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Cessna T182T Turbo Skylane

Climb High

By Julie K. Boatman

Cessna's new turbocharged T182T

From a few tiedowns away, the new turbocharged Cessna T182T doesn't look much different from the 182S that debuted in 1997. Heads don't turn like they once did; the newness of the sleek white aircraft doesn't immediately draw attention to itself. But closer inspection reveals that there's more here than first meets the eye. The last of the original straight-leg T182s were built in 1985, and the retracts were built until 1986. So for those who appreciated the versatility and strength of the old-line Cessna T182s, the new T182T is definitely worth a second look.

Power under the cowl

The big story here is the addition of a turbocharged engine to the airframe. Like the T182, the extra power available at altitudes up to 20,000 feet msl gives important utility to an airplane that's already a stable IFR cross-country and mountain machine.

The engine, a Lycoming TIO-540-AK1A, is a step up from the original Turbo Skylane's Lycoming O-540-L3C5D, in that the turbocharger is an integral part of the engine rather than a Cessna modification. And the wastegate is adjusted through an automatic sloped absolute pressure control system, nearly eliminating your chances of overboosting the engine. On the old T182, with its manual wastegate control, the pilot had to be cautious during the application of takeoff power, lest the manifold pressure needle go shooting off the top of the gauge. The T182T's engine also is built with more robust components because of the higher amount of power available at maximum cruise (about 87 percent or 206 horsepower, from a rated power of 235 hp at 2,400 rpm).

A turbine inlet temperature (TIT) scale replaces exhaust gas temperature (EGT) on the gauge shared with the cylinder head temperature (CHT) scale. Since the health — read temperature — of the turbocharger's turbine is critical to its longevity, keeping this scale reading below 1,625 degrees Fahrenheit is important. The readout seems directly linked to the fuel flow, so a quick turn of the mixture to keep fuel flow around 14 gallons an hour usually results in good TIT management.

As with other new Cessna models, the engine is fuel injected to avoid the hazards of carburetor icing. Two Slick pressurized magnetos provide the spark, as in the current turbocharged 206H model. The T182T has the three-blade McCauley propeller standard, a choice that Cessna also made with the 182S model.

A few good knots

A good deal of aerodynamic tweaking went into the T182T's design, in pursuit of a little more speed. Sum total: four knots. While that may not seem like a huge number, Cessna wanted to get everything out of the 182's airframe it could, as plans for a

retractable-gear version remain somewhere in the nebulous future. If you consider the fact that retracting the gear on the old turbocharged Cessnas gained anywhere from 12 to 15 knots, pilots may or may not be satisfied with the airspeed increase — in lieu of the added cost and maintenance of the somewhat quirky retractable gear of previous Skylanes.

Redesigned wheel fairings gave the T182T roughly 2.2 of the four knots, and they do appear sleeker. A handy door on the side allows for limited inspection of the tire and the ability to add air to the tires without removing the fairings. A flush-mounted air filter, improved engine baffles, and redesigned cowl reduce engine cooling drag. For better ground operations in hot weather, there's a fuel return system, incorporated to improve engine function during extended idle operations in hot weather by returning fuel back to the tank selected. Only the 182T and T182T feature this system.

Additional speed came from little changes to the 182S model for the 182T and T182T models, such as a smaller step on the gear strut for use in boarding the airplane. The nav antennas are flat versus whisker-style, and the beacon is low-profile. Even the strobes got an aerodynamic makeover. Listing the incremental improvements while walking around the airplane gives a sense of how dedicated the engineers were to wringing out every last knot. Those who have prepared an airplane for a cross-country race, take notice: These people were serious.

If you want a solid ride, and you've "grown up" in the familiar high-wing Cessnas, the T182T holds no surprises. As the company has proven over and over with the relaunch of its popular designs, people appreciate the familiar — especially when it comes to flying single-pilot IFR and from short strips. The point was made when, during a flight test of another high-wing airplane at the Sun 'n Fun EAA Fly-In, the demo pilot touted its flying characteristics as a comfortable transition "for the average Cessna driver." The T182T is simply the well-known 182 with more guts — an airplane that goes where you tell it to without blowing your hair off.

