

# **DOES PMA AFFECT AIRCRAFT VALUES?**

by

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## **Urban Legends**

Aircraft Value

The Role of PMA

Jumping the Hurdle

Conclusions

# Urban Legends – Misinformation Or A Grain Of Truth ?

There is a lot of information about PMA in the marketplace, and some of it is actually true.

“ **LEGEND #1**

**You can't transfer a plane with PMA between countries because regulatory agencies will block it.**

“ **TRUTH**

**Bilateral agreements and superior performance of PMA have virtually eliminated this problem.**

“ **LEGEND #2**

**Installing PMA will reduce the value of the aircraft.**

“ **TRUTH – We shall investigate this legend today**



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# Aircraft Value Is An Important Issue To Lessors AND PMA Suppliers

- “ Leasing companies are financial companies, and aircraft portfolios are financial instruments.
- “ To assure collateral value, lessors have their aircraft assessed many times during their period of ownership.
  - . Prior to purchase to determine they are paying the appropriate amount for an asset.
  - . Annually to assure the value of the portfolio for themselves and for their investors.
  - . Prior to sale to ensure they fully cash in on the residual value of the asset.
- “ A reduction in the appraised value of an aircraft for any reason represents a financial loss.
- “ If value concerns cause lessors to block PMA usage, a large segment of the market will remain closed to PMA.



**Leasing companies own 30% to 40% of the transport aircraft fleet, and their share is growing!**

# Aircraft Value Is Determined In A Number Of Ways Depending Upon The Circumstances

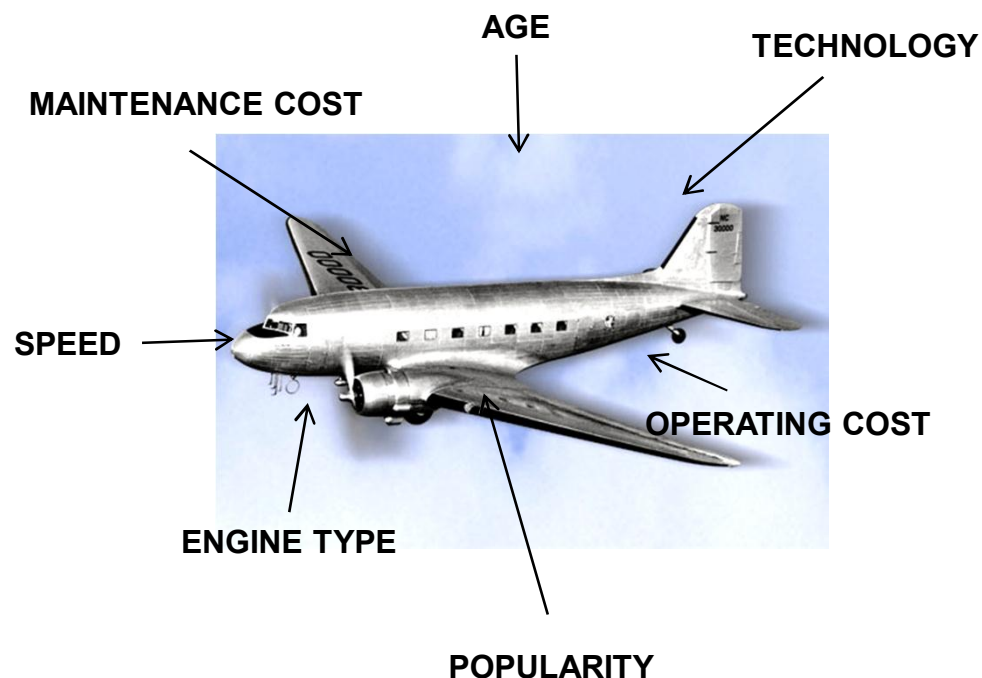
- “ **Base Value (Kelly Blue Book)**
  - . Underlying economic value in a stable market environment.
  - . Founded in historical trend of values.
  - . Assumes physical condition is average for type and age.
- “ **Market Value (What you can get from the dealer)**
  - . Appraisers opinion of most likely trading price.
  - . Estimates market conditions likely to exist at time of sale.
- “ **Residual value – estimated Market Value at the end of a lease.**
- “ **Securitized value – NPV of lease payments and Residual Value.**
- “ **Salvage value – Estimated selling price of aircraft based on value of marketable parts and components that can be salvaged.**



