

*Diving Deep Dive
into Your Plane:
The CPA System
Seminars*

Diving Deep into Your Plane: CPA Systems Seminars

By Mike Jones

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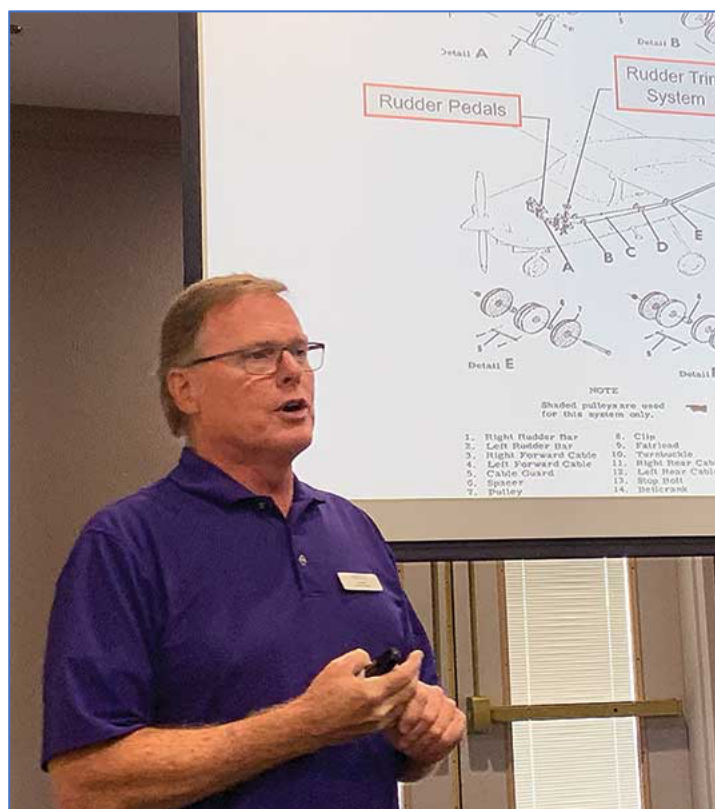
Old N7591N had only been parked in my hangar for a few months when I flew her to the alligator-filled Sunshine State to attend a CPA “C210 Systems and Procedures” seminar in 2002. For a new owner like myself, it was like drinking from a firehose.

The course was taught by the loquacious John Frank. He offered hundreds of incredibly detailed viewgraphs of the airplane systems, fuzzy from being photocopied so many times. John also used a long rubber-tipped pointer to highlight details on the screen. He moderated incomprehensible (to me) conversations about temperatures and pressures.

The other pilots in the group were friendly and chatty; the hangar flying was fast and furious. Most of the other pilots were much more comfortable with their machines and much more experienced than I. I learned a great deal but missed a lot more.

Fast forward to September 2019. I’m back in the same CPA seminar with the same Centurion. This class was in Tulsa, Oklahoma — no alligators, but lots of chicken fried steak, oil and cowboys. Two things haven’t changed: the group is still friendly, large and chatty, and I’m still one of the less experienced Centurion pilots in the room.

But certainly aviation has changed in these two decades. Today it's an electronic world of ADSB, digital flight bags, glass cockpits and super-smart engine monitors. The same is true for the seminars: no more viewgraphs. Everything is computer-projected, sharp and clear, with pop-up arrows spinning to airworthiness directives on bright powerpoint presentations. There's even a laser pointer.



Paul New often instructs at the CPA seminars. He uses professionally-prepared presentations, a 300+ page book and lots of his own experience.

The seminar is hosted by Paul New. Paul is a genial, trim, handsome chap in his mid-fifties with a soft voice and sad brown eyes. Paul grew up fixing planes. He earned a degree in avionics from Southern Illinois University and was hired as the avionics manager for an airline. In 1989, he took over the family FBO and began to focus exclusively on the high-end single-engine Cessna aircraft. He writes extensively, consults with the FAA and often speaks at AirVenture. We were very lucky to have such a knowledgeable instructor.

