Kit 78551

Lexus XE20 AWD

Front Application

INSTALLATION GUIDE

For maximum effectiveness and safety, please read these instructions completely before proceeding with installation.

Failure to read these instructions can result in an incorrect installation.

MN-1009 • (011601) • ERN 8342

TABLE OF CONTENTS

A. Introduction

The purpose of this publication is to assist with the installation, maintenance and troubleshooting of this Lexus XE20 AWD Performance kit.

It is important to read and understand the entire installation guide before beginning installation or performing any maintenance, service or repair. The information includes a hardware list, step-by-step installation information, maintenance tips, safety information and a troubleshooting guide.

Air Lift Performance reserves the right to make changes and improvements to its products and publications at any time. For the latest version of this manual, contact Air Lift Performance at (800) 248-0892 or visit our website at www.airliftperformance.com.

NOTATION EXPLANATION

Hazard notations appear in various locations in this publication. Information which is highlighted by one of these notations must be observed to help minimize risk of personal injury or possible improper installation which may render the vehicle unsafe. Notes are used to help emphasize areas of procedural importance and provide helpful suggestions. The following definitions explain the use of these notations as they appear throughout this guide.

⚠ DANGER INDICATES IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

⚠ WARNING INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

⚠ CAUTION INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN DAMAGE TO THE MACHINE OR MINOR PERSONAL INJURY.

NOTE *Indicates a procedure, practice or hint which is important to highlight.*

IMPORTANT SAFETY NOTICES

The installation of this kit does not alter the Gross Vehicle Weight Rating (GVWR) or payload of the vehicle. Check your vehicle's owner's manual and do not exceed the maximum load listed for your vehicle.

Gross Vehicle Weight Rating: The maximum allowable weight of the fully loaded vehicle (including passengers and cargo). This number — along with other weight limits, as well as tire, rim size and inflation pressure data — is shown on the vehicle's Safety Compliance Certification Label.

Payload: The combined, maximum allowable weight of cargo and passengers that the vehicle is designed to carry. Payload is GVWR minus the base curb weight.

⚠ WARNING DO NOT INFLATE AIR SPRINGS WHILE OFF OF THE VEHICLE. DAMAGE TO ASSEMBLY MAY RESULT AND VOID WARRANTY.

⚠ CAUTION DO NOT WELD TO, OR MODIFY PERFORMANCE STRUTS/SHOCKS IN ANY WAY. DAMAGE TO UNIT MAY OCCUR AND WILL VOID WARRANTY.

B. Installation Diagram

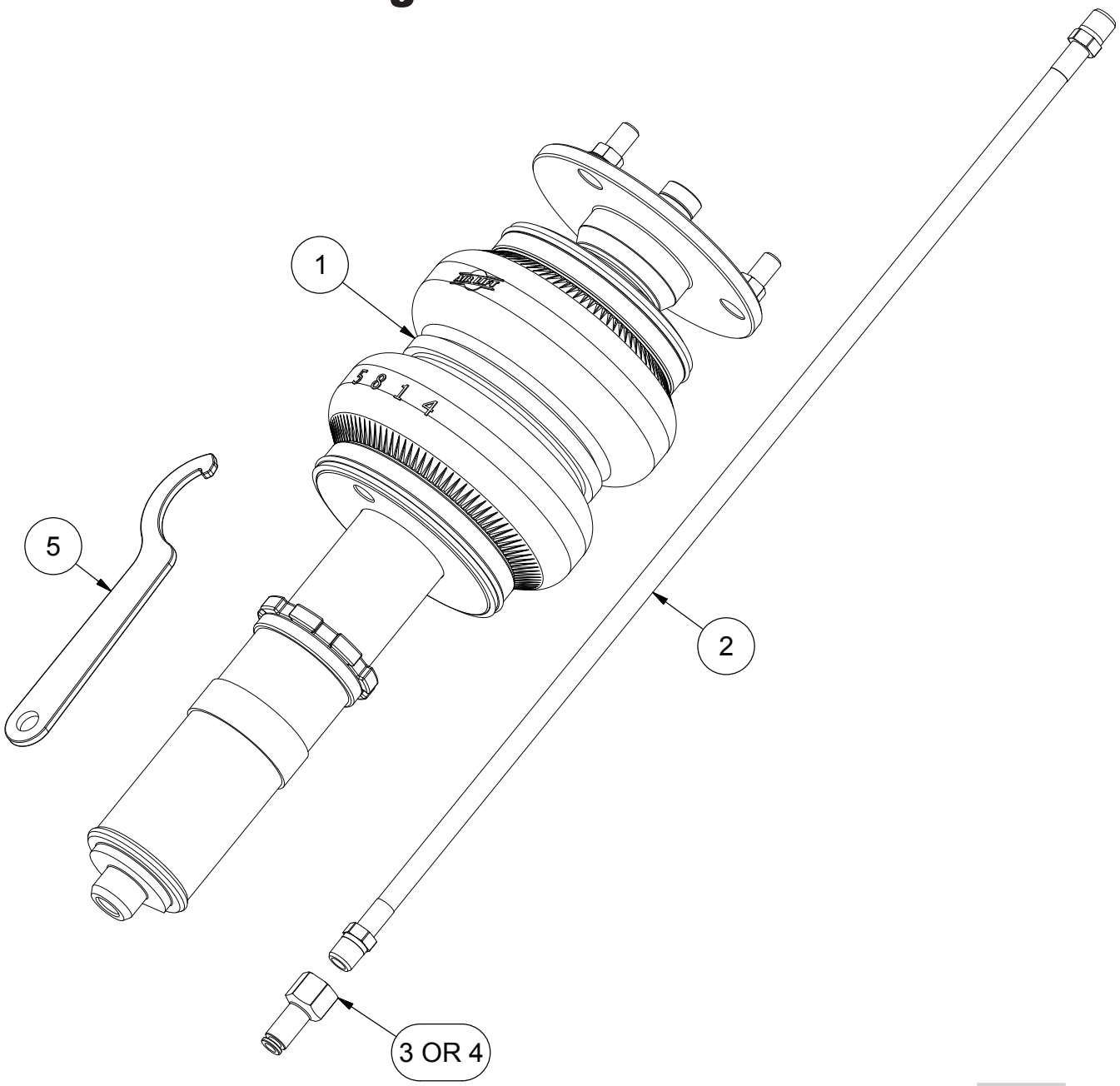


fig. B.1

HARDWARE LIST

Item	Part #	Description	Qty
1	35356	Lexus XE20 AWD Front Shock	2
2	20997	Leader Hose, 1/4" ID	2
3	21987	Union, 1/4" FNPT X 3/8" PTC, DOT	2
4	21810	Union, 1/4" FNPT X 1/4" PTC, DOT	2
5		Spanner Wrench	1

STOP! Missing or damaged parts? Call Air Lift customer service at (800) 248-0892 for a replacement part.

C. Installing the Air Suspension

PREPARING THE VEHICLE

1. Elevate and support the vehicle with a hoist or jack stands.
2. Remove the front wheel and support the hub assembly. (Fig. C.1)

fig. C.1

REMOVE THE FRONT SHOCK

1. Detach the headlight alignment linkage from the lower control arm. (Figs. C.2 & C.3)

fig. C.2

fig. C.3

2. Unbolt the wiring support bracket from the shock and steering knuckle. (Figs. C.4, C.5, C.6 & C.7)

fig. C.4

fig. C.5

fig. C.6

fig. C.7

3. Loosen the bolt that connects the lower mount to the shock. This bolt does not need to be removed at this time but loosening it now will make the disassembly easier when the shock is out of the vehicle. (Figs. C.8 & C.9)

fig. C.8

fig. C.9

4. Remove the lower mount nut and keyed washer. (Figs. C.10 & C.11)

fig. C.10

fig. C.11

5. Within the engine compartment, remove the upper shock mount cover and three nuts. (Fig. C.12)

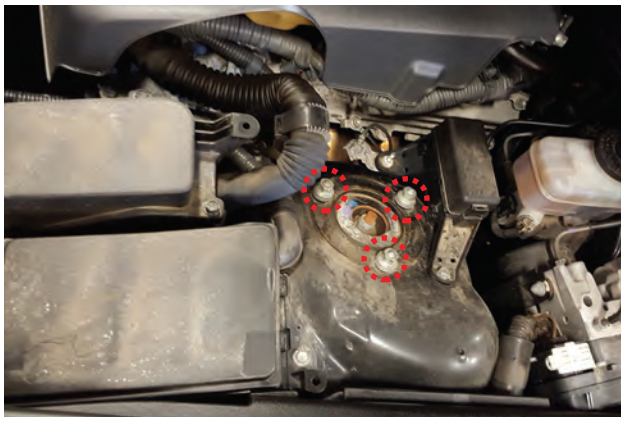


fig. C.12

6. Remove the cotter pin from the tie rod end and remove the nut from the steering knuckle. Separate the tie rod end from the steering knuckle. (Figs. C.13, C.14 & C.15)

fig. C.13

fig. C.14

fig. C.15

⚠ CAUTION SUPPORT THE HUB TO PREVENT OVER-EXTENSION OF COMPONENTS BEFORE PROCEEDING.

