

# Single Pilot Night IFR Decision Making

## Pilot Decision Making – Night IFR

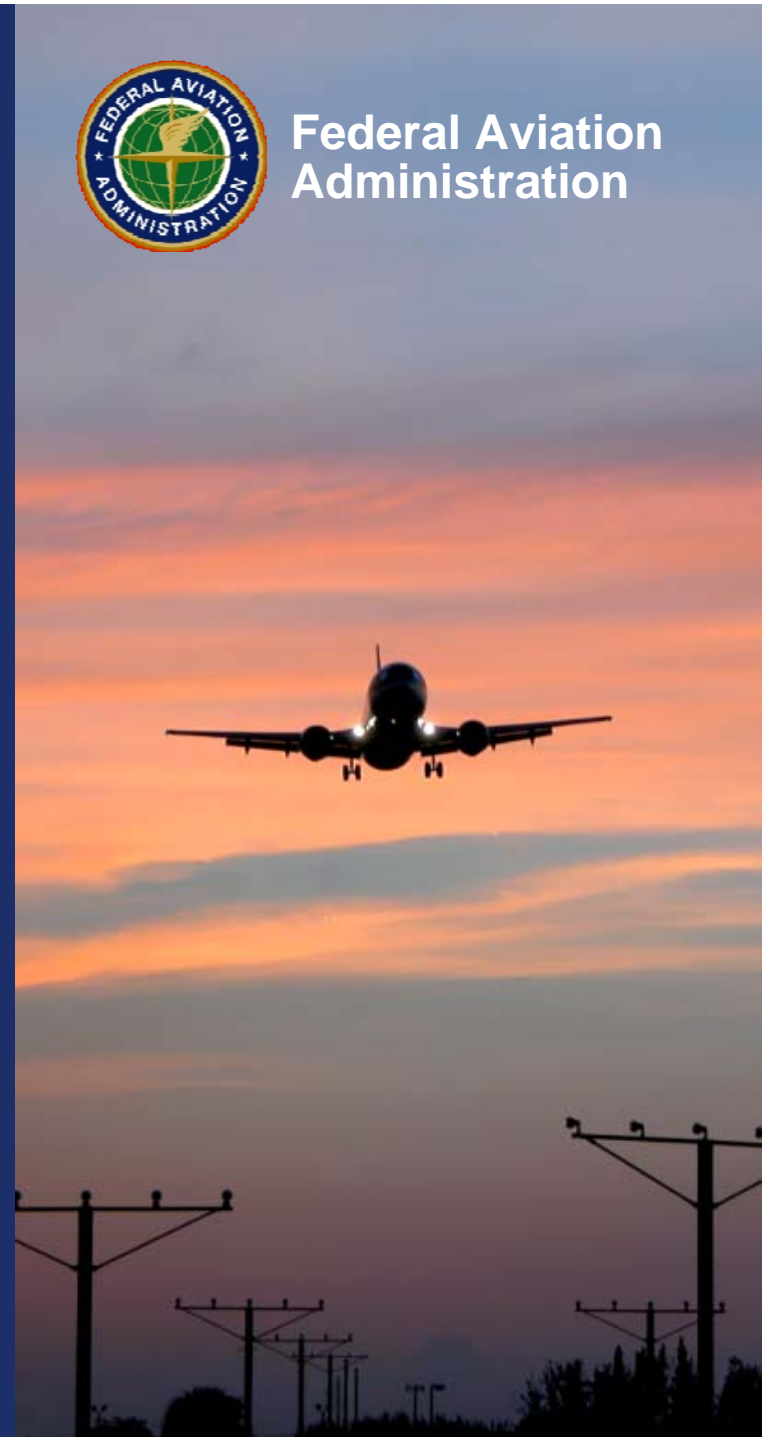
Presented to: FAA Safety Seminar Attendees

By: W. J. Doyle, Jr., CFI A&I, AGI, IGI, FFAST Rep

Date: 09/01/2010 – 08/31/2011



Federal Aviation  
Administration



# *Disclaimer and Forward*

- **The events in this presentation are fictitious.**
- **The pilot and passenger are made up names.**
- **The passenger represents the “get-there-itis” pressure that pilots put on themselves due to perceived pressure from:**
  - **Family**
  - **Friends**
  - **Job**
  - **Boss**
  - **Coworkers**
  - **Customers**



# *The Cast of Characters – The Sequence of Events*

- **The airplane**
- **The pilot**
- **The passenger**
- **The flight request and flight planning**
- **The weather**
- **The Go/No-go Decision**
- **The happenings**
- **The Post Mortem Review**



# *The Airplane*



- **Type: 1978 C182Q, N9XXXX**
- **Fuel: 88 gallons useable**
- **Equipment:**
  - VOR #1 with glideslope
  - VOR #2 without glideslope
  - GPS with Moving Map
  - Stormscope
  - DME
  - ADF
  - Digital Transponder
  - Auto-Pilot coupled to HDG and Nav

# *The Pilot*

- **Name: George**
- **FAA Certificates and Ratings:**
  - Private Pilot Certificate ASEL
  - Instrument Rating (received two months prior to flight)
- **Total Time: 400 hours**
- **Time in Actual IMC: 15 hours**



# *The Passenger*

- **Name: Chuck**
- **FAA Certificates and Ratings:**
  - None
- **Role:**
  - CEO of Chuck Enterprises
  - George's boss
- **Attitude**
  - Assertive and overbearing
  - Used to getting his own way

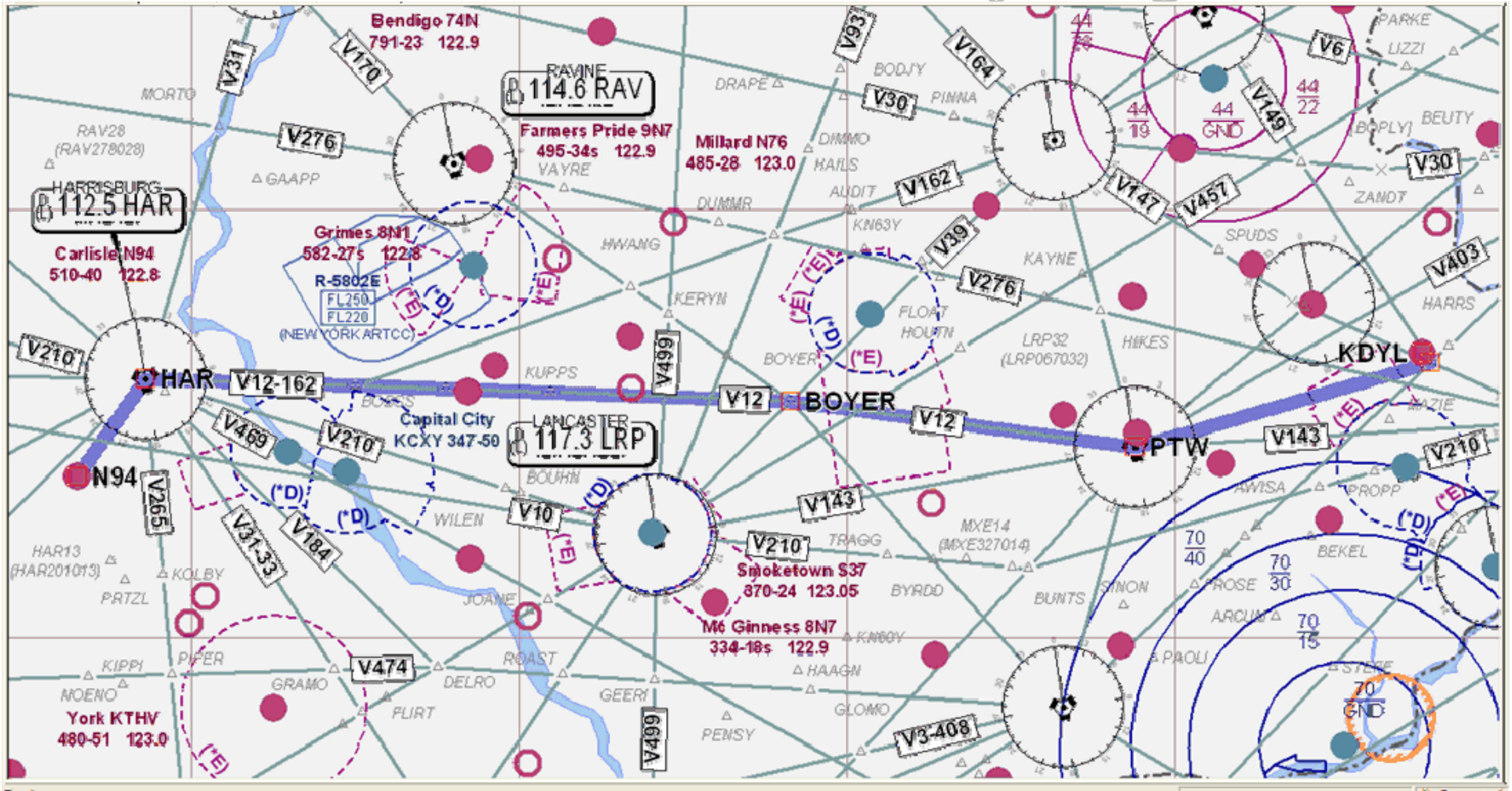


# *The Flight Request*

- **Chuck:**
  - “George, get a plane and fly me from Doylestown to Carlisle.”
- **George:**
  - “Chuck, the weather is going to be bad. It’s that time of year.”
- **Chuck:**
  - “George, I want results not excuses. Now either get the plane or get another job!”



# The Planned Route of Flight



*From AOPA's Real-Time Flight Planner with permission*

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# The Flight Plan Filing – Original FAA Form

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR			TIME STARTED		SPECIALIST INITIALS	
FLIGHT PLAN		<input type="checkbox"/> STOPOVER						
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE / SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT		6. DEPARTURE TIME		7. CRUISING ALTITUDE
	VFR					PROPOSED (Z)	ACTUAL (Z)	
X	IFR	N9XXXX	C182/A	130	KDYL	2300		6000
	DVFR		KTS					
8. ROUTE OF FLIGHT								
PTW V12 HAR								
9. DESTINATION (Name of airport and city)			10. EST. TIME ENROUTE		11. REMARKS			
N94			HOURS	MINUTES				
			01	00				
12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE			15. NUMBER ABOARD	
HOURS	MINUTES			George. on file at KDYL 215-340-0707 KDYL				
05	30			17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)			2	
16. COLOR OF AIRCRAFT			CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					
W/B/R								



# The Flight Plan Filing – AOPA Flight Planner

Try AIFP v. 2.0 Beta (Coming March 2011; [more info](#))

Time: 12:31:22 Z

NEW ROUTE

CHART

NAV LOG

FLIGHT PLAN

WEATHER

PILOT

AIRCRAFT



## FAA Flight Plan

New FAA Flight Plan

Recent Flight Plans

Fill out and submit this form to file a flight plan with the FAA.

* 1. Type:	IFR	11. Remarks:	
* 2. Registration:	N9XXXX	* 12. Fuel on Board:	0530 (HHMM)
* 3a. Aircraft Model:	C182	13. Alternate(s):	
* 3b. Equipment:	/A	* 14a. Pilot Name:	George
* 4. True Airspeed:	130 (Knots)	* 14b. Pilot Address:	on file at KDYL
* 5. Departure:	KDYL	* 14c. Phone:	215-340-0707
* 6. Departure Time:	2300 (Zulu) 06:00 PM UTC-5	* 14d. Homebase:	KDYL
* 7. Altitude:	6000 (Feet)	* 15. Persons Aboard:	2
* 8. Route:	PTW V12 HAR	* 16. Aircraft Color:	W/B/R
* 9. Destination:	N94	* 17. Destination Contact/Phone:	
* 10. ETE:	0100 (HHMM)		

Note: Changes made to data on this page are not propagated to fields on other pages.

\* indicates required field

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# The Weather Briefing

## Lockheed-Martin AFSS



- Wx along the route of flight:
  - Ceilings 1,000 ft
  - Visibility 2 SM
  - See winds and temperatures aloft chart
- Wx at Doylestown, PA (DYL):
  - METAR KDYL 192156Z AUTO 06016KT 3SM BR OVC 010 M01/M02 A2999 RMK AO2 SLP156 TM013M022
- Wx at Carlisle, PA (N94)
  - No Wx reporting facilities at N94
  - METAR KCXY 192156Z 07017KT 2SM BR OVC010 M01/M02 A2992 RMK AO2 SLP150 TM010M017
  - TAF AMD KMDT 191800Z 191818 11015KT 1SM BR SKC
    - FM2200 09019KT 2SM BKN010
    - FM0600 29012G25KT P6SM BKN035

### FD Winds Aloft Forecast

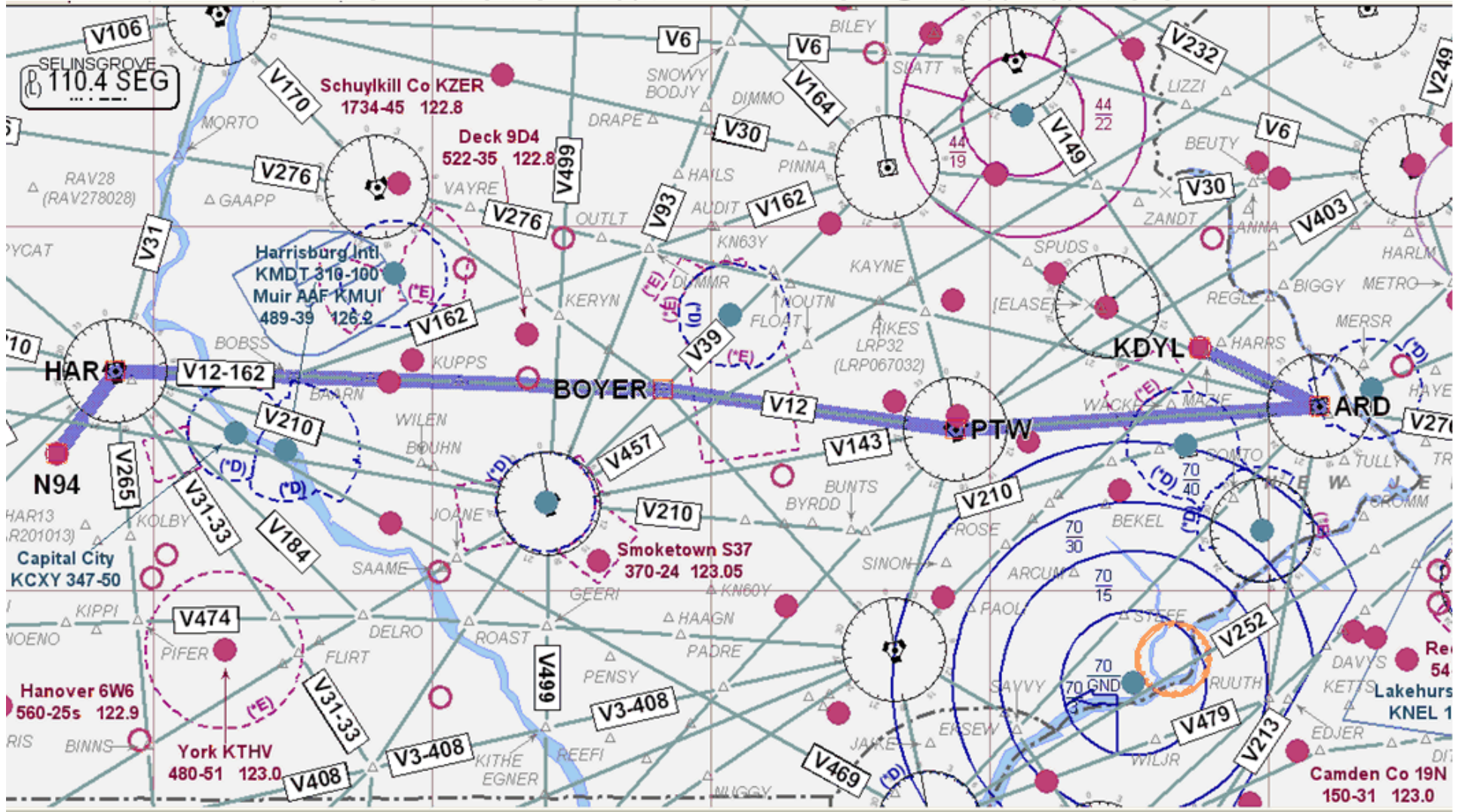
FT	3000	6000	9000
JFK	0945	1040-01	1050-04
AVP	1037	1251-04	1252-07
ACY	1142	1239+01	1247-02
EMI	0936	0938-01	0949-03
PSB		1150-03	1154-06

# *The Route Clearance*



- **Cessna 9XXXX is cleared from the Doylestown Airport to the Carlisle Airport via**
  - **Direct Yardley**
  - **Direct Pottstown**
  - **Victor 12 Harrisburg**
  - **Direct**
  - **Climb and maintain 3,000**
  - **Expect 6,000 one-zero minutes after departure**
  - **Departure frequency 123.8**
  - **Squawk 4666**
- **Read back correct**

# The Pictorial Route Clearance



*From AOPA's Real-Time Flight Planner with permission*

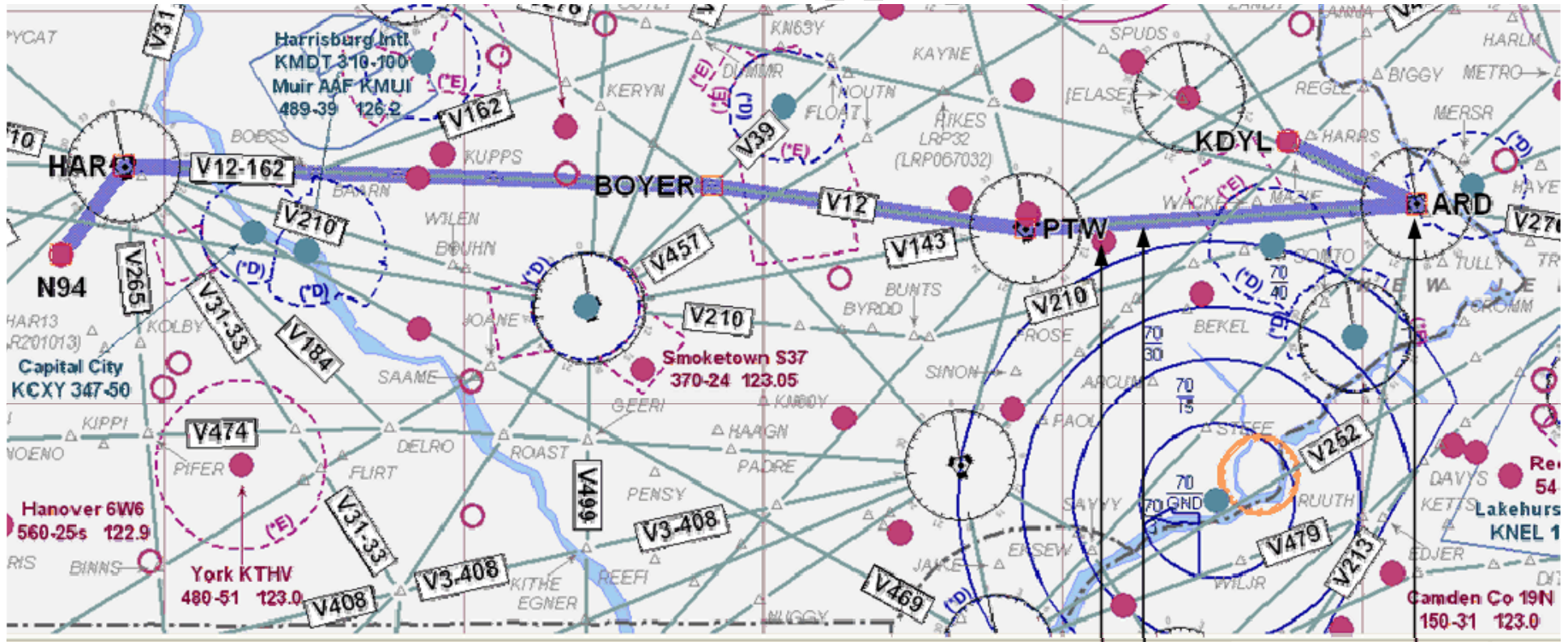
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# The Enroute Happenings - #1



After N10  
Engine  
Roughness  
Starts

Enroute Conditions  
6000 feet MSL  
IMC, Rain  
No icing

*From AOPA's Real-Time Flight Planner with permission*

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# *The Enroute Happenings - #1*

- **Engine roughness at night in IMC**
  - What would you do?
  - George applies carburetor heat
- **The roughness worsens**
  - What would you do?
  - George turns off the carburetor heat
- **Now what?**
  - What would you do?
  - George calls ATC and reports situation
  - ATC offers vectors for an approach and precautionary landing at Pottstown-Limerick



## *The Enroute Happenings - #2*

- **Approach offers vectors to the LOC 28 at PTW**
  - **What would you do?**
  - **George does the following**
    - **Accepts the vectors for the approach**
    - **Does not have the approach plate handy at the start of vectoring**
      - **Passenger Chuck roots in the back for the approach plate**
    - **Fearful of more carburetor icing, flies the approach at cruise power**
    - **Does not check ASOS**
      - **Fails to realize that the winds are out of 090° at 18 knots**
      - **Does not consider a circle-to-land procedure**
    - **Does not reduce power until crossing the threshold**
    - **Floats down more than two-thirds of the runway**
    - **Initiates a go-around back into IMC**
    - **Gets vectors to the missed approach hold at GOOGL Intersection**





# *The Enroute Happenings - #2*

- **Approach offers vectors to the LOC 28 at PTW**
  - **Is there anything else to consider doing before starting the LOC 28 approach?**
    - **Ask ATC for the weather at PTW**
    - **Ask ATC for the nearest VFR airport**
    - **Ask ATC for a delay in vectoring for the approach**
      - **Perhaps the hold at GOOGL**
    - **Check for appropriate carburetor heat setting**
    - **Check mixture for appropriate setting**
    - **Check power for appropriate approach setting**
    - **Anything else?**



