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Koni Strut Installation Instructions (1979-04 Mustangs)

Read all instructions before beginning work. Following instructions in the proper sequence will ensure the best and easiest installation.

Instructions

1) Raise the front of the car and place it securely on jack stands. Remove both front wheels.

2) Place a floor jack underneath the driver side front control arm as close to the brake rotor as possible. Be sure that it is touching the control arm, so it will support the control arm when the strut is removed.

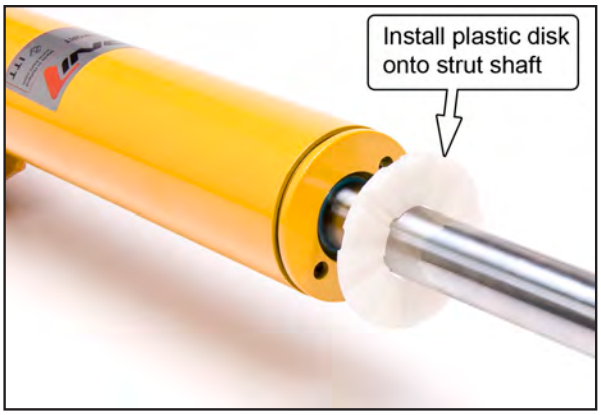
3) Loosen, but do not remove, the strut to spindle bolts on the driver side of the car. On cars equipped with ABS, first remove the ABS sensor wiring bracket from the strut to spindle bolts. These bolts require 21mm and 24mm sockets. The use of a single 2" to 3" long extension will improve access to the nut. Some cars require removal of the brake caliper and rotor to access the nuts. If removal of the brake caliper is required, take care to properly hang the caliper from the chassis with wire or a coat hanger, so there is no stress on the brake hose.

4) On the top of the strut tower, completely remove the strut nut and washer assembly. If removing a stock strut, this will require the use of a very large flat-blade screwdriver and a 24mm boxed end wrench, or a 24mm socket and an impact gun.

   NOTE: Pay particular attention to not let the coil spring come loose from the control arm, as this can cause serious injury, and/or damage the brake hose. Use the floor jack to support the control arm to prevent this.

5) Completely remove the strut to spindle bolts, then pull the strut down and remove it from the car.

6) Included with the struts are two white plastic disks. One must be placed onto each strut shaft before continuing. These disks prevent the bumpstops from damaging the seal at the top of the strut housing.



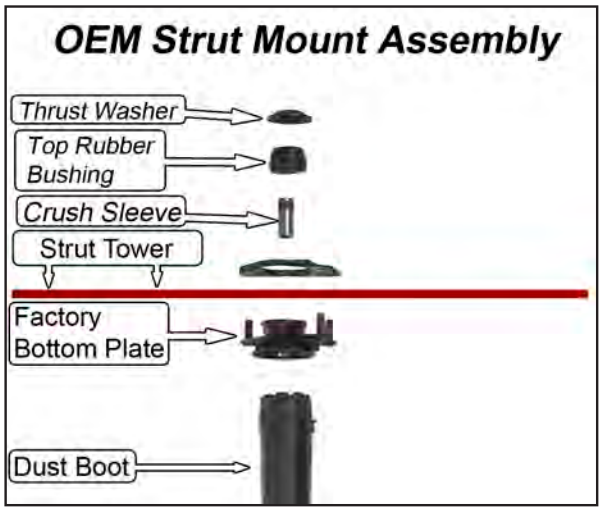
NOTE: If using a coil over conversion kit, install the coil over components onto the strut following the manufacturer's installation instructions

NOTE: If using the OEM strut mounts, transfer the OEM bumpstop and dust boot onto the Koni strut.

NOTE: If using or installing caster/camber plates, refer to the caster/camber plate instructions to determine the correct size and number of spacers to place on the strut shaft.

7) Place the strut up under the strut tower and into the upper strut mount or caster/camber plate.

   NOTE: If using the OEM strut mounts, slide the OEM crush sleeve over the top of the strut shaft. Then place the OEM top rubber bushing over the steel crush sleeve. Finally, place the OEM thrust washer over the strut shaft and install the retaining nut.



8) Thread on the strut shaft retaining nut.

9) Insert the strut to spindle bolts through the strut and spindle and install the nuts for both bolts.

10) Tighten the strut to spindle bolts to 155 ft-lbs using a 21mm socket and a 24mm wrench.

