Single Pilot IFR Best Practices

Tuesday, November 1, 2016 | Start Time – End Time (2:30 p.m. – 3:30 p.m.)

PRESENTED BY:
William J. “Jeff” Edwards
AvSafe, LLC
www.avsafe.com
Or— How to Avoid Pilot Error in the 21st Century

- Using 21st century tools to examine pilot currency, competency, proficiency and procedural compliance

• Some recent examples in Business Aviation
  - Gulfstream G-IV crash on takeoff May 31, 2014 Bedford, MA
    • Checklist failures (flight control check)
  - Beech Premier crash on landing October 21, 2014 Thomson, GA
    • Pilot’s failure to follow procedures during landing
  - Hawker Beechcraft BAE 125-800 crash on landing July 31, 2008 Owatonna, MN
    • Go around with insufficient runway
Who do you fly or work for?

- How many fly or work for a government agency?
- How many fly for business?
- How many fly pleasure?
- How many work for flight schools or training organizations?
- How many here are CFIs?
- How many are DPEs?
“... the Safety Board has determined that the pilot was a cause or related factor on 86 percent of these single engine aircraft accidents and in 90 percent of the fatal accidents...”

“The Safety Board further believes the findings indicate the need for research and analysis by the aviation industry which will provide an understanding of the pilot/aircraft/environmental system issues raised in this study, and that this report will act as a catalyst in initiating this needed effort.”
Getting to the Bottom of Single Pilot IFR Aircraft Accidents

• Triangulation of different data
  – Pilot Logbooks, aircraft logs, use logs
  – FAA records (OKC)
  – Training records (local)
  – DPE/CFI interviews
  – FlightAware™
  – Radar
  – Onboard Data
GA Pilot Culture

- Pilots avoid training.
  - Strong cultural aversion to training within GA community
  - <5% take more than BFR
- AFS 600 Written Test Symposia
  - ¾ of all pilots do not study training docs—just test question bank

- Most instrument pilots answering 2013 AOPA survey are not current.
- Majority of AOPA surveyed pilots average 6 or less flight hours per month (72/ year).
- Many pilots do not know how to log instrument flight time.
- NBAA study 2013-2015 found 17% of pilots did not perform a full flight control check before takeoff.
The State of GA Pilot Training

• In 2004, the National Aeronautics and Space Administration (NASA) published a study on FAA’s pilot knowledge tests.

• NASA found that many applicants completed the test in far less time than would be required for the average human to even read the questions and answers on the test indicating that students had memorized the questions and answers—which raises concerns about the extent to which students actually mastered the material. (GAO, 2012)

• When the FAA changed the CFI test in 2011 without announcing the changes the pass rate plummeted by almost 50%. (Namowitz, 2011)
Aircraft Accident Risk Factors

- Age at first certificate
- Present age
- Certificate level
- Prior accident history
- Prior enforcement history
- Test failure history
- Time in Type
- Training history
- Flight time accrual rate
- Regulatory and Standards Compliance
- Lack of Participation “The Unreachable”
Case Studies of Business Flights

CHI07FA183 PA 46-500TP Wellsville, MO
CEN09FA267 Cirrus SR22, Mayfield Village, OH
NYC07FA065 TBM 700 New Bedford, MA
CHI07FA183
Piper PA-46-500TP N477MD
Accident Location: Wellsville, Missouri
Date of Accident: June 28, 2007

• June 28, 2007
• PA 46-500TP, N477MD, departed KSUS for Buffalo, MN
• Instrument rated, Private pilot with two passengers
• After departure deviates around/ through towering Cu.
• Climbing to FL 280
• Passing 16,000’ aircraft deviates left
• Pilot loses control
• Wings/ tail fail
• Aircraft crashes west of St. Louis
Pilot

- Business owner
- Purpose of the trip was an Ethanol Convention in St. Louis
- Private pilot, instrument rated
- Fourth aircraft: PA-28, Mooney, PA-32
- Prior aircraft was a Piper Saratoga
- Purchased the Meridian less than 12 months prior to the accident
- Attended SimCom
Pilot