# The Enroute Happenings - #2

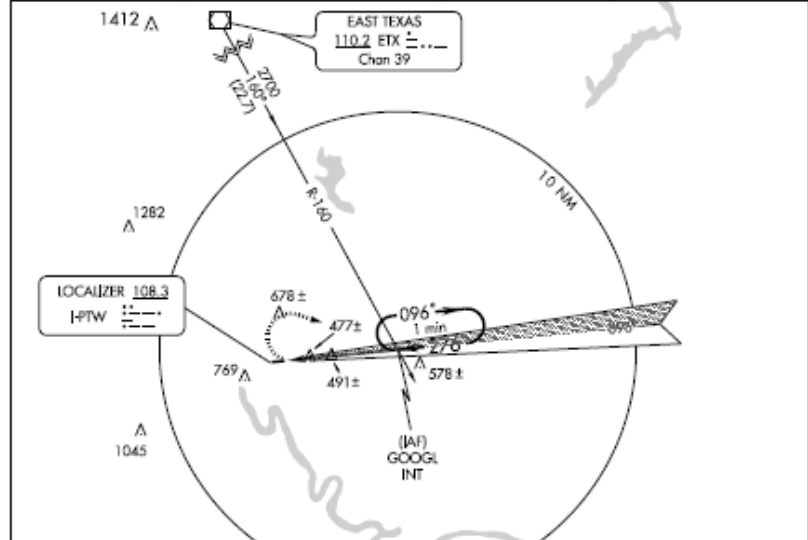


LOC I-PTW	APP CRS	Rwy ldg	3171
108.3	276°	TDZE	309
		Apt Elev	309

**LOC RWY 28**  
POTTSTOWN-IMERICK (PTW)

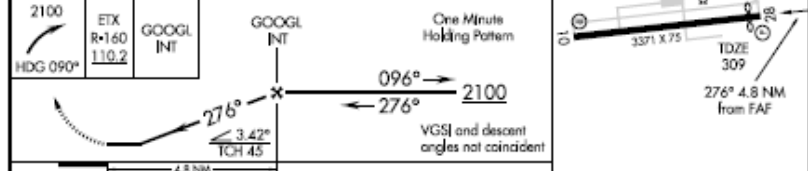
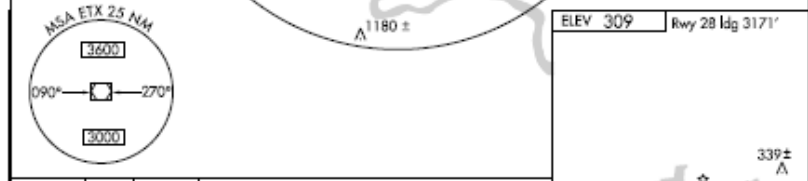
NA Circling NA south of Rwy 10-28. MISSED APPROACH: Climbing right turn to 2100 via heading 090° and ETX VOR/DME R-160 to GOOGL Int and hold.

ASOS	PHILADELPHIA APP CON	CLNC DEL	UNICOM
119,425	126,85 263,125	118,55	122,7 (CTAF)



NE-4, 22 OCT 2009 to 19 NOV 2009

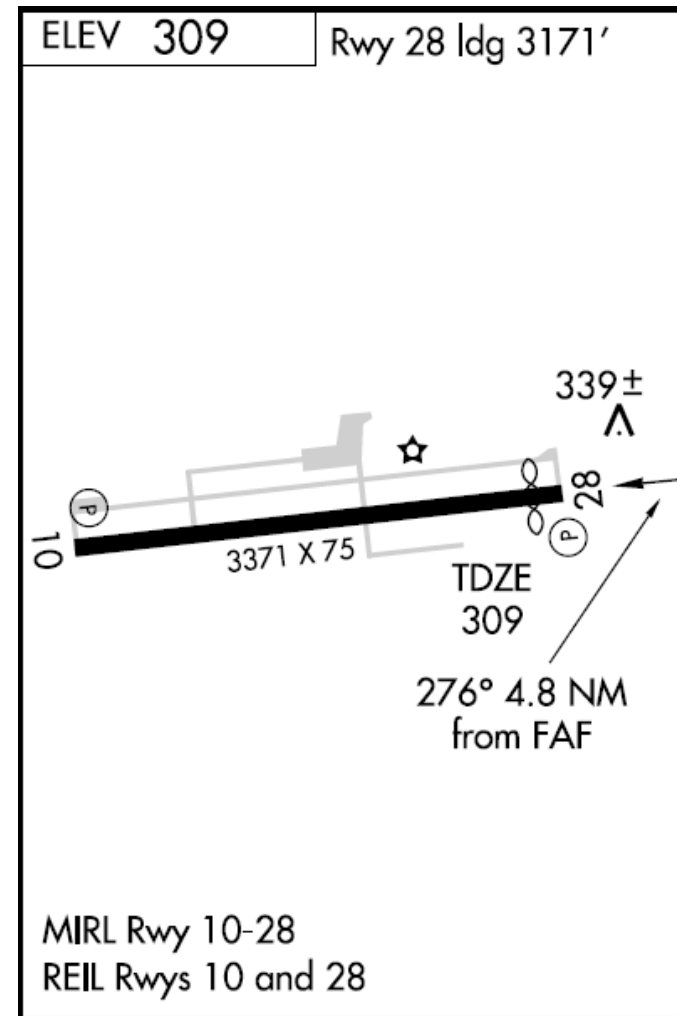
NE-4, 22 OCT 2009 to 19 NOV 2009



CATEGORY	A	B	C	D
S-28	760-1 451 (500-1)		760-1 451 (500-1 1/2)	NA
CIRCLING	860-1 551 (600-1)		860-1 551 (600-1 1/2)	NA

POTTSTOWN, PENNSYLVANIA  
Amdt 2A 08157  
40°14'N - 75°33'W  
POTTSTOWN-IMERICK (PTW)  
**LOC RWY 28**

**MISSED APPROACH:** Climbing right turn to 2100 via heading 090° and ETX VOR/DME R-160 to GOOGL Int and hold.



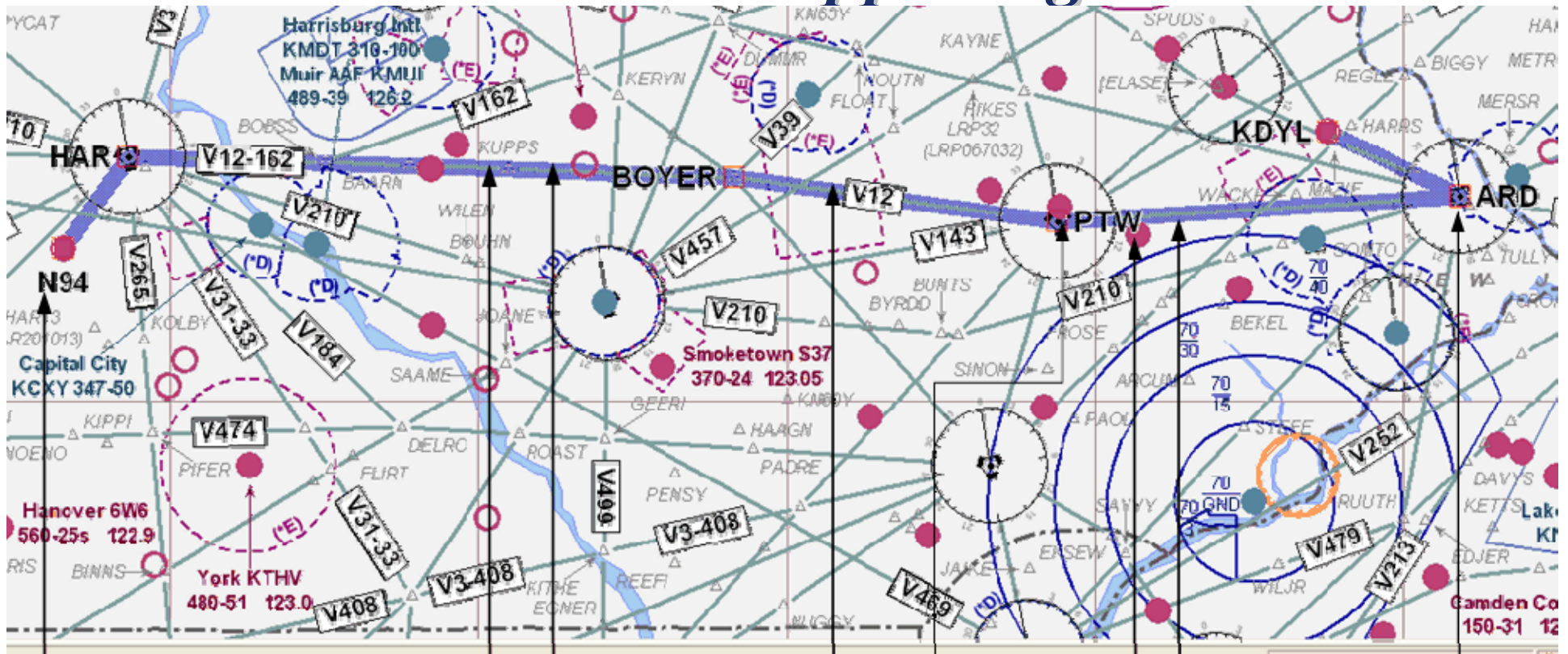
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# The Enroute Happenings - #3



Flies VOR-A at N94  
Engines dies in landing roll

Declines ATC offer of ILS 8 at CNY

Enroute Conditions  
Tops at 6000 feet MSL  
Clear Above

KFTW LOC 28 with Missed Approach  
Engine Roughness Ended at GOOGL Int

After N18 Engine Roughness Starts

Enroute Conditions  
6000 feet MSL  
IMC, Rain  
No Iceing

*From AOPA's Real-Time Flight Planner with permission*

# *The Enroute Happenings - #3*

- **Approach offers vectors to the ILS 8 at CXY**
  - **What would you do?**
  - **George does the following**
    - **Declines the CXY ILS 8 approach**
    - **Requests vectors for the N94 VOR-A**
    - **Successfully completes the VOR-A approach at N94**
    - **Engine dies in the landing roll**



# *The Enroute Happenings - #3*

- **Is there anything else to consider before selecting an airport and an approach?**
  - **What are the Air Traffic Control Tower hours of operation?**
    - **Carlisle, PA (N94):** Non-towered airport
    - **Harrisburg Capital City (CXY):** 7 days/week, 7:00 AM to 9:00 PM
    - **Harrisburg International (MDT):** 24 hrs/day, everyday, year-round
  - **What are the FBO hours of operation?**
    - **Carlisle, PA (N94):** 7 days/week, 9:00 AM to 5:00 PM
    - **Harrisburg Capital City (CXY):** 7 days/week, 6:00 AM to 11:00 PM
    - **Harrisburg International (MDT):** 24 hrs/day, everyday, year-round
  - **What about approach lighting?**
    - **Carlisle, PA (N94):** Visual Glide Slope: VASI – Left-Side
    - **Harrisburg Capital City (CXY):** Approach Lights: 1400ft/Medium-Intensity
    - **Harrisburg International (MDT):** Centerline Lights; End Touchdown Lights; 4-Light/Left-Side PAPI; Approach Lights: 2400ft/High-Intensity/Sequenced Flashers, Cat-II/III Configuration



# *The Enroute Happenings - #3 – N94*



CARLISLE, PENNSYLVANIA

AL-6883 (FAA)

