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FEATURING:

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WHAT DOES IT COST TO OWN A 414?

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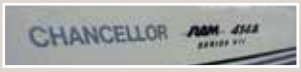

In some ways, the Cessna 414 is the most prized of all the cabin class Twin Cessnas. No doubt 421 owners would disagree, but many people prefer the direct drive engines on the 414 over their geared counterparts on the 421. Moreover, 414s were made in smaller numbers than either 421s or 340s. There are fewer than 1,000 on the U.S. registry today. This desirability and relative scarcity is reflected in high purchase prices.

But purchase prices are only one part of the ownership equation. We recently surveyed our members who own 414s regarding their operating costs. This third installment of our recent survey results details the cost breakdown.

For those who missed the survey details in the last magazine, we provide them again here. We had an excellent response of well over 250 members, all of whom answered the following questions:

1. *What year and model Twin Cessna do you own or operate?*
2. *How may years have you owned your Twin Cessna?*
3. *How many hours per year do you typically fly your Twin Cessna? (Not including flight time for other airplanes.)*
4. *Do you typically run your engines lean-of-peak (LOP) or rich-of-peak (ROP) in cruise flight?*
5. *What is the typical fuel burn of your Twin Cessna in GPH during cruise flight?*
6. *Do you perform any of your own maintenance? If yes, what percentage?*
7. *What is the cost of an Annual Inspection on your airplane in an average year? (Not including upgrades.)*
8. *Not counting the Annual Inspection or upgrades, how much do you spend on additional maintenance in a typical year (engine, airframe, and avionics)?*
9. *How much is your annual insurance premium?*
10. *How much is your monthly hangar rent or tie-down fee?*
11. *Did you spend a significant amount on aircraft upgrades in the past year?*
12. *Is there anything else you want to tell us about the ownership costs of your Twin Cessna?*

In this survey, we looked at two main variables that impact operating costs: 1) How owners operate their airplane and 2) How they maintain it. Running lean-of-peak (LOP) vs. rich-of-peak (ROP) can lower fuel burn per hour by as much as 20 percent. Additionally, most of our survey respondents perform at least some of their own maintenance.

Although we note in the chart below what percentage of respondents run LOP and what percent do some of their own maintenance, the fuel burns and maintenance costs reported are an average of all responses. Of course fuel costs will be less for those who run LOP, and maintenance costs will be less for those who do some of their own maintenance. Keep this in mind as you apply the results to your own situation. Here are the key findings that you can apply to the average numbers in the summary table:

Notes on Fuel Burn

- 13% of 414 owners report running their engines LOP - up from 9% in 2015. The rest run ROP.
- As a result, average cruise fuel burn dropped from 37.0 GPH in 2015 to 35.9 GPH this year.
- Those running ROP often cited engine operation instructions provide by RAM as the reason.

Notes on Maintenance

Forty percent of respondents report doing at least some of their own maintenance. The average amount of maintenance performed was 64%. These numbers are up from 15% and 52% respectively in 2015. Keep in mind this group includes owners who are A&Ps and do almost all of their maintenace, as well as owners who only do occasional oil changes.

Since the maintenance costs in the Summary Table are an average of these two groups, the costs for those

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Cessna 414 Operating Costs

Survey Data:		**Cost to Fly 100 Hrs per Year**	Not including taxes, training, or financing costs	**Total Cost per Hour w/o OH Reserves**	**$552**
		Variable Costs:		Typical Engine & Prop OH Cost	$60,306
Hrs/Year	101	Fuel:	$17,663	TBO	1600
Fuel Burn (GPH) **	35.9	Non-Annual Maintenance	$7,625	OH Cost Per Hour for both Engines	$75
Annual Inspection Cost	$13,950	**Total Variable Costs:**	$25,288		
% Who Do Own Maintenance / % Performed	40% / 64%	**Fixed Costs:**		**Total Cost to Fly 100 Hrs/Yr Including Overhaul Reserves**	$62,769
% Who Run LOP	13%	Annual Inspection	$13,950		
Maintenance Cost Other than Annual	$7,625	Insurance	$7,665	**Total Cost per Hour including OH Reserves**	**$628**
Annual Insurance Premium	$7,665	Hangar/Tie Down	$8,328		
Monthly Hangar or Tiedown Fee	$694	**Total Fixed Costs**	$29,943		
** Includes both LOP and ROP operations.		**Total Cost to Fly 100 Hrs. w/o OH Reserves**	$55,231		

NOTE: Taxes, training costs and financing costs are not included.

