

The Impact of Damage

How many of us see ads for aircraft that state “NDH” or No Damage History? How can you tell if this claim is true and accurate? How many of us check for damage history when we are heavily involved in the aircraft purchase? What is the diminished value resulting from previous damage and how is it calculated?

Readers and customers alike want to know if they should pursue an aircraft with damage history and what damage history really does to the aircraft from both a mechanical and financial perspective. One answer is that if the repair is completed properly it should not be eliminated from consideration – all other items being considered. However, this aircraft would not command a premium price and that fact should be taken into consideration when making your offer.

Damage history is probably the most misunderstood and overlooked item on aircraft. The fear (albeit unfounded) is that the aircraft will most likely break up in flight or the repairs will result in continued maintenance problems. The reality is that aircraft which have been damaged, properly repaired and flown for several years since the incident will have not have any more problems than any other aircraft of the same make and model. Unfortunately, the marketplace does not see it that way and places a financial penalty against previously damaged aircraft. But let's examine a damage scenario and how evaluation problems can occur and what the impacts (pardon the pun) of this incident will be if handled properly.

Imagine for a minute that you are returning home with your aircraft from the shop. You spent a tremendous amount of money on a new paint job, new interior and a new avionics stack. You are extremely happy with your purchase and the quality of work performed. However, when you get to your home airport you have an inadvertent prop strike causing “sudden engine stoppage” but otherwise the aircraft itself is not damaged. What is the impact of this event to the future value of the aircraft – its diminished value?

To understand diminished value and how damage is calculated, it is important to first understand how aircraft in general are typically evaluated – or misevaluated in damage scenarios. The most common tool used in the industry to evaluate an aircraft is a printed guide. There are a couple that are on the market and available to just about anyone. As I have stated in past articles, the problem with these guides is that they do not really address damage but more importantly, they do not address all of the value points independently. For readers who may not have followed past articles on this topic, value points are items such as the condition of the paint, the condition of the interior, the condition of the airframe, a complete inventory of avionics, and other components that together make up the total fair market value of the aircraft in question. For example, in one guide the airframe and the paint are tied together so it would be impossible to properly

evaluate a bad airframe with a great paint job or vice versa. One method that is commonly used by these guides to assess the impact of previous damage is to deduct a certain percentage from the overall value of the aircraft. There are typically no guidelines regarding the exact percentage to be deducted but in our prop strike example, the use of a flat percentage would mean that a portion of the paint, interior and avionics would be impacted even though they were not really involved in the incident at all. But let's complicate this example a little further and take the engine out of the aircraft in question, have it overhauled by the factory (zero timed), and place it in another aircraft. Will there be a deduction on the other aircraft? It is the same engine isn't it? What if you elected to purchase a brand new engine and prop instead of having the existing ones repaired? One of the better known publications quit addressing diminished value assessment several years ago because there were too many items to consider in a damage event and quite frankly their straight percentage approach did not pass muster. Their recommendation was to have the aircraft professionally appraised. Another publication uses a "percentage and time" graph indicating that over time, the diminished value decreases but this concept does not hold up when actual market data is examined.

The real problem here is an understanding of the impact of damage on the aircraft's value after all repairs have been made. As I mentioned earlier, it is important to note that diminished value is really a market perception of past damage since most repairs are performed to the manufacturer's maintenance standards and generally hold up well over time – mechanically speaking. For example, if it were possible to have two identical aircraft (avionics, time on the airframe, etc.) and one of these aircraft had a history of damage, the aircraft with damage history would not be able to command as high a price as the undamaged aircraft. For most readers, that concept makes common sense however the precise amount of diminished value and how this value is calculated is the most difficult question to address. The damage history and resulting diminished value is going to be a result of the previous damage incident (in other words, how extensive was the damage and what was repaired or replaced) and this information is then examined in relation to the present condition of the airframe. For example, an aircraft with minor or superficial damage history will show relatively little impact on an airframe that has no corrosion, no dents, dings or deformations, etc. but this same level of damage will have a much larger financial impact on an airframe that is extremely corroded, or comprised of multiple dents on the leading edges or generally in "below average" condition. This is why it is so important to use an evaluation method that examines each value point independently of all others.

Now let's examine our prop strike example again. In this case, we have presumed that the airframe is not damaged and the only impact is to the engine and props and these have been repaired or replaced. When the aircraft is professionally appraised and the appraisal method takes all value points into consideration, the diminished value should be \$0. Why? The prop hub has been

overhauled and the blades have been replaced. The engine has been torn down, examined and reassembled – possibly even overhauled or replaced. Therefore, the prop will show a fairly recent overhaul/replacement time and the engines will be evaluated as being torn down, examined, and reassembled or recently overhauled (field overhaul to FAA limits or new service limits will make a difference in the value) noting the reason or new engine logs will be examined that do not address this event at all. Unless the airframe has been damaged in the past or receives damage as a result of this incident or has missing log books, no diminished value should be assessed. When the facts are considered and evaluated against a “common sense” approach that is the way it should be and actual aircraft market data supports this evaluation method.

Another question many owners face is the repair or replacement of minor items. In a recent appraisal, the owner damaged his wingtip at some point in the past. The log books showed a repair to the wingtip and the quality of work was excellent. The repairs were not noticeable at all during the examination however this incident had to be recorded as “damage history” and the result was diminished value on the aircraft (albeit fairly minor). However, had the wingtip been completely replaced, there would have been no assessment of diminished value in this specific instance since the damage had been completely removed. That said, once structural components are involved and the resulting level of damage increases, repair versus replacement of components – especially structural components no longer holds true.

My point here is that evaluating aircraft is not as simple as looking up a number in a book or on a website and then applying a few percentages to arrive at a number. There are many factors that go into the final analysis of the fair market value of the aircraft and additional factors that complicate this analysis. Damage history is one of them. Others include missing log books, airframe/engine modifications and the type of overhaul an engine receives just to name a few. In addition, an aircraft cannot be properly appraised without physically examining the aircraft, inventorying its contents and examining its records. Although a damage event is not something that any aircraft owner looks forward to, understanding the impact on the aircraft's fair market value is important anytime the aircraft's value is in question.



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