



REPORT FROM FINISHING SCHOOL

Higher education

BY EDWARD G. TRIPP

Dear Ed:

A few months ago, you asked that I write about my experience during transition from piston aircraft to turbines. Here it is, in what I am sure is more detail than you want. But my experiences were so diverse and reactions so out of character, that I thought some background was in order. The experience certainly sparked self-examination and made me learn.

My flying activity has followed a pretty standard pattern (I read about it in a lot of aircraft brochures). As you know, I've been messing around with airplanes for a long time. Then I added some business use to the fun. It was difficult to get the company I was working for to accept the idea that my Comanche 180 could help the business (do you remember that period when I was charging road miles on my expense account?). It finally found out when an auditor accused me of cheating, saying that it was impossible to drive that far in a week and have any time left over to talk to customers. The end of that story was a happy one. The company established a policy that permitted flying because the results—more calls, increased business and happier customers—were proof positive that flying little airplanes could be a serious business. In fact, the company paid for half of my instrument rating and bought a well-equipped 310.

Well, 18 years, seven airplanes and the successful incorporation of my own manufacturing process concepts into a closely held corporation later, I was flying a pressurized twin on company business.

Success and growth have brought some other things that you have to put on the cost side of the ledger. Foremost of these is a board of directors that is adamant about a lot of things. The one we have fought over

most regularly is my flying. They don't want me to. They want hired guns to do the driving.

However, a few years ago I tried to back off from my very active roles managing the company and staying in touch with several industries that are our customers. I almost lost the company because the people who were running the day-to-day operations got full of themselves and increasingly removed from hands-on direction. Oh, they did a great job of making the short-term bottom line look good. But R&D, quality control and customer satisfaction as well as the fundamental health of the corporation suffered. It took me nearly three years of 'round-the-clock sweat to get things back on track. During that time, to the great displeasure of the board, I was flying more than 600 hours a year. I had to. Besides, it was the only way I could cast off concerns about the business; it was my only form of recreation. If I had not continued to fly, I don't think I could have put in the work necessary to turn things around.

To get to the point, about a year ago, despite the economy, I started thinking about moving up to turbine power. Part of this was pure desire, of course. But I found the engines on the twin were increasingly a pain. I swallowed a valve on the right engine at just over 1,200 hours. Other accessories were even bigger problems. Then, during an instrument departure from Detroit last fall, the left prop governor failed. I was busier than I wanted to be for a few minutes. That was the deciding point, because we had enough financial resource to justify at least a turboprop.

I had flown a few turboprops and a couple of jets and had developed some preference. Nevertheless, I looked the field over for four months

to make certain that we fit the airplane to our needs without buying more than was required.

Let me tell you, when you start getting into the numbers, it gets pretty confusing; the choice gets hard. I settled on a Cheyenne II for several reasons. One part, I guess, was sentimental: Several of my best memories were in Pipers back in the good old days, and I loved both Comanches and the Twin Comanche. But it also had good performance for the price, a good selection of avionics and other goodies, and I liked the people—including the maintenance staff—at the facility we were working with.

The cockpit and cabin are snuggier than some of the other aircraft we looked at, but I was comfortable, and we rarely have more than three people in the cabin. The field performance of the Cheyenne is good if the aircraft is properly flown. While the Pratt & Whitney PT6 engines don't appear to be as fuel efficient as the Garretts are at high cruise power settings, I like the lower electrical power required for starting, since we regularly go into a few small airports that don't have power carts that can handle turbines. This is particularly important to us in the winter months.

Anyhow, when I made the proposal to the board, I got a couple of shocks. In the first place, they did not think I was capable of flying a *jet*. Then our insurers got involved. In cahoots with the board, is more like it.

After all the fur had drifted back to the ground, there were two demands (and I mean demands) that had to be met: I had to take transition training before the company took delivery of the aircraft, and my copilot had to successfully complete it with me. *Copilot?* For cryin' out loud. Cheyennes are well set up for single-pilot operation, and most of them are flown that





way. I'm just past 50 and ace the Class I physical, plus an even more demanding company-required going over all the time. I don't even need glasses yet. What on earth do we need excess baggage in the right seat for?