- Obtained private pilot certificate 11/9/1999
- Instrument rating 3/25/2005 (274 hours total)
- Endorsed by independent CFI for BFR/IPC on August 28, 2006.
- 2006 Pilot insurance form and FAA medical state 1,000 hours PIC.
- Insurance form states 300 hours of instrument time. Is this reasonable for a pilot with an instrument rating that is only two years old and 1,000 hours total time?
## Pilot Logbook 6/06-8/06

<table>
<thead>
<tr>
<th>DATE</th>
<th>AIRCRAFT TYPE</th>
<th>AIRCRAFT MODEL</th>
<th>FROM</th>
<th>TO</th>
<th>REMARKS AND ENDORSEMENTS</th>
<th>AIRCRAFT CATEGORY</th>
<th>AND CLASS</th>
<th>CONDITIONS OF FLIGHT</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

**TOTALS THIS PAGE**

**Pilot's Signature**

**TOTALS TO DATE**
Logging Instrument Time

• “The instrument currency requirements must be accomplished under actual or simulated instrument conditions. You may log instrument flight time during the time for which you control the aircraft solely by reference to the instruments. This can be accomplished by wearing a view-limiting device such as a hood, flying an approved flight-training device, or flying in actual IMC.” (Instrument Flying Handbook FAA-H-8083-15A 2007)
Logging Instrument Time

Subject: Logging Instrument Approach Procedures (IAP)

Purpose: This InFO clarifies the conditions under which a pilot may log an IAP in his or her logbook. Logging IAPs is necessary for a pilot to show compliance with Federal Aviation Administration (FAA) instrument currency and training requirements. Furthermore, the information contained in this InFO may be applied to instrument practical tests and instrument proficiency checks.
Logging Instrument Time

A pilot may log an IAP for currency or training when the pilot accomplishes the IAP in accordance with the following conditions:

1. When conducted in an aircraft, flight simulator, flight training device, or aviation training device, the pilot must operate that aircraft or authorized training device solely by reference to instruments [§ 61.51(g)(1)];
2. When conducted in an aircraft, flight simulator, flight training device, or aviation training device, the pilot must be established on each required segment of the IAP to the minimum descent altitude (MDA) or decision altitude/decision height (DA/DH);\(^5\)
3. When conducted in an aircraft simulating instrument flight conditions, a flight simulator, a flight training device, or an aviation training device, the simulated instrument meteorological conditions (IMC) must continue to MDA or DA/DH;\(^6\) and
4. When conducted in an aircraft, the flight must be conducted under actual or simulated instrument flight conditions [§ 61.51(g)(1)].

NOTE: A pilot cannot log an IAP for currency in an aircraft without also logging actual or simulated instrument time. Simulated instrument conditions occur when a pilot uses a view-limiting device in an aircraft to prevent the pilot from seeing outside visual references. Consequently, a flight conducted under simulated instrument conditions requires a safety pilot. A safety pilot must possess a current medical certificate, occupy the other control seat, and be appropriately rated in the category and class aircraft flown [§ 61.53(c), § 61.51, § 61.57(c) and § 91.109]. The pilot operating under simulated instrument conditions must also log the name of the safety pilot.
Lester Kyle's Aircraft Training
772.562.5438 fly4kyle@aol.com

McDonald D. McCormick holder of pilot certificate #479747877 has completed a Flight Review FAR 61.56 and an Instrument Proficiency FAR 61.57 (c) (2) on 8/30/06.
Instructor: Lester Kyle, CFI/CFII exp. 9/30/09

