

AIR LIFT
PERFORMANCE

Kit 78611

BMW E9X M3

BMW 1M

Rear Application



STOP!

Some coilover suspensions require the removal of the upper coil spring cup (BMW part #: 41 14 7 057 297). This part is **REQUIRED** to install Air Lift Performance Suspension.



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.

Protect your Air Lift Performance Purchase by Completing your Warranty Registration



Thank you for purchasing an Air Lift Performance product!

Take a photo of your sales receipt and then scan the
QR code to complete your online warranty registration.



TABLE OF CONTENTS

Introduction	2
Notation Explanation	2
Important Safety Notices	2
Installation Diagram	3
Hardware List	3
Installing the Air Suspension	4
Preparing the Vehicle	4
Removing the Exhaust	4
Removing the Rear Suspension	6
Assembling the Air Spring Upper Bracket and Air Fitting	9
Installing the Kit Components	9
Routing Air Lines	13
Before Operating	14
Setting the Ride Height	14
Torque Specifications	14
Suggested Driving Air Pressure and Maximum Air Pressure	14
Check for Binding	14
Installation Checklist	15
Damping Adjustment	15
Limited Warranty and Return Policy	16



Introduction

Air Lift Performance thanks you for purchasing the most complete, fully engineered high-performance air suspension made for the BMW E9X M3/1M. 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 the 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 MACHINE OR MINOR PERSONAL INJURY.

NOTE

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

Important Safety Notices

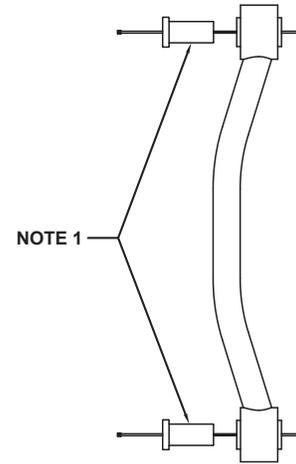
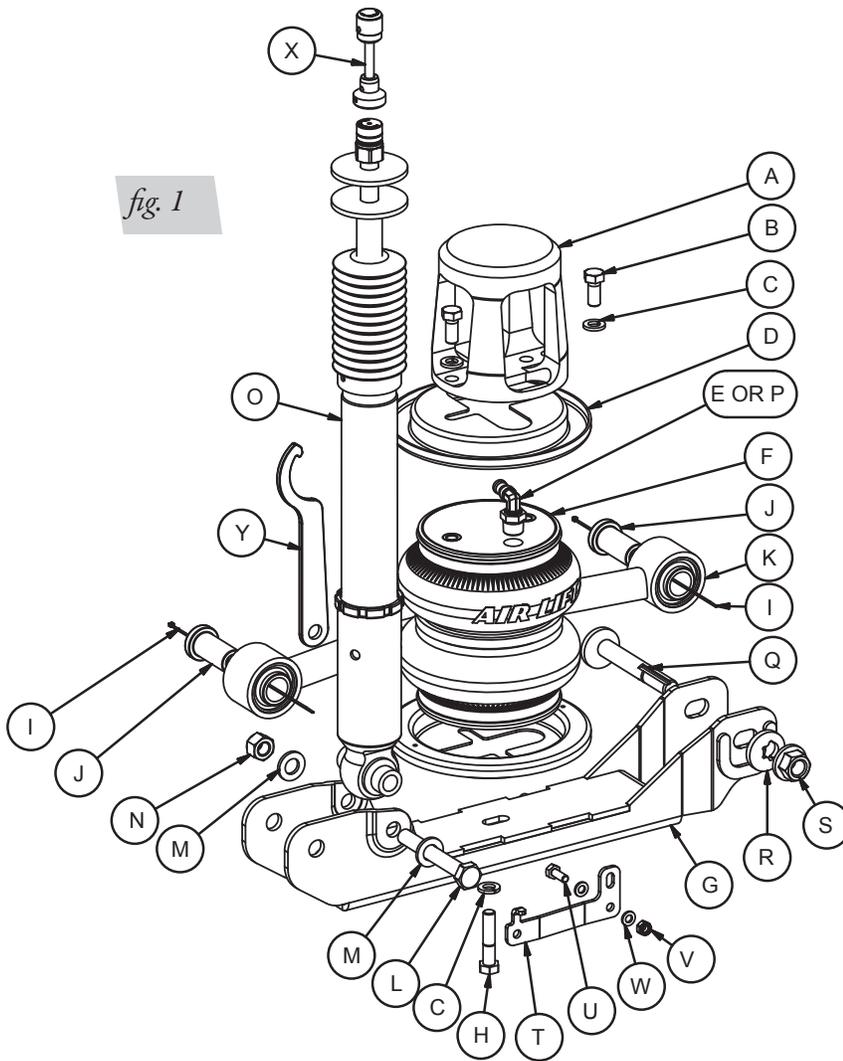
**WARNING**