**The International Society of Transport Aircraft Trading issues appraisal guidelines and certifies appraisers.**

# Many Factors Are Considered When Assessing The Value of an Aircraft

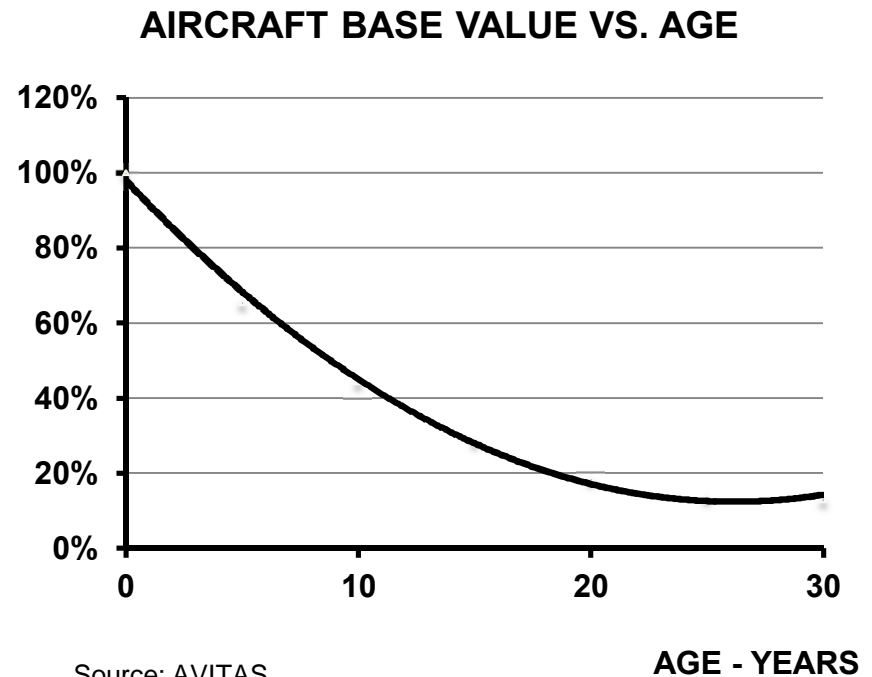
- " Age
- " Market strength of aircraft type
- " Econometric factors
- " Maintenance condition



**PMA is not a major factor at the aircraft level.**

# Age Is the Most Important Factor in Determining Aircraft Value

- “ Age accounts for 66% of the change in aircraft value.
- “ The structural life of an aircraft is indefinite.
- “ The economic life ends when it becomes cheaper to replace an aircraft than to maintain and operate it.
  - . Increased maintenance
  - . Fuel burn
  - . Crew requirements
  - . Passenger preference



**The end point comes after 20 to 25 years when the depreciated value levels out at 10% of the original value**

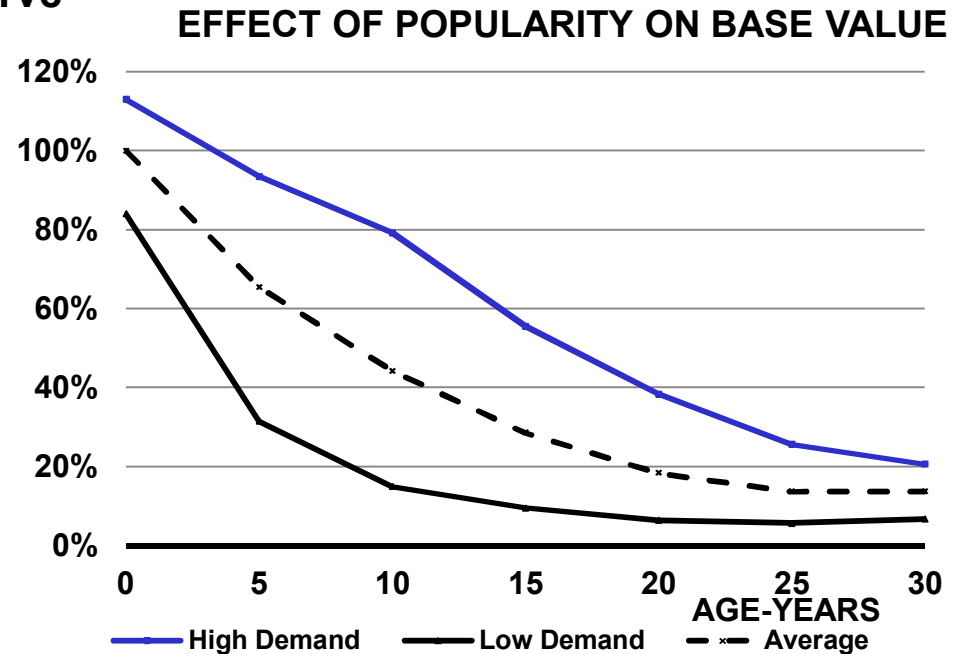


# Market Strength of the Aircraft Type Can Affect Value By As Much As 50%

“ The shape of the base value curve is determined by market acceptance.

“ Some key factors affecting popularity include:

- . Aircraft size and range
- . Speed
- . Engine type
- . Technology
- . Direct operating cost
- . Number in service
- . Number of operators
- . and many more...

