

III.C. Instrument Cockpit Check

References: 14 CFR part 91; FAA-H-8083-15

Objectives	The student should develop knowledge of the elements related to checking the instruments prior to flight.
Key Elements	<ol style="list-style-type: none">1. Develop a pattern2. Stick to the pattern
Elements	<ol style="list-style-type: none">1. Communications Equipment2. Navigation Equipment3. Magnetic Compass4. HI/HIS/RMI5. Attitude Indicator6. Altimeter7. Turn-and-Slip Indicator/Turn Coordinator (TC)8. VSI9. Airspeed Indicator10. Outside Air Temperature11. Clock
Schedule	<ol style="list-style-type: none">1. Discuss Objectives2. Review material3. Development4. Conclusion
Equipment	<ol style="list-style-type: none">1. White board and markers2. References
IP's Actions	<ol style="list-style-type: none">1. Discuss lesson objectives2. Present Lecture3. Ask and Answer Questions4. Assign homework
SP's Actions	<ol style="list-style-type: none">1. Participate in discussion2. Take notes3. Ask and respond to questions
Completion Standards	The student has developed an effective preflight check for the instruments.

Instructors Notes:

Introduction:

Attention

Interesting fact or attention grabbing story

Overview

Review Objectives and Elements/Key ideas

What

This will explain how to check the communications, navigation, and other equipment to ensure proper operation prior to flight.

Why

This is important because, you don't want to discover a problem with your instruments in the clouds where you are entirely reliant on your instruments.

How:

1. Communications Equipment

- A. Loss of communications under IFR may be considered an emergency requiring compliance with 91.185
 - i. Confirm position, stability of radio antennas
 - ii. Use all radios prior to flight. Request "radio check" if necessary
 - iii. Transponder on standby
 - a. Reply light ON during warm-up

2. Navigation Equipment

- A. VORs
 - i. Confirm position, stability of nav antennas
 - ii. 91.171 requires VOR accuracy check within 30 days prior to IFR flight
 - a. Record date, place, bearing error(s) and sign - every 30 days
- B. DME
 - i. Note distance from VOR/DME if available
- C. ILS
 - i. If LOC on field, then tune, identify, note correct indication
- D. GPS
 - i. Confirm IFR approved, certified
 - ii. Follow appropriate start-up and self-test procedures
 - iii. Check RAIM availability

3. Magnetic Compass

- A. Fluid-filled
- B. Moves freely
- C. Correctly indicates known headings (taxiways, runways)

4. Heading Indicator (HI)/Horizontal Situation Indicator (HSI)/Remote Magnetic Indicator (RMI)

- A. Note correct indications on known headings during taxi

5. Attitude Indicator (AI)

- A. Allow 5 minutes for gyro speed up
- B. Note horizon bar aligned correctly

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- C. Unreliable if
 - i. More than 5°pitch or bank during taxi

6. Altimeter (ALT)

- A. Check maintenance logbook for static system and altimeter check within 24 months (91.411)
 - i. Check static ports open, clear
 - ii. Set to current reported altimeter setting
 - iii. Record ALT error = difference between ALT indication and known field elevation
 - iv. Conservative, safe practice: add any ALT error to approach MDA or DH during flight
 - v. ALT error > **75 feet** indicates ALT needs evaluation and repair

7. Turn-and-Slip Indicator/Turn Coordinator (TC)

- A. During taxi turns, ball moves freely to outside of turn
- B. During straight taxi, miniature airplane level

8. Vertical-Speed Indicator (VSI)

- A. Check maintenance logbook for static system (and altimeter) check within 24 months (91.411)
- B. Note/set level indication

9. Airspeed Indicator

- A. Check maintenance logbook for static system (and altimeter) check within 24 months (91.411)
- B. Confirm pitot heat available
- C. Note appropriately increasing rate during initial takeoff roll

10. Outside Air Temperature

- A. Note correct indication

11. Clock

- A. Set correct time
- B. Confirm operating

Conclusion:

Brief review of the main points