only*

12

Thank you again, and congratulations on the installation of your Air Suspension kit.

AFTER COMPLETING THE INSTALLATION

- The air spring must have clearance between itself and the surrounding components to prevent any contact when spring is inflated or compressed. Trimming off excess bolt length may also be required to ensure no contact with the spring or other suspension components can be made once installed.
- If removed, re-install the wheels and torque fasteners to the manufacturer’s specifications. Re-torque all fasteners after the first 500 miles of driving.

OPERATING YOUR VEHICLE WITH AIR SUSPENSION

Air springs have minimum and maximum recommended pressure requirements:

PART #	SPRING STYLE	SPRING TYPE	MIN PSI	MAX PSI
HP10189	In-Coil	STANDARD DUTY	5 PSI	70 PSI
HP10560		STANDARD DUTY		
HP10001	Sleeve Style	STANDARD DUTY	10 PSI	100 PSI
HP10173		STANDARD DUTY		
HP10199		STANDARD DUTY		
HP10083	Single Convoluted	HEAVY DUTY	5 PSI	100 PSI
HP10083J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10000	Double Convoluted	HEAVY DUTY	5 PSI	100 PSI
HP10000J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10068	Large Double Convoluted	HEAVY DUTY	5 PSI	100 PSI
HP10438	Double Convoluted	EXTREME DUTY	5 PSI	100 PSI
HP10438J		EXTREME DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI

** Springs with a jounce bumper can be run at zero PSI when vehicle is unloaded only*

For safe and proper operation, never operate the vehicle over the maximum listed PSI in the air springs. Staying under the pressure limit will ensure maximum air spring life. **Failure in doing so may result in damage to your vehicle and/or a void warranty.**

! It is recommended to check the air pressure in your air springs daily for first couple of days to ensure a leak has not developed.

Air springs are designed to maintain the vehicle’s stock ride height with a load. Do not use the air springs as a means to lift vehicle with no load. This will result in a harsh ride.

SERVICING YOUR VEHICLE WITH AIR SUSPENSION

When lifting the vehicle with a floor jack or hoist on the frame, never allow the air spring to limit the travel of the axle. Try to always jack the vehicle on the axle. Suspending the axle with the air spring limiting the axle travel will damage the air spring and void the air spring warranty.

WARRANTY

See additional warranty included with this kit for details.