



**Federal Aviation
Administration**

Instrument Proficiency Check (IPC) Guidance

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It is intended to be a living document that incorporates comments, suggestions, and ideas for best practices from GA instructors like you. Please direct comments and ideas for future iterations to: susan.parson@faa.gov.

Happy – and safe – flying!

Introduction

The certificated flight instructor (CFI) performs one of the most vital and influential roles in aviation, because the aviation educator's work matters not just for the individual pilot, but for every passenger who entrusts his or her life to that pilot's knowledge, skill, and judgment.

The instrument flight instructor – the so-called “double-eye” – carries an even greater responsibility. Weather is still the factor most likely to result in aviation accidents with fatalities. Notwithstanding the common reminder that the instrument rating is not an “all weather license,” the CFI-I's endorsement for instrument privileges attests that the pilot has the knowledge and skill to operate safely in instrument meteorological conditions (IMC) during all phases of flight.

Two special challenges arise for the CFI-I who administers the instrument proficiency check (IPC) described in 14 CFR 61.57(d). The CFI-I who trains a pilot for the initial instrument rating can develop a comprehensive picture of that pilot's instrument flying knowledge, skills, and judgment, usually in an aircraft familiar to both the CFI-I and the trainee. By contrast, an IPC more often requires short-term evaluation of an unknown pilot, possibly with the added challenge of an unfamiliar aircraft and/or avionics, particularly in technically advanced aircraft. In addition, the IPC is not always conducted in the “real-world” IMC flying environment.

To ensure that the IPC serves the purpose for which it was intended, the current version of the Practical Test Standards (PTS) for the instrument rating (FAA-S-8081-4D effective October 1, 2004) stipulates that the flight portion of an IPC must include certain aeronautical tasks specific to instrument flying. This guide offers additional (optional) guidance, with special emphasis on conducting a thorough ground review and on administering IPCs in aircraft with advanced avionics. The goal is to help the CFI-I determine that a pilot seeking an IPC endorsement has both the knowledge and skills for safe operation in all aspects of instrument flying.

This guide is also designed as a companion to the FAA's *Conducting an Effective Flight Review*, which offers optional guidance to CFIs on administering the flight review required by 14 CFR 61.56.

Step 1: Preparation

Expectations: Regulations for the flight review (14 CFR 61.56) require a minimum of one hour of ground training and one hour of flight training. While 14 CFR 61.57(d) does not stipulate a minimum time requirement for the IPC, a good rule of thumb is to plan at least 90 minutes of ground time and at least two hours of flight time for a solid evaluation of the pilot's instrument flying knowledge and skills. Depending on the pilot's level of instrument experience and currency, you may want to plan on two or more separate sessions to complete an IPC. For pilots with little or no recent instrument flying experience, it is a good idea to schedule an initial session in an appropriate aircraft training device (ATD).

Regulatory Review. The regulations (14 CFR 61.57(d)) state that an IPC must include "a representative number of tasks required by the instrument rating practical test." A thorough IPC should cover general operating and flight rules for IFR as set out in 14 CFR Part 91 and in the *Aeronautical Information Manual* (AIM). To make the best use of ground time, ask the pilot to review the *Instrument Procedures Handbook (FAA-H-8261-1A)*, *Instrument Flying Handbook (FAA-H-8083-15)*, and *Aviation Weather and Weather Services* in advance of your session. Remind the pilot to bring current copies of documents such as the instrument rating PTS, FAR/AIM, charts (en route and instrument approach procedures), Airport/Facility Directory (A/FD), and Pilot's Operating Handbook (POH) or Airplane Flight Manual (AFM) for the aircraft to be used.

As part of the IPC preparation process, you may want to ask the pilot to complete the IPC Prep Course available in the Aviation Learning Center at www.faasafety.gov. This online course lets the pilot review material at his or her own pace and focus attention on areas of particular interest.

Cross-Country Flight Plan Assignment. Because IFR flying is almost always for transportation purposes, structuring the IPC as an IFR cross-country – ideally one representative of the pilot's typical IFR flying -- is an excellent way to evaluate real world instrument flying skills. The airport(s) to be used should have published instrument approach procedures. The flight plan should include consideration of all preflight planning elements required by 14 CFR 91.103, as well as appropriate instrument departure, arrival, and approach procedures. It should be based on a standard weather briefing for the day of the discussion and flight. If the ground and flight portions take place on different days, the pilot should have current weather for each session.

To ensure a thorough evaluation of the pilot's weather interpretation and analysis skills – especially if the weather for the actual IPC is MVFR or better – your own advance preparation might include obtaining a weather briefing for the assigned route on an IFR or low IFR (LIFR) day. You can either provide this IFR briefing to the pilot for advance analysis, or present it during the session for an on-the-spot review and evaluation.

Step 2: Ground Review

Knowledge is key to safe instrument operation, but it needs to be much deeper than the ability to recite rules and regulations. Scenario-based training is a very effective way to test a pilot's knowledge in the context of real-world IFR flying, so consider using the pre-assigned XC flight plan as a basis for both the ground review and the actual flight. A good ground review technique is to work through rules and "real world" procedures related to each phase of flight from departure to the destination airport. Topics to cover include the following:

✓ *Preflight (14 CFR 91.103)*

For a flight under IFR, the pilot must become familiar with "all available information." For the pre-assigned flight plan, the pilot should be able to address the following topics:

Weather (standard briefing)

- **Describe** weather for departure, en route, and arrival, to include discussion of forecast convective activity or freezing levels/cloud bases along the intended route. For example: "Conditions for departure are VFR, but we will encounter MVFR and IFR conditions en route. Conditions for ETA at destination are IFR. There is no convective activity in the forecast, but the freezing level is expected to be just above the filed altitude."
- **Evaluate** current/forecast weather in terms of:
 - Personal minimums
 - Aircraft equipment
 - Terrain / obstacle avoidance
 - Distance, time, and fuel to nearest VFR conditions

Expected performance & equipment required (airworthiness)

- **Determine** that aircraft is appropriately equipped for proposed flight (14 CFR 91.205(d), 14 CFR 19.171, Kinds of Operations Equipment List (KOEL) if provided in the Aircraft Flight Manual (AFM)).
- **Calculate** expected aircraft performance (takeoff/landing distances and cruise performance) under known and forecast conditions.
- **Describe** operation and failure modes of installed equipment (e.g., GPS, autopilot, avionics), and appropriate pilot response (including the requirement to report failures to ATC).

Alternatives

- **Determine** if weather requires filing an alternate and, if so:
- **Designate** alternates that are not only “legal,” but also appropriate to conditions, pilot experience, needs, etc. If planning to fly a GPS approach to the destination, consider the need to have a non-GPS approach at the alternate unless there is a WAAS-capable GPS. Can the pilot identify viable alternatives for every 25-30nm along the route? Does he or she establish “tripwire” conditions related to personal minimums as triggers for diversion?

Length / lighting of runways to be used

- **Determine** that available runway length is at least 150% of values shown in the POH/AFM, or at least 200% of the POH/AFM numbers for a wet, icy, or otherwise contaminated runway.
- **Explain** LAHSO procedures (*AIM* 4-3-11), if in effect at the airport(s) to be used.
- **Describe** expected lighting, including lighting as it applies to descent below MDA or DA (14 CFR 91.175).

Traffic delays

- **Determine** whether traffic delays might require holding, and
- **Describe** holding procedures (*AIM* 5-3-7). During this part of the review, you may want to give the pilot a practice holding clearance and have him or her explain how the entry would be made from the en route heading to the holding fix. For aircraft equipped with GPS moving map navigators, does the pilot understand how to set up and use this equipment to fly a non-published (“random”) holding pattern?

How much fuel is required

- **Calculate** fuel requirements sufficient to fly approaches at both the destination and alternate, and
- **Decide** on the amount of reserve fuel (e.g., legal reserve plus safety margin appropriate to reported and forecast weather conditions).

Risk Management and Personal Minimums

The ground discussion should include all risk factors that affect the planned flight, as well as the types of trips the pilot typically flies. The PAVE checklist is one way to make a structured identification and analysis. For example:

Pilot: general health, physical / mental / emotional state; proficiency, currency)

Aircraft: airworthiness, equipment, performance capability

enVironment: weather hazards, terrain, airports / runways to be used, conditions

External pressures: meetings, people waiting at destination, etc.

For each risk factor identified, ask the pilot what strategies can be used to mitigate or eliminate the hazards. This part of the IPC also offers an excellent opportunity to discuss personal minimums, and to help the pilot complete a personal minimums worksheet if he or she has never done so.

Personal Minimums Checklist. One of the most important concepts to convey is that safe pilots understand the difference between what is “legal” in terms of the regulations, and what is “smart” or “safe” in terms of pilot experience and proficiency. For this reason, assistance in completing a Personal Minimums Checklist tailored to the pilot’s individual circumstances is perhaps the single most important “takeaway” item you can offer. Use the Personal Minimums Development Worksheet in Appendix 3 to help the pilot work through some of the questions that should be considered in establishing “hard” personal minimums, as well as in preflight and in-flight decision-making for flight under IFR.

It may also be helpful to include key findings from accident data. For example, instrument pilots should be aware that non-precision approaches have an accident rate five times greater than precision approaches. Circling approaches, particularly at night, also increase risk, so the pilot should consider such factors as how much of a tailwind can be acceptable in lieu of a circling approach.

✓ *Taxi, Takeoff and Departure*

Even at a familiar airport, departure under instrument meteorological conditions can be challenging. Topics to cover in this part of the review include:

Taxi Procedures and Runway Incursion Avoidance

One of the FAA's top priorities is to reduce the frequency of runway incursions and the risk of a runway collision, so be sure that the pilot can correctly identify airport markings. Give the pilot a practice taxi clearance from ramp to runway, and ask him or her to show you on the airport diagram how to execute it. If the airports to be used have only a single runway, give the pilot taxi instructions for a more complex airport.

The [FAA's Runway Safety Office](http://www.faa.gov/runwaysafety/) (<http://www.faa.gov/runwaysafety/>) offers links to a number of resources available to help pilots operate safely on the airport surface. Sections 4-3-18 and 4-3-19 of the *Aeronautical Information Manual (AIM)* also offer guidance on safe taxi procedures, including taxi during low visibility conditions.

Instrument Departures (AIM 5-2-7)

All departure procedures (DPs) provide a way to depart the airport and transition safely to the en route structure, but proficient instrument pilots need to understand the difference between obstacle departure procedures (ODPs) and standard instrument departure procedures (SIDs). If the airport to be used has a SID, ask the pilot to explain how he or she would file and fly that specific procedure. Other questions to ask:

Obstacle Departure Procedures:

- What is an ODP, and where do you find it?
- What functions does the ODP serve?
- Do you need an ATC clearance to fly an ODP?
- Can ATC assign an ODP for departure from a non-towered airport?
- When should you fly an ODP?
- When departing from an airport without an ODP or SID, how will you ensure terrain/obstacle clearance until reaching a published MEA?

