The Comanche Singles

The Comanche Singles

A good buy, if you know what to look for.

BY THOMAS A. HORNE

"Some day I'm going to get a Comanche. That's my dream airplane." Anybody who spends time hanging around an airport will hear this refrain sooner or later.

Everything about the Piper Comanche single suggests speed and luxury. Look inside one and you'll notice that the interior, with its Naugahyde seats and roomy layout, is reminiscent of a light twin's. The curtains and wood finishing help to further this illusion.

The Comanche's speed is no illusion, though. The Comanche wing looks a lot like a Mooney's, and the performance of the two aircraft are comparable in many ways. Except for the early 180-hp models, all Comanches are capable of speeds greater than 180 mph, and the later models have speeds that are in excess of 200 mph.

It may perform like a Mooney, but getting there in a Comanche will be a much more comfortable experience. The Mooney interiors tend to be cramped, but this certainly isn't the case with the Comanche.

Range is another strong point in the Comanche's favor. With optional tanks, the Comanches from the Model 250 on can cruise a distance of at least 1,100 miles, and when economy procedures are used this figure can reach the 1,500-mile mark. Add Brittain Industries' supplemental-type-certificated tip tanks and you can get 30 more gallons (roughly two hours) worth of flying from the Comanche.

The late Max Conrad, AOPA 95611, caused a sensation in the early years of Comanche production when he set two speed records in 1958 and 1959 using the Piper aircraft. On June 23, 1958, he flew a 250-hp Comanche from Idlewild Field in New York (now John F. Kennedy International Airport) to Bocca Di Falco Airport in Palermo, Italy—a distance of 4,440 statute miles—in 32 hours 53 minutes, setting a new record for an airplane of this category.

In 1959 Conrad outdid another record by traveling from Casablanca, Morocco, to El Paso, Texas. He covered a distance of 6,959 miles in 56 hours 26 minutes and burned an average of only 5.8 gph. Using a 180-hp Comanche this time, he got an average cruise speed of 127 mph on an economy power setting. When he landed, he still had enough fuel for 10 more hours of flight.

In 1966 Sheila Scott, an English pilot, earned the Harmon Trophy by flying a Comanche around the world.

Indeed, the aviation community lost

Thomas A. Horne, AOPA 566732, is an associate editor with the AOPA Pilot *magazine.*

PHOTOGRAPHY BY THE AUTHOR

The Comanche Singles

a great performing, good-looking series of aircraft when Piper decided to cease production of this line in 1973.

How did this come to happen? Sales were brisk from the time that the first Comanche 180s and 250s were introduced in 1958 until deliveries suddenly started dropping in the early 1960s. By the late 1960s and early 1970s, sales had slipped to an average of only 75 aircraft per year. Coincident with this progressive decline in sales was Piper's eagerness to develop the market for the less expensive Cherokee and Arrow lines. The Arrow was clearly being groomed to take over as the new retractable from Lock Haven.

With their unique double-tapered wings and semi-monocoque fuselage construction, the Comanches were expensive to produce. Though Bonanzas cost significantly more than a Comanche, they took over the single-engine retractable market and made Piper's decision to cease production all the more easy.

Of course, Hurricane Agnes in June of 1972 didn't help matters one bit. When the waters of the Susquehanna rose, they destroyed much of the jigs and tooling used to assemble the Comanche. Many feel that Piper used the flood as a convenient excuse to support the marketing decision to phase out the Comanche, a decision that was mulled over for at least two years before the flood occurred.

Since that time, Piper has been perfectly happy to leave the Comanche behind. The success of the Cherokee and the Arrow sealed its fate. In spite of efforts by the International Comanche Society, Piper has been unwilling either to restart production, release its type certificate or even allow the remanufacture of such hard-to-come-by parts as wing, tail and certain cowling components. Though Piper is now in the process of clearing out what Comanche parts they have in stock, these items are often of little use to a Comanche owner who has need of major structural units.

When the Comanche first came out, it turned a lot of heads. This was Piper's first version of a sleek, retractable-gear modern airplane. It was compared immediately to the Bonanza, even though its new cost of $15,000 made it some $14,000 less expensive to purchase than a new Beechcraft. The days of the clunky-looking Tri-Pacer were surely numbered when the Com-

anche's innovative design took over.

Comanches soon acquired a well-deserved reputation for speed. Their wing is a laminar-flow type NACA 64^2A215 airfoil. This means that the chordwise bulge is set a little further aft on the wing than on other airplanes of the day. This, the wing's two-degree angle of incidence and its 7.2 aspect ratio, combined to make for a plane that cruises very well but tends to cause characteristically long takeoff runs and higher approach speeds.

The shape of the Comanche's thin, tapered wing gives it a stall pattern that causes its outboard sections to stall pretty much at the same time as the inboard sections. The higher takeoff speed of 85 to 90 mph was to ensure that the pilot had controllability and a safe margin above the relatively high stall speed once the plane was out of ground effect. The stall itself is quite abrupt, which is to be expected in a wing designed for speed rather than low-airspeed maneuvering.

Since the plane sits so low to the ground, the wing is susceptible to ground effect during the flare. If the airspeed over the threshold is much more than 80 mph, the pilot can expect to use up a lot of runway as the plane floats to its eventual touchdown.

Flaps on the Comanche were manual at first, but a change was made to a slotted, semi-Fowler design with an electric motor in 1962. Takeoff requires 15 degrees, and maximum extension is 32 degrees. Other design novelties included the Comanche's stabilator, all-electric landing gear and swept-back vertical stabilizer.

The prototype PA-24-180 Comanche first flew on May 23, 1956, and the first production Model 180 received its type certificate on June 20, 1957. The Comanche 180s have four-cylinder Lycoming O-360 engines and are capable of cruising at 160 mph while burning only eight to 10 gallons of fuel per hour, making them the most fuel efficient of the Comanches. At first they could carry 60 gallons of fuel; by 1961 optional fuel cells could be ordered, boosting the total capacity to 90 gallons. This means you can cruise for nine hours when carrying only two people and their baggage.

Expect to pay anywhere from $15,000 to $25,000 for a used 180, depending on condition, extent of AD compliance and proximity to overhaul time. Incidentally, the 1960 and 1961

continued

models lend themselves very well to conversion to the 250-hp Lycoming O-540 engine. If the 180 that you've been interested in is near overhaul time, you might consider this option as a way to pick up a Comanche at a reasonable price and parlay your overhaul money into an upgrade in horsepower at the same time.

The Comanche 250 was certificated the following year, on April 16, 1958, and was in production from 1958 to 1964. Today, they usually can be found with asking prices in the $20,000 to $25,000 range. They will produce cruise speeds of 180 to 185 mph on 13 to 15 gph and climb at 1,400 fpm, an increase of 490 fpm over the Model 180. Useful load with full optional fuel is 660 pounds; with standard 60-gallon capacity, this figure goes to 740 pounds—for a truly four-place airplane. These were the first six-cylinder models, with the carbureted Lycoming O-540 250-hp engines.

The Model 250 is the quintessential Comanche. The virtues produced by the power boost were just what the plane needed to make it the most popular of the series. Over 2,500 Comanche 250s were sold, more than double the number of any other Comanche model.

The O-540 was boosted to 260 hp in 1964 when the Comanche 260 came on the scene. It has a higher gross weight, and a slightly higher rate of climb but otherwise comparable performance figures to its predecessor. At this point fuel injection became an option.

The Comanche 260-B marked the first significant airframe change to the fuselage—it was lengthened a half foot. Now the Comanche had six seats and the O-540 could be ordered with optional fuel injection. A third set of windows was added, and all of the glass was thickened, making for a quieter ride. The -B's gross weight was upped by 200 pounds, which, while helping its hauling capacity, reduced its performance when compared to the plain 260. The Comanche -B was produced from 1966 to 1968.

Then came the Comanche 260-C. Again gross weight went up—this time by another 100 pounds. Performance, though, stayed much the same as the -B's. Range went up slightly and rate of climb went down. The propeller shaft was extended several inches and other changes were made to the cowling to produce what came to be known as the "tiger shark" cowl. Actually,

continued p. 90

The Rarest Comanche

The Turbo 260 Comanche is not really representative of what the basic Comanche idea is all about. For that you would have to go to the earlier models. Nonetheless, it is noteworthy for its pioneering use of one of the first factory-installed turbo systems. Turbo technology for light planes was in its infancy in the early 1970s, and Piper took a gamble when it went with the dual Rajay Industries installation. Apparently the company was not satisfied with the results, because only 29 aircraft were manufactured, even though they could deliver speeds in excess of 200 mph with no problem whatsoever. And only using 15 or so gph of fuel.

Lou Best, who previously owned three Cherokees and has his own grass strip near Westminster, Maryland, bought his Turbo 260 three years ago because he "always wanted a Comanche." Since then he has taken his Comanche all over the United States and has praise for the performance and economy he gets on long trips. His usual cruise power-setting when betweeen 12,000 and 15,000 feet is 27 inches of manifold pressure and 2,400 rpm. This will burn 15 gph and yield 205 mph true airspeed. At an economy cruise setting of 23 inches and 2,300 rpm, it is still possible to get 180 mph on 13 gph when flying lower, say, at 8,000 feet.

The turbos come in handy on hot days and when making up for lost manifold pressure at altitude. Even though the airplane comes with an overboost relief valve and a warning light, it is still possible to overboost the engine by carelessly activating the turbochargers. Pilots accustomed to fixed wastegates will be in for a new experience as they transition to this "hands on" type of arrangement. The turbochargers are activated by means of a "second throttle" located to the left of the standard throttle lever. The power controls are mounted on a multi-engine-style quadrant. For an ordinary takeoff you would not use the turbos, but if density altitude or field length is a consideration, then you can move the turbos' lever forward, after applying full power, until you get a manifold pressure of 29 inches, but be careful when you do this.

You get a hint of how touchy things can get when you look over the owner's manual and see that even an overboost lasting less than five seconds will require you to get what amounts to a complete 50-hour inspection. Any overboost of from five to 10 inches of manifold pressure necessitates removal and disassembly of the engine to inspect for possible damage. And if you are hapless enough to go 10 inches over this Comanche's 30-inch redline, you are faced with a complete overhaul, including replacement of the crankshaft. With horrors like these lurking around, it is easy to see why later designs in turbocharging sought to keep as much distance as they could from the pilot. There are just too many ways for a careless pilot to destroy the engine under the higher-workload scheme of a purely manual system.