7. Remove the cotter pin from the upper control ball joint. Remove the nut and separate the ball joint from the steering knuckle. (Figs. C.16, C.17 & C.18)

fig. C.16

fig. C.17

fig. C.18

8. Remove the shock assembly from the vehicle. (Fig. C.19)

fig. C.19

9. Reattach the spindle to the upper control arm ball joint. Torque to 87 Nm (64 lb.-ft.). Install the cotter pin through the ball joint nut. (Figs. C.20 & C.21)

fig. C.20

fig. C.21

10. Remove the lower mount bolt and separate the shock from the mount. (Fig. C.22)

fig. C.22

INSTALLING THE KIT COMPONENTS

1. Begin by installing the leader line into the air spring. Apply thread sealant to the threads of the leader hose. Tighten the appropriate fitting to the airline (one and three-quarter turns beyond hand-tight). Tighten the leader line into the air spring 1 3/4 turns beyond hand-tight. (Fig. C.23)

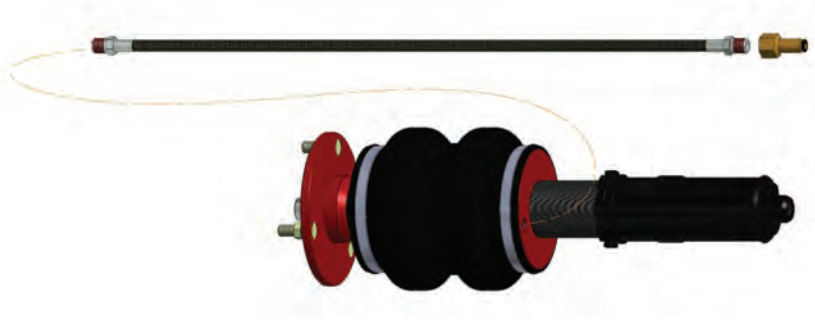


fig. C.23

2. Attach the shock to the lower mount. Torque bolt to 48 Nm (35 lb.-ft.). (Figs. C.24, C.25 & C.26)

fig. C.24

fig. C.25

fig. C.26

3. Insert the shock assembly into the shock tower while aligning the three upper bracket studs with the associated holes. Torque the upper bracket nuts to 67 Nm (49 lb.-ft.). (Figs. C.27 & C.28)

fig. C.27

fig. C.28

4. Slide the lower mount stud through the lower control arm. Reinstall the lock washer and nut. Snug, but do not torque, the lower bushing bolt at this time. Bolt torque must be done when vehicle is at the desired ride height. (Figs. C.29 & C.30)

fig. C.29

fig. C.30

5. Reattach tie rod end to the steering knuckle. Torque to 65 Nm (48 lb.-ft.). Reinstall the cotter pin. (Fig. C.31)

fig. C.31

6. Reattach brake line bracket. Torque bolts to 6 Nm (4.4 lb. ft.). (Fig. C.32)

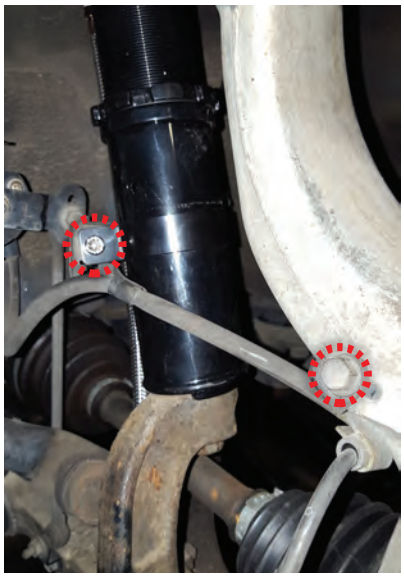


fig. C.32

7. Align and attach the height sensor to the lower control arm. Torque to 5.4 Nm (47.8 lb.-in.). (Fig. C.33)

fig. C.33

ROUTING THE AIR LINES

Fully compress the suspension using a jack. With the suspension compressed, review the best routing for the leader hose that is clear of all suspension and steering components. Routing should also allow for the suspension to extend and steer without kinking or pulling the line tight or rubbing on other components. Following the brake line routing is often a good place to start. Check clearances to all other components.

D. Before Operating

SETTING THE RIDE HEIGHT

1. With the suspension fully compressed, take a measurement from the fender to some reference point – typically the center of the axle. Record this measurement as Max Compression.
2. Cycle the suspension to Max Extension and record the measurement from the same reference points.
3. Add ME and MC then divide by 2. Set the suspension to this point. This position will give 50% stroke in either direction and is a starting point for ride height. (Fig. D.1)
4. With the suspension at this position, loosen, then re-torque the lower control arm bolts to manufacturer's specifications (Table 1).

Formula for Calculating Ride Height
(ME+MC)÷2=MID STROKE

fig. D.1

Torque Specifications			
Location	Nm	Lb.-ft.	Lb.-in.
Upper control arm to steering knuckle	87	64	—
Toe link to steering knuckle	65	48	—
Shock to lower mount bolt	48	35	—
Upper mount nuts	67	49	—
Lower mount stud to lower control arm	112	82	—
Brake line bracket bolt	6	4.4	—
Height sensor bolt	5.4	—	47.8
Wheel lug	103	76	—
Air fitting and leader line with sealant	1 3/4 turn beyond hand tight		

Table 1

Suggested Driving Air Pressure	Maximum Air Pressure
60-75 PSI	125 PSI

FAILURE TO MAINTAIN ADEQUATE MINIMUM PRESSURE (OR PRESSURE PROPORTIONAL TO LOAD) WILL RESULT IN BOTTOMING OUT, OVER-EXTENSION OR RUBBING AGAINST ANOTHER COMPONENT AND WILL **VOID THE WARRANTY**.

DAMPING ADJUSTMENT

1. The dampers in this kit have 30 settings, or “clicks,” of adjustable compression and rebound damping characteristics. Damping is changed through the shock rod using the supplied adjuster (Figs. D.2 & D.3) or a 3 mm hex key.
2. Turn the adjuster clockwise and the damping settings are hardened. Turn the adjuster counterclockwise and the damping is softened.
3. Each damper is preset to “-20 clicks.” This means that the shock is adjusted 20 clicks away from full stiff. Counting down from full stiff is the preferred method of keeping track of, or setting, damping. This setting was developed on a 2008 Lexus IS 350 AWD and may need to be adjusted to different vehicles and driving characteristics.

fig. D.2

fig. D.3

ALIGNING THE VEHICLE

1. Using the control system, set the vehicle height to the new custom ride height.
2. If the custom ride height is lower than stock, Air Lift recommends loosening all pivot points (bolts, nuts) on any control arm, strut arm or radius rod that contains bushings. Once they have been loosened, re-torque to stock specifications (Table 1).

NOTE

It may be necessary to cycle the suspension to loosen the bushing up from its mount. This will help re-orient the bushing at its new position based on the custom ride height.

3. Get a shop alignment of the vehicle at the new custom ride height.

ADJUSTING EXTENDED OR DROP HEIGHT USING LOWER MOUNT

These dampers have been pre-set at the factory to provide maximum drop height while maintaining adequate tire clearance to the air spring. If you wish to gain more extended height (lift), which is the same as reducing drop height, or want to lower the chassis further and there is still adjustment available at the lower mount, please use the following procedure:

1. Support the vehicle with jack stands or a hoist at approved lifting points.
2. Remove the wheel.
3. Using the supplied spanner wrench, loosen the locking collar. (Fig. D.4)

The dampers in this kit may look different, but they all allow adjustment of the locking collar with the included spanner wrench.

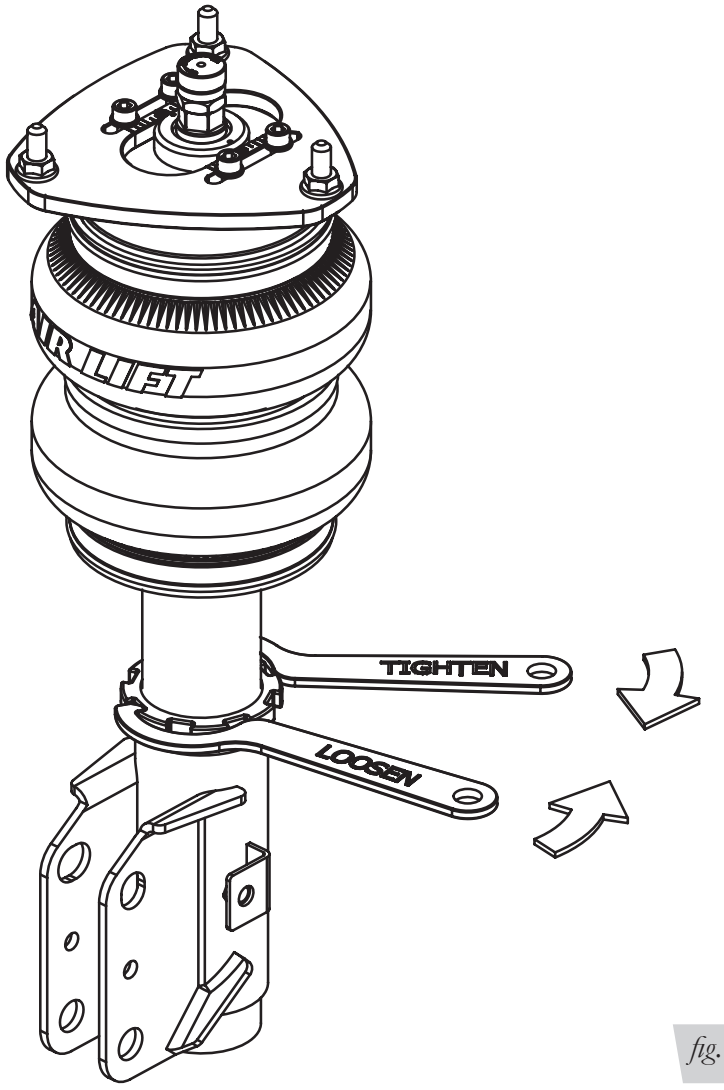


fig. D.4

4. Deflate the air spring to 0 PSI on the corner you are adjusting.
5. Disconnect lower mount from suspension.
6. Spin the lower mount to the desired location.

