POST-QUIZ DISCUSSION

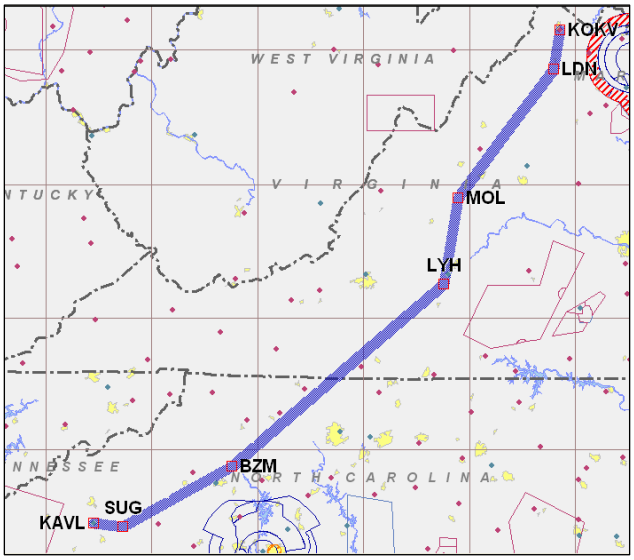
of

Aeronautical Decision-Making Course Flight Scenarios

NOTE: This documents is intended for review only after completing the course quiz.

ADM Flight Scenario 1 - Discussion

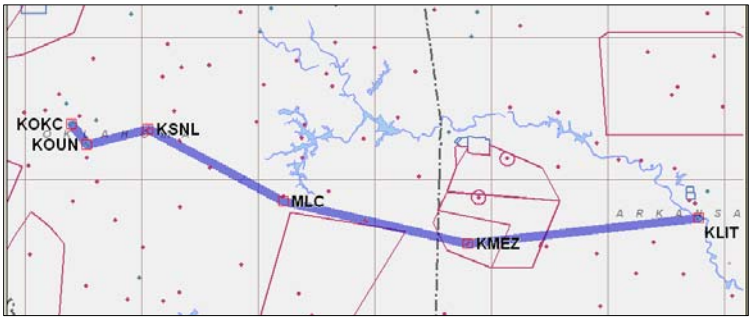
For this pilot, ***lack of recent flight experience*** may be the single biggest hazard on a flight that involves several other hazards: flight over mountainous terrain to an unfamiliar airport, with weather hazards that include haze and high density altitude. The family expectations also create a risk, since any diversion, delay, or cancellation will disappoint others.



Over the LYH VORTAC, which is near the Lynchburg Airport (KLYH), the haze becomes thicker. Of the choices offered in the question, the option of descending in haze over mountainous terrain is not attractive – you cannot avoid terrain that you cannot clearly see. Although you might consider making the 180 turn, remember that haze can thicken very gradually, and you may have been flying in these conditions for some time before they gradually became bad enough to get your attention. Since you are very near the Lynchburg Airport, the "best" course of action in this situation is to request ATC's help in landing at KLYH.

Upon reaching BZM VORTAC, which is about 70 nm from the Asheville Airport (KAVL), the aircraft is closest to the Morganton-Lenoir Airport (non-towered), but also within easy range of the larger Hickory Regional Airport (towered). ***Either airport would be a good alternative to continuing as planned to Asheville***. Continuing to KAVL is a poor choice for a number of reasons: the pilot is inexperienced in terms of total time, recent flight experience, and familiarity with the route and destination airport. The Asheville Airport, which is surrounded by high terrain, is reporting marginal VFR conditions. Although KMRN is slightly closer to the destination than KHKY, the choice between KMRN and KHKY is really a matter of personal preference for the pilot since both are reporting VFR conditions.

ADM Flight Scenario 2 - Discussion



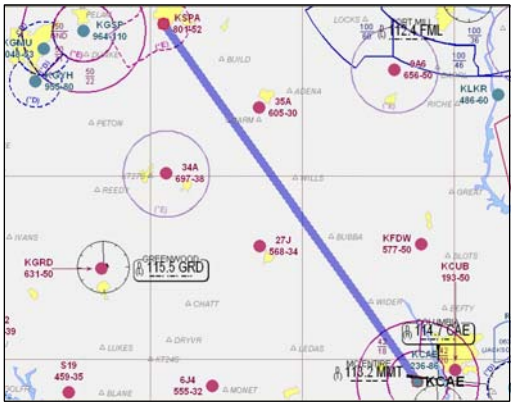
The weather conditions reported for this trip certainly require careful study. The trip – approximately 2 hours – is to take place from 2330Z to 0130Z. At the departure airport (KLIT), conditions from 2100Z are reported as winds 250 at 5, overcast at 2500, and visibility better than 6 miles. Enroute conditions (e.g., KMLC) for this timeframe are similar. At the destination (KOKC), the forecast calls for light winds, and (between 2300Z and 0500Z) scattered 2500 to broken at 1000. Given the gap between forecast periods, it is difficult to get a clear picture of what conditions at KOKC will be at the 0130Z arrival time, but they appear to be somewhere between scattered to broken 2000, light winds, and visibility better than 6 miles in the 2300Z timeframe, worsening to 5 miles in mist with broken clouds at 1000 in KOKC by 0500Z.

The pilot is well-rested; experienced in terms of total time and IFR procedures; and flying a well-equipped and familiar aircraft. In this case, the greatest hazard may be the ***external pressures*** – important meeting ahead with ***lack of schedule flexibility***, and a subordinate colleague aboard as the passenger. These factors could easily – and strongly – influence the pilot to press ahead, even if weather conditions dictate another course of action.

The enroute scenario described in the question forces the pilot to choose between short-term passenger comfort and overall flight safety. You are below clouds at 8,000 MSL, but climbing into clouds when the OAT is below freezing puts you at risk of inflight icing – and there is no ice protection equipment on the airplane. Since you are flying at night, it might also be harder to see the earliest stages of ice accumulation. The safest action is to ***decline*** the higher altitude.

If conditions deteriorate as described in one of the quiz questions, the pilot (already under pressure to get to KOKC) has a dilemma. The newly reported conditions are legal, but below personal minimums. The temptation to press ahead and ignore personal minimums will be very strong; after all, they are "close" to personal minimums, right? Breaking personal minimums is never a good idea, so continuing to KOKC under pressure is not a wise choice. Landing at KSNL (Shawnee), which is within 30 minutes of the destination airport, is one safe option. Another reasonable option is to ***land at KOUN*** (University of Oklahoma), which is above legal minimums, consistent with personal minimums, and closer to the planned destination.

ADM Flight Scenario 3 - Discussion



In this scenario, much depends upon the pilot's personal comfort level. In this situation, the weather is good, and the pilot is flying a familiar aircraft model over a familiar cross-country route. There is no question that it can be flown ***without violating established personal weather minimums***.

As long as the inoperative AI has been properly handled (per 14 CFR 91.213(d)), there is nothing wrong with making a ***"go"*** decision for this trip. There is also nothing wrong in deciding that making the trip in these conditions is outside your personal comfort level, and making a "no-go" decision instead. In fact, you might find it useful to develop personal minimums that address mechanical issues as well as weather conditions, to help guide decisions such as this one.

One factor to consider – as shown in the way this scenario develops in one of the questions – is whether an inoperative gyro instrument is an indication of a bigger problem (e.g., failure of vacuum pump). None of the three options presented in this question is clearly "right" or "wrong;" but each one has pros and cons. You can certainly continue to Columbia (KCAE) and, since neither the AI nor the heading indicator is legally required for day VFR flight, you could even continue to KCAE and fly the return trip to KSPA (provided, of course, that you comply with the requirements of 14 CFR 91.213(d)) for the inoperative heading indicator). You could also divert to KFDW to get on the ground as soon as possible, which would be the safest decision if you are too "rattled" or distracted by the inflight instrument failure. As long as distraction is not a factor, though, the best course of action, however, is to carefully ***make a 180 and return*** to home base, using pilotage and dead reckoning (remember – no handheld GPS is available in this scenario).

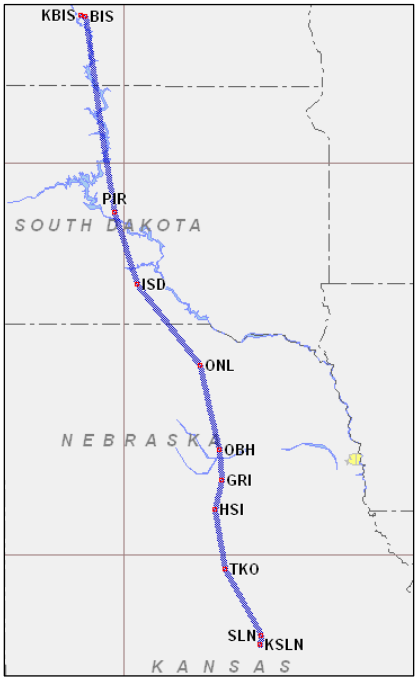
ADM Flight Scenario 4 - Discussion

This is a scenario which illustrates the difference between flight time and flight experience. The pilot has 1,500 hours, but 2/3 of this time was all logged in the same airplane and the same location. Making a 200nm cross-country trip in an unfamiliar aircraft, unfamiliar avionics, and less-than-VFR weather conditions with a strong personal mission to accomplish clearly presents certain hazards.

Of these, and in view of the other circumstances described in the scenario, the biggest (or most immediate) hazard is probably the pilot's ***limited experience in the aircraft/avionics*** to be used for this trip. As most pilots realize, there is a big difference between a C172 Skyhawk with conventional instruments and a DA40 Diamond Star with G1000 avionics. Pilots who have flown with the G1000 can also attest to the need for a thorough checkout and regular practice to maintain proficiency with the avionics and automated systems. For this reason, the single biggest way to mitigate risk for this trip – all other factors being as described in the scenario – is to ***rent a C172*** and get more practice with the DA40/G1000 before attempting this kind of trip.

One of the questions assumes that you decided to make the trip anyway and that you notice ice forming while you are in clouds at 10,000 MSL. You know you need to do something, and note that all the alternatives generated in the PROCESS phase begins with "immediate." In real life, your decision might be influenced by what you learned in your weather briefing about cloud bases, cloud tops, temperatures aloft, etc. With no further information available, though, ***requesting a 180 turn*** is the best course of action among the four options presented. If you do not know where cloud bases and cloud tops are, you cannot risk descending into terrain (possibly collecting more ice along the way), and you cannot risk climbing into more ice without knowing that you will be able to break out of the clouds before you accumulate too much ice to climb at all. Vectors to the nearest alternate airport is not necessarily wrong, but it is probably a better second choice – first try to turn around and return to no-ice conditions, and then consider where to go next.

ADM Flight Scenario 5 - Discussion

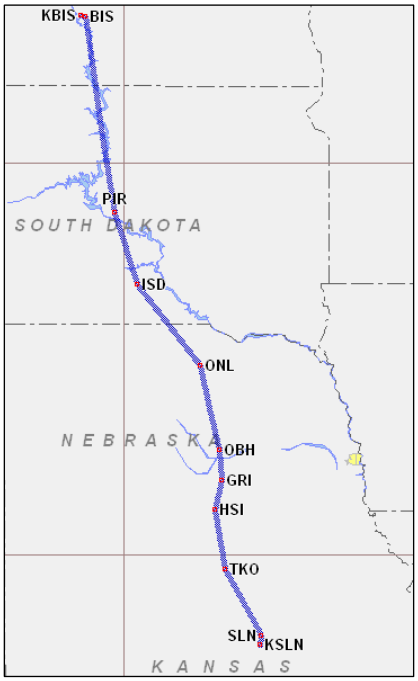


Parts of this scenario will be familiar to anyone who has ever tried to make a trip after a full day or work or school. Fatigue is a significant hazard, and one that can amplify other hazards that might otherwise be of less concern.

In this scenario, the pilot has a lot of recent flight experience, including during instrument conditions. Weather for the trip from KBIS (Bismarck) to Salina (KSLN) is good. Even so, it is not a good idea to launch on a trip like this one after a long workday. Remember that the trip – planned as a nonstop – will require nearly 4 hours of flying. The single biggest hazard for this trip is thus the pilot's ***work-related fatigue***, which will make it even more challenging to fly a long trip in an unfamiliar aircraft.

The safest course of action is for the pilot to get a good night's sleep and depart early the following day. Assuming that you decide to launch anyway, though, the single most helpful step you can take to mitigate the risk is to ***fly an airplane with known systems*** rather than one that you have flown for only 10 hours, and also to ***plan a fuel/rest stop*** enroute.

ADM Flight Scenario 6 - Discussion



Any time you make a cross-country trip, getting to your destination is only half of the battle. You also need to get home again and, since many trips take place over weekends and holidays, there is often significant pressure to get back on time so that you do not miss work, school, or other activities.

In this case, the scenario indicates that you departed at 1800Z for a trip that will take nearly 4 hours (i.e., ETA is approximately 2200Z). At the time you depart Salina (KSLN), current reports for the first half of your trip are good, but conditions between Pierre (KPIR) and Bismarck (KBIS) are deteriorating. In fact, KBIS is already reporting ½ mile with low ceilings, snow, and freezing fog. The forecast for your ETA in Bismarck is the same, and conditions are not expected to improve anytime soon.

Since your aircraft has no weather avoidance or ice protection equipment, you should have already decided that you will not be able to fly all the way home today and, if you launch at all, you should choose a safe destination somewhere along the way and plan to wait until the weather passes. ***Pierre, South Dakota (KPIR)*** is probably a good choice if you depart Salina (KSLN) at 1800Z; the forecast for KPIR around 2100Z calls for better than 6 miles of visibility, with a scattered layer at 2,000, broken layer at 3,000, and overcast at 5,000. Since Bismarck's weather for the entire forecast period includes freezing precipitation, it will not help you to simply advance or delay your departure time by a few hours.

Of the options for landing short of KBIS – assuming that you are making this decision in the air, rather than during your preflight planning – ***KPIR*** is still a good choice, because it will still have good weather at your ETA, and it gets you closer to your destination. You could also land at Grand Island (KGRI), which has good weather and a tower. The other airports offered as alternatives (Wiley and O'Neill) may work as well, but you would want to know more about weather and available services before planning to land there.