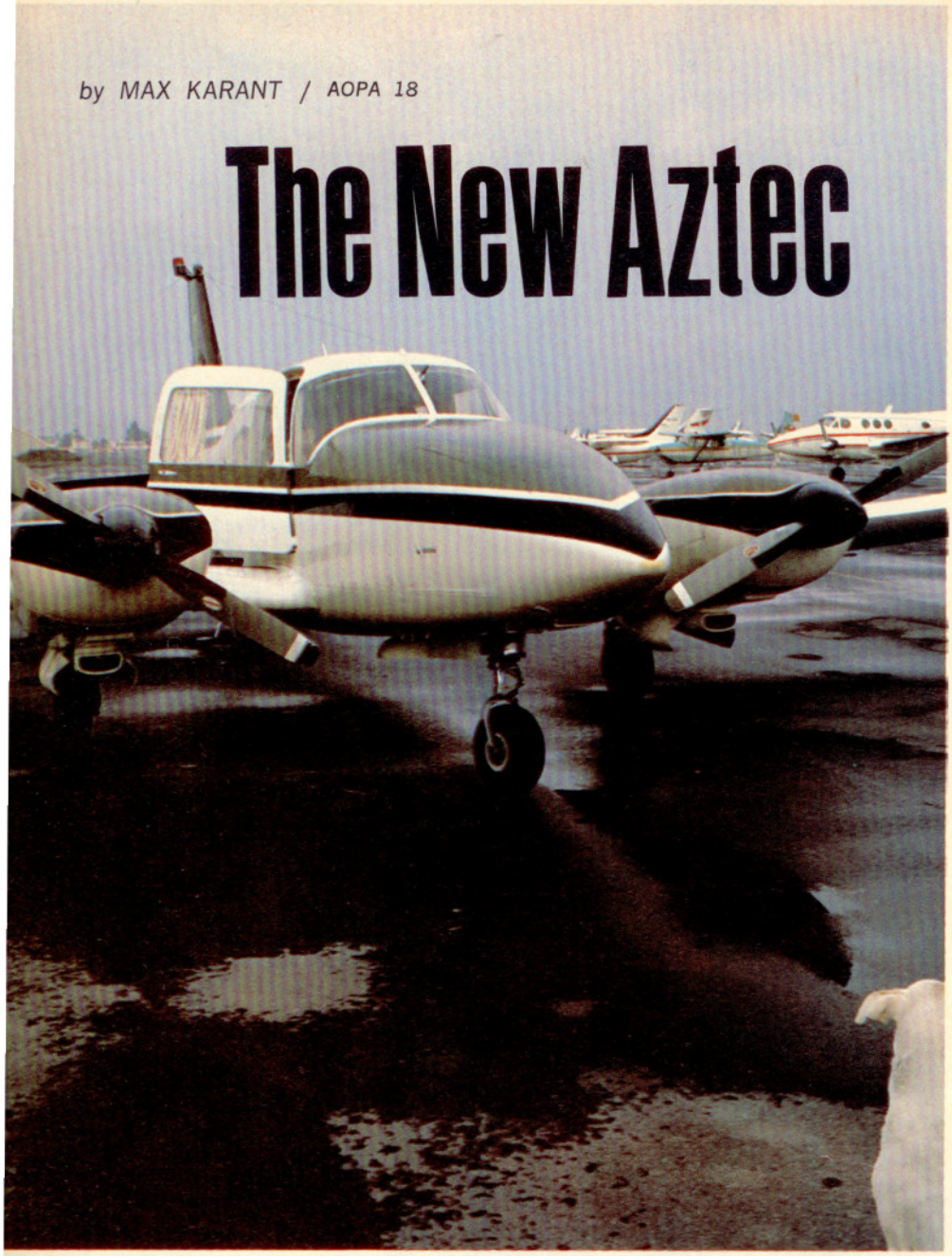
by MAX KARANT / AOPA 18

The New Aztec



Pooch and friend—the 1971 Piper Aztec E. Backdropped by a dark and stormy day at Mexico City Airport, Piper's popular twin displays its aerodynamic curves. This photo accentuates the one-foot nose extension incorporated in this year's Aztec, dubbed the "stretched-profile" model by Piper.

Photos by the author

■■ Piper has kept the basic *Aztec* pretty much the same airplane for 1971—and it's a good thing. Because the *Aztec* can hardly be improved upon aerodynamically, as witness its continued popularity ever since it debuted in 1960. As of June this year, they had delivered 3,166 *Aztecs*; they were back to building one a day; and their backlog, the last time I checked, took them through September.

