

Fixed and Retractable Landing Gear

- Many small, single-engine light aircraft have fixed landing gear, as do a few light twins.
- This means the gear is attached to the airframe and remains exposed to the slipstream as the aircraft is flown.
- As the speed of an aircraft increases, so does parasite drag. Mechanisms to retract and stow the landing gear to eliminate parasite drag add weight to the aircraft.
- On slow aircraft, the penalty of this added weight is not overcome by the reduction of drag, so fixed gear is used.
- As the speed of the aircraft increases, the drag caused by the landing gear becomes greater and a means to retract the gear to eliminate parasite drag is required, despite the weight of the mechanism.

- A great deal of the parasite drag caused by light aircraft landing gear can be reduced by building gear as aerodynamically as possible and by adding fairings or wheel pants to streamline the airflow past the protruding assemblies.
- A small, smooth profile to the oncoming wind greatly reduces landing gear parasite drag.
- The thin cross section of the spring steel struts combine with the fairings over the wheel and brake assemblies to raise performance of the fixed landing gear by keeping parasite drag to a minimum.

- Retractable landing gear stow in fuselage or wing compartments while in flight.
- Once in these wheel wells, gear are out of the slipstream and do not cause parasite drag.
- Most retractable gear have a close fitting panel attached to them that fairs with the aircraft skin when the gear is fully retracted.
- Other aircraft have separate doors that open, allowing the gear to enter or leave, and then close again.