NOTE *Not all models will have further drop height available.*

7. Re-install lower mount to suspension and torque fasteners.
8. Tighten the lower locking collar to the lower mount using significant force.

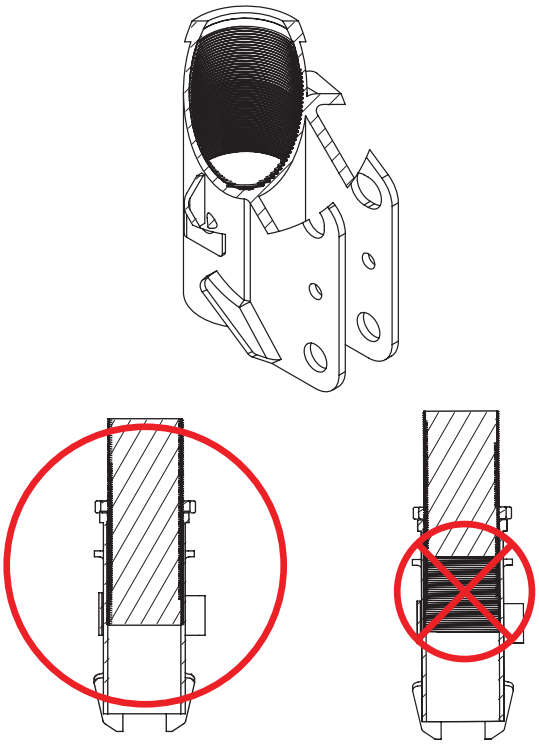
⚠ CAUTION

WHEN ADJUSTING HEIGHT UPWARD, MAKE SURE THAT THE DAMPER BODY ENGAGES ALL THE THREADS OF THE LOWER MOUNT (FIG. D.5). WHEN ADJUSTING DOWNWARD, MAKE SURE THERE IS ADEQUATE AIR SPRING CLEARANCE TO THE TIRE/WHEEL ASSEMBLY. CLEARANCE MUST BE CHECKED WITH SYSTEM FULLY DEFLATED AS WELL AS FULLY INFLATED TO ENSURE THAT NO RUBBING OCCURS. FAILURE TO MAINTAIN ADEQUATE CLEARANCE CAN RESULT IN AIR SPRING FAILURE AND WILL NOT BE COVERED UNDER WARRANTY.

⚠ CAUTION

DO NOT ADJUST HEIGHT BY SPINNING AIR SPRING ON DAMPER! DOING SO MAY CAUSE AN AIR LEAK AND COMPROMISE THE ASSEMBLY.

FOR STRUTS:



FOR SHOCKS:

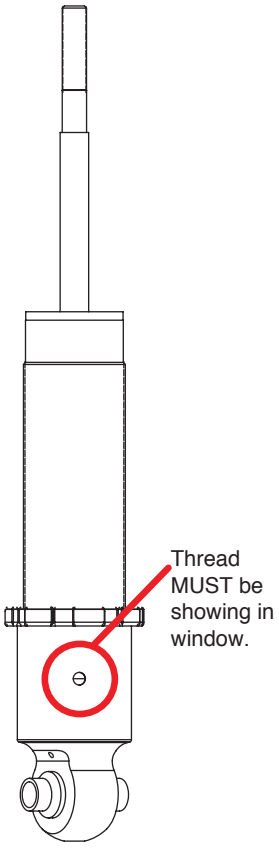


fig. D.5

⚠ CAUTION

MAKE SURE THE FRONT WHEELS ARE STRAIGHT WHEN DEFLATING AND REINFLATING AIR BAGS.

1. Inflate and deflate the system (do not exceed 125 PSI) to check for clearance or binding issues. With the air springs deflated, check clearances on everything so as not to pinch brake lines, vent tubes, etc. Clear lines if necessary.
2. Inflate the air springs to 75-90 PSI and check all connections for leaks.
3. Please continue by reading the Product Use, Maintenance and Servicing section.

INSTALLATION CHECKLIST

☐ **Clearance test** — Inflate the air springs to 75-90 PSI and make sure there is at least 1/2" clearance from anything that might rub against each sleeve. Be sure to check the tire, brakes, frame, shock absorbers and brake cables.

☐ **Leak test before road test** — Inflate the air springs to 75-90 PSI and check all connections for leaks. All leaks must be eliminated before the vehicle is road tested.

☐ **Heat test** — Be sure there is sufficient clearance from heat sources, at least 6" for air springs and air lines. If a heat shield was included in the kit, install it. If there is no heat shield, but one is required, call Air Lift customer service at (800) 248-0892.

☐ **Fastener test** — Recheck all bolts for proper torque.

☐ **Road test** — The vehicle should be road tested after the preceding tests. Inflate the springs to recommended driving pressures. Drive the vehicle 10 miles and recheck for clearance, loose fasteners and air leaks.

☐ **Operating instructions** — If professionally installed, the installer should review the operating instructions with the owner. Be sure to provide the owner with all of the paperwork that came with the kit.

POST-INSTALLATION CHECKLIST

☐ **Overnight leak down test** — Recheck air pressure after the vehicle has been used for 24 hours. If the pressure has dropped more than 5 PSI, then there is a leak that must be fixed. Either fix the leak yourself or return to the installer for service.

☐ **Air pressure requirements** — I understand the air pressure requirements of my air spring system. Regardless of load, the air pressure should always be adjusted to maintain adequate ride height at all times while driving.

☐ **Thirty-day or 500-mile test** — I understand that I must recheck the air spring system after 30 days or 500 miles, whichever comes first. If any part shows signs of rubbing or abrasion, the source should be identified and moved, if possible. If it is not possible to relocate the cause of the abrasion, the air spring may need to be remounted. If professionally installed, the installer should be consulted. Check all fasteners for tightness.

E. Maintenance and Servicing

NOTE

By following these steps, vehicle owners will obtain the longest life and best results from their air springs.

1. Check the air pressure before driving.
2. Never inflate beyond 125 PSI.
3. If the system develops an air leak in the system, use a soapy water solution to check all air line connections, before deflating and removing the spring.
4. When increasing load, always adjust the air pressure to maintain normal ride height. Increase or decrease pressure from the system as necessary to attain normal ride height for optimal ride and handling. Remember that loads carried behind the axle (including tongue loads) require more leveling force (pressure) than those carried directly over the axle.

⚠ CAUTION

FOR SAFETY AND TO PREVENT DAMAGE TO THE VEHICLE, DO NOT EXCEED MAXIMUM GROSS VEHICLE WEIGHT RATING (GVWR), AS INDICATED BY THE VEHICLE MANUFACTURER. ALTHOUGH THE AIR SPRINGS ARE RATED AT A MAXIMUM INFLATION PRESSURE OF 125 PSI, THE AIR PRESSURE ACTUALLY NEEDED IS DEPENDENT ON LOAD.

5. Always add air to the springs in small quantities, checking the pressure frequently. Air suspension systems require less air volume than a tire and inflate quickly.
6. Should it become necessary to raise the vehicle by the frame, make sure the control system is turned off before lifting.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
System won't maintain pressure overnight.	Improperly installed air line, air line has holes or cracks.	1. Leak test the air line connections, the threaded connection into the air spring, and all fittings in the control system. 2. Leak test air lines.
Compressor runs all the time.	The compressor relay is defective or there is a leak in the air lines.	Replace the relay or find the air leak.
Air spring or tank leak.	Fitting seal or air line is compromised.	Check to make sure air lines are seated in connectors. Inspect fittings with soapy water. Trim hose or re-seal fitting. Ensure lines are cut straight.
Corner won't raise or air leak develops.	Look for a kink or fold in the air line.	Replace any air line that has been kinked.

FREQUENTLY ASKED QUESTIONS

Q. Is the purchase of an air management system mandatory for Air Lift Performance kits?

No. It is possible to route the air lines to Schrader valves and use a separate air compressor to add air. Air lines and Schrader valves are not included with Air Lift Performance kits and would need to be purchased separately. To learn more about Air Lift air management systems visit air-lift.com/productlines.

Q. Will raising the vehicle on a hoist for service work damage the air springs?

No. The vehicle can be lifted on a hoist for short-term service work such as tire rotation or oil changes.

TUNING THE AIR PRESSURE

Pressure determination comes down to three things — level vehicle, ride comfort and stability.

1. **Level vehicle**

   If the vehicle's headlights are shining into the trees or the vehicle is leaning to one side, then it is not level. Raise the air pressure to correct either of these problems and level the vehicle. Depending on load, it is possible one side will need more pressure than the other to level the vehicle.

2. **Ride comfort**

   If the vehicle has a harsh ride, it may be due to either too much pressure or not enough. Try different pressures to determine the best ride comfort. See Air Lift suggested driving air pressure for this vehicle.

3. **Stability**

   Stability translates into safety and should be the priority, meaning the driver may need to sacrifice a perfectly level and comfortable ride. Stability issues include roll control, bounce, dive during braking and sponginess. Tuning out these problems usually requires additional air pressure, strut damping or both.

TIPS FOR INSTALLING AIR LINES

When cutting air lines, use a sharp knife or a hose cutter and make clean, square cuts (Fig. E.1). Do not use scissors or wire cutters because these tools may deform the air line, causing it to leak around fittings. Do not cut the lines at an angle.

