pilot flight check: Rockwell International's Commander 112A

Roomy, eye-catching and a top performer, it comes with a lot of goodies that used to be called 'options'

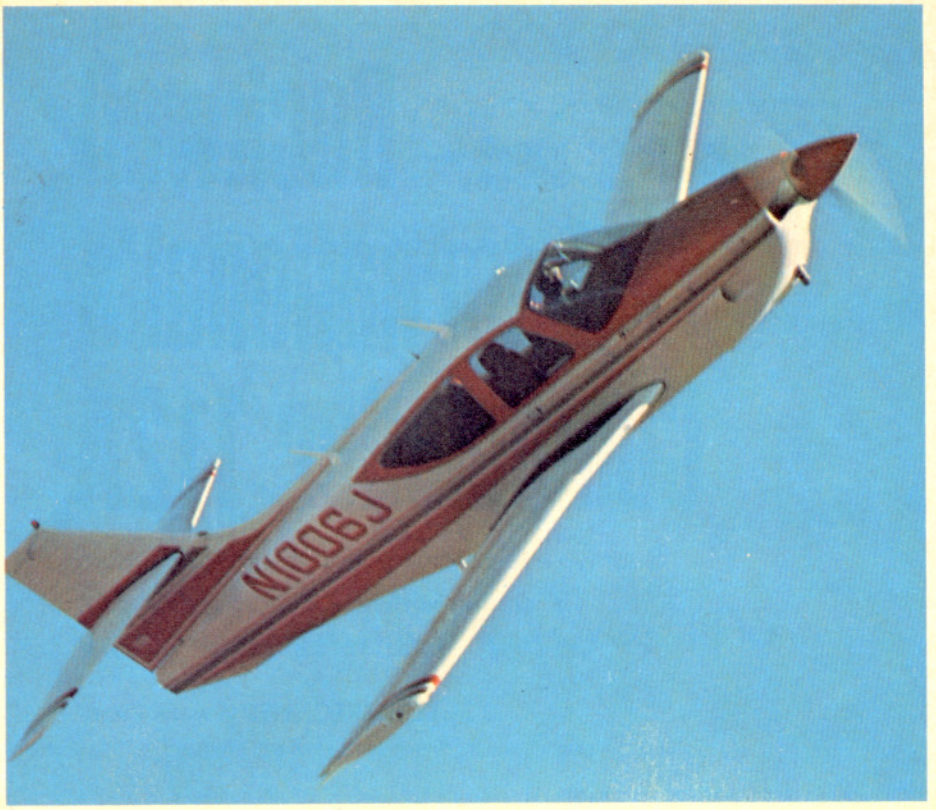
by BERL BRECHNER / AOPA 466558

■■ Although Rockwell International may have changed some features of its single-engine aircraft, the Commander 112A, no less important are changes in the marketing of that airplane. For Rockwell may be starting a trend long-awaited in the aircraft industry.

Probably for the first time in recent years, a manufacturer is selling the standard aircraft with a large number of items which used to be in the optional category. These formerly "optional" items are so basic to the airplane (like lights, oil filter, cabin entry steps, pitot heat, radio wiring and speakers) that a plane without them was virtually unusable. The prospective buyer, therefore, was forced to add this equipment at extra cost. Thus, the basic list price of an airplane was, for all intents and purposes, meaningless.

Now Rockwell has come along and made most of the smaller options standard. This has, expectedly, necessitated a price hike above and beyond what would result from our rolling rate of inflation. Even so, the Commander 112A comes standard with about 35 pounds of those "little things"

A Commander 112A, with its immediately recognizable tail section, stands outside one of Rockwell International's hangars at Bethany, Okla. Photos by the author.



which most pilots want—and need.

Flights of the first 112A off the production line proved the plane to be a comfortable performer. It has zip, style and plenty of room.

