

## 1979-93 Mustang: Swapping to the 1994-04 Spindles

Swapping the original spindles of a 1979-93 Mustang for one of the 1994-04 spindles can lead to improved performance.

### Benefits

- Brake upgrade: Your choice of either the 1994-04 GT or Cobra brakes, or the **big brake kits** offered by [StopTech](#), [Wilwood](#), and [Brembo](#).
- Conversion to **5-lug**.
- Possible to increase **bump travel** for lowered Fox chassis Mustangs (fitted with Fox chassis struts) because the strut mounting ear on the 1994-04 spindles is about one inch closer to the ground than the ear on a Fox chassis spindle. When installed on a Fox Mustang, a 1994-04 spindle moves the strut housing down, pulling the upper strut shaft out of the housing. This increases the amount of bump travel available, over that provided by the Fox spindle, by 1.14" (29mm).

While swapping the SN95 spindles onto a Fox chassis Mustang is not overly difficult, there are quite a number of **things that must be considered**.

- **Decision** must be made between using the **1994-95** spindle or the **1996-04** spindle. The **best choice depends** on whether a stock K-member or a Maximum Motorsports K-member is used.
- **Do not install a 1996-04 spindle on a 1979-93 Mustang fitted with a stock-geometry k-member!** Doing so will significantly increase **bumpsteer** because...
  - The steering arm on the 1996-04 spindle is about 1.02" (**26mm**) **lower** (relative to the rest of the spindle) than the steering arm of any 1979-95 spindle.
  - The lower steering arm forces the outer tie-rod end to a lower position.
  - That new position is far **too low** for the steering rack location of any 1979-93 Mustang, and **radically changes the steering geometry**.
  - It is **impossible to correct** the geometry with a bumpsteer kit because the outer tie-rod end needs to be raised so much that it would have to occupy the same physical space as the steering arm.
- **Stock** Fox chassis k-member, or an aftermarket k-member that **retains** the stock front control arm pivot point **vertical location**, should use a **1994-95** spindle. Doing so will **prevent insurmountable bumpsteer** problems.
- **1996-04** spindles are an **excellent choice** when using a [Maximum Motorsports K-Member](#) on a Fox chassis Mustang.
- **1996-04** spindle is a **better choice** than the 1994-95 spindle because the MM K-member **raises the pivot location** of the front control arms from the stock position. As far as the steering geometry goes, this has the same effect as if the rack was lowered by 1", relative to the control arm pivot points.
- Stack-up of required bumpsteer spacers would be about 0.96" less with the 1996-04 spindles, resulting in **less flexing** of the steering arm, which improves steering response.
- 1994-95 spindle on a Fox chassis will change the vertical location of the steering arm by only 0.060" (1.4mm). Assuming that the suspension geometry is otherwise unaltered, this will **not cause** a significant enough change in bumpsteer to require a bumpsteer kit for a typical street-driven Mustang. Correcting bumpsteer is recommended for any Mustang driven in competition.
- Ride height will not significantly change after mounting a 1994-95 spindle on a Fox chassis front control arm (spring in stock location).
- **1994-95** spindles will **increase** the front **track width** by 0.120" (**3.1mm**) **per side**.
- **1996-04** spindles will **increase** the front **track width** by 0.320" (**8.1mm**) **per side**.
- **Track width** increases will affect clearance between the tire and the fender. The dimension given for track width change assumes that camber is adjusted back to its setting prior to the spindle swap.
- 1994-04 spindles were designed for a car that has **longer front control arms** than those of a Fox chassis Mustang. When installed on a 1987-93 Mustang with Fox length control arms, they will cause the **camber setting to immediately become more positive**: by 1.7 degrees with the 1994-95 spindle, and 1.3 degrees with the 1996-04 spindle. This happens because the bottom of the spindle, where the ball joint attaches, is **pulled inboard** nearly 3/4" by the shorter Fox control arm, from where it would be located with a 1994-04 length control arm and k-member.
- The increased camber adjustability provided by [Maximum Motorsports Caster/Camber Plates](#) will allow **proper alignment** for a street-driven car.

- To gain **additional negative camber**, as needed for a competition car, there are several options: One mounting hole in each strut can be slotted horizontally, allowing the top of the spindle to be tipped inboard, causing more negative camber; new mounting holes may be drilled in the strut tower, to allow moving the Caster/Camber Plate assembly inboard; or the longer 1994-04 front control arms may be installed.
- Tapered angle of the ball joint stud was unchanged, allowing installation of **1994-04 spindles with 1979-93 ball joints**.
- Spacer or stack of washers totaling **0.33" thick** must be installed on the tapered stud of a **1979-93** ball joint, between the top of the spindle mounting boss and the ball joint retaining nut. Without this spacer, the nut will **bottom out** on the ball joint's threads before it properly tightens the tapered stud to the spindle.
- Spacer will negate the locking feature of the ball joint retaining nut. Use thread-locking compound on the threads to secure the nut.
- **Spacer is not required** when using **any** of the [Maximum Motorsports tubular front control arms](#) because all Maximum Motorsports front control arms, for both the Fox and SN95 applications, are fitted with the shorter, low-friction 1994-04 ball joints.
- Installed caster/camber plate strut shaft spacer arrangement may need to be altered to ensure that enough droop travel is present. That adjustment may be necessary because the 1994-04 spindles move the strut housing downwards, which in turn extends the strut shaft out of the housing by an additional 1.140" (29mm). Proper **droop travel** must be confirmed.
- Steering arms on all 1994-04 spindles move the hole for the outer tie-rod end forward and outward, compared to a Fox spindle. This requires adjustment of the toe setting as part of a spindle swap.
- Front brakes that fit the 1994-04 spindles, whether Ford or aftermarket, were intended for use with rear disc brakes, not rear drum brakes. To maintain proper brake balance, when swapping to 1994-04 spindles you should also install rear disc brakes that match your chosen front brakes.
- If you purchase spindles from a salvage yard, take care to **properly identify** them yourself. Many salvage yards assume that all SN95 (1994-04) spindles are the same. They may confuse the 1994-95 spindles with the 1996-04 spindles. If you are not careful to identify the spindles, you may not get the ones you want. The different steering arms make [visual identification](#) of spindles very easy.

For more info about the various SN95 spindles:

[1996-04 Spindles](#)

[1994-95 Spindles](#)

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