Owners hear the jokes, and they just smile

The debut of the Tri-Pacer was accompanied by a lot of ballyhoo three decades ago. Piper Aircraft introduced it as "a modern businessman's airplane," and a New York advertising firm churned out dozens of publicity photographs touting the merits of the new Hydrasorb tricycle landing gear.

One photo shows a young woman leaning uncomfortably against a wing strut, her eyes focused Lindbergh-like on the horizon. She is identified by a caption as Mrs. Jeanne Voltz, a newspaper writer and a mother of two children, who soloed a Tri-Pacer after only six hours of dual instruction. "It was the first time she had ever been in anything but a transport plane," the caption chimes. "Only high winds prevented her from soloing in one day." (Apparently, she soloed the morning after her first lesson in the airplane.) The caption presses its point further—perhaps, too far—by claiming that the new gear "makes landings virtually unassisted."

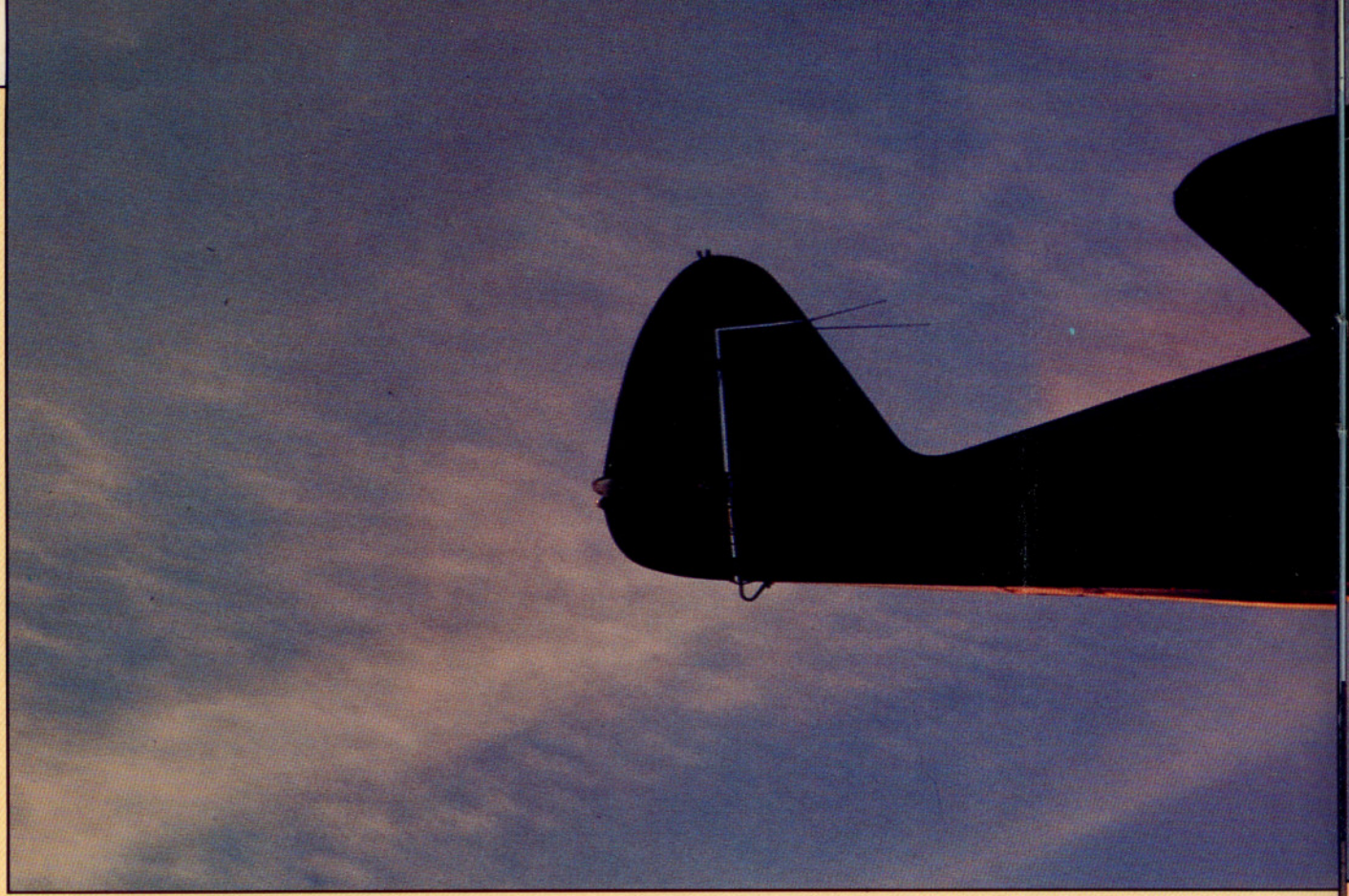
Another publicity photo shows Brad Smith, a Piper test pilot, examining a Tri-Pacer's nosewheel. There is a hint of bewilderment on his face, probably because he supposedly had just landed the airplane nosewheel-first at 122 knots. Stating the obvious, the caption includes the following caveat: "Despite the unusual strength of the Tri-Pacer's landing gear, Piper engineering test pilots advise new owners to use the proper tricycle landing technique of touching down first on the two rear wheels at minimum speed and letting the nosewheel touch later."

Through the years, these advertising gems often have been objects of derision in the aviation press.

TRI-PACER

BY MARK M. LACAGNINA

PHOTOGRAPHY BY ART DAVIS



continued

(For that matter, the airplane long has been the butt of unaffectionate jokes.) But Piper wanted to get the word out that it had made the Pacer easier to fly. By switching from conventional to tricycle landing gear, Piper hoped to broaden the market base for its four-place single. The PA-20 Pacer had been selling quite well, but the close-coupled taildragger tended to provide its pilot with too many thrills during the landing roll. The airplane seemed to welcome any moment's inattention by the pilot as an opportunity to swap ends or to chart new territory for a crosswind runway.

In a word, the Pacer is a pilot's airplane; but Piper figured more people would buy it if it were made easier to land. Therefore, the Pacer was stripped of its tailwheel, and its main gear was moved back about one foot. The front of the airplane was beefed up for the new nose gear. Enough structural changes were made to require a separate type certificate for the PA-22 Tri-Pacer.

Although it had its own papers, the airplane was introduced in 1951 simply as a Pacer option. The name Tri-Pacer was not used during the first year it was in production; the tricycle-gear version simply was called a Pacer. The 1951 Pacers are powered by 125-hp Lycoming O-290-D engines. The empty weight of the tricycle gear model is 40 pounds heavier, and its cruise speeds are nearly two knots slower than the conventional-gear Pacer.

The performance discrepancy did not seem to matter. Orders for the tricycle-gear option quickly outpaced those for the taildragger; and in 1952, the Pacer became an option to the Tri Pacer. Both were given a new engine—a 135-hp Lycoming O-290-D2—a bubble-type windshield, better soundproofing and a new airscoop on the left side of the engine cowl to improve interior ventilation.

The baggage compartment, located behind the rear seats, was increased from six cubic feet to 14 cubic feet, and an access door was built into the right side of the fuselage. The size of the baggage compartment is misleading: It looks as though it can hold a lot, but its capacity is limited to 100 pounds.

After building 1,120 Pacers, Piper decided to discontinue production of the model in 1954. Sales of the taildragger had fallen off sharply after its stablemate was introduced.

The Tri-Pacer was equipped with a new engine the following year.

TRI PACER

The 150-hp Lycoming O-320-A1A increased the airplane's cruise speed only a couple of knots but improved its rate of climb by approximately 100 fpm. Fuel capacity in the Tri-Pacer was increased from 36 gallons to 44 gallons by the addition of an optional auxiliary fuel tank under the rear seat.

