

FIFTY YEARS *of* ERCOUPE



*Often dismissed as
"not a real airplane,"
Fred Weick's sportster
has outlasted many
of its detractors.*

BY MARC E. COOK

*F*red E. Weick walks the line at the 1990 Ercoupe Owners Club Fly-in touching the spinners of airplanes, most of which were built 44 years ago. The 90-year-old designer of the Ercoupe chats with an admirer, explaining the design and production of the airplane as though the polished two-seater he's patting had rolled from the assembly line last week. The airplane owner revels in Weick's words, feeling himself touching history with the man whose unconventional ideas spawned an equally unconventional airplane. Later, the Ercoupe owner will take Weick for a short flight around the Bowling Green, Ohio, airport and report: "He flies the

PHOTOGRAPHY BY MIKE FIZER

airplane like he's never been out of it."

This fact is either a testament to Weick's piloting talents or to the efficacy of his airplane design, take your pick. With a bow to Weick, most Ercoupe boosters would cite as contributory the Coupe's docile, friendly flying characteristics. And Weick would not disagree. The driving philosophy of the Ercoupe was to make flying accessible to the masses, and that meant rethinking not just the details, but the very precepts of light-airplane design.

Imagine the scene. It's the late 1930s. Commonplace airplanes fill a narrow category, that of tandem-seat, rag-wing taildraggers. Onto this scene bursts a natty little airplane, made mostly of metal, with side-by-side seating and employing the third wheel in precisely the wrong place—under the nose. And flouting convention like a circus clown at a board meeting, the Coupe contains controls for only two of three axes, pitch and roll. The single pedal on the floor activates the brakes; the nosewheel receives steering commands from the yoke. Freed from the difficulties of mastering the tailwheel—not to mention rudder control—Ercoupe students commonly soloed in five hours.

Weick's concern for safety, for making an airplane that anyone could learn to fly, dictated the design almost entirely. At the time of the Ercoupe's development, stall/spin accidents were a leading cause of fatalities, so Weick set about designing an airplane that could not be made to stall conventionally and to spin not at all. He limited elevator travel on the Ercoupe, reasoning that if you can't hike the nose far above the horizon, the airplane cannot enter a full stall. (This limited elevator travel in turn dictated a narrow center of gravity, another reason for side-by-side seating.) Of course, a determined pilot entering a stall with a quick application of full up elevator can evoke something of a break from the Ercoupe, but normal stall approaches provoke nothing more than a gentle bobbing and a pronounced sink rate. (One might call it a classic Cherokee stall, but because Weick helped design the Piper after doing the Ercoupe, we might more accurately call the Cherokee's stall Ercoupe-like.)

The spin part of the stall/spin scenario was addressed by designing an aircraft that cannot be cross-controlled. This being the case, the airplane should be characteristically incapable of spinning; the Ercoupe is placarded as such.





Of course, the Ercoupe needs some rudder control to counteract adverse yaw created by the ailerons, so the two small rudders are interconnected with the ailerons to help coordinate turns. The rudders' placement at the ends of the horizontal stabilizer helps offset p-factor during the climb, and the engine is canted in its mounts for the same reason. Also, the ailerons were given tremendous differential action; for example, full left yoke deflects the left aileron up more than 40 degrees, while the right aileron deflects down just over 9 degrees. In maximum-performance climbs, the Ercoupe still wants to turn left, but slight right-aileron correction suffices. Nosewheel steering is accomplished through the yoke, a distinctly unusual sensation for first-time Ercoupe pilots, but something high-timers acknowledge is easy to accommodate.

Flying the Ercoupe is an exercise in grin control. In pleasant weather, it proves astonishingly easy to fly. Control response is light, and coordinated turns are as simple as cranking on the yoke. Fast it's not, running between 85 and 100 knots, depending on vintage and horsepower. Climb performance also is marginal—especially in warm weather and heavily loaded.

An airplane easier to land would be difficult to name. Thanks to almost 2 feet of stroke in the trailing-link gear, virtually every landing can be a squeaker. You get the impression that if you bring the airplane down somewhere in the vicinity of a runway, it will do the rest. Find a runway with the wind blowing 90 degrees to its length, and you'll still be happy with the Ercoupe's manners—once you get used to the decidedly unorthodox techniques required. On two-axis airplanes, you simply land in a crab, letting the beefy main gear take the side loads (for which it was designed), and waiting for the nosewheel to come down to steer. Experienced Coupe pilots make it look easy, although those trained in conventional aircraft tend to break a sweat the first few tries. The Ercoupe is designed to rest at a negative angle of attack on the ground so that the gear remains planted, and the airplane will not want to fly until rotated; on some older airplanes, owners have made small modifications to the landing gear springs (rubber biscuits, essentially) to ensure this negative angle of attack. Otherwise, owners report, the Ercoupe can be squirrely, especially in a crosswind.

