



## **Instruction Sheet JounceShock™ Custom Application**

*This part should only be installed by personnel who have the necessary skill, training and tools to do the job correctly and safely. Incorrect installation can result in personal injury, vehicle damage and / or loss of vehicle control.*

*Read instructions completely before beginning installation.*

### **What to expect from your JounceShocks-**

The JounceShock is the core of a secondary suspension system that dramatically increases the capacity of your vehicle's suspension. Most systems are designed such that the JounceShocks do not engage the suspension of your vehicle at ride height. Therefore, the system does not usually alter the ride height or on-road ride quality of your vehicle. When you have a heavy payload or take your vehicle off-road, your suspension will compress more and engage the JounceShocks. When the suspension engages the JounceShocks, you may hear the initial contact. This is normal and is an indication that the JounceShocks are being applied. When the vehicle is driven off-road you will notice a couple of performance gains. First, as you drive the vehicle over rough terrain it never feels as though the vehicle is bottoming. Also, you will realize that the vehicle moves up and down less, this is known as "Gross Vehicle Motion Control". These are changes caused by the characteristic exponential air spring curve and the critical damping of the JounceShock units. These changes significantly enhance the ability and durability of the vehicle, as well as the comfort level of the occupants. This added capacity can be misleading and care should be taken to learn the new limits of your vehicle without damage to the vehicle itself. For more discussion on JounceShock function and performance gains please visit our website at [www.specprod.com](http://www.specprod.com)

### **How a JounceShock works-**

When the suspension engages the JounceShock, the shaft of the Jounce Shock is driven into the JounceShock body. The shaft compresses the nitrogen volume and because the nitrogen is in a closed cylinder, the pressure increases dramatically as it is compressed. This provides a smooth, exponential increase in force (like an air spring) instead of the force spike that occurs when typical suspension systems bottom out. After the JounceShock has been compressed, the valving inside the JounceShock is designed to allow the suspension to fall away faster than the JounceShock can extend. Therefore, all of the energy that was put into compressing the JounceShock is dissipated by the valving rather than by pushing the suspension back out. This is a key factor why JounceShocks are effective for high energy absorption and vehicle control.

### **Determining location-**

Generally speaking the JounceShock should be located such that the cylinder (large end) is permanently attached to the chassis of the vehicle. The position of the JounceShock is determined by the vehicle suspension. The shaft of the JounceShock (small end) should be driven by an area of the suspension that is strong enough to support the loading associated with JounceShock operation. Typically, the shaft end will be contacting the axle housing, lower control arm, or other major suspension component. In most applications, the JounceShock is positioned so that it is engaged in the last 1/4 to 1/3 of suspension travel. The JounceShock should determine the limit of the suspension travel in compression, the maximum desired suspension position should coincide with the JounceShock being fully compressed. Because the highest forces are experienced when the JounceShock is fully compressed, the unit should be mounted parallel to the direction that the suspension is moving at full compression or as close to that as possible. This limits the side loading that the JounceShock experiences when the pressures are highest, which in turn increases durability and load capacity.

### **Mounting JounceShocks-**

The modular design of the JounceShock allows it to be installed using a variety of mounting options. The cylinder (large end)

