

Flying in
real clouds.

Actual Instruments

By
RICHARD L. COLLINS

THE FINAL STEP in learning instrument flying is in using the rating after it has been earned. Sometimes it seems like it is a lot easier to get than it is to use, too.

The other day at Trenton Aviation a fellow was waiting for the weather to improve before starting for the Bahamas in a Cherokee Six. He had started from Long Island, and was enroute with his wife to pick up another couple in Washington and then flee the winter. The forecasts had been good, but the weather had an entirely different idea. What was supposed to have been good VFR went completely to pot, and Weather was able only to cover it with a vague AIRMET. They didn't quite know what was happening, thus it was hard to forecast.

So, the fellow who was waiting for the weather to improve was in a quandary. He kept saying to his wife, though, that they could file IFR and be out of the small bad weather zone in just a few minutes flying.

He never would file and go, though, and at the time it seemed questionable that he really had an instrument rating.

Finally one of the local pilots offered to take them home for the night, and they accepted and left

the next morning in CAVU weather.

The pilot's overnight host later said that the man did indeed have an instrument rating. But, it was brand new and had never been used. The proposed flight would actually have been as easy as they come, but the pilot, even though rated, wasn't ready, willing, or likely truly able to tackle an actual IFR. It was of great credit to him that he realized this and passed on making the flight.

There has to be a first time and someday he will complete his instrument training and use the rating. Perhaps he would have that day if his wife had not been along. She didn't seem keen on the instrument flight and some of her hesitation probably rubbed off.

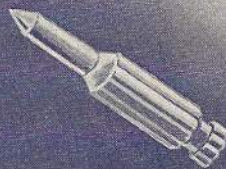
That first actual instrument flight is quite a hurdle.

War Story

Ours was duly recorded in these pages ("First IFR Flight", Pvt. RLC, October, 1956, *Air Facts*). This was just re-read and vividly recalled. It was a short flight, in a Piper Pacer, to get through a little piece of a front which was draped across the Allegheny Mountains.

The instrument rating was five or six months old at the time, but

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unused, and it would be fibbing to say that we really were confident and positive of what was going on as we: "walked across the rain splattered ramp to the airplane... without helmet and goggles, white scarf, black leather jacket and flying boots."

There was some nervousness — just like the first time we interviewed for a job, or closed a deal on an airplane, or sold a car, or stood up in front of a crowd to say something. Anyone who goes at his first IFR flight with complete cool is unusual to say the very least.

So, how is it made easier, or more reasonable? This is also a question for infrequent instrument pilots, for if you go for six months and don't make an actual instrument flight, things can seem pressed and tense. First, the obvious things.

Never Under Pressure

It isn't a particularly good idea to use a new or rusty rating when it is really needed. The fellow in the Cherokee, for instance, was pressed a little bit by the fact that he was trying to keep some sort of schedule. He had told the people in Washington that he would be there that afternoon. With something like that to lead you on, or lure you into more weather than you want, a decision could be slightly slanted.

Rather, for the first flight, or to break the ice after an absence, it is nice to go to the field with no pressure—just as if it were a beautiful Sunday for floating over the countryside. A fine time to do this

is early in the morning. If a day is picked for an instrument flight—and conditions are stable—that is, no violent frontal activity or fast moving storm systems—chances are the weather will improve as the day wears on, so this means that things aren't as likely to go below minimums.

Also, early in the morning, there's not much traffic. In a crowded area this is important for it makes clearances easier to get, and it slows the rate of speed at which controllers talk. Sometimes, real early in the morning, it is possible to get clearance for an instrument approach before taking off. Then you can take off, fly out to the outer marker, fly the approach, and land. It is great practice and if you get out early enough there is time to shoot several approaches before business picks up.

That's not even a bad way to make a first actual IFR. It certainly isn't like going somewhere, but there is a clearance to copy, and an entry into instrument conditions, and an approach to shoot. It breaks the ice.

Short Flights

Really, a long flight on solid instruments isn't a good undertaking right at first. If there's no autopilot in the airplane the pressure and fatigue tends to build as time passes. To subject a relatively inexperienced instrument pilot to, say, a couple of hours of solid instruments with a tight approach at the end is asking an awful lot.

Another thing—it seems a good

idea to make the first few IFR flights solo. A reader wrote in a couple of months ago and proposed that this might even be a good law. Mainly, a pilot is more relaxed without passengers.

There's not a requirement that any instrument flying be done in actual instrument weather before a pilot gets his ratings, and a lot of people are rated without ever penetrating a cloud. This is a shame, as instrument training can and should be conducted any time there are minimums and no forecasts of ice or severe turbulence. Then when a pilot is rated and he starts to use the rating the number of unknowns will be reduced and the first IFR as pilot-in-command will be a lot easier.

Picking Weather

Picking weather for a first actual IFR solo cross-country flight isn't easy. When talking about "actual" instrument flying, the subject is more weather, too, than it is flying technique as the weather is what makes it "actual" and when the flight is over it's the weather the pilot talks about, and not his deft handling of the wheel and the pedals.

On the subject of picking weather, consider the case of the Cherokee pilot at Trenton mentioned a moment ago. After he cancelled his flight it only took the weather about 30 minutes to clear. If he had filed IFR and flown away when he first started talking about the flight there would have been about 10 minutes of flying in an area with low

scud, about a 2,000 foot overcast, and some visibility restriction in precipitation. Trouble was, this information wasn't available from the North Philadelphia FSS which he was calling for weather information. All they had was a forecast which said it was going to be good all day, and which had been amended by an AIRMET which said it would be bad for the rest of the day. A confusing situation.

Up to You

Picking weather is something that has to be a 100% pilot function. The pilot needs to make plans before calling for weather, and know what area forecasts to request, then what terminals, and finally the actual weather—to see if he really wants to go and to see if the forecasts they read are working out.

This isn't intended to say that weather people are not capable of putting together a sensible IFR briefing. Rather, they are busy, and they are constantly answering questions over different routes, and when called for a briefing they give the best service when a request is made for specifics. Sometimes it's possible to get one on the phone who doesn't seem like the guy you want to talk to about the problem at hand, and then it is a good idea



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to ring back and hope somebody else answers the phone the next time.

Also, the briefer is not the person who has to fly the airplane. He doesn't really have any responsibility for the flight as that is placed entirely on the pilot-in-command by the Federal Aviation Regulations. If a pilot is really serious about instrument flying he's going to study meteorology to the point that he should be better qualified to brief himself from the yellow paper than is the man who works there. That's only logical.

Classic Briefing

One recent classic briefing received from an FSS after just asking what it looked like along a route contained first the information that it was solid IFR all the way; second the fact that there was no information on tops; third that the freezing level was at the surface. That would be enough to discourage the most completely equipped amateur. A return call to another briefer and a request for the area forecast along the route got the information that the tops should be 3 to 4 thousand and there would be light to moderate ice in the clouds. So, it was an easy on-top flight with only a little ice during the letdown.

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The first briefer could have been asked for the area forecast, but the delight he took in announcing impossible conditions was too complete to spoil.

Concept

The concept of weather for instrument flying is entirely different than it is for VFR flying, and this gives pilots and briefers a little trouble. It's also a reason that the guy who answers the phone should be told it can be an IFR flight before the conversation gets under way.

For an instrument flight, the primary things needed are the destination weather and forecast, the alternate weather and forecast, and the enroute forecast for the level at which you are going to fly. The latter is the hardest to get. The area forecasts, which some briefers don't rely on too heavily, provide the best information. PIREPS help here, too, if there are any and if they are brand new.

Take the flight mentioned a moment ago for which two briefings were received. The first briefer based his "solid IFR" on the fact that all the terminal forecasts for places along the route indicated below VFR conditions. True. He based his "no top reports" on the fact that it was 05:30 and there weren't any PIREPS. True. And, he based his "freezing level at the surface" on the fact that it was cold. True.

The terminal forecast for places along an IFR route really doesn't matter much, though, for that

doesn't tell anything at all about the weather which will be encountered when flying over at, say, 6,000 feet (unless thunderstorms are forecast.)

Tops

Tops. The fact that there aren't any PIREPS doesn't rob a briefer of the ability to give information here as Area Forecasts include forecasts on expected tops in the Clouds and Weather section, and really tops are probably easier to forecast than bottoms. Top forecasts are probably more accurate than PIREPS, too, unless the report is brand new and for precisely the route you wish to follow.

The Area Forecast also predicts icing, and turbulence.

Planning a flight around either pilot reports of tops or forecasts is a touchy business unless it's indicated that the tops are quite low, and it is CAVU above. For instance, it could turn into a bad day if the tops were supposed to be 9,000, but turned out to be 13,000 and there was no oxygen aboard.

Example

Let's look at a possible weather briefing for an IFR flight from Trenton, N. J. to Raleigh-Durham, N. C., for instance.

First thing could be a listen to the Newark continuous weather broadcast which would cover the route to the Washington area, and would furnish expected tops, turbulence, and the freezing level for the first part of the flight.

Next would come a call to an

FSS and all that's needed here would be information from the Washington Area forecast, which covers the route on down to Raleigh-Durham, and then the Raleigh-Durham and alternate forecast and current weather.

Most briefers don't seem to like to read a whole Area Forecast, and you really can't blame them. The punctuation leaves a lot to be desired and they are full of abbreviations. If one is read in a hurry all the words can run together to the point that it's useless. So, a request for the information on cloud tops, turbulence, and icing in the Area Forecast usually gets the desired information.

At that, you likely have all the information there is to have. If there's still a doubt, the Weather Bureau can be called and you can ask to speak to a meteorologist who might or might not hazard an opinion. Weather forecasting is pretty well computerized now and what rattles off the teletype is the official word. If the flight sounds doubtful from what's there, it is likely best to forget it.

Some little items come to mind on weather for IFR flying in light airplanes.

In the beginning a lot of pilots find it best to avoid instrument

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flights in rain of any intensity. To start, there's something about rain that fouls up pre-flight planning. When aboard the airplane there are coats to remove, and everything is wet and the pilot is puffing. Chances are the physical pre-flight of the airplane was brief, if done at all. After take-off, rain on the windshield when flying in cloud is disquieting to some pilots right at first, and to most passengers. One frequent passenger who now has over 500 hours riding time still becomes airsick at the first drop of rain.

It's easy enough to find instrument conditions which don't include anything other than light rain, and it is a lot easier to start in conditions like these.

Bumps

Turbulence is something else new instrument pilots don't like. A lot of experienced instrument pilots are affected the same way, and if turbulence doesn't fit into a pilot's idea of good instrument conditions it can be left alone.

The Area Forecast section on turbulence is usually pretty accurate. Generally, there should not be a lot of turbulence if there's no clearly defined front to fly through; there aren't any thunderstorms forecast; the winds aloft don't change much in direction and velocity with altitude; and the clouds aren't summertime cumuloimbus.

Turbulence is a very unfunny thing on instruments. It is an unknown—at least the answer to the question "is it going to get worse,

better, or stay the same" is not there. Generally it is no hazard unless one or more of the conditions in the preceding paragraph are present.

Higher Minimums

In the beginning a lot of pilots like to set higher weather minimums—such as planning around a 500 foot and 1 mile ILS minimum instead of 200 & ½ (with glide slope—it is usually 300 & ¾ without glide slope). This is good, but it isn't a bad idea to modify it to conditions. It might be OK to shoot a lower one at home, but to hold the minimum even higher at strange places until a little experience is gained.

The main thing is that shooting a very low approach can be easy or extremely difficult depending on conditions other than the ceiling and visibility. When it's smooth it can be simple, when it's bumpy and there is some wind shear effect within 2,000 feet of the surface, and when the pilot is tired, it can become a very exacting chore.

IFR flying is a lot of things—radio navigation, flying technique, equipment, and weather are the main ones. It's also challenging and stimulating. Perhaps the main thing is what it does, though. It makes an airplane far more practical than it is on a VFR basis. This is true even if a pilot only tackles the simplest IFR situations, for the majority of the weather which mystifies VFR flying is either localized or within a few thousand feet of the surface.



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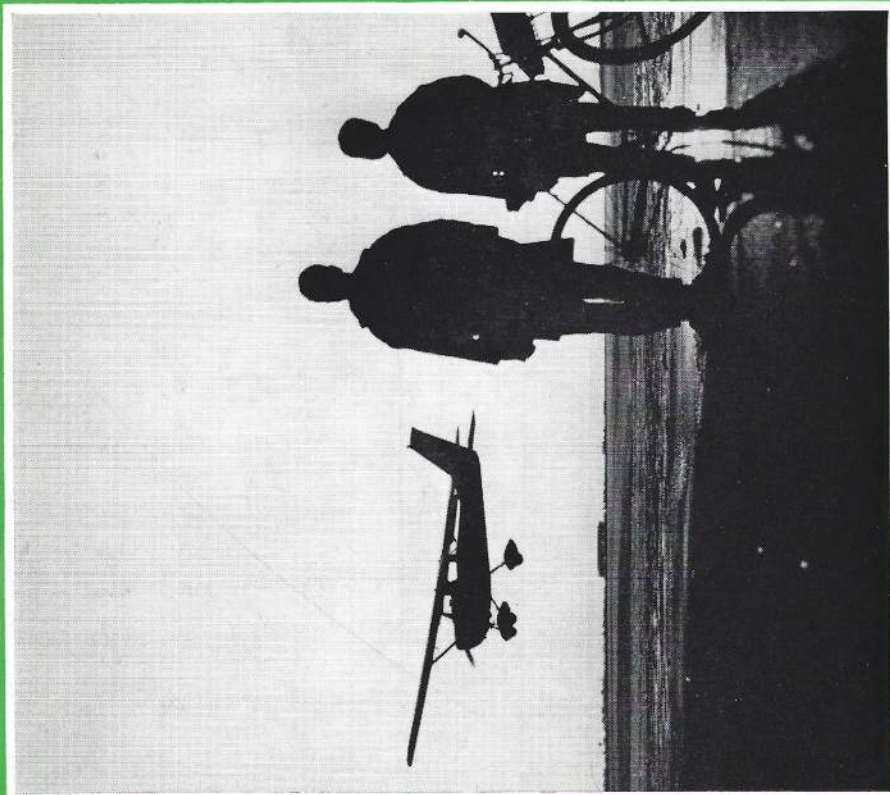
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