



Installation Instructions

416 Air Shocks For Harley Davidson Tri-Glide.

ATTENTION

Statements in these instructions that are preceded by the following words are of special significance:

Warning

This means there is the possibility of injury to yourself or others.

Caution

This means there is the possibility of damage to the motorcycle.

Note

Information of particular importance has been placed in italics.

Warranty

Progressive Suspension warrants to the original purchaser this Part to be free of manufacturing defects in materials and workmanship for a period of one (1) year from the date of purchase. In the event warranty service is required, you must call Progressive Suspension immediately with a description of the problem.

If it is deemed necessary for Progressive Suspension to make an evaluation to determine whether the part is defective, a return authorization number will be given by Progressive Suspension. The parts must be packaged properly so as to not cause further damage and returned prepaid to Progressive Suspension with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem. If after the evaluation by Progressive Suspension the part was found to be defective it will be repaired or replaced at no cost to you. If we replace it, we may replace it with a reconditioned one of the same design.

Progressive Suspension shall not be held liable for any consequential or incidental damages resulting from the failure of a Progressive Suspension part. Progressive Suspension shall have no obligation if a part becomes defective as a result of improper installation or abuse.

Important Notice

Note: Please read the following instructions completely before starting installation!

These shocks are designed to operate with the air fitting at the top. Mounting the shocks with the air fitting at the bottom will cause the shock to perform poorly and to potentially fail.

Follow instructions in an authorized shop manual or take the motorcycle to a competent dealer.

The motorcycle must be securely blocked to prevent it from falling over or dropping when the shocks are removed. Failure to do so can cause serious damage and/or injury.

The use of lowering or lifting blocks on Progressive Suspension shocks is not recommended. Use of a lowering or lifting kit may void the warranty or damage the shock/motorcycle.

Progressive Suspension shocks are designed to work on the OEM (Original Equipment) frame and swingarm. Use of these shocks on a frame or swingarm other than OEM may produce an unsatisfactory ride and void the warranty.

Tire to fender clearance may be affected when tires other than original equipment are installed. If the tire diameter and/or width is larger than stock, the tire may touch the fender resulting in unexpected braking which could lead to an accident and or injury.

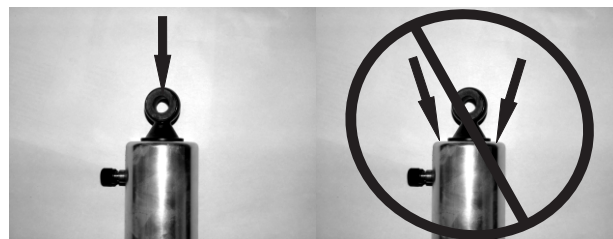
Be sure to refer to instruction supplements provided in any included mounting hardware.

Note

A small amount of oil seepage from the air fittings may occur during shipment. This does NOT affect the performance. Under no circumstances should you add additional oil.

Note

The 416 Air Shocks are designed to be compressed using only the mounting eyes - do NOT attempt to compress the shocks using the body or air can as this will damage the shock resulting in a pressure leak.



CORRECT

WRONG

Caution

Before installing your new Progressive shocks you should check your exhaust system clearances. These Progressive shocks are slightly longer than stock to give you better ground clearance and optimum ride quality, and due to factory assembly tolerances some Trikes may need the exhaust system adjusted to allow for this extra suspension travel. Though most Trikes will not require any adjustment, while extending your swingarm to install the longer shocks look and listen for any contact at or around the front of the swingarm or rear pulley housing. Refer to the "Extended Clearance & Adjustment" section on page 4 of this instruction for guidance.

Installation

1. Place a quality jack or sufficient blocks under the motorcycle to securely lift the rear wheels slightly off the ground.
2. Referring to the correct Harley Davidson shop manual, release any air pressure then disconnect the air lines from the OE shocks by pushing in on the outer collar and pulling the lines out. Remove the shocks and note the location of the mounting hardware. If any additional accessories are installed on your motorcycle, please refer to their mounting instructions for removal to gain access to your shocks.
3. Install the proper mounting sleeves into each shock eye per the illustration (**Photo 1**). The shouldered portion of the sleeve needs to be sandwiched between the shock eye and the mounting surface - this means the upper sleeve shoulder needs to be facing inward towards the frame (**Photo 2**) and the lower one facing outward towards the wheel mount (**Photo 3**).
4. With the Air Fitting at the top, mount your new 416 Series shocks in the same location as your stock shocks. We recommend that you mount your new shocks with the air connection fittings facing forward, the same direction as the stock shocks did (**Photo 2**). Note that you can rotate the Air Cylinder to position the fitting where it works best for you.
5. Before tightening the shock mounting bolts completely, check for adequate clearance around the shocks.
6. Completely tighten the shock mounting bolts according to the factory torque specifications.
7. Remove the Air Connection Plugs from your new 416 Series shocks by first pushing in on the outer collar of the fitting, this releases the locking fingers inside the fitting. (**Photo 4**) While pushing in on the collar, pull the plug out of the fitting. Use this same method to remove air line from the fittings if necessary.
8. Your new 416 Series Air Shocks are designed to work with the stock airlines already installed on your Tri-Glide, simply plug them into the fittings on the top of the shocks and you're done. Additional airline is supplied in case you decide to replace or

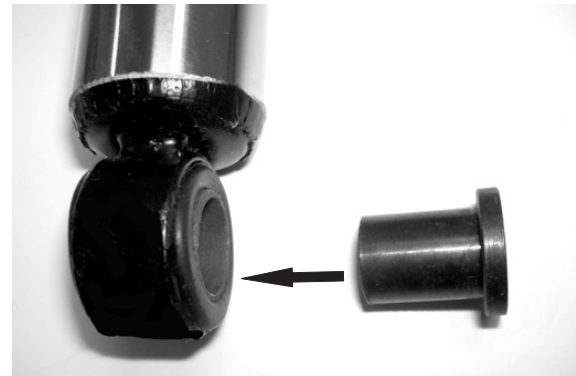


Photo 1 - Insert shouldered sleeves into eyes, note orientation.

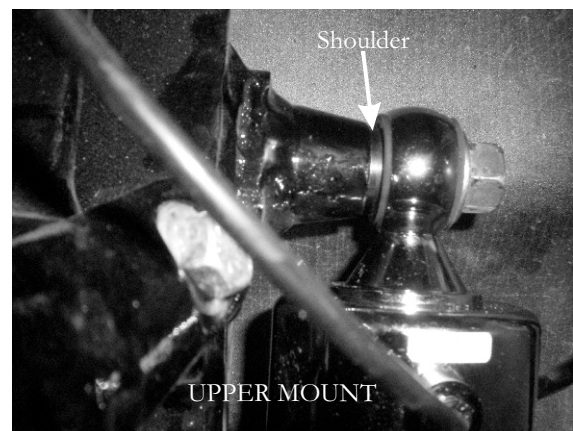


Photo 2 - Shoulder towards frame and fitting pointed forward

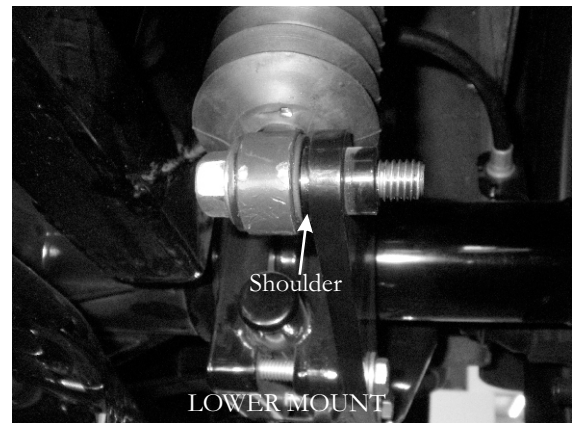


Photo 3 - Shoulder towards the mount, facing outward.



Photo 4 - Push in the collar to remove the plug or air lines.

Installation (cont.)

relocate your stock airlines. Even if you reuse the stock airlines it's a good idea to trim about a quarter of an inch off the previously installed end, this will give a "fresh" end for the fitting to seal on and reduce the possibility of a leak. Something to be mindful of is you should use a razor blade when trimming the line, it is very important to make clean straight cuts on the ends of the airline, DO NOT use Dykes or scissors, as these will distort the ends of the line and cause leaks. Also be sure the airlines are routed where they cannot be cut, pinched, melted or snagged while the bike is being ridden.

