

Date: 05/24/2025

Subject: CEN24FA215, Fuel Burn Calculation and Fueling Records

FUEL CONSUMPTION CALCULATIONS

According to the operator, they regularly fueled their airplanes used for instructional flights to the tabs. Fuel records indicated that the airplane was fueled to the tabs with 13.9 gallons two days before the accident. One 1.2-hour flight was conducted after that fueling and before the accident flight, and no additional fueling was recorded before the accident flight. The accident flight was about 1.7 hours.

A fuel burn calculation was completed, using the Piper PA-28-140 Pilot's Operating Manual. The calculation used two manual-derived power settings: instructional power cruise at 60% power, and cruise at 75% power.

The manual listed the instructional power cruise speed at sea level and 60% power as 110 mph. The 36-gallon standard fuel range chart listed approximate fuel burn values of 7.3 gph at 65% power and 6.2 gph at 55% power. Interpolating between those values, the estimated fuel burn at 60% power was about 6.8 gph. The manual also listed fuel consumption at 75% power as 8.4 gph.

The manual stated that filling the tanks to the bottom of the filler neck indicator (tabs) provided the standard fuel quantity of 36 gallons, or 18 gallons per tank. Flight records showed that one 1.2-hour flight was completed after that fueling and before the accident flight. At 7.6 gph, the previous flight would have used about 9.1 gallons. Assuming the previous flight used fuel equally from both tanks, each tank would have contained about 13.5 gallons at the start of the accident flight.

If one fuel tank was used for the entire accident flight at 60% power, 95 minutes of operation at 6.8 gph would have used about 10.8 gallons, leaving about 2.7 gallons in the selected tank. At 102 minutes, the selected tank would have used about 11.6 gallons, leaving about 1.9 gallons in the selected tank.

If one fuel tank was used for the entire accident flight at 75% power, 95 minutes of operation at 8.4 gph would have used about 13.3 gallons, leaving about .02 gallons in the selected tank. At 102 minutes, the selected tank would have used about 14.3 gallons, which would have depleted the selected tank below its capacity about 0.8 gallons.

This calculation does not account for engine operation on the ground, fuel used during takeoff and climb at power settings greater than cruise power, maneuvering power changes during the instructional flight, the actual tank-selection sequence, or unusable fuel.

FUELING RECORDS

3	Beginning Meter Reading	Ending Meter Reading	Fuel Quantity	Check Your Math if Red	Oil Quantity and TYPE	Customer	Tail #	Hangar #	Fueled by	Time	Notes/Instructions/Payment	Invoice	Total	Ticket Completed By
4	6/8/24													
5														
6					10.9 gal						Fuel should be charged to each person's account-be sure to get the name of who ordered fuel!!! Maintenance (inc oil) is under			
7	950648.5	950655.5	7.0	TRUE	0		N540VS	SE T's	GH	1151		304146	68.97	OPEN
8	950655.5	950661.6	6.1	TRUE	0		N3540T	L14	DL	825		304287	40.52	em
9	950661.6	950724.1	62.5	TRUE	0		N13115	K8	DI	834		304288	38.61	em
10	950724.1	950732.1	8.0	TRUE	0		N814TF	TR	DL	852		304286	395.52	em
11	950732.1	950738.1	6.0	TRUE	0		N13115	K8	DL	915		304289	50.63	em
12	950738.1	950762.1	24.0	TRUE	0		N94891	TR	DL	935		304298	34.73	em
13	950762.1	950765.1	3.0	TRUE	0		N976CP	N6	DL	950		304295	143.28	em
14	950765.1	950771.1	6.0	TRUE	0		N757MP	TR	DL	1000		304300	18.98	em
15	950771.1	950780.1	9.0	TRUE	0		N800TY	TR	DL	1012		304301	34.73	em
16	950780.1	950801.5	21.4	TRUE	0		N13115	K8	DL	1100		304310	56.95	em
17	950801.5	950818.8	17.3	TRUE	0		N8548N	Q8	DL	1123		304313	135.43	em
18	950818.8	950912.9	94.1	TRUE	0		N8541U	K6	DL	1132		304314.00	109.48	em
19	950912.9	950919.9	7.0	TRUE	0		N314HB	TR	DL	1152		304309	595.49	em
20	950919.9	950955.6	35.7	TRUE	0		N757MP	TR	DL	1159		304315.00	40.52	em
21	950955.6	950963.7	8.1	TRUE	0		N3555N	B10	DL	1209		304316	225.92	em
22	950963.7	950977.6	13.9	TRUE	0	Silvered Wings	N68812	K14	DL	1220		304318	46.88	em
23	950977.6	950990.1	12.5	TRUE	0	House	N1039X	K9	DL	1225		304320	87.96	em
24	950990.1	950998.6	8.5	TRUE	0	House	N3540T	L14	DL	1232		304321	72.35	em
							N389AM	TR	DL	1238		304322	49.20	em

Aircraft Utilization Report for Month of June 2024

Click Ticket number to edit Hobbs and tach entries. Click customer name for financial detail. [Segment Flight](#) NCI = Not Checked In
This report is based on event date, and will not correspond with financial or aircraft management reports when the [accounting date](#) is in a different time period
Prior/First readings pulls prior tickets up to 15 days prior to the start of month. If none are found, the first reading of the month is used.

