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Courtesy of Textron Aviation

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# The "COVID" Factor ... and its effects on the King Air market

by Chip McClure

or the last few years, I have had the honor of being asked to write an article about the King Air market, and each February I dutifully sit down and peck the keys, but by the time my article makes it to print, something crazy happens!

Two years ago, I wrote about the stability of the King Air market and how predictable it had become. I kid you not, about the time the issue had hit our mailboxes the market had turned upside down, and the article seemed foolish at best. Things began to settle as the year progressed and the new year was to be a good one for the King Air market; 2019 was a little unpredictable, but 2020 should be anything but ... right?

I have to say 2020 has been the strangest year ever! That article I wrote back in February? Who would have imagined? The effects COVID had on the market may not be what you'd expect. It has been a rollercoaster of monumental proportions, from literally having airplanes collecting dust and fuel being stored everywhere because there was simply no place to fly, to more sales activity than I have seen

in my 20-plus years in aviation. I have seen airplanes sell for cheaper and others sell for way more than I ever imagined ... all within the same calendar year.

I'm terrified of presuming what the market will be like this year. I'm going to talk about what has happened in the last year, and what it is currently looking like as I write this. Trust me, there's plenty to talk about!

#### A Year Like No Other

As usual, things started off slow in January, except for acquisitions that were held over from the previous year and a few prospects that were ready to get started on the process. To be honest we were expecting a lackluster market, as during most election years, buyers put off major acquisitions until after the results.



But then we started seeing activity unlike any we'd seen before – many buyers in the very early stages of considering a move to turbine aircraft. The fear of potentially losing bonus depreciation exceeded all other concerns. When we reached out to dealers and brokers around the country, they were still dead, but it made sense. We represent the acquisition side, so we usually lead the industry in activity.

As February neared its end and March loomed, I became concerned of our full schedule of clients and several more ready to move forward. We had a client looking for a C90GT, one for a B200 and one for a 350, and that was just the King Airs! We started looking for larger office space in Nashville and considering new hires, and in a matter of a week or two ... everything stopped. The nation was in lockdown and there was simply no travel occurring. The stock market dove and so did confidence, not just in buying airplanes, but in anything at all.

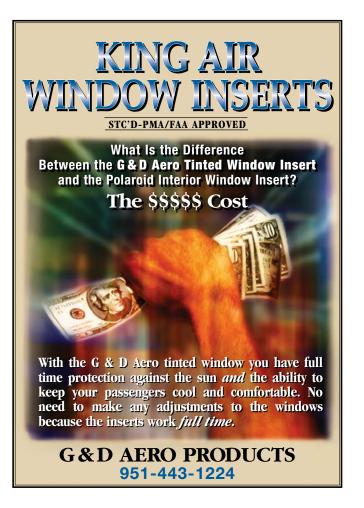
We were talking to owners of established companies that didn't know if they would survive. I was very concerned that our business might be a victim of the virus, as well. The initial shock wore off by the end of March and things began to move along; many of our prospective acquisitions were placed on hold, but our King Air business weathered the storm. We had the C90GT under contract when the lockdowns began, and our buyer never considered backing out. Thankfully, aviation maintenance was considered an essential service and our prepurchase inspections transpired almost like normal. We were able to make a very good buy on a King Air 350i. The owner had already taken delivery of his replacement aircraft and with the uncertainty of the economy, he was ready to own just one airplane.

The King Air market for the next few months was steady, in fact, business in general was steady. With limited options, flyable destinations began to explode with activity. I talked to a client who flew his King Air 300 to Jackson Hole, Wyoming, and said the airport was completely full! It was quickly becoming clear that anyone who could avoid the airlines by flying private was doing so. I'm not sure if it was fear of the virus or an aversion to wearing a mask for hours, but the airlines were mostly empty and King Airs were packed.

As spring turned to summer and things began to open up, people started to travel. Charter operators who had been trying to offload aircraft for the cash influx, suddenly froze the sale of any flyable aircraft as they were being slammed with new clients. The charter business appears to be operating near full capacity ever since.

The increase in activity, not only in the King Air market, but in all of general aviation was unprecedented. We're accustomed to the ups and downs that follow the economy and were prepared for the increase in activity due to the tax advantages for purchasing aircraft for business use, but the "COVID factor" is a new influence on private aviation that has not been seen before.

"The increase in activity, not only in the King Air market, but in all of general aviation was unprecedented ... the "COVID factor" is a new influence on private aviation that has not been seen before."







We anticipated this reaction after the terrorist attacks on 9/11, but that never really happened. This is different; it appears that a huge percentage of those with the means or ability to fly private are attempting to do so. The piston aircraft market is currently red-hot, and the jet market is almost as hot – everything that was in demand before is now in high demand.

#### What about King Airs?

As I said early on, I'm afraid to make any predictions, but here's where we stand as of mid-February.

As you know, the King Air market is really a consortium of submarkets; each model and to some extent each type of each model has its own dynamics. The following is a breakdown and clarity to where we are and where we might be headed.

#### King Air C90 (produced 1971-1983)

Typically referred to as the "Legacy" 90 series and depending on age and upgrades, they make a huge market that could be subject of an article all its own. For these purposes, I'll focus on the two main submarkets – the economical but decent C90 and the "upgraded" C90, which is typically a Blackhawk-converted airplane.

The standby, decent C90 for half-a-million bucks is a very rare find these days. It's not that you simply have to spend more to get one, it's that there aren't many to choose from. To find a nice airplane you'll have to wade through dozens of substandard aircraft that are languishing on *Controller*. As has become the norm ... if you see a nice airplane that's priced right, it's probably already under contract.

The "upgraded" Blackhawk/Garmin C90 is getting even harder to find. It is becoming what we would refer to as a "settled market," meaning the people who own them are happy and not looking to upgrade, so the number of these airplanes for sale is lower than I've ever seen it.

I expect these older airplanes to continue to decline in value. It's virtually impossible to find financing so it's a cash buyer's market and the age of the airplanes is reaching the point where you can afford to own and operate a newer airplane for the same overall cost.

