MT COMPOSITE PROPELLER EXPERIENCE

BY CRAIG SOMMERFELD, KELLEY, IOWA

I WAS GETTING THE ITCH FOR A BIT MORE PERFORMANCE FROM MY G36 WHEN I READ IN THE *ABS MAGAZINE* ABOUT THE NEW MT COMPOSITE PROPELLER approved for my plane by Flight Resource. A quick visit to their website (www.flight-resource.com) allowed me to learn about the company, the props and some of the other installations they had done.

Craig Sommerfeld and his 2007 G36 with MT propellor at the ABS Convention.

I called John Nielsen, one of the owners, who explained the STC was just approved and they had favorable results from a 550-powered A36 in St. Louis. He offered to let me buy the MT prop with a money-back guarantee. All I had to do was bring my plane to their shop in Chetek, Wisconsin, for the installation and test flight.

John explained my plane would be one of the first installs with electric de-ice, and they wanted to perform this installation in their shop to document the process and adjust spinners if needed. He asked if I would like to run a set of back-to-back flight tests with each prop to accurately record performance. The G36 is perfect for this with its accurate instruments and autopilot.

I arrived at their shop at the Chetek (Y23) airport and Larry Schlasinger, founding partner of Flight Resource, met me on the ramp. He is an aerobatic training pilot, a Canadian fishing guide and an A&P with IA. There were MT props on the C206, C180, C185, RV6 and even a Yak 52 in the hangars.

We began by documenting the performance of the three-blade Hartzell that came with the plane. John took the right seat and recorded data from the Garmin displays as I called off timing intervals, watched for traffic and monitored the autopilot. We began with a climb test, establishing a steady speed climb at Vy of 100 kts indicated. The G1000's vertical change mode made this easy.

To keep the data consistent, we performed all tests with the power, prop and mixture at full forward for the duration of the climb test. There was not a bump in the sky, making for a very smooth and steady ride up to 11,000'.

Every 30 seconds I called time and values from the displays. John recorded the altitude, OAT, MP, rpm, fuel flow and time.

Once at 11,000', we performed the cruise speed test. Here the object was to make the plane go as fast as possible using leaning and rpm/power settings that result in max speed. Using the G1000 engine-leaning monitor set for best power, we recorded 136 KIAS. We dropped down to 8,000' and repeated the speed test, then headed back to the airport.

After lunch we returned to the shop to remove the Hartzell and install the MT prop. Extra time was taken to document the proper hook-up to the de-ice slip ring and make sure the spinner dome would not interfere with the boots. The plane was pushed back out and the de-ice boots tested (The MT prop draws less than *half* the power the Hartzell did.)

Another preflight was done and we took off to duplicate the tests done that morning with the Hartzell prop.

Performance improvements

The first things I noticed with the MT was the very rapid response to power or pitch changes. It also has a cool chirping sound on taxi. The engine starts and stops much quicker with no shaking as it stops turning when the mixture is pulled to off.

With John ready to record data, I released the brakes and pushed the levers forward. I think I shocked John with my exclamation of surprise (something on the order of "holy @#&^") because the plane accelerated noticeably faster and was into a climb much sooner than I was expecting. The temperature on the ground was now 20 degrees higher and the pressure had dropped a few points, so I would have been happy just to see equal performance.

We repeated the exact track as the morning test and set the autopilot for Vy of 100 to 11,000'. I could not help but notice the VSI was reading higher than I was used to seeing. I was amazed to see that in only 35 miles the MT prop had carried us 2,300' higher as we passed the exact position using the exact climb routine. As we broke through 10,000', I continued to see rate-of-climb numbers I had only seen at much lower levels with the Hartzell prop.

At 11,000' and 8,000' we duplicated the speed runs and turned back to

Chetek. John asked me if I wanted to have my Hartzell back. My quick answer: "No way!"

I also noticed the rpm on the MT was rock steady. There was no vibration at any rpm setting and noise seemed about the same. CHTs run about 40°F cooler with the MT.

We were not expecting it, but we discovered the MT runs at cruise, both 8,000 and 11,000', with *less fuel and higher speed than the Hartzell*…to the tune of 1.6 gph savings at 11,000' while producing 4 KTS of increased speed!

On landing, the MT prop really has great braking power when pitch is pulled back. Now it will be easy to drop into short fields without getting too fast.

The bottom line

Let's see…lighter, faster, smoother and even at a conservative fuel saving of 1 gph and fuel at $5.50, the MT prop will save $5,500 or more each 1,000 hours. Yes, I think I will keep it.

Cruise Speed

Record data at 7,000' and 11,000' MSL
Perform with stable readings
Lean mixture as needed for max power
Performed on 8/16/08 using N36KT
2007 Beech G36 w/ IO-550B
Hartzell 3-blade vs MT 3-blade prop

Summary: In spite of reduced pressure altitude, the MT prop provided slightly higher cruse speeds at 7 and 11 thousand MSL.

The MT also did this with significantly reduced fuel flows, even though rpm and MP were the same.

The Economy Cruise column was done with the MT only as a side experiment:

8,000' MSL	Hartzell	MT	Economy Cruise
Baro	30.08	29.99	29.99
OAT (F)	57	61	61
MP	23.3	23.3	23.3
RPM	2500	2500	2300
Fuel Flow	21.3	20.3	12
IAS	150	151	139
TAS (ISA)	169	171	157

8,000' MSL	Hartzell	MT	Economy Cruise
Baro	30.08	29.99	29.99
OAT (F)	44	48	48
MP	19.9	19.9	20
RPM	2520	2520	2300
Fuel Flow	16.0	14.4	11.1
IAS	136	138	126
TAS (ISA)	163	167	152