Aircraft: N1039X - Piper140

Bill: Hobbs

Ticket	Event Date	Acctg Date	Receipt Date	Customer	Lev	Tach			Hobbs			Hours Billed	Owner Hours	Hours Not Billed
						Begin'g	Ending	Elapsed	Begin'g	Ending	Elapsed			
303800				Prior / First			3252.67			168.90				
303873	06/01/24	06/01/24	06/01/24	Nicholas Marsh	0	3252.67	3253.45	0.78	168.90	169.90	1.00	1.00		
303989	06/03/24	06/03/24	06/04/24	Corey Smellie ADV	2	3253.45	3255.16	1.71	169.90	172.10	2.20	2.20		
304057	06/04/24	06/04/24	06/04/24	Corey Smellie ADV	2	3255.16	3256.28	1.12	172.10	173.40	1.30	1.30		
304083	06/05/24	06/05/24	06/05/24	Corey Smellie ADV	2	3256.28	3257.35	1.07	173.40	174.80	1.40	1.40		
304105	06/05/24	06/05/24	06/05/24	Justin Moises	0	3257.35	3258.64	1.29	174.80	176.50	1.70	1.70		
304186	06/07/24	06/07/24		- Maintenance Complete -		3258.64	3258.66	0.02	176.50	176.50	0.00			0.00
304190	06/07/24	06/07/24	06/07/24	Justin Moises	0	3258.66	3259.95	1.29	176.50	178.00	1.50	1.50		
304302	06/08/24	06/08/24	06/08/24	Garrett Hawki CFI	4	3259.95	3261.11	1.16	178.00	179.60	1.60	1.60		
304312	06/08/24	06/08/24	06/08/24	John Welter	0	3261.11	3261.64	0.53	179.60	180.20	0.60	0.60		
304334	06/08/24	06/08/24	06/08/24	John Welter	0	3261.64	3262.17	0.53	180.20	180.80	0.60	0.60		
304420	06/10/24	06/11/24		- Maintenance Unblock -		3262.17	3262.17	0.00	180.80	180.80	0.00			0.00
Totals for Month of June 2024						9.50		9.50	11.90		11.90	11.90	0.00	0.00

6/8/24 Hawki (employee) flew 1.6, reservation from 10-12:00; verified fuel at tabs at preflight

6/8/24 Fueled by DL at 12:25 with 13.9 gal

6/8/24 Welter flew 1.2 hours, reservation from 12-14:30 (was entered as two transactions on resource report only because he used two different credit cards)

MANUAL EXCERPTS

FUEL SYSTEM

Fuel is stored in two twenty-five gallon tanks which are secured to the leading edge structure of each wing by screws and nut plates to allow easy removal for service or inspection.

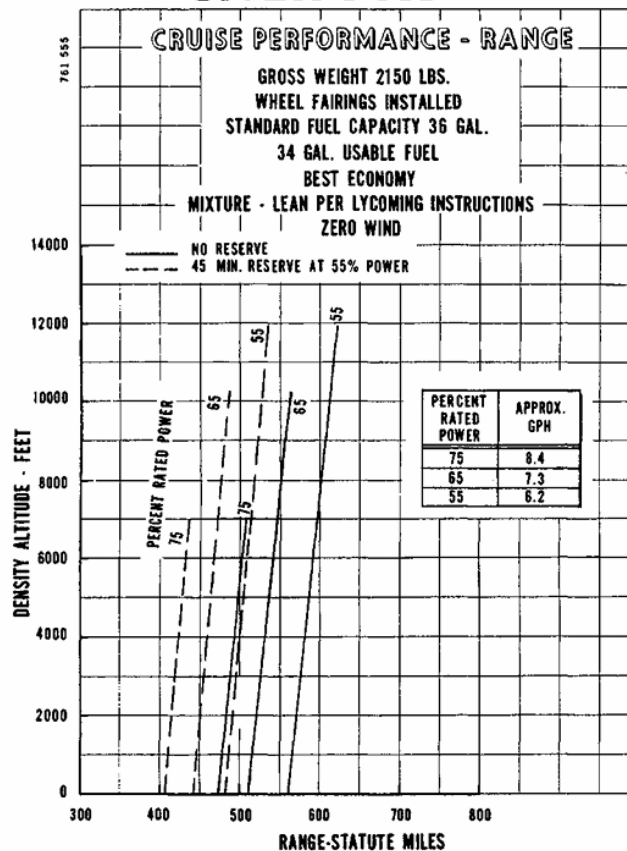
The fuel selector control is located on the left side panel, forward of the pilot's seat. The button on the selector cover must be depressed and held while the handle is moved to the OFF position. The button releases automatically when the handle is moved back into the ON position.

AIRPLANE AND SYSTEMS ISSUED: JULY 6, 1973

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To obtain the standard fuel quantity of 36 gallons, fill the tanks to the bottom of the filler neck indicator. To obtain the standard plus the reserve quantity, a total of 50 U.S. gallons, fill the tanks to the top of the filler neck.

PA-28-140 CHEROKEE



NOTE: SEE SECTION 7 FOR EFFECTS OF AIR CONDITIONING
INSTALLATION ON PERFORMANCE.