Cut in the turbos (there are two of them, one on each side of the engine), and you will hear what sounds like a second engine coming to life. Feed in small movements in the turbos' lever, and you will be able to keep the climb setting of 25 inches and 2,500 rpm up to the plane's 25,000 foot service ceiling. At lower altitudes, you do not really need the turbos' extra power; but it's a good idea to run it every once in a while to keep it properly lubricated.

N9444P has had about $10,000 worth of work put into it in recent years. The turbochargers needed replacing twice, and the fuel-injection system's servo regulator also had to be replaced. Because this plane is routinely operated at speeds near 200 mph, it was decided to install the tail modification kit and counterweights. The landing gear also were completely reworked, right down to new bushings all around. As for the engine itself, three cylinders have had to be installed in the time that the owner has been flying it.

The exhaust system used in the Turbo Comanche provides a quieter ride than all the earlier models, and the addition of the popular one-piece windshield modification on this particular airplane makes the going even quieter. The owner also has put in a second altimeter, an encoding altimeter and a DME. A built-in oxygen system was standard equipment and comes with all Turbo Comanches. To initiate the oxygen flow, you pull a knob located on the right side of the instrument panel.

Other than the higher speeds at altitude and the need to be aware of that second throttle, the 260-TC flies like the other Comanches. Takeoff roll is lengthy, and rotation speeds are high at 90 mph; but once off the ground the climbout is exceptional at 1,300 fpm using the best rate of climb speed of 112 mph.

The handling qualities of the Comanche can only be described as excellent. Response to control input is quick, positive and solid. Above all, the plane is stable and stays put once trimmed. An

overhead, crank-style trim control is standard in the Comanche, but this aircraft is equipped with electric trim that incorporates a thumb switch on the control yoke.

Fuel management is ultra simple. A single pointer, mounted on the floor between the front seats, indicates which of the four cells is in use. Fuel can only be drawn from one tank at a time, either from one of the two inboard 30-gallon tanks or one of the two outboard 15-gallon tanks.

Once level, this aircraft's six-point exhaust gas temperature (EGT) gauge can be used for leaning and to check on the condition of each individual cylinder's health. A rotating switch at the instrument's base is used to select the cylinder you want to monitor. Be prepared for an increased temperature reading when the turbos are put into service.

As in the other Comanches, the stall speeds are somewhat higher than what you may have been used to in other singles. A power-off stall with gear and flaps extended will come at 67 mph, and produce a quite abrupt break and healthy pitch down, but no unusual tendencies as long as the ball is centered.

Slowing the Comanche down takes some forethought and planning, due to its slipperiness. Merely reducing power may not be enough, and frequently you will find yourself getting into a shallow climb so that the 150-mph gear speed can be obtained in time to make the pattern in good form. Maximum flap-extension speed comes at 120 mph, and the downwind leg can be flown at a comfortable 100 mph, which also happens to be its maximum distance power-off glide-speed.

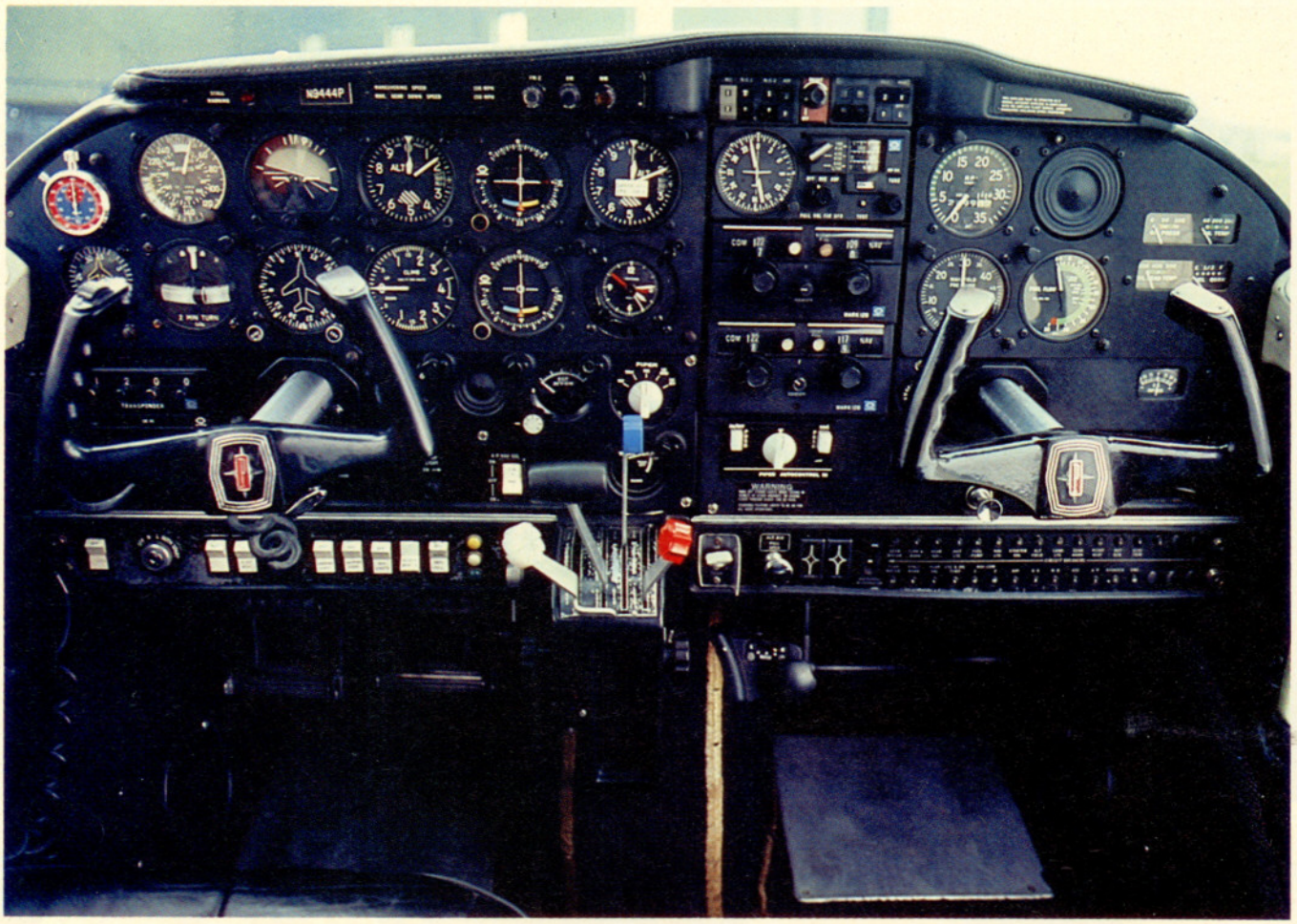
Base and final are best flown at 90 mph, with some power left on so that no adverse shock-cooling occurs to the engine; this always is done in turbocharged aircraft, due to the typically higher cylinder temperature encountered.

Once the runway is safely within range, the power can be further reduced and the airspeed brought down to 80 mph in preparation for the flare. To get a good nose-high, mains-first touchdown involves considerable back pressure and floating as the plane is held off the runway while airspeed dissipates. To come in fast just won't do in a Comanche. Its low ground clearance ensures that abundant floating will take place in ground effect or a nice bounce, if the plane is "put on" prematurely.

Even sitting on the ramp, the Comanche's nose-high deck angle is fairly conspicuous. For this reason, it's important to get that nose up high at the moment of touchdown to prevent the large nosewheel from contacting the runway. The proper attitude may seem excessive to the uninitiated, and this may be the reason why the Comanche has acquired a reputation for wheelbarrowing—a fast approach followed by not enough flare (the nose looks high enough already) and nosewheel contact while the wings are still flying in ground effect.

A comfortable and roomy interior, complete with Naugahyde seats, makes this a plane worth considering, particularly if you want to take advantage of its capability to haul four people 1,200 miles in a little over six hours. At a current market value of $44,500, it just may be the ticket if you want to bail out of a twin for fuel and maintenance reasons but don't want to sacrifice the speed.—TAH

The Comanche Singles



this design was borrowed from the Twin Comanche, which had been in existence since 1963. The rakish look of the shark nose is as much functional as it is aesthetic. With the 260-C's higher gross weight and greater baggage capacity (now 250 pounds, up from 200 pounds), the extended propeller shaft keeps the center of gravity from getting too far aft.

The 260-C was elongated a few more inches to the final length of the later Comanches. This helps the "stretched" 260s to become more stable as instrument platforms, since longitudinal oscillations tend to dampen out more easily.

The two most powerful Comanches are the Turbo Comanche -C and the Comanche 400.

The Turbo Comanche -C uses the same IO-540, but has dual Rajay Industries turbochargers and a manually operated "second throttle" wastegate. Yes, dual turbochargers. The exhaust manifolds on both sides of the engine are fitted with turbos all their own, and in the cockpit a single wastegate control to the left of the throttle operates the turbos in tandem. Turbocharging gives this model the highest service ceiling of all the Comanches—25,000 feet, where at 75-percent power it can deliver 228 mph true airspeed. At 12,000 feet, you can still expect speeds of 205 mph while only burning 15 gph, a lot of speed for not much gas. Lower than 12,000 though, and you have a plane that only will travel 15 mph faster than the non-turbocharged Comanches. Only 29 of these were built, from 1970 to 1972.

And now for the 400. They put a gargantuan eight-cylinder IO-720, 400-hp engine on the basic 260 airframe and called it the world's fastest single-engine airplane. The idea was to substitute excess horsepower for the complexity of a turbo system. For all its power, though, the 400 is only a little faster than the 260s. Their useful loads with full fuel are virtually the same. The bad news is that it takes 22 gph to accomplish what the 260s can do on seven gph less.

Being nose-heavy, the model 400 has stability problems. Its stall speed is 68 mph with flaps down, 85 clean. Not a forgiving plane for the careless.

On the plus side, the 400 has range but not without compromising payload. With its optional 130-gallon tanks full, you are limited to three passengers; but at an economy cruise setting, a range of 1,500 miles is possible. Its high (3,600 pounds) gross weight gives it useful loads very similar to the 260s, making it an illogical choice for anyone interested in anything but cult appeal. Overhauls of the 400's engine are out of sight at nearly $13,000, so you would be better off with a 260.

