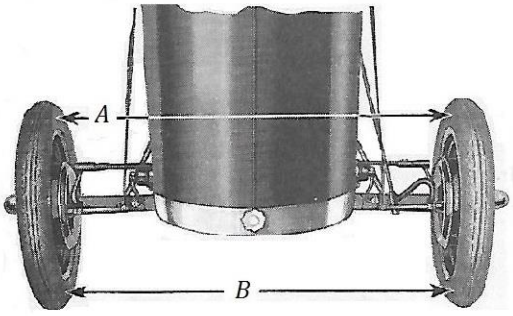
Model A Ford
Front End Alignment

By Willie Priaulx June 2020

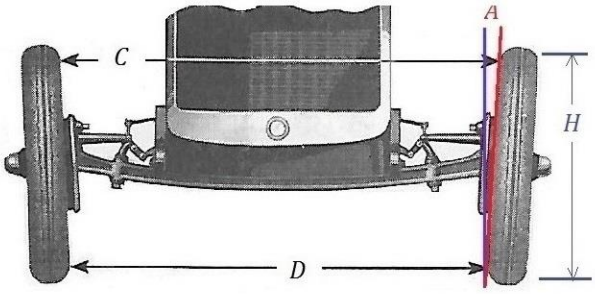
Model A Ford
Front End Alignment Specs

Toe-In - 1/16" +- 1/32"
Camber Angle = + 2 degrees
Caster = + 5 degrees

Toe-in = A - B



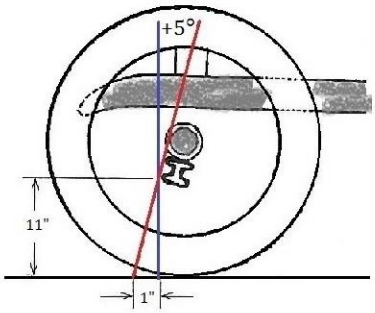
Camber length = C - D
Front wheels should have a Camber of approximately 1 13/16".



With a camber length of 1 13/16", and height (H) of 26" then

Camber Angle (A) = 2 degrees.

Caster = 5 degrees.



Toe-In

Always service and tighten loose front wheel bearings before taking the toe-in measurement.

The toe setup on a car significantly impacts its turning performance. Excessive toe-in can make a car feel very 'Darty'. Toe-out will make a car respond lazily to steering input. Both conditions accelerate tire wear. Like most good things in life, the key is balance.

To adjust the toe, loosen the two tie-rod end clamps, then turn the tie-rod in or out until the correct adjustment is obtained. The tie-rod has right-hand thread on one end and left-hand thread on the other to facilitate this adjustment.

When the correct toe-in is obtained, tighten the two tie-rod clamping bolts and replace the cotter pins.

Camber

The camber angle identifies how far the tire slants away from vertical when viewed directly from the front. Camber is said to be positive when the top leans away from the center of the vehicle.

A benefit of positive camber is added straight line stability to give ease and certainty of steering. Negative camber, used on race cars, presents more tread to the road in a turn but sacrifices both straight line stability and tire wear.

Caster

Picture the front wheels on your shopping cart. The contact point of the caster wheel falls significantly behind the steering axis. This rearward placement (positive caster) makes the wheel trail along steadily.

A positive caster angle will make the wheels straighten out quickly following a turn. Too much caster makes the car steer hard and is conducive to shimmy. Negative or no caster will make the car feel unstable when you attempt to drive in a straight line.

Front End Alignment Procedure

Camber and Caster on the Model A are typically not adjustable. After 90 years of bad roads and pot-holes our only option is to 'repair or replace' worn, and damaged parts. When checking the front end, it is probably more significant that your measurements are the same from left to right than being a bit out of spec. A large discrepancy right to left could indicate a bent axle affecting all alignment specs.

Steps

✓ Camber (+2 degrees)

L	R

Camber is synonymous with the kingpin angle.

