pilot flight check:

CESSNA 340A

More power, greater performance and improved creature comfort mark latest business twin evolution

by DON DOWNIE / AOPA 188441

■■ Cessna's latest high-performance twin, the turbocharged, pressurized "A" model of the 340 series, has a creditable list of new features that make a good airplane even better.

The 1976 package differs from its predecessors in two basic areas. Engines have been upped from 285 to 310 hp each. One-and-one-half-inch-shorter three-blade props equipped with a synchrophaser have cut cabin noise by 12

CESSNA 340A
Basic Price $172,150

Specifications

Engines	2 Continental TSIO-520-N, 310 hp
Propeller	2 McCauley, 3-blade, 76.5-in diameter, constant-speed, full-feathering
Wing span	34 ft 4 in
Length	34 ft 4 in
Height	12 ft 7 in
Wing area	184 sq ft
Wing loading	32.55 lb/sq ft
Passengers and crew	6
Cabin length	12 ft 8 in
Cabin width	3 ft 10.5 in
Cabin height	4 ft 1 in
Empty weight	3,868 lb
Useful load	2,122 lb
Gross weight	5,990 lb
Power loading	9.66 lb/hp
Fuel capacity (standard)	102 gal
Fuel capacity (with optional tankage)	207 gal
Oil capacity	26 qt
Baggage capacity	930 lb (43.25 cu ft)

Performance

Takeoff distance (ground roll)	1,615 ft
Takeoff over 50 ft	2,175 ft
Rate of climb	1,650 fpm
Single-engine rate of climb	315 fpm
Maximum level speed (20,000 ft)	242 kt
Cruise speed (77.5% power, 24,500 ft)	220 kt
Economy cruise speed (25,000 ft)	186 kt
Range at normal cruise (163 gal fuel, 45-min reserve)	861 nm
Range at economy cruise (163 gal fuel, 45-min reserve)	976 nm
Service ceiling	29,800 ft
Single-engine service ceiling	15,800 ft
Stall speed (clean)	83 kt
Stall speed (gear and flaps down)	71 kt
Landing distance (ground roll)	760 ft
Landing over 50 ft.	1,850 ft

decibels and increased ground clearance by ¾ inch.

Additional refinements include tapered seats for more aisle room, a 25% increase in air-conditioning capability, an independent low-fuel warning system and the relocation of crewmember emergency oxygen masks to the sidewall panel where they can remain plugged in while stowed.

The 340 was introduced originally in 1972, and 359 units had departed Wichita prior to the recent introduction of the Model A.

We recently flew with two factory pilots. For cross-country performance, we joined Dave Schmidt on a trip from Los Angeles to Wichita with a fuel stop in Albuquerque. Our second exposure to the able 340A was with Nick Parrott for the full treatment of single-engine performance, emergency procedures and night flying.

Our flight time from Chino, just east of Los Angeles, to Albuquerque (635 statute miles) was 2:40 with 21 minutes required to reach a cruise level of 19,000 feet. Our cruise-climb power setting was 2,450 rpm and 31.5 inches of manifold pressure at 140 kt indicated airspeed. The AiResearch turbochargers required no adjustment after takeoff power was reduced. They can maintain 31.5 inches to 20,000 feet without touching the power levers.

Preflight, startup, taxi and takeoff were completely standard. Unlike earlier turbocharged installations, power applications can be rapid since an overboost "pop-off" valve is built into the system to prevent damage.

The tip tanks are called the mains on the 340 series and hold 50 gallons usable in each while the aux tanks, located inboard of the tips, have 31.5 gallons usable on each side. One wing-locker tank (20 gallons) was installed on N5170J, but it was not filled. With 163 gallons of fuel, three people, and baggage, our takeoff weight was near the 5,990-pound maximum design weight.

Fuel is drawn from the mains for the first hour. If long-range aux tanks are installed—63 vs. 40 gallons—the mains should be used for the first 90 minutes to make ample space for unused fuel that is returned from the injected engines only to the main tanks. Goof on this procedure, and you can pump fuel overboard.

At our assigned altitude of 19,000 feet with 31.5 inches mp and a quiet 2,150 rpm, we were burning between 95 and 100 pounds of fuel per engine, or roughly 30 gph. A low-fuel warning light comes on when 10 gallons (60 pounds) of fuel remain in each tank. The mains are used for all takeoffs and landings.

With a power setting of 64% available, our true airspeed at 19,000 feet was 202 kt, while the DME readout showed a ground speed of 247 kt.

Once established in cruise, we punched on the autopilot control located at the bottom of the throttle quadrant and activated both heading and altitude hold. This system has an automatic disengage whenever the aircraft pitches more than normal from level flight. The test button to check out this pitch system should be used prior to takeoff since in-flight activation will cause the 340A to pitch up sharply and disengage the autopilot.

Cockpit layout in the 340A is conventional. Throttle controls are at the far left of the quadrant with props in the middle and shorter, ratchet-equipped mixture controls at the right. There seems little likelihood of pulling back inadvertently on the mixtures.

Uncomplicated fuel selectors are recessed in the floor between the pilots' seats. Electrical switches and circuit breakers are at the left of the pilot's seat, and there's ample leg room for taller pilots. Excellent cockpit lighting controls above this panel's left side were explored on our second flight.

Pressurization controls are installed below the pilot's control column and take just a little wriggling to see. Complete cabin pressurization can be maintained by either engine above 60% power, with pressure coming from the turbocharging system.

Weather radar was mounted just above the right side of the throttle quadrant. There are no instruments or switches in the cockpit overhead with the only items there a cockpit light and an air vent. Great for pilots with bifocals.

Turbochargers and pressurization go hand-in-hand. Cessna calls their pressurized cabin "the comfort capsule," and that it is. We enjoyed the freedom from an oxygen mask at 19,000 feet and shirt-sleeve comfort with an outside air temperature of 5° to 10°F.

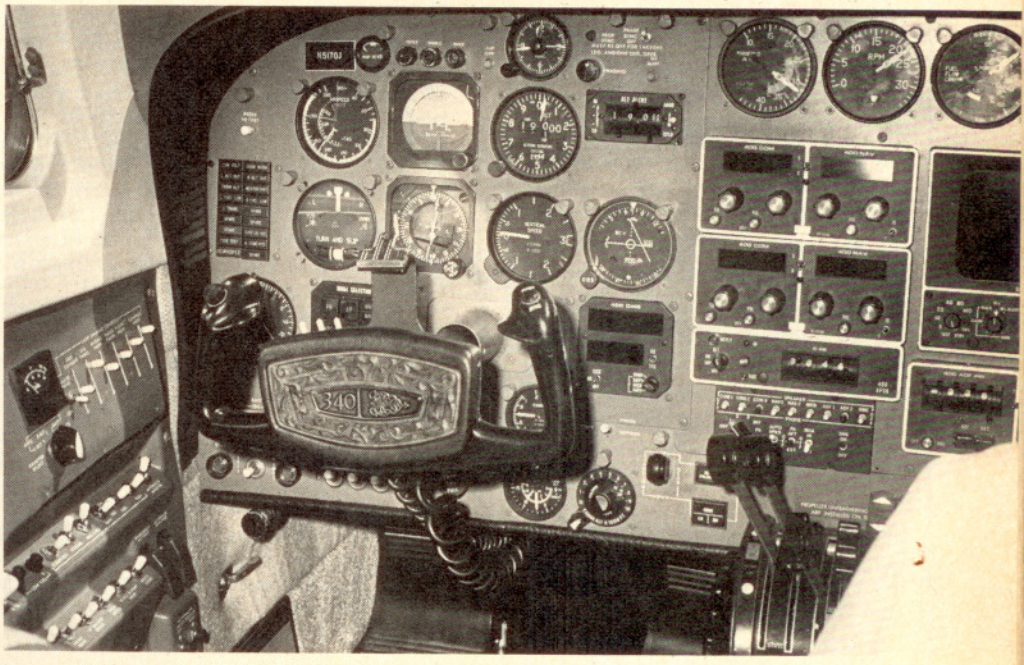
Our let-down into Albuquerque showed calm-air ground speeds of 302 kt in a 1,000 fpm descent. Cabin pressure was cranked down slowly to field elevation with the rate control adjusted to reach ground level plus 500 feet. Wing flaps extend to 15° at 160 kt indicated to help slow the 340A to its 140 kt gear speed.

There is a noticeable pitch up with application of the first notch of flaps, but this is controlled easily by the electric trim button on the top left of the pilot's wheel. A manual elevator trim wheel rubs against the left-seat pilot's right leg as it turns. This feature, originally distracting, has the advantage of keeping the pilot aware of any unusual trim changes that might occur while the plane is operating on autopilot.

