The Smart Pilot's Expedited Approach

A Complete & Easy Buyers' Guide For Cessna 172s

Everything You MUST KNOW To Be A Fully Equipped, Safe & Confident Buyer/Owner

Guaranteed to save you;

★ ***time***
★ ***money***
★ ***guess work***
★ ***& most of all - regrets!***

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Preface

This book has been written to relay vital information about Cessna 172 aircraft to any pilot/owner or potential pilot/owner considering making a purchase. While both the good and the bad are covered, more space is dedicated to problem areas. The reason for that is to reveal the "gotcha's" that could come back and bite you rather than fill pages with gushing superlatives. It is not meant to discourage a purchase in any way.

In the following pages, every effort is made to present all of the known issues (and some that may not be very well known) for these aircraft that would appreciably affect the value, safety, comfort, performance, maintenance costs and overall satisfaction for a pilot/owner. However, it is not possible to mention every possible discrepancy or problem that might have been experienced by some pilots & owners.

It is believed that through research and personal experience, the author has revealed all the major pertinent issues for someone considering becoming a pilot/owner. That said, you are encouraged to continue your research beyond the study of these pages for additional information that would prepare you for this important decision.

It is expected (and strongly recommended) that the reader of this book will be enlisting a qualified aircraft mechanic to perform a thorough pre-purchase inspection as part of the purchase decision. Your mechanic will review whether the target aircraft is compliant with all current ADs and for that reason, ADs have not been covered here.

"Remember that all things are only opinion and that it is in your power to think as you please." *- Marcus Aurelius*

This guide is intended to present a comprehensive overview of information for you to "think about". It is my hope that this volume of research will be of great assistance in your quest for the perfect Cessna 172 for you.

"All things are difficult before they are made easy." *- Thomas Fuller*

Happy Buying & Flying!

Lee Parker

I. Introduction

The Cessna 172 is the world's most popular aircraft *hands down* with more unit sales than any other aircraft ever. 35,773 were built during its original 31-year production and thousands more have been built since Cessna restarted production in the late 90s. It's hard not to take notice of a record like that, and for good reason.

What makes the Cessna 172 such an unending success story is its winning combination of gentle and forgiving flying characteristics along with its affordable, low cost of ownership. Add to that a large comfortable cabin, relatively few maintenance or operating surprises, fair load hauling capability and a stable, 4-place, IFR platform of modestly acceptable altitude and speed. Then add the modest price and you can easily understand why Cessna hit a home run with this well-packaged airplane.

However, as in all great stories, between the beginning and the end, there are bumps in the road, false starts and meandering side roads.

How Cessna Killed The World's Best Selling Airplane Before It Was Ever Launched

Ironically, Cessna managers were not uniformly convinced that putting a nose wheel on a tail-wheeled Cessna 170 was such a great idea back in the early 50's when the idea was first being considered. Consequently, the "nose-dragger" designs rolling out of the Piper factory in the 1950s called the Piper Tri-Pacer were not even considered "real" airplanes. The story goes that Cessna's sales manager, Frank Martin, actually ordered the tricycle gear mockup destroyed when he first saw it. Fortunately, it was disassembled instead and stowed away for a later release when managements' attitudes changed.

The story of the Cessna 172 is not just the story of its evolution from the 170, but also the story of the evolution of the 172 into the spin-off designs of the higher performing 175 Skylark and the sleek 177 Cardinal. Even the endurable Cessna 182 finds its roots in this story. It's a fascinating evolution to behold. In the end, the 172 survived and thrived while the aircraft that were designed to replace it soon faded away and disappeared.

The 172 grew up and survived through three major power plant installations. Because of the significance of these engine changes, it's easier to write and think about the 172 series from the perspective of which ***series*** and which ***engine*** "family" the particular 172 belongs to;

(a) the 6 cylinder Continental O-300 (model years 1956 through 1967),

(b) the 4 cylinder O-320 Lycoming (model years 1968 through 1986), of which the "H" series O-320 is a notable subset (and a story unto itself) and finally,

(c) the fuel-injected IO-360 Lycomings, introduced in the 90s when Cessna brought back the Cessna 172 after a 10+ year hiatus.

A Trail Of Defeat For Any Wannabes Wishing To Kill The Skyhawk

Along the way, several other variants besides the Cessna 175 and 177 were introduced. The 195 horsepower **Hawk XP** was introduced in 1977 and had a 4 year run with 1,450 built. The 172 **Cutlass RG**, the Hawk XP's successor, sported a 180 horsepower Lycoming, retractable gear and a constant speed propeller. None of these aircraft experienced long term success, while the Cessna 172 Skyhawk not only survived, but thrived.

Exciting? Well, Probably No.

Reliable? Practical? Absolutely!

For those who complain about the high cost of flying, the Cessna 172 provides great functionality with 4 seats and the load hauling capability to fill them (assuming 4 fairly light passengers & full fuel, most models would not be overloaded). Add a relatively spacious cabin, decent climb and acceptable everyday cruise speeds and all of this is attainable for a very (relatively speaking) affordable price. The operating cost for the 4 cylinder versions of the 172, in particular, is among the lowest of all aircraft, with some exceptions (which will be covered later).

The climb performance is neither anemic nor robust, but adequate for this modest "Chevy of the skies". Likewise, the speed is decent, but by no means exciting. The controls are well balanced. The response may not be called sprightly, however when it comes to pattern work, IFR or just plain cruising, the solid feel of the controls is appropriate and rewarding.

Sitting high and upright in the seats, a result of the tall, roomy cabin, means that those with back problems and those who just prefer not to "lay down" in the seats "sports car style" for long trips, will be comfortable and pleased. The cabin is spacious compared to a Piper Tri-Pacer, but falls short compared to either of the 172's big brothers, the Cessna 182 or Cessna 206.

For cross country travel of 300 or 400 miles, the 172 will get you there in an easy single hop in 3 or 4 hours. It certainly isn't going to break any speed records, but it's faster than ground travel and a whole lot more fun. Plus, you can pack some things with you – something my wife is quick to point out (she generally scoffs at payloads that in real life, accommodate nothing more than a briefcase). With fuel burns in the 8 gallon an hour range (7 gallons or less, if running in economy mode), it won't break the bank either.

Landings in the 172 are docile and gratifying. Even a low time pilot can quickly learn how to "grease" a landing in this gentle bird. Passengers who are new to flying will find the Cessna's slow speeds at touchdown comforting too. There's just something reassuring and benign about transitioning from the air to the ground while gliding over the runway at a mere 45 knots or so.

The high wing provides covering from the rain and inclement weather for loading and unloading. This is something my family appreciates as our 172 is kept and used in rainy southeast Alaska. Passenger doors on both the right and left sides of the aircraft expedite loading even further. A baggage door in the rear baggage area (not available before 1961) provides adequate access to the rear of the plane.

From the pilot/owners desk;

"...the high wing makes it great for lazing around the countryside at a thousand feet at 70 mph with the window open with all the world spread out below you. It is no speed demon, but that's a small compromise."

When A River Marks Your Touch Down Point

There's a lot more to putting a 172 on floats than just removing the wheels and slapping on some floats. In a float application, the 172 cabin requires additional strengthening (you'll see brackets extending across the windscreen) to withstand the pounding that it gets on the water. And a prop with longer blades is added, which makes for a different sound at take-off, as the blades' tip speeds are higher (my wife says it's music to her ears).

The 172 on floats is generally considered a two-place airplane, not so much because of a limitation of its useful load (although the floats add weight, they also provide lift to compensate for the additional weight), but because of performance limitations. Perhaps, for those who required lift-off from smaller lakes or rivers, the 160 horsepower Skyhawk requires too much take-off distance with all 4 seats filled. But given enough room (i.e., a large lake or open salt water), I've frequently filled the seats of a float-equipped 172 and successfully lifted off.

So despite those who would say otherwise, the 172 makes for a fine, low cost 4-place float plane. And if you'd like to put some fun into your flying, float flying is unlike any other flying experience. For instance, here's some flying that you can't do with wheeled 172s: land and float around on remote and uninhabited lakes while fishing off one of the floats, put your floats to shore on a random salt water beach to dig for clams or practice maneuvering (it's called step-taxing) on winding river channels while practicing touch and goes.

What a thrill!

Want to Buy and Own a 172? Start By Picking Your Preferred Power Plant

The 6 cylinder 145 horsepower Continental O-300 installed in the Cessna 172 at introduction proved to be rugged and reliable. Aside from occasional oil leaks and the higher cost of overhaul, there are few reasons not to embrace an older 172 equipped with this engine. That said, it is a more expensive aircraft to maintain because of the 2 extra cylinders. Operating costs being an important consideration, some will gravitate toward the 4 cylinder versions.

In addition, as these old 6 cylinder Continentals get older, parts are not likely going to get any easier to find (note: Superior Air Parts has O-300 cylinders and other hard to find parts).

1968 was the first year of the 4 cylinder Lycoming O-320-E, rated at 150 horsepower. The higher horsepower hardly made a blimp in the performance specs. But the new engine did promise a fairly significant reduction in costs between the 33% fewer cylinders to maintain and overhaul and the 200 hour increase to 2000 hours for TBO.

What To Do With 4,000 Unneeded Engines On The Shelf?

Through what could only be considered an accident of opportunity, Cessna made a masterful stroke when it mated the 4 cylinder Lycoming O-320-E engine to the popular Skyhawk. The "accident" you ask?

The story goes like this… A whole bunch of O-320s bought from Lycoming and slated for the new Cardinal were sitting on the shelf with no place to go (thanks to a late-breaking discovery that the O-320 was underpowered for the Cardinal for which it was intended). Cessna needed to find a home for these 4,000 engines and the Cessna 172 became the solution. The whole idea (solution) became a great marriage. Buyer acceptance of the O-320-E in the Skyhawk was an immediate hit and sales of the new 4 cylinder versions skyrocketed.

A Blemish In An Otherwise Enviable Record

Nine years later in 1977, Cessna changed engines again. To meet the new low-lead fuel requirements imposed by government regulations in the 70's, Cessna introduced the now infamous "H" version of the O-320 in 1977. As it turned out, it didn't perform all that well on the new low-lead fuel. But more notable were its other problems. Due to poor lubrication to the valve train, the "H" series suffered an early reputation for being short lived. Excessive metal contaminants from the poorly lubricated drive train were spread throughout the engine causing engine and accessory failures. After too many early removal and painful overhauls, the O-320-H2AD quickly gained a reputation for being one to stay away from (the problems were eventually solved, as is discussed later).

