

Riding a STALLION

A cross-country trip from California to Florida shows how this horse hauls.

by Keith Beveridge

Some jobs are tougher than others. Every year for the past seven, I've traveled from KITPLANES' editorial offices in Southern California to the South's biggest fly-in: EAA Sun 'n Fun at Lakeland, Florida. At that show I spend a few sunny springtime days checking out the hottest homebuilt aircraft flying. This year was even more special, as I was invited to fly to the Sunshine State in one of the best heavy-hauling coast-to-coast piston aircraft around: Martin Hollmann's Stallion.

Since its first flight in '94, numerous flight reports have appeared on the Stallion in all the major aviation pubs, including KITPLANES. I've read most of them, and they cover the Stallion's handling, performance, and kit construction nuances, but the authors of those stories had flown the aircraft on the usual hour or-so evaluation flight. Hollmann wanted to get a writer on board N408S for longer-an estimated 12 hours-to give KITPLANES readers a feel for what his cross-country plane can really do.



A low stratus layer was overhead on departure from Orange County. Form left to right: Beveridge, Hollmann and Craig.

To Go or Not To Go?

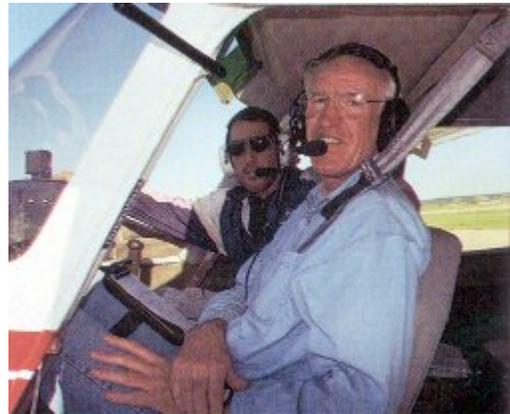
We began our journey from John Wayne Airport-a few blocks from KITPLANES' new home in Newport Beach, California. The plan was for Hollmann and an associate of his, Richard Craig, to fly from Aircraft Design's base in Monterey, California, to begin our trip.



On the ground at the end of the first day at Hooks Airport near Houston, we were halfway through the 2000-mile journey.

Hollmann and Craig prepare for the flight from Andalusia, Alabama.

Arriving at Winterhaven, Florida, the Stallion crew reflect on the trip.



The plan was to leave early Friday morning. "We'll be able to make it in one long day of flying," Martin had said a few weeks prior, "if there's no significant weather." That turned out to be a big if.

Martin and Craig arrived on Thursday evening, but we awoke Friday to view some of the nastiest IFR weather we'd seen in recent memory. The computer maps at John Wayne's Sunrise Jet Center showed two fronts blocking our route: a fast-moving low over Arizona and New Mexico, and a slower occluded front over mid-Texas. The satellite images showed clouds over much of our route running from Phoenix to Houston, winds aloft of 60+ knots, embedded thunderstorms, and hail and low ceilings beginning near Tucson. The conditions were pretty good in Southern California, daring us to start despite what we knew was ahead.

Craig and I are both current instrument-rated pilots, and the Stallion is a capable, instrument-equipped airplane, but we agreed that we were beat, so we stayed on the ground rather than try for Phoenix, which was little more than an hour away. It just wasn't worth the risk.



The Stallion is equipped for flight into instrument conditions. A King KLN 90 is the centerpiece.

Departing IFR

Things had improved by Saturday, but the winds remained strong-60 knots aloft and 15-20 on the ground, gusting to 30 in places. Most of the clouds had blown out, and our first planned stop-Midland Texas-was fairly calm on the ground, though a lot of strips in Arizona and New Mexico were still pretty gusty. We decided to go.

The weather out of John Wayne airport wasn't as good as it had been Friday. The ceiling was a 1200 foot stratus' overcast with tops of about 3000. To get out we had to file an instrument flight plan.

Our planned route would take us via Victor airways over the south eastern California desert, over Phoenix, southern New Mexico, and into Texas. The destination was Midland, which would be a 5-hour flight, planned at 180-knot cruise at 12,000 feet.

Loading was not a problem. Martin and I weigh about 200 pounds each and Craig is at about 160. Baggage totaled about 120 pounds, and we fueled to 100 gallons (the prototype holds 160 gallons, but the kit version holds 230). Total takeoff weights

was about 1,280 pounds of fuel, people and baggage-which is well under the 1600-pound limit of the Stallion.

