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VOLUME 20 NUMBER 10



## Piper's M600 Personal Turboprop

Innova King Air Mods

AvFabulous King Air Interior

Control Freaking



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## Control Freaking



**E**ver wonder why we have that uneasy feeling in the pit of our viscera just before we launch on a big trip? Most likely, we are tied up in knots because we're not in total control.

Pilots are, by nature, control freaks. The very definition of Pilot In Command reeks of control. We must stay in control of the flight situation throughout our aeronautical excursions, to guard against the dreaded LOC-I (loss of control, in flight) and be ready to regain control if faced with an upset. It's just the way we're trained, and it's the way we are.

But, with all the variables to manage in trip planning—passenger prodding, weather checking, fueling and preflighting—there's a high likelihood that something will go awry. We just can't control all aspects of the schedule, weather, or even the vagaries of ATC. Which leaves us on the edge of concern, continually.

In nearly 60 years of observation, I've seen a lot of flights come and go, sometimes routinely, sometimes not as planned, and sometimes not at all. One thing's for sure; there will be challenges to be dealt with. That's what pilots are for. Making decisions, to keep things under control, is the only reason we're in the aircraft. If flying was easy, says one of my old instructors, everybody would want to do it.

We must, then, accept the responsibility, the control freaking, that comes with being PIC. To gain control, we must assess the situation, look at the elements over which we do have some measure of control, decide on the best course of action, and

deal with the execution of that course. There is always some choice, in every piloting action. We may not have control of all the inputs, but we do have control over the outcome.

How do you prevent the agonizing of pre-trip jitters? Accept that some things are beyond your control; the sun will go down, the last passenger will be late and, somewhere along the route, weather will be a factor. Take care of the things you can control, like the preflight checks, adding fuel or pulling the aircraft out onto the ramp. Once you've done that, adopt the realistic view that there's nothing more you can do. Wait until you can do some of that piloting stuff.

A fatalistic attitude has no place in acting as PIC, of course. Plowing into thunderstorms or cruising past fuel stops, just because the flight plan calls for continuing, is not something to be done just because you've made a decision to take off. Stay fluid, to stay in control; flying is a dynamic process.

The inability to control every piece of the puzzle extends to ownership as well. I get very nervous when I have an airplane in the shop for an inspection. One never knows what will be found and how it will affect the budget. So, we hope for the best and prepare for the worst, perhaps with a prepaid maintenance plan. A friend of mine just called with the sad news that his twin had been found with cracks in a tailcone bulkhead at annual time; repairs will be expensive, and lengthy. He is understandably distraught, but time has caught up with him. That's what inspections are for, I commiserated.

Stay tense.

LeRoy Cook

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Flying Piper's New

# M600 Turboprop

by LeRoy Cook



# rop

JIM BARRETT PHOTO

**B**arely a month following its certification, we were privileged to fly the Piper M600, the newest and greatest of the PA-46 turboprops in Piper's stable. It appears that, from what we saw, fifteen years after the first Meridian was delivered, Piper has achieved the perfect formula for its personal turboprop.

If you've tuned in late, your first impression of the M600 is that it's a higher-horsepower, higher-gross upgrade of the M500, originally called the Malibu Meridian. You would be right, but only partially so. There's a lot of difference between the M500 and the M600, beginning with the Garmin G3000 avionics suite in the M600. The M500 remains in the product line, largely because, at under \$2 million, it fits into a lower-cost niche that isn't served by any other new-production pressurized turboprop.

According to Piper CEO Simon Caldecott, the four-year long development of the M600 has required 100,000 engineering hours and 1,800 flight test hours, but the

effort was well worth it. The final FAA testing took 150 hours and was flown in just 18 days; certification was achieved on June 17, 2016.

Caldecott is especially proud of Piper's ability to produce practically all of the components for its aircraft in-house, other than the engines, propellers, avionics and hardware items like switches. This gives the company better control over availability and inventory.

The FAA granted Piper a Production Certificate for the M600 on September 1, 2016. Initially, the M600 is to be built in limited numbers, as demand dictates, rather than in disruptive up-and-down cycles. The initial rate is to be about 35 units per year, with 2016 production entirely sold out when we visited with Piper in July.

### Preflight Tour

Our test aircraft was N403MM, the first production airplane, spotless in its blue-and-white paint job with a stunning white interior. Piper's craftsmanship reflects its desire to furnish top-drawer products for





SPECIFICATIONS	
2016 Piper M600 PA-46-600T	
Base price	\$2,853,000
Powerplant	Pratt & Whitney Canada PT6A-42A, 600 shp
Seats	6
Fuel	260 usable gallons
Performance	30,000 ft
Certified ceiling Max. cruise speed	274 knots
Stall speed	60 knots
Takeoff distance (50 ft. obstacle)	2,635 ft
Landing distance (50 ft. obstacle)	2,659 ft
Max. range (w/reserve)	1484 <i>n.mi.</i>
Climb rate, s.l.	1,556 fpm
Weights	
Ramp	6,050 lb
MTOW	6,000 lb
Zero Fuel	4,850
Landing	5,800
Empty, std.	3,650 lb
Useful load, std.	2,400 lb
Dimensions	
Wingspan	43.2 ft
Height	11.4 ft
Length	29.8 ft
Cabin length	12.3 ft
Cabin width	49.5 in.
Cabin height	47 in.
Baggage	100 lb
Information: <a href="http://www.piper.com">www.piper.com</a>	

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buyers who expect quality. During our walkaround with Piper’s Chief Pilot Bart Jones, starting at the two-piece airstair door, the biggest change noted from the M500 is the all-new wing. While span essentially remains unchanged at 43.2 feet, the M600’s flaps are longer and the ailerons are a bit shorter. The stalling speed in landing configuration easily comes in below the FAR 23-mandated 61 knots, despite the aircraft’s three-ton bulk. The new wing’s planform tapers toward the wingtip, and fuel capacity is now 260 gallons, enough to give a 6-hour endurance if filled, versus the 170 gallons available in the M500.

The hydraulically-operated landing gear is relatively simple in operation; the gear is actuated by an electric powerpack and is held up by hydraulic pressure, so emergency extension is a simple matter of releasing pressure to allow the gear to free-fall. A spring assist brings the nosegear into place. An 18 x 5.5 tire is used on the maingear, with a 6.00 x 6 nosegear tire



up front. Unfaired wheel wells hold the retracted maingear, while two louvered doors cover the nosegear well.

The swing-up cowling allows inspection of both sides of the engine compartment. The PT6A-42A engine is basically the same as the M500's powerplant, with an increased torque limit to deliver the 600 shaft horsepower. Derated from the engine's 850-shp rating in the Beech King Air 250, there's obviously plenty of reserve available for high-and-hot operations.

Demo pilot Bart Jones likened the M600 to "half of a B250", in its payload, cabin and operating capabilities, and that's a fair assessment. With a top speed of 274 knots and nearly 1,500 miles of maximum range, the M600 can take six people 1,000 miles. Baggage is carried behind the flat-folding rear seats, whose stowing ability can add cargo space if needed.

The engine installation is designed for simplicity and ease of operation. There are two air inlets feeding the PT6A's aft intake screen, requiring no anti-icing on their lips, and the inertial separator is always in place, one less thing for the pilot to remember. The oil cooler inlet is below the spinner enclosing the hub for the big four-blade Hartzell propeller. The prop operates at a constant 2,000 rpm, and there's only one idle setting on the condition lever, so the M600 is basically a single-lever airplane.

The radar pod is now mounted on the right wing's leading edge, rather than slung under the wing as on the M500, and stylish upswept wingtips are fitted. The right aileron carries a ground-adjustable trim tab, while the rudder and elevator have actuator-adjusted tabs. The rear position light is mounted midway up on the 11-foot tall rudder. Airflow turning vanes are fitted to the aft fuselage, just above the horizontal stabilizer, to enhance rudder control. A small compartment in



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the left side of the aft tailcone holds preflight inspection materials, and the ground-power plug-in is found nearby as well.

### A Personal Cockpit

We mounted the two-step airstair and secured the two halves of the door, which carries the 5.6 psi maximum pressure differential. The emergency exit surrounds the forward right cabin window. Sliding forward into the cockpit, access was enhanced by a slightly-lower center console, compared to the M500. Overhead switches take care of engine, lighting and anti-ice operations. There are no storm windows to ventilate the front office, so we proceeded immediately into the starting procedure. With about 1,800 pounds of people and fuel onboard, our ramp weight was approximately 5,500 pounds.

Piper's after-start procedures are automated, insofar as switching off starter, fuel pump and ignition goes, so all we had to do was actuate the switches, hit the start button and introduce fuel as Ng rose above 13%. Start limit temp is a high 1,000 degrees, and we were soon settled into a 60% idle. The air conditioner controls are on the left side of the lower panel and the manual bleed air knob is under the left yoke.

Comfortably settled in with the prop turning, we made the acquaintance of the M600's Garmin G3000 flight deck, a three-screen installation with dual touch-screen controllers located at lower mid-panel. The Aspen Evolution standby instruments are on the extreme left side of the panel and the usual Garmin red reversionary button was in the glareshield. There's no annunciator panel, since all messages would appear on the central EICAS display. The array of virtual engine gauges does not include an analog propeller speed display; since there's no pilot control of Np, only a digital readout is shown. The three gear-down lights are found in the CAS, and so are the trim-position indicators. Pressurization is scheduled through the G3000 system, which monitors the selected destination's elevation. A manual trim wheel is retained on the pedestal, and there is an emergency manual fuel control knob next to the main power lever.

Moving away from the chocks takes little power advance, as the M600 moves easily under idle power. Piper uses a two-gate Beta and reverse selection, so taxiing is usually done with Beta control of thrust to spare the brakes. Steering control and visibility from the pilot's seat are excellent.

### Ready At The Runway

The usual Pratt overspeed governor and reverse lockout checks were made and standby-alternator function was confirmed, and we were ready to go. The M600's torque limit is 1,575 ft/lb, so setting in a nice round 1,500 at the beginning of the roll allowed it to rise comfortably as speed increased. Lifting the nose at 80 knots had us off the ground in under 2,000 feet, using 15 degrees of flap. Flaps were retracted as 100 knots was reached, and there is a 130-knot gear retraction limit speed to be observed; Va comes at 122 knots, although 150 knots provides a more comfortable cruise-climb deck angle. At our weight, we easily exceeded 2,000 fpm in the initial climb, and could hold 1,800 fpm in cruise-climb as we passed through 10,000 feet on the way up to 15,500 feet. The M600's ITT temps out at 800 degrees C., versus 770 in the M500.

I liked the feel of the M600's shortened ailerons, which gave solid, big-airplane handling in climb and cruise. At approach speeds, the ailerons lighten up nicely. As we leveled off, the OAT was -4 C. and we had 1,530 pounds of torque available. The IAS worked its way up to 202 knots, resulting in a true airspeed of 250 knots on 340 pph fuel flow. At FL 250 or FL 270, fuel




flows drop into the 260-250 pph range, we were told.

For descent, the M600 has a 250-knot Vmo available, so it can keep up with fast traffic more easily than the M500; Mmo is .55 up high. There is underspeed and overspeed protection built into the G3000's architecture, as well as maneuvering restraint; when we reached 45-degrees of bank, there was a noticeable righting force applied to the yoke, and if we persisted in banking steeper the airplane rolled out into level flight. The protection can be overridden, but not easily. A "level" button can also be pushed to automatically bring the airplane back into stable straight-and-level flight.

We went to near-idle torque to check out stall handling, and found both aerodynamic warning and aural warning more than adequate. The stall break came at 75 knots IAS with flaps up and at a benign 60 knots with gear and flaps down. Again, the yoke resists intentionally being pulled back into the stall and the nose will be pushed down by the autopilot.

Returning for landing, Bart Jones showed us that 500 ft/lbs slowed the aircraft predictably to the 170-knot gear-down speed, and 15-degrees of flap could be selected at 148 knots or less. As we rolled onto base leg, I confess that I found the 112-knot full-flap limit speed a bit too confining, but 300 ft/lbs kept us moving nicely and we slowed to a comfortable 85 knots on short final. We floated for a while, feeling for the ground, but the touchdown was easy and we exited in about 3,000 feet of rollout.

Our impressions of the M600 are that it's what Piper had in mind all along when it designed the original Meridian. It can haul a good useful load, can carry plenty of fuel when needed, and is easy to fly, manually or with automation. The simple systems make for low pilot workload. All in all, it should fill its flagship role at Piper with great success. 



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**GOVERNORS**



# AVFAB Launches New AVFabulous Update for King Airs

by LeRoy Cook

**A**viation Fabricators, located in Clinton, Missouri, has announced a broad package of interior improvements for the Beech King Air 90 and 200 series. Termed the “AvFabulous” upgrade, the mix-and-match menu allows customers to tailor elements of the package to suit individual needs.

We recently toured the AvFab C90 demonstrator aircraft during a visit to the company’s headquarters. According to company co-founder Jeff Lowe, with his father G.R. Lowe, the goal of AvFabulous is to give owners and operators of older King Airs the look and feel of a C90GTx or 250 without trading aircraft. “Charter customers and clients can see a modern interior when they board your airplane,” he said, “regardless of the actual age of the aircraft.” Impressions are important, and AvFabulous makes a great first impression.

Chief among the AvFabulous upgrades is the Arm Ledge Table System, which offers an integral arm rest along the sidewall, giving a look similar to the current production new King Airs. AvFab’s improved fold-out work tables have four deep cup holders, versus the original two holders, usable even when the table is stowed.

AvFab’s new pull-down pleated window shades replace the factory original rotating polarized shades, eliminating their toxic materials and adding heat rejection when closed while the aircraft is parked. The pleated shades give the look of newer jet interiors and are available in three colors. Weight saving is two pounds per shade.

The installation of side-tracking cabin seat bases allows an extra 3.5 inches of lateral elbow room to be used in flight, Lowe said. The seat’s new low-profile headrests, which nestle into the seat back when not



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in use, give a clearer view through the cabin; they are dubbed "Clear View" by AvFab.

The aft jump-seat options from AvFab are among its most popular offerings in the 200 series King Airs. N404SP, a C90, was fitted with a single fold-up forward-facing seat with shoulder harness, adjacent to the aft toilet seat. Depending on the airplane, the folding seat allows some aft baggage space to be used while it is occupied, or nearly all the baggage area can be filled when it's folded against the sidewall. A new lighter-than-original side-facing seat was also installed in the demonstrator's aft cabin, with storage underneath.

The AvFabulous upgrade brings the experience of AvFab's improvements for the later King Airs into a modern-looking interior for the venerable 90 and 200 series airplanes. The kits are available for installation by customers' shops or completion centers, as desired.

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# The Reason Why

By LeRoy Cook

When reviewing and polishing the techniques and skills of flying, we often lose sight of the reason behind our pursuit of excellence. The goal is NOT to become as good as we can possibly be at performing a maneuver. Rather, it should be to understand WHY the maneuver is important. That is the element that generates our real motivation to improve.

Consider the obsession with tracking the centerline of a taxiway or runway. Is it simply to perfect our steering technique? No; the line is painted there for a reason, and we're following it precisely for that reason. It's there because, if our nosewheel is on the taxiway's centerstripe, we know that the aircraft parking spots, pavement edges and buildings were laid out to provide specified clearance from the taxiway's center. Our wingtips are therefore guaranteed safe passage. Stray, and all bets are off.

Armed with this knowledge of the reason WHY, we can judge when a deviation from strict adherence to the stripe is acceptable. If a fuel truck or another aircraft has been parked out of position, we should not blithely drive our airplane into it, just to stay on the line; we obviously need to see the danger, determine if our general-aviation wings are short enough to allow swinging over to avoid the obstacle, and thereby prevent the hit. Or, if there are centerline lights or reflectors that create an annoying thump as our small nose tire passes over each impediment, we can taxi more smoothly by offsetting our path by just twelve inches. We know WHY we're supposed to follow the line, not just that we're supposed to do it.

Runway centerlines, on the other hand, are there not just to

keep us from running off the edge of the pavement, but to provide a tracking target during the furious run toward liftoff, and during and after touchdown. This becomes particularly important in low-visibility conditions and with a crosswind's influence. If we tolerate deviation in routine operation, our skill may not be there when we're challenged on a dark and stormy night. That's WHY we stick to the centerline, every time we're using the runway.

