

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA22FA233

EVENT ORGANIZATIONAL FACTORS FACTUAL REPORT

2022 WAYNE COUNTY MAYDAY STOL DRAG AVIATION EVENT

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A. ACCIDENT

Location: Wayne, Nebraska
Date: May 20, 2022
Time: 1842 local central daylight time
2342 UTC
Airplane: Cessna 140

B. EVENT ORGANIZATIONAL FACTORS FACTUAL REPORT

IIC Adam Gerhardt
National Transportation Safety Board
Washington, DC

C. SUMMARY

On May 20, 2022, at 1842 central daylight time, a Cessna 140 airplane, N76075, was destroyed when it impacted terrain at the Wayne Municipal Airport (LCG), Wayne, Nebraska. The private pilot was fatally injured. The airplane was operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91.

D. DETAILS OF THE INVESTIGATION

On May 20th, 2022, the NTSB investigator-in-charge (IIC) was notified of the accident. On May 21-22, the on-site examination of the airplane, interviews, and collection of event records were completed. A Textron Aviation investigator and an FAA inspector already on-site for the aviation event attended the accident site documentation in Wayne, Nebraska. On the second day of the investigation, the FAA Coordinator originally assigned to the NTSB investigation was removed as the party coordinator at the direction of the NTSB due to his supervision of the aviation event ongoing at the time of the accident. The FAA reassigned a party coordinator from AVP-100, Office of Accident Investigation & Prevention.

E. DETAILS OF THIS FACTUAL REPORT

This factual report provides an overview of the organizational factors, timeline of events, and the traditional STOL that occurred during the 2022 Wayne County Mayday STOL Drag Event. In addition, this report provides an overview of the STOL Drag Events LLC. organization and the FAA's Certificate of Waiver and their supervision of the aviation event.

F. FAA CERTIFICATE OF WAIVER

On April 14, 2022, the FAA Form 7711-2, Application for Certificate of Waiver (CoW) or Authorization, was approved and signed by the aviation event FAA Inspector-in-Charge (FAA IIC). The organization that had applied for the FAA CoW was STOL Drag Events LLC. The Federal Aviation Regulations requested to be waived were FAR 91.119(c) and 91.126(b)(1). The application provided a detailed description of the proposed operations, which were stated in part:

This Application is for MayDaySTOL Drags and Comp "Traditional STOL Competition" Only. Please see attached "Mayday 2022 Ops V2".

On April 14, 2022, the Lincoln, Nebraska Flight Standards District Office (FAA FSDO) office manager, signed a CoW to STOL Drag Events LLC. The FAA CoW was effective from 0900 local May 19, 2022, to 1500 May 22, 2022.

The stated "OPERATIONS AUTHORIZED" and list of waived regulations were outlined in FAA Form 7711-1. The operations authorized were stated as:

OPERATIONS AUTHORIZED: Competition STOLDrag (Straight Line Air Race, (Non-Closed Course)) at Wayne Municipal Airport, Wayne, NE. All racing will be below 100' AGL, within the defined limits of the course adjacent to Runway 05/23. NOTAM D will be issued.

****NOTE**** Para-motor team is scheduled to present the Colors prior to the start of STOLDrag competition on 05/22/2022. Para-motors will depart as soon as airspace is closed, climb to 1000' AGL, descend in loose formation, display Colors and land on STOLDrag course - This will take place during the waived event time, but no additional waiver requested.**

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

91.119(c) Minimum Safe Altitudes¹

91.126(b)(1) Operating on or in the vicinity of an airport in Class G Airspace²

¹ § 91.119 Minimum safe altitudes: General. Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes: (c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

² § 91.126 Operating on or in the vicinity of an airport in Class G airspace. (b) Direction of turns. When approaching to land at an airport without an operating control tower in Class G airspace, (1) Each pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right.

An additional 33 "special provisions" were outlined within the FAA CoW. Review of the FAA CoW and the Mayday 2022 Ops V2 found no operational procedures or policies for traditional STOL operations to be conducted during the aviation event.

G. CERTIFICATE OF WAIVER HOLDER (STOL DRAG EVENTS LLC)

According to an FAA letter issued on April 26, 2021, by the manager of the FAA Flight Standards Technical Branch (AFS-840), STOL Drag Events LLC. was determined to meet the following criteria:

The STOL Drag Events LLC organization is qualified to be the responsible person of an STOL Drag race event and may apply for a Certificate of Waiver (CoW) using FAA Form 7711-2, Application for a Certificate of Waiver or Authorization of an Aviation Event.

STOL Drag Events LLC is accredited to act as an air race organization for the purpose stated above. Race Class accreditation for the STOL Drag Racing Class is issued to the above organization.

STOL Drag Events LLC has the authority to issue and sign air race pilot certificates for the STOL Drag Racing Class to pilots that comply with the qualification and currency requirements of your program.