In 1958, a 160-hp Lycoming O-320-B2A engine became standard equipment. The 150-hp PA-22 was renamed the Caribbean and re-

mained in production with the Tri-Pacer until 1961.

In the late 1950s, Piper's share of the market began to slip at an alarming rate. Cessna Aircraft had come up with a very tough and popular competitor: the Skyhawk. Although Piper had introduced the 180-hp Comanche in 1958, it still was in need of a new training airplane. Piper's senior management had decided, for reasons unknown, that its new trainer would be a low-winger. The company had considered purchasing the production and marketing rights to Fred Weick's Ercoupe, John Thorpe's Sky Scooter and Al Mooney's M-20. None of these deals got much past preliminary negotiations.

Finally, Piper hired Weick and Thorpe to design the airplane it was looking for. The result, of course, was the PA-28 Cherokee, which replaced the Tri-Pacer in 1961.

Although about 30 more Tri-Pacers trickled off the assembly line during the next three years, the PA-22 production tooling was devoted almost exclusively to turning out more than 1,820 Colts from 1961 through 1963. The Colt, which was billed by Piper as the compact-of-the-air, is a stripped version of the Tri-Pacer. It has a 108-hp engine and is unencumbered by rear seats, a rear passenger door or flaps. Discontinuation of the Colt in 1964 marked the end of the tube-and-fabric, short-wing Piper line.

Today, the Tri-Pacer is one of the best buys on the used aircraft market, especially for a person who does not have a lot of bucks available to indulge his passion for ownership. Although a few proud owners value their airplanes at more than $20,000, the average price of a well-kept Tri-Pacer is about $7,000—less than the price of a good new automobile.

Many owners hold on to their Tri-Pacers longer than they originally intended to. What was supposed to be a "starter" airplane becomes a member of the family. The reason may be that the Tri-Pacer is easy to live with; it doesn't try to eat its owner out of house and home. It is a simple airplane that does not require a lot of maintenance or expensive care. An owner may joke about the rather awkward appearance of the airplane ("Yeah, old milk stool"), but there is affection in his eyes.

The original cotton fabric used on the airplane did not last long and had to be replaced every couple of years. However, most Tri-Pacers have been recovered with the so-called permanent-type fabrics, such as Razorback, Polyfiber, Ceconite and Enox. While these fabrics are not really permanent, they can be expected to last for up to 20 years. Many owners do much of the work themselves, under the supervision of authorized inspectors. "There really is not much to it," one owner said. "The money you save is well worth the broken fingernails." Replacement parts are readily available from such sources as Univair in Aurora, Colorado, and Wag-Aero in Lyons, Wisconsin.

The Tri-Pacer has not been the target of a large number of airworthiness directives. The most serious ADs in recent years concerned the wing lift struts. In 1977, owners were required to have the struts removed and inspected for internal corrosion. Furthermore, the inspection must be repeated every five years. An AD issued two years ago required replacement of wing lift strut forks with machined rather than rolled threads. The former apparently were prone to crack. The cost for compliance was about $400. Other directives have been

continued

issued on the Tri-Pacer's tail brace wires, fuel-tank selector valve, engine exhaust valves, propeller blades, muffler and throttle. (The latter required a placard against opening the throttle rapidly.)

An excellent source of information on maintenance, parts availability and service is the Tri-Pacer Owners' Club, Incorporated. In addition to coordinating social gatherings, the club sponsors maintenance seminars and produces a monthly newsletter that is short on hangar tales and long on technical information, maintenance and operating tips. The club recently established a computer center to collect and store data of importance to Tri-Pacer owners. The club has about 800 members. Dues are $20 a year. For more information, contact the Tri-Pacer Owners' Club, Incorporated, c/o Windfield Stables, Route 611, Revere, Pennsylvania 18953.

