

THE PREBUY



If you're looking to buy a previously owned Cirrus, a good prebuy examination is essential. Here's how to do it.

by Mike Busch

With the economy struggling in the wake of a downturn of historic proportions, an unprecedented number of pre-owned Cirrus airplanes are for sale. My maintenance management firm has experienced a huge upsurge in prebuys, both from first-time Cirrus buyers entering the aircraft market, and from current Cirrus owners upgrading to turbos or just newer, better-equipped machines.

Prices have dropped to bargain levels; it's definitely a buyer's market. Sellers are often highly motivated and flexible on price. We're even seeing a few repossessed aircraft being sold by banks on the cheap. One repossessed low-hours airplane that sold new five years ago for \$500,000 was offered for sale by the bank for less than \$200,000!

Who and Where

When a prospective purchaser decides to perform a prebuy, the first challenge is to choose a service center or mechanic to examine the aircraft. This is probably the most important decision that will affect the outcome of the prebuy. There are several rules we follow in making this choice.

First and foremost, **the prebuy examination*** should be done by a shop or mechanic with extensive expertise with the specific aircraft make and model involved. Since the mechanic will only have a limited amount of time to examine the aircraft, it's essential that he know exactly where to look for problems - i.e., what this model's most common and serious failure points are - and such knowledge only comes with extensive experience with the particular make and model. In the case of Cirrus prebuys, this almost always means that the examination is best done by a Cirrus Authorized Service Center.

*** Note:**

I use the term "prebuy examination" for what many call a "pre-purchase inspection." I try to avoid using the term "inspection" in connection with a prebuy, because "inspection" has a specific regulatory meaning under the FARs. In particular, an inspection always results in a maintenance record (logbook) entry in accordance with FAR §43.11. A prebuy should never result in any maintenance record entry, and is not an inspection in the regulatory sense.

Second, the shop or mechanic chosen to perform the prebuy must have no prior history with either the aircraft or the seller. We need the mechanic who performs the prebuy to approach the aircraft with an attitude of total skepticism about its condition and airworthiness. A mechanic who has been maintaining the aircraft is naturally going to be predisposed to assume that the aircraft is in good and airworthy condition, particularly if he signed off the last annual inspection. One who has a relationship with the seller is bound to be reluctant to do or say anything that might "queer the deal" for his customer or friend. That's why it's essential that the prebuy be conducted in a completely objective fashion, and that requires that it be done by someone who is not tainted by a prior relationship with the aircraft or the seller. If the seller or the seller's broker recommends a shop or mechanic for the prebuy, that's probably one you want to avoid using.

Third, we need to find a suitable shop or mechanic within a reasonable distance of where the aircraft is located. Few sellers will be agreeable to having their aircraft flown halfway across the country for a prebuy, and few prospective buyers want to run up a big fuel bill ferrying an aircraft a long distance when they're not yet sure they will be buying it. A good rule-of-thumb is that the prebuy location should be no further away than an hour's flying time from the aircraft's home base, and preferably within a half-hour's flying time.

Annual Inspection	Prebuy Examination
Aircraft owner selects shop or mechanic, manages and pays for annual inspection.	Prospective buyer selects shop or mechanic, manages and pays for prebuy exam.
Scope and detail defined by regulation (usually Part 43 Appendix D) or manufacturer's maintenance manual.	Scope and detail not defined by regulation or manufacturer, and solely at the discretion of the buyer.
By regulation, must attempt to discover all airworthiness items and other discrepancies, both major and minor.	Scope and detail not defined by regulation or manufacturer, and solely at the discretion of the buyer.
Once begun, almost always continues to completion.	May terminate prematurely if prebuy discovers a "show stopper" that persuades buyer to walk away from the deal.
Always culminates in a maintenance record (logbook) entry per FAR §43.11, either approving or disapproving the aircraft for return to service.	Never documented in the aircraft maintenance records (unless buyer purchases aircraft and opts to convert the prebuy exam into an annual inspection).

FIGURE 1: *There are numerous differences between an annual inspection and a prebuy examination.*

Purpose and Objectives

Once the prebuy shop has been chosen, the next thing the prospective buyer needs to do is provide specific guidance

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to the inspecting mechanic about the scope and detail of the desired prebuy examination. In other words, how much time and effort should the mechanic spend examining the aircraft, and on what specific areas and items the examination should focus.

There is nothing in the FARs or maintenance manual that dictates what a prebuy examination should cover. Each individual buyer has to decide how long the prebuy examination should take, how deep it should go, and how much it should cost. Some buyers are content with a quick look-see that takes only a few hours; others want a full-blown annual inspection.

Cirrus Aircraft offers a prebuy checklist for its Cirrus Certified program. Frankly, I don't much care for it because it lacks specificity, includes too much cosmetic stuff and omits some important airworthiness items. My firm has developed its own Cirrus prebuy checklist; drop me an email (address below) if you'd like a copy.

One frequently hears it said that the best prebuy is an annual inspection. I think this advice is completely wrongheaded.

In my view, a prebuy examination has objectives that are quite different than an annual inspection, and should be organized, performed and documented in a very different fashion.

