

Instrument Pilot Flight Instruction Lesson Plan

Intercepting and Tracking NDB Bearings

Student: _____ Date: _____

Objectives:

Upon completion of this lesson, the student will:

- Be able to intercept and track specified NDB radials (inbound and outbound).
- Be able to identify station passage.
- Be able to positively identify an NDB station and determine whether or not it is operational.

Elements:

- Use of ADF.
- Wind drift correction.

Schedule:

• Pre-lesson briefing	00:10
• Pre-Flight	00:10
• Practice intercepting and tracking NDB bearings	01:00
• Post-lesson debriefing	00:10
Total:	01:30

Equipment:

- IFR Capable airplane (with ADF)
- 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 ADF
 - Computing bearings to and from the station.
 - Tracking the bearing versus homing on the station.
 - Station passage.
 - Station identification and out of service indications.
 - Describe how to set up an intercept for the specified bearing to or from an NDB station.

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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 NDB bearings to and from a station.
 - Upon departure from the airport have student fly direct to a nearby NDB (or local AM radio station tower if no NDB is nearby).
 - Observe that the student follows the correct procedure for identifying the NDB and determining that it is operational.
 - Coach the student on applying proper wind drift correction to maintain the bearing.
 - Have the student fly past the NDB (or radio station) and identify station passage.
 - Have the student intercept various bearings to and from an NDB.
 - Observe that the student follows the correct procedure for identifying the NDB and determining that it is operational.
 - Observe that the student selects the proper intercept course.
 - Observe that the student identifies when the bearing has been intercepted and turns to follow it.
 - With the airplane tracking various headings, have the student compute the bearing to and from the station.
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.
3. Practice intercepting and tracking NDB bearings to and from a station.
 - Upon departure from the airport, the student fly direct to a nearby NDB (or local AM radio station tower if no NDB is nearby).
 - Student follows the correct procedure for identifying the NDB and determining that it is operational.
 - Student will apply proper wind drift correction to maintain the bearing.
 - The student will fly past the NDB (or radio station) and identify station passage.
 - With the airplane tracking various headings, the student will compute the bearing to and from the station.
4. Post-flight debriefing.
 - Ask questions about the lesson.

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Completion Standards:

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

- Follow an NDB bearing to or from a station, holding the bearing within 10° .
- Setup and follow a proper intercept course to a specified NDB bearing.
- Compute bearings to or from the station.

Common Errors:

- Failure to properly identify the NDB and determine whether or not it is operational.
- Failure to apply proper wind correction while following a bearing; chasing the needle.
- Failure to determine a good course to intercept a specified bearing.

References:

- Instrument Flying Handbook (FAA-H-8083-15); 7-3 – 7-7
- Instrument PTS Area of Operation V Task B.

Possible Review Questions: