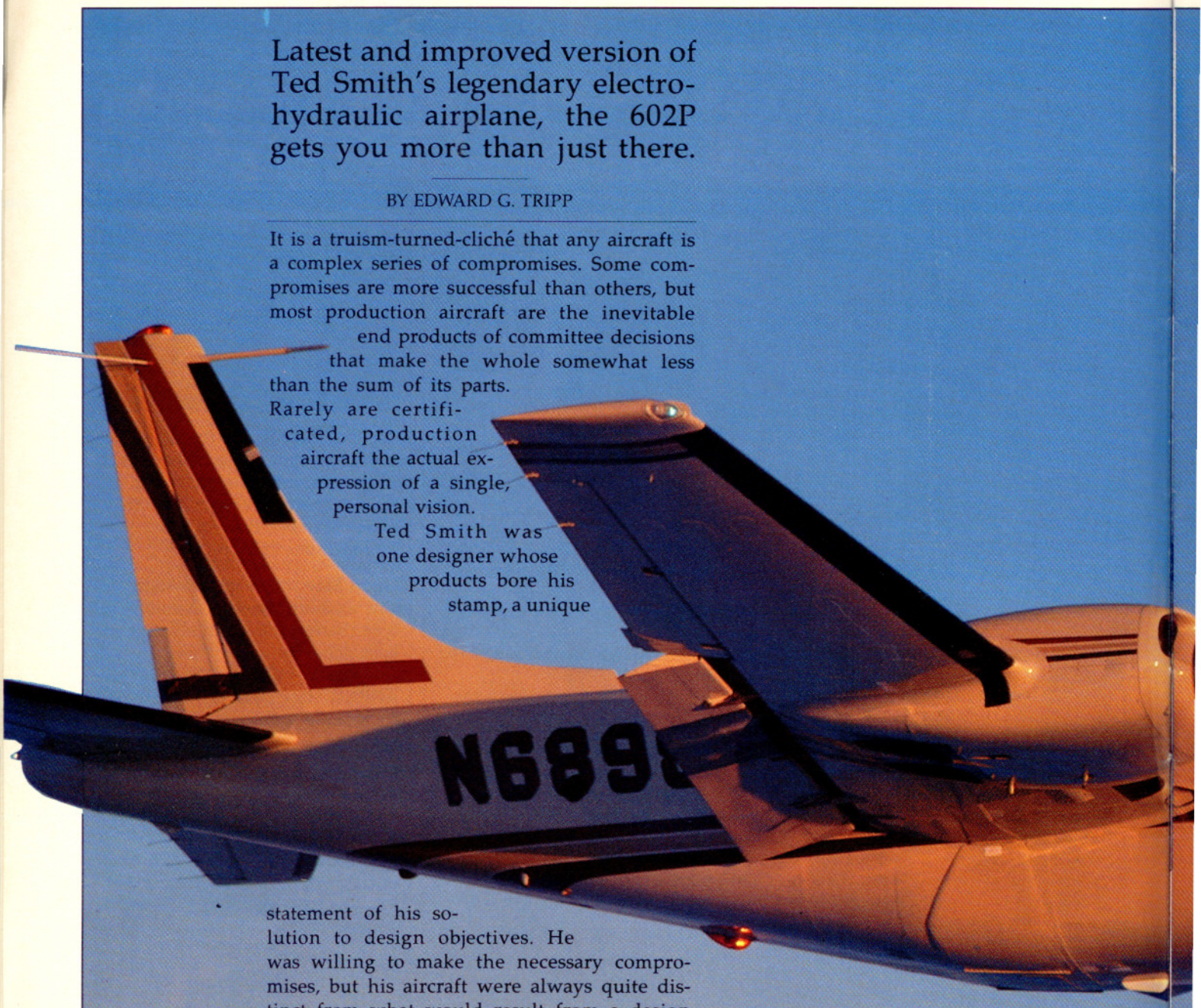
AEROSTAR

Latest and improved version of Ted Smith's legendary electro-hydraulic airplane, the 602P gets you more than just there.

BY EDWARD G. TRIPP



It is a truism-turned-cliché that any aircraft is a complex series of compromises. Some compromises are more successful than others, but most production aircraft are the inevitable end products of committee decisions that make the whole somewhat less than the sum of its parts. Rarely are certificated, production aircraft the actual expression of a single, personal vision.

Ted Smith was one designer whose products bore his stamp, a unique statement of his solution to design objectives. He was willing to make the necessary compromises, but his aircraft were always quite distinct from what would result from a design committee. He was individualistic. So much so that he left Aero Commander (by then a division of Rockwell) when the company's design objectives did not square with his. Way back in the 1960s, when he left Rockwell, he was urging design engineers to create products that used the technology then current, rather than repetitions and variations on the technology of the 1950s, '40s and even '30s.

