CHOOSE WISELY: HOW AND WHY TO PICK A MAINTENANCE SERVICE PLAN

Protection for your budget and operation, as well as your aircraft

Honeywell

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MANAGEMENT SUMMARY

The costs of the worst maintenance failures in aviation are counted in human lives. Effective and timely maintenance and repairs for aircraft are essential for safety. They also have a big impact on the efficiency and profitability of business and general aviation (BGA) operators. Look after your aircraft and you protect your investment, keep them in the air and extend their operating lives.

When it comes to servicing, there can be no cutting corners – but that doesn't mean costs can't be controlled.

Those expenses are significant. The US Federal Aviation Administration estimates that across aircraft types, average maintenance outlays for general aviation account for about a third of variable operating costs.[1] For some aircraft types, it's as much as half.[2] In commercial airlines, meanwhile, the UK government's Department for Business Innovation and Skills found that maintenance repair and overhaul (MRO) expenses were "a significant proportion of the total aircraft cost of ownership" – up to 80% of the lifecycle cost.[3]

Aircraft operators must obviously bear these if they want to continue to operate and ensure safe flights, but they must manage them. It's not just the size of MRO expenses that can be challenging, either. They are also unpredictable.

1. https://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/media/econ-value-section-4-op-costs.pdf Including cre, weighted by annual hours, $357 out of $1098.Table 4-10: Table 4-10
2. ibid $786 of $1568
3. https://www.gov.uk/government/publications/uk-aerospace-maintenance-repair-overhaul-and-logistics-industry-analysis

THE MAINTENANCE LOTTERY

1

Unscheduled maintenance is unpredictable by definition, but even scheduled maintenance sums vary markedly. They are likely to grow on average as the aircraft ages, for example, but month by month will fluctuate depending on what the inspections reveal.

Not only do expenses for all three types of maintenance vary, but they can be huge in some cases, limited in theory only to the cost of sourcing and purchasing a replacement aircraft. A complete engine failure prompting unscheduled maintenance or a major airframe issue discovered during a scheduled inspection may result in a six-figure bill. For small fleets or even larger ones with a number of aircraft requiring costly maintenance at the same time, there are consequences for cash flow and profitability.

Furthermore, these costs are compounded by losses from having grounded aircraft. Maintenance costs are often measured in relation to flight hours, and unscheduled maintenance or repair can see this ratio deteriorate rapidly. These losses are, again, unpredictable, and can be outside the operator's control.

They will be determined at least in part by the capacity of MRO providers – who work in a sector where the UK's BIS study found considerable strains.

"Operators demand that their aircraft b e either fully utilized in commercial service to maximize revenues, or be available at short notice for use when required by the military or business aviation operators," the reported noted. "This places a lot of pressure on aircraft maintenance and support organizations to be efficient, minimize costs and prevent unexpected aircraft unavailability. This is set against a background of the high cost of keeping spares, complying with the regulations, employing suitably skilled staff, maintaining a high residual aircraft value and gaining access and time on the aircraft to carry out any maintenance or support activities both at the home base and at destinations served by the fleet."

MAINTENANCE CONSISTS OF THREE ELEMENTS:

- **Scheduled maintenance**, which includes periodic inspections, servicing or replacement of particular components or parts. The frequency of scheduled maintenance may be determined by time (annually, for instance) or use (by number of flight hours or cycles)
- **Repairs**, which are required for any issues identified during this scheduled maintenance and inspections
- **Unscheduled maintenance**, required when a fault develops in flight or in the event of the failure of a component or equipment such as a display unit, controller, computer or antenna

PREDICTABLE PERFORMANCE

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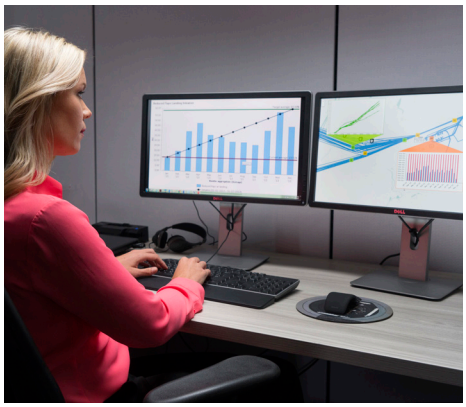
Given all these challenges, there is a strong argument for service plans to manage maintenance. They should at least be considered because, while much of the operating budget, such as fuel costs, is outside the manager's control, maintenance does not have to be.



As well as providing financial predictability and protection against unforeseen shocks, a good maintenance service plan can enhance the BGA business:

- Providing guaranteed access to skilled aviation engineers and mechanics
- Avoiding downtime
- Accelerating repairs
- Simplifying maintenance management
- Enhancing productivity

A service plan gives BGA businesses a cost-effective way to protect their assets, ensure maximum availability and control operating expenses.

The question is why some aircraft operators still do not use them.

