

The rules of the sky

Here's a passenger's guide to the regulations that make business aviation so safe.

by Meredith Saini

When you're sitting in the back of a business jet, you're entrusting the aircraft and its pilots to deliver you safely to your destination. One big reason you can count on them to do that is because Federal Aviation Regulations (FARs) govern your flight.

Thanks to those regulations, nearly everyone and everything involved in the life cycle of a flight must undergo rigorous initial and recurrent checkups. By comparison, consider that you probably haven't had to prove your aptitude as an automobile driver since earning your license, even if you've been behind the wheel for decades. And nobody forces you to take your car in for an oil change every 3,000 miles.

Most reputable fractional ownership companies, charter operators and corporate flight departments voluntarily exceed the safety standards set forth in the FARs, but what exactly are those standards? How frequently must an aircraft be inspected and what do the inspections cover? How much experience must your pilots have?

For answers to such questions, read on.

Standards for Aircraft

The FAA strictly regulates the design, manufacture and maintenance of commercially operated aircraft. Owners, operators and pilots are all accountable.

All aircraft used for commercial operation must be designed, manufactured and maintained to exacting standards. You'll find these standards in FAR Parts 23, 25, 27 and 29. Only when these standards are met does the FAA issue an airworthiness certificate, which must be displayed inside the cabin or cockpit. The certificate remains valid as long as the aircraft meets its approved type design and is maintained according to the guidelines in Parts 21, 43 and 91.

All aircraft must undergo a thorough annual inspection or be inspected according to a manufacturer-specified maintenance schedule. Part 43 specifies the items that this inspection must include, such as the surface of the airframe, flight controls, hoses and hydraulic lines, electrical wiring and switches, landing gear and tires, flight data sensors and cockpit instrumentation, engines and propellers, windows, seats and harnesses. Some operators conduct this inspection more frequently or in phases over several months.

If you own or operate an aircraft, you're responsible for ensuring that

maintenance is completed on time, but the pilot in command is ultimately accountable for verifying airworthiness before every flight. (The pilot in command of an aircraft is directly responsible for, and is the final authority as to, "the operation of that aircraft.") Pilots accomplish this by conducting a pre-flight inspection, which should include a review of maintenance records and flight logs and a scan of every plainly visible nook and cranny of the airplane for signs of damage or wear. On larger jets and turboprops, where engines and other critical parts aren't easily accessible, pilots rely on authorized maintenance technicians to conduct daily or weekly inspections.

Aircraft owners and operators must also comply with Airworthiness Directives (ADs) as defined in Part 39. The FAA issues an AD when it finds that an unsafe condition exists with an aircraft model or part and decides that the condition is likely to exist or develop in similar products. It publishes these notices as amendments to Part 39 and mails them to registered owners and operators of the affected aircraft.



Requirements for Pilots

Commercial pilots, including those on charter and fractional flights, must meet tough standards to be certified and must receive frequent training and medical exams.

All pilots are certificated according to the rules and procedures in Part 61. Commercial pilots, defined as those who fly for pay, must have 250 hours of flight time, including 100 as pilot in command. A commercial pilot must also have 50 hours of experience with flights that terminate more than 50 nautical miles from the departure point.

The commercial pilot certificate, however, doesn't qualify its holder to do much except tow "Will You Marry Me?" banners over a beach. To carry charter passengers, commercial pilots must have 1,200 hours of flying experience, including 500 hours of cross-country time, plus an instrument rating, which allows them to fly in clouds and reduced visibility.

To fly a chartered jet capable of carrying 10 or more passengers, a pilot must also obtain an airline transport pilot (ATP) certificate, which requires 1,500 flying hours, including 500 spent on cross-country flying, 250 as pilot in command, 100 hours of night flying and 75 of instrument flying. The FAA additionally says that candidates for the ATP certificate must be "of good moral character," for whatever that's worth.

Some companies—such as fractional ownership provider NetJets and its charter

arm Executive Jet Management—demand that their pilots have even more experience. NetJets captains must have 3,500 hours of flight time and other pilots must have 2,500 hours; double those numbers for those who fly internationally.

