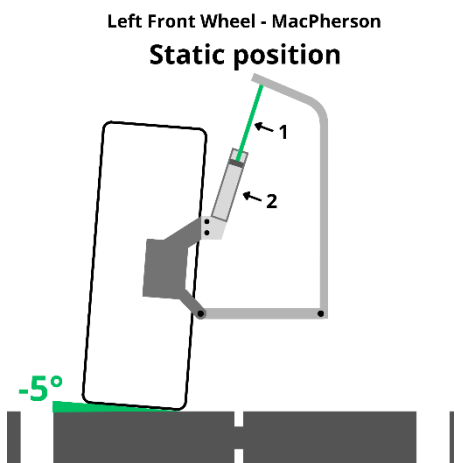


Upside-Down MacPherson

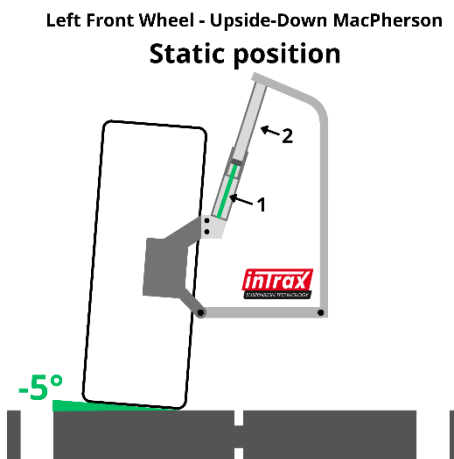
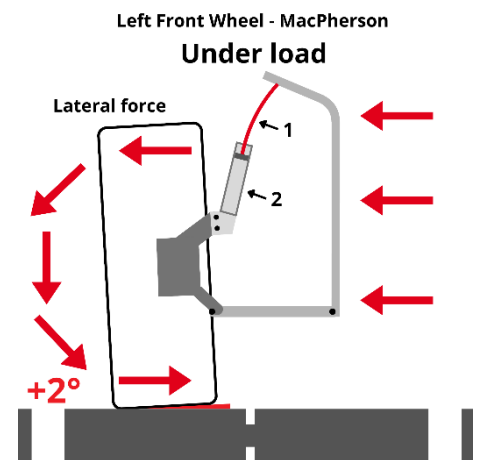
A MacPherson suspension is the most widely used solution for wheel suspension worldwide. The conventional variant consists of a tube (2) with the piston rod/spindle (1) inside. This construction is relatively simple, lightweight, and cost-effective, and it works well for standard applications. However, this design has a weak point: during cornering and under high loads, the piston rod bends. As a result, the damping process is disrupted, with the risk of deformation or even failure.

In a static position there seems to be little difference between a conventional and an Upside-Down MacPherson. The wheel remains in its fixed position, the forces are neutral, and the damper performs its basic function.

The difference becomes most apparent under load:



- Conventional MacPherson**
- Piston rod as load-bearing element
 - Rod bends under lateral forces
 - Damping process gets disturbed
 - Extra friction and risk of leakage
 - Deformation or breakage under high load
 - Significant camber change
 - Result: less precision, unpredictable handling, shorter lifespan



- Upside-Down MacPherson**
- Inverted design with outer tube
 - Outer tube absorbs lateral forces
 - Piston rod remains straight
 - Damping process stays pure and consistent
 - Minimal camber change
 - Result: predictable handling, higher reliability and more grip

