



INSTRUCTIONS & PRECAUTIONS

COMPLETE STRUT ASSEMBLY

SAFETY NOTES

Be sure to read this instruction sheet along with any other instructions provided with this particular product before making any attempt to remove the current strut from the vehicle under repair.

- ⚠ **DO NOT REMOVE THE SPRING RETENTION NUT.** The spring is compressed and can cause serious injury if released without the proper tools.
- ⚠ Gas pressurized struts such as this one are not to be heated or opened under any circumstances.
- ⚠ Eye, hand, foot and head protection are required.
- ⚠ The existing (used) modular assembly must be discarded in a manner considered safe by official working standards. Be sure to keep it well away from children. Keep all other people at a safe distance from your work area. Do not attempt any form of disassembly.
- ⚠ Torque all nuts and bolts to proper specification.
- ⚠ The replacement of the old coil springs with this new strut assembly will cause a vehicle to appear higher. This is most apparent on older vehicles whose springs have sagged due to high mileage. Allow time for the vehicle's weight to adjust the springs to their final resting height.
- ⚠ Strut assemblies should be replaced in pairs to maintain equilibrium from left to right in the vehicle.
- ⚠ The chromed piston rod (polished metal portion of strut unit) must not be grasped with any type of tool. Any marking of the piston rod surface will damage the oil seal and invalidate the warranty.
- ⚠ Safety rated "jack-stands" are to be used at all times when a procedure requires you to be under a motor vehicle.

[FOR ADDITIONAL INFORMATION AND TORQUE SPECIFICATIONS CONSULT A PROFESSIONAL VEHICLE REPAIR MANUAL]

REMOVAL INSTRUCTIONS – ALL TYPES

1. Locate the upper mounting nuts of the bearing plate (see Figure A). Loosen each, but do not remove. Make a mark on any one of the mounting studs as a reference point and on the vehicle body next to that stud. Now locate the same stud on the new strut assembly and make the same mark accordingly. This will allow proper orientation during reinstallation.
2. Raise the vehicle. Make certain that the frame is supported securely to avoid sagging and damage to the vehicle.
⚠ WARNING: FAILURE TO PROPERLY FOLLOW STEP 2 WILL PUT YOU IN DANGER OF A SERIOUS AND POSSIBLY FATAL INJURY. SERIOUS DAMAGE TO THE VEHICLE UNDER REPAIR MAY ALSO RESULT.
3. Remove the wheels from the corners of the vehicle that are to receive new strut assemblies.
4. Continue by removing all items attached to the strut. These may include (but are not limited to): brake hoses, stabilizer bar drop links, tie rods, and ABS (anti-lock braking system) connections. Retain all fasteners for potential re-use. If these items are not reusable, be sure to obtain the correct fasteners when reassembling.
5. Caution must be taken to not damage any suspension or braking components during disassembly operations. Do not allow suspension or brake components to hang unsupported. Use a support structure or retention strap to prevent damage.

FIGURE A

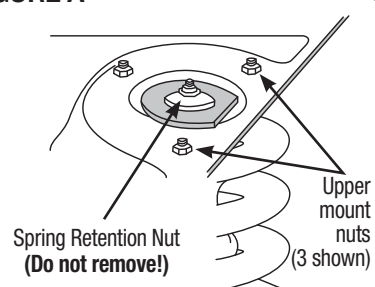


FIGURE B

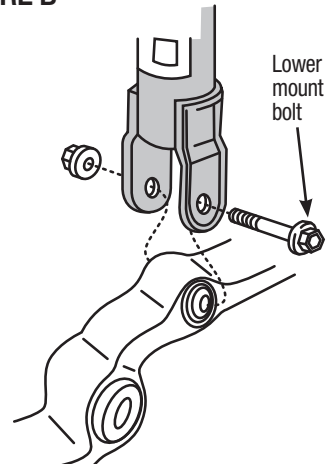


FIGURE C

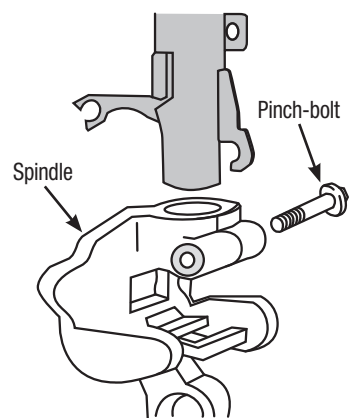
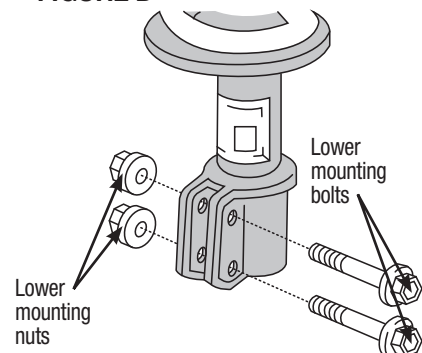


FIGURE D



SPECIFIC REMOVAL STEPS FOR VARIOUS STRUT CONFIGURATIONS

SINGLE-BOLTED STRUT

1. For a single-lower-bolt style shock (as shown in Figure B), unfasten and retain the lower mount bolt for later use.
2. For applications using a pinch bolt with the bottom of the strut located in the knuckle (as shown in Figure C), inserting a large flat blade screwdriver in the split line can help to facilitate easy removal of the strut. Remove the knuckle from the strut assembly with a rubber mallet if necessary.