## Do It For A Reason

Slavish procedural observance without an understanding of why we do it leads to rigid piloting—arguably, not piloting at all. At some point in your career, you're going to encounter a situation that isn't in the normal or emergency checklist. You need to understand WHY the systems are operated as they are, in order to cope with an abnormality. The pre-takeoff checklist may include a switch position for a piece of avionics or aircraft gear; you should know why that switch has to be on, not just that it's on the list of things to be done. Is it turning on a pump that backs up a normally-active one, or is it merely an "armed" setting? Is the "ignition" switch doing its job of igniting, or just clicking into position? Can it be verified, audibly or by indication?

Turning on exterior lighting when pulling into position for takeoff is not just a checklist item. The reason WHY is important; it's done so that our aircraft will stand out from the sea of lights in the threshold environment, in case another airplane is heading for the wrong runway or ATC is unsure of our location. Because I know the reason, I understand that I can defer the "light 'em up" action for

a few seconds if there's another pilot facing me across the runway entrance, so he won't be blinded while I swing into position.

The point is not to belittle strict adherence to procedures. Rather, it is to go beyond adherence to understand the reason behind the procedure. You've possibly been taught to tap brakes before raising the landing gear, assuring that the rapidly spinning tire won't "grow" enough to rub as it nestles into the wheel well. If the gear has accumulated a coating of slush in taxi and during the takeoff roll, however, maybe it would be wiser to leave the brakes alone and let the wheels dangle in the breeze for a few seconds to dry off the slush before retraction.

A controls check before departure is a normal part of every pretakeoff checklist. The reason why is not just to make sure the yoke moves freely. The check should also require a visual look at the wing (and tail, if visible) to see that the control surface follows the pilot's input. Employ a shadow's movement if the sun angle is suitable. There's a supposedly-true story of a newly-delivered cabin-class twin that was being given a maintenance check for rigging; it was discovered that the rudder had never been connected at the factory. No one had bothered to verify its movement, during several flights. An extreme case, to be sure, but the point is to verify response, not just yoke action.

## When Procedure Isn't Enough

A number of years ago, back in 1982, a Boeing 737 was flown into a bridge structure during departure from Washington National airport, not because there wasn't enough power available to make the airplane climb, but because the power wasn't applied. The manual takeoff power setting was performed by establishing a specified indication of exhaust pressure ratio, but the engine sensors were iced over and gave a wrong reading. The pilots



ignored the power levers' position, sluggish acceleration and extended roll, following procedures precisely. The result was a crash into the Potomac River, with 74 lives lost. WHY things didn't look right should have been a vital clue.

In giving a proficiency check recently, I added an "unsatisfactory" rating for a pilot's landing, not because the touchdown wasn't in the zone or the crosswind correction wasn't applied, but because he landed with a green landing gear light dark. I require a short-final cockpit check of landing readiness, from memory, including verifying gear-down. I had dimmed the gear indicator while he was looking for traffic, maneuvering to final. His procedure check was shortened by familiarity, because he knew the gear was down, just as it had been in the previous three circuits. However, I told him he should have caught the unsafe indication and executed a go-around for troubleshooting;

there's a reason WHY we check the gear on short final. Yes, the gear extension is supposed to take place as part of the stabilized-approach checklist during descent, or perhaps at the final approach fix, but it needs to be confirmed, just in case.

In one of our aircraft, the autopilot master switch is very near the controls required for engine shutdown, so it's easy to bump it to "on." The starting checklist calls for "autopilot—off" before initiating start, and during taxi one hot day, when I had gone through engine start from memory to get some air moving, I noticed "wind" causing my ailerons to move around as I turned down the taxiway. It wasn't the wind; the autopilot switch was "on", activating heading mode, and the control wheel was following the heading bug's selection, despite my efforts to correct it. The checklist item is there for just such a reason, so that the autopilot will not be

activated as soon as the avionics master switch is turned on.

Perhaps one of the greatest "WHYS" we need to remember is why two crew members are required for most operations. It isn't because the aircraft normally needs two people to perform all the tasks of piloting. That second crewperson is a resource, a very important one, not a back-up device to sit idly by in case his or her services are required when the primary pilot is incapacitated. The PNF is employed to verify the PF's actions, to make checklist call-outs, to double-check ATC instructions, to be a barrier against blindly following a procedure that dooms the flight. Do not ignore the WHY of regulations and operating procedures, because they were developed for very good reasons. We must not worship their flow of order, in a perfunctory manner that simply satisfies completion. Instead, always know the intent of the course of action. Piloting requires thinking, not just acting. **T&T**

# Abducted

## Flying an aging airliner into an unfriendly alien world

**S**eated in a stiff wood chair, the room smelled of pencil shavings and old books; like a library or grade-school classroom. Well lighted, the retro-décor was cold-war era – both spartan and sterile. Single-pane windows were mounted in the military gray, cinder-block walls. The caulking was dried and brittle with pieces missing. Delicate panels of glass were blackened, allowing only shards of light to penetrate the cracks in the paint that resembled canals on the surface of Mars. It was a clumsy but effective way to prevent any view of the secretive, alien environment. We were debriefing, CIA style, after our once-in-a-career flight to this place. What were they going to do with my darling Super-80? One thing was certain: our jet would never leave this place.

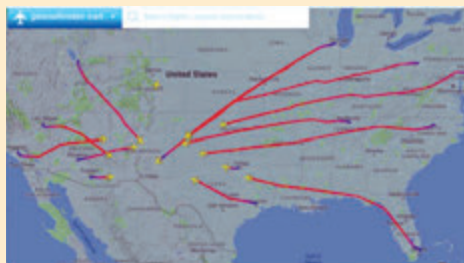
### The Truth is Out There

We have all heard tales about this place and how strange things happen here. Ships come from faraway realms – and disappear. Stories are told about this place. This Roswell, New Mexico place. Land of Enchantment, indeed. People see things and never speak of them. Or they lie about what they saw. Those that do talk often stretch credulity so far that you feel the urge to back away from them slowly. This story is not one of seeing a bright light on the runway in ORD then suddenly awakening in a distant land. Nor is the sterile, cold-war interrogation room, described above, an insight into a secret undercover operation involving off-world aliens. In fact, the whole debriefing-room thing never really happened at all – except in a nightmare after this adventure. Apparently it was my subconscious reaction to what I have done to one of my darling Super-80's. Unassisted

by little gray creatures with pie-sized black eyes, we arrived at Roswell in the usual fashion: flying in the atmosphere at jet speeds – landing on a paved runway. Taxiing to a parking spot. Climbing out of the cockpit and down the air-stairs with our pilot-stuff. The difference this time: No one will ever walk back up those stairs, enter the cockpit and fly this wonderful machine again. Ever. My darling Super-80 is being temporarily stored..... then scrapped.

### Procedural Non-Compliance

The process of delivering an airliner for “salvage and reclamation” is pretty straight-forward. It's the same as a maintenance or ferry flight. We operate under Part 91 with a permit from the FAA for just such a flight. Our dispatchers and load agents perform the flight planning and weight and balance calculations just as they would for a revenue flight. Ballast fuel is added to compensate for the abnormal load. We typically board the airplane at one of our maintenance hangars and join the line of other airliners for departure. This flight is different; we will have a CNN crew led by senior correspondent Richard Roth and representatives from corporate communications aboard and we'll depart from a gate in the terminal – but no paying passengers and no flight attendants. We only arm two of the emergency exit slides, the ones closest to the cockpit. There



is no catering and thus, no coffee. This can be a problem, because it's against airline pilot protocol for Captains to spend their own money on coffee or newspapers. And, speaking of breaking the rules, the probability of procedural non-compliance is about 25% higher on this type of flight. Partially due to pilots misbehaving. Historically, (not at my carrier) there have been examples of maximum altitude exceedances, bank angle excursions and a few “since we're empty, let's try something...” maneuvers. But most non-compliance is accidental. This type of flight is very non-routine and it's easy to get out of our habit pattern. With this in mind, I still make my nest of kit bag, glasses and note paper. I store the flight documents in their normal location, and I use the seat belt sign as I would on a normal flight. And (don't laugh) I still make the mandatory PA's to the non-existent flight attendants: prepare for takeoff, prepare for landing, etc. This helps to keep me in my habit pattern and to avoid accidentally becoming “non-compliant.”

### Bad Moon Arisen

There were no earthquakes and lightning, or non-compliance, but this was a fateful journey aboard our 29 year-old Mad Dog and there were bad times today (thank you Creedence Clearwater Revival). I volunteered for the mission in hopes of obtaining closure over the loss of my friend of 25 years. The jet of my career. Delivering tail number 569 to a final, peaceful resting place. A chance to say goodbye; without a plane full of passengers that may hear a crack in my voice over the PA or glimpse a tear in my eye. Despite a pre-departure toast and celebration, as we completed the delivery of our MD-80 to Roswell, the emotion I felt was not closure. It was betrayal and abandonment. I'm betraying my darling Super-80. I'm leaving her alone. Alone to die. Yes, stories are told all right about



this Roswell, New Mexico place. And so are lies. Lies about aliens and lies about airplane heaven. This isn't airplane heaven – it's airplane hell.

### Reddy the Red Fox

We had a Red Fox kit when I was young – mom named him Reddy. Dad found him abandoned in the woods while hunting. He was just a baby and a search for his mother was unsuccessful. Dad felt compelled to bring him home so we raised him as you would a domestic pet dog. He seemed to enjoy life with people but as he grew up, he developed the signature musky smell of a male Red Fox. Not as bad as a skunk, but close enough. We kids didn't mind but for dad it was frustrating and for mom it was intolerable. One day, we all piled into the family station wagon along with Reddy and headed to the Allegan State Forest, an hour north of home. We drove several miles into the woods along a tiny dirt road that was more like a forest service trail. We all climbed out of the wagon and played with Reddy. After a few minutes, we got back into the car – without Reddy. Dad drove back up the trail. From the roll-down window in the back of the station wagon, through our tears, we boys could see Reddy running along trying to keep up. Then he started to limp. He had picked up a pricker in his domesticated paw. Dad stopped and we removed the pricker from Reddy's paw. Mom had brought along some raw hamburger in anticipation of this issue. Dad put it on the ground for Reddy and we once again drove off. The tactic worked and Reddy was left behind.

The son has become the father and I've left my darling Super-80 behind.

### Shrink Wrapped

Jim Gorman (Gorman-Rupp Pump Co.) donated his Duke, the last one built, to the Beechcraft Heritage Museum in Tullahoma, Tennessee. It's a beautiful Duke and will remain beautiful for a long time. "My" F-16, the first one in which my name was embossed on the canopy, is in the boneyard at Davis Monthan AFB in Tucson, AZ – officially called the AMARG (Aerospace Maintenance and Regeneration Group). Still in one piece, albeit shrink-wrapped and sans the motor, it's in a row of fighters slated to go to a loving museum somewhere. The fate of this MD-80 is almost certainly much grimmer. My darling Super-80 is not being donated. It will not be kept safe, warm and polished – nor shrink wrapped. There will be no tours or visitors admiring her beauty, genealogy or pedigree. No children will be inspired by the vision of her to become an airline pilot. Unlike Davis Monthan, there is no "regeneration" in the name of this Roswell, New Mexico place. And no one asked if my Darling wanted to be an organ donor – they certainly didn't ask for my permission. It's possible that this was my last flight in the Mad Dog. An appropriate punishment for a betrayer, one undeserving to fly the magnificent machine again.

Able to keep flying with no hydraulics or electricity. No recorded announcements, no entertainment systems, no impersonal texts, e-mails or tweets. An old-school airplane

with old-school customer service. Bob Crandall made a brilliant decision in the 80's, got a great deal and put the MD-80 to work. Reliable and dependable, it's been the workhorse – the heart and soul of the company. Plain and simple, the Super-80 built this airline.

### My Darling,

As I leave this Roswell, New Mexico place and fly off into the distance, will the MD-80 stare toward the terminal, wondering when I will return? Will it sit, waiting for its pilot-master to round the corner? Will she feign a pricker in her paw? Accustomed to sitting overnight at airports around the country, perhaps the realization of betrayal won't begin until tomorrow morning, or the next, or the next – when no one shows up to fly. When will you accept that you were abducted and abandoned? On the day you are unceremoniously disassembled, I think. Please forgive me, my Darling Super-80. **T&T**



*Kevin Dingman has been flying for over 40 years. He's an ATP typed in the B737 and DC9 with 21,000 hours. A retired Air Force Major, he flew the F-16 then performed as a USAF Civil Air Patrol Liaison Officer. He flies volunteer missions for the Christian organization Wings of Mercy, is employed by a major airline, and owns and operates a Beechcraft Duke. Contact Kevin at [Dinger10d@gmail.com](mailto:Dinger10d@gmail.com)*

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4 AIRBUS ACJ319  
32 ASTRA 1125  
31 ASTRA 1125SP  
63 ASTRA 1125SPX  
51 BEECHJET 400  
275 BEECHJET 400A  
58 BOEING BBJ  
391 CHALLENGER 300  
65 CHALLENGER 600  
58 CHALLENGER 601-1A  
133 CHALLENGER 601-3A  
56 CHALLENGER 601-3R  
279 CHALLENGER 604  
5 CHALLENGER 800  
169 CITATION 500  
319 CITATION 525  
284 CITATION BRAVO  
151 CITATION CJ1  
69 CITATION CJ1+  
202 CITATION CJ2  
160 CITATION CJ2+  
390 CITATION CJ3  
180 CITATION ENCORE  
306 CITATION EXCEL  
5 CITATION I  
288 CITATION I/SP  
478 CITATION II  
50 CITATION II/SP  
173 CITATION III  
329 CITATION MUSTANG  
138 CITATION S/II  
257 CITATION SOVEREIGN  
284 CITATION ULTRA  
287 CITATION V  
20 CITATION VI  
104 CITATION VII  
257 CITATION X  
199 CITATION XLS

1 DIAMOND I  
53 DIAMOND IA  
3 DORNIER ENVOY 3  
282 ECLIPSE EA500  
47 EMBRAER LEGACY 600  
8 EMBRAER LEGACY 650  
158 EMBRAER PHENOM 100  
82 EMBRAER PHENOM 300  
123 FALCON 10  
28 FALCON 100  
25 FALCON 200  
176 FALCON 2000  
21 FALCON 2000EX  
81 FALCON 20C  
17 FALCON 20C-5  
26 FALCON 20D  
3 FALCON 20D-5  
7 FALCON 20E  
8 FALCON 20E-5  
59 FALCON 20F  
82 FALCON 20F-5  
229 FALCON 50  
8 FALCON 50-40  
113 FALCON 50EX  
135 FALCON 900  
21 FALCON 900C  
116 FALCON 900EX  
98 GLOBAL 5000  
112 GLOBAL EXPRESS  
25 GULFSTREAM G-100  
161 GULFSTREAM G-200  
8 GULFSTREAM G-300  
27 GULFSTREAM G-400  
222 GULFSTREAM G-450  
7 GULFSTREAM G-500  
330 GULFSTREAM G-550  
42 GULFSTREAM G-I  
110 GULFSTREAM G-II  
31 GULFSTREAM G-IIIB  
186 GULFSTREAM G-III  
188 GULFSTREAM G-IV  
317 GULFSTREAM G-IVSP  
182 GULFSTREAM G-V

40 HAWKER 1000A  
9 HAWKER 125-1A  
2 HAWKER 125-1AS  
1 HAWKER 125-3A/RA  
2 HAWKER 125-400A  
29 HAWKER 125-400AS  
1 HAWKER 125-400B  
4 HAWKER 125-600A  
11 HAWKER 125-600AS  
113 HAWKER 125-700A  
50 HAWKER 4000  
187 HAWKER 400XP  
21 HAWKER 750  
223 HAWKER 800A  
2 HAWKER 800B  
335 HAWKER 800XP  
14 HAWKER 800XPI  
67 HAWKER 850XP  
131 HAWKER 900XP  
4 JET COMMANDER 1121  
6 JET COMMANDER 1121B  
12 JETSTAR 731  
11 JETSTAR II  
51 JETSTREAM 31  
40 JETSTREAM 32  
15 JETSTREAM 41  
15 LEARJET 23  
26 LEARJET 24  
5 LEARJET 24A  
19 LEARJET 24B  
53 LEARJET 24D  
14 LEARJET 24E  
9 LEARJET 24F  
33 LEARJET 25  
57 LEARJET 25B  
7 LEARJET 25C  
94 LEARJET 25D  
6 LEARJET 28  
28 LEARJET 31  
172 LEARJET 31A  
43 LEARJET 35  
426 LEARJET 35A  
21 LEARJET 36

