

# SHOCK ABSORBER INSTALL MANUAL



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### 1. Before Damper Installation

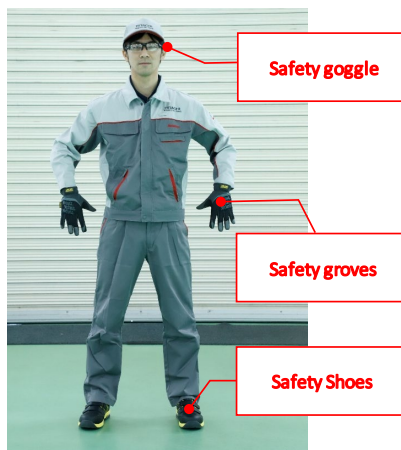
Every vehicle has different mounting design. When it comes to maintenance and repairs, always follow the vehicle's owner shop manual. Here is some safety precaution: keep work area clean, don't smoke or drink alcohol beverage also wear safety goggle to prevent any injury from happening. Please prevent from wearing necktie so it won't interfere while working on the car when disassembling or assembling shock absorbers. Before removing shock/strut please loosen the 2 or 3 upper mounting shaft nuts please do not loosen completely do this while the weight of vehicle is on the ground

### 2. Preferred Tools



STD Tool Box  
Rigid Rack  
Steering Holder  
Torque Wrench  
Camber Gage  
Spring Compressor  
Impact Wrench

### 3. For your safety



## 4. Suspension strut replacement procedure



Make sure vehicle is in park and emergency brake on



Raise the hoist a little to check that it is supporting the designated lifting points of vehicle correctly



Then lift the car up until the wheel leaves the ground

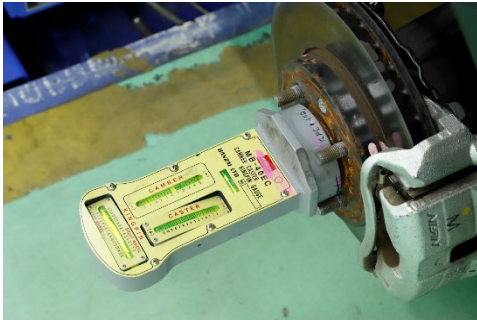


Using Steering wheel holder tool to prevent front tires from being steered





Remove the wheel



Check and record the camber angle before taking the suspension apart



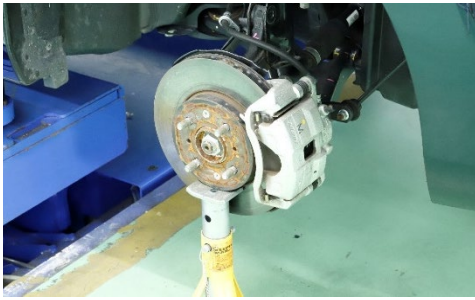
Insert the jack underneath to prevent the axle carrier from falling over. This will avoid any trouble with the driveshaft, wiring harnesses, or brake system



Remove all attached parts, such as the brake hose, sensors, and sway-bar, from the strut



After removing the brake hose and others, loosen the nuts and bolts that are holding the strut lower bracket



Once the strut knuckle bolts are removed, ensure that the steering knuckle and axle carrier are supported by the jack



After opening hood loosen center shaft nut and remove the upper strut mounts nuts



Pull out with the upper mount from the vehicle body, by shifting the strut assembly downward



After removing the center bearing dust cap of the upper strut mount, set the strut assembly between the top and bottom of the coil spring to the spring compressor equipment



Mark the location of how the mount was seated before compressing the spring. Now you can compress the coil spring until there is a room between coil spring and mounting.



After removing the center nut, pull the strut out from underneath and check the spring seat mount, dust boot, and bump rubber for cracks or fatigue

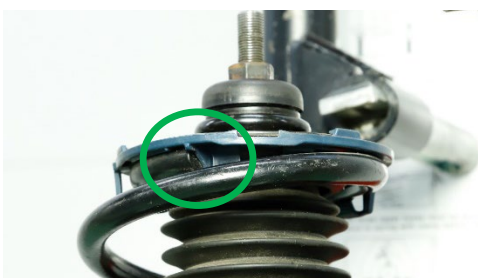


Perfect! There is no space between end of coil spring and seat rubber



This is typical wrong phase of Coil spring!!! Makes some noise.

Place new strut on holder of spring compressor equipment with correct phase of coil spring



Perfect! There is no space between end of coil spring and seat rubber



This is typical wrong phase of Coil spring!!! Makes some noise.

Make sure that there is no space between upper mount and end of rod at upper side as well





Fasten the center nut with the correct torque while holding the rod with appropriate tool



Reinstall the strut assembly into the vehicle in the reverse process. Torque control is always required when tightening bolt and nut



Tighten the nuts and bolts that are holding the strut lower bracket, just for temporary



Put all attached parts, such as the brake hose, sensors, and sway-bar to the strut with correct tightening torque



Depending on the vehicle, it might be required special tools to apply correct tightening torque



With adjusting to original camber angle, fasten the nuts and bolts that are holding the strut lower bracket with correct torque



Install tires and tighten the wheel nuts with correct torque while lowering the hoist until tires are fully grounded



Installation of suspension strut is complete. Finally, make sure that no bolts, nuts, or other parts are remaining

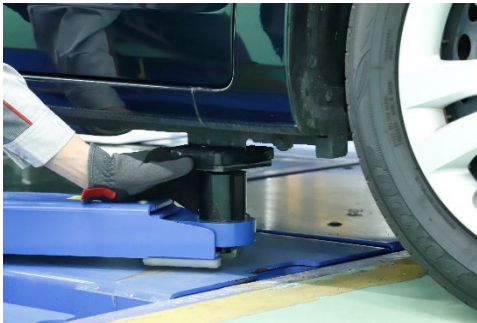
Once struts are installed, onto the vehicle always remember to get the vehicle alignment and or adjusted as soon as possible to prevent any damage to the tire or suspension from misalignment