VORTAC HAR  
112.5  
Chan 72

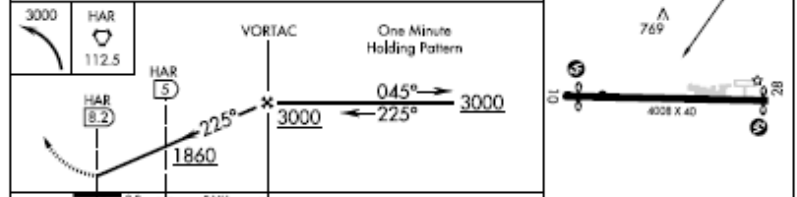
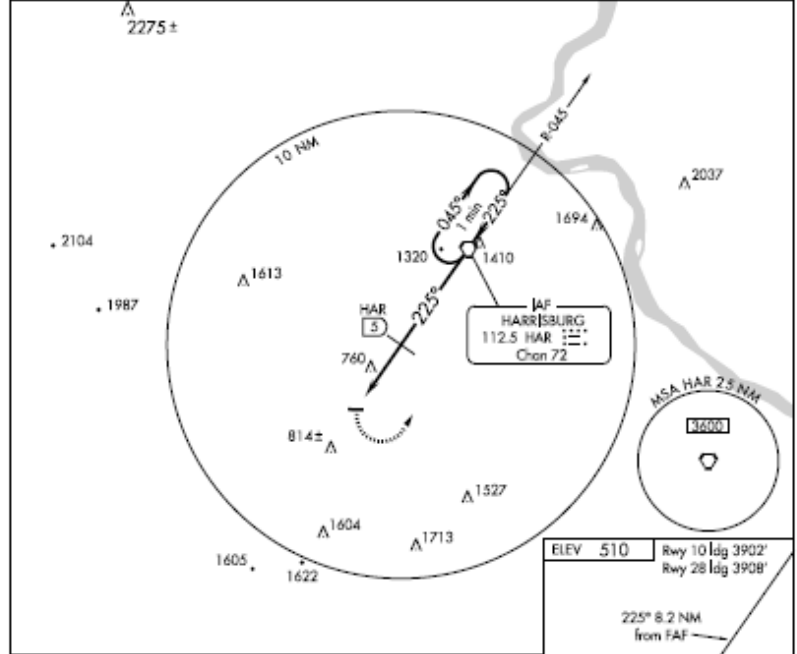
APP CRS  
225°  
Rwy ldg TDZE  
N/A  
Api Elev  
510

VOR-A  
CARLISLE (N94)

Use Harrisburg IIR altimeter setting.  
MISSED APPROACH: Climbing left turn to 3000 direct HAR VORTAC and hold.

HARRISBURG APP CON  
124.1 273.525

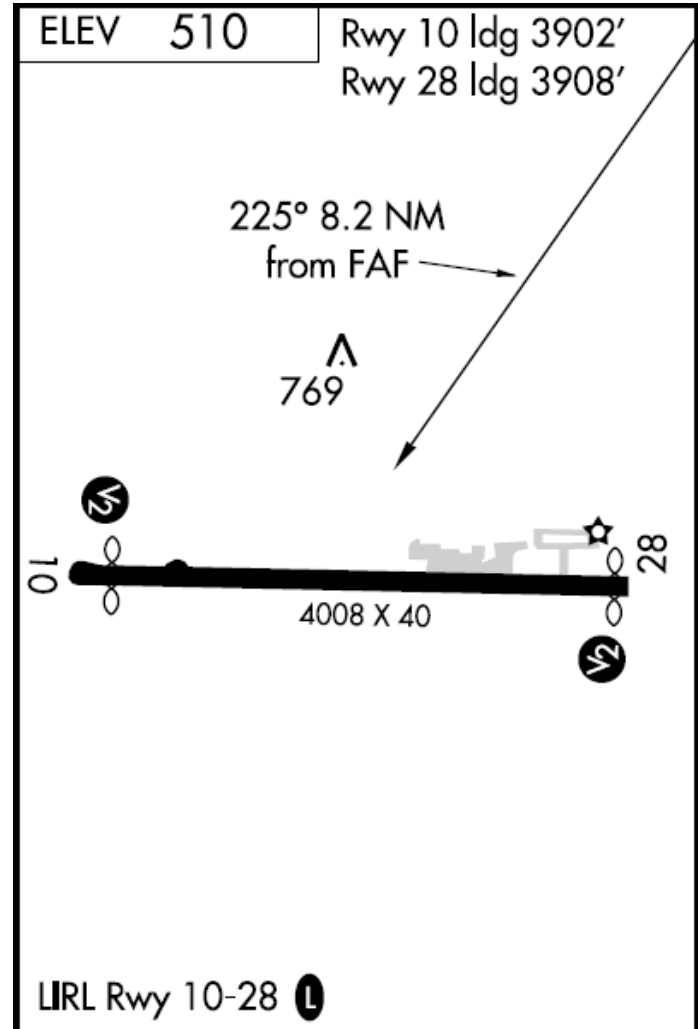
UNICOM  
122.8 (CTAF)



CATEGORY	A	B	C	D
CIRCLING	1860-1 1/4 1350 (1400-1 1/4)	1860-1 1/2 1350 (1400-1 1/2)	1860-3 1350 (1400-3)	NA
DME MINIMUMS				
CIRCLING	1200-1 690 (700-1)	1200-2 690 (700-2)	NA	

CARLISLE, PENNSYLVANIA  
Orig-A 08241  
40°11'N - 77°10'W  
CARLISLE (N94)  
VOR-A

MISSED APPROACH: Climbing left turn to 3000 direct HAR VORTAC and hold.



### Single Pilot Night IFR Decision Making

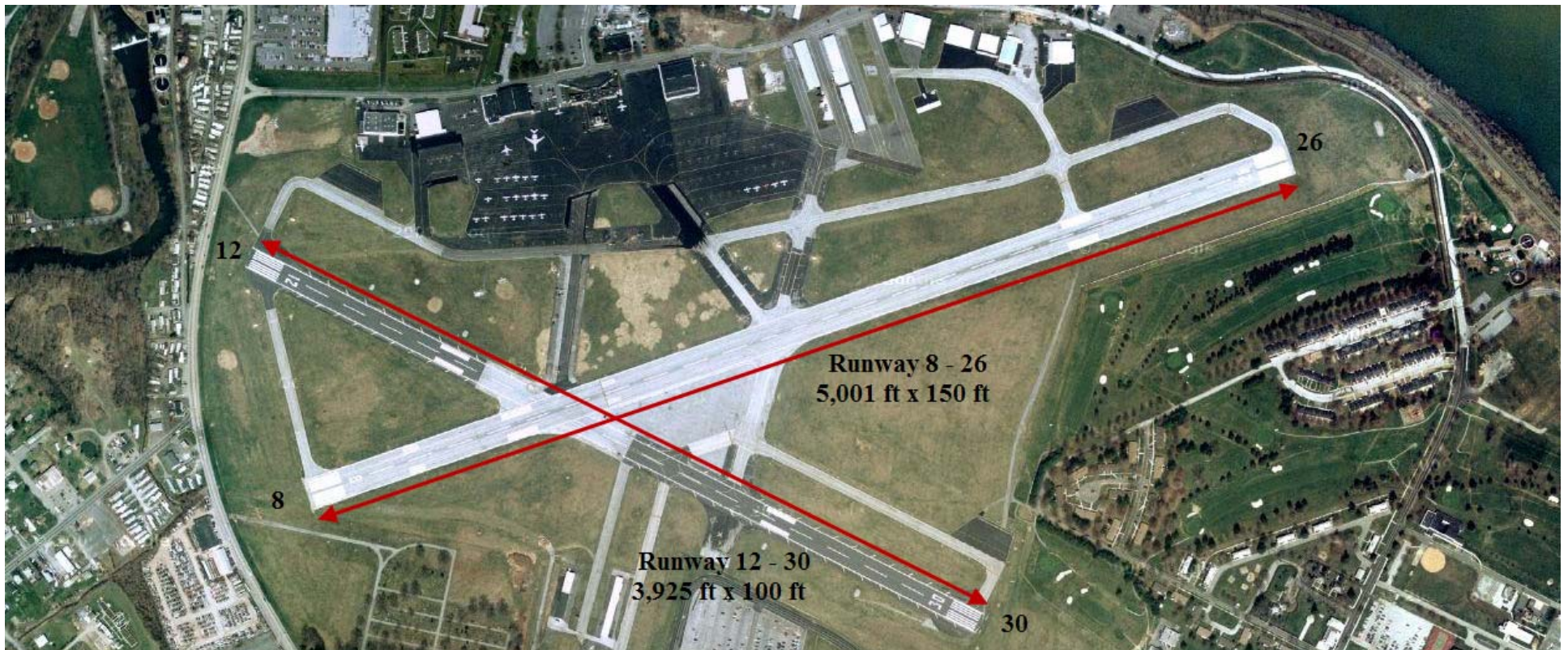
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# *The Enroute Happenings - #3 – KCXY*



HARRISBURG, PENNSYLVANIA

AL-187 (FAA)

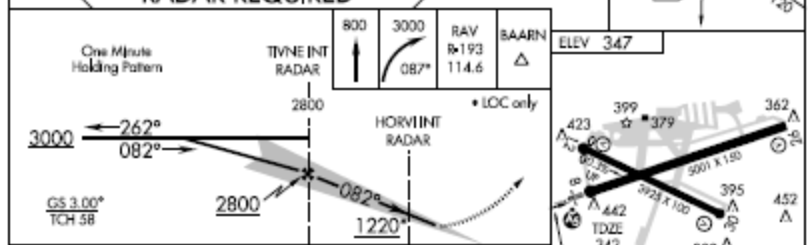
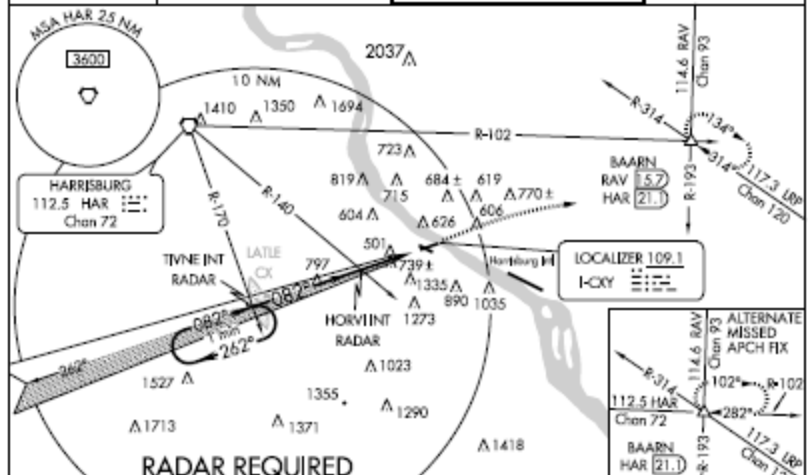
LOC I-CXY  
109.1  
APP CRS  
082°  
Rwy Idg  
5001  
TDZE  
342  
Apt Elev  
347

ILS or LOC RWY 8  
HARRISBURG / CAPITAL CITY (CXY)

▼ Circling to Rwy 12-30 NA at night.  
Inoperative table does not apply to S-LS-B.  
For inoperative MALSR, increase S-LOC-B Cat A visibility to 1 mile.  
HORVI Fix minimums: For inoperative MALSR, increase S-LOC-B Cat A and B visibility to 1 mile. Visibility reduction by helicopters NA.  
Autopilot coupled approach NA below 940. When local altimeter setting not received, use Harrisburg Intl altimeter setting.

MALSR  
MISSED APPROACH: Climb to 800 then  
descending right turn to 3000 via heading 087°  
and RAV VORTAC R-193 to BAARN INT/  
RAV 15.7 DME and hold.

