From: James Geyman
To: Stein Stephen
Subject: Re: N12VV - Followup (NTSB)
Date: Friday, June 23, 2023 11:13:14 AM

Here is the Scott Perdue link on his unporting testing (he was an F4 and F15 pilot and now has high interest in HA safety):

https://youtu.be/e741Wt7GBJI

On Fri, Jun 23, 2023 at 11:36 AM James Geyman <[redacted]> wrote:

READ THIS: This data was copied from a chart obtained by FAX from Lycoming, and I make no claims as to its accuracy. Lycoming told me that the settings are generic, and that the proper settings will vary from airframe to airframe. Therefore, this chart should NOT be used in lieu of an airframe manufacturer's recommendations. Any use of this chart constitutes implied responsibilty of the user for verifying the accuracy and applicability of the information contained herein.

FUEL AND POWER CHART - LYCOMING O-360-A SERIES, -C SERIES

Press. Alt. 1000 Feet	Std. Alt. Temp. °F	100 HP -- 55% Rated Approx Fuel 7.8 Gal/Hr RPM & Man. Press.				117 HP -- 65% Rated Approx. Fuel 9 Gal/Hr. RPM & Man. Press.				135 HP -- 75% Rated Approx. Fuel 10.6 Gal/Hr RPM & Man. Press.		
		2100	2200	2300	2400	2100	2200	2300	2400	2200	2300	2400
SL	59	20.9	20.3	19.8	19.3	23.3	22.7	22.1	21.5	25.1	24.5	23.9
1000	55	20.7	20.1	19.6	19.1	23.1	22.4	21.8	21.3	24.8	24.2	23.6
2000	52	20.4	19.8	19.3	18.8	22.8	22.1	21.6	21.0	24.6	24.0	23.4
3000	48	20.2	19.6	19.1	18.6	22.5	21.9	21.3	20.8	24.3	23.7	23.2
4000	45	19.9	19.3	18.9	18.4	22.3	21.6	21.1	20.6	24.0	23.5	22.9
5000	41	19.7	19.1	18.7	18.2	22.0	21.4	20.9	20.3	23.8	23.2	22.7
6000	38	19.5	18.9	18.4	18.0	21.8	21.1	20.6	20.1	FT	23.0	22.5
7000	34	19.3	18.7	18.2	17.8	21.5	20.9	20.4	19.9		FT	22.2
8000	31	19.0	18.4	18.0	17.6	21.3	20.7	20.2	19.7	-	-	FT
9000	27	18.8	18.2	17.8	17.4	FT	20.4	20.0	19.5			
10000	23	18.6	18.0	17.6	17.2	-	FT	19.8	19.3			
11000	19	18.4	17.8	17.4	17.0	-	-	FT	19.1			
12000	16	18.2	17.6	17.2	16.8	-	-	-	FT			
13000	12	FT	17.4	17.0	16.7							
14000	9	-	FT	16.8	16.5							
15000	5	-	-	FT	16.3							

To maintain constant power, correct manifold pressure approximately 0.17" Hg for each 10° F variation in carbeurator air temperature from standard altitude temperature. Add manifold pressure for air temperatures above standard, subtract for temperatures below standard

O-360

O-360-A1A

180 hp (134 kW) at 2700 rpm, Minimum fuel grade 91/96 avgas, compression ratio 8.50:1. The base model. A four-cylinder, horizontally opposed, air-cooled, direct-drive engine which includes provisions for supplying oil through the propeller shaft for installation of a single-acting controllable-pitch propeller. First certified 20 July 1955.[1][2]

My engine was the basic A1a variant with standard 8.5:1 compression ratio (same engine as most Cessna 172s). The chart above shows rpm/fuel flow/altitude/manifold pressure for this engine.

I was flying mostly at 5,000 to 5,500 feet (1600 to 2100 feet agl) in the Missoula airport area (KMSO) at mostly full throttle and RPM, trying to break in the new engine. I would have to throttle back some when the CHTs got to 420 degrees Fahrenheit or higher. So it was mostly 65% to 75% power and rpm of 2500 to 2600 and fuel flow of 10.5, which I was recording.

Most of Vans aircraft pilots report less than 1 gallon (usually .25 gallons) unusable fuels

with the standard in wing fuel tanks used in the kit. This is in straight and level flight. I have not seen unporting data during descent phase or in a bank (Scott Purdue of Flywire youtube shows that his beech Debonair can import with 5 gallons in a tank during a standard descent- quite scary).

The only real way to determine unusable fuel is testing in vivo- letting a tank run dry and measuring fuel in the tank after landing. I had not gotten there yet in phase 1.

Thanks for the questions and outreach!

Cal Geyman

On Fri, Jun 23, 2023 at 9:50 AM Stein Stephen [redacted] wrote:

> Good morning James,
>
> I hope this email finds you well!
>
> I'm writing up the final report for this investigation and had a couple of questions. I don't think we ever nailed down what the fuel consumption is for that YO-360. Also, I need to know if you determined the unusable fuel for each tank.
>
> Also, what power setting were you using during the accident flight? 65%, 75%, or 100%?
>
> All the best,
>
> Stephen
>
> **Stephen Stein**
>
> Senior Aviation Accident Investigator
>
> National Transportation Safety Board
>
> 32125 32nd Ave South, Suite 140

Federal Way, WA 98001

([redacted]

(f) (240) 752-6323

From: James Geyman [redacted]
Sent: Tuesday, July 19,
To: Adam Martz <[redacted] James Geyman <[redacted]>;
Stein Stephen <[redacted]
Subject: Re: N12VV - Claim # 739528

Here is my last basic med certification and my pilot licenses - these are from several years ago when we lived in Denver. My recent license with our Missoula address should be in the plane.

Also my pilot logbook and airframe logbooks should be in the plane, unless they have been forwarded to Steve from NTSB already. My most recent BFR endorsement from mid June is in the pilot logbook.

There are three personal affects I would like to get back from the plane- maybe at the NTSB tear down, which Steve invited me to as I am the airplane builder:

My Lightspeed headset

My Garmin portables: Aera 760 and GDL 50.

Everything else is hardwired.

Also off course my pilot logbook when NTSB is done.

Thanks.

James Geyman