

## **PRIVATE PILOT**

### **III. AREA OF OPERATION: AIRPORT AND SEAPLANE BASE OPERATIONS**

#### **A. TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS**

#### **OBJECTIVE**

To determine that the applicant:

1. Exhibits knowledge of the elements related to radio communications and ATC light signals.
2. Selects appropriate frequencies.
3. Transmits using recommended phraseology.
4. Acknowledges radio communications and complies with instructions.

#### **ELEMENTS**

1. A radio license is not required of pilots operating in the United States, but an FCC restricted radiotelephone permit and station license may be required to operate internationally.
2. VHF (very high frequency) aviation communications radios operate on frequencies between 118.0 MHz (118 million cycles per second) and 136.975 MHz.
3. VHF radios are limited to line of sight transmissions.
4. The phonetic alphabet is described on page 12-10 of the Pilot's Handbook of Aeronautical Knowledge.
5. Examples of proper phraseology and procedures are given in the AIM, Chapter 4-2.
6. Radio technique:
  - a. Listen before transmitting.
  - b. Think of what is to be said before keying the transmitter.
  - c. Ensure the microphone is close to the lips.
  - d. Wait before repeating a call – the controller may be busy.
  - e. Be alert to the sounds or lack of sounds from the transmitter (volume, stuck mic, etc.)
  - f. Ensure adequate range to the station.
7. Contact procedures:
  - a. Name of the facility being called.
  - b. The make or model, followed by the full aircraft identification number.
  - c. The aircraft position.
  - d. The request.
8. Examples of contacts:
  - a. "Renton Ground, Cessna Seven-Zero-Four-Mike-Lima, at BEFA with alpha, taxi for downwind departure."
  - b. "Renton Tower, Skyhawk Five-Three-Four-Four-Kilo, ready for takeoff, runway three-three, northbound departure."
  - c. "Renton Tower, Cessna Seven-Zero-Four-Mike-Lima, over Lake Youngs at two thousand five hundred, inbound with bravo."
  - d. "Renton Ground, Skyhawk Five-Three-Four-Four-Kilo, at foxtrot, taxi to BEFA."
9. Facility names and "call signs":
  - a. UNICOM = "Auburn UNICOM."
  - b. Common Traffic Advisory Frequency = "Auburn CTAF," or "Auburn Traffic."
  - c. FAA Flight Service Station = "Seattle Radio."
  - d. FAA Flight Service Station (while airborne calling for weather) = "Seattle Flight Watch."
  - e. Airport Traffic Control Tower = "Renton Tower."
  - f. Clearance Delivery Position (IFR) = "Seattle Clearance Delivery."
  - g. Ground Control Position in Tower = "Renton Ground."
  - h. Radar or Nonradar Approach Control Position = "Seattle Approach."
  - i. Radar Departure Control Position = "Seattle Departure."
  - j. FAA Air Route Traffic Control Center (ARTCC) = "Seattle Center."
10. Do not abbreviate the full aircraft identification number (few exceptions).
11. A heading of 195 degrees is referred to as "heading one niner five."
12. All local times should be converted to 24-hour Coordinated Universal Time (UTC) or "Zulu" time (example: 1:30PM = 1330 hours, add 8 hours for PST time-zone adjustment to UTC = 2130 hours UTC pronounced "two one three zero Zulu").
13. A speed of 105 knots is referred to as "one zero five knots."
14. Use "affirmative" for yes and "negative" for no.

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15. To correct a radio call, simply stop talking, say "correction," and then complete the transmission with the corrected information.
16. Some facilities use Remote Communications Outlets (RCO's) which can enable communications while still out of range of the "parent" facility.
17. If a receiver becomes inoperative and a pilot needs to land at a controlled airport, it is advisable to remain outside or above Class D airspace until the direction of traffic flow is determined and watch for light signals from the tower.
18. If the transmitter is operative, the pilot should give a position report.
19. If the receiver is operative but the transmitter is inoperative, the pilot can acknowledge control transmissions by rocking wings (day) or blinking the navigation lights (night).
20. Control Tower light signals:
  - a. Steady green: Cleared for takeoff (on ground), cleared to land (in flight).
  - b. Flashing green: Cleared for taxi (on ground), return for landing (in flight).
  - c. Steady red: Stop (on ground), give way to other aircraft and continue (in flight).
  - d. Flashing red: Taxi clear of runway in use (on ground), Airport unsafe, do not land (in flight).
  - e. Flashing white: Return to starting point on airport (on ground).
  - f. Alternating red and green: Exercise extreme caution (on ground and in flight).

#### **COMMON ERRORS**

- a. Use of improper frequencies.
- b. Improper procedure and phraseology when using radio communications.
- c. Failure to acknowledge, or properly comply with, ATC clearances and instructions.
- d. Failure to understand, or to properly comply with, ATC light signals.

#### **REFERENCES**

1. 14 CFR Part 91, General Operating and Flight Rules.
2. AC 61-23 / FAA-H-8083-25, Pilot's Handbook of Aeronautical Knowledge, Chapter 12.
3. FAA-H-8083-15, Instrument Flying Handbook, Chapter 7.
4. AIM, Aeronautical Information Manual, Chapter 4-2.