

How does a gear malfunction affect a flight?

An undercarriage is an important part of the aircraft and it helps the plane to takeoff, land and maneuver on the ground. Undercarriage malfunctions can arise for many different reasons and result in a number of different problems. Depending on the stage of flight and nature of the problem the pilot may decide to reject takeoff, go around, return to an aerodrome of departure, make a low pass for a visual inspection from the Tower. Also the pilot may enter the holding area to assess the situation and try to solve the problem. In the worst case the pilot may decide to make a belly landing, actually it's a very difficult and dangerous situation, so the pilot will declare an emergency.

- **At what stages of flight does a pilot most often report a gear problem?**

Most frequently pilots report undercarriage problem during taxi operations, approach/landing and after departure because when the aircraft is in flight the wheels are moved up into the fuselage and not active. The crew extends and locks them shortly before the landing and retracts just when airborne.

- **What are the main reasons for gear malfunction?**

Undercarriage breakdown can arise/happen due to hydraulic and electrical system problems when pilots fail/are unable to retract or extend the gears. Tyres can burst during rough landing or aborted takeoff, also they may be damaged by different foreign objects and internal or external fire. Besides structural failure and mechanical defects may be the reasons for gear malfunction.

- **What are the consequences of a nose gear problem?**

Due to gear problems the aircraft may lose braking performance and may overrun the RW threshold or skid off the RW which can lead to a collision with other aircraft or different facilities on the ground. And the aircraft can catch fire and block the RW.

- **How can pilots get to know about a gear problem?**

Pilots have indicator lights in the flight deck. Green lights show that gear is down and locked and a red light indicates a wrong gear position.

- **What procedures may pilots request to investigate the problem?**

To investigate the problem pilots may request low pass, touch and go, go around or a holding procedure.

- **What are usual intentions and requests in case of gear problem?**

The crew may request to observe gear from the ground, time to assess and understand the exact nature of the problem. Depending on it the pilot may decide to extend gears manually and make landing with slow approach. He may need a towing equipment. In critical situations the crew will perform a belly landing or ditching with emergency passengers evacuation.

- **How can a controller assist a flight with a landing gear problem?**

A controller should act in accordance with the Euro-control principle to ASSIST:

A - acknowledge the gear problem, ask for the crews' intentions, and determine if the crew is able to extend the gear into locked position

S - separate the aircraft from other traffic, provide priority for landing

S – impose radio silence if necessary

I - inform the supervisor, airport emergency services and all concerned units

S - support the crew with any information (e.g. type of approach, runway length and aerodrome details, updated weather information, etc.)

T - give time for the crew to assess the situation, don't disturb him.

- **Why does a pilot request a controller to observe gears from the ground?**

It might be necessary to inspect visually the landing gear status/condition/configuration and position. Having such an information a pilot will be able to make a correct decision for his further actions.

- **What services are alerted in case of gear malfunction?**

According to the rules we alert the fire brigade/service, medical services, the ground staff, security and police, search and rescue team.

- **How is the RW prepared in such a situation?**

RW must be clear of any arriving , departing aircraft and from any other vehicles. To avoid severe damage to aircraft structure and fire the RW should be covered with a foam carpet/blanket if possible.

- **Have you ever had/heard of a situation connected with a landing gear problem?**

Yes, I had such situations in my experience. For example, once the crew of Boeng737 reported going around due to a gear trouble. They couldn't extend and lock a landing gear. It wasn't an emergency, it was a standard procedure, the pilot performed it as published. Later, during another hand approach the pilot reported the gear was down and locked, they had three greens. But they requested/would need a tractor to vacate the RW. Then I cleared the aircraft to land, landing was safe. Finally the ground staff towed the plane to the stand to disembark occupants. Fortunately, everything was OK with the passengers and the aircraft.