There's plenty of interior space in the Stallion. It can hold up to six if the proper seats are installed, and

big, tall pilots are well accommodated. Martin and I can attest to that: He's 6 foot 7 and I'm 6 foot 4. With both of us in the front seats it was more than comfortable. But I would later find that the most comfortable seat in the house was in the back.

There's more than enough leg room for me sitting in the bench seat back there, and the big 36x72-inch quick-release right-side loading door is mostly Plexiglas, which provides a panoramic view in flight.

We taxied to the runup area, which was typical for a complex aircraft: rpm to 1700, mag check, no carb heat for the fuel injected 300-hp Continental 10-550G, the prop was cycled and electric flaps were checked. Our departure into instrument meteorological conditions (IMC) required that nav radios and flight instruments be checked for IFR, including a check of the VOR, altimeter, directional gyro, turn coordinator and artificial horizon. Hollmann's aircraft is equipped with VOR and glide slope, a single KX155 navcom, and a King KLN-90 panel mounted moving-map GPS receiver that predated IFR enroute approval.

Runup complete, we taxied to for takeoff. The view over the nose is good and visibility overall is better than other cabin aircraft I've flown simply because the side and rear windows are huge. The run off SNA's Runway 19L was smooth and powerful. We rotated at 75 knots at about 1400 feet down the runway with 10° of flap. Hollmann retracted the gear, which gave the Stallion a kick, and we rocketed out of the pattern to our initial heading of 110° at 1600 fpm.

Engine power is from a six-cylinder, Teledyne Continental Motors, IO-550-G that produces 300 hp at 2700 rpm and 25 inches m.p. on takeoff and 280 hp continuous at 2500 rpm for high-speed cruise.

Hollmann doesn't mind the racket, but I noticed that even with a pretty tight fitting passive headset, the plane is fairly loud on takeoff. The engine installation on the prototype Stallion uses short three-into-one exhaust stacks that do little to mute the big-bore cylinders' rumbling on takeoff. An active-noise reduction (ANR) headset would work better for this airplane in my opinion. I know they cost more, but, if you're going to spend more than \$100K on a plane, engine and avionics, what's a few hundred dollars more if it means extra comfort?

Into the Clouds

Out of the gate, I noticed things happen fast in the Stallion. At our best rate of climb speed of about 100 mph, we were into the 1400-foot overcast in less than a minute. SoCal departure controllers vectored us to our departure airway, and as we turned at standard rate in the clouds, the Stallion was rock solid. Stick forces at slow speeds (100 mph for this plane) were light but not too light. Initial reports indicated stiff

aileron forces due to excess control friction, but Hollmann has since fixed the problem by loosening the control cables slightly.

Rudder inputs aren't needed much to coordinate the turns-the planes' huge vertical stab and rudder work well to keep the tail from wagging. "You can always use a larger rudder on a good cross-country plane," Hollmann says. And if you've noticed the resemblance of the Stallion vertical stab to the North American P-5 1, it was no accident. Hollmann's always liked the profile of that plane.

Other airplanes also influenced the Stallion. "A year before I designed the Stallion I designed a composite airplane similar to a Cessna 206, so there are a lot of similarities to that airplane," Hollmann says.

Although people often think that a composite airplane will be lighter than a metal airplane of the same configuration, this is not generally the case, he says. Comparing the Stallion to a C-206, the Stallion weighs 2200 pounds empty compared to about 2100 pounds for a typical C-206. But the Stallion still outperforms the 206 in every aspect, mostly due to its smooth composite surfaces and the laminar flow wing. "It's nearly impossible to get the same speed from a metal airplane compared to a similar one built from smooth composites," Hollmann said.

Laminar flow is so important to performance that Hollmann religiously wipes down the leading edge of the Stallion's wings before each flight. He says that it can make a few knots difference in cruise and stall speed if the boundary layer transitions from laminar to turbulent near the leading edge of the airfoil because of bugs. "A clean leading edge is a lot more critical for a clean aircraft design," Hollmann says.

Point A to Point B

En route, Hollmann likes to fly the airplane at high VFR altitudes to get over the clouds into smooth air. We were cleared IFR to 12,000 feet out of Los Angeles, and it wasn't long before we were skimming along tops of a broken layer of white puffy cumulus. We really felt the speed running through the tips of those clouds. Into New Mexico we were indicating 190 knots and were seeing ground speeds from the GPS of 247 knots! And though it was bumpy in and out of the cotton tops, the 27-1b.per sq.ft. wing loading of the Stallion damped much of the turbulence.

