

From: [REDACTED]
To: [REDACTED]
Subject: RE: N833RT - Nash LLC
Date: Monday, May 17, 2021 2:38:48 PM

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Hi Andrew,

I suspect the engine wasn't fully warmed up on the initial runup. The POH Supplement also says not to exceed 33"MP. I would need to review the pilot's statement (Naresh) about the incident but if I recall correctly, I don't believe the pilot did anything to reduce MP which would have also reduced fuel flow. If the engine is not fully warmed up the manifold pressure and fuel flow may go over the designated limits if the mixture, prop control, and throttle are pushed forward and readings not monitored. If the manifold pressure and fuel flow are adjusted so they won't go high when the engine is cold, the engine will not be able to make full power when the aircraft is fully warmed up and at higher altitudes. This is very common with the Continental fuel injection system on turbocharged engines.

The pilot must know how to monitor the engine operation and take steps to limit the throttle and subsequent manifold pressure readings whenever the engine is not fully warmed up. We advocate getting the oil temperature to 160 degrees to make mechanical manifold pressure, RPM, and fuel flow adjustments. The pilot can initiate takeoff procedures at an oil temperature less than 160 degrees, but must be prepared to reduce manifold pressure and even fuel flow settings if necessary.

If the engine is cold and takeoff at full throttle is initiated, it is probable the manifold pressure will exceed the 33" limit. At around 34" manifold pressure, the Pressure Relief Valve will start to open. This valve will not reduce manifold pressure enough if the throttle is fully advanced on a cold engine. In an overboost situation, the fuel flow becomes excessive and starts affecting the spark plug performance if corrective steps are not taken. The wastegate and wastegate controller in this application are standard Cessna original equipment type parts, just adjusted to a lower setting for the turbonormalizing. It should

be noted some turbocharged aircraft do not even have a wastegate and wastegate controller and boost is totally controlled by the pilot's operation of the throttle.

I hope Naresh can spend some flight time with a CFI, especially one familiar with either our TN550 or the Cirrus TN550 engine to become better acquainted with the operation of the engine, especially on cold days at high altitude.

I'm glad the initial test flight with Kim went well.

Please let me know if there is anything we can do to help.

Thank you,
Larry

Larry Vitatoe
Vitatoe Aviation LLC

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

Sent: Monday, May 17, 2021 5:04 PM

To: [REDACTED]

Subject: FW: N833RT - Nash LLC

Good afternoon Larry,

Can you take a look at the notes below from the engine run at Beegles and let me know what you think?

Thanks.

Andrew L. Swick

Aviation Accident Investigator
National Transportation Safety Board
Western Pacific Region
Phoenix, Arizona
[REDACTED]

From: Linda Hanna <[REDACTED]>
Sent: Monday, May 17, 2021 1:49 PM
To: Swick Andrew <[REDACTED]>; Kim Moses <[REDACTED]>
Cc: Scott Mauch <[REDACTED]>
Subject: N833RT - Nash LLC

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Good afternoon Andrew:

This afternoon I performed the ground runup as per your request on the above mentioned airplane.

Initially max takeoff readings were: manifold pressure 34.2, fuel flow 44, RPM 2720. On the first runup I did experience a hesitation on the engine. In my experience with this engine setup, this is normal if you do not lean for the first takeoff. As per the supplement flight manual, it reads: on the first flight of the day, when the throttle is advanced for takeoff, manifold pressure will normally exceed 31.0 inches Hg and fuel flows will exceed 37 GPH if the throttle is opened fully. This is what I experienced on my first runup.

Once the engine was at normal operating temp, manifold pressure was 32.3, fuel flow 39.4, and RPM 2700.

With the new digital read outs, I am sure this falls within the normal engine parameters.

The test flight went well. I tried numerous power settings and all seemed normal.

Please contact me if you have any further questions. Kim Moses, [REDACTED] cell.

Thank you

Kim Moses – pilot/ A&P/IA
Beegles Aircraft Service

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