The three principal design objectives for the

PHOTOGRAPHY BY ART DAVIS

continued

Aerostar, the aircraft Smith set out to develop after leaving Aero Commander, were performance, a reduction in production complexity and the potential to develop a family of aircraft with a high degree of commonality. The family ranged from a single to twin jets. (Smith talked of a pressurized single, and there is speculation that Piper has incorporated a great deal of his design work in the aircraft it has admitted is in development.) At the time of his death, Smith was working on the Model 700 Superstar, a larger aircraft that was obviously an outgrowth of the Aerostar.

Smith was partially successful with each of his objectives. The Aerostar Model 320, which first flew in 1966 with two 160-hp Lycoming IO-320 engines, was, hands down, the hottest performing twin by the time it was in production. The first production aircraft was introduced in 1968, but it was not part of the lineup that had been presented two years earlier.

The first models proposed in 1966 were: the 320; the 400, with two 200-hp Lycoming IO-360s; the 500, with two 260-hp Lycoming IO-540s; and the Model 600P, pressurized, with two 310-hp Lycoming TIO-541s. The first production aircraft was the Model 600, with two normally aspirated, 290-hp Lycoming IO-540 engines. All Aerostars since then have been variations on that basic engine theme.

Externally, Smith's planned product line and what you see today are almost indistinguishable. For instance, all three tail surfaces were to be interchangeable. They still are very similar, and the only apparent difference between the prototype and the only version you can buy new today, the 602P, is the dorsal fairing between the fuselage and the vertical tail surface. The only other significant external difference is a wing extension on the 601P and 602P that increased wing area by eight square feet, to 178.

Smith designed the Aerostar for fewer components (25 percent fewer, the company claimed, than compara-

ble aircraft). The monocoque fuselage and the wings used heavier skins to permit both fewer internal supporting structural parts and fewer surface irregularities than conventional construction techniques, to keep production aircraft closer to the design performance objectives. There was no taper in the passenger compartment, so each seat had the maximum available head and shoulder space.

If racing or record-setting proves the breed, the Aerostar won the performance race in January 1975, when a Model 601 beat the 1,000 and 500 kilometer (539.6 and 269.8 nm) closed-course records for piston-powered landplanes weighing less than 6,614 pounds that had been held by the Soviets since 1951. Speeds were 304 mph (264 kt) for the 1,000 kilometer course and 305 mph (265 kt) for the 500 km course (versus the Russian 274.8 mph—240 kt—and 292.9 mph—254 kt—respectively, set in a 1,000-hp, reportedly highly modified, Yakolev 11 military single-engine aircraft).

In 1977, a 601P broke the mark held by a Beech Duke for an around-the-world flight. It lowered the record by 18 hours when it flew 23,000 miles in 104 hours 5 minutes.

Aerostars are still the performance leaders; but in the piston-powered, pressurized class, they are hotly chased by the Beech Duke and 58P.

Smith's indomitable will and design ability were not sufficient to support an aircraft design and manufacturing company. He sold the company to American Cement, which also purchased Mooney Aircraft, in 1968. In turn, American Cement sold to Butler Aviation in 1970.

Production stopped, and the 126 original purchasers of Aerostars were orphaned. Corporate battles over the terms of the agreement between American Cement and Butler led to what many people considered a legal ploy. The battle also brought the first real blemish to the Aerostar reputation: a claim of extensive corrosion.

Some owners panicked, and there were Aerostars to be had at distressed prices. The alarm passed relatively quickly, however, and lovers of the marque formed the Aerostar Owners Association in March 1971. (Carl G. Nielsen, President, 753 Broadway, Lorain, Ohio 44052; 216/244-5040.) So convinced were the members of the excellence of the aircraft that they tried to buy all rights to the design, first to build replacement parts and then to start the production line again.

There was a period when it looked as though a basically good—and comparatively modern—aircraft was going to sink, the victim of intercorporate shenanigans. What originally had appeared to be a logical marriage of design philosophies—the aerodynamically efficient twin Aerostars and the equally efficient single-engine

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The 602P is for the businessman-pilot who likes to fly high, fast and pressurized. Think of it as a piston-engine Learjet.

continued

Mooneys—was ruined by the dregs of the go-go year manipulators.

Then, at the end of 1972, the designs of Ted Smith were vindicated by Ted Smith. With financial assistance and a great deal of legal help, Smith reacquired all rights to the Aerostar family.

In the midst of all the machinations, Smith had continued to dream and doodle. He had developed a retrofit design to transform the turbocharged 601 into a pressurized 601P. The new company quickly introduced the 601P as a production aircraft.

