Commanding Suble

This head-turning design pampers its riders in wide-body comfort

BY PETER A. BEDELL

people bought airplanes based on looks and roominess alone, there would likely be a lot more Rockwell Commanders out in the field. This stout, four-seat single has a stylish look that is noticeably absent among many airplane designs dating to the 1950s and '60s. On the ramp the Commander's rakish nose, towering tail, and upright stance set it apart from its dowdy-looking competitors. Likewise, its interior volume is closer to that of a cabin-class twin than other four-seat singles. ■ The ironic reality, however, is that this sharplooking airplane lacked the punch to compete with the Cessnas, Pipers, and Beeches of the 1970s. Behind the pretty facade was an airplane seriously underpowered, overweight, and plagued with initial design problems that resulted in some onerous airworthiness directives (ADs). These early ADs contradicted Rockwell's claims that the 112 was a tough little bird.

The Commander singles were conceived in 1972 by the Aero Commander division of North American Rockwell, maker of the successful Twin Commander and Sabreliner business airplanes. With the single-engine Commander, the company was looking to compete with Piper's popular Cherokee singles. North American Rockwell (which later became just Rockwell) wanted an entire family of light airplanes from a fixed-gear single to a six-place twin. The Model 112 was the first single certified under the then-new FAR Part 23 regulations, which among other things required higher gust load tolerances. The more rigorous certification standards and the stout look of the airplane reeked of sturdiness, and the Commander's marketing team played that card heartily.

Unfortunately, the original 112 had a serious design flaw in the tail structure that required the company to delay deliveries. The modification added weight to an already heavy design. The 112's weight proved to be a problem that would follow the design until production ceased in 1979. Another problem with early 112s were the fiber-glass doors, which fit poorly, creating a noisy cabin in flight and a leaky cabin when parked.

In 1974, the introduction of the 112A solved the door problem. The fix was to use aluminum doors, which added still more weight but provided the desired fit to quiet the cabin and keep the rain out. The 112A also brought a 100-pound maximum gross weight increase, minimizing the perceived weight gain from the modifications.

A turbocharged version, dubbed the 112TC, arrived in 1976 with a carbureted 210-horsepower Lycoming TO-360 engine. The TC was produced alongside the normally aspirated 112. The turbo allowed the 112 to operate at 160 knots at altitudes as high as 20,000 feet. But the design's lackluster climb performance made the long climb to high altitudes worthwhile only on long trips. The 112TC also had serious competition from a new stablemate, the Commander 114. With its six-cylinder 260-hp Lycoming IO-540, the 114 proved to be a much better marriage of airframe and powerplant. However, some would argue that the design should have had 300 hp from conception.

Two doors ease access to all seats for the Commander's riders (right). The three-blade propeller is part of the Hot-Shot Turbo conversion.







The 112B was introduced in 1977 with the same 32-inch stretch in wingspan as the TC. The increased span allowed Rockwell to raise the max takeoff weight of the normally aspirated 112B to 2,800 pounds. Even though it was slightly less than that of Piper's Arrow III, which was also introduced in 1977, the useful load of the Commander 112 had reached a respectable 1,000 pounds.

But just as the design was getting all of its wrinkles ironed out, Rockwell pulled the plug on the normally aspirated 112. The TC soldiered on for a few more years as the 112TC-A, which had a 50-pound max takeoff weight increase. In 1979, Rockwell stuffed the panel with an extensive Bendix/King Silver Crown avionics package and called it the TC-A Alpine. This last version included a three-axis autopilot and a price tag nearly \$20,000 higher than that of Piper's Turbo Arrow IV. Ultimately, the premium price and lackluster performance overshadowed the design's comfort and modern looks. The 114A struggled through the 1980 model year until it, too, was discontinued.

In the early 1990s, Commanders received another blow in the form of an AD requiring a beef-up modification where the main landing gear drag link attaches to the wing spar. Small cracks in that area were discovered on several airplanes, necessitating the rulemaking.

At around the same time, a bit of good news arrived for Commander fans. Commander Aircraft Company of Bethany, Oklahoma, resurrected the Commander 114 line and began offering new production airplanes in 1992. The new 114B featured a modified cowling, three-blade propeller, and a first-class interior and avionics package. The premium price tag, however, was still there. The 114B and the turbocharged TC versions were replaced this year by the 115 and 115TC, which incorporate several changes such as 88-gallon fuel tanks and a new Garmin avionics package. Commander Aircraft owns the type certificates for the 112 line and provides factory support for the airplanes. In fact, Commander Aircraft performs restorations to older 112s, outfitting them with many of the same materials used in the new 115s. If the owner desires, the restoration jobs can be extremely thorough and make older 112s look much like the new airplanes. For information about the refurbishments, call Commander at 405/495-8080 or visit the Web site (www.commanderair.com).

The airplane featured on these pages is a 1974 112A owned by Sven Faret of Plainview, New York. Faret elected to keep the original paint scheme when the airplane was repainted in 1984. N1182J has been modified with the Hot-Shot turbo/intercooler conversion from RCM Normalizing Inc. of Big Piney, Wyoming (307/276-3386). A turbonormalized



engine cannot make more than 30 inches of manifold pressure at sea level. However, through the use of a manual wastegate, the pilot can recover lost manifold pressure as the airplane climbs.

The turbo installation and several other modifications that Faret has completed over the years have created what has to be one of the most wellequipped-and heaviest-112As in the fleet. N1182J's empty weight of 1,949 pounds is about 100 pounds higher than that of most 112As. Extensive use of insulation and sound-deadening material as well as stainless-steel fuel lines account for the majority of the added weight. The result of the insulation, however, is an extremely quiet airplane, a trait that the 112 design wasn't known for. Riders in N1182J would be comfortable without headsets. Faret calls his 112A a great twoplace cross-country airplane. He admits to taking out the rear seats to gain 35 pounds of useful load and enough room to carry the kitchen sink.

Nice touches of the Commander design include a fuel selector with a



Both position, a rarity in a low-wing airplane. Perhaps this feature is why you rarely see fuel starvation accidents involving Commanders. Since the useful load of most Commanders is quite low, the partial-fueling tabs that Rockwell added into the filler ports will come in handy. 112s came standard with 48 gallons of usable fuel or the optional 68gallon capacity. Inside, pilot and passengers ride in comfort that can only be matched in cabin-class twins. Huge windows and a high seating position provide excellent visibility for all of the





Commander's occupants. The rear seats sit slightly higher than the front seats so that the passengers in the rear can see out front too. The only place where the 112 skimps on space is in rear-seat legroom. This was only noticeable because every other volumetric aspect



of this airplane is so generous.

Takeoff performance of the 112 is not spectacular. You won't win any shortfield takeoff competitions with this airplane. Standard takeoff procedure in the owner's manual of a straight 112 calls for 10 degrees of flaps and a rotaN1182J's 200-horsepower Lycoming IO-360 is small compared to the size of the airframe it's attached to. To supplement the lack of power, a turbonormalizing system was installed behind the nose of the lower cowl.

tion speed of 50 kt. Even at about 65 kt, an attempt to rotate Faret's 112A was met with a stall warning and a prolonged takeoff roll thanks to a draggy, nose-up attitude. Faret uses 70 kt for rotation and it's easy to see why. At the best-rate-of-climb speed on a hot, humid day, the 112A climbed at 600 to 700 feet per minute. With two adults and 54 gallons of fuel, the 112A was loaded to within 50 pounds of its maximum takeoff weight. Flying the 112A revealed an airplane with very nice handling qualities. The short-wing Commanders (112, 112A) feature crisp roll rates and docile stalls. Thoughtful aileron rigging, instead of a rudder-aileron interconnection, allows the 112 pilot to keep his feet on the floor during relatively steep turns while the slip indicator ball stays caged in the center. Stalls are very gentle and don't result in a wing drop. A power-off stall in the landing configuration occurred at approximately 50 kt.

With the Hot-Shot turbo conversion, Commander 112s can cruise 164 kt at 16,000 feet at 75-percent power. Faret routinely sees 152 kt at 10,000 feet. The Hot-Shot conversion lists for \$18,250. Add another \$7,300 for a new Hartzell three-blade propeller. This price includes installation plus the addition of aileron and flap gap seals.

Despite the fact that most turbocharged airplane engines run hot, Faret's intercooled turbo IO-360 runs so cool that he rarely needs to open the cowl flaps. On our evaluation flight, cylinder head temperatures never got higher than 370 degrees, even in a climb on a 90degree day. This cool running helps to retain the IO-360's 2,000-hour time between overhauls after the installation of the turbo.



Back in the terminal area, Commander pilots will notice that operation of the gear and flap systems results in little or no pitch change. You'll also notice the significant amount of power required to keep the 112 on glidepath with the flaps down and that beefy landing gear hanging out in the breeze.

Landing the airplane is easy but just in case you botch one, the trailing-link gear soaks up the worst landings a pilot can dish out. One of only a few nits to pick in the handling department is an apparent lack of rudder authority,