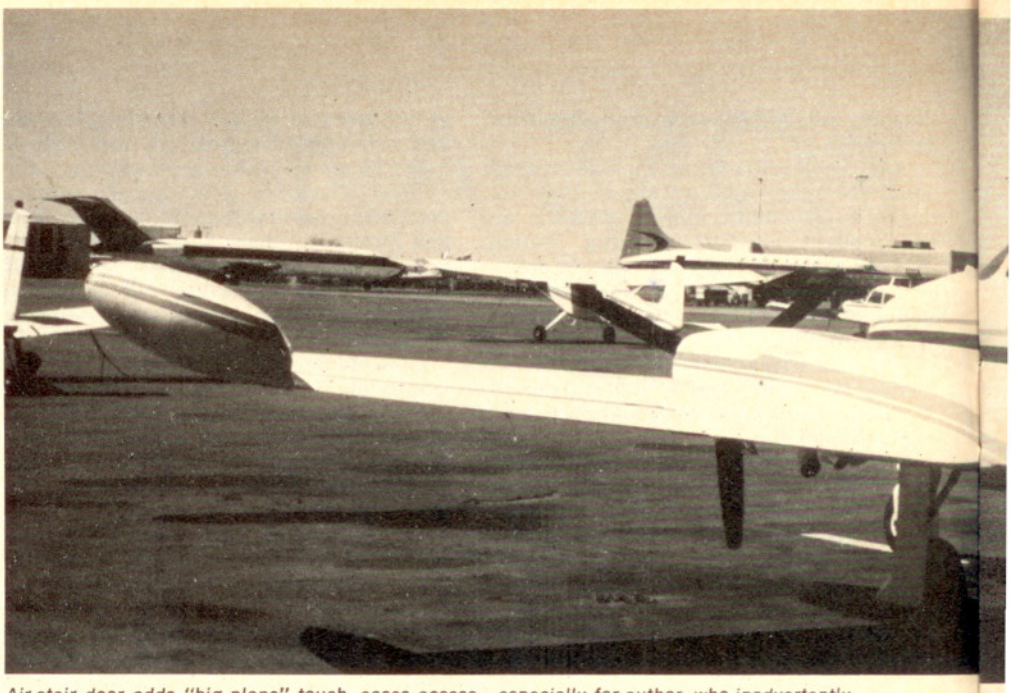
With gear down and locked, we went to full 45° flaps on final for 5,395-foot runway 30 at Albuquerque. Speed across the numbers was between 95 and 100 kt, well above the 80-kt minimum control speed.

Landing was uneventful using fairly heavy back wheel forces rather than over-trimming nose-up just in case of a go-around. With effort, it is possible to hold the nose gear off the ground down to 55 kt. More than half the runway remained after the nose gear touched.

Our chuckle for the day came when we unlocked the new 340A after a snack-bar lunch. Dave Schmidt was filing a flight plan as Cessna publicist, Dave Franson and I walked toward 70 Juliet. As a matter of habit, I pulled my



Cessna 340A panel at 19,000 ft. Avionics complement is a full-house Cessna 400 series package including flight director/HSI, autopilot and weather radar. Vertical sliding levers on left sidewall control five sets of cockpit lights—judged a strong plus during flight check.



Air-stair door adds "big plane" touch, eases access—especially for author, who inadvertently unlocked it with the key from his 1952 Cessna 170B. Turbocharged, pressurized 340A trued over 200 kt at 19,000 ft with 310-hp engines, upped from earlier 285-hp powerplants.

keys out and proceeded to unlock the cabin door of the new twin—with the key that fits my 1952 Cessna 170B.

We had the mains topped and 25 gallons added to each aux tank. Altitude at Albuquerque is 5,352 feet but we accepted an intersection takeoff with ample room to spare. Even at these medium altitudes, turbos are great.

We climbed quickly to 21,000 feet. With an OAT of +5°F, our true airspeed was 210 kt with a DME read-out a satisfying 266 kt. Our winds at altitude were figured at 50 kt from about 230°, calling for a left drift correction of about 20°.

N5170J was the first production unit of the 340A. Predictably we had a full-house 400-series avionics package. The ADF picked a firm hold on Wichita abeam Clayton, N.M. Soon Wichita was within VHF range (radios really reach out at these altitudes), and surface winds were reported at 25 to 40 kt from 330°. The 3,825-foot runway at Cessna's delivery center is oriented 17-35.

"That'll be interesting," commented Schmidt with a wry grin.

The next wind check showed a unique combination of blowing dust and light rain with winds at 40–45, gusting to 50 kt. Since N5170J was valued at $252,389.85 including options, it seemed the better part of valor to offer this upcoming landing to the factory pilot.

Schmidt shoe-horned the airplane into the diminutive Cessna field with experienced finesse, carrying 110 kt down a very turbulent final approach. He planted the ship smoothly into the howling wind and we were stopped half-way down the runway. Just as though it had been prearranged, one of the hangar doors opened at the transportation center, and we rolled into the welcoming shelter. Flight time, 2:32.

"If you don't fly in winds, you don't do much flying in Kansas," commented Schmidt as we off-loaded our bags.

