

CEN21LA404 – NTSB Examination Report

N9114W (Cessna 182D airplane with a Continental Motors O-470 engine) was examined at Smiling Aviation in Delta, CO, on 12/14/2021. Present during the examination was Mike Hodges, NTSB investigator-in-charge, Casey Love, air safety investigator, from Textron Aviation, Wichita, KS, and various staff members from Smiling Aviation.

Airframe:

- All major components of the airframe were accounted for at the facility.
- There were no signs of a fire.
- There were no reported control continuity issues by the pilot during the accident.
- The left and right fuel tanks were still intact from the accident sequence.
- The right and left fuel tank caps were found installed. Both fuel tanks had the anti-siphon mechanism installed. No issues were noted with the fuel caps.
- Both fuel tanks had bladders installed. No signs of fuel were found in the fuel tanks. The insides of both bladders were examined, and no issues were noted. No major debris was found that would have inhibited fuel delivery in both bladders.
- The left-wing fuel tank vent (there is only one fuel tank vent on this model) was checked with plastic wire (inserted from the external vent to inside of the bladder) and was found free of any blockages. The vent tube that interconnects the left and right tanks was also verified to be free of obstruction.
- Air was passed through the fuel system, by mouth, through a fuel hose from the wing root fuel lines, through the fuel selector to the fuel strainer. No obstructions were detected. The fuel selector function was verified in the same manner.
- The fuel strainer screen contained light debris which covered approximately 30 percent of the screen surface. Fuel flow was not obstructed. The fuel strainer bowl contained a small amount of light debris.
- The cockpit did not have a carburetor temperature system and gauge installed.
- Airframe to engine control continuity was established during the engine test run.
- No onboard data recording devices were installed on the airframe.
- The airframe records were documented.

Engine:

- The engine cowling was found separated from the engine.
- The engine mount was intact.
- The cylinders and crankcase all appeared intact.
- There were no signs of a fire.
- All the engine accessories were attached to the engine.
- The fuel and oil lines were secure.
- The oil level was checked, and it showed 8 quarts of oil.

- The crankshaft was able to be rotated by hand with no issues noted. The impulse coupler made a noise when the crankshaft was rotated.
The air intake system was intact.
- The exhaust system was intact on both sides. This model does not have internal exhaust baffles installed, just a hollow tube.
- The oil tank cap was found intact.
- The oil tank was intact.
- A salvage Piper fuel tank was connected to the top of the cabin to facilitate an engine test run. Fuel was added to the salvage tank along with a battery. The original three-bladed Hartzell metal propeller (which all three blades were bent rearward from the accident sequence) was replaced with a two-blade Hartzell metal propeller instead.
- The engine was successfully test run on the airframe. The engine ran without any issues noted for about two minutes. During the initial start, some grey colored smoke came out of the exhaust, as this was likely from the airplane being inverted for a week before being recovered and set upright. The engine was filmed and photographed during the test run, showing the successful operation of the engine. During the test run, the engine idled and produced roughly 2,300 RPM and 23" of MP and would accelerate. An RPM drop was noted on each magneto.
- After the engine test run, the fuel lines and hoses were removed and checked for the possibility of intermittent obstructions, and nothing was found.
- The two filters in the carburetor were removed after the engine run and no major debris was found that would have blocked fuel flow.
- A fuel sample was obtained in a jar from the carburetor. No signs of water or debris were noted in the sample.
- The spinner was not damaged from the accident.
- No onboard data recording devices were installed on the engine.
- The engine and propeller records were documented.

Summary:

No mechanical malfunctions or failures were noted with the airframe and engine that would have precluded normal operation.



RECORD OF CONVERSATION

Michael J. Hodges
Air Safety Investigator
Central Regional Office
Office of Aviation Safety
National Transportation Safety Board

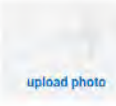
Date: 02/11/2022
Person Contacted: Erin Quilter (Office Manager – Smiling Aviation)
NTSB Case Number: CEN21LA404

Narrative:

The following is a synopsis of the information provided by Erin Quilter to the NTSB investigator-in-charge, via a telephone conversation.

- Smiling Aviation went and recovered N9114W (Cessna 182D airplane) from a field in Delta, CO.
 - The airplane was laying upside down for several days before it was recovered. At the time of the accident, the field was very wet and muddy.
 - During the recovery, no fuel leaks were observed on the airplane or on the ground. One quart total of fuel was recovered from the airplane.
 - The airplane was transported from the field to Smiling Aviation's hangar at the Blake Field Airport (AJZ), Delta, CO.
- **** Nothing Follows ****

N9114W Flight Tracking and History - FlightAware



N9114W

[upload photo](#)

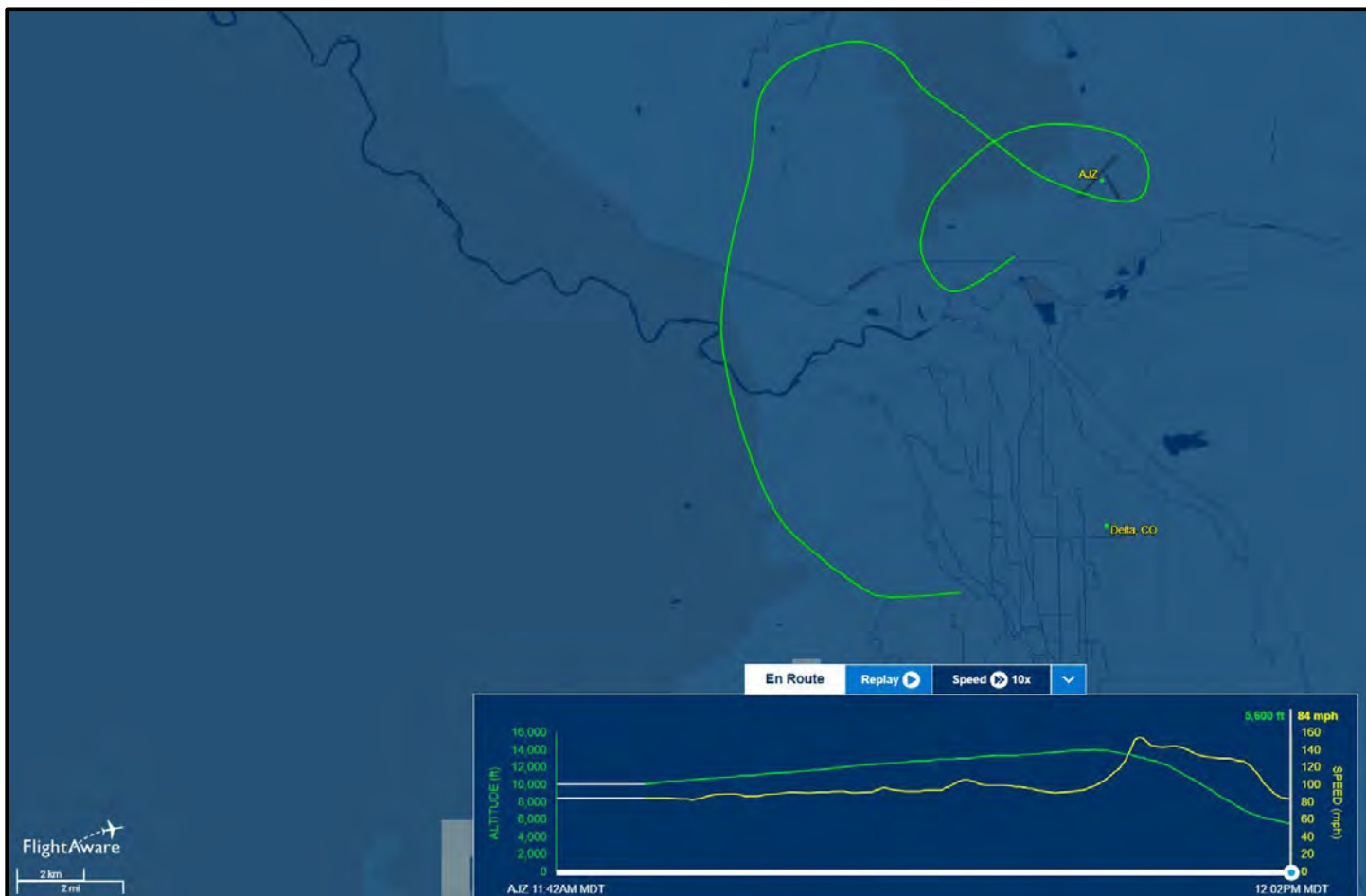
ESTIMATED ARRIVAL
[learn more](#)

[N9114W flight schedule](#)

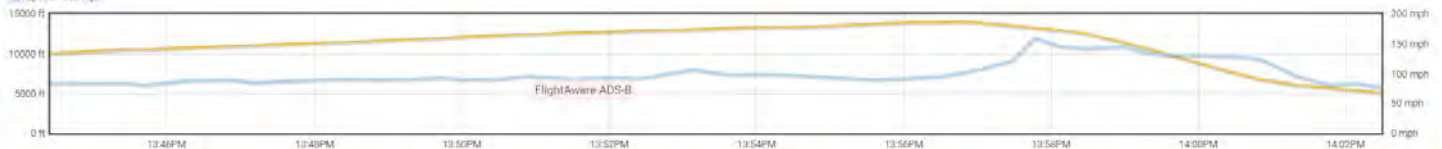
first seen near
DELTA, CO
FRIDAY 03-SEP-2021
11:42AM MDT

[AJZ](#)
DELTA, CO
FRIDAY 03-SEP-2021
12:02PM MDT
[estimated arrival time](#)

20m total travel time



Altitude = 20000 ft
Speed = 600 mph



Time (EDT)	Latitude	Longitude	Course	kts	mph	feet	Rate	Reporting Facility
Fri 01:44:25 PM	38.6708	-108.1128	← 264°	74	85	10,100		Denver Center
Fri 01:45:26 PM	38.6686	-108.1389	← 264°	74	85	10,600	390 ↑	Denver Center
Fri 01:45:42 PM	38.6713	-108.1472	← 302°	71	82	10,600	240 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:46:16 PM	38.6782	-108.1591	← 308°	77	89	10,800	348 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:46:51 PM	38.6859	-108.1713	← 314°	79	91	11,000	327 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:47:11 PM	38.6915	-108.1775	↖ 325°	75	86	11,100	353 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:47:42 PM	38.7010	-108.1840	↑ 339°	77	89	11,300	333 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:48:23 PM	38.7153	-108.1904	↑ 343°	80	92	11,500	338 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:48:53 PM	38.7260	-108.1944	↑ 348°	79	91	11,700	400 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:49:23 PM	38.7377	-108.1974	↑ 352°	80	92	11,900	360 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:49:43 PM	38.7452	-108.1983	↑ 0°	82	94	12,000	450 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:50:03 PM	38.7526	-108.1974	↑ 11°	79	91	12,200	471 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:50:34 PM	38.7641	-108.1953	↑ 7°	80	92	12,400	353 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:50:54 PM	38.7715	-108.1932	↑ 19°	84	97	12,500	333 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:51:28 PM	38.7842	-108.1885	↑ 16°	80	92	12,700	281 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:51:58 PM	38.7948	-108.1863	↑ 1°	82	94	12,800	305 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:52:27 PM	38.8061	-108.1854	↑ 14°	81	93	13,000	267 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:52:43 PM	38.8120	-108.1827	↗ 27°	86	99	13,000	146 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:53:08 PM	38.8193	-108.1734	← 66°	94	108	13,100	327 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:53:38 PM	38.8233	-108.1579	→ 75°	86	99	13,300	360 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:53:58 PM	38.8247	-108.1478	→ 86°	87	100	13,400	120 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:54:28 PM	38.8202	-108.1343	↘ 151°	86	99	13,400	120 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:54:48 PM	38.8133	-108.1292	↘ 142°	83	96	13,500	324 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:55:05 PM	38.8089	-108.1230	↘ 120°	82	94	13,600	400 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:55:33 PM	38.8032	-108.1119	↘ 131°	79	91	13,800	400 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:56:05 PM	38.7956	-108.0995	↘ 124°	81	93	14,000	218 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:56:28 PM	38.7901	-108.0909	↘ 135°	83	96	14,000	140 ↑	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:56:48 PM	38.7858	-108.0826	↘ 115°	89	102	14,100	-400 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:57:28 PM	38.7795	-108.0601	→ 107°	106	122	13,600	-814 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:57:47 PM	38.7797	-108.0460	↗ 49°	140	161	13,300	-900 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:58:08 PM	38.7920	-108.0447	↖ 333°	127	146	13,000	-1,024 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:58:28 PM	38.7990	-108.0551	← 294°	124	143	12,600	-1,800 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:58:58 PM	38.8020	-108.0768	← 271°	127	146	11,500	-2,300 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 01:59:28 PM	38.7991	-108.0987	← 252°	116	133	10,300	-2,538 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 02:00:16 PM	38.7819	-108.1219	↖ 201°	114	131	8,200	-2,585 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 02:00:33 PM	38.7733	-108.1259	↓ 198°	112	129	7,500	-2,400 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 02:00:51 PM	38.7646	-108.1276	↓ 174°	109	125	6,800	-1,787 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 02:01:20 PM	38.7535	-108.1179	↘ 123°	84	97	6,100	-1,111 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 02:01:45 PM	38.7559	-108.1083	↗ 48°	72	83	5,800	-808 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 02:02:12 PM	38.7610	-108.0992	↗ 56°	73	84	5,400	-818 ↓	FlightAware ADS-B (UAT/978) (KAJZ)
Fri 02:02:29 PM	38.7642	-108.0936	↗ 55°	68	78	5,200	-706 ↓	FlightAware ADS-B (UAT/978) (KAJZ)