8/30/06 THE 25 FLIGHT HOURS HAS BEEN MET AS REQUIRED FOR INSURANCE WHEN DAVID IS ACCOMPANIED WITH SAFETY PILOT

Lester Kyle, CFI #1784586

<table>
<thead>
<tr>
<th>DATE</th>
<th>AIRCRAFT</th>
<th>AIRCRAFT</th>
<th>ROUTE OF FLIGHT</th>
<th>REMARKS AND ENDORSEMENTS</th>
<th>AIRCRAFT CATEGORY</th>
<th>T-TIME</th>
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</thead>
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<tr>
<td>9-4</td>
<td>B767-200</td>
<td>ALJ</td>
<td>CPE LF</td>
<td></td>
<td>SINGLE-ENGINE LAND</td>
<td>3</td>
</tr>
<tr>
<td>9-5</td>
<td>BC-117</td>
<td>11</td>
<td>LF CPE</td>
<td></td>
<td>SINGLE-ENGINE LAND</td>
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<td>CPE SC8</td>
<td>HPEP 17</td>
<td>MULTI-ENGINE LAND</td>
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<td>BC-117</td>
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<td>SC8 AXL</td>
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<td>12</td>
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<tr>
<td>11</td>
<td>BC-117</td>
<td>11</td>
<td>AXL CPE</td>
<td>288</td>
<td></td>
<td></td>
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</tbody>
</table>

I certify that the entries in this log are true,

PILOT’S SIGNATURE

TOTALS THIS PAGE
AMT. FORWARDED
TOTALS TO DATE
<table>
<thead>
<tr>
<th>DATE</th>
<th>AIRCRAFT TYPE</th>
<th>AIRCRAFT IDENT</th>
<th>ROUTE OF FLIGHT</th>
<th>REMARKS AND ENDORSEMENTS</th>
<th>AIRCRAFT CATEGORY</th>
<th>AND CLASS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>FROM</td>
<td>TO</td>
<td></td>
<td>SINGLE ENGINE LAND</td>
</tr>
</tbody>
</table>

I certify that the entries in this log are true.

PILOT'S SIGNATURE

TOTALS THIS PAGE

AMT. FORWARDED

TOTALS TO DATE
• Nov ‘06 1000 hours total time (675 hour increase in 19 months)

• 1000 hours tt/ 300 hours instrument. Requests IPC and BFR
8. Please verify that your airplane meets current FAR's for the below listed items (at the time of your scheduled training), by placing a check mark next to each item in compliance.

- ✔ Annual (FAR 91.409)
- ✔ All AD's (FAR 91.417)
- ✔ Attenuator/Static System Check (FAR 91.411)
- ✔ ELT (FAR 91.207)
- ✔ Transponder (FAR 91.413)

9. In order to provide you with training that meets your specific needs, PLEASE INDICATE AREAS OF SPECIAL INTEREST AND/OR AREAS WHICH YOU FEEL REQUIRE SPECIAL EMPHASIS DURING YOUR TRAINING.

10. Normal business hours of operation are 8am - 5pm. Occasionally there is a need to train during extended hours (7am - 7pm). Are you willing to train during extended hours by starting early or staying late? ✔ yes  ☐ no

11. Does your insurance company require or are you requesting additional flight time after course completion? ✔ no ☐ yes **

   (Up to 6 hours of flight training is provided in the course)

   ** (Additional hourly rate @ $75.00 per hr PILOT - $100 per hr TURBINE)

12. Will you need an instructor to accompany you home after the course? ✔ yes ☐ no

13. For information purposes only:

   Are you a member of MMOPA? ✔ yes ☐ no

   Are you a member of AOPA? ✔ yes ☐ no
SimCom 11/10/2006
No IPC/ BFR Endorsement

No IPC or BFR endorsed on Simcom form or in logbook
FlightAware Fills in the Blanks

<table>
<thead>
<tr>
<th>Flight</th>
<th>Date</th>
<th>Time</th>
<th>Departure</th>
<th>Arrival</th>
</tr>
</thead>
<tbody>
<tr>
<td>N477DE</td>
<td>2007-02-01</td>
<td>12:00</td>
<td>KDCA</td>
<td>KCLE</td>
</tr>
<tr>
<td>N477DE</td>
<td>2007-02-18</td>
<td>13:00</td>
<td>KDCA</td>
<td>KCLE</td>
</tr>
<tr>
<td>N477DE</td>
<td>2007-02-26</td>
<td>14:00</td>
<td>KDCA</td>
<td>KCLE</td>
</tr>
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<td>N477DE</td>
<td>2007-03-05</td>
<td>15:00</td>
<td>KDCA</td>
<td>KCLE</td>
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<tr>
<td>N477DE</td>
<td>2007-03-07</td>
<td>16:00</td>
<td>KDCA</td>
<td>KCLE</td>
</tr>
</tbody>
</table>

