

Lesson 4: Ground Reference Maneuvers Part 2

As in the generic FITS syllabus, this lesson involves a flight to conduct an aerial survey of properties near an airport. The goal is to fly precise patterns over farm fields and roads. You must compensate for the effect of wind and maintain specific altitudes while maneuvering. At all times you also must keep a lookout for other aircraft and consider where you could make an emergency landing if your airplane experienced a mechanical failure.

Scenario

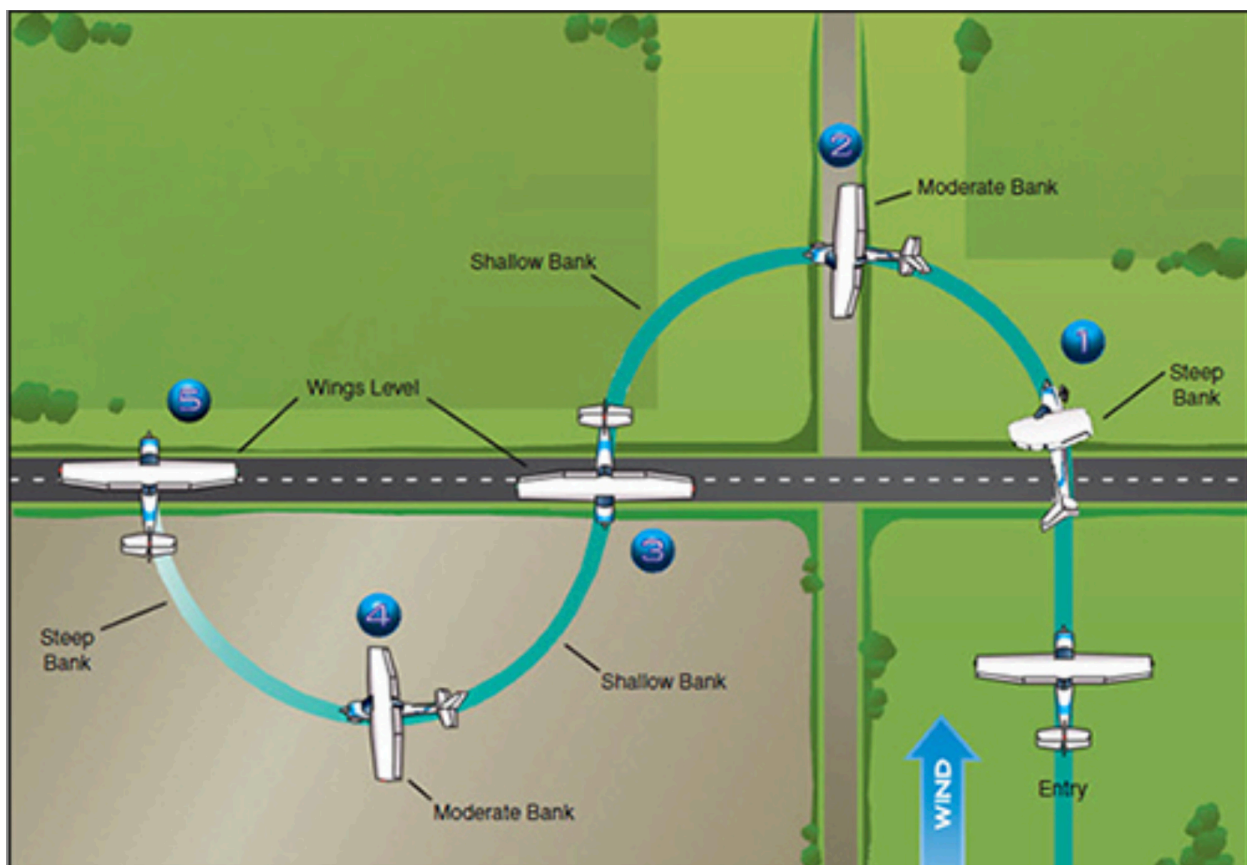
In this scenario you will take off from Easton, MD (KESN), north of Easton, and fly north over the nearby farmland to route 301 to perform maneuvers. After completing the ground reference maneuvers, you fly to the nearby airport at Ridgely, MD (RJD), join the appropriate traffic pattern, and land.