# Part No. 25710 & 25715 Instruction Sheet

## JounceShock™ Custom Application - Continued

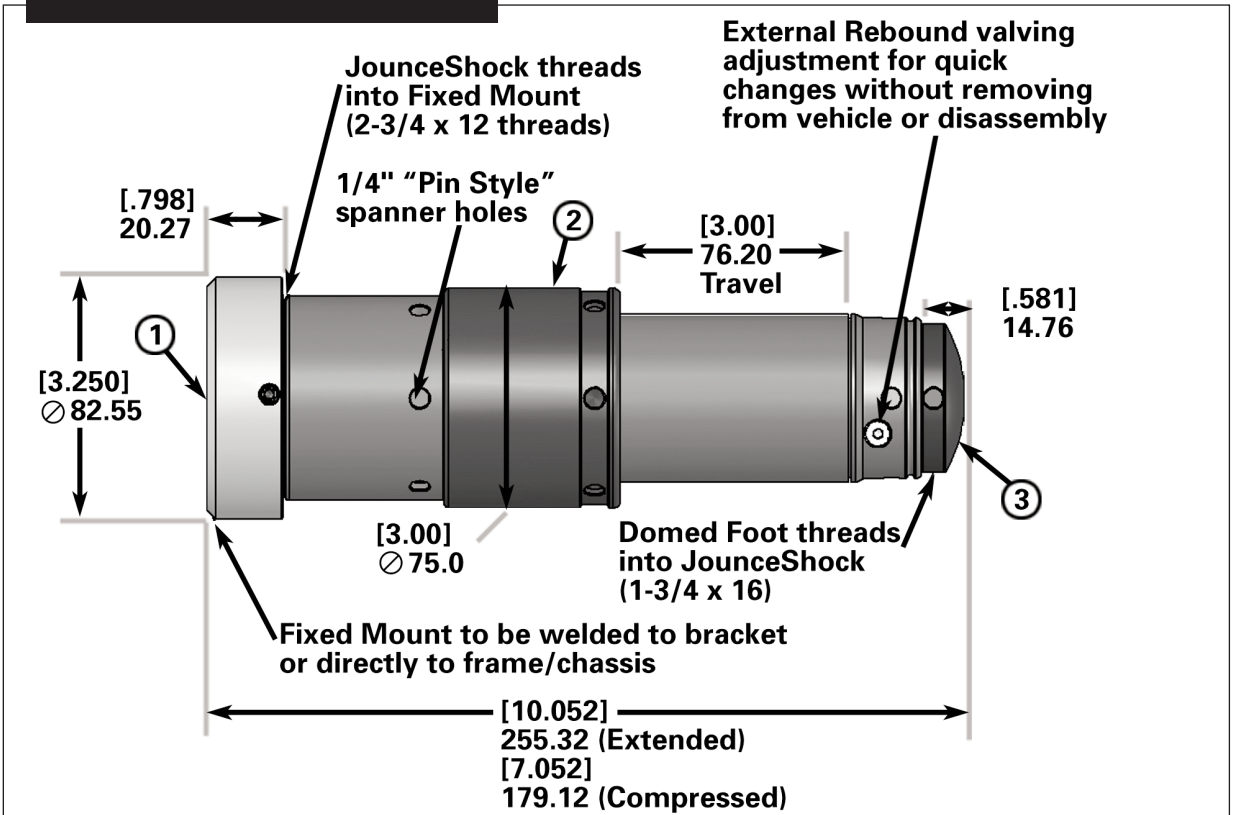
is supplied with an external thread of 2-3/4 x 12 TPI and is designed to thread into a mount. The shaft end (small end) has an internal thread of 1-3/4 x 16 TPI that is made to accept various foot ends.