The Value Proposition

Attending one of these seminars isn't easy or cheap. In N7591N, I chugged along for seven hours, burning 18 gallons/hour, to get to Tulsa. Tim Petumenos flew commercial from Anchorage, Alaska. Others came from Arizona, Louisiana

and Texas. In addition to the avgas, there are the costs of hotels, food and the seminar itself. Is it worth it?

Doug Vincent flies out of Riverside Airport in Tulsa. “This is my third CPA seminar, and I still learned a lot,” he said. “It’s well worth it. The things Paul pointed out, I ran home and checked them on my own plane.”

The Tulsa location was nearly perfect. Drew Chithea flew his P210 from Colorado in the middle of a cross-country family trip to Alabama. “Tulsa is my traditional stopping point between Denver and Alabama, so attending the seminar was a natural,” he told me. “I knew a lot of the material but I learned a lot as well. There’s always a good reason for more education.”

Another attendee, Bob Dosser, told me the best reason to attend one of these seminars is to be in a room with people who fly the same airplane. “It’s so interesting to sit with the guys, listen to their experiences, hear how they see the world. You just pick up so much!”



There were fifteen of us in a spacious meeting room at the Holiday Inn in Tulsa. Attendees came from eight states. Five flew their own Centurions; some drove and a few were relegated to flying commercially.

A few people in the class did not own a 210, at least not yet. Chris Hanisko is an A&P who works on Centurions and came to the seminar to get the inside scoop. Russel Moore is based in Austin, TX and is shopping for his new bird.

As for the logistics, I arrived at Riverside Airport in Tulsa on Thursday morning from North Carolina, with stops in Alabama and Texas along the way. Uber whisked me to the hotel and the fun began. Since I was an early arrival, I perched like a vulture in the cramped hotel lobby and pounced on anybody who seemed related to aviation, like wearing a McCauley baseball cap or a Cessna tee-shirt.

The four other attendees who had flown their own planes were easy to spot, their headsets giving them hat-head coiffures. Paul showed up towards evening and introduced himself to all. Dinner and adult beverages at the adjacent restaurant clearly were first on the agenda. Over cocktails, we began to coalesce as a group — which model are you flying? What's in your panel? What else have you flown? Happy-pilot chatter, cocktails in hand and smiles all around.

Boot Camp

Rise and shine on Friday morning; I felt like I was back in basic training. We



Each day, lunch is catered by the Cessna Pilots Association. The meals were excellent, with different restaurants presenting different options on the three different days. Here Doug Friesen from Wichita, KS and Chris Hanikso from Chandler, AZ select their lunches.

swirled around the breakfast buffet — surprisingly tasty, actually, for a Holiday Inn Express — as the last few arrivals checked in. A total of fourteen pilots and one lonely A&P marched into the conference room. Paul cracked the whip at 8 a.m. and we began.

Fair warning and full disclosure: ***this class is***

hard. The seminar is all about details, and internalizing those details takes time and concentration. There is a great deal of Q&A — relevant discussions, not hangar flying tales — which slows things more. This makes for long, grueling days. Even the final Sunday session lasted until 5 pm (although a few people left in midafternoon to catch commercial flights).

**“It’s a good to know more
about your airplane. The more
you know the safer you are.”**

— Bill Henry

The course covers all the major systems of the Cessna 210. These include a review of the physical bones of the airframe followed by deep excursions into the gear retraction system, the hydraulic

systems (there are three!), the electrical system, fuel system, engine and exhaust system, and on and on. In each session, Paul also offered important and unexpected operational guidance to help us get more from our planes.

The attendees, with thousands of flight hours of experience, enhance the learning environment. After the section about magnetos and the ignition system, Russel Moore offered me a case study about a magneto failure in his P210. “We were heading to Oshkosh at 20-something thousand feet in IMC over Fort Smith Arkansas. I had just flipped onto the aft fuel tank and suddenly I got a little roughness,” he recalled. “Then it does it again, so I decided to call it a day.”

