

RISK STACKING



AOPA AIR SAFETY
INSTITUTE

AN ACCIDENT CASE STUDY DISCUSSION



4422
A

(FAF)
HIKLO

JAMID
1.6 NM to
RW20

RW20

(IAF)
MUTOE

Today's Discussion

- View the *Risk Stacking* accident case study video
- Guided discussion of possible risks, decision points, actions taken
- Updates on accident investigation
- Summary of lessons learned



The Aircraft

- Cessna 208B Caravan
- G1000 equipped
- Configured for transportation of cargo



Weather

- Forecast: VFR conditions at arrival time
- Enroute: 6 SM, -SN BKN 2600'
- The pilot attempted the flight a day prior and chose to divert to an alternate airport



Risk Stacking

- Preflight preparations
- What do you look for in a go/no-go decision?
 - Risk to the flight
 - Terrain
 - Obstacles/obstructions
 - Weather
 - Performance considerations
 - Fatigue
 - Stress
 - Mitigations
- Are you taking this flight?





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Your reaction so far?



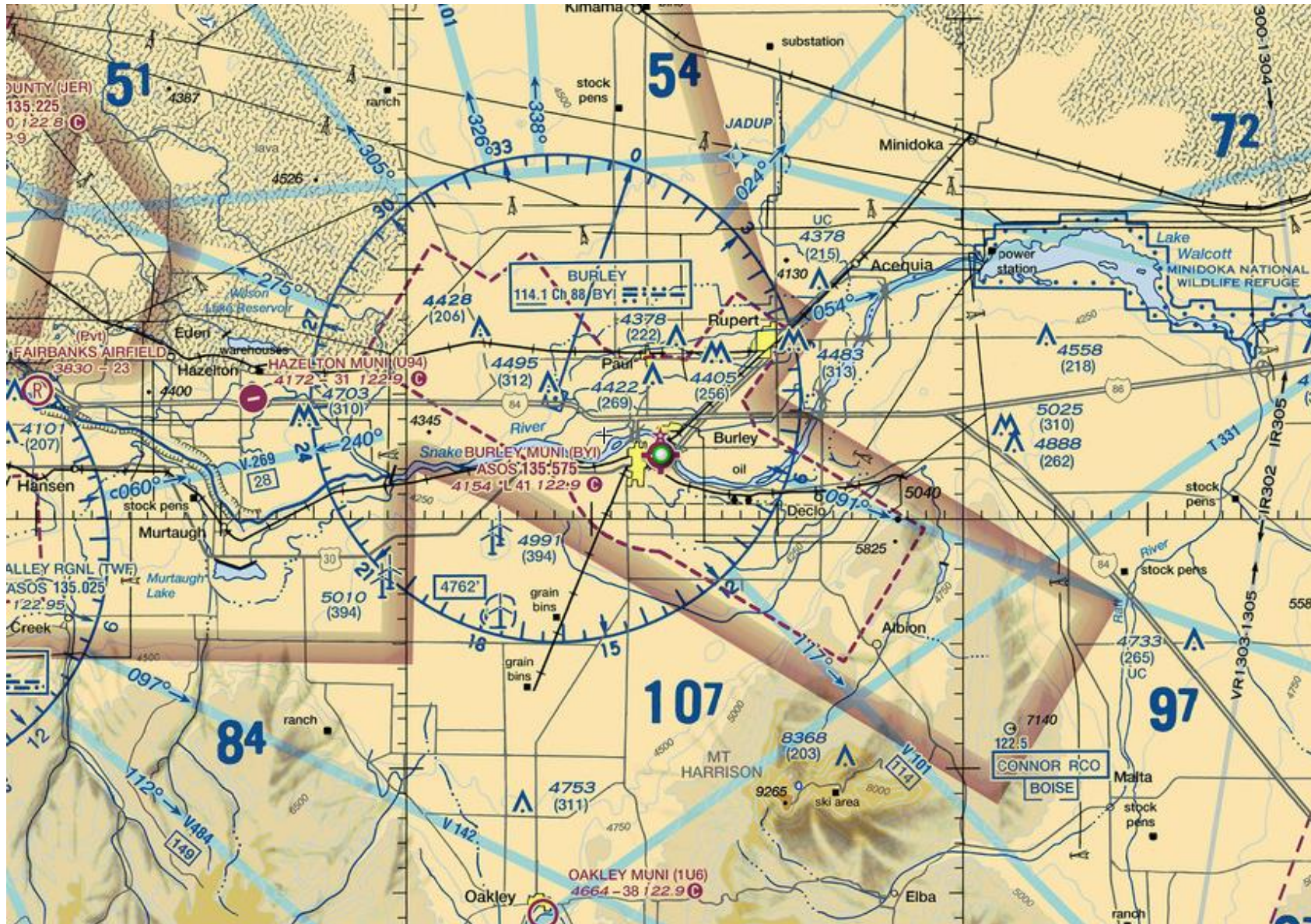


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Now what do you think?



View of the airport



What risk do you see on this approach?

