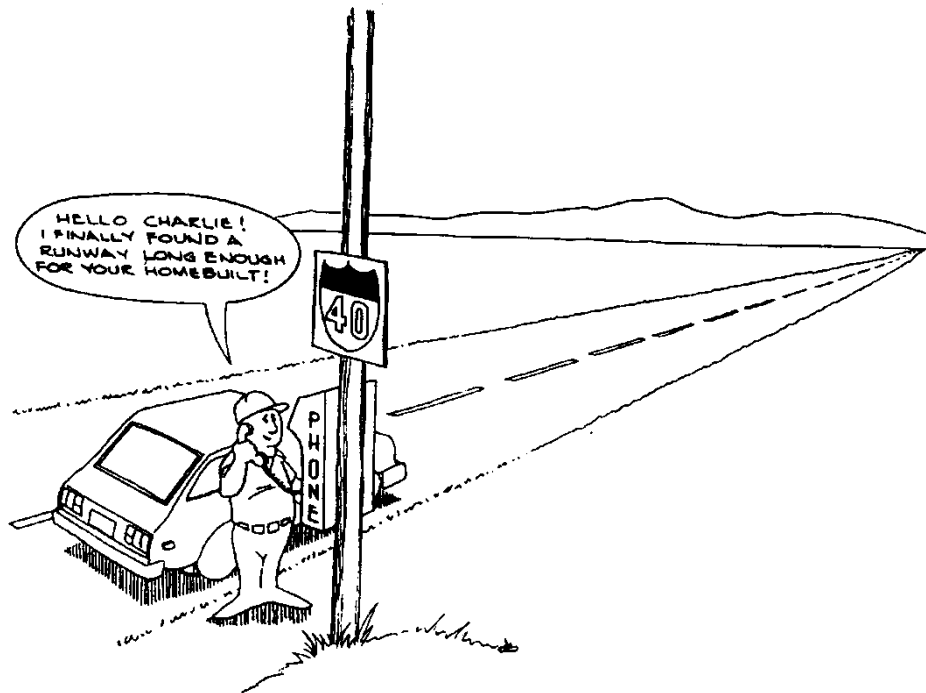
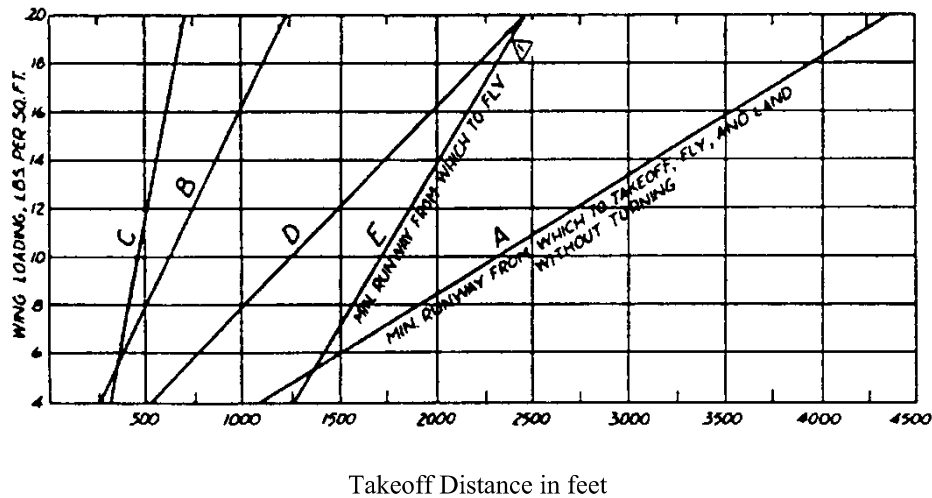


SECTION 2. AIRPORT SELECTION



- 2.2 Objective.** To select an airport to test fly the aircraft.
- 2.2.1 Flight Test Areas.** It is important to remember the requirements of § [91.305](#), which require that no person may flight test an aircraft except over open water or sparsely populated areas having light air traffic.
- 2.2.2 Runway Alignment.** The airport should have one runway aligned into the prevailing wind with no obstructions on the approach or departure end. Hard surface runways should be in good repair and well maintained to avoid foreign object damage (FOD) to the propeller and landing gear. Grass fields should be level with good drainage. Avoid airports in densely populated or developed areas and those with high rates of air traffic. The runway should have the proper markings with a windsock or other wind direction indicator nearby.
- 2.2.3 Ideal Runway.** The ideal runway at sea-level elevation should be at least 4,000 feet long and 100 feet wide. For each 1,000-foot increase in field elevation, add 500 feet to the runway length. If testing a high-performance aircraft, the airport's runway at sea level should be more than 6,000 feet long and 150 feet wide for a wider margin of safety. You should factor other considerations, such as power-to-weight ratio, wing design, and density altitude, into the equation for picking the best runway for the initial flight testing. You can also use the chart in Figure [2-4](#).

Figure 2-4. Runway Length Chart



- A - Distance to takeoff at minimum smooth lift-off speed, fly for 5 seconds at that speed without climbing, land, and stop straight ahead.
- B - Distance to reach minimum smooth lift-off speed.
- C - Distance covered in 5 seconds of flight at minimum smooth lift-off speed.
- D - Distance to stop from minimum smooth lift-off speed (includes air and ground distance).
- E - Distance to takeoff at slow approach speed and climb thereafter at an angle of 1 in 20 to 50 ft. altitude, this distance will allow most airplanes to accelerate to normal climb speed before crossing end of runway.

- 2.2.4 Emergency Fields.** Identify emergency landing fields located within gliding distance from anywhere in the airport pattern altitude. Since engine failures are second only to pilot error as the major cause of amateur-built aircraft accidents, preparations for this type of emergency should be a mandatory part of the flight test plan.
- 2.2.5 Communications.** You should perform flight tests from an airport with an active Universal Communications frequency (UNICOM) or tower, even if the aircraft either doesn't have an electrical system or doesn't have a radio. Even at an uncontrolled field, you should develop a communications base. For both situations, the FAA recommends a handheld radio with aviation frequencies and a headset with a microphone and a push-to-talk switch. Good radio communications improves the overall level of safety and reduces cockpit workload.
- 2.2.6 Physical Space.** The FAA recommends you also consider the availability of hangar space and ramp areas. These facilities will provide protection from inclement weather and vandalism while the aircraft is being tested, maintained, and inspected.
- 2.2.7 Safety.** The airport should have a telephone and firefighting equipment complying with relevant municipal codes.