691 hours tt at time of accident
Altitude, Airspeed, and Outside Air Temperature - PFD1, MFD

- **OAT**: Blue line
- **KIAS**: Red line
- **MSL ALT**: Green line

**Indication of loss of signal from pilot side pitot system**

**Aircraft reaches freezing level**

 UTC Time:
- 13:08
- 13:09
- 13:10
- 13:11
- 13:12
- 13:13
- 13:14
4.17 BEFORE TAXIING (4.5c)

Select the avionics switch to ON.

Select pitot heat switch ON, check operation then select OFF. Note proper operation of pitot heat by verifying amber pitot heat annunciator extinguished and monitoring the volt/ammeter for a corresponding voltage drop and amperage rise.
4.5g  ENGINE RUN UP (4.21)

Parking Brake ................................................................. SET
Power Lever ...................................................................... 1900 RPM
Overspeed Governor Test Switch ...... LIFT COVER / PUSH and HOLD
NP .............................................................................. OBSERVE APPROX. 60 RPM DROP
Overspeed Governor Test Switch .................................................................. RELEASE
Np .............................................................................. RETURN TO 1900 RPM
Power Lever ........................................................................... IDLE
Reverse Lockout Switch .................................................. PUSH and HOLD (Min. 5 sec.)
Power Lever ........................................................................... IDLE
Beta and Prop Reverse ........................................ NOT ATTAINABLE
Reverse Lockout Switch .................................................. RELEASE, POWER LEVER CAN
BE MOVED TOWARDS REVERSE
Power Lever ........................................................................... IDLE
Generator ................................................................. OFF (verify alternator picks up load
and red GEN INOP annunciator
is illuminated)
Generator ........................................................................... ON (red GEN INOP
annunciator extinguished)
Alternator ........................................................................... OFF (red ALT INOP
annunciator illuminated)
Alternator ........................................................................... ON (red ALT INOP
annunciator extinguished)
Quadrant Friction Lock .................................................... SET

NOTE
Refer to Section 9, Supplement 6, for Meridian Aircraft Flight Into Known Icing (FIKI), prior to any flight operations (takeoff, cruise, landing, etc.).
FLIGHT INTO KNOWN ICING CONDITIONS (continued)

PRIOR to entering icing conditions, the following ice protection systems MUST be activated.

1. Surface De-ice .................................................................SELECT ON
2. Stall Heat .................................................................SELECT ON
3. Pitot Heat .................................................................VERIFY ON
4. Prop Heat .................................................................SELECT ON
5. Windshield Heat ..........................................................SELECT ANTI ICE
6. Wing Inspection Light ..................................................AS REQUIRED
7. Ignition .................................................................MANUAL
8. Windshield Defog .......................................................PULL ON
What You Did Not Know….Pilot Flying Habits

<table>
<thead>
<tr>
<th>Date</th>
<th>Flight</th>
<th>Engine Run-Up (Power Increase)</th>
<th>Pitot Heat ON Prior to T/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>6_21_07</td>
<td>KFCM-KCFE</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6_21_07</td>
<td>KCFE-KSLB</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>6_21_07</td>
<td>KSLB-KGEY</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>6_24_07</td>
<td>KGEY-KDVP</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>6_24_07</td>
<td>KDVP-KCFE</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>6_26_07</td>
<td>KCFE-KSUS</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
Findings

- Pilot records reveal history of no recent instrument time
- Does not get endorsed at SimCom for BFR or IPC; in spite of request for those endorsements
- Over reliant on AP
- Misuse of checklist
- Normalization of deviations

- Review of audio tapes reveal piloting deficiencies on ground prior to departure
- Pilot states “distracted”
CEN09FA267
Cirrus SR22 N504MD
Accident Location: Mayfield Village, Ohio
Date of Accident: April 28, 2009

- Purchases SR22 October 2008—VFR training only
- Pilot flies into Cuyahoga County with associate
- Weather is low IFR
- Makes four approaches; lands on 4th
- Meeting then back to airport
- Departs and loses control on departure
Four Approaches

