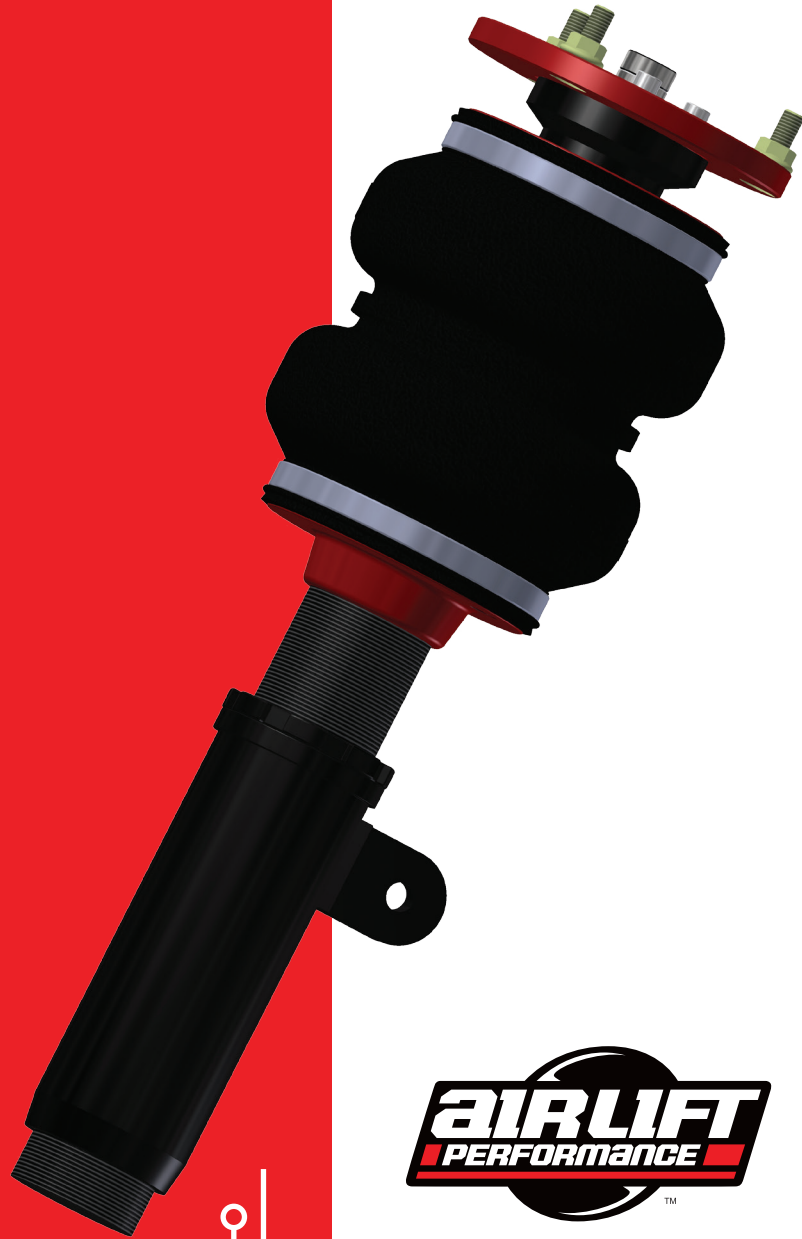


**Air Lift**<sup>™</sup>  
**PERFORMANCE**

# Kit 78511

BMW E9X M3  
BMW 1M

**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.*

PERFORMANCE SUSPENSION PARTS




# Introduction

The purpose of this publication is to assist with the installation, maintenance and troubleshooting of this BMW E9X M3/1M 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.