There are probably a few reasons. One is that operators may prefer to rely on warranties. Even on a brand new aircraft, however, the warranty will not cover scheduled maintenance. Others choose to self insure – bearing any costs of repairs themselves. In doing so, they are exposed to risks beyond simply the size of the repair bill. Delays in getting work done, leading to downtime or the cost of loaners may eclipse the price of parts and labor. These are difficult to predict and cost in advance.

A stronger objection is that service plans can be inflexible. Good operators will base their maintenance requirements on their particular aircraft lifecycle-plans in terms of replacement and renewal, and the fleet's travel profile. A rigid service plan will fail to meet the broad range of needs in the industry.

CHOOSING THE RIGHT PLAN

3

Capacity and quality are mostly self-explanatory. Local coverage, with accessible service centers both at the base and destinations, is essential. A track record in support and industry recognition should provide some assurance of the quality of services. Choosing an original equipment manufacturer (OEM) to provide the service can also give an additional level of comfort.

Flexibility, meanwhile, is largely about choice – having a range of options from which the operator can choose a service to meet its needs. Honeywell's Maintenance Service Plan offering, for example, encompasses three services providing control systems coverage for avionics, engines and mechanical components. Operators can choose a comprehensive plan including them all, or take any individually and manage the others in-house. It also offers two levels of service for each: Standard and Gold. The latter provides coverage for additional charges such as APU and line-replaceable unit (LRU) removal and reinstallation labor and freight expenses. Expanded coverage for Honeywell and non-Honeywell units, lower rates for aircraft still under the OEM warranty, and Honeywell Avionics Total Obsolescence Protection, are other options.

Honeywell is also continuing to develop the concept of flexibility. It recently launched the industry's first Usage-Based Maintenance Service Plan. Introduced for the HTF Series and TFE731-20/-40/-50/-60 propulsion engines, the program uses connected aircraft technology to monitor three key metrics contributing to engine wear: flight length, the operational environment and throttle settings. Depending on these metrics, users can claim up to 10% of their monthly service plan invoice back.

The new offering provides users with the certainty and protection of a traditional service plan, but additional flexibility to cut costs by changing the way they operate the aircraft. It also gives insights that can help them improve flight behaviors to reduce wear and tear – extending the engine's life.

THERE ARE AT LEAST THREE FACTORS BUSINESSES SHOULD TAKE INTO ACCOUNT WHEN CONSIDERING A MAINTENANCE SERVICE PLAN:

- **Flexibility,** so that you pay only for services and coverage you need
- **Capacity,** so that any necessary work will be completed quickly to minimize downtime
- **Quality,** since you will ultimately be depending on the expertise, experience and track record of the maintenance service provider to ensure efficient and safe operations

LOOKING TO THE FUTURE

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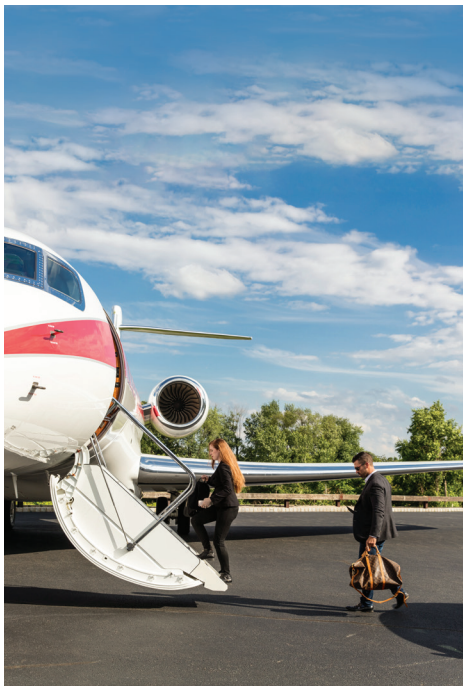
Finally, it is worth noting that usage-based maintenance reflects another advantage of using a service plan: Users tend to benefit more quickly from developments in maintenance by the specialists.



These developments include usage-based maintenance, but also continued improvements in areas like predictive analytics powered by smart devices and better capabilities to capture and process data. That means APUs that alert you when an LRU is about to fail; and environmental control systems that let you know they need an unscheduled service, for example. The Honeywell Forge Connected Maintenance solution even provides prescriptive information to help maintenance crews pinpoint faults down to the subcomponent level. It not only identifies issues before they develop, but also accelerates the work to replace them.

Another key development is 3D printing. It is a market that, in the aerospace industry, is forecast to see a compound annual growth rate of over 20% between 2018 and 2023.[4]

That growth reflects widespread recognition of the profound impact the technology can have, particularly in boosting the speed and efficiency of maintenance. It offers potential to massively cut the costs and work of warehousing, shipping and tracking parts. More importantly, the ability to print parts on demand, perhaps in the building where the aircraft is being repaired, could eliminate availability issues and reduce waiting times for parts.

These technologies will continue to develop and add to the value that a maintenance service plan provides. For companies like Honeywell, the technology should further boost the level and speed of service they can provide. For aircraft operators, meanwhile, it means what any good service program should: less time in maintenance, and more time in the air.

4. https://www.marketresearchfuture.com/reports/aerospace-additive-manufacturing-market-1551

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