If an aircraft weighs more than 12,500 pounds or has a jet engine, its pilots need an aircraft type rating in that make and model. In other words, no matter how much experience a pilot has had flying your Citation X, he can't hop into the left seat of your Gulfstream V without first obtaining a type rating in the Gulfstream.

The FARs stipulate that all pilots must undergo recurrent training. Commercial pilots flying under Part 135 rules must pass a written exam and flight check every year, though many operators require their pilots to participate in additional activities, such as emergency-scenario training in a full-motion flight simulator.

Pilots must also periodically pass a medical exam administered by an FAA-approved physician. Most commercial pilots, including flight instructors, fly with a second-class medical, which is valid for two years, while ATPs need a first-class medical, which is valid for just six months. Though not required, some commercial and corporate pilots maintain a current

first-class medical. To receive any medical certificate, a pilot must pass hearing and vision tests and have no history of vertigo or blackouts. Pilots applying for a first-class medical certificate must also pass an

electrocardiogram test if they are at least 35 years old. Even with a medical certificate, the rules require pilots to ground themselves anytime they feel their physical or mental state makes them unfit to fly.

Operating and Flight Regulations

A long list of regulations govern pilot behavior, acceptable weather and other aspects of flight, but rules vary depending on the nature of the operation.

If you own your airplane or are a fractional shareowner, the regulations in Part 91 govern your flights. On-demand air charter and air taxi services as well as some fractional flights operate under Part 135.

Some of these rules concern pilot behavior. For example, pilots must wait eight hours after consuming an alcoholic beverage before flying, and if tested, must show a blood alcohol content of less than 0.04 percent—half the level at which most states consider automobile drivers intoxicated. The rules also prohibit pilots from allowing intoxicated passengers onto the aircraft.

Despite advances in cockpit automation, pilots aren't allowed to doze off at the controls. Under Part 135, they can't be asked to fly more than eight hours in any 24-hour period if flying solo, or more than 10 hours if they're in a two-pilot crew. Similar rules apply to flights requiring three or more crewmembers, such as on transcontinental routes.

Other rules define acceptable

weather. To operate under visual flight rules (VFR), a flight must remain clear of clouds and visibility must be at least three miles. Otherwise, the flight must operate under instrument flight rules (IFR), which require the pilot in command to hold an instrument rating and meet other requirements. The FAA publishes instrument approach procedures that describe how an aircraft will arrive at an airport when fog, clouds, rain, snow or other natural phenomena block the pilot's view. Just how low the pilot can descend before seeing the runway and landing depends on the type of approach and the aircraft's equipment.

Pilots operating under Part 91 may legally take off when ground visibility is zero, though this isn't recommended because should the aircraft develop engine trouble or other malfunctions it may not be able to return to the airport. Part 135 prohibits takeoffs when visibility is less than half a mile.

Fractional Ownership Rules

Fractional program managers bear a lot of responsibility for their flights, but shareowners aren't completely off the hook when it comes to operational control.

If you're a member of a fractional program, Part 91 Subpart K deals with the question of who has operational control over your flights. Remember how earlier we said that the owner or operator is responsible for maintaining the aircraft? Recognizing that fractional owners probably don't wish to bear that responsibility directly, Subpart K stipulates that the fractional ownership management company will act on your behalf.

However, fractional owners aren't completely off the hook when it comes to operational control. "Each owner in operational control of a program flight is ultimately responsible for safe operations and for complying with all applicable requirements of this chapter, including those related to airworthiness," the rules state. "Each owner may delegate some or all of the performance of the tasks associated with carrying out this responsibility to the program manager, and may rely on the program manager for aviation expertise and program management

services." In such cases, "the owner and the program manager are jointly and individually responsible for compliance."

Regardless of whether you solely own your aircraft or have a partner, own a fractional share or use charter, it's important that you know the rules of the game. If everyone follows these rules, business aviation will continue to enjoy a reputation for safety and professionalism. □

Want to know more?

You can access the complete Federal Aviation Regulations online at <http://ecfr.gpoaccess.gov>. Just select "Title 14, Aeronautics and Space" and then click on the numbers of the FAR Parts that interest you. You can also find FARs on the Regulatory and Guidance section of the FAA's Web site (<http://rgl.faa.gov/>). —M.S.

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