



**Figure 14-39.** Traffic pattern operations—single runway.

6. If remaining in the traffic pattern, commence turn to crosswind leg beyond the departure end of the runway within 300 feet of pattern altitude. [Figure 14-40]
7. If departing the traffic pattern, continue straight out, or exit with a 45° turn (to the left when in a left-hand traffic pattern; to the right when in a right-hand traffic pattern) beyond the departure end of the runway, after reaching pattern altitude. [Figure 14-40]
8. Do not continue on a track that penetrates the departure path of the parallel runway. [Figure 14-40]

## Radio Communications

Operating in and out of a towered airport, as well as in a good portion of the airspace system, requires that an aircraft have two-way radio communication capability. For this reason, a pilot should be knowledgeable of radio station license requirements and radio communications equipment and procedures.

### Radio License

There is no license requirement for a pilot operating in the United States; however, a pilot who operates internationally is required to hold a restricted radiotelephone permit issued by the Federal Communications Commission (FCC). There is also no station license requirement for most general aviation aircraft operating in the United States. A station license is required, however, for an aircraft that is operating internationally, that uses other than a VHF radio, and that meets other criteria.

### Radio Equipment

In general aviation, the most common types of radios are VHF. A VHF radio operates on frequencies between 118.0 megahertz (MHz) and 136.975 MHz and is classified as 720 or 760 depending on the number of channels it can accommodate. The 720 and 760 use .025 MHz (25 kilohertz (KHz) spacing (118.025, 118.050) with the 720 having a frequency range up to 135.975 MHz and the 760 reaching up to 136.975 MHz. VHF radios are limited to line of sight transmissions; therefore, aircraft at higher altitudes are able to transmit and receive at greater distances.

In March of 1997, the International Civil Aviation Organization (ICAO) amended its International Standards and Recommended Practices to incorporate a channel plan specifying 8.33 kHz channel spacings in the Aeronautical Mobile Service. The 8.33 kHz channel plan was adopted to alleviate the shortage of VHF ATC channels experienced in western Europe and in the United Kingdom. Seven western European countries and the United Kingdom implemented the 8.33 kHz channel plan on January 1, 1999. Accordingly, aircraft operating in the airspace of these countries must have the capability of transmitting and receiving on the 8.33 kHz spaced channels.

### Using Proper Radio Procedures

Using proper radio phraseology and procedures contribute to a pilot's ability to operate safely and efficiently in the airspace system. A review of the Pilot/Controller Glossary contained in the AIM assists a pilot in the use and understanding of