Standard Instrument Departure Procedures:

- What is a SID, and where do you find it?
- What functions does the SID serve?
- Can you fly a SID without ATC clearance?
- How do you file a SID (e.g., how is it stated in the flight plan)?

✓ *En Route*

Topics to review in connection with en route IFR operations include the following:

Airways and Route Systems

Using the proposed route of flight on the appropriate IFR en route chart, ask the pilot to talk you through the journey. Be sure that the pilot is familiar with standard terms and symbols (e.g., MEA, MOCA, MORA, COP). Most pilots are familiar with the airway system defined by VOR facilities, but if your client flies with area navigation (RNAV) equipment, be sure to review the material in AIM 5-3-4 and AIM 5-1-8(d) on RNAV routes. Questions to ask:

- What is a published RNAV (Q) route, and who can use it?
- What is an “unpublished” RNAV route, and when can you fly it?
- What is the Magnetic Reference Bearing (MRB), and what are the limitations on its use?

En Route Navigation (AIM 1-1-19)

This portion of the ground review should focus on use of the specific navigational equipment installed in the aircraft to be used for the IPC. For IPCs in aircraft equipped with GPS moving map navigators, special emphasis topics include:

- What requirements must your GPS meet before you can use it for IFR (e.g., equipment / installation approvals; operation in accordance with approved AFM or flight manual supplement, etc.).
- Under what conditions can you use GPS in place of ADF or DME equipment?
- Under what circumstances must you have (and use) means of navigation other than GPS?
- What is RAIM, and when is it required?
- What are GPS NOTAMs (1-1-19), and how do you find them?
- Must your database be current?
- How and where are GPS database updates logged?
- How does course and distance information on a GPS navigation display differ from data presented on navigational charts and conventional instrumentation?

En Route Weather

Since weather is at the heart of IFR flying, no IPC ground review can be complete without ensuring that the pilot is thoroughly familiar with sources of in flight weather information. A competent instrument pilot should know how to contact, address, and use the En Route Flight Advisory Service. As described in AIM 7-1-5, EFAS, or “Flight Watch,” is a service specifically designed to provide timely, meaningful, and pertinent weather, as well as to collect and distribute pilot

reports (PIREPs). EFAS is available on 122.0 between 5,000 MSL and 17,500 MSL; frequencies for other altitudes are listed in the AIM. Pilots should also be familiar with AIM 7-1-15 on ATC In flight Weather Avoidance Assistance, including ATC descriptive terminology for convective activity and weather radar echoes. Be sure to note that there have been recent changes to the terminology that ATC uses to describe weather radar echoes.

Whether via approved installation or a portable handheld unit, weather datalink (AIM 7-1-11) provides both textual and graphical information that can help improve pilot situational awareness. While datalink has significant potential to improve GA safety, realization of these safety benefits depends heavily upon the pilot's understanding of the specific system's capabilities and limitations. With datalink, IFR pilots should pay particular attention to such system limitations as:

- **Latency.** Where would you find the time stamp or “valid until” time on the particular datalink weather information displayed in the cockpit? (*Note: since initial processing and transmission of NEXRAD data can take several minutes, pilots should assume that datalink weather information will always be a minimum of seven to eight minutes older than shown on the time stamp and use datalink weather radar images for broad strategic avoidance of adverse weather.*)
- **Coverage.** What coverage limitations are associated with the type of datalink network being used? (*For example, ground-based systems that require a line-of-sight may have relatively limited coverage below 5,000 feet AGL. Satellite-based datalink weather systems can have limitations stemming from whether the network is in geosynchronous orbit or low earth orbit (LEO) Also, National Weather Service coverage has numerous gaps, especially in the western states.*)
- **Content/format.** Since service providers often refine or enhance datalink products for cockpit display, pilots must be familiar with the content, format, and meaning of symbols and displays in the specific system.

Abnormal Procedures and Emergencies

An IPC ground review of abnormal/emergency procedures for IFR operations should include the following topics:

- *Loss of two-way radio communications (AIM 6-4-1).* As stated in the AIM, a pilot who experiences a radio communications failure in VFR conditions should remain VFR and land as soon as practicable. In IFR conditions, the pilot should continue via the route assigned, vectored, expected, filed and at the highest of the following altitudes or flight levels for the route segment being flown: MEA, assigned, expected. Be sure to review the AIM guidance on clearance limits.

- *Loss of avionics/equipment* (AIM 5-3-3; 14 CFR 91.185; 14 CFR 91.187): Any loss of navigational capability (e.g., loss of one VOR in a dual VOR installation) during operations in controlled airspace should be reported to ATC, along with information on the degree to which the problem affects the aircraft's ability to operate under IFR in the ATC system.

- *Loss of PFD/MFD/Autopilot*: Many pilots today operate with the situational awareness advantage of moving map navigators, "glass cockpit" avionics, and capable autopilots. If your client uses such equipment, or if it is installed in the aircraft to be used for the IPC, have the pilot describe failure modes and recommended procedures for each piece of equipment. The pilot should also be able to describe how one failure may affect other installed components (e.g., how would failure of the AHRS or ADC affect the autopilot?).

✓ *Arrival and Approach Procedures*

Check for the pilot's understanding of the ways to fly an instrument approach:

- Via pilot navigation (“own nav”):
 - Where are the IAFs?
 - Which IAFs require a course reversal, and how should it be flown?
- Via vectors
 - What are minimum vectoring altitudes?
 - How can you maintain position awareness relative to nearby terrain?
- Via direct to IF (intermediate fix)
 - Is a course reversal required if a racetrack is depicted at the IF?
 - What are the requirements for a controller to issue a clearance direct to the IF?

Standard Terminal Arrival Procedures (AIM 5-4-1)

In reviewing the basics of flying a standard terminal arrival procedure (STAR), points to cover include the following:

- How do you file a STAR?
- When navigating a STAR, when may you descend?
- What does it mean if ATC instructs you to “descend via” the STAR?
- Do you need the approved chart in order to fly a STAR?
- What is an RNAV STAR?

Terminal Arrival Areas (AIM 5-4-5)

Some pilots may not be familiar with the concept of terminal arrival areas, which have been designed to provide a seamless transition from the en route structure to the terminal environment for aircraft equipped with GPS or Flight Management System (FMS) navigational equipment. Questions to ask:

- How are TAA lateral boundaries identified?
- How can the pilot determine which area of the TAA the aircraft will enter?
- When ATC clears you to enter the TAA, what are you expected to do?

Instrument Approach Procedures (AIM 5-4-5)

In addition to reviewing the terms, symbols, and basic steps for flying a conventional instrument approach procedure (e.g., ILS, LOC, VOR, NDB), you will also want to see whether the pilot understands RNAV(GPS) procedures and charting formats, with special emphasis on the minimums section. For example:

- What is LPV?
 - How do you know if you can fly to LPV minimums?
 - Does it include a DA or MDA?
 - At what point does the missed approach begin?
- What is LNAV/VNAV?
 - How do you know if you can fly to LNAV/VNAV minimums?
 - Does it include a DA or MDA?
 - What limitations (e.g., temperature) apply if using a WAAS receiver?
 - Can you use a remote altimeter setting with a WAAS receiver?
- What is LNAV+V?
 - At what point does the vertical glide path intercept the MDA?
- What is LNAV?
 - How do you know if you can fly to LNAV minimums?
 - Does it include a DA or MDA?

Another area to cover is the use of visual descent points (VDPs), which are described in AIM 5-5-5. For example:

- What is a VDP?
 - How is the VDP identified on the chart?
 - What techniques are required to fly a procedure with a VDP?
 - If the approach includes a VDP, when may you descend below MDA?

✓ *Missed Approach Procedures*

Missed Approach (AIM 5-4-21 and AIM 5-5-5)

The missed approach procedure (MAP) is one of the most challenging maneuvers a pilot can face, especially when operating alone (single pilot) in IMC. Safely executing the MAP requires a precise and disciplined transition that involves not only aeronautical knowledge and skill – the natural areas of focus in most training programs – but also a crucial psychological shift. There is little room for error on instrument missed approach procedures, and a pilot who hesitates due to deficits in procedural knowledge, aircraft control, or mindset can quickly come to grief. Important MAP topics to cover in the IPC ground review include:

- At what point must you execute the MAP:
 - When flying a precision approach?
 - When flying a non-precision approach?
- What is the proper procedure if the decision to miss is made prior to reaching the MAP?
- Do rules and procedures require you to fly to the filed alternate after a missed approach at the intended destination?
- After executing the missed approach, what factors should you consider when deciding whether to make a second attempt, as opposed to proceeding to an alternate?

Step 3: Flight Activities

A proficient instrument pilot must possess knowledge and skill in three distinct, but interrelated, areas:

- ✓ *Aircraft control skills* (i.e., basic attitude instrument flying, or (BAI) – cross-check (including effective scan), interpret, and control. If the pilot flies in “glass cockpit” aircraft, the discussion should include appropriate and effective scanning techniques for these aircraft.
- ✓ *Aircraft systems knowledge* (i.e., knowledge and proficiency in instrument procedures and aircraft systems, including GPS/FMS, autopilot, datalink);
- ✓ *Aeronautical decision-making (ADM) skills* (i.e., higher-order thinking skills, flight planning & flight management, cockpit organization, weather analysis/anticipation).

There may be a temptation to focus the flight portion of the IPC on the first of these three areas (aircraft control), and to proceed sequentially through the required items chart in the PTS (FAA-S-8081-4D). While these activities can provide a snapshot of the pilot’s aircraft control skills, a series of approaches and other maneuvers conducted “out of context” will tell you little about the pilot’s knowledge of avionics and other aircraft systems, and even less about the pilot’s ability to make safe and appropriate decisions in real-world instrument flying.

Having the pilot fly the cross-country trip you assigned and discussed in the ground review is a good way to make a more thorough and integrated assessment of the pilot’s knowledge, skills, and judgment. Since ATC procedures are a critical part of instrument flying, ask the pilot to file and fly one leg “in the system.” A leg that involves flying from departure to destination gives you an opportunity to evaluate the pilot’s communication skills, systems knowledge and day-to-day decision-making skills, including risk management.