From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: CEN21LA404 (N9114W) - Additional Question
Date: Thursday, February 24, 2022 11:50:52 AM

[CAUTION] This email originated from outside of the organization. Do not click any links or open attachments unless you recognize the sender and know the content is safe.

Hi Mike—

Sorry about that—I thought I had answered this one.

There were 8 loads total that day, but after refueling, there were four loads.

Let me know if you have any other questions I can answer.

Thanks,

Kateri

From: Hodges Michael [REDACTED]
Date: Thursday, February 24, 2022 at 10:48 AM
To: Kateri Drexler [REDACTED]
Subject: RE: CEN21LA404 (N9114W) - Additional Question

Hi Kateri,

Just following up on this please. Thank you.

Mike

Mike J. Hodges, MS, CHP
Air Safety Investigator
National Transportation Safety Board

4760 Oakland Street, Suite 500
Denver, Colorado 80239-2793

Cellular/SMS: [REDACTED]
Facsimile: [REDACTED]
Response Operations Center (24/7): 1-844-373-9922
Work Hours: Monday-Friday, 0900-1730 Mountain Time

“We always need to prepare ourselves for handling the unexpected.” – Neil A. Armstrong

From: Hodges Michael
Sent: Friday, February 11, 2022 2:06 PM
To: Kateri Drexler [REDACTED]
Subject: RE: CEN21LA404 (N9114W) - Additional Question

Hi Kateri,

I am just following up on this question please.

Thank you.

Mike

Mike J. Hodges, MS, CHP
Air Safety Investigator
National Transportation Safety Board

4760 Oakland Street, Suite 500
Denver, Colorado 80239-2793

Cellular/SMS: [REDACTED]
Facsimile: [REDACTED]
Response Operations Center (24/7): 1-844-373-9922
Work Hours: Monday-Friday, 0900-1730 Mountain Time

“We always need to prepare ourselves for handling the unexpected.” – Neil A. Armstrong

From: Hodges Michael
Sent: Wednesday, December 15, 2021 10:38 AM
To: [REDACTED]
Subject: CEN21LA404 (N9114W) - Additional Question

Hi Kateri,

I hope you are doing well.

I have a quick question about the accident please.

I saw that the airplane was fueled with 17.3 gallons at about 0930 local time. I know you mentioned before, when you took off for the accident flight, there was 15 gallons of usable fuel onboard. It looks like you departed for the 8th load of the day at about 1130.

How many jump flights were there between about 0930 and about 1130 that day? Was it 8 flights or

were there more?

Thank you again.

Mike

Mike J. Hodges, MS, CHP
Air Safety Investigator
National Transportation Safety Board

4760 Oakland Street, Suite 500
Denver, Colorado 80239-2793

Cellular/SMS: [REDACTED]
Facsimile: [REDACTED]
Response Operations Center (24/7): 1-844-373-9922
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“We always need to prepare ourselves for handling the unexpected.” – Neil A. Armstrong

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Smiling Aviation, Inc
Delta, CO 81416

FUELMASTER TRANSACTION LISTING

TRANSACTIONS LISTED BY TRANSACTION CODE

From Date: 9/3/2021
Time: 6:00:00AM

To Date: 9/3/2021
Time: 10:59:59AM

Page 1 of 1

Print Date: 12/14/2021 Time: 11:28:38AM

Transactions for TRANSACTION CODE: 99 99

Transactions for :

Date	Time	TC	Site	User ID	Odometer	Hose	CC#	Prod Unit	Cost	Quantity	Total
9/3/2021	6:13:00AM	99	0001			1		100		20.00GL	
9/3/2021	6:25:00AM	99	0001			1		100		3.50GL	
9/3/2021	9:19:00AM	99	0001			1		100		17.30GL	

Summary for :

Total for 3 transactions 40.80

Last Read
Next PM
Miles Until

Summary for TRANSACTION CODE : 99

			Quantity	Total
Total for	3	transactions	40.80	

Last Read
Next PM
Miles Until

Product Summary for all Transactions

Product	Description	Transactions	Quantity	Total Cost
100	100LL	3	40.80GL	
Total Product Summary:		3	40.80	

FUELMASTER

SMILING AVIATION
SMILING AVIATION
[REDACTED]
DELTA, CO 81416

1000043925A

*** CHARGE ***

07/23/2021

9:12:48 AM

AIRPLANE ID N9114W

PUMP#1 AVGAS 100LL
15.000 GL
[REDACTED]

CUSTOMER ACKNOWLEDGES
RECEIPT OF PRODUCT AND
AGREES TO PERFORM THE
OBLIGATIONS SET FORTH IN
THE CARD ISSUER AGREEMENT

ACCT#:

CARD:

INVOICE#: 6356
AUTH#: 028006

THANK YOU! HAVE A NICE DAY!