It is just possible that I could have foxed the board on this, but the broker told me that there would be no insurance unless the requirements were met. No insurance, no flying.

I was furious, insulted and frustrated all at the same time. I had to accept the requirements even though, on top of everything else, having another person on the payroll would add considerably to our annual operating costs.

Almost all of my flying has been done single pilot. I had heard of and read about cockpit confusion, the result of poor coordination, causing accidents. I have had a few touchy minutes myself when another pilot and I got in each others' way. So I talked to a few corporate and airline pilots I know. They convinced me that crew training, as opposed to individual pilot training, was essential if I wanted to run a safe operation.

After I had interviewed a few candidates, what I wanted in a copilot became more clear: someone fairly young, who needed some training and experience yet didn't seem inclined to disappear as soon as the first airline or commuter job appeared and who had some potential to develop some usefulness in the business in addition to flying duties.

A young flight instructor, sales demonstration and part-time charter pilot seemed to fill the bill. He was presentable and spoke well and seemed to have interests beyond driving airplanes. And he already had commercial, instrument and multi-engine tickets. He started making trips with me in the piston twin. While he was a bit behind on some ATC procedures in busy airspace, seemed nervous about high-altitude flight and was unfamiliar with hard weather flying, he handled the airplane well without being a cowboy.

Business got even tougher in the late spring. Companies that found themselves in a squeeze had started to delay or even cancel orders, just at a time when we had new capacity coming into production. On top of that, my top financial man went in for an

operation that was going to require at least six weeks out of the office.

What I had thought was going to be a good time to make the trip down to the Lakeland facility where FlightSafety International conducts Cheyenne school (it is right next door to Piper's plant) turned out to be rotten. I was tired, under pressure and had a lot of things to accomplish in the next 30 days. There were not to be any summer doldrums this year.

Even though I was looking forward to going back to school (I had not even had an instrument checkride for nearly a year), I would have canceled that week if it had been possible.

The last little wedge was driven into what quickly became apparent as my lack of preparedness when I got back from a business trip to the Southwest late on Saturday, spent all day Sunday in the office and left five hours later than I had planned for the trip to Lakeland.

Sid, my recently acquired copilot, and I arrived at Lakeland after 10 o'clock in the evening. We had a meager, late dinner. Then, instead of going over the preparation materials that FlightSafety had sent, I did some office work. I had glanced over the cover letter that told us to arrive prepared for a week of intensive work and to plan to do nothing but "train to proficiency," but I didn't take it seriously enough. After all, I had been to a few aircraft schools before and had taken FlightSafety's high-altitude transition course a few years ago.

The next morning, I received an emergency telephone call that made us 20 minutes late for the first classroom session. We slipped into the room just as the instructor was saying: "...and we're going to talk about everything that conceivably can go wrong with this airplane."

We had missed some important points already, as we were to learn later. On the table in front of our seats were thick, blue ring binders, some forms, questionnaires and booklets. As it turned out, the program is well organized and there should be no surprises; but the burden is on the student to be prepared. We were not.

My impression of the typical training environment is of a place, often not even a separate room, with a few chipped tables and wobbly folding chairs, with people hanging around



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hangar flying. The Piper Learning Center, as it is named, and, as it turns out, the other 21 FlightSafety facilities in North America are standardized, modern, well equipped and totally dedicated to training. The classrooms are used for nothing else and are equipped with a variety of audiovisual aids. Lakeland also has cockpit procedures or familiarization rooms, small briefing rooms and a huge hall filled with Cheyenne simulators (four) and Navajo procedures trainers. There is also a room full of self-teaching tapes and training devices for various kinds of avionics, including VLF/omega simulators.

The basic, five-day program includes 20 hours of classroom training that encompasses all systems and operational considerations and 20 hours of simulator training. Flight instruction is available in the customer's aircraft. There are also pre- and post-flight briefing periods and whatever additional work is required. There is homework, too. And, if the student is a bit behind the norm, the deal for the initial training is that you stay in school until the instructors are willing to stamp or initial each segment of the training with "satisfactory."