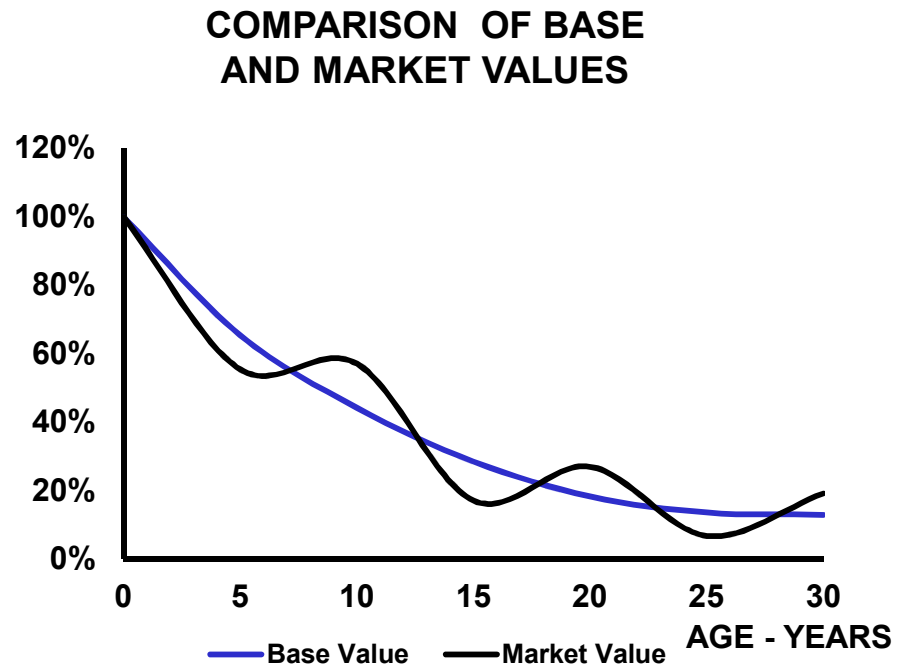


Source: AVITAS

**Appraisers are concerned that PMA may affect the marketability (popularity) of a used aircraft.**

# Econometric Factors Affect All Aircraft Values

- “ The difference between Base Value and Market Value is the economy.
- “ Factors external to the aircraft can affect values by as much as 20%.
  - . Government regulations
  - . Market forecasts
  - . Economic cycles

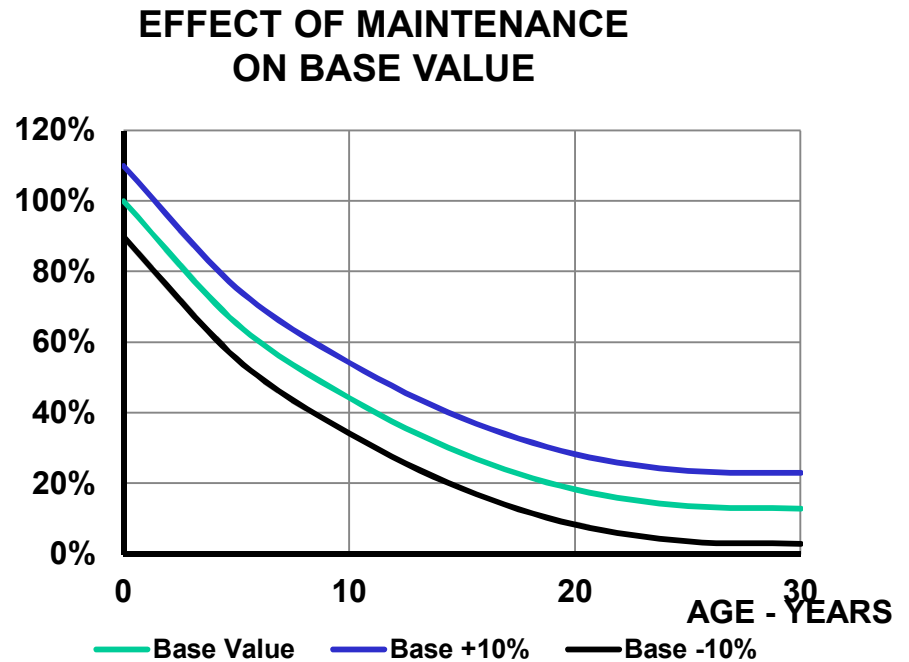


Source: ISTAT

**Anything that affects airline prosperity affects aircraft values.**

# Maintenance Condition Can Result in an Adjustment to Market Value

- “ Base value assumes a mid-life and mid-time status for aircraft checks, systems, and LLPs.
- “ Deviations from the mid-time assumptions will cause an appraiser to increase or decrease the appraised value of the aircraft.
- “ Damage or corrosion will decrease value.
- “ Inadequate maintenance records will decrease value.