To complicate things further, pilot/owners rejected the novel new "dual magneto" Bendix 2000 series magneto. Having a single dual magneto eliminated the need and weight for 2 separate magnetos, but defied the age old admonition that safety was achieved through redundancy – i.e., having two of everything to provide reassuring backup systems in case of primary failure. The dual magneto design actually provided a redundant set of

magnetos, albeit on a ***non-redundant*** geared accessory drive. Pilots were never convinced that the design provided enough safety against the rare failure of the geared accessory drive.

Sales of the Skyhawk plummeted as the word got out about all the problems.

The 160 horsepower O-320-D2J was introduced in 1981 and although it was not entirely "happy" with low-lead fuel either, the problems of the "H" lubrication history were wiped away with this clean, new engine design. It also dropped the innovative, but poorly accepted dual magneto. The D2J enjoyed a successful run and lasted through the end of the 172s production end in 1986, when Cessna stopped production of all single reciprocating engine aircraft.

When Cessna re-introduced the 172 in 1997, it came with an injected Lycoming IO-360 "de-rated" to 160 horsepower with a reduced redline and cruise RPM. The result is an engine and propeller design that runs at a slower, quieter, more efficient RPM.

For those customers who were waiting with great anticipation for another horsepower boost with the 172 reintroduction, sales management wisely quieted all the naysayers by introducing the higher powered 180 horsepower Cessna 172SP version at the same time. It's the same engine, but by decreasing the pitch of the propeller, it increases the RPM over the standard 172R. The result of higher RPM is an increase of 20 horsepower in order to gain its rated power of 180 horsepower.

II. Bright Spots & Blight Spots

Where Skyhawks Shine & Where They Fall Short

Where They Shine

The 172's virtues are many. To begin with, since it's the world's most popular airplane ever, there are plenty of used ones available to choose from. Parts are plentiful too. Beyond that, the plane profits from a bevy of good assets.

Mild Mannered In the Air & On the Ground

It's an easy airplane to fly, easy to maintain and easy-to-pay-for. It does all things quite well, considering the trade-offs necessary in any airplane design. It's stable in flight, a pleasure in the pattern and it will make you look good at touchdown with its low touch down speed and forgiving aerodynamics.

Cessna's focus on designing this airplane for easy landings is evident. During certification, they ran a variety of experienced and inexperienced pilots through a regimen of 2,318 landings to ensure that anyone could be successful touching down with ease. Cessna's sales management created a catchy name for their accomplishment; the "Land-O-Matic" landing gear. "Land-O-Matic" got its name because landings were so easy to do it was almost automatic.

In-flight characteristics are mild mannered too. Stalls are gentle and the break is slow, particularly in the later designs with the conical camber wing tips and the drooped wing leading edge (the exact years these changes were incorporated are detailed in later chapters).

Safety Is Its Strong Suit

The airframe is simple in design and rugged. Maintenance costs are minimal. The sturdy little aircraft is almost free of in-flight breakups (only one in the FAA accident statistics database – my wife likes that!). All in all, the safety record indicates that most mishaps are due more to pilot technique than any shortcomings from the aircraft itself.

Speaking of safety, the 172 benefits by having 2 doors for quick exiting in an emergency. Plus, should you find yourself upside down, the doors should still work, which is more than you can say for many low wing aircraft doors which wrap around the top of the fuselage and can get trapped closed when the plane flips over.

Float Plane Option Was Added in 1961

Insurance Notes

Insurance underwriters like the Skyhawk too. And that speaks for itself. Its good safety record should transfer into more affordable insurance premiums for you than other comparable aircraft.

Tons of After-Market Modifications

Thanks to the tens of thousands of Skyhawks that are flying today, there are a lot of products and accessories available for sale. After-market modifiers find the 172 one of the most attractive airplanes to create modifications for. So whatever you think would improve your Skyhawk: increased cruise speed, decreased stalling speed, more power, constant speed props, etc, etc, *someone* has probably created a solution for you. Why not? If you want a big market to sell airplane products to, there's not a larger group of customers to sell to than Skyhawk owners. The 172 gets lots of attention paid to it and if you own one, your wishes get listened to. That's a great combination.

One of the more popular Skyhawk after-market modifications is the auto-fuel STC that allows use of much lower priced auto fuel in place of avgas.

(see "After-Market Modifications" for a list of a number of some of the most sought-after improvements for Skyhawks)

Maintenance on the Cheap

I don't know how you could find a cheaper 4 place airplane to own, what with its simple spring main gear, a rugged but simple cabin design, plenty of access panels and removable fairings for control and fuselage access. Even the engines (after the "H" problems were ironed out) have proved to be some of the best, most reliable aircraft engines in existence.

There are some exceptions to this wonderful story and those are told next…

Where they Fall Short

Some of the airplane's weaknesses are obvious, some are not. But be sure, the loveable Cessna 172 does have some less than admirable quirks. And although the original basic design has survived over 50 years of production with few major changes, there were a few significant improvements made along the way that could influence your buying decision.

A Flying Porsche Or Corvette It Is NOT

If you're looking for a sporty speedster, look elsewhere. Obviously, you don't buy a Cessna 172 for breakneck speed. And you don't buy it for its sleek and sexy good looks. While the Cessna's spacious cabin with upright seating is an advantage for comfort and function, it doesn't exactly make for a classy looking cabin design. And the larger frontal area of a tall cabin certainly doesn't contribute to a clean aerodynamic design and won't make it go any faster.

Plan on about 115-120 knots cruise speeds for the Cessna 172. The oldest ones are a few knots less and the newest ones are a couple knots more. But it really doesn't matter that much how much power you put into the draggy, strut-winged Skyhawk, it's just never going to be a speed demon. The Hawk XP with its 195 horsepower Continental cruises at only 125-130 knots (by comparison, the straight-legged Grumman Tiger with 180 horsepower can produce 140 knots – 15 horsepower less, but 15 knots faster).

Even retracting the gear a'la Cessna's 172RG Cutlass doesn't improve the airspeed by much. The 180 horsepower retractable gear 172RG Cutlass book speed is only 138 knots. And those numbers are not exactly conservative. In the real world, most pilots report getting only 130 to 135 knot cruise speeds.

Royalite Interior is Short Lived

Brown Royalite Eventually Gave Way to Black in Later Years

When Cessna chose Royalite as the product to use for its aircraft panels, it must have seemed like a great idea – lightweight, easy and cheap to form in the manufacturing process and convenient and easy to remove. However, as time has shown, it didn't wear well (and that's an understatement!). And unless you want to put up with just plain "ugly", you're going to want to do something about all the Royalite. The plastic was also used around the baggage compartment, which with the constant banging of loading and unloading, gets cracked and eventually splinters and disintegrates. Most older Cessna interiors are in need of replacement because of all those old Royalite panels.

Fortunately, Cessna went away from using Royalite when it re-introduced the Skyhawk in the 90's.

Cessna/ARC Radios – Ugh!

If the Cessna you're evaluating has the original ARC radios in them, whether they're the 300 series or the 385's, they likely are in need of replacement or will be soon. None of the ARC/Cessna radios, turns out, were all that good to begin with. But by now, they certainly are near the end of their expected life. Quality control at Cessna's captive avionics company, ARC, was particularly bad beginning in the 70's.

The Cessna/ARC 385 series Nav/Com radios which are found in 70's and 80's vintage 172's die painfully slowly. They begin to fade as the internal amplifiers fail. You'll also find burned out LED segments and other annoying signs of age and obsolescence.

The "Disastrous 'H' Suffix Lycomings" - Can You Trust Them?

Unlucky for Cessna, the Cessna 172 became the flying test case for one of Lycoming's most notoriously bad engine designs, the O-320-H2AD (The "AD" in the suffix may as well stand for Airworthiness Directive). It was introduced in 1977 as a 100LL conforming solution at a time when 80 octane avgas was quickly disappearing from American airports fixed based operators.

A rash of problems occurred with this engine right from the get-go. Large metal particles were showing up in the oil and being implanted in main bearings, rod bearings, oil pumps and accessory drives causing engine and accessory failures.

This is what you don't want to happen to your Lycoming O-320. Though this O-320 is in a Grumman, the picture tells the story of what can happen when these engines self-destruct.

Note: the high cam shaft location of the O-320's. Spalling can be a problem if these engines are not operated regularly or if operating in cold conditions without pre-heating.

The source of this virulent disease that was infecting the bloodstream of Lycoming's engines was accelerated wear on the drive train. Either a lubrication problem or inferior or incompatible materials in these engines was causing excessive deterioration (spalling) of the valve tappets and camshaft. The resulting metal particles would infiltrate the engine via the lubricating oil being circulated throughout. Eventually, the malignant infiltration (imbedded metal particles) would trash bearings, accessories and potentially kill the patient (trash the engine).

It was evident that the problem was a major one with a very poor prognosis. By 1978, the year following the O-320-H's introduction in the Cessna 172, more than 17% of all Cessna 172Ns had suffered engine damage or destruction as a result.

The reported cause of these problems were Lycoming's use of automotive lifters and valve train parts. So while the design choice sounded like a good idea at the time and was part of a plan to reduce overall cost and improve engine operation (using the newly mandated 100LL octane avgas), it all came down like a house of cards. Obviously, neither of the objectives were achieved in the "H" design. And if you were one of the 17%, you were downright none too happy.

A number of "fixes" were tried and abandoned. 3 separate tappet designs were introduced. The "fixes" were still failing. Eventually, it was the "T" modification that did the trick. The "T mod" involved retrofitting the engine

with larger tappets, larger camshaft lobs and a larger crankcase. Like a renovation make-over, it was not an inexpensive fix however.

Lycoming O-320-H2AD

The 3 AD's that addressed the problem were: 77-20-7, requiring replacement of the tappets, 78-12-8, requiring replacement of the oil pump impeller and 78-12-9, requiring replacement of the crankshaft (by far the most expensive AD).

Most, if not all, 1977-1980 Cessna 172s should have been retrofitted with the T mod by now. Nonetheless, spalling remains a potential issue and is not totally eliminated with the modification. By most reports, the problem has been reduced to acceptable levels with the T mod (all aircraft engines can exhibit occasional spalling, particularly engine designs where the camshaft is mounted up high, as it is in all of the Lycoming O-320s models).

Aircraft that are most likely to succeed in avoiding all spalling problems are ones located and operated in warm, dry climates. That's somewhat intuitive, considering the reduced tendency of corrosion forming on the exposed O-320 camshaft when the air is dry and when temperatures remain above the dew point.

The problems of spalling in the 1977 through 1980 Cessna O320-H2AD engines are pretty much behind them now. It took Cessna and Lycoming a painfully long time to diagnose the problems and get them successfully fixed. But now that they are fixed, these airplanes are consistently delivering good service and the issues seemed to have dissipated*.

*Nothing is quite so cut and dried, however, and there are some different perspectives on the T mod, as you will read about later.

(Additional recommendations for minimizing concerns with spalling are addressed in Chapter XII. ***Don't Get Raked on Your Maintenance Bills***)

Seat Rails, Nose Struts & Other Nuisances

If you've flown Cessnas, you already know about the seat rail problem in pre-1990 models. The forward seats slide forward and back on two rails mounted on the floor. A spring loaded plunger drops into holes in the rail to arrest the seat from further movement once you're ready to fly. The plungers don't always prevent the seat from sliding however, particularly when the holes become elongated from wear. It can be very dangerous since a seat that slides full aft during take-off can cause a pilot to inadvertently pull back on the control yoke and stall the wings. An AD requires regular inspections of the seat rails and replacement once the holes become elongated.

The nose gear can be a maintenance item due to both leaking of the strut and nose gear shimmy. The leaking is not unlike other planes that share this nose strut design (Piper, Beech, etc). Both nose wheel shimmy and leaking can be dealt with (some suggestions will be provided later), but the design of the nose strut isn't the best.

With the re-introduction of Skyhawks in 1997, Cessna finally dressed up the interior with attractive, long lasting metal instrument panels

III. Dramatic Changes Through The Years

The Cessna 172 was introduced in 1956 as a nose-wheel version of the popular Cessna 170 tail dragger. The 145 horsepower flat six cylinder Continental 300 performed well and served the Cessna's power requirements admirably through the first dozen years of the Cessna 172's early production.

1956 - Razor Back and Straight Tail

Gross weight of that first 1956 design was 2200 lbs. The useful load was 940 lbs. So with full fuel (38 gallons), that left about 700 lbs for people and baggage, enough for 4 adults (at least back when adults averaged 170 lbs/each) and maybe 20 lbs for ladies' purses and perhaps a briefcase.

The "Sexy" Swept Tail

In 1960, the square tail was "swept" to give the Cessna 172A a "sexier" look. However an undesirable byproduct of "sweeping" the tail was a less effective rudder and a degradation of directional stability. The new sexier tail also required a not-so-sexy beefier structure and that added to the empty weight of the airplane (there went that 20 lbs for the ladies' purses and any hope of a briefcase).

1961 was the debut of the Cessna 172B "Skyhawk", introduced with the first ever, conveniently located rear baggage door. The Skyhawk also came with a 3" shorter landing gear configuration in '61 to improve crosswind landings. The shorter airplane was necessarily offset by an equal 3" increase in height of the propeller/engine combination to retain proper propeller-to-ground clearance.

Omni-Vision Obsoletes the Razor Back Tail Forever

In 1963, the Omni-Vision rear-window replaced the razor back design. This, along with the swept tail in 1960, were the two most defining visual changes

that the Cessna 172 ever received over its 50+ year life. The horizontal tail span was also increased by 8" to provide more elevator authority.

The same year Cessna also built the "Powermatic" version of the 172, designated the P172D, equipped with a geared Continental GO-300-E engine producing 175 horsepower. Despite the bigger, more expensive engine (higher costs for maintenance, overhaul and fuel consumption), they had only a paltry 7 knot cruise advantage over the standard 172G. This disappointing performance may be one of the main reasons they never really succeeded. Cessna built only 68 of them total in 1963, then discontinued the production line at the end of the year.

After 1963, there were few major changes in the 172 until 1968 (with the exception of adding electrically operated flaps in the 172F in 1965).

The 4 Cylinder is Born (Albeit, It was an Accident)

The first engine change from the original 6 cylinder Continental to a 4 cylinder Lycoming came about in 1968 as a byproduct of the unsuccessful launch of the Cessna Cardinal 177 that boasted the 150 horsepower Lycoming O-320E engine. In the belief that the sleek Cardinal would be so successful that *it would likely kill the 172 sales and eventually replace it entirely*, Cessna ordered 4,000 of these engines for the Cardinal!

However, even before it was introduced, with 4,000 engines sitting somewhere on a whole lot of Cessna factory shelves, it was determined that the 150 horsepower Lycoming O-320E was underpowered for the highly touted Cardinal. ***Ironically, the 172 became the solution of what to do with thousands of engines which had no further use***.

So in 1968, when Cessna introduced the new Cessna Cardinal to the world, it also introduced (probably with a sigh of relief) the newly re-engined Cessna 172 with the Lycoming O-320E engine off the shelves and neatly tucked inside – bringing new meaning to "when you are dealt lemons, make lemonade"!

Through what could only be considered an accident, Cessna made a masterful stroke in mating the first of the Lycoming O-320 series of engines to the popular Skyhawk. Buyer acceptance was immediate and sales of the 4 cylinder Skyhawk were robust.

Gear Re-Design

Then in 1971, the main gear was redesigned from the previous Wittman spring steel to wider track, tapered steel tubes. The new design improved ground handling on rough surfaces, but more importantly,

The old flat Wittman gear (left) was replaced in 1971 with new, wider track tubular gear (covered with aerodynamic fairings in the picture on the right)

it reduced bulkhead damage that could occur when side loads (such as a hard landing) were imposed on the gear. Other additions this year were conical camber wingtips and the addition of a nose bowl landing light (relocated from the wing) for the 1971 172K model.

The extended dorsal fin incorporated in the 1972 Cessna 172L improved longitudinal stability, reduced the full-flap pitch-down tendency when making slips and made the plane more spin resistant.

In 1973, the 172M sported an improved wing design that permitted operation at a higher angle of attack. The "Camber Lift", as Cessna marketed it, was a new leading edge with a slight radius or droop on the under side. An additional benefit that I've noticed when flying this new wing design (still in use in current production models) is a more modest break when the wing stalls.

"Deluxe" equipped Skyhawks ("deluxe" meaning more options that were provided standard, like a better radio stack) were designated "Skyhawk II" beginning this year.

The Final Fancy – More Speed

Cruise performance saw a noticeable boost in 1974 when Cessna performed an aerodynamic clean-up to the airframe. Cruise speed increased to 120 kts.

No major modifications were introduced in 1976, but a 195 horsepower Continental variant of the 1976 model 172 was dubbed the **Hawk XP** and saw a 5 year run before being discontinued. Cruise speed of the XP was 130 knots (a performance summary for the **Hawk XP** is provided in the next chapter).

The Miserable "H" Suffix Lycoming Story

It was the change to the "H" series O-320 in 1977 that tarnished the wonderful reputation for the venerable 172. Up until 1977, there were no major issues, no expensive AD's and no real risk in buying and owning this "most popular airplane ever". That all changed in 1977 when the, up to now, nearly impeccable history changed forever. Cessna 172s, with only a few hundred hours on their Lycoming O-320-H2AD engines, were experiencing widespread failures. Despite valiant efforts, Cessna and Lycoming, no doubt nearly frantic, did not seem to be having any satisfactory success at rectifying the situation.

Cessna finally gave up on the O-320-H altogether and in 1981 introduced the 172P with Lycoming's new O-320-D2J. It was much more reliable, but more importantly, did not exhibit the self-destructive characteristics of the "H" model. Pilots were made happy when it came out with the two separate magnetos they long had wanted instead of the worrisome single dual magneto unit. The D2J model engine did well through the balance of the Cessna 172P's production life, which ended in 1986.

Other improvements made to the 172P include soundproofing (thicker windscreens, side panels and insulation) and optional air conditioning.

Along the line in 1980, a year before the 172P was introduced, the first retractable **Cessna 172RG** was introduced*. It cost a lot more, but performed about the same. Sales never took off, either because of the cost/performance disadvantage or maybe just because it was the sunset of the age of aviation in the 80's when Cessna began shutting down their factories for single engine aircraft.

*see chapter VI, "Is Retracting the Wheels Worth the Bother?" for more analysis of the retractable version of the Cessna 172.

The "Modern" Skyhawk is Reborn for the 21st Century

When Cessna electrified the aviation world in the late 90's with the re-introduction of the Cessna Skyhawk, it came as a surprise to some that after over 10 years of incredible advancements of ground based vehicles, the newly unveiled 1997 Cessna Skyhawk was essentially the same airplane as before. It sported fuel injection and that was an improvement. Soundproofing was improved. And the instrument panel had finally shed itself of the despised Royalite. But otherwise, the 172R was not much different than the 172P that Cessna had introduced 16 years earlier, outside of an attractive new paint scheme.

Without much difficulty, the marketing department rolled out a 180 horsepower version of this new Skyhawk. The extra 20 horses were gained

by simply turning up the speed of the Lycoming IO-360 by 300 RPMs. The higher horsepower Cessna 172SP seems to have hit the target, as it's currently Cessna's fastest selling airplane.

IV. Skyhawks Get Better & Better Every Year

(in spite of a few hiccups)

A Quick Summary

1956 172 – Original straight tailed, razor back Cessna 172.

1960 172A – Straight tail is replaced with a new, modern and swift looking "swept" tail. Cruise speed increased by 6 knots to 114 kts.

1961 172B – The first year of the "Skyhawk". The landing gear is shortened to improve handling on the ground and crosswind landings. A baggage door was added and a float plane option was offered for the first time ever. The prop spinner is pointed.

1962 172C – Gross weight is bumped 50 lbs to 2,250 lbs. Wheel fairings are redesigned.

1963 172D – Gross weight bumped again to 2,300 lbs. A one piece wind screen is added to the front and for the first time, a rear "Omni-Vision" window will displace the old "razor back" design. It's the first glimpse of the modern-looking Cessna that we've all now come to recognize as pure Skyhawk. Other new features include a wider horizontal tail and an optional child's seat for the baggage bay.

1965 172F – Manual flaps are retired for electrically actuated ones.

1968 172I – Horsepower is increase by 5 horsepower with installation of the first 4 cylinder engine in a 172, the Lycoming O-320E. This engine sports the first oil cooler in the Skyhawk lineage.

1971 172K – First year for the conical camber wingtips. The landing light is moved from the leading edge of the left wing to the nose bowl. Main landing gear is improved for rough ground with a switch to tapered steel tubes.

1972 172L – An extended dorsal fin improves longitudinal stability.

1973 172M – The wing leading edge gains a slight droop that improves slow flying characteristics.

1974 172M – Airspeed increase by 7 knots to 120 kt.

1977 172N – The "H" version engine with the troubled valve train problems is introduced. The horsepower is increased 10 horsepower to 160 HP. It's also introduced with a new single "dual magneto" in place of the standard two magneto arrangement.

1980 172RG – The retractable version of the 172 is introduced called the Cutlass RG. In 1983, the same 180 horsepower engine and constant speed propeller of the Cutlass 172RG was mated to the standard Skyhawk, resulting in a straight-legged Cutlass (**172Q**). It had a very limited production run.

1981 172P – The “H” engine is replaced with perhaps the best engine of the first production Skyhawks, the O-320-D2J. Gross weight is increased to 2,400 lbs. The maximum flap travel is reduced from 40 degrees to 30 degrees. Handling qualities are improved through an increase in the leading edge radius of the horizontal stabilizer.

1986 – The Cessna single engine line is shut down entirely, due to concerns of liability costs spiraling out of control. No Cessna 172 Skyhawks were produced between 1987 and 1996.

1997 172R – The re-introduction of the Skyhawk after an 11 year hiatus. The engine is a 180HP fuel injected IO-360 derated to 160 horsepower. The Royalite instrument panel is finally gone. A new attractive composite material for the interior promises to wear much better.

1998 172S - A higher power version, the 172SP is introduced. Equipped with a higher pitch prop, the resulting higher RPM allows the engine to get its full rated power of 180HP.

"Camber Lift" provides an ever so slight "droop" or inversed contour at the forward part of the outboard wing (view the wing's paint lines and the reflection of the fuselage paint in the underside of the wing to see the contour)

SUMMARY OF PERFORMANCE IMPROVEMENTS OVER THE YEARS

172

Year/Model	Cruise	Useful Load	Gross Weight	Rate of Climb	Fuel Cap	Range (nm)	HP/ Engine	TBO	Svc Ceiling
1956-59 172	124 mph 108kt	940	2,200	660	37	420	Continental 145-hp O-300A	1,800	13,300
1960/172A	131 mph 114kt	940	2,200	660	42	515	Continental 145-hp O-300C	1,800	13,300
1961/172B	131 mph 114kt	940	2,200	730	42	515	Continental 145-hp O-300	1,800	15,100
1962/172C	131 mph 114kt	920	2,250	675	42	515	Continental 145-hp O-300D	1,800	14,200
1963/172D	131 mph 114kt	970	2,300	645	42	515	Continental 145-hp O-300D	1,800	13,100
1964/172E	131 mph 114kt	970	2,300	645	42	515	Continental 145-hp O-300D	1,800	13,100
1965/172F	131 mph 114kt	970	2,300	645	42	515	Continental 145-hp O-300D	1,800	13,100
1966/172G	131 mph 114kt	985	2,300	645	42	515	Continental 145-hp O-300D	1,800	13,100
1967/172H	131 mph 114kt	985	2,300	645	42/52	515	Continental 145-hp O-300D	1,800	13,100
1968/172I	132 mph 115kt	1,000	2,300	645	42/52	515	Lycoming 150-hp O-320-E2D	2,000	13,100
1969/172K	132 mph 115kt	985	2,300	645	42/52	417	Lycoming 150-hp O-320-E2D	2,000	13,100
1970/172K	132 mph 115kt	985	2,300	645	42/52	417	Lycoming 150-hp O-320-E2D	2,000	13,100
1971/172L	132 mph 115kt	985	2,300	645	42/52	417	Lycoming 150-hp O-320-E2D	2,000	13,100
1972/172L	132 mph 115kt	985	2,300	645	42/52	417	Lycoming 150-hp O-320-E2D	2,000	13,100
1973/172M	132 mph 115kt	965	2,300	645	42/52	435	Lycoming 150-hp O-320-E2D	2,000	13,100

1974-76 172M	138 mph 120kt	965	2,300	645	42/52	435	Lycoming 150-hp O-320-E2D	2,000	13,100
1977-80 172N	140 mph 122kt	870	2,300	770	43/54	440	Lycoming 160-hp O-320-H2AD	2,000	14,200
1981-84 172P	138 mph 120kt	946	2,400	700	43/54	440	Lycoming 160-hp O-320-D2J	2,000	13,000
1983-84 172Q Cutlass	140 mph 122kt	1,070	2,550	680	54	475	Lycoming 180-hp O-360-F1A6	2,000	17,000
1985-86 172P	138 mph 120kt	946	2,400	700	54/68	440	Lycoming 160-hp O-320-D2J	2,000	13,000
1997/172R	141 mph 123kt	850	2,450	720	56		Lycoming 160-hp IO-320-L2A	2,000	13,500
1998/172SP	143 mph 124kt	914	2,550	730	56		Lycoming 180-hp IO-320-L2A	2,000	14,000

172 RG

Year	Cruise	Useful Load	Gross Weight	Rate of Climb	Fuel Cap	Range	HP/ Engine	TBO	Svc Ceiling
1980-1986	159 mph 138kt	1,026	2,650	800	66	720	Lycoming 180-hp O-360-F16	2,000	16,800

Hawk XP

Year/Model	Cruise	Useful Load	Gross Weight	Rate of Climb	Fuel Cap	Range	HP/ Engine	TBO	Svc Ceiling
1976/R172K	150 mph 130kt	978	2,550	870	52/68	570	Continental 195-hp IO-360K	1,500	17,000
1979/R172K	150 mph 130kt	978	2,550	870	52/68	570	Continental 195-hp IO-360KB	2,000	17,000

V. Don't Get Raked on Your Maintenance Bills

Operating Hints That Will Deliver More Value and Performance for Less

Since the Skyhawks by design are generally low maintenance airplanes, there are a limited number of really big things for me to address. And that's a good thing.

How To Keep the "H" Engine from Biting You

It's not enough that the 1977-1980 Skyhawk has the T mod. All drive trains in the configuration of the "H" engine where the camshaft is located high above the at-rest oil level are subject to corrosion and spalling of the tappets. To minimize the problem, pilot/owners should;

- Perform frequent oil and oil filter changes
- Inspect oil filters/screens for metal particles at all oil changes and log/monitor the results
- Avoid infrequent use. If nothing else, pop over to the nearest airport restaurant for a burger once in awhile. Your airplane will like you for it.
- Thoroughly pre-heat in cold climates
- Run the engine long enough to reach operating temperatures (about 30 minutes). Short runs can cause more harm than good (just make sure the hamburger is far enough away).
- Keep the crankcase full of oil
- Use the proper viscosity oil
- Allow a cool-down period before shut-down

One of the most important recommendations is to use an oil additive like Lycoming Part #LW-16702. Alternatively, a good semi-synthetic like Aero-Shell 15/50 will do the job.

Cessna/ARC Radios – Replace Them!

One of the "easier" (though not inexpensive) problems to fix in Cessna Skyhawks is the Cessna/ARC radio stack…, "easier" because they can be

readily replaced by a more reliable, higher quality radio stack from King or Collins.

Old ARC radios are probably not worth fixing. At least, that's what I've always been told when I turn them in for maintenance. After all, even if they were good quality radios to begin with (which they weren't), after 30-50 years a radio just becomes obsolete, if not worn out.

Anyways, you can fly with a smile when you know you're in "good contact".

At any rate, any ARC panels that haven't already been changed out with King or Collins equipment are likely going to require an investment in new radio gear.

Here's an extra tip…., and for no extra charge;

While you're having the avionics shop install new radios, make sure you have a high-quality cooling fan installed for your avionics. With a good cooling fan, you'll extend the life of your radios by many years and you'll reduce your ongoing avionics maintenance bill, particularly in hot climates.

Parkers Rule: *Cool electronics live longer. Avionics fans are cheap insurance against big repair bills and radios failing when you need them the most.*

Take Care in Muscling It Around On The Ground

You'll save yourself a bunch of money if you take it easy on the Skyhawks tail feathers. There's a real temptation to raise the nose wheel off the ground by pushing down on the tail. If you maneuver correctly, damage to the tail spar and attach brackets can be avoided. I've seen owners actually sit on the tail to raise the nose. That's definitely not recommended. Don't do it.

Here's what you need to remember…

The further out from the fuselage that pressure is applied to the tail while sitting on the ground, the more likely that damage will occur. If you must apply pressure downward, do it right at the intersection of the horizontal tail and fuselage and only push down at the location of the stabilizer spar. And be gentle.

The best recommendation is; just don't do it. Use a tow bar to move the airplane around.

Nose Wheel Shimmy Tricks

One persistent problem on all Skyhawks is how to dampen the tendency for shimmy in the nose wheel. If you've ever experienced a serious case of nose wheel shimmy, you know that it's a problem that cannot be ignored (ask my wife). Standard correction procedures include an overhaul of the shimmy damper and tightening or replacement of the nose wheel bushings. But sometimes, that aggravating shimmy still persists (and wives, husbands, or passengers refuse to fly with you any more).

A non-approved fix that is fairly common is to fill the shimmy damper with a much heavier weight oil, like a 20W-40. When everything else has been tried, and the shimmy has not been eliminated, then you might consider it. I've seen it tried with good success.

Collapsing Nose Struts

Besides nose wheel shimmy, another problem common with any airplane that uses oleo struts like the 172's nose wheel, is a collapsing strut. If repeated repackings of the nose wheel oleo does not fix the problem, try adding some Granville strut sealant to your oleo.

One suggestion that will double the life of your nose wheel seals: keep the nose wheel strut clean. Have a rag available during your walk around and give it a quick buff. Any dirt and grit on the strut (and with the prop blast throwing dirt at it, there's plenty that accumulates there over time) will be transferred into the seal when the strut is collapsed (as when you let the nose down at landing). Sand and dirt in the oleo seal will shorten its life considerably. A little preventative medicine should help.

Valve Care

Sticking valves started becoming a problem with the introduction of 100LL fuel in the late 70's. Here's the advice from the experts for how the problem can be contained.

Sticking valves (and even the catastrophic failure of a breaking valve) is, in part, a result of operating at excessively high temperatures. Therefore, by ensuring that your engine is operating in the normal temperature range, sticking and/or failing valves can be minimized. Pay close attention to keeping the engine's cooling baffles in good condition. Avoid pre-ignition by following the leaning procedures recommended in the Pilot's Operating Handbook. Minimize long ground runs with the engine cowling removed.

And finally, lower the nose during climb to allow higher air speeds which will increase the ram air entering the cowling and enhance cooling.

From the pilot/owners desk;

"We have experienced three stuck valves in a two-year period and since the last incident have gone to a religious schedule of cleaning the Lycoming exhaust valves every 400 hours."

My Suggestion? Stay Clear of Neglected Birds Like This One

VI. Is Retracting the Wheels Worth the Bother?

If you think that retractable gear airplanes are, by definition, fast, let me introduce you to the retractable Cessna 172, the Cutlass RG. In 1980, Cessna modified the Cessna 172 by retracting the landing gear and tucking it under the rear fuselage like a Cessna 210. In addition, they added a little more power (180 horsepower Lycoming O-360) and a constant speed prop.