11) If the ABS sensor wiring bracket was removed, or the brake rotor and/or caliper, as noted in Step 3 above, reinstall them now.

12) Reinstall the wheel and torque the lug nuts to the manufacturer's specifications.

13) Repeat Steps 2-12 for the opposite side of the car.

14) Safely lower the vehicle to the ground

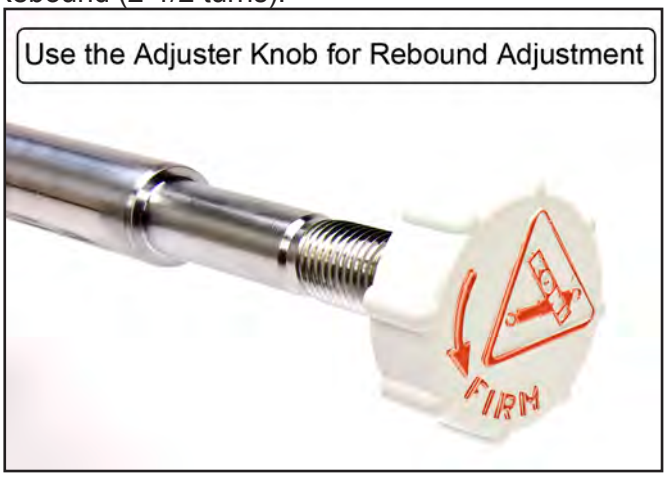
15) Tighten the strut shaft retaining nuts to 89 ft-lbs.

NOTE: Do NOT use an impact gun to tighten the retaining nut. The strut shaft is hollow and will easily break from over tightening the retaining nut.

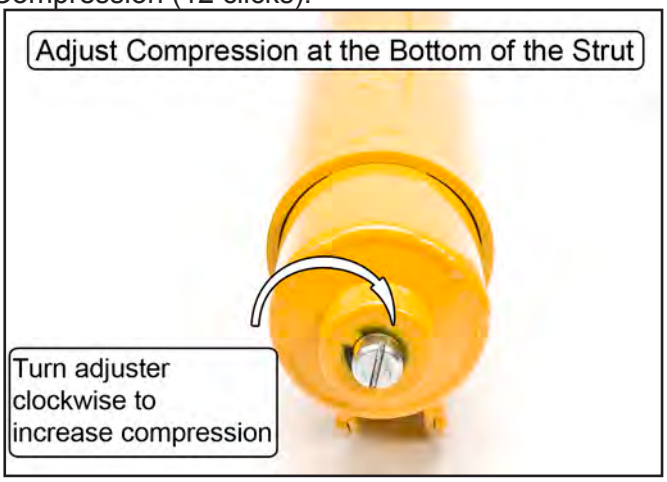
16) Have the front suspension professionally aligned. For alignment recommendations, refer to the MM caster/camber plate installation instructions, which are available on the MM website.

<u>Strut Adjustment</u> (if applicable)

Rebound (2-1/2 turns):



Compression (12 clicks):



SUGGESTED ADJUSTMENT PROCEDURE FOR ROAD COURSE USE

Adjusting the Compression (Bump) Damping Control

Bump damping controls the unsprung weight of the vehicle (wheels, axles, etc.). It controls the upward movement of the suspension such as hitting a bump in the track. It should not be used to control the downward movement of the vehicle when it encounters dips. Also, it should not be used to control roll or bottoming.

Depending on the vehicle, the ideal bump setting can occur at any point within the adjustment range. This setting will be reached when "side-hop" or "walking" in a bumpy turn is minimal and the ride is not uncomfortably harsh. At any point other than this ideal setting, the "side-hopping' condition will be more pronounced and the ride may be too harsh.

Step 1: Set all four dampers on minimum bump and minimum rebound settings.

Step 2: Drive one or two laps to get the feel of the car. NOTE: When driving the car during the bump adjustment phase, disregard body lean or roll and concentrate solely on how the car feels over bumps. Also, try to notice if the car "walks" or "side-hops" on a rough turn.

Step 3: Increase bump adjustment clockwise 3 clicks on all four dampers. Drive the car one or two laps. Repeat this step until a point is reached where the car starts to feel hard over bumpy surfaces.

Step 4: Back off the bump adjustment two clicks. The bump control is now set. NOTE: The back off point will likely be reached sooner on one end of the vehicle than the other.If this occurs, keep increasing the bump on the soft end until it too feels too hard. Then back that side off two clicks. The bump control is now set.