The purpose of an annual inspection (defined by FAR §43.15) is to identify **all** airworthiness discrepancies, whether trivial discrepancies that cost \$50 to correct or major catastrophes that cost \$50,000 to resolve. Once started, an annual inspection almost always goes to completion, and results in maintenance logbook entries (per FAR §43.11).

In contrast, the purpose of a prebuy is to provide the prospective buyer the information they need to (1) decide whether to purchase the aircraft or walk away from the deal, and (2) identify any costly airworthiness issues that he will ask the seller to pay to correct. Therefore, the prebuy should focus strictly on identifying any big "show-stopper" discrepancies that would cost big bucks to fix. It makes no sense to waste time looking for minor discrepancies that won't influence the buyer's purchase decision or trigger re-negotiation of the purchase price.

Unlike an annual inspection, the prebuy will not necessarily go to completion. If some big-ticket show-stopper issue is discovered during the prebuy exam, then a time-out should be called while the buyer considers the implications of the show-stopper, discusses it with the seller, and decides whether to walk away from the deal. Unless and until the show-stopper is resolved, there's no point in the buyer spending any additional money on the prebuy exam.

For this reason, the order in which things are examined during the prebuy is important. We always want to start with the most expensive stuff (usually the engine) and work toward the less expensive stuff (like wheels and brakes). We also want the prebuy to identify any non-compliance

with Airworthiness Directives and Airworthiness Limitations (which are airworthiness items that the seller should pay to correct), rather than on compliance with Service Bulletins (which are non-airworthiness items that are normally borne by the buyer).

Also, unlike an annual inspection, the prebuy exam should never result in any maintenance record entries being made. The prebuy is performed at the buyer's expense, by a service center or mechanic selected by the buyer, and its findings should be communicated solely to the buyer to guide his purchase decision and price negotiations. There should be no direct communications between the service center and the seller, and the prebuy findings should never be recorded in the aircraft logbooks.

Scope and Detail

Because a prebuy has very different objectives than an annual, the scope and detail of the examination should also be very different. In most areas, a prebuy exam need not go nearly as deep as an annual inspection. But in certain areas, the prebuy may need to go deeper than an annual.

During a prebuy, there's no reason to remove the wheels to inspect wheel bearings, or to check control cable tensions and control surface deflections - all things that would be done at annual - because none of these items would be likely to influence the buyer's purchase decision or price negotiations. While they could be airworthiness discrepancies, they're quick and inexpensive to correct and therefore not worth worrying about in the context of a prebuy.



FIGURE 2: *If the aircraft has been inactive for months preceding the prebuy exam, it may be prudent to pull some lifters and inspect them and the cam lobes for pitting or spalling.*

On the other hand, the condition of the engine bottom end - particularly the crankcase, cam and lifters - are a major concern during the prebuy, especially if the aircraft has not flown much during the months leading up to the prebuy. If the aircraft has low- or mid-time engines, a substantial portion of the purchase price is predicated on the presumption that the engine(s) will provide the buyer years and hundreds of hours of service. A premature engine teardown necessitated by a spalled camshaft or cracked crankcase would be a major

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financial show-stopper for the buyer, and exactly the kind of thing the prebuy exam is intended to prevent.

Last year, we caught a crankcase crack at prebuy that had been missed at the annual inspection just two months earlier. The seller wound up paying for a TCM factory engine and the buyer (our client) was spared a painful \$40,000 surprise. This illustrates yet another reason that the prebuy should never be done by the same shop that did the last annual inspection. Obviously, we did a better job of choosing the right shop for the pre-buy than the seller did when he chose the shop to do his annual.

Prolonged inactivity is something we encounter more often than not in aircraft that are put up for sale. Recently, my firm managed prebuys of two airplanes that hadn't flown at all for the preceding eight months, and another that had flown only 10 hours in the past year. Such recent disuse has to be treated as a big yellow flag during a prebuy examination, especially if the inactivity has occurred in a high-corrosion environment where humidity, salt, and/or smog are major issues.

In situations like this, it's essential to go the extra mile during the prebuy exam to ensure that the engine bottom-end is healthy and is not concealing any nasty, expensive surprises. For TCM engines that are at potential corrosion risk due to recent inactivity, I strongly recommend that at least a few lifters be removed for inspection, and that the corresponding cam lobes be inspected through the lifter bosses. Typically, we'll pull six lifters from one side of the engine (about a four-hour job). If any of the lifters show signs of pitting, flaking or spalling, then we'll recommend pulling all remaining lifters and inspecting all the cam lobes. Any lifters with visible defects need to be replaced, and any damage to cam lobes is grounds for walking away from the deal or negotiating a major price reduction to cover premature engine tear-down or replacement.

Note that such lifter removal and cam inspection is **NOT** something that is done during an annual inspection, because if the cam and lifters are starting to come apart, that fact will ultimately show up at an oil change when the filter is cut open and found to be full of shards of ferrous metal. This typically occurs 50 to 100 hours after a long-inactive airplane becomes active again.