## **King Air E90** (produced 1972-1981) **and F90** (produced 1979-1985)

The King Air 90 E and F models are what we refer to as submarkets, meaning they are surrounded by the larger 90 series market, but have their own distinct

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following (cult), making the markets unique. Most who get an E90 (technically a C90 with more fuel capability and larger engines) know King Airs and are often in the E90 cult. They seek out the nice, low-time E models, so if you're in the market for that, good luck!

The F90 breaks into two separate markets – the sub-\$800,000 "budget" option that is more airplane for the money than the C90, and the \$1,000,000-plus F90 or F90-1 that is one of the most coveted King Airs in the fleet. The F90 has a shorter wing but is superior to all other 90s due to a T-tail, dual mains, better electrical system, more fuel capacity and -135/-135A engines. The F90 is the original hotrod and the nostalgia lives on. If you want the cult model, get ready to pay big bucks and spend some time waiting, there just aren't many to choose from.

In the long run I expect the cult following to stay faithful. I think the low-time, pristine airplanes will hold their values better than anything of that vintage.

#### King Air C90A/B (produced 1984-2005)

In a similar fashion to the C90 markets, the C90A and C90B models fall into two eamps – Blackhawk or standard factory -21 engines. The more prevalent separation is the A or B designation, interestingly they're all C90As by type certificate and data plate, the "B" designation was a marketing one and was bestowed on the airplanes produced midway through 1992 until 2005.

The C90As are less likely to be upgraded and have traditionally been where good values could be found in the later model C90 offerings; today the market is tight but still offers some limited opportunities.

The C90B market is arguably the most unyielding of all King Air markets. It has two distinct submarkets – around \$1,000,000 for a non-Blackhawk airplane and about \$1,500,000 for a Blackhawk aircraft. As I have mentioned before this is typically a very compressed market as the values of C90GTi/GTx keep downward pressure on the C90Bs. The inventory levels for these airplanes are lower than I have ever seen them.

I expect going forward that the C90A/B dividing line will be even more prominent, but maybe not a clean break. I suspect the 1990 C90A will fare better than a 1989 C90A, but somewhere around this area will be the new dividing line between Legacy models and newer airplanes. I believe the C90As will hold their value until something changes. Based on the current market, there is simply more demand than aircraft and while these airplanes are aging, they are still newer than the C90s and there are fewer of them.

The ever-popular C90B may actually see a price increase this year (again assuming nothing changes), you can't escape the pressures of demand versus supply. We're already seeing a few sellers attempting to take advantage of the lack of inventory by advertising airplanes at asking prices that would have been dismissed as unreasonable just six months ago.

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The Garmin G1000 (and its successor G1000NXi) avionics panel are desired by many in the market for a pre-owned King Air. If a King Air the buyer is interested in doesn't already include it, they will often upgrade. (Credit: Garmin)

This market will still be compressed by the aircraft models above it, so I wouldn't expect to see wild increases in sales prices but I don't expect to see any bargains either.

#### **King Air C90GT** (produced 2006-2007)

The C90GT remains my favorite micromarket. With under 100 airplanes produced, it's a small, often overlooked market and does create some buying opportunities but there are so few nice, U.S.-based C90GTs it takes real effort to find one to buy.

The market is caught in the middle with values that are often less than a comparable C90B Blackhawk model and the newer and usually lower time C90GTi perched precariously right above it. I wouldn't expect to see much change in C90GT values, they may firm up from some historical lows but I don't expect to see any substantial increases in value.

#### King Air C90GTi/x (produced 2008-2021)

The "late models" are completely detached from the rest of the market as most owner-pilots prefer Garmin avionies and trend toward the older airplanes, and most corporate owners trend toward the newer airframes. It's ironic that C90GTi values keep a lid on C90B/GT values when most buyers won't make the jump, but that's literally the situation.

These late model aircraft have seen a lot of downward pressure on their values over the years. As new aircraft are sold and as companies decide to upgrade quickly, there seems to have always been a steady supply of late model, low-time airplanes hitting the market. This has historically brought prices down and created that compression we talked about.

Today, there's essentially zero used inventory and Textron just announced that they are discontinuing production of the C90GTx.





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#### **King Air 200/B200**

(produced 1974-2007/2007-2012)

The King Air 200 series has the same break in models which occurred in 1981. It's hard to believe but when the first major upgrade was done on the 200 series Beechcraft had produced over 800 of that model! The model break between the 200 and B200 has been a major dividing line in the marketability of these almost identical aircraft for years. We are now seeing the same type of divide at both the start of the 1990 model year and the 2000 model year. The old adage is a 1989 model sounds 10 years older than a 1990 one.

The breaks have left us with four submarkets. The first group being the straight 200s – anything built mid-1981 and before. These aircraft have some advantages over their heavier siblings that came along later and are often used for charter because they have lower acquisition costs and better useful loads. It's not uncommon to see a '70s vintage King Air 200 with a G1000 panel, new paint and interior, and maybe even winglets. They look good, haul the weight, cost less and the average charter client has no idea the airframe is 45 years old and has 12,000 hours!

The market for straight 200s has been bottomed out for a long time; there's simply no room for the values to go down. I doubt they'll go up in value, but as they age and get more time on them, the fleet will dwindle and force many of those buyers into the newer airframes. There are close to 600 model 200s still flying – that's a lot of airframes to replace over the next few decades.

The next group we refer to as the "Legacy" B200s and encompasses airplanes built from 1981 to 1999, with the break I mentioned at 1989/1990. These airplanes are the ones that are most likely to be upgraded – Garmin G1000 panels, Blackhawk -52 and -61 engines and Raisbeck mods galore. This is the part of the market that is the most complex and as a result the most volatile. There are a lot of airplanes, a lot of buyers and a lot of very expensive options. The process of determining values of these aircraft is time consuming and where we see King Air buyers make the most costly mistakes. For example, if there are two near identical airplanes and one is \$100,000 cheaper, you need to know why before buying either of them.