Smith died in 1976, and the company continued under the management of his wife and son. Then, in

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1978, Piper bought the company. To some Aerostar fans, this was a blessing: the design had found a stable home with the resources to continue development. To others, it meant that Aerostars would again become orphans. The latter saw themselves (unfortunately) verified when Piper first announced suspension of the 600 and 601B and then that the Santa Maria, California, operation would be shut down and all Aerostar production moved to Vero Beach, Florida (how could the people who build Cherokees expect to build Aerostars?).

Anyone who had visited Piper's Vero Beach facility as recently as this February would have seen cause for concern. The pressurized Aerostar production line snaked through the buildings in a confusing tangle.

It was not until March of this year that Piper was able to obtain a production certificate for Aerostar construction at Vero Beach.

When Piper announced the move in the summer of 1981, it was largely justified by the elimination of redundant production capability in the two plants. There also were indications that Piper management had never gotten complete control of Santa Maria operations. One area where this was apparent to outsiders was the equipment that was specified for inventory aircraft at the old Ted Smith Aerostar facility. It seemed as though aircraft were still being equipped for less-than-serious pilots.

Whatever the speculation, Piper began assembling 602Ps at Vero Beach last November. This summer, Piper began moving Aerostar production into a new, 132,000-square-foot plant. Piper also has begun to fabricate parts in-house that were purchased from contractors, including stretched skins and machined parts. The company has stated that an improved, higher quality product is as much a part of its objectives as are logistical and management rationalization.

By the end of June, 23 Model 602Ps had been built at Vero Beach (54 had been built at the Santa Maria plant, where 453 of the Model 601P had been constructed). I have flown two of the Vero-produced 602Ps during the past few months. Both had the minor glitches that do not seem to get caught during customer-acceptance test flights; but the exterior and interior fit and finish were certainly as good as any I have seen produced in Santa Maria.

Time-in-use will provide the real test of how well Piper is meeting its objectives of improved and higher-quality aircraft.

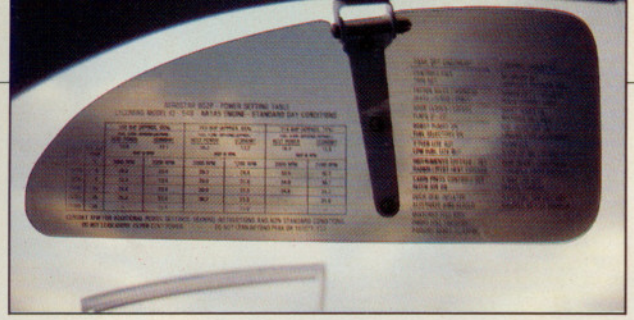
Ted Smith compromised quite a few things to achieve his performance objectives for the Aerostar. The midwing design puts the cabin ahead of the spars and provides excellent visibility as well as the same-size cabin for the rear-seat passengers as for the front-seat occupants.

The arrangement also demands some interesting solutions to weight and balance considerations. For instance, every possible accessory is mounted in the tailcone, behind the large baggage hold. Auxiliary hydraulics, pressure system components, air conditioning (if installed) and some avionics fit back there. The batteries are mounted all the way aft, behind the vertical stabilizer, in the tail stinger. Even so, the Aerostar has a relatively narrow CG range that makes it a primary factor and calculation for flight planning and loading. Since the CG changes with fuel burn, it must be calculated for the planned landing situation, as well.

CG considerations are even more important for 602Ps with the known-icing package. The Federal Aviation Administration did not like the stall characteristics of the aircraft at aft CG, so nearly two inches of range was chopped off the aft limit.

Some of the characteristics of the Aerostar may be as much Ted Smith preferences as design compromises. A lot has been said about the rocker-switch-operated nosewheel steering, much of it reserved if not negative. Pilots new to the Aerostar have had difficulty with it, and people have written about having to cross their left arm over to operate the throttles while blipping the nosewheel steering control with their right.

The steering is different, but I have yet to find anything negative about it, save for the differentness. Even in



The sensible panel puts a relatively simple face on the 602P's complex systems; but a sensible pilot goes beyond the panel to Aerostar school.

tight quarters, I have not had the need to use differential throttle application in addition to nosewheel steering and differential braking.

Another different characteristic from average light aircraft is the single door at the pilot's seat and just ahead of the left propeller arc. Since the fuselage is low-slung, it is a shorter step into the cabin than with most aircraft, and the pilot is in total control of passenger loading and door operation. An emergency exit is located on the right side of the aircraft.