Objectives

The primary goals of this flight are:

- Practicing ground reference maneuvers: rectangular courses, S-turns across a road (see Figure 20-1), and turns around a point (see Figure 20-2)
- Reviewing and practicing fundamental flight maneuvers and basic navigation
- Reviewing traffic patterns and practicing the normal approach and landing

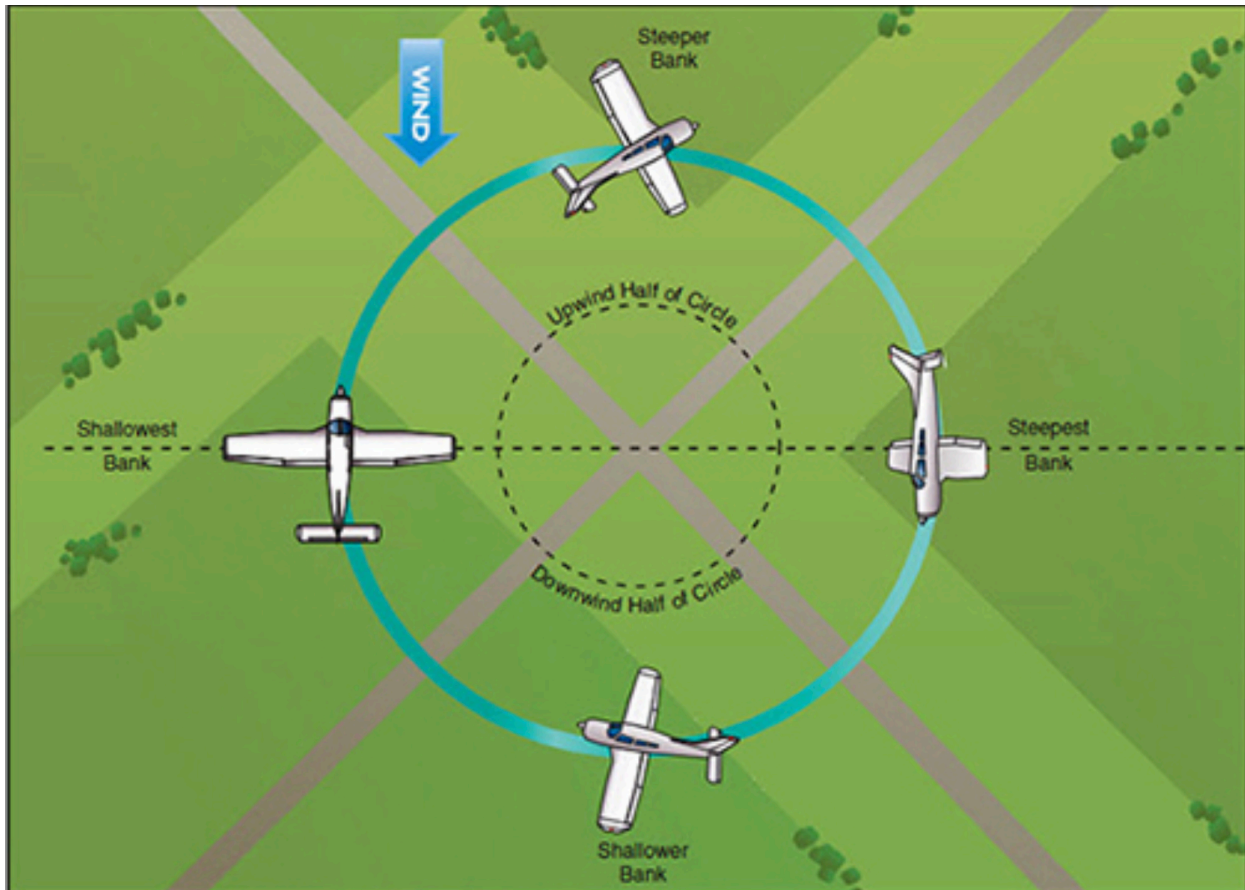
Figure 20-1: S-turns across a road, as shown in Figure 6-5 of the Airplane Flying Handbook