Jack the front of the car up just enough to raise both the front wheels off the ground.

✓ Check Front Wheel Bearings on both sides to make sure they are not loose.

✓ Check the king pin Bushings on both sides for excess play.

Lower the car back on its wheels. (On plastic bags)

✓ Caster (+ 5 degrees)

L	R

The caster is maintained by the front radius rod.

✓ Check to see the radius ball holder is correctly installed and has no play.

Check for play in the steering mechanism.

✓ Steering Shaft - 1 to 2 inch free play in steering wheel is normal.

✓ Pitman shaft bushing – No lateral play.

✓ Pitman Arm – tight

Ball Joints – tight & lubricated

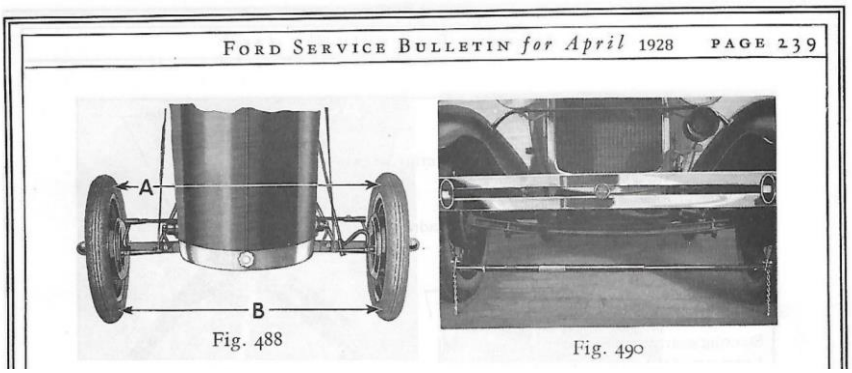
✓ Tie Rod ✓ Drag Link

Finally, check and adjust Toe-In to 1/16"

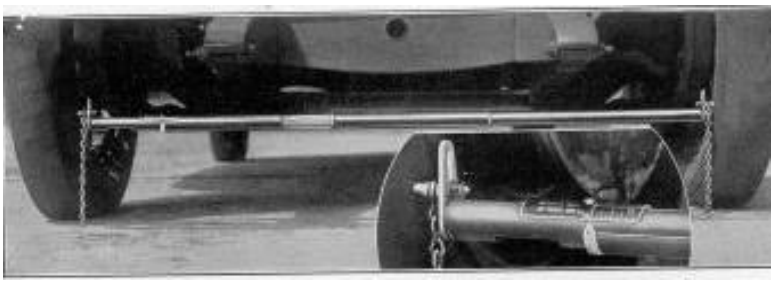
To adjust the toe, loosen the two tie-rod end clamps, then turn the tie-rod in or out until the correct adjustment is obtained. The tie-rod has right-hand thread on one end and left-hand thread on the other to facilitate this adjustment. Plastic bags placed under the tires will allow them to slip easier during adjustment. When the correct toe-in is obtained, tighten the two tie-rod clamping bolts and replace the cotter pins.

Tools

The Wheel Alignment Gauge is shown in the Ford Service Bulletin for April, 1928.



This gauge was manufactured by Duby-Manley and distributed by K. R. Wilson, Buffalo, NY.



In 1948 the tool was acquired by Wheel-A-Matic, Hooksett, NH.

It is still being made by them today.

Distributed by S & G Tool Aid Corp, and available for sale at Amazon.com.

Amazon.com/Duby-Wheel-Aligning-Gage

Camber/Castor Gauge

A nice tool for measuring both camber and caster is this Adjustable Magnetic Camber/Castor Gauge. Available at Amazon for around $15.00

The magnet can be stuck directly on the front axle to measure Castor.

I fashioned a plywood jig to bridge the hub cap and measure the front wheel for Camber angle. A metal plate is used to affix the magnet.

Note: The one pictured is adjustable for both 19” and 21” wheels.