Ground operation in the Aerostar has one advantage over other aircraft with its hydraulic nosewheel steering and the single door. Operations with

the left engine running and the door open are now prohibited. (Even if they were not, it would be dangerous. In fact, in one bizarre accident, the door opened on takeoff, and the pilot, who was not wearing the safety harness, went out the door and into the propeller.) But the hydraulic steering is powerful enough to permit taxiing with just the right engine operating.

Generally speaking, the 602P is different in many respects from what most pilots of even high performance twins are accustomed to. It has been described as an electro-hydraulic airplane quite unlike the primarily mechanical aircraft we fly.

In addition to the nosewheel steer-

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continued

ing, the gear, gear doors and flaps are hydraulically operated. Rudder and elevator trim are electrically operated, with no mechanical backup. The brakes operate from an independent hydraulic system. Just as with Apaches and Aztecs for most of their production runs, the Aerostar is equipped with a single hydraulic pump on the right engine. A backup hydraulic pump is an optional extra that, in my opinion, no Aerostar operator should be without. (The auxiliary system costs $1,900 and adds 30 pounds to the empty weight.)

There are procedures established to check the integrity of each system and to deal with them should they fail. In the event of a hydraulic failure, for instance, the flap handle should be rechecked in the neutral position to hold available pressure. If any remains, the flaps should be set first; the gear will free-fall into the down position when selected. There is an additional procedure to ensure that it is locked as well as down.

Different and idiosyncratic; these characteristics should indicate that there is a lot to know about the Aerostar. It certainly has a personality that separates it both visually and operationally from every other design at the airport. It is an exotic airplane and a demanding mistress that rewards the attentive and inattentive in equal but opposite measure.

Operators who take the trouble to learn the characteristics and recommended operating and maintenance

PIPER AEROSTAR 602P

Base price $376,860
Price as tested $485,311
AOPA Pilot Operations/Equipment Category*: All-weather

Specifications

Powerplants	2 Avco Lycoming IO-540-AA1A5, 290 hp @ 2,425 rpm and 37 in mp
Recommended TBO	1,800 hr
Propellers	2 Hartzell constant-speed, full-feathering, 3-bladed 78 in dia
Length	34 ft 9.6 in
Height	12 ft 1.2 in
Wingspan	36 ft 8.4 in
Wing area	178 sq ft
Wing loading	33.6 lb/sq ft
Power loading	10.3 lb/hp
Seats	6
Cabin length	12 ft 6 in
Cabin width	3 ft 9.6 in
Cabin height	4 ft
Empty weight	4,125 lb
Empty weight, as tested	4,464.8 lb
Max ramp weight	6,029 lb
Useful load	1,904 lb
Useful load, as tested	1,564.2 lb
Payload w/full fuel	911 lb
Payload w/full fuel, as tested	571.2 lb
Max takeoff weight	6,000 lb
Max landing weight	6,000 lb
Zero fuel weight	5,900 lb
Fuel capacity	1,041 lb (993 lb usable) 173.5 gal (165.5 gal usable)
Oil capacity, ea engine	12 qt
Baggage capacity	240 lb, 30 cu ft

Performance

Takeoff distance, ground roll	1,800 ft
Takeoff distance over 50-ft obst	2,250 ft
Accelerate/stop distance	3,400 ft
Max demonstrated crosswind component	15 kt
Rate of climb, sea level	1,755 fpm
Single-engine ROC, sea level	302 fpm
Max level speed, sea level	222 kt
Max level speed, 23,000 ft	256 kt
Cruise speed/Range w/45-min rsv, std fuel (fuel consumption)	
@ 75% power, best economy	
25,000 ft	238 kt/850 nm (223.2 pph/37.2 gph)
15,000 ft	220 kt/1,300 nm (216 pph/36 gph)
@ 65% power, best economy	
25,000 ft	219 kt/1,078 nm (193.2 pph/32.2 gph)
15,000 ft	204 kt/1,094 nm (192 pph/32 gph)
@ 55% power, best economy	
25,000 ft	194 kt/1,112 nm (166.8 pph/27.8 gph)
15,000 ft	185 kt/1,143 nm (162 pph/27 gph)
Max operating altitude	25,000 ft
Critical altitude	20,000 ft
Single-engine service ceiling	12,900 ft
Landing distance over 50-ft obst	2,076 ft
Landing distance, ground roll	1,217 ft