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In addition to having spent time in a 1946 model, we had the opportunity to fly a late-model Alon, owned by Ronald Kerlin. His A-2, fitted with full IFR panel and autopilot (yes, autopilot), lies at the high end of the Ercoupe spectrum. But don't let the brimming panel fool you: His airplane provides the same kind of kicks you get flying a vintage Ercoupe. Only, with 90 hp on tap under the domed cowling (most Ercoupes fly behind 75 hp or 85 hp mills), you tend to get there a bit sooner.

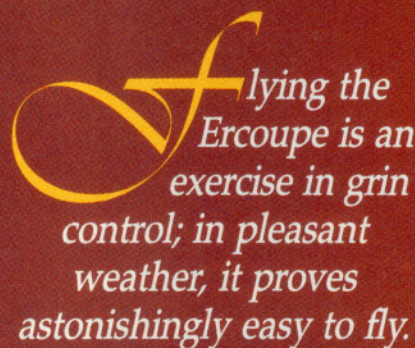
Production of the Ercoupe began in early 1940 by Engineering Research Company (the Erco in Ercoupe) in Riverdale, Maryland. A comparative handful of Coupes was produced before World War II, slightly more than 100, as 415A and 415B models. The prototype Ercoupe 415A, completed in 1937, employed a 40-hp Continental, but this proved to be too little power for the airplane. With nothing of greater power commercially available, Erco designed its own in-line four-cylinder of 65 hp; the 415B, as the Erco-engined airplane was called, earned its type certificate in January 1940. Just before the airplane went into production, though, Continental introduced the C-65, a horizontally opposed four, which was less expensive to produce than Erco's in-line; this engine and derivatives of it would propel the Ercoupe through its production run. Production of the airplane was suspended during World War II.

The Ercoupe line resumed production in 1946 with the 415C, stepping smartly into the postwar airplane boom. In that year alone, more than 4,100 Ercoupes flowed from the factory, a figure that would constitute more than two thirds of the entire 30-year run. Postwar Ercoupes employed many modifications over the original airplanes, including an electrical system and a move to the more powerful Continental C-75. Other changes included beefed-up landing gear, aluminum fuel tanks, and a higher maximum gross weight. Typical equipped price for the 415C was \$3,950, according to the *Aircraft Bluebook-Price Digest*. Standard factory price was \$3,450. Today, these airplanes fetch an average of \$7,750.

For 1948, Erco performed small revisions to make the 415D, the most noticeable of which is a quadrant-style throttle. Following hot on the heels of the D model was the 415E, which Erco fitted

with the Continental C-85 and, in a nod to requests for independent rudder control, optional rudder pedals. The average equipped price jumped more than \$500 over the C model. Production, paralleling the decline in aircraft sales in the late 1940s, tapered rapidly; through the last years, ending in 1949, Erco built fewer than 200 airplanes. Changes to those last Erco models were modest, too, reflecting evolutionary alterations and fulfillment of the marketing department's cries for radio space in the instrument panel.

That so few alterations were made to the early Ercoupes bears testimony to



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the stoutness and intelligence of the original design. The wings, for example, were the only parts of the Ercoupe covered in fabric—a design choice dictated by the growing shortages of aluminum in the years before World War II. The wing construction itself, using a Warren Truss arrangement of spars, ribs, and cross-braces (imagine a railroad bridge, and you'll get the idea), was immensely strong. Stronger than the spar-attach points, though; a number of in-flight airframe failures in the airplane have been traced to this, with corrosion often a contributing factor. Control surfaces were all metal, and the main landing gear legs were burly trailing-beam pieces, which have, incidentally, proved as durable as an anvil.

In systems, too, the Ercoupe is an inspired design. For example, twin 9-gallon wing tanks feed into a single 6-gallon header tank, which in turn gravity-feeds the Continental's carburetor. The fuel pump does the work automatically, with no intervention required on the pilot's part. There are no fuel gauges to contend with either; when the cork-and-wire gauge bobbing on the header tank begins to fall, you know you're working on the last 6 gallons.