BURLEY, IDAHO AL-68 (FAA) 22083

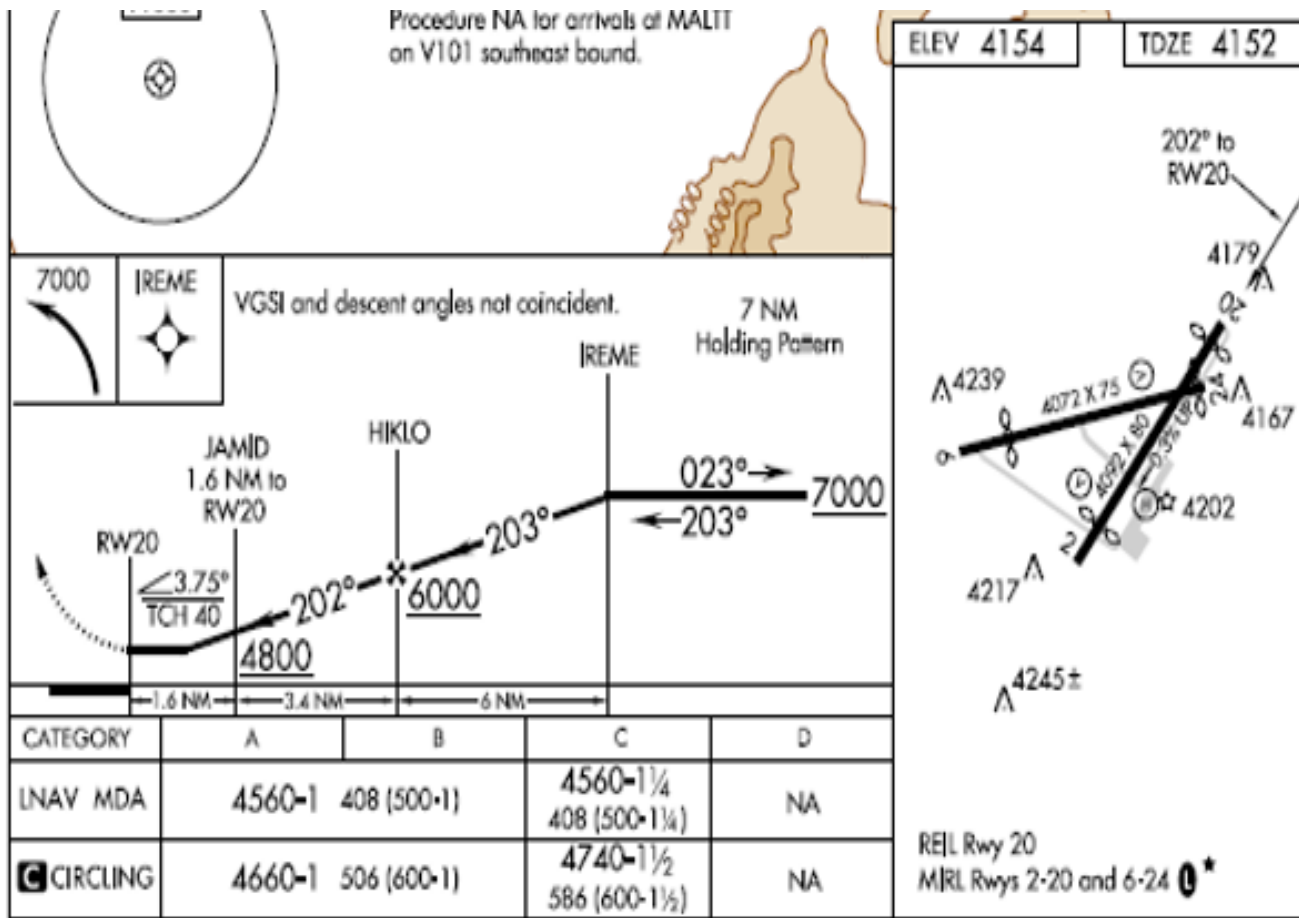
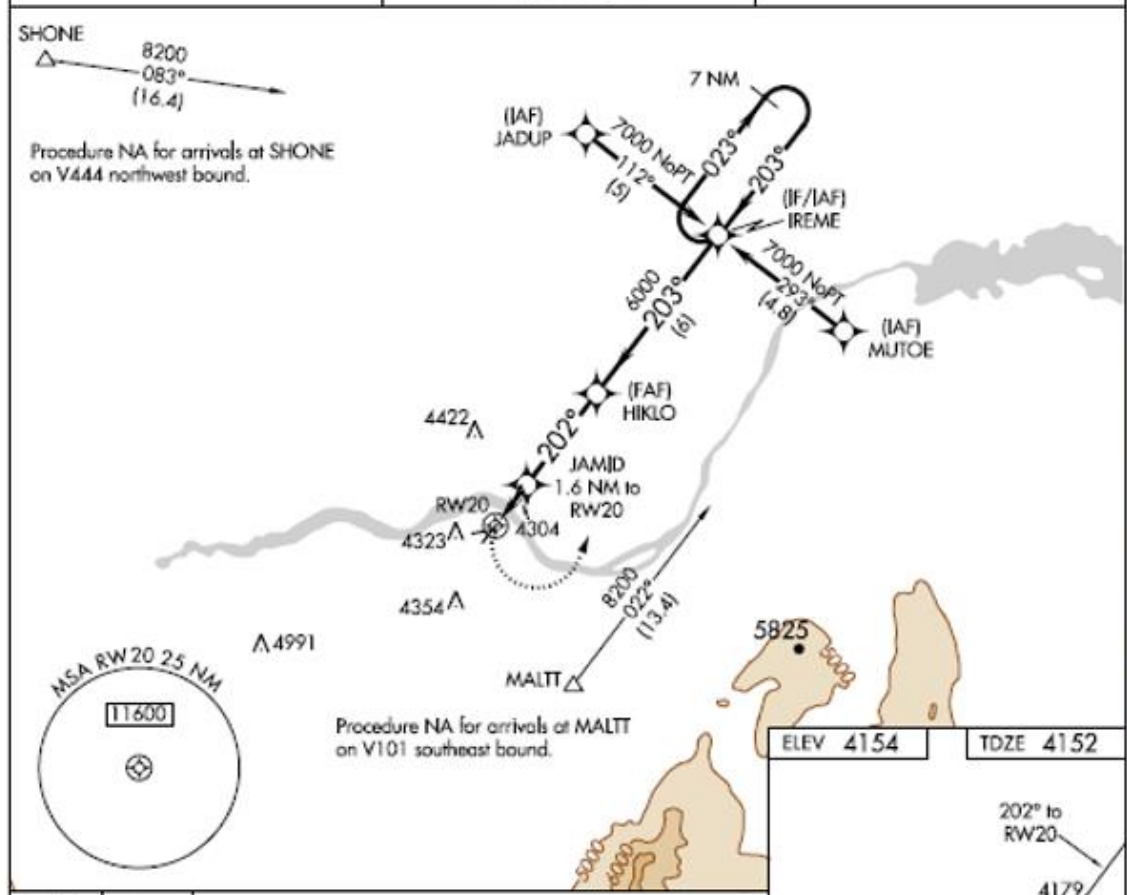
APP CRS 202° Rwy Idg 3787 TDZE 4152 Apt Elev 4154

RNAV (GPS) RWY 20
BURLEY MUNI (BYI)

⚠ DME/DME RNP-0.3 NA. When local altimeter setting not received, use Twin Falls altimeter setting and increase all MDA 80 feet. Procedure NA at night. Helicopter visibility reduction below 1 SM not authorized.

MISSED APPROACH: Climbing left turn to 7000 direct IREME and hold.

