

FLIGHT PLANNING

Title 14 of the Code of Federal Regulations (14 CFR) part 91 states, in part, that before beginning a flight, the pilot in command of an aircraft shall become familiar with all available information concerning that flight. For flights not in the vicinity of an airport, this must include information on available current weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by air traffic control (ATC).

ASSEMBLING NECESSARY MATERIAL

The pilot should collect the necessary material well before the flight. An appropriate current sectional chart and charts for areas adjoining the flight route should be among this material if the route of flight is near the border of a chart.

Additional equipment should include a flight computer or electronic calculator, plotter, and any other item appropriate to the particular flight—for example, if a night flight is to be undertaken, carry a flashlight; if a flight is over desert country, carry a supply of water and other necessities.

WEATHER CHECK

It may be wise to check the weather before continuing with other aspects of flight planning to see, first of all, if the flight is feasible and, if it is, which route is best. Chapter 11 on weather discusses obtaining a weather briefing.

USE OF THE AIRPORT/FACILITY DIRECTORY

Study available information about each airport at which a landing is intended. This should include a study of the *Notices to Airmen* (NOTAMs) and the *Airport/Facility Directory*. [Figure 14-22] This includes location, elevation, runway and lighting facilities, available services, availability of aeronautical advisory station frequency (UNICOM), types of fuel available (use to decide on refueling stops), AFSS/FSS located on the airport, control tower and ground control frequencies, traffic information, remarks, and other pertinent information. The NOTAMs, issued every 28 days, should be checked for additional information on hazardous conditions or changes that have been made since issuance of the *Airport/Facility Directory*.

The sectional chart bulletin subsection should be checked for major changes that have occurred since the last publication date of each sectional chart being used. Remember, the chart may be up to 6 months old. The effective date of the chart appears at the top of the front of the chart.

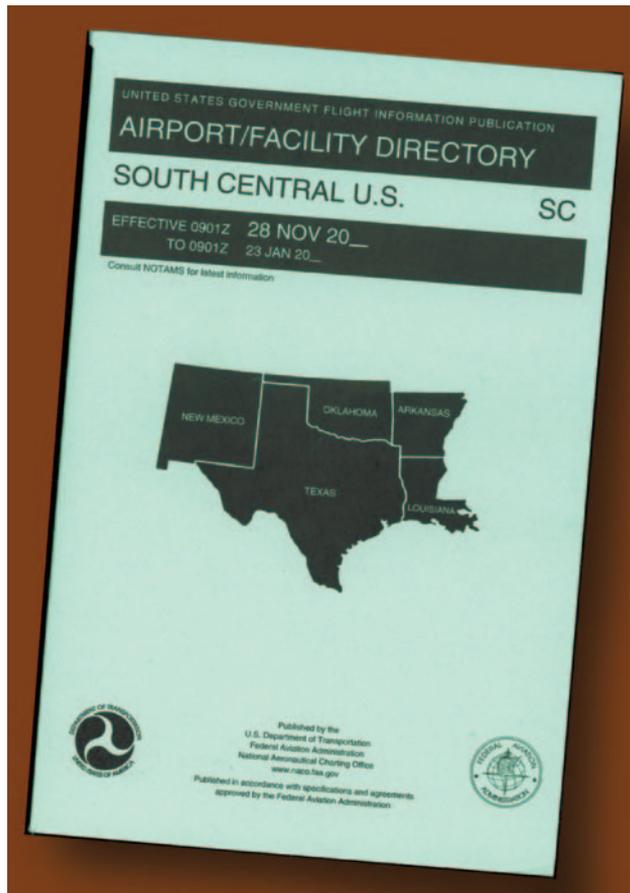


Figure 14-22. Airport Facility Directory.

The *Airport/Facility Directory* will generally have the latest information pertaining to such matters and should be used in preference to the information on the back of the chart, if there are differences.

AIRPLANE FLIGHT MANUAL OR PILOT'S OPERATING HANDBOOK

The Airplane Flight Manual or Pilot's Operating Handbook (AFM/POH) should be checked to determine the proper loading of the airplane (weight and balance data). The weight of the usable fuel and drainable oil aboard must be known. Also, check the weight of the passengers, the weight of all baggage to be carried, and the empty weight of the airplane to be sure that the total weight does not exceed the maximum allowable. The distribution of the load must be known to tell if the resulting center of gravity is within limits. Be sure to use the latest weight and balance information in the FAA-approved Airplane Flight Manual or other permanent airplane records, as appropriate, to obtain empty weight and empty weight center-of-gravity information.