Do not bend the 1/4" hose at a radius of less than 1" and don't put side load pressure on fitting. The hose should be straight beyond the fitting for 1" before bending.

Inspect hose for scratches that run lengthwise on hose prior to installation. Contact Air Lift customer service at (800) 248-0892 if the air line is damaged.

To watch a video demonstrating proper air line cutting, go to air-lift.co/cuttingairline

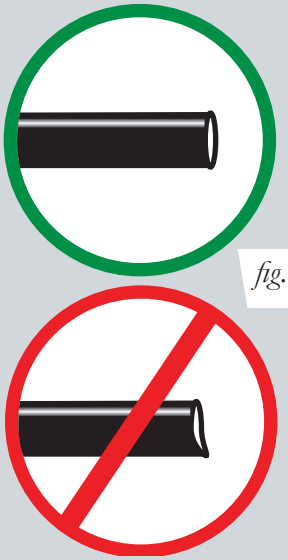


fig. E.1

An Air Lift air management system is highly recommended for this product. Learn more about 3H/3P at air-lift.co/productlines.

CHECKING FOR LEAKS

1. Inflate the air spring to 80 PSI.
2. Spray all connections and the inflation valves with a solution of 1/5 liquid dish soap and 4/5 water. Spot leaks easily by looking for bubbles in the soapy water.
3. After the test, deflate the springs to the minimum pressure required to restore the system to normal ride height.
4. Check the air pressure again after 24 hours. A 2-4 PSI loss after initial installation is normal. Retest for leaks if the loss is more than 5 PSI.

FIXING LEAKS

1. If there is a problem with a swivel fitting:
   a. Check the air line connection by deflating the spring and removing the line by pulling the collar against the fitting and pulling firmly on the air line. Trim 1" off the end of the air line. Be sure the cut is clean and square. Reinsert the air line into the push-to-connect fitting.
   b. Check the threaded connection by tightening the swivel fitting another half turn. If it still leaks, deflate the air spring, remove the fitting, and re-coat the threads with thread sealant. Reinstall by hand tightening as much as possible and then use a wrench for an additional two turns.
2. If the preceding steps have not resolved the problem, call Air Lift customer service at (800) 248-0892.

Notes

F. Limited Warranty and Return Policy

WHAT THIS WARRANTY COVERS

Air Lift Company provides a Limited Lifetime Warranty to the original purchaser of its Air Lift Performance 3H™ and 3P™ Control/Air Management Systems, that the Air Lift Performance products will be free from defects in workmanship and materials for the normal expected life of the part when used on cars and trucks as specified by Air Lift Company and under normal operating conditions, subject to the requirements and exclusions set forth below.

For all other Air Lift Performance products, Air Lift Company warrants to the original purchaser for a period of one year from the date of original purchase, that the Air Lift Performance products will be free from defects in workmanship and materials when used on cars and trucks as specified by Air Lift Company and under normal operating conditions, subject to the requirements and exclusions set forth below.

WHAT THIS WARRANTY DOES NOT COVER

The warranty does not apply to products that have been improperly applied, improperly installed or which have not been maintained in accordance with installation instructions furnished with all products. This warranty does not apply and is void if damage or failure is caused by: accident, abuse, misuse (including but not limited to racing or off-road activities or commercial use), abnormal use, faulty installation, liquid contact, fire, earthquake or other external cause; operating the product outside Air Lift Company's instructions, specifications or guidelines; or service, alteration, maintenance or repairs performed by anyone other than Air Lift Company to the product from its purchased condition. This warranty also does not apply to: Universal Air (Fabricator Kits), consumable parts, such as batteries; cosmetic damage, including but not limited to scratches or dents; defects caused by normal wear and tear or otherwise due to the normal aging of the product, or if any serial or identification number has been removed or defaced from the product. Air Lift Company reserves the right to change the design of any product without assuming any obligation to modify any product previously manufactured.

LIMITATION OF LIABILITY

To the extent permitted by law, this warranty and the remedies set forth herein are exclusive and in lieu of all other warranties, remedies and conditions, whether oral, written, statutory, express or implied. AIR LIFT COMPANY DISCLAIMS ALL STATUTORY AND IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND WARRANTIES AGAINST HIDDEN OR LATENT DEFECTS TO THE EXTENT PERMITTED BY LAW. To the extent such warranties cannot be disclaimed, such implied warranties shall apply only for the warranty period specified above. Please note that some states do not allow limitation on how long an implied warranty (or condition) lasts. So the above limitation may not apply to you.

Except as provided in this warranty and to the extent permitted by law, Air Lift Company shall not be liable for any direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or arising in connection with the sale, use or repair of Air Lift products, or under any other legal theory, including but not limited to loss of use, loss of revenue, loss of actual or anticipated profits, loss of the use of money, loss of business, loss of opportunity, loss of goodwill, and loss of reputation. Air Lift Company's maximum liability shall not in any case exceed the purchase price paid by you for the Air Lift product. Please note that some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

HOW TO GET SERVICE

If a defect in workmanship or materials causes your Air Lift Performance product to become inoperable within the warranty period, before returning any defective product, call Air Lift Company at (800) 248-0892 in the U.S. and Canada (elsewhere, (517) 322-2144) to obtain a Returned Materials Authorization (RMA) number. The consumer shall be responsible for removing (labor charges) the defective product from the vehicle and returning it, shipping costs prepaid, to Air Lift Company for verification. Returns to Air Lift Company must be postage prepaid and sent to: Air Lift Company • 2727 Snow Road • Lansing, MI • 48917. You must prove to the satisfaction of Air Lift Company the date of original purchase of your Air Lift Performance product. You must also enclose the RMA number and a return address. A minimum $10 shipping and handling charge will apply to all warranty claims. You must also pack the product to minimize the risk of it being damaged in transit. If we receive a product in damaged condition as the result of shipping, we will notify you and you must seek a claim with the shipper.

WHAT AIR LIFT COMPANY WILL DO

If you submit a valid claim to Air Lift Company during the warranty period, Air Lift Company will, at its option, repair your Air Lift Performance product or furnish you with a new or rebuilt product. Air Lift Company will not reimburse you for repairs or replacement parts provided by other parties. Your repaired or replacement Air Lift Performance product will be returned to you (subject to payment of the required warranty claim shipping and handling charge) and it will be covered under the warranty for the balance of the warranty period, if any. When a product or part is replaced, any replacement item becomes your property and the replaced item becomes property of Air Lift Company. You are responsible for installation/reinstallation (labor charges) of the product.

HOW THE LAW RELATES TO THIS WARRANTY

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. By this warranty, Air Lift Company does not limit or exclude your rights except as allowed by law. To fully understand your rights, you should consult the laws of your state.

G. How to Obtain Replacement Parts

If you need replacement parts, contact the local dealer or call Air Lift customer service at (800) 248-0892. Most parts are immediately available and can be shipped the same day.

Contact Air Lift Company customer service at (800) 248-0892 first if:

- Parts are missing from the kit.
- Need technical assistance on installation or operation.
- Broken or defective parts in the kit.
- Wrong parts in the kit.
- Have a warranty claim or question.

Contact the retailer where the kit was purchased:

- If it is necessary to return or exchange the kit for any reason.
- If there is a problem with shipping if shipped from the retailer.
- If there is a problem with the price.

H. Contact Information

If you have any questions, comments or need technical assistance contact Air Lift Company's customer service department by calling (800) 248-0892, Monday through Friday. For calls from outside the USA or Canada, dial (517) 322-2144.

For inquiries by mail, Air Lift Company's address is P.O. Box 80167, Lansing, MI 48908-0167. The shipping address for returns is 2727 Snow Road, Lansing, MI 48917.

Contact Air Lift Company anytime at sales@airliftcompany.com or on the Web at www.airliftcompany.com.

Need Help?

Contact Air Lift Company customer service department by calling (800) 248-0892. For calls from outside the USA or Canada, dial (517) 322-2144.

I certify that I have completed the installation checklist after installing this Air Lift Performance suspension kit.

Date **Technician's signature**

Thank you for purchasing Air Lift Performance products!

Air Lift Performance • 2727 Snow Road • Lansing, MI 48917 or P.O. Box 80167 • Lansing, MI 48908-0167
Toll Free (800) 248-0892 • Local (517) 322-2144 • Fax (517) 322-0240 • www.airliftperformance.com

Printed in the USA

Kit 78667

Lexus IS (XE30), GS (L10)

Rear Application

INSTALLATION GUIDE

For maximum effectiveness and safety, please read these instructions completely before proceeding with installation.

Failure to read these instructions can result in an incorrect installation.

MN-1068 • (011801) • ERN 8745

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A. Introduction

Air Lift Performance thanks you for purchasing the most complete, fully engineered high-performance air suspension made for the Lexus IS (XE30) and GS (L10). Read these installation instructions to correctly and safely set up the vehicle for a #lifeonair.

Air Lift assumes that the installer has the mechanical knowledge and ability to work on vehicle suspension systems and has basic tools necessary to complete a suspension replacement project. Special tools needed to complete the installation are noted on the Installation Diagram page.

Air Lift reserves the right to make changes and improvements to its products and publications at any time. For the latest version of this manual, contact Air Lift Performance at **(800) 248-0892** or visit **www.airliftperformance.com**.

An Air Lift Performance air management system is highly recommended for this product. Learn more at **air-lift.co/productlines**.

NOTATION EXPLANATION

Hazard notations appear in various locations in this publication. Information which is highlighted by one of these notations must be observed to help minimize risk of personal injury or possible improper installation which may render the vehicle unsafe. Notes are used to help emphasize areas of procedural importance and provide helpful suggestions. The following definitions explain the use of these notations as they appear throughout this guide.

