



Landing gear

An essential component that covers three core missions: supporting the aircraft, enabling it to move over the ground and cushioning impact on landing.

Significant data

Fixed system

Remains in position exposed to the air throughout the flight and is commonly used in small aircraft.

Retractable system

Once the aircraft takes off, the system retracts and is stored inside the aircraft.



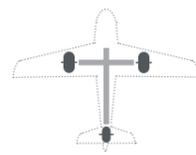
Location

The location of the landing gear with respect to the aircraft's centre of gravity is fundamental, since good performance on take-off and/or landing depends on this.



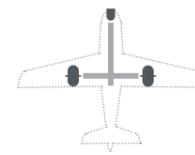
Conventional landing gear

Conventional landing gear consists of two main sets of landing gear at the height of the wings and a tail wheel, where the steering system is located.



Tricycle landing gear

On tricycle landing gear the main landing gear is under the wings (further back) and the steering system is located in the landing gear under the nose of the aircraft.



Shock absorption

The cushioning of the impact of the aircraft against the ground (runway) depends on various factors, such as:

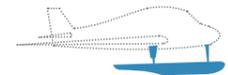
- Weight of the aircraft (including load)**
- Weight distribution with regard to the landing gear**
- Angle of impact**
- Vertical landing speed**
- Number of wheels and configuration**
- Tyre dimensions**
- Tyre pressure**
- Others**

Alternative landing gear



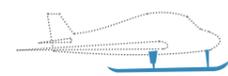
Wheeled landing gear

This is the most common type of landing gear. It is used for runways with hard consistent surfaces.



Floats

These are used to land on water and their use is common in countries with lakes and coastline.



Skis

For snowy or icy terrains.



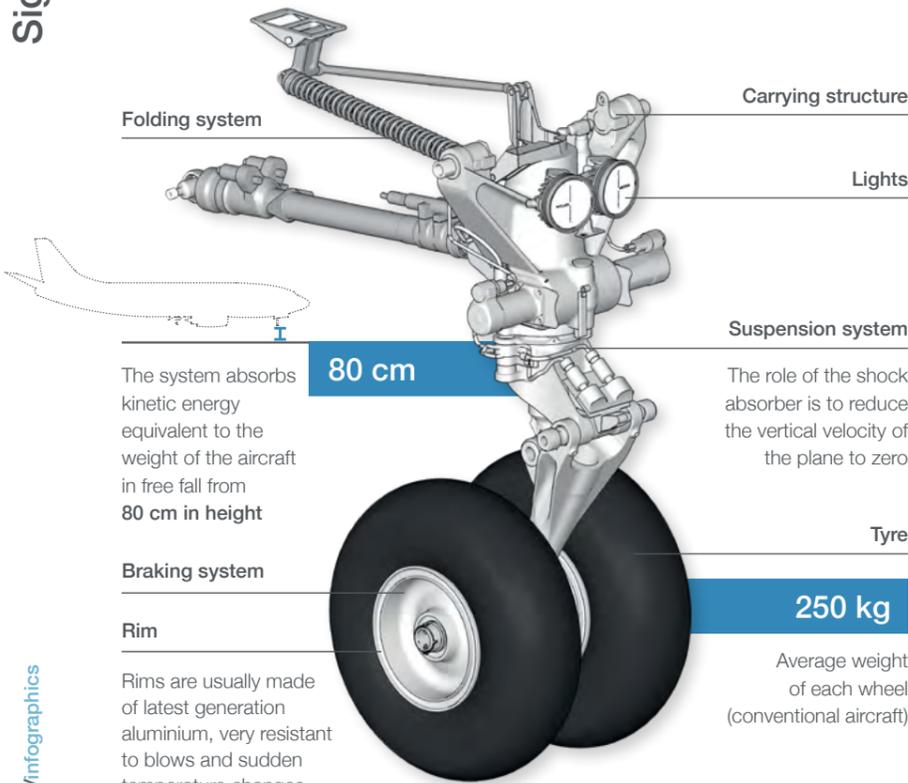
Caterpillar

The goal is to achieve a wide contact surface on soft runways (swampy areas, deserts, mud...).



Air-cushion

Used for very soft surfaces or mixed terrains in which the aircraft passes from one surface to another.



The system absorbs kinetic energy equivalent to the weight of the aircraft in free fall from 80 cm in height

The role of the shock absorber is to reduce the vertical velocity of the plane to zero

Braking system

Rim

Rims are usually made of latest generation aluminium, very resistant to blows and sudden temperature changes

Average weight of each wheel (conventional aircraft)

Curious facts

Did you know..?

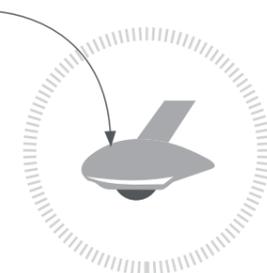
Aircraft tyres do not have an inner tube containing air. They are filled with dry nitrogen, an inert gas that is very slow to react, and neither burns nor freezes. This prevents tyres exploding on landing or as a result of the high temperatures of the runways.

The tyres are not usually the property of the airlines; they pay the manufacturer for periods of 400 cycles/landings (average useful life). Once the cycles have been completed, tyres are returned to the manufacturer for recycling.

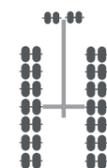
On landing, the tyres skid until their speed of rotation is equal to the speed of the plane. They go from 0 to 200 km/h in under 3 seconds, and from temperatures that are below freezing to over 100°C.



The **fairing** of fixed landing gear allows for better aerodynamics.



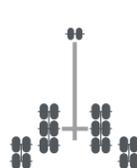
Landing gear of the best-known aircraft



Antonov An225



Lockheed Galaxy C5



Airbus A380



Boeing 747



Boeing 777



Airbus A400M



Airbus A350



Airbus A320



Boeing 737



ATR 72



Embraer EMB 145



Douglas DC3



Cessna 172 Skyhawk