

Pilot Flight Check

The Cessna 152

A new engine
and new title
grace a little lady
hardly new
to any of us

■ ■ The new year has arrived early, very early, at Cessna, for the company has introduced its 1978 model training and personal use aircraft . . . and it is not a Cessna 150.

The 18-year-old 150 has been retired, the last of 24,000 of them rolling down Cessna's production line in April. A revised two-place

aircraft is labeled the Cessna 152, and exhibits significant (though not visually apparent) modifications to its predecessor.

Of the biggest import to buyers of the new airplane is its powerplant, a Lycoming O-235-L2C designed to drink 100LL fuel. Cessna's installation de-rates the engine to 110 horsepower at 2,550 rpm (from 115 hp) and

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Altered shape of the nose and a longer exhaust pipe are two clues that there's something new under the cowl. Photos by author.

adds a new McCauley (a Cessna division) propeller with higher pitch for increased thrust at the lower rpm. The Continental powerplant in the old 150 turned 2,750 rpm.

Besides its thirst for the more commonly available blue gas, the engine/prop combination in the 152 offers a number of other side benefits.

Aircraft gross weight increases by 70 pounds, while climb and takeoff performance slightly outstrip the predecessor airplane. The new engine features a 2,000-hour time between overhaul (TBO), 200 hours more than the Continental engine. The Lycoming engine brings with it a standard three-cylinder priming system, oil cooler, and new air intake and muffler design.

And because Cessna has reworked the fuel tanks in the 152, unusable fuel, which formerly totaled 3½ gallons, now is only 1½ gallons. So despite a modest fuel consumption increase, the 152's range and endurance will slightly surpass that of the old 150.

The Lycoming engine is attached to the airframe with dynafocal engine mounts (the kind with rubber insulators) rather than direct metal-to-metal mounting. This results in less a feeling of sitting in a massage chair, and a quieter cabin interior.

From the firewall back, the 152 is, with the exception of some rather minor variations, the same as the old 150. The flaps on the 150, probably the source of the cliché "barn-door flaps," were always known for their effectiveness. Apparently, Cessna engineers decided, after 18 years, they were too effective, and the maximum extension available for the 152's flaps is 30 degrees, reduced from 40 degrees. Comparatively, the 152's stall speed is up by a knot or two, and its landing distance over an obstacle is lengthened—but by less than 100 feet.

The super-effective flaps were apparently causing difficulty for pilots practicing go-arounds, for if they were set full down in the old airplane it could offer only a most paltry bit of climb, even with full power. Cessna reports that the new

flap arrangement in the 152 allows a 450-fpm climb rate even when flaps are left full down. The flap selector lever has detents for 10-, 20-, and 30-degree settings; the flap position indicator that used to be built into the windshield left-side support is no more.

A new 152, an engineering prototype used for flight certification, was flown from Cessna's Wichita, Kan., facility. In flying the 152, three changes are most apparent. Takeoff and climb are considerably more lively; there is a lot less vibration in flight; and the landing characteristics, due to the reduced flap range, are different.

Operationally, the Lycoming powerplant calls for slightly altered procedures, too. The new 152 manual will suggest leaning the mixture during climb above 3,000 feet. Also, in cruise the engine is to be leaned to rpm peak, then leaned a bit more for a drop of 25 to 50 rpm. Traditionally, the final leaning adjustment would be to the rich side of peak. Though carb heat application isn't usually called for on Lycoming engines (except in icing conditions), it will be recommended

CESSNA 152

Basic Price \$14,950

Specifications

Engine	Lycoming O-235-L2C, 110 hp @ 2,550 rpm
Propeller	McCauley fixed pitch, 69-in. diameter
Wing span (standard tips)	32 ft 8 in
Length	24 ft 1 in
Height	8 ft 6 in
Wing area (standard tips)	157 sq ft
Wing loading	10.6 lb/sq ft
Passengers and crew	2
Empty weight (standard airplane)	1,081 lb
Useful load	589 lb
Gross weight	1,670 lb
Power loading	15.2 lb/hp
Fuel capacity (standard)	26 gal (24.5 usable)
Fuel capacity with optional tanks	39 gal (37.5 usable)
Oil capacity	6 qt
Baggage capacity	120 lb

Performance*

Takeoff distance (ground roll)	725 ft
Takeoff over 50 ft	1,340 ft
Rate of climb (sea level)	715 fpm
Maximum level speed	110 kt
Normal cruise speed (75% power, 8,000 ft)	107 kt
Range at normal cruise (with 45-min reserve)	350 nm
Maximum range at 10,000 (with 45-min reserve)	415 nm
Service ceiling	14,700 ft
Stall speed (CAS, clean)	48 kt
Stall speed (CAS, flaps down)	43 kt
Landing distance (ground roll)	475 ft
Landing over 50 ft	1,200 ft

*Speeds and ranges are with optional wheel fairings.



in the 152 manual anytime there is a power reduction.

