

# Air Lift™ PERFORMANCE



## Kit 78611/ 78612

BMW E9X M3  
BMW 1M  
(with and without  
rear shocks)

### ***Rear Application***

**STOP!**

Some coil-over 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.*

PERFORMANCE SUSPENSION PARTS

# Installation Diagram

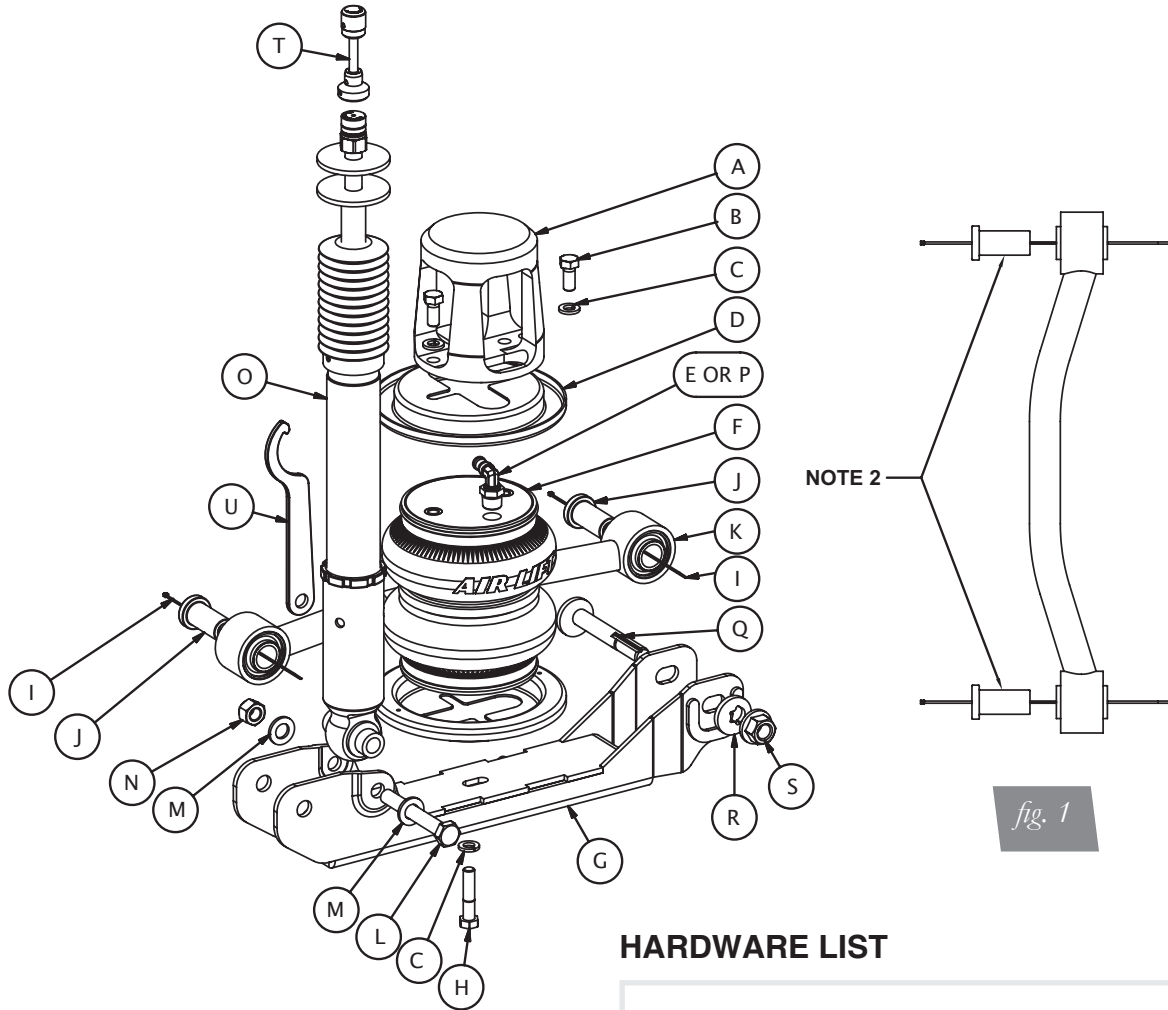


fig. 1

**NOTE:**

- 1) Depending on the kit purchased, shocks, flex adjuster EXTs, and wrench may not be included.
- 2) Remove zip ties that hold bushing spacers into the toe link before installation. The shoulder of the spacer is to be opposite the bend for air spring clearance purposes.
- 3) Kit 78612 utilizes factory shocks.