DOUBLE-BOLTED STRUT

1. Mark the bolt heads to denote the upper and lower positions, then remove the bolts (bolts are often different sizes). Retain the removed hardware. Loosen the old strut from the knuckle (see Figure D).
2. With the lower end of the strut disconnected from the knuckle, support the strut while removing the upper retention nuts.
3. Remove the old strut assembly from the wheel well and set aside.

⚠ WARNING: SERIOUS AND EVEN FATAL INJURY CAN OCCUR FROM REMOVAL OF THE SPRING RETENTION NUT. UNDER NO CIRCUMSTANCES SHOULD THIS BE ATTEMPTED. DISPOSAL OF THE OLD UNIT MUST BE IN ACCORDANCE WITH LOCAL ORDINANCES.

INSTALLATION INSTRUCTIONS

Realign the new strut assembly in the strut tower housing using the markings made previously on the upper mounting studs and the vehicle body. Hand-tighten the upper mounting nuts. Keep in mind that some rotation of the upper bearing plate might be needed to properly align the lower end of the strut assembly with the knuckle.

NOTE: SOME STRUT UNITS ARE FIXED AND NON-ROTATIONAL.

SPECIFIC INSTALLATION STEPS FOR VARIOUS STRUT CONFIGURATIONS

1. For coil-over shock applications (such as those represented in Figure B), install the lower mounting bolt and finger-tighten the nut. Do not torque to final specification at this time; this joint cannot be torqued to final specification unless the suspension is at the proper vehicle ride height. See "General Installation" section below for instructions on final tightening of this joint. Failure to follow these instructions will result in improper vehicle height.
2. For strut applications with a pinch-bolt style mount (such as those represented in Figure C), line up the strut retention tab with the knuckle pinch joint split line. Reversing the removal process, separate the pinch joint with the screwdriver and use the rubber mallet to tap the spindle assembly onto the strut until fully seated. Ensure the pinch bolt passes through the hole in the retention tab. Properly torque the bolt to the specifications found in the vehicle repair manual.
3. For strut applications with double lower mounting bolts (such as those represented in Figure D), align the knuckle to the strut clevis and install the bolts in the correct upper and lower positions as noted before removal. Connect the lower mounting nuts and bolts onto one another (see Figure D). Properly torque the nuts to the specifications found in the vehicle repair manual.

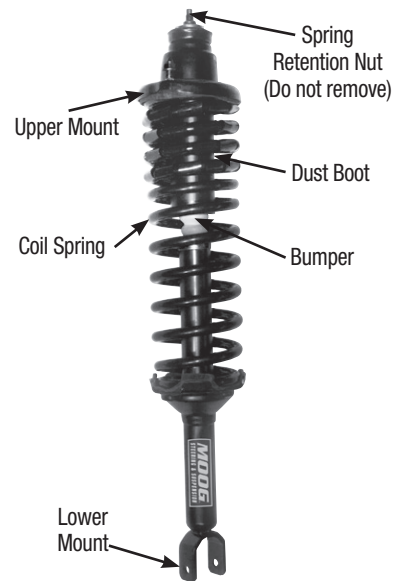
GENERAL INSTALLATION GUIDE

1. Re-install remaining items disconnected during the disassembly process. These may include (but are not limited to): brake hoses, stabilizer bar drop links, tie rods, and ABS (anti-lock braking system) connections. Torque bolts to specifications found in the vehicle repair manual.
2. Replace wheels and torque lug nuts to the manufacturer's specifications.
3. Lower the vehicle onto its wheels.
4. Tighten the upper strut mounting nuts to proper specification.
5. For coil over shock applications as in Figure B you must now torque the lower mounting bolt that was finger tightened (step 1 in above "Installation Instructions") to the proper torque specification.
6. Following reassembly of the vehicle, the wheel alignment should be checked and adjusted to manufacturer's specifications. If you are not trained to perform this operation, it is recommended that you have an alignment conducted by a professional automotive service facility.

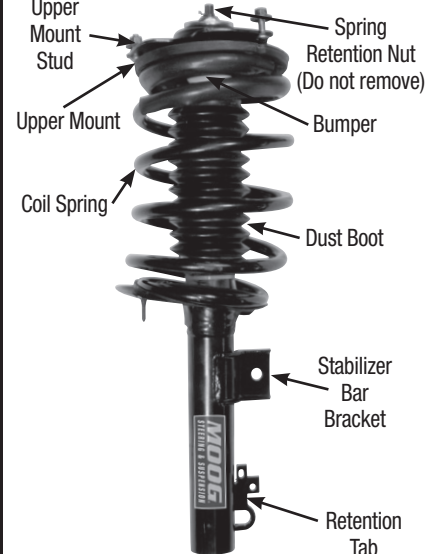
⚠ WARNING: IT IS MOST IMPORTANT NOT TO OVER-TIGHTEN ANY OF THE NUTS OR BOLTS ON THE VEHICLE. EXCESSIVE TORQUE WILL CAUSE DAMAGE TO THREADS OR THE BOLT/NUT ITSELF. EACH BOLT/NUT MUST BE TORQUED TO EXACT MANUFACTURER'S SPECIFICATIONS IN ORDER TO AVOID VOIDING WARRANTIES AND TO MAINTAIN A PROPERLY FUNCTIONING VEHICLE.

REFERENCE

SINGLE-BOLTED STRUT



SINGLE-BOLTED STRUT (PINCH BOLT)



DOUBLE-BOLTED STRUT