DANGER — INDICATES IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

WARNING — INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

CAUTION — INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN DAMAGE TO THE VEHICLE OR MINOR PERSONAL INJURY.

NOTE — *Indicates a procedure, practice or hint which is important to highlight.*

B. Important Safety Notices

WARNING — DO NOT INFLATE AIR SPRINGS WHILE OFF OF THE VEHICLE. DAMAGE TO ASSEMBLY MAY RESULT AND VOID WARRANTY.

CAUTION — DO NOT WELD TO OR MODIFY PERFORMANCE STRUTS/SHOCKS IN ANY WAY. DAMAGE TO UNIT MAY OCCUR AND WILL VOID WARRANTY.

WARNING — AFTER INSTALLATION, ENSURE ALL ORIGINAL EQUIPMENT VEHICLE SAFETY FEATURES ARE PROPERLY CALIBRATED BY A QUALIFIED TECHNICIAN. CHANGING VEHICLE HEIGHT MAY AFFECT FUNCTIONING OF SAFETY SENSORS AND CAMERAS.

C. Installation Diagram

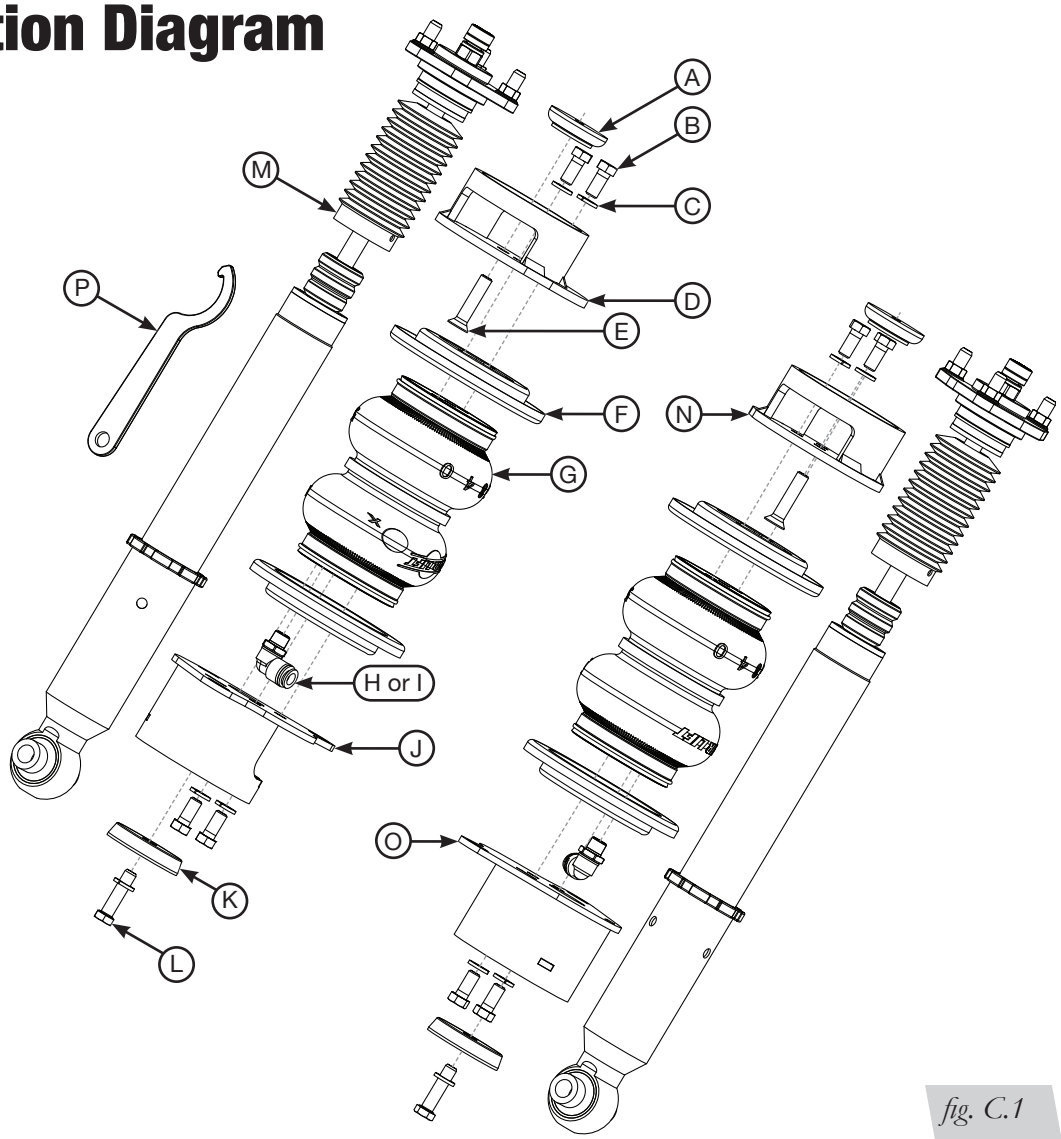
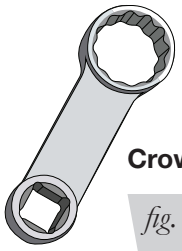


fig. C.1

HARDWARE LIST

Item	Part #	Description	Qty
A	13321	Upper centering spacer	2
B	17203	3/8”-24 x 7/8” Hex-head bolt	8
C	18427	3/8” Lock washer	10
D	07047	Left rear upper bracket	1
E	17415	3/8”-16 x 1 3/4” Flat-head socket cap bolt	2
F	11803	Roll plate	4
G	58535	Air spring	2
H	21779	1/4” MNPT x 1/4” PTC Elbow fitting	2
I	21851	1/4” MNPT x 3/8” PTC Elbow fitting	2
J	03029	Left rear lower bracket	1
K	13322	Lower centering spacer	2
L	17108	3/8”-16 x 1 1/2” Hex-head bolt	2
M	26868	Rear shock	2
N	07046	Right rear upper bracket	1
O	03028	Right rear lower bracket	1
P		Spanner wrench	1



Crowfoot torque adapter

fig. C.2

SPECIAL TOOLS REQUIRED

Description	Qty
Hex key socket set	1
9/16” Crowfoot torque adapter (Fig. C.2)	1

STOP! Missing or damaged parts? Call Air Lift customer service at (800) 248-0892 for a replacement part.

D. Installing the Air Suspension

NOTE

See "Important Safety Notices" on page 2.

REMOVING THE STOCK SUSPENSION

⚠ CAUTION

USE JACK STANDS TO SUPPORT THE VEHICLE IF USING A JACK TO LIFT IT.

1. Remove the wheel and support the hub.
2. Remove the fender liner.
3. Disconnect the sway bar end link from the control arm (Fig. D.1).

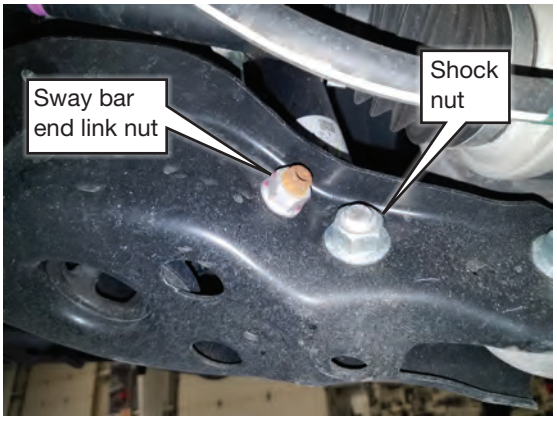


fig. D.1

4. Unbolt the shock from the control arm (Fig. D.1).
5. Loosen the lower control arm inner pivot bolt.
6. With the lower control arm supported, disconnect the control arm from the hub (Fig. D.2).

fig. D.2

7. Lower the control arm until the spring is relaxed. Remove the spring and rubber isolators (Fig. D.3).

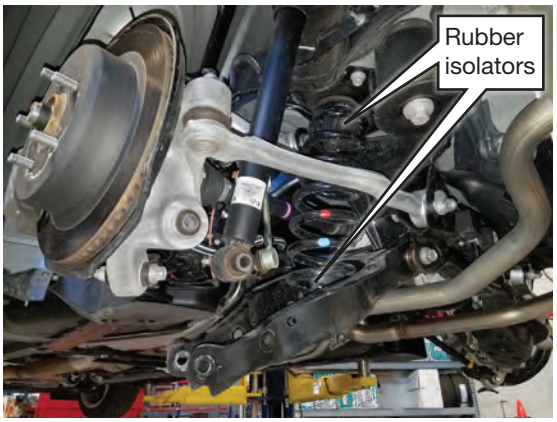


fig. D.3

8. From within the luggage compartment, pull the carpet back to access the upper shock mount and remove the upper shock mount nuts. Remove the shock assembly (Fig. D.4).

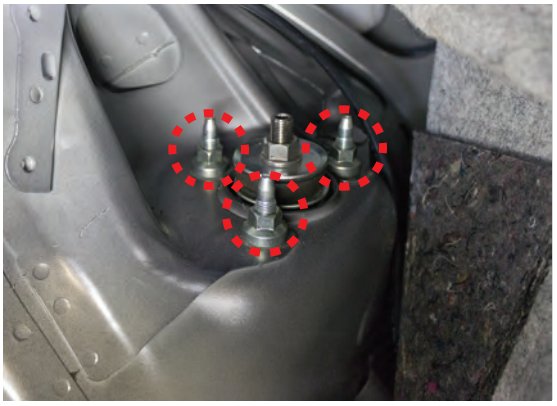


fig. D.4

INSTALLING THE AIR SUSPENSION

1. Install the Air Lift Performance shock in the vehicle and attach with the upper mount nuts. Torque to 67Nm (49 lb.-ft.) (Fig. D.5).

fig. D.5

2. Slide the supplied upper centering spacer (A) through the side of the upper spring seat and nest it into the top side of the seat (Figs. D.6 & D.7).

fig. D.6

fig. D.7

3. Insert two 3/8”-24 x 7/8” hex-head bolts (B) with 3/8” lock washers (C) through the air spring mounting holes from the top of the upper bracket (D or N), labeled “L” and “R” (Fig. D.8).

