Budget Buys

Pick your own

Fixed-gear or retractable, there's a Cessna 172 to fit your needs

BY STEVEN W. ELLS

There are really three Cessna Skyhawks—the early ones (1956 to 1967) with the 145-horsepower Continental six-cylinder engines; the 1968 through 1984 models with the 150- or 160-hp four-cylinder Lycoming engines; and the newest versions—the 1996 and newer 160- and 180-hp airplanes with fuel-injected four-cylinder Lycomings. How do they differ, and how do they measure up to their retractable-gear sibling, the Cessna 172RG Cutlass?

With Cutlass prices already bumping the ceiling of the budget-buy category, we're going to leave the more expensive 1996 and newer 172s for another day.

The Cutlass was produced from 1980 to 1985. While it's easy to assume that Cessna answered the industry need for a simple, low-cost complex trainer by grabbing a 172 fuselage off the shelf and swapping the fixed landing gear for one of the company's retractable landing gear systems, technically these two airplanes come from different branches of the Cessna tree.

The 172RG falls under the same type certificate as the Cessna 175 (a 172-like fuselage with a 175-hp Continental GO-300 engine, larger fuel tanks, and a 2,350-pound gross weight), the Hawk XP (with a 195-hp Continental IO-360 engine), and the R172 airplanes that were sold almost exclusively as military trainers under the T–41 moniker. Most T–41s also had Continental six-cylinder IO-360 powerplants, tweaked to 210 hp.

Skyhawk

The evolution of an airplane

If an aviation archeologist needed evidence to support a postulate that general aviation grew up in the second half of the twentieth century, studying the 172 line would provide solid factual evidence.

The 172 evolved as Cessna responded to the flying public's desire for a more modern, comfortable, and safer airplane. As more avionics, larger fuel capacities, and better accommodations were incorporated, the airplanes got heavier, necessitating maximum gross weight increases.

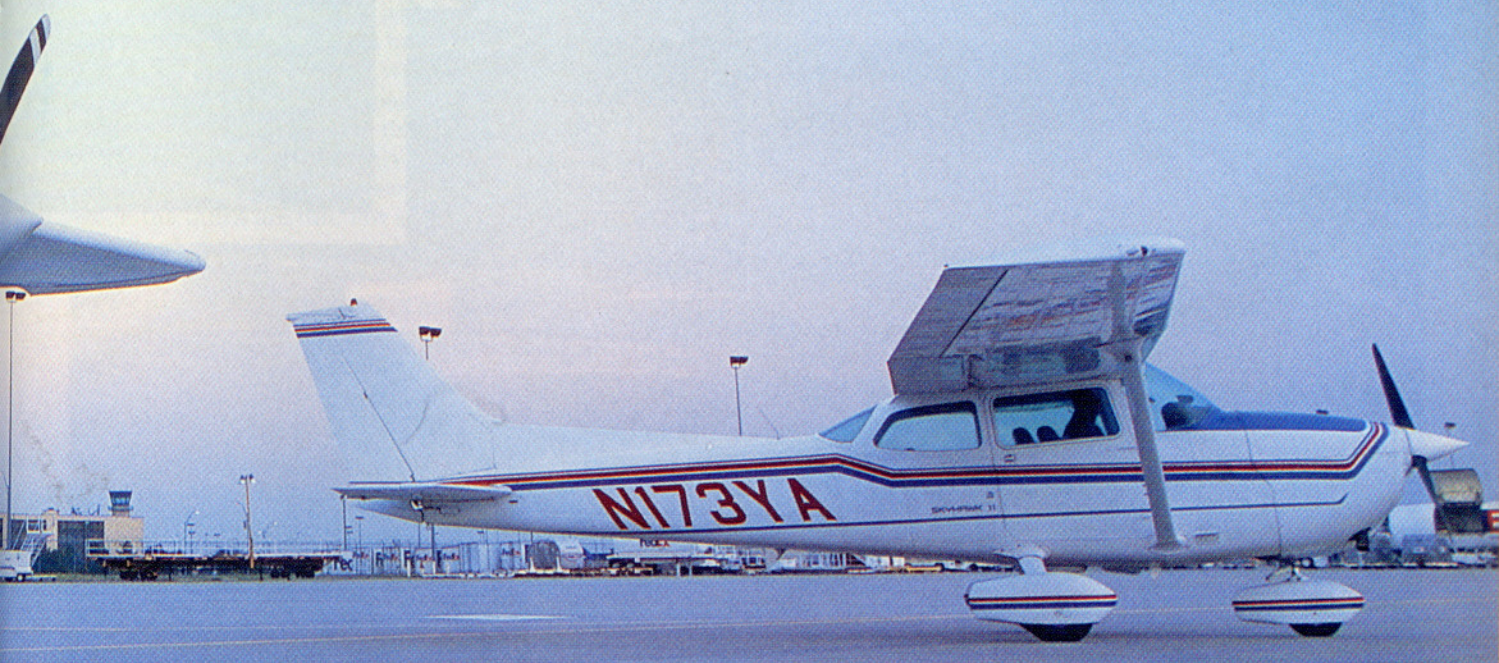
When first introduced in 1956, the 172 had a maximum gross weight of 2,200 pounds. Gross weights were increased to 2,250 pounds in the 172C (1962), and bumped up another 50 pounds with the introduction of the 172D in 1963. Gross weights stabilized there at 2,300 pounds for 16 years until the introduction of the 172P in 1980, when Cessna upped the maximum gross weight to 2,400 pounds—where it stayed until the end of production in 1986.

