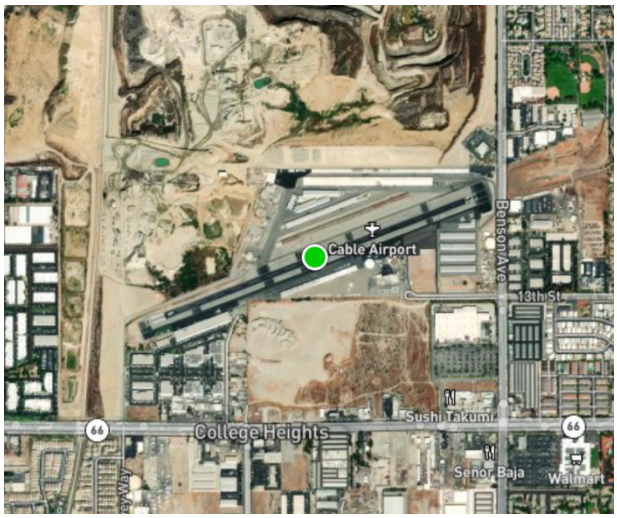
Factual Information

History of Flight

On January 3, 2022, 1134 Pacific Standard Time, I departed the Riverside Municipal Airport (KRAL) with the intent of maintaining proficiency on takeoff and landings at the local airport I teach out of, Cable Airport (KCCB) on N76646, a Cessna 120.

I was the sole occupant onboard, Francisco Argel Gutierrez, a Flight Instructor with Instrument Airplane teaching privileges (CFII) and a Commercial Pilot Certificate with Instrument Privileges on airplane single engine land. Endorsements held (Complex, High Performance, Tailwheel)

I requested a right downwind departure from runway 27. I navigated via pilotage to my destination. My route of flight was overflying the Flabob Airport (KRIR), flying northwest bound towards the California Speedway, and then towards Chaffey College, both VFR checkpoints listed on the Los Angeles VFR Terminal Area Chart. After Chaffey College, flying towards San Antonio Heights to enter a left crosswind for left traffic runway 24 at Cable Airport.



Although N76646 was equipped with a transponder, it did not have ADSB-Out. Part of my flight planning involved avoiding the Ontario Class C airspace. Upon receiving frequency change approval from Riverside Tower, I monitored the Common Traffic Advisory Frequency at Flabob Airport and made position reports as I transitioned the airport area. I then monitored the Cajon Pass Practice Area 123.3 prior to changing to the Cable Common Traffic Advisory Frequency.

I headed towards a dam near the San Antonio Heights to enter on a crosswind entry as requested by the Cable Airport Rules and Regulations. These were my following transmissions on the CTAF.

1. **"Cable Traffic, Cessna 76646, over Chaffey College, 2,600 climbing to 3,000, flying westbound towards the Dam, Cable"**

