# Evaluating a Potential Project

## Doing your homework before you spend your cash

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If there is one daydream that is universal, it is opening a long-closed hangar door, or fighting through the weeds to the back of the barn, where a long-forgotten diamond in the rough lies waiting. It'll be rusty and corroded ,but to us, it's beautiful. Its potential is enormous.

Unfortunately, that's usually all we see. Potential. Seldom, if ever, do we have a realistic view of the road that leads from where we are to where we want to be. Just when we need to be cold and calculating, our brains are positively flipping out as we envision this aero-corpse sitting in our workshops. For that reason, the worst thing that can happen is to stumble upon what appears to be the perfect project before we're ready for it. So don't go looking until you've done your homework.

Yeah, right!

Evaluating a potential project is all about comfort zones. First, the project can't challenge your skills to the point that you're forced out of your comfort zone so far that it wears you down. Of course, a heavy infusion of cash generally cures that problem, which for some is a viable alternative; for others, it's not.

The skill comfort zone is driven by

**Above: Look carefully at this Aeronca Sedan and you'll see the remains of every single wooden former, although one is laying on the ground and another inside. The importance of having all the wood for patterns can't be over emphasized. Also, the tubing has the surface rust characteristic of the southwest with no pitting. If this airplane had been in the northern states the tubing would be mostly gone. Look at the vertical fin tubing: it still has paint on it. This fuselage will clean up with light sand blasting or Scotchbrite pad/wheels. If pitting had been present, careful evaluation of the important members would be necessary, with replacement being a probability.**

Editor's Note: No, none of the airplane projects shown are for sale so don't bother calling. Besides, we've already tried. Sorry.

**It just got tired of waiting and laid down. This may be a bedraggled looking airplane but look how straight the sheet metal is. And how all of it is still there. The cowling shows the modifications for the 0-435 Lycoming that replaced the 0-300 Continental (190 hp vs 145 hp). A true restoration would require replacing part of the cowling but the Lyc gives better performance. The question is whether the STC paperwork is with the airplane. Paperwork is as important as hardware on a project.**

materials and systems—some folks are more comfortable with sheet metal than rag and tube. Some love working with old wood. Some don't like working with any of the above, which is something they'd better discover about themselves before dragging that hulk out of the weeds.

The skill zone is also defined by systems. Someone who is totally comfortable converting a rusty tube fuselage into a freshly welded thing of beauty may shy away from doing any engine work other than a "Krylon overhaul."

**This picture is going to drive Aeronca buffs nuts: the interior trim *and* the ashtray are still intact. The small parts are always much harder to find than the large ones, but the details make a restoration. The spider just in front of the ashtray isn't going to like losing its home. Another thing to think about when inspecting abandoned airplanes—critters love 'em.**

**Nearly every vintage airplane has something that is totally unique to the breed. Sometimes it's something like this tail wheel shock assembly, which is specific to the make and model. If it's gone, finding one that's useable is going to be a chore. Don't overlook details like this.**

**To a "normal" aviator, this looks like an abandon building that needs to be torn down, but to a restorer, it looks like King Tut's treasure. Here we have an instrument panel that is not only complete but reasonably unbutchered. It even has the glove box door (right) and the stall waning gizmo (left). Starting out with a thoroughly disgusting, but nonetheless complete hulk, is much easier than a cleaner, but incomplete one.**

**A veritable treasure trove of wood patterns. Also, notice the trim system, although mostly unusable, is all there, so you don't have to reinvent the routing. The wings show little wear, but in the case of some aircraft, Aeronca Sedans and Luscombes being two of them, large sections have no inspection panels so it's hard to get inside for inspection. Mirrors and flashlights through the root rib holes will help, but a critical inspection is called for. Notice the surface rust on the tubing with no obvious pitting.**

An aversion to working on certain types of systems or materials has a lot to do with which project should follow you home. That aversion says there are some parts of every project you evaluate that have to be useable as is, or the expense of farming it out has to be added to the budget.

The project also has to fit the work space that is available or that can be made available. Call this the cubic zone. If you're stuck with a single-car garage, a Bamboo Bomber is out of the question, but a Luscombe would fit nicely. However, just because your work space is large enough to be measured in acres, that's no reason to gleefully jump into restoring a DC-4 just because you can get it for next to nothing.

You also have to evaluate the degree of restoration you're willing tackle. Is your idea of restoration scrubbing the mildew off the upholstery or do you want to pound rivets and make sparks fly? Since projects range from basket cases, where the basket is the only thing worth saving, to Cherokees left sitting in a hangar for a few years, it's important to know exactly how deep you're willing to get into this thing.

Questioning the degree of restoration and repair you're willing to commit to is another way of saying how much time you're willing, or capable, of giving to the project. Some airplane projects, e.g., a Staggerwing Beech, are black holes when it comes to time. A disassembled but otherwise whole C-140A is, by comparison, blissfully quick.

