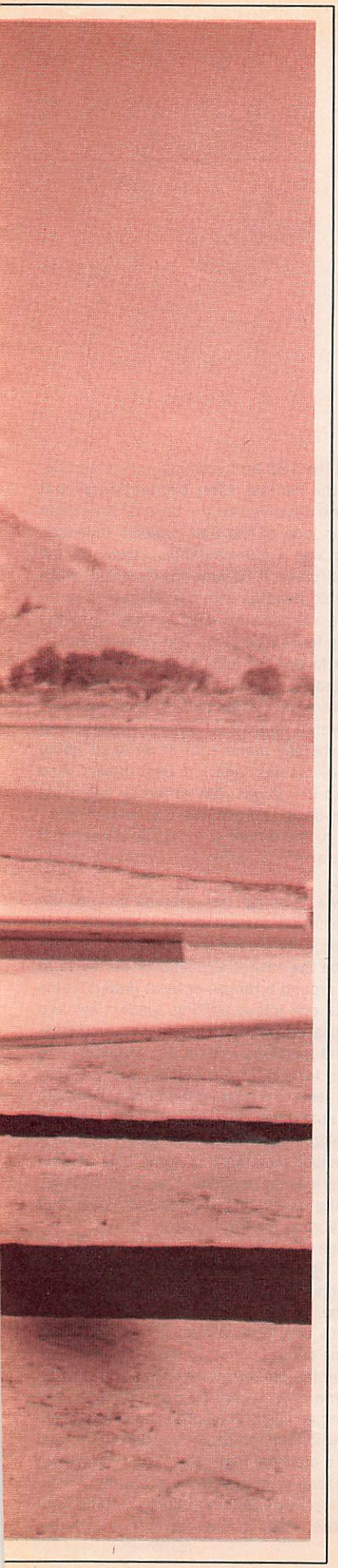

TALE OF A TIGER

The plunge taken, the purchase made and a transcontinental journey completed, this new airplane owner offers his report. To wit: come on in, the Tiger's fine!

by George C. Larson

HOW DO YOU talk to a controller from the cockpit of a Grumman American Tiger? The type is listed as an AA-5B, the "AA" hailing from the days of American Aviation, before Grumman merged with American to form the present relationship. If you try "Tiger," you usually get in response some Federal wit on the subject of cats. It usually turns out to be not worth the trouble, despite whatever pride you might feel in your mount and your consequent desire to name it accurately. So you settle on something like Grumunumerkin, rattled off quickly, in auctioneer fashion.

I suppose all this is not too important, but I can tell you that when a tower refers to you and your Tiger as "that Yankee turning base," you tend to take it personally. The Grumman American Tiger may confuse controllers, but it is also a shining example of just how well an airplane can be built when the right people put their heads together. It is just about everything we have wished for in an airplane all these years, and now that it is here, it is cause for celebration. The Tiger is simple and economical to manufacture, it mounts one of Lycoming's very best engines (with a rated 2,000-hour TBO), it runs on 100-octane fuel, and its performance places it not just in the lead within its horsepower class but makes it competitive with some choice 200-hp retractables and some fixed-gear airplanes with 50 more horsepower.

Let's take care of the numbers right away.

On a trip from Los Angeles to the Reading Air Show and back—the perfect shakedown cruise—we routinely planned on true airspeeds of 133 knots. A two-way timed run that I flew between a pair of VORs in a light crosswind at a density altitude of 8,500 feet averaged a groundspeed of 132 knots and used fuel at a rate of 8.4 gph; the book says that's the equivalent of 52-percent power. (Our fuel consumption has run well below the book's predictions at 2,600 rpm, where the airplane cruises most comfortably.) Something cross-country travelers will like: one leg of the return from Reading, the 450-nm stretch from Amarillo, Texas to Winslow, Arizona, clocked 4.1 hours on the tach (we had a brisk headwind, natch) with en-route groundspeeds of 112 to 120 knots, at 8,500 msl for the first part and at 10,500 later; at Winslow, the tanks took exactly 31 gallons of fuel, meaning that there were 20 gallons usable still in there after all that time. We had averaged 7.6 gph. That, my friends, is a long-legged airplane.

Climb performance got its severest test during that same trip. Three adults were aboard, along with plenty of baggage, and we were in the heat of the high desert and fueled to within 50 pounds of gross weight. Rising air from convection gets part of the credit for any measure of climb under those conditions, but still we got 500 fpm at takeoff from Deer Valley Airport, near Phoenix. You can expect

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TIGER

Even during climb, the Tiger's attitude and picture-window canopy provide the pilot with a view as big as all outdoors.

to find in the Tiger the rather comforting feeling that the airplane is not straining to climb. Under all conditions, its rate of climb is very sensitive to airspeed, however. At a full-gross 2,400 pounds, at sea level, the manufacturer calls for 90 knots IAS or a Vy rate of 850 fpm in standard conditions; by the time you reach 6,000 feet, the best-rate speed is down to 83 knots indicated—seven knots less—for a rate of 520 fpm. I timed a climb out of Van Nuys during a heat-wave-scorcher 90° F. The airplane took nine minutes flat to reach 6,500 feet msl; it was loaded to approximately 2,000 pounds.

It is worth your while to open the manual to the page containing the rate-of-climb data and adhere to it during the climb, for the airspeeds published therein are correct and optimal. Deviate and you will protract the climb considerably. The only time I deviated from them was on a takeoff one day from Phoenix with an air temperature of 106°. The oil temperature needle began to climb threateningly to the top of the green—it never reached the redline, though—so I lowered the nose. It has been the only occasion when cooling has been a consideration during a climb. The Tiger is tightly cowled, yes; however, it is also well cooled.

The powerplant is outfitted with what must purely qualify as a "cruise" prop, and the engine turns at a startling 2,400 rpm in the climb, which is a little hard to get used to at first. If there is any complaint to be made about the engine-propeller combination, it is that nobody has yet managed to eliminate the yellow caution range between 1,850 and 2,250 rpm, an area the pilot must avoid during a descent or at any time when the relative wind is driving the engine through the propeller. That turns out to be a handicap in this airplane because of its relative cleanness. That yellow area is exactly where you would feel most comfortable with the power; to get below it, you have to yank nearly all the throttle off, which just has to cool the engine too much. Above it, you have slightly too much power to descend comfortably in rough air and keep the airspeed where you'd like it—design maneuvering speed is only 113 knots IAS. This engine has had that descent-rpm limitation for a long time, and now that it has become the logical choice for areas where 80-octane fuel is no longer available, one can only hope the manufacturers will get on the case and eliminate the source of the problem. I am sure owners of the Scout will welcome it, too.

The airplane's rated service ceiling is listed as 13,800 feet, and that figure would seem to be borne out by experience; on the eastbound trip to Reading, we struggled but reached 9,500 feet msl in turbulence and in an air temperature that hung up there at 73° F., producing a density altitude of almost 13,000 feet—typical midday New Mexico conditions.

There is no question that this airplane is every bit the performer its makers say it is, and with engines that use 100-octane becoming more popular choices, it may well turn out to be well worth the extra $5,078 over the price of the 150-hp Cheetah, which runs on 80.

The carbureted Lycoming O-360 seems to have a solid reputation for reliability. Ours also seems to be extremely oil-tight, something the airplane dealer told us was directly attributable to his having run the aircraft as a demonstrator for more than 150 hours on straight mineral oil. Many people think they are supposed to switch to AD oil at 50 hours, but the Grumman American owner's manual for the Tiger says to switch to dispersant oil at a *minimum* of 50 hours or when the oil consumption has stabilized. The other break-in tip we got was to be sure to run the engine at the full 75-percent cruise power for a while; we're following the book figures for rpm and horsepower, but all our fuel consumption figures have told us we're running in the 50s and 60s. Engines are broken in best when they are given a chance to seat their rings under conditions of high BMEPs, the theory goes. Somebody seems to have done something right on ours.

The basic structure of the present line of Grumman American singles is a tribute to the inventiveness of Jim Bede, who first married a tubular spar to a simple, modular airplane in his BD-1. The history books seem to say that the BD-1 had mixed success until it acquired the 108-hp Lycoming engine and became the Yankee. After production of that airplane devolved to the care of American Aviation, one of the first projects American tackled was a four-passenger stretch of the basic airplane. It became the Traveler, which competed head on with the Skyhawk and offered a spirited, low-wing alternative to the 150-hp four-place class. The Traveler was always a favorite of mine because of its pleasant handling characteristics, panoramic visibility from the cockpit and for its sliding canopy, which could be opened in flight and which thereby made a lot of air-to-air photo assignments easy and fun. Best of all, I liked the fact that it was truly different; like many original-design homebuilts, it offered an alternative to the ordinary. It had an air about it that made me think of European sport planes.

I was also partial, then as now, to the free-castering nosewheel for taxiing in close quarters. The Grumman American airplanes must be the easiest airplanes in the world to direct around a ramp—at least until it's time to back one into a parking space. I am less than pleased with the nosewheel during takeoffs and landings, when it has a tendency to shimmy terribly. I have a feeling that this may be the fault of a poor adjustment somewhere in the nosewheel assembly, because I noticed while skimming a microfiche copy of the service manual that there is some sort of anti-shimmy washer provided. I hope so, because the thing really startles passengers and can't be very good for the airframe.

One of the things you can look forward to with a Tiger, once you've got past the few minor bugs that are to be expected in any new airplane, is that it will serve long and hard and ask very little upkeep in return. If any airplane could be said to have been detailed to combine performance with seviceability, this one is it. It was Le Roy Lopresti, the reigning genius of the lightplane aerodynamicists, who took the basic Traveler and turned it into a machine that does almost everything better than its competitors, and without making it terribly complex. Lopresti stands out from the crowd in this business, mostly be-

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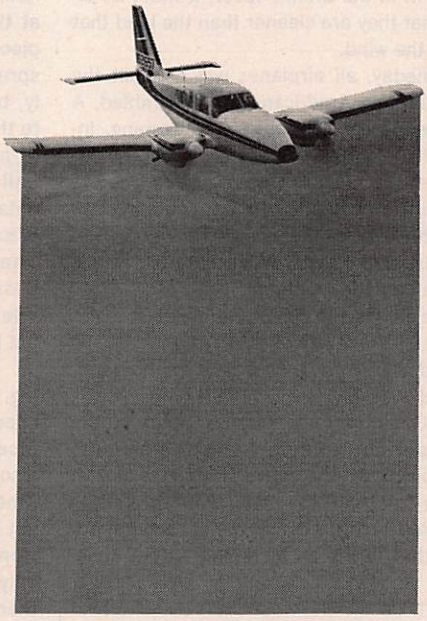
Rate of climb remains nearly constant—better than 1000 fpm. In a few minutes you're on top and shortly report level at 10.0. For cruise, your convenient power/gph tables give you a choice of Turbo Cruise, Intermediate Cruise, Economy Cruise, or Long Range Cruise. You pick the one with the speed and thus m.p.g. most acceptable for this mission. At 10.0 Intermediate Power Cruise will be 170 knots. Intermediate power, leaned to best economy, is 29.3 g.p.h. at all altitudes from sea level to 24,000 feet, your operational ceiling. You need have no concern in using high cruise power in the Turbo Aztec because its engines have been six-way toughened and stressed and tested for continuous operation at rated power. Time between overhaul is 1800 hours regardless of cruise powers used.

Speed? Yes, there are higher powered, less roomy, less stable airplanes at much higher prices which are maybe 10 knots faster than the Turbo Aztec F. But it is not good economics to pay so much more for so little extra speed unless your trips are regularly over 1,000 miles. FAA studies show the average business trip is under 500 nm. Considering its conservative total of 500 hp, the Aztec moves out...and at an obviously popular economic pace.



The weather briefer predicted a possibility that half way along you might have to cross a cloud ridge. To stay in smooth air above it you need to go to 16,000 feet for about 15 minutes. No problem. You have a king-size oxygen system and full rated power available up to 18,000 feet. You go through 15.0 with 1,000 f.p.m. rate of climb.

Journey's end. Here again the Aztec reveals something extra in its slow-flight stability and feel, its relatively slow, rock-steady approach, soft touchdown and short roll.

Mission accomplished. Happy passengers. A rewardingly satisfying flight for the pilot. The Aztec sits gracefully on the line, ready to go again when you are.

Have you ever noticed how difficult it is to find a low-time Aztec? This is because they fly and fly and fly before people are willing to turn them loose. They're always a bargain, new or old.

For complete information on the Turbo Aztec F, see your Piper Sales Center (listed in the Yellow Pages), or write Piper Aircraft Corporation, Dept. FL10C, Lock Haven, PA 17745.

PIPER

Engineered for excellence, built for value

Member of GAMA

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cause he really *loves* airplanes and has dedicated himself to the cause of making them perform better. What he did for Grumman American he is now doing to Mooney (see "Making Mooney Move," *Flying*, August 1976). The similarity between the Tiger's and Cheetah's (the new name for the improved Traveler) cowls and that of the new Mooney 201 is a visual clue that tells you you're looking at a Lopresti airplane.