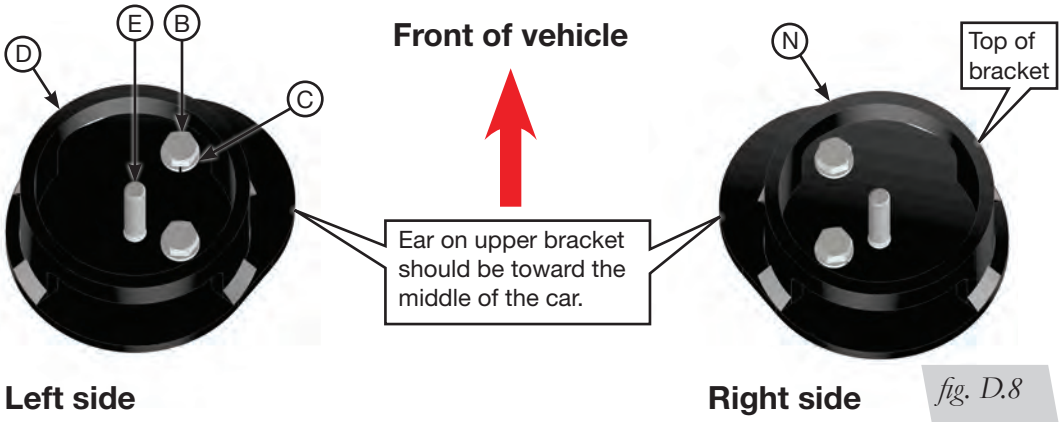


fig. D.8

4. Orient the upper mount to the spring seat with the ear pointed toward the middle of the vehicle and attach it to the previously installed centering spacer (Fig. D.9). Use the 3/8”-16 x 1 3/4” flat-head cap socket bolt (E) torqued to 27Nm (20 lb.-ft.).

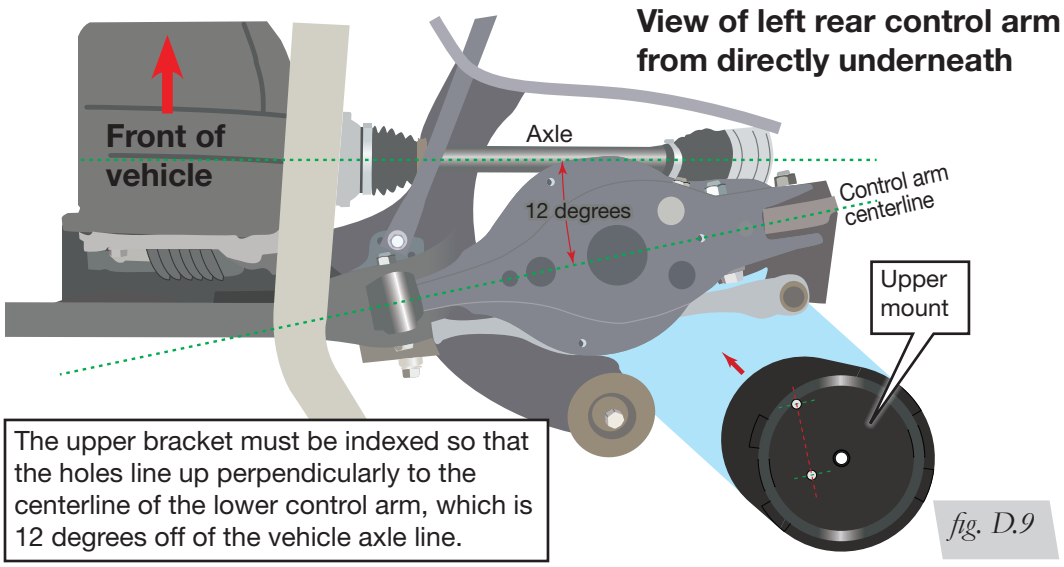


fig. D.9

5. Choose the appropriate swivel air fitting (H or I). Tighten the fitting to the air spring 1 3/4 turns beyond hand-tight (Fig. D.10).

fig. D.10

6. Attach the air spring with a roll plate (F) to the installed upper mount. The air fitting on the bottom of the air spring must be toward the outside of the car (Fig. D.11). Torque the bolts to 27Nm (20 lb.-ft.) using a 9/16” crowfoot torque adapter (Fig. C.2).

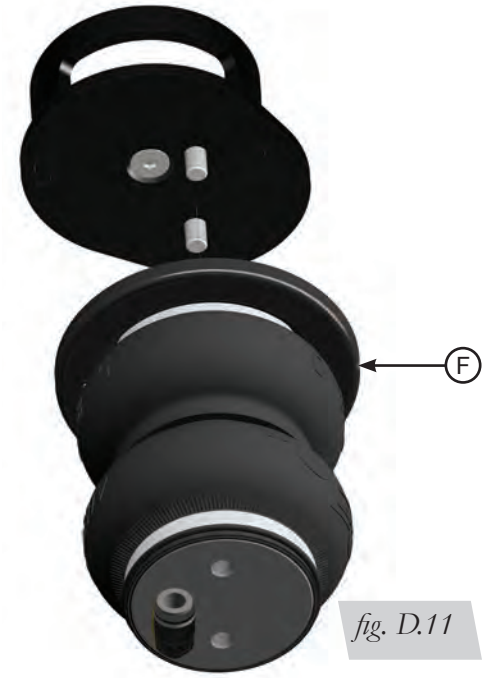


fig. D.11

7. Assemble a roll plate (F) and the lower mount (J or O) to the air spring with 3/8”-24 x 7/8” bolts (B) and 3/8” lock washers (C) (Fig. D.12). Torque the bolts to 27Nm (20 lb.-ft.) using the crowfoot adapter.

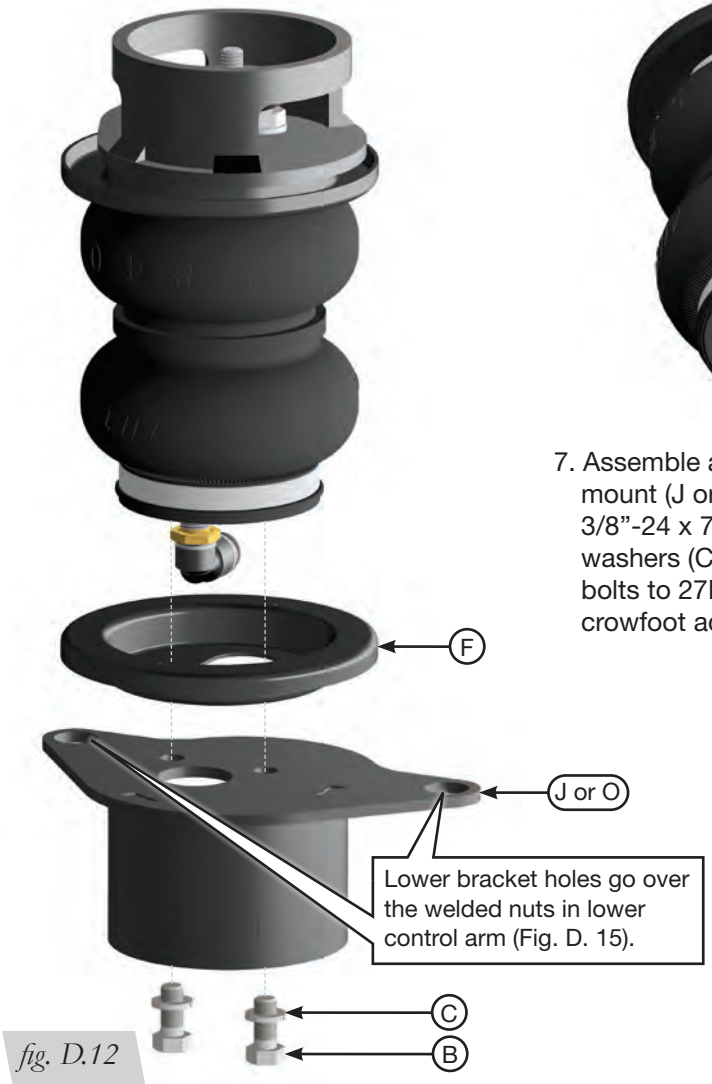


fig. D.12

8. Install the shock bushing spacers (Fig. D.13). Reconnect the lower control arm to the hub. Reattach the lower shock mount bolt and nut (Fig. D.14). Torque both, along with the lower control arm pivot bolt, during the “Setting The Ride Height” steps.

fig. D.13

fig. D.14

9. Install the lower centering spacer (K) with 3/8”-16 x 1 1/2” hex-head bolt (L) and lock washer (C) through the lower control arm, attaching it to the lower bracket. Torque to 27Nm (20 lb.-ft.) (Figs. D.15 & D.16).