When Russel got on the ground, the mechanics were unable to find a cause so, after a test flight, he flew



Paul New crawls under a jacked-up Cessna 210 to highlight problems with the nose wheel systems.

on to Oshkosh, low and cautious. His mechanics back home suspected a magneto problem. The pressurized magnetos on Russel's plane are light weight and use compressed air to insulate the electrical impulses.

"We discovered they had a leak and couldn't maintain [internal] pressure," he said. "In thinner air the mags wouldn't pressurize so they 'grounded out' and couldn't create sufficient spark. That's why the engine ran rough at high altitudes but ran fine down low." Good stuff, and highly relevant.

Somewhat surprisingly, Paul also is a staunch defender of the modern Cessna Company, now owned by Textron. Cessna still offers great technical service, he said, and even after thirty or forty years the company still is making new parts for these antique airplanes. "Imagine calling GM or Ford, and trying to get a new part for a ten-year old car. It's not going to happen," he said. "But you can still get almost everything from Cessna because they're committed to these products."

Key Learnings

One of the key elements for engine longevity is lubrication. Paul taught that after an airplane sits for a week the protective oil has dripped off most internal surfaces. This means that after starting for about thirty seconds the engine has no oil on the cylinder walls, valve guides and other crucial surfaces. Paul's tip to maximize engine life? Start the airplane with the throttle at idle, not 1,000 rpm. Surprised, I tried it and it works great.

Paul's also a fan of Camguard. It's amusing to watch him flash ballistic when asked if auto oils can be used in airplane engines. He makes funny faces when he gets really irate.

Paul coached us to **aggressively** lean the engine during ground operations. That raised my eyebrows: both Wilbur and Orville taught me never to lean a turbocharged engine on the ground. But it turns out Wilbur and Orville were

wrong. At taxi-power settings, the turbo isn't doing much so you're not protecting anything. Too much fuel means the cylinders are too cool and rich, so the plugs will foul. I've had the experience but never understood the cause.¹

Like an exterminator squishing roaches, Paul also clobbered a number of our treasured truisms. Paul dismissed "shock cooling" as a myth. If you believe in "shock cooling" you also have to worry about "shock heating" on take-off, but nobody does. In short, the engine can handle it.



Every night the ground wandered into local restaurants, as the dining options in Tulsa are excellent. Here the early arrivals, along with two of the Cessna Pilots Association staff, gathered on Thursday night before the seminar began. The rest of the group arrived later that evening or early Friday morning.

situation. Many of the attendees had experienced the problem, including myself. Now we know why.

Here's another gem from the "slap my forehead" school of airplane management. I've always thought the parking brake on the 210 was a joke.

We learned about the placards which are required to be on the plane, which brought us to the problem of vapor lock. It seems big-bore Continentals can churn hot avgas into a foamy goo which starves the engine. This problem is so dangerous there is a mandatory placard on the panel for handling the

¹ Of course, trying to take-off slightly lean will generate extremely cylinder-killing cylinder head temperatures faster than an SR-71. Paul's aggressive leaning technique solves that problem because an aggressively leaned engine — in my plane, set at about four gallons/hour — simply can't take-off. The engine floods, sputters and wheezes. This embarrasses the pilot and alarms the passengers but cannot harm the engine. It's Nature's way of reminding the pilot to ram the mixture forward. Again, I have tried this and it works a treat.

“Stupid Cessna engineers,” I have muttered to myself a hundred times as I nearly yanked the parking brake out of the firewall in a futile effort to get some grip. Then I said it in class.

Paul looked at me with those sad eyes and sighed. Dive deep in Section 7 of the POH, he coached. There we will read: “...set the brakes with the rudder pedals then pull the [parking brake] handle aft and rotate it 90° down.” I had never noticed this until Paul called it to our attention. In short, the parking brake handle simply locks the brakes into whichever position you have put them in. Since I never engaged the brakes, the handle simply froze them into the open and useless position.

By Day Three, my forehead was bruised from all the “ah-ha!” slaps.

Field Trip

Nothing beats seeing these planes in the real-world so we sojourned to Dan Howard Aircraft Sales, probably the premier Cessna 210 sales company in the

nation. It happens to be based two miles away at Riverside Airport.