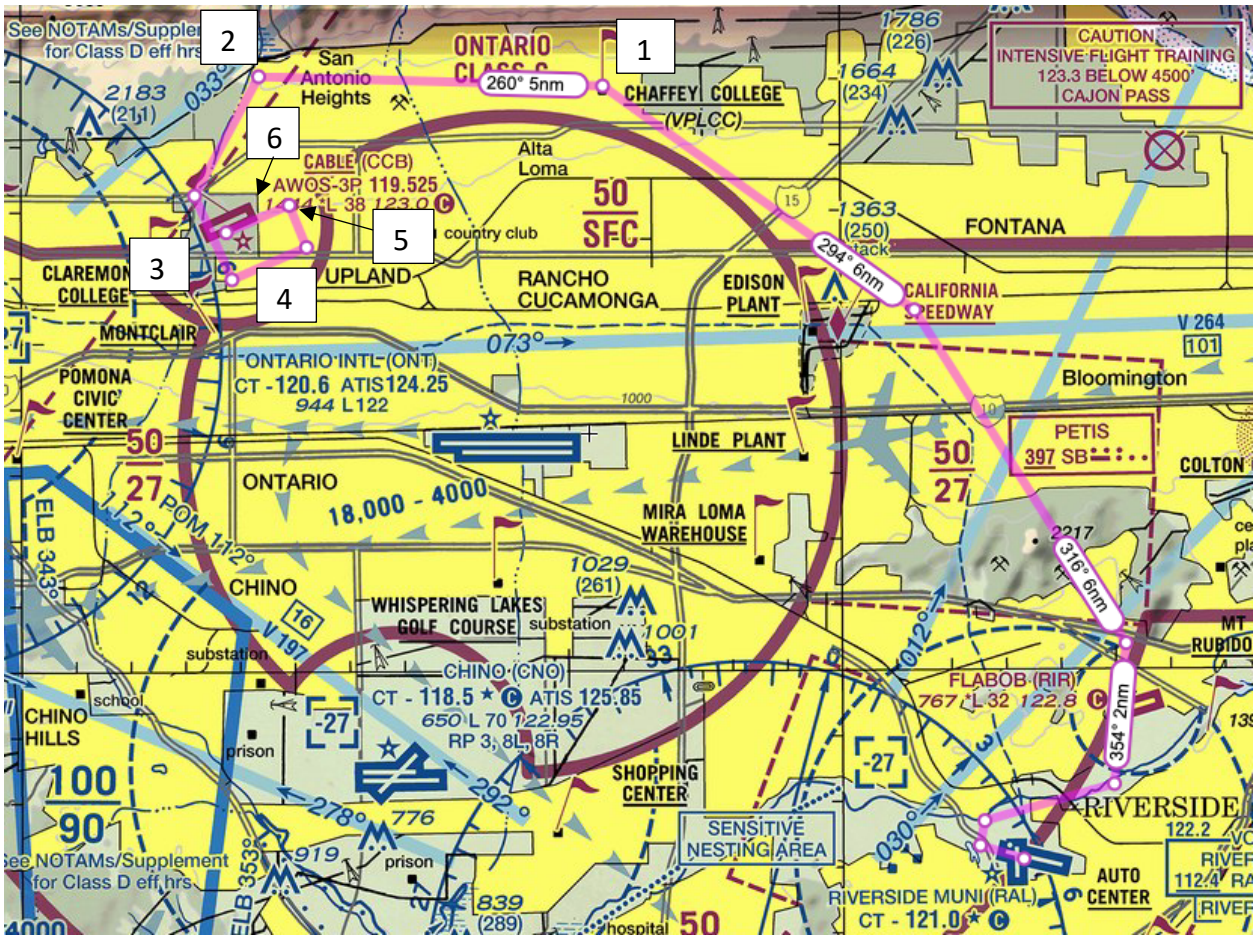
2. **"Cable Traffic, Cessna 76646, over the Dam at 3,000, flying southbound descending to 2300 for a left crosswind 24, Cable"**

3. **"Cable Traffic, Cessna 76646, left crosswind 24, Cable"**

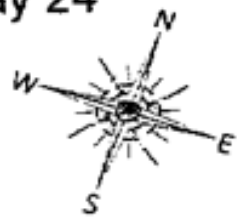
4. **"Cable Traffic, Cessna 76646, left downwind 24, have the helicopter traffic in sight will maintain visual separation, extending downwind, cable"**

5. **"Cable Traffic, Cessna 76646, left base 24, Cable"**

6. **"Cable Traffic, Cessna 76646, Final 24, Cable"**



KCCB – Cable Airport Noise Abatement Arrivals & Departures Runway 24



Cable Unicom: 123.0 AWOS - 119.525
Pattern Altitude: 2,250' MSL
Please fly community friendly; left turns ONLY,
No Straight-out or Downwind Departures,
No Right turns, No Straight-in Approaches.
Overnight Fees: $5.00 per

Suggested Phrasology for Flying In and Out of Cable Airport

In The Pattern

"Cable Traffic, Cessna 12345 departing runway 24, enroute to ...." plus "closed traffic" if staying in the pattern
"Cable Traffic, Cessna 345 downwind for 24" plus "#2, #3 ect., if applicable", or "behind the..."
"Cable Traffic, Cessna 345 left base for 24"
"Cable Traffic, Cessna 345 final for 24" plus "full stop" or "touch and go"