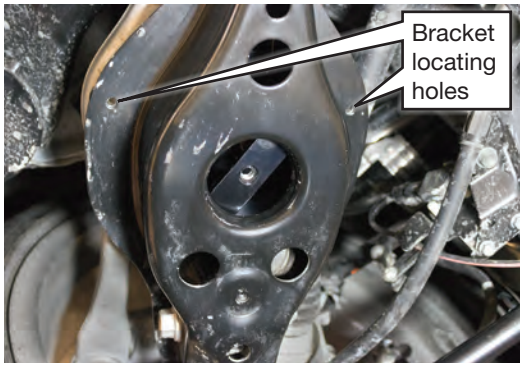


fig. D.15

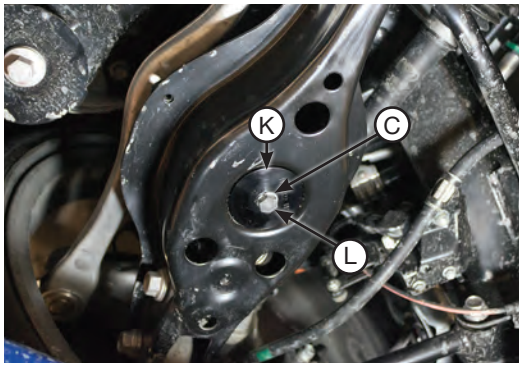


fig. D.16

10. Reattach the sway bar end link. Torque to 70Nm (52 lb.-ft.) (Fig. D.14).
11. Reinstall the fender liner.

ROUTING AIR LINES

1. Fully compress the suspension using a jack. With the suspension compressed, review the best routing for the air line that is clear of all suspension components and axle.
2. Routing should also allow for the suspension to extend without kinking or pulling the line tight or rubbing on other components. Check clearances to all other components.

⚠ WARNING

AFTER INSTALLATION, ENSURE ALL ORIGINAL EQUIPMENT VEHICLE SAFETY FEATURES ARE PROPERLY CALIBRATED BY A QUALIFIED TECHNICIAN. CHANGING VEHICLE HEIGHT MAY AFFECT FUNCTIONING OF SAFETY SENSORS AND CAMERAS.

E. Tips for Installing the Air Lines

CUTTING AIR LINES

When cutting air lines, use a sharp knife or a hose cutter and make clean, square cuts (Fig. E.1). Do not use scissors or wire cutters because these tools will deform the air line, causing it to leak around fittings. Do not cut the lines at an angle.

The minimum bend radius for 1/4" air line is 1" (25mm). The minimum bend radius for 3/8" air line is 1 1/2" (38mm). Do not bend the air line less than the minimum bend radius or side load the fitting connections. Air lines are to be installed straight into fittings.

Inspect the air line for scratches that run lengthwise prior to installation. Contact Air Lift customer service at **(800) 248-0892** if the air line is damaged.

fig. E.1

To watch a video demonstrating proper air line cutting, go to **air-lift.co/cuttingairline**

PUSH-TO-CONNECT (PTC) FITTINGS

Air lines should be pushed into the push-to-connect fittings firmly, with a slight side-to-side rotational twist. Check the connection by pulling on each line to verify a robust connection.

NOTE

To release the air line from the connection (Fig. E.2), first release all air from the system. Push in on the air line (step 1), push the collar in (step 2), and with the collar depressed, pull the air line out of the fitting (step 3).

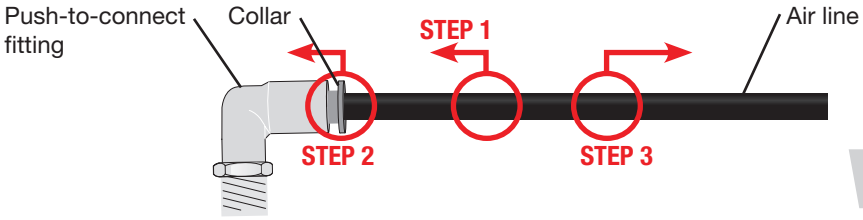


fig. E.2

CHECKING FOR LEAKS

1. Inflate the air spring to 75-90 PSI (5.2-6.2BAR).
2. Spray all connections with a solution of liquid dish soap and water. Spot leaks easily by looking for bubbles in the soapy water.
3. After the test, deflate the springs to the minimum pressure required to restore the system to normal ride height.
4. Check the air pressure again after 24 hours. A 2-4 PSI (.14-.28BAR) loss after initial installation is normal. Retest for leaks if the loss is more than 5 PSI (.34BAR).

FIXING LEAKS

1. If there is a problem with the push-to-connect fitting, remove the air line as described above. Trim 1" (25mm) off the end of the air line. Be sure the cut is clean and square (see Fig. E.1).
2. Reinsert the air line into the push-to-connect fitting as described above.

F. Finished Installation

Fig. F.1 shows the finished installation.

fig. F.1

G. Before Operating

SETTING THE RIDE HEIGHT

1. With the suspension fully compressed, take a measurement from the fender to a chosen reference point – typically the center of the axle. Record this measurement as max compression (MC).
2. Cycle the suspension to max extension (ME) and record the measurement from the fender to the same reference point.
3. Add ME and MC, then divide the total by 2. Set the suspension to this point. This position will give 50% stroke in either direction and is a starting point for ride height (Fig. G.1).

Formula for Calculating Ride Height
(ME+MC)÷2=MID STROKE

fig. G.1

4. With the suspension at this position, loosen, then re-torque all suspension bushing pivot joint fasteners to the manufacturer's specifications (Table 1):

Torque Specifications		
Location	Nm	Lb.-ft.
Upper shock mount nuts	67	49
Air spring attaching bolts	27	20
Upper and lower bracket mounting bolts	27	20
End link nut	70	52
Control arm pivot bolt	150	111
Lower shock mount bolt to control arm	110	81
Control arm to hub	145	107
Air fitting	1 3/4 turns beyond hand-tight	
Wheel studs	103	76

Table 1

Suggested Driving Air Pressure	Maximum Air Pressure
100-120 PSI (6.9-8.3BAR)	**165 PSI (11.4BAR)**
FAILURE TO MAINTAIN ADEQUATE MINIMUM PRESSURE (OR PRESSURE PROPORTIONAL TO LOAD) MAY RESULT IN EXCESSIVE BOTTOMING OUT AND **WILL VOID THE WARRANTY**.	

Table 2

CHECK FOR BINDING

1. Inflate and deflate the system (do not exceed 165 PSI [11.4BAR]) to check for clearance or binding issues. With the air springs deflated, check clearances on everything so as not to pinch brake lines, vent tubes, etc. Clear lines if necessary.
2. Inflate the air springs to 75-90 PSI (5.2-6.2BAR) and check all connections for leaks.

⚠ CAUTION

MAKE SURE THE FRONT WHEELS ARE STRAIGHT WHEN DEFLATING AND REINFLATING AIR SPRINGS.

DAMPING ADJUSTMENT

Suspension damping is a matter of compromise. Setting it too stiff will make the ride feel jarring. In addition, if the suspension is too stiff, the tires will lose contact with the road, reducing control and power delivery. On the other hand, if the suspension is too soft, the car can experience brake dive and excessive bouncing. The sweet spot lies somewhere in the middle. Air Lift dampers have a range of adjustment, which allows the driver to tune the ride and handling to his or her preferences.

Air Lift recommends damper and air pressure settings for every vehicle kit, but it is impossible to consider every situation. For example, even though Air Lift kits replace the dampers and springs, vehicles with sport-tuned suspensions might have stiffer bushings, larger anti-roll bars, bigger wheels, wider tires, etc. These settings may need to be adjusted to different vehicles and driving characteristics.

1. The dampers in this kit have 30 settings, or ”clicks,” of adjustable compression and rebound damping characteristics. Damping is changed through the damper rod using the supplied adjuster (Figs. G.2 & G.3).
2. Turn the adjuster clockwise (H) and the damping settings are hardened, reducing oscillations and body motion. Turn the adjuster counterclockwise (S) and the damping is softened.
3. Each damper in this kit is preset to ”-20 clicks.” This means that the damper is adjusted 20 clicks away from full stiff, which starts at 0. Counting up from full stiff is the preferred method of keeping track of, or setting, damping. This setting was developed on a 2016 Lexus IS 200t with stock suspension.

fig. G.2

fig. G.3

ALIGNING THE VEHICLE

1. Set the vehicle to the height at which it will most often be driven.
2. If the ride height is lower than stock, Air Lift Performance recommends loosening all pivot points (bolts, nuts) on any control arm, strut arm or radius rod that contains bushings. Once they have been loosened, re-torque to stock specifications (Table 1).

NOTE

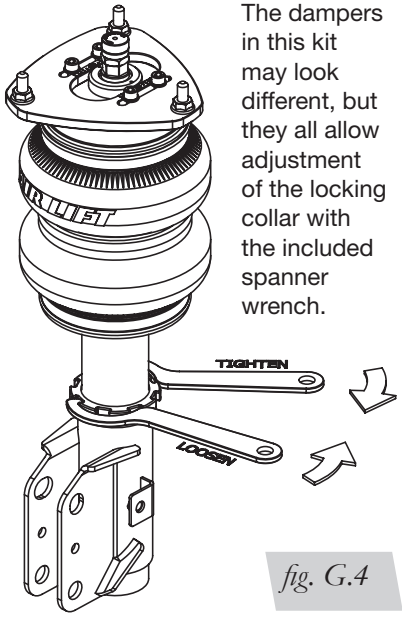
It may be necessary to cycle the suspension to loosen the bushing from its mount. This will help re-orient the bushing at its new position based on the chosen ride height.