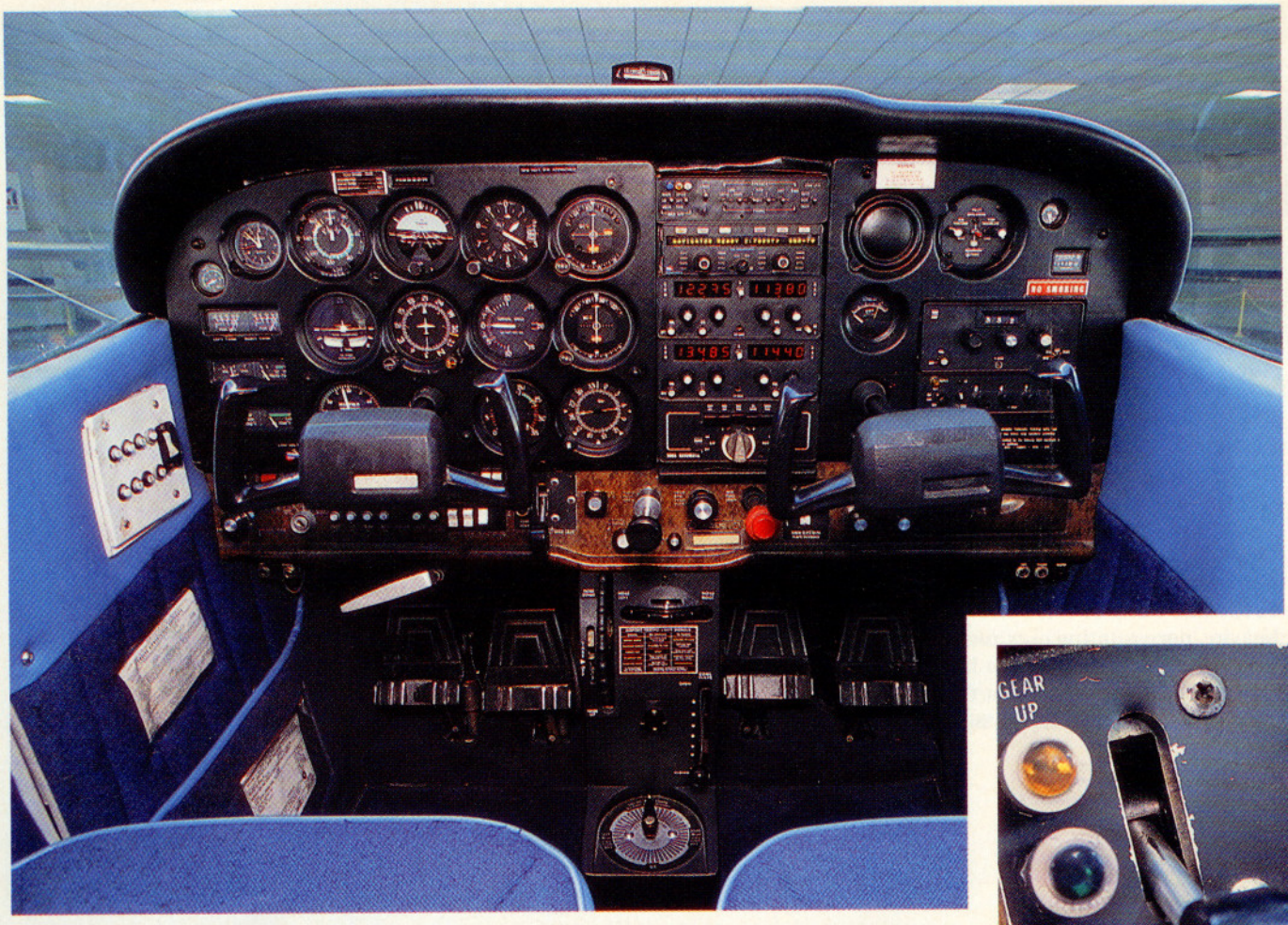
It should be said here that in 1980 and 1981 Cessna produced a number of 172Qs. These 180-hp models, built for instruction at the mile-high runways of Embry-Riddle Aeronautical University's Prescott, Arizona, campus, had a maximum gross weight of 2,550 pounds.