STOP!

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**HARDWARE LIST**

Item	Part #	Description .....	Qty
A	13314	SPC, BMW E8X/E9X Upper Bracket, Rear ...	2
B	17203	3/8"-24 x 7/8" Hex Bolt.....	4
C	18427	3/8" Lock Washer.....	6
D	11801	Roll Plate .....	4
E	21846	3/8" MNPT x 1/4" PTC Fitting - 90°, Nickel...	2
F	58530	Air Spring, 2B6 Reg. 3/8" Port .....	2
G	11132	Control Arm - BMW E9X M3 Rear.....	2
H	17484	3/8"-24 x 1 3/4" Hex Cap Screw .....	2
I	10466	8" Zip Tie.....	4
J	13988	SPC, 20mm Bushing .....	4
K	11129	Toe Link - BMW E9X M3 Rear.....	2
L	17488	M12 - 1 3/4" x 90 Hex Cap Screw.....	2
M	18547	.516" ID x .94" OD x .10 THK Flat Washer...	4
N	18546	M12 - 1 3/4" Nyloc Nut.....	2
O	26749	SHOCK, BMW E8X/E9X Rear.....	2
P	21867	3/8" MNPT x 3/8" PTC Fitting - 90°.....	2
Q	17489	Eccentric Bolt.....	2
R	18610	Eccentric Washer.....	2
S	18611	Self Lock Nut .....	2
T		Flex Adjuster EXT.....	2
U		Spanner Wrench.....	1

# Installing the Air Suspension

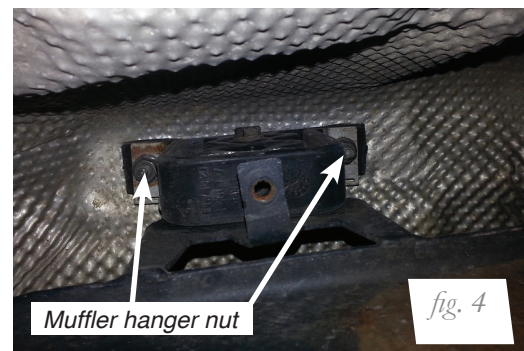
## PREPARING THE VEHICLE

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

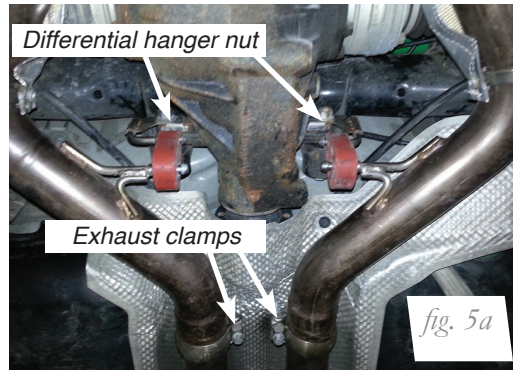


## REMOVING THE EXHAUST

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).



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.

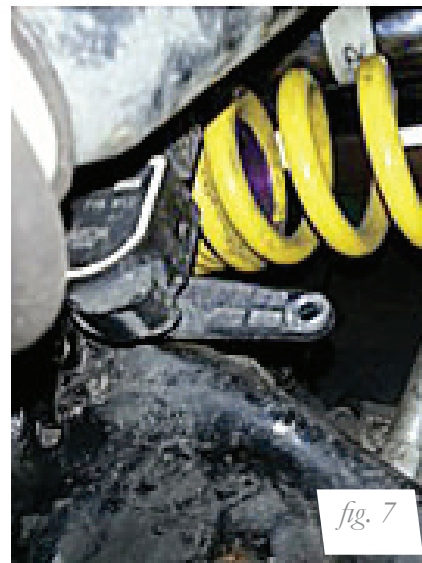


## REMOVING THE REAR SUSPENSION

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



*fig. 6*



*fig. 7*

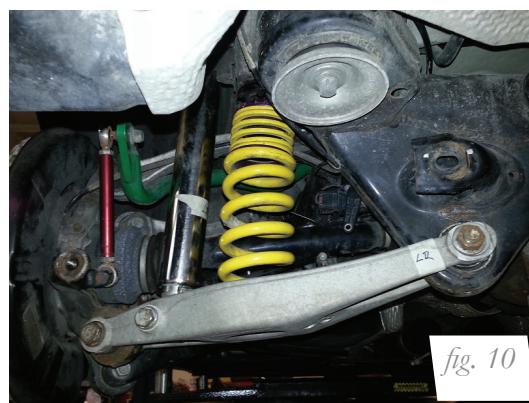
2. Unbolt and remove the inner and outer toe link bolts. Remove the toe link (figs. 8, 9 and 10).