ASOS 135,575 TWIN FALLS APP CON * 126,7 353,75 CTAF 122.9 0 *



NW-1, 24 MAR 2022 to 21 APR 2022

BURLEY, IDAHO Orig-D 30JAN20 42°33'N-113°46'W

BURLEY MUNI (BYI)
RNAV (GPS) RWY 20



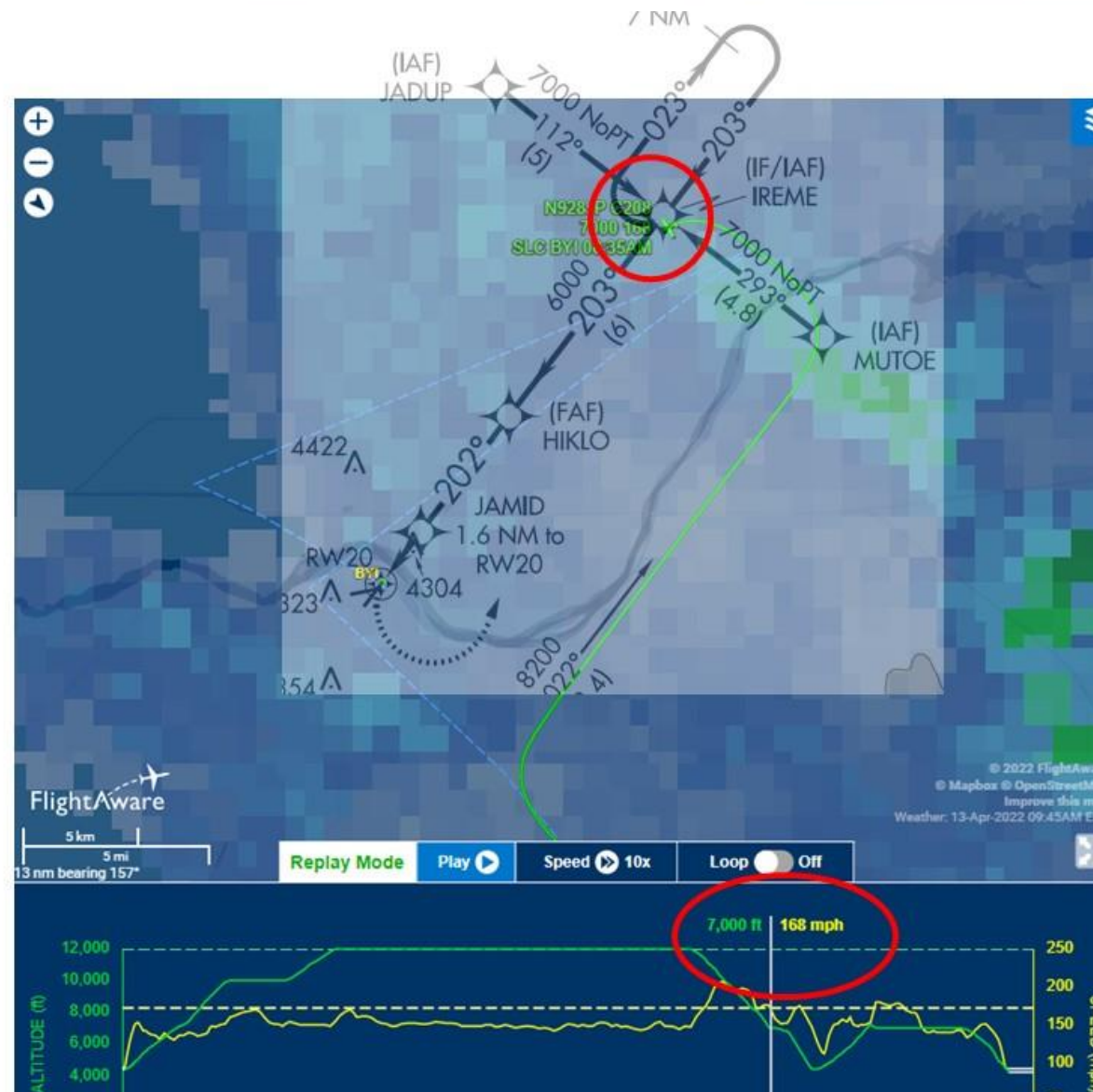
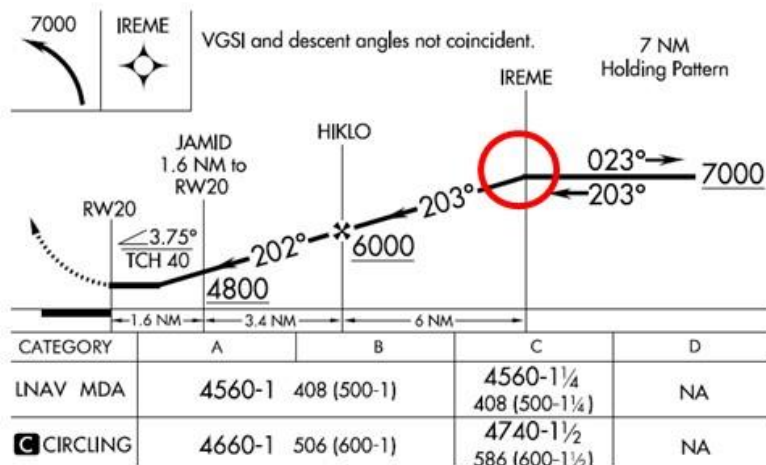
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First Approach Attempt



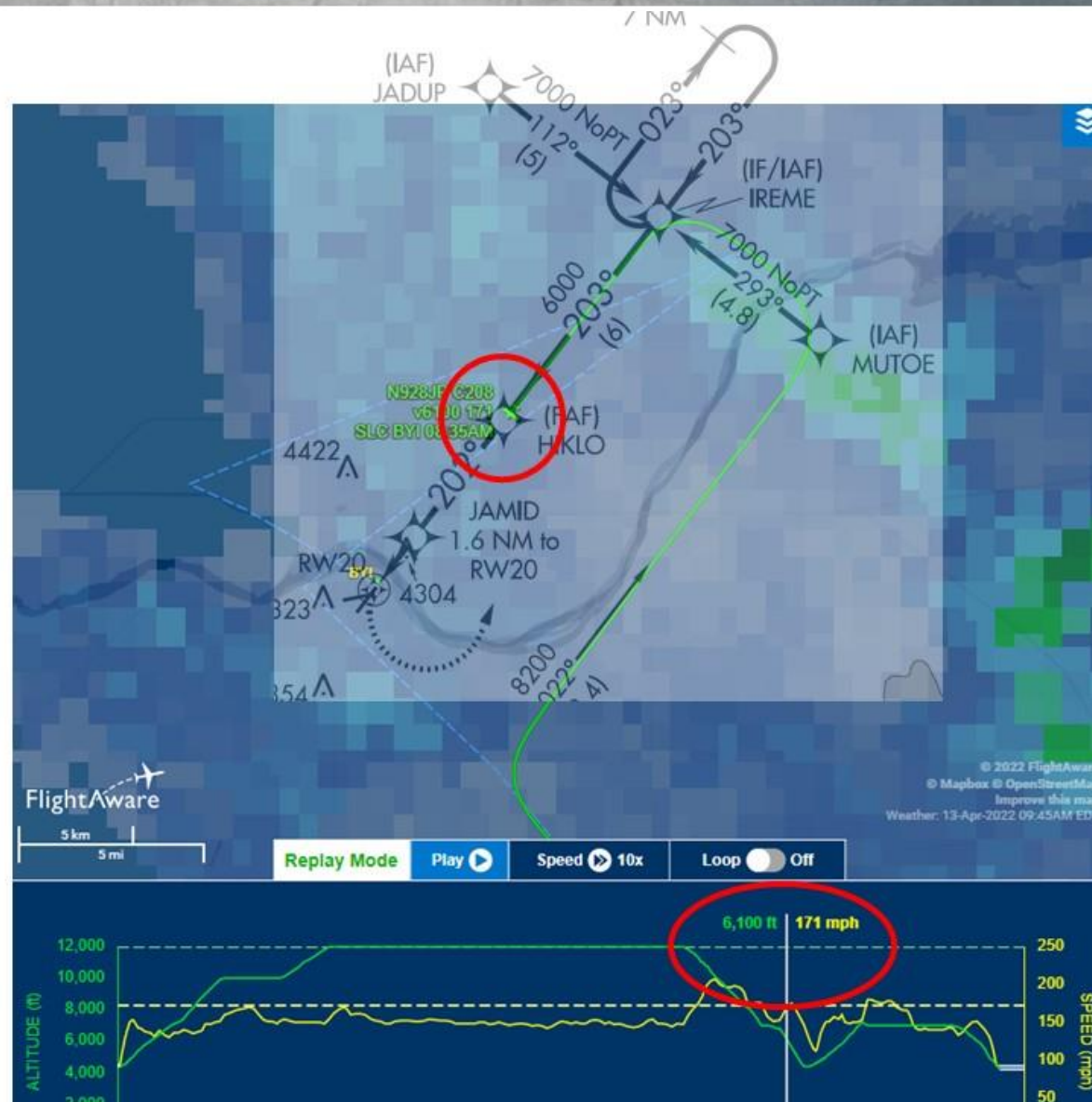
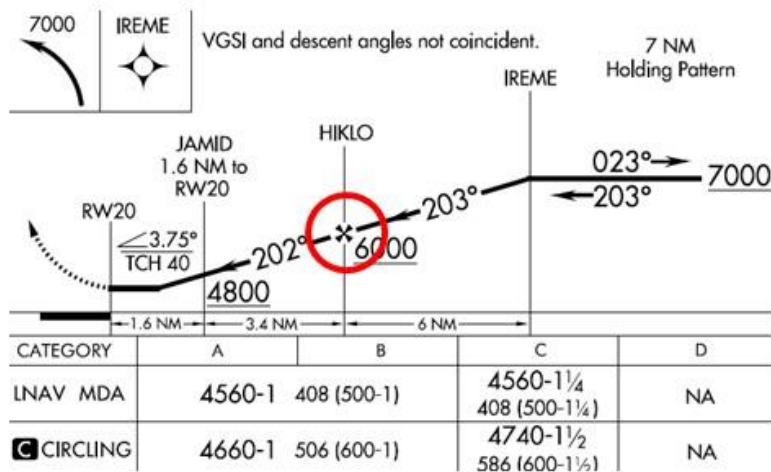
First Approach Attempt

LOCATION: IAF IREME
ALTITUDE: 7,000 MSL
SPEED: 168 MPH (145 KTS)



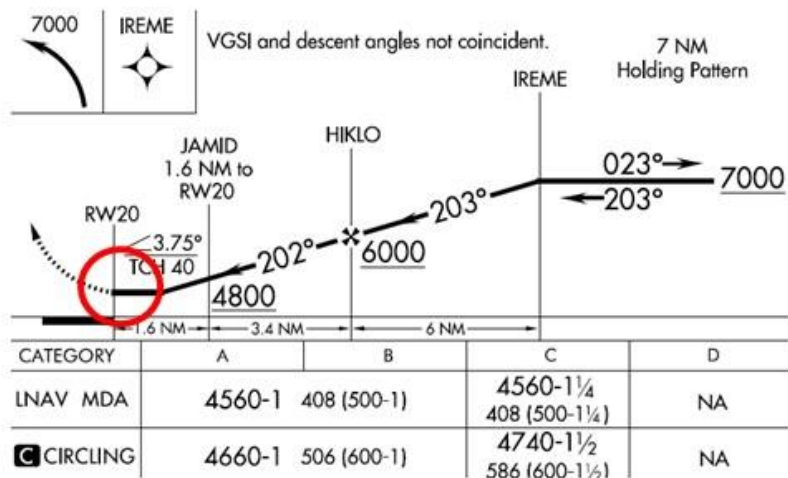
First Approach Attempt

LOCATION: FAF HIKLO
ALTITUDE: 6,100 MSL
SPEED: 171 MPH (149 KTS)



First Approach Attempt

LOCATION: MAP RW20
ALTITUDE: 4,400 MSL
SPEED: 131 MPH (113 KTS)





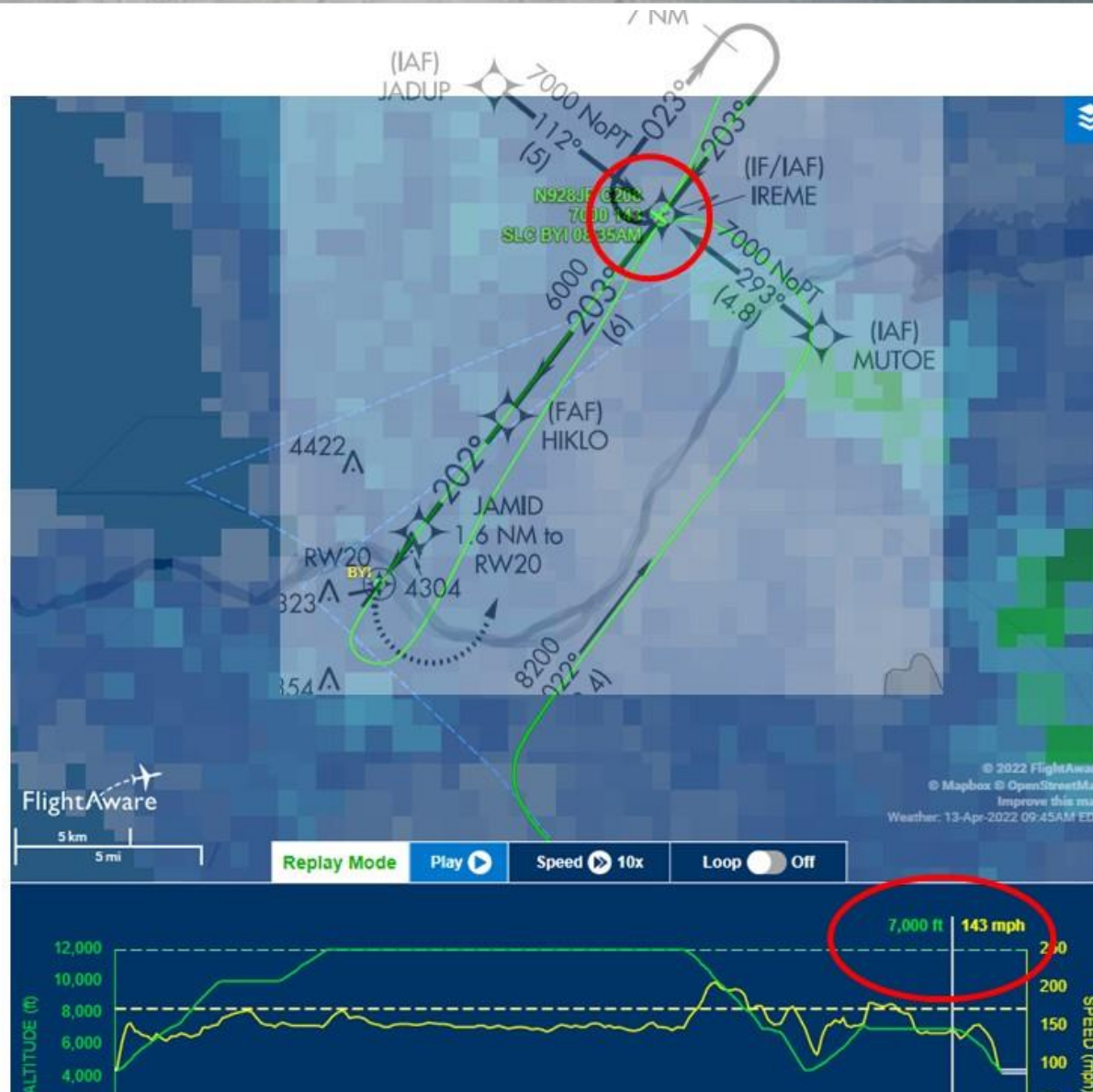
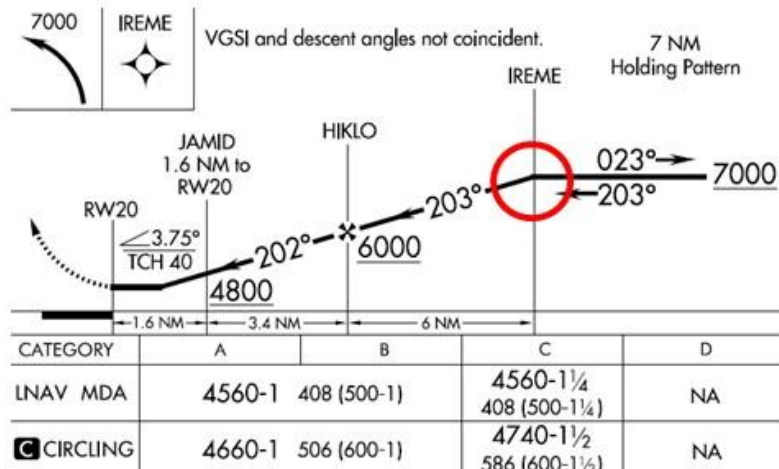
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Second Approach Attempt



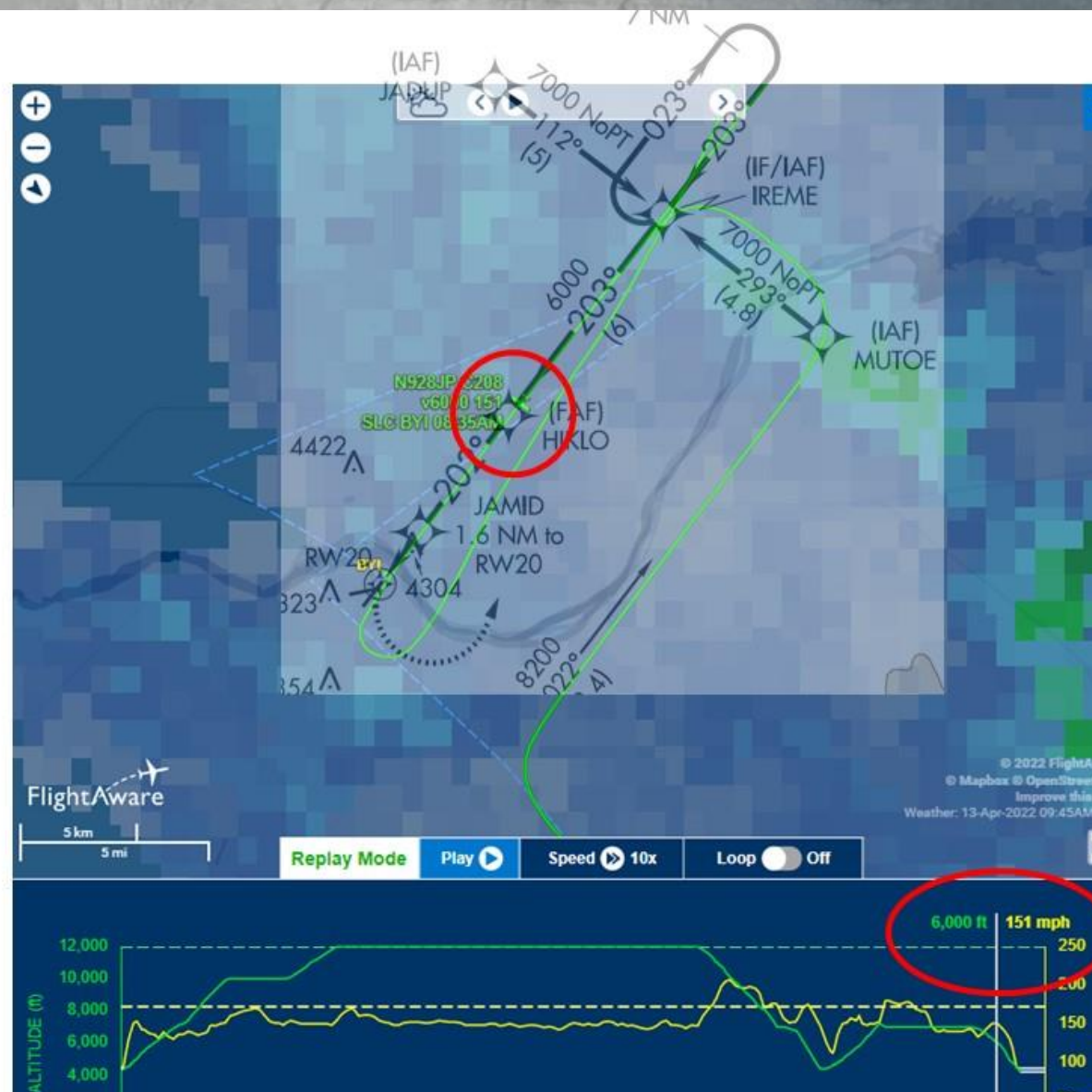
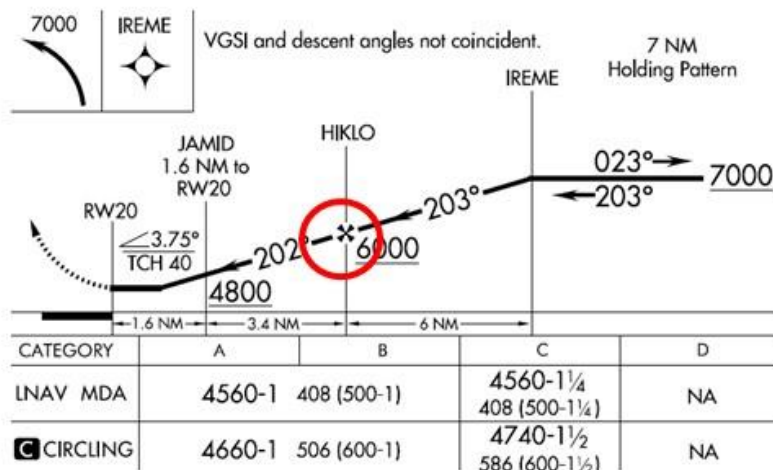
Second Approach Attempt

LOCATION: IAF IREME
ALTITUDE: 7,000 MSL
SPEED: 143 MPH (124 KTS)



Second Approach Attempt

LOCATION: FAF HIKLO
ALTITUDE: 6,000 MSL
SPEED: 150 MPH (130 KTS)

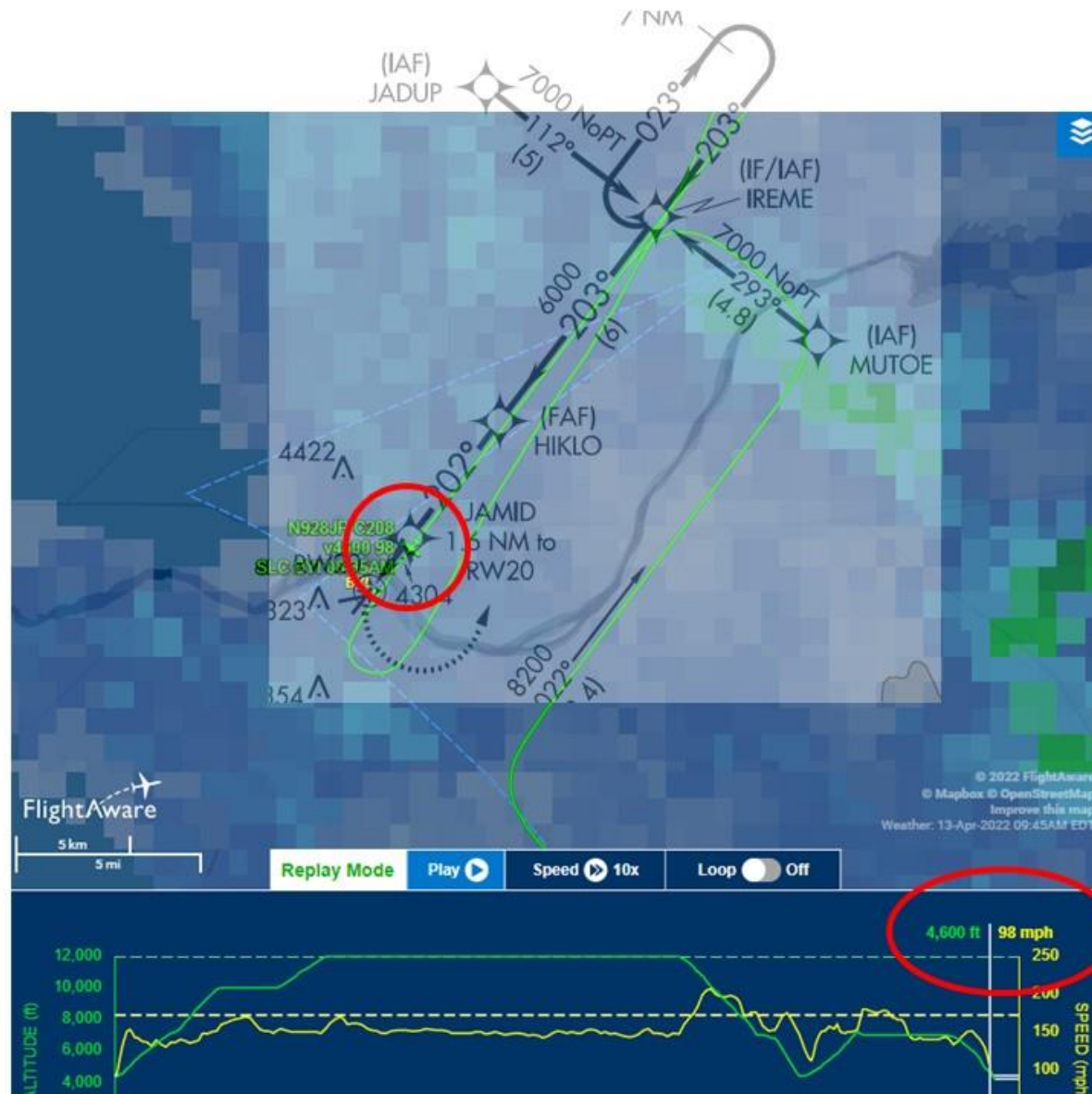
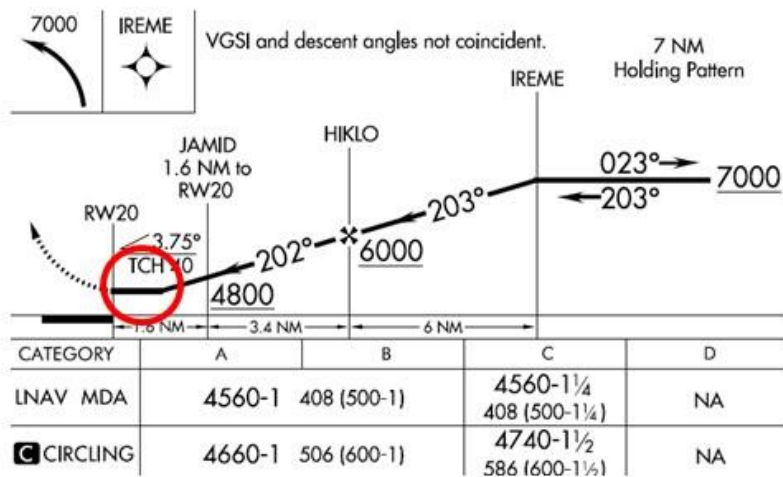


Second Approach Attempt

LOCATION: ½ MILE FROM MAP RW 20 WHERE STEAM STACK EXIST

ALTITUDE: 4,600 MSL

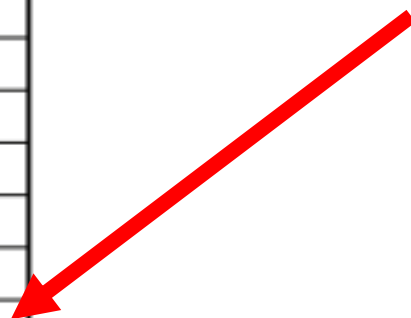
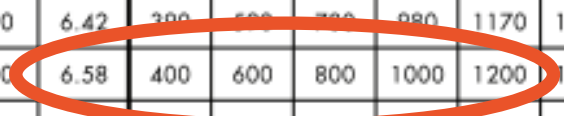
SPEED: 98 MPH (85 KTS)



Descent Table

- FAA Climb/Descent Table found in FAA approach plates booklets
- Check aircraft specific performance section in POHs for your specific requirements
- 149 vs 130 at HIKLO

ft/NM	%	GROUND SPEED (knots)											ANGLE
		60	90	120	150	180	210	240	270	300	330	360	
152	2.50	150	230	300	380	460	530	610	680	760	840	910	1.43
200	3.29	200	300	400	500	600	700	800	900	1000	1100	1200	1.89
210	3.46	210	320	420	530	630	740	840	950	1050	1160	1260	1.98
220	3.62	220	330	440	550	660	770	880	990	1100	1210	1320	2.07
230	3.79	230	350	460	580	690	810	920	1040	1150	1270	1380	2.17
240	3.95	240	360	480	600	720	840	960	1080	1200	1320	1440	2.26
250	4.11	250	380	500	630	750	880	1000	1130	1250	1380	1500	2.36
260	4.28	260	390	520	650	780	910	1040	1170	1300	1430	1560	2.45
270	4.44	270	410	540	680	810	950	1080	1220	1350	1490	1620	2.54
280	4.61	280	420	560	700	840	980	1120	1260	1400	1540	1680	2.64
290	4.77	290	440	580	730	870	1020	1160	1310	1450	1600	1740	2.73
300	4.94	300	450	600	750	900	1050	1200	1350	1500	1650	1800	2.83
310	5.10	310	470	620	780	930	1090	1240	1400	1550	1710	1860	2.92
320	5.27	320	480	640	800	960	1120	1280	1440	1600	1760	1920	3.01
330	5.43	330	500	660	830	990	1160	1320	1490	1650	1820	1980	3.11
340	5.60	340	510	680	850	1020	1190	1360	1530	1700	1870	2040	3.20
350	5.76	350	530	700	880	1050	1230	1400	1580	1750	1930	2100	3.30
360	5.92	360	540	720	900	1080	1260	1440	1620	1800	1980	2160	3.39
370	6.09	370	560	740	930	1110	1300	1480	1670	1850	2040	2220	3.48
380	6.25	380	570	760	950	1140	1330	1520	1710	1900	2090	2280	3.58
390	6.42	390	580	780	980	1170	1370	1560	1760	1950	2150	2340	3.67
400	6.58	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	3.77
450	7.41	450	680	900	1130	1350	1580	1800	2030	2250	2480	2700	4.24
500	8.23	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	4.70
550	9.05	550	830	1100	1380	1650	1930	2200	2480	2750	3030	3300	5.17



External Pressures

- Not an unfamiliar airport
- Volatile spring weather
- Completing the mission – delivering freight on time
- Unknown runway conditions first attempt could be used to determine runway conditions
- Missed approach and diverted the day before – reluctant to divert again?
- Others?



- FAA Aeronautical Study Determinations
 - Penetrates RWY 20 34:1 approach surface by 53 – 61 feet
 - Penetrates RWY 20 40:1 departure surface ICA by 57-64 feet
 - RWY 20 VASI adversely impacted – VASI taken out of service
- AIM Cautions
 - Exhaust plumes should be avoided for several reasons
 - Does higher temperature steam increase density altitude in a limited local area affecting aircraft performance?
- Stack Analysis?
 - FAA Tool to determine the impacts of exhaust plumes
 - Was an analysis done on these stacks?

Investigation Updates

- Letter to Airman Issued
- NTSB continues to investigate
- Airport relocation efforts?



Letter to Airman (LTA-ZLC-3)



- Published after accident
- Notes stack locations
- Visibility impairment
- Find LTAs on NOTAMs page

<https://notams.aim.faa.gov/notamSearch/nsapp.html#/>

DEPARTMENT OF TRANSPORTATION Federal Aviation Administration

FAA Salt Lake City ARTCC
2150 West 700 North
Salt Lake City, UT 84116

Issued: 06/16/2022 1906 (UTC)
FAA Salt Lake City ARTCC

Effective: 06/16/2022 1907 (UTC)
Letter to Airmen: LTA-ZLC-3

Subject: Obstacles in the vicinity of BYI airport

Cancellation: 06/14/2024 1200 (UTC)

Pilots should exercise caution in the vicinity of BYI. A series of stacks, elevation 4256 MSL, are located approximately 0.39NM NE of the Burley Airport (BYI) RWY20 landing threshold. These stacks may emit smoke or steam, which could impede in-flight visibility.

Additionally, information on IFR flight below the DA/DH or MDA can be found in 14 CFR 91.175 and in the Instrument Procedures Handbook (FAA-H-8083-16b).

Brett Waddoups
Air Traffic Manager, FAA Salt Lake City ARTCC



Lessons Learned

- Do a careful review of airport and approach information
 - Especially frequently visited ones – avoid complacency bias
 - Learn how to find information necessary for safe flight
- Little things add up and can create a hazardous situation
 - Learn to recognize when your risks are adding up
 - Actively work to minimize or mitigate them



Safe Flight Operations





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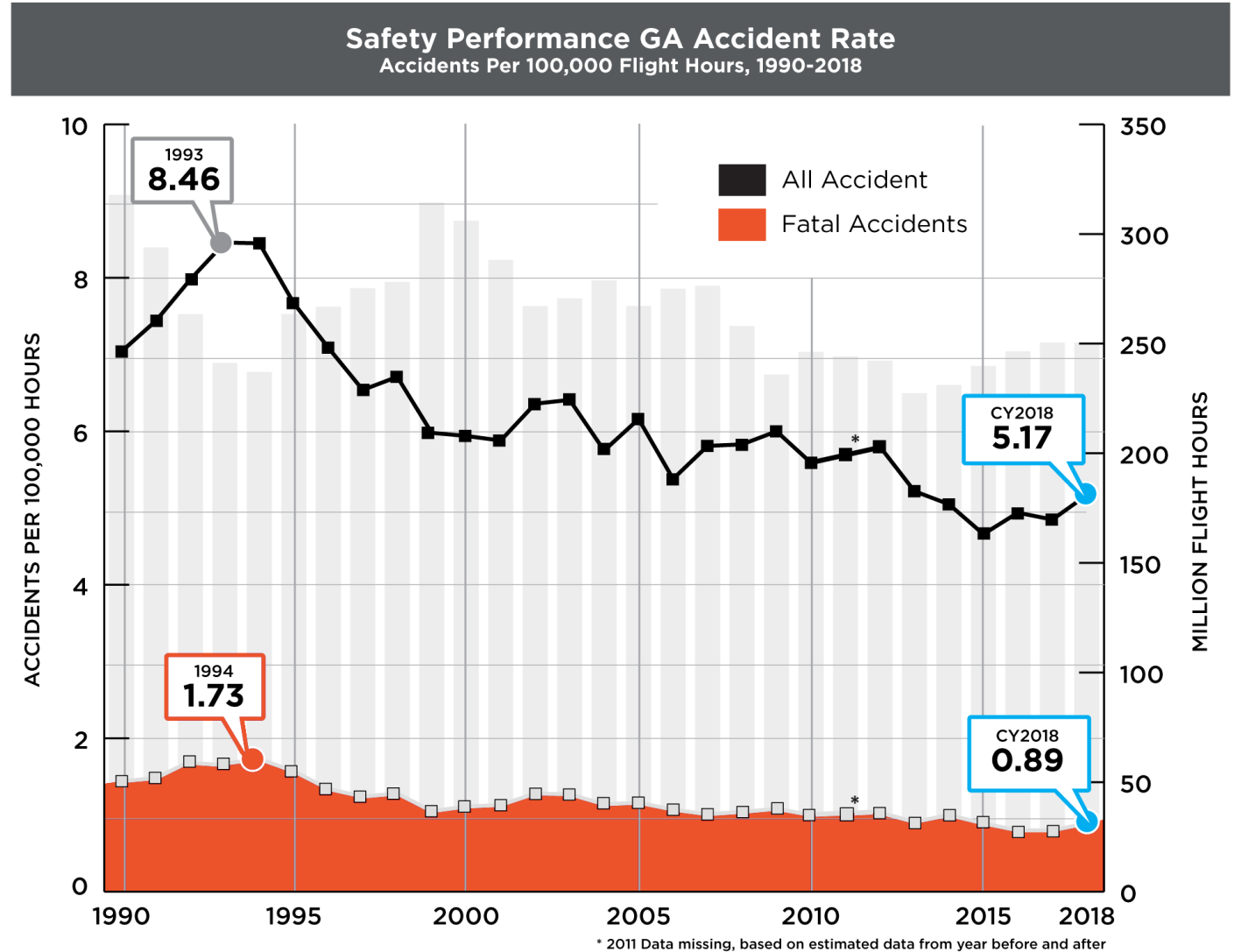
Thank you for participating!



State of GA Safety



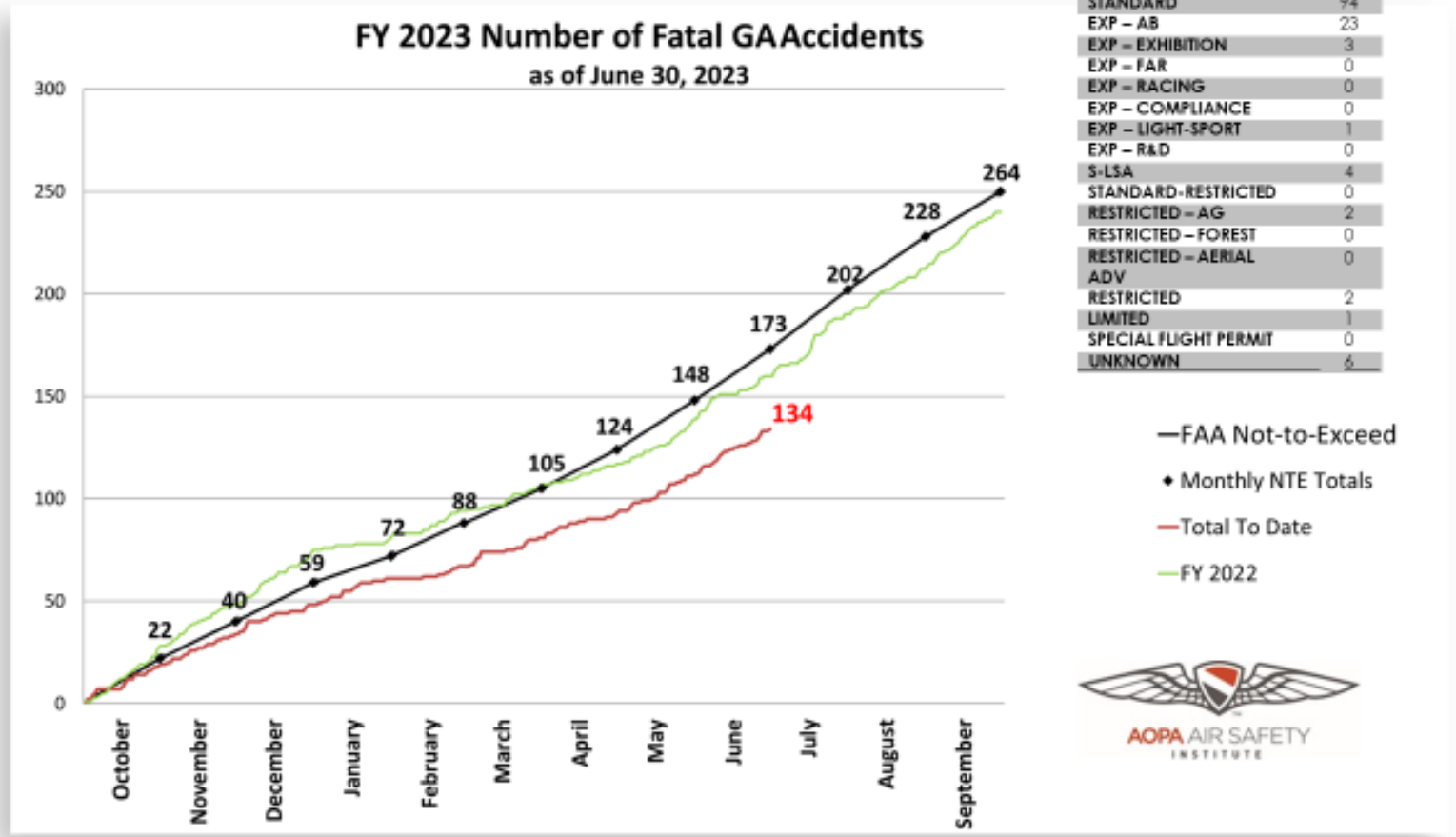
- General aviation has never been safer
- According to FAA data, general aviation had its safest fiscal year in FY 2021
- ASI has offered vital content to help keep pilots safe for 60+ years



State of GA Safety

GA Fatal Accident Dashboard

- Fiscal year 2023 could be the safest year on record
- Fatal accidents are trending downward



Over/Under for June
-3

Over/Under for Year
-39

Total to Date vs. FY2023
-26

GL03126604

AOPA ADVOCACY

Airports and State Advocacy – AOPA Government Affairs

Airport Policy Manager – DC Based for Direct FAA Contact

7 Regional Managers (including Alaska)

- State Legislative Affairs
- Airport Advocacy / ASN
- Membership Outreach

STATE ADVOCACY

TOGETHER WE PROTECT, PRESERVE AND PROMOTE
YOUR FREEDOM TO FLY

Through AOPA staff, a network of seven regional managers, and a corps of 2,500 Airport Support Network volunteers, AOPA advocates for its members at the state and local level to:

- Promote, protect, and defend America's community airports
- Maintain sufficient state and local funding for GA Airports and infrastructure
- Prevent excess state taxation on flying
- Protect general aviation from unnecessary state and local regulation



Federal Update

- **FAA Reauthorization**
- **Current Status**
- **GA Title Bill**

Fueling the Future: *Stay Engaged*

Collaborative FAA/Industry Initiative

- Urgency & Priority
- Chart Our Own Roadmap
- Protect Availability of 100LL
- Minimize Impact




The screenshot shows a web browser window with the URL aopa.org/advocacy/100-unleaded-avgas. The browser's address bar and tabs are visible at the top. The website's navigation bar includes links for AOPA Foundation, You Can Fly, Air Safety Institute, Finance, Insurance, Legal & Medical, and Pilots. The AOPA logo is prominently displayed, along with a 'JOIN NOW' button and an 'AOPA CREDIT' button. Below the navigation, the page title is 'GETTING THE LEAD OUT: THE CHARGE TOWARD FLEETWIDE UNLEADED FUEL'. The main content area features a paragraph of text and a photograph of a pilot refueling an aircraft.

Advocacy > 100 Unleaded Avgas

GETTING THE LEAD OUT THE CHARGE TOWARD FLEETWIDE UNLEADED FUEL

Nobody will argue that it's time to remove lead from all aviation fuels. It's as important that this transition needs to be done in a way that works for the entire general aviation fleet – safely, economically, practically, and efficiently.

This site serves the home of the industry campaign, led by AOPA, to find an unleaded solution that works for all aviators, manufacturers, suppliers, and regulators, and benefits the environment. Bookmark and revisit this site for continued news, updates, developments, and success stories.



Airport Advocacy in the Region

Burke Lakefront

Detroit City Airport – ALP Approval

Monitoring 100LL Concerns

Portage, WI Municipal

Ohio Aviation System Plan



Regional State Legislative

- Ohio – Airspace and Airport Protection (Tall Structure Permits)
- Indiana – **Match Reduction for State Direct Grants (50% - 25%)**
- Michigan – Aeronautics Code Updates / Registration Fees
- Ohio – Sales Tax Exemption for 2025/2026 Budget Proposal
- Indiana – 2 Year Policy Mandatory Insurance Requirement Opposed