You have already practiced flying rectangular courses. Turns around a point and S-turns across a road are the other ground reference maneuvers that you may be required to fly during the private pilot practical test.

At this point in your training, you should also be able to perform tasks that you've practiced in earlier lessons. In particular, you should be able to complete maneuvers at the Perform level of the FITS grading standards — that is, consistently within the limits established by the PTS.”

Figure 20-2: Turns around a point, as shown in Figure 6-6 of the Airplane Flying Handbook



Completion Standards

The detailed goals for this lesson are outlined in the table at the end of this chapter. In general, before moving on to the next lesson, you should be able to:

- Recognize and adjust for the effects of wind drift. Adjust simulator weather wind direct and speed to see affect.
- Identify appropriate areas to conduct maneuvers at low altitudes.
- When flying new maneuvers, maintain altitude ± 250 feet, roll out on the appropriate heading ± 20 degrees, maintain bank angle within ± 10 degrees, and fly at the appropriate airspeed within ± 10 knots.

References and Resources

To prepare for this lesson, review the following references. The resources at the AOPA Flight Training website and the AOPA Air Safety Institute publications are valuable supplements to the official information in the FAA references.

Title	Chapter/Section	Topic/Notes
Pilot's Handbook of Aeronautical Knowledge	Chapter 13, Airport Operations	Traffic Patterns
Airplane Flying Handbook	Chapter 6, Ground Reference Manuevers	S-Turns Across a Road, Turns Around a Point
	Chapter 7, Airport Traffic Pattern	Review all sections
	Chapter 8. Approaches and Landings	Normal Approach and Landings
Private Pilot Airman Certification Standards	Ground Reference Manuevers	S-Turns and Turns Around a Point
	Takeoffs, Landings, and GO-Arounds	Normal and Crosswind Takeoff and Climb
AOPA ASI Safety Advisor Operations at Non-toward Airports		
AOPA ASI Safety Advisor Mastering Takeoff and Landings		
AOPA ASI Safety Advisor Maneuvering Flight - Hazardous to Your Health?		
AOPA Flight Training Website	Pre- Solo Flying Skills	Ground Reference Manuevers
AOPA Flight Training magazine	Apri 2010	Turns around a point