The other leg (which can come first, depending on how you choose to organize the exercise) can focus more on basic attitude instrument (BAI) flying, approaches, and holding patterns. For example, you might fly the return leg of the cross-country under VFR, putting the pilot under the hood for BAI exercises. At some point, give the pilot a scenario that requires a diversion (e.g., mechanical problem, unexpected weather below minimums). Ask the pilot to choose an alternate destination and, using all available and appropriate resources (e.g, chart, basic rules of thumb, “nearest” and “direct to” functions on the GPS) to calculate the approximate course, heading, distance, time, and fuel required to reach the new destination. Proceed to that point and, if feasible, do some of the basic aircraft control work (approaches, including circling approach, missed approach, and holding) at the unexpected alternate.

The diversion exercise has several benefits. First, it generates “teachable moments,” which those times when the learner is most aware of the need for certain information or skills, and therefore most receptive to learning what you want to teach. Diverting to an airport surrounded by high terrain, for example, provides a “teachable moment” on the importance of obstacle awareness and terrain avoidance planning. Second, the diversion exercise quickly and efficiently reveals the pilot’s level of skill in each of the three areas:

- *Aircraft control skills:* The PTS task chart requires one precision approach and one non-precision approach, plus loss of primary flight instruments. Does the pilot maintain control of the aircraft when faced with a major distraction, and/or when flying the missed approach procedure? Consider as well asking the pilot to remove the hood and land out of a practice approach to DA or MDA. For a satisfactory IPC, the pilot should be able to perform all maneuvers in accordance with the Practical Test Standards (PTS) for the pilot certificate that he or she holds. If the pilot is flying a multi-engine aircraft for the check, a single-engine approach is essential.
- *Aircraft systems knowledge:* Does the pilot demonstrate knowledge and proficiency in using avionics and aircraft systems, including GPS moving map navigators and the autopilot? The pilot should be thoroughly familiar with both normal and abnormal operation of all systems, and understand how they work together in IFR flying. In technically advanced aircraft, does the pilot understand the significance of indicators for “ENR,” “TERM,” and “APR?” Does the pilot correctly manage the sequence for selecting navigation source and arming the autopilot’s approach mode? Does the pilot effectively access and manage the information available in onboard databases?
- *Aeronautical decision-making (ADM) skills:* Give the pilot multiple opportunities to make decisions. Asking questions about those decisions is an excellent way to get the information you need to evaluate ADM skills, including risk management. For example, ask the pilot to explain why the alternate airport selected for the diversion exercise is a safe and appropriate choice. What are the possible hazards, and what can the pilot do to mitigate them? Be alert to the pilot’s information and automation management skills as well. For example, does the pilot perform regular “common sense” cross-checks of what the GPS and/or the autopilot are doing? Does the pilot always keep track of position when being vectored, using cross radials? Does the pilot maintain awareness of weather, personal minimums and alternates at all times?

Step 4: Post flight Debriefing

Most instructors have experienced the traditional model of training, in which the teacher does all the talking and hands out “grades” with little or no student input. There is a place for this kind of debriefing; however, a collaborative critique is a more effective way to determine that the pilot has not only aircraft control skills and systems knowledge, but also the situational awareness and judgment needed for sound aeronautical decision-making. Here is one way to structure a collaborative post flight critique:

Replay: Rather than starting the IPC post flight briefing with a laundry list of areas for improvement, ask the pilot to verbally *replay* the flight for you. Listen for areas where your perceptions are different, and explore why they don’t match. This approach gives the pilot a chance to validate his or her own perceptions, and it gives you critical insight into his or her judgment abilities.

Reconstruct: The reconstruct stage encourages the pilot to learn by identifying the “would’a could’a should’a” elements of the flight – that is, the key things that he or she *would have, could have, or should have* done differently.

Reflect: Insights come from investing perceptions and experiences with meaning, which in turn requires reflection on these events. For example:

- What was the most important thing you learned today?
- What part of the session was easiest for you? What part was hardest?
- Did anything make you uncomfortable? If so, when did it occur?
- How would you assess your performance and your decisions?
- Did you perform in accordance with the Practical Test Standards?

Redirect: The final step is to help the pilot relate lessons learned in this flight to other experiences, and consider how they might help in future flights. Questions:

- How does this experience relate to previous flights?
- What might you do to mitigate a similar risk in a future flight?
- Which aspects of this experience might apply to future flights, and how?
- What personal minimums should you establish, and what additional proficiency flying and training might be useful?

Step 5: Instrument Practice Plan

Offer the pilot an opportunity to develop a personalized IFR skill maintenance and improvement plan. Such a plan should include consideration of the following elements:

Personal Minimums Checklist. As noted earlier, one of the most important concepts to convey in the flight review is that safe pilots understand the difference between what is “legal” in terms of the regulations, and what is “smart” or “safe” in terms of pilot experience and proficiency. For this reason, assistance in completing a personal minimums checklist tailored to the pilot’s individual circumstances is perhaps the single most important “takeaway” item you can offer. The Personal Minimums Development Worksheet in Appendix 3 is one tool you can use to help the pilot work through issues that should be considered in establishing “hard” personal minimums, as well as in preflight and in-flight decision-making.

Instrument Proficiency Practice Plan: Many pilots would appreciate your help in developing a plan for maintaining and improving basic instrument flying skills.

Training Plan: Discuss and schedule any additional training the pilot may need to achieve individual flying goals. For example, the pilot’s goal might be to develop the competence and confidence needed to fly IFR at night, or to lower personal minimums in one or more areas. Use the form in Appendix 7 to document the pilot’s aeronautical goals and develop a specific training plan to help him or her achieve them.