Adjusting the Rebound Damping Control

Once you have found what you feel to be the best bump setting on all four wheels, you are now ready to proceed with adjusting the rebound damping.

The rebound damping controls the transitional roll (lean) as when entering a turn. It does not limit the total amount of roll; it does limit how fast this total roll angle is achieved. How much the vehicle actually leans is determined by other things such as spring rate, sway bars, roll center heights, etc.

It should be noted that too much rebound damping on either end of the vehicle will cause an initial loss of lateral acceleration (cornering power) at that end which will cause the vehicle to oversteer or understeer excessively when entering a turn. Too much rebound control in relation to spring rate will cause a condition known as "jacking down." This is a condition where, after hitting a bump and compressing the spring, the damper does not allow the spring to return to a neutral position before the next bump is encountered. This repeats with each subsequent bump until the car is actually lowered onto the bump stops. Contact with the bump stops causes a drastic increase in roll stiffness. If this condition occurs on the front, the car will understeer; if it occurs on the rear, the car will oversteer.

Step 1: With the rebound set on full soft and the bump control set from your testing, drive the car one or two laps, paying attention to how the car rolls when entering a turn.

Step 2: Increase rebound damping three sweeps or 3/4 of a turn on all four dampers and drive the car one or two laps. Repeat this step until the car enters the turns smoothly (no drastic attitude changes) and with out leaning excessively. Any increase in the rebound stiffness beyond this point is unnecessary and may in fact be detrimental.

EXCEPTION: It may be desirable to have a car that assumes an oversteering or understeering attitude when entering a turn. This preference, of course, will vary from one driver to another depending on the individual driving style.

SUGGESTED ADJUSTMENT PROCEDURE FOR DRAG RACING USE

Step 1: Prior to testing make certain that wheelie bars are raised as high as possible while maintaining control and eliminating their influence as much as possible on damper settings. Also install a tie-wrap to the chrome rod of the shock and push down to where it touches the top of the body.

Step 2: Place all damping controls on minimum. Make a pass in first and second gears in order to determine that the car goes straight. If not, the alignment, tire pressures, etc. should be checked and corrected before proceeding any further.

Pay close attention to what occurs during gear change. If the car wheel stands or bounces violently, you should adjust the front dampers first and then the rears. However, if there is rear tire shake, wheel hop or excessive body separation, adjust the rear shocks first and then the fronts.

Check also where the tie-wrap ends up after launch. If it is buried into the bumpstop, the spring rate may either be too soft, the vehicle set too low or the bumpstop may need to be trimmed (up to 1").

Step 3: Front Damper Adjustment Procedure

Pay close attention to what is happening to the front end during launch and the first gear change. Your goal is to eliminate all jerking and/or bouncing movements so as to obtain smooth transitions at all times.

Too Light of a damper setting allows violent chassis separation and may even result in jerking the front wheels off the ground during initial launch. Too light a setting also allows the car, during gear change, to bounce off its front rebound travel limiter and then bottom out in a continually oscillating manner.

Too Firm of a damper setting will prevent the tires from easily lifting off the ground and thus providing sufficient weight transfer. During a gear change a firm setting will also cause the chassis to bounce off the tire when the chassis settles down.

Adjust the damper by increasing the rebound damping in 1/4 turn (90 degrees) increments until a smooth transition from launch through gear change has been achieved. If double adjustable KONI's are used, adjust the bump damping in 3 click increments to control the amount and the rate at which the front end settles during gear change. Watch your ET's and, if your times start to get slower, back off the rebound adjustment by 1/4 turn and the bump adjustment by 2 clicks.

Step 4: Rear Damper Adjustment Procedure

You should pay close attention to the rear of the car as your goal is to damp the tire movements as firm as the track conditions permit. Remember that the damper controls the amount and the rate of weight transfer to the tire.

Too Light of a damper setting allows excessive separation between the body and the tire.

Too Firm of a damper setting allows high tire shock and causes extreme flattening of the tire.

Adjust the rear damper in 1/4 turn (90 degrees) increments of rebound adjustment and, if KONI double adjustable dampers are used, increase the bump adjuster by 3 clicks for each pass. Watch your ET's and if your times start to get slower, reduce the amount of adjustment by 1/4 turn of rebound adjustment and 2 clicks of bump adjustment.

Step 5: When all adjustments have been completed, reset your wheelie bars as low as possible without hurting your ET's. Once you have completed this procedure, only fine adjustments may be needed in the future due to varying track conditions.