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/SOCKS IN ANY WAY. DAMAGE TO UNIT MAY OCCUR AND WILL VOID WARRANTY.

Installation Diagram



NOTE 1

NOTE:

Remove zip ties (I) that hold bushing spacers (J) into the toe link (K) before installation. The shoulder of the spacer is to be opposite the bend for air spring clearance purposes.

STOP!

Some coilover suspensions require the removal of the upper coil spring cup (BMW part #: 41 14 7 057 297). This part is **REQUIRED** to install Air Lift Performance Suspension.



HARDWARE LIST

Item	Part #	Description	Qty	Item	Part #	Description	Qty
A	13314	Spacer, BMW E8X/E9X Upper Bracket, Rear ...	2	N	18546	M12 - 1 3/4 Nylon Lock Nut	2
B	17517	M10-1.5 X 25 Hex Bolt	4	O	26749	Shock, BMW E8X/E9X Rear	2
C	18628	M10 Lock Washer	6	*P	21851	1/4" MNPT X 3/8" PTC Fitting, 90 degree.....	2
D	11801	Roll Plate	4	Q	17489	Eccentric Bolt	2
E	21779	1/4" MNPT X 1/4" PTC Fitting, 90 degree.....	2	R	18610	Eccentric Washer	2
F	58550	Air Spring, 2B6 Reg. 3/8" Port	2	S	18611	Self Lock Nut	2
G	11132	Control Arm - BMW E9X M3 Rear	2	T	11133	Bracket, E9X Headlight Drop Link.....	1
H	17936	M10-1.5 X 50 Hex Cap Screw	2	U	17389	M6-1 X 16 Hex Bolt.....	1
I	10466	8" Zip Tie.....	4	V	18569	M6-1 Nylon Lock Nut.....	1
J	13988	Spacer, 20mm Bushing	4	W	18579	M6 Flat Washer	2
K	11129	Toe Link - BMW E9X M3 Rear.....	2	X		Flex Adjuster Extension	2
L	17488	M12 - 1 3/4 X 90 Hex Cap Screw	2	Y	11289	Spanner Wrench.....	1
M	18547	.516" ID X .94" OD X .10" THK Flat Washer.....	4				

*1/4" MNPT X 3/8" PTC are NOT included in this kit, but are available as a special order.



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

Installing the Air Suspension

PREPARING THE VEHICLE

1. Elevate and support the vehicle with a hoist or safety stands.
2. Remove the rear tire and support the hub assembly (figs. 2a & 2b).



fig. 2a



fig. 2b

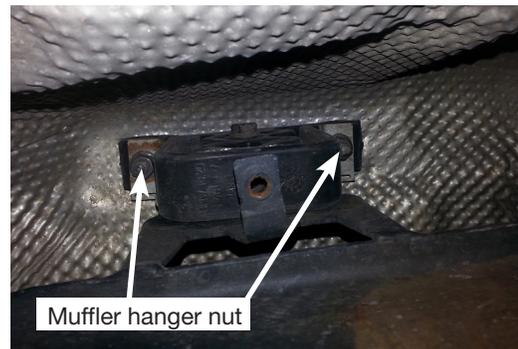
REMOVING THE EXHAUST

1. Support the rear exhaust and mufflers. Near the center of the bumper, unbolt the two exhaust hangers (fig. 3). Beside each muffler, unbolt both hangers (fig. 4).