FUELMASTER

SMILING AVIATION
SMILING AVIATION
[REDACTED]
DELTA, CO 81416

1000043925A

*** CHARGE ***

07/24/2021

8:30:27 AM

AIRPLANE ID N9114W

PUMP#1 AVGAS 100LL
16.000 GL
[REDACTED]

CUSTOMER ACKNOWLEDGES
RECEIPT OF PRODUCT AND
AGREES TO PERFORM THE
OBLIGATIONS SET FORTH IN
THE CARD ISSUER AGREEMENT

ACCT#:

CARD:

INVOICE#: 6362
AUTH#: 012196

THANK YOU! HAVE A NICE DAY!

FUELMASTER

SMILING AVIATION
SMILING AVIATION
[REDACTED]
DELTA, CO 81416

1000043925A

*** CHARGE ***

08/09/2021

6:10:35 AM

AIRPLANE ID N9114W

PUMP#1 AVGAS 100LL
12.200 GL
[REDACTED]

CUSTOMER ACKNOWLEDGES
RECEIPT OF PRODUCT AND
AGREES TO PERFORM THE
OBLIGATIONS SET FORTH IN
THE CARD ISSUER AGREEMENT

ACCT#:

CARD:

INVOICE#: 6450
AUTH#: 015676

THANK YOU! HAVE A NICE DAY!

Carburetor Icing Probability Graph – CEN21LA404

Airplane: Cessna 182D

Engine: Continental Motors O-470-R

Fuel: 100LL

Accident Date: 09/03/2021

Accident Location: Delta, CO

Accident Time: 1200 MDT

Weather: KAJZ 031755Z AUTO 7SM CLR 25/12 A3016
RMK AO2 LTG DSNT NE T02530122 10253 20155 PWINO

Celsius to Fahrenheit Conversion:

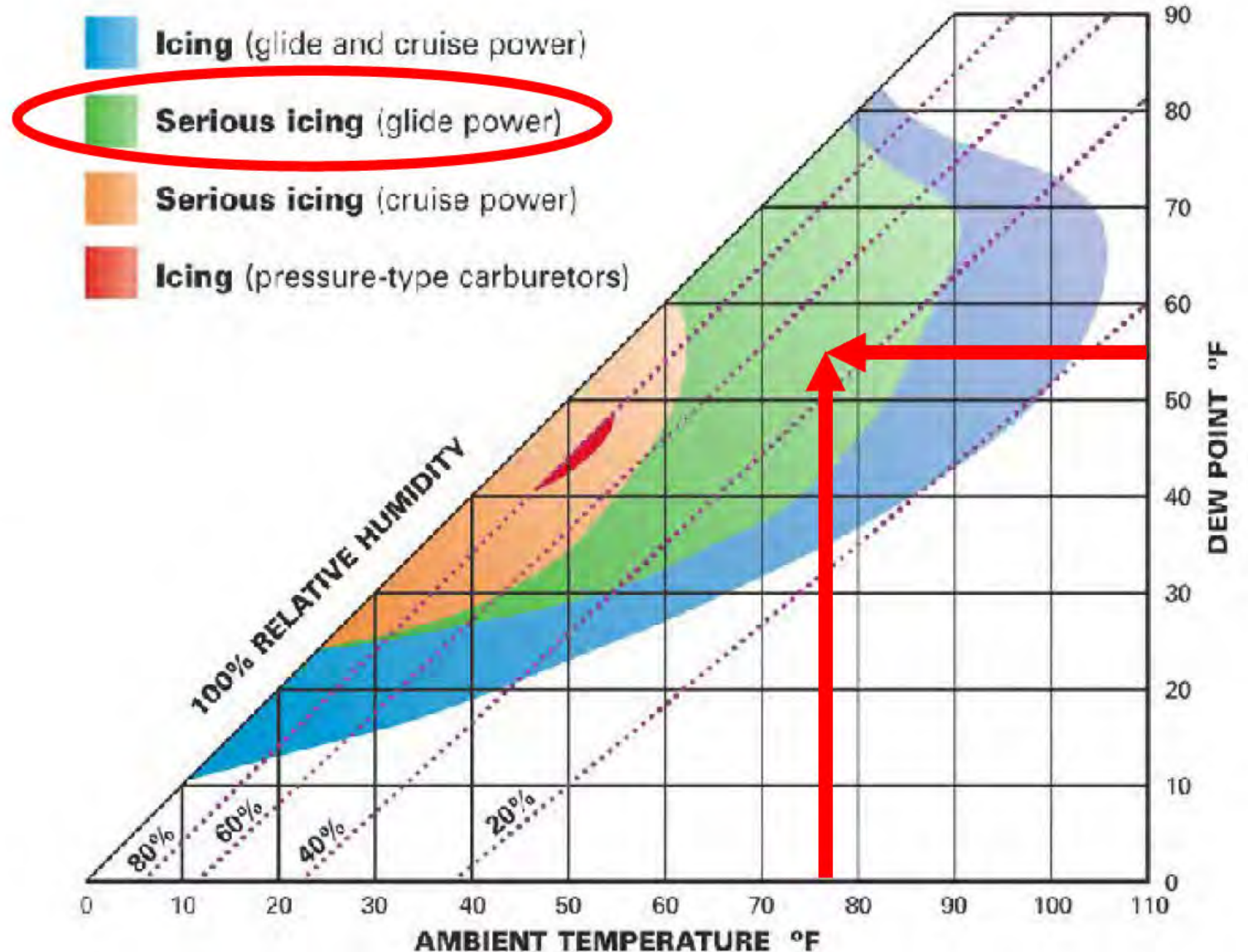
Temperature, 25° C = 77° F

Dew Point, 12° C = 53.6° F

Source: Federal Aviation Administration

Special Airworthiness Information Bulletin CE-09-35

Carburetor Icing Prevention



YEAR:	RECORDING TACH TIME	TODAYS FLIGHT	TOTAL TIME IN SERVICE	Description of Inspections, Tests, Repairs and Alterations Entries must be endorsed with Name, Rating and Certificate Number of Technician or Repair Facility. (See back pages for other specific entries.)
DATE				

N9114W Date 5/25/2021 Tach 3380.75

1. Repaired small hole in top of left wing in accordance with Cessna 100 series service manual, 1962 and prior. Chapter 19-15 figure 19-11, one inch diameter hole.

Smiling Aviation, Inc.