## 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.

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



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## IMPORTANT SAFETY NOTICES

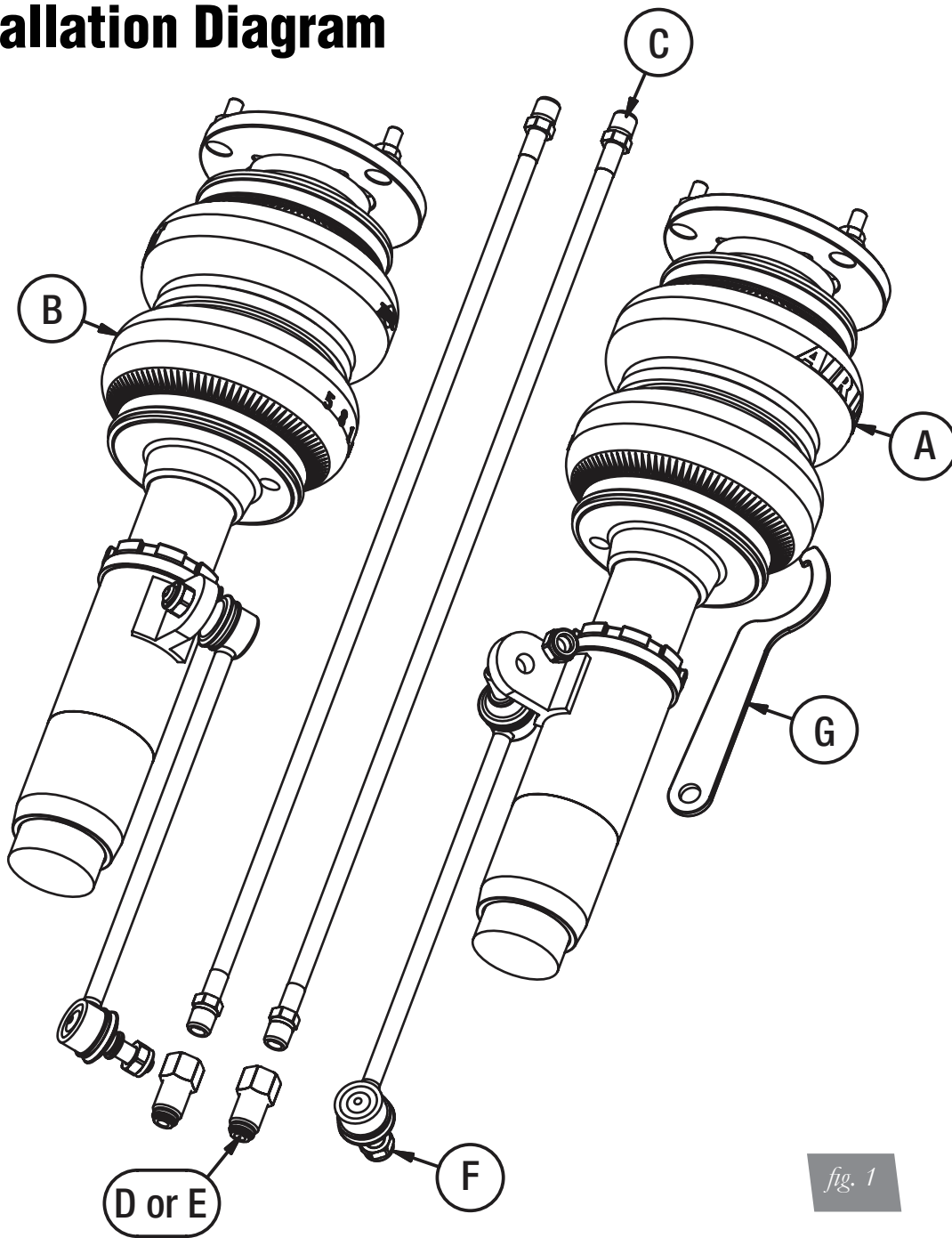
The installation of this kit does not alter the Gross Vehicle Weight Rating (GVWR) or payload of the vehicle. Check your vehicle's owner's manual and do not exceed the maximum load listed for your vehicle.