The IPC is a vital link in the general aviation safety chain. As a person authorized to conduct this review, you play a critical role in ensuring that it is a meaningful and effective tool for maintaining and enhancing GA safety.

Appendices

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References

14 CFR 61.57(d) — *Instrument proficiency check.*

Except as provided in paragraph (e) of this section, a person who does not meet the instrument experience requirements of paragraph (c) of this section within the prescribed time, or within 6 calendar months after the prescribed time, may not serve as pilot in command under IFR or in weather conditions less than the minimums prescribed for VFR until that person passes an instrument proficiency check consisting of a representative number of tasks required by the instrument rating practical test.

(1) The instrument proficiency check must be—

- (i) In an aircraft that is appropriate to the aircraft category;
- (ii) For other than a glider, in a flight simulator or flight training device that is representative of the aircraft category; or
- (iii) For a glider, in a single-engine airplane or a glider.

(2) The instrument proficiency check must be given by—

- (i) An examiner;
- (ii) A person authorized by the U.S. Armed Forces to conduct instrument flight tests, provided the person being tested is a member of the U.S. Armed Forces;
- (iii) A company check pilot who is authorized to conduct instrument flight tests under part 121, 125, or 135 of this chapter or subpart K of part 91 of this chapter, and provided that both the check pilot and the pilot being tested are employees of that operator or fractional ownership program manager, as applicable;
- (iv) An authorized instructor; or
- (v) A person approved by the Administrator to conduct instrument practical tests.

AC—61-65E

Completion of an instrument proficiency check: § 61.57

(d) I certify that (First name, MI, Last name), (pilot certificate), (certificate number), has satisfactorily completed the instrument proficiency check of § 61.57(d) in a (list make and model of aircraft) on (date).

S/S [date] J. J. Jones 987654321CFI Exp. 12-31-00

NOTE: No logbook entry reflecting unsatisfactory performance on an instrument proficiency check is required.

*For aviation safety information and online resources, visit:
www.faasafety.gov*



Checklist for Instrument Proficiency Check

Step 1: Preparation

- Expectations
- Regulatory Review
- Cross-Country Flight Plan Assignment

Step 2: Ground Review

- Preflight
- Taxi, Takeoff, Departure
- En route
- Arrival and Approach
- En Route
- Missed Approach

Step 3: Flight Activities

- Aircraft Control (BAI)
- Systems and Procedures
- Aeronautical Decision-Making

Step 4: Postflight Discussion

- Replay, Reflect, Reconstruct, Redirect
- Questions

Step 5: Instrument Practice Plan

- Personal Minimums Checklist
- Instrument Proficiency Practice Plan
- Training Plan (if desired)

Ground Review

| PILOT | |
|--------------|------------------------------------|
| 61.57 | Recency of Experience |
| 91.3 | PIC responsibilities and authority |
| 91.103 | Preflight actions |
| AIM 8 | Medical facts for pilots |

| AIRCRAFT | |
|-----------------|--|
| 91.167 | Fuel requirements |
| 91.171 | Equipment check (VOR) |
| 91.185 | IFR two-way radio communications failure |
| 91.187 | Malfunction reports |
| 91.205 | Required instruments and equipment |
| 91.207 | ELT |
| 91.209 | Aircraft lights |
| 91.213 | Inoperative instruments and equipment |
| 91.411 | Altimeter and pitot-static system tests |
| 91.413 | ATC transponder tests |

| ENVIRONMENT | |
|--------------------|-------------------------------|
| 91.123 | ATC instructions |
| 91.169 | IFR flight plan |
| 91.173 | ATC clearance and flight plan |
| 91.175 | TO and LDG in IFR |
| 91.177 | Minimum IFR altitudes |
| 91.179 | IFR cruising altitudes |
| 91.181 | Course to be flown |
| 91.183 | IFR two-way communications |
| AIM 1 | Navigation aids |
| AIM 4 | Air traffic control |
| AIM 5 | Air traffic procedures |

| EXTERNAL PRESSURES | |
|---------------------------|---|
| 91.185 | IFR two-way radio communications failure |
| AIM 6 | Emergency procedures |
| AIM 5-6 | National security and interception procedures |

Flight Activities

| AREA OF OPERATION | DATE |
|---|-------------|
| I. PREFLIGHT PREPARATION A. Weather Information B. Cross-Country Flight Planning | |
| II. PREFLIGHT PROCEDURES A. Aircraft Systems Related to IFR Operations B. Aircraft Flight Instruments and Navigation Equipment C. Instrument Cockpit Check | |
| III. AIR TRAFFIC CONTROL CLEARANCES AND PROCEDURES A. Air Traffic Control Clearances B. Compliance with Departure, En Route, and Arrival Procedures and Clearances C. Holding Procedures | |
| IV. FLIGHT BY REFERENCE TO INSTRUMENTS A. Basic Instrument Flight Maneuvers B. Recovery from Unusual Flight Attitudes | |
| V. NAVIGATION SYSTEMS A. Intercepting/Tracking Navigational Systems and DME Arcs | |
| VI. INSTRUMENT APPROACH PROCEDURES A. Nonprecision Approach (NPA) B. Precision Approach (PA) C. Missed Approach D. Circling Approach E. Landing from a Straight-in or Circling Approach | |
| VII. EMERGENCY OPERATIONS A. Loss of Communications B. One Engine Inoperative During Straight-and-Level Flight and Turns (Multiengine Airplane) C. One Engine Inoperative—Instrument Approach (Multiengine Airplane) D. Loss of Primary Flight Instrument Indicators | |
| VIII. POSTFLIGHT PROCEDURES A. Checking Instruments and Equipment | |

Note: Structure the flight portion as an out-and-back IFR XC, with one leg focused on XC procedures (including missed approach and diversion procedures) and the other leg focused on airwork (aircraft control).