It's a hard airplane to beat, for what it was designed to do. It's perhaps one of the most forgiving twins in the air today, thanks probably to its famous old *Cub* airfoil. That is essentially the wing section used. It has high lift and, in the process, sacrifices performance on the high side of the scale. But Piper has been wise to leave it that way, considering the success they've had, the often inexperienced pilots flying them, and the outstanding safety record they have. Unless something goes wrong with an *Aztec* mechanically, an accident with one can usually be attributed to pilot error. It stalls like a *Cub*, lands short, takes off short, is excellent on rough fields, and carries one heck of a load.

This is by way of saying that I've just taken a new (more or less) 1971 *Aztec E* on a trip, and have renewed my love affair with the airplane. I guess I flew one of the first ever built, and have flown several since. I ferried one of the early ones to Milan, Italy, and despite some quality control problems and equipment failure, it got me there anyway.

The *Aztec E* is the same basic plane, with 250 h.p. Lycoming IO-540-C4B5 engines, one of Lycoming's most reliable models. Of course the "E" has been dolled up some for the 1971 market. The nose has been lengthened a bit to take more baggage (15% more than earlier models), the instrument panel is white-lighted, there's an open-yoke control wheel so you can see more of the instruments, and several new extras if you want to buy them as optional equipment: automatic prop synchronizers, weather-avoidance radar, strobe lights, wing, tail and prop deicers, and a heated windshield.

The big extra in the "E" is the Alti-Matic V F/D autopilot. The autopilot itself is Bendix. The "F/D" stands for flight director. The whole unit costs about $8,000, installed, and—when it works—it's worth it, particularly when you operate your *Aztec* IFR and alone. It's a true precision copilot. Unfortunately, the one in N13922 was temperamental. Fortunately for me, it acted up at times and places where I could easily fall back on flying the airplane by hand.

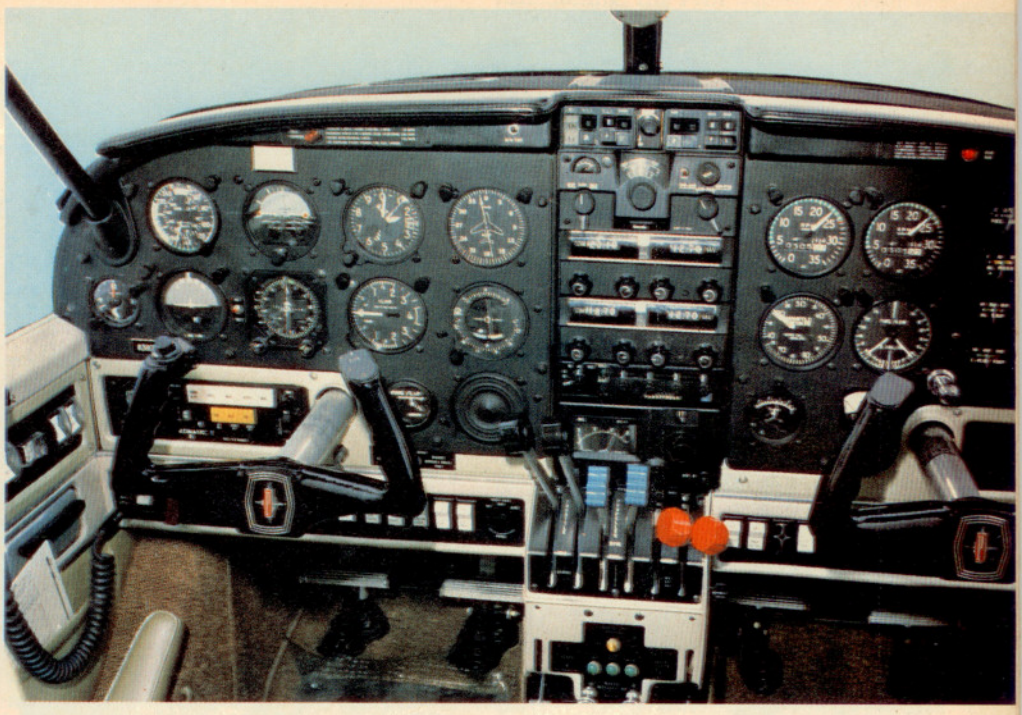
First point is that the autopilot is wired to the plane's gyro horizon and, you guessed it, the gyro went out on me once. I ended up flying from Dallas to Memphis by hand (a revelation!), using the unit's slaved gyro (which stayed with me, at least on that leg), the turn coordinator (which replaces the turn-and-bank), and the rate-of-climb and airspeed to follow the VOR radial. To my surprise, the backup "wing leveler" that Piper uses on its autopilot units was not installed with this flight director unit.