While redesigning the cowl for better cooling with less drag, Lopresti kept the Model-T-Ford covers, with their axial piano hinges that allow Grumman American pilots to fold up each half during preflight for a look at *everything* in the engine compartment. The only airplanes that come close in this respect are the Bonanza and the Cherokee 140. Not only can you see everything in the Tiger's engine room, but you can reach it, too. (Now if only they'd do something about that awkward snap fastener that holds the cover strut in place while it's open. It always feels like it's ready to break off.) One caution about the covers: make sure during preflight that you check the latches—they pop into place *only* when positively locked—so that you won't be surprised by a cover darting up in flight.

Another preflight quirk is the fuel sump drains, which require that you find a little spring-loaded valve with a pin-cup, an event that surely must have originated on *Beat the Clock*. It takes some bending and grunting, for this is a *low* low-wing airplane, but you get used to it. In the drains' favor, it must be allowed that they are cleaner than the kind that hang in the wind.

Someday, all airplanes will be built the way Grumman Americans are assembled. A lot of people can already see it coming. Instead of the sound of rivet guns, you'll hear reverberating across the assembly line the gentle tinkle of kitchen timers sounding off, telling the workers that the parts are ready to come out of the oven. Skilled craftsmen will hum the company anthem:

The glue is set, the battle done;
I've thrown away my rivet gun.
And when I die, please take me home,
And wrap my bier in honeycomb.

At Grumman American, they make the passenger-carrying portions of aluminum honeycomb, and the entire airplane is almost fastener-free, with the major structural parts assembled with a special metal-to-metal adhesive that forms an incredibly strong junction. This so-called "bond" is checked for integrity by applying electronic sensors on the surface of the joined metal; the sensors can detect any voids in the junction. The advantages of this kind of construction are numerous: the skin is aerodynamically clean; eliminating rivets eliminates stress concentration at the points where the rivets join separate pieces of metal—with bonding, the stress is spread throughout a much larger area; finally, bonding creates an immediate advantage to the manufacturer in reducing the numbers of man-hours in his airplanes. You can eyeball the Tiger, and without benefit of hard data, guess that it must be one of the least labor-intensive airplanes ever manufactured. The handwriting is on the wall, and both Cessna and Beech are working more adhesive structure assembly into their own product lines.

Settling in for the ride can take some doing. Rear-seat passengers are loaded easily enough because the front seats tilt forward nicely to allow for passage. The rear seats also fold down on the four-place Grumman Americans to form a cargo hold, but I have yet to take advantage of that feature. The front seats on my airplane have caused the only problem: the seat belts get lost under them when the seats are tilted forward, and the left seat arrived with a spacer washer missing. It still won't lock or track quite right. None of the seats is adjustable—you can't have everything, I suppose—and they are a bit too upright for me, although not to the point of any insufferable discomfort.

Climb into a Tiger, and right away, you'll discover that one of its most unusual characteristics is the aileron gearing, which is exceptionally quick. The yoke feels as if you forgot to remove a control lock someplace. The short throw of the wheel is normal, though. Look out at the ailerons while moving from lock to lock, and you notice that the arc is not that great, from 15 degrees up to 7.5 degrees down. Because the ailerons have plenty of area, the roll rate is comfortably authoritative.

Matched to the roll rate is that of the pitch, which is attributable to an elevator/horizontal stabilizer that is 48 inches wider than the old Traveler's and authoritative enough to move the nose perceptibly at only 35 knots indicated; I have formed the habit of taxiing the airplane as if it were a seaplane, with the yoke pulled full back, because the elevator, even at low taxi speeds, imposes sufficient downloads to keep the prop tips just a little higher and to help reduce bouncing across bumps. I have blamed an early problem with propeller damage on too little ground clearance, but other people tell me they're all having the same problems on other airplanes. Maybe they're using a different propeller metal these days.

Time to set up shop and plug in the headset. Aha! What's this? The headphones' plug is on the left side of the panel, while the

mike goes into its own plug on the left side of the seat-divider console, near the floor. So where does that leave those of us with headsets? It leaves us shopping at the radio hobby store for an extension wire to run across the panel to where the two plugs for our mike and earphone are conjoined.