Ronald G. Widner

A&P [REDACTED] LA

Delta Co 81416

N9114W Date 7/16/2021 Tach- 3421.73 AFTT- 4521.73

Performed a 100 hr Inspection in accordance with FAR 43 appendix "D".

1. Tested ELT per FAR 91.207. Battery replacement next due 3/2022.
2. Clean and repack nose wheel bearing
3. Tightened primer line in instrument panel.
4. Replaced door windows on both sides with new.
5. Checked connections on #4 EGT probe.
6. Installed new rivets on #6 induction heat shield.
7. Removed and reinstalled elevators, vertical and horizontal to replace bushings, spacers and attaching hardware for loose horizontal. Replaced jack screws and jack screw chain.
8. Complied with AD 2011-10-09 seats and seat rails next due for inspect at tach 3521.73
9. Complied with AD 2020-21-22 horizontal stabilizer cracks. Next due @3921.73 or 7/2026
10. Complied with AD 83-13-01 fuel cap sealing and placards by installing new placard.
11. Complied with AD 76-07-12R1 ignition switch, next due @3521.73
12. Replaced lower right engine mount shock mount and pad.
13. Replaced missing screw in loose overhead cable guard.
14. Stop drilled crack in battery box.

I certify this airframe was inspected in accordance with a 100 hr Inspection and was determined to be in an airworthy condition.

Smiling Aviation, Inc.

Chad Dawson

A&P [REDACTED]

Delta Co 81416

YEAR:	RECORDING TACH TIME	TODAYS FLIGHT	TOTAL TIME SERV
DATE			

N9114W Date 7/16/2021
Performed an Annual Inspection in accordance
I certify this airframe was inspected in accordance
Smiling Aviation, Inc.

Delta Co 81416

Cessna / 182D

Tach:3470.31

Transponder Make/Model Narco / AT

been inspected IAW Title 14 CFR 91.41

specifications of Title 14 CFR 43 App F.

Altimeter Make/Model United / 5934P-1

Encoder Make/Model Terra / AT3000, S

and the Static System have been inspected

found to comply with the specifications of

Details on file under MTSWO 210851

Alan Spencer - Inspector

Mobile Transponder Services, LLC.

N9114W

09/07/2021

1. Replaced left brake caliper

Smiling Aviation, Inc.

Delta Co 81416

Inspections, Tests, Repairs and Alterations
Inspected with Name, Rating and Certificate Number of
Facility. (See back pages for other specific entries.)

75
Cessna 100 series service manual, 1962 and prior.

Ronald G. Widner
A&P [REDACTED] IA

AFTT- 4521.73

s. spacers and attaching hardware for loose horizontal. Replaced jacks

3521.73
73 or 7/2026
tagcard.

as determined to be in an airworthy condition.

Chad Dawson
A&P [REDACTED]

YEAR:	RECORDING TACH TIME	TODAYS FLIGHT	TOTAL TIME IN SERVICE	Description of Inspections, Tests, Repairs and Alterations Entries must be endorsed with Name, Rating and Certificate Number of Technician or Repair Facility. (See back pages for other specific entries.)
DATE				

N9114W Date 7/16/2021 Tach- 3421.73 AFTT- 4521.73

Performed an Annual Inspection in accordance with FAR 43 appendix "D".

I certify this airframe was inspected in accordance with an Annual Inspection and was determined to be in an airworthy condition.

Smiling Aviation, Inc.

Ronald G. Widner

A&P [REDACTED] IA

Delta Co 81416

Cessna / 182D

Tach:3470.31

N9114W

August 23, 2021

Transponder Make/Model Narco / AT150, S.N. 28750 in this A/C has
been inspected IAW Title 14 CFR 91.413 and found to comply with the
specifications of Title 14 CFR 43 App F.

Altimeter Make/Model United / 5934P-1, S.N. 5F986,

Encoder Make/Model Terra / AT3000, S.N. 08175,

and the Static System have been inspected IAW Title 14 CFR 91.411 and
found to comply with the specifications of Title 14 CFR 43 App E.

Details on file under MTSWO 210851

Alan Spencer - Inspector

CRS TJJR625X

Mobile Transponder Services, LLC.

Date 8-23-2021
Peyton, CO 80831

N9114W

09/07/2021

Tach: 3474.11

1. Replaced left brake caliper oring and bled brake.

Smiling Aviation, Inc.

Chad Dawson

A&P [REDACTED]

Delta Co 81416

2017-2

7-16

YEAR DATE	RECORDING TACH TIME	TODAY'S FLIGHT	TOTAL TIME IN SERVICE	Description of Inspections, Tests, Repairs and Alterations Entries must be endorsed with Name, Rating and Certificate Number of Technician or Repair Facility. (See back pages for other specific entries.)
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N9114W

Date 7/16/2021

Tach- 3421.73

TSMOH- 396.73

Performed a 100 hr Inspection in accordance with FAR 43 appendix "D".

1. Compression Tested; #1-76/80, #2-76/80, #3-72/80, #4- 72/80, #5-76/80, #6-76/80.
2. Changed oil and filter using a Ch48108-1 filter and 12 qts 100W Aeroshell Oil. Sample taken.
3. Replaced generator belt.
4. Troubleshoot engine backfire. Boriscoped cylinder number 5 found scoring on cylinder wall. Removed #5 cylinder and installed overhauled cylinder.
5. Installed all new spark plugs.

Replaced exhaust rocker arm and exhaust lifter with overhauled lifter.

I certify this engine was inspected in accordance with a 100 hr Inspection and was determined to be in an airworthy condition.

Smiling Aviation, Inc.

Delta Co 81416

Chad Dawson
A&P

N9114W

09/07/2021

Tach: 3474.11

1. Changed oil and filter using 10 quarts of Aeroshell W100 oil and AA48108-2 filter. Sample taken.

Smiling Aviation, Inc.