First Approach

Second Approach

Third Approach

Fourth Approach
Fatal Departure
Fatal Departure
## Pilot Logbook

### Remarks and Endorsements

<table>
<thead>
<tr>
<th>DATE</th>
<th>PILOT</th>
<th>FLIGHT/HOURS</th>
<th>AIRCRAFT</th>
<th>LOCATION</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>14/3/2021</td>
<td>John Doe</td>
<td>0:00</td>
<td>Cessna 172</td>
<td>Airport</td>
<td>Ready for flight</td>
</tr>
<tr>
<td>15/3/2021</td>
<td>Jane Smith</td>
<td>1:00</td>
<td>Piper PA-28</td>
<td>Sanctuary</td>
<td>Completed maintenance</td>
</tr>
<tr>
<td>16/3/2021</td>
<td>John Doe</td>
<td>2:00</td>
<td>Cessna 172</td>
<td>Airport</td>
<td>Successful test flight</td>
</tr>
</tbody>
</table>

### Aircr. Cl | Condition of Fuel | Type of Fuel Used | Description |
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<thead>
<tr>
<th></th>
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<th></th>
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<tr>
<td>2</td>
<td>Full</td>
<td>Jet</td>
<td>Regular</td>
</tr>
<tr>
<td>3</td>
<td>Half</td>
<td>Gas</td>
<td>Premium</td>
</tr>
<tr>
<td>4</td>
<td>Empty</td>
<td>None</td>
<td>Special</td>
</tr>
</tbody>
</table>

### Totals

- Fuel: 6 gallons
- Hours: 6 hours

### Signature

John Doe
Pilot Insurance Application
### IV. TOTAL LOGGED HOURS

**PLEASE INDICATE YOUR TOTAL LOGGED HOURS IN EACH CATEGORY BELOW:**

<table>
<thead>
<tr>
<th>Piston Aircraft</th>
<th>Turbine Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land</strong></td>
<td><strong>Sea</strong></td>
</tr>
<tr>
<td>Single Engine, Fixed Wing, Fixed Tri-Gear</td>
<td>15</td>
</tr>
<tr>
<td>Single Engine, Fixed Wing, Fixed Tail Wheel</td>
<td>150</td>
</tr>
<tr>
<td>Single Engine, Multi-Engine, Fixed Wing</td>
<td>1040</td>
</tr>
<tr>
<td>Retractable Gear</td>
<td></td>
</tr>
<tr>
<td><strong>Total Logged Hours All Aircraft</strong></td>
<td></td>
</tr>
</tbody>
</table>

**FRAUD WARNING**

**NOTICE TO NEW YORK APPLICANTS:** "ANY PERSON WHO KNOWINGLY AND WITH INTENTION TO DEFRAUD ANY INSURANCE COMPANY OR OTHER PERSON FILES AN APPLICATION FOR INSURANCE OR STATEMENT OF CLAIM CONTAINING ANY MATERIALLY FALSE INFORMATION, CONCEALS FOR THE PURPOSE OF MISLEADING, INFORMATION CONCERNING ANY FACT MATERIAL THERETO, COMMITS A FRAUDULENT INSURANCE ACT, WHICH IS A CRIME, AND SHALL ALSO BE SUBJECT TO A CIVIL PENALTY NOT TO EXCEED FIVE THOUSAND DOLLARS AND THE STATED VALUE OF THE CLAIM FOR EACH SUCH VIOLATION."
Comparing Different Logs (I need 1000 hours for insurance!)

• Pilot’s logbooks were compared to the aircraft use log. There is considerable disagreement between Hobbs times recorded in the use log to his personal pilot logbook.

• Beech Duke flight time entries are overstated by as much as 1.8 hours (10/22/1997) per flight.

• An analysis of 307 logbook entries with corresponding use log entries revealed pilot overstated his logbook entries by an average of 30.8% or .62 hours per entry, or 191.8 hours.