Dan Howard isn't an advertising myth like Betty Crocker; he's a real person, a lanky, unshaved flyer of an uncertain age with a passion for 210s. His long-term aspiration is to use his own bird to set a new general aviation



The “field trip” to Dan Howard Aircraft Sales was eye-opening, if for no other reason than Paul’s yoga-like moves under the airplanes. Here Ted Berg, John Wingfield and Bob Dossier (L-R) inspect some detail of the nose gear while Paul works the flashlight.

altitude record². He nonchalantly allowed us to climb in, under and around his very valuable inventory.

There were four Centurions on the floor, in various stages of disassembly. (He also had a Bonanza and a handsome twin, which just proves that nobody's perfect.) One by one, Paul dissected each Cessna. We rolled on our backs and peered into landing gear wells. We waved cell phones to illuminate access panels. We clambered into the disassembled cockpits and learned there is an amazing amount of equipment in the window pillars and overhead spaces of Cessnas — fuel lines, electrical wiring and control cables, all moving this way and that. In one plane we could see the famous wing-spar carry-through which is the subject of a challenging airworthiness directive from the FAA. The complexity was eye-popping.

Amazingly, Dan actually trusted us (which really means, he trusted Paul) to jack up one of the planes. We spent a great deal of time properly positioning the jacks and counter-weights. We manually jacked the plane into the air; nose weirdly low and tail alarmingly high. This involved lots of yelling and Paul running to-and-fro as our enthusiastic but amateur mechanics nearly toppled the thing off the jacks.

Once it was up and stable, Paul explained the landing gear retraction system again. He lay on his back and, using his legs, pushed the nose gear into its bay and exposed parts I had never seen before. Airplane parts, not Paul parts.

Eventually, we managed to get the airplane back on the ground undamaged — which sounds like one of my better landings — and we returned to the

² In January 1966, a fellow named Walter Cable flew his stock 1966 Centurion to a record of 39,334 feet over Southern California. He zig-zagged between Catalina Island and Long Beach as he climbed and his instruments froze. But high is never high enough, so in May 1967 he flew a turbocharged C-210 to 43,699 feet, eight miles into the sky, hanging on the prop at -60°C. That's the current World Altitude Record for Class-Lc light planes which Dan plans to bust. Source: F. Holbert from Chino, CA writing on www.jetcareers.com.

classroom to debrief. We didn't finish until 7:30 pm. No partying that Saturday: we were tired and called it an early night.



One of the Centurions in the shop had the cowling removed, and Paul used that opportunity to highlight important components and functions. John Wingfield from Parker, TX follows along.

We were back at it again on Sunday morning, munching on bagels. The class reviewed engine management techniques, the proper use of digital engine monitors, and lean-of-peak operations (LOP). As always, lean-of-peak is a fiery topic.

Everybody offered strong opinions. Paul is

a strong proponent of LOP operations and urged us to conduct the Gami “balanced fuel flow test” in our airplanes to see how well our current fuel injectors were working.

What We Learned

Without exception, everybody came away from the seminar wide-eyed and a little shell-shocked. The seminar more than met Bill Henry's expectations. “We learned a lot more about the 210 than we bargained for,” he said. “Now we know what to look for, stuff we wouldn't have known otherwise. Paul did a real good job.”

Sometimes it's the little details which make a difference. Bob Dosser told me he appreciated Paul's simple suggestion to install a warning light inside the cockpit which would alert a pilot to an engine-killing, money-sucking stuck

starter. Other pilots paid more attention to the landing gear, including the possibility of a bent trunnion on the nose gear and missing shims on the main gear.

Doug Vincent said his biggest take-away was the guidance he'll be able to offer to his mechanic during the next annual. Russel Moore was impressed with Cessna, the Centurion, and the seminar. "There's a lot of complex stuff in these airplanes," he said. "Paul wasn't trying to teach us to be mechanics, it's just the 30,000 foot overview, but everything he did was, you know, amazing. I enjoyed every minute of being in that class."

Was it worth it? You betcha!

