PRIVATE PILOT

III. AREA OF OPERATION: AIRPORT AND SEAPLANE BASE OPERATIONS
B. TASK: TRAFFIC PATTERNS

OBJECTIVE

To determine that the applicant:

1. Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at airports with and without operating control towers, prevention of runway incursions, collision avoidance, wake turbulence avoidance, and wind shear.
2. Complies with proper traffic pattern procedures.
3. Maintains proper spacing from other aircraft.
4. Corrects for wind drift to maintain the proper ground track.
5. Maintains orientation with the runway / landing area in use.
6. Maintains traffic pattern altitudes, +/- 100 feet, and the appropriate airspeed, +/- 10 knots.

ELEMENTS

1. The standard airport traffic pattern is rectangular in shape with directions and altitudes based on local conditions (population density, obstructions, etc.).
2. As a default, all turns are made to the left unless right turns are indicated.
3. With a control tower, the pilot receives a clearance to approach and depart.
4. Without a control tower, the pilot determines direction of traffic.
5. The tower operator may instruct pilots to enter the traffic pattern at any point or to make a straight-in approach.
6. Jets or heavy airplanes fly wider and higher patterns and make mostly straight-in approaches.
7. Compliance with the basic rectangular traffic pattern reduces the possibility of conflicts at airports without an operating control tower.
8. Without a control tower, inbound pilots are expected to observe other aircraft already in the pattern and to conform to the traffic pattern in use.
9. The standard traffic pattern altitude (TPA) is 1000' AGL.
10. If possible, airspeed should be adjusted to match that of other airplanes in the pattern.
11. If there is no traffic at an airport without a control tower, traffic and wind indicators on the ground should be checked as well as automated surface weather transmissions.
12. Some airports have a segmented circle with L-shaped pattern indicators and windsocks. These indicators can be checked at a safe height above the highest TPA.
13. When the proper traffic pattern direction has been determined, the pilot should then proceed to a point well clear of the pattern before descending to TPA.
14. The standard traffic pattern entry is on a 45° angle to the downwind leg abeam the midpoint of the runway to be used for landing.
15. The traffic pattern altitude should be established well before entering the pattern (usually descend to TPA on the 45° angle to the downwind leg).
16. Entering traffic patterns while descending creates collision hazards and should be avoided.
17. The 45° entry leg should be long enough to provide a clear view of the entire traffic pattern.
18. The downwind leg is a course flown parallel but opposite in direction to the landing runway.
19. The downwind leg should be flown until ¼ to ½ mile out from the landing runway.
20. During the downwind leg, the before landing check should be completed and the landing gear extended.
21. TPA is maintained on the downwind leg until abeam the approach end of the landing runway.
22. Abeam the approach end of the runway, power is reduced and descent begun.
23. At a point approximately 45° from the end of the runway, a medium bank turn (20° to 25°) is made onto the base leg (altitude ~800' AGL).
24. The ground track of the airplane while on the base leg should be perpendicular to the extended centerline of the landing runway.
25. While descending on the base leg, the pilot should ensure there is no collision danger with another aircraft on final approach (an airplane on a straight-in approach).
26. A medium bank (20° to 25°) base-to-final turn is made to line up on the extended centerline of the landing runway on a final approach (altitude ~500' AGL).

27. The final approach is the point of highest pilot workload, as accurate control of airspeed and descent angle must be maintained while visually judging the approach to the intended touchdown point.
28. Aircraft on final approach have the right-of-way over other aircraft in flight or on the surface.
29. When two of more aircraft are approaching an airport, the lower has the right-of-way.
30. The upwind leg is flown on the extended centerline of the takeoff runway over the departure end of the runway after a go-around or takeoff.
31. A medium bank turn (20° to 25°) is made onto the crosswind leg (altitude ~700' AGL).
32. The ground track of the airplane while on the crosswind leg should be perpendicular to the extended centerline of the takeoff runway.
33. At a point approximately 45° from the end of the runway, a medium bank turn (20° to 25°) is made onto the downwind leg (altitude ~TPA).
34. If departing the traffic pattern, continue straight out on the upwind leg 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) after reaching pattern altitude.

COMMON ERRORS

a. Failure to comply with traffic pattern instructions, procedures and rules.
b. Improper correction for wind drift.
c. Inadequate spacing from other traffic.
d. Poor altitude or airspeed control.

REFERENCES

1. AC 90-66, Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at Airports without Operating Control Towers.
2. FAA-H-8083-3A, Airplane Flying Handbook, Chapter 7.
3. AC 61-23 / FAA-H-8083-25, Pilot's Handbook of Aeronautical Knowledge.
4. AIM, Aeronautical Information Manual.