All the vacuum instruments went out shortly after takeoff from Dallas. Fortunately, the weather was VFR so I decided to keep on going to Memphis, where Piper has a distributor and a good maintenance facility. By "good" I mean excellent. When I was within VHF range I called them, told them of the

PILOT Editor checks out 1971 Piper twin on a not-always-fun trip to Mexico, land of those early dwellers from whom the plane gained its name. Despite a real mechanical 'fluke,' conclusion is Aztec still one of the best

problem, and asked to have a mechanic look at it. To them I was just a transient airplane; no names, unfamiliar plane number. Yet when I landed and pulled into Memphis Aero, they told me where to taxi by Unicom, the shop foreman was waiting and, when I got within his sight, he immediately signaled me to shut down the engines. He ran over to tell me I had hydraulic trouble too. Once I stepped outside, hydraulic fluid was pouring out of the belly like rainwater.

It has always been a pleasure to come across a live-wire, enterprising fixed-base operator and this one was almost overwhelming. They rolled the plane right into the hangar, pulled off the glare-



Nine-two-two's panel features normal complement plus the new Bendix autopilot and flight director. Autopilot is at the lower left-hand corner of the main panel, behind the Aztec's new open-yoke control wheel. It is fed by the specially modified artificial horizon (top row, second from left). The flight director itself is directly below the horizon and has a slaved gyro. In the center of the panel (from top) are: Narco selector switch panel, Bendix ADF-T-12, two Narco Mark 16s and a Narco AT6 transponder and UDI-4 DME. On the right of the DME is an exhaust gas temperature gauge with a switch for the left and right engines.

N13922 waits patiently for its author-pilot as paperwork is cleared up inside Mexico City Airport's general aviation terminal in the background (big guys are on far side of field). New and modern, the general aviation terminal has Customs and Immigration personnel, as well as dispatching services, which are handled by Aeropuertos Servicios Auxiliares (ASA). ASA charged author 17 pesos ($1.36 U.S.) for clearing the Aztec E into the airport, 10 pesos (80 cents U.S.) a day for parking, and 40 pesos ($3.20 U.S.) for filing IFR.

Takeoff run for the Aztec E at sea level is 820 feet (1,250 feet over 50-foot barrier), according to Piper's spec sheets, but it's longer, of course, at the 7,340-feet-above-sea-level Mexico City Airport. Between poor weather and constant dense pollution in the area, author's test flight into and out of the airport was IFR. Lowest IFR altitude going out is 13,000 feet.

Comparison Chart

Specifications:	Piper Aztec E	Beech Baron E55	Cessna 310
Gross weight (lbs.)	5,200	5,300	5,300
Empty weight (lbs.)	3,042	3,092	3,190
Useful load (lbs.)	2,158	2,208	2,110
Wingspan (ft.)	37.2	37.10	36.11
Wing area (sq. ft.)	207.56	199.2	179.0
Length (ft.)	31.2	29.10	29.25
Height (ft.)	10.3	9.2	10.43
Power loading (lbs./h.p.)	10.4	9.3	10.2
Wing loading (lbs./sq. ft.)	25.05	26.6	29.6
Fuel capacity (gals.) *usable	140*	112*	102
Performance:			
Stalling speed	68 (flaps extended, m.p.h.)	77 (flaps 28°, gear down)	72
Rate-of-climb (ft./min.)	1,490	1,670	1,495
Best-rate-of-climb speed (m.p.h.)	120	—	—
Absolute ceiling (ft.)	21,100	22,300	—
Single-engine absolute ceiling (ft.)	6,400	8,300	—
Top speed (m.p.h.)	216	242	236
Price	$69,990	$83,950	$69,950

shield, found the vacuum hose had inadvertently been cut at the factory and had broken off the rest of the way due to vibration. Easily fixed. Another mechanic opened the belly and found one of those flukes pilots always dread: the hydraulic line hadn't been installed properly—the aileron cable had been sawing away on it for some time and, on the turn around the Memphis traffic pattern, it finally cut through. That could have happened in Mexico, or any one of a half-dozen small places, but it didn't. It happened at the one place that could find it, quickly. They cut out the section of the hydraulic line, built up a replacement, and I was back on my way within two hours. As I say, I was flabbergasted. I've been stuck for days with less than that wrong.