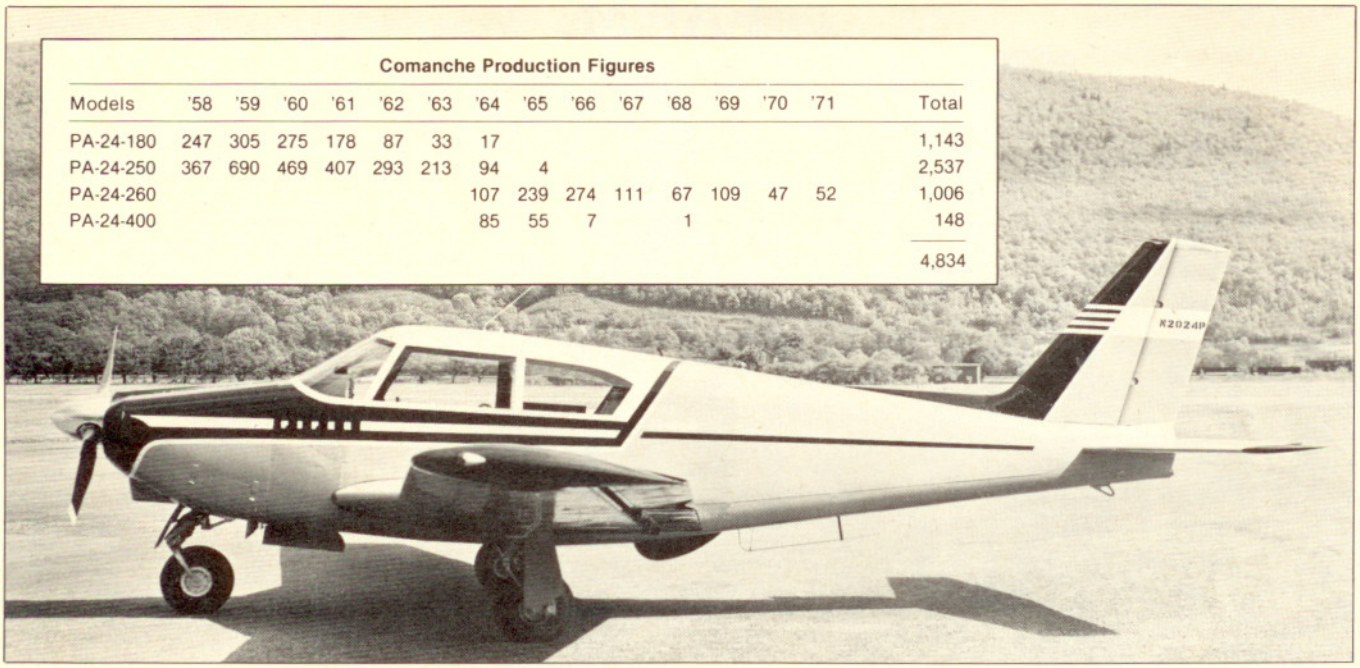
As long as we're talking about the engine, we might as well go into another one of the 400's problems. Some assert that this was one, if not the, paramount reason for the 400's unpopularity. You see, it doesn't start very well, especially when hot. The original Bendix 700 series magnetos were not likely to stay adjusted, and the 12-volt system tended to aggravate the problem since it could not move all that machinery fast enough. The sheer resistance produced by the friction of that orgy of cylinders was just more than the 12-volt electrical system could overcome.

Eventually this problem was resolved by going to Bendix's "shower of sparks" 1200 series magnetos. Before this solution came out, though, there were stories circulating of how several

The Comanche Singles

Comanche Production Figures

Models	'58	'59	'60	'61	'62	'63	'64	'65	'66	'67	'68	'69	'70	'71	Total
PA-24-180	247	305	275	178	87	33	17								1,143
PA-24-250	367	690	469	407	293	213	94	4							2,537
PA-24-260							107	239	274	111	67	109	47	52	1,006
PA-24-400							85	55	7		1				148
															4,834



PIPER AIRCRAFT CORPORATION

Piper's first prototype Comanche 180. This airplane, which had its first flight on May 23, 1956, had a 180-hp Lycoming engine, though a final decision on engine size had yet to be made. The 180-hp engine produced 160 mph, but it could carry only 715 pounds with full fuel.

ingenious pilots had rigged up a second 12-volt battery that would cut into the starter circuit whenever the key was put to the "start" position. For all these reasons, the 400 was short-lived. It went out of production after only one year, 1964, even though a few were delivered after that time. Piper's corporate fleet of 400s was sold off gradually until deliveries finally stopped in 1968.

It has become fashionable to knock the 400 as an over-powered, underperforming gas hog in these days of energy consciousness, but a discussion with the International Comanche Society's president, Larry Larkin, recently turned up some food for thought. Most 400 owners, it turns out, do not run their engines at 75 percent power. The overhauls cost too much, and so they baby the engine by using 60 percent power or less. At 75 percent power, the 400 will deliver airspeeds of just over 200 mph. But a 55 percent power setting brings the airspeed down to 188 mph, closer to its Comanche brethren's 75 percent cruise speeds.

All of the book figures and cruise fuel-flows that people associate with the 400 are based on 75 percent power. This is the 20+ gph figure. But at 55 percent power, the drag reduction brought about by the lower airspeed means that the engine will consume only 15 to 16 gph. When operated in this manner, the 400 produces nearly identical fuel consumption rates to those experienced in the smaller-engine Comanches.

In short, the 400 can do at 55 percent power or less (depending on load) what it takes the others 75 percent to do. Considering the difference in engine power, this may not come as a surprise. But another bit of Comanche lore is.

Take one of each of the Comanche series—from the 180 on up to the 400—and get them all flying at the same cruise airspeed. On a cross-country flight they will all burn the same amount of fuel. It just so happens, so the story goes, that all the variables of weight, power and aerodynamics come together in such a way that, all other conditions being equal, each Comanche will burn about 15 to 16 gph when matching the airpseed of the others. It would be interesting to find out how this story got its start or if any documentation of this strange coincidence exists.