When the first break was called, the instructor called my attention to a batch of telephone messages posted on the classroom door. All for me. It went on that way all day. By Monday

evening I was dubbed the man with the telephone graft.

Sid and I were introduced to our simulator instructor that afternoon, who briefed us on some of the basic considerations of professional crew coordination and set the basic rules for the simulator sessions. Sid and I would switch seats, working both sides of the cockpit and both sets of problems between pilot and copilot.

The simulator is a very sophisticated device with quite realistic visual presentations that can be tuned from anything between night VFR and below minimums IFR. The instructor has his own station behind the crew seats from which he can dial in more than 130 faults and just about any mild-to-horrible meteorological condition he wants to confront you with.

The first day in the simulator was rocky. Sid and I fumbled around and got in each other's way. On top of that, Sid had not spent much time with a flight director or an HSI and was totally unused to the keyboard entry avionics system. It looked as though we did not even know how to use a check list.

That night, when I should have reviewed the day's work and prepared for the next, I had to work.

It is possible that I would have caught on the next day, and caught up to the flow of information and operating tips, if I had not let business

worries and demands interfere. By that afternoon, I was ruefully shaking my head over my uncharacteristic performance and reactions in the simulator. I was rushing. I was reacting instead of evaluating. I was worrying about Sid and also getting frustrated by his unfamiliarity with some of the equipment and procedures.

The instructor just sat back in his torture chamber, leading me into traps that, had I fallen for them in an airplane, would have had disastrous consequences.

The worse I did, the more he humbled me, picking apart my confidence as well as my performance. We had just about every kind of failure imaginable, on the ground and in the air. At the same time, all of our instrument procedures were getting a thorough review while the (computer-derived) weather pulled every trick in the book, including severe, continu-

ous icing conditions. And what other people have told me is true: You forget that you are on the ground, in a simulator. It is terribly realistic, and there is no time to relax as there usually is during real trips.

It was Wednesday night before I sat down, analyzed the situation and realized what was going on. Both Sid and I were overloaded and poorly prepared mentally for the process. We both should have done our homework much more diligently. The training manual, for instance, contains not only the broad syllabus but also ideas of what to expect and prepare for. Supporting materials provide all of the standardization information for power settings and all flight procedures. The emergency check lists show the immediate-action (memo-rize) items.

Then, too, I should have considered more carefully Sid's level of exposure

to the kinds of systems and procedures we were dealing with, and we should have done more thorough training on cockpit procedures before going to the school. Doing it as we were, we were far behind the learning curve. Sid and I were getting in each other's way, and the simulator instructor and I were having a personality clash. Perhaps worst of all, I was disgusted by my performance and was bugging myself, which encouraged me to continue to work too hard at it instead of backing off on the effort and keeping things under better control. At that point, if I had been the instructor, I would have flunked the two of us.

That night, Sid and I discussed the training manual, the lesson plans and the areas where we needed work. He spent additional time in the systems room, working on such things as the avionics display units to nail down





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continued

the proper operating procedures.

The classroom training proceeded, although the variety of subjects and depth of detail was a clear indication that a lot of studying was required to nail it all down. In the simulator, we were a bit smoother and acted more intelligently as the problems arose.

Of course, each day new problems were added. There was no chance to practice what we had fluffed the day before. Tenacity and determination and fatigue were still letting me down. I learned why the power levers were nicknamed "suicide levers" when I overtorqued the remaining engine during a single-engine missed approach, failed the gearbox and had nowhere to go but down. All I could do was shake my head at myself.

It was during the fourth day in the simulator that I became aware of one additional factor I had not taken into consideration: Sid and I were not just two pilots taking training together, nor were we captain and first officer. I was his boss. I paid his salary. It was one more factor of intimidation that

was keeping us from effectively working as a team. We both needed a lot of attitude adjusting.

Despite it all, and the continuing frustration of time stolen from the training to deal with the business of my business, I was enjoying the experience, painful and humbling as it was. That night, I realized something about FlightSafety, too. The instructors were used to dealing with people who flew for a living as opposed to people who used aircraft as an aid to earning a living. This is not to say that there should be different standards of performance for hired guns versus amateurs. Rather, a little more work has to be done on attitude adjustment and preparation in advance with the latter. They have to be convinced to leave the office behind, or, at the very least, to spend several hours with the syllabus and lesson plan before the training starts.