Delta Co 81416

Chad Dawson
A&P

F.A.A. AIRWORTHINESS DIRECTIVE AND SERVICE BULLETIN/ LETTER COMPLIANCE RECORD

Date	Total Propeller Time	Time Since Overhaul	A.D./Bulletin/Letter Number	Authorized Signatures Repairman and Station Certificate Numbers
N9114W DATE 11/20/2020 Tach- 4427.55 TSPOH - 302.55 Performed a 100 hr Inspection in accordance with FAR 43 appendix "D". 1. Dressed small nick on prop blade. I certify this propeller was inspected in accordance with a 100 hr Inspection and was determined to be in an airworthy condition. Smiling Aviation, Inc. [Redacted] Chad Dawson A&P [Redacted] Delta Co 81416 [Redacted]				
N9114W Date 7/16/2021 Tach- 3421.73 TSPOH- 396.73 Performed a 100 hr Inspection in accordance with FAR 43 appendix "D". I certify this propeller was inspected in accordance with a 100 hr Inspection and was determined to be in an airworthy condition. Smiling Aviation, Inc. [Redacted] Chad Dawson A&P [Redacted] Delta Co 81416 [Redacted]				

Wt_Bal

EQUIPMENT CHANGE - WEIGHT & BALANCE			
REG. NO.	MODEL		Serial No.
N8819X	Cessna	182D	18253219
Items: (Description / P/N / S/N)	Weight Pounds	Arm Inches	Moments Inch/Pounds
Previous Aircraft Empty Weight:	1600	33.67	53873
Wing spar doubler	1.3	36	46.8
Wing tip extentions	16	52	832
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
Totals	1617.3		54751.8

A. Old Empty Weight	1600	Pounds
B. Old Empty CG	33.67	Inches
C. Old Empty Weight CG Moment	53873	Inch/Pounds
D. Max Gross Weight	3616	Pounds
E. Old Useful Load	1050	Pounds

A. New Empty Weight	1617.3	Pounds
B. New Empty CG	33.85383	Inches
C. New Empty Weight CG Moment	54751.8	Inch/Pounds
D. Max Gross Weight	2950	Pounds
E. New Useful Load	1332.7	Pounds

This new weight & balance information superseads all previous weight and balance data.
For aircraft loading, see instructions in Weight & Balance Section of Aircraft Flight Manual.

Ronald G Widner/ Smiling Aviation Inc.		Date:	6/30/2017
AP	IA		

Flying for Skydive Operations - P-8740-62

Introduction

"Flying skydivers is demanding, and requires training and constant preparation."

In the United States today, there are over 300 active skydiving centers and clubs. Throughout the US, these "drop zones" operate over 500 skydiving aircraft, referred to as jump planes. The Cessna 182 is the most common jump plane in use, so we will focus on this particular aircraft throughout the pamphlet.

Obviously, trained jump pilots are in high demand to help keep these aircraft flying. Although it is a rewarding and challenging opportunity, flying skydivers is unusually demanding on the pilot. Having actual skydiving experience can be helpful, but is not necessary. Training and preparation, however, are vital.

To help maintain high safety standard, the FAA and the US Parachute Association have collaborated to create this pamphlet and a video entitled *Flying for Skydive Operations*. The intent of this pamphlet is to describe specific flight operations and safety considerations that are needed when flying skydivers.

Regulations and Other Information that Affect Skydive Operations

Whenever there is compensation for a flight (regardless of whether the pilot is compensated), that flight is considered a "commercial" operation. Nearly all jump flights involve compensation, and by FAA standards, skydiving flights are commercial operations.

When an aircraft is used in a commercial operation, the aircraft is subject to a 100-hour inspection, as well as an annual inspection.

The FAA requires pilots to hold at least a commercial pilot certificate, along with a current second class medical certificate.

Federal regulations (14 CFR Part 119) describe the certification requirements for air carriers and commercial operators, but exempts skydiving flights operating within 25 miles of the departure airport. As a result, skydiving flights are conducted in accordance with 14 CFR Part 91 and 14 CFR Part 105.

14 CFR Part 91

- Allows skydivers to use the floor of an aircraft as a seat, provided that there is a seat belt for each skydiver to use.
- Requires every reserve parachute on board to have been packed within the preceding 120 days.
- Requires a transponder for flight at or above 10,000 MSL, an altitude commonly exceeded by most jump planes.

14 CFR Part 105

- Requires skydivers to observe visual flight rules (VFR) conditions. Below 10,000 feet, the pilot must have three miles of visibility and at least 500 feet below, 1,000 feet above, and 2,000 feet horizontally from a cloud. At and

above 10,000 feet, the rules require five miles of visibility and 1,000 feet below, 1,000 feet above, and one mile horizontally.

- Holds the pilot responsible for jumps that create a hazard to air traffic or persons, or property on the ground.
- Requires prior permission from an airport manager before jumping over or onto an airport.
- Requires ATC authorization when jumping into Class A, B, C, or D airspace. Prior to jumping into Class E and G airspace, the appropriate ATC facility must simply be notified beforehand.
- Requires radio communications with the appropriate ATC facility at least 5 minutes prior to the jump. This requirement is primarily intended to allow the jump pilot to receive information from ATC about known traffic in the area. It is best to make the call soon after takeoff for radar coverage.

Radio Calls to ATC

A jump pilot must make radio contact with the ATC facility that has jurisdiction of the airspace at the intended jump-run altitude. After initial contact, ATC will issue a transponder code and most will request a two-minute jump run call, although it can vary. ATC also wants a "jumpers away" call. Some will require a "jumpers on the ground" call.

If the pilot can continue to monitor the ATC frequency, it is advisable to also make the same advisory announcements on the CTAF frequency, if skydiving onto an airport.

Aircraft Modifications

Common examples of aircraft modifications include:

- Removal of a cabin door and a jump door installed or air deflector installed.
- Seat belts added (every skydiver is required to use a seat belt).
- Steps installed or handholds for jumper climbout.
- Door removal or modification approvals often have provisions that require all occupants, including the pilots, to wear a parachute if the door is opened.
- Airspeed limitations related to door use, which must be placarded. Speed limitations for Cessnas are usually between 80-110 mph for door opening or flight with the door open.

Jump Pilot Training

Training from experienced jump pilots and Drop Zone (DZ) operators is the best way to learn how to fly skydivers. First, gain a thorough knowledge of the airplane and its systems, especially the fuel system. Then practice typical jump plane maneuvers: gross-weight takeoffs, best-rate climbs, slow flight, door operation, and maintaining airspeed and heading on jump run and with skydivers on the step. Simulate engine-out scenarios at every opportunity, including after takeoff, so that pitching forward to maintain airspeed is a natural reaction. Mentally note the fields and available areas around the airport that can be used for an emergency landing. Finally, always begin

each takeoff roll with the expectation that the engine will fail on that flight. Be prepared!

