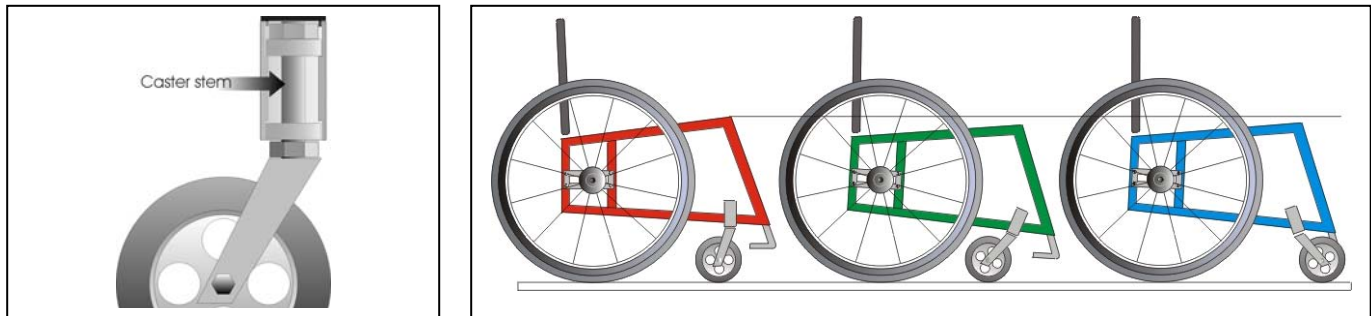


Caster Stem Adjustment

Caster stems that are not vertical cause a number of problems. If the stem leans forwards at the top (middle diagram) the chair is difficult to turn and the knees are lower wheeling forwards than when wheeling backwards. If the stem is leaning backwards at the top, the chair is difficult to keep in a straight line and the knees raise up higher when rolling forwards. Also whenever the wheeler stops the chair will roll backwards a little.



Changes that can affect caster stem angle include:-

Rear wheels

- Changing wheel size
- Significantly changing camber
- Moving up or down on camber plate to change seat angle

Casters

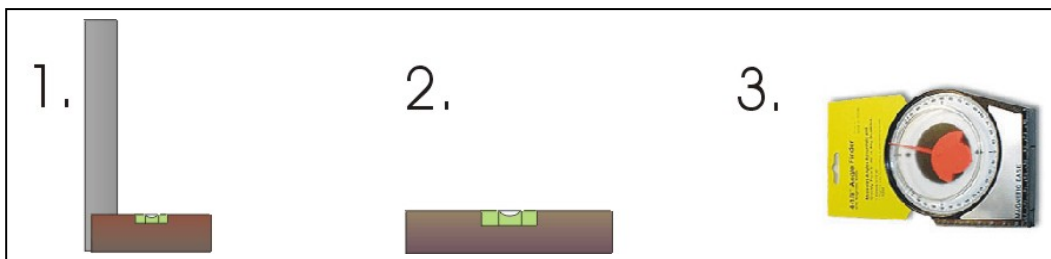
- Changing fork or wheel
- Hitting an obstacle

Caster stems must be kept as vertical as possible. Some chairs do not allow any angle adjustment, relying on different length fork and caster wheel size to keep the stem vertical. Of the chairs that do allow for angle adjustment there are a number of different ways of accomplishing the task. There are also a number of different ways to test if the stem is vertical.

Tools

All methods of measuring caster stem angle require that the floor is flat and level. Then a reference point on the caster fork and or stem housing is compared to see if it is either perpendicular or parallel to the floor.