Alonzo (Lonnie) McLaughlin, the club's historian and librarian, is involved in an interesting project. He is developing an updated list of modifications available for the Tri-Pacer and who can do them. It is quite a project. Over the years, dozens of supplemental type certificates have been issued. The modifications include such things as lighting systems, disc brakes, banner towing equipment, dropped and squared-off wing tips, fiberglass nose cowls, avionics equipment, auxiliary fuel tanks, powerplants and metal wing and fuselage coverings. Many of the original STC holders have gone out of business, sold the rights to others or stopped offering the modifications due to lack of demand. The new information should be of great benefit to owners.

TRI-PACER

The Tri-Pacer appearing in the accompanying photographs is a 1958 model and is owned by Alexander Zuk, AOPA 354066, of Baltimore, Maryland. The airplane recently changed hands, twice. Zuk bought it in 1971 and sold it to Terry Dill, a lab specialist with the AOPA Air Safety Foundation's Flight and Technology Laboratory, after N8957D was damaged in a landing incident last fall. During his spare time, Dill rebuilt the airplane. Zuk saw the results and liked them so much that he bought the airplane back. Dill was a bit reluctant to part with the airplane, but he already is at work rebuilding another PA-22-160 and is seriously considering converting it to a taildragger.

I had the opportunity to fly N8957D shortly after Dill finished rebuilding it. One of the first things that impressed me is that the Tri-Pacer has three doors. One is for the cavernous baggage compartment. There is another door located on the left side of the cabin for rear-seat passengers. The front-seat passenger follows the pilot in through a door on the right side of the Tri-Pacer. It is difficult to climb into the airplane gracefully; but with a little practice, I managed to do it without embarrassing myself.

Preflight and engine-starting procedures are straightforward, except that the master switch and starter button are located beneath the pilot's seat. There are toe brakes on the pilot's side, only; and there is a brake lever that hangs below the center of the panel. I found it easy to taxi the airplane by using the hand brake and rudder pedals, which are connected to the nosewheel. Downwind turns, however, require caution. The geometry of

REVERTING TO FORM

The Piper Pacer is a source of hours of enjoyment for trivia hunters and students of the marque. The first Pacer, the PA-20, was a mildly changed Clipper. It started with a Lycoming O-235 engine, rated at 108 hp; the Pacer 115 had no flaps (as the end-of-the-tube-and-fabric Pipers, the Colt, was configured) and had a gross weight of 1,750 pounds. (See "Short-Wing Pipers", November 1981 *Pilot*, p. 117.)

All the later versions had variations of the Lycoming O-290-D, rated at 125 hp and, finally, 135 hp. The 125 and 135 models had gross weights of 1,800 pounds; the 135 had an Aeromatic controllable-pitch propeller. The last factory version, produced in 1953, still was called the 135 but had 135 hp and a fixed-pitch propeller.

When the Pacer started sharing the production line with its tricycle-gear brother, the Tri-Pacer, in 1951, the Pacer shared all the other modifications to the PA-22, most significant of which were a slightly longer fuselage, increased fuel capacity and improved interior space and arrangement of passenger and baggage space, soundproofing and panel layout. The Pacer also lost its toe brakes and shared the brake lever that hung below the instrument panel.

In its last year of production, the Pacer was being outsold five to one by the Tri-Pacer. The nose gear was the wave of the future and the clarion of the "drive it into the sky" school of aircraft marketing. The Pacer went to the dustbin.

But in recent years the Pacer has been having its revenge. A significant number of Tri-Pacers (and Colts) have been converted to conventional gear. Several shops gained supplemental type certificates (STCs) to make the conversions.

There are many claims made for the significant values of the conversion. Some of them, particularly performance claims, have to be taken with a grain of salt. Any of the conversions do reduce weight (a net saving of 18 pounds average) and drag because of the elimination of the large nosewheel. There definitely is a performance increase; the only question is how much.

There is one result of the conversion on which most people agree: The Pacer looks a lot better. It looks right. In fact, a Tri-Pacer looks more like a slightly inept conversion next to a Pacer.