The 172RG was introduced in the 1980 model year with a maximum gross weight of 2,650 pounds.

Current weight-and-balance reports for three 172s—Rich

PHOTOGRAPHY BY MIKE FIZER



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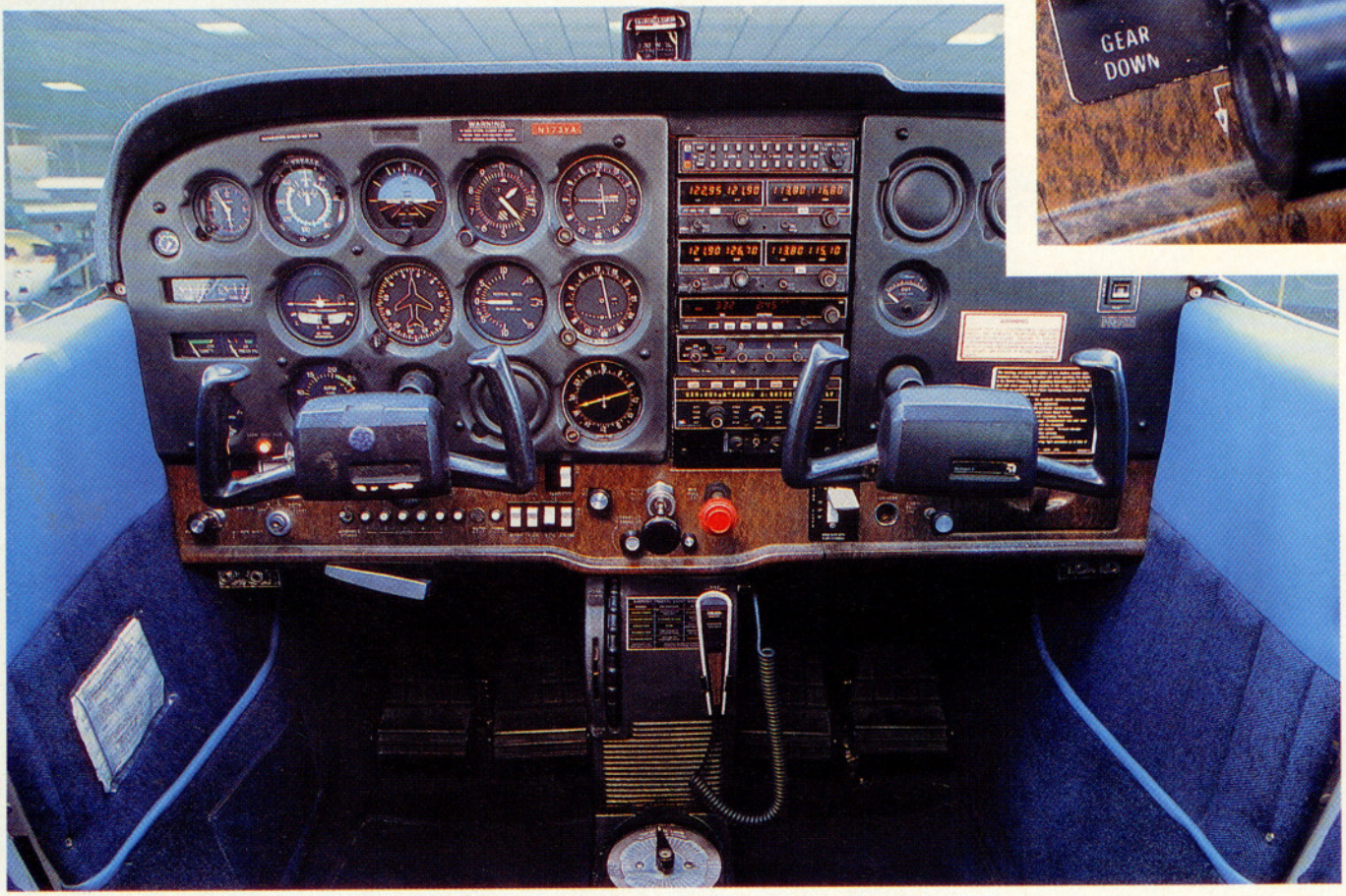