Flyer Profiles

There were fourteen pilots and one A&P in the seminar. Each person was more interesting than the next; it was an amazing group of guys (sorry, no ladies in this group). Here's just a brief glance some of them, chatting about their lives, their flying and their Centurions:

Pilot Profile: Bob Dosser from Denham Springs, LA

Dosser is from Louisiana and earned his private license in 1980. In 1995 he started a small software company but found commercial flights to be a hassle, so he bought a 1971 Centurion T210K to travel to customers. He needed a 210 because his business partner was quite large; it was the only airplane which could handle the weight-and-balance.

For the next decade Bob flew about 150 hours/year to customers, all across the country and up to North Dakota and Montana and even the east coast.

Today, the airplane has about 4,000 hours on it. Bob's invested in "quite a few upgrades" including new radios, a Garmin stack, an HSI, an autopilot, and dual attitude indicators.

People who own Centurions are serious travelers, determined to go places, and Dosser is no exception. "There have been so many trips, so much fun. One trip to Reno, coming back over the Grand Canyon was amazing," he recalled. "But my most memorable trip was from Baton Rouge to Newport News, VA. We were flying late in the fall, flying over the Appalachians in autumn, and the color of the leaves was just phenomenal."

Pilot Profile: Bill Henry from North Little Rock Airport, Arkansas

Bill Henry and his best friend Ted Berg were spending too much time on the highways in 1995. On a whim, they thought it would be fun to get their pilot licenses. "We took lessons at the same time and raced to see who would get done faster. In three months, we had our tickets."

They've been flying together ever since then. "We started with a C172, a good airplane, we put a 180-hp engine into it, so it was a real 4-place airplane. But my family grew. I got a son-in-law, grandkids, lots of them. With the Centurion, now I have room for all of them."

Bill just bought his normally aspired 1967 Cessna 210G two years ago. "We found it on Barnstormers, a barn-find, it only had 1,040 hours on it when we bought it," he related. "We changed out all the avionics, to the tune of about \$35,000. But other than that, it's just been maintenance and new tires."

Ted has some health issues and uses a wheel chair, but he can get into the plane easily enough. They both can serve as PIC. Ted also flies a Robinson 22 helicopter; these two men are dedicated flyers.

“We fly mostly just for fun. I’ve flown to Kansas City, Nashville, Memphis, Iowa, and all the way to Colorado,” Henry recalls. “The best trip is just loading up the family and flying to Garden City, Kansas, to visit relatives. I can do it in three hours today, but it was a five hour trip, plus a fuel stop, in the 172. Faster definitely is better.”

Pilot Profile: Drew Chitea from Black Hawk, Colorado

Chitea is a slender, grey-haired gent who walks with a pronounced limp. His grades were so poor he barely graduated from high school, right at the height of the Vietnam War. Knowing the draft was inevitable he joined the Air Force “because it was safer.” That planned worked out great until he was assigned to be a door gunner on Huey helicopters. Not unexpectedly, Chitea was badly injured and endured a decade of reconstructive surgeries. Between surgeries he went back to school and earned a 3.9 GPA without “hardly breaking into a sweat.”

“Then I went to flying school, learned tail wheel, aerobatics and qualified as a mountain search pilot, all in between surgeries,” he said. “In one year I got my instrument, my commercial and my CFI, plus I bought a Citabria and rebuilt it completely. Eventually I became the chief pilot of a flight school.”

In the late 1980s he moved to Alaska, snaring a float plane rating on the way. He tried to get a flying job in Anchorage and the guy said, “I don’t hire pilots with five hours of total float time. But I need a pilot yesterday. So you can be the cargo guy, and when you kill yourself you won’t kill anybody else.” Before he was done, Chitea had two years and 1500 hours of float plane time. He then became a corporate pilot and eventually joined a major airline as a DC-10 instructor. Today Chitea is a Designated Pilot Examiner for the FAA.

Chitea recalls how the 210 came into his life. “When I met my wife, she could cook, she could fly, and she owned a plane and four hangars. I figured,

‘Lord, my sins have been forgiven!’” She had a “B” model 210 and they flew it everywhere, including 900 mile trips to visit family in California and Alabama.