In the first takeoff with no flaps, the airplane was a little sluggish getting off the ground in the gusty wind, but still managed to use only about 1,000 feet of runway. Subsequent takeoffs with about 10 degrees of flaps shortened the distance to around 800 feet.

Full throttle results in a manifold pressure (MP) reading of 32 inches at 2,400 rpm, and this power setting, with the resulting fuel flow of around 24 gallons per hour, has no time limit. Of course, you may want to take the MP back into the green to help your range and endurance. The extra power shows up in a couple of places. During the climbout from sea level, the airplane easily averaged 800 feet per minute up to 10,500 feet at 105 knots indicated — for a reasonable deck angle. After leveling off at that altitude, we throttled back to the top of the green arc on the MP gauge and dialed the mixture back to the top of the green arc on the fuel flow gauge for 75-percent power. This condition was arranged by Cessna engineers for their new single-engine models, and it creates a nice rule of thumb for easy cruise power setting.

At 75-percent power, the T182T indicated 137 knots, burning 18 gallons an hour. At 10,500 feet on the day we flew, this translated into a true airspeed of 162 knots. Steve Kent, Cessna regional manager, estimated a little less than five hours of endurance at this power setting, giving a range of just under 800 nm with VFR reserves. Bringing the power back to 24 inches MP and 2,300 rpm, with a fuel flow of 14 gallons an hour, gave us 125 KIAS and 147 KTAS, with an estimated six hours of endurance and subsequent range of close to 900 nm.

Panel magic

A recent checkout in an elderly turbocharged, retractable 182 served as a reminder of how much nicer it can be to fly the newer airplane with its well-designed panel. Though the older Cessnas may have started their lives with then-state-of-the-art avionics, few owners have had the cash to upgrade their panels in anything other than piecemeal fashion. The result is often a loran here, a DME box there, and aftermarket gauges wherever they would fit. Every experience in an older Cessna is an exercise in scouting around the front office for the airplane's vital signs during runup. You knew there was a reason for that checklist.

The flat gray, metal panel on the T182T is laid out in the same manner as the other new Cessnas, so the transition is easy enough. Engine gauges are grouped on the far left side, and the standard six may include a slaved Bendix/King KCS 55A horizontal situation indicator (HSI), if the buyer selects the top-of-the-line Nav II package. The KAP 140 two-axis autopilot is also standard on the T182T, and an option on other single-engine Cessnas. The autopilot performs adequately here as well.

The Nav I and II choices also put some magic in the center stack, in the form of a KLN 94 GPS and a KMD 550 multifunction display. A Goodrich WX-500 Stormscope is also included with the Nav II option. The higher-level avionics suites bring the sticker price on the T182T to \$259,000 and \$277,300, respectively. An additional \$5,500 gives you a Bendix/King KR 87 ADF system, if your operational requirements demand the extra needle.

We took production model two, N7277Z, for a second test flight in April. We set up for a GPS approach into Independence, Kansas, after leveling off from our climb at 6,000 feet msl — the only altitude with a solid layer of clouds. Hitting the Procedure button on the far left side of the KLN 94 instantly called up the approaches for the destination airport on the active flight plan. Scrolling through and selecting the GPS 35 approach and hitting Enter loaded the approach and put the waypoints onto both the — 94's map (if we chose to view it) and the 550's big screen. Even though we were lined up with the final approach course, the procedure called for a required holding pattern at JEFFE, which served as both the initial and final approach fix.

Though we were in and out of the benign, fluffy clouds, we stayed on the dials to test both the T182T's IFR ability and that of the new boxes. No surprises in the flying, that's for sure. The T182T changes nothing about the model's reputation as a steady instrument platform. In fact, the airplane's ability to go from 120 knots on final approach to a reasonable over-the-fence speed once the runway environment's in sight should elicit some jealous glances from pilots of more slippery aircraft. While we hand-flew the approach, we did set up the autopilot's altitude alert function for audible callouts during the descent into Independence.