Pilot Preparation

- Have a current weather briefing, including winds aloft.
- File a Notification with Air Traffic Control.
- Determine jump run direction and altitude (be sure to convert AGL to MSL).
- Determine who is the jumpmaster or loadmaster for the flight.

Aircraft Inspection

- Jump planes are flown hard and endure more takeoffs and landings than most other aircraft. A thorough preflight inspection is essential to each day.
- Look for cracked and loosened components around the spinner, engine cowling, inflight doors, and landing gear.
- Check propeller for nicks and scratches.
- Check tires and brakes.
- Check the oil quantity.
- Check fuel tanks often with a calibrated fuel stick; do not rely on fuel gauges. Use only approved aviation fuels. ***Research has shown that the vast majority of jump plane accidents were the result of fuel exhaustion, fuel starvation, or fuel contamination.***
- Conduct an engine run up and aircraft systems check.

Loading the Aircraft

An aircraft both overweight and out-of-balance is on the verge of being uncontrollable.

- Determine the aircraft's weight and center of gravity (CG). The maximum takeoff weight is found in the aircraft manual. The center of gravity can be calculated from charts also found in the aircraft manual.
- Ensure that the aircraft stays within its weight and balance limitations. This includes the weight of each occupant and his or her associated gear - parachute, jumpsuit, helmet, etc.
- Occupants must be secured with a seat belt or other approved restraint prior to taxi. All equipment should be secured or restrained.

The Takeoff

- If multiple jump planes are operating, constant vigilance for landing parachutes is necessary when taxiing and taking off.
- In Cessnas, the fuel selector is in a location where it can be inadvertently switched off. Check it prior to and during each takeoff for proper position.
- Have a pre-planned action for every possible event, including engine failure (e.g., have alternative emergency landing areas in mind).

The Climb

- Climb angles often impede the front view from the flight deck. Use shallow turns (usually to the left), which also serve as clearing turns.
- Avoid busy victor airways or established arrival or departure routes.
- Monitor power settings and engine temperatures to maximize the climb performance while minimizing engine overheating.
- At any point during the flight, the aircraft should be in a position to safely glide back to the airport if the engine fails.

The Jump Run

- Every jump plane has a target speed for the jump run. For Cessna, it is generally between 80 and 90 mph. Find the power setting that maintains the jump run altitude and target airspeed.
- Determine the desired spot for dropping jumpers. The spot is the skydivers' predetermined exit point over the ground, and it is nearly always upwind of the intended landing area.
- The jump pilot must assess whether releasing the jumpers will compromise safety. If so, the jumpers must be held until all conditions are clear for the jump.
- Winds at altitude can have a large influence on the spot, even though the skydivers are free-falling through it. (A 30 mph wind at 12,500 AGL can move a group of free-falling jumpers a half-mile from their exit point.)
- A jumpmaster will fine-tune the aircraft's alignment over the spot.
- It is vital that the pilot maintain a healthy margin above stall speed to prevent a stall on the jump run.
- With student skydivers, the jumpmaster will often call for reduced power to assist jumper climb-out. Use pitch to maintain airspeed.
- On jumper climb-out, the pilot may need additional control inputs to counter the effect of skydivers on the step. Many jump planes with a rear door can have their aft CG exceeded if many jumpers mass in or near the door on a jump run.
- When jumpers have exited, notice ATC of "jumpers away" and advise the controller of your next maneuver.

Descent

- A Cessna's inflight door can be closed with a yaw maneuver that will need to be practiced. Make sure that the door is securely latched.
- Set up a descent consistent with safety, and guarding against shock cooling. Each operator will have a preferred airspeed for descent. For Cessnas, descent speeds are in the 140 mph range. This speed should result in a 1,000-1,200 fpm descent rate.
- Use carburetor heat during descent; Cessnas are susceptible to carburetor ice.
- At any point, the aircraft should be in a position to glide to the airport if necessary.

- Remember that descending turns serve well as clearing turns, and make sure that all of your exterior lights are on.
- Keep a tight traffic pattern. The aircraft should be able to glide to the airport in the event of a power loss.
- Ensure that the aircraft remains clear of the skydiver airspace.

Reloading

- To reduce the potential for propeller strikes, shut down the aircraft prior to boarding and deboarding.

Emergencies

- When everything else is falling apart around you, remember: ***fly the aircraft first!***
- No matter what the emergency, the jump pilot's first and primary responsibility is to fly the aircraft. Too many pilots have been distracted by events that can result in disastrous consequences.

Common Jump Plane Accidents

- ***Fuel exhaustion/starvation:*** Jump planes often fly with reduced fuel to accommodate heavier payloads while maintaining weight and balance limits. Pilots must check fuel levels.
- ***Carburetor icing:*** The C182's Continental O-470 is a sturdy, reliable engine, but it is highly susceptible to ice formation. Pilots should use carburetor heat, especially during descent.
- ***Inadvertent deployment:*** Premature parachute deployments can cause catastrophic damage and injury. This problem happens most often when skydivers are positioning themselves in or near the door prior to exit. Make gear checks prior to boarding and jump run. Also, expedited descents can cause a parachute's automatic activation device to fire, opening the parachute container in the aircraft.

Flying skydivers can be a rewarding way to build time, but it demands thorough training and constant attention. This pamphlet covers only a portion of the safety issues and regulations required for skydiving operations.

Note: The information contained in this pamphlet does not supersede the material contained in the Pilot's Operating Handbook or your Aircraft Flight Manual.

About This Series

The purpose of this series of Federal Aviation Administration (FAA) Aviation Safety Program publications is to provide the aviation community with safety information that is informative, handy, and easy to review. Many of the publications in this series summarize material published in various FAA advisory circulars, handbooks, other publications, and various audiovisual products developed by the FAA and used in its Aviation Safety Program.

Some of the ideas and materials in this series were developed by the aviation industry. The FAA acknowledges the support of the aviation industry and its various trade and membership groups in the production of this series. Special thanks go to Ed Scott, US Parachute Association; Skydive City in Zephyrhills, Florida; Sunpath Productions; Jake Brake, Cessna 182 pilot; Lakeland Linder Regional Airport ATCT; Tampa International Airport ATCT; Tony Hathaway, Freefall Video; and Tom Sanders, Aerial Focus.