9. Pressurize the shocks to 50 psi. Apply a soap and water solution to all connection fittings and check for bubbles that would indicate a leak. If a leak is found at a fitting, it is likely due to the line not being inserted fully, cut crooked or perhaps the line or seal in the fitting has some debris. Disconnect the line by following the method outlined in step 7. Remove any debris from inside the fitting and cut approximately 1/4" off the end of the line. Cutting the 1/4" off the line is important because once the line has been installed into the fitting, there are locking fingers that grab the line to hold it in place. These fingers may scrape the line as it is pulled out and create a new leak path if re-installed. If you are unable to correct a leak, contact our Customer Service department for assistance.

Air Pressure Recommendations and Set Up

1. Minimum air pressure is 0 PSI. Maximum air pressure is 100 PSI All pressure readings should be taken statically with the rear suspension completely extended or with the rear wheels off the ground. We recommend using the same air pressure gauge consistently as readings may vary from gauge to gauge.

2. Maximum ride comfort is achieved with your new 416 Series shocks when the pressure is set to allow approximately .80" - 1.20" of Ride Sag.

3. To check your Ride Sag, place the trike on a jack to fully extend the rear suspension. Take a measurement from the edge of the rim to a vertical point on the fender. Record that measurement. Now take the bike off the jack and load the bike with rider(s) and any luggage and re-measure between the same points. This second measurement should be approximately .80" - 1.20" shorter than the first measurement when the air pressure is set correctly. Add or subtract air pressure accordingly to achieve .80" - 1.20" sag. **(Photo 5)**



Photo 5 The difference in measurements between the top of the rim and the fender with the suspension fully extended and then with rider(s) on the bike is your Ride Sag. This difference should be .80" - 1.2" for maximum ride comfort.

More Important Information

These 416 Series shocks are rebuildable. Contact your local dealer or Progressive Suspension for parts and information if rebuilding becomes necessary.

Front Forks: For total suspension balance, we highly recommend installing a pair of Progressive Suspension Fork Springs or Fork Monotube Kit (2014 & Later). Also available at your local dealer.

Extended Clearance & Adjustment

These Progressive Suspension 416 Series shocks for your Trike are 0.50" longer than stock. This is by design, as it's been determined that the vehicle benefits from the extra travel – in both ride quality and ground clearance. In most cases there is no issue with installing these longer shocks, however there are two points where, due to factory assembly tolerances, your Trike may make contact between the rear suspension assembly and the exhaust system. This portion of the instructions explains how to identify and rectify this issue should you encounter it.

As you lower the rear axle, extending the shock mounting points to accommodate the longer 416 Series Shocks, one of the places that may make early contact on some Trikes is the "Z" bend portion of the exhaust in front of where the mufflers attach to the head pipes (see photo 6). If contact is going to be made at this point, it will typically be on the right side towards the front of the swingarm. The other point of possible contact is the rear pulley guard making contact with the left muffler (see photo 7).

In either case the solution involves simply loosening and adjusting the exhaust system to gain the needed clearance. This is best done with the Trike lifted and securely supported, the rear wheels removed, and a jack under the rear axle swingarm assembly. Depending on which year/model Trike you have the points at which you can loosen and adjust the exhaust system vary (see examples at lower right). Look at the point of contact and discern which direction the exhaust needs to move to gain clearance. Then look at the exhaust system mounting points and slip-fit connections – each one has a certain amount of "play" or adjustability when loosened.

The most likely point of contact will be between the pulley housing and the front of the left muffler. To remedy this, loosen the cross-over pipe section – both the muffler clamp that attaches to the right side of the exhaust system and the center mount (may help to remove center mount bolt while adjusting) behind the transmission – and slide the cross-over section slightly to the left until clearance at the pulley housing is achieved. Tighten the clamp and mount back up while maintaining that clearance. The other possible contact point, typically only seen on 2014-later models, is the "Z" bend to the front right of the swingarm which can be remedied by loosening the muffler clamps on the "Z" bend and sliding it slightly forward to gain clearance. Again, once clearance is achieved tighten the clamps back up. Now, with the new longer 416 Series shocks installed, double check your exhaust system clearance again. If any contact is still noted, re-adjust the exhaust system until proper clearance is gained. Once clearance is achieved start the trike and check for possible exhaust leaks, repair as necessary.

Using this method, you should be able to remedy any contact issues that may occur.