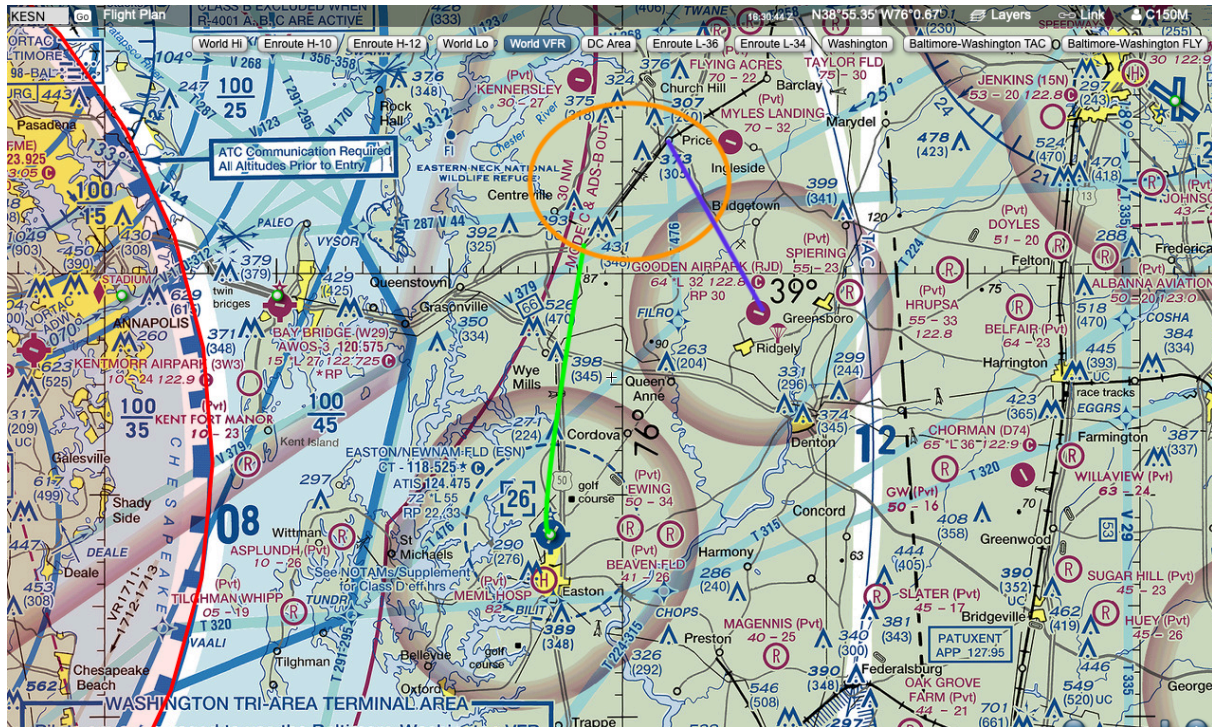
Preflight Briefing

This lesson begins with your Cessna 172 ready for takeoff from runway 22 at Easton, MD (KESN). You plan to fly over the farm fields north of the airport at 1,500 ft. and then fly several sequences of ground reference maneuvers (rectangular patterns, S-turns across a road, and turns around a point). You can use the boundaries and intersections of fields and roads as reference points. Take as much time as you like, and then fly to the Rigely, MD (RJD) airport about 16 nm miles northeast of KESN, join the traffic pattern, and land.

Location and Weather

The lesson begins with your Skyhawk on the ground at KESN (see Figure 20-3). The skies are mostly clear with light winds from the southwest. (Manually configure weather)

Figure 20-3: The area around KESN, as shown on the Washington sectional chart on SkyVector



Tips for This Lesson

Here are a few suggestions to help you get the most from this lesson:

Don't fixate on the ground reference points as you fly the maneuvers. Scan for other traffic and cross-check the instruments occasionally to verify your altitude and airspeed.

- Shrink or hide the instrument panel as you fly the ground reference maneuvers.
- Use the interactive map in X-Plane or FSX occasionally to help you track your position and to show your path over the ground. The ground tracks help you assess how well you've flown the ground reference maneuvers. The interactive map is also helpful when you finish the maneuvers and prepare to fly to RJD.
- Use the A/FD information at <http://SkyVector.com> or other resources to determine the runway orientations and lengths, traffic pattern altitudes, and other critical data about KESN and RJD.

What-Ifs

Keep the following considerations in mind as you fly this scenario:

- Before you begin a ground reference maneuver, assess the general area and make sure you have located areas where you could make an off-airport landing if necessary.
- Fly precisely, but smoothly. If your flight path deviates substantially from the standard, stop the maneuver and set up for another try.

Objectives and Desired Outcome Grading Sheet

Scenario Activities	Desired Outcome
Make a normal takeoff and climb	Perform
Fly rectangular course	Perform
Practice S-turns across a road	Practice
Practice turns around a point	Practice
Follow recommended procedures for seeing and avoiding other aircraft	Practice
Follow recommended procedure for entering and flying the airport traffic pattern	Practice
Fly a normal approach and landing	Practice