So how much faster than the straight-legged 172 is this retractable, higher powered version? You might get an extra 10-15 knots. Not too impressive, right?

I've never flown the RG, but pilots say it feels as if they're flying a Skyhawk. Though few pilots would even notice, apparently there are some slight differences, because the controls are a little bit lighter than the standard 172 and the pitch trim authority is somewhat increased.

In analyzing the possible purchase of the retractable version 172, I've never been convinced that the extra expense of the retractable gear, the bigger (thirstier) engine and the constant speed prop is worth only a few knots of extra speed. But then, speed is probably not why pilots buy the Cutlass RG. Likely, what is attractive about the RG is the plane offers an extremely easy transition into a "complex" environment. There's not much challenge from transitioning from a straight-legged 172 to a retractable because the retractable is as easy to fly as the straight-legged, once you get the training and discipline of handling the prop and gear. Yet aviation (e.g., insurance companies) counts it as complex time. Something to keep in mind.

So is retracting the gear worth the trouble? Based on sales (it averaged less than 200 units/year over the 5 year life of the Cutlass RG), it would seem like the 172 RG was hardly a success. But it could be argued that the 80's was an impossible time for a new airplane to flourish (it was just 5 years after the Cutlass introduction that Cessna ceased building ALL piston engine aircraft).

And for those who really wanted more performance, there were planes that cost a lot less than the Cutlass RG and performed much better (like the Grumman Tiger, which was faster than the Cutlass RG, despite being fixed

gear and fixed prop). But for training purposes and for pilots who want to step up to and log complex time, buying a 172 with wheels that disappear after liftoff, may be a good alternative.

VII. Are The New Production Models Really Worth Four Times As Much?

Cessna marketers rolled out a masterful theatrical production for its 1997 re-start up of the Cessna Skyhawk. The press covered the opening of the new factory at Independence, Kansas as though it were Wilbur and Orville Wright's first airplane manufacturing plant. A free drawing for the first airplane to roll off the line in January 1997 (I didn't win it – and if you're reading this, you didn't win it either), garnered the kind of attention that the marketers needed. It was huge news.

But after the dust settled from all the superlatives and marketing hype, the brand new 172 didn't look much different than the one from 15 years earlier. However the purchase price sure was. One could buy 4 older 172s for the price of what a new one rolled out of the factory at. Yet, the appeal of "new" was large. After all, when Cessna quit producing airplanes in 1986, it seemed quite possible that there was never going to be a "new" Cessna 172 produced ever again.

For those who can afford it, the new Skyhawk is an improvement, so let's give it its due. Here's what you get for doling out a good deal more money than the older Skyhawks;

The 172R's most notable change is the fuel-injected Lycoming IO-360-L2A developing 160 horsepower at 2,400 RPM. The lower RPM in this installation results in a quieter aircraft both inside the cabin and out. Cessna reports that flyover noise is 4 decibels quieter than the 172P. Fuel injection results in a more efficient fuel burn and is probably the reason why fuel consumption at 75% power is about half a gallon per hour less than the 172P. Fuel injection also eliminates the dangers of carburetor icing.

Other improvements include an increase in fuel capacity to 56 gallons, 53 gallons useable. The increase comes as a result of using wet wings instead of internal aluminum gas tanks in the wings.

Although most older Skyhawks have likely replaced their old ARC/Cessna radios, the good news for purchasers of Cessna's new Skyhawk is the King radio stack. That along with the new metal instrument panel and other interior surfaces (made from a reportedly durable composite that will wear well and be more resistant to ultra-violet damage) mean that the new Skyhawks will wear much better than the first production models ending in 1986. Looks do count.

Safety Improvements That Could Save Lives

Where Cessna ***did pay attention*** to providing meaningful upgrades was in the ever-important area of safety;

- Automotive style 3-point inertia reel seat belts/shoulder harnesses for all 4 seats.
- New all electric fuel accurate gauges are equipped with a low-fuel annunciation warning for fewer than 5 gallons left in either tank.
- Redundant engine-driven vacuum sources run constantly. When one fails, the system automatically switches to the backup. Inside, the pilot gets an annunciator light showing which pump has quit.
- 5 sumps per wing tank (in place of one) mean that the chances of water remaining in the tanks after preflight is low.
- New seat rails and seat latches (borrowed from the Caravan) that remove the notorious seat rail problem of past Cessnas
- Seats comply with FAA Part 23 standards which require the ability to withstand 26 Gs.
- Doors have two latches – the standard side latch plus a second latch pin at the top of the door

But…

Don't Think 180 Horsepower Translates Into Higher Performance

As amazing as it may seem, the 20 extra horsepower in the Cessna SP doesn't make much difference in the speed and climb performance of the Cessna Skyhawk. You would think that the Cessna SP (ironically, "SP" stands for Special Performance) would make a huge difference, if not in speed, at least in climb rate. Neither is true. Airspeed is 2 knots faster and the climb rate only 10fpm more than the 172R (however, Cessna raised the gross weight in the SP, which means it's not a fair comparison to the R model climb rate). It might as well be the same with those small of differences.

Yet the SP is Cessna's most popular selling aircraft. What's the draw of the SP over the R? Is it the standard leather seats owners get with the SP? Or is it the extra 100 lbs useful load? Or maybe it's just, if you're going to spend this much money for this docile Chevy of the skies, you want something more exciting than the 160 horsepower, vintage 1977, to go with it. And even if it's just another 20 "horseys", at least it's something a little more "racier" to talk about when you're sitting around the hangar at the end of the day reliving your adventures.

VIII. Flying the Skyhawk – Stable, Practical, Predictable and Pure Functional Bliss

Exciting it is not. But is it practical? Absolutely!

Right and left hand doors for easy loading, 120 lb baggage area accessible from a 3rd door plus over head wings for protection from the weather while loading and unloading, all make the Skyhawk one practical airplane on the ground. But what about in the air?

Practical is what this airplane is all about;

- ✓ 4 seats that actually carry 4 people
- ✓ respectable airspeed and climb rate (considering they're pushed along with a meager 145 to160 horsepower)
- ✓ and a roomy, comfortable cabin make the Skyhawk a real business machine for short haul applications.

Most of my 1500 hours in a Skyhawk have been flying cross country at 10-12K feet, which is probably not the norm for this aircraft. But lightly loaded, 12,000 feet is an easily attained altitude and from that altitude, you can catch a nice tailwind, take a longer view of where you're going, get more efficient fuel mileage and retain more options should an engine-out occur.

On the other hand, one can load the Skyhawk to maximum and it will still lift off from a reasonably short runway. It's not going to leapt skyward, but the climb is quite acceptable in most cases.

Packing Heat and a Heavy Load

A personal story that illustrates the limits of the Skyhawk's lifting capacity; when departing Phoenix Skyharbor International, I was asked to make an expedited climb. It was 105 degrees in Phoenix and with 3 other big guys (I'm not so small either) and their baggage, I was already coaxing every inch of climb rate that I could (which wasn't much). The tower kept repeating commands, each time with more urgency, to expedite my climb (but there's only so much one can do to boost climb rate with the limitations of a fixed pitch prop, high ambient temperatures and an aircraft loaded to gross weight). As exasperated as the tower was, the Skyhawk is no muscle machine and there are times when there's nothing more that one can give them. The final comment from the controller, "Well, are you overloaded or what?"

Once in the air, the Skyhawk is stable and solid. For a light aircraft, you couldn't find a better instrument platform. Point it where you want to go and it remains going in that direction. The controls are responsive enough and the pressures seem about right, not too heavy, not too light.

Stalls are gentle (especially for Skyhawks with the improved wing design beginning in 1973) and provide adequate buffeting to signal the onset of the stall. Putting the Skyhawk into a spin is a difficult task (which is a good thing). Once in the spin, just neutralize the control yoke and voila, the spin stops and you find yourself in a slow dive.

In the pattern, the Skyhawk is as easy to manage as any plane that I've ever flown. 80 knots on downwind, 70 knots on final, 60 knots "over the fence" and, if a brisk wind is blowing straight down the runway, ground speed at touch down can be incredibly low – 40 knots or less across the ground. It's very gratifying to make the transition from air to ground in such a docile, slow touch-down speed. Passengers love it – even the "nail-biters".

The Helicopter Approach

Another satisfying demonstration is to put the Skyhawk into what can only be called the "helicopter approach". Keeping the aircraft at close to pattern altitude until almost over the numbers, then with full flaps extended, it's possible to put the airplane into what feels like a near vertical descent by pushing the nose over hard. The descent is easily arrested by flaring at the bottom of the approach. It's a good demonstration of the incredibly docile slow speed characteristics of the Skyhawk. With the 40 degrees of flaps available on the earlier Skyhawks, the results are even more impressive.

Incidentally, please don't try this maneuver if you're not a very experienced and proficient Skyhawk pilot. Do not exceed airspeed limitations. And by all means, don't try this at busy airports or with other traffic in the pattern.

Also, my wife wants to add that the helicopter approach freaks out family and friends, if they're not forewarned.

IX. Stacking Up Against the Competition

(including a closer look at the Cessna Cardinal)

In comparing the Skyhawk to its competition, the latest series of Skyhawks (those introduced in 1997) cannot be considered together with the earlier series that ended production in 1986 because of the huge price differential.

Competitors for 1956 through 1986 Series

Competitors for this low-cost, four place "Chevy of the Sky" are numerous. In providing some comparisons for this chapter, I've tried to select what I consider to be the most widely available aircraft that most closely match the Skyhawk in performance, utility and price.

Cessna's intended successor and replacement for the Cessna Skyhawk, the Cessna Cardinal, is where our review of the "competition" starts.

Competing with its "successor", the Cardinal

What is it about the sexier looking, rakish and strutless Cardinal that caused it to lose in the race to overtake the Skyhawk sales ten years after it was introduced? The consensus among aircraft historians is that it never was able to overcome its initial reputation as underpowered and underperforming when it rolled out in 1968 with the 150 horsepower Lycoming O-320E. *Even though Cessna immediately changed to the better matched 180 horsepower Lycoming the very next year*, the story goes that the die was cast and the Cardinal was destined for extermination from that point forward.

That's hard to understand considering how much more attractive the Cardinal is against the stodgy Skyhawk (although, it can be argued that beauty is in the eye of the beholder);

(1) The Cardinal sports cantilevered wings like the fast and sleek Centurions. Whether the strutless wing is faster or not, ***it still looks fast***. With no struts to impede the view from the air or bump into while loading and unloading, it just makes for a much better design, in my opinion.