Does not include compliance costs for AD 2005-12-13 (wing spar strap) which applies to some 414As.

COST TO OWN A 414

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Expect to pay more for hangar space if you own a 414, particularly a 414A which has a wingspan 4.5 feet longer than the straight 414 shown here. A standard 40-foot wide T- hangar will be too small.

owners who don't do any of their own maintenance are likely to be higher than shown, and vice versa for those who do a lot of their own maintenance.

And remember, even if you do all your own maintenance you should take your airplane to a Twin Cessna specialist periodically. This is especially true of an airplane as complex as a 414.

Finally, there are significant operating costs we chose not to include in the survey. Among them are taxes, training, and financing costs. Taxes vary considerably according to location, and the other costs are easily obtainable with a little research.

We do provide our own estimates of prop and overhaul reserves in the accompanying chart. They are based on actual quotes, including removal and installation, from a respected specialty engine overhauler.

Survey Results

We had a good response from 414 owners. About half were 414A owners (1978 and on). This is down from 70% in 2015, which means more tip-tanked owners responded this time. While

414As like this one are subject to a wing spar AD (2005-12-13). Compliance times vary by serial #. See the article on page 16.

the 414As may be more desirable and command higher prices, prospective buyers are discovering that the straight 414s represent one of the best bargains among the cabin-class Twin Cessnas.

Notes:

In the "Cost to Fly 100 Hours per Year" section:

- An average cost per gallon of 100LL of $4.92 is used vs. $5.12 a gallon in 2015.
- An average monthly cost for hangar/tiedown of $694 is used - up from $607 in 2015.
- Engine and prop overhaul costs based on actual 2020 quotes for a pair of TSIO-520-NBs. They include removal and installation cost, and typical compliance cost for AD 2000-01-16 (exhaust).

Costs omitted include: taxes, training, financing costs, and extraordinary maintenance events.

Cutting to the chase, a 414 will cost you about $552/hour without reserves and $628/hour with overhaul reserves according to our survey. These numbers are roughly three percent higher than for the 340. This is due to higher insurance costs (due to higher hull values) and higher hangar fees (to accomodate the longer wings on the 414A). Fuel and maintenance costs are similar between the two models. Here are a few other observations about our 414 results:

- 414 owners fly about 101 hours per year - exactly the same as five years ago. Annual hours flown ranged from a low of 25 to a high of 175.
- Fuel burn is about 36 GPH, on average.
- 414 owners spend, on average, $21,575 each year on maintenance (both Annual and non-Annual related maintenance). This is up slightly from the $19,827 figure in 2015, even though more owners report doing some of their own maintennce.
- As mentioned above, insurance and hangar costs are also higher for a 414.

If you are considering purchasing a 414A, be aware that it is subject to AD 2005-12-13, which requires repetitive inspections and a wing spar strap kit to be installed. The cost of complying with this AD is not included in our survey. (See article on page 16.)

The numbers presented in this survey summary are averages. As all long-time aircraft owners know, from a financial standpoint there are good years, bad years and sometimes, very bad years. The first few years of aircraft ownership are often catch-up maintenance years, and costs are likely to be much higher than our survey numbers. Prepare to pay considerably more.

Additionally, the survey results do not reflect upgrades. In order to preserve the value of your aircraft, every so often it has to have paint and interior work. Also, these days it's getting difficult to sell an airplane without at least some glass in the panel. Additionally, avionics are advancing at such a rapid rate that panel upgrades are required with more and more frequency.

A 414 will cost you about $510/hour without reserves and $577/hour with overhaul reserves.

Finally, don't forget about inflation. Engine overhaul prices are rising faster than the general rate of inflation. Your overhaul may cost you 20 to 25% more in ten years. If you are accumulating funds in an overhaul account as many owners do, you'll need to factor this into account.

With these caveats, our survey data should be useful to anyone who wants to know the long-term cost of owning a 414.

If you use these numbers for cost estimates and do not plan to perform any of your own maintenance, adjust them upward accordingly.