*fig. 8*



*fig. 9*



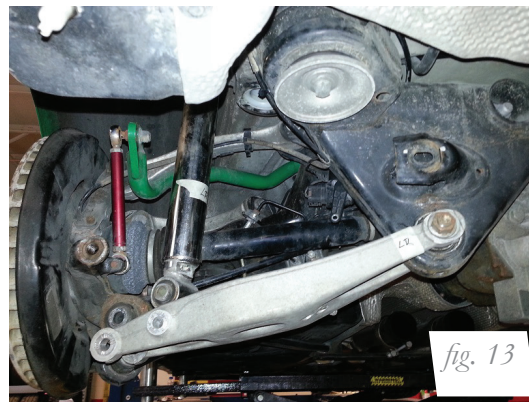
*fig. 10*

**⚠ DANGER**

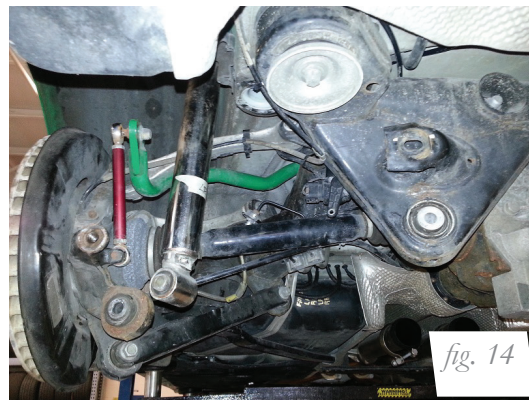
COIL SPRING UNDER COMPRESSION. COIL SPRINGS SHOULD BE REMOVED USING FACTORY PRESCRIBED GUIDELINES. SUPPORT THE HUB AND UNBOLT THE LOWER SHOCK EYE (FIG. 11). REMOVE THE OUTER CONTROL ARM TO HUB BOLT (FIG. 12).



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



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



**NOTE**

*If installing kit without rear shocks, proceed to the "Assembling the Air Spring Upper Bracket and Air Fitting" section on page 9.*

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*

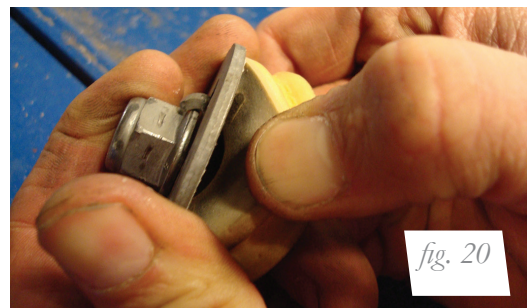


*fig. 18*

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 and 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*



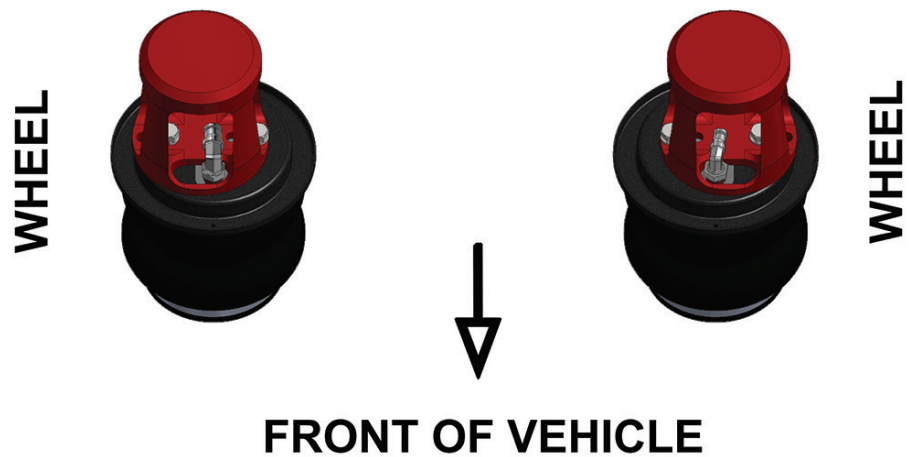
*fig. 21*

## 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 and 3/4 turns beyond hand tight.
2. Place the roll plate over the air spring followed by the upper mount spacer. Attach with two bolts and lock washers and torque bolts to a maximum of 27N-m (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.