Tools commonly used include:-

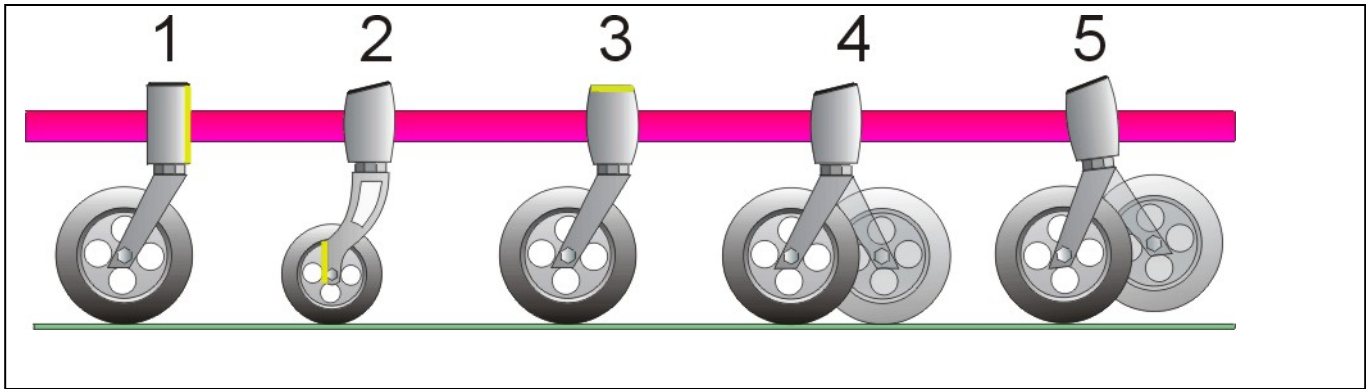


1. Tri square
2. Spirit level
3. Angle finder

This is not an exhaustive list; there are other tools that can be used to indicate the angle of the stem relative to the ground.

Measuring

- Ensure the chair is on level ground.
- Identify a surface on the caster stem or caster fork that is either parallel or perpendicular to the stem.
- Measure the deviation from vertical or horizontal.
- Repeat for the other side.



Example 1 – The caster housing should be vertical.

Example 2 – The trailing edge of the fork should be vertical.

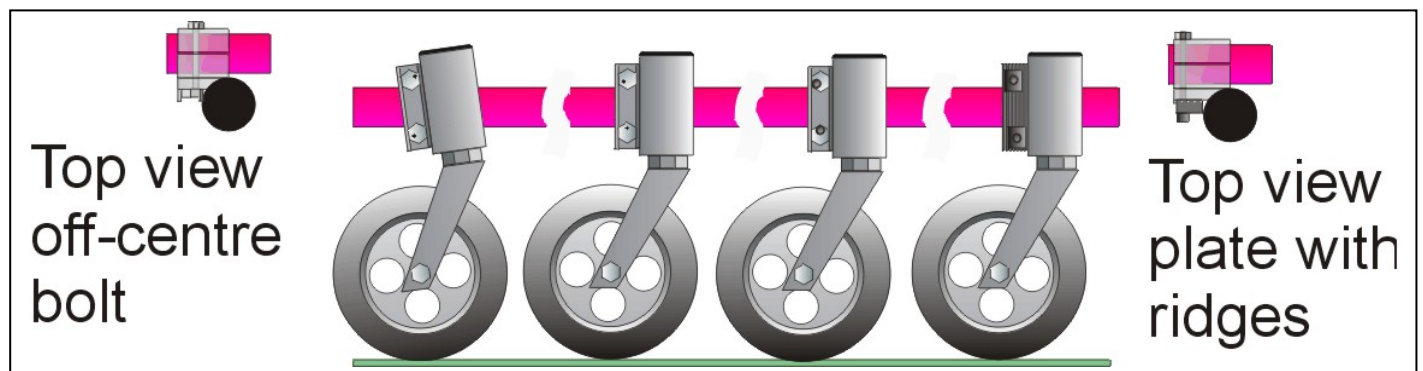
Example 3 – The top of the caster housing should be horizontal.

Example 4 & 5 – When there are no obvious horizontals or verticals; rotating the caster 180 degrees from the trailing to the leading position is an easy way to tell if the stem is vertical. The caster wheel should always be just touching the surface. If the stem is not vertical the wheel will lift or the front of the chair will rise up. (5)

Adjusting

The exact method of adjusting caster stem angle varies depending on the particular model.