• Additionally, he claimed he had 10 hours of instrument time in the last twelve months on his Cirrus application— (never happened)
NYC07FA065
Socata TBM 700 N944CA
Accident Location: New Bedford, MA
Accident Date: February 2, 2007

• Low time owner pilot and new young CFI on short flight from BOS to EWR at night in low IFR (at minimums)
• Fast and unstable ILS approach
• Missed approach
• 20+ plus degrees nose up
• No application of power
• Stalled aircraft
Unstable Approach
Aircraft Speed and Altitude Final 2.5 minutes
Compare Weather and Flight Tracks

- Young CFI and private pilot logging Parker P51 time.
- Logging actual instrument time and approaches in VMC conditions.
- Not current.
- First low IFR night approach outside local area.
<table>
<thead>
<tr>
<th>DATE</th>
<th>AIRCRAFT MAKE AND MODEL</th>
<th>AIRCRAFT IDENT</th>
<th>FROM</th>
<th>TO</th>
<th>DURATION OF FLIGHT</th>
<th>SINGLE-ENGINE LAND</th>
<th>NIGHT</th>
<th>ACTUAL INSTRUMENT</th>
<th>SIMULATED INSTRUMENT</th>
<th>APP</th>
<th>FLIGHT SIMULATOR</th>
<th>CROSS COUNTRY</th>
<th>SOLO</th>
<th>PILOT IN COMMAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/22</td>
<td>TBM7</td>
<td>N7445A</td>
<td>KGD</td>
<td>BIG</td>
<td>6:37</td>
<td>6</td>
<td>7</td>
<td>52</td>
<td>1</td>
<td>1</td>
<td>G-7</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>9/25</td>
<td>TBM7</td>
<td>9445A</td>
<td>3656</td>
<td>36</td>
<td>4:44</td>
<td>6</td>
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<td>4</td>
<td>1</td>
<td>1</td>
<td>G-7</td>
<td>6</td>
<td>6</td>
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<tr>
<td>9/26</td>
<td>TBM7</td>
<td>7445A</td>
<td>ZION</td>
<td>JAMA</td>
<td>3:41</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>S-7</td>
<td>5</td>
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<tr>
<td>9/28</td>
<td>TBM7</td>
<td>9445A</td>
<td>MIA</td>
<td>MIA</td>
<td>2:41</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>4</td>
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</tr>
<tr>
<td>9/29</td>
<td>TBM7</td>
<td>9445A</td>
<td></td>
<td></td>
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</table>
Check the Weather!
Aero Analysis
Forensic Tools

- Logbooks
  - Pilot
  - Aircraft maintenance
  - Use
- FlightAware
- Radar
- Aircraft Data
  - GPS
  - Engine Monitoring Sys.
  - PFD/ MFD
  - Some record 100’s of hours

- YouTube
- Facebook
- Insurance applications
- Type Club websites
Conclusion

- Common themes established for all cases here:
  - Pilots could not fly to Private Pilot Instrument Rating Standards
    - Checklist usage almost non-existent
    - Hand flying skills absent
    - Over reliant on autopilot
  - Frequent fraudulent logbook entries; inflated total times, inflated instrument time/approaches easily provable by forensic work
  - Lack of knowledge of aircraft systems
  - Some complicity by CFI’s giving IPC endorsements
Recommendations

• Keep accurate records.
• You need more training than you think!
• Reflect on your flying habits.
• Disconnect the autopilot and fly the aircraft.
Questions?

Thank You Very Much!

• Sources:
• NBAA Business Aviation Compliance With Manufacturer-Required Flight-Control Checks Before Takeoff
• NTSB Special Study Single-engine Fixed Wing General Aviation Accidents, 1972-1976, 1979
• NTSB NYC07FA065 Socata TBM 700 N944CA Accident Location: New Bedford, MA
• NTSB CEN09FA267 Cirrus SR22 N504MD Accident Location: Mayfield Village, Ohio
• NTSB CHI07FA183 Piper PA-46-500TP N477MD Accident Location: Wellsville, Missouri
• GAO, 2012 AVIATION SAFETY FAA Has An Opportunity to Enhance Safety and Improve Oversight of Initial Pilot Training
• Dan Namowitz in April 21, 2011 AOPA