

Exercise 6.1

Se tiene una carretilla elevada cuyos datos se dan a continuación:

Total mass	2965 kg
Load capacity (nominal load)	1500 kg
Maximum fork height (M_m)	3000 mm
Distance between axles (B)	1275 mm
Front overhang (O_f)	360 mm
Rear overhang (O_r)	220 mm
Distance between wheels (lateral)	880 mm
Dimension of the load	500x500x500 mm
Fork lift height	700 mm
Centre of the load	500 mm

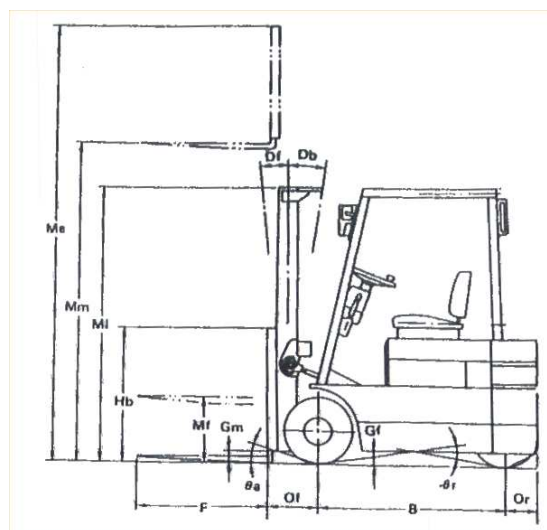


Figure 1

Weight distribution between axles	Front axle	Rear axle
Without load	1400	1565
With load	3915	550

1. Longitudinal position of the centre of gravity with and without load.
2. The stability test is carried out as shown in Figure 2. It is known that during this test the lift truck moves with constant speed. Analyse if the lift truck will be capable of passing the test (that is, if it doesn't rollover). ¿What effect would have if the load moves to the exterior of the forks 20 cm (in the front direction)?
3. The fork lift is travelling by a banked curve with a constant turn radius and constant speed in the direction shown in figure 3. If the turning radius is 20 m and the grade is 15 % calculate the maximum speed at which the fork lift could travel, in theory, without rolling over.

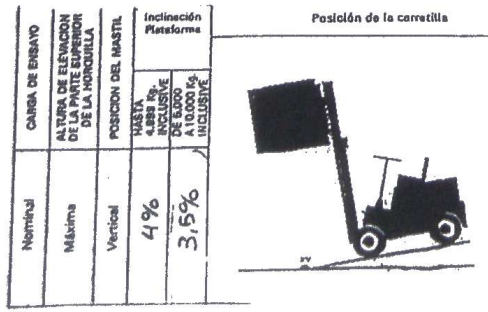


Figure 2

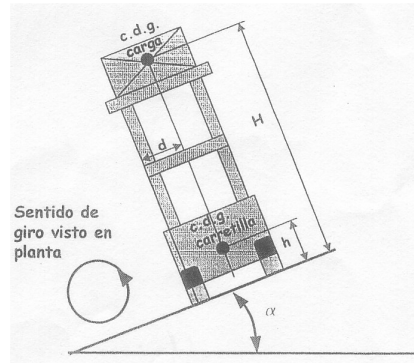


Figure 3