3. Get a professional alignment of the vehicle at the new chosen ride height.

ADJUSTING EXTENDED OR DROP HEIGHT USING LOWER MOUNT

These dampers have been preset at the factory to provide maximum drop height while maintaining adequate tire clearance to the air spring. If you wish to gain more extended height (lift), which is the same as reducing drop height, or want to lower the chassis further and there is still adjustment available at the lower mount, please use the following procedure:

1. Support the vehicle with jack stands or a hoist at approved lifting points.
2. Remove the wheel.
3. Using the supplied spanner wrench, loosen the locking collar (Fig. G.4).
4. Deflate the air spring to 0 pressure on the corner you are adjusting.
5. Disconnect lower mount from suspension.
6. Spin the lower mount to the desired location.



The dampers in this kit may look different, but they all allow adjustment of the locking collar with the included spanner wrench.

fig. G.4

NOTE

Not all vehicles will have further drop height available.

7. Re-install lower mount to suspension and torque fasteners.
8. Tighten the lower locking collar to the lower mount using significant force.

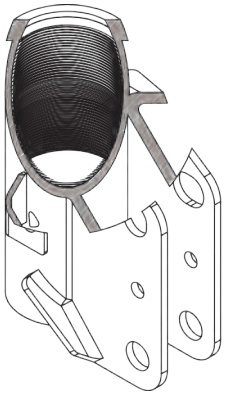
⚠ CAUTION

WHEN ADJUSTING HEIGHT UPWARD, MAKE SURE THAT THE DAMPER BODY ENGAGES ALL THE THREADS OF THE LOWER MOUNT (FIG. G.5). WHEN ADJUSTING DOWNWARD, MAKE SURE THERE IS ADEQUATE AIR SPRING CLEARANCE TO THE TIRE/WHEEL ASSEMBLY. CLEARANCE MUST BE CHECKED WITH SYSTEM FULLY DEFLATED AS WELL AS FULLY INFLATED TO ENSURE THAT NO RUBBING OCCURS. FAILURE TO MAINTAIN ADEQUATE CLEARANCE CAN RESULT IN AIR SPRING FAILURE AND WILL NOT BE COVERED UNDER WARRANTY.

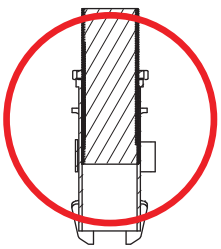
⚠ CAUTION

DO NOT ADJUST HEIGHT BY SPINNING AIR SPRING ON DAMPER! DOING SO MAY CAUSE AN AIR LEAK AND COMPROMISE THE ASSEMBLY.

FOR STRUTS:

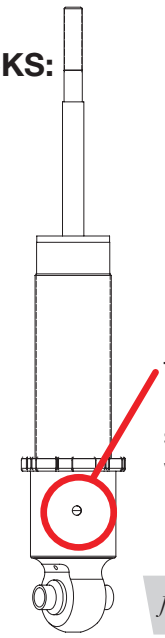


OK, no threads showing.



Not OK, threads are showing.

FOR SHOCKS:



Thread MUST be showing in window.

fig. G.5

INSTALLATION CHECKLIST

☐ **Clearance** — Inflate the air springs to 75-90 PSI (5.2-6.2BAR) and make sure there is at least 1/2" (13mm) clearance from anything that might rub against the air spring. This should be checked with the air spring fully inflated and fully deflated.

☐ **Leak** — Inflate the air springs to 75-90 PSI (5.2-6.2BAR) and check all connections for leaks. All leaks must be eliminated before the vehicle is road tested.

☐ **Heat** — Be sure there is sufficient clearance from heat sources, at least 6" (152mm) from air springs and air lines. If a heat shield was included in the kit, install it. If there is no heat shield, but one is required, call Air Lift customer service at **(800) 248-0892**.

☐ **Fastener** — Recheck all bolts for proper torque.

☐ **Road** — Inflate the springs to recommended driving pressures (Table 2). Drive the vehicle 10 miles (16km) and recheck for clearance, loose fasteners and air leaks.

☐ **Operating instructions** — If professionally installed, the installer should review the operating instructions with the owner. Be sure to provide the owner with all paperwork that came with the kit.

POST-INSTALLATION CHECKLIST

☐ **Overnight leak down test** — Recheck air pressure 24 hours after installation and driving of the vehicle. If the pressure has dropped more than 5 PSI (.34BAR), there is a leak that must be fixed.

☐ **Air pressure requirements** — It is important to understand the air pressure requirements of the air spring system. Regardless of load, the air pressure should always be adjusted to maintain adequate ride height at all times while driving.

☐ **Thirty-day or 500-mile (800km) test** —Recheck the air spring system after 30 days or 500 miles (800km), whichever comes first. If any part shows signs of rubbing or abrasion, the source should be identified and moved, if possible. If it is not possible to relocate the cause of the abrasion, the air spring may need to be remounted. If professionally installed, the installer should be consulted. Check all fasteners for tightness.

H. Use, Maintenance and Servicing

1. An Air Lift air management system is strongly recommended for this product, but it is possible to operate without one. The air lines can be routed to Schrader valves for use with a separate air compressor. Air lines and Schrader valves are not included with Air Lift Performance kits and would need to be purchased separately. To learn more about Air Lift air management systems visit **air-lift.co/productlines**.
2. Check the air pressure before driving.

⚠ WARNING

BEFORE SERVICING THE VEHICLE, MAKE SURE TO TURN OFF ”RISE ON START” AND ”PRESET MAINTAIN.” THIS WILL ELIMINATE ANY UNINTENDED SUSPENSION CYCLING IF YOU NEED TO TURN THE KEY ON IN THE VEHICLE FOR ANY REASON.

TUNING THE AIR PRESSURE

Pressure determination comes down to three things — level vehicle, ride comfort and stability.

1. **Level vehicle**
   Depending on load, it is possible one side will need more pressure than the other to level the vehicle.
2. **Ride comfort**
   If the vehicle has a harsh ride, it may be due to either too much pressure or not enough causing frequent bottoming out. Also, riding the vehicle at the top, or close to the top of the available stroke will cause an uncomfortable ride due to a lack of rebound travel. This situation should be avoided for driving any significant distance. Try different pressures to determine the best ride comfort. See the Air Lift suggested driving air pressure for this vehicle (Table 2).
3. **Stability**
   Stability translates into safety and should be the priority, meaning the driver may need to sacrifice a perfectly level and comfortable ride. Stability issues include roll control, bounce, dive during braking and sponginess. Tuning out these problems usually requires additional air pressure, damping or both.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Air spring won't maintain pressure.	Leak at fitting, air line not cut properly or damage to air line during installation.	Find location of leak by spraying listed components with soapy water solution and look for bubbles. Tighten air fitting, re-cut air line or replace damaged components.
	Leak at lower O-ring on damper if air spring is over the damper.	Spray bottom of air spring with soapy water solution and look for bubbles. Contact Air Lift customer service at **(800) 248-0892** to determine if component should be replaced.
Knocking noise when hitting bumps.	Loose suspension component such as locking collar on damper or rod nut.	Tighten lower locking collar with significant force, check and tighten suspension components to factory specs at desired ride height. Replace rod nut, apply high strength threadlocker to clean threads and torque M12 rod nut to 54Nm (40 lb.-ft.). M10 rod nuts to be torqued to 38Nm (28 lb.-ft.).
	Driving vehicle too close to maximum extension.	Check current ride height and compare to maximum height. If there is less than 1” (25mm) difference, reduce air pressure to lower ride height.
		Lengthen strut or shock to increase available up travel.
Suspension bottoms out.	Air pressure is too low, causing air springs to bottom out.	Raise air pressure.
The ride is too bouncy.	Air pressure is too high, causing air springs to be too stiff.	Lower air pressure and adjust damper length if necessary to achieve proper ride height.
	Damping is inadequate.	Increase damping with adjusters.
The ride is too soft or floaty.	Damping is inadequate.	
The ride is too harsh.	Excessive damping.	Reduce damping with adjusters.

Notes

Limited Warranty and Return Policy

Air Lift Company provides a 1-year limited warranty to the original purchaser of Air Lift Performance damper kits from the date of original purchase, that the products will be free from defects in workmanship and materials when used on vehicles as specified by Air Lift Company and under normal operating conditions, subject to the requirements and exclusions set forth in the full Limited Warranty and Return Policy that is available online at **www.airliftperformance.com/warranty**.

For additional warranty information contact Air Lift Company customer service.

Replacement Part Information

If replacement parts are needed, call Air Lift customer service. Most parts are immediately available and can be shipped the same day.

Contact Air Lift Company customer service at (800) 248-0892 first if:

- Parts are missing from the kit.
- Need technical assistance on installation or operation.
- Broken or defective parts in the kit.
- Wrong parts in the kit.
- Have a warranty claim or question.

Contact the retailer where the kit was purchased:

- If it is necessary to return or exchange the kit for any reason.
- If there is a problem with shipping if shipped from the retailer.
- If there is a problem with the price.

Contact Information

Mailing address	P.O. Box 80167 Lansing, MI 48908-0167
Shipping address for returns	2727 Snow Road Lansing, MI 48917
Phone	Toll free: (800) 248-0892 International: (517) 322-2144
Email	service@airliftcompany.com
Web address	www.airliftperformance.com

Air Lift Company reserves the right to make changes and improvements to its products and publications at any time. For the latest version of this manual, contact Air Lift Company at **(800) 248-0892** or visit **www.airliftperformance.com**.

Need Help?

Contact Air Lift Company customer service department by calling (800) 248-0892. For calls from outside the USA or Canada, dial (517) 322-2144.

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Printed in the USA
JJC-0118