The KMD 550 made situational awareness on the approach immediate rather than a multiple-step process. The terrain background on the display showed bright green, reflecting the flat elevations in southeastern Kansas. This function will be even more appreciated during approaches into airports surrounded by higher terrain. The 550 also accepts lightning information from the WX-500, which is probably more useful than the terrain data in the T182T's home state. Other aftermarket functionality available for the 550 includes enhanced ground proximity warning system (EGPWS), passive or active traffic alert system, and uplinked weather (scheduled for late 2001).

Other refinements

Cessna goes a few more steps toward proving that it listens to customer comments with some interior modifications made to the T182T. With the newer-model Cessnas, the addition of covered headset jacks was both a boon and a bane. Yes, the covers were necessary to keep water and other crud out of the well-placed jacks, but those very covers made inserting plugs into the jacks a little too annoying. Pilots complained, and with the T182T, the front-seat jacks are relocated to a panel-mounted position that obviates the need for covers. Aft-seat jacks are also mounted horizontally now.

Panel lighting is a regular consternation to those who fly in low-light conditions, and the company hopes it has improved the T182T's panel illumination with the introduction of LED glareshield lighting. Though we didn't test the T182T at night, the lighting appears more even, and it produces less heat.

Other refinements include an audio input port to the KMA 28 stereo audio panel, a chart and cup holder below the center console, integrated rear-seat cup holders, and a standard four-place oxygen system with an externally serviced 50-cubic-foot bottle. Either fabric or leather seats are available at no additional cost.

Working the line

The T182T is another addition to the models coming together at Cessna's single-engine facility in Independence (see "[Pilgrimage to the Plains](#)," page 72). There are two production lines in the main building, one for the 172R and S models and one for the 182T, T182T, 206H, and U206. How do they keep all those airplanes straight? A lot of organization.

When Cessna first started out of the gates with new single-engine production in 1997, predictions flew that the company would build 2,000 piston singles in 1998. That figure was a little optimistic, judging from the serial numbers on the floor during our recent visit. However, this shouldn't be viewed as a negative sign, according to Single-Engine Marketing Communications Manager Lori Lucion. Perhaps the earlier number was constructed to build optimism, but more realistic figures make the actual production scheme more practical.

In fact, a rapid spool-up raises serious questions of quality among pilots who envision mechanics fresh out of school quickly stapling together airplanes to meet sales predictions. While Lucion agrees that this is a valid concern, she contends that it's not the case at Cessna. "A lot of the old-timers were literally brought out of retirement to help train new people," says Lucion, and workers from the Wichita plant who had originally wrenched on the single-engine lines came back to Independence as well. Other programs address issues about recent airworthiness directives and overall quality, and they include frequent safety meetings for team leaders, highlighting various aspects of line discipline. Yes, NTSB accident reports are discussed, so technicians understand the result of, for example, leaving a tool in a newly fastened cowl.

Current numbers on the line indicate that roughly 3,500 single-engine Cessnas have been built since the new model runs began. While this doesn't meet the company's original lofty goals, it's put a lot of new airplanes out there — and that's something to take pride in.

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Pilgrimage to the Plains

While a trip to the big aircraft manufacturers in Wichita is enough to make any pilot drool, there's more down-home appeal to seeing Cessna's single-engine production facility in Independence, Kansas. The pace is a little slower, and the people are Midwest-friendly, truly willing and able to take the time to show you around and answer all your questions. And there's no need to feel humble because all you've ever flown is a 172 — shoot, that makes you part of the family!

Independence Municipal Airport has all flavors of instrument approaches, from ILS to GPS, and plenty of parking space — though if you're flying a new single-engine Cessna you may have a hard time finding your airplane when you return to the ramp. Independence Municipal Airport FBO has 100LL and jet fuel, as well as a courtesy car; the Cessna manufacturing center on the field isn't the only attraction in town. However, it makes sense to start there if you're a serious Cessna shopper; contact 800/423-7762 to make advance arrangements for a tour of the facility if you're a potential buyer.