Limiting and Recommended Airspeeds

Vmc	(Min control w/critical engine inoperative)	84 KIAS
Vx	(Best angle of climb)	100 KIAS
Vy	(Best rate of climb)	117 KIAS
Vxse	(Best single-engine AOC)	100 KIAS
Vyse	(Best single-engine ROC)	117 KIAS
Va	(Design maneuvering)	166 KIAS
Vfe	(Max flap extended)	
	20 degrees	174 KIAS
	45 degrees	149 KIAS
Vle	(Max gear extended)	156 KIAS
Vlo	(Max gear operating)	
	Extend	156 KIAS
	Retract	130 KIAS
Vno	(Max structural cruising)	215 KIAS
Vne	(Never exceed)	241 KIAS
Vr	(Rotation)	90 KIAS
Vs1	(Stall clean)	86 KIAS
Vso	(Stall in landing configuration)	77 KIAS

*All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, at sea level and gross weight, unless otherwise noted. *Operations/Equipment Category reflects this aircraft's maximum potential. See June 1982 Pilot, p. 93.*

techniques of the 602P and its systems and quirks generally have good experience. Certainly the loyalty and enthusiasm of owners—at least the members of the Aerostar Owners Association—indicate that.

The Aerostar is definitely not a machine for the kick-the-tires and light-the-fires school of flying. There are traps inherent to the design and its systems that require well-trained, conscientious pilots and maintenance people. Perhaps more than any other owner-flown design, the Aerostar increases in utility, performance and reliability in direct relation to the amount of training and knowledge the pilot and the mechanic have. It is definitely not an idiot-proof design.

The combination of design quirks and poorly trained or inattentive operators have added the fuel system, gear system and stall-spin characteristics to the list of hangar tales about it.

Ted Smith recognized the need for better information about operating and maintaining the Aerostar before many other companies did (at least with respect to owner-flown aircraft) and developed a training format that some owners have said should be part of the kit for any Aerostar. Then a school was started at Santa Maria.

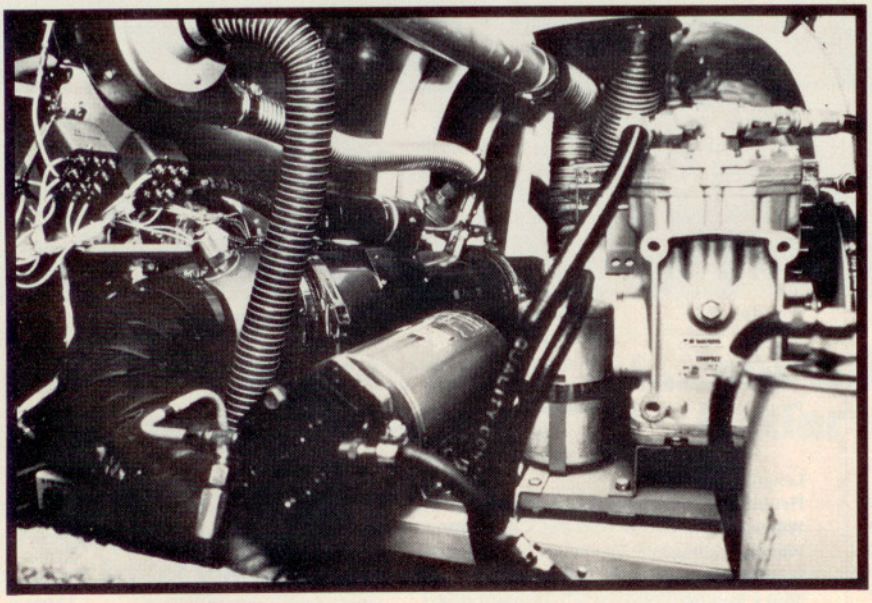
Piper's Aerostar training is now operated at its Vero Beach facility. Robert D. Scott, who runs the excellent program, is a pilot who originally had some misgivings about the Aerostar but who became more enthusiastic about the design as his own knowledge increased; and he obviously enjoys passing it on to others. The strongest point of the Piper program is that it devotes as much time and effort to operational considerations as it does to systems. This is not typical of company-run schools. Anyone who buys a 602P should attend the school. In fact, I would recommend that anyone operating an Aerostar who has not taken the training should, for the benefits are directly related to better operation.

For instance, that fuel system (the design was covered quite thoroughly in the September 1979 issue of *AOPA Pilot*, p. 68). Consider that Aerostar has relatively low power for its performance; it also has a thin, relatively small wing to attain the performance. The wing is wet outboard of the nacelle. The wing fuel tanks are long and shallow. While dihedral is a minimal two degrees, the available fuel is very susceptible to attitude. In fact, in all but level flight a considerable amount of fuel (more than 20 gallons per side) can be unusable. Therefore, there is a fuselage tank that acts as a header to provide fuel to both engines in any normal attitude. The aircraft is very sensitive to unbalanced fuel loads, either as the result of improper refueling (it must be done on a level surface) or uncoordinated flight. In addition, when fully fueled, the engines will draw fuel from the wing tanks until enough is burned to bring the fuel in the wing tanks to the same level as that in the fuselage tank; but the gauges do not display the top 12 gallons in the wing tanks. An operator attending the Aerostar school learns a lot of techniques and tips that one might not readily draw from the operating manual. For instance, the Aerostar is not one of those aircraft you should tell the lineman to top off as you wander to the coffee shop. Not only should the operation be monitored to ensure that it is done on a level surface and in the proper sequence, it should not be topped-off if the airplane is going to be exposed to temperature variations. The fuel can expand sufficiently from the effects of heating to expand the wing skins and start rivets working, resulting in fuel leaks.