The necessary pieces for the change can be purchased for about $1,000 to $1,200. Univair, of Aurora, Colorado, which recently absorbed Lightplane Components (supplier of many of the Pacer conversion kits) sells the basic package for $725, which includes all the necessary instructions and pieces except for the tailwheel. A Maule tailwheel assembly sells for $180, a Scott for $289.

Univair also offers kits to convert the brake lever to toe brakes ($325 for single brakes, $425 for dual); kits to convert to McCauley or Cleveland wheels and brakes (the latter will permit you to install oversize wheels and tires, desirable for those mountain meadows).

There are quite a few STCs available for engine swaps, too—up to 180 hp.

Quite a few pilots who make the conversion remove the interconnect between the ailerons and the rudder, although the spring arrangement is pretty mild and nearly unnoticeable.

A majority of the conversions incorporate a useful change made to the 1952 Pacer: The main gear track was increased 12 inches, which improved ground handling.

The conversion has proved to have some appeal for utility operations, as well as to pilots who want a more traditional airplane with good performance and more flexibility than the Tri-Pacer.

Unlike some other conversions of older, tube-and-fabric aircraft, the Pacer conversion continues to be quite popular. A spokesman for Univair said that the company has sold 24 packages in the past 90 days.

That is a good indication that more of us find a lot of value and flying fun in getting back to basics. *—EGT*

the landing gear is such that a gust of wind under the upwind wing or the tail can tip the airplane over, if it is being turned too quickly.

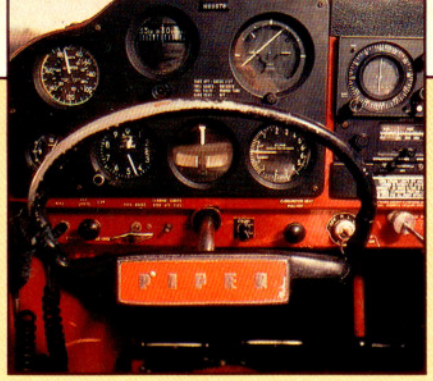
Like all short-wing Pipers, the Tri-Pacer is fun to fly. On a cold and blustery autumn afternoon, the lightly loaded airplane sprang eagerly into the air and climbed like a kite. With the short wings and relatively large ailerons and rudder, the airplane is very maneuverable and responsive. The cables for the ailerons and the rudder are connected by a spring, allowing the pilot to make coordinated turns using either the yoke or the rudder pedals. I did not experience this firsthand; but owners told me it is easy to overpower the spring interconnect to cross-control and slip the airplane in for a crosswind landing.

With no flaps extended and trimmed properly for slow flight, the airplane breaks cleanly in a power-off stall at about 46 knots. With a full 40 degrees of flap extended, the Tri-Pacer goes into a rocking-horse routine—stall, nose down; pick up flying speed, nose up;

continued

and so on—at about 42 knots. Meanwhile, it is sinking rapidly at about 800 to 1,000 fpm.

The sink rate and the rather narrow track of the main gear have earned the Tri-Pacer a reputation as a hard airplane to land (1950s advertising claims, notwithstanding). I found that, by using a final approach speed of 70 knots, full flaps and a touch of power until over the numbers, the airplane would reward me with consistently smooth landings. This procedure also kept the airplane nearly at pattern altitude until close to the runway threshold. This is the type of approach I like.