The landing-gear lever (inset) and propeller control are the primary differences between a 172RG panel (left) and that of a 1980-vintage fixed-gear model (below left).

Jensen's "used but not abused" 1966 172G, Steve Brown's 1972 172L, and Jim Gibbs' 1980 172RG—provide real-world load-hauling and performance numbers. All of these IFR-certified airplanes are similarly equipped with full IFR panels and comparable radios stacks. Brown's Lycoming-powered 172 has had the factory exhaust system replaced with a Power Flow exhaust system. With this exception, none of the airplanes is loaded with gee-whiz stuff that can quickly nibble into the useful load.

The weights, please

Jensen's no-frills cruiser has an empty weight of 1,399 and a useful load of 901 pounds. With a full fuel load of 234 pounds, or 39 gallons, there are 667 pounds left over for people, baggage, and flying supplies.

Brown's 1972 airplane has an empty weight of 1,385 pounds, resulting in a useful load of 915 pounds. With a full fuel load of 252 pounds, or 42 gallons, there are 663 pounds of full fuel useful load.

Gibbs' Cutlass, which he bought new in 1981 and qualifies as a low-time 172RG with only 2,368 hours on the tach, has a basic empty weight of 1,701, resulting in a useful load of 849 pounds. Gibbs is well aware that, with 66 gallons of fuel capacity, his Cutlass is limited to 453 pounds of useful load when the tanks are full. Put another way, fixed-gear 172s can easily cruise for three and a half hours (with an hour's reserve) on a full load of fuel; a Cutlass has enough fuel to cruise for six hours with the same reserves.

Speed and range

Jensen's 172, one of the last models that was powered by the oh-so-smooth six-cylinder Continental, allows Jensen to flight plan for 105 knots with a fuel consumption rate of eight gallons per hour.

Brown, owner of the 150-hp Lycoming-powered 172L, conservatively plans for 105 knots and eight and one-half gallons per hour, but says his airplane really goes slightly faster than 110 knots.