The market values of these aircraft are holding steady. I won't say they are increasing, but I wouldn't be surprised if they are by the time this article is published. This market is the most likely to see a substantial increase in values, especially in the 1990 and newer aircraft. If I were considering buying a B200, I would do it sooner rather than later and I would plan on it to take a lot longer than expected.

The "Late Model" B200 category are the 2000 and newer models, all the way up to 2012! I did not mistype, there is such a thing as a 2012 B200. It's not a B200GT or a 250, it's a legit B200 with -42 engines! Beechcraft



King Air 200 models that have been upgraded with Blackhawk engines, the various Raisbeck mods and other upgrades are the most popular and therefore have the most complex and volatile market. There are a lot of aircraft, a lot of buyers and many desirable upgrades. (Blackhawk Aerospace)





At the start of 2020, the King Air 250 market was stagnant, but later a model sold for a good price and it wasn't long before all 250s up for sale were gone. (Textron Aviation)

continued to build the B200 via special order even after they introduced the B200GT and in 2011 they built all three – the B200GT, the B200 and the 250!

The B200s built from 2000 until 2007 are the most desirable and you will very often find them with all of the popular upgrades – Garmin G1000NXi panel, Blackhawk engines, BLR winglets, Raisbeck mods and new paint and interior. Some of these pristine B200s actually sell for higher prices than the newer B200GTs!

#### King Air B200GT/250

(produced 2008-current)

The B200GT marked the first major change in the 200 series in 34 years – the addition of the more powerful Pratt & Whitney PT6A-52 engines from the factory. This gave the production B200 the same top speed as the modified Blackhawk B200 or the production King Air 350s.

The B200GT and the 250 are very desirable because of their age, but many King Air operators became accustomed to Garmin avionics and really struggle with the idea of learning the Pro Line 21 system and maintaining it. This has caused some depression in the values of these airplanes; in fact in 2019 and the beginning of 2020 the King Air 250 market was stagnant and airplanes were not selling. We had a 250 acquisition request back then and chose to buy a 350i instead because we were afraid of what might happen to 250 values.

Then, like so many other odd occurrences last year, a random King Air 250 sold, brought a good price and then one-by-one, like dominoes, they all sold. If you're in the market for a good 250 today, they may be sold out!

It's not just the 250s, it's the Blackhawk C90Bs and the late model Blackhawk B200s ... they're all sold out. I'm hoping by the time you read this, things will have loosened up a little and there is some inventory for a buyer to consider, even at higher prices, but I don't suspect there will be. I'm afraid when it comes to airplanes, the struggle of finding a nice one to buy may be our new normal.

#### **King Air 300** (produced 1984-1994)

My second favorite micromarket, the King Air 300, represents a tremendous value to the savvy King Air buyer who understands what it is and isn't afraid of getting a type rating. The 300 isn't for everyone but for those owners who take advantage of its unique characteristics will absolutely love it and you won't be able pry one of the rare, nice ones away from them. The 300 can do one thing that no other airplane can do, but I'll save that for another article!

The King Air 300 was built for a 10-year period under a special approval from the Federal Aviation Administration (FAA). There was a sunset clause that

ended production, with the last few years of produced aircraft going to the FAA or were 300LWs, meaning lightweight with a measly 12,500 lb. gross weight. This left a very small fleet of unique airplanes. The King Air 300 is a B200 fuselage with -60A engines and a 14,000 lb. gross weight. It does everything a Blackhawk B200 does but earries more weight and costs about \$500,000 less!

This market is somewhat settled. It was hot a couple of years ago; today, we aren't seeing as many buyers, but there aren't many airplanes to choose from either. I expect that the King Air 300s will maintain their values and end up with the same cult following now as the King Air E and F 90s. If you're in the market for a King Air 300 and you can find one, you better not pass it up as there may not be another one!

#### **The King Air 350/350i**

I can't lump these models with all the models above. For whatever reason, the King Air 350 market is different right now. In fact, it may be the only sub-\$5,000,000 aircraft market that isn't red-hot. I strongly suspect that by the time this article is published, things will have changed and all of the nice King Air 350/350is will be gone as well, so please don't send me hate mail if none of what I'm about to say makes any sense.

#### **King Air 350** (produced 1990-2009)

There are a few breaks in this market as well but overall it is typically more cohesive. There aren't nearly as many upgrades available for the King Air 350 and the values are easier to understand.

The first break is at the typical 1999/2000 mark, with the older airplanes being considered "Legacy" and the newer ones "Late Models." The second break is at 2003/2004 with the 2004 model being Pro Line 21, which makes the 2000-2003 models very popular because people want the latest 350 they can buy and upgrade to a Garmin G1000. With these aircraft becoming harder to find, we are seeing owners elect to remove the Pro Line 21 and replace it with the G1000. I know many think this is a sin, but please do not shoot the messenger!

The third break is at Serial No. 500, when the AC system was upgraded to a Keith unit which is more desirable.

#### King Air 350i (produced 2009-current)

The King Air 350i market took a serious hit in 2020. It started with several 2013 models that were originally sold with seven-year warranties under a special promotion coming off warranty being traded back into Beechcraft







and then progressed quickly downhill during the early stages of COVID.

We saw 350i values drop hundreds of thousands of dollars in a very short period of time; 2012/2013 models were being advertised on *Controller* for lower prices, some even falling below the \$3,000,000 mark. Those deals are gone and you can't buy one that cheap today, but there aren't a lot of buyers either. I have probably fielded 20 calls from prospective King Air buyers in the last 45 days and only one of them was looking for a 350.

Overall, the King Air 350/350i market is very slow. I expect it to rebound sometime early this summer but that's just a guess.

#### **In Conclusion**

To say that 2020 was an unusual year would be an understatement, but so far 2021 is just as interesting. What will the market be next week or next month, who knows? What is it right now? Tight. Tighter than I've ever seen it. Is it a bubble or the new norm? I'm not sure. It feels like a bubble ... like 2008 when inventory

dropped and prices rose. This is different though. The economy isn't driving this market, a virus is. It's not just the chance of getting sick ... it's the mask, no cocktails, being treated poorly by airline employees. It's fewer flights, less flexibility, less service and more excuses.