Rear hanger nut

fig. 3



Muffler hanger nut

fig. 4

2. Remove the exhaust clamps forward of the differential and the two exhaust hangers from the differential (figs. 5a-5c). Remove the exhaust assembly and reattach the differential nuts.

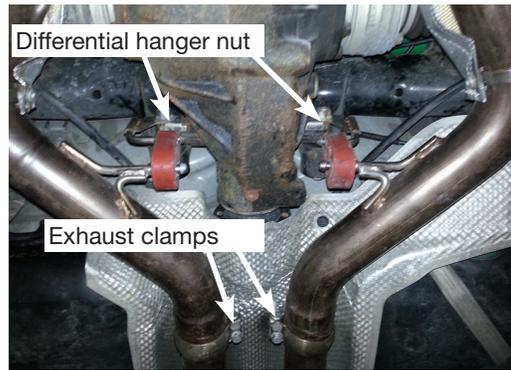


fig. 5a



fig. 5b



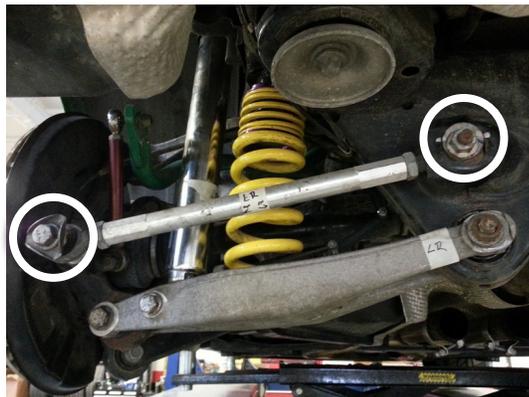
fig. 5c

REMOVING THE REAR SUSPENSION

1. Disconnect the headlight alignment linkage from the left rear lower control arm bracket (if equipped) (figs. 6 & 7).

*fig. 6**fig. 7*

2. Unbolt and remove the inner and outer toe link bolts. Remove the toe link (figs. 8, 9 & 10).

*fig. 8**fig. 9**fig. 10*

 **DANGER**

COIL SPRING UNDER COMPRESSION. COIL SPRINGS SHOULD BE REMOVED USING FACTORY PRESCRIBED GUIDELINES. SUPPORT THE HUB AND UNBOLT THE LOWER SHOCK EYE (FIG. 11). REMOVE THE OUTER CONTROL ARM TO HUB BOLT (FIG. 12).



fig. 11



fig. 12

3. Remove the coil spring (fig. 13).



fig. 13

4. Remove the cam bolt from the inner control arm pivot point and remove the control arm (fig. 14).



fig. 14

5. Within the trunk, remove the shock rod nut (figs. 15 & 16) and remove the shock from the vehicle. Retain the lower isolator and rubber gasket that the shock rod passes through within the wheel housing (figs. 17 & 18).



fig. 15



fig. 16



fig. 17



fig. 18

6. With the rod nut removed, peel the microcellular isolator from the rod nut washer and retain this isolator for future use (figs. 19, 20 & 21). Take care not to damage the isolator during the removal process. The nut and washer will NOT be used when installing Air Lift rear shocks.