	1974 Rockwell Aero Commander 112A Average retail price: \$61,000		
Specifications		Takeoff distance of	
Powerplant L	ycoming IO-360-C1D6	Max demonstrated	
Recommended TBO	2,000 hr	Rate of climb, sea	
Propeller Hartzell two-blade, o	constant-speed, 76-in dia	Cruise speed/end	
Length	24 ft 10 in	(fuel consump	
Height	8 ft 5 in	@ 75% power,	
Wingspan	32 ft 9 in	6,000 ft	
Wing area	152 sq ft	@ 65% power,	
Wing loading	16.8 lb/sq ft	6,000 ft	
Power loading	13.25 lb/hp	@ 55% power,	
Seats	4	6,000 ft	
Cabin length	6 ft 3 in	Service ceiling	
Cabin width	3 ft 11 in	Landing distance	
Cabin height	4 ft 1 in	Landing distance,	
Empty weight	1,691 lb		
Empty weight, as tested	1,949 lb	Limiting an	
Maximum ramp weight	2,660 lb	V _X (best angle of o	
Useful load	969 lb	Vy (best rate of cli	
Useful load, as tested	711 lb	VA (design maneu	
Payload w/full fuel (68 gal)	561 lb	V _{FE} (max flap exte	
Payload w/full fuel, as tested	327 lb	V _{LE} (max gear ext	
Maximum takeoff weight	2,650 lb	VLO (max gear op	
Maximum landing weight	2,550 lb	V _{NO} (max structu	
Fuel capacity, std	50 gal (48 gal usable)	V _{NE} (never exceed	
	300 lb (288 lb usable)	V _R (rotation)	
Fuel capacity, opt	70 gal (68 gal usable)	V _{S1} (stall, clean)	
	420 lb (408 lb usable)	V _{SO} (stall, in land	
Oil capacity	8 qt	s-hode vale th	
Baggage capacity	200 lb, 21 cu ft	All specifications	
		culations. All pe	

Performance (normally aspirated 112A) Takeoff distance, ground roll 1,190 ft

verage retail p	orice: \$61,000			
	Takeoff distance over 50-ft obsta	cle	1,585 ft	
360-C1D6	Max demonstrated crosswind com	ponent	19 kt	
2,000 hr	Rate of climb, sea level		1,020 fpm	
d, 76-in dia	Cruise speed/endurance w/45-m	nin rsv, o	opt fuel	
24 ft 10 in	(fuel consumption)			
8 ft 5 in	@ 75% power, best power	13	86 kt/4.7 hr	
32 ft 9 in	6,000 ft	(75 pph	1/12.5 gph)	
152 sq ft	@ 65% power, best economy	12	28 kt/5.3 hr	
6.8 lb/sq ft	6,000 ft	(67 pph	1/11.2 gph)	
3.25 lb/hp	@ 55% power, best economy	11	8 kt/6.0 hr	
4	6,000 ft	(60 p)	ph/10 gph)	
6 ft 3 in	Service ceiling		13,900 ft	
3 ft 11 in	Landing distance over 50-ft obsta	acle	1,310 ft	
4 ft 1 in	Landing distance, ground roll		700 ft	
1,691 lb	A CONTRACTOR OF			
1,949 lb	Limiting and Recommend	ed Airsp	peeds	
2,660 lb	V _x (best angle of climb)		71 KIAS	
969 lb	V _v (best rate of climb)		85 KIAS	
711 lb	V _A (design maneuvering)		113 KIAS	
561 lb	V _{FF} (max flap extended) 0-20 deg	grees	130 KIAS	
327 lb	V _{IF} (max gear extended)		130 KIAS	
2,650 lb	V _{LO} (max gear operating)		130 KIAS	
2,550 lb	V _{NO} (max structural cruising)		143 KIAS	
gal usable)	V _{NE} (never exceed)		180 KIAS	
lb usable)	V _R (rotation)		65 KIAS	
gal usable)	V _{S1} (stall, clean)		62 KIAS	
lb usable)	V _{SO} (stall, in landing configuration	on)	52 KIAS	
0				

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted. which may make landings in a stiff crosswind a challenge.

A recent copy of the aircraft value reference, Vref, explains that the value of a Commander 112 varies greatly from the "pristine" airplanes to the "rough, original" examples. Average values range from \$54,500 for a 1972 112 to \$71,000 for a 1977 112B. The Hot-Shot turbo conversion adds \$9,000 to the value of a 112, according to Vref. In the field, you can expect a Hot-Shot-converted Commander to fetch far more than book value. Faret has his airplane's hull insured for \$100,000. It can be assumed that any Commander in the field has had the necessary fixes after all of this time. But that doesn't preclude getting a thorough logbook check and pre-buy inspection just to be sure.

Commanders have a fanatic following among their owners, many of whom can be found online (www.commander.org). Owners also have a quarterly newsletter available from the Commander Aircraft Association. Commander owners enjoy a certain exclusivity since there were only 540 of them built. This airplane stands out from the throngs of Piper Arrows and Cessna Cardinals. Owners have come to terms with the 112's speed and payload shortcomings and relish in the fun of owning and flying a well-built, good-looking airplane that is the most comfortable ride in its class.

Links to additional information about the Commander 112 and 114 may be found on AOPA Online (www.aopa.org/pilot/links.shtml). Peter A. Bedell, AOPA 1136339, is a first officer with a regional airline and former technical editor of AOPA Pilot. E-mail the author at pete.bedell@aopa.org