Pilot's Instrument Experience Summary

Pilot's Name: _____ CFI: _____
Address: _____
Phone(s): _____ e-mail: _____

Type of Pilot Certificate(s):

Private _____ Commercial _____ ATP _____ Flight Instructor _____

Rating(s):

Instrument _____ Multiengine _____

Experience (Pilot):

Total time _____ Last 6 months _____ Avg hours/month _____

Time logged since last IPC _____

Experience (Aircraft):

Aircraft type(s) you fly _____

Aircraft used most often _____

For this aircraft:

Total time _____ Last 6 months _____ Avg hours/month _____

Experience (Flight environment):

Approximately how many hours have you logged in:

Day VFR _____ Day IFR _____ IMC _____
Night VFR _____ Night IFR _____ Approaches _____
Approaches to minimums _____ Approaches in last 6 months _____

Type of Flying (External factors):

What percentage of your flying is for:

Pleasure _____ Business _____ Local _____ XC _____

Personal Skills Assessment:

What are your strengths as a pilot? _____

What do you most want to practice/improve? _____

What are your aviation goals? _____

Step 4: Assemble and evaluate baseline personal minimums.

| Baseline Personal Minimums | | | | |
|----------------------------|--------------------------|------|-----|------------|
| Weather Condition | VFR | MVFR | IFR | LIFR |
| Ceiling | | | | |
| | Day | | | |
| | Night | | | |
| Visibility | | | | |
| | Day | | | |
| | Night | | | |
| Turbulence | | SE | ME | Make/Model |
| | Surface Wind Speed | | | |
| | Surface Wind Gust | | | |
| | Crosswind Component | | | |
| Performance | | SE | ME | Make/Model |
| | Shortest runway | | | |
| | Highest terrain | | | |
| | Highest density altitude | | | |



Federal Aviation Administration

Developing *Personal* Minimums

Think of personal minimums as the human factors equivalent of reserve fuel. Personal minimums should provide a solid safety buffer between:

- *Skills required* for the specific flight, and
- *Skills available* to you through your training, experience, currency, and proficiency.

Step 1 – Review Weather Minimums

Step 2 – Assess Weather Experience and Personal Comfort Level

Step 3 – Consider Winds and Performance

Step 4 – Assemble Baseline Values

Step 5 – Adjust for Specific Conditions

Step 6 – Stick to the Plan!

Step 5: Adjust for specific conditions.

| | If you are facing: | Adjust baseline personal minimums to: | |
|--------------------|---|---------------------------------------|----------------------------------|
| Pilot | Illness, medication, stress, or fatigue; lack of currency (e.g., haven't flown for several weeks) | A d d | At least 500 feet to ceiling |
| | | | At least ½ mile to visibility |
| Aircraft | An unfamiliar airplane, or an aircraft with unfamiliar avionics/ equipment: | S u b t r a c t | At least 500 ft to runway length |
| enVironment | Airports and airspace with different terrain or unfamiliar characteristics | | At least 5 knots from winds |
| External Pressures | "Must meet" deadlines, passenger pressures; etc. | | |

Step 1: Review definitions for VFR & IFR weather minimums.

| Category | Ceiling | | Visibility |
|----------|------------------------|--------|-----------------------------|
| VFR | greater than 3,000 AGL | and | greater than 5 miles |
| MVFR | 1,000 to 3,000 AGL | and/or | 3 to 5 miles |
| IFR | 500 to 999 AGL | and/or | 1 mile to less than 3 miles |
| LIFR | below 500 AGL | and/or | less than 1 mile |

Step 2(a): Record certification, training, & recent experience.

| CERTIFICATION LEVEL | |
|--|--|
| Certificate level (e.g., private, commercial, ATP) | |
| Ratings (e.g., instrument, multiengine) | |
| Endorsements (e.g., complex, HP, high altitude) | |
| TRAINING SUMMARY | |
| Flight review (e.g., certificate, rating, Wings) | |
| Instrument Proficiency Check | |
| Time since checkout in airplane 1 | |
| Time since checkout in airplane 2 | |
| EXPERIENCE | |
| Total flying time | |
| Years of flying experience | |
| RECENT EXPERIENCE (last 12 months) | |
| Hours | |
| Hours in this airplane (or identical model) | |
| Normal Landings | |
| Crosswind landings | |
| Night hours | |
| Night landings | |
| Hours flown in high density altitude | |
| Hours flown in mountainous terrain | |
| IFR hours | |
| IMC hours (actual conditions) | |
| Approaches (actual or simulated) | |
| Time with specific GPS navigator | |
| Time with specific autopilot | |

Step 2(b): Enter values for weather experience/ “comfort level.”

| Experience & “Comfort Level” Assessment Combined VFR & IFR | | | | |
|---|--------------|------|-----|------|
| Weather Condition | VFR | MVFR | IFR | LIFR |
| Ceiling | | | | |
| | Day | | | |
| | Night | | | |
| Visibility | | | | |
| | Day | | | |
| | Night | | | |

Step 3(a): Enter values for experience / comfort in turbulence.