The plane I flew for The PILOT (valued at $33,980) had only about $4,000 in optional equipment but was a comfortably and acceptably equipped single-engine airplane. That extra money pays for seven items; most of the cost for a King KX-170B nav/com ($1,905) and a gyro instrument package ($1,550). The only other options were an EGT gauge, ELT, right-hand vent window, external power plug, and extra radio wiring.

The standard airplane, at $29,950, even includes a single-axis autopilot, long-range fuel tanks (if desired, since there is a resultant decrease in payload), all navigation, landing and cabin lights, and basic radio equipment minus the actual radio. There are pleasantly few options available beyond souped-up autopilots and radios.

So now you know that the basic airplane has most of what you need. No $10,000 or $15,000 surprises.

According to officials at the Rockwell plant in Bethany, Okla., their single-engine retractable will not undergo the annual revision process which American transportion industries have made tradition. Instead, the plane will be modified "as required," probably on about an 18-month cycle, said Duane Closs (AOPA 93292), national sales manager for the Commander Aircraft Division.

The Commander 112A is the first offspring of the 112, which was born about two years ago as Rockwell's most recent (and by far most successful) venture into the lower end of the general aviation market. (The company is well known for its business twins, the Aero Commander line, and its corporate jets, the Sabreliners.)

As of January of this year, 115 of the Commander 112s had been sold—a relatively small number, but an important test-base for the new airplane. Each plane's maintenance needs have been monitored by the company, and through their experience with the initial batch sold, plus comments from dealers and users, the improvements found in the 112A have evolved.

The new model maintains the same design, airfoils, and control surfaces of its predecessor, as well as the same 200-hp fuel-injected Lycoming powerplant. One major structural difference, though, is a change in the doors from fiberglass to metal. C. B. "Pete" Holcomb, Jr., a Rockwell pilot and eastern wholesale regional manager for the 112A line, explained that the fiberglass doors had leaked both air and water as a result of difficulties in sealing the space between the door and its metal frame.

Revisions in the ventilation system (a change in the air intake on the vertical stabilizer, and variations in the vent outlets in the cabin) have doubled the airflow available to rear-seat passengers, say Rockwell representatives.

Other changes they pointed to include replacement of rubber brake lines with steel lines (to eliminate a "springiness" in the brake system); enlargement and change in location of the pilot's vent window (to lessen wind noise); use of 6-ply main tires instead of 4-ply (which allows a 100-pound increase in the plane's maximum gross weight); reducing full flap angle from 40° to 35° (a change that had to be made as a result of the increase in maximum gross).

Even with the changes, Rockwell's original dream, a spacious and economical single-engine plane, with two doors, remains intact.

Flights were conducted over the Oklahoma plains from the Rockwell plant at Wiley Post Airport outside Oklahoma City. Parts and subassemblies of the low-wing 112A are fabricated there; then a partially constructed fuselage and wings are trucked to the Rockwell plant in Albany, Ga., for final assembly, interiors and paint. (Although not confirmed officially, the complete 112A production line is eventually to move to the Oklahoma plant.)

The plane flown, although only a month out of the factory, evidenced some shoddy workmanship on the interior. In several places—notably on seat backs and around the sides of the cabin—plastic molding and trim was coming loose. Other than that, however, the cabin was nicely finished, with rugs throughout, and comfortable reclining seats.

More impressive, however, is the cabin size. Sitting in the right rear seat, I extended my left arm and pointed my fingers—and still did not touch the left side window. Span across the inside of the cabin is 49 inches, window to window. There is enough room for an arm rest between the rear seats and a wide console between the front seats.

In the air, the 112A is as smooth flying a plane as you could ask for. Handle it gently and it will love you for it. Handle it roughly and it will compliantly do as told.