While a properly attended to and properly maintained fuel system is very simple to operate, it is very complex, with a variety of check and flapper valves. It requires regular attention to ensure that the caps are properly sealed and that the vent valves, which many owners wish Piper would change, are functioning properly (popped rivets or siphoning can occur if they are not).

In a fully fueled aircraft, the most important thing to watch for the first hour of flight is that the loading process was done evenly and that the aircraft is in coordinated flight. If these two conditions are met, indications of uneven fuel burns until the gauges begin to display less than 50 gallons in each wing tank should be ignored. If the aircraft is out of trim or if indications are false, the pilot can create an opposite, uneven fuel burn by selecting crossfeed based on improper indications or hasty reaction.

In short, pilots who know the Aerostar's systems have much better experience than those who do not and those who are careless. These few examples of the fuel system apply to every other aspect of the 602P. Perhaps more than any comparable aircraft, good experience requires that the pilot know a great deal more about how things work and how maintenance procedures are properly performed. As several owners have said, this is a



Weight-and-balance effects of the no-taper cabin and midwing configuration drove equipment such as air conditioning, some avionics boxes and pressurizing components into the tailcone.

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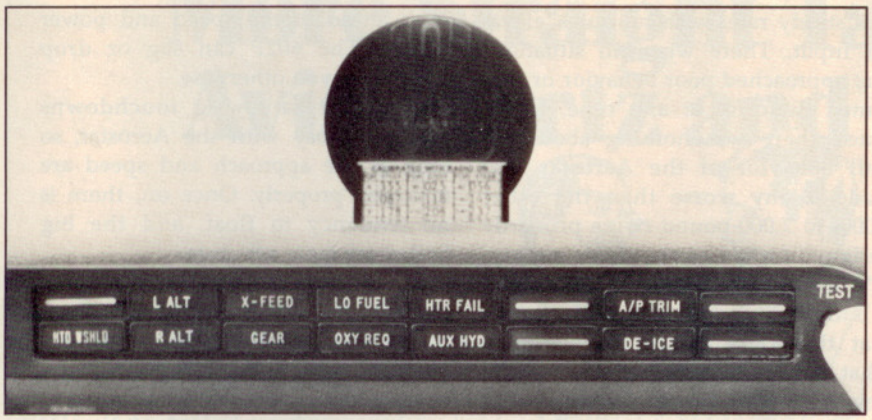
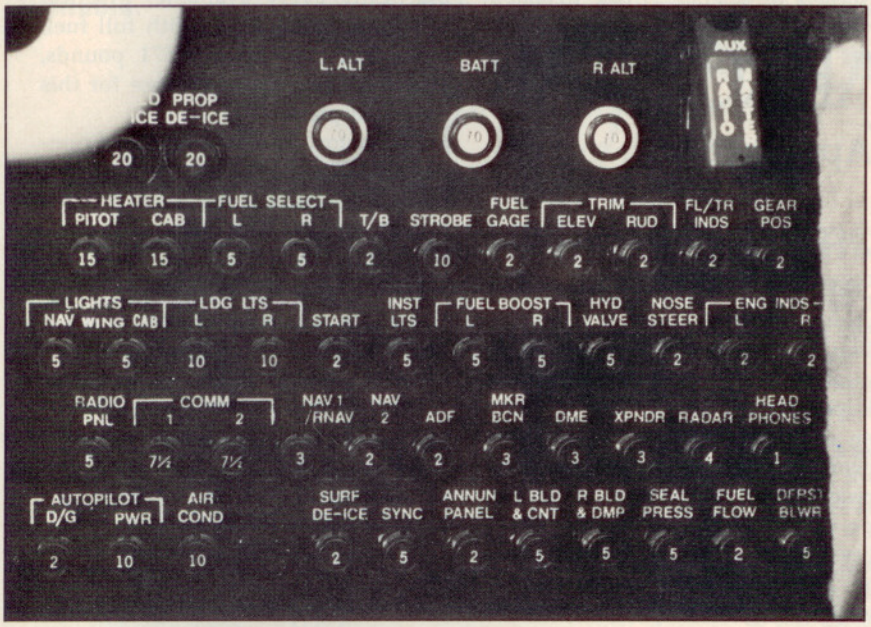
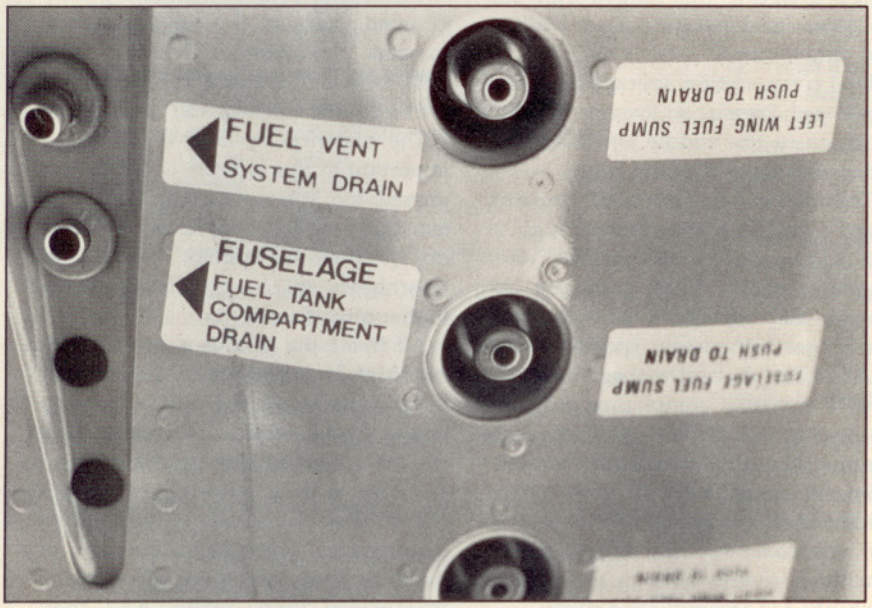