Comments regarding these publications should be directed to the National Aviation Safety Program Manager, Federal Aviation Administration, Flight Standards Service.

For more information on skydiving and parachute operations or details on the US Parachute Association, please call 1-800-371-USPA or visit online at <http://www.uspa.org>.

FUEL MANAGEMENT

POOR TECHNIQUES

Poor fuel management is often the cause of aircraft accidents. Some airplane accident reports have listed such poor fuel management techniques as switching to another fuel tank after the before takeoff runup was completed, and then experiencing engine problems on takeoff. Other reports tell of pilots switching fuel tanks at a critical point on the approach to a landing and inadvertently selecting an empty tank when there is not enough time to compensate for the subsequent loss of power. Flying low during day crosscountry, or moderately low at night, can be hazardous if a fuel tank runs dry. Too much altitude may be lost during the time it takes to discover the reason for power loss, select a different fuel tank, and restart the engine. Pilots should be thoroughly familiar with the airplane fuel system and tank switching procedures. Furthermore, it is an unsafe technique to run a fuel tank dry as a routine procedure, although there are exceptions. Any sediment or water not drained from the fuel tank could be drawn into the fuel system and cause erratic operation or even total power loss.

FUELING THE AIRCRAFT

The aircraft should be on level ground during all fueling operations, since filling the tanks when the aircraft is not level may result in a fuel quantity less than the maximum capacity. Rapid filling of a fuel tank, without allowing time for air in the tank to escape, may result in a lower fuel quantity. Some single engine aircraft that allow simultaneous use of fuel from more than one tank have fuel tanks with interconnected vent lines. If the tanks are filled with fuel and the aircraft allowed to sit with one wing lower than the other, fuel may drain from the higher tank to the lower and subsequently out the fuel vent. This will result in loss of fuel. This fuel loss may be prevented by placing the fuel selector in a position other than "both".

Some Cessna single-engine airplanes have long, narrow fuel tanks. If your airplane is so equipped, it may be necessary to partially fill each tank alternately, and repeat the sequence as required to completely fill the tanks to their maximum capacity. This method of fueling helps prevent the airplane from settling to a wing-low attitude because of increased fuel weight in the fullest wing tank.

It is always the responsibility of the pilot-in-command to ensure sufficient fuel is available for the planned flight. Refer to the airplane operating handbook for proper fueling procedures.

UNUSABLE FUEL

Unusable fuel is the quantity of fuel that cannot safely be used in flight. The amount of unusable fuel varies with airplane and fuel system design, and the maximum amount is determined in accordance with Civil or Federal Aviation Regulations (CARs or FARs). Unusable fuel is always included in the airplane's licensed or basic empty weight for weight and balance purposes. Unusable fuel should never be included when computing the endurance of any airplane.

FUEL PLANNING WITH MINIMUM RESERVES

Airplane accidents involving engine power loss continue to reflect fuel starvation as the primary cause or a contributing factor. Some of these accidents were caused by departing with insufficient fuel onboard to complete the intended flight. Fuel exhaustion in flight can mean only one thing - a forced landing with the possibility of serious damage, injury, or death.

A pilot should not begin a flight without determining the fuel required and verifying its presence onboard. To be specific, during VFR conditions, do not take off unless there is enough fuel to fly to the planned destination (considering wind and forecast weather conditions), assuming the airplane's normal cruising airspeed, fly after that for at least 30 minutes during the day, or at least 45 minutes at night.

Departure fuel requirements are a little different when operating under IFR conditions. Do not depart an airport on an IFR trip unless the airplane has enough fuel to complete the flight to the first airport of intended landing (considering weather reports and forecasts) and fly from that airport to the planned alternate airport, and afterwards still fly at least 45 minutes at normal cruising speed.

FLIGHT COORDINATION VS. FUEL FLOW

The shape of most airplane wing fuel tanks is such that, in certain flight maneuvers, the fuel may move away from the fuel tank supply outlet. If the outlet is uncovered, fuel flow to the engine may be interrupted and a temporary loss of power might result. Pilots can prevent inadvertent uncovering of the tank outlet by having adequate fuel in the tank selected and avoiding maneuvers such as prolonged uncoordinated flight or sideslips which move fuel away from the feed lines.

It is important to observe the uncoordinated flight or sideslip limitations listed in the respective operating handbook. As a general rule, limit uncoordinated flight or sideslip to 30 seconds in duration when the fuel level in the selected fuel tank is 1/4 full or less. Airplanes are usually considered in a sideslip anytime the turn and bank "ball" is more than one quarter ball out of the center (coordinated flight) position. The amount of usable fuel decreases with the severity of the sideslip in all cases.

FUEL SELECTION FOR APPROACH/LANDING

On some single-engine airplanes, the fuel selector valve handle is normally positioned to the BOTH position to allow symmetric fuel feed from each wing fuel tank. However, if the airplane is not kept in coordinated flight, unequal fuel flow may occur. The resulting wing heaviness may be corrected during flight by turning the fuel selector valve handle to the tank in the "heavy" wing. On other single-engine airplanes, the fuel selector has LEFT ON or RIGHT ON positions, and takeoffs and landings are to be accomplished using fuel from the fuller tank.

Most multi-engine airplanes have fuel tanks in each wing or in wing tip tanks, and it is advisable to feed the engines symmetrically during cruise so that approximately the same amount of fuel will be left in each side for descent, approach, and landing. If fuel has been consumed at uneven rates between the two wing tanks because of prolonged single-engine flight, fuel leak or siphon, or improper fuel servicing, it is desirable to balance the fuel load by operating both engines from the fuller tank. However, as long as there is sufficient fuel in both wing tanks, even though they may have unequal quantities, it is important to switch the left and right fuel selectors to the left and right wing tanks, respectively, feeling for the detent, prior to the approach. This will ensure that adequate fuel flow will be available to each operating engine if a go-around is necessary. In the case of single-engine operation, operate from the fuller tank, attempting to have a little more fuel in the wing on the side with the operating engine prior to descent.

On all multi-engine airplanes equipped with wing tip fuel tanks, the tip tanks are the main fuel tanks on the tank selector valve controls. Refer to Supplement 12 of this Pilot Safety and Warning Supplements Manual and the applicable airplane operating handbook.