Today's prices for the used 260s and 400s vary so much that it's hard to say just what a fair price would be. As with all purchases, each plane must be weighed on its own merits. The *Aircraft Price Digest* gives its seasonal evaluations of average retail prices and shows average prices for a plain 260 as being $29,750. The 260-B averages around $33,000, and the 260-C can run you anywhere from $39,000 for a 1969 model to $46,000 for a 1972 turbocharged version. The 400 is listed at $39,000, but it would be interesting to see just what 400s actually bring on today's market. They are reportedly very difficult to get rid of, and 400 owners are diligent in their efforts to keep prices up, citing the plane's "uniqueness." One gets the impression that they have an ulterior motive in keeping prices artificially high.

The cost of an engine overhaul is always a consideration when evaluating an airplane, and with the Comanche this aspect takes on an even greater importance. For a 180's overhaul you will pay $4,500 or more, depending on the extent of the work needed. Prices climb as you ascend the level of engine complexity through the 260 series, where it will cost about $7,000. Expect to pay $1,500 more if you have a turbocharged engine. The 400's five-digit excess already has been mentioned.

The original 180, 250 and 260 engines manufactured up to 1970 came with 7/16-inch valves, which limited their recommended time between overhaul (TBO) to 1,200 hours. Check to find out if the larger, 1/2-inch valves were installed anywhere along the line. By now most Comanches have them, but if this has not been done, you face additional expense when overhaul comes due. With the 1/2-inch valves, the TBO jumps to 2,000 hours, the same as with the 1971 and 1972 260-hp engines. The 400's TBO is fixed at 1,800 hours and already has adequate valve specifications.

As age crept up on the Comanche, its stabilator and tail section caused a spate of troublesome and expensive airworthiness directives (ADs), as the attach bolts tend to corrode and the torque-tube bearing fittings work themselves loose from time to time. The vertical fin spar also has to be inspected every 100 hours under another

	PA-24-180	PA-24-250	PA-24-260	PA-24-260-B	PA-24-260-C	PA-24-260-TC	PA-24-400
Price new	$17,900	$24,000	$30,740	$33,300	$41,400	$48,800	$36,890
Current market value	$18,000	$21,700	$29,750	$33,000	$40,700	$44,500	$39,000
Specifications							
Engine	Lyc O-360-AIA 180 hp @ 2,700 rpm 4 cyl	Lyc O-540-AIA5 250 hp @ 2,575 rpm 6 cyl	Lyc O-540-E4A5 260 hp @ 2,700 rpm 6 cyl	Lyc IO-540D 260 hp @ 2,700 rpm or Lyc 0-540-E-A5	Lyc IO-540-NIAS 260 hp @ 2,700 rpm 6 cyl or Lyc 540-E4AS	Lyc TIO-540-RIAS 260 hp @ 2,700 rpm 6 cyl + turbos	Lyc IO-720-AIA 400 hp @ 2,650 rpm, 8 cyl
Propeller	McCauley 2D36C14 72 in or 74 in or Hartzell HC922K8D 70.5 in or 72 in	McCauley 2D36C28 74 in or Hartzell HC8-82XKID 77 in	Hartzell HC-CZYK-IA 77in	Hartzell HC-EZYR-IB 77 in	Hartzell HC-CZYKIA 77 in	Hartzell HC-CZYKIA 77 in	Hartzell HC-A3VK-4 (3 blades) 77¼ in
Wing Span (ft)	36	36	36	36	36	36	36
Length (ft)	24.8	24.8	24.8	25.3	25.7	25.7	25.6
Height (ft)	7.3	7.3	7.3	7.3	7.3	7.3	7.7
Wing area (sq ft)	178	178	178	178	178	178	178
Wing loading (lb/sq ft)	14.33	15.73	17.42	17.42	17.98	18	20.22
Power loading (lb/hp)	14.17	11.2	11.92	11.92	12.31	12.31	9
Passengers and crew	4	4	4	4/6 opt	4/6 opt	6	4
Cabin length (ft)	N/O	N/O	N/O	9′ 4″	9′ 4″	9′ 4″	N/O
Cabin width (in)	45	45	45	45	45	45	45
Cabin height (in)	46	46	46	46	46	46	46
Empty weight (lb)	1,475	1,600	1,700	1,728	1,773	1,894	2,110
Useful load (lb)	1,075	1,200	1,200	1,372	1,427	1,306	1,490
Payload w/full fuel (lb)							
Standard	715	740	740	1,012	1,067	946	890
Optional	N/A	660	660	832	887	766	710
Gross weight (lb)	2,500	2,800	2,900	3,100	3,200	3,200	3,600
Fuel capacity (gal)							
Standard	60	60	60	60	60	60	100
Optional	N/A	90	90	90	90	90	130
Oil capacity (qt)	8	12	12	12	12	12	17
Baggage capacity (lb)	200	200	200	200	250	250	200
Performance							
Takeoff distance (ground roll) (ft)	750	750	650	760	820	1,360 normal 820 w/Turbo	980
Takeoff over 50 ft (ft)	N/O	N/O	N/O	1,260	1,400	1,800 normal 1,400 w/Turbo	1,500
Rate of climb (fpm)	910	1,400	1,500	1,370	1,320	1,320	1,600
Max speed, sea level (kt)	145	165	169	169	169	210	194
Cruise speed 75%, 8,000 ft (kt/gph)	139 10.5	157 14	161 19	158/ 14.1	161/ 14.1	*	185/ 23
Cruise speed 65%, 12,000 ft (kt/gph)	133/ 8.8	152/ 12	155/ 15.5	153/ 12.7	152/ 12.7	**	178/ 17.5
Cruise speed 55%, 16,000 ft (kt/gph)	116/ 7.5	140/ 10	142/ 13	146/ 11.4	N/O	***	163/ 15.8
Range @ 75%, no rsv (nm)							
Standard	782	680	634	633	639	721	869
Optional	N/A	1,016	973	980	982	1,108	1,147
Range @ 55%, no rsv (nm)							
Standard	1,130	870	717	695	673	825	1,017
Optional	N/A	1,434	1,100	1,101	964	1,238	1,338
Service ceiling (ft)	18,800	20,000	20,600	20,000	19,500	25,000	19,500
Stall speed, clean (kt)	N/O	N/O	N/O	65	67	67	74
gear & flaps down (kt)	50	55	53	58	58	58	59
Best rate-of-climb speed (kt)	83	83	95	96	97	97	104
Landing distance (ground roll) (ft)	600	650	650	925	690	965	1,180
over 50 ft (ft)	1,025	1,280	1,420	1,435	1,200	1,465	1,820