More electro-hydraulically complex than most other piston twins, the Aerostar 602P isn't built with mechanical redundancy in mind. Rudder and elevator trim are electric only, and a basic aircraft comes with only one hydraulic pump. Prudence directs purchase of a backup.





Operators need fuel-system awareness beyond "Fill it up." The combination of tank locations, system complexity and need for loading precision can result in surprises for the unschooled.

very expensive aircraft for mechanics to learn about by the cut-and-try method. In fact, if I were buying one, I would want to be certain that anyone who worked on it had been to Aerostar school and that I knew enough about maintenance to be able to oversee an untrained mechanic for any field maintenance.

In short, there is a lot to consider and a lot to learn before enjoying the Aerostar's strong suit: flying it. My reaction to the Aerostar has always been visceral. I like its looks, I like the way it flies and I enjoy its productivity. Several Learjet pilots have told me the visual and tactile sensations of flying the Aerostar are closely associated to the Lear. I can easily agree with that.

The pilot sits well ahead of the wing, with lots of window and a steeply sloping nose. Acceleration is quick, takeoff position must be firmly established—just like rotating in a jet to get from negative or neutral angle of attack to positive—and then the world quickly transitions from ground to all-sky.

Control response is well-harmonized between axes, with rudder being the lightest control, and it is crisp. The only cable employed in the control system is for trim; everything else is rod and bellcrank, so that you get response in direct proportion to effort. Slow-speed control response is good, with little mushiness or sloppy feedback. There is an interconnect spring between the rudder and ailerons, as well as a downspring in the elevator control system.

The Aerostar has the reputation of being a hot airplane, even though its operating speeds during takeoff and landing and in single-engine operations are comparable to competitive and even less competitive airplanes.

Several owners have told me that they consider anything under a 4,000 foot runway to be tight and short field. However, the stall speeds are about average for the category; Vmc is, too, and balanced field length is competitive in all-engine situations. The sea-level, standard day, accelerate-stop distance of 3,400 feet makes the preference for 4,000 feet a good decision, which is true for all of the heavier-weight twins, pressurized or not. (There are no calculated data for accelerate-go, unfortunately.)

The primary change that transformed the pressurized Aerostar from

continued

a 601P to a 602P is the variation of the Lycoming IO-540 in the latter. It turns at lower rpm, which helps the noise level, but at higher manifold pressures that provide higher critical altitude and single-engine ceiling and rate of climb.

Single-engine performance is not a strong suit in any piston-engined twin, and the 601P was particularly laggard in this respect. It was the element that was traded for cruise performance and efficiency. The 602P retains the latter two characteristics plus gets improved single-engine performance and pressurization operation.