The range of the prototype Stallion with 130 gallons of fuel on board is about 1700 miles. The kit Super Stallion holds 180 gallons, which increases the range to 2400 miles at cruise rpm. At 12,500 feet at 25 squared, the Continental was drinking 13.8 gph according to the EI fuel flow monitor, which was accurate to within 2% according to later fuel bills. Although we had planned for Midland, we changed our minds after about 4 hours in the plane; our bladders couldn't take it. We canceled IFR over Justice, Texas, a trip of about 940 n.m. done in 4.5 hours-an average groundspeed of 208 knots.

Just before we canceled IFR, ATC notified us that we had same-direction traffic "12 O'clock and 5 miles." It was a Sia Marchetti SF-260-an Italian built low-wing piston hot rod used for preliminary jet training in other countries. I flew that design a few years ago for an article on a mock air combat outfit in Fullerton, California, so I knew what that airplane can do.

We passed it a few minutes later cruising 20 knots or so faster, and it was funny to hear the pilot of that plane ask: "Houston Center, Marchetti N1234. What kind of Cessna is that passing me!?" He had never seen a Kansas Spam can that could get by him. The controller didn't know what we were, aside from homebuilt, so we called on another frequency and gave the Marchetti pilot the details. We were all smiling by the end of that conversation, and he expressed his dismay that he couldn't follow us to Sun 'n Fun. We parted friends...at 200 knots indicated.

Crosswind Landing

The landing at Justice was interesting because the wind on the ground was higher than I'm used to in Southern California. The nearest airport reporting estimated that ground winds were 15, gusting to 20. We asked Justice Unicom, and they said it looked to be a steady 15, from 50° right of Runway 17. In those conditions, we decided that Martin would do the landing, since he was the most familiar with the plane. Gear and flaps down, we approached at 100 mph. Over the fence we were steady at 90 with the left wing down to accommodate the winds.

Touchdown happened fast on one wheel at about 80 mph, but the Stallion's big tail and Martin's good foot work kept us tracking straight just left of the centerline. Overall it was a good landing, and from what I saw, the airplane handles well in such conditions. Later maneuvering showed good, positive aileron and elevator control at slow speeds. Martin is a low-time pilot-he has a few hundred hours-and says he likes designing airplanes more than flying them. But he hasn't had any problems with the Stallion, which indicates the plane is more than manageable.

After a borrowing an airport car for a quick but tasty barbecue beef sandwich in downtown Justice, we were off again to try for Hooks Field near Houston. We were flying opposite the sun, and the landing light for the Stallion was out, so we wanted to make it in before nightfall. The trip into Hooks was a no-brainer as we flew VFR with ATC flight following along our planned IFR route. Our tailwind had diminished somewhat, and we were down to 213 knots groundspeed according to the GPS. It was about an hour and 20 minutes to make the 240 n.m. leg from Justice to Hooks.

Business Diversion

We were met at the field by Ron Bown, a Houston entrepreneur who is part of an effort to attain funding to certify the Stallion and manufacture it at a facility on the airport. Hollmann was to stop in on his return trip after Sun 'n Fun to meet with

Bown, Jack Burton, his partner, and local officials to discuss the project and demonstrate the stallion.

The transition from kit to certificated airplane may not be difficult for the Stallion as it is highly prefabricated. There are but 54 composite parts in the complete airframe, which consists of a steel tube frame encased in a composite shell. The main wing halves, which comes with the spar built, are bolted to the steel structure and can be removed in minutes. For kit buyers, the airframe can be purchased in one package for \$59,050 or in four sub kits: horizontal tail starter kit, fuselage kit, wing kit, and controls, engine mount and fuel system package.

Through the Front

The following Morning we were off early and soon picking our way VFR through a slow-moving cold front over northern Florida and southern Alabama. As we passed Mobile, Alabama, we started to see first signs of the layers of stratus that were following the front. We decided to go underneath the lowest broken layer rather than get caught between layers.

Here's where the GPS units on board really helped. There aren't many VORs in southern Alabama, and using any VOR below 3000 feet can be questionable, depending on your distance from it. Thus we tracked position using the KLN90 to confirm our en route VORs, and we used a Lowrance AirMap handheld GPS to help follow the sectional at low altitude. Both units worked well, and the AirMap helped a lot to pick out roads, waterways and lakes along our route, as it includes all that on its very readable moving map. At Sun 'n Fun I had met with Lowrance reps who updated the AirMap software with a quick chip insertion so the map now showed obstructions such as radio and TV towers. That little addition eased my mind as we droned along at low level.