And then there's the dollar zone: Committing time is one thing, but committing a large amount of the household budget is something else. This is where you really have to be cold. For some unknown psychological reason, airplane projects tug at your heartstrings, and although those strings pass through your heart, they actually terminate in your wallet. You can easily get into a project and say, "Oh, to hell with it. You only live once," when you really can't afford that because of other commitments (e.g., feeding the kids, gas for the car etc.). So you have to put a financial plan in place *and stick to it*. The latter is really hard to do, so don't pussyfoot around when planning the budget. Figure out what it's going to cost; then double that and add 20 percent and you'll still probably be surprised what it costs. Have you priced a gallon of poly paint lately?

As a rule, no one wants to have more tied up in an airplane than it's worth, but that's not always the case. Remember the emotion thing? Some people just "want" a particular airplane that's done a particular way and money isn't a factor. If that's the case, and it's not going to put your family out in the street, more power to you. We envy you because that's a carefree way to go into any project.

When looking for a "project," it'll make your life more difficult if you don't narrow the concept of "project" down just a little. Although it helps to narrow it down to a specific type, e.g., PA-12s, it's really not necessary to narrow it down that far. However, you don't want to be cruising the back roads, flipping over rocks, willing to take whatever pops up. You need to give your search more forethought than that. However, if you do happen across a really unbelievable deal but decide it's not for you (a $500 90A Monocoupe, while your heart is set on an Ercoupe), go ahead and buy it anyway. That's what eBay and *Trade-a-Plane* are for.

Although it's not necessary to look for an exact make and model, it's helpful if you go back and shuffle through your comfort zone thoughts and narrow your search to a specific type of airplane, e.g., two-place rag and tube, two-place metal. Your budget considerations also need to weigh in there, which may eliminate certain types of projects. For instance, you

**This is a very early, first year production C-150 and the plastic interior is amazingly complete and undamaged. A quick walk around says it also has straight sheet metal, not surprising, considering it hasn't flown since around 1980. Even though the current owner put new tires on it and poured gas into it to get it running, the engine is still probably full of trash, most of it busy eating bearings. Also, the inside of the wings shows some corrosion powder on the top skins. What else is there we can't see? A Long Beach, CA sticker under the tail explains the skin corrosion. Just because you find an airplane in Arizona, doesn't mean it's lived there all its life.**

**Re-engined with a 160 Lycoming and constant speed prop, this promising looking C-170 is a project, not a ready-to-go used airplane if for no other reason than it hasn't flown for well over a decade. Even though the desert has preserved its metal, the engine is toast. Ditto many of the instruments. If the price is right, this is a clean airframe to work with. The tires might need some attention.**

**Poor little guy! Don't you hate to see something like a classic Bellanca being let go to seed. In the case of this speedster, the tubing showing through the tail fabric is of little concern. If there's rust, it can be repaired. The massive wooden wings are where the real questions should be asked. Because of lack of access, cantilever wood wings like these are very difficult to inspect for deterioration ranging from rot to glue lines separating because of shrinkage. Some skins will probably have to be pulled.**

**Oh-oh! Not good. This belly landing damage will call for special inspections, The lower corner of the firewall even shows what could be evidence of a small fire when the gascolator was ground off. This kind of damage calls for opening as many panels as can be opened to ascertain the extent of the damage.**

can't restore a derelict Twin Bonanza on a Tripacer budget.

As you think about a project, ponder this first: what is the construction type (metal, tube, etc.)? Second, how much deterioration and/or damage has to be fixed? Finally, put those against your comfort zone concerns and see how the fit feels.

Before you get serious about the search, you should make sure you have identified information sources for a wide range of aircraft. Check in at VAA's website at *www.vintageaircraft.org* and click on the Type Club link at the top of the page. With any luck, there will be a club or two specifically oriented toward your new love. You don't have to be an expert on every airplane, but you do need a direct pipeline to the experts.

The ideal situation is to find a project that is for sale, but before traveling over to see it, you tap into the type club and find out all you can about that particular make and model. There are some very specific questions you need to ask.

Where is rust and corrosion most likely to occur?

What kind of damage should you look for?

Are there cosmetic parts (dash trim, cowl piece, etc.) that are unique to the airplane and hard to find?

Are there parts that affect airworthiness (brakes, wing fittings, etc.) that are hard to find and for which there are no replacements?

Are particular models of this type more desirable than others?

What's the average overhaul cost for the engine?

Does anyone (Univair, Wag-Aero, etc.) offer PMA'd airframe parts?

Have there been STC'd modifications for the airplane that make it more user-friendly in today's environment (brakes, tail wheels, etc.)?

Generally, when you're talking to a semi-professional at a type club, all you have to say is, "I'm thinking about buying a Gezorninpflatz 132 project. What should I be looking for?" That'll get him talking, and you'll have more info than you know what to do with. Take notes! Write fast!

