

Instrument Pilot Flight Instruction Lesson Plan

VOR Operations

Student: _____ Date: _____

Objectives:

Upon completion of this lesson, the student will:

- Be able to intercept and track specified VOR radials (inbound and outbound).
- Be able to identify station passage.
- Be able to determine position (or arrival at an intersection) by obtaining cross fixes from multiple VOR stations.
- Be able to positively identify a VOR station and determine whether or not it is operational.

Elements:

- Use of VOR receiver, OBS (or HSI).
- Wind drift correction.

Schedule:

- | | |
|--------------------------------------------------|-------|
| • Pre-lesson briefing | 00:10 |
| • Pre-Flight | 00:10 |
| • Practice intercepting and tracking VOR radials | 01:00 |
| • Post-lesson debriefing | 00:10 |
| Total: | 01:30 |

Equipment:

- IFR Capable airplane (with one or more VOR receivers)
- View limiting device
- Appropriate departure procedure, en-route, STAR and approach charts.

Instructor Actions:

1. Pre-lesson briefing
 - Present lesson objective.
 - Describe what will take place during the lesson.
 - Review operation of the VOR
 - Identification of radials
 - TO/FROM indications
 - Station passage
 - Station identification and out of service indications
 - Describe how to determine where the airplane is in relation to the specified radial
 - Describe how to set up an intercept for the specified radial.
 - Describe how to identify the airplane's location (or an intersection) using cross fixes.
 - Review requirement for 30 day VOR checks and how to log them.

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2. Pre-flight

- Observe that the student performs the proper preflight checks of the instruments, navigation equipment and airplane systems appropriate for an IFR flight.
- Observe that the student determines when the last VOR check was performed on the airplane and determines whether it was within the last 30 days. If not, have the student perform the check.
- Use the opportunity to practice the student's general instrument flying skills. With the student wearing the view limiting device, give him or her instructions to fly various headings, perform standard rate turns, climbs and descents, etc.

3. Practice intercepting and tracking VOR radials.

- Upon departure from the airport have student fly direct to a nearby VOR.
 - Observe that the student follows the correct procedure for identifying the VOR and determining that it is operational.
 - Correct any errors that the student may be making, such as chasing the CDI or not applying proper wind correction.
 - If the VOR is reasonably nearby, have the student fly past it and identify station passage.
- Have the student intercept various radials to and from a VOR.
 - Observe that the student follows the correct procedure for identifying the VOR and determining that it is operational.
 - Observe that the student selects the proper intercept course.
 - Observe that the student identifies when the radial has been intercepted and turns to follow it.
- Have the student identify the airplane's position by use of multiple VOR cross fixes.
- Have the student fly to and identify passage of an intersection on an airway (or make one up, if there are no real ones conveniently located).

4. Post Lesson Debriefing

- Critique student's performance of maneuvers with constructive suggestions to improve technique.
- Answer student questions.
- Ask student questions to evaluate what was learned.
- Explain what will be covered in the next lesson and assign reading material.

Student Actions:

1. Pre-lesson briefing

- Ask questions concerning previous lessons and/or this one.

2. Pre-flight

- The student performs the proper preflight checks of the instruments, navigation equipment and airplane systems appropriate for an IFR flight.

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3. Practice intercepting and tracking VOR radials.
 - Upon departure from the airport student will fly direct to a nearby VOR.
 - The student follows the correct procedure for identifying the VOR and determining that it is operational.
 - If the VOR is reasonably nearby, the student fly past it and identify station passage.
 - The student will intercept various radials to and from a VOR.
 - The student follows the correct procedure for identifying the VOR and determining that it is operational.
 - The student selects the proper intercept course.
 - The student identifies when the radial has been intercepted and turns to follow it.
 - The student identifies the airplane's position by use of multiple VOR cross fixes.
 - The student fly to and identifies passage of an intersection on an airway (or one invented by the instructor, if there are no real ones conveniently located).
4. Post-flight debriefing.
 - Ask questions about the lesson.

Completion Standards:

This lesson will be completed when the student is able to:

- Follow a VOR radial to or from a VOR station, holding the radial within 1 dot of deflection on the CDI.
- Setup and follow a proper intercept course to a specified VOR radial.
- Identify the airplane's position (or an intersection) using multiple VOR cross fixes.

Common Errors:

- Failure to properly identify the VOR and determine whether or not it is operational.
- Failure to apply proper wind correction while following a radial; chasing the CDI needle.
- Failure to determine a good course to intercept a specified radial.
- TO/FROM confusion.

References:

- Instrument Flying Handbook (FAA-H-8083-15); 7-8 – 7-13
- Aeronautical Information Manual; Pages 487 – 492
- INSTRUMENT PTS Area of Operation V Task A.

Possible Review Questions: