

Light Plane Maintenance

Scott,

Thanks for the call. As I mentioned I have an article that I contributed to Light Plane Maintenance for publication and I have included it for you as a testimonial for your conversion. I have spoken to others with this conversion and those that chose to use other baffling (factory or otherwise) have not had as much success. The primary problem seems to be excessive cylinder wear or valve burning. It could be pilot technique but the literature from Continental identifies high cylinder temps as the likely culprit. My engine is at the end of its TBO run registering 1700 hours with no cylinder problems, it is not a coincidence in my opinion.

This is the text of what I submitted to Kim Santerre, editor of Light Plane Maintenance.

Dear Kim,

You don't ask easy questions do you? Where to begin?

In 1998 I installed a factory reman IO-520 in this airplane (1967 V-35) which was purchased through Van Bortel's Air Power program at a cost of \$18,776. By 2003 an IO-550B through D'Shannon which was brokered through Air Power cost \$21,710. For our discussion I will include the costs excluding labor. 1998/2003 Factory reman engine \$18,776 \$21,710 O/H Alternator

\$52 included O/H Prop Governor

\$540 \$1,400 (new McCauley) New muffler, throttle cable

\$600 N/A Motor mounts

\$334 \$400* New fluid hoses

\$400 \$700* Misc.

\$1,002 \$0 Core upgrade

N/A

\$2,000 New baffling (D'Shannon)

N/A \$2,000 D'Shannon STC

N/A \$2,500 Total cost:

\$21,704 \$30,710* Motor mounts, hoses, spark plugs, and misc intake hoses were included as part of an installation kit that came from D'Shannon. Since I needed to overhaul the prop governor I elected to replace with a new unit. My existing prop would also transfer with this conversion so I have left its costs out of this analysis.

In comparing the cost benefit of this conversion I see a difference of \$6,000, perhaps less if you look at the apples to apples over 5 years. The next question is, was it worth it? Absolutely, let me explain why.

1. This engine is smoother running than a 520 at any power setting.
2. My true airspeeds increased by an average of 7 knots (167 to 174 @ 8,000 feet).
3. True airspeed increases are most noticeable at the altitudes of 10,000 and higher.
4. Fuel burn averages 15.3 GPH versus 14.7 GPH on the 520. I run at 50 rich of peak.
5. The Continental Reman from D'Shannon has tuned injectors similar to GAMI.
6. There are no crankshaft ADs on 550s.
7. The D'Shannon baffling STC has solved any hot CHT issues. My 550 rarely has a CHT over 390 on takeoff and never over 375 at best power cruise, even on hot Texas days. The 550B installed does not have the aneroid fuel pump (auto lean) so mixture control is still my option. (Just an aside here, LOP nets 165 KTAS and 12.9 GPH @ 8,000 feet vs 50 ROP and 174 KTAS and 15.3 GPH @ 8,000 feet. These are block stats for a given flight.) My aircraft has a JPI analyzer and JPI Fuel Flow for precise operation. And, as you know, it is equipped with an ADC oil filter. I track every expense and all costs since I operate under FAR135 and pay taxes like everyone else. There were no surprises in this conversion and it required virtually no tweaking after installation.

The only problem I experienced was a problem with #6 cylinder running hot initially. We resolved this by drilling a 3/4" hole in the baffling (in the prop governor cover) in line with the exhaust cooling fins to allow additional ram air on this area and it took care of it. I have seen other D'Shannon baffling on Bonanzas with this minor alteration. You can opt out of the baffling STC but those extra 30 cubic inches generate more heat than stock baffling can handle and I would advise against it.

I wish I had done this conversion in 1998 and I am delighted with it since 2003. Need I say more? By the way I am due for overhaul in another couple of months. I will likely have RAM Aircraft overhaul my 550 at a quoted price of \$32,252. Air Power is advertising their remans at \$29,355 (the 520 is \$29,131). Either way it will cost more than the entire STC conversion in 2003. I also heard there is another price increase coming soon, I'm sure glad my clients are happy with my service. Let me know if I can help you again.

Oops! I forgot to mention climb performance. I don't have the numbers for comparison but some things you can feel in

the seat of your pants or the small of your back. On a standard or average day takeoff and climb performance is superior, at 800 MSL with full throttle and 2700 RPM and holding 120 KIAS, climb rate is 1500+ FPM. Cruise climb at the same IAS through 3000 MSL and above is 1000 FPM with full throttle and 2500 RPM. At 8000 feet the climb rate is down to 700 FPM and I can still pull 500 FPM @ 120 KIAS through 10000 feet. I don't remember exactly what the 520 did but it was never this strong.

Here is an anecdote you might enjoy. One morning I was going into the Austin, Tex Airport and we had a low altitude jet in place. Everyone was fighting 50 to 60 knot headwinds on final and the controller had his hands full trying to maintain flow and separation between the GA and airlines. He asked me to keep my speed up as long as possible and I did my best to comply. Inside the marker I had to slow to gear speed so I told him I would have to slow. He answered cheerfully, "No problem Bonanza, nobody can catch you out there today. Thanks for your help." The 550, you gotta love it.

Pat Kline