The assembly building houses the two main production lines, and if you're on the floor during normal business hours (6:30 a.m. to 4:30 p.m. for the production lines), the noise is incredible. It becomes apparent why it's so noisy when you see all the rivets that go into a new airplane. Over at the paint building, things are a little quieter, but the hustle is still in the air as airplanes are prepared for flight testing and customer delivery.

As for accommodations, there are the standard-issue Microtel Inn (620/331-0088) and the Super 8 Motel (620/331-8288) close to the airport, but for just a few dollars more you can stay in Independence's own slice of heaven, Glenclyff Farm. This bed-and-breakfast is run by Ace and Marilyn Johnson, in a manor house that's been in the Johnson family since the late 1920s. The peace and quiet is amazing, and the food — especially Johnson's French toast — is first rate. The four rooms fill up quickly, so plan ahead. Contact Glenclyff Farm at 877/334-1277.

The Midwest means barbecue, and Independence has its own downtown establishment, John's Kitchen and Pub, at 119 West Main Street in a location that's locally known as "the typewriter building" for the old sign on its storefront. Another good place for steaks and pasta is Uncle Jack's, also downtown, on the corner of Main Street and Pennsylvania. For more information, see the Independence Chamber of Commerce Web site (<http://www.independenceschamber.org>). — *JKB*

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| Cessna T182T | |
| Base price: \$242,000 | |
| Price as tested: \$277,300 | |
| Specifications | |
| Powerplant | Textron Lycoming TIO-540-AK1A, 235 hp @ 2,400 rpm |

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|---|-----------------------------------|
| Recommended TBO | 2,000 hr |
| Propeller | McCauley, 3-blade, constant speed |
| Length | 29 ft |
| Height | 9 ft 4 in |
| Wingspan | 36 ft |
| Wing area | 174 sq ft |
| Wing loading | 17.8 lb/sq ft |
| Power loading | 13.2 lb/hp |
| Seats | 4 |
| Cabin length | 11 ft 2 in |
| Cabin width | 42 in |
| Cabin height | 48.5 in |
| Empty weight | 2,017 lb |
| Empty weight, as tested | 2,056 lb |
| Maximum ramp weight | 3,112 lb |
| Maximum gross weight | 3,100 lb |
| Useful load | 1,095 lb |
| Useful load, as tested | 1,056 lb |
| Payload w/full fuel | 573 lb |
| Payload w/full fuel, as tested | 534 lb |
| Maximum takeoff weight | 3,100 lb |
| Maximum landing weight | 2,950 lb |
| Fuel capacity, std | 92 gal (87 gal usable) |
| | 552 lb (522 lb usable) |
| Oil capacity | 9 qt |
| Baggage capacity | 200 lb |
| Performance | |
| Takeoff distance, ground roll | 775 ft |
| Takeoff distance over 50-ft obstacle | 1,385 ft |
| Max demonstrated crosswind component | 15 kt |
| Rate of climb, sea level | 1,040 fpm |
| Cruise speed/range w/45-min rsv, std fuel (fuel consumption), 12,500 ft | |
| @ 88% power, best economy | 158 kt/594 nm (17.2 gph) |
| Maximum operating altitude | 20,000 ft |
| Landing distance over 50-ft obstacle | 1,350 ft |
| Landing distance, ground roll | 590 ft |
| Limiting and Recommended Airspeeds | |
| V_X (best angle of climb) | 58 KIAS |
| V_Y (best rate of climb) | 80 KIAS |
| V_A (design maneuvering) | 110 KIAS |
| V_{FE} (max flap extended) | 140 KIAS |
| V_{NO} (max structural cruising) | 140 KIAS |
| V_{NE} (never exceed) | 175 KIAS |
| V_R (rotation) | 55 KIAS |
| V_{S1} (stall, clean) | 42 KIAS |
| V_{SO} (stall, in landing configuration) | 35 KIAS |

For more information, contact Cessna Aircraft Company, Post Office Box 1996, Independence, Kansas 67301; telephone 800/423-7762; fax 620/332-0388; or visit the Web site (<http://turboskylane.cessna.com>).

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.