Those who can ... will. That seems to be the mantra for the day. It's great for general aviation, it's great for King Airs. It's great for all of us who make a living helping make dreams of flying a reality.

If you're thinking about buying a King Air, don't hesitate and plan for it to take a while to find a nice one. If you're thinking about selling, hurry up. We have a bunch of people that want your airplane more than you do!

Chip McClure has been in the aviation industry for over 20 years. He and his wife Amy founded Jet Acquisitions in 2015; the firm exclusively represents turbine aircraft buyers and specializes in King Airs, as well as all models of current production turboprops and jets.





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# An Important Consideration for King Air 200 and B200 Pilots

by Tom Clements

f you are not currently flying a member of the 200-series family, up to serial number BB-1459, then this article is not for you. You won't hurt my feelings if you immediately jump to the next article in this magazine. But since this quite important topic applies to well over 1,000 airplanes, I think it merits my addressing the topic in this article.

Many of you may recall the horrific crash of a King Air 200 that happened January 27, 2001. The airplane was departing Denver's Jefferson County airport (KBJC, now known as Rocky Mountain Metro) at night on an IFR flight to Stillwater, Oklahoma, (KSWO) with eight seats filled with players, coaches and broadcasters of the Oklahoma State University (OSU) Cowboys basketball team. Two pilots were in front but the right seater was quite new to the 200 and was primarily

going along to gain experience. The left seater was an experienced pilot who had flown this exact airplane often. The airplane crashed at high speed into a field about 40 miles from the airport.

The NTSB report states that the probable cause was "the pilot's spatial disorientation resulting from his failure to maintain positive manual control of the airplane with the available flight instrumentation. Contributing to the cause of the accident was the loss of AC electrical

power during instrument meteorological conditions."

We will never know the exact set of conditions that brought this BE-200 to its doom, yet I have an idea of the circumstances involved. Based on what you are about to read here, I hope that I can make a convincing argument for you to select the No. 2 inverter for your flights in darkness.

Before continuing, let me be clear that what I am about to describe is very unlikely – a possibility that would be rare to experience even once in a lifetime of flying. Yet the Beech engineers recognized that this possibility does indeed exist and based on that recognition safety devices – in this case, circuit breakers (CBs) – were included in the design. Specifically, we are talking about a "ground fault" on one of the dual fed buses.

A quick review of the 200's electrical system: Two generators and a single battery are the three normal sources of DC (Direct Current) power. The generators feed directly into their respective left and right generator buses or main buses. These buses include most of the electrical components that consume larger amounts of power, such as the landing gear motor, windshield heat, avionics and inverters. (Although modern avionics and inverters are not nearly as electrically "thirsty" as their older predecessors.) The smaller electrical users are distributed among four "dual fed" buses, so named since they are fed from both the left and the right generator buses. Dual fed buses No.1 and No. 2 are mostly located on the right sidewall of the cockpit whereas Dual fed buses No. 3 and No. 4 are on the left sidewall, near the fuel panel. The two feeder wires to each bus has a 50-amp circuit breaker designed to trip, stop current flow

"Although the wiring should be checked during some of the maintenance checks, it is such an easy thing to do that I encourage you pilots to conduct the checks yourself, occasionally."

and hence protect the wiring from getting so hot as to cause a fire in the event of an electrical short on the bus itself. (That missing screwdriver finally touched the bus bar to the airframe!)

Diodes – one-way devices for electrical current flow – permit both generator buses to feed the subpanel buses through the 50-amp CBs but prevent one generator bus from feeding back into the other generator bus ... which would compromise redundancy and safety.

I have found some errors in the subpanel wiring throughout my many years of providing King Air instruction. It has been quite



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common to discover that one of the dual fed buses is receiving power from only one of its feeds. Once, I even found an airplane in which the No. 1 and No. 2 dual fed buses had been bridged together! All four feeder CBs were applying power to both buses.

Although the wiring should be checked during some of the maintenance checks, it is such an easy thing to do that I encourage you pilots to conduct the checks yourself, occasionally. Here's how: Find the two 50-amp CBs for dual fed bus No. 1 on the right sidewall. Turn on the airplane's battery, then pull one of the two CBs ... let's say the right one. Nothing should happen. This verifies that the other feeder CB the left one that isn't pulled vet – is indeed providing power to the bus. Now also pull the left feeder CB. By doing this, the bus should "die." You may notice the left oil temperature and pressure gauge drop to zero ... but why did the avionics just come on?! Because the avionics master CB gets power from the No. 1 fuel fed bus - the one that just died and the avionics power relays are the normally closed type, not the more common normally open type. (I am sure you have been taught that pulling the avionics master CB is equivalent to turning ON the avionics master switch. Right? If the switch ever shorts out internally, causing the avionics to die, this is the "workaround" fix.)

By noting that the No. 1 dual fed bus did *not* fail when we pulled the first (right) feeder CB, we know that the left CB is able to power the bus. But for all we know the right CB was dead at the start. To verify that is *not* the case – that the bus is truly dual fed – reset the right CB first and make sure the bus again receives power. See how easy it is to check that the dual fed bus indeed has its two sources? So now continue doing this for the remaining No. 2 dual fed bus on the right sidewall, as well as dual fed fuses No. 3 and No. 4 on the left sidewall. The fuel gauges are the easiest way to tell if the No. 3 or No. 4 dual fed buses is or is not receiving power.

(There is a training video about these CBs on the King Air Academy's website at: https://youtu.be/lw8wvxxHle4)

Back to the OSU 200 crash. Here is pure speculation on my part about what *might* have precipitated the tragedy. Although the No. 1 inverter receives its power from the left main bus, the inverter control switch's No. 1 "up" position gets powered by the No. 1 dual fed bus. A loss of power to that switch will result in a dead inverter.

Here's a possible scenario: As the airplane's autopilot is just leveling off at FL230, perhaps something happens in the cabin that causes the pilot to turn in his seat to address the cabin situation. The right-seater, being new to the benefits of crew coordination, does not realize how important it is for him to keep "minding the store" and he, too, turns his attention aft. Now the unthinkable happens: The No. 1 dual fed bus dies. The No. 1 inverter loses power, causing the autopilot to trip offline. The accident investigation showed that the altitude encoder stopped sending altitude information to ATC moments before the spiral dive began. The encoder is dependent on AC power, lending credence to the inverter failure theory.

