

A FLIGHT FROM THE LANDING GEAR'S PERSPECTIVE

By TTCF Staff



Understanding your Twin Cessna's landing gear is a key to safe flying as well as controlling your maintenance costs. Below is a description of how the electrical components of your landing gear behave during a typical flight. This pertains ONLY to the electro-mechanical landing gear found on Cessna 310's through 421B's. Moreover, there were system changes during the 310Q model run beginning with serial #401, so we've divided the article into two parts.

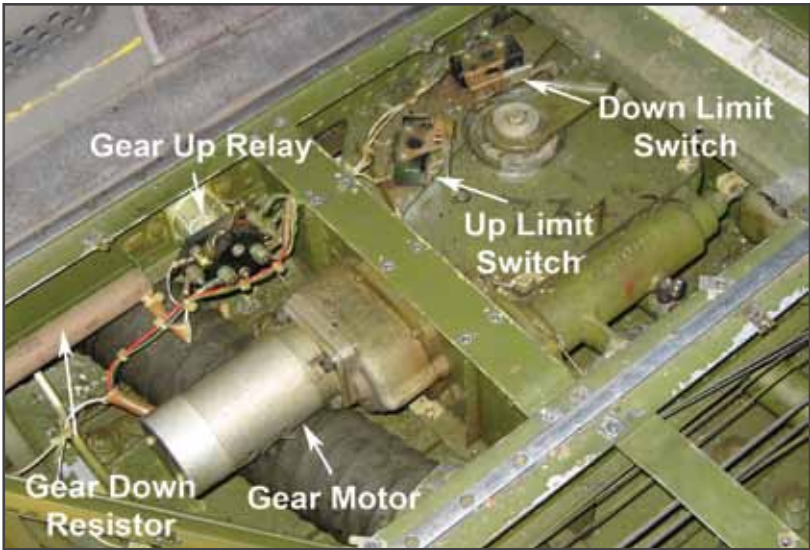
Next month, we'll publish a Troubleshooting Guide for diagnosing and solving landing gear problems.

CESSNA 310 THROUGH 310Q SERIAL #400

1. Starting out on the ground, gear down, the Green Light is on because all three Down Indicator Switches are closed due to the gear being fully extended. The Gear Motor is disabled because the Gear Safety Switch is open due to weight being on the gear.
2. At lift off, weight is taken off the gear allowing the Gear Safety Switch to close.
3. When the Gear Switch is moved to the UP position, power is supplied through the Up Limit Switch and

the Gear Safety Switch to the Gear Relay Coil, which closes the Gear Relay Contacts, energizing the Gear motor and causing it to run, retracting the gear. As the gear begins to retract, the Down Indicator Switches open and the Green Light goes out.

4. The Gear Motor runs until the Gear Actuator trips the Up Limit Switch. Power to the Gear Relay Coil and, in turn, the Gear Motor is shut off when the Up Limit Switch opens.
5. When the Gear Switch is moved to the DOWN position in preparation for landing, power is supplied through the Down Limit Switch to the Gear Motor, causing it to run, extending the gear. Power is shut off to the Red Light when the Up Limit



Landing gear motor and switch locations - (Cessna 340).

- Switch closes.
6. The Gear Motor runs until the Gear Actuator trips the Down Limit Switch. Power to the Gear Motor is shut off when the Down Limit Switch opens. All three Down Indicator Switches close when the gear reaches full extension and the Green Light comes on.
 7. When the landing is made, weight is on the gear, causing the Gear Safety Switch to open to prevent power from reaching the Gear Relay Coil.

Twin Cessna Flyer Electro-Mechanical Landing Gear Operation Cessna 310 through 310Q-400										
Landing Gear State	Landing Gear System Components									
	Gear Switch	Down Limit Switch	Up Limit Switch	Safety Switch	Relay Coil	Relay Contacts	Gear Motor	Nose, L&R Down Ind. Switches	Green Light	Red Light
On the Ground - Gear Down	Down	Open	Closed	Open	Off	Open	Off	All Closed	On	Off
Airborne - Gear Down	Down	Open	Closed	Closed	Off	Open	Off	All Closed	On	Off
Airborne - Gear Retracting	Up	Closed	Closed	Closed	On	Closed	Up	All Open - Retract Started	Off	Off
Airborne - Gear Up	Up	Closed	Open	Closed	Off	Open	Off	All Open	Off	On
Airborne - Gear Extending	Down	Closed	Open	Closed	On	Closed	Down	All Open - Until Extended	Off	Off

LANDING GEAR

CESSNA 310Q SERIAL #401 THROUGH THE 421B

- 1. Starting out on the ground, gear down, the Green Lights are on because all three Down Indicator Switches are closed due to the gear being fully extended. The Gear Motor is disabled because the Gear Safety Switch is open due to weight being on the gear.
- 2. At lift off, weight is taken off the gear, allowing the Gear Safety Switch to close.
- 3. When the Gear Switch is moved to the UP position, power is supplied through the Up Limit Switch and the Gear Safety Switch to the Gear Relay Coil, which closes the Gear Relay Contacts, energizing the Gear



A thorough understanding of your landing gear and knowing what the panel lights mean and how they operate will make your flying safer and troubleshooting easier.

- motor and causing it to run, retracting the gear. Power is also supplied to the Unlock Light, indicating the gear is in transit. As the gear begins to retract, all of the Down Indicator Switches open and the Green Light goes out.
- 4. The Gear Motor runs until the Gear Actuator trips the Up Limit Switch. Power to the Gear Relay Coil and, in turn, the Gear Motor is shut off when the Up Limit Switch opens. Power is also shut off to the Unlock Light.
 - 5. When the Gear Switch is moved to the DOWN position in preparation for landing, power is supplied through the Down Limit Switch to the Gear Motor, causing it to run, extending the gear. Power is also supplied to the Unlock Light.
 - 6. The Gear Motor runs until the Gear Actuator trips the Down Limit Switch. Power to the Gear Motor is shut off when the Down Limit Switch opens. Power is also shut off to the Unlock light. All three Down Indicator Switches close when the gear reaches full extension and the Green Lights come on.
 - 7. When the landing is made, weight is on the gear, causing the Gear Safety Switch to open to prevent power from reaching the Gear Relay Coil.

Twin Cessna Flyer Electro-Mechanical Landing Gear Operation Cessna 310Q-401 through 421B										
Landing Gear State	Landing Gear System Components									
	Gear Switch	Down Limit Switch	Up Limit Switch	Safety Switch	Relay Coil	Relay Contacts	Gear Motor	Nose, L&R Down Ind. Switches	Green Light	Red Light
On the Ground - Gear Down	Down	Open	Closed	Open	Off	Open	Off	All Closed	On	Off
Airborne - Gear Down	Down	Open	Closed	Closed	Off	Open	Off	All Closed	On	Off
Airborne - Gear Retracting	Up	Closed	Closed	Closed	On	Closed	Up	All Open - Retract Started	Off	On
Airborne - Gear Up	Up	Closed	Open	Closed	Off	Open	Off	All Open	Off	Off
Airborne - Gear Extending	Down	Closed	Closed	Closed	On	Closed	Down	All Open - Until Extended	Off	On