There are a couple of unique features that are at first surprising. Into a light wind I rolled down Runway 17L at Wiley Post. (Why does the breeze always blow from the south in Oklahoma?) Watching for takeoff speed, I was surprised to find the 112A begging for a takeoff a little below an airspeed of 60. But then I noted that the indicator's face features airspeed in knots, with only a small statute mph scale on the inside of the dial. Sixty knots translates to 69-mph statute, which just happens to be within a mile or two of the recommended takeoff speed. If you forget at what speed to raise the nose, don't worry. The Commander will do it for you.

Now gear up (an electrically actuated hydraulic system) and retract the 10° flaps used on a normal takeoff. Neither action causes much pitch change. And as I discovered later, only minimal pitch adjustments are required when gear and flaps are extended or retracted.

While the flaps are down 10° and climb speed after takeoff picks up to 80 knots (92 mph), it is pleasantly sur-

prising to see (if you sit up straight in your seat) the horizon over the nose. At 80 knots without flaps, the nose is just above the horizon, but a large windshield, relatively small center post, low panel top, and far-reaching rear windows make it a painless job to watch for FAA jets plying the skies around their extensive Oklahoma City facility.

One visibility problem did show up later, however. On an approach to a grass strip, flying into the mid-afternoon sun, the glareshield offered a much-too-bright reflection on the plexiglass, almost totally blotting out my view of the unfamiliar field. There were no sun visors on the craft. Only verbal guidance from Rockwell pilot Holcomb allowed me to line up properly and successfully complete my first approach. Without his words, it would have been a sure go-around.

The landing itself, though, was a pleasure. In fact, one of the nicest things about the plane was its superb takeoff and landing performance. Loaded about 160 pounds below its 2,650-pound maximum gross, the 112A fell into short fields like a leaf—and rolled just about as far.

Landing into a light wind on one short-field attempt, I brought the Commander 112A over that imaginary 50-foot obstacle at 70 knots with full flaps, dropped down and flared, then settled onto the numbers and was fully stopped about 450 feet from the end of the runway. Normal landings are made with an 80-knot (92 mph) approach speed and consume about twice the distance. An approach made above that speed will offer much ground-effect floating, adding considerable length to a landing.

Touchdowns are easy. Crosswinds go almost unnoticed. On one landing with a wind of 10 knots crossing from about 20°, I tried a landing without rudder. The 112A floated lazily in, responding accurately to aileron control, then settled on one wheel and finally rolled to a halt, never moving more than a few feet away from the centerline.

Most of the takeoff and landing work in the plane was done at a small field west of Oklahoma City called Cimarron, which sports a unique arrangement of three crossing grass strips, in addition to one asphalt runway. Field elevation is 1,353 feet msl.

Starting a takeoff from the shortest (2,200 foot) strip with 20° flaps, the aircraft rolled across the January brown grass (despite the fact that the month was January the temperature stood at a shocking 65°F), waiting for me to yank the nose up at 55 knots, or about 63 mph. I did, and the bird was airborne after about a 700-foot roll. Landing gear must be retracted immediately after short-field takeoffs and then the 65-knot (75 mph) climb speed used produces a daredevil steep climb angle. During this whole event, the stall warning horn blared.

(If a town ever needs an air raid warning, the city fathers should install the stall horn from a Commander 112A on the firehouse roof. It is the loudest sound you'll ever hear in an airplane, and it issues its call as much as 10 knots before a stall begins. A pilot would have to be pretty zonked to miss such a warning. By the way, a piece of masking tape over the stall horn opening will muffle it to a much more acceptable volume.)

The plane has one other aural warning—a bell. Its distinctively different clang is a reminder to put wheels down. The 3-inch-diameter bell, mounted on the cabin side of the firewall, rings when manifold pressure is reduced below about 14 inches, or when flaps are extended beyond 25°. The first time I heard it I instinctively looked for a telephone to answer.

Climb can be made at over 1,000 fpm without too much strain. A more normal climb angle (at 84 knots, or 97 mph, with 26 in. mp/2,600 rpm) produced climb at about 800 fpm as the 112A zipped through 3,000 feet. At 8,000 feet with the same power setting, manifold pressure had dropped to 22 inches, but an 81-knot indicated airspeed still produced a 550-fpm climb.