TRI-PACER

I confess there was a time when I would have joined in in poking fun at the Tri-Pacer. The airplane always appeared to me as a big, fat mosquito, and I thought it also might fly like one. Now, after getting a close look at it, I see the Tri-Pacer as a good, honest and fun airplane—one that any pilot should be proud to own. □

	PA-22-125 1951-1952	PA-22-135 1952-1954	PA-22-150 1955-1960	PA-22-160 1958-1960
Price new	$5,355	$5,695	$6,825 to $8,395	$8,890
Current market value	$3,000 to $6,000	$3,500 to $8,000	$4,000 to $10,000	$5,000 to $12,000
Specifications				
Powerplant	Lycoming O-290-D, 125 hp @ 2,700 rpm	Lycoming O-290-D2, 135 hp @ 2,700 rpm	Lycoming O-320-A1A, 150 hp @ 2,700 rpm	Lycoming O-320-B2A, 160 hp @ 2,700 rpm
Recommended TBO	2,000 hr	1,500 hr	1,200 hr	1,200 hr
Propeller	Sensenich, fixed pitch, 2 blade, 76 in	Sensenich, fixed pitch, 2 blade, 76 in	Sensenich, fixed pitch, 2 blade, 76 in	Sensenich, fixed pitch, 2 blade, 76 in
Wingspan	29 ft 3 in	29 ft 3 in	29 ft 3 in	29 ft 3 in
Length	20 ft 4 in	20 ft 4 in	20 ft 4 in	20 ft 5 in
Height	8 ft 3 in	8 ft 3 in	8 ft 3 in	8 ft 3 in
Wing area	147.5 sq ft	147.5 sq ft	147.5 sq ft	147.5 sq ft
Wing loading	12.5 lb/sq ft	12.5 lb/sq ft	13.2 lb/sq ft	13.6 lb/sq ft
Power loading	14.8 lb/hp	13.7 lb/hp	13.0 lb/hp	12.5 lb/hp
Seats	4	4	4	4
Empty weight	1,060 lb	1,060 lb	1,060 lb	1,110 lb
Useful load	790 lb	790 lb	890 lb	890 lb
Payload w/full fuel (long-range tanks)	574 lb N/A	574 lb N/A	674 lb 626 lb	674 lb 626 lb
Gross weight	1,850 lb	1,850 lb	1,950 lb	2,000 lb
Fuel capacity, std	216 lb/36 gal	216 lb/36 gal	216 lb/36 gal	216 lb/36 gal
Fuel capacity, w/opt tanks	N/A	N/A	264 lb/44 gal	264 lb/44 gal
Oil capacity	8 qt	8 qt	8 qt	8 qt
Baggage capacity	100 lb	100 lb	100 lb	100 lb
Performance				
Takeoff distance (ground roll)	1,120 ft	1,120 ft	1,120 ft	1,035 ft
Takeoff over 50 ft	1,600 ft	1,600 ft	1,600 ft	1,480 ft
Rate of climb (sea level)	550 fpm	620 fpm	750 fpm	800 fpm
Maximum level speed	117 kt	119 kt	121 kt	123 kt
Cruise speed/Range (Fuel consumption) @ 75% power, 7,000 ft	N/O	115 kt/500 nm (46.2 pph/7.7 gph)	115 kt/470 nm (58.8 pph/9.8 gph)	116 kt/465 nm (60.0 pph/10 gph)
Service ceiling	15,000 ft	15,000 ft	16,000 ft	16,500 ft
Absolute ceiling	17,500 ft	17,500 ft	18,500 ft	19,000 ft
Landing over 50-ft obst	1,280 ft	1,280 ft	1,280 ft	1,280 ft
Landing distance (ground roll)	650 ft	650 ft	650 ft	650 ft
Limiting and Recommended Airspeeds				
Vx (Best angle of climb)	62 kt	62 kt	62 kt	62 kt
Vy (Best rate of climb)	73 kt	73 kt	73 kt	73 kt
Vno (Max structural cruising)	118 kt	118 kt	118 kt	118 kt
Vne (Never exceed)	148 kt	148 kt	148 kt	148 kt
Vs1 (Stall clean)	46 kt	46 kt	46 kt	46 kt
Vso (Stall in landing configuration)	42 kt	42 kt	42 kt	42 kt
Vfe (Max flap extended)	83 kt	83 kt	83 kt	83 kt

All specifications are based on manufacturer's calculations. N/O: not obtainable; N/A: not applicable.