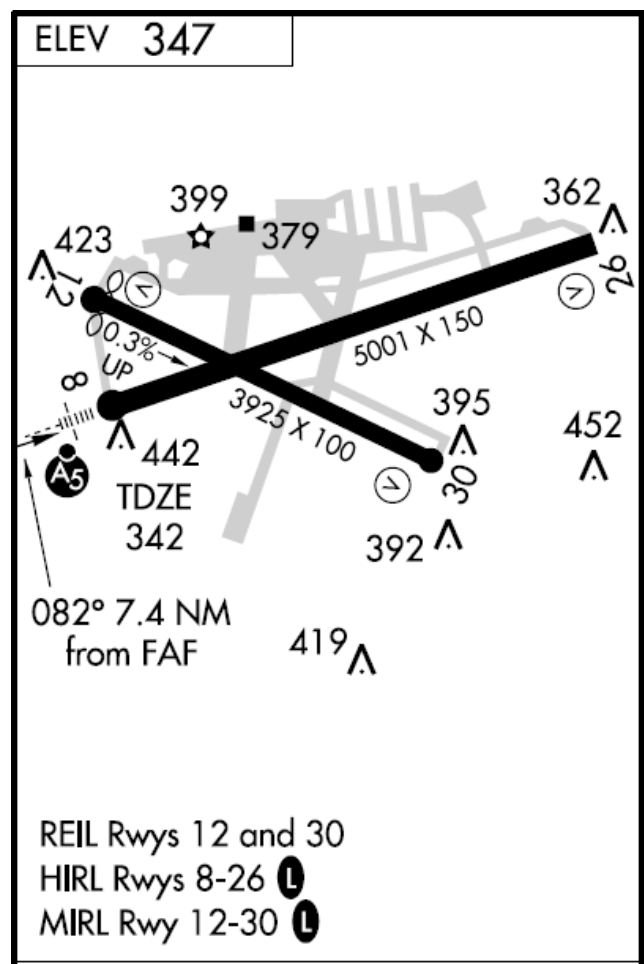
ATIS  
134,95  
HARRISBURG APP CON  
124,1 273,525  
CAPITAL CITY TOWER \*  
119,5 (CTAF) 0 257,8  
GND CON  
121,9



Category	A	B	C	D
S-LS-B		592-3/4	290 (300-1/4)	
S-LOC-B	1220-3/4	878 (900-3/4)	1220-2	1220-2 1/4
CIRCLING	1260-1 1/4	1700-1 1/2	1700-3	1353 (1400-3)
HORVI FIX MINIMUMS				
S-LOC-B	1000-3/4	658 (700-3/4)	1000-1 1/4	1000-1 1/2
CIRCLING	1260-1 1/4	1700-1 1/2	1700-3	1353 (1400-3)

HARRISBURG, PENNSYLVANIA  
Amdt 11 08325  
40°13'N - 76°51'W  
HARRISBURG / CAPITAL CITY (CXY)  
ILS or LOC RWY 8

**MISSED APPROACH:** Climb to 800 then climbing right turn to 3000 via heading 087° and RAV VORTAC R-193 to BAARN INT/ RAV 15.7 DME and hold.



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# *The Enroute Happenings - #3 – KMDT*

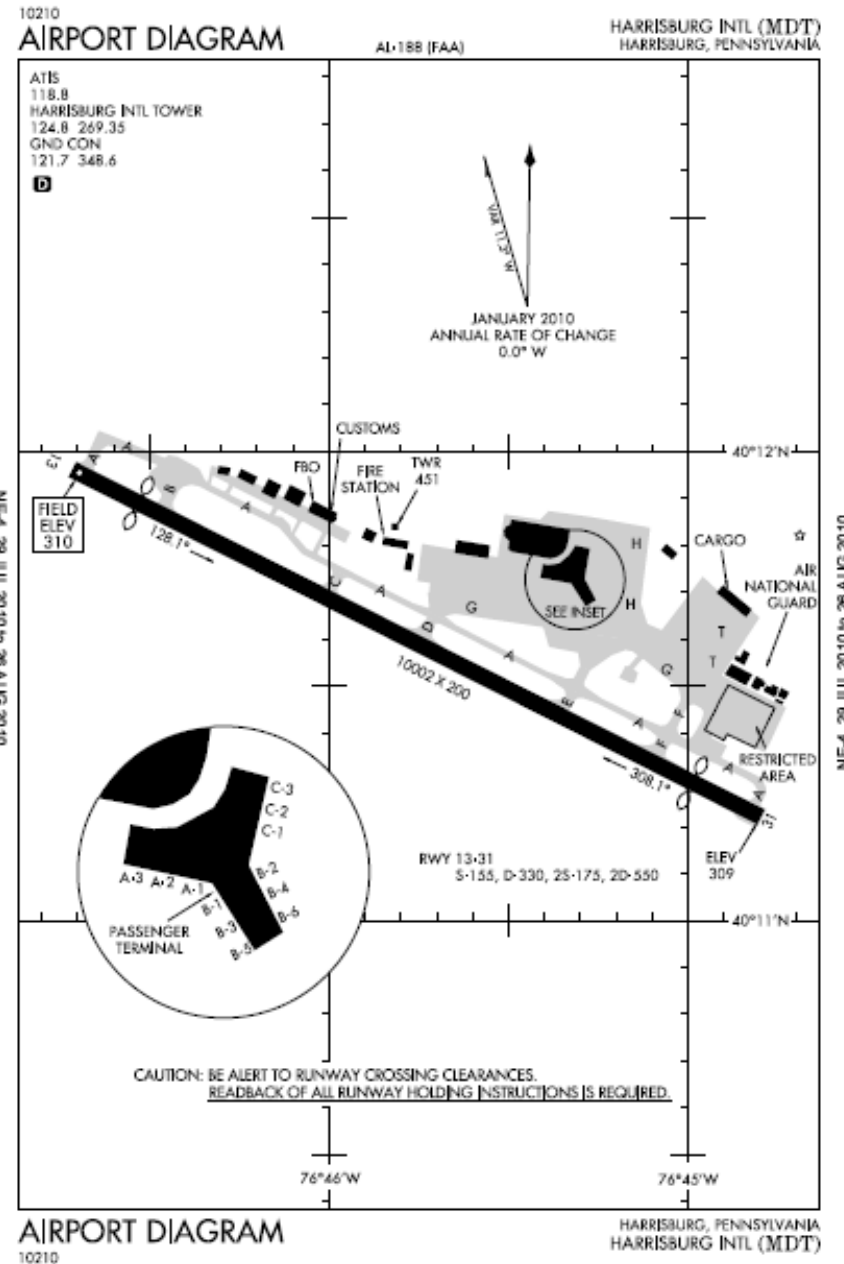
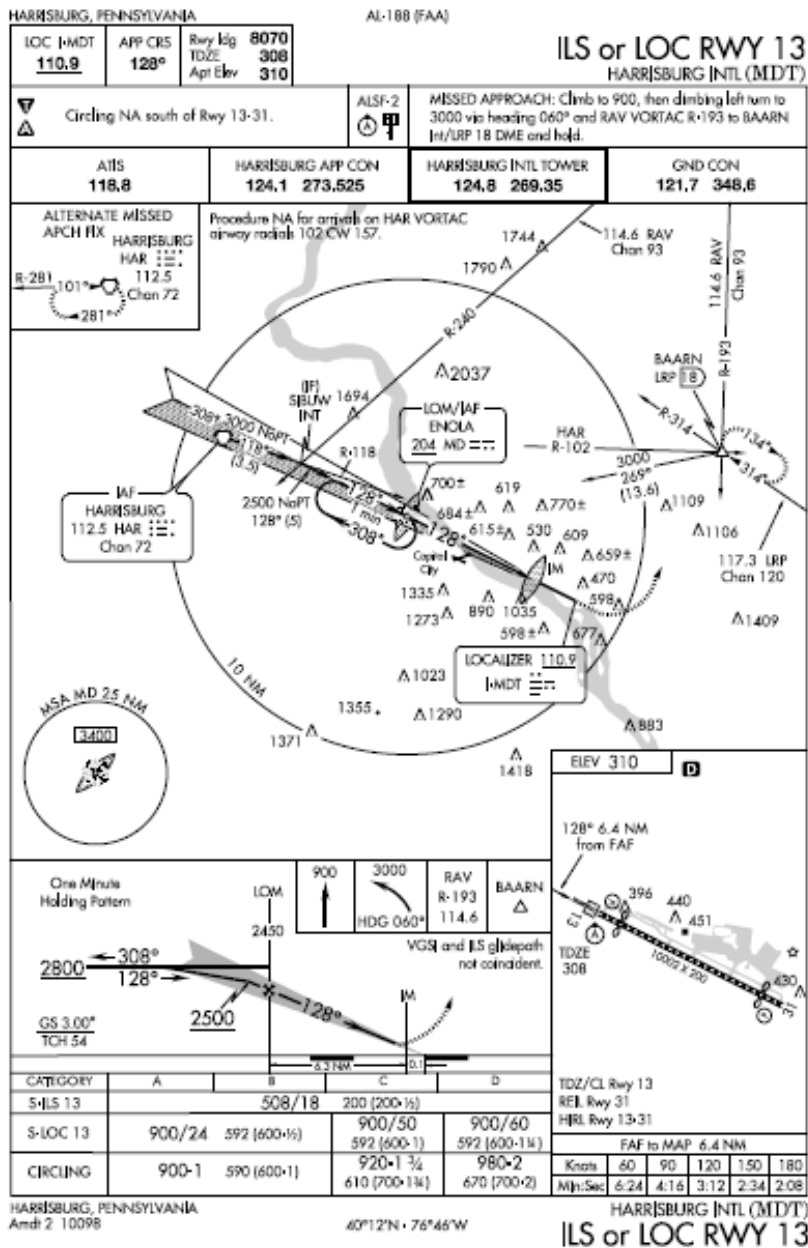


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# *Post Mortem Review*

- *Review of FAR 91.3*
- *Review of FAR 91.103*
- *Review of FAR 91.167*
- *Review of Pilot's Decisions*
  - *Go/No-go*
  - *Carburetor heat*
  - *Selection of destination airport*



# *Review of FAR 91.3*

- **FAR 91.3**
  - **Responsibility and authority of the pilot in command.**
    - a) **The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.**
    - b) **In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.**
    - c) **Each pilot in command who deviates from a rule under paragraph (b) of this section shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.**
- **What should George have done regarding the passenger Chuck?**

# *Review of FAR 91.103*

- **FAR 91.103 - Preflight action.**
  - Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include --
    - (a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;
    - (b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:
      - 1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and
      - 2) For civil aircraft other than those specified in paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.
- **Is there anything that George missed?**
  - Should George have planned an alternate?
  - What does FAR 91.167 say?