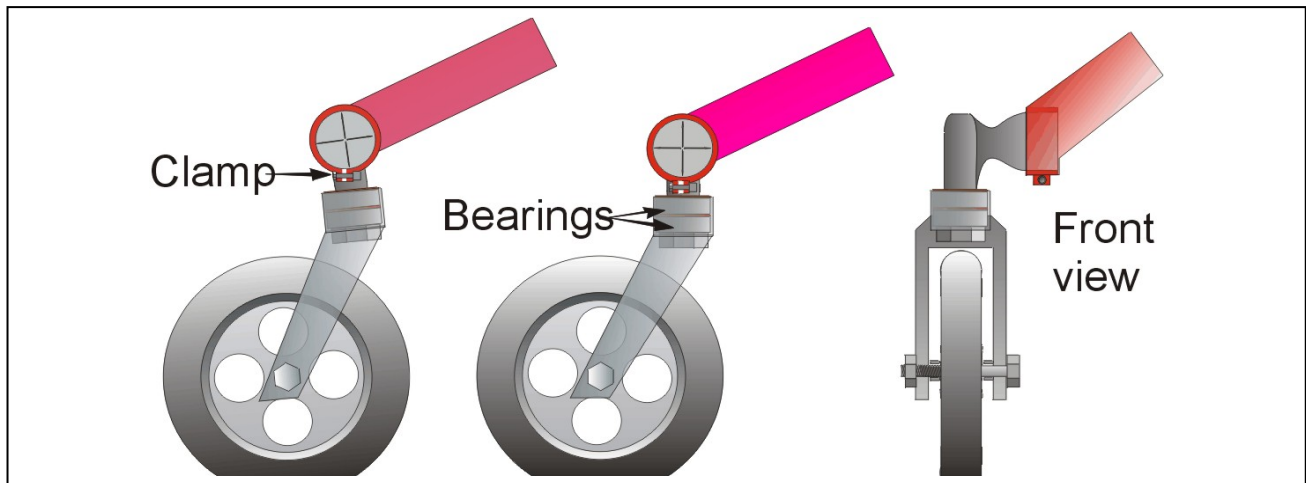
Off centre bolt, washer, or ridged plate



Either a bolt with an off centre shaft, a washer with an off centre hole, or a plate with ridges is used to accomplish caster stem alignment.

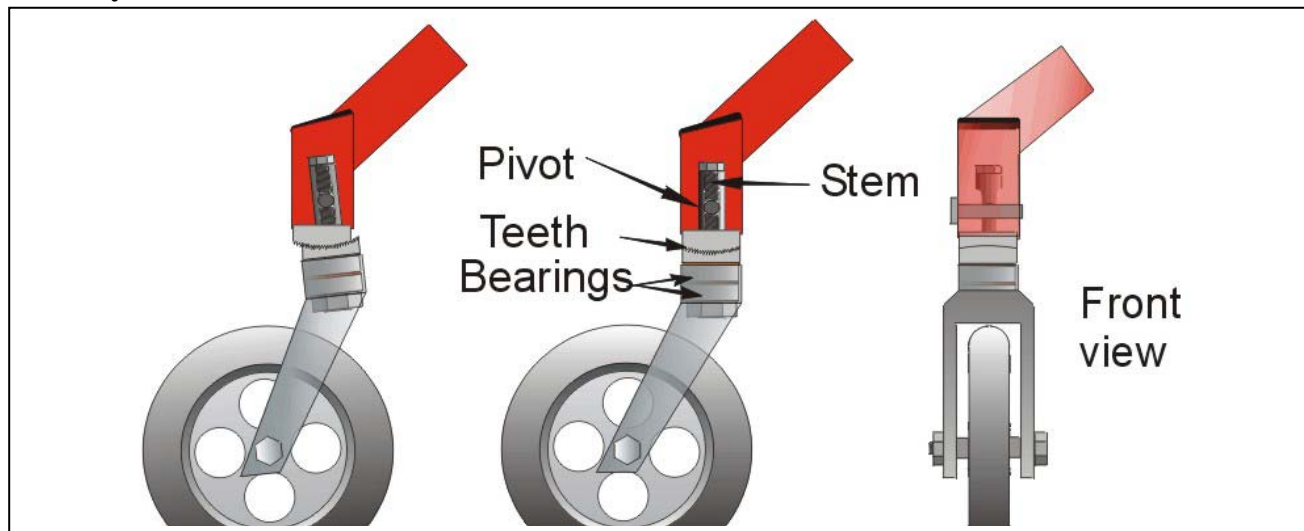
1. Loosen the nuts on the inside of the caster stem mounting bracket.
2. Rotate the top and bottom bolts, washers or move the plates until the stem is as close to vertical as possible.
3. Tighten the nut and check the alignment.
4. Repeat on the other side

Clamp Style



1. Loosen the nut clamping the caster to the frame.
2. Rotate the caster assembly until the stem is vertical.
3. Tighten the nut and check the alignment.
4. Repeat for the other side.

Tooth Style



1. Remove the dust cap from the top of the caster stem housing.
2. Loosen the bolt sufficiently to let the teeth become disengaged from each other.
3. Rotate the caster assembly until the stem is vertical.
5. Tighten the nut and check the alignment.
4. Repeat for the other side.

There are other mechanisms by which the caster stems are adjusted. If you are ever in doubt as to how they work keep one side intact so you always have a reference to refer to for reassembly.