

MT Composite Propeller Experience on my G36

By: Craig Sommerfield [2007 Beech G36 w IO-550-B]

I was getting the itch for a bit more performance from my G36 when I read the article in the ABS magazine about the new MT composite propeller approved for my plane by Flight Resource. A quick visit to the web brought me to their site where I learned about the company, the props and some of the other installations they had done and tested.

I called John Nielsen; one of the owners listed on the website contact. John 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 satisfaction guarantee. All I had to do was bring my plane to their shop in Chetek WI for the installation and test flight. This seemed like a safe bet, so I made arrangements to fly into Chetek the morning of 9/16.

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 it's accurate instruments and auto-pilot.

I arrived around 9 to their shop in the complex of the Chetek (Y23) airport. What a beautiful day! No clouds, dry cool morning air and lakes all around this family fishing resort area. Larry Schlasinger met me on the ramp with a cup of espresso and a local bakery donut. Larry is the founding partner of Flight Resource. 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 hangers.

We began with the documentation of the performance of the stock 3-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 auto-pilot accuracy. The tests began with a climb test. We established the G36 into a steady speed climb set at V_y of 100kts indicated. The 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 entire 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 feet.

Every thirty seconds, I called time and values from the displays. John recorded the Altitude, OAT, MP, RPM, Fuel Flow and Time.

Once at 11,000 feet, 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 8000 feet; repeated the speed test, turned 180 degrees and headed back to the airport for lunch and the prop change.

After lunch at a local burger bar, we returned to the shop to remove the Hartzell prop 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, the de-ice bots tested (the MT prop draws less than HALF of the power the Hartzell did).

Another preflight was done and we taxied to the runway to duplicate the same tests done that morning with the Hartzell prop.

The first things I noticed with the MT is 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 @#&^”) as 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.

Anyway, we got locked into the exact same track as the morning test and set the auto pilot for Vy of 100 to 11,000 feet. We began recording the same data and I could not help but notice the VSI was reading higher than I was used to seeing. Next we approached the EAU airspace and I prepared to make the call to the tower to advise of our position and track. Again I was amazed to see that in only 35 miles, the MT prop had carried us 2300 feet higher as we passed the exact same position using the exact same climb routine. As we broke through 10,000 feet, 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 feet we duplicated the speed runs and turned back to Chetek. John asked if I wanted to have my Hartzell back. That answer came quick : “No way!”.

I also noticed the RPM on the MT was rock steady. There is no vibration at any RPM setting and noise seems about the same. The engine CHTs run about 40 degrees F cooler with the MT. We were not expecting it, but we discovered the MT runs at cruise, both 8000 and 11,000 feet with *less fuel and higher speed than the Hartzell...*to the tune of 1.6 GPH savings at 11,000 feet while producing 4 KTS of increased speed!

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

Let’s see...lighter, faster smoother and even at a conservative fuel saving of 1GPH; fuel at \$5.50; the MT prop will save me \$5500 or more each thousand hours! Yeh, I think I will keep it ;).

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Cruise Speed

Record data at 7000' 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 cruise speeds at 7 and 11 thousand MSL. The MT also did this with significant 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

7000' 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

11000' 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