Finally, the pilot returns his view to the cockpit ... perhaps wondering why the air noise has increased and/or why he's feeling some G-forces. What the ...?! The only lighting he sees are the engine instruments and the avionics panel! Both his side's flight instruments are dark as well as the copilot's side! Quick! Let's turn the overhead flood light and instrument indirect light rheostats clockwise to the full bright position. But they're dead also! By the time a flashlight is located, the spiral drive has found the Colorado ground.

Yes, friends, it is difficult to understand the designers' thinking of why so much cockpit lighting would receive power from the same source! Thanks to *BeechTalk* contributor Matt Cox I think this



wiring design was changed starting with BB-1459, a 1993 model. That has not been verified.

So here's your homework assignment: Go to your 200/B200 in a dark hangar and turn on the battery and all of your cockpit lighting rheostats ... all the ones in the row beside the master lights rocker switch, as well as the two in the top row. Select No. 1 inverter and make sure it begins working. Now pull both of the 50-amp CBs for the No. 1 dual fed bus. I predict you will find yourself in the precarious situation I described above ... inverter failure and almost total panel lights failure. I hope I'm wrong! I hope many/ most of you will find that enough lighting is still available to hand-fly the airplane successfully until you can select Inverter No. 2, allow the gyros enough time to re-erect, and then restore the autopilot. For those serial numbers past BB-1458 I am almost certain you'll be OK.

For the others, who find what I have described is indeed factual, then I have a strong request of you: Use the No. 2 inverter for night flights!

By doing so, a failure of the No. 1 dual fed bus will kill your important lights, yes, but it won't fail the inverter and autopilot. Good ol' "George" can keep handling the flying while you locate the flashlight and get it aimed as you like. And please make sure the batteries in the flashlight are in good shape, yes?

In closing, it surely seems to me that Textron or Raisbeck or Blackhawk or ???? should offer a Service Bulletin or a kit to relocate at least the indirect and flood lights to dual fed bus No. 2 on the 200s and B200s that exhibit this potentially dangerous behavior.

King Air expert Tom Clements has been flying and instructing in King Airs for over 46 years and is the author of "The King Air Book" and "The King Air Book II." He is a Gold Seal CFI and has over 23,000 total hours with more than 15,000 in King Airs. For information on ordering his books, contact Tom direct at twcaz@msn.com. Tom is actively mentoring the instructors at King Air Academy in Phoenix.

If you have a question you'd like Tom to answer, please send it to Editor Kim Bloniger at *editor@blonigen.net*.

# Travel Air -The Last Days

Profile view of the prototype CW-12Q reveals positive wing stagger and smooth transition of the Wright-Gypsy engine into the forward fuselage. The tailwheel was steerable through a limited arc to facilitate maneuvering on the ground. Ailerons were horizontal stabilizer. (Edward H. Phillips Collection)

installed on the upper wing panels. Note the adjustable After six years of tremendous success designing, manufacturing and selling airplanes, the Travel Air Company and its leader, Walter H. Beech, became cogs in the aeronautical wheel of fortune known as the **Curtiss-Wright Corporation.** 

by Edward H. Phillips

ate in 1929, only months before the stock market collapse on Wall Street, an organization was formed by the merger of Curtiss Aeroplane & Motor Company with the Wright Aeronautical Corporation. In the wake of the merger, the new Curtiss-Wright Corporation absorbed 18 companies and 29 subsidiaries, of which Travel Air and Walter Beech were considered among the most valuable. Total assets were worth more than \$70 million and the value of stock hit \$220 million before the "crash" struck in October of that year.

America's enthusiasm for flying grew rapidly after the solo flight of Charles A. Lindbergh from New York to Paris in May 1927. In 1928 the Curtiss Aeroplane & Motor Company bought Robertson Airlines, based in St. Louis, Missouri. In addition to carrying passengers, Robertson was a contract air mail carrier for the United States Post Office and operated a flight school as well

as an engine and airframe repair facility. From that acquisition came the Curtiss-Robertson Aircraft Corporation whose only purpose was to manufacture Curtiss airplanes at a factory located in Anglum, Missouri, near St. Louis.

After Curtiss-Wright acquired Travel Air in 1929 it bought all the assets of Robertson Airlines and merged Travel Air and Curtiss-Robertson to create the Curtiss-Wright Airplane Company. The Wichita factory was designated as the Travel Air Division, but in mid-1931 the factory had begun to gradually cease manufacturing and production operations in an effort to reduce Curtiss-Wright's operating

Antique airplane collector, pilot and

restorer Alfred Kelch restored a CW-12Q in

the 1970s. It is currently on static display at

the Kelch Aviation Museum in Broadhead,

Wisconsin. The airplane was one of 27

airplanes built by the Travel Air Division

of the Curtiss-Wright Airplane Company.

The tailskid was replaced by a steerable

tailwheel. (Kelch Aviation Museum)

costs. Aircraft technical drawings and blueprints, along with one engineer and Walter Beech, were transferred to facilities at Lambert Field in St. Louis. As part of the merger, Beech was appointed a vice president of the company.

When Walter arrived to oversee sales production of the Curtiss-Wright CW-1 Junior – a two-place, open-cockpit monoplane powered by a three-cylinder Szekely static, air-cooled radial engine rated at 45 horsepower – it was well underway. It sold for only \$1,490 and was the company's final attempt to sell a lightweight commercial airplane in an overcrowded marketplace where little or no demand for new aircraft existed.

Before the Wichita facilities were closed, only a skeleton crew remained to complete a small number of new airplanes for delivery, or to place airframes and engines into storage. In November 1930, orders for airplanes had plummeted and massive employee layoffs commenced and continued

Front view of the Kelch museum's CW-12Q reveals the fuel tank in the center section that provided a range of about 400 statute miles. Generous wing area and low wing loading allowed the biplane to easily operate from small, grass airfields.