“One day she looked at me, and said, ‘I want a faster plane,’” Chithea recalls. “I said, what you mean is, ‘I want a bigger plane that can carry more shit.’ She laughed said yeah, that too.”

Eventually they traded up to a 1979 P210 with 2800 hours on it. Chithea’s plane is well-equipped with radar, known icing, Garmin 530W, XM weather, tip tanks and ADSB. “One Christmas I found some beautiful earrings for my wife, and she said she’d rather have LED strobes for the airplane. What a girl!” Chithea said. They finally were married in 2014 but sadly his wife passed away from cancer early in 2015.

He recalls his best trip ever: going from Denver to California for his parents’ 70th wedding anniversary. Once aloft he discovered the usual headwinds had taken the day off. “We made Camarillo (KCMA), just north of LA, in five hours and 45 minutes non-stop,” he said. “Three days later we do the reverse route in 5:35. I’ve been flying since 1972 and that’s the first time EVER, just cruising along, the plane humming. It was glorious.”

Pilot Profile: Doug Vincent from Tulsa, Oklahoma

Vincent has 5,000 hours in his logbooks. He earned his PPL in 1968 but quit when an opportunity arose to work overseas. “I was a young kid, single, and cheap to move. They asked me if I wanted to live in London. In two weeks I was ready to go,” he laughed. “Over the years, I was stationed in London, Singapore, Mexico City and the Netherlands, supporting the oil industry.”

Vincent got back into flying when he came back to the States in 1986. Years ago, he had a Cessna 172 but upgraded to a C-182. Vincent founded AngelFlight Oklahoma in 1991 using the Cessna 182. Today, he mostly flies in support of the family farm down in Louisiana. The C-182 was very practical “but you

always want more than you have,” so he jumped to a Centurion in 1994. “I’ve tried giving it little Christmas presents, GPS, various upgrades over time,” he said. “I’ve put 3,000 hours on the plane in 25 years.”

Vincent flies often with AngelFlight; at least once a month these days. He finds his plane “equally practical for AngelFlights or taking my buddies fishing.” Each trip is special. “I’ve gone to Canada, the east coast, west coast, and there’s a whole bunch that fall into the “best” category. But the AngelFlight missions are the best.”

Pilot Profile: Russel Moore from Austin, Texas

Moore’s father was a B52 pilot and his brother has a Cessna 177 Cardinal so he’s been around aviation all his life. He didn’t get his license until his late 40s when some disposable income became available. He has about 600 hours in the P210, 300 hours in a Baron, and couple hundred in a C-182. Right now he’s “in between” airplanes.

“When I got my private [license] I told my dad, and he said, now son, you gotta get your instrument rating,” Moore relates proudly. “But then he said, now you need to have your multiengine, and finally he said, now you gotta start flying turbines instead of ratty piston-powered planes. That’s when I stopped telling him about my progress.”

The P210 was a great choice for Moore. “It was comfortable, I like the pressurization and the air conditioning. I have big shoulders so it gives me plenty of room to maneuver. It’s a good solid IFR platform, not bouncing around as much as a 182.”

Moore flies under Basic Med and has a current BFR, so now he’s on the prowl looking for the right 210. “I like getting in and out of the pilot’s door, unlike the Baron where the pilot has to get in first. I mean, I like being able to walk around the plane. I check the doors and make sure everything is all secure.

Maybe somebody left something on the ramp? Only then do I climb in and do my checklist and runup and go.”

Moore is pretty sure he doesn’t have his “best flight” yet. “Man, they were all good flights, maybe the best was going to New Orleans, eating crawfish and etouffee, and then flying back home. It’s just the freedom and knowledge you can go anywhere, do what you want to do. I felt more accomplishment getting my commercial and my multi-engine than making my first million.”

About the Author



Mike Jones has been flying his 1979 Centurion for nearly 20 years. After this seminar, he is humbled by the sophistication and elegance of the engineering embedded in our “little” Cessna airplanes.