

Instrument Pilot Flight Instruction Lesson Plan

Partial Panel Operations

Student: _____ Date: _____

Objectives:

Upon completion of this lesson, the student will:

- Be able to perform straight and level flight solely by reference to the flight instruments with the attitude and/or heading indicators inoperative.
- Be able to change airspeed while maintaining straight and level flight solely by reference to the flight instruments with the attitude and/or heading indicators inoperative.
- Be able to perform level, standard rate turns solely by reference to the flight instruments with the attitude and/or heading indicators inoperative.
- Be able to perform climbing and descending turns solely by reference to the flight instruments with the attitude and/or heading indicators inoperative.

Elements:

- Instrument Cross Check
- Instrument Interpretation
- Aircraft Control

Schedule:

• Pre-lesson briefing	00:10
• Preflight	00:10
• Straight and level flight at normal cruise airspeed (partial panel)	00:10
• Standard rate turns (partial panel)	00:10
• Change of airspeed (partial panel)	00:10
• Climbs and descents (partial panel)	00:10
• Climbing and descending turns (partial panel)	00:10
• Post-lesson debriefing	00:10
Total:	01:20

Equipment:

- Airworthy airplane with standard flight instruments (Airspeed, Attitude Indicator, Altimeter, Turn Coordinator, Heading Indicator [or HIS / RMI], Vertical Speed Indicator).
- View limiting Device (Foggles, Hood, etc.)
- Suction cup instrument covers or sticky notes.
- Appropriate IFR en-route charts.

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Instructor Actions:

1. Pre-lesson briefing
 - Present lesson objective and outline of the lesson.
 - Discuss which instruments are substituted for failed attitude indicator and heading indicator for various phases of flight.
2. Preflight
 - Observe that the student performs the proper preflight checks of the instruments, navigation equipment and airplane systems appropriate for an IFR flight.
3. Straight and level flight at normal cruise airspeed (partial panel).
 - Cover the attitude indicator and have student maintain straight and level flight.
 - Cover the heading indicator and have student maintain straight and level flight.
4. Standard rate turns (partial panel)
 - With just the attitude indicator covered have student execute standard rate turns to the right and left.
 - With both the attitude indicator and heading indicator covered, have the student execute standard rate turns to the left and right (review of compass turn procedures).
5. Change of airspeed (partial panel).
 - With just the attitude indicator covered, have the student fly straight and level at normal and slow cruise speeds intermixed with standard rate level turns.
 - With both the attitude indicator and heading indicator covered, have the student fly straight and level at normal and slow cruise speeds intermixed with standard rate level turns.
6. Climbs and descents (partial panel).
 - With just the attitude indicator covered, have the student perform climbs and descents ad constant airspeeds and constant rates.
 - With both the attitude indicator and heading indicator covered, have the student perform climbs and descents ad constant airspeeds and constant rates.
7. Climbing and descending turns (partial panel).
 - With just the attitude indicator covered, have the student perform turning climbs and descents ad constant airspeeds and constant rates.
 - With both the attitude indicator and heading indicator covered, have the student perform turning climbs and descents ad constant airspeeds and constant rates.
8. 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.

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Student Actions:

1. Pre-lesson briefing
 - Ask questions concerning previous lessons and/or this one.
2. Preflight
 - Student performs the proper preflight checks of the instruments, navigation equipment and airplane systems appropriate for an IFR flight.
3. Straight and level flight at normal cruise airspeed (partial panel).
 - With the attitude indicator covered the student will maintain straight and level flight.
 - With the attitude indicator and heading indicator covered, the student will maintain straight and level flight.
4. Standard rate turns (partial panel)
 - With just the attitude indicator covered the student will execute standard rate turns to the right and left.
 - With both the attitude indicator and heading indicator covered, the student will execute standard rate turns to the left and right (review of compass turn procedures).
5. Change of airspeed (partial panel).
 - With just the attitude indicator covered, the student will fly straight and level at normal and slow cruise speeds intermixed with standard rate level turns.
 - With both the attitude indicator and heading indicator covered, the student will fly straight and level at normal and slow cruise speeds intermixed with standard rate level turns.
6. Climbs and descents (partial panel).
 - With just the attitude indicator covered, the student will perform climbs and descents ad constant airspeeds and constant rates.
 - With both the attitude indicator and heading indicator covered, the student will perform climbs and descents ad constant airspeeds and constant rates.
7. Climbing and descending turns (partial panel).
 - With just the attitude indicator covered, the student will perform turning climbs and descents ad constant airspeeds and constant rates.
 - With both the attitude indicator and heading indicator covered, the student will perform turning climbs and descents ad constant airspeeds and constant rates.
8. Post-flight debriefing.
 - Ask questions about the lesson.

Completion Standards:

This lesson will be completed when the student is able to (with the attitude indicator and heading indicator inoperative):

- Perform straight and level flight at various airspeeds, solely by reference to the flight instruments, maintaining altitude +/- 100 feet, heading +/- 10⁰, and airspeed +/- 10 knots.
- Perform level standard rate turns to specified headings, solely by reference to the flight instruments, maintaining altitude +/- 100 feet, heading +/- 10⁰, and airspeed +/- 10 knots.
- to perform straight climbs and descents at either a constant airspeed or constant rate, solely by reference to the flight instruments, maintaining altitude +/- 100 feet, heading +/- 10⁰, and airspeed +/- 10 knots.

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Common Errors:

- Improper instrument scan technique, for example fixating on a single instrument.
- Improper instrument interpretation.
- Failure to maintain coordinated flight in turns.
- Failure to periodically check the heading indicator against the magnetic compass.

References:

- Instrument Flying Handbook (FAA-H-8083-15); 11-3 – 11-4
- Instrument PTS Area of Operation VII Task D
- CFII Handouts; Partial Panel Chart

Possible Review Questions: