Presented by:

REDBIRD FLIGHT SIMULATIONS

HARTZELL ENGINE TECHNOLOGIES
MONTGOMERY, ALABAMA USA

JEPPESEN
A Boeing Company

BUILT ON HONOR
HARTZELL
HARTZELL PROPELLER INC.
PIQUA, OHIO U.S.A.

BOSE
AVIATION

NATCA®

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NAFI

COMMUNITY AVIATION

CloudAhoy
debriefing for pilots

SAFE
SOCIETY OF AVIATION AND FLIGHT EDUCATORS

The Art of Flying IFR : Situational Awareness

DSFI

DOUG STEWART FLIGHT INSTRUCTION, INC.

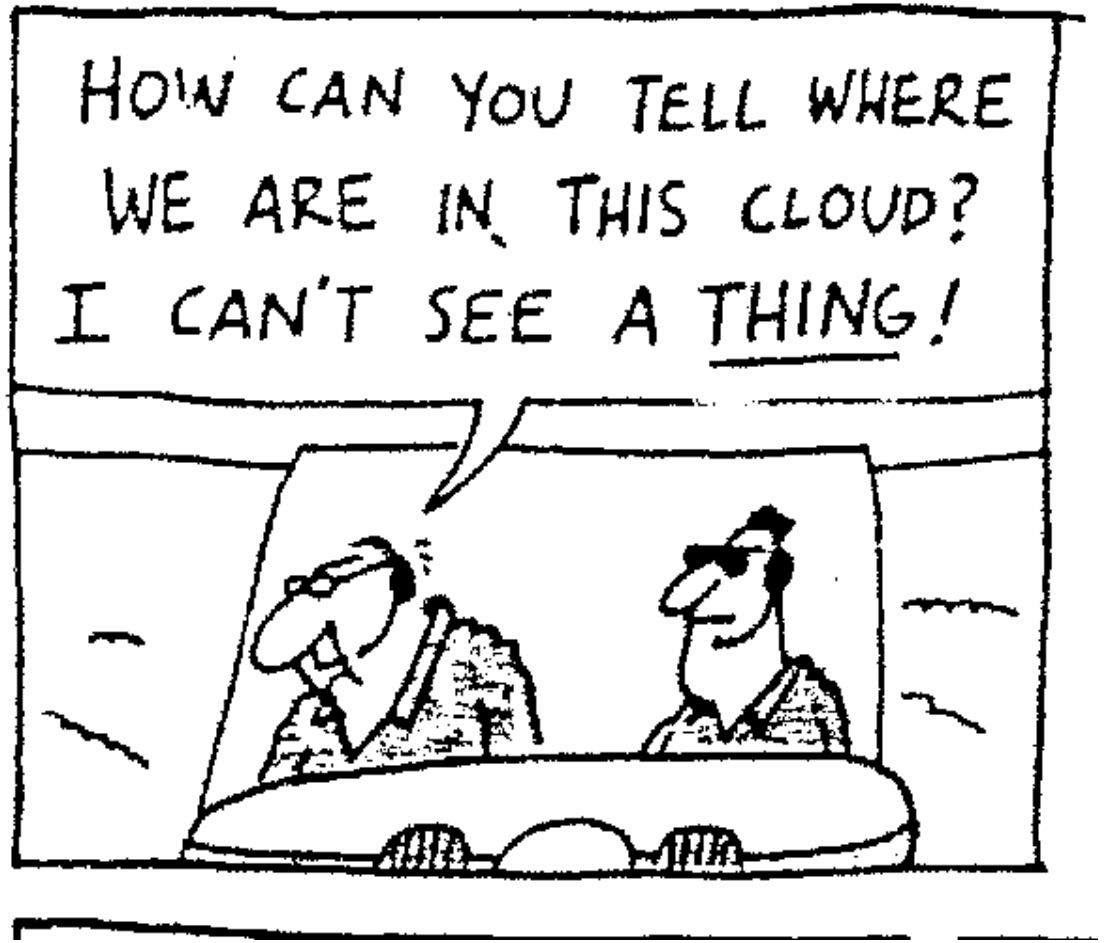
SAFE

SOCIETY OF AVIATION AND FLIGHT EDUCATORS

Doug Stewart,
12X MCFI, DPE
2004 CFI of the Year
13,00+ hours dual given

EAA

IFR Flying Defined:



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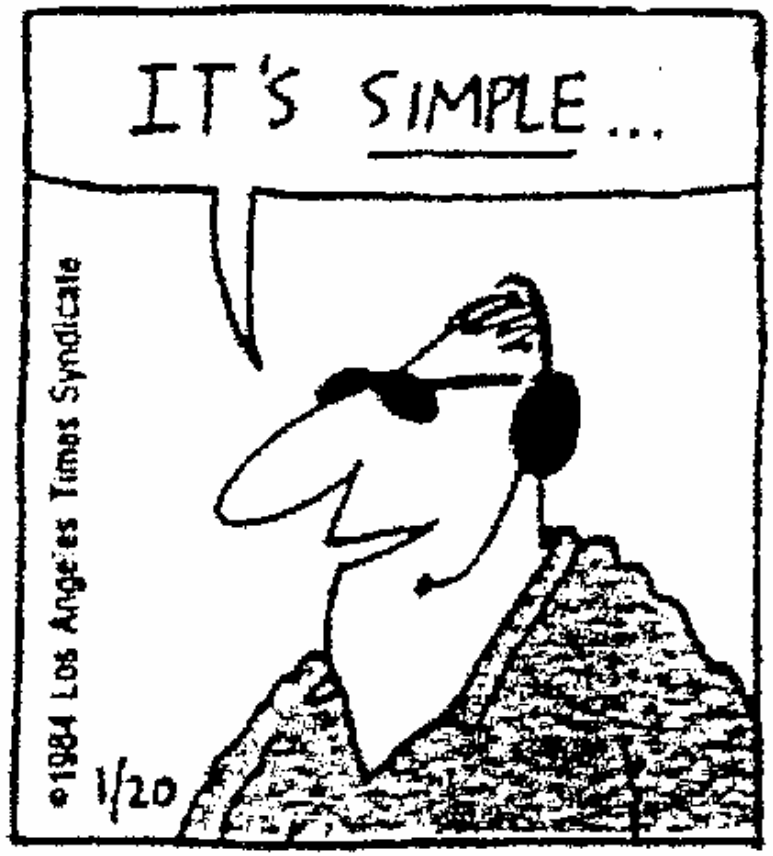

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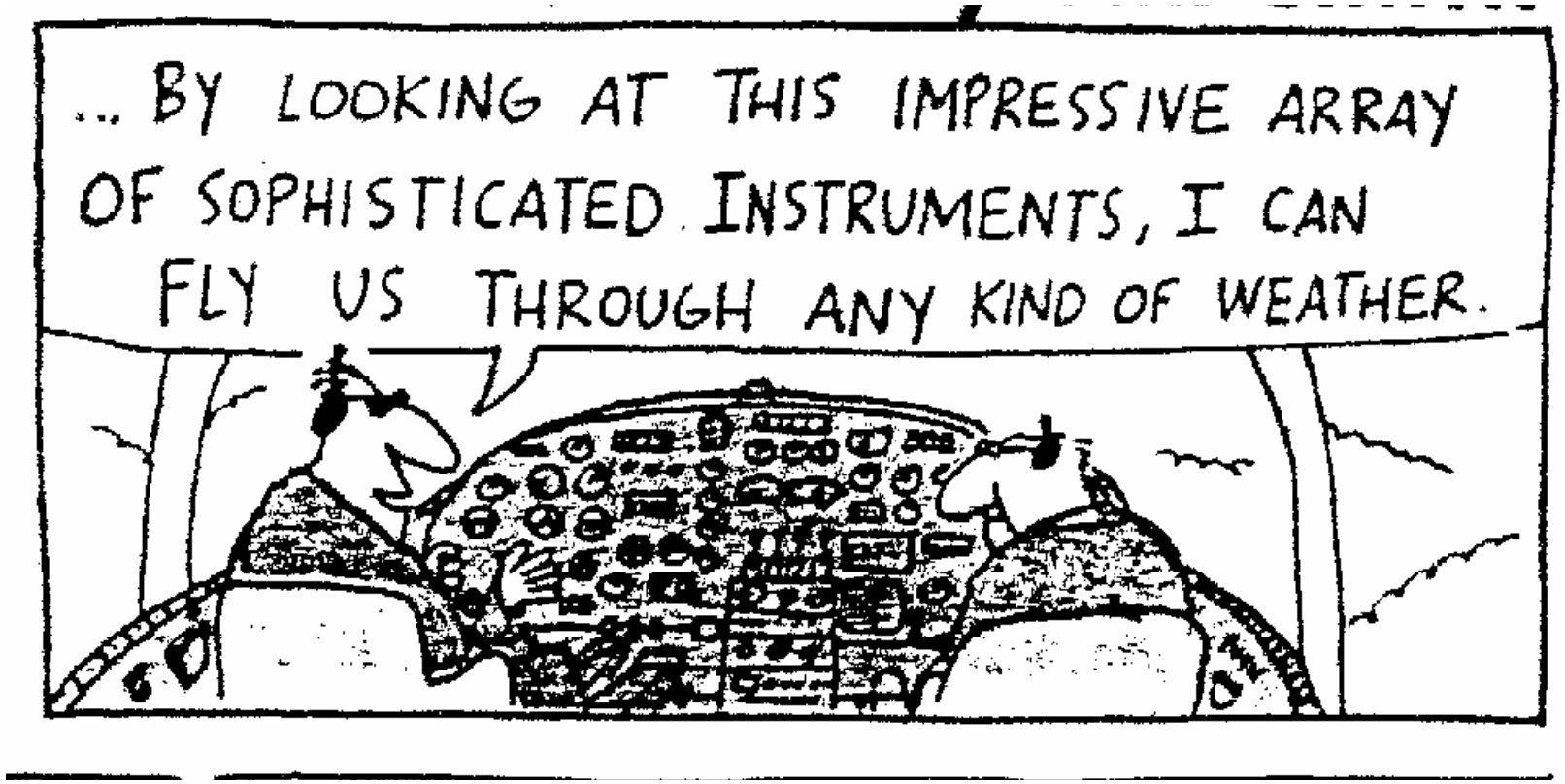

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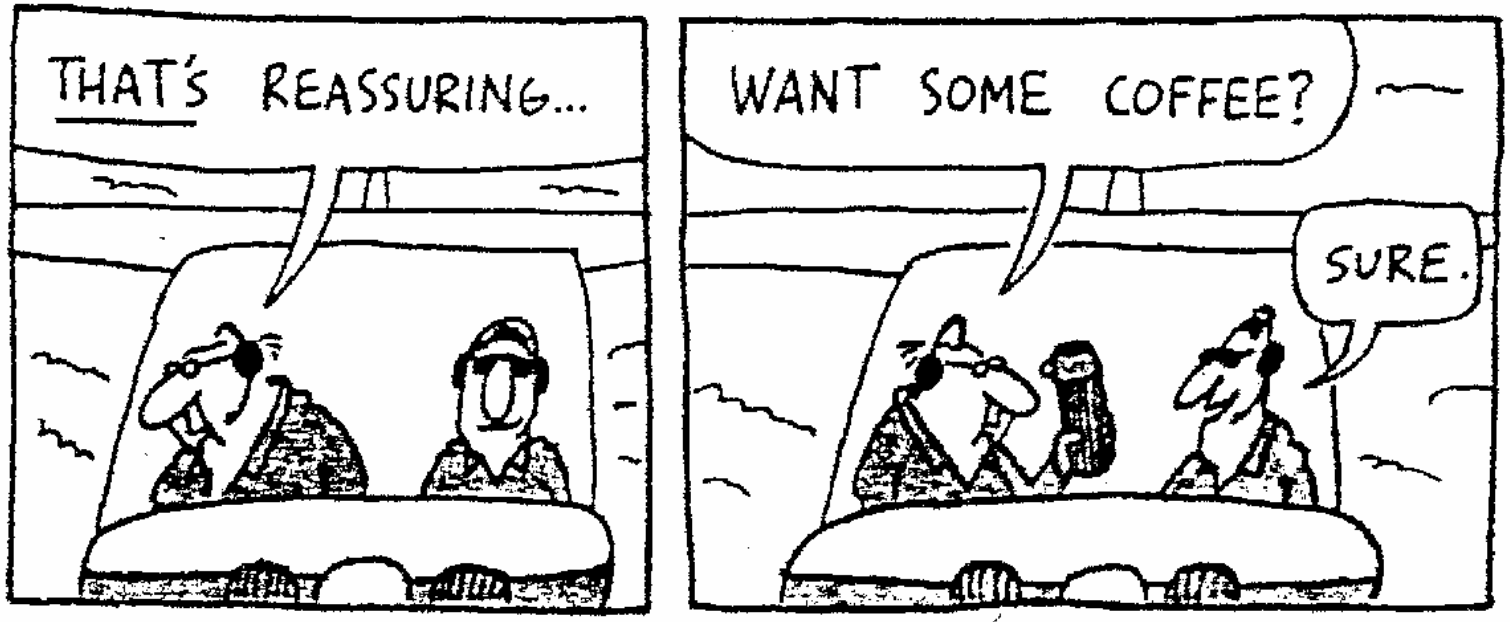
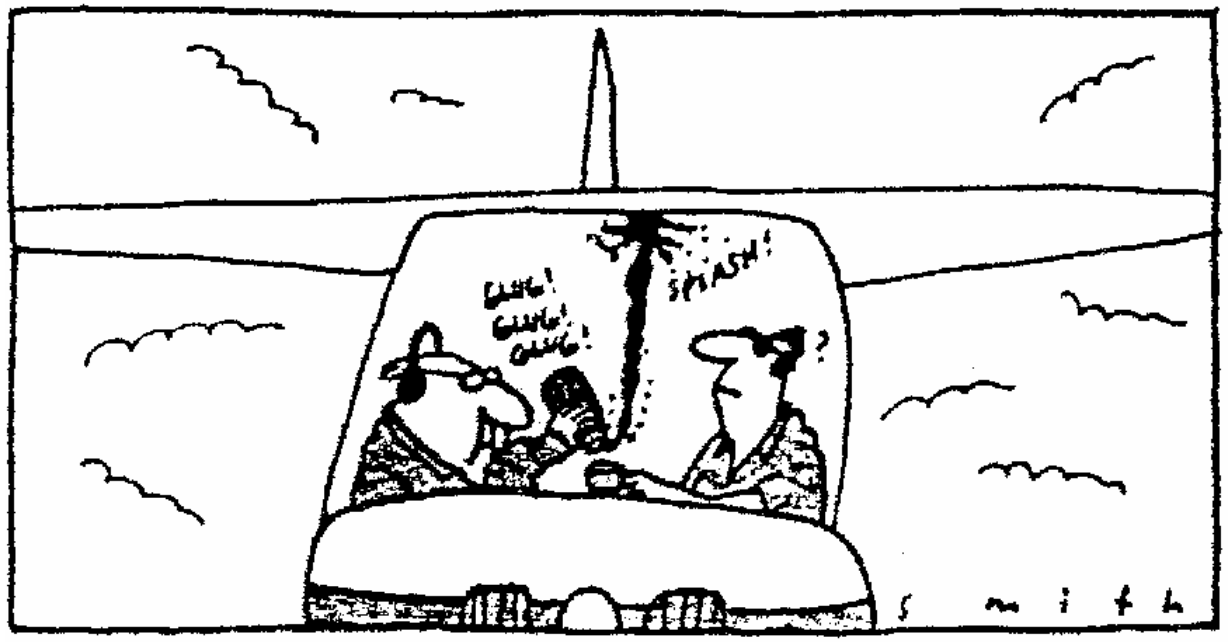


IFR Flying Defined:

Hours of boredom, punctuated by moments of sheer terror on either end!



MINDFULNESS

BEING IN THE MOMENT

PAYING ATTENTION

Perceive > Process > Perform

3D POSITION

1. Where am I ?
2. What’s next ?
3. What has to happen?
4. WHAT CAN I DO NOW ?

SITUATIONAL AWARENESS

3D Position

Weather

Terrain

Traffic

Frequencies

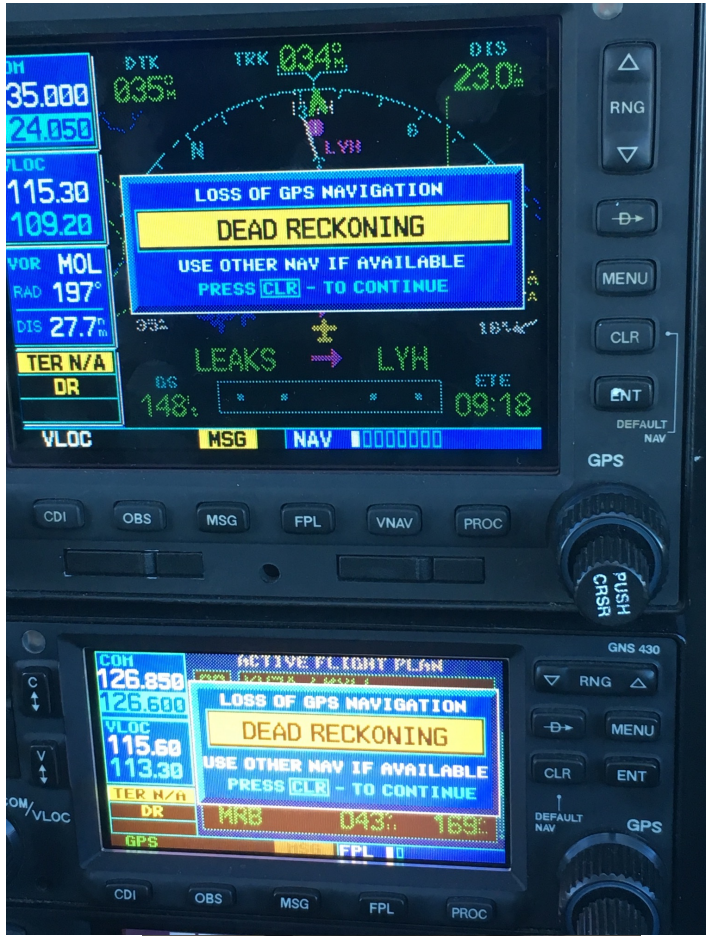
Aircraft State

Avionics State

PIC State

3D POSITION

1. Where am I ?



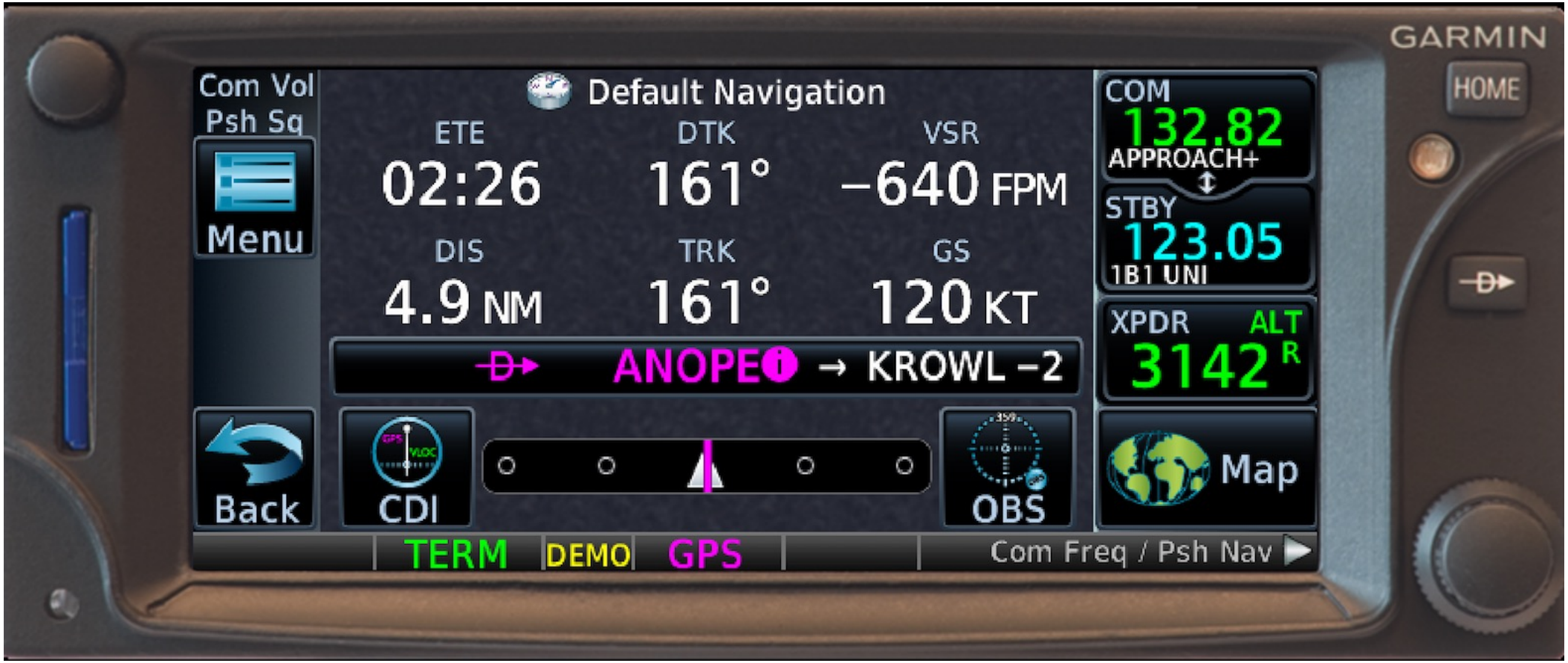
Data vs. Map for SA

Data vs. Map for SA

Data Field Choices

- *ETE = Estimated Time Enroute*
- *DIS = Distance*
- *DTK = Desired Track (magnetic course)*
- *TRK = Track*
- *GS = Ground Speed*
- *VSR = Vertical Speed Required*

Data Field Choices



Flight Plan Waypoints

Departing into IMC what should the last waypoint in the flight plan be?

Flight Plan Waypoints

Departing into IMC what should the last waypoint in the flight plan be?

THE NUMBERS

Every combination of:
Pitch, Power & Configuration
Equals
PERFORMANCE
Set it and you'll get it!

CLIMBS

CONSTANT RATE
OR
CONSTANT SPEED?

Vx, Vy, Cruise

DESCENTS

CONSTANT RATE
OR
CONSTANT SPEED?

ENROUTE = RATE
APPROACH = SPEED/ RATE

THE NUMBERS

Every Bank Angle
Referenced to Airspeed
Equals
Standard Rate Turn

$$GS \div 10 + 5$$

$$120 \div 10 = 12 + 5 = 17^\circ$$

Weather

WHAT ARE THE RISKS?

- *ICE*
- *CONVECTION*
- *TURBULENCE*
- *CEILINGS/VISIBILITIES*
- *RUNWAY CONTAMINATION*

Weather

iPad
2:40 PM
69%
IFR & Category
Search waypoint ID or route
2:35 PM EDT
Stratus, 8 towers
1B1
PWL
HUO
SCOUP
ETX
LRP
BINNS
MRB
HOAGE
KERRE
EROL
MOL
REC
00:00
ETE Next
0h47m
Distance to Next
105nm
Bearing Next
218°M
Track
41°M
Accuracy (Stratus)
1m
Cross Track Error
38.7
ETE Dest
4h07m
Groundspeed
135 kts
Airports
Maps
Plates
Documents
Imagery
File & Brief
ScratchPads
More

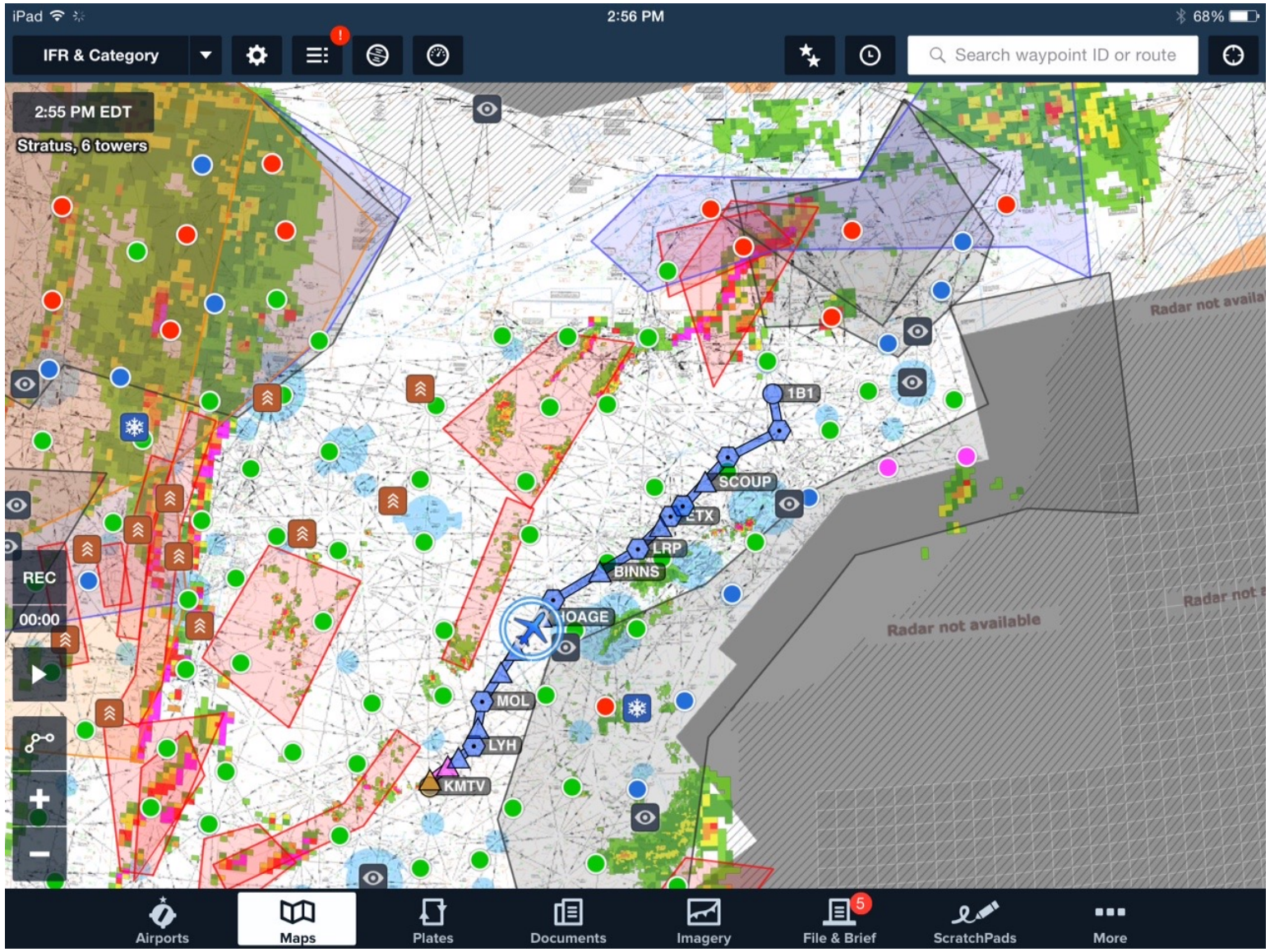
Weather

GARMIN
NAV1 115.90 ↔ 108.20
NAV2 109.50 115.90
GS 135KT DTK 042° TRK 042° ETE 00:55
MAP - WEATHER DATA LINK (XM)
120.450 RX 133.200 COM1
124.850 RX 118.450 COM2
13KT TRACK UP
MAN IN 25.3
RPM 2390
FFLOW GPH
OIL PRES
OIL TEMP
CHT
TIT
FUEL QTY GAL
ELECTRICAL
BUS
28.2 VOLTS 28.2
BATT
+0.5 AMPS +0.0
ENGINE
NEXRAD ECHO TOP CLD TOP XM LTNG CELL MOV SIG/AIR METAR LEGEND MORE WX
500NM
ADOLPHUS REACH
GEORGIAN BAY
OSHAWA
TORONTO
HAMILTON
LONDON
LAKE ERIE
DETROIT
CLEVELAND
AKRON
TOLEDO
OHIO
WEST VIRGINIA
NEW YORK
NOYACK BAY
SANDY HOOK BAY
NEW JERSEY
PHILADELPHIA
PITTSBURGH
WASHINGTON
RICHMOND
VIRGINIA BEACH
ALBEMARLE SOUND
RALEIGH
GREENSBORO
COM
PUSH 1-2
CRS
PUSH CRS CTR
RANGE
PUSH PAN
MENU
FPL
PROC
CLR
ENT
FMS

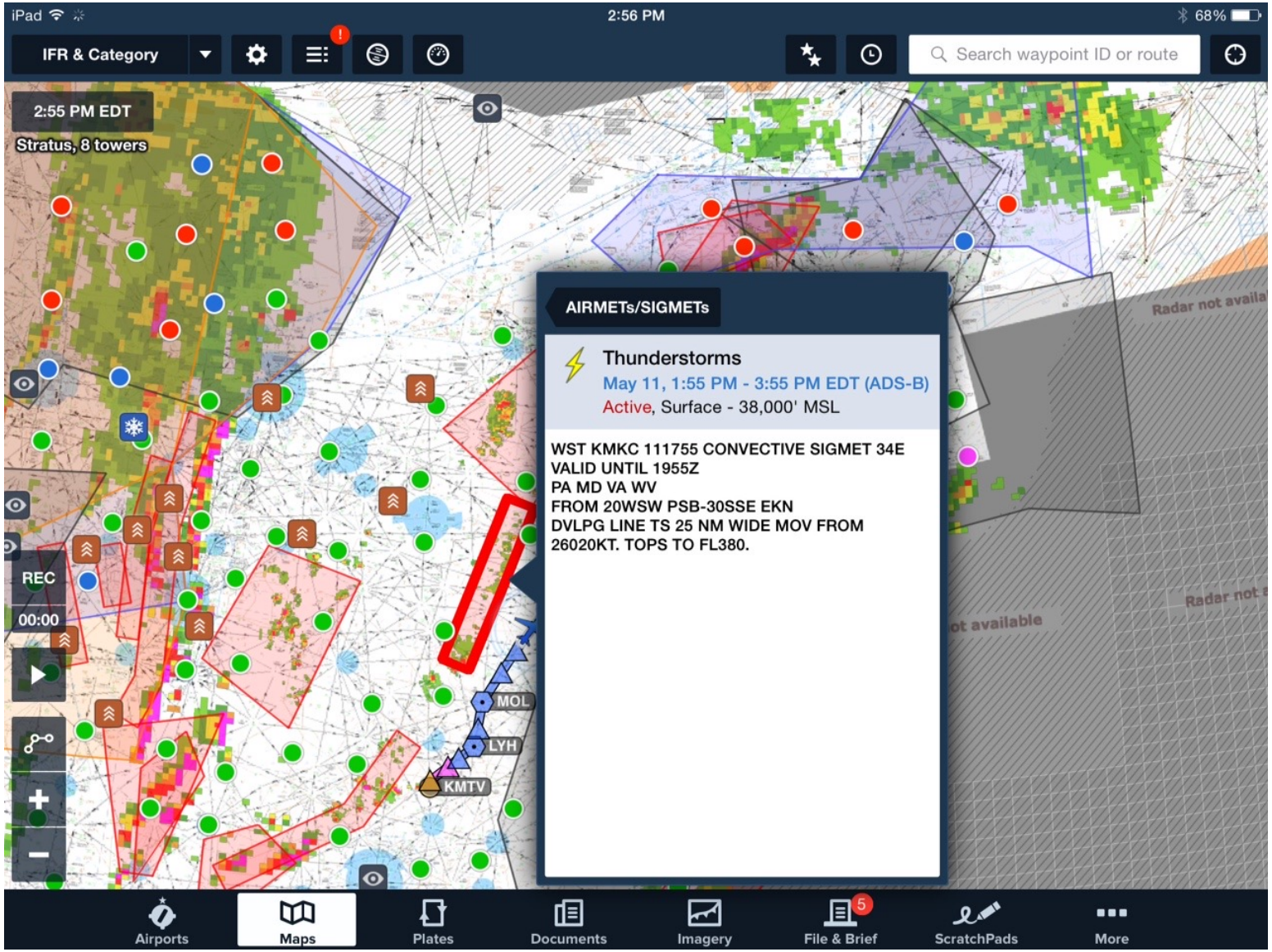
RADAR

TAKEOFF & CLIMB - LEAN AS REQUIRED
DESCENT-ENRICH AS REQUIRED
BEFORE LANDING - FULL RICH
OR AS REQD BY FIELD ELEV
COM
CRS BARO
RANGE
PAN
FLAPS

Weather


iPad
2:56 PM
68%
IFR & Category
Search waypoint ID or route
2:55 PM EDT
Stratus, 6 towers
REC
00:00
1B1
SCOUP
LRP
BINNS
MOL
LYH
KMTV
Radar not available
Airports
Maps
Plates
Documents
Imagery
File & Brief
ScratchPads
More

Weather


iPad
2:56 PM
68%
IFR & Category
Search waypoint ID or route
2:55 PM EDT
Stratus, 8 towers
AIRMETs/SIGMETs
Thunderstorms
May 11, 1:55 PM - 3:55 PM EDT (ADS-B)
Active, Surface - 38,000' MSL
WST KMKC 111755 CONVECTIVE SIGMET 34E
VALID UNTIL 1955Z
PA MD VA WV
FROM 20WSW PSB-30SSE EKN
DVLPG LINE TS 25 NM WIDE MOV FROM
26020KT. TOPS TO FL380.
REC
00:00
MOL
LYH
KMTV
Airports
Maps
Plates
Documents
Imagery
File & Brief
ScratchPads
More

STAYING AHEAD

HOW DO WE KNOW IF THE FORECAST IS ACCURATE ?

KEEPING AHEAD / WX

HOW DO WE KNOW IF THE FORECAST IS ACCURATE?

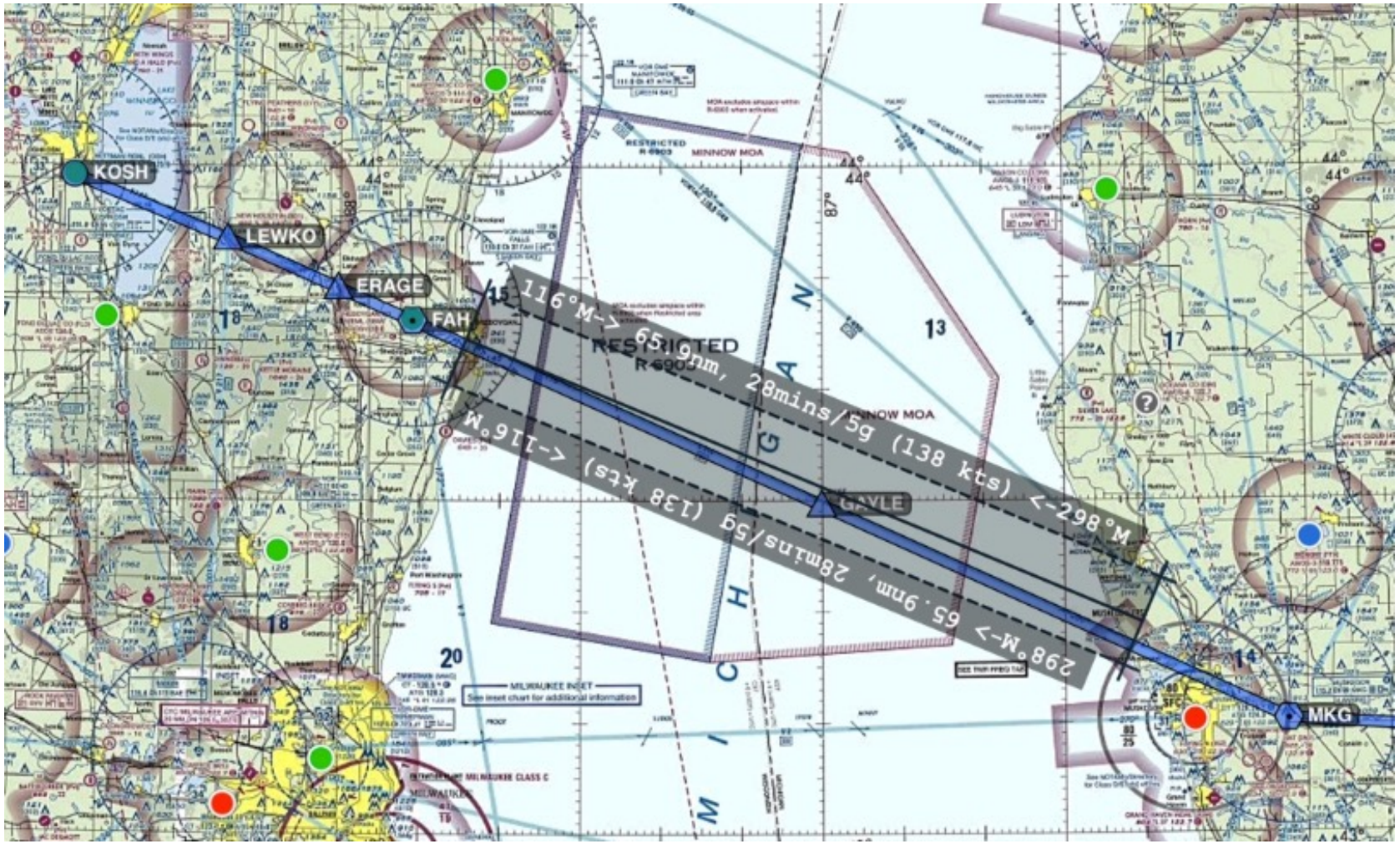
Fix Name Lat/Long	Morse Id Freq	Wind (Deg/kt) Temp (Celsius)	MH MC	Altitude (ft) Route	Leg (nm) Remaining (nm)	Est GS (kt)	Leg Tot	Leg Fuel (gal) Total (gal)
KISP 40°47.7' / -73°06.0'		166/025 018	[illegible] 092	100 Direct	36 94	109	00 : 21 00 : 21	2.0 + 5.3 7.3
HTO - Hampton 40°55.1' / -72°19.0'	.... - --- 113.6	175/026 011	047 040	7000 Direct	27 67	162	00 : 10 00 : 31	1.7 9.0
GON - Groton 41°19.8' / -72°03.1'	--. --- -. 110.85	176/026 011	029 024	7000 Direct	14 53	165	00 : 05 00 : 36	0.8 9.8
ORW - Norwich 41°33.4' / -71°60.0'	--- .-. .-- 110.0	178/027 011	066 057	7000 Direct	32 21	158	00 : 12 00 : 48	1.8 11.6
WOONS 41°57.0' / -71°30.4'		175/018 021	067 061	4200 Direct	21 0	150	00 : 08 00 : 56	1.1 12.7
KOWD 42°11.4' / -71°10.4'		160/012 026						

Terrain

- *Water*
- *Day / Night*

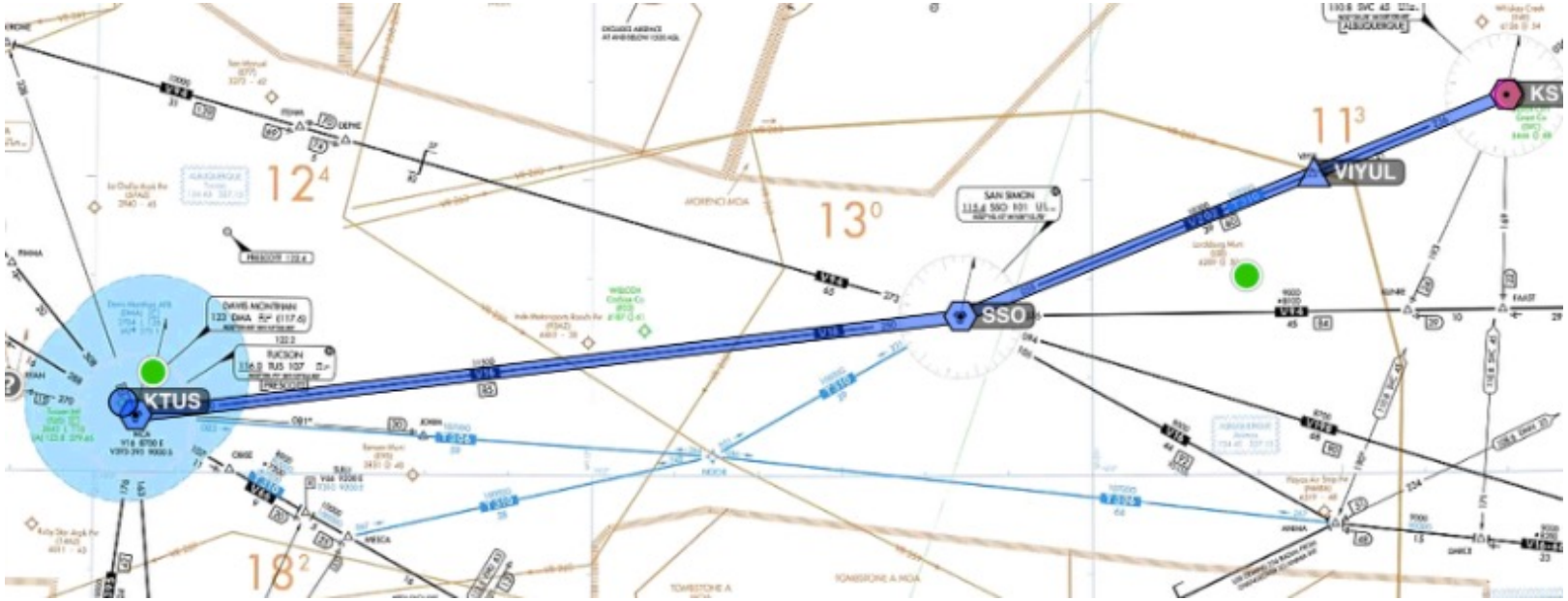
Terrain

- *Water*
- *Day / Night*



Terrain

- *Desert*
- *Day / Night*



Terrain

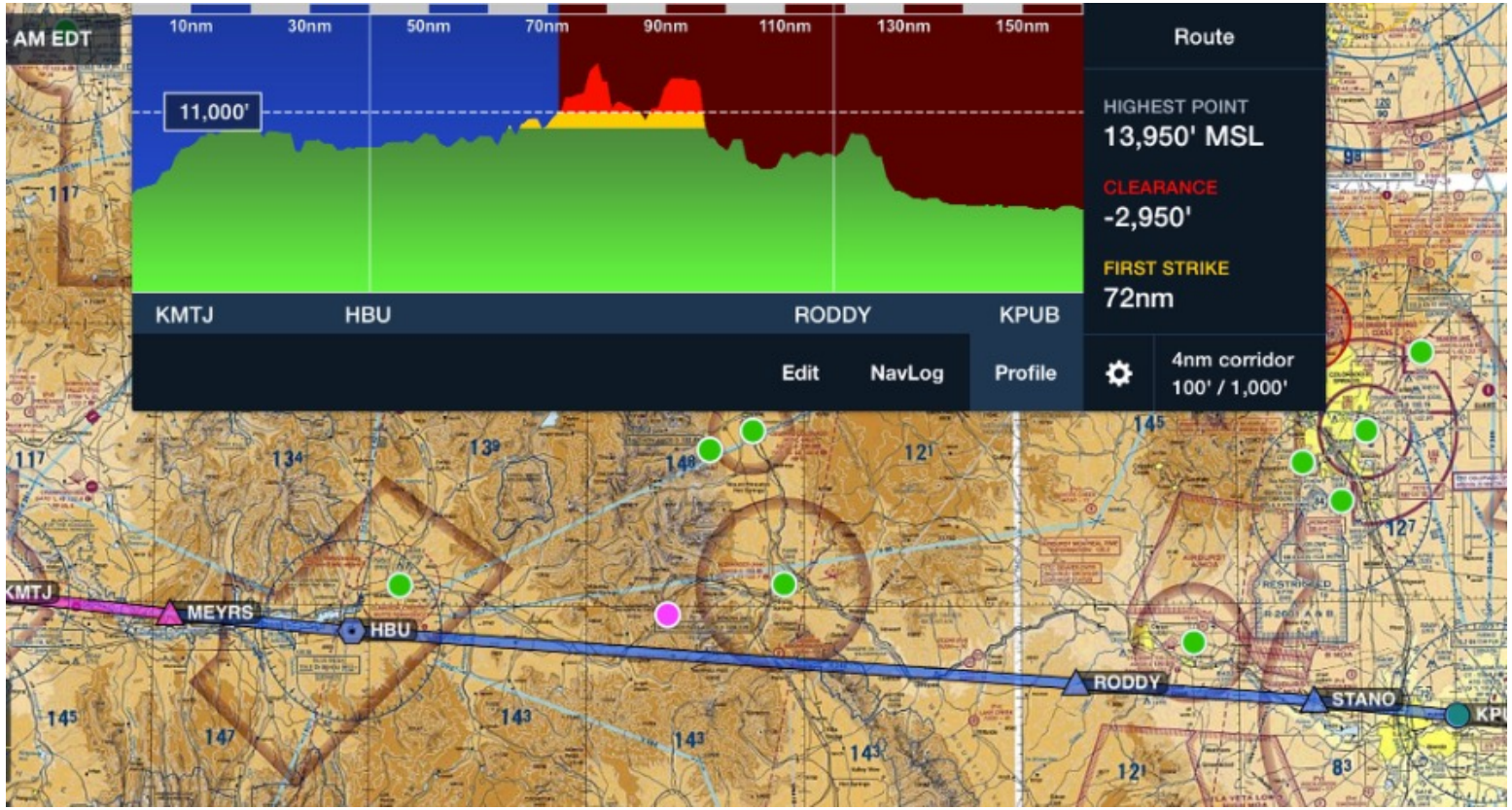
- *Desert*
- *Day / Night*

Terrain

- *Mountainous*
- *Day / Night*

Terrain

- *Mountainous*
- *Day / Night*



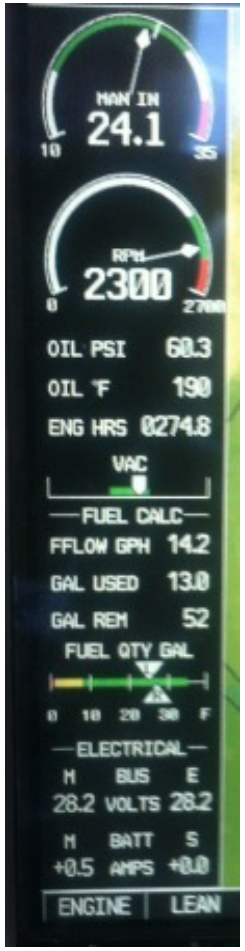
Traffic

-28
+10
-11
-25
-29
+9
-13
-24
26
-9
JBU167
DAL434
JBU2
DPK
KENNEDY
115.9 JFK 106
NEW YORK
122.1R
CANARSIE (T)
112.2 CRI 70
BABYLON
COLTS NECK
115.4 COL 101
122.3
CLASS B AIRSPACE

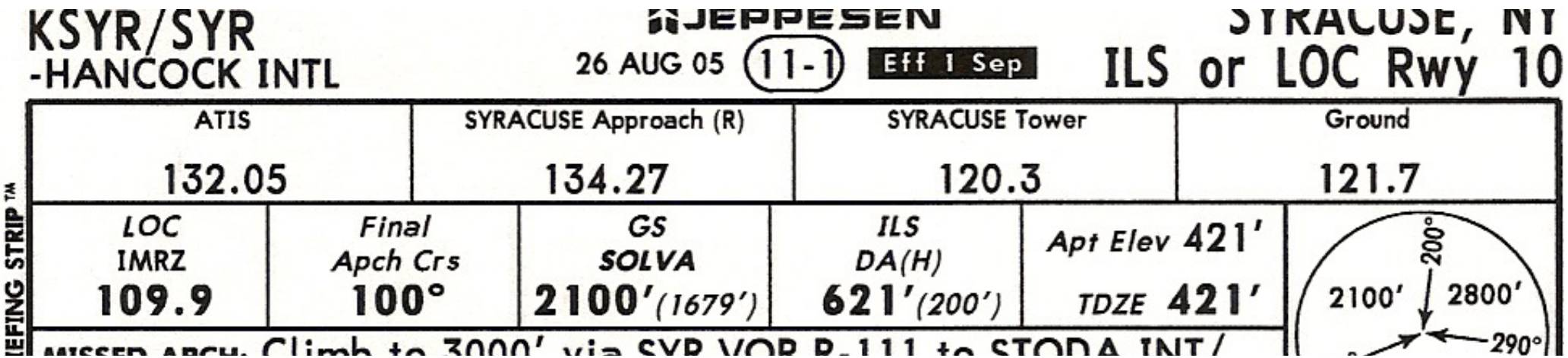
Aircraft State

Aircraft State

Aircraft State



Frequencies



KSYR/SYR
-HANCOCK INTL

JEPPESEN

26 AUG 05 (11-1) Eff 1 Sep

SYRACUSE, NY
ILS or LOC Rwy 10

ATIS	SYRACUSE Approach (R)	SYRACUSE Tower	Ground
132.05	134.27	120.3	121.7

LOC	Final	GS	ILS	
IMRZ	Apch Crs	SOLVA	DA(H)	Apt Elev 421'
109.9	100°	2100'(1679')	621'(200')	TDZE 421'

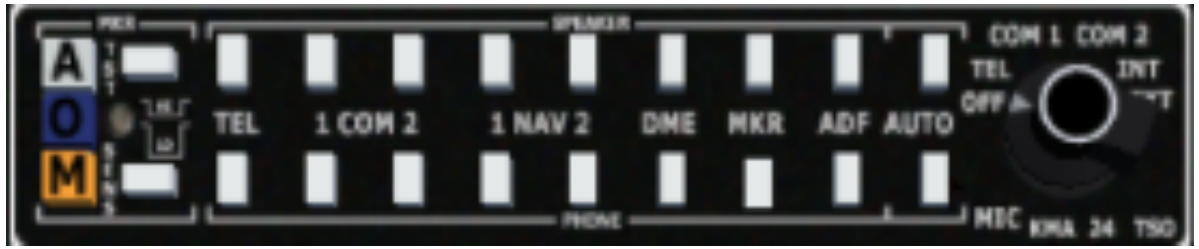
MISSED APCH: Climb to 3000' via SYR VOR R-111 to STODA INT/

BRIEFING STRIP™

200°
2100'
2800'
290°

AVIONICS

- *Managing your Radios with the Audio Panel*



AVIONICS

- *Auto Pilot*

Pilot State

- *Metacognition*
- *I'M SAFER™*

Summary

- *AWARENESS*

Engaged with the flight:
From initial planning –
‘til the airplane is back in the hangar

Summary

- *PAY ATTENTION*
- *"BE HERE NOW"*
- *USE ALL TOOLS*
- *HAVE FUN*

Written by:
Doug Stewart

Bringing you the:
“East Coast IFR Experience”
“’Narly New England, IFR”
“Into The SFRA, IFR”
“Canadian Maritimes, IFR”

For more information,
contact:
info@dsflight.com

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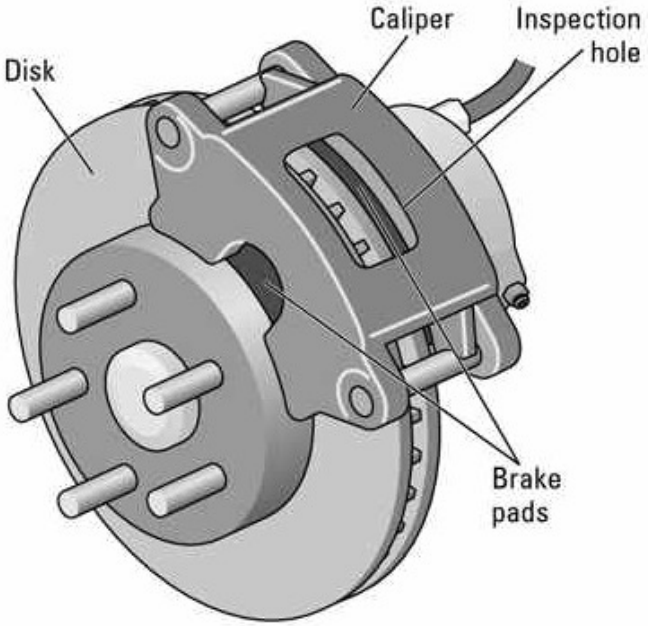
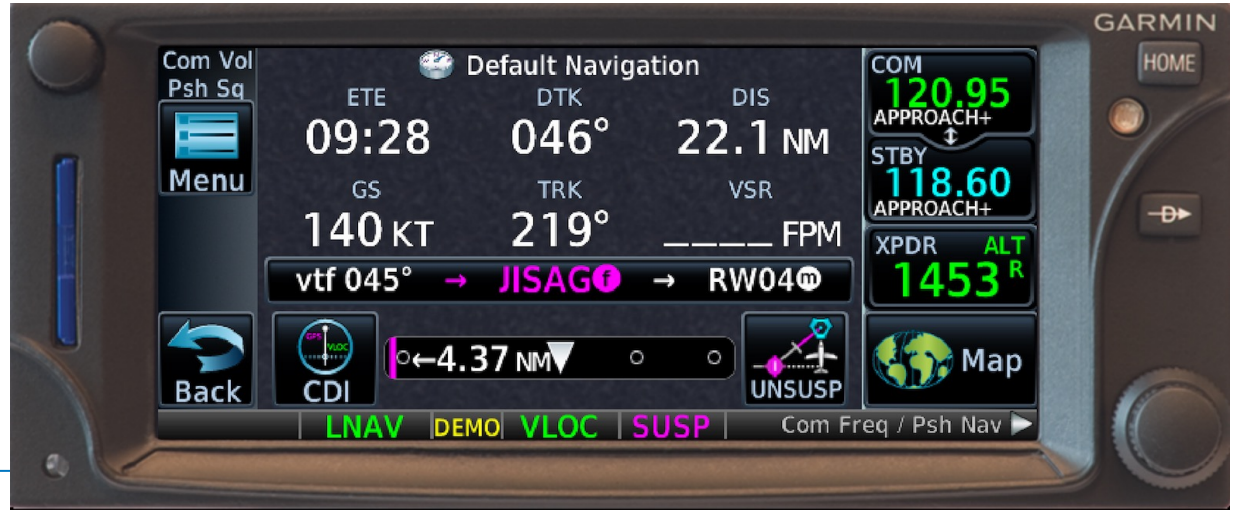
A QUIZ



Situational Awareness



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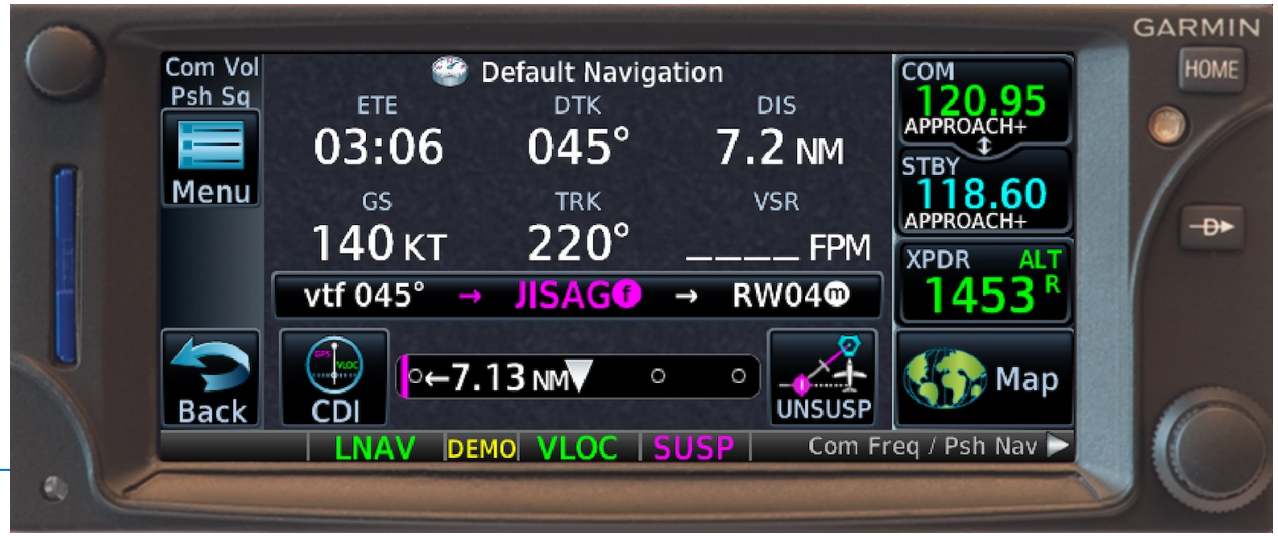

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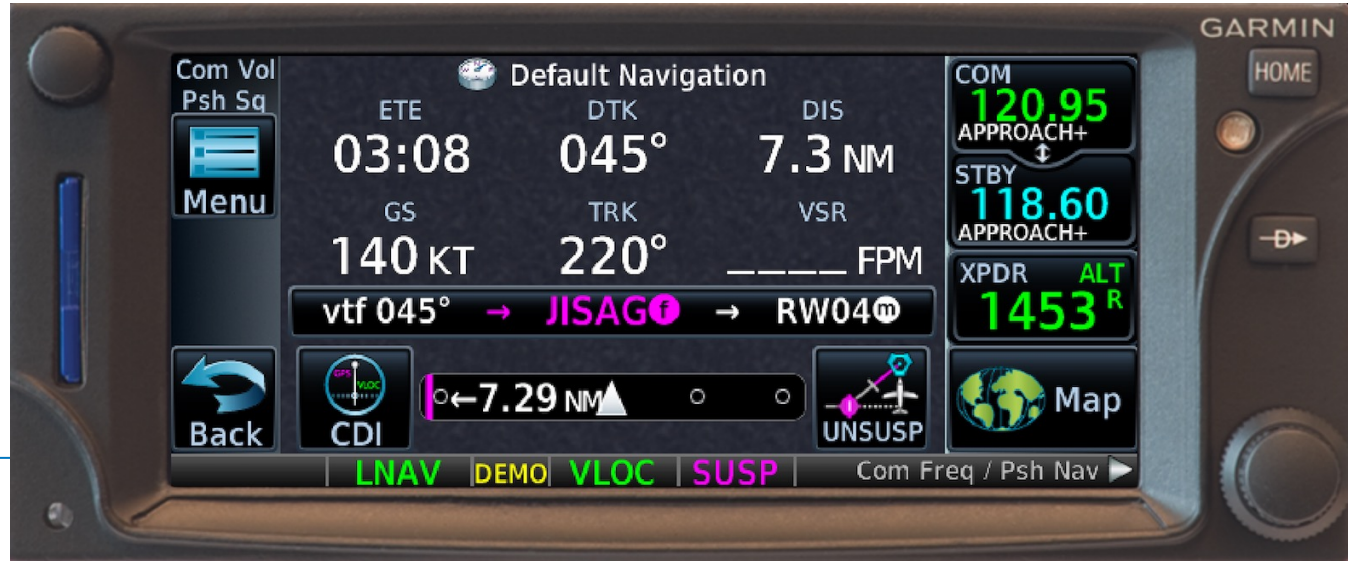

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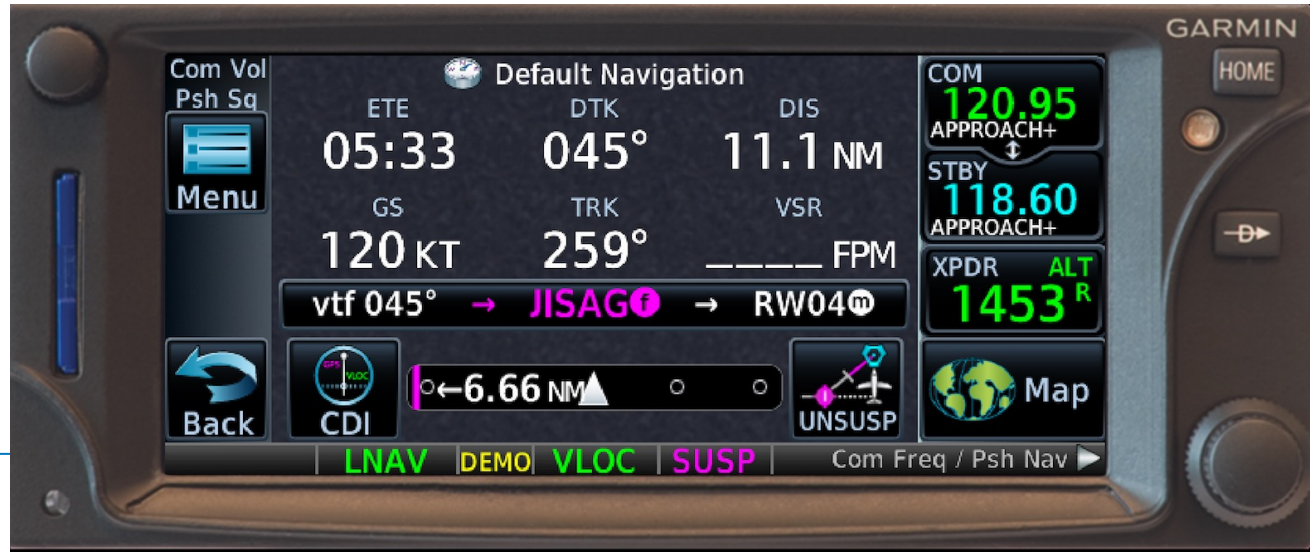
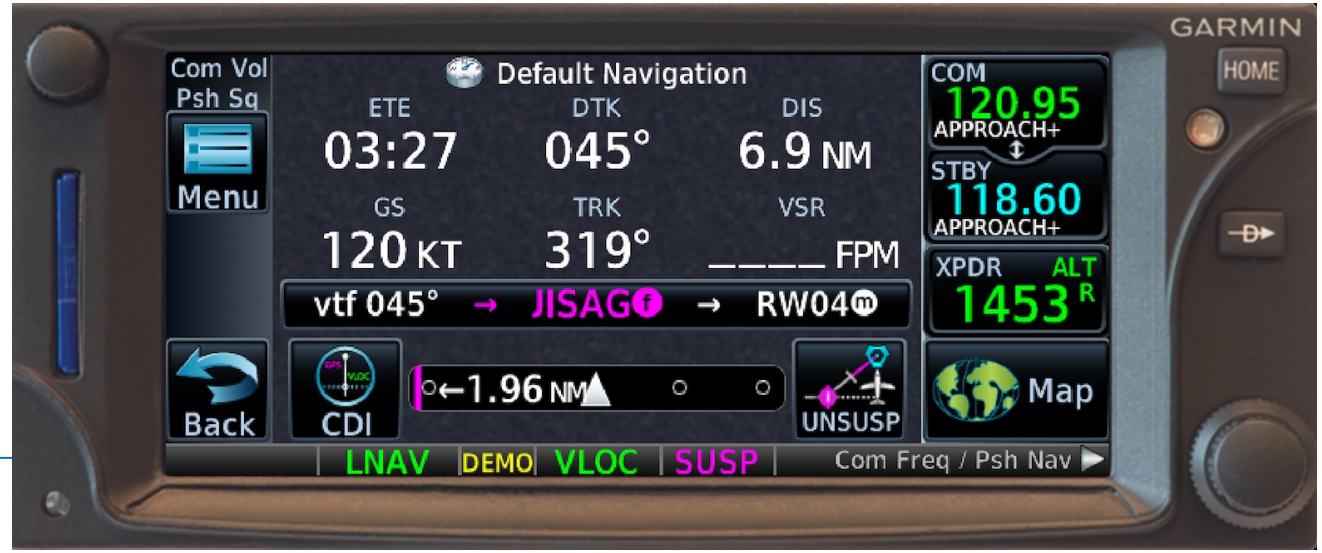
Situational Awareness