Runway 24

Entry From:

South - "Cable Traffic, Cessna 12345 south over the Plaza on a 45 entry to 24"
North – "Cable Traffic, Cessna 12345 north over the freeway entering the 45 for 24"

Departure To:

South - "Cable Traffic, Cessna 12345 left crosswind for a south departure"
North - "Cable Traffic, Cessna 12345 downwind for a north departure over the numbers"

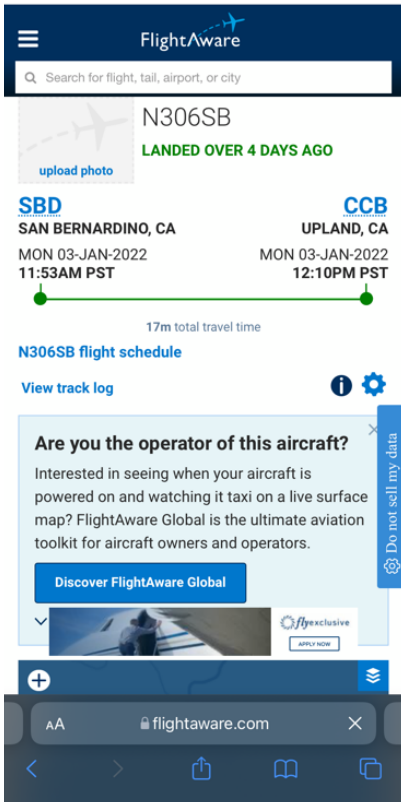
Revised August 1, 2017

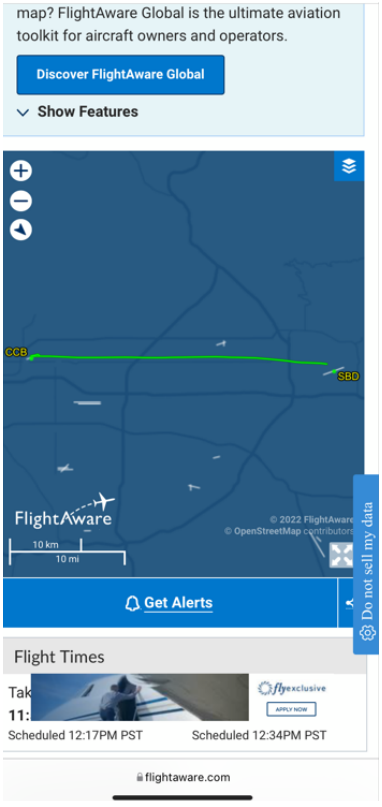
I began to monitor the Cable CTAF approximately 10 Nautical Miles east of the airport
These are the following transmissions I recall on frequency.
Call sign “Rescue ## Helicopter 12 East inbound south helipad, cable”
A couple minutes pass by and I am approaching the Dam and then I hear a conversation on frequency, a familiar voice I recognize as Ryan Cable from the Cable family (Cable Airport) trying to coordinate with this Rescue Helicopter on where to land, there is construction on the southside and they would be blasting the cones and barriers with the rotor wash. I recall Ryan suggesting them to land by the compass rose which southwest of the runway (See Circled). Several people in the ground state that this first helicopter landed near foothill aircraft sales ramp instead. (See X)

