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## Grumman Tiger

Sprightly speed, sporty handling and a canopy you can open in flight has generated fanatical loyalty.

Not many airplanes can claim a following that rises to cult status but the Tiger is certainly on the short list. With sporty good looks, snappy handling and respectable speed, the Tiger has a loyal owner community that borders on the fanatical.



The good news for owners and buyers is that the airplane went back into production in 2000 after having been through more ownership iterations than most owners can count on one hand. The new company, Tiger LLC, looks like it's in the game for the long haul. Given the model's history, they'll need all the commitment they can muster.

### Beginnings

The Tiger's antecedents stretch back to the late 1960s and a Jim Bede-designed, two-place airplane called the AA-1 Yankee. For its day, the Yank was a hotrod and featured revolutionary construction, with tubular wing spars, aluminum-honeycomb sandwich fuselage panels and bonded skins. The AA-1 made a splash but not without significant problems, being a bit too hot to handle for the student pilots it was aimed at.

Undaunted, American Aviation followed the AA-1 in 1972 with a 150-HP, four-place version called the AA-5 Traveler. It was larger and had significantly different systems, including fuel stored in conventional tanks rather than inside the tubular wing spar, as on the Yankee. The AA-1 had simple, sight-gauge fuel gauges with floating balls that were both grossly inaccurate and a safety hazard. (Who wants a tube full of avgas inside the airplane in the event of a crash?) The AA-5 has ordinary fuel gauges.

While the Traveler isn't an awful airplane, it lacked performance punch at a time when the market was awash in Arrows and Cardinals. The AA-5's break came when the line was bought by Grumman and given to aerodynamicist Roy LoPresti to clean up and improve. The result: the 1975 AA-5B Tiger. LoPresti spec'd a different elevator and cowl, more tankage, drag clean-up and a 180-HP Lycoming O-360. The following year, the Tiger's airframe mods were applied to the Traveler to yield the AA-5A Cheetah, which retained the 150-HP Lycoming engine. Of the two, the Tiger is clearly the more popular and prices on the used market reflect the demand.

Although the airplane sold modestly well, production came to a halt in 1979 after Gulfstream bought the line. The new owners wanted to concentrate on bizjets, which the company still builds.

In retrospect, Gulfstream was wise to stop production. A year later, the big GA slide started and even the likes of Cessna got out of the single-engine business shortly thereafter. The Tiger was revived yet again in the late 1980s when American General bought the designs and brought out the first new Tiger—the AG-5B—in 1990, built in a plant in Mississippi. But it was not to last.

American General folded in 1994. The parts inventories and rights were sold to Fletcher, one of the two main suppliers of Tiger support and a licensed distributor for new factory parts.

Original production for the AA-5B was 1323 airplanes, versus 900 AA-5As. A total of 834 AA-5 Travelers were produced, as well. American General built around 150 AG-5Bs before going under.

Aside from the improvements made by American General, there were no major changes during the production run, although there were refinements. In 1977, soundproofing was improved and windshield thickness doubled to a quarter-inch. Other changes: minor aerodynamic refinements, including rubber fairings on the landing gear, improved windshield sealing and the addition of a nose-strut shock absorber. In 1978, the seats were improved, and U-strips were added to the trailing edges of the control surfaces to prevent delamination of the bonds.

### **Performance**

In an era of draggy, strut-braced Cessnas, the Tiger and Cheetah were—and are—speedsters. The Tiger has a book cruise speed of 139 knots, although owners generally say real world speeds are 130 to 138 knots. This is impressive, given that the AA-5, by virtue of its slab-sided honeycomb panel fuselage, is hardly slick in the drag department. Hard chines run along the lower corner of the fuselage and the wing-fuselage junction has no fairing to smooth interference drag.

What does the trick, in large part, is the bonded construction: no protruding rivet heads. The Cheetah is about 12 knots slower, with the Traveler is slower still, but still plenty faster than 150-HP competition from the Skyhawk and Warrior. Later 160-HP versions of the Warrior, with speed pants, can almost keep up with the Cheetah, however.

The Cessnas and Pipers may be better in the climb department, however. At sea level and standard temperatures, the Tiger does reasonably well—850 FPM, about on par with the competition. But throw in high density altitude and the Tiger's climb performance sags behind the Archer and Cessna Cardinal. The Cheetah, with 30 fewer horsepower, is even more susceptible to anemic climb performance in hot weather.

Oddly, owners report that takeoff and climb performance can be enhanced by ignoring book procedures, which call for flaps up. Some experienced Tiger/Cheetah pilots use one-third flaps when takeoff performance is critical.

### **Payload, Range, Handling**

Gross weight of the Tiger is 2400 pounds and typical IFR aircraft run 1450 to 1500 pounds empty. That leaves a useful load of about 900 pounds for the 180-HP four-placers. That's enough for full fuel (51 gallons) and three adults, plus a little baggage. The Cheetah has an empty weight only slightly less and a gross of 2200 pounds with useful loads around 750 pounds.

Some Cheetahs have optional 51-gallon tanks, but these can be filled only in the two-place mode. The marginal useful load is all the more unfortunate because of the Cheetah's weak climb performance when heavily loaded.

The fact that the Cheetah lacks baggage space—one owner calls the baggage door a “mail slot”—discourages loading large, heavy items. If you insist, you'll have to lug them into the cockpit and over the back seat. Center of gravity is normally not a problem in either the Cheetah or Tiger.

The Tiger's 51-gallon fuel capacity fits the airframe perfectly, yielding about four hours of endurance with reserve.

A realistic still-air range figure with full tanks is 500-plus miles. The standard-tank Cheetah, by comparison, has shorter legs. The 38-gallon supply is good for a bit less than four hours, with reserves. Call it 450 miles. As a two-placer with the optional 51-gallon tanks full, the Cheetah will fly a lot longer than you'd want to sit in a small airplane.

As for handling, the Tiger deserves its rep as a sports car.

It's an almost ideal blend of light, responsive handling and reasonable stability and docility. This make it less than ideal as an IFR airplane, however, so an autopilot is a must for serious IFR.

Landings are no particular problem. Unlike the Yankee, the AA-5s don't sink like a stone with power off or skitter down the runway light on the wheels. If anything, the AA-5s are floaters and the small, electric flaps probably make more noise than drag. The Tiger's floating tendencies—and pilots' tendencies to bring it in too fast—make landing overshoots the number one cause of

AA-5 accidents.

With its swiveling nosewheel, ground steering a Tiger is done strictly with brakes. It's an acquired skill that can be, well, acquired. Pushing the airplane backward without the towbar can damage the nosewheel. It casters, but not all the way around. This also means that chocking the nosewheel doesn't work; block the mains instead.

For the first few seconds of the takeoff roll, riding the brakes is a must but the rudder comes up at a slow speed and you can get off the brakes early in the roll. Veteran Tiger drivers swoop onto the runway angled to the right and let engine torque straighten them out; no brakes needed.

### Canopy, Cabin

The Tiger's unique claim to fame is its fighter-like canopy, which can be opened in flight. Although it doesn't make for graceful ingress/egress, you get used to it. And if it's raining, you get wet. Although it provides breezy ventilation on a summer day, the canopy can be deadly in a crash. If the fuselage is warped by impact, the canopy may jam, preventing escape. This argues for carrying a small window-cutting hammer, which is a good idea in any airplane.

The Tiger's interior and panel have stood the test of time, especially its fuel selector. Although it doesn't have a both tanks position and therefore requires tank switching, the fuel selector is about as idiot-proof as these things can be, being up front and visible and with a switch pointing to the selected tank.

The electric flap system is activated by a toggle on the center console. The indicator is next to the switch, which means the pilot has to look down to see it. Experienced Tiger pilots tend to simply count to five for half flaps. A slight quirk of the switch is that if you hold it down to extend the flaps and let it go, it tends to snap back over center and retract them again.

The Tiger/Cheetah interior is comfortable, if not cavernous—although the panoramic visibility makes it feel roomier than it really is. Some owners complain about lack of shoulder room. A unique feature is the fold-down rear seats, which provide a six-foot long cargo compartment that will hold a couple of 10-speed bicycles—or even two snoozing occupants in sleeping bags.

### Maintenance

The Tiger was designed to be quick and easy to maintain and it has delivered on that intent. "Nothing ever seems to break," says one owner. With no retractable gear, hydraulics or other folderol, the airplane has remarkably low maintenance costs. But there are a few trouble spots to watch for.

The airplane is tightly cowled and somewhat undercooled. If the engine baffling isn't kept up to snuff, cylinder overheating and shortened life can be an issue. Closely inspect the baffling of any Tiger or Cheetah considered for purchase and be sure to do careful compression checks and a borescope cylinder inspection to check for heat-related problems. We'd also recommend installing a four-probe engine monitor. One owner who did reports seeing temperatures as high as 450 degrees, an absurdly high value for a low horsepower four-banger.



Engine access is via a split cowling.

Although it shouldn't be a problem for any current airplanes still flying, bond-line separation plagued a few early models. The culprit was an improper bonding sealant, American Cyanamid FM-123, known as "purple passion" among production employees. The FM-123 was used in all Grumman-American aircraft built between April 1974 and December, 1975—including Tigers up through about serial number 125.

At least one delamination occurred in flight in a 1975 Tiger, but no accident resulted. At least two Tigers, serial numbers 15 and 19, were virtually rebuilt from scratch because of bonding problems. According to a former production employee, 30 or 40 honeycomb fuselage test panels somehow found their way into production aircraft, possibly affecting Tigers with serial numbers below about 30.

A 1976 AD required rivets along bondlines and the problem has since receded. But any buyer of a 1975 or early 1976 Tiger should be aware of the potential for problems. You can check for the defective glue by pulling off the wingtip and inspecting the bonded seam at the spar-to-rib or rib-to-skin joint. If there's a purple line, you may have a problem.

The Tiger/Cheetah nosewheel not only looks like a shopping cart wheel, sometimes it acts like one, too. The shimmy problem is caused by a variety of factors from improper tension in the spring washers, loose axle nuts, a bad tire or loose torque tube strut. The nosegear demands a lot of maintenance and must be lubricated and adjusted strictly by the book. (Not many shops even have the book and readers tell us that improperly performed maintenance on used airplanes for sale is common.) The 1977 and later models have a shock absorber in the nosewheel, which helps, but these make removal of the nose gear tricky. If you have persistent shimmy problems, see a mechanic who specializes in Tigers.

Pre-1979 Tigers (s/n 1047 and below) had problems with cracking spinners, possibly related to propeller vibration. Virtually all Tigers in the field have been retrofitted with improved spinners, but check to make sure. One experienced Grumman mechanic who wrote to us says that even the new spinners have problems.

The Tiger was an early pioneer of the current trend toward castering nosewheels and that means brake pads wear quickly. Although savvy pilots learn to taxi with minimum braking, good brake maintenance is important. Several owners reported repeated breaking of the rudder springs and one owner told us he always carries a spare, just in case.

Like Mooneys, Tigers have wet wings and owners have reported fuel tank leaks. An AD addresses the fuel tank sealant.

The airplane is relatively AD-free but there are two significant inspections, one 200-hour inspection of the McCauley prop hub for cracks and a 100-hour inspection of the ailerons.

One potentially onerous AD cropped up in 1998; AD 98-2-8 calls for inspection of the hollow crankshaft's bore for corrosion pits or cracks. It's a shotgun AD that applies to a number of airplanes with Lycoming engines. If nothing turns up, an anticorrosion treatment takes care of the AD once and for all. If cracks are found, the crank needs to be replaced, and if corrosion pits are found, the AD becomes a 100-hour repetitive inspection until a new crank is put in at overhaul.

#### **Parts, Mods, Club**

The Tiger is unusually well supported, in our view. Fletcher (713-649-8700 and [www.fletcher.com](http://www.fletcher.com)) at the Houston-Hobby airport in Texas has long specialized in Grummans. When American General folded, Fletcher acquired the parts inventories and manufacturing rights. It has an agreement with Tiger LLC in Martinsburg, West Virginia ([www.tigeraircraft.com](http://www.tigeraircraft.com) and 877-808-4437) to support pre-AGAC aircraft. The factory supports everything from 1990 forward. Air Mods NW ([www.airmodsnw.com](http://www.airmodsnw.com) and 877-673-5537. Air Mods does wing repairs, refurbishments and upgrades and has a number of STCs for the Tiger. Air Mods also sells an oil cooler and baffle modification that reduces oil temps by 25 to 40 degrees, a good idea considering how hot the engines tend to run.

Air Mods can turn Travelers and Cheetahs into Tigers with a 180-HP conversion. They also can convert Travelers and Cheetahs to constant-speed props and install split nose and lower cowlings, plus wing tip and wing-skin embedded halogen landing lights and roller canopy tracks.

Fletcher has a split nose cowl STC, which eliminates the need to take off the spinner and prop to get at the starter, alternator and front engine baffles. This applies to the 1975 Traveler up through the 1979 Tiger. The AGAC Tiger already has a split nose bowl, as do new Tigers from LLC.

Another recommended mod is a Sensenich propeller in place of the AD-plagued McCauley. This also eliminates an annoying RPM restriction between 1850 and 2250 RPM in descending flight—right at the usual ILS approach speed. Unfortunately, installation is not intuitive and common installation errors have led to problems with the bulkhead and/or propeller attach bolts.

Other mods of note: Approach Aviation ([www.approachaviation.com](http://www.approachaviation.com) and 877-564-4457) has a ram air induction kit; Powerflow has a tune exhaust system (877-693-7356); Hyperdyne Systems (479-530-6062) sells a 200-HP conversion for the Tiger; Blue Sky sells sun visors, contact 775-857-3139; DMA has speed mods, contact [www.dmaspeedmods.airweb.net](http://www.dmaspeedmods.airweb.net) and 281-379-5430.

Last, LoPresti Speed Merchants have a cowl, too. ([www.speedmods.com](http://www.speedmods.com).)

Grumman owners enjoy one of the best owners groups around, the American Yankee Association. It has an excellent newsletter, sponsors regional fly-ins and serves as a pipeline to technical expertise. The group also has a special group insurance plan that may save you money and can direct you to approved instructors for Grummans. Contact [www.aya.org](http://www.aya.org) or 403-258-3135.

#### Reader Feedback

I have owned my 1979 Grumman Tiger for about two years and am very pleased with it. My recent annual cost \$1000. Fuel usage at cruise is about 8 to 10 GPH, depending on altitude.

The Tiger is responsive—much more so than other airplanes in its class, which seem truck-like in comparison. With the addition of a Power Flow exhaust system, I have flown as high as 19,550 feet DA and could likely get a bit higher. My Grumman has taken me from New York to California in record time (literally).

Mark Stolzberg  
Via e-mail

The primary reason I fly is for the sheer sensation and challenge that compares to nothing else. The Tiger is a good performer with a quick roll rate, light controls and adequate power. Couple that with outstanding visibility and the ability to fly with the canopy open and I just can't think of a more fun certified plane in its class.

The Tiger is also a relatively simple airplane which does not demand undue maintenance. Both sides of the cowl open wide for easy access and inspection. The Lycoming O-360 is a reliable powerplant that any mechanic can easily work on, and there is only one recurring AD for aileron bushings every 100 hours. Maintenance expenses are generally limited to oil changes and a thorough annual that generally costs about \$1200, including moderate preventative maintenance but excluding repairs.

Fuel consumption is fairly consistent at about 10.5 GPH, which typically results in true airspeed of about 135 to 140 knots. The airplane will easily walk away from any other airplane with the same engine, save homebuilts.