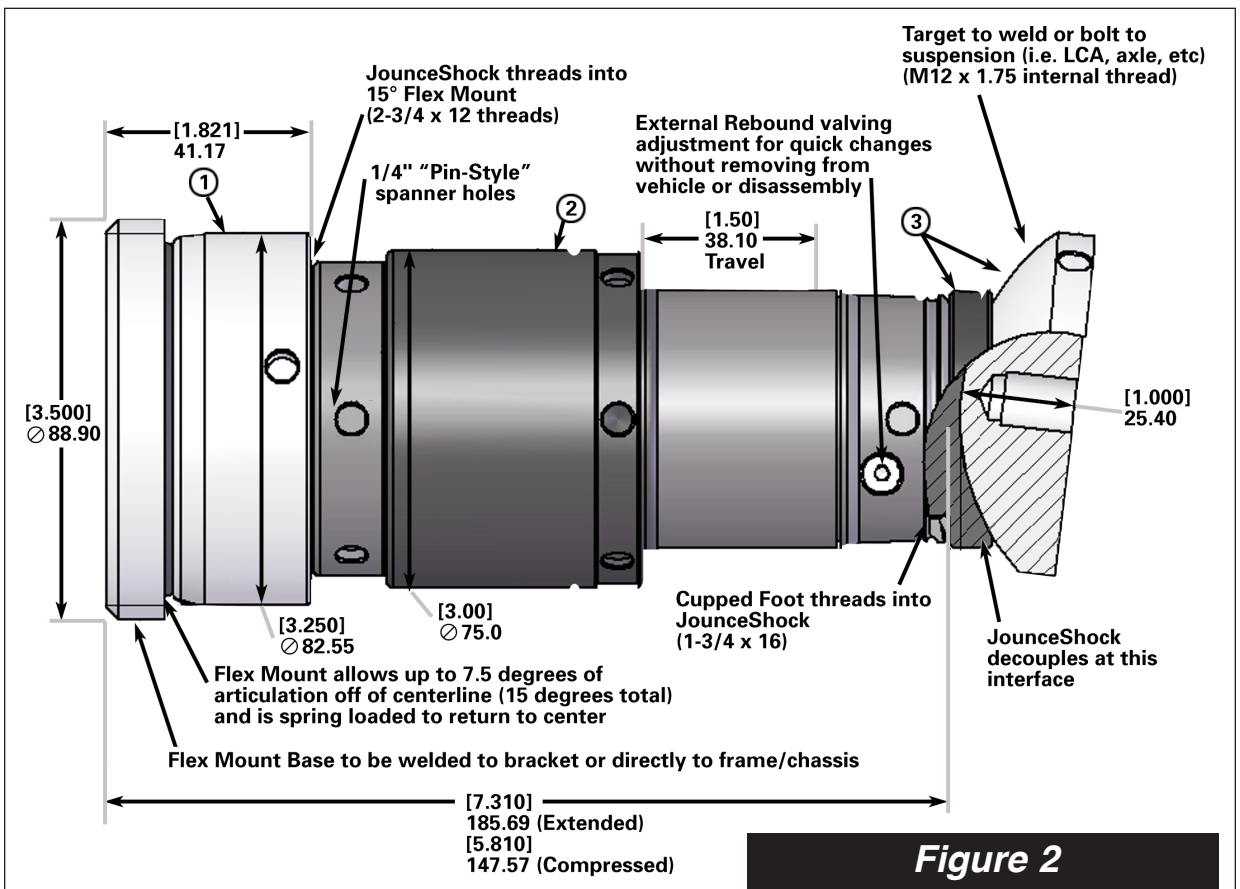
A Fixed Mount (#25505) is often used for solid axle applications (*Figure 1*). The Fixed Mount ① has a 2-3/4 x 12 TPI internal thread for the JounceShock to mount into. This Fixed Mount can be welded to a bracket or directly to the frame of the vehicle and holds the JounceShock ② above the axle, positioning the shaft to engage with the axle and compress it. Proper alignment is required to maximize the performance and durability of the system. In this application it is most common for the Domed Foot (#25602) ③ to be threaded onto the JounceShock shaft and for the axle to have a flat plate (reaction pad) that contacts the Domed Foot surface. This allows for some angled contact during articulation. The reaction pad should be large enough to accommodate all possible articulation modes (usually 2" x 2" is the minimum size needed for a reaction pad).

The 15° Flex Mount (#25501) ① is often used with independent suspension installations (*Figure 2*). The flexible mount allows the JounceShock ② to articulate or to follow suspension movement. This is desirable for a lower control arm installation where the lower control arm swings through a large arc. By allowing the JounceShock to follow this arc, the side loading and scrub (sliding at the foot end) is minimized and the performance and durability are increased. The 15° Flex

Mount should be set up to meet the target at initial contact and accommodate the range of motion through full jounce. (See 15° Flex Mount instruction sheet for specific installation and assembly directions.) The Cupped Foot and Target, (#25601) ③ are commonly used end mounts for the shaft end of the JounceShock when using the 15° Flex Mount on the cylinder end.