By the time I got to Washington, the pitch-control servo had failed too. But I did get to use that fancy new autopilot for nearly the whole flight and it's quite the aid, when you can rely on it. It makes virtually automatic ILS approaches, with couplers to both the localizer and glide-slope. It takes a lot of reading to understand it, though; there's an entirely separate handbook for it, and it's tough going. For example, I started up one rainy IFR day for an instrument flight from San Antonio to Dallas. But the slaved gyro—the only useful heading indicator in the airplane for IFR flight—proved to be 30° off of the magnetic compass. All sorts of checks, then I finally taxied back, canceled my flight plan, and shut down. Back to the handbook. Finally I found a reference to something occasionally happening when starting up, having to do with excessive voltage surges, which makes the gyro read wrong. The cure was to pull the circuit breaker, then reset it. It was in so tight I had to borrow pliers. I pulled it out, pushed it back in, and—voilá—right on. I repeated that a couple of times later and jokingly offered to be Piper's production test pilot. . .

These are minor things, but with one proviso: no one knows how many major accidents are caused by such minor faults to start with. I've flown hundreds of planes of all makes and models, and all of them have such things turn up when you least expect them. Fortunately, the basic airplane retains its integrity, for which I have often given thanks.

In spite of these glitches, N13922 was a delight to fly. I still wish I could land my *Twin Comanche* as smoothly and as short as I can the *Aztec*. The *Aztec*'s comfort is excellent, and the sound level has been improved a bit more in the "E."

Getting used to the "housekeeping" in the *Aztec* is easy. All switches are convenient and clearly marked. The throttle quadrant is standard (none of the six knobs on 922 slid smoothly, and had to be forcefully manipulated). Ventilation is excellent, as is the overall night lighting. Radio equipment included two Narco Mark 16s, Bendix ADF, and a Narco DME and transponder. All worked normally.

Gross weight of 922 was 5,200 pounds, and empty weight was 3,042. It carries 144 gallons of fuel, of which 140 are usable, giving the *Aztec* a normal range of just over five hours. I never was able to figure out the power settings, however. Piper has changed the power-setting chart they used to have for all models, and now have chopped it down to such general headings as normal, intermediate, economy, and long-range. According to the specifications, normal is actually 84% power and burns 34 g.p.h.; intermediate is 76% and burns 27, economy is 70% and burns 25, and long-range is 56% and burns 21. I was never able to figure out what power I was using for what altitude and temperature, so I just made a rough guess, and came up most of the time burning about 26 g.p.h. The only way I know to overcome this is to get out the Lycoming engine handbook and figure out what you want to do; Piper has oversimplified it. Previous Piper power charts had these all figured out for you, and it was comparatively easy to set your power carefully for the range you wanted to fly.

If anyone doubts the *Aztec* is a tough, strong plane, take my word that it is. While flying solid instruments in Mexico, I ran into a line of unreported thunderstorms, and was in it for about 15 minutes. I left the autopilot on (it was working then), pulled my belt as tight as I could get it, then hung onto the bottom seat structure with both hands. The lightning was both horizontal and vertical; the rain was like a waterfall, but fortunately there was no hail. I didn't dare descend, because I was at the minimum instrument altitude over the mountains. So, I just rode it out. The inside of the cabin looked like a washing machine tumbler. It took a little paint off the leading edge of the wings, and my nerves took some calming when I finally landed at Mexico City. Even there, the air pollution was so bad I had to make an ILS approach to the runway before I saw it.

Nearly all the time I flew 922 I was under gross weight. Rate-of-climb at sea level was a bit less than Piper specifies, but that's because the temperature everywhere I went was excessively high. True airspeed (I didn't know what power I was pulling) stayed around 200 statute indicated. Landings were about like those of a *Cherokee*; it was virtually impossible to make a bad landing. Stalls were gentle, gave plenty of warning, and then just mushed downward.

N13922 was a normally aspirated model. Piper has a *Turbo Aztec*, which is the same "E" with turbochargers. Naturally, you need full oxygen in it; service ceiling is over 30,000 feet. But I was cured of that 30,000-foot business long ago when Cessna first came out with its supercharged version of the 310, the *Skyknight*. It didn't take me long to arrive at a few personal conclusions: the turbos are fine if you want sea level power at about 13,000 feet. Above that, there's only one answer: the cabin *must* be pressurized. Oxygen masks are strictly for the movies. □