

MIFACE INVESTIGATION REPORT #13MI102

SUBJECT: Airport Manager Killed When Homemade Drag Struck Him While Smoothing a Runway

Summary

In fall 2013, a private airport manager in his 80s died when the homemade drag he was using “flipped up and struck him in the head. The decedent was operating a narrow front Allis-Chalmers D17 tractor. Attached to the rear of the tractor was a drag used to level the soil. The decedent constructed the drag using two 4-inch by 6-inch by 14-foot treated wood posts attached to four 8-foot channel-style steel beams and one shorter middle channel-style steel beam. The drag was attached to the lift arms of the tractor’s three-point hitch. At the second steel beam, the decedent had attached a screw-in bolt in the wood, attached the chain to the bolt, and the chain to each lift arm. At some point during the leveling of the soil, the drag caught on something on the ground and “flipped” up, coming to rest upright against the back of the tractor. One of the drag’s steel beams struck the decedent’s head. Police indicate it appeared the tractor stopped immediately. When the decedent was found, the tractor was still running. Emergency response was called and he was declared dead at the scene.



Figure 1. Overview of incident scene. Drag had been positioned on ground from upright position against rear of tractor

Factors contributing to this incident:

- Rutted, clumpy, uneven soil in area he was leveling
- Construction of the home made drag
- Chains vs hard attachment to tractor
- No roll over protective structure (ROPS) on tractor

RECOMMENDATIONS

- Evaluate site conditions and select proper tool for the task to be performed.
- Older tractors should be retrofitted with a roll over protective structure (ROPS).

INTRODUCTION

In the fall of 2013, a private airport manager in his 80s died when the homemade drag he was using “flipped up” and struck him in the head. MIFACE learned of this incident via a newspaper clipping. MIFACE contacted an individual who was at the airport at the time of the incident. This individual agreed to be interviewed. The MIFACE researcher reviewed the Sheriff’s investigation report and pictures and the death certificate. Pictures used in this report are courtesy of the responding Sheriff department.

The decedent had purchased the property in the early 1970s, cleared the trees, and established a private airport for local airplane enthusiasts. He was a certified airplane engine mechanic and conducted the annual required FAA airplane inspections.

In the early 1990s, the enthusiasts and the decedent incorporated (LLC) and bought the property. The LLC charged annual dues, which were used to improve the airport landing strip, purchase equipment, pay taxes, etc. The LLC designated the decedent to be the airport manager in addition to his mechanic and inspection duties. He reported to the LLC Board. The decedent, as well as all of the LLC members, donated their time regarding airport operations. The LLC changed the airport status from a private airstrip to a public airstrip.

INVESTIGATION

The website AirNav.com describes the airport in the following manner: The runway dimensions were 2470 x 90 feet. The surface was designated as turf in poor condition. The runway was rolling terrain and designated as rough. Any plane could land without charge, but there was a tie down charge for the landed plane.

The north end of the runway was uneven. The dirt area where he was working was approximately 75 feet wide. On the other side was the runway. The decedent had previously used the tractor and had disced this dirt area adjacent to the runway. At the time of the incident, he was in the process of leveling it. The terrain was described as damp/moist and was rutted from the disc activity.

The decedent was operating a non-ROPS equipped Allis Chalmers D17 tractor. The leveler he used was identified as a ‘drag’. The decedent constructed the drag using two 4-inch by 6-inch by 14-foot treated wood posts attached to five 8-foot steel channel beams. The drag was attached to the tractor using heavy duty chains attached to the lift arms of a three-point hitch, with the 14-foot posts positions



Figure 2. Attachment point of chain to wood and lift arm of three point hitch on decedent’s right side

straight back from the tractor.

The interviewee stated that he watched the decedent work for a while operating the tractor and discs. The decedent made a couple of trips around the dirt area and then stopped the tractor and took the discs off. He then attached the drag. The interviewee indicated he thought the decedent might be thirsty so he went to get him a bottle of water. Approximately 30-40 minutes later, he brought the water back to the decedent and saw that the decedent was fatally injured. He found the tractor stationary, in neutral, but still running. It is unknown when or how the tractor came to be in neutral. The interviewee called for emergency response.



Figure 3. Overview of incident scene looking north.