On a normal flight evaluation, we'd fly the slow end of the regime, single-engine work, stalls, tight turns and airwork before doing the cross-country, but our introduction to the new 340A was in reverse. Well-rested after the trip from the West Coast, we went out a couple of days later with Nick Parrott to find out all about the emergency procedures of 70J. Takeoff and departure from Cessna's delivery center is always interesting since the runway is narrow, relatively short, and the traffic pattern is just 300 feet agl to remain below the busy military jet-training traffic at adjoining McConnell AFB.

Turbos cut in at 1,500–1,600 rpm and Parrott advised us to hold the brakes until the power was passing through 23 inches. Brakes off, we pushed forward briskly to full throttle, 38 inches and 2,700 rpm. With only two of us aboard and 840 pounds of fuel (full tips and 120 pounds in each aux tank), we almost leaped into the air and came back to 34 inches and 2,500 rpm immediately. After hedge-hopping clear of the military pattern, we climbed to 8,500 feet for airwork.

The 340A is most responsive, with a smooth rate of roll. Steep turns are comfortable from a pilot's viewpoint (not for passengers), and a 60° bank required strong back pressure to keep the nose on the horizon.

At the slow end of the spectrum, there is ample warning with a briskly paced buffet prior to a full stall. The 340A showed no tendency to dip a wing, and

the nose dropped straight ahead. We worked an engine-out exercise with the gear down. The simulation was loss of the left engine—slightly more critical than the right—at Vmc (82 kt) with recovery and speed build-up to 91 kt without loss of altitude. Parrott demonstrated the maneuver, and we climbed right out with the left engine feathered. Fairly heavy rudder pressure was required, and we lifted the "dead" engine slightly for best climb performance.

Payoff in the engine-out regime was a deliberate stall, well under 80 kt indicated, to show where the rudder became ineffective. The 340A began to roll toward the "dead" engine despite full top (right) rudder and full top aileron. In this situation, the only way to retain directional control was to reduce power on the good engine and sacrifice altitude.

Even though both propellers turn the same way, there appears no reason to go to the cost and complexity of a counter-rotating system in the 340A.

We followed the new, excellent, expanded pilot's operating handbook for all emergency work.

With one engine feathered, Parrott had me set up a single-engine climb at Vyse, full throttle and rpm on the operating engine. Then he called for gear down. Our rate of sink (descent) stabilized at 50 fpm. After the gear was back in the wells, he called for full flaps. Our rate of sink with 45 degrees of flaps and gear up was 750 fpm. Moral—in an emergency situation, pull up the flaps first and then go for the gear.

Our landing practice was at Hutchison, Kan., with ample space, calm winds, and little traffic. After our slow-speed work at altitude, 70J seemed much more docile than she had in Albuquerque.

Perhaps the most interesting part of this 340A exposure was after dark when we took off from Hutchison and headed for the unlighted factory field back at Wichita. The night was crystal clear, and there was opportunity to work with the very fine cockpit lighting system. Vertical sliding adjustments on the left sidewall govern five sets of cockpit lights to any desired level. I've never sat in a cockpit with better lighting.

As we cleared the military traffic inbound, the factory pilot called for one notch of flaps and a descent to 2,000 feet agl. The airport altitude is 1,384 feet with a base-leg entry five miles long at 500 feet above the ground until within 1½ miles of Cessna. Then it's 300 feet agl for the last leg. To say the least, it's different.

While the factory field does not have runway lights, it does show a string of red obstruction lights at each end of the runway. The secret is knowing when to turn so that these two sets of lights line up. Parrott called the shots while I did the driving. It took some coaching to get down to 300 feet with nothing visible but scattered residential lights and no runway in sight.

Parrott made a final prelanding check and pointed out the upcoming red boundary lights. Airspeed 115 to 110 kt with power applied to make the turn to final approach. Then keep it a little high and 100 kt on the clock. Most neophites overshoot this turn and try to undershoot the runway because of an upslope adjoining the field. It looks short, black and unfriendly until the two sets of red lights begin to line up and the 340A's powerful landing lights make the runway reflectors emerge slowly into sight. A big number 17 shows on the runway, and we're a little high.

From here on in it's positive use of all controls; neither time nor space for slow reactions. Over the numbers and back on the power. Flare, but not too much. The mains bite into the asphalt. The nose gear touches with a little thump, and the 340A brakes to a smooth halt. Surprise. We're abeam the delivery center with more than half the runway unused.

Taxi in slowly, and let the engines run for two or three minutes at 1,000 rpm or below to cool the turbos before shutdown. As soon as the props stop, there's no oil supply for the turbos, so the rundown time is required for longevity.

Impression. The 340A could be addictive. Its pressurized, over-the-weather capability is great. With practice, it should be relatively easy to fly once you learn the systems. Cheap it is not, either in price or in quality, but the 340A should be most rewarding as a business tool. □