(2) It has a racy looking low, sweeping wind screen that provides the pilot and front seat passenger with a much improved view around the wing above.

(3) And when this strutless Cardinal sits sleek and low on the ramp, it just looks fast and sporty.

The wide 4 foot entry doors make loading and unloading easier than the Skyhawk. Once inside, the Cardinal cabin is wider and roomier too.

The Cardinal took the lead from Piper's Cherokees and used a stabilator in which the whole horizontal control surface rotates for pitch control (rather than an elevator). There were some problems originally with this design, but Cessna fixed them over time and retrofitted all earlier Cardinals with the fixes.

In 1970, Cardinals were equipped with constant speed props for the first time, which improved its climb.

For performance comparisons between the Skyhawk and the equivalent straight-legged Cardinal (not including the underpowered 1968): the Cardinal is faster (120 kt. Versus 115 kt.), climbs faster (840 fpm versus 645 fpm) and has a higher useful load (1,015 lbs versus 985 lbs). When comparing same year models, Cardinals will cost slightly more, however.

I've twice owned Cessna Skyhawks and each time when I was shopping for a new bird, the Cardinal just never became a contender and I can't tell you why. Maybe it's just because there's so darn many Skyhawks populating the earth and it's hard to argue with success. Those pilots who bought those 34,000 early Skyhawks that rolled out of the factories in the 20th century voted with their pocketbooks to make the Skyhawk such a huge success. Who knows? Maybe they knew something about the Cardinal that I just can't see.

Then again, I just might go buy one of these birds some day and convince myself that I was wrong all along.

From the Conventional to the Non-Conventional Grumman

Grumman American broke the mold when it introduced its family of AA5 aircraft in the 70's. It thumbed its nose at convention with its sliding canopy, castering nose wheel, and bonded-metal and aluminum honeycomb construction.

The design is not only simple, it performs too. The aerodynamically clean airframe is speedy and handles like a fast and agile sports car. Unlike the Cessna Skyhawk, the Grumman Traveller and Cheetah (and Tiger, though it's not a true "equal" with its 180 horsepower engine) bring fun thoughts to your flying. It's not hard to imagine that you're flying a little fighter (it helps that there are no doors, simply a sliding canopy for entry and exit).

For the same 150 horsepower as the Skyhawk, the Grumman goes faster (125-135 kt for the Traveller and Cheetah). The trade-off is payload, where the Skyhawk shines over either of the Grummans. Climb rate, too, is anemic in the Grummans. Those short little Grumman wings are designed for speed, but the Skyhawk's longer, larger wings do better in the climb.

Likewise, in the landing configuration, the Skyhawk's large flaps permit extremely short landings. The Grumman's small flaps, on the other hand, are fairly ineffective (there have been times that I've looked out the window to view whether the Grumman's flaps are really down, because the flight characteristics change so little with full flaps, that you don't believe they're actually engaged).

The Grumman's superior aerodynamics will give you some exciting performance. And for a weekend fun machine, the Grummans can't be beat. But the Skyhawk is a more serious machine. If you don't believe that, then try to explain to your passengers in a down pouring rain that you're going to have to slide the roof off the Grumman's cabin and let them and their belongings get soaked with rain until everyone, one by one, can pull themselves out of the seats and over the lip of the rails and slide down the wing before making a dash for cover (ask me while I know this!!).

Piper in the Balance

Depending on the year, Piper's Cherokee or Warrior compares very favorably to the Skyhawk. The Warrior sports the new double tapered wing, which performs better than the "Hershey Bar" wing of the earlier Cherokees. So, I'll use the 1974 through 1977 Warriors for the following comparison.

The same 150 horsepower Lycoming O-320 (not the H model, however) pushes this plane along as it does the Skyhawk. Gross weight of the Warrior is a smidge more, 2,325 lbs (the Cherokee is 2,150 lbs) versus the Skyhawk's 2,300 lbs. The Skyhawk's climb rate is 645 fpm. The Warrior books show 649 fpm. The Piper can boast of a roomier cabin and the Warrior's useful load is about 50 lbs more than the Skyhawk's too. However, the aerodynamically cleaned up 1974 Skyhawk (and its successors) is about 5 knots faster.

Performance specs are very close on these two aircraft and each shares an advantage or two over the other.

Although I've never owned a Warrior, my research confirmed that one should expect few maintenance issues with its airframe, much like the Skyhawk, with several minor exceptions. The main gear oleo struts on the Piper are going to cost more to maintain than the simple spring gear of the Skyhawk. In addition, there's a fuel pump to maintain in the Piper – another pump and switch to go bad.

Handling is good, (although the Skyhawk seems to handle the "bumps" a little better than the Cherokee with it's stubby, fat wings).

All things considered, these two airplanes compare quite well against one another. The issue that often becomes the deciding factor for whether to

purchase the Piper or the Cessna goes to the pilot's bias of which design is preferable, high wing or low. Getting soaked or staying dry.

X. Problem Areas to Look for When Shopping For Your Skyhawk

When shopping for that perfect Skyhawk, there are a few things that you should be looking for, beyond the AD compliance, engine health check and overall pre-purchase inspection that your mechanic will be performing for you.

Avoid Those Ratty Old ARC Radios

As discussed earlier, most Skyhawks came with avionics manufactured by Cessna's onetime captive company ARC. Starting in the mid-1970s, quality control of the ARC radio manufacturing began to take a turn for the worse. But it really doesn't matter what year Skyhawk with ARC radios you're looking at. If the Cessna you're evaluating has the original ARC radios in them, they likely are in need of replacement or will be soon. None of the ARC/Cessna radios, turns out, were all that good to begin with. But by now, they certainly are near the end of their expected life.

Suffice it to say, if the Skyhawk that you're evaluating has ARC gear, plan on making a major investment in all new radios. ARC rated dead last in an avionics owner surveys done by Aviation Consumer in the 70's. And if you think the ARC panel was a major liability when they were new, imagine what they're like after this many years. There's simply no reason to delay. Replace them.

Beware the "H" Engines With Sporadic Use or Without the T Mod

Some cautions are in store for anyone considering buying one of the 1977 through 1980 Skyhawks with the O-320-H2AD engine.

First, has the engine received the T Mod? A simple check will confirm whether the engine has been modified. The serial number of a modified engine ends in the suffix "T".

Second, what is the condition of the camshaft and tappets? A mechanic can make a visual inspection as part of your pre-purchase inspection and it's highly recommended. At the same time, your mechanic needs to inspect the oil and oil screen (or oil filter) for metal particles.

There is still some debate whether the T-mod is truly a "fix" for the drive train problems. I'm satisfied and the FAA is satisfied, but some are not;

"The T Mod is a decided improvement compared to the previous fixes to the O-320-H valve train, but it is not a solution. Careful maintenance, careful operation and strict adherence to pre and post flight recommendations are the only buffers you can use unless you bite the bullet and scrap the powerplant." -Aviation Consumer, June 1, 1988

Author's 1979 Skyhawk Equipped with the Lycoming O-320-H2AD Engine

Cracked Stabilizer Spars

Though the airframe is as rugged of a design as is practical, there are some potential problem areas to look for. The common practice of turning the airplane around by lowering the tail could cause cracking of tail fin attach brackets, stabilizer ribs and spars, and the aft bulkheads. Detailed inspections of the entire tail section should be part of your pre-buy inspection. These can be expensive repairs and if there's damage, you want your seller to pick up the costs.

Avoid Inheriting a 100 Hour Repetitive AD

AD 71-22-02 called for a repetitive 100 hour inspection of the nose forks on older Cessna 172s. The newer heavier forks should be installed in these early Skyhawks to avoid this nuisance. If the 172 that you're evaluating has not made this important modification, then consider adjusting your purchase price to pay for the modification.

How can you tell which forks are installed? You can tell by measuring the width of the milled area at the top of the fork from side to side. The forks with the AD measure 2.62". The newer heavier forks measure 3".

Valve Sticking & Breaking Can Ruin Your Day

The introduction of 100LL to replace the historical use of 80 octane fuel has resulted in a high number of sticking valve incidents in the Lycoming O-320, particularly the O-320-D2J. Part of the pre-purchase inspection on any of the O-320s should be an inspection of the valve condition, especially the exhaust valves.

The O-320-E also suffers from a fair number of breaking exhaust valves, usually at high engine times, around 1,600-1,700 hours. You might want to budget for a visual inspection of the valves by removing the exhaust stack as part of your pre-purchase evaluation.

XI. Which Year Skyhawk is the Best?

Cessna made mostly minor changes to the Cessna Skyhawk through the 30 years of its first production cycle. Nonetheless, there were some milestone improvements that make one series more attractive than another. As always, if you're going to buy a Skyhawk, your budget will likely eliminate some choices. So whatever models fall within your budget is what you're left with.

It could be tempting to just buy the latest model airplane that you can afford, but you might not end up with the best value. So consider the following ideas;

Some consider the 1974-1976 models as one of the best values. 1974 was the year of Cessna's aerodynamic clean-up and an increase to 120 kt cruise speed and 1976 was the last year before the introduction of the troublesome "H" series Lycoming engine.

Others consider that anything starting on or after 1973 is best. That was the first year that the new "Camber Lift" wing was utilized.

A lower budget alternative would be the 1968 through 1972 series. It still benefits from the lower cost 4 cylinder Lycoming engine introduced in 1968, though without the wing or aerodynamic improvements.

If your budget limits you to the series with the Continental 300 engines, many prefer to restrict their choices to 1963 and later due to the more modern appearance of the "Omni-Vision" rear windows and the swept tail (but like I've said before, beauty is in the eye of the beholder).

Before looking at purchasing one of the pre-1974 models, I would be looking at the 1977 through 1980 models with the "H" series engine. Even though the problems with the "H" engine are largely behind it now with the introduction of the T mod, prices can tend to be depressed for these years and you might be able to pick up a good deal. I currently own a 1979 Skyhawk with the "H" engine and I wouldn't hesitate to buy another one.

If your budget allows it, the 1981-86 172P will bring you the best combination of airframe and engine improvements and creature comforts. I purchased a new 'P' model in 1981 and aside from having to pull one cylinder off for R&R due to a stuck valve, that airplane delivered over 2,600 hours of essentially trouble-free service over the years that I owned it. I overhauled the engine shortly before selling it, more because I felt "guilty" about running it so far beyond TBO. My mechanic advised me that when he tore it down and checked the parts, all the tolerances were still within acceptable limits, meaning that he could have legally put the engine back together again without replacing anything.

Obviously, if your budget is sufficient, the new 172R and 172SP introduced in 1997 and beyond will bring you the most utility, safety and comfort.