While we're in the area of the console, let's give Grumman American credit for its admirable fuel system setup, which is made up of a selector that points directly at the tank in use. Less admirable is the scale on the gauge, which is utterly nonlinear. It's about an eighth of an inch from full to three-quarters, and a half inch from there to half full. The marks are pretty close to true, but I'm more comfortable now that I know how much the airplane burns in a given time; it holds 51 gallons of usable fuel. Many linepersons have complained to me about the difficulty of fueling the airplane accurately. The opening is very small, and they can't see past the filler into the tank. You get a lot of spills that way.

The makers tell you to rotate the airplane at 52 knots on takeoff, but the best procedure I've found is to roll it a bit at part throttle until the rudder gets a bite; that way, you can lay off the brakes and avoid the swerve that is sure to follow a faster application of throttle. I haul back early in the roll to unload the nosewheel, as if flying a half-hearted soft-field technique. At about 57, you can give it a yank and break ground quickly in gusts or a crosswind; on smooth days, it will fly off when it's ready.

To level for cruise, you may initially have to consult the altimeter until you get used to the proper visual references in this airplane. No airplane I know of seems to fly so nose-down. In fact, it's flying nice and level, just showing you the incredible visibility that is typical for Grumman American machines. Over-the-nose visibility is so good that it's disconcerting, but you come to appreciate the safety factor when you realize how much you can see during the climb.

I would guess that the space allotted for the radio stack is a bit shorter than on some panels; ours holds two navcoms, a transponder and an audio panel, with a half inch left over. The usual basic IFR instruments are all there in an uncramped arrangement that seems pretty logical. All the switches are in a row at the bottom of the panel, and IFR flying requires nothing special in the way of housekeeping except for an understanding right-seat passenger who won't mind holding the paperwork.

The first impression of the cabin at cruise is that this is an exceptionally quiet airplane, but sound-level measurements have failed to show that: 92 dB(A) at 2,600 rpm, a figure that is just about the same no matter what airplane you're measuring. Perhaps what we observed was just a qualitative difference; then again, maybe it was just wishful thinking. I take some kidding because of it, but I'll stick to wearing my earplugs.

People tell me that the Tiger looks like a short-coupled airplane when lined up next to, say, a Cessna. If you were expecting it to hunt around a lot in pitch in bumpy air, you'll be pleasantly surprised to discover that it doesn't compare unfavorably at all. It is worthwhile to shut down the Century I wing-leveler/tracker, though, because the unit produces Dutch rolls under those conditions. The Century I, for the money, is still one of the neatest bargains in the airplane; it holds heading reasonably well for as long as you might take to study an approach plate, and it tracks perfectly, once you're within 10 degrees of course. That's all that it's meant to do. You may notice that passenger movement affects the pitch to a greater degree than you would anticipate, however; when a hefty adult male in the back stretches to yawn, you'll know it. The reason he's stretching is probably because the headliner back there is grazing his crown and his feet are up against the spar; it's a bit tight in back for big folks.

Pitch trim is controlled by a wheel on the console. Aileron and rudder trim is accomplished by bending ground-adjustable tabs. The pitch trim gearing is very sensitive, something you come to like very quickly; just a touch gives you the attitude you're looking for.

Power management is also as simple as a fixed-pitch powerplant's could be, with only one complaint: the mixture control on this airplane seems much too sensitive. From full rich at sea-level takeoffs to best-economy lean (where the engine runs smoothly but not at peak rpm) at 10,000 feet, it takes a pull of only half an inch on the handle. I'd prefer to make my adjustment over a longer scale.

The airplane slow-flies very well. If anything, it gets stabler in pitch as you crank more up-elevator into the antiservo tab. Some pilots have complained about the slipping characteristics of the airplane, but I find the rudder quite powerful and slips very comfortable. That's a real boon, because the flaps are not much help if you find yourself high in a Tiger. Even with the full 45 degrees down, there is not much drag available. The pitch change with flaps occurs within the first one third of flap travel; from then on, you feel nothing.

The factory calls for a final approach airspeed of 65 knots, but 70 knots seems to make passengers more comfortable, particularly when you have to shove the nose over in

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Tale of a Tiger/*continued from page 95*

any forceful shear near the ground. Routinely, while flying into Van Nuys Airport in California, I find the airspeed suddenly dropping from 65 to just above the stall at about 50 feet above touchdown. It takes a good push to get back your airspeed, and most passengers find it too exciting. An extra five knots doesn't create too much float after the flare, and you're a lot better off on final.