(Kelch Aviation Museum)

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The CW-12K was powered by a Kinner B5 static, air-cooled radial engine rated at 125 horsepower. Travel Air Division engineers Herbert Rawdon and Ted Wells designed the CW-12 series airframe to accommodate four different engines ranging from 90 to 165 horsepower. Only two are known to have been built. (Edward H. Phillips Collection)



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unabated into 1931. One of the last Travel Air ships built was the Type "R" monoplane ordered by the Italian Regia Aeronautica. It was delivered in July and shipped to Italy.

Roy Edwards was employed by Curtiss-Wright to sell all the equipment at the factory campus on East Central Avenue, and by September 1932 the five buildings had become little ghost towns in their own right - silent testimonies to a ravaged national economy. (Side note: Clyde Cessna and his son Eldon, however, did lease space to build their diminutive, but fast, CR-2 and CR-3 racers in 1932-1933 while Walter Beech was building the Beechcraft Model 17R- and B17-series cabin biplanes in Cessna's abandoned factory on Franklin Road.)

It should be mentioned here that when Curtiss-Wright took control of Travel Air, model number and constructor number (C/N) designations were changed. From 1925-1931 Travel Air had assigned consecutive numbers to airframes regardless of model or type. For example, a Type 2000 biplane may have been assigned C/N 1250, while a Type 6000B monoplane would be assigned C/N 1251. The new system assigned numbers based on aircraft model. For example, a Type 6000B monoplane became the Type 6B with C/N beginning with 6B-2001, while a Type 6A used C/N beginning with 6A-2001. The same procedure was applied to biplanes. Another example is the five Type R racing monoplanes that were assigned C/N R-2201 through R-2005.

Meanwhile, in 1930 Curtiss-Wright/Travel Air Division engineers Herbert Rawdon and Theodore "Ted" Wells were charged with designing a new generation of small, lightweight, open-cockpit biplanes powered by inline or static, air-cooled radial engines of small cubic-inch displacement and low

horsepower. The primary focus was on minimizing manufacturing costs while achieving a price level below \$4,000.

The first airplane developed was designated the Curtiss-Wright Travel Air Model CW-12Q that was powered by an inline, upright, four-cylinder Wright Gypsy L-320 engine that produced 90 horsepower at 2,000 RPM. The Gypsy powerplant was a British design built in the United States under license and also powered the popular British de Havilland Gypsy Moth biplane.

Construction of the 12Q was typical of that era - welded steel tube fuselage with the four wing panels built up from laminated spruce spars and plywood ribs. The wing leading edges were sheathed in metal. The Model 12 wing configuration featured a zero angle of incidence, a positive interplane stagger of 28 inches and a dihedral of 1.5 degrees. According to Curtiss-Wright technical information, the wing structure, spars, ribs and fittings were all interchangeable, not only with other Model 12-series ships but also with some other models of Curtiss-Wright light airplanes.

The empennage structure was fabricated using welded steel tubing, and the entire airframe was covered in cotton fabric that was shrunk tight with butyrate dope. The conventional landing gear arrangement included a welded steel main gear fitted with 6.50 x 10 semi-airwheels with mechanical brakes, and a non-steerable tailskid.

General specifications for the Model 12Q Include:

- Length: 21 feet five inches
- Height: 8 feet 10 inches
- Wing span (upper panels): 28 feet 10 inches; (lower panels): 26 feet 4 inches
- Wing chord (upper and lower panels): 48 inches

- Wing area (upper panels):
   113.4 square feet; (lower panels):
   93 square feet
- Wing loading: 8.15 pounds per square foot
- Power loading: 17.72 pounds per horsepower
- Airfoil Section: Clark Y-15
- Empty weight: 1,071 pounds
- Gross weight: 1,725 pounds
- Useful load: 654 pounds
- Fuel capacity: 33 gallons
- Maximum speed: 105 mph
- Landing speed: 44 mph
- Ceiling: 12,000 feet
- Rate of climb (sea level): 600 feet per minute
- Cruising range: 390 statute miles (at 6.5 gallons per hour fuel consumption)<sup>1</sup>

Price for a standard-equipped airplane was \$3,500. As the market for small aircraft worsened, the price was reduced to the point where production was terminated.

A prototype 12Q was completed in 1930 and initial flights were conducted by Lloyd Child, test pilot for the Curtiss-Wright Airplane Company in St. Louis. In February 1931, the Aeronautics Branch of the United States Department of Commerce issued Approved Type Certificate (ATC) number 401 for the Model 12Q. Late in 1930 production of the Model 12Q began at the Travel Air factory in Wichita and continued until June 1931, when production activities at that facility were gradually decreased. A total of 27 Model 12Q aircraft were built.

Introduced at the 1931 Detroit Aviation Show, Curtiss-Wright Airplane Company touted the qualities of the new Model 12Q:

"What Curtiss-Wright learned from the [Travel Air] Mystery Ship, fastest commercial airplane in the world, Curtiss-Wright now



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incorporates in the striking new Travel Air Sport-Trainer. Sturdily built, trimly refined, you'll like this fleet little ship. It offers advances in stability, handling and servicing ease, which can be affected only when an organization builds for the whole field. Its clean-cut lines, its sleek streamlining, its speed in excess of 100 mph and cruising range of 500 miles, make it a craft of which you may be justly proud. Actually, it's so stable in flight and so responsive to all controls it's a real treat to fly it! Powered with the Wright-Gypsy engine, with a full complement of instruments, with a special wide tread, shock-absorbing landing gear and brakes, this Travel Air is easy to control on the ground or in the air. It is designed to make flying and servicing by the owner as inexpensive as possible." <sup>2</sup>

(Kelch Aviation Museum)

In addition to the Model 12Q, Curtiss-Wright offered two other versions of the airframe. The Model 12K, priced at \$4,288, was powered by a Kinner B5 radial that developed 125 horsepower. The additional cost of \$788 compared to the Model 12Q discouraged potential customers, and Curtiss-Wright faced stiff competition from other manufacturers that offered airplanes with similar performance for less money.