Creature comforts, then, aren't the Coupe's long suit. Think of it as a Cessna 150 with good visibility (which, to its credit, does much to relieve claustrophobia), and you'll have some idea of the Ercoupe's cabin dimensions. The lanky Weick pokes out of the canopy like a father driving his son's kiddie car. Fortunately, on the early airplanes, the slide-down canopy windows can be left open in flight (as can the canopy on later models, though not all the way) creating a delightful wind-in-the-hair flying experience—albeit a noisy one. Most Ercoupe owners say that during hot summers, when other pilots roast, they can poke their elbows into the slipstream and work on their tans at the same time. "You can't beat that," one owner said.

Erco suspended production at the end of 1949 and sold the rights to Universal Aircraft Company, now known as Univair. This firm made no complete airplanes, instead concentrating on parts support. Univair today owns the rights and produces replacement parts.

In between, three companies tried producing the Ercoupe, with varying degrees of success. The first to bite, the Forney Company of Fort

Collins, Colorado, renamed the Ercoupe the F-1 Aircoupe and produced about 138 airplanes between 1958 and 1960. Notable changes included a switch to a 90-hp Continental, all-metal wings (several kits were offered during this period to convert rag-wings to metal ones, and many early Ercoupes are so equipped), and interior alterations.

After a five-year hiatus, Alon Aircraft picked up the gauntlet and brought out the A-2 Aircoupe in 1965. A new sliding canopy replaced the leaky sliding-window arrangement with the Alon airplanes, too. Also, rudder pedals were made standard, and nosewheel steering migrated from the yoke to the pedals; the single wheel brake remained, though, actuated by a long bar above the rudder pedals. Steering and braking an Alon takes a deftness of toe at which pilots of conventional aircraft must work. Between 1965 and 1967, Alon built about 250 A-2s at an average equipped price of \$10,145, according to the *Bluebook*.

In the late 1960s, Alon was purchased by Mooney, and the A-2 soon became the M-10 Cadet. The Ercoupe saw the most radical changes ever at this firm's hands, including a new, Mooney-style



tail, stall strips, spring steel landing gear, and, of course, three-axis controls. The Cadet would stall and spin like conventional airplanes. The panel was modified once again to hold a full IFR radio stack and associated instruments. Over the course of three years, Mooney built over 100 airplanes. An unfortunate victim of the Mooney buyout was a prototype four-seater built by Alon just before the company's purchase. The airplane is a curious palimpsest of familiar Ercoupe lines and modern angles and curves. The airplane, only one built and still flying, is powered by a 150-hp engine mated to a constant-speed prop. The wing is longer and contains flaps. It is said that Mooney considered the airplane too close to its own M20 series and declined to put it into production.

This discussion of the Ercoupe's decidedly tortuous production life is largely academic, though, because the vast majority of Coupes flying today are 1946 C models. And they are delightful

sporting airplanes today. Nearly every owner we spoke to mentioned ease of maintenance and pleasant flying qualities as prime reasons to own an Ercoupe. One owner who bought his airplane five years ago (for about \$2,500 less than it's worth now) said it appealed to his sense of nostalgia and fulfilled his needs for a simple, easy-to-fly airplane. What's more, his Ercoupe has been reliable and inexpensive to keep flying.

Skip Carden, editor of the Ercoupe Owners Club newsletter, *Coupe Capers*, says that while basically stout, most Ercoupes are 44-year-old airplanes and need to be treated as such. Among the greatest concerns is corrosion, especially on airplanes converted to metal wings. Often this modification did not include inspection holes, and in some cases, cor-

rosion has gone unchecked for decades. Currently, the move is on to put rag-wings back on the Ercoupe, and a fabric version demands a premium on the used market.

But even top-line Ercoupe prices seem penny ante compared to other airplanes. A clean 1946 Ercoupe will bring about \$7,700, while a last-year Mooney M-10 fetches \$12,000. Owners report costs of annual inspections to be in the \$200 to \$400 range. Most owners opt for auto fuel, too, which further whittles away at the hourly cost. The most commonly heard caveat about buying an Ercoupe (of any vintage) is to find a mechanic who is familiar with the marque.

More Ercoupe owners and enthusiasts crowd around Weick at the fly-in, asking questions that Weick has answered for decades; he responds graciously. Most recognize that there's something very special about his quirky, offbeat little airplane and are happy to be part of the history that includes it. □

A fully decked-out Alon with IFR panel and autopilot in no way decreases the nostalgic thrill associated with Ercoupes.