A first takeoff was made from Strother Field (1,159 feet msl), southeast of Wichita, where the Cessna light singles are made. Winds were blowing up to 20 knots from the southwest, and temperature stood at 60 degrees F. At the far end of Strother's 5,500-foot Runway 17, the 152 had climbed to 1,800 feet, 65 knots showing on the indicator. About 800 feet of takeoff roll was needed before the plane, its full fuel load and two pilots were launched from the pavement.

Later flights from both grass and paved strips nearby (landing to the south with about the same wind conditions) showed takeoff roll could be trimmed to 500 feet, with landing roll as short as about 300 feet. The grass strip was graced with a row of trees at the approach end of the runway that stood about 25 feet high. A full-flap landing, over the trees to full stop, used an estimated 500 feet.

During full-flap landings, elevator buffeting was noticeably diminished in the 152 compared to the 150, probably because the reduced flap angle creates less of a disturbed airflow

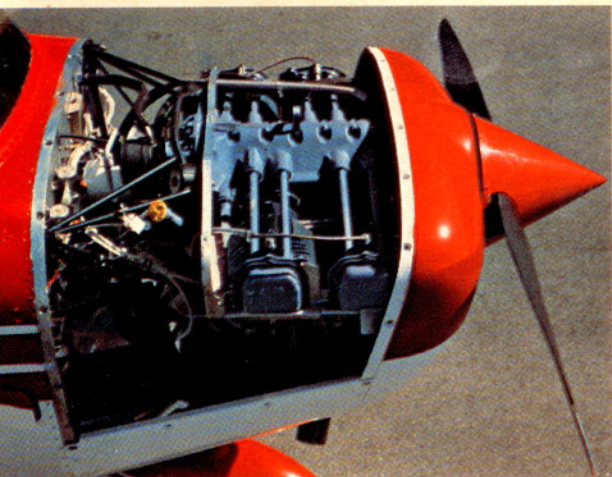
trail behind the wing. Also, it seemed that a bit wider margin between stall and approach speed was necessary in the 152 to attain a decent landing flare, as compared to the 150.

Cessna trainers have always had particularly effective rudders, allowing landings in crosswinds of surprising velocity considering the slow touchdown speed of the airplane. Though the maximum demonstrated crosswind component of the 152 is 12 knots, it proved quite adept at dealing with the winds during this flight check.

Like its predecessor, the 152 is approved for spins in the utility category. Two, one-turn spins were entered from a power-off stall to the left, and the sharp application of opposite rudder put a quick stop to the rotation. A tail introduced in 1975 to improve the 150's spin characteristics remains the same on the 152. The craft's handbook warns that any use of ailerons can severely aggravate a spin.

Repeated stalls in this airplane showed 38 and 34 knots indicated airspeed to be the flaps-up and flaps-down stalling speeds. Airspeed indicator error at those low airspeeds puts





Accessibility to the 110-hp Lycoming engine is increased due to longer sides of upper cowl. Instruments and cockpit controls are unchanged from last year.