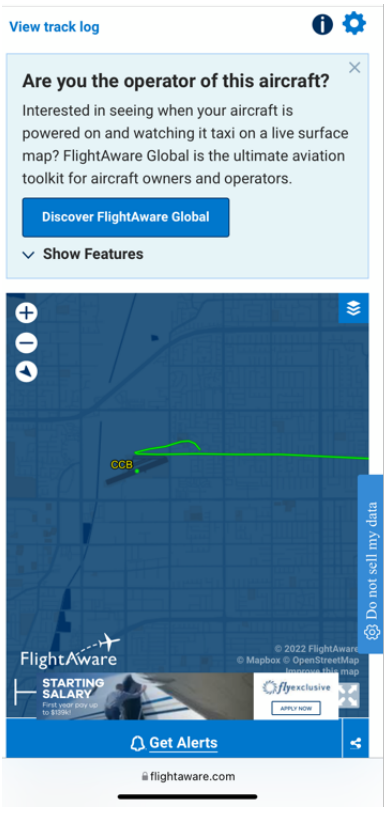
I heard on the CTAF the first helicopter announced that there is company traffic inbound, a second helicopter on its way. I believe he communicated this to coordinate where they can land. No other aircraft are in the traffic pattern or any other transmissions are heard. This previous helicopter makes a call very similar to the first, stating 12 miles east inbound for south helipads cable. On left downwind, I acknowledge the second helicopter, after telling them I will maintain visual separation, and that I am extending downwind, I hear 2 clicks on frequency.

I fly a longer downwind than usual , 0.3 NM west of Euclid street. (Near Class C boundary) On base, I can see the helicopter clearly south of the extended runway centerline, looks as if they’re going to the helipads south of runway 24 as they announced on CTAF. I turn Final and I see the helicopter is still hovering at a low altitude, and oscillating in its position, unclear of its intentions I stay higher than usual on final to avoid rotor wash with the intent of landing beyond their touchdown point. On short final I see the helicopter crossing the runway. Upon realization that they crossed, I decided to add full power to go around. Full power is applied, yet it takes time for the airplane to arrest the descent rate and establish climb speed and attitude. the airplane rolls violently to the right. Full opposite aileron input is applied but the aircraft continues to roll to the right. I brace for impact upon seeing my right wingtip touch the surface.


Whole Foods Market
KB Home Montara at Sycamore Hills
Baseline Rd
W 16th St
N Mountain Ave
N Benson Ave
Monte Vista Ave
Lowe's Home Improvement
Walgreens
Walmart
Upland High School
East Campus Prope
Claremont Blvd
W Arrow Hwy
Rescue ## N306SB
Cessna N76646


FlightAware
Search for flight, tail, airport, or city
N306SB
LANDED OVER 4 DAYS AGO
upload photo
SBD
SAN BERNARDINO, CA
MON 03-JAN-2022
11:53AM PST
CCB
UPLAND, CA
MON 03-JAN-2022
12:10PM PST
17m total travel time
N306SB flight schedule
View track log
Are you the operator of this aircraft?
Interested in seeing when your aircraft is powered on and watching it taxi on a live surface map? FlightAware Global is the ultimate aviation toolkit for aircraft owners and operators.
Discover FlightAware Global
Do not sell my data
AA
flightaware.com


map? FlightAware Global is the ultimate aviation toolkit for aircraft owners and operators.
Discover FlightAware Global
Show Features
CCB
SBD
FlightAware
Get Alerts
Do not sell my data
Flight Times
Scheduled 12:17PM PST
Scheduled 12:34PM PST
flightaware.com


View track log
Are you the operator of this aircraft?
Interested in seeing when your aircraft is powered on and watching it taxi on a live surface map? FlightAware Global is the ultimate aviation toolkit for aircraft owners and operators.
Discover FlightAware Global
Show Features
CCB
FlightAware
STARTING SALARY
Get Alerts
Do not sell my data
flightaware.com

First Frame of Huey Helicopter N306SB

N306SB crossing runway 24

N306SB north of Runway 24

N76646 appears in Frame
(Aircraft is configured for Go Around, Full power)

N7746 experiencing the effects of the rotor wash left behind by N306SB

1 Second before right wingtip impacted with the surface.

Moment of impact of right wingtip.

Right Wingtip and right main gear impacting the ground

Propeller impacts the ground

Aircraft “cartwheels” over

Energy keeps the airplane sliding down

Closer to the open hangars

Airplane comes to a complete stop

Opposite aileron can be seen here in an attempt to stop the aircraft from rolling.

Aircraft Banked 90° to the right seconds prior to impact.