XII. After - Market Modifications That Increase Utility, Safety & Performance

To make a good plane better, many fine companies have designed some wonderful products to make the Skyhawk safer, faster, slower (stall speed), more stable, more long-legged and more comfortable while reducing maintenance bills. All it takes is money (prices below are approximate and change over time).

The number of after-market modifications to the Skyhawk are impressive. Rather than try to list them all here, I've just listed some of the more common ones.

172	Fancy Pants kit	Aircraft Speed Mods	Gain up to 16 knots over no wheel pants	$600/mains $600/nose
172	STOL	Horton STOL	Lower stall speed, shorter T/O distance.	$1,500
172	Aileron and flap- gap seals	Horton STOL	Lower stall speed, Increased cruise speed.	$500
172	Leading- edge cuff kit	Avcon Conversions	Lower stall speed, Increased cruise speed	$700
172	Drooped fiberglass wing tips & aileron & flap-gap seals kit	Avcon Conversions	Lower stall speed, Increased cruise speed	$300
172	Recontoured leading edge	Bush Conversions 800 752-0748	Lower stall speed, shorter T/O distance.	$800
172	Flap-gap and aileron seals	Bush Conversions 800 752-0748	Lower stall speed, Increased cruise speed	$300
K, L, M, N, P, R & S	Diesel Power	Thielert Aircraft Engines	4 gallons/hour on jet fuel	$50K + labor
172	Long Range Tanks	Aircraft Conversion Technologies	Adds as much as 7 gallons to each main tank	$2K kit

172	Long Range Tanks	Flint Aero	12 gal tanks installed in the outer wing panels	$3K kit
172	Robertson STOL	Uvalde Flight Center	Lower stall speed, shorter T/O distance.	$7K
F thru P	Long Range Tanks	O & N Aircraft Modifications	18-gallon baggage compartment tank for the 172F through 172P.	$1.5K kit $2.5K installed
172	180-hp & 200 lb increase in gross	Avcon Conversions	Both constant-speed & fixed-pitch prop versions available	$2-3K kit
172	180-hp & opt increase in gross	Bush Conversions 800 752-0748	Both constant-speed & fixed-pitch prop versions available	$1.5-3K kit
172	180-hp	Penn Yan	Kit or installed	$17-20K
172	Swap out O-320H	Penn Yan	Replace with O-320 D or E	$17,000 exchange
I, K,L,M,N,P, Q	Tuned Exhaust	PowerFlo Systems	Increases power by as much as 23 hp	$4K kit

Contact Information;

Aircraft Speed Mods, Limited (919) 354-6630

Avcon Conversions, Incorporated (800) 872-0988,

Bush Conversions of Udall, Kansas (800) 752-0748

Flint Aero Inc., Gillespie Field, 1942 Joe Crosson Drive, El Cajon, CA 92020 Phone: (619) 448-1551, Fax: (619) 448-1571, www.flintaero.com/index.html

Horton, Incorporated's (800) 835-2051

O& N Aircraft Modifications, PO Box 292, Seaman's Airport, Factoryville, PA 18419, (717) 945-3769, fax (717) 945-7282; www.onaircraft.com

Penn Yan Aero Services of Penn Yan, New York (315) 535-2333

Power Flow Systems, Inc. (877) 693-7356, email: info@powerflowsystems.com

Precise Flight, 63354 Powell Butte Road, Bend, OR 97701
1-800-547-2558, fax:541-388-1105; preciseflight@preciseflight.com or www.preciseflight.com

Sierra Industries, Inc., Garner Field Municipal Airport, PO Box 5184, Uvalde, TX 78802-5184, (512) 278-4381, fax (512) 278-7649. www.sijet.com

Uvalde Flight Center (512) 278-4481

Magically Releasing the Hidden Horses

One after-market modification that is particularly interesting is the tuned exhaust systems offered by Power Flow Systems, Inc. Their claims are almost too good to be true, considering the seemingly minor modification that they're making by lengthening and matching measurements of the four exhaust pipes protruding from the Lycoming O-320 engine. Here are their claims;

- Dyno proven up to 23.75 horsepower gain over the original system
- 30 to 150 RPM increase on static run-up
- 4 to 6 second reduction in takeoff roll
- 125 to 300 feet per minute (fpm) increase in climb rate
- 1.2 to 2.2 gallon per hour (gph) reduction in fuel burn
- Cylinder Head Temperature (CHT) extremes reduced between cylinders and overall temperatures reduced
- Exhaust Gas Temperature (EGT) extremes reduced between cylinders
- Smoother running engine

Based on reports from reliable sources (including one of my mechanics who installed one on his own Skyhawk), the installation really does transform the lowly Skyhawk into a higher performance marvel.

If you're worried about what harm might come from adding up to 23 horsepower to your Skyhawk's airframe, understand that all that's going on here with the installation of a well-tuned exhaust, is the engine is actually

generating its rated power for the first time ever. The original factory designed exhaust by Cessna was so inadequate, that the engine developed almost 25 horsepower less than specified!

So, with the improved breathing from the tuned exhausts, your 160 horsepower Skyhawk might actually develop something close to 160 horsepower.

Talk about a "hole" waiting to be filled – and this company apparently jumped on the opportunity. God Bless America.

From the pilot/owners desk;

"I have a Petersen STC for mogas and it's saved me tons of money. I've never had as much as a burp out of my 145-hp Continental engine in spite of the horror stories concerning mogas in airplanes."

"Kinzie interior replacement parts are better than original and easy to install. Polyfix plastic repair kits take care of small cracks in the original Royalite. Texas Aeroplastics fairings were perfect fits."

Diesel Power via Germany's Thielert Aircraft Engines

XIV. What the Rags are Reporting

***Aviation Consumer,* May**

"The Cessna 172 probably ties with the Piper Cub as everyman's vision of the little airplane. Probably more people recognize the Cub name; but more recognize the shape of the Skyhawk.

Even for the less adventurous, the 172 continues to appeal for its simple virtues, undemanding flying characteristics, good value and availability."

AOPA Magazine

"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.

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 Magazine,

"The 172 is a great instrument platform. Even without an autopilot, it can accommodate a lot of cockpit fumbling while remaining upright and on course."

AOPA Magazine,

"Deep within the breast of every pilot beats the conviction that flying is glamorous and inspirational - a high-tech indulgence capable of making us transcend the ordinary. So what accounts for the immense popularity of the Cessna 172/Skyhawk series of airplanes?

After all, the Skyhawk comes off as the most prosaic of light aircraft. It's plain Jane at its very plainest. The essence of ordinary. But take a look at the

numbers — more than 36,000 sold, over an extraordinarily long, 31-year production run — and the Skyhawk comes out way ahead of all its competitors. In fact, the 172/Skyhawk is the world's most popular single-engine airplane.

It's been the step-up airplane for generations of pilots who have bided their time in two-place trainers. The airplane of choice for the family man — or woman — as an inexpensive cross-country machine capable of cruising at about 115 knots and carrying four people 600 nautical miles.

It's also shown great versatility. Skyhawks have served in roles ranging from bushplane to military service, wearing everything from skis to floats to munitions hardpoints. Pound for pound, dollar for dollar, the Cessna 172 series has perhaps the greatest utility of any single-engine airplane."

XIV. From the Discussion Boards

posted **Thu, 18 Jan 2001 01:44:28 GMT**

The stock 68 cardinal has the 150hp lyc 0-320-E2d engine. I owned one and have also owned a 74 skyhawk and a 64 skyhawk (0-300 motor in the '64). The 69 cardinal is a much better machine with the bigger motor.

The 68 cardinal is roomy, sexy looking, tricky to get greased-on landings and way underpowered---however if you are flying around with low weights near sea level MSL, it's a neat airplane because of it's comfort and visibility. When you look for used cardinals you will see many '68 models for sale---there is a reason why.

The 0-320-E series engines are pretty bulletproof.

I think the skyhawk is a better performer, and probably a better value. I also think it is a stronger airframe due to strut wing---the cardinal cabin would make creaking noises in turbulance which always gave me a little thrill.

Posted **9 Apr 2001 18:38:50 GMT**

I generally prefer Cessnas because they have better visibility looking out when all things are considered. Cherokees fly alright, but compared to the equivalent Cessna model, their outward visibility is awful, IMHO. I also prefer Cessnas when flying IFR - all Cherokees I've flown have this horrible phugoid which requires quite a lot of attention to altitude, thus increasing workload. Cessnas by comparison seem to stay nailed on the altitude when you've trimmed them. Also, one habit of the Hershey-bar winged Cherokees that I don't like is the appaling lack of pitch control at touchdown. You can keep the nosewheel off the ground in the C182 until you're going really slowly. However, in the Arrow, the nosewheel won't stay up however hard you pull on touchdown. Rough fields, give me a 172 or 182 any day.

posted **10 Apr 2001 11:20:48 -0400**

I have about 300 hours in both a C172M and Cherokee160 (which I own)
What I like about the C160
==========
o Great in Ground handling, much better in crosswinds (hands down). C172 need to flown to a stop in bad winds the C160, once down, your down...
o Better useful. I have 920lbs with a fairly well equipped panel. All C172s I've flown had less than 900.
o Great in the circuit
o Stall is a NON issue, unless of course terra firma interrupts the party :)
o Comes will long range tanks compared to the C172.

What I don't like about the C160
==========

o Nose Heavy as hell. Fly MUCH better with rear seat passengers, in terms of landings...
o Harder to ground manuover.
o Slower than the C172...though I have insect antenna's all over the place.

What I like about the C172
==========
o Ease of entry and exist
o Are Not placarded against spins.

What I don't like about the C172
==========
o Reciprocate "what I like about C160s :)

All other comparisions about match. They are both great A/Ps.
As an Aside: With the AM&R Mod. My C160 acts like a C172 with power off. No longer does it sink like a rock, power off. The climb is notacibly better. Cruise= 0 increase :(

Posted **1999/09/10**

I've flown quite a bit in both. It is difficult to generalize since individual airplanes vary so much, but...

I'd go with the 172 for a more utility-type airplane. Although the specs are similar, I believe the 172 can work short-fields easier, handles loads a bit easier, is extremely stable (nice for IFR), has a better safety record, and has a stronger airframe - I have read that there has NEVER been a wing failure on a strut-based Cessna wing. If I were to blunder into a thunderstorm, I'd want to be in the 172.

OTOH, the Warrior is a nicer traveling airplane, especially the taper-wing versions post 1974. It is quieter, more comfortable, more nicely appointed, slightly faster (much faster if you have one of the 79-onward models with the fancy wheel pants), easier to see out of, and has lighter controls and more spritly handling.