When you find a project, it'll likely fall into one of five categories, each of which says something about the road ahead.

- **Basket case.** This is a totally disassembled project that is probably missing some parts and is not for the faint of heart or the casual restorer.
- **Derelict.** A complete airplane that has been left sitting, sometimes with the wings off. Here the method of storage says a lot about the condition of the airplane and what to look for.
- **Unfinished project.** Someone else has started and is giving up or you wouldn't be talking to him. Find out why he gave up. Maybe you don't want the problems either. Also closely examine the quality of the work and the legal status (more on that later) of the airplane and the work that's been done.
- **Flying but needs rebuild.** Determine how much of it actually needs restoring and how much just needs cleaning and restoring. Often a flying airplane will be more of a mess than one found covered up in a barn, so don't let its flying status fool you.
- **Flying but needs TLC.** This is a possibility for a restore-while-flying project. Usually it's limited to paint, interior, maybe an overhaul, but price it carefully, as it's *really* easy to get financially upside down with this one.

## Evaluating the project

Before you lay an eye on the proposed project keep four things in mind: originality, completeness, condition, and location.

First, how close to factory-original do you expect the final product to be? The more original you want it to be, the more it's going to cost in parts, time, and headaches. Especially headaches, because it's amazing how compelling the search for authenticity can become. If you're not careful, that search can become the project. Also, if you want originality, you'll have to steer clear of some projects because they've been modified too much.

The second of the big four concerns is the degree of completeness

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of the project. What is it missing to make it airworthy, and what is it missing to make it original? Those are two different and very important questions.

Condition can cancel out many of the other concerns. An airplane in really good condition means much less work for you, so you'd be willing to overlook a few missing pieces. An airplane that has every last nut and bolt, but everything is rusted and dented, is going to keep you at it for years longer than the same airplane in better condition.

Location can drive the price, but not at the expense of the preceding points. Relocating an airplane on a trailer is neither cheap nor easy. More damage is done moving airplanes than flying them. Still, when comparing two identical projects, the foregoing points should outweigh the location. Two days spent trucking the remains of a top-condition airframe can save you two years of hard work on a local airplane that's not in as good condition.

## Do an Inventory

Before you journey down to see the project, make up a checklist that combines what you learned from the type club and your local mechanic, who, if he's not too expensive, is right there at your elbow through the entire process. You'll need him to sign off your work anyway, so he might as well have a say in the project selection. The checklist is going to be partially common-sense stuff generic to every airplane ("Engine? Check!") and items unique to this airplane ("Cowl inlet grills? Nope, missing one.").

Be very systematic, because once you've written the check, you seldom have any recourse. If you overlook something that's missing, that's your problem. If something is missing that the seller said was there, that's a different subject altogether and reason enough for an inventory to be signed by both seller and buyer.

## Condition Inspection

The condition inspection is an integral part of the inventory. Since, in theory, you'll be looking at every part to confirm its presence, at the same time you want to inspect that part for airworthiness. Have a column on your checklist that has a "condition" box where you rate the condition from one to five, with five being best. Ones and twos get replaced; the rest get reconditioned to the extent indicated by their ratings. The number of parts that are going

to require replacing or fabrication become bargaining points when negotiations get serious.

When inspecting the major components, you're really keeping your eye open for corrosion or serious rust, which, if it's present, means major surgery, major expense, major time expenditure. Be really critical about rust and corrosion, because they can be deal breakers. If you're an accomplished metal man or welder, you may be willing to put up with more of this kind of deterioration than most amateur restorers. If you see that telltale powder creeping out of riveted joints everywhere, it may be time to move on to the next project.

The same thing said about rust and corrosion can be said about damage. If you're talented and experienced, damage is much less of a worry than to the rest of us. If you see any damage in a component, search out the part that component was bolted to and see if the damage carried over.

## Check Out the paperwork

It's not unusual to find disassembled airplanes that have been in that condition for decades and have passed through six owners in 30 years while the airplane is still titled to the original owner. This can be a challenging problem, because the FAA is very insistent that the ownership paperwork be right. If the original owner is deceased, it can get very sticky and you'll become a genealogy expert as you track down someone who the FAA says can legally sell the airplane. In some cases, it just can't be done. Plus, you may find a lien that someone forgot to remove, and that can be another stumbling block.

Besides the ownership, however, it's important to make sure any modifications or additions to the airframe have been properly certified by 337s, STCs, etc. If the logs aren't complete, then you'll have to jump through the appropriate hoops to make the airplane legal. And don't take the seller's word on it. Look at the logs.

Don't pay for the airplane until all of the paperwork issues are resolved. More than one restorer has finished a project assuming he could get the paperwork issues ironed out, only to find he was trying to tap dance on quicksand with the FAA.

When it comes to evaluating any project, just remember the four most important things are completeness, condition, completeness, and condition. Everything else can be worked out. Now go clean out the garage, and get ready to have fun!