I have the LoPresti cowl mod, which is supposed to increase airspeed and improve cooling. My engine is a bit tired, so the fact that I can still achieve book airspeeds maybe confirms the speed claims and the engine operates a bit below temperatures I hear others talk about, so I suppose it helps with that too. Main thing is it looks cool! Insurance is pretty reasonable.

The Grumman Gang mailing list is an awesome resource for both information and camaraderie. I have met many other owners who love to fly and socialize together. It is an incredibly cohesive group. Parts support is very good, but there are still times when it can be difficult to find certain items. Considering Tiger LLC is manufacturing the airplanes again, it is a real travesty they refuse to produce any parts for our fleet due to liability concerns.

I love to travel in my Tiger and have done trips of several thousand miles, but the reality is most of my flying is within a couple hundred miles. For me, it makes little difference if the airplane is not as fast as a retractable. I love flying and it just means I have more fun with my plane than they do!

Doug Weir  
Via e-mail

I soloed in a Grumman Lynx in 1977. I got my private pilot license in a Grumman Cheetah. I started doing my own maintenance on my first Cheetah in 1984. Since then, I've owned four Cheetahs and a Tiger, got my A&P and IA and, in 1995, started my own company, AuCountry Aviation. I specialize in the repair, restoration, service and modification of Cheetahs and Tigers. To say I think they are some of the best GA aircraft ever made would be an understatement.

I'll leave it to others to brag about their planes. I'll highlight some items to watch out for. I bought my Tiger in April 2004. At the time, it had just 1115 hours TTAF. One would think with such a

low-time airframe and less than 80 hours in the previous 10 years that there would have been very little need for maintenance and little opportunity for non-Grumman Tiger-specific A&Ps to put the airplane back together wrong. Nope.

Here is a list of the items I found wrong. It's fairly typical. I see these same items come up time and time again on Tigers (and Cheetahs) maintained by mechanics not familiar with the nuances of either airplane.

**Baffles and baffle seals:** Tigers tend to run on the hot side. Even on airplanes with baffles and baffle seals that look good and would probably be fine on any other airplane, not keeping a close attention to detail will cause the engine to run hot. My airplane was missing parts of the baffle seals and the baffle strap that wraps around the bottom of number 4 cylinder. I pulled the cylinders to look at the cam; they were all cracked. The cam looked good so I did a top overhaul.



**Tiger's panel is easy to see over, making for excellent cockpit visibility.**

**Nose gear/nose gear strut:** For some reason, the thrust washers can't seem to find their way back together in the same order the factory intended. On my airplane, one of the two thrust washers was missing and that squishes out the O-ring that seals out water from the nose strut bearings.

**Wheel pant hardware:** There are special bearings and washers that get lost or misplaced and, rather than order the right parts, Joe Mechanic puts it back together with whatever he has.

**Aileron AD:** This 100-hour AD requires determining the clearances between the bearing and the bearing surface. The bearings in my airplane were way out of tolerance with 1.5 hours since the annual when I bought it. The rudder bearings (they are the same as the aileron bearings) had been replaced in 1997. The rudder movement seemed stiff so I took it apart. The spacers had been installed wrong and that caused the lower bearing to bind. It had been ground nearly through.

**Elevator:** Normally this isn't taken apart. If the airplane is painted and the control surfaces were removed, odds are, the spacers to properly shim the elevator to the proper clearance are done wrong. Mine were. The bolts holding the elevator were not properly torqued either and that caused them to crowd out the bolt holes. I had to install oversize close tolerance bolts.

**Propeller installation:** Do you remember when the prop on Senator Inhofe's Tiger came off? If the mechanic doesn't know how to install the prop, there's a real good chance he'll install the backing plate wrong and punch out the holes in the spinner backing plate. The downside is that the torque on the propeller bolts goes to near zero.

The spinner on my airplane had been punched and re-punched several times. I could go on but these are the highlights. I've also been working on a new fiberglass cowling for the Tiger.

I expect to start testing it and getting it approved as a one-time STC within the next few months. I plan to follow up the one-time STC with a multiple STC.

Gary L. Vogt  
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