*fig. 22*



*fig. 23*



## AIR SUSPENSION INSTALLATION

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



2. Insert the shock rod with large washer 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 nyloc nut (fig. 32). Torque the nyloc nut to 27Nm (20lb-ft).



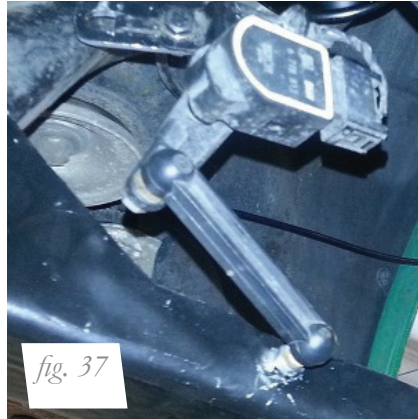
3. Attach the supplied lower control arm to the sub-frame using the supplied cam bolt, washer and nut (fig. 33). Do not torque at this time.



4. Attach the control arm to the hub assembly and shock (figs. 34, 35 and 36).



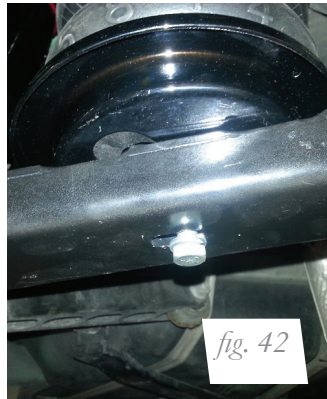
5. Attach the headlight alignment linkage to the control arm (fig. 37).



6. 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. 38-41).



7. Place the air spring assembly with the remaining roll plate on the lower control arm. (fig. 42). The upper mount is offset to properly position the air spring in the chassis (fig. 43). Align the assembly so the air spring is closest to the sub-frame. The air spring must be positioned furthest away from the shock (fig. 44). Install the supplied bolt through the lower control arm and torque to 27Nm (20lb-ft).



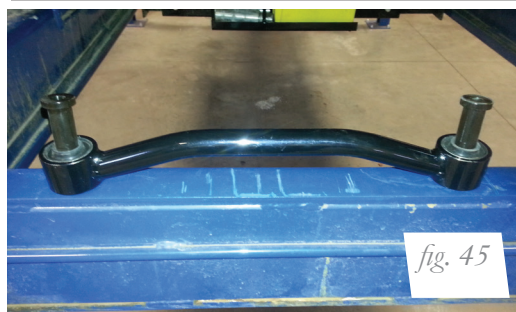
8. Snip the zip ties from the toe link. The toe link bushing sleeves must be installed on the same side as the bend of the link (figs. 45 and 46). Attach the link to the hub assembly and sub-frame with the bend rearward and directed downward (figs. 47 and 48). Do not torque bolts at this time.

**CAUTION**

IF THE BEND IS DIRECTED UPWARD, CONTACT WITH THE SUB-FRAME AND TOE LINK WILL OCCUR. IF THE BEND IS FORWARD, AIR SPRING CONTACT WITH THE TOE LINK WILL OCCUR. THIS CONTACT WILL CAUSE DEGRADATION OF THE AIR SPRING AND VOID WARRANTY.

**NOTE**

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



9. 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. Check clearances to all other components.
10. 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.
11. Cycle the suspension to Max Extension and record the measurement from the same reference points.
12. 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. 49).

**Formula for Calculating Ride Height**

$$(ME+MC) \div 2 = \text{MID STROKE}$$

*fig. 49*

13. With the suspension at this position, loosen, then re-torque the lower control arm, shocks and toe link bolts to manufacturer's specifications (Table 1).