Determine the takeoff and landing distances from the appropriate charts, based on the calculated load, elevation of the airport, and temperature; then compare these distances with the amount of runway available. Remember, the heavier the load and the higher the

elevation, temperature, or humidity, the longer the takeoff roll and landing roll and the lower the rate of climb.

Check the fuel consumption charts to determine the rate of fuel consumption at the estimated flight altitude and power settings. Calculate the rate of fuel consumption, and then compare it with the estimated time for the flight so that refueling points along the route can be included in the plan.

CHARTING THE COURSE

Once the weather has been checked and some preliminary planning done, it is time to chart the course and determine the data needed to accomplish the flight. The following sections will provide a logical sequence to follow in charting the course, filling out a flight log, and filing a flight plan. In the following example, a trip is planned based on the following data and the sectional chart excerpt in figure 14-23.

Route of flight: Chickasha Airport direct to Guthrie Airport

True Airspeed (TAS).....	115 knots
Winds Aloft.....	360° at 10 knots
Usable fuel.....	38 gallons
Fuel Rate.....	8 GPH
Deviation.....	+2°

STEPS IN CHARTING THE COURSE

The following is a suggested sequence for arriving at the pertinent information for the trip. As information is determined, it may be noted as illustrated in the example of a flight log in figure 14-24. Where calculations are required, the pilot may use a mathematical formula or a manual or electronic flight computer. If unfamiliar with how to use a manual or electronic computer competently, it would be advantageous to read the operation manual and work several practice problems at this point.

First draw a line from Chickasha Airport (point A) directly to Guthrie Airport (point F). The course line should begin at the center of the airport of departure and end at the center of the destination airport. If the route is direct, the course line will consist of a single straight line. If the route is not direct, it will consist of two or more straight line segments—for example, a VOR station which is off the direct route, but which will make navigating easier, may be chosen (radio navigation is discussed later in this chapter).

Appropriate checkpoints should be selected along the route and noted in some way. These should be easy-to-locate points such as large towns, large lakes and rivers, or combinations of recognizable points such as towns with an airport, towns with a network of highways, and railroads entering and departing. Normally, choose only towns indicated by splashes of yellow on the

chart. Do not choose towns represented by a small circle—these may turn out to be only a half-dozen houses. (In isolated areas, however, towns represented by a small circle can be prominent checkpoints.) For this trip, four checkpoints have been selected. Checkpoint 1 consists of a tower located east of the course and can be further identified by the highway and railroad track, which almost parallels the course at this point. Checkpoint 2 is the obstruction just to the west of the course and can be further identified by Will Rogers Airport which is directly to the east. Checkpoint 3 is Wiley Post Airport, which the airplane should fly directly over. Checkpoint 4 is a private non-surfaced airport to the west of the course and can be further identified by the railroad track and highway to the east of the course.

The course and areas on either side of the planned route should be checked to determine if there is any type of airspace with which the pilot should be concerned or which has special operational requirements. For this trip, it should be noted that the course will pass through a segment of the Class C airspace surrounding Will Rogers Airport where the floor of the airspace is 2,500 feet mean sea level (MSL) and the ceiling is 5,300 feet MSL (point B). Also, there is Class D airspace from the surface to 3,800 feet MSL surrounding Wiley Post Airport (point C) during the time the control tower is in operation.

Study the terrain and obstructions along the route. This is necessary to determine the highest and lowest elevations as well as the highest obstruction to be encountered so that an appropriate altitude which will conform to part 91 regulations can be selected. If the flight is to be flown at an altitude more than 3,000 feet above the terrain, conformance to the cruising altitude appropriate to the direction of flight is required. Check the route for particularly rugged terrain so it can be avoided. Areas where a takeoff or landing will be made should be carefully checked for tall obstructions. TV transmitting towers may extend to altitudes over 1,500 feet above the surrounding terrain. It is essential that pilots be aware of their presence and location. For this trip, it should be noted that the tallest obstruction is part of a series of antennas with a height of 2,749 feet MSL (point D). The highest elevation should be located in the northeast quadrant and is 2,900 feet MSL (point E).

Since the wind is no factor and it is desirable and within the airplane's capability to fly above the Class C and D airspace to be encountered, an altitude of 5,500 feet MSL will be chosen. This altitude also gives adequate clearance of all obstructions as well as conforms to the part 91 requirement to fly at an altitude of odd thousand plus 500 feet when on a magnetic course between 0 and 179°.