# Review of FAR 91.167

- a) No person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to –
- 1) Complete the flight to the first airport of intended landing;
  - 2) Except as provided in paragraph (b) of this section, fly from that airport to the alternate airport and
  - 3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.
- b) Paragraph (a)(2) does not apply if:
- 1) Part 97 of this chapter prescribes a standard instrument approach procedure to, or a special instrument procedure has been issued by the Administrator to the operator for, the first airport of intended landing; and
  - 2) Appropriate weather reports or weather forecasts, or a combination of them, indicate the following (the 1-2-3 Rule)
    - i. For aircraft other than helicopters. For at least 1 hour before and for 1 hour after the estimated time of arrival, the ceiling will be at least 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles



# The Weather Forecast and The Alternate

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR			TIME STARTED	SPECIALIST INITIALS	
FLIGHT PLAN			<input type="checkbox"/> STOPOVER				
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE / SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
<input type="checkbox"/> VFR	N9XXXX	C182/A	130 KTS	KDYL	PROPOSED (Z)	ACTUAL (Z)	6000
<input checked="" type="checkbox"/> IFR					2300		
<input type="checkbox"/> DVFR							
8. ROUTE OF FLIGHT							
PTW V12 HAR							
9. DESTINATION (Name of airport and city)		10. EST. TIME ENROUTE		11. REMARKS			
N94		HOURS	MINUTES				
		01	00				
12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE		15. NUMBER ABOARD	
HOURS	MINUTES			George. on file at KDYL 215-340-0707 KDYL		2	
05	30			17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)			
16. COLOR OF AIRCRAFT		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					
W/B/R							

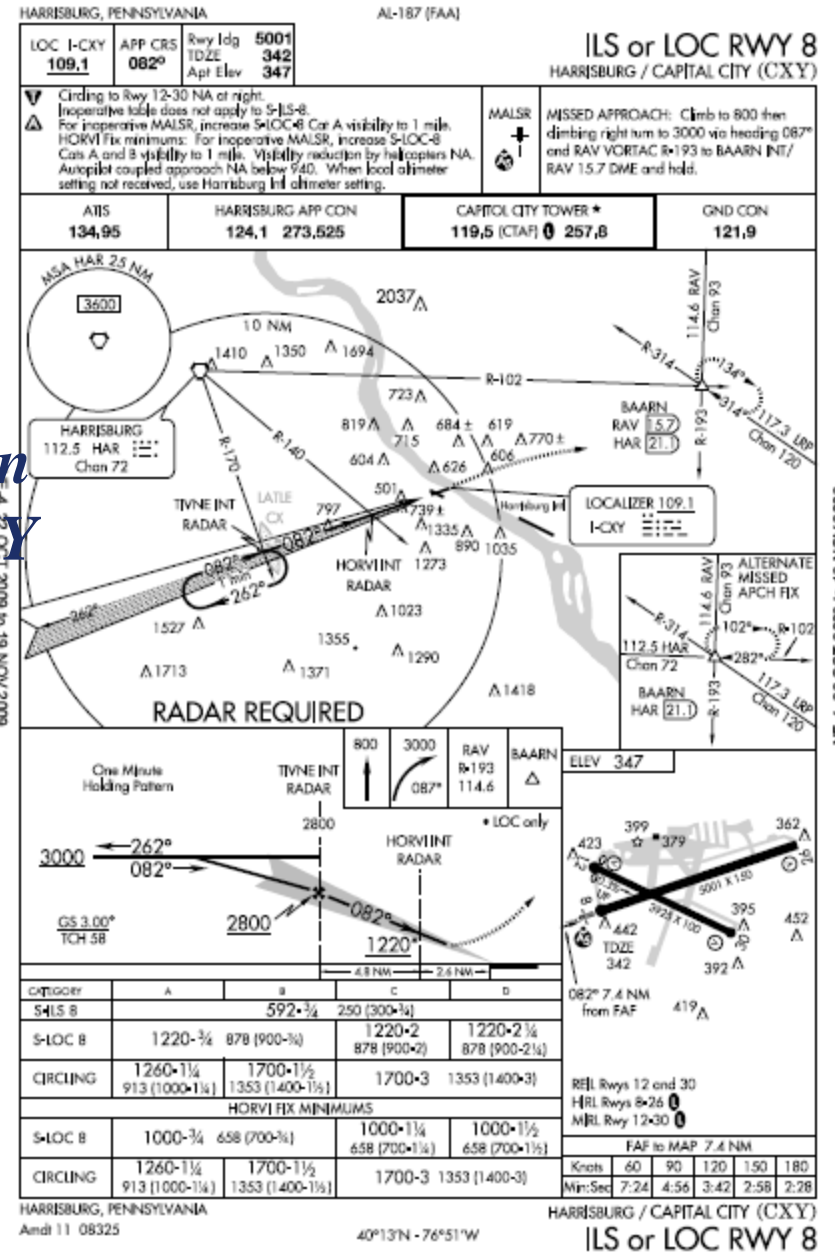
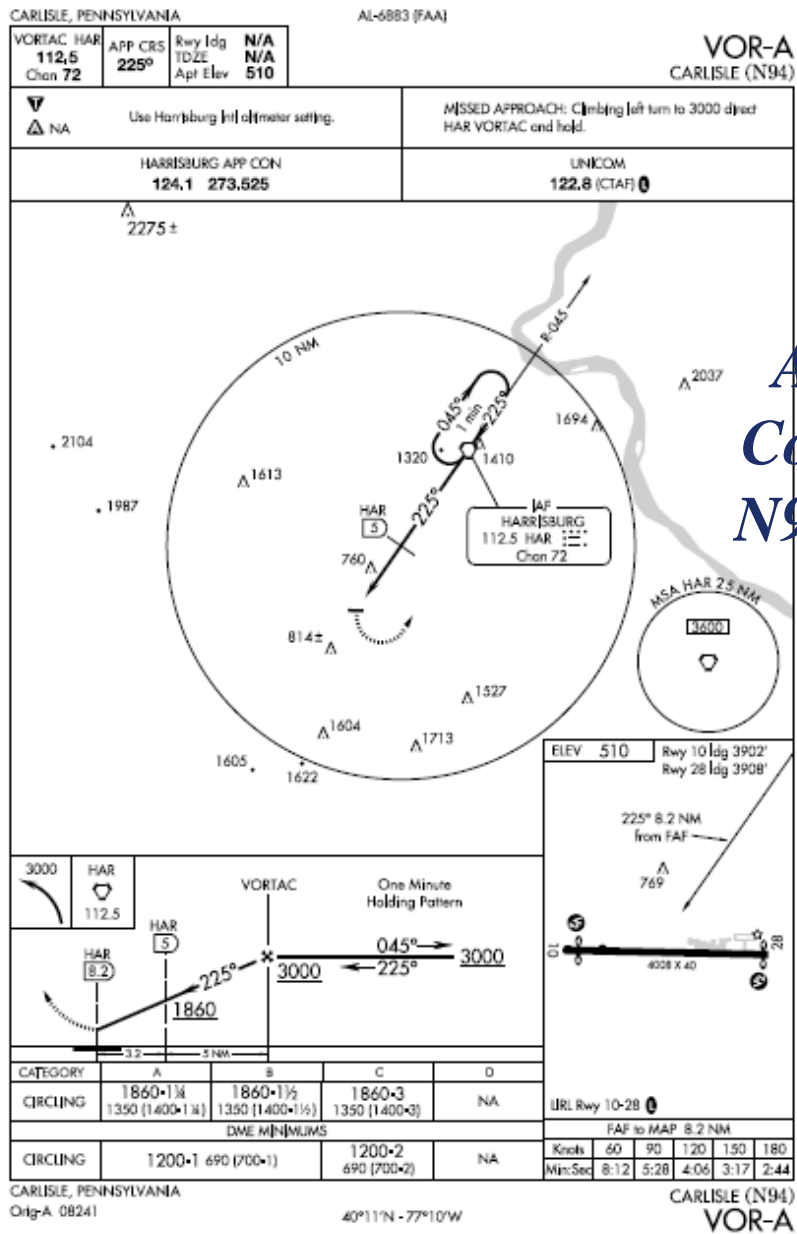
**Wx along the route of flight:**

- Ceilings 1,000 ft
- Visibility 2 SM

- Wx at Carlisle, PA (N94) - No Wx reporting facilities at N94
  - **METAR KCXY 192156Z 07017KT 2SM BR OVC010** M01/M02 A2992 RMK AO2 SLP150 TM010M017
  - TAF AMD KMDT 191800Z 191818 11015KT 1SM BR SKC
    - **FM2200 09019KT 2SM BKN010**
    - FM0600 29012G25KT P6SM BKN035



# Approach Comparison N94 vs. CXY



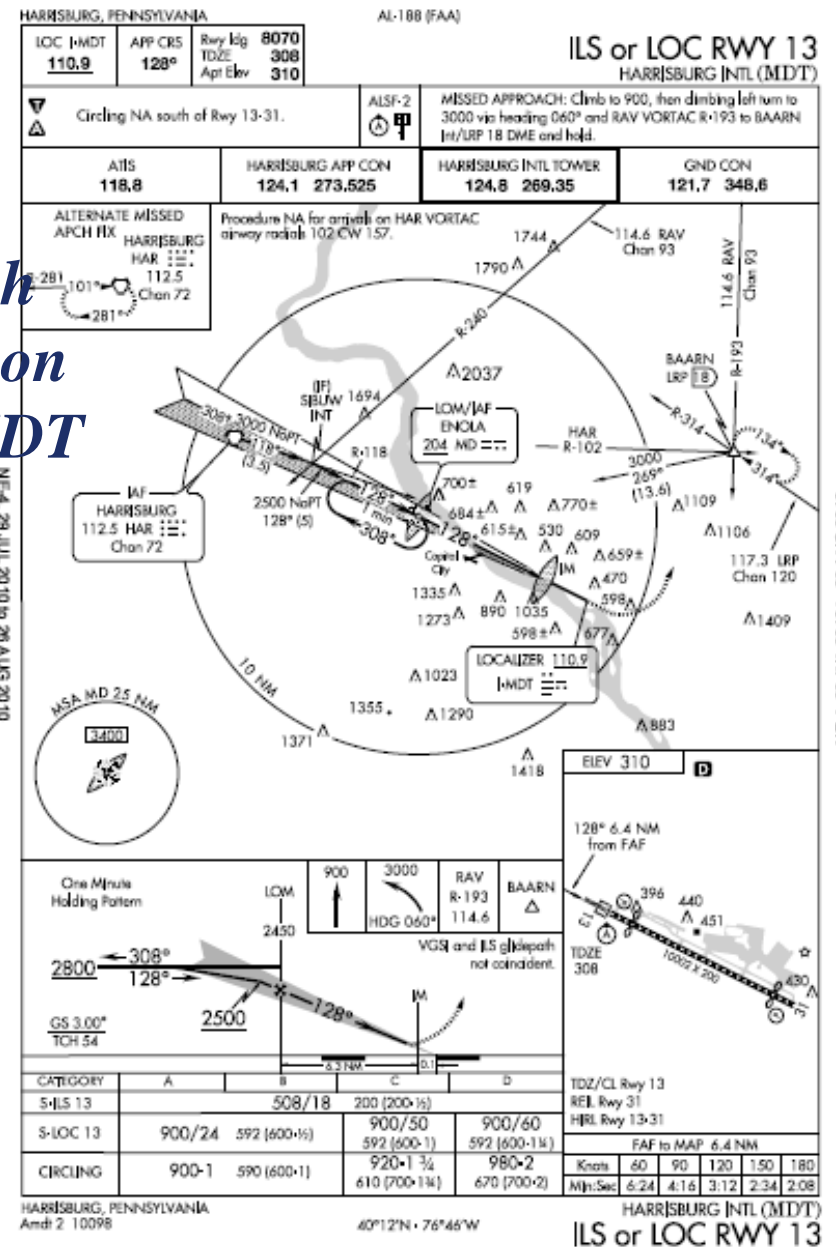
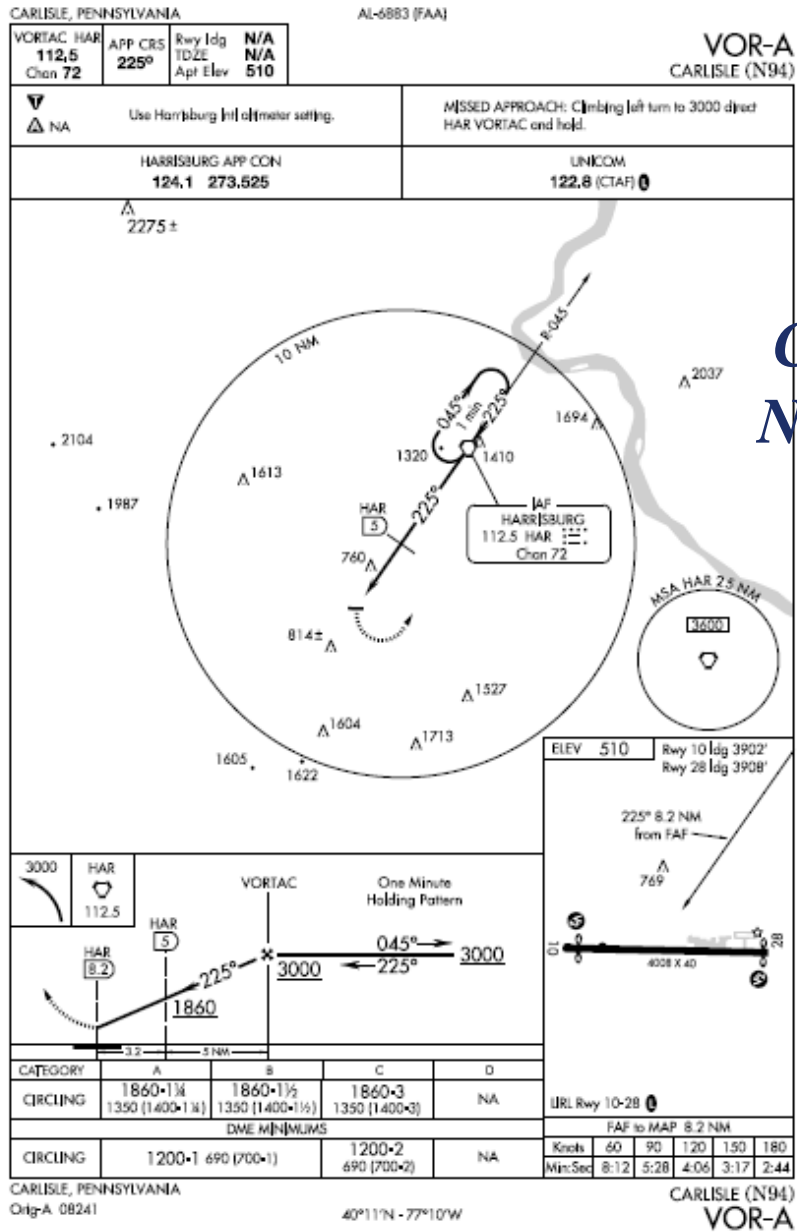
## Single Pilot Night IFR Decision Making

