



1585 Aviation Center Parkway, Ste. 605, Daytona Beach, FL 32114

Test: Is Your Carburetor Rich Enough? (Fixed Pitch Prop)

Purpose: To test your carburetor in order to evaluate if adding a Power Flow Systems, Inc. tuned exhaust system to your airplane will produce the desired performance increases.

Overview: Allow your engine to reach a normal operating temperature (as simple as flying around the pattern a few times). Once back on the ground, go to an area on the airport where a full power run-up can be achieved safely. Make sure you are not in a gusty or strong wind condition as this will alter the test. Ideally, position the aircraft 90 degrees to the wind.

Run the engine to full power by slowly advancing the throttle to the firewall with the mixture full rich. Once the engine stabilizes, record RPM, Fuel flow, and all EGT readings. After recording, slowly lean the engine while watching/listening for the RPM to rise. Find the peak point by leaning until the RPM no longer increases and begins to come back down. Enrich the mixture back to the peak point and wait a few seconds for it to stabilize. Record all the information again. See the procedure below for specific steps and recording charts.

Do not take any action on your carburetor or Fuel servo until talking with Power Flow Systems technical assistance.

A correctly configured carburetor should provide a 30-50 RPM rise in RPM, a 150 –250 degree hotter EGTs, and a fuel flow reduction from full power of 1.2 –2.5 gallons per hour.

Suggested equipment: Optical Tachometer (a/k/a Proptach)

Procedure:

- 1) Find a safe area to conduct the runup.
- 2) Position 90 degrees to the wind.
- 3) Once the engine has reached a normal operating temperature
Set mixture full rich.
- 4) Smoothly and slowly advance throttle to full (firewalled).
- 5) Wait 3-5 seconds for the engine to stabilize.
- 6) Record the following information:

RPM (mixture full rich)	Fuel Flow	EGT #1	EGT #2	EGT #3	EGT #4



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- 7) **CAUTION: Monitor oil temperature and Cylinder Head temperatures to ensure that you do not overheat the engine on the ground. THIS TEST SHOULD NOT TAKE LONGER THAN 90 SECONDS TO COMPLETE.**
- 8) Slowly lean the engine – listen and watch the tachometer for the RPM to Rise. Find Peak RPM. You know you are at peak because further leaning causes the RPM to decrease slightly. Once you are sure, and your fuel flow has stabilized-
- 9) Record the following information:

RPM (leaned to peak RPM)	Fuel Flow	EGT #1	EGT #2	EGT #3	EGT #4

- 10) Subtract the data obtained in step 9 from step 6 and record below.

RPM Difference	Fuel Flow	EGT #1	EGT #2	EGT #3	EGT #4

Now, in the air, repeat the test by flying at constant altitude, straight & level flight somewhere between 2000 and 3000 feet MSL, if terrain and weather conditions permit.

- 11) Wait a minimum of 3 minutes after you have “stabilized”

Indicated airspeed Full throttle, Full RPM, Full Prop & mixture full rich	Fuel Flow	CHT #1	EGT #1	CHT #2	EGT #2	CHT #3	EGT #3	CHT #4	EGT #4

- 12) Now lean to peak RPM and record the data

Indicated airspeed Full throttle, Full RPM, Full Prop & mixture leaned to peak RPM	Fuel Flow	CHT #1	EGT #1	CHT #2	EGT #2	CHT #3	EGT #3	CHT #4	EGT #4

- 13) Please relay information from these steps to Power Flow Systems.

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