34 LEARJET 36A  
24 LEARJET 40  
219 LEARJET 45  
193 LEARJET 45XR  
115 LEARJET 55  
5 LEARJET 55B  
12 LEARJET 55C  
293 LEARJET 60  
130 PREMIER I  
16 SABRELINER 40  
13 SABRELINER 40A  
7 SABRELINER 40EL  
3 SABRELINER 40R  
24 SABRELINER 60  
1 SABRELINER 60A  
2 SABRELINER 60AELXM  
12 SABRELINER 60ELXM  
3 SABRELINER 60EX  
1 SABRELINER 60SCEX  
85 SABRELINER 65  
1 SABRELINER 75  
17 SABRELINER 80  
3 SABRELINER 80SC  
101 WESTWIND 1  
4 WESTWIND 1123  
45 WESTWIND 1124  
76 WESTWIND 2

## TURBO PROPS

### CHIEF PILOTS & OWNERS

Aircraft Count

275 CARAVAN 208  
1087 CARAVAN 208B  
3 CARAVAN II  
34 CHEYENNE 400  
221 CHEYENNE I  
14 CHEYENNE IA  
303 CHEYENNE II  
59 CHEYENNE III  
21 CHEYENNE IIIA  
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7 KING AIR A/B90  
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203 KING AIR A200  
58 KING AIR A90  
221 KING AIR A90-1  
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902 KING AIR B200  
78 KING AIR B200C  
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3 KING AIR B200T  
66 KING AIR B90  
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316 KING AIR C90B  
7 KING AIR C90SE  
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17 KING AIR F90-1  
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20 MERLIN IIIA  
49 MERLIN IIIB  
14 MERLIN IIIC

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13 MERLIN IV-A  
13 MERLIN IV-C  
105 MITSUBISHI MARQUISE  
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1 MITSUBISHI MU-2G  
22 MITSUBISHI MU-2J  
32 MITSUBISHI MU-2K  
15 MITSUBISHI MU-2L  
23 MITSUBISHI MU-2M  
30 MITSUBISHI MU-2N  
38 MITSUBISHI MU-2P  
55 MITSUBISHI SOLITAIRE  
673 PILATUS P-12  
341 PILATUS PC-12 NG  
549 PILATUS PC-12/45  
154 PILATUS PC-12/47  
492 PIPER MERIDIAN  
10 ROCKWELL 680T TURBO  
6 ROCKWELL 680V TURBO II  
7 ROCKWELL 680W TURBO II  
9 ROCKWELL 681 HAWK  
89 SOCATA TBM-700A  
91 SOCATA TBM-700B  
4 SOCATA TBM-700C1  
115 SOCATA TBM-700C2  
318 SOCATA TBM-850  
22 SOCATA TBM-900  
6 STARSHIP 2000A  
51 TURBO COMMANDER 1000  
27 TURBO COMMANDER 690  
129 TURBO COMMANDER 690A  
113 TURBO COMMANDER 690B  
58 TURBO COMMANDER 840  
16 TURBO COMMANDER 900  
23 TURBO COMMANDER 980

## TWIN PISTON

### OWNERS

Aircraft Count

9 ADAM A500  
1550 BARON 58  
479 BARON 58P  
137 BARON 58TC  
5 BARON A56TC  
142 BARON G58  
43 BEECH BARON 56 TC  
2 BEECH BARON 58 PA  
217 BEECH DUKE B60  
193 CESSNA 340  
556 CESSNA 340A  
120 CESSNA 402B  
BUSINESS LINER  
64 CESSNA 402C  
38 CESSNA 404 TITAN  
288 CESSNA 414  
374 CESSNA 414A  
CHANCELLOR  
72 CESSNA 421  
61 CESSNA 421A  
454 CESSNA 421B  
757 CESSNA 421C  
66 CESSNA T303  
124 PIPER 601P AEROSTAR  
29 PIPER 602P AEROSTAR  
18 PIPER 700P AEROSTAR  
465 PIPER CHIEFTAIN  
28 PIPER MOJAVE  
870 PIPER NAVAJO  
24 ROCKWELL 500 SHRIKE  
33 ROCKWELL 500A SHRIKE  
69 ROCKWELL 500B SHRIKE  
46 ROCKWELL 500S SHRIKE

8 ROCKWELL 500U SHRIKE  
28 ROCKWELL 520  
COMMANDER  
15 ROCKWELL 560  
COMMANDER  
21 ROCKWELL 560A  
COMMANDER  
17 ROCKWELL 560E  
COMMANDER  
11 ROCKWELL 560F  
COMMANDER  
36 ROCKWELL 680 SUPER  
17 ROCKWELL 680E  
19 ROCKWELL 680F  
COMMANDER  
22 ROCKWELL 680FL GRAND  
COMMANDER  
14 ROCKWELL 680FLP  
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### OWNERS

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493 CESSNA 182  
71 CESSNA 206  
448 CESSNA P210N  
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**TWIN & TURBINE**



# Innova Aeros Offers Improve for “Forgotten” Ki

by Leroy Cook

**I**n twin presentations at EAA Airventure Oshkosh last July, Innova Aerospace unveiled upgrade packages for the venerable King Air 90-series airplanes. Unlike most mods, the Innova upgrades are planned for all cruciform-tail King Airs, even the A90 and B90 series.

Shortly before the Oshkosh showing, we visited Innova’s base at Perryville, Missouri, a river-plain airport located just south of St. Louis. Long the center of support for the Rockwell Sabreliner business jet fleet, of which 50 or 60 are still flying, as well as providing a broad offering of maintenance for other aircraft, Sabreliner Aviation was bought by Innova in 2015, giving it an impressive amount of space on the 7,000-foot runway field.

The Innova shops in Perryville are capable of complete interior and exterior renovation, avionics upgrades and inspection and overhaul services. Now, Innova is lending its expertise to refurbishing the Beech King Air fleet, by offering GE engine replacements for the PT6A turboprops, and by STCing a Bendix/King AeroVue

electronic instrument panel suite that brings any conventional-tail 90-series King Air into the modern era. Innova’s two demonstrator King Airs, featuring the engine and avionics upgrades, were painted in the modern 40,000-square-foot paint facility at Perryville before being flown to Oshkosh.

## A New Level Of Performance With New Engines

First, we’ll address the engines upgrade. As briefed by Innova’s director of marketing, David Meske, in 2015 Innova acquired the STC previously owned by Smyrna Air Center that replaced King Air 90’s PT6A engines with General Electric H80 powerplants. Based on the Czechoslovakian Walter engines, GE’s H-series turboprop is available in 750, 800 and 850-shp variants, with the H80 offering 800-shp capability. Flat rated to 500 shp in the King Air 90, the engine offers abundant high-and-hot reserve and can go to its 4,000-hour overhaul without an intermediate hot section inspection. There are also no recurrent fuel nozzle inspections.

As discussed at the Oshkosh press conference, the two Innova demonstrator aircraft recorded dramatically different fuel burn numbers on their identical flight profiles from Missouri to Wisconsin. The GE-engined airplane took on 60 gallons, while the King Air with its original engines required 130 gallons. The H80's reportedly propelled the elderly A90 upward at a climb rate of 4,000 to 5,000 fpm.

### AeroVue Transforms The King Air 90 Cockpit

Up front, Innova's replacement of the original King Air remote electronics with Bendix/King's AeroVue suite makes a radical change in the cockpit, and in the nose compartment. The three LCD displays replace a plethora of remote avionics, and offer full ADS-B compliance, WAAS RNAV approach capability, synthetic vision and cursor-controlled tuning and inputs. The former avionics bay in the nose now offers space for baggage, and weight was reduced by



# pace ments ng Airs

a considerable number of pounds. Innova plans to offer an AeroVue installation kit STC'd for all 90-series King Airs except the F90.