With flaps, an ILS is a piece of cake in a Tiger. You can keep some power in and use the elevators to hang onto the glideslope. That annoying yellow arc on the tachometer makes that combination just about mandatory if you don't want to be whistling in when you break out airport right at minimums. Even with fixed gear, this airplane, clean, will shoot down rather quickly—half throttle will produce 2,400 rpm (above the yellow) and 500 fpm down at 126 to 130 knots indicated.

For me, the airplane represents a combination of ingredients that suit my needs perfectly. Some people who live in rainy areas might not like the sliding canopy because they get wet during entrances and exits. That's less of a consideration for me, since it hardly ever rains where I live. The fiberglass gear is almost absurdly simple and quite strong, so I have confidence in the airplane during occasional visits to rough fields. I fly often enough at night to care about the interior lighting, which is among the best in the field, including the gooseneck map light to the pilot's left. There's also a tiny spotlight from the dome light that gives you just enough over your shoulder for you to read a chart comfortably. The panel itself is lighted with eyebrow lights, and they're well done.

The strobes that came with the airplane are a bit weak in any sort of background light, my friends on the ground tell me, so they may not help much in daylight haze; but I know they're better than no strobes at all, especially at night.

Owning an airplane (half actually; this Tiger is a partnership) has its advantages when you get to the point where calling around to find a rental on short notice produces poor results. Now I'll do most of my traveling in one airplane and miss the opportunity to get exposure to many different types, but in return I'll have a machine set up the way I want it, ready and willing whenever I am.

It was no easy decision for me to make, and I am only now coming to grips with the reasons for the anguish. I am a product of a family steeped in frugality; credit cards, in our house, were looked upon as instruments of the devil. I bought my first—and so far, *only*—new automobile with cash money, and it continues to serve me well after eight years of service. Persuading a person with that kind of background to buy an airplane is about as easy as talking a nun into trying a little sex.

The most satisfying sensation, once the shock of ownership wore off, was the realization that the airplane works, that it does what they claim. If anything, the Tiger has turned out to be better than advertised—fuel consumption is so low, we don't know whether to believe it. It is not quite as comfortable as some airplanes on truly long hauls, which the trip to Reading and back demonstrated, but I won't be doing that sort of thing routinely, and after all, those same seats flex to provide the "cargo conversion," something other airplanes don't do very easily.

The Tiger's simplicity wins points, too, and I think it will turn out to be pretty easy on the pocketbook. The airframe seems to be put together very well, and the stories are beginning to circulate about the strength of these Grumman Americans. The exterior polyurethane paint—it's Imron, they tell me—is very good, and only the interior detail work leaves something to be desired; however, that's less important to me than are the functioning parts of the airplane.

As I spend more time with it, the locations of things like switches, the trim wheel and the like are becoming part of my habit pattern. I can find almost anything now without looking for it. The airplane is beginning to grow on me, and I have a feeling that the fun is really just beginning.

My Tiger

These figures are as tested, and reflect the specifications and performance of Tiger N74090, the aircraft Larson bought.

Basic price (AA-5B)	$24,170
Engine	Lycoming O-360-A4K
TBO	2,000 hrs.
Propeller	McCauley, fixed-pitch
Length	22 ft.
Height	7 ft. 8 in.
Wingspan	31 ft. 6 in.
Airfoil	NACA 64_2 415 mod.
Aspect ratio	7.1
Wing area	140.35 sq. ft.
Wing loading	17.1 lbs./sq. ft.
Seats	4
Empty weight, as tested	1,410 lbs.
Useful load	989 lbs.
Payload with full fuel, as tested	668 lbs.
Gross weight	2,400 lbs.
Power loading	13.3 lbs./hp
Fuel capacity (standard)	51 gals./306 lbs.
Baggage capacity	120 lbs.
Baggage area	15 cu. ft.
Performance	
Minimum runway requirement	1,550 ft.
Rate of climb	850 fpm
Service ceiling	13,800 ft.
Maximum speed	147 knots
Cruise (75% @ 8,500 ft.)	139 knots
Economy cruise (55% @ 8,500 ft.)	112 knots
Nautical miles per gallon @ economy cruise	12.87 nm
Range @ max cruise (45-minute reserve)	512 nm
Range @ economy cruise (45-minute reserve)	567 nm
Duration @ max cruise (no reserve)	4.5 hrs.
Stall speed (clean)	56 knots
Stall speed (flaps down)	53 knots