**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.

# Installation Diagram



*fig. 1*

## HARDWARE LIST

Item	Part #	Description .....	Qty
A	35290	ASM, Strut, BMW E9X M3 RF .....	1
B	35289	ASM, Strut, BMW E9X M3 LF.....	1
C	20997	Leader Hose, 1/4" ID .....	2
D	21810	Union, 1/4"FNPT X 1/4" PTC, DOT .....	2
E	21987	Union, 1/4"FNPT X 3/8" PTC, DOT .....	2
F		End Link - 260mm.....	2
G		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 front tire and support the hub assembly (fig. 2).
3. Disconnect the headlight alignment linkage from the lower control arm (if equipped) (figs. 3 and 4).

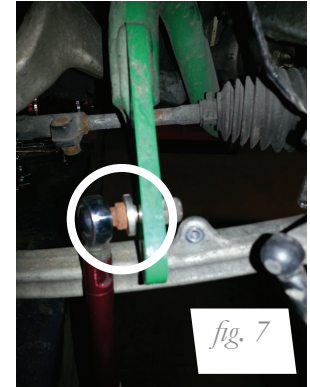


## REMOVING THE FRONT SUSPENSION

1. Unthread the stabilizer bar end link nuts from the strut and stabilizer bar. Remove the end link (figs. 5, 6 & 7).

### NOTE

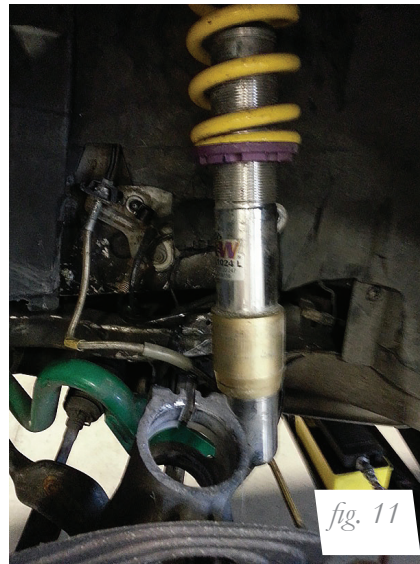
*Make note of how the stabilizer bar tab is positioned on the strut. New struts will need to be installed in the same position. See Step 2 of Installing the Air Suspension*



2. Remove the lower strut pinch bolt from the spindle hub (figs. 8 and 9).



3. Slide the hub off of the strut, taking care not to over-extend the brake line or ABS wires. (figs. 10 and 11).

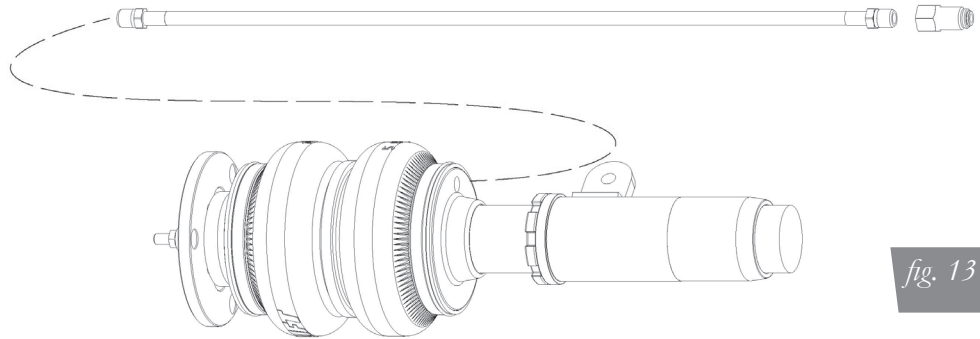


4. Remove the three upper mount bracket nuts and remove the strut from the vehicle (fig. 12).



## PREPARING THE AIR SUSPENSION

1. Begin by installing the leader line into the air spring. Wrap the threads of the leader hose with thread sealant. Tighten the appropriate fitting to the leader line 1 3/4 turns beyond hand tight. Tighten the leader line into the air spring 1 3/4 turns beyond hand tight (fig. 13).