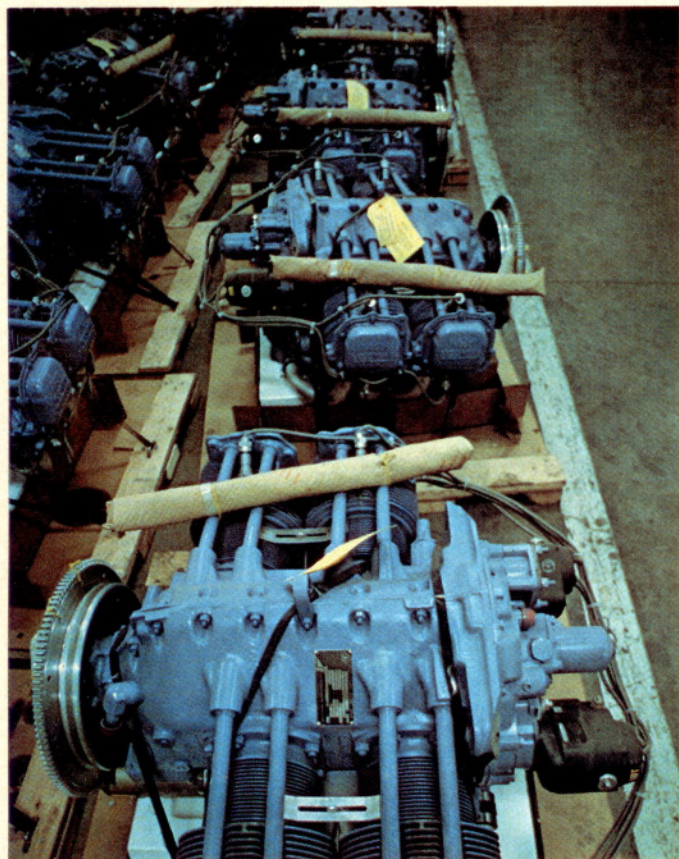
CESSNA 152 continued

the calibrated stall speed about 8 knots higher, according to Cessna engineering.

In cruise, you find the 150 churning along at speeds a couple of knots faster than the previous editions. Optional wheel pants were found on N7187C.

At 6,500 feet turning redline rpms, the 152's speed indicator showed 99 knots. Corrected for the 54-degree temperature, true airspeed came to 110 knots. (For you statute mile fans, that translates to 127 mph.) Performance charts in the manual called for 108 knots at that power.

For 65% power, the book said use 2,380 rpm, which tallied



Recently arrived to the Cessna factory, Lycoming O-235-L2C engines await homes in the business ends of 1978 Cessna 152s.

a true airspeed of 101 knots, about 4 knots higher than published speed. Fuel consumption rate for this altitude and setting is said to be 5.3 gph.

Because of the extra speed, aileron and elevator control feels tighter and heavier; there is less slosh in controls while moving the airplane around. The flight check craft was particularly well balanced. Unlike some 150s, this bird would hold wings-level flight, hands-off, in smooth air for a period of time measured in minutes, rather than seconds.

Obviously, the high wings present quite a vision obstruction when looking toward the direction of a steep turn.

Like the 150, the new airplane still has a sluggish nose-gear steering system. During taxi you can give a quick push of the rudder pedal all the way to the stop with nary a waver of the airplane from the yellow line. You might call the bungee steering design a "delayed reaction" system. A tap of brake toward the turn is almost essential.

Several other features, though, help mark the change from the 150 to the 152. The top portion of the cowling extends further down the sides of the engine compartment, so when it's removed it allows access to a larger portion of the engine and its accessories. Also, it's affixed with quarter-turn "quick-release" fasteners.

You'll notice a much larger battery box inside that engine compartment. The electrical system is 28 volts (it used to be a 14-volt system in the 150). Reasons for the added shot of electricity, says Cessna, are "more starting power" and compatibility with 28-volt avionics, bulbs, regulators and other electric parts. Cessna plans to make all its 1978 piston airplanes with 28-volt electric systems.

If you sit down with an order for this latest airplane, take heed. Pricing of the 152-series airplanes has been rearranged to conform with the others in Cessna's hangars, and the option packages don't match up with those that used to be offered for the 150 Commuter series. The standard 152 (no optional equipment and only one control yoke) costs \$14,950. A reasonably equipped airplane, with Cessna 300-series nav/com, gyros, and several other options, is labeled the 152 II and sells for \$17,995. The 152 II with Nav-Pac (basic IFR capability) costs \$20,635.

Still, there are a lot of options that must necessarily be installed to make the 152 II a more usable trainer. In fact, things like vertical-adjusting seats, an ELT, refueling steps and handles, oil filter and quick drain, hour recorder, and wheel fairings will add almost \$1,500 to the price of the airplane. The full airplane, including engine, carries a one-year warranty.

The Cessna 152 Aerobat is also to be produced, carrying a retail price tag of \$19,500, minimally equipped.

When you go out to take your first look at a 152, you'll not find it a radical departure from the training craft that Cessna used to make. It's another step in the slow evolution of the flying machine that has proven the airworthiness of more pilots than any other airplane. □