On January 3th, 2022, 1205 Pacific Standard Time, a Cessna 120 airplane, N76646, impacted the asphalt north of runway 24 at Cable Airport in an attempted go around. Loss of Control can be attributed due to Rotor wash from N306SB, a San Bernardino Sheriff's Huey Helicopter who did not announce intentions of crossing runway 24, crossed an active runway when the pilot of N76646 was on final. The rotor wash did not allow for the safe execution of a go around.


N7664

Recommendations

This accident could've been prevented if the operator of N306SB followed the noise abatement procedures for the Cable Airport. By avoiding a long straight in approach that set up the helicopter south of the extended centerline, and instead entering traffic pattern like other aircraft, this would've helped with the flow of traffic and separation. It is unclear if N306SB had intents of landing, or purpose of their flight or operations, but if they wanted to use the runway, they should broadcast their intentions on the CTAF like everyone else.

Here is an excerpt from AC 90-66B

12.1 Rotorcraft.

1. **12.1.1** In the case of a helicopter approaching to land other than on the active runway, the pilot must avoid the flow of fixed-wing aircraft and land on a marked helipad or suitable clear area. Pilots should be aware that at some airports, the only suitable landing area is the runway, and a standard traffic pattern can be utilized if it does not conflict with any other fixed-wing traffic present at the time of landing.

   12.1.2 All pilots should be aware that rotorcraft may fly slower and approach at steeper angles than airplanes. Air taxi is the preferred method for helicopter ground movements, which enables the pilot to proceed at an optimum airspeed, **minimize downwash effect,** and conserve fuel. Flight over aircraft, vehicles, and personnel should be avoided.

   12.1.4 Helicopters operating in the traffic pattern when landing on the runway may fly a pattern similar to the fixed-wing aircraft traffic pattern but at a lower altitude (500 feet AGL) and closer to the runway. This runway pattern may be on the opposite side of the runway from fixed-wing traffic only when airspeed requires it or for practice power-off landings (autorotation) and if local policy permits**. Landings not on the runway must avoid the flow of fixed-wing traffic.**

It is unknown if the Pilot operating N306SB on January 3th, 2022, 11:53am – 12:10pm is familiar with this Advisory Circular. Recurrent training is suggested. I am lucky to be alive and I would like to avoid this Accident from happening to anyone. We can make this a learning experience, a teachable moment.

This accident could've been prevented if the operator of N306SB followed the FAA advisory circular regarding Non-Towered Airport Operations (AC 90-66B) stating the following.

10 COMMUNICATIONS PROCEDURES.

The following information is intended
to supplement the AIM, paragraph 4-1-9, Traffic Advisory Practices at Airports Without Operating Control Towers.

10.1 Recommended Traffic Advisory Practices. All traffic within a 10-mile radius of a non-towered airport or a part-time-towered airport when the control tower is not operating should **continuously monitor and communicate, as appropriate,** on the designated CTAF until leaving the area or until clear of the movement area. After first monitoring the frequency for other traffic present passing within 10 miles from the airport, **self-announcing of your position and intentions should occur between 8 and 10 miles from the airport upon arrival**. Departing aircraft should continuously monitor/communicate on the appropriate frequency from startup, during taxi, and until 10 miles from the airport, unless 14 CFR or local procedures require otherwise.

10.1.1 To achieve the greatest degree of safety, it is essential that:

1. All radio-equipped aircraft transmit/receive on a common frequency identified for the purpose of airport advisories, as identified in appropriate aeronautical publications.
2. Pilots use the correct airport name, as identified in appropriate aeronautical publications, when exchanging traffic information to reduce the risk of confusion.
3. To help identify one airport from another, the correct airport name should be spoken at the beginning and end of each self-announce transmission.
4. **Pilots clarify intentions if a communication sent by either their aircraft or another aircraft was potentially not received or misunderstood.**
5. **Pilots limit communications on CTAF frequencies to safety-essential information regarding arrivals, departures, traffic flow, takeoffs, and landings. The CTAF should not be used for personal conversations.**

10.3 Self-Announce Position and/or Intentions. "Self-announce" is a procedure whereby pilots broadcast their aircraft call sign, position, altitude, and intended flight activity or ground operation on the designated

If adequate communication was utilized on the CTAF N306SB could have made clear their intentions and made adequate radio calls and position reports.