Additionally, the FAA has approved the air racecourse design for Wayne, NE. Each additional air racecourse location is required to be submitted to this office for review and acceptance prior to operation.

The STOL Drag Events LLC. accreditation and air racecourse letter were effective April 28, 2021 and valid through April 30, 2023.

Review of the STOL Drag Events LLC. organization website³ found that they conducted multiple STOL Drag Racing events around the country yearly. This was the second STOL Drag event held at LCG Airport in Wayne, Nebraska, with the first event occurring April 28 - May 1, 2021.

H. AIRPORT OPERATIONS

As part of the FAA CoW, airport drawings were submitted as part of the application package. The STOL Drag air race course was oriented on a 5-23 runway direction. The grass runway 13-31 was marked as closed in all airport drawings reviewed by this investigation. Figure 1 shows the airport diagram, as photographed

³ <https://stoldrag.com/>

at the airport after the accident. There were also no drawings to mark a crowd line for flight operations being conducted from runway 13-31, as there were lines drawn for runway 5-23.

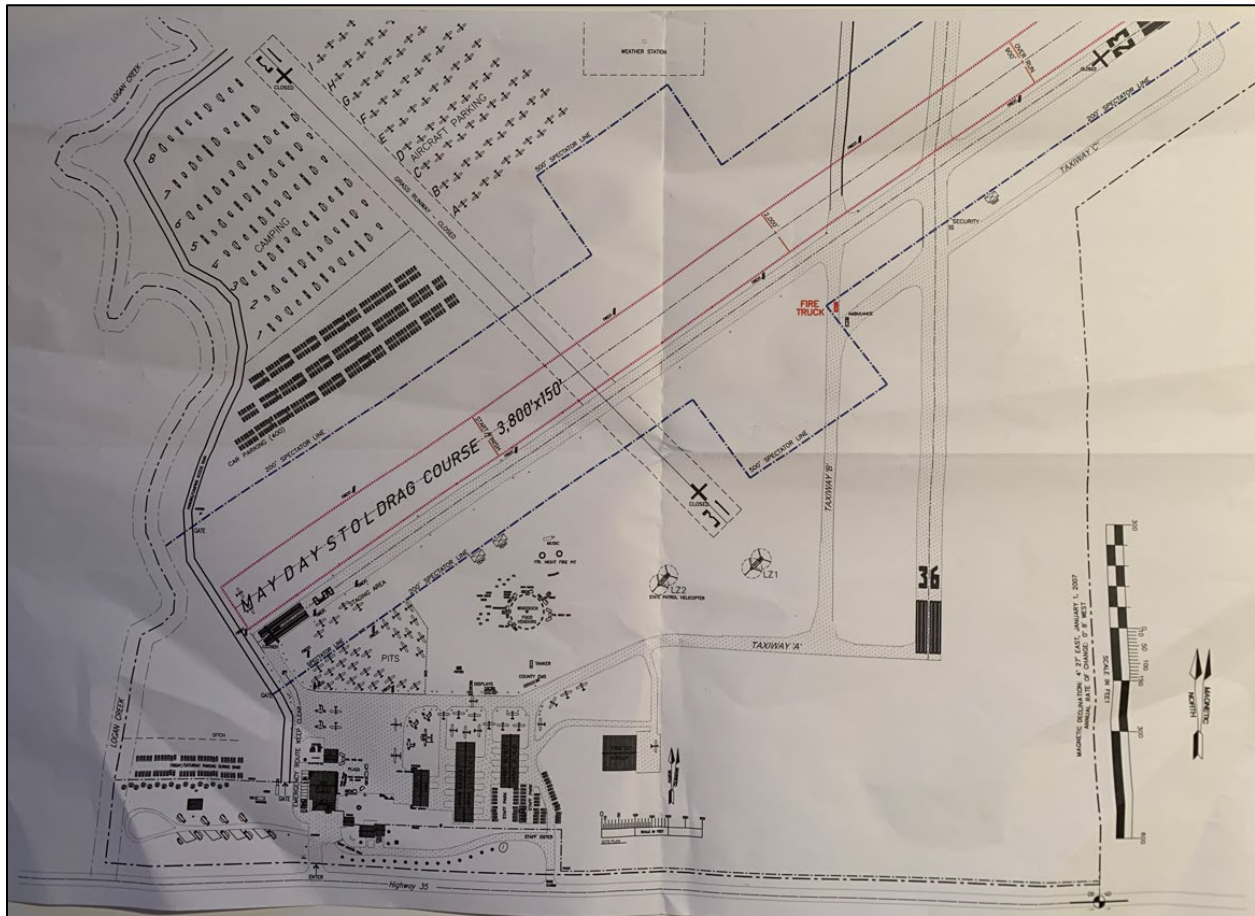


Figure 1: Overview of the airport diagram as planned for the aviation event.