What experience I had had in turbine aircraft prior to Cheyenne school was rather casual. Now it was clear to me that flying turbine aircraft is a fas-

cinating combination of simplicity, ease, confidence and demanding complexity. The higher you ascend the aircraft performance ladder, the easier they are to fly and the more help you have from basic systems design to cockpit organization—so long as everything is working as it should. I thought of an old friend of mine who had bought a hot turboprop second hand, had a check-out and started flying. He intended to go to school—undoubtedly, he would have, had it not been for the combination of severe icing during an IFR flight and some system failures that proved to be beyond his knowledge. If he had gone to the training school, he would still be around. I resolved to match the standard and to maintain it with recurrent training.

The next—the testing—day went reasonably well, although I did not score as well on the written as I thought I should have. Evidently, Sid and I got things together well enough during the simulator session (Sid had taken a little additional dual the night

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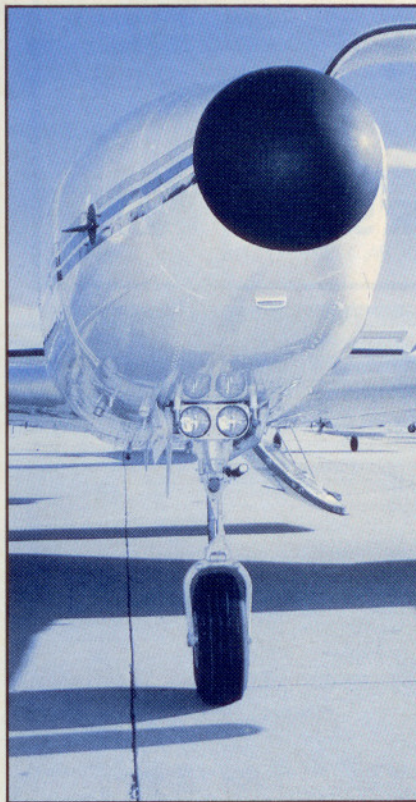
CHEYENNE II: RIDING SHOTGUN

Dear Sid:

Congratulations on your new flying job. It seems like only last week that we finished our flight instructor training at Opa Locka, and here we are flying turbine twins all of a sudden. I want to pass along some information to you, though, in hopes that you may benefit from my experience with the Cheyenne. I've also known Huckaby a long time, and some insight into his behavior as well might help.

In the cockpit, you will find Huckaby as nervous as a cat. If an engine burps just once, he will reach over and feather it so fast his hand will be a blur. This is the recip experience showing. Like everybody who has ever earned a multi rating, he places a high premium on the speed with which he can shut down an engine. You would do it, too. But the Cheyenne is not like the Apache we used to fly. It has enough power (625 shaft horsepower per side) that you can, if conditions are right, climb away on one engine—at the full 9,000-pound gross weight.

Also, the engines are free-turbine engines. Remember that the propeller and prop governor are not mechanically connected to the rest of the powerplant. Don't ever let Huckaby pull a condition lever (the fuel shutoff) just because the airplane yaws and the props go out of sync. The problem may be just with the prop governor; killing the engine in a case like this will only make more trouble. Feather the prop, yes, but leave the turbine running. If you kill the engine, à la recip, you may not get it started readily. Worse, the electrical load will have to be reduced because you will have shut down a generator. And guess whose nav instruments are on the nonessential bus. Yours. So take your time and identify the problem using your engine gauges before you take any action.



When things go wrong, Huckaby will want to do something about it *right now*. Don't let him. There are very few things that require immediate action in the Cheyenne—like a fire, for example, or a battery overtemp or a prop overspeed. For anything else, fight the instinct to react quickly. Just punch the master caution light out, sit back and take 10 seconds or so to figure things out. Or else you may do something you'll regret later.

Before you start up, make sure Harlan's

inverter power switch is off. A surge of electricity through the inverters will turn them to junk, and they cost thousands. (There are two of them, each protected by a separate bus.) Sorry, you won't have any inverters to power your attitude or heading indicator. You will have to fly with the same old vacuum instruments you have always used.