Bendix/King's AeroVue is not a brand-new EFIS system, by any means. Its basic architecture has long been used in Gulfstream, Pilatus and Falcon business aircraft, and it's well-proven in new-production installations. As the retrofitable AeroVue, it addresses the problems of taking a venerable airframe forward through several decades of progress, using a three-display setup with the trademark cursor-control console in the center pedestal. We found the palm-rest for the data-entry and selection functions very natural and comforting in turbulence, versus touch-screen management. Kits are expected to be available by year's end. Innova stresses that even though the demonstrator aircraft is a C90A, its AeroVue installation is applicable for all 90-series through the E90, rather than being restricted by serial number.



For more information, visit [www.myka90.com](http://www.myka90.com) 

# The Second Important



Often, single-pilot operators don't use checklists like pilots of crew-type airplanes. Yet the reason checklists exist is to ensure that nothing is forgotten, that the airplane is fully configured for the current or next phase of flight. With no First Officer acting as a backup and quality control, the Captain of a single-pilot airplane is entirely dependent upon his or her own actions. We need checklists more than the crew of a two-pilot airplane, yet we typically use them far less.

Probably the most important checklist in terms of ensuring that nothing can harm airplane occupants or cause damage to the aircraft is the Before Takeoff checklist. Once the engines are started, this is the one checklist single pilots are most commonly trained to use. What is arguably the second most important checklist, however, doesn't even appear in most Flight Manuals and Pilot's Operating Handbooks. I challenge you to write—and develop the discipline to actually use—a personalized Approach checklist.

### From the NTSB:

The owner of a Beechcraft Baron 55 flew approximately 80 nautical miles to pick up his friend,

who was a commercial pilot, and four passengers. A lineman stated that after landing, the owner parked the airplane next to the fuel pump and requested that the main inboard fuel tanks be topped off. The lineman topped the left tank, and as he was walking over to the right tank, the commercial pilot requested that he "...leave the right tank down an inch or two." The lineman obliged, and stated that between the left and right main tanks, he added a total of 40.3 gallons of fuel to the airplane. The lineman also stated that he overheard a conversation between the two pilots, during which the owner stated "we have 15 gallons in each of the auxiliary tanks."

Several witnesses observed the airplane on final approach for its destination, and stated the airplane appeared to be high above the threshold, and fast. Surveillance videos captured the airplane floating down the runway before touching down briefly and bouncing several times. The airplane became airborne again near the last third of the runway. As the airplane climbed, it drifted to the right of the runway centerline and began a gradual, climbing left turn to about 50 feet above ground level. The airplane appeared to level off, then began to descend, before pitching up abruptly and rolling to the left as it descended into trees and terrain.

Initial examination of the wreckage revealed that the airplane struck the ground in a slight nose-low attitude about 300 feet from the departure end of the runway.





# Most Checklist

The wings and engines separated during the accident sequence but remained within 20 feet of the fuselage in their approximate and respective locations relative to the fuselage. The right propeller separated from the engine and exhibited span-wise gouging and curling in an “S” pattern. The left propeller remained attached to the engine. The blades were positioned to a flat pitch with little chord-wise damage and minimal curling.

There are many lessons to be learned from this event, and we’ll likely glean even more once the NTSB investigation is complete. It appears that once the pilot got the Baron airborne following his balked landing attempt, however, the flight succumbed to a stall during a go-around...an unfortunately common contributor to fatal accidents. However, pilots who know the airplane type suspect that a second, common contributor may

have played a part. The vintage Baron involved in this accident was equipped with independently selectable auxiliary fuel tanks. Those tanks are limited by the manufacturer to be used in level flight only—a limitation that, as far as I’ve seen, applies to auxiliary fuel tanks in all airplanes so equipped. Pitching the nose up for climb can unport the fuel in the auxiliary tanks, causing power interruption or a total engine failure.

There are similar warnings that prohibit using auxiliary fuel pumps for landing in some airplane types, while other engines require aux pumps to be on for landing. Almost every airplane type has one control or another that should be set a specific way for landing. Forgetting one of these things in a busy arrival or traffic pattern, or if you’re a little tired or distracted at the end of a long day, can have disastrous consequences. That’s why you need the quality control of using a pre-arrival checklist.

## From the POH

One reason pilots don’t often use the Descent checklist, I believe, is that there’s not a lot on the checklist in most Pilot’s Operating Handbooks (POHs). There are a lot of pre-landing items on the Before Landing checklist, but short final is not the time to be diverting your attention to read through a printed checklist. So, we do what we need to do “Before Landing” from memory, and we forget that the Descent checklist even exists.

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Let's look at the Descent checklist for our example airplane, an early B55 Baron:

#### DESCENT

Altimeter – SET

Cowl flaps – CLOSED

Windshield Defroster – AS REQUIRED

Power – AS REQUIRED

Fuel Selector Valves – MAIN

There's that all-important fuel selection step. But "Power – AS REQUIRED"? How helpful is that? It's understandable how pilots can think they can omit backing up their actions with a printed Descent checklist.

How about the Before Landing checklist? What does it contain?

#### BEFORE LANDING

Seat belts – FASTEN, SEAT BACKS UPRIGHT, SHOULDER HARNESSSES FASTENED

Fuel Selector Valves – CHECK (MAIN TANKS)

Fuel Boost Pumps – OFF, OR LOW AS PER AMBIENT TEMPERATURE

Cowl Flaps – AS REQUIRED

Mixture Controls – FULL RICH OR AS REQUIRED BY FIELD ELEVATION

Landing Gear – DOWN

Flaps – DOWN

Airspeed – ESTABLISH NORMAL LANDING APPROACH SPEED

Propellers – LOW PITCH (HIGH RPM)

That's a lot to remember. But have you ever referenced the printed Before Landing checklist in flight? As I said earlier, most likely not—there's not enough time to pull out the checklist and read it as you're closing in on the runway, and if there were time, the last thing you want to do on short final is to take your eyes off the airport with more than quick scans of your panel.

So we have critical pre-landing tasks, some of which appear on a Descent checklist we rarely use, and most of which are on a Before Landing checklist we don't have time to use. What to do?

### The Approach Checklist

I suggest you create a personalized Approach checklist that contains the critical items from the Descent and Before Landing checklists, customized to the equipment on board your airplane. Use your Approach checklist during your descent but before you begin an approach procedure or enter a visual traffic pattern. Write your checklist down

on a kneeboard or other temporary location, and try it out a few times to see how it works. Once you've test-flown your Approach checklist, make a more permanent version. Force yourself to use it every time you fly until it becomes a natural part of your pre-arrival routine.

For example, when I was teaching in Barons at the Beech factory we made an Approach checklist:

#### APPROACH

Altimeter - SET

Landing Lights – ON

Mixtures – FULL RICH OR AS REQUIRED BY FIELD ELEVATION

Fuel Boost Pumps – OFF (LOW IF SURFACE TEMP XCEEDS 90°F)

Fuel Selector Valves – MAIN TANKS

Seat Belts and Shoulder Harnesses – FASTEN

Avionics – CONFIRMED SET FOR THE APPROACH

This checklist acknowledges that a lot of what you'll do before landing won't happen until you're on final approach, and you'll do it from memory at that time. Gear down, flaps down, propellers set for the missed approach...like many pilots I use a mnemonic on short final to get those items ("Full flaps, Full props, Gear Three green, Yaw damper OFF). That doesn't preclude me from setting the majority of the Before Landing items further out from the airport, and quality control-checking my work using my printed Approach checklist.

You might choose to get more specific with some of your Approach checklist items. For example, you might add "GPS/VLOC Switch – GPS FOR RNAV APPROACH, VLOC FOR ILS" or similar. If your airplane is pressurized, add a step "Pressurization – SET FOR LANDING" to your customized checklist.

