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 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.

(continued on page 8)
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 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.

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.

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**

<table>
<thead>
<tr>
<th>Landing Gear State</th>
<th>Gear Switch</th>
<th>Down Limit Switch</th>
<th>Up Limit Switch</th>
<th>Safety Switch</th>
<th>Relay Coil</th>
<th>Relay Contacts</th>
<th>Gear Motor</th>
<th>Nose, L&amp;R Down Ind. Switches</th>
<th>Green Light</th>
<th>Red Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the Ground - Gear Down</td>
<td>Down</td>
<td>Open</td>
<td>Closed</td>
<td>Open</td>
<td>Off</td>
<td>Open</td>
<td>Off</td>
<td>All Closed</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>Airborne - Gear Down</td>
<td>Down</td>
<td>Open</td>
<td>Closed</td>
<td>Closed</td>
<td>Off</td>
<td>Open</td>
<td>Off</td>
<td>All Closed</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>Airborne - Gear Retracting</td>
<td>Up</td>
<td>Closed</td>
<td>Closed</td>
<td>On</td>
<td>Closed</td>
<td>Up</td>
<td>All Open - Retract Started</td>
<td>Off</td>
<td>On</td>
<td></td>
</tr>
<tr>
<td>Airborne - Gear Up</td>
<td>Up</td>
<td>Closed</td>
<td>Open</td>
<td>Closed</td>
<td>Off</td>
<td>Open</td>
<td>Off</td>
<td>All Open</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>Airborne - Gear Extending</td>
<td>Down</td>
<td>Closed</td>
<td>Closed</td>
<td>Closed</td>
<td>Down</td>
<td>All Open - Until Extended</td>
<td>Off</td>
<td>On</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>