Gibbs cites realistic cruise fuel burns of 9 to 9.5 gallons per hour, with

SPECSHEET

	1966 172G	1972 172L	1980 172RG
New Price	**$12,450**	**$15,895**	**$48,900**
Current *Vref* value	**$37,321**	**$46,313**	**$74,698**
3,000 hr TT, mid-time engine, IFR-equipped			
Specifications			
Powerplant	Continental O-300-C	Lycoming O-320-E2D	Lycoming O-360-F16
Horsepower (@2,700 rpm)	145 hp	150 hp	180 hp
Recommended TBO	1,800 hr	2,000 hr	2,000 hr
Propeller	McCauley fixed-pitch 76-in	McCauley fixed-pitch 76-in	McCauley constant-speed, 76.5-in
Length	26 ft, 11 in	26 ft, 11 in	27 ft, 5 in
Height	8 ft, 11 in	8 ft, 9 in	8 ft, 9 in
Wingspan	36 ft, 2 in	36 ft, 1 in	36 ft
Wing area	174 sq ft	174 sq ft	174 sq ft
Wing loading	13.2 lb/sq ft	13.2 lb/sq ft	15.2 lb/sq ft
Power loading	15.9 lb/hp	15.3 lb/hp	14.7 lb/hp
Seats	4	4	4
Empty weight	1,364 lb	1,354 lb	1,624 lb
Empty weight, as tested	1,399 lb	1,385 lb	1,701 lb
Maximum gross weight	2,300 lb	2,300 lb	2,650 lb
Useful load	936 lb	946 lb	1,026 lb
Useful load, as tested	901 lb	915 lb	949 lb
Payload w/full fuel	702 lb	694 lb	630 lb
Payload w/full fuel, as tested	667 lb	663 lb	553 lb
Maximum takeoff weight	2,300 lb	2,300 lb	2,650 lb
Maximum landing weight	2,300 lb	2,300 lb	2,650 lb
Fuel capacity	39 gal (36 usable) 234 lb (216 usable)	42 gal (39 usable) 252 lb (234 usable)	66 gal (62 usable) 396 lb (372 usable)
Fuel capacity w/opt tanks	57 gal (53.3 usable) 342 lb (321 usable)	52 gal (48 usable) 312 lb (288 usable)	n/a n/a
Oil capacity	8 qt	8 qt	9 qt
Baggage capacity	120 lb	120 lb	200 lb
Performance			
Takeoff distance, ground roll	865 ft	865 ft	1,060 ft
Takeoff distance, over 50-ft obstacle	1,525 ft	1,525 ft	1,775 ft
Maximum demonstrated crosswind component	13 kt	13 kt	15 kt
Rate of climb, sea level	645 ft/min	645 ft/min	800 ft/min
Cruise speed/endurance w/45 min rsv, std fuel			
@75% power, best economy, 5,000 feet (fuel consumption)	110 kt/3.5 hr (50.4 pph/8.4 gph)	112 kt/3.9 hr (48.6 pph/8.1 gph)	138 kt/5.45 hr (60.0 pph/10.0 gph)
@65% power, best economy, 7,500 feet (fuel consumption)	106 kt/4.1 hr (44.4 pph/7.4 gph)	106 kt/4.5 hr (43.8 pph/7.3 gph)	129 kt/6.3 hr (52.2 pph/8.7 gph)
@55% power, best economy, 10,000 ft (fuel consumption)	99 kt/4.8 hr (38.4 pph/6.4 gph)	95 kt/5.3 hr (38.4 pph/6.4 gph)	117 kt/7.5 hr (45 pph/7.5 gph)
Service ceiling	13,100 ft	13,100 ft	16,800 ft
Landing distance, over 50-ft obstacle	1,250 ft	1,250 ft	1,340 ft
Landing distance, ground roll	520 ft	520 ft	625 ft
Limiting and Recommended Airspeeds			
V_X (best angle of climb)	56 KIAS	59 KIAS	67 KIAS
V_Y (best rate of climb)	70 KIAS	72 KIAS	84 KIAS
V_A (design maneuvering)	106 KIAS	106 KIAS	106 KIAS
V_{FE} (max flap extended)	87 KIAS	87 KIAS	130 KIAS to 10° 100 KIAS to 30°
V_{LE} (max gear extended)	n/a	n/a	164 KIAS
V_{LO} (max gear operating)	n/a	n/a	140 KIAS
V_{NO} (max structural cruising)	122 KIAS	122 KIAS	145 KIAS
V_{NE} (never exceed)	151 KIAS	151 KIAS	164 KIAS
V_R (rotation)	52 KIAS	52 KIAS	55 KIAS
V_{S1} (stall, clean)	50 KIAS	50 KIAS	50 KIAS
V_{SO} (stall, landing config)	43 KIAS	43 KIAS	42 KIAS

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.