fig. 19



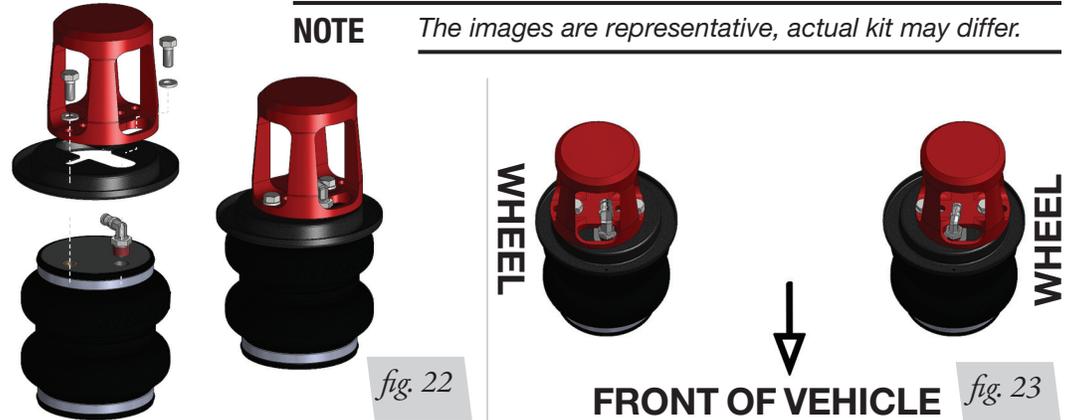
fig. 20



fig. 21

ASSEMBLING THE AIR SPRING UPPER BRACKET AND AIR FITTING

1. Apply thread sealant to the chosen air fitting threads and install into the air spring port. Torque 1 3/4 turns beyond hand-tight.
2. Place the roll plate (D) over the air spring (F) followed by the upper mount spacer (A). Attach with two bolts (B) and lock washers (C) and torque bolts to a maximum of 27Nm (20 lb.-ft.) (fig. 22). There are two mounting positions for the upper spacer to mount to the air spring. Best practice is to have the air fitting located on the forward side of the vehicle, with the air line outlet facing rearward. This helps protect the air line connection. Mount the air spring so that it is positioned away from the wheel, toward the cross-member. See Figure 23.



INSTALLING THE KIT COMPONENTS

1. Unbolt the headlight alignment sensor from the cross-member (figs. 24 & 25). Install the headlight alignment drop linkage (T) where the sensor was removed and reattach using original sensor attaching bolt (fig. 26). Then, using the supplied nut (V), washer (W) and bolt (U), attach the sensor to the newly installed drop linkage (fig. 27). Torque both bolts to 5Nm (44 lb.-in.).



2. Insert the shock rod with large washer (O) through the lower isolator and gasket (fig. 28). Install through the upper shock mount (fig. 29). Within the trunk, apply the upper isolator (fig. 30) followed by the second large flat washer (fig. 31) and nylon lock nut (fig. 32). Torque the nylon lock nut to 27Nm (20 lb.-ft.).



fig. 28



fig. 29



fig. 30



fig. 31



fig. 32

3. The optional flexible adjuster extension (X) can be installed at this time (Fig. 33).
 - a. Use the supplied 2mm hex wrench to disassemble the flexible adjuster extension. Cut the black sheathing down to approximately 40mm (1 9/16"). Cut the inner cable of the flexible adjuster extension to 65mm (2 9/16"). Verify the cable is not protruding beyond the mounting surface of the base.
 - b. Reassemble the adjuster. Tighten the set screws one turn beyond finger-tight. Verify the cable is not protruding beyond the mounting surface of the base.

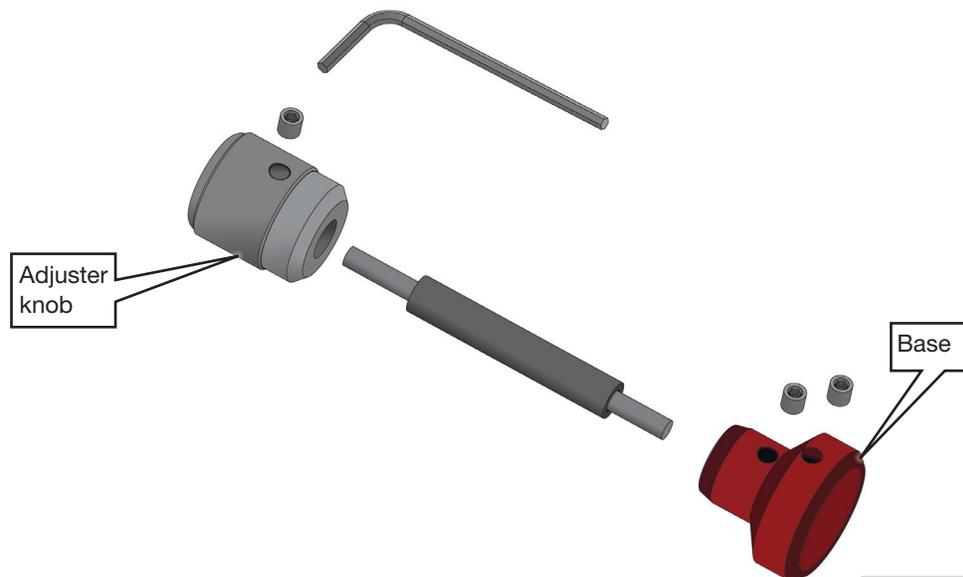


fig. 33

4. Attach the supplied lower control arm (G) to the subframe using the supplied cam bolt (Q), washer (R) and nut (S) (fig. 34). Do not torque at this time.