Only two of the Model 12K were built, both at the Travel Air Division's factory. General specifications were identical to the Gypsy-powered version but the Kinner engine increased performance slightly to a maximum speed of 112 mph and a cruising speed of 95 mph. It could climb to 14,000 feet and had a range of 420 statute miles. The CW-12K received Approved Type Certificate number 406 in March 1931.

The CW-12W possessed good performance and economy of operation thanks to its Warner engine. The reliable 110- or 125-horsepower, seven-cylinder Scarab engine was among the best small, lowhorsepower radial engines available during the Golden Age of Aviation, 1925-1940. Jim Koepnick/Experimental Aircraft Association)

By contrast, the Model 12W featured a seven-cylinder Warner Scarab radial powerplant rated at either 110- or 125-horsepower. The small diameter of the engine allowed Herb Rawdon and Ted Wells to enclose the Warner in Curtiss-Wright's version of the National Advisory Committee for Aeronautics' (NACA) pressure cowling that was developed by a team led by engineer Fred Wieck in the late 1920s.

Performance changes included a maximum speed of 117 mph, cruising speed of 99 mph and a range of 480 statute miles. Rate of climb (sea level) was 780 feet per minute and maximum ceiling was 15,000 feet. Chiefly because of its higher price, the Warner-powered Model 12 did not sell well and only 12 are known to have been built. Price for a standard-equipped airplane was \$4,455.3

Another variant of the Curtiss-Wright/Travel Air was the Model CW-16 Light Sport developed by Rawdon and Wells and based largely on the Model 12 airframe. The chief advantage of the Light Sport over its siblings was room for two in the front cockpit, but the wider fuselage, engine and other minor alterations necessary to accommodate the third occupant drove the price up to \$4,488 for a standard-equipped airplane compared with the CW-12O, CW-12K or CW-12W.

Three versions were offered: The CW-16K, CW-16W and CW-16E. Development of the Model 16K included installation of the Kinner

B5 (R-440) radial that produced 125 to have been built at the Travel Air horsepower. The Travel Air Division manufactured only 11 of these powered by a Wright Aeronautical three-place biplanes that could be J6-5 (R-540E) radial engine rated at considered a modern reincarnation of the old Travel Air Type 2000 from standard configuration, the CW-16E 1925. Approved Type Certificate number 411 was issued to the CW-16K model in April 1931.

General dimensions and specifications remained the same as the other three versions except for an empty weight of 1,176 pounds, useful load of 774 pounds and a gross weight of 1,950 pounds. Maximum speed was 112 mph and range 420 statute miles.

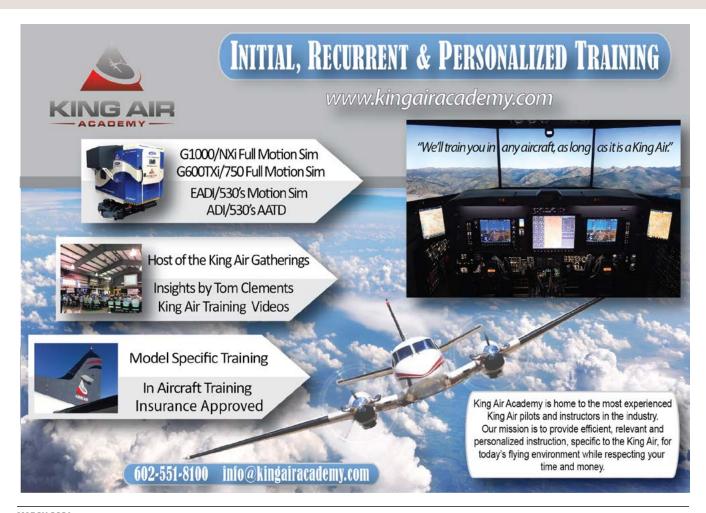
The same airframe was also adopted to accept the seven-cylinder Warner Scarab engine and was assigned the designation Light Sport Model CW-16W. The design was awarded ATC number 429 in June 1931. Only one of this specific type is known

Division factory. The CW-16E was 165 horsepower. Priced at \$4,600 in cost more than the CW-12 and CW-16 series airplanes but offered little or no increase in performance compared with its siblings. Ten were built by the Travel Air Division. The CW-16E type was granted ATC number 463 in February 1932. By 1932 production of the entire Model 12 and Model 16 series had been terminated after approximately 50-55 airplanes had been manufactured in Wichita.4KA

- 1. Curtiss-Wright Airplane Company claimed a maximum range of 500 statute miles but did not state a power setting or rate of fuel consumption.
- 2. "Aviation," February 1931, Page 13.

- 3. In the decades since these ships were manufactured, a small number of Model CW-12Q were modified to accept either the Kinner or Warner engine and airframe designations were changed accordingly.
- 4. As of 2020 only a handful of the CW-12 and CW-16 series exist worldwide. Of these, only a very small number have been restored to airworthy condition, making the CW-12 and CW-16 biplanes among the rarest of Curtiss-Wright/ Travel Air designs.

Ed Phillips, now retired and living in the South, has researched and written eight books on the unique and rich aviation history that belongs to Wichita, Kan. His writings have focused on the evolution of the airplanes, companies and people that have made Wichita the "Air Capital of the World" for more than 80 years.



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# PWI Receives FAA Approval for Window Light LED Upgrade on B200/250 Aircraft

King Air interior lighting specialists, PWI, recently announced the FAA Approval of their Window Light LED Upgrade on B200/250 models. This STC approval was highly welcomed by the company as well as King Air B200/250 operators as it has already been certified for all other King Air models.

The LED upgrade easily replaces the installed fluorescent lighting as

it uses the same lighting connectors. Besides providing a refreshed interior atmosphere, the LED lights provide 100,000 hours of life, require 50% less of a power draw, a 40% lower system operating temperature, a 33% weight reduction per fixture, no flicker or buzzing and a three-year warranty from the invoice date.