In cruise the 112A I flew was, with manifold pressure reduced, a very quiet and smooth plane. A slight vibration sound in the panel somewhere was a little pronounced at first, but went unnoticed later in the flight. Leveling at 8,200 feet, with an outside air temperature of 57°F (a temperature inversion kept the thermometer reading within about a six-degree range from the ground up to 8,000 feet), I set the plane for a 75% power cruise. At 21 in. mp and 2,700 rpm, the 112A indicated 123 knots, which seemed slow. But with all conversions made I was whizzing along at a true airspeed of 166 mph. With use of the optional EGT to lean the engine, fuel consumption stood at about 11 gph.

Reducing power to 20 in. mp and 2,500 rpm provided 65% power at that altitude, and about 114 knots IAS (or 152 true statute mph).

An economy cruise setting of 55% at 3,000 feet (19 in. mp, 2,500 rpm) found the 112A chugging along at 128 mph true, but burning only 8 gph leaned.

Winging into some turns, I proceeded to get more of a feel for the aircraft. "Try a turn without the rudder," said Holcomb, "and watch the ball." I complied, and was exposed to another of the 112A's surprises.

continued

With wheels down, the 112A's trailing-beam main gear shock absorber system can be seen.

COMMANDER 112A

Specifications

Engine	Lycoming IO-360-C1D6, 200 hp
Propeller	Hartzell 76-inch, constant speed
Empty weight	1,688 lb
Useful load	962 lb
Gross weight	2,650 lb
Baggage	200 lb
Wingspan	32 ft 9 in
Wing area	163.8 sq ft
Length	24 ft 10 in
Height	8 ft 5 in
Fuel capacity	
Standard	48 gal
With auxiliary	68 gal
Oil capacity	8 qt
Wing loading	17.4 lb/sq ft
Power loading	13.3 lb/hp
Basic price	$29,950

Performance

Top speed	171 mph
Cruise, 75% power	161 mph
Range, 75% power (68 gal, 45-minute reserve)	880 mi
Range, 55% power (68 gal, 45-minute reserve)	975 mi
Service ceiling	13,900 ft
Rate of climb	1,020 fpm
Takeoff distance (over 50-ft obstacle)	1,585 ft
Landing distance (over 50-ft obstacle)	1,310 ft
Stall	
Gear down, full flaps	62 mph
Gear up, no flaps	70 mph

During turns of up to 40° bank, the ball remains—as if glued there—dead-center between the white marks on the turn coordinator. Feet flat on the floor, I figured something's got to be wrong with this instrument. But a jab of top rudder, then bottom rudder, threw the ball off to the sides of the instrument. Remove rudder pressure and the ball centers itself again—even with the plane still banked. Frankly, I was amazed.

Holcomb explained that adverse aileron yaw is the demon that causes need for a rudder in the first place. The Commander 112A's "well-balanced controls," he said, eliminate adverse yaw. Halcomb stressed that there is no interconnection between rudder and aileron controls, as found on some other aircraft.

Turns are very comfortable in the craft—no heaviness on controls, and a not-too-strong pull on the elevator keeps the nose up during tight turns.

Stalls are mildly abrupt if allowed to develop fully. Slow flights (no flaps, gear up) at 65 knots showed the most benign characteristics—except for the blaring of the stall horn. At 60 knots indicated, or 69 mph, there was a moment of buffeting, and the nose dropped away. Recovery required full power and moderate "up" elevator.

With gear down and full flaps, everything happens about 10 knots slower. Slow flight—with at least 30° of bank attainable—was at 55 knots, and the stall came around 50 knots, or 58 mph. A steep nose drop is again preceded by a good bit of buffeting to serve as a warning. A power-on stall gives quite a ride, and required hard left rudder as the plane fell away to the right.