09/01/2010 – 08/31/2011



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# Approach Comparison N94 vs. MDT



## Single Pilot Night IFR Decision Making

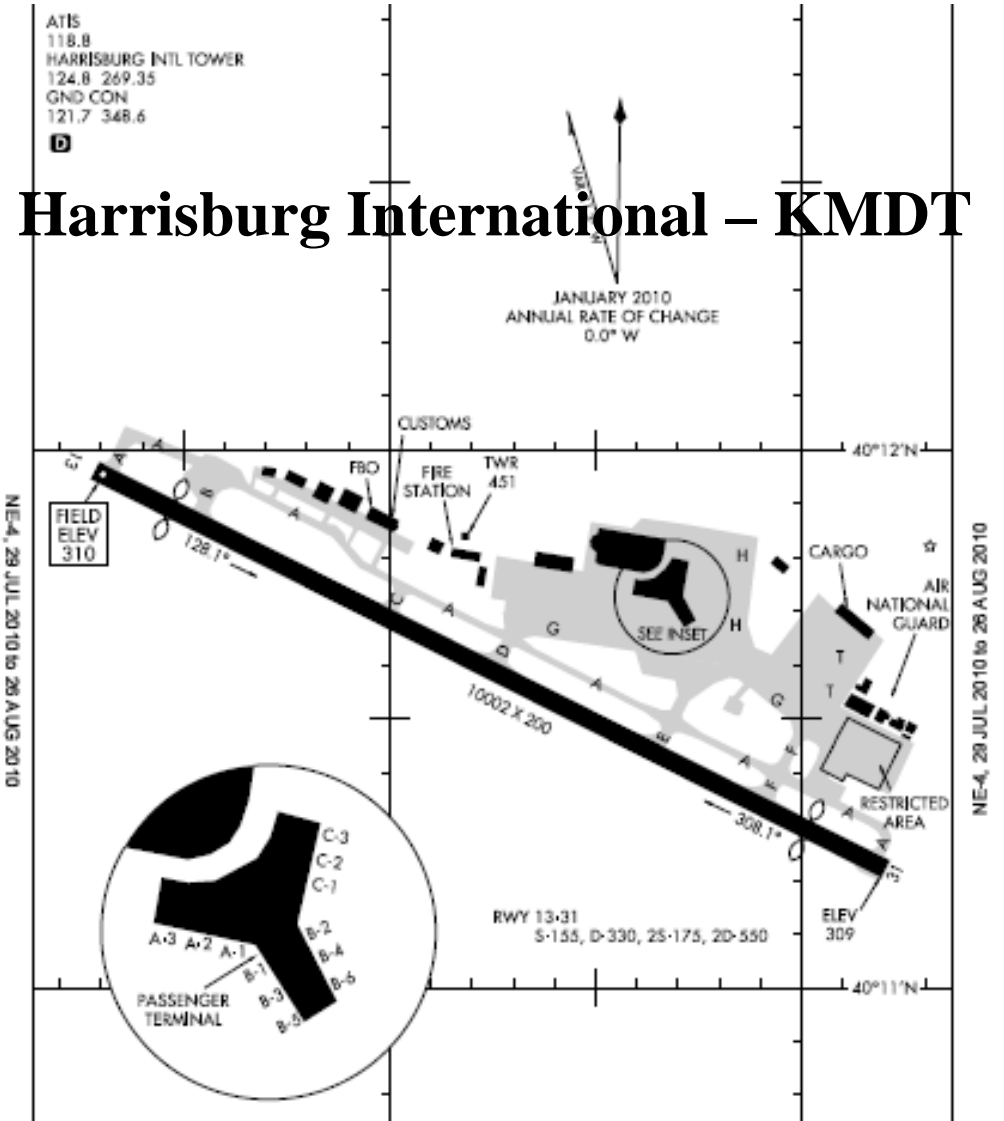
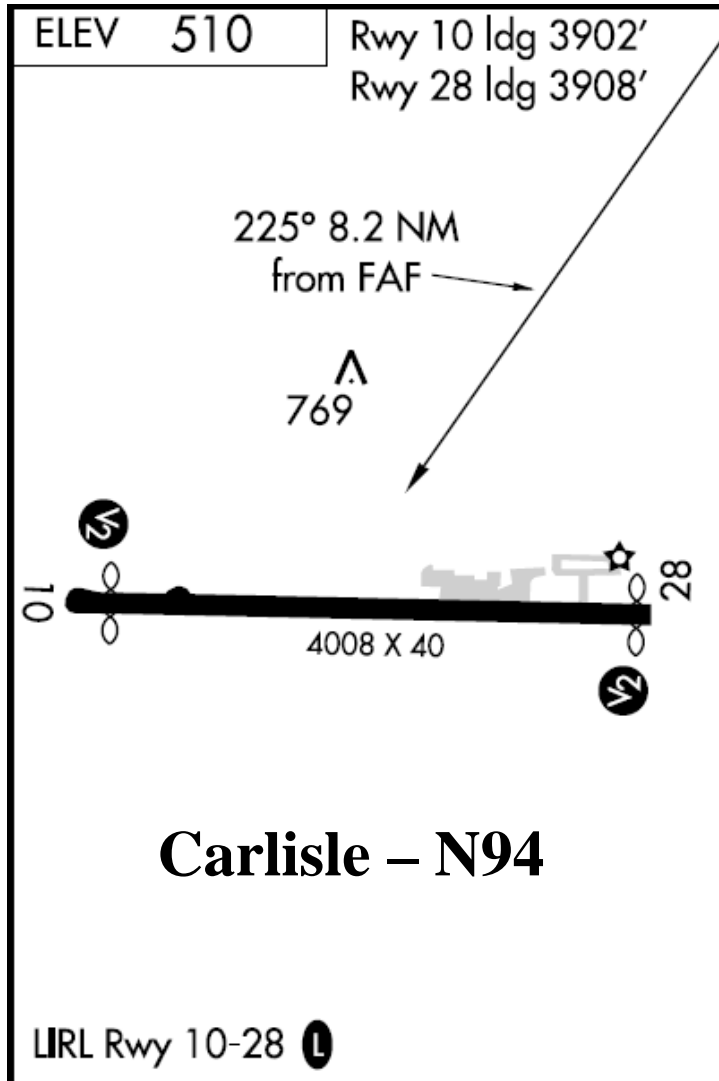
09/01/2010 – 08/31/2011