The Before Takeoff checklist is arguably the most important checklist once the engines are running. Most pilots do a good job of using the Before Takeoff checklist to confirm they have everything set for departure, I've found that most pilots do not use a printed checklist to ensure everything is ready for landing, yet this is the second most important checklist, as is obvious in many NTSB reports. To make a pre-landing checklist more usable, and train yourself to actually use it, I suggest you write and adopt a customized Approach checklist. **T&T**

*Thomas P. Turner is an ATP CFII/MEI, holds a Masters Degree in Aviation Safety, and was the 2010 National FAA Safety Team Representative of the Year. Subscribe to Tom's free FLYING LESSONS Weekly e-newsletter at [www.mastery-flight-training.com](http://www.mastery-flight-training.com).*

# EN ROUTE



## Hartzell and Texas Turbine Conversions Develop New Supervan 900™ Composite Prop

**H**artzell Propeller and airplane modifier Texas Turbine Conversions are collaborating on a Supplemental Type Certificate for a new four-blade composite swept propeller for the single-engine

Supervan 900™ aircraft. The propeller STC is expected in the fourth quarter of 2016.

“The Hartzell/Texas Turbine program matches engine upgrades for converted Cessna Caravans with structural composite propellers especially designed for the Supervan 900,” said Hartzell Propeller President Joe Brown. “Advanced aerodynamics and sophisticated manufacturing processes increase performance and deliver extraordinary reliability for the 110-inch diameter propeller, which is 60 pounds lighter than the prop it replaces,” he added.

### Performance Boost

“The combination of the 900-SHP Honeywell TPE331 engine and optional new four-blade composite propeller

from Hartzell on the Supervan 900 flat out gets after it,” said Texas Turbine Conversions President Bobby Bishop. “The Supervan 900’s new lighter weight Hartzell prop helps the airplane distance itself even further from any possible competitors as the world’s best performing Cessna Caravan.”

### Flight Testing

Texas Turbine Conversions recently completed successful vibration flight-testing of the new 110-inch diameter Hartzell composite propeller. The new prop will also available for retrofit on 90 Supervan 900 conversions already in service.

Located in Denison, Texas, Texas Turbine Conversions, Inc. has modified aircraft with the Honeywell (Garrett) TPE331 engines for more than 20 years. The company holds multiple STCs for engine modifications on numerous aircraft platforms. It specializes in DeHavilland DHC-3 Otter and Cessna 208/208B Caravans conversions. For more info go to [www.texasturbines.com](http://www.texasturbines.com).

For more info on Hartzell Propeller go to [hartzellprop.com](http://hartzellprop.com). 

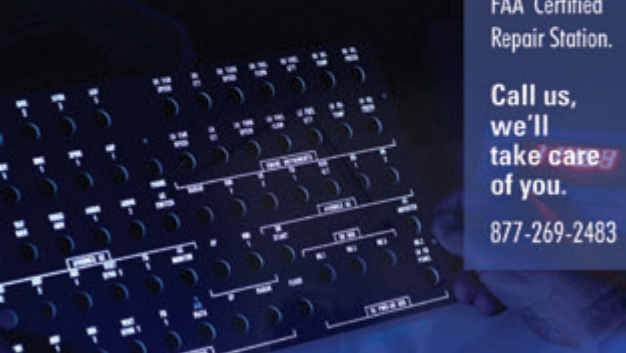

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# EN ROUTE


## L-3 Lynx Connectivity Available in ForeFlight Mobile

ForeFlight's Connect platform continues to expand to include L-3's Lynx line of ADS-B products. ForeFlight customers can connect wirelessly via Wi-Fi to L-3's Lynx NGT-9000, -2000, and -2500 models to receive ADS-B traffic and weather and GPS data in ForeFlight. The NGT-9000, -9000+, -9000D, and 9000D+ all-in-one transponder solutions replace current transponders to provide FAA mandate-compliant Mode S Extended Squitter capability with an embedded WAAS GPS. Lynx NGT-2000 and -2500 models also work seamlessly with the ForeFlight app and provide a low-cost 978 MHz ADS-B solution that integrates with legacy transponders. All ForeFlight

subscription plans include avionics connectivity.

Once you connect your iPad or iPhone to the Lynx's WiFi network, you can see details of the connection in ForeFlight Mobile in More > Devices (tap the L-3 Lynx box for additional information) and you can overlay ADS-B weather and traffic information on the Maps view using the drop-down in the upper-left corner of the screen.

L-3 Lynx support is available with ForeFlight Mobile 7.7.2. You can check your app version at the top of More > About.

For additional information, visit <https://blog.foreflight.com> 

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# EN ROUTE

## Garmin® G5000™ Integrated Flight Deck receives STC for Beechjet 400A/Hawker 400XP

**O**n August 30, 2016, Garmin International Inc. announced that the Federal Aviation Administration (FAA) has granted supplemental type certification (STC) for the G5000 avionics suite in the Beechjet 400A/Hawker 400XP aircraft. The G5000 modernizes the cockpit, increases aircraft utility, offers significant weight savings and provides operators with a solution to fulfill global next generation airspace initiatives. Additionally, the G5000 upgrade offers lower cost of operation and solves parts obsolescence with zero-time avionics.

“Achieving certification of the G5000 in the Beechjet is a monumental accomplishment, and on behalf of the entire Garmin team, we are all very proud to bring this modern flight deck upgrade to Beechjet operators today,” said Phil Straub, Garmin vice president and managing director of aviation. “Based on customer interest and the volume of early adopters, the response of this retrofit program has exceeded our expectations. The G5000 offers an elevated level of situational awareness and advanced flight deck capabilities that surpass other solutions available on the market today, while solving a broad range of worldwide operational requirements.”


The G5000 Integrated Flight Deck modernization program for the Beechjet 400A/Hawker 400XP features three high-resolution 12-inch flight displays situated alongside dual touchscreen display controllers that serve as the primary crew interface to the system, simplifying operation and ease of control of the flight deck. Landscape flight displays offer multi-pane capability, allowing up to six independent pages to be displayed simultaneously. Charts can be viewed across all three displays. In addition to charts,

pilots can simultaneously display maps, checklists, TAWS and TCAS information, flight plans, weather and more. Additionally, the Beechjet’s G5000 flight deck is estimated to provide a weight savings of 150 pounds or more compared to the current system, allowing additional baggage, passenger and fuel load flexibility.

“The G5000 has received the admiration and enthusiastic praise of customers throughout the world since its introduction over five years ago. Based on the volume of orders and with many customers’ desire to incorporate a modern Garmin flight deck into their aircraft, we are just as excited to bring this avionics suite to Beechjet customers as they are to fly behind it,” said Carl Wolf, Garmin vice president of

aviation sales and marketing. “This flight deck modernization program offers owners and operators a state-of-the-art flight deck that yields a substantially lower cost of operation and delivers an exceptional in-flight experience, which is all backed by a three year warranty and 12 consecutive years of award-winning avionics product support.”

Garmin’s integrated autopilot is included within the G5000 system, along with optional Synthetic Vision Technology (SVT™) and the GWX 70 weather radar. For more details regarding the G5000 flight deck modernization program, contact Scott Frye at +1-913-440-2412 or [scott.frye@garmin.com](mailto:scott.frye@garmin.com).

For additional information, visit [www.garmin.com/aviation](http://www.garmin.com/aviation) 

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# EN ROUTE

## HARTZELL ENGINE TECHNOLOGIES INTRODUCES NEW 60A DIRECT DRIVE ALTERNATOR FOR CONTINENTAL ENGINES

*New alternator provides dramatically improved efficiency, cut-in performance and increased output at engine idle speeds.*

**M**ike Disbrow, president of Hartzell Engine Technologies (HET), announced on June 29 that the company has introduced the ES-6024D, a new-generation 24V/60A direct-drive alternator created for six-cylinder Continental engines.

“This new unit is based on the highly reliable, field proven 100A ES-10024 and our extensive certification testing has demonstrated a marked increase in efficiency and performance compared to the legacy Continental Crittenden unit it replaces,” Disbrow said. “Aside from the improvement in reliability, two additional advantages offered by the new alternator that owner/pilots will really appreciate are improvements both in cut-in and idle speed performance – with over double the power output at idle!”


**Benefits of the new HET ES-6024D alternator include:**

- Dramatically increased reliability and estimated MTBF compared to legacy Crittenden alternators

- Overall efficiency increased by six to 10% over the entire operating range, resulting in lower operating temperatures

- Output at engine idle speed more than doubled to ~23A

“The new ES-6024D alternator has been FAA PMA certified as a direct replacement for the 60A Continental Crittenden alternator on Continental -520 and -550 series engines,” he said. “It replaces Continental alternator models 646843, 646490 and 642055 found on various twin Cessnas, Beechcraft Bonanzas and Barons, early pre-glass panel Cirrus SR-22s, and the Cessna TTx-series aircraft including early Corvalis and Columbia models.”