This is perfectly acceptable in the context of an annual inspection because cam and lifter spalling is an airworthiness and financial issue, but **not** a safety issue. (Nobody ever fell out of the sky because their cam and lifters were making metal.) However, it's definitely unacceptable in the context of a prebuy, because we don't want the new owner to find himself faced with an unexpected \$20,000 to \$40,000 engine teardown or replacement 50 to 100 hours into his aircraft ownership tenure. We need to use our very best efforts to uncover this sort of thing during the prebuy.

What's the Deal

Prior to commencing the prebuy exam, the buyer and seller should execute an aircraft purchase/sale agreement that defines the selling price, deposit, escrow and delivery arrangements, warranty (if any), and terms and conditions of the prebuy examination. A specimen agreement can be found on the Savvy website at: www.savvymx.com/images/pdf/purchase_sale_agreement.pdf.

Normally, the agreement specifies that the prebuy examination is performed at the buyer's expense by a service center or mechanic chosen by the buyer. We occasionally see cases where the buyer and seller agree to split the cost of the prebuy, but I think that's a bad idea because that usually means that the seller is in a position to influence where and how the prebuy is done. In my view, the prebuy should be paid for by the buyer, and the buyer should have total control over who performs it and how broad and deep the examination goes.

The agreement typically defines the buyer's and seller's options after the prebuy examination is complete. Typically, the agreement offers the seller two options: (1) to have any airworthiness discrepancies discovered during the prebuy corrected at the seller's expense, or (2) to walk away from the deal and return the buyer's deposit.

Some agreements call for the seller to pay for correcting **all** discrepancies (not just airworthiness items), but I think that's a bad idea because we really don't want the deal to fall apart over nickel-and-dime stuff. In my view, a buyer who expects a perfect, flawless aircraft has unreasonable expectations and may be shooting himself in the foot by walking away from a good, reasonably priced aircraft. Once again, the purpose of a prebuy (in my view) is to protect the buyer against any big, expensive, nasty surprises. Fixing the small stuff is just a normal part of aircraft ownership - get used to it!

Convert Prebuy to Annual?

Once the prebuy is complete and the prospective buyer has decided to purchase the aircraft and consummated the transfer of ownership, there's nothing to prevent the new owner from converting the prebuy into a full annual inspection. In fact, this is often quite a sensible thing to do.

After all, the logbook research has already been performed, the aircraft is already opened up, and much of the airframe, engine and propeller inspection has already been completed. So finishing up the annual inspection, repairing any remaining discrepancies, and completing the logbook entries and other necessary annual inspection paperwork is often the most cost-efficient course of action.

The only major downside of converting a prebuy into an annual occurs when the aircraft's new home base is a long distance away from where the prebuy exam was performed. In this situation, if the new owner converts the prebuy into an annual, then ferries the aircraft home and some post-annual

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issues arise, it's usually impractical to take the aircraft back to the shop to have those issues addressed.

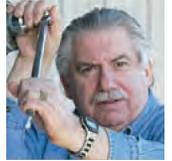
While this can be a legitimate issue of concern, on balance we find that the advantages of converting a prebuy into an annual after the aircraft has changed hands usually outweigh the disadvantages.

Key Prebuy Takeaways

1. Have the prebuy examination performed by a mechanic who is an expert in the particular make and model, has no prior relationship with the aircraft or the seller, and is located within a reasonable distance (an hour's flying time or less).
2. Don't approach the prebuy as an annual inspection. Focus strictly on determining whether the aircraft has any big "show stopper" discrepancies that would be costly to fix. Start with the most expensive stuff (typically the engine) and work toward the less expensive stuff. Don't waste time and money looking for cheap-to-fix discrepancies or non-airworthiness items that won't affect the purchase decision nor have major impact on the price negotiations.
3. If any costly-to-repair items are found during the prebuy, stop and discuss them with the seller. The seller may agree to pay to have them corrected, or may choose to walk away from the deal. If the seller agrees to pay, the prebuy can resume.
4. If you decide to buy the aircraft and assume ownership, it often (but not always) makes economic sense to convert the prebuy into an annual inspection. 

About the Author

Mike Busch - honored as "National Aviation Maintenance Technician of the Year" for 2008 - has been a pilot for more than 44 years and 7,000 hours, and an aircraft owner and CFI for more than 40 years. He became increasingly interested in the maintenance aspects of aircraft ownership about 20 years ago, and ultimately earned his A&P/IA. Mike is also a prolific aviation writer, with hundreds of technical articles published in *American Bonanza Society Magazine*, *Aviation Safety*, *AVweb*, *Cessna Pilots Association Magazine*, *IFR*, *Light Plane Maintenance*, and *The Aviation Consumer*. He co-founded AVweb in 1995 and served as its editor-in-chief for more than seven years. Mike conducts weekend "Savvy Owner Seminars" at which aircraft owners learn how to obtain better aircraft maintenance while spending a lot less money (www.savvyaviator.com/). He is founder and CEO of Savvy Aircraft Maintenance Management (www.savvymx.com/) that professionally manages the maintenance of owner-flown aircraft including Cirrus SR20s and SR22s. Questions for Mike Busch may be emailed to mike.busch@savvyaviator.com.



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