Recommendation to the Airport Operators, standardizing an approach to the helipads that is out of the flow of fixed wing traffic is a possible way of preventing this accident.

Recommendation to the FAA, raise awareness about the dangers of helicopter rotor wash. This can be achieved through FAAST seminars or through the AOPA Air safety Institute.

There is already an Accident (Accident Number # CEN15LA069) of a similar Accident involving a UH-60 Blackhawk and a Cirrus SR20. By educating pilots of the causes of these accidents we can raise awareness and reduce the risk of Rotorwash on small General Aviation Aircraft. https://www.boldmethod.com/blog/learn-to-fly/aerodynamics/the-dangers-of-encountering-rotor-wash/

Helicopter Downwash

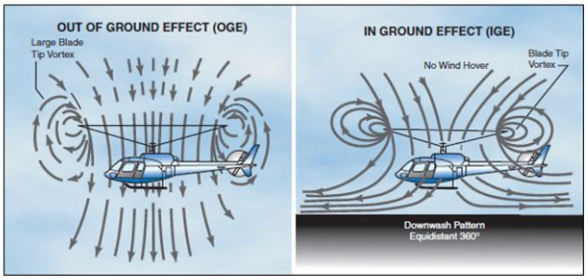


Figure 3-5: Air circulation patterns change when hovering out of ground effect (OGE) and when hovering in ground effect (IGE)

https://www.tc.faa.gov/its/worldpac/techrpt/rd93-31-1.pdf

Here is an Excerpt on a study conducted by the FAA on Rotorwash

5. 3 **ROTORWASH EFFECTS ON FIXED-WING AIRCRAFT**

The **potentially hazardous effects of rotorwash on nearby fixed-wing aircraft** can be grouped in one of two categories. The first of these categories includes aircraft that are parked with their engines turned off. These aircraft may or may not be tied down. **The second category includes those aircraft with engines running that are parked, taxiing, or flying in close proximity to the ground.** Seven mishaps were identified during this study that fitted into one of these categories. Even though two of the reviewed mishaps did not report the exact type of fixed-wing aircraft involved, it is believed that the aircraft were light·, two to four seat, single-engine configurations. None of the reviewed mishaps specifically stated that' larger fixed-wing aircraft types were involved**. The lack of a large number of reported mishaps of this type does not necessarily indicate that this type of mishap rarely occurs.** There are indications that existing mishap reporting systems often overlook mishaps when a parked fixed-wing aircraft without occupants is damaged and the offending undamaged helicopter exits the mishap area. Unfortunately, none of the reviewed mishap reports contained substantial detailed data for correlation using an analytical model. In spite of this problem, a simple analytical model is developed to study mishaps where rotorwash induces a fixed-wing aircraft (engine turned off) to roll over and damage one wing tip. This type of mishap had the largest number of reported incidents.

5.3.1 Mishaps Involving Fixed-Wing Aircraft with Engines Running

Three of the seven investigated mishaps involved fixed-wing aircraft with their engines running. Even though reported information was minimal (not enough for a detailed quantitative analysis), the mishap scenarios are most enlightening in a qualitative sense. It is believed that their documentation in this report may be useful in preventing similar mishaps in the future.

The first mishap in this category involved a tricycle gear
Cessna 152 and a Sikorsky H-53 (the specific model of the H-53 was not identified). The Cessna taxied for takeoff with the intention of using runway 24 with an 8-knot wind. At the same time, the H-53 entered the landing pattern for the same runway. The Cessna then accepted the option to use runway 29 and was informed to stay clear of runway 24. The Cessna pilot taxied onto runway 29 at the intersection of the two runways, moved to takeoff position just beyond the intersection, and then braked to a stop with the tail pointed-toward runway 24. The Cessna was cleared for takeoff and given the explanation that takeoff on runway 24 would have required a 3-