A. STATUS OF LCG AIRPORT

Review of FAA Notice to Air Missions (NOTAM) information found multiple airport and runway closures for LCG. The following NOTAMs were in effect at the time of the accident.

NOTAM !LCG 05/009 LCG AD AP CLSD 2205202200-2205210001

Translation: LCG Airport, airport closed, May 20, 2022, 1700 local thru 1901

!LCG 05/012 LCG RWY 13/31 CLSD 2205191257-2205231300

!LCG 05/006 LCG RWY 13/31 CLSD 2205181700-2205231300

Translation: LCG Airport, runway 13-31 closed, May 18, 1200 local - May 23, 2022, 0800 local.

B. STOL DRAG VS TRADITIONAL STOL

STOL Drag Air Race

Review of the STOL Drag website found a rules description for the unique air race events. The website provided an overview of what STOL Drag operations entailed. The STOL Drag air race combined two aircraft that start on a line marked on a runway and initiate a takeoff at the same time. They then fly in a straight line side by side, typically in ground effect about 2,000 ft. down the runway, and then land in the shortest possible distance, turn around, and fly back down the runway in ground effect until crossing the start/finish line. A short field landing is accomplished after the start/ finish line which concludes the race.

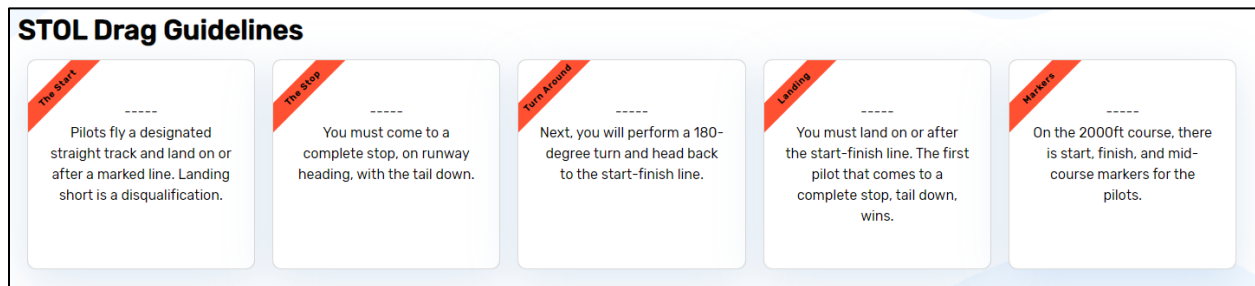


Figure 2: STOL Drag description of the air race format and rules.

Several videos⁴ were available online providing an overview of the STOL Drag racing concept.

Traditional STOL

Traditional Short Takeoff and Landing - "Traditional STOL" is different form of competition and contains no drag racing elements as compared to STOL Drag air racing. Traditional STOL was not described in any STOL Drag Events LLC. operational procedures or websites. According to NTSB interviews with the president of STOL Drag Events LLC, traditional STOL was not part of planned official competition as part of STOL Drag Events LLC. activities.

Review of the Wayne America Fly-in website⁵, which was a website associated and promoting the aviation event, found the following description of Traditional STOL:

⁴ <https://youtu.be/3Vzg8PnREcg>

⁵ <https://wayneamericaflyin.com/>

What is Traditional STOL?

STOL, or Short Take Off and Landing, is a competition that pairs pilots and aircraft, against each other. Each competitor completes a series of take offs and landings, or circuits. The total circuit distance is calculated by adding the takeoff distance and landing distance. The shortest circuit in each class is the winner.

Different Classes

Pilot's and their planes compete against each other in like classes. These classes are grouped together by specific aircraft characteristics.

For Special Pilots

STOL competitions requires Pilots who have the special skills to take off or land in a considerably shorter distance than most.

C. REQUIRED PILOT AND AIRCRAFT DOCUMENTS

The FAA CoW included an attachment, Required Pilot and Aircraft Documents. Several pilot and aircraft related documents were required to be evaluated by the FAA IIC prior to a pilot competing in the STOL Drag event. The accident pilot's aircraft and pilot registration checklist were completed by the FAA IIC and STOL Drag Events LLC. president. Review of this document found no requirement for competing airplanes to be equipped with shoulder harnesses. According to the president of STOL Drag Events LLC., there was no requirement for an airplane to have shoulder harnesses to participate in the aviation event or racing.

D. SCHEDULE OF EVENTS

STOL Drag Training

According to interviews with the president and chief instructor with STOL Drag Events LLC., the day before the accident, STOL Drag ground and flight training was conducted. The accident pilot participated in the training. He did not receive a new signoff to participate in STOL Drag competition due to his possession of a valid signoff issued October 16, 2021. The letter issued to the accident pilot stated that the signoff was valid for 24 calendar months.

The Accident Day

A schedule of waiver periods was outlined for the entire weekend of activities. On the day of the accident, according to an attachment to the FAA CoW, the waiver

time was scheduled from 0800-1900, with qualification racing scheduled as a waived event from 1600-1900. A corresponding NOTAM had closed the airport until 1901, which remained published at the time of the accident, in addition to the runway 31 closure NOTAM.

According to the president of STOL Drag Events LLC., during the afternoon of the accident day he notified the FAA IIC, the airport authorities, and competition STOL Drag pilots that the official waived STOL Drag competition and qualification would be postponed for the day due to the gusting wind⁶ present at the airport.

Traditional STOL Preflight Briefing

According to the president of STOL Drag Events LLC., following the postponement of the STOL Drag qualifier racing, several competition pilots asked whether they could fly traditional STOL on the grass runway 31, given the favorable headwinds. About 1630, a pilot briefing was led by the STOL Drag Events LLC president. According to a statement provided by him, "STOL Drag LLC made it very clear during that briefing, with all pilots and the FAA in attendance, that this was flying at your own risk and the event was over for the day. The pilot group decided to organize a short take-off and landing practice session."

During additional interviews with the president of STOL Drag Events LLC., he reported that he stated during the pilot briefing that "STOL Drag is done for the day" and repeated that the Traditional STOL flying was voluntary and not a part of any official competition. He subsequently organized four groups of five airplanes on a sheet of paper, in order to limit the number of aircraft in the traffic pattern at one time. It was his view, that if he did not help with this group organization, all of the airplanes would have attempted to fly at the same time. The accident pilot was placed in group three, and he was the last airplane in the group. He reported that traditional STOL was not planned as part of the STOL Drag Event LLC. program nor is traditional STOL commonly performed at other STOL Drag Events.

He further reported that in attendance at the traditional STOL pilot briefing was the FAA IIC and two additional FAA inspections, and the airport authority. According to the president of STOL Drag Events LLC., in a written emailed statement, he reported the FAA Inspectors and airport authority provided verbal approval that traditional STOL could be conducted during the scheduled waived/ airport closure period.

The president of STOL Drag Events LLC further added in an NTSB interview, that the FAA IIC stated to him, "the waiver and the NOTAM is protecting you guys."

⁶ The STOL Drag air racecourse was oriented with a 5-23 runway direction. The most recent METAR at 1835 local recorded wind from 290° magnetic heading, at 15 knots, gusting to 21 knots, which resulted in a crosswind from 13 to 18 knots, and a tailwind up to 10 knots.

yeah go fly." The president further explained that the NOTAM and waiver was valid until 1900 and that the FAA IIC was not going to allow the flight activity to go beyond 1900.

E. THE TRADITIONAL STOL FLYING

According to multiple witnesses and video/photographic evidence, the accident airplane was, as planned, the last airplane within group three that had a total of 5 airplanes conducting traditional STOL. Within the accident pilot's group, two landings had been performed without incident. Right traffic patterns were being utilized. According to an FAA Inspector statement (not the FAA IIC) who was observing the traditional STOL, the accident airplane was "by far using more distance on the takeoff roll than any of the other aircraft in that group."

The written FAA inspector statement further stated that, during the third approach with the accident airplane on final approach and following a Zenith STOL 701, the accident airplane "looked to be going very slow and appeared to be almost hovering as it followed the Zenith 701." He further stated, "the spacing also appeared to be tight between the Zenith 701 and the Cessna 140, and the Cessna 140 was lower than the Zenith 701." He then heard someone say, "Oh No" and he "watched the Cessna 140 wing over to the right and enter a vertical nose down decent to the ground. The aircraft impacted the ground and bounced once and landed on its nose with the tail in the air."

According to the president of STOL Drag Events LLC., he was coordinating the traffic pattern operations via a handheld radio. He did not hear any radio calls from the accident pilot throughout the pattern operations. Immediately prior to the accident, he noticed that the accident aircraft was slow, and he turned toward final approach early. While the accident aircraft was on final approach, he stated the pilot's first name and, "get that nose down" over the radio. He stated that it was not common for the ground controller to issue go-around instructions to aircraft.

According to the president of STOL Drag Events LLC., another representative with STOL Drag Events requested permission from the FAA IIC to continue traditional STOL past 1900 shortly before the accident occurred, however, the FAA IIC verbally denied this request.⁷

F. PHOTOGRAPHS AND VIDEO RECORDINGS

Numerous photos and videos were provided to the NTSB Investigation. The president of STOL Drag Events LLC coordinated the right traffic pattern operations

⁷ The airport closure NOTAM and originally scheduled waiver period ended at 1900.

over the radio while positioned near the white painted threshold line at the modified threshold of runway 31.



Figure 3: Overview of the runway 31 threshold and the accident airplane departed for one of the three traditional STOL patterns.

Figure 4 shows a different view of three airplanes in the accident group approaching runway 31. The runway 31 boundaries had been altered from its normal length and width with white lines and cones.

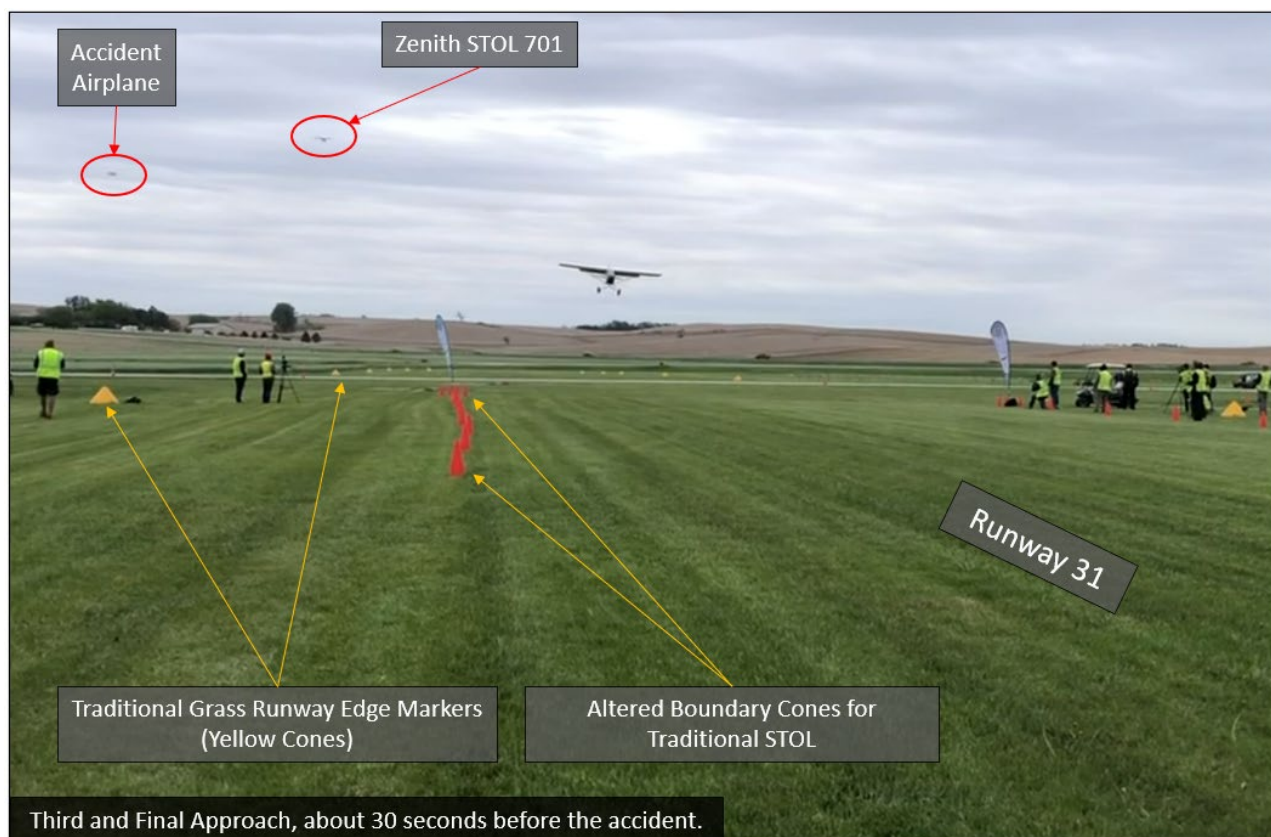


Figure 4: Additional view of runway 31 and airplane's arriving, about 30 seconds prior to the accident.

Video of the traditional STOL operations appear to show individuals, one with a jacket with a "STOL Drag" logo completing measurements after STOL attempts. According to the president of STOL Drag Events LLC., "generic measurements" were being taken during the traditional STOL. The measurements were not a part of any official competition or monetary awards.



Figure 5: A previous landing by the accident airplane captured on video.

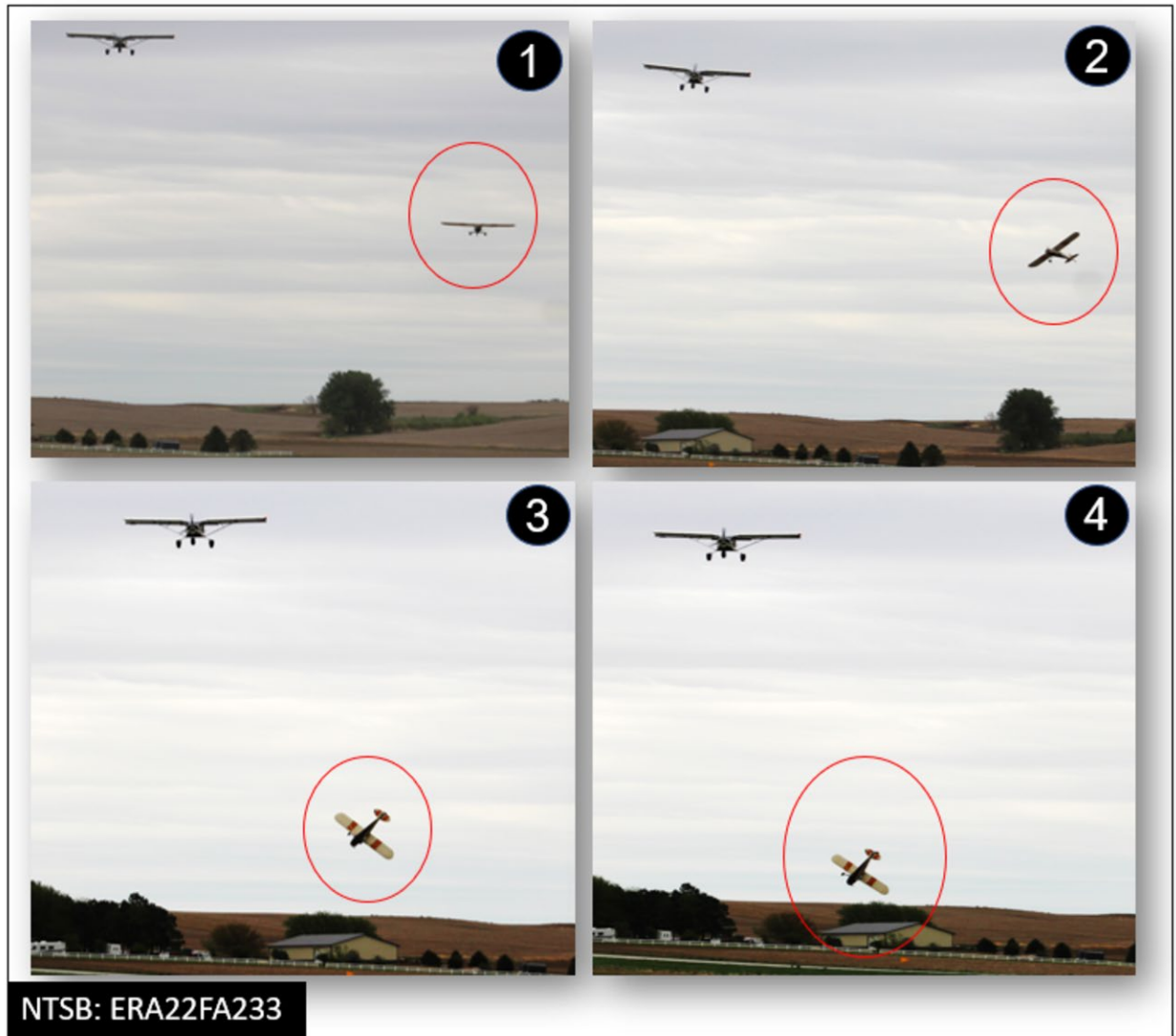
Video and photo evidence captured the accident pilot's takeoff attempts. The video also showed the location of the spectator and car lines paralleling the runway on the airport movement area.



Figure 6: View of the accident airplane's takeoff and crowd line at the aviation event.

The Accident Approach

Video and photo evidence showed that the accident airplane descended and appeared to be lower than the airplane ahead. Subsequently, the pitch attitude increased, the airplane rolled to the right, and completed a 3/4 turn right spin and impacted terrain in a near vertical attitude, as shown in Figure 5 with the accident airplane circled in red.



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Figure 7: Four photographs showing the right roll and descent



Figure 8: Photograph showing the right roll.



Figure 9: Photograph showing the right roll.



Figure 10: Photograph showing the right roll and descent near terrain.



Figure 11: Photograph showing the right roll and descent near terrain.



Figure 12: Closer view of the accident airplane moments before the right roll was observed. View of the wing surface reveals no evidence that the flaps were extended.



Figure 13: Closer view of the accident airplane as the right roll is entered.



Figure 14: Closer view of the accident airplane as the right roll continued.



Figure 15: Closer view of the accident airplane after the nose down and rapid descent was entered.



Figure 16: Image of the accident airplane approaching for its second STOL landing, which was the approach and landing preceding the accident approach. Note the visual appearance of the extension of the flaps.

The Airplane Ahead (Zenith STOL 701)

According to the airplane ahead of the accident airplane on final approach, he recalled that his approach speed was about 50 MPH indicated (43 Knots Indicated Airspeed). He did not know anything had happened behind him until he heard someone over the radio state, "airplane down." He continued his landing after the person coordinating the traffic pattern operations over the radio told him he should continue his landing. He stated that the wind was similar for all three approaches to land, which included a wind that was not steady and gusting throughout the approach.

G. MARKETING OF THE AVIATION EVENT

Review of the website associated with the 2022 WAYNE COUNTY MAYDAY STOL DRAG AVIATION EVENT, which was a different website from the STOL Drag Events LLC website, found that paid admission was marketed on the website for the day of the accident.

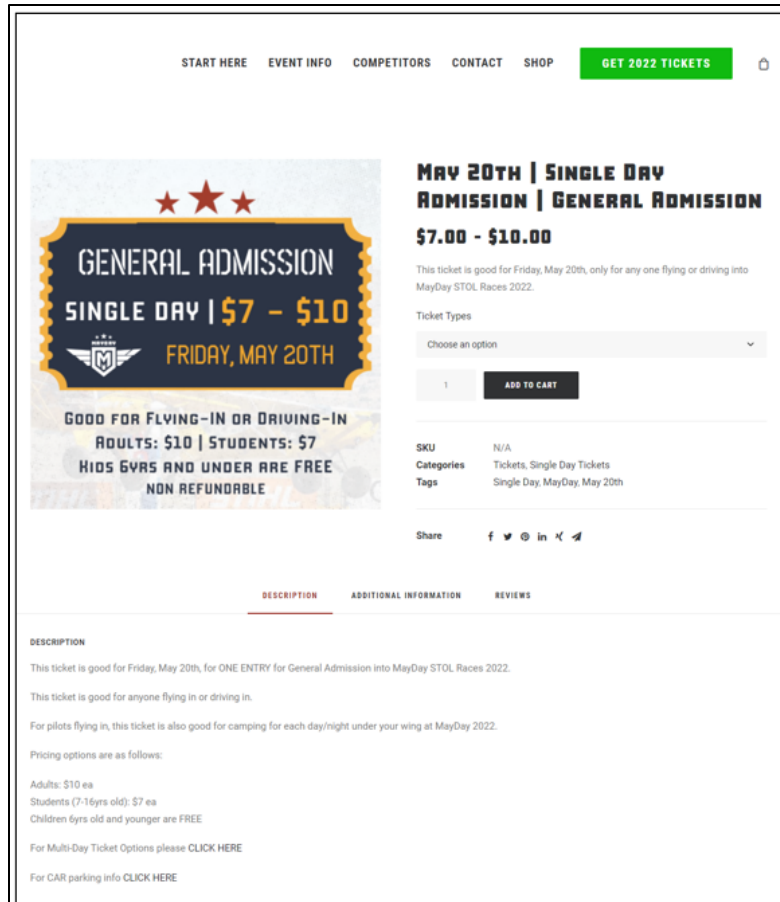


Figure 17: Screenshot of paid admissions for the accident day.

Facebook posts, issued by “MayDay STOL Drag Races”, posted at 1724 local time the evening of the accident stated that “MayDay action is starting tonight with traditional STOL competition.”

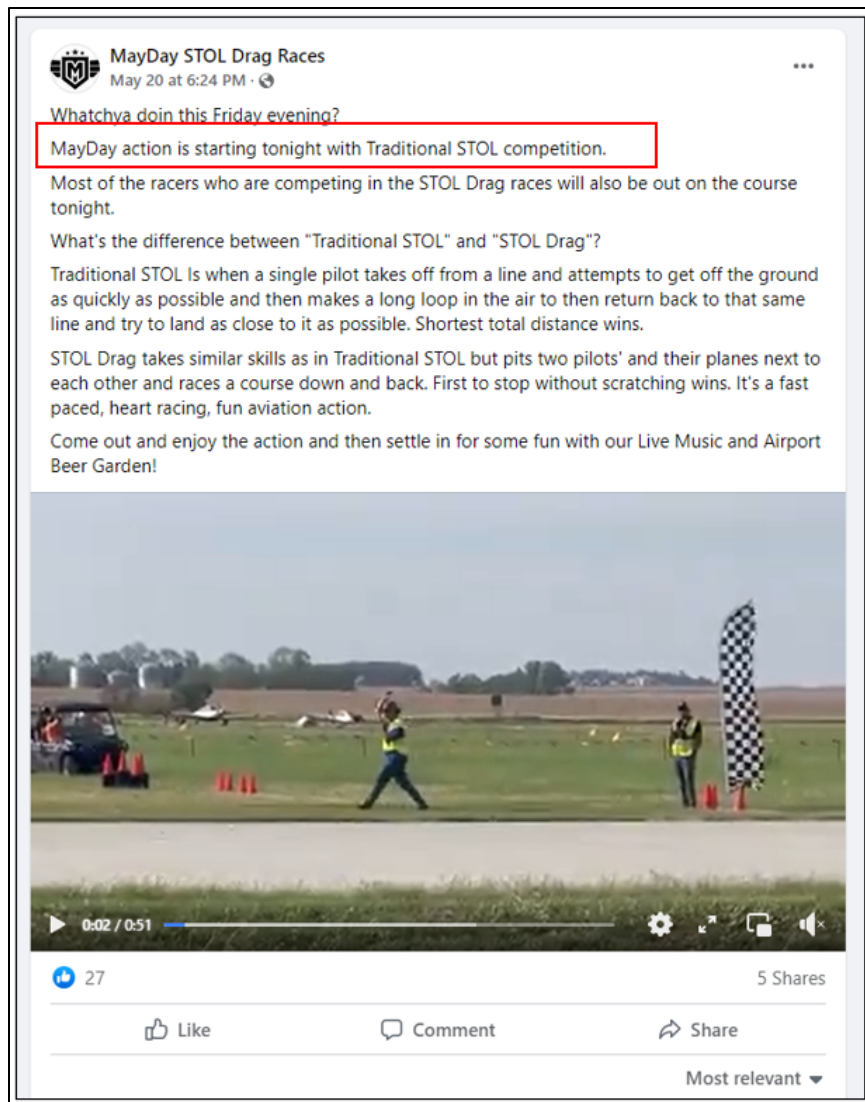


Figure 18: Facebook post marketing traditional STOL competition on the day of the accident.

H. FAA IIC STATEMENT

Following the accident, the NTSB IIC requested a written statement from the FAA inspector assigned as the FAA IIC to the aviation event. NTSB written questions are provided below (FAA IIC Answers noted in Blue):

1. The FAA Form 7711-2 application submitted by STOL Drag Events LLC. requesting a Certificate of Waiver or Authorization for an aviation event states, Section 7, "This Application is for MayDaySTOL Drags and Comp "Traditional STOL Competition" Only. Please see attached "Mayday 2022 Ops V2"." This application is marked approved and signed by [FAA IIC] on April 14, 2022, and an accompanied letter from [FAA IIC] was issued stating the application was approved. However, a separate "FAA Certificate of Waiver" issued to STOL Drag Events LLC. does not mention traditional

STOL within the "operations authorized". Please explain the difference between the "approved" application and the Certificate of Waiver.

FAA Form 7711-2 - The purpose of this information is to establish eligibility for certificate of waiver or authorization only. The FAA Form 7711-2 is not a stand-alone document. All items to organize and conduct the event is submitted along with this document including: AFS-800 Accreditation Letter which allows the STOL Drag Competition, Arrival/Departure Procedures, Taxi Procedures, Airport Diagram (we had to have the organizer update this due to a missing taxiway), Parking Areas, Fire Extinguisher Placement, Runway Safety Zones. Mayday Emergency Plan etc.

Since "Traditional STOL" is a term recognized by the STOL community and not the FAA or general aviation pilots as a whole at the time of signing the FAA Form 7711-2 and having all of the other documents I contextually found the information valid as contained in the 7711-2 along with the other documents which were submitted. The other documents indicated the competition would be for the STOL Drags per the AFS-800 Accreditation Letter. FAA Form 7711-1 is the waiver itself. This contains the specific events/actions, special provisions and waived regulations which are allowed to take place under the waiver. Once the waiver was canceled for the day this waiver was no longer in effect for that day.

2. Was the "Aviation Event" taking place at the time of the accident?

No

3. What were the wind limitations that were exceeded which resulted in the postponement of the STOL Drag?

10 Knot Tailwind as the race was to take place in both directions on runway 5 and 23.

4. On May 20, 2022, while at the Wayne, NE Airport, who asked, and what was asked of the FAA Inspectors in regard to conducting flight operations on runway 31 after the decision was made to postpone STOL Drag racing? What did the FAA Inspector(s) state in response?

The FAA inspectors attended the pilot briefing where it was announced that the winds were out of limits for the STOL Drags. [The president of STOL Drag Events LLC.] made the decision to cancel the waived event and accomplish the STOL on runway 31. I don't remember agreeing or disagreeing with this decision.

5. During the traditional STOL being flown at the time of the accident, was an FAA Inspector asked for permission to continue the traditional STOL past 1900 local?

Yes

What was asked (Can we continue to fly the STOL after 7 [1900 local], by who [STOL Drag Director of Operations], and what was said in response by this FAA Inspector(s)?

The response was No

NOTE: This accident did not take place during an FAA Waivered Event. The pilot was operating on the extreme back-side of the power curve during gusty winds and should fall squarely on the pilot's failure to maintain airspeed. With all due respect, we understand the NTSB tries to find fault with the FAA in any accident, and often times that may be the case, but in this case it doesn't fit the facts of the accident as we know[sic] them. Can you share with us what the NTSB's concerns are with the FAA being a factor in this accident? Thanks in advance

Submitted by:

Adam M. Gerhardt
NTSB IIC, Senior Air Safety Investigator