**Figure 1**  
**#25715 - 3.0" Travel**  
**JounceShock shown with a**  
**Fixed Mount (#25505) and a**  
**Domed Foot (#25602)**





**Figure 2**  
**#25710 - 1.5" Travel**  
**JounceShock shown with a**  
**15° Flex Mount (#25501) and a**  
**Cupped Foot and Target**  
**(#25601)**

See our website [www.specprod.com](http://www.specprod.com) for additional end mount and adapter options.

The JounceShock is designed to replace the stock rubber/urethane jounce bumper on a production vehicle. The stock jounce bumper should be removed or cut down to a minimum height. This eliminates the negative effects of the release of stored energy in the stock jounce bumper.

### Tuning the JounceShock-

The JounceShock is set initially with a general tuning that should work well in most applications. However, vehicle handling and dynamics is a matter of personal preference and this system can be tuned to suit individual tastes and uses. There are three parameters of the JounceShocks that can be tuned: nitrogen pressure, rebound damping, and the oil fill level.

### Nitrogen Pressure-

The primary tuning parameter, and the one that makes the biggest performance difference, is the initial nitrogen pressure or charge. The nitrogen can be discharged and recharged to obtain different settings. To do this the JounceShock must be removed from the vehicle, but it does not need to be disassembled. The oil in the JounceShock is mixed with the nitrogen so care should be taken when discharging the nitrogen to assure that no oil is lost. JounceShocks should be stored with the shaft end (Schrader valve) pointing up for 20-30 minutes prior to being discharged. This will allow the oil and nitrogen to separate and the oil to fall to the bottom of the JounceShock. Then the JounceShocks may be discharged carefully and slowly while keeping the Schrader valve upright to avoid oil loss. Access to the Schrader valve is gained by removing (unthreading) the contact foot at the end of the shaft (e.g. Domed Foot or Cupped Foot). You will see a yellow Schrader valve cap recessed in the end of the shaft.

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The yellow Schrader cap must be removed to access the Schrader valve for both charging and discharging. A Fill Extension (#25515) is required to charge the JounceShock as the Schrader valve is recessed in the end of the shaft. The nitrogen charge in the JounceShock is preset at 40 psi for the 3" travel (#25715) and 40 psi for the 1.5" travel (#25710). Charging below 40 psi or above 500 psi is not recommended. Screw the Fill Extension onto Schrader valve body and snugly hand tighten to get a good seal. (Warning: Care should be taken when installing and removing the Fill Extension. Over tightening of the Fill Extension could cause the Schrader body to back out when removing.) Nitrogen is recommended for charging as it is inert and has good temperature characteristics. Connect an air chuck to the end of the Fill Extension. Set the nitrogen tank regulator to the desired pressure and engage the air chuck until the pressure has equalized in the JounceShock. Remove the air chuck quickly to minimize pressure loss.

### Rebound Damping-

Rebound damping can be adjusted externally without removing the JounceShock from the vehicle. To do so, locate the port in the shaft end that accepts a 1/8" hex key. This port is shown in **Figure 3**. Turning the adjuster clockwise will increase the damping (increasing the time that it takes the shaft to rebound). This adjustment is for fine tuning and can be turned all the way in (clockwise) or all the way out (counterclockwise) up to the snap ring retainer. Care should be taken when adjusting to full open so as not to force the adjuster past the snap ring, causing possible depressurization.

### Oil Fill-

Oil level in the JounceShock is set at the factory. The oil level is adjustable, but tuning of oil level is complex. The factory setting for the oil level will work in the majority of applications.

To ensure proper operation of the JounceShock, a minimum fill level is recommended from SPC. For the 25710 (1.5" travel) the minimum fill level is 160 mL. The 25715 (3.0" Travel) has a minimum fill level of 244 mL. Oil may be purchased separately (Torco Shock Oil Part No. T830007).

For information on disassembly and reassembly of the JounceShocks, see the Rebuild Kit instructions (25712) at [www.specprod.com](http://www.specprod.com). It is recommended to use the SPC pin wrench set (25520) for easy disassembly and reassembly of the JounceShocks.

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Form No. 987102 • Rev. 5/15 • ECN#1866  
Printed in U.S.A.

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