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#### Garmin Announces EASA Approval for the GI 275 Electronic Flight Instrument

Garmin® International Inc. announced that the popular GI 275 electronic flight instrument has received European Union Aviation Safety Agency (EASA) approval, allowing installation in over 1,000 single-engine and multi-engine aircraft models. Several variants of the GI 275 are available to meet the needs of business and general aviation aircraft. A powerful electronic flight instrument, the GI 275 is suitable as a direct replacement for a variety of legacy primary flight instruments in the cockpit such as the attitude indicator, attitude-direction indicator (ADI), course deviation indicator (CDI), horizontal situation indicator (HSI), multi-function display (MFD), and engine indication system (EIS). In addition, the GI 275 can also be installed as a standby attitude indicator when paired with large format electronic flight displays.

"Garmin worked closely with EASA to bring the popular GI 275 to thousands more cockpits with aging flight instruments," said Carl Wolf, vice president of aviation sales and marketing. "With this approval, the modern GI 275 electronic flight instrument gives pilots the opportunity to take an economical and scalable approach to their avionics upgrade while realizing tremendous potential with the extraordinary capability of the versatile touchscreen GI 275."

Lightweight and compact, the GI 275 is a reliable flight instrument intentionally designed to take advantage of the common 3.125-inch flight instrument size, reducing installation time and preserving the existing aircraft panel. Its bright, high-resolution touchscreen display and wide viewing angle offers

superior readability in the cockpit. A dual concentric knob allows pilots to access a variety of key functions within the flight instrument, such as adjustments to the baro setting or the airspeed bug. Highly scalable, aircraft owners can start with a single GI 275 and add up to a total of six in a single panel, paving the way for incremental upgrades and an array of individualized panel configurations.

Built-in Wi-Fi® enables Garmin's Database Concierge, the wireless transfer of aviation databases to the GI 275. Pilots also have the option of transferring databases to the GI 275 using a USB flash drive and the GSB 15 USB charger. Databases can also be synced among multiple GI 275 flight instruments in a single cockpit. When configured to display engine information, the GI 275 can wirelessly send engine data to display within the Garmin Pilot app on Apple mobile devices. This data is also automatically synced and can also be viewed and stored on the flyGarmin website. Wireless flight plan transfer via Bluetooth® is available when the GI 275 is paired with a GPS 175, GNC 355 or GNX 375. Additional wireless functions include the sharing of GPS position and back-up attitude information with Garmin Pilot.

The GI 275 is available immediately and approved for installation in over 1,000 single-engine and multiengine aircraft models. Select Class IV aircraft also are approved; visit www.garmin.com/GI275 for additional information.

For full installation details, and to purchase the GI 275, contact a Garmin Authorized Dealer. A trial period of SVT also comes with the purchase of a GI 275 when it's configured as an attitude indicator. The GI 275 also comes with a two-year warranty and is supported by Garmin's award-winning aviation support team, which provides 24/7 worldwide technical and warranty support.

#### Hampton Aviation Becomes Authorized Dealer/Installer for Airtext and Avidyne

Hampton Aviation of Mena, Arkansas, was recently authorized to be dealer and installer of two well-known aviation products and systems, Airtext and Avidyne.

Airtext allows passengers to stay connected electronically worldwide by voice or email for a much lower cost than a traditional internet option. Through the Iridium Next Satellite Network, Airtext allows connectivity through an app on your cell phone while on the airplane. The hardware consists of a small "paperback" book-sized, FAA-approved Airtext box weighing about one pound that is installed on the airplane and connects to the existing iridium phone antenna found on most airplanes.

As an Avidyne Authorized Dealer, Hampton Aviation will have the opportunity to provide an affordable yet highly capable retrofit option for their King Air civilian and military/government customers. Avidyne's upgrade package includes the complete suite of their panelmount IFD FMS/GPS/NAV/COMs, plus AMX 340/322 Mode S ADS-B OUT Transponders, AMX240 Audio Panel and more including the highly anticipated Avidyne ATLAS<sup>TM</sup>, Avidyne's dzus-mount multifunction flight management system available this year.

Airtext and Avidyne join Hampton Aviation's extended list of other systems and products in which they are an authorized dealer and installer, which include: Raisbeck, Blackhawk, Garmin, Rockwell Collins, L-3 Aviation Products, FreeFlight Systems, Goodrich/UTC de-ice systems, autothrottles, antiskid brakes and Standard Aero.

For more information, go to www. hamptonaviation.com





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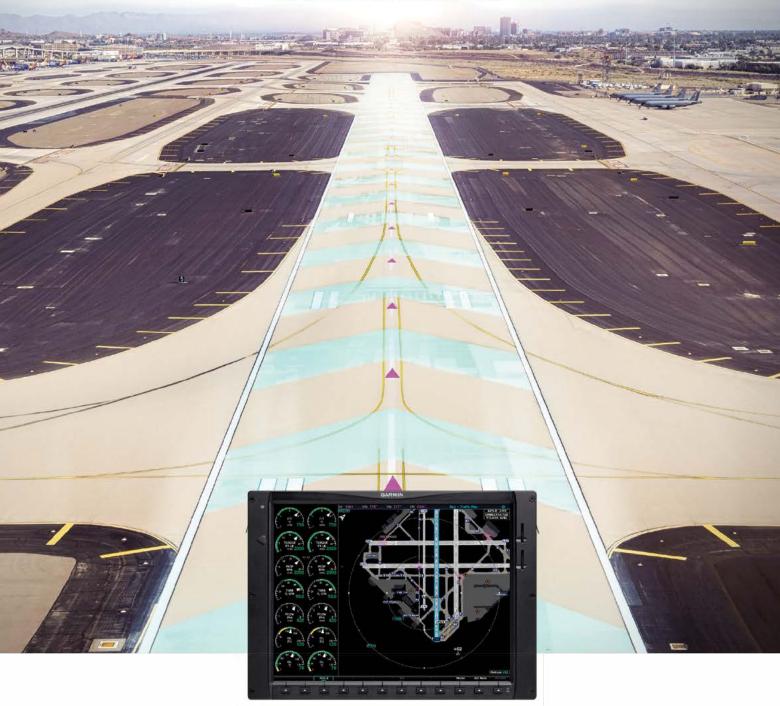
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