With dual GPS, we were never in doubt of our position, and our satellite nav capability gave us more confidence heading toward worsening weather, as we could easily find close by airports if there was a need. That theory turned to reality as we headed for the airport at Dothan in southeastern Alabama but had to turn back and land 80 miles west at Andalusia because of the thunderstorms. The GPS units gave us a direct heading immediately, and it wasn't a problem finding the airport flying at 1200 feet under a solid overcast.

We touched down at Andalusia and watched the quarter-hour radar updates at the local FBO's computer terminal. Thunderstorms were moving north of our planned route, but there were still plenty clouds blocking our path. A call to the local flight service station revealed that a few light planes were successful in picking their way through the front, so we decided to head out despite the weather, planning to turn around and land if things got bad. Without any storm detection devices we definitely weren't filing IFR because of the possibility of embedded thunderstorms.

We headed for the northern coast of Florida Panhandle near Panama City and flew at about 2000 feet over the beaches. Again we relied on the AirMap to keep us oriented along the coast over top of a thin layer of stratus and below a thicker layer. We were out of sight of land at times, but the map showed the coastal contour to within 0.5 n.m. of resolution. Altitude and heading control in the Stallion was easy.

The large Fowler flaps add wing area and make for more-than-manageable landing speeds.

Electric elevator trim on the stick eased the process, and with feet off the rudder pedals, the plane was perfectly coordinated.

Between broken layers, we were glad to finally see sunshine to the east over Cross City, which is located where the Florida Panhandle curves to become the west coast of the Sunshine State. Exiting the murk, we climbed back up to a more reasonable 5500-foot cruising altitude and headed for Lakeland in the clear.

Lakeland Arrival

Approaching the Lakeland area, it was evident how the city got its name. Hundreds of lakes and ponds glistened in the evening sun; looking out each window we could see both coasts. The entire Florida peninsula is at a mean elevation of about 50 feet, and the state gets upward of 100 inches of rain per year. Looking at the encroaching seas to the east and west and the lakes below, I got the feeling that nature is striving to sink this state. We tuned the KX 155 to LAL's airport terminal information service (ATIS) frequency and heard that the field wouldn't be opened for arrivals for another hour due to the afternoon airshow in progress, so we landed a few miles east at Winterhaven Airport.

Stepping off the plane, I was struck with our accomplishment. Two days from coast to coast in a light plane. (Actually it was one and a half if you don't count the hours we were waiting on the ground in Alabama for the skies to clear.) Our flight time was a total of just over 10.5 hours (with tailwinds) to cover a distance of 2075 n.m.

The Stallion is a big, comfortable, fast machine that flies well and offers no surprises for even low-time pilots. I like the high wing, especially for low-level flying, and its sleek composite high wing shape looks darn good. There just aren't many ways to improve on the design, which bodes well for the plane as a homebuilt or down the road as a certificated airplane. If you're partial to high wing, fast, heavy haulers, and happen to have a hundred thousand dollars or so to spend, consider this plane. It's not likely to disappoint.

Aircraft Designs Super Stallion Comparison

Category	Super Stallion	Cessna 310Q Twin
Empty Weight	2200 lb	3214 lb.
Gross Weight	3800 lb	5300 lb.
Useful load	1600 lb	2086 lb.
Fuel Capacity	230 gal	163 gal.
Seats	6	6
Wing Area	140 sq. ft	179 sq. ft.
Wing Loading	27.14 psf	29.6 psf
Power Loading	12.67 lb./hp	10.19 lb./hp
Powerplant	TCM 10-550-G	2 Lyc. 10-470-VO
Horsepower (max sea level)	300 hp	2 x 260 = 560 hp
Recommended TBO	2000 hours	2000 hours
Maximum Speed	226 kt.	205 kt.
Max Cruise Speed/Altitude	200 kt./1,000 ft	189 kt./6500 ft.
Fuel Burn @ Cruise	13.8 gph	26.5 gph
Cruise Power	185 hp	390 hp
Range at Cruise	2400 n.m	1092 n.m.
Stall Speed (flaps)	61 kt	62 kt.
Stall Speed (clean)	74 kt	77 kt.
Rate of Climb (sea level)	2000 fpm	1495 fpm
Service Ceiling 23,000 ft		19,500 ft.
Takeoff Roll	1200 ft	1519 ft.
Takeoff (over 50 ft. obstacle)	2000 ft	3040 ft.
Landing Roll	700 ft	582 ft.
Ground Roll (over 50 ft. obstacle)	1400 ft	1795 ft.
Complete Price	\$270,000 new	\$500,000 used

*Specs provided by Aircraft Designs, Inc. and Jane's All The World's Aircraft