fig. 34

5. Attach the control arm to the hub assembly and shock (figs. 35, 36 & 37).



fig. 35



fig. 36

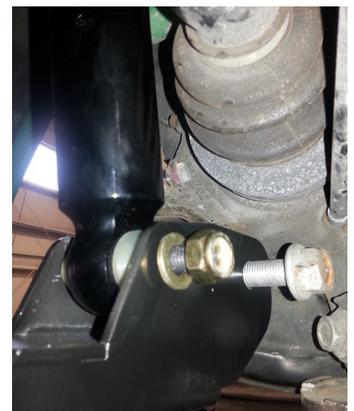


fig. 37

6. Attach the headlight alignment linkage to the control arm (fig. 38).



fig. 38

- Lightly tap the coil spring cup from the chassis (light press fit) and place the cup over the air spring upper mount. The cup should sit flush on the upper mount (figs. 39-42).



fig. 39



fig. 40



fig. 41



fig. 42

- Place the air spring assembly with the remaining roll plate (D) on the lower control arm (fig. 43). The upper mount is offset to properly position the air spring in the chassis (fig. 44). Align the assembly so the air spring is closest to the subframe. The air spring must be positioned farthest away from the shock (fig. 45). Install the supplied bolt (H) and lock washer (C) through the lower control arm and torque to 27Nm (20 lb.-ft.).



fig. 43



fig. 44



fig. 45

- Snip the zip ties (I) from the toe link (K). The toe link bushing sleeves must be installed on the same side as the bend of the link (figs. 46 & 47). Attach the link to the hub assembly and subframe with the bend rearward and directed downward (figs. 48 & 49). Do not torque bolts at this time.



fig. 46



fig. 47



fig. 48



fig. 49

CAUTION

IF THE BEND IS DIRECTED UPWARD, THE TOE LINK WILL CONTACT THE SUBFRAME. IF THE BEND IS FORWARD, THE AIR SPRING WILL CONTACT THE TOE LINK. THIS CONTACT WILL CAUSE DEGRADATION OF THE AIR SPRING AND VOID THE WARRANTY.

NOTE

If the bushing sleeves are installed incorrectly, contact between the subframe and link will occur, causing undesired binding and noise.

ROUTING THE AIR LINES

- 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.
- Routing should also allow for the suspension to extend 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.

Before Operating

SETTING THE RIDE HEIGHT

Please refer to the User Guide supplied with this kit to set up the suspension.

Torque Specifications				
Location	TTY*	Nm	lb.-ft.	lb-in
Toe Link to Subframe		100	74	
Toe Link to Hub		100	74	
Lower Control Arm to Subframe		165	122	
Lower Control Arm to Hub		165	122	
Trailing Arm to Subframe		100	74	
Trailing Arm to Hub	✓	100 + 90 degrees	74 + 90 degrees	
Upper Mount Spacer to Air Spring		27	20	
Wishbone to Subframe		100	74	
Wishbone to Hub	✓	100 + 90 degrees	74 + 90 degrees	
Shock Rod Nylon Lock Nut		27	20	
Shock Eye Nut/Bolt		132	97	
Headlight Alignment Nut		5		44
Wheels		120	89	
Air Fitting (with sealant)		1.5-3.0 turns beyond hand-tight		

* Torque-to-yield bolts

Table 1



TORQUE-TO-YIELD BOLTS ARE DESIGNED TO BE REPLACED AFTER THEY HAVE BEEN LOOSENED.

Suggested Driving Air Pressure	Maximum Air Pressure
65 PSI (4.5BAR)	125 PSI (8.6BAR)
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 125 PSI [8.6BAR]) 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.



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

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 air 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.

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. 53 & 54) or an 3mm hex key (not included).
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 “-8 clicks.” This means that the damper is adjusted 8 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 BMW E9X M3/1M.



fig. 53



fig. 54

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.

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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