Footnotes: N/A—Not applicable. N/O—Not obtainable. * Turbo cruise: 25 in, 2,400 rpm @ 25,000 ft, 198 kt, 15 gph
** Intermediate cruise: 27 in, 2,400 rpm @ 12,000 ft, 178 kt, 13 gph. *** Economy cruise: 23 in, 2,300 rpm @ 8,000 ft, 153 kt, 12 gph

The Comanche Singles

AD, and a problem with tail flutter at high speeds means either placarding the Vne down from 220 mph to 203 mph or the installation of an $800 counterweight kit.

Other ADs among the Comanche's many include ADs 77-8-1 and 79-20-10, which require modification of the aileron spars at the outboard-hinge bracket area. This will cost you only $200 to comply with. And then there's the AD on the fuel cells, which snap into place inside the wings. If the vents ice up, the tanks collapse, pulling the snaps loose. This is AD 68-13-3, and it requires an inspection every 100 hours unless you install (for $1,200) the Piper fuel-cell vent and drain-tube modification kit. The inspection, naturally, involves completely emptying the tanks.

While we're at it, we might as well discuss the landing gear. They are all-electric, and for emergency extension in the pre-1969 models you push forward on a lever mounted on the floor. This handle also will go up and down as the gear normally are operated, with the result that as the gear are retracted, the handle springs down flat against the floor. If you carelessly leave a Jeppesen manual in this area, you will discover one of the landing-gear system's drawbacks. The handle will slam down on the manual, preventing the gear from fully retracting and putting a high load-factor on the gear motor, often causing its circuit breaker to pop. Do this often enough and you are asking for trouble with the gear motor. When the 260-Cs were introduced in 1969, a change was made to an under-the-floor design that eliminated this problem.

Other drawbacks to the landing gear are, you guessed it, more ADs. At first they trickled out in tantalizingly small but prophetic numbers, dealing with such things as replacing the nose-gear bungees and link assemblies (59-6-5). Then came a call to up the gear's 25-ampere circuit breakers to 30 amperes. Then came the safety switch wires and the nose-gear drag-link clevis. The grand finale came with AD 77-13-21, which requires that the complete landing-gear system be inspected every 1,000 hours and that the bungee cords be replaced every 500 hours or three years, whichever comes first. This should run about $1,000.

Since the main gear makes the plane sit so low to the ground (only 12 inches of clearance), and the nosewheel is the same size as the mains (6.00 × 6), some owners have taken to over-inflating the main-gear oleos, in order to provide a lower deck angle to ease the transition to a nose-high angle during the flare. Inflating them so that three inches instead of the recommended 2 3/4 inches of the oleo is showing seems to help in curbing the Comanche's tendency to sometimes wheelbarrow in a crosswind.

Other ADs include an inspection and reworking of the Hartzell propeller blades to prevent cracks (68-19-4) every 1,000 hours and several on certain Bendix magnetos. All of these things make for a high-maintenance airplane and are the prices you pay for owning a high-performance retractable with some age on it.

Still, if you are in the market for an airplane, a used Comanche can make sense when you think of the purchase price of a new airplane with comparable performance figures. Even when you figure in the cost of the ADs and an overhaul, you still can come in spending less than if you had gone the new-plane route.

Anyone seriously interested in buying a Comanche ought to get in touch with the International Comanche Society at 4140 Manson Avenue, S.E., Smyrna, Georgia 30080. President Larry Larkin or one of their 1,800 members, organized in regional—what else?—tribes throughout the U.S. and overseas, will be more than willing to share the benefit of their experience with you. They put out a monthly newsletter called the Comanche *Flyer*, which has member articles on such things as maintenance tips and personal experiences.

The Society also can steer you to a maintenance facility that specializes in Comanches, such as Hill Aviation in Lancaster, Pennsylvania, or Norm Bender Inc. of Memphis, Tennessee, who specializes in factory-new Lycoming engine replacements. Midwest Piper of Wichita also specializes in Comanche repairs. It's really important to have someone familiar with the Comanche's idiosyncrasies doing the work, especially when it comes to the landing gear.