The decedent was found slumped over on the seat with an injury to the top of his head. A possible scenario is that the decedent noted dirt clods building up on the front channel iron and placed the tractor in neutral to get off the tractor and clear the clods. Prior to getting off of the tractor, the tension on the chain to the driver's left caused it to break, and the drag to flip upward toward the decedent, striking him on the top of his head. Emergency response moved the drag to the position as shown in Figure 1 for their safety and to avoid further injury to the decedent.

CAUSE OF DEATH

The cause of death as listed on the death certificate was blunt force trauma to head. No autopsy or toxicology was performed.

RECOMMENDATIONS/DISCUSSION

- Evaluate site conditions and select proper tool for the task to be performed.

After discing the area, the ground conditions were still quite rough. Due to the ground conditions, a different tool such as a chain harrow (trailed or mounted), a ground/soil pulverizer, or a tractor box blade (See Attachment 1, Figures 4-7) would have been a better choice to smooth out and break up the soil/grass mounds than the home made drag. The construction of the drag made it ill-suited to the task at hand. Some of the issues were: 1) the front steel beam did not have at least a 45-degree angle to funnel excess clods of soil away from it, 2) the front beam area did not have tines/shanks to assist in breaking up the soil, 3) the rigidity and weight of the drag did not permit it move easily over the rutted ground, and 4) using chains as the attachment points on the tractor permitted tension to build up on the chains, causing the driver's left chain to break and the drag to flip up toward the decedent.

- Older tractors should be retrofitted with a roll over protection structure (ROPS).

MIFACE recommends all older tractors not equipped with a roll over protective structure be retrofitted. This model of Allis Chalmers has a retrofit ROPS available. If the tractor was equipped with a ROPS, it may have prevented the drag from striking the decedent.

KEY WORDS: home made drag unit, home made leveler, tractor, airport operations, ROPS, Transportation

REFERENCES

- Incident airport information gathered from internet source: <http://airnav.com/airports/>
- Fierui Trade Company: (<http://www.drag-harrow.com/>)
- Land Pride: (<http://www.landpride.com/products/dirtworking/soil-pulverizers>)
- Tractor Box Blades: (<http://www.tractorboxblades.com/>)

MIFACE (Michigan Fatality Assessment and Control Evaluation), Michigan State University (MSU) Occupational & Environmental Medicine, 909 Fee Road, 117 West Fee Hall, East Lansing, Michigan 48824-1315; <http://www.oem.msu.edu>. This information is for educational purposes only. This MIFACE report becomes public property upon publication and may be printed verbatim with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company. All rights reserved. MSU is an affirmative-action, equal opportunity employer.

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ATTACHMENT 1

TYPES OF EQUIPMENT TO BREAK UP MOUNDED SOIL

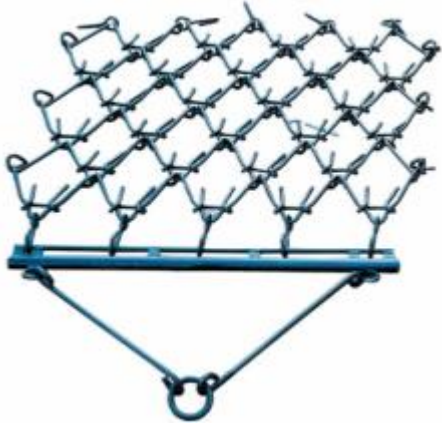


Figure 4. Trailed chain harrow. Photo courtesy of Fierui Trade Company: (<http://www.drag-harrow.com/>)

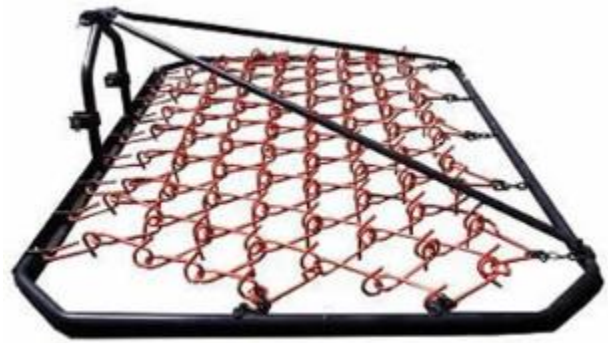


Figure 5. Mounted trailed chain harrow. Photo courtesy Fierui Trade Company: (<http://www.drag-harrow.com/>)



Figure 6. Soil pulverizer. Photo courtesy of Land Pride: (<http://www.landpride.com/products/dirtworking/soil-pulverizers>)



Figure 7. Tractor box blade. Photo courtesy of Tractor Box Blades: (<http://www.tractorboxblades.com/>)