The flying qualities of the 602P during single-engine conditions are good. The engines are set relatively close to the fuselage centerline (the trade-offs are noise and vibration and the relationship between the left propeller and the door). Vmc is lower than the clean stall speed, but the spread between Vmc and best single-engine rate of climb is quite large: Vyse is 117 KIAS. The good news is that acceleration, even while the gear and takeoff flaps are coming up (the inner gear doors are enormous), is very good in all-engine situations and reasonably good during single-engine operations.

The stall and stall-warning characteristics of the Aerostar have been questioned recently. Even owners have different opinions. There is no stall-warning device—light or horn—in the Aerostar. It was felt—and the FAA agreed during certification procedures—that aerodynamic warning (buffet) was sufficiently pronounced and occurred at a high enough speed before the actual stall to provide more than sufficient warning to the inattentive pilot.

During several stall series, including single-engine stalls, and in a variety of loading situations, I encountered no surprises or problems before, during or after the stall. Recovery is quick and brisk, and altitude loss can be minimized with power application and little pitch change.

The criticisms are that the onset of aerodynamic buffet in the Aerostar is too close to the stall to provide adequate warning and that at the certificated stall speed loss of lateral control is too great for safety or to meet established certification criteria.

I did not do any abrupt, accelerated stalls. Speed was allowed to bleed off at a steady rate, with no quick elevator input. There were no situations that approached poor behavior or presented difficulty at any time. In essence, there was nothing about the stall behavior of the Aerostar that made it any worse than the other 5,000- to 7,000-pound twins primarily designed for the owner-flown market.

When everything is working right, it is in climb and cruise performance that the Aerostar shines, which is what it was designed to do. Even at lower, non-pressure altitudes, the aerodynamic efficiency of the Aerostar produces good true airspeeds for its power to weight. Up where it is designed to operate (from 18,000 to 25,000 feet), it has the edge over everything else in its class.

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Approaches in mixed traffic are accomplished easily.

Bob Scott convinced me to use a typical cruise climb of 155 KIAS and full power (engine cooling is better than some intermediate cruise climb power setting), which provided good forward speed, an average rate to altitude of 1,000 fpm and excellent visibility forward. During several trips at from 20,000 to 24,000 feet, an average power setting of 65 percent resulted in true airspeeds that ranged from 225 to 244 knots, depending upon loading and temperature.

Fuel consumption averaged just under 29 gph (versus an average of 34 to 35 down in the middle altitudes—another advantage to going high).

The maximum structural cruising speed (Vno) is comparatively high at 215 KIAS, which becomes a factor during descent. That, plus the approach flap speed of 174 and the lower gear-extension speed of 156 KIAS makes descent management relatively easy and compliance with occasionally thoughtless ATC requests simpler than some competitive aircraft.

Speed management in both instrument and visual approaches is easy to do. Approaches into mixed-traffic situations, thanks both to this and to visibility, are accomplished easily.

The only thing to remember during the last stages of an approach is to keep ahead of the speed and power curves. The 602P can sag or drop away from you otherwise.

Regularly satisfying touchdowns are fairly easy with the Aerostar, so long as the approach and speed are managed properly. Once on, there is no tendency to float, and the big brakes are quite effective.

The Aerostar is a very satisfying airplane to fly, and it is not difficult to fly reasonably well, once you are checked out and understand the characteristics of the airplane and proper systems management.

The primary aircraft used for this article, N6898X, is equipped with practically every available, practical option for serious use. With full fuel, its payload is a meager 571 pounds, which is again about average for this class of airplane.

The factory-available air conditioning unit is probably the most limited piece of equipment installed. It is approved for day VFR only, weighs 99 pounds and costs $8,675.

The aircraft did not have the optional yaw damper installed, which is probably the thing I would trade an air conditioner for.

The one item missing from the list of options that I consider essential for this type of aircraft is a counterdrum pointer altimeter. If I owned an Aerostar 602P, I would get one.

There is still a bit of rationalization that could be undertaken in the cockpit. There are controls, gauges and switches that could be more logically grouped, such as the environmental controls, the avionics, lighting controls, trim controls and indicators and the hydraulic controls and indicators.

The electrical system, which is so important to this aircraft, could be improved, too. It is now a single-bus system that could be improved by making it a dual-bus system. The 70 amp alternators might be changed for higher-output units, too.

All in all, the 602P is a very appealing, high-performance twin that will reward and satisfy the pilot who truly enjoys flying, who is willing to take the extra steps to take the training, to get cozy with a knowledgeable mechanic and to commit to preventive maintenance. These conditions are no different from any other all-weather, pressurized twin, really. And they will help make the Aerostar in use all that Ted Smith meant it to be. □