minute wait to avoid wake turbulence from the H-53. The H-53 was then cleared to land on runway 24 behind the Cessna. As the H-53 passed by the Cessna, the tail lifted up and the airplane nosed over. Damage to the cessna was reported as substantial. The runways involved were reported to be 150 feet wide. Key unknown factors in the mishap are the specific model of H-53 (two or three engine version), the airspeed of the H-53, the exact distance between the two aircraft at the closest point, and whether or not the H-53 passed by in the air (at what altitude?) or on the ground. Without these pieces of information, a quantitative analysis is futile. However, if several assumptions are made, an estimate of the rotorwash velocities involved can be attempted.

If the H-53 was at a very low airspeed and almost on the ground when it passed the Cessna, one might assume that the H-53 was approaching hover. This is probably the worst case scenario from a rotorwash estimation standpoint. In this instance, peak profile velocity flight test data from reference 24 can be used to estimate the rotorwash velocities involved. These velocity data are presented in figure 96 (reproduced directly from reference 24). If the Cessna was between 100 and 200 feet away (which is highly probable), peak velocity values could have been between 40 and 60 knots. If the H-53 was flying at a low airspeed, such as 40 knots, the rotorwash flow field could have been composed of a trailing wake vortex structure. Data from reference 46 for a Sikorsky CH-54 (that has a rotor configuration almost identical to an H-53) are presented in figure 67 to provide insight into the wake velocities contained within this type of flow field. These data correspond to a gross weight between 30,000 and 38,000 pounds at an airspeed of approximately 40 knots. Peak wake velocities measured at 28 seconds behind the CH-54 are between 15 and 20 meters per second (29 and 39 knots).

It is reasonable to assume that these velocities could be increased by as much as 50 percent if the gross weight of the H-53 was greater than 38,000 pounds or if the wake data were measured within seconds after the helicopter passed by. In summary, if the Cessna 152 was struck by rotorwash flow fields of either type containing these estimated velocity values, there is little doubt that the aircraft could have been turned over (as was actually the case).

The second mishap in the category of aircraft with engines running occurred between a Sikorsky UH-60 helicopter and a tricycle gear Piper PA-28. The PA-28 landed at a glider port and was either taxiing or holding position on the ground in an 8-knot wind when the UH-60 reportedly "swooped" down next to the PA-28. The UH-60 mistakenly intercepted the PA-28 as a drug smuggling aircraft and the officers on the helicopter were trying to make an arrest before the pilot could get away. No other details were given, other than substantial damage was incurred by the PA-28 and the government admitted their liability. Little can be learned from this mishap other than the fact that UH-60 series helicopters are clearly capable of overturning PA-28 size aircraft (which has a maximum gross weight of 2,150 pounds with four passengers; only the pilot was aboard in this incident).

The third reported mishap involved an unusual set of circumstances. In this mishap, a Cessna 152 and a helicopter were both destroyed while in the air. Analysis of this accident is clearly beyond the capabilities of available analytical tools. However, it is hoped that mention of the known factors in this mishap will someday help to prevent a similar incident. The Cessna was practicing takeoffs and landings with a student pilot and instructor on board. Winds were approximately 8 knots. As the Cessna entered the turn on final to runway 3, radio calls were

made to a helicopter approaching the uncontrolled airport. These calls were apparently never heard by the helicopter pilot as he came to a hover near the taxiway parallel to runway 3. As the Cessna lifted off after the touch and go landing, it veered to the right and collided with the helicopter. The flight instructor survived the mid-air collision and stated that control of the Cessna was lost when it flew through rotor wake turbulence.

The lesson learned from this mishap is that even hovering rotorwash velocities can be dangerous to small aircraft that are flying at airspeeds where aerodynamic controls are quite effective. Therefore, specification of criteria for separation of rotorcraft and fixed-wing aircraft will have to take into account airborne separation distances from hovering rotorcraft. Unfortunately, at this time virtually no data exist, either analytically or experimentally obtained, that can be used to help define separation distances for this particular type of mishap scenario.