The Comanche, then, can mean many things. It either can be a well-constructed, relatively trouble-free, high performance classic, if you come across one that's already been worked over; or a maintenance nightmare, if you buy low and expect to keep it for a while. Bear this in mind when you start kicking tires and get carried away with the Comanche's sleekness and comfortable interior.

Once fixed up, though, the Comanche is a great-handling airplane that's hard to top when you consider the alternatives. How else can you get the satisfaction of owning a classic 200-mph airplane for $40,000 or less with the lasting value and appeal of the Comanche? □

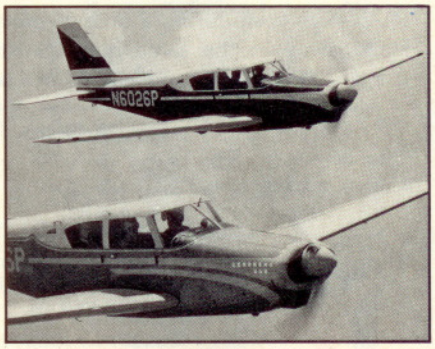
continued

COMANCHE SPOTTER'S GUIDE

May 23, 1956: Piper test pilot Jay Myer completes the successful first flight of the new PA-24 Comanche. Although the prototype was powered by a 180-hp Lycoming O-360 four-cylinder engine, Piper had not yet made a decision on an engine for production Comanches. Piper originally planned to start delivery of Comanches to customers in the spring of 1957 but fell about nine months behind schedule. Trailing link landing gear would be replaced by straight struts.

The Comanche was awarded type certification on June 20, 1957—with a 180-hp Lycoming O-360—and the first production model, N5000P, flew in September of that year. At that time, Piper was planning to build one Comanche per day in Lock Haven, eventually increasing to five per day. The first customer Comanche, N5010P, was delivered on January 7, 1958, to Arkansas Aviation Sales in Little Rock, Arkansas. Less than 10 months after production began, the 500th Comanche was delivered.

On April 16, 1958, Piper certificated a six-cylinder 250-hp Lycoming O-540-AIA in the PA-24. Gross weight increased 200 pounds, to 2,800 pounds, and useful load increased from 1,075 pounds to 1,200 pounds. An Auto-Control single-axis autopilot with heading bug became standard on 1959 Comanches.



In addition to the usual annual change in paint scheme, Piper tweaked the cabin vent system for 1960, redesigned the carburetor air filter system and added reclining seats to highlight a new interior finish.

Standard 60-gallon fuel capacity increased to 90 gallons in 1961 with the addition of two optional 15-gallon wing tanks. No-reserve range of the Comanche 250 with the 90-gallon capacity increased to 1,016-nm at 75-percent power. Gross weight increased 100 pounds, and useful load rose to 1,270 pounds. A small scoop was added to the top of the fuselage for cabin air.

The 1962 Comanche 250 appeared with new "Max-Lift" slotted flaps. Electrically operated flaps extended to 32 degrees to improve short-field performance of the aircraft and, ostensibly, to eliminate the landing float that is characteristic of Comanches.

In 1964, Piper dropped the 180-hp and 250-hp Comanches and introduced the Comanche 260 as their successor. Both carbureted and Bendix fuel-injected versions of the 260-hp Lycoming 540-cubic-inch engine were offered. Piper also changed to single-fork main landing gear assemblies. An extension was added to the top of the vertical stabilizer and rudder, resulting in an upswept look. A number of cabin refinements were introduced: additional soundproofing and double-pane windows; redesigned seats; removable floor panels to facilitate inspections; and improved heating and cooling systems. Cabin fresh-air scoop was removed from top of fuselage and replaced with a duct in the dorsal fin. Electric stabilator trim became an option.

1964 also saw the introduction of the Comanche 400. Piper modified the Comanche 260 to accept an eight-cylinder 400-hp Lycoming IO-720-AIA and three-blade Hartzell propeller. Climb rate was advertised as 1,600 fpm, and, at 12,000 feet and 65-percent power, the 400 was said to cruise at 178 knots burning 17.5 gph. Leather interiors and electric trim were standard.

The Comanche 260 B was introduced in 1966. It featured a longer propeller spinner and a slightly longer fuselage that allowed for optional fifth and sixth seats and a third set of windows. Thicker glass also was installed to aid soundproofing. Max gross weight increased 200 pounds, to 3,100 pounds, increasing the useful load 172 pounds, to 1,372 pounds.

Three years later, in 1969, the 260 B was replaced by the Comanche 260 C, the shapeliest Comanche yet. The prop shaft on the Lycoming IO-540-NIAS engine was extended several inches to permit installation of the sleek "tiger shark" cowl that had debuted several years earlier on the Twin Comanche. The new cowl treatment and extended prop shaft mainly helped maintain the center of gravity range, since baggage capacity had increased 50 pounds, to 250 pounds.

The final version of the PA-24 was the Turbo Comanche 260 C. Two Rajay Industries turbochargers were factory installed on the engine, one on each exhaust stack. The pilot controlled boost with a manually operated wastegate. Power and boost management were critical on the Turbo Comanche C, and the airplane was not a big seller. Only 28 were manufactured between 1970 and 1972. Comanche production ceased in 1972 when floods swept through the Lock Haven assembly plant.—*MRT*