| Experience & “Comfort Level” Assessment Wind & Turbulence | | | |
|--|----|----|----------------|
| | SE | ME | Make/ Model |
| Turbulence | | | |
| Surface wind speed | | | |
| Surface wind gusts | | | |
| Crosswind component | | | |

Step 3(b): Enter values for performance.

| Experience & “Comfort Level” Assessment Performance Factors | | | |
|--|----|----|----------------|
| | SE | ME | Make/ Model |
| Performance | | | |
| Shortest runway | | | |
| Highest terrain | | | |
| Highest density altitude | | | |

3-P Risk Management Process

Good aeronautical decision-making includes risk management, a process that systematically identifies hazards, assesses the degree of risk, and determines the best course of action. There are many models for risk management, including charts that generate a numerical “score.” Although these tools can be useful, numbers-based tools suggest a level of precision that may be misleading.

An alternative method is the Perceive – Process – Perform risk management and aeronautical decision-making model developed by the FAA Aviation Safety Program. There are three basic steps in this model:



PERCEIVE hazards

PROCESS to evaluate level of risk

PERFORM risk management

PERCEIVE: The goal is to identify hazards, which are events, objects, or circumstances that could contribute to an undesired event. You need to consider hazards associated with:

Pilot
Aircraft
enVironment
External Pressures.

PROCESS: Ask questions to determine what can hurt you. In short, why do you have to **CARE** about these hazards?

What are the **C**onsequences?
What are the **A**lternatives available to me?
What is the **R**eality of the situation facing me?
What kind of **E**xternal pressures may affect my thinking?

PERFORM: Change the situation in your favor. Your objective is to make sure the hazard does not hurt **ME** or my passengers, so work to either

Mitigate the risk involved, or
Eliminate the risk involved.

IFR Weather Analysis Process

Determine destination and proposed route of flight
Possible Tools: AOPA RTFP
AeroPlanner

Check Big Picture overview
Possible Tools: TWC, SkyVector

ADDS items to review:

- TAFs and METARs (dep, dest, enr)
- Winds & temps aloft
- Radar
- Freezing levels

Evaluate for compliance with personal minimums & aircraft capability:

| | Personal Minimums | Actual |
|-------------|-------------------|--------|
| Ceiling | | |
| Visibility | | |
| Winds | | |
| Performance | | |

If consistent with personal minimums, continue flight planning process

| | Departure | En route | Destination |
|--------------------|-----------|----------|-------------|
| Escapes/Alternates | | | |
| Reserve fuel | | | |
| Terrain avoidance | | | |
| Passenger plan | | | |

Call Flight Service or DUATS:

- Request standard briefing
- File IFR flight plan
- Verify information / picture gained from other sources
- Modify plans as necessary

Regional / Seasonal Weather Considerations

Location: _____

Topography

- Mountains: highest elevation _____
- Bodies of water: _____
- Other features: _____
- _____

Seasonal Weather Characteristics

| | Winter | Spring | Summer | Autumn |
|-----------------|--------|--------|--------|--------|
| Average temps | | | | |
| Ceiling | | | | |
| Visibility | | | | |
| Wind direction | | | | |
| Wind velocity | | | | |
| TS activity | | | | |
| Icing potential | | | | |
| Other | | | | |

Most Important "Local Knowledge" Tips

Instrument Training and Proficiency Plan

Pilot's Name: _____ CFI: _____
Date: _____ Review Date: _____

Instrument Training Goals

_____ Certificate Level (Private, Commercial, ATP)
_____ Ratings (Instrument, AMEL, ASES, AMES, etc)
_____ Phase in Pilot Proficiency (Wings) Program
_____ Instructor Qualifications (CFI, CFI-I, MEI, AGI, IGI)
Other: _____

Instrument Proficiency Goals

_____ Lower personal minimums to:
_____ Ceiling
_____ Visibility
_____ Winds
_____ Precision Approach Minimums
_____ Non-Precision Approach Minimums

_____ Fly IFR / IMC at least:
_____ Times per month
_____ Hours per month
_____ Hours per year
_____ XC flights per year
_____ Night hours per month

_____ Make an IFR / IMC XC trip to: _____
Other: _____

Aeronautical Training Plan

Resources

Aviation Digital Data Service (ADDS)

<http://adds.aviationweather.noaa.gov/>

Beyond the Buttons: Mastering Our Marvelous Flying Machines

http://www.faa.gov/news/aviation_news/2007/media/MarchApril2007.pdf

Currency and Additional Qualification Requirements for Certificated Pilots

[\(AC 61-98A\)](#)

Flight Service (Lockheed Martin)

<http://www.afss.com/>

GA Pilot's Guide to Preflight Weather Planning, Weather Self-Briefings, and Weather Decision-Making

www.faa.gov/pilots/safety/media/ga_weather_decision_making.pdf

<http://www.hf.faa.gov/WeatherDecisionGuide/default.aspx> (online version)

Online Resources for CFIs

www.faasafety.gov

Risk Management and System Safety Modules

www.faa.gov/education_research/training/fits/training/flight_instructor/

Runway Safety / Airport Diagrams

<http://www.faa.gov/runwaysafety/>

SkyVector

www.skyvector.com

Teaching Practical Risk Management

www.faa.gov/library/aviation_news/2005/media/MayJune2005Issue.pdf

Tools for CFIs (AOPA)

http://flighttraining.aopa.org/cfi_tools/