*fig. 13*

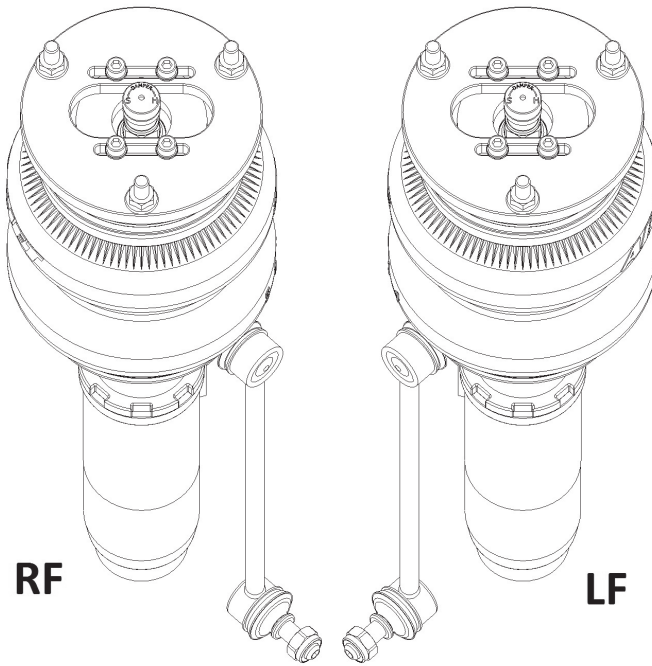
## INSTALLING THE AIR SUSPENSION

1. Insert the strut into the strut tower and attach the camber plate bolts to the chassis. (fig. 14).



*fig. 14*

2. Lift the hub onto the strut adapter. Orient the strut so that the air line is toward the engine compartment with the stabilizer bar tab toward the rear of the vehicle (fig. 15). **The stabilizer bar tab needs to be oriented in the same direction as the removed strut.** Reinstall the lower pinch bolt (fig. 16) with the sensor wire bracket in place (figs. 17 & 18). Torque to 81Nm (60lb-ft).



## VEHICLE FRONT





3. Assemble the stabilizer bar end link to the strut and to the stabilizer bar (fig. 19). Torque to 58Nm (43lb-ft) (fig. 20).



4. Reattach the headlight alignment linkage to the lower control arm (fig. 21). Torque to 5Nm (44lb-in).



5. 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 components. Routing should also allow for the suspension to steer, 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.
6. 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.
7. Cycle the suspension to Max Extension and record the measurement from the same reference points.

8. 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. 22).

Formula for Calculating Ride Height

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

fig. 22

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

Torque Specifications		
Location	Nm	lb-ft
Camber plate to chassis	34	25
Strut lower pinch bolt to hub	81	60
End link to strut/stabilizer	58	43
Wheel studs	120	89

Table 1

## DAMPING ADJUSTMENT

The struts in this kit have 30 settings, or “clicks”, of adjustable compression and rebound damping characteristics. Damping is changed through the strut rod using the supplied adjuster (figs. 23 and 24) 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.



fig. 23

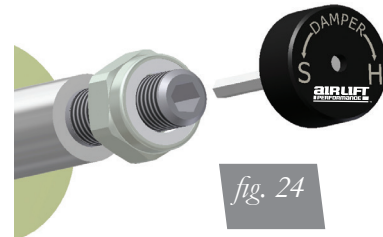


fig. 24

## 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.

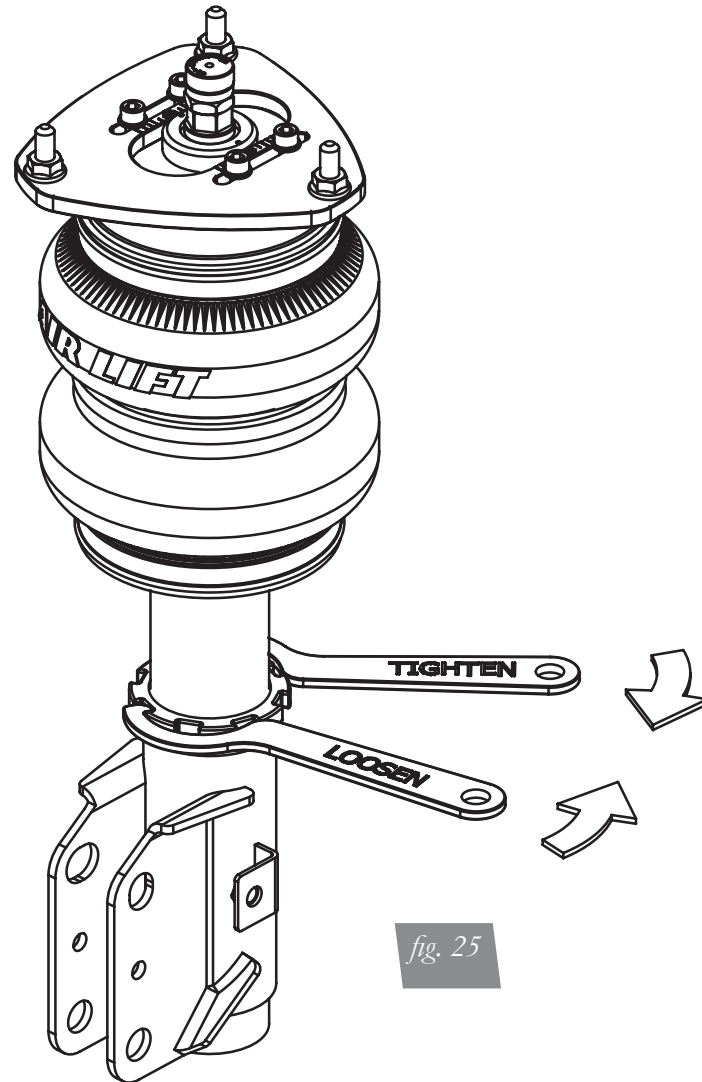
### NOTE

*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.*

## ADJUSTING EXTENDED OR DROP HEIGHT USING LOWER MOUNT

Your struts 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.*

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

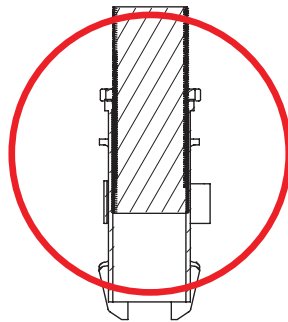
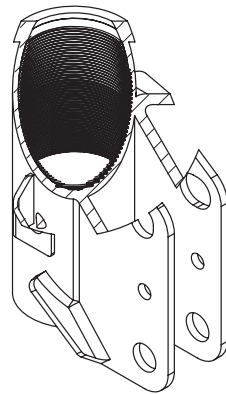
## CAUTION

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:**



OK, no threads showing.



Not OK, threads are showing.

**FOR SHOCKS:**

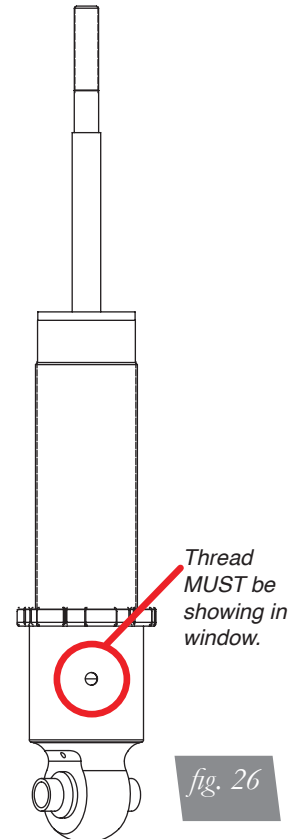


fig. 26