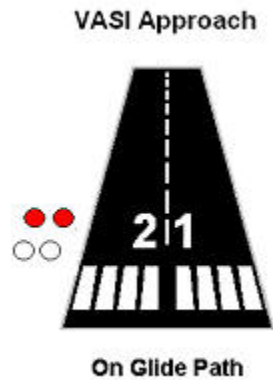
Federal Aviation  
Administration



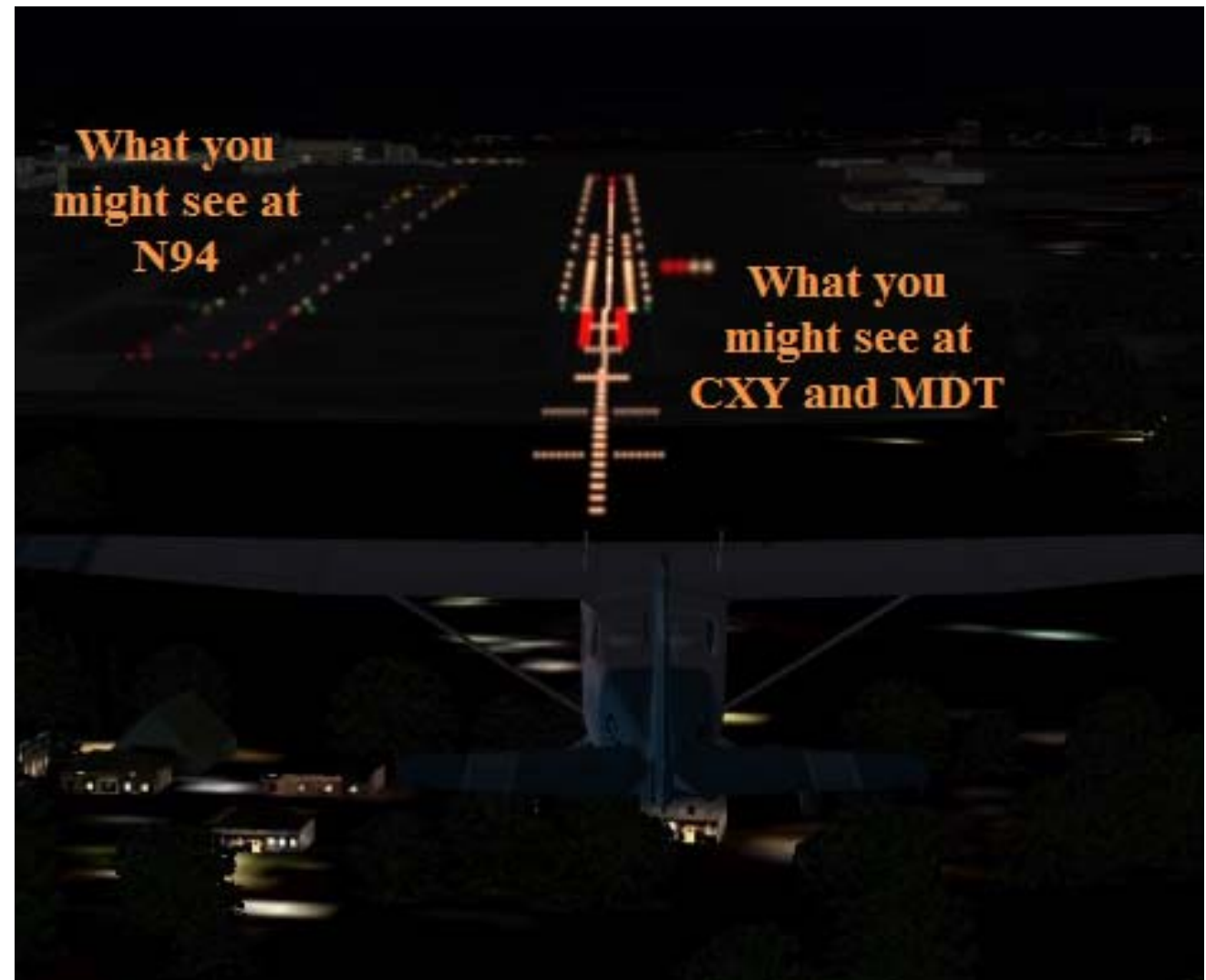
# Airport Comparison



# Approach Lighting Comparison



**All You Might  
Get at N94**



# *Approach Lighting Comparison*



What you  
might see at  
MDT

# *AOPA Air Safety Foundation*

## *on Carburetor Icing*

- **At the first indication of carburetor ice**
  - Apply full carburetor heat
  - LEAVE IT ON
- **The engine may run rougher as the ice melts and goes through it**
  - but it will smooth out again
- **When the engine runs smoothly**
  - Turn off the carburetor heat
- **If you shut off the carburetor heat prematurely**
  - the engine will build more ice
  - and probably quit because of air starvation



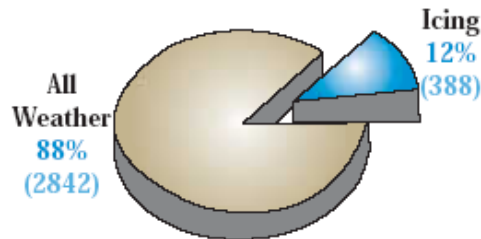


# AOPA Air Safety Foundation Weather Accident Statistics

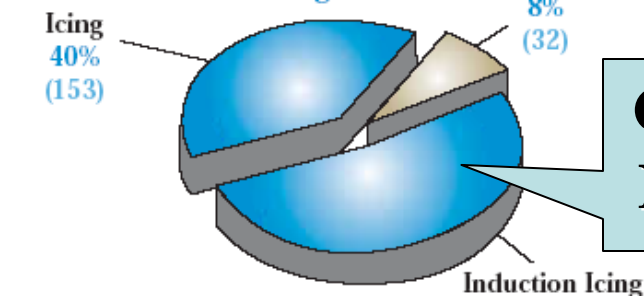
## The Stats:

1990-2000 27% (105 accidents) involved fatalities

### Total Weather Accidents

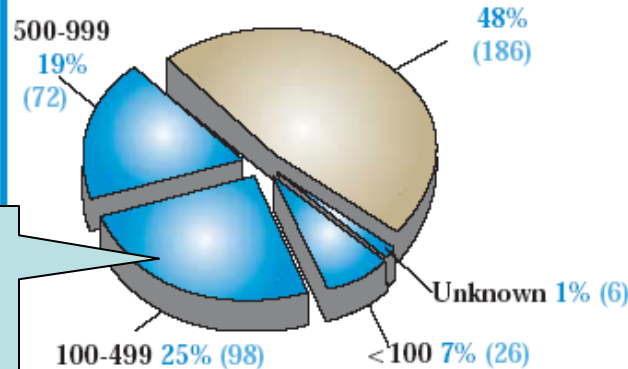


### Leading Factors



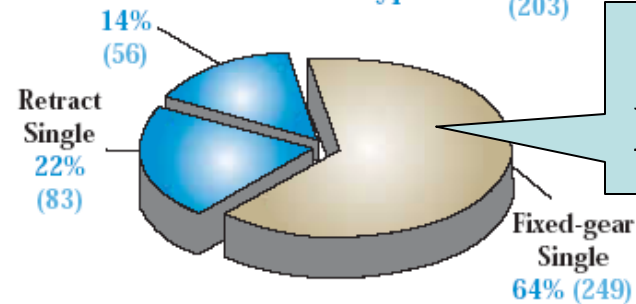
**George's Problem**

### Pilot Total Time



**George's Time**

### Aircraft Type



**C182Q  
N9XXXX**

Source: AOPA Air Safety Foundation accident database

**Induction icing (carburetor ice) was a leading factor in 52% of the weather accidents that occurred between 1990 and 2000.**

# *What Would You Have Done?*

- *What would have been your weather decision?*
  - *Would you have gone during the day?*
  - *Have you established personal minimums for yourself?*
- *How would you have prepared for the actual flight?*
  - *How would you have organized charts and plates in the cockpit?*
- *How would you have handled the enroute diversion?*
- *How would you have handled the rest of the trip?*
  - *What airport would you have picked?*
  - *Why?*



# What are your Personal Minimums?

**FAA Risk Management Handbook**

**<http://www.faa.gov/library/manuals/aviation/media/FAA-H-8083-2.pdf>**

**See Appendix A for Personal Minimums**



*What are your certificates, ratings, training, and experience?*

Certification, Training, and Experience Summary	Self-Assessment Factors	Revised Self-Assessment
Certification/ratings (e.g., private, multi-engine; instrument)		
Highest certificate level 7 ratings (including complex aircraft)		
Training	<b>Recency?</b>	
Flight review (e.g., certificate, rating, Wings Program completion)	<b>Annual WINGS?</b>	
Instrument Proficiency Check	<b>Recency?</b>	
Time since checkout in aircraft #1:	<b>Proficiency?</b>	
Time since checkout in aircraft #2:	<b>Proficiency?</b>	
Time since checkout in aircraft #3:	<b>Proficiency?</b>	
Variation in equipment (GPS navigator), number of different panels	<b>Proficiency?</b>	<b>Recency?</b>
Experience	<b>Recency?</b>	
Total flying time in hours	<b>Is 600 hours a lot of time?</b>	
Number of years flying	<b>Is it still a lot if it is spread over 25 years?</b>	



# What are your Personal Minimums for VFR?

Personal Minimums VER Pilot		
Cut and Fold	Cut and Fold	Cut and Fold
Condition	Example: 100 Hour VFR Pilot	Your Personal Minimums
Minimum visibility – day VFR	5 miles	
Minimum visibility – night VFR	7 miles	
Minimum ceiling – day VFR	3,000 feet	
Minimum ceiling – night VFR	5,000 feet	
Surface wind speed & gusts	15 knots 5 knot gust	
Maximum cross wind	7 knots	
Other VFR (e.g., mountain flying, over water beyond gliding distance)	Consult instructor/mentor	
Fuel reserves (day VFR)	1 hour	<b>2 x FAA</b>
Fuel reserves (night VFR)	1½ hour	<b>2 x FAA</b>



# What are your Personal Minimums for IFR?

Personal Minimums IFR Pilot		
Cut and Fold	Cut and Fold	Cut and Fold
Condition	Example: 300 Hour IFR Pilot	Your Personal Minimums
Minimum visibility – day VFR	3 miles	
Minimum visibility – night VFR	5 miles	
Minimum ceiling – day VFR	2,000 feet	
Minimum ceiling – night VFR	3,000 feet	
Surface wind speed & gusts	15 knots 5 knot gust	
Maximum cross wind	7 knots	
IFR approach ceiling	Minimums + 500 feet	
IFR approach visibility (precision approaches)	Minimums + ½ mile	
IFR approach visibility (nonprecision approaches)	Minimums + 1 mile	
Other IFR (e.g., icing)	Consult instructor/mentor	
Fuel reserves (day VFR)	1 hour	<b>2 x FAA</b>
Fuel reserves (night or IFR) 1½ hour	1½ hour	<b>2 x FAA</b>



# *The Three Most Useless Things to a Pilot*

- **The runway behind you**
  - **Moral: know your aircraft's take-off minimums and cross-wind component, your airport's runway length, density altitude, any obstacles to be cleared**
- **The altitude above you**
  - **Moral: know your aircraft's power settings for climb, cruise, and descent**
- **The fuel on the ground below you**
  - **Moral: know your aircraft's fuel capacity, fuel system, GPH burn rate, and winds aloft for the route of flight.**
- **Utilize superior judgment to avoid needing to use superior skill**



# *Quick Guide to Decision Making*

- **If you're not sure it is within the capabilities of the airplane**
  - Don't do it!
- **If you're not sure it is within your capabilities**
  - Don't do it!
- **Think before attempting Single Pilot IFR, especially at night**
  - Night Single Pilot IFR is below my personal minimums
- **Establish personal minimums for yourself**
  - Stay with them!





# Credits and Information

Single Pilot Night IFR Decision Making

09/01/2010 – 08/31/2011



Federal Aviation  
Administration

# *References and Information*

- **AOPA Air Safety Foundation Weather Accident Statistics, AOPA ASF Accident Database, 1990 - 2000.**
- **AOPA's Internet Flight Planner for flight plans.**
- **AOPA's Real-Time Flight Planner for en route depictions.**
- **Electronic Code of Federal Regulations – Title 14 Aeronautics and Space**
  - [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=fd0d4ed9821626f95caf8cad8372ce03&c=ecfr&tpl=/ecfrbrowse/Titl e14/14tab\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=fd0d4ed9821626f95caf8cad8372ce03&c=ecfr&tpl=/ecfrbrowse/Titl e14/14tab_02.tpl)
- **Electronic Code of Federal Regulations – Title 14 Chapter I--Federal Aviation Administration, Department of Transportation, Subchapter D – Airmen**
  - [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=fd0d4ed9821626f95caf8cad8372ce03&c=ecfr&tpl=/ecfrbrowse/Titl e14/14cfrv2\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=fd0d4ed9821626f95caf8cad8372ce03&c=ecfr&tpl=/ecfrbrowse/Titl e14/14cfrv2_02.tpl)
- **FAA Risk Management Handbook - See Appendix A for Personal Minimums**
  - <http://www.faa.gov/library/manuals/aviation/media/FAA-H-8083-2.pdf>



# *References and Information*

- **Author of Presentation**

- William J. Doyle, Jr., CFI A&I, AGI, IGI, Cessna CFAI
  - FAA FFAST Team Representative, PHL FSDO

- **Downloading This Presentation**

- [http://williamjdoylejr.net/FAAST/Single\\_Pilot\\_Night\\_IFR.ppt](http://williamjdoylejr.net/FAAST/Single_Pilot_Night_IFR.ppt)
  - Uses PowerPoint 2003 and later
  - Password-protected, so click on the “Read Only” button
- [http://williamjdoylejr.net/FAAST/Single\\_Pilot\\_Night\\_IFR.pdf](http://williamjdoylejr.net/FAAST/Single_Pilot_Night_IFR.pdf)
  - Uses Adobe Acrobat Reader version
  - Recommended for use with iPads
- <http://williamjdoylejr.net/FAAST>
  - Entire collection of FFAST presentations by W. J. Doyle, CFI A&I

# Just a Real Nice Picture



# FAASTeam Pilot Decision Making

**Questions?**

**Comments?**

**Ideas?**



# This Completes Pilot Decision Making Night IFR



**Be sure to have your attendance record validated!**