In the summer, start the right engine first. That's where the air conditioning system's compressor draws its power.

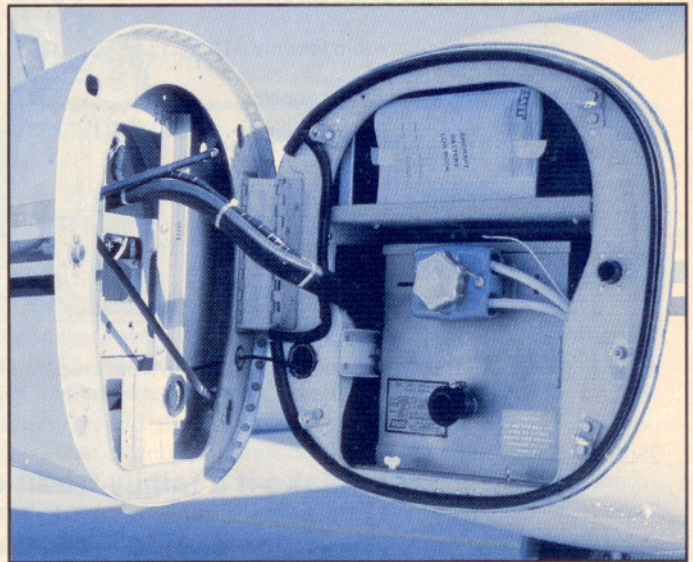
They call the inter-turbine temperature indicator the money gauge, because if you go past 1,090°C for more than two seconds, the engine must be torn down for a damage inspection. The moral: Be ready for a hot start and have your hand near the condition lever in case the ITT needle decides to peg itself. This is another time where a Cheyenne pilot must act quickly.

"Hot rod" Huckaby will have to be watched on takeoff. He may firewall the thrust levers, exceeding the maximum torque of 1,484 foot-pounds. This can blow those chrome prop spinners right off the hub, so be ready to pull his hand back.

On approach, never drop below 400 foot-pounds of torque, or else the Cheyenne will drop right out from under you. Go to idle power only when the wheels are inches above the runway. I guess I'm saying that you should fly it on instead of trying for a greaser.

One more thing about landings—it will be hell trying to flare with no one in back. You will run out of trim and hit on all three. In a situation like this, especially at light weight, you will have to flare using aft stick pressure, just like the Apache. But don't overdo it. Cheyennes don't like to balloon, and neither does Harlan.

Sincerely,
Tom



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before to work on cockpit procedures, and I had my head screwed on relatively straight for the first time that week); that evening we were introduced to the instructor who was to give us the standardization ride in our new Cheyenne II the next day. I must admit to a feeling of relief when that happened, since I had strong doubts that we would make it.

While FlightSafety does not call this a checkride, it is as thorough as any so-called checkride I have taken. It is a review and reinforcement of all that we had been led through in the classroom and the simulator with the exception of those conditions, failures or circumstances that would be hazardous to practice in an airplane. It was also a very detailed, hands-on inspection of the aircraft and a test of its systems together with some little tips to make flying it smoother and more professional. One thing FlightSafety emphasizes is the comfort and security of the people in the cabin so as to minimize any chance for apprehension or anxiety back there.

It was fun and valuable at the same time. It was more than just the relief of seeing daylight through the windshield and finding that the aircraft was more stable than the simulator. We learned the proper techniques for taxiing, both for smoothness and to save the brakes as well as some highly valuable tips for landing technique (trim, trim, trim, trim, trim from our instructor has stayed in my ears during every landing since that day).

Sid and I traded left seat for cabin so we could run through the series of maneuvers, conditions and situations individually. We were at it most of the day. Early in the afternoon, I left to tend to some business, leaving Sid with the instructor. It was good that I did for two reasons: It freed him of the knowledge that I was watching like a hawk, and it changed the Cheyenne to a forward CG situation. With a light fuel load and no one in the cabin, it is hard to keep the nosewheel off at the flare.

There is even more to tell about our moving up to turbines, but I am sure I have given you more than enough hangar flying for a while.

Yours truly,
Harlan Huckaby