**Maintenance conditions can result in value adjustments of up to 10% of new aircraft value.**

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Jumping the Hurdle

Conclusions

# Leasing Companies Generally Specify a Desktop Level Appraisal to Determine Aircraft Value

- “ The valuation relies heavily on recent sales transactions for similar aircraft.
- “ Does NOT include an inspection of the aircraft.
- “ Does NOT include a review of maintenance records (including part content).
- “ Considers maintenance status information provided by client.
- “ May include a high level review of status of landing gear, major components, and engines.
- “ Includes adjustments from mid-time, mid-life baseline to account for maintenance status of aircraft.



**PMA is invisible to the appraiser unless information on its presence is provided by the leasing company.**

## **At the Aircraft Level, PMA is at Most A Second Order Effect**

- “ Appraisers never go to the part level on the aircraft appraisals ordered by leasing companies.**
- “ Age, aircraft type, economy, and maintenance condition are the primary causes of a change in aircraft value.**
  - . Age accounts for 66% of the change in value.**
  - . Market strength of an aircraft type can affect values by as much as 50%.**
  - . Econometric factors can affect market value by as much as 20%.**
  - . Maintenance status can effect value by 10% of new value.**
- “ PMA, if considered at all, is treated similarly to a damage report. It is a judgment call that depends on the significance of the PMA.**

**The PMA issue is never raised in an annual appraisal unless someone points it out, and then the effect is far less than other common factors.**

## **The PMA Effect on Value May Be More Significant at the Engine Level**

- “ PMA can contribute a larger percentage of the total material content in engines.**
  - . HEICO has advertised as much as \$100,000 in savings per shop visit.**
  - . PMA now used in many important gas path applications.**
- “ One appraiser claimed that engines from airlines known to be heavy PMA users are discounted in the market.**
- “ A major surplus parts dealer stated that PMA has no surplus market and is routinely discarded during an engine part-out.**

# The Effect of PMA on Engine Value Is Usually Mitigated by Timing

- “ Engines are torn down for parts during the sunset phase of the aircraft life cycle. (Already depreciated to 10% of original value)
- “ Part-out is done as an alternative to engine repair.
  - . Engines with significant life remaining are used as spares.
  - . The engine to be parted out has run out of time or performance.
  - . Parts from the engine have seen at least a full engine run.
- “ Unserviceable, repairable parts from sunset engines have relatively little value.



**ENGINE CANNIBALIZATION**



Urban Legends

Aircraft Values

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# The PMA Value Problem Is Real for Lessors

- “ **PMA can affect the residual value of an aircraft.**
  - . **There is a minor potential of discounting the value of an entire aircraft.**
  - . **There is substantial potential for discounting the value of an engine, particularly at the end of its life.**
- “ **Any reduction in aircraft value represents a loss to a leasing company.**
  - . **Most factors that reduce value are known up front and are accounted for in the financial analysis.**
  - . **PMA is not accounted for up front, and lessors receive no compensation for allowing it.**

**For lessors there appears to be an added risk with  
no compensating reward.**

# **The PMA Value Problem Is One of Perception, Not Performance**

- “ PMA does not affect aircraft mission, performance, operation, or interchangeability.**
  - . By regulation, design, and approval, PMA is completely interchangeable with the OEM part.**
  - . PMA performance in the field has been outstanding.**
- “ Regulatory authorities in all major markets accept PMA and no longer block aircraft transfer due to PMA.**
- “ PMA performance and value along with efforts by PMA suppliers and bilateral treaties by the FAA have made major strides in increasing airline acceptance.**

**To solve the value problem, perceptions must be changed.**

# **PMA Suppliers Can Take Action To Mitigate The Value Problem**

- “ **Continue efforts to create universal acceptance of PMA by airlines.**
  - . **Continue the regional seminars to showcase successes and performance.**
  - . **Provide easy to digest materials on the PMA process.**
  - . **Provide real world examples on performance and savings to airlines.**
- “ **Develop relationships with lessors and airlines to create a competitive edge for leases that permit PMA usage.**
- “ **Work with airlines and surplus dealers to create a secondary market for used PMA parts.**
- “ **Reach out to ISTAT with hard data about the competitive advantages of PMA.**

**A proactive strategy by PMA suppliers can reduce the time required to eliminate the problem.**

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**Conclusions**

## **The Value Problem Is One Of Perception, And Education Is The Solution**

- “ Preservation of aircraft value is very important to leasing companies.**
- “ Currently, PMA has some potential to adversely affect aircraft value.**
- “ This value problem is one of perception rather than performance.**
- “ A strategic, proactive approach by PMA suppliers can work to reduce this problem to “Urban Legend” status.**