It's the retractable landing gear and constant-speed propeller that make the RG a complex airplane.

Maintenance

There aren't too many maintenance gotchas on a fixed-gear 172. Look for buckles and deformation in the horizontal stabilizer front spar. The spar is sufficiently strong for normal flight loads, but until pilots stop sitting on the horizontal stabilizer, using body weight to lift the nose gear so they can horse the airplane around on the ground, these spars will continue to be damaged. Cessna Service Bulletin SEB94-8 addresses the inspection and repair.

Early 172s repeatedly suffer broken elevator bell crank brackets. This can be detected by installing the control wheel gust lock and then attempting to move the elevator's trailing edge—if it moves more than an inch or two, inspect the bracket, which is below the floor under the front seats.

In spite of a simple airframe, a fifth-generation landing-gear retraction system, and a very good engine, 2001 has been an expensive year for Cutlass owners. Two costly ADs have come due—one requiring replacement of the engine oil pump gears (96-09-10) and one requiring inspection of the landing gear pivots for cracks (2001-06-06). In addition, the FAA issued an airworthiness concern sheet (ACS) stating that cracks in the landing gear actuator cylinder assemblies may be cause for future AD-mandated maintenance.

Both AOPA and the Cessna Pilots Association (www.cessna.org) will be vigorously responding to this ACS.

There are two other owners' groups for these models: the Cessna Owner Organization (www.cessnaowner.org) and the Cessna 172-182 Club (www.cessna172-182club.com).

Endorsements

"Nothing handles like the [Cessna] 140 I used to own, but people who fly my 172, especially if they've been flying later-model 172s, are amazed at the lightness of the controls," says Jensen, an ATP and instrument flight instructor. "This is a perfect airplane for us because it doesn't eat you up on maintenance or operating costs, but it sure beats driving. It's hard to beat an old 172 for general flying around."

Brown bought his 172L in January 1998. He did a lot of the refurbishment work under his local mechanic's supervision. Searching for more climb performance, Brown installed a Power Flow extractor-type exhaust system (see "Pilot Products," March 2000 *Pilot*) in early 1999. This increased the engine's power enough that Brown had to have the propeller repitched to keep from exceeding the upper rpm limit during cruise.

The 172RG, with its retractable landing gear and constant-speed propeller, is a complex airplane. This means higher maintenance costs and more costly insurance premiums. Many of the Skyhawks on the market have been used primarily as training airplanes, with a lot of hard training hours on the tachometer and a huge number of landings. Be ready to pay above-market prices for low-time, well-maintained models.

Continued

Prepurchase tip

A potentially expensive new AD

Cessna 172RGs are all affected by a new airworthiness directive. AD 2001-06-06 requires owners to remove and inspect the landing gear pivots for cracks. If both pivots are crack-free, new bushings must be installed on each pivot assembly before reinstallation. If cracks are found, the pivots must be replaced. The initial inspection must be completed within the next 100 hours time-in-service after May 14, 2001.

The FAA estimates that the initial inspection and bushing installation will cost $1,700 if no cracks are found. If one pivot must be replaced, the cost will be $4,663; the cost to replace both pivots is estimated to be $7,626, or approximately 10 percent of the airplane's value.

Anyone considering the purchase of a 172RG should make sure that this AD has been complied with before signing the final papers. *—SWE*

In the end

The first rule of airplane ownership is to buy the airplane that fits your budget. The second rule is to buy the airplane that fits your needs. The numbers prove that the Cessna 172 offers owners a wide range of possibilities. It is the most popular light airplane ever built, with more than 36,000 produced before the resumption of production in 1996.

The reasons are obvious. The airframes are durable and well known to maintenance technicians. The engines are dependable, parts and technical support is plentiful, the airplane is simple enough to be affordable—and capable enough to carry two or three people and some baggage to destinations that would take hours to reach by car.

i Links to additional information about Cessna 172s may be found on AOPA Online (www.aopa.org/pilot/links.shtml).

A clean 172 is a gold-plated investment that will provide great service to those smart enough to know that dependable systems, coupled with reasonable operating costs, equal a winner. The 172 has been proving it since 1956. AOPA

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