

Chapter Ten

Normally, this indicates that the gears are retracted if the gear switch is in the GEAR UP position. However, if the gear switch is in the GEAR DOWN position and you continue to have a red light, it is often difficult to know exactly what that means.

It could mean nothing at all has happened with the gear since you put the switch down, indicating a probable total system failure. It could also mean that the gear began to extend but one or more are not in the fully extended down-and-locked position. A major clue to the status of the gear is whether or not you had an aerodynamic change when you put the switch down. If not, it's likely none of the gear have moved. If there was an aerodynamic effect, then you have one or more landing gear that have failed to deploy and lock. That's a tough situation and a tough call. If possible, fly by a tower and have them take a look at your gear. And be very sure to follow the emergency procedure outlined in your aircraft POH.

The other side of the coin is forgetting to extend the gear on approach to landing. Landing gear systems incorporate lights and/or audible alarms that activate when you put the aircraft into landing configuration but fail to extend the gear. Generally the criteria for the alert to activate includes such things as reducing power below a specified manifold pressure and extending flaps into the landing setting. Your POH will fill you in on the details, but the important point to be made is that you should always use a checklist for every stage of a flight.

Forget the embarrassment of landing gear up; that's trivial. Consider the consequences. You will almost certainly damage the retracted landing gear; you will definitely ruin the belly paint and almost certainly cause structural damage to some part of the belly. You'll knock off all the belly-mounted antennas, and—worst of all—you'll stop the props, causing prop and crankshaft structural damage. Use your checklist!

TIRES

Kick the tires and light the fires is a half-joking expression that has carried over from the early days of flying. It does point out, however, that tires are an important preflight item, even to the devil-may-care aviator of old. Though dormant from takeoff to landing, aircraft tires can give ground operation a whole new meaning if they don't do their job correctly. They are designed to give a comfortable ride to both the airframe and passengers, to provide easy ground maneuvering, and to maximize braking.

Pilots usually don't think of tires as important control surfaces, but imagine a blowout on takeoff at 75 knots. The immediate and overwhelming loss of control could be devastating, yet tires probably are the most neglected part of the airframe preflight.

Anatomy of a Tire

There is a substantial difference between automotive and aircraft tires. As unlikely as it may seem, they are actually designed to meet almost opposite requirements. Automotive tires are required to run down a highway at high speeds for a long time, carrying a fairly heavy but constant load. As such, automotive tires require very little flex, called *deflection*, so the manufacturers design them for a continuous deflection of approximately 12–14%.