

Suspension of both front and rear axle

Task Description: Riding tractor

Tractor drivers undergo whole body vibrations on the road and on the field.

Comments of the employee:

- 'No comfortable sitting posture'
- 'Vibrations (seat, quality floor, hand/arm machinery...)'
- 'Opportunity to have a break or change activity'

MSD risks:

- Posture
- Duration
- Vibrations (whole body or hand/arm)

Exposed areas:

- Lower back

Solutions:

- JCB Fastrac

Both front axle and rear axle are suspended. They are connected to the frame with a parallelogram. The front axle (left) is damped by springs (3) and hydraulic shock dampers (4). A parallel construction of four rollers (1) positions the front axle in a horizontally and vertically direction. A Panhard rod (2) provide lateral stability and a stabilisation bar reduces torsion (5).

The rear axle (right) is damped by two hydraulic cylinders (4). Each cylinder is connected to two nitrogen accumulators (5). A height sensor (2) registers the position of the rear axle at the left and right side. When the volume of the accumulator decreases, the hydraulic systems automatically pumps oil in the cylinder, so the distance between frame and axle remains constant.