## 5. Shock absorber replacement procedure



Make sure vehicle is in park and emergency brake on



Raise the hoist a little to check that it is supporting the designated lifting points of vehicle correctly



Then lift the car up until the wheel leaves the ground



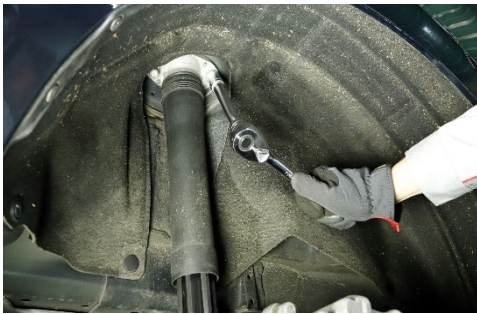
Remove the wheel



Insert the jack underneath rear axle carrier or lower arm



Loosen the lower nut and bolt on the shock absorber



Remove the nuts /bolts from the upper mount



Remove the shock absorber assembly from the axle carrier, by lifting the assembly with your hands, and then remove it from the vehicle



Loosen the shock absorber upper nut a while holding the flat face or hexagon hole on the top of rod with suitable tools



Check the structure for the correct direction of the upper mount, washer, collar, dust cover, and bump rubber, and then remove each part from the shock absorber. Make sure all parts have no damages or worn



Next, we are going to replace the shock absorber. Checking with if there are no dimensional differences compare to old one



Then, reassemble parts in the reverse order as they were attached. Then, reassemble parts in the reverse order as they were attached. Make sure that the upper mount and the lower bushing are facing in the right direction, then fasten the upper nut with a prescribed torque



Make sure all parts were assembled to shock absorber, even plastic top cap



Reinstall the shock absorber assembly in the reverse order. Tighten upper nuts /bolts with correct torque



After hand tighten the bolt and nut at bottom side of shock absorber, applying 1G force by lifting jack up, tightening them with correct torque





Install tires and tighten the wheel nuts with correct torque while lowering the hoist until tires are fully grounded



Installation of the shock absorber is complete. Finally, make sure that no bolts, nuts, or other parts are remaining

## 6. Checking and adjusting wheel alignment

Replacing the strut must be followed by wheel alignment. First, make sure that the working place is a flat and leveled. Before starting wheel alignment, please check the following 4 matters.



Move the vehicle back and forth to penetrate the replaced spring and the strut



Check the air pressure of all four tires



Ensure the ride height meets the specifications at each wheel

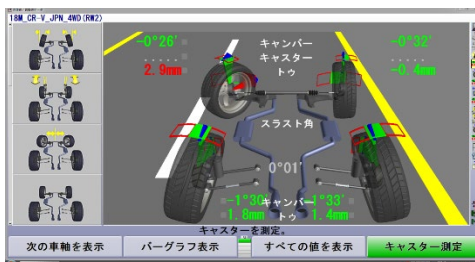
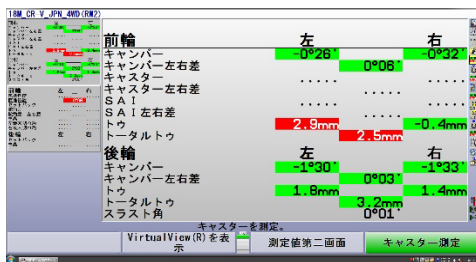


Make sure that the camber angle is correct with camber gauge

After these checks are completed, you can start checking wheel alignment at last.



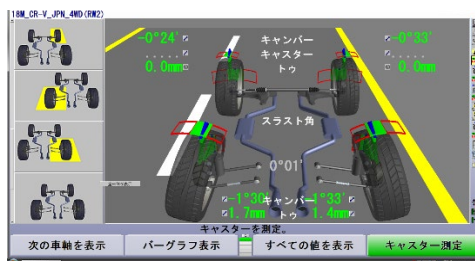
Now let's check the wheel alignment. Here is a typical computerized wheel alignment equipment to check the toe-in of each wheel



The wheel alignment equipment indicates that the left front wheel is toed-in strongly in this case. The left front wheel toe needs to be adjusted

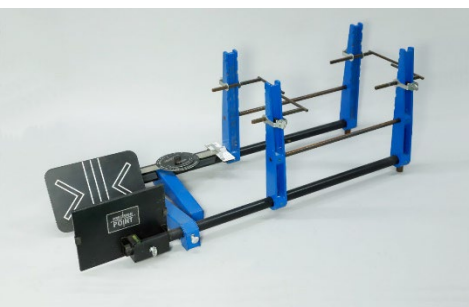
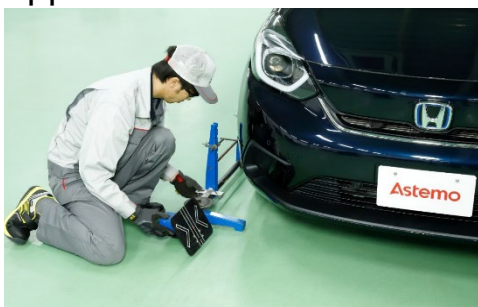


Adjust the toe-in with a tie rod on the front left wheel. First, loosen the locknut and turn the rack end. After adjusting, fasten the locknut with a right torque.



After adjusting the tie-rod, set computerized wheel alignment equipment again and measure the toe-in one more time. Make sure that the toe-in amount is within the correct range

## Appendix



Even if computerized wheel alignment equipment is not available, toe-in/out can be checked with a toe-in gauge or side-slip tester