My inflight complaints about the Commander 112A focus on two of its flight controls, trim and prop. The trim is too tight and overly sensitive. Though not used excessively, it is annoyingly difficult to make a minute adjustment. A heavy spring loading on the small trim wheel located at center console prevents minor pitch changes. Even the gentlest touch will put the nose well up or down from the attitude sought. Also, the trim setting indicator is gray on black, and hard to read. This is to change on future models, Holcomb said.

Oversensitivity is a characteristic of the prop control too. At the high pitch end, the barest reduction on the quadrant-mounted lever will drop rpm by 300 or so. On the other hand, the throttle is not at all sensitive. Perhaps it is more a question of matching the sensitivity of the two controls, rather than an oversensitivity of one of them.

Another problem—the 112A's electric flap indicator lags the actual flap movement. This requires the pilot to anticipate the indicator in order to get an accurate flap setting.

During taxiing on unpaved ground, the nosewheel revealed a disconcerting rattle as the plane joggled from side to side. Holcomb said such a noise was common to the earlier 112s, and they thought the problem had been licked by using Teflon bushings in the nosegear. Apparently not, however.

By the way, two Airworthiness Directives issued on the original 112 will not apply to the 112A. Hangups in both the prop spinner bulkhead and engine con-

All four seats in the 112A fold flat, adding extra cargo space and simplifying entrance from either door to the rear seats. In the left doorway is Rockwell pilot Pete Holcomb.

trol cables have been eliminated in the newer version.

Main gear features the trailing-beam shock absorber design instituted on the first 112. With the wheel at the end of a swing-arm, 10.5 inches of cushioning are available for hard landings or rough surfaces—so neither produces a teeth-jarring shock. The plane steers and rides exceptionally well on the ground.

A number of small touches of class are found in the standard 112A. A push-button time-delay light is fastened near the step up to the wing, giving three minutes of light at the step and in the cabin to ease the pain of entering the craft on a dark night. The 22-cubic-foot luggage area (200-pound capacity) has a door-actuated light inside. Inertia reel shoulder belts for front-seat occupants extend conveniently from the top of the seat and latch easily at the lap-belt buckle. The belts allow complete freedom of movement. Corrosion proofing is standard through the aircraft. Fuel filler necks are of the nonsiphoning variety.

There is not an excessive amount of carrying capability in the 112A. The 922-pound useful load in the lightly equipped model I flew would be more than gone with three 170-pound occupants and full fuel and oil. So Rockwell offers a version of the craft with the fuel filler holes positioned closer to the fuselage to permit fill-up of only 50 gallons of fuel instead of the full 68. This allows some weight leeway for a fourth passenger or baggage.

As mentioned, the $29,950 list price includes a planeful of items that used to be options. Another 35 to 40 pounds of options, mostly avionics, would provide a completely, if not excessively, equipped aircraft—at a price approaching $40,000.

Before buying, compare Rockwell's option prices with prices for the same items purchased elsewhere. For instance, the ELT optionally installed in the Commander 112A is a Leigh Sharc 7 (fixed) and costs $225. That ELT is list-priced at $170 (not including installation) and can frequently be found at a discount.

With 67 Commander distributors around the country, Rockwell sales officials say there are 200 orders (102 with financial arrangements finalized) for the 112A. The company plans to run 130 of the aircraft down its assembly line during 1974.

Rockwell once introduced a lower-powered, fixed-gear version of this same plane, labeled the 111. But that plane has been dropped from the company's hangars, and it appears that any further lightplane development at Rockwell will be up the line, rather than down.

The minor problems found in The PILOT's recent flight check are more than balanced by the overall comfort and performance molded into the 112A.

Its sleek and somewhat unconventional design deserves a look. And Rockwell's first move away from the gimmickry in light aircraft pricing makes it all the more enticing to take a fresh view of the new 112A. □