The E-6024D is now available from [HET distributors](#). Introductory list price is \$1,299 and it is warranted for 36 months/1,000 hours, whichever occurs first. For further information about Hartzell Engine Technologies and its products please visit: [www.Hartzell.aero](http://www.Hartzell.aero). 



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**T**extron Aviation Inc. launched its Peace of Mind program on August 2, 2016, designed to create a simpler transition to new Cessna Caravan and Beechcraft King Air turboprops. Peace of Mind provides up to two years or 400 hours of Textron Aviation's industry leading ProParts and ProTech programs, as well as Pratt & Whitney's ESpecially engine maintenance program, all free of charge for new King Air and Caravan turboprop purchases from July 25, 2016, through September 30, 2016, with delivery by the end of the year.

"We are always looking at how we can make stepping into turbine ownership easier, and the Peace of Mind incentive eliminates any

uncertainty around maintenance costs by providing comprehensive maintenance protection through industry leading programs," said Kriya Shortt, senior vice president, Sales and Marketing. "And, customers who choose to combine Peace of Mind with our ProOwnership program can also receive assistance with other ownership intricacies, including mentoring services, pilot services, insurance, taxes and more. No other manufacturer can offer such a comprehensive solutions package for customers looking to make the transition to a new aircraft."

Textron Aviation's ProParts and ProTech programs are part of the company's ProAdvantage

umbrella of programs, which are the leading support programs in the industry and have been designed to provide customers lower, predictable ownership costs, while enhancing aircraft values through comprehensive maintenance. ProParts and ProTech create a powerful support solution for our King Air and Caravan customers, further enhancing their ownership and operating experience. The ESpecially program is Pratt & Whitney's world-class maintenance program and provides engine coverage for up to two years or the first 400 hours free of charge and at a reduced rate until first overhaul.

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# EN ROUTE

## Garmin® Announces New Enhancements To G500/G600 Displays

On July 19, 2016, Garmin International Inc. announced an expanded feature set for the G500/G600 glass flight displays. The new GTX 345 all-in-one Automatic Dependent Surveillance-Broadcast (ADS-B) transponder now interfaces with

the G500/G600 to display ADS-B In traffic and weather. Additionally, database synchronization streamlines database updating when two G500/G600 systems are paired together, or when a G500/G600 is paired with a GTN™ 650/750 touchscreen series navigator.

Flight Stream 510 installed in a GTN enables Database Concierge wireless database updates across all installed G500/G600 and GTN products. The addition of European Visual Reporting Points (VRPs) and other customer-requested features also enable a variety of new capabilities within the G500/G600 glass flight displays.

“We continue to make enhancements to the G500/G600 that bring a wealth of capability to these systems through easy software upgrades,” said Carl Wolf, Garmin vice president of aviation sales and marketing. “We’ve listened to our customers and incorporated their requests to give them what they’re looking for – additional ADS-B traffic and weather display options, simplified database management, enhanced cockpit connectivity and more. With this, we continue to raise the bar by incorporating a comprehensive feature set that surpasses other retrofit glass flight displays on the market.”

### GTX 345 ADS-B In traffic & weather

Advanced ADS-B integration is available with the GTX 345 all-in-one ADS-B transponder, offering pilots the capability to display ADS-B traffic and subscription-free Flight Information Service-Broadcast (FIS-B) U.S. weather on the G500/G600 flight displays. Regardless of the existing avionics configuration, the GTX 345 unlocks more capabilities for pilots by also displaying ADS-B traffic, weather, GPS position data and back-up attitude information on select Garmin portables, and the popular Garmin Pilot™ and ForeFlight Mobile apps via Bluetooth® and Connex™ wireless technology. Unique features such as TerminalTraffic™ provides pilots with a comprehensive

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picture of ADS-B-equipped aircraft and ground vehicles in the airport environment. Further enhancing the traffic display, TargetTrend™ relative-motion technology helps pilots visualize the trend of traffic as it relates to their aircraft. For customers with synthetic vision technology (SVT™) enabled, traffic targets are displayed on the PFD. Pilots also have access to a comprehensive set of FIS-B weather products via the GTX 345, including NEXRAD, METARs, TAFs, PIREPs, winds and temperatures aloft, NOTAMs and AIRMET/SIGMETs.

## Database synchronization

Customers with one or more GTN touchscreen navigators installed alongside a G500/G600, or those with a dual G500/G600 installation, receive additional benefits with database sync. Once customers complete the wireless database transfer to the GTN, the databases are automatically synced with the G500/G600. Chart streaming also allows pilots to view and utilize departure, approach and arrival charts when needed, even while the full chart database is synchronizing with the G500/G600.

When a G500/G600 is paired with a GTN 650/750 touchscreen navigator and Flight Stream 510, customers receive Database Concierge wireless database transfer capabilities via a mobile device operating Garmin Pilot. Pilots can more easily manage their database subscriptions with Flight Stream 510 and also receive additional benefits such as wireless flight plan transfer, the sharing of traffic, weather, GPS and more. With Flight Stream and a GTN, G500/G600 customers can also wirelessly display backup attitude information within a mobile device.

For additional information, visit [www.garmin.com/aviation](http://www.garmin.com/aviation). 

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by David Miller

## “Call this number for a possible pilot deviation”

**E**ight words that can really ruin your day. In over 47 years of flying, I had never heard them. It's not that I have never pushed the limits of the FAR's. I just haven't been caught doing it. And, while I often write this column with a fully-developed sense of humor, I take my flying very seriously.

So, on a cool January day, I was devastated to hear those eight words as I taxied in after a normal two-hour leg. The situation began to develop during our descent for landing.

“ATIS information Oscar, sky clear, wind variable at three knots, visibility more than 10 miles, altimeter 30.48.” I checked in with approach. “N1865C turn left heading 240, vector for final approach course,” came the response from the controller. “Say desired approach.”

“The ATIS is calling for a visual to 16,” I said. “You can expect that,” came the reply. I set my Collins FMS up for a visual to runway 16. “Contact approach on 121.1.”

The new controller asked if I had the airport in sight. “Negative, we are right in the haze layer,” I responded. “I can vector you for the ILS to 3 if you don't get the airport in sight,” he said. “Roger,” I replied.

Some time passed, then, without explanation, the controller vectored me 30 degrees away from my direct heading to the airport. I was confused. “Do you see 1865 Charlie west of the runway 16 centerline?” I asked. “Affirmative,” came the response. Now, I was totally confused. How was I going to get to the airport on this heading? I still assumed that I was being vectored to the final approach course as intimated by the first controller. The new controller had another idea. I just wasn't sure what it was.

And here was my part of the confusion. I continued on an un-assigned heading for what seemed like 30 seconds toward the airport as I tried to figure out what his plan was. Angrily, the controller said, “turn right to 180 now, there is rising terrain on that heading.” Indeed there was, all clearly visible miles away in our VMC conditions. I made the turn, saw the airport, and flew a visual to runway 3. Taxiing in, the tower controller told me to call TRACON.

And whereas years ago, this kind of situation would likely have been handled by a simple admonishment, the guy on the TRACON phone line said there was little he could do and was required to forward my possible transgression to the local FSDO.



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I didn't sleep well that night. Would my license be revoked? Suspended? Would my record forever be tarnished? Would my insurance carrier cancel my policy? Would my dog Peaches bite me?

I called the AOPA legal hot line and got some great advice. I filed a NASA report. I hired an attorney to advise me on the next steps. I downloaded much of the recorded conversation between me and the controllers via ATC *live.net*. I took a picture of my actual flight path from Flight Aware.

I became more friendly with my dog.

About three weeks later, I got a call from an inspector with the FSDO who asked lots of questions. He was a former corporate pilot and he opined that there was likely a failure by me and the controller to communicate effectively and rectify the confusion. “Since your record is clean, we just need to discuss what happened and fill in a whole lot of boxes for the data base.” He was professional and courteous. “I've been there before,” he said.

And that was it. No action taken. No black mark on my record. Just a lot of sleepless nights wondering.

Let's hope that the FAA's new compliance philosophy outlined by Administrator Huerta will make things a little easier for all pilots.

Fly safe.

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