Torque Specifications			
Location	Nm	lb-ft	lb-in
Toe Link to Sub Frame	100	74	
Toe Link to Hub	100	74	
Lower Control Arm to Sub Frame	165	122	
Lower Control Arm to Hub	165	122	
Trailing Arm to Sub Frame	100	74	
Trailing Arm to Hub	100 + 90°	74 + 90°	
Wishbone to Sub Frame	100	74	
Wishbone to Hub	100 + 90°	74 + 90°	
Shock Rod Nyloc 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		

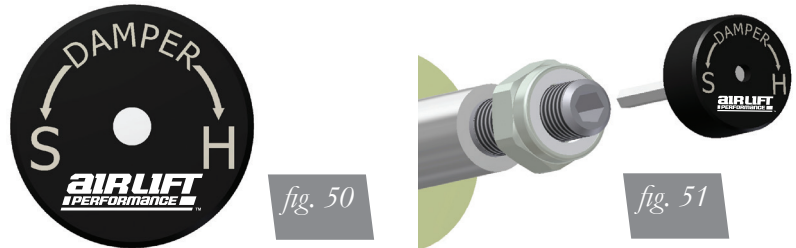
*Table 1*

## DAMPING ADJUSTMENT

The shocks 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. 50 and 51) or a 3mm allen wrench.

Turn the adjuster clockwise and the damping settings are hardened. Turn the adjuster counterclockwise and the damping is softened.

Each shock is preset to “-8 clicks”. This means that the shock is adjusted 8 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 BMW M3 Coupe and may need to be adjusted to different vehicles and driving characteristics.



## 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, we recommend 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.

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### NOTE

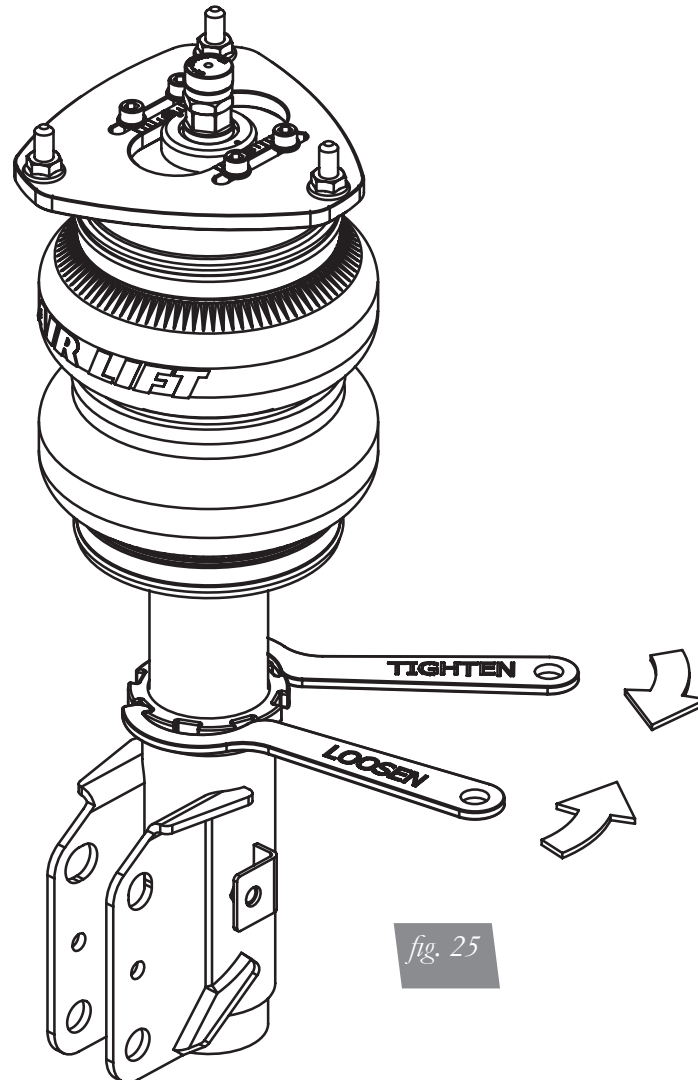
*It may be necessary to cycle the suspension to loosen the bushing up from its mount. This will help re-orient the bushing at its new position and increase life of the bushings based on the custom ride height.*

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## ADJUSTING EXTENDED OR DROP HEIGHT USING LOWER MOUNT

Your 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 lower locking collar (fig. 25).



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.

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### 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 UPWARDS, MAKE SURE THAT THE STRUT BODY ENGAGES ALL THE THREADS OF THE LOWER MOUNT (FIG. 26). WHEN ADJUSTING DOWNWARDS, 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 STRUT! DOING SO MAY CAUSE AN AIR LEAK AND COMPROMISE THE ASSEMBLY.

**FOR STRUTS:**

**FOR SHOCKS:**