The "bad engines" in the 172 are the O-320H2AD engines which were installed from 77-80. They are getting to be scarce as most operators swap out this engine with the a different O-320 at overhaul; some overhaulers won't touch the H2. With use of the Lycoming oil additive (I believe it is required by AD) the problems with this engine have diminished greatly, so this wouldn't be a huge factor for me, but I'd look for a break of a few thousand on the price. FWIIW, I did primary training in a H2 engine that went to 2500-hrs, was overhauled and then went another 2500-hrs without problem.

Posted **1999/09/15**

What I like about the Cessna is its dual doors.

What I like about the Piper is the low-wing: far superior in stability and at least when I turn into something, I can see where I'm going. OTOH, high wings make for nicer planes for passengers, but I find the comfort of the pilot more important than that of the passenger. Also, I like the small pedestal for the engine controls rather than having the control just stick out of the dash without any place to rest my hand while fine-tuning them (but this can be because I trained mostly on planes with pedestals so it could boil down to what one is used to).

As to stability: having flown many different types with low wings (Piper Tomahawk, Warrior, Archer, Arrow, Dakota, Fuji FH20, Robin, Rockwell Commander, my current plane) and a few Cessnas (150, 152, 172s from many different years), I find that low wings are more stable than high wings throughout: a high wing is basically stable and therefore it is left at that, whereas a low wing is basically unstable and therefore stability has to be introduced using dihedral. When they are at it, apparently designers add just that little bit of extra stability to make them more pleasant to fly.

When going for a Piper, do go for one with the tapered wings: they are so much more forgiving in landing and have better performance.

Posted **29 Mar 2001 13:22:27 GMT**

I went through the (Grumman vs Cessna 172) debate and ended up in a 1972 Traveler last year. It's a great plane.

I didn't have much time in Grummans then and a large part of my decision was on "bang for the buck". In the visibility department the Grumman wins hands down. Handling and control responses are lighter and more responsive than the Cessna. The Traveler is a little faster too (not much of an issue on shorter trips). On longer trips the rear seats fold down and provide a cavernous, easy to load baggage area for 2 people. Once you get used to that free nose-wheel, ground handling, it's wonderful.

For me the weak points (of the Grumman) are the rate of climb (it's a little underpowered in stock format) and the range. I'll probably add an extra 10 HP at major via STC which should fix that problem. The Cheetah with 51 gal vs 37 is something to think about if you need extra time in the tanks. Maintenance has been pretty straightforward. The O-320 is a reliable engine and the systems are simple.

Posted **Thu, 29 Mar 2001 16:24:01 GMT**

The Grummans are great fun to fly and very efficient -- if speed is what you want, this is the way to go.

The trade-off is in climb rate, high altitude performance and loading. The Cessna high-lift wing can't be beat for getting up and out at high density altitudes. Book values for the 150hp aircraft are close (13,100 service ceiling, 645 fpm for the 172 vs. 12,500 and 660 for the Traveller) but my experience is that the Cessna inspires a lot more confidence in mountain flying -- it simply has more authority hot and high. Maybe the Traveller I flew had a wheezy engine but I wasn't impressed by the climb

angle on warm days.

This is simply a question of wing design. At 180hp, the Tiger goes to about 13,500 and the 172 to almost 17,000.

If you're hauling bikes and camping gear and the like, go slow and fly a Cessna. If your profile is modest altitudes and long distances, the Grumman is the clear choice. And it's a *lot* sexier.

Posted **1998/05/27**

I had my first 70 hours in a 172. I tried Warriors and Archers and haven't gone back. I like being able to see what's coming while in a bank.

Also, the Pipers land smoother. Because of the low wing, they get into ground effect sooner.

Posted **1998/05/31**

We have a small club in South Florida and we are in the process of switching from C172's to Cherokee 140's for flight training, using the Skyhawks more for rental. I learned how to fly in 140's 25 years ago and really like them. The Cherokee with the straight wings have much higher wing loading than the Cessnas. This is good and bad. They ride better in rough air and are less problematic in gusty wind conditions but of course have much higher sink rates and lower climb rates than the Cessna. If you look at the Cherokees with the tapered wings such as the Warrior or any of the newer Piper line they fly very much like the Cessna except that they float more on landing because the low wing and ground effect. Each has their advantages and both are very capable in their own right. Just a matter of personal preference.

Posted 1998/05/27

I have owned a C177B, a C-172, and currently own a C-177RG. The 177B was a 1971 model, and I owned it in partnership as my first airplane. When I was financially able, I bought a 172 by myself. That was a mistake. Once you own a 177B the C-172 just doesn't quite cut it. The C177 has a much larger cabin and is much more comfortable on cross country travel. You can actually put your headset down on the seat between yourself and the door, and also put your charts on the floor between the two seats. The dash is also lower on the C177B which gives better forward visibility. I found the speed of the C177B to be about 120 knots and the 172 to be about 115 (even though the pilot's operating handbook puts them about the same). The constant speed prop coupled with the 180 HP engine on the C177B is very nice, and gives it better climb performance. I found that the maximum ppractical altitude on the 177B to be around 13000, while the 172 really struggled to get to 10000. Fuel burn on the C177B is about 10 gal/hour, while the C172 is about 8.5 gal/hr.

All in all, I liked the C177B much more than the 172.

Posted **1998/09/13**

The main differences between the 172 and 177B are:

1.) The 177B has a wider cabin.

2.) Visibility in the 177B is better. As a tall pilot I always hated looking at the wing root in the 172. In a the Cardinal it was possible to find a comfortable position where I could see under the wing without gyrations.

3.) Seating comfort is a mixed bag for tall pilots in the 177B. It is dependent upon the type of seat installed. I found I had the most headroom with the basic non-articulating seats.

4.) The 177B will fly a little faster and will have better range than some 172's dependent upon the size of the fuel tanks. The Cardinal also has a slightly higher fuel burn.

5.) The 177B handles much better than a 172. It is one of the few planes in the Cessna line-up that has any life in the roll axis.

Both airplanes are easy to fly, maintain, and insure.

XVI. Organizations for Cessna 172 Owners

Name & Mailing Address	Telephone	Fax	E-mail
Cessna Pilots Association (CPA) P.O. Box 5817 Santa Maria, CA 93456	805-922-2580	805-922-7249	info@cessna.org

From Howard Van Bortel of Van Bortel Aircraft

"The World's Largest 172 Dealer."

Why does he say the Skyhawk has been his bread-and-butter best seller?

- ✓ **It doesn't burn much**
- ✓ **it doesn't need much maintenance**
- ✓ **every mechanic can work on it (especially important for foreign sales)**
- ✓ **Cessna continues to support it with parts and customer service**
- ✓ **and it is used by government agencies worldwide.**

All of that makes the Skyhawk a good sell — and a good buy.

"A lot of people," Van Bortel observes, "just don't know how much of a bargain a Skyhawk really is. It's the world's best kept secret." - May 1992, AOPA Magazine

SPEC SHEET – 1997 Cessna 172R

Cessna 172R 1997 base price: $124,500	
Specifications	
Powerplant	Lycoming IO-360-L2A 160 hp @ 2,400 rpm
Recommended TBO	2,000 hr
Propeller	McCauley two-blade, fixed-pitch, 75-inch diameter
Length	26 ft 11 in
Height	8 ft 11 in
Wingspan	36 ft
Wing area	175.5 sq ft
Wing loading	13.9 lb/sq ft
Power loading	15.3 lb/hp
Seats	4
Cabin length	9 ft 1 in
Cabin width	3 ft 1 in
Cabin height	4 ft
Empty weight	1,600 lb
Useful load	850 lb
Payload w/full fuel	532 lb
Max takeoff weight	2,450 lb
Fuel capacity	56 gal (53 gal usable) 336 lb (318 lb usable)
Oil capacity	8 qt
Performance	
Takeoff distance, ground roll	940 ft

Takeoff distance over 50-ft obstacle	1,685 ft
Max demonstrated crosswind component	15 kt
Rate of climb, sea level	720 fpm
Max level speed, sea level	123 kt
Cruise speed/endurance w/45-min rsv, (fuel consumption)	
@ 75% power, best economy 8,000 ft	120 kt/5.8 hr (48 pph/8 gph)
Service ceiling	13,500 ft
Landing distance over 50-ft obstacle	1,295 ft
Landing distance, ground roll	550 ft
Limiting and Recommended Airspeeds	
VX (best angle of climb)	60 KIAS
VY (best rate of climb)	76 KIAS
VA (design maneuvering)	99 KIAS
VFE (max flap extended)	110 KIAS
VNO (max structural cruising)	129 KIAS
VNE (never exceed)	163 KIAS
VS1 (stall, clean)	44 KIAS
VSO (stall, in landing configuration)	33 KIAS

SPEC SHEET – 1997 Cessna 172SP

Skyhawk SP 1997 base price: $159,900	
Specifications	
Powerplant	180-hp Lycoming IO-360-L2A
Recommended TBO	2,000 hr
Propeller	McCauley two-blade, fixed-pitch, 76-in dia
Length	27 ft 2 in
Height	8 ft 11 in
Wingspan	36 ft 1 in
Wing area	174 sq ft
Wing loading	14.7 lb/sq ft
Power loading	14.2 lb/hp
Seats	4
Cabin length	11 ft 10 in
Cabin width	3 ft 3.5 in
Cabin height	4 ft
Empty weight	1,644 lb
Max gross weight	2,558 lb
Useful load	914 lb
Payload w/full fuel	596 lb
Max takeoff weight	2,550 lb
Max landing weight	2,550 lb
Fuel capacity, std	56 gal (53 gal usable) 336 lb
Oil capacity	8 qt

Baggage capacity	120 lb, 5.2 cu ft
Performance	
Takeoff distance, ground roll	960 ft
Takeoff distance over 50-ft obstacle	1,630 ft
Max demonstrated crosswind component	15 kt
Rate of climb, sea level	730 fpm
Max level speed, sea level	126 kt
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption) @ 75% power, best economy, 8,000 ft	122 kt/4.2 hr (59 pph/9.9 gph)
Service ceiling	14,000 ft
Landing distance over 50-ft obstacle	1,335 ft
Landing distance, ground roll	575 ft
Limiting and Recommended Airspeeds	
V_R (rotation)	55 KIAS
V_X (best angle of climb)	62 KIAS
V_Y (best rate of climb)	74 KIAS
V_A (design maneuvering)	105 KIAS
V_{FE} (max flap extended)	110 KIAS
V_{NO} (max structural cruising)	129 KIAS
V_{NE} (never exceed)	163 KIAS
V_{S1} (stall, clean)	48 KIAS
V_{SO} (stall, in landing configuration)	40 KIAS

Lists, Tables and Charts