

**NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594**



SPECIALIST'S FACTUAL REPORT OF INVESTIGATION

On Board Audio/Video Recording

LAX07MA231 A/B

by

**Douglass P. Brazy
Mechanical Engineer (CVR)**

Warning

The reader of this report is cautioned that the transcription of a audio/video recording is not a precise science but is the best product possible from an NTSB group investigative effort. The transcript, or parts thereof, if taken out of context, could be misleading. The attached transcript should be viewed as an accident investigation tool to be used in conjunction with other evidence gathered during the investigation. Conclusions or interpretations should not be made using the transcript as the sole source of information.

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August 12, 2008

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NTSB Accident Number
LAX07MA231A/B

A. ACCIDENT

Location: Phoenix, AZ
Date: July 27, 2007
Time: 1246 Mountain Standard Time
Aircraft: Eurocopter AS350-B2, registration N613TV
Eurocopter AS350-B2, registration N215TV
Operators: Mac America Communications
US Helicopters, Inc

B. GROUP

N/A

C. SUMMARY

On July 27, 2007, about 1246 mountain standard time, Channel 3 (CH 3) and Channel 15 (CH 15) News helicopters, N613TV and N215TV, respectively, collided in mid air while maneuvering in Phoenix, Arizona. Each helicopter was an American Eurocopter AS 350 B2. Mac America Communications and US Helicopters, Inc., were operating the helicopters under the provisions of 14 CFR Part 91. The commercial pilots of both helicopters and one photojournalist in each helicopter sustained fatal injuries. Ch 15 departed Scottsdale, Arizona, at 1222, and CH 3 departed Scottsdale at 1232, as

local corporate flights. Visual meteorological conditions prevailed, and no flight plans had been filed. The main wreckage for both helicopters came to rest in a park about 75 feet from each other.

Both helicopters were equipped with an on-board video and audio system capable of transmitting the video/audio live, to a ground station. The vehicle recorder division received copies of recordings from both helicopters, as recorded by each ground station. A partial transcript of the audio recorded by both systems can be found in Attachment I. A recording from another helicopter not involved in the accident (TV Channel 12) was also provided to the lab. This video recoded the aftermath of the accident after the two accident helicopters had crashed.

D. DETAILS OF INVESTIGATION

Each helicopter was equipped with an on board camera system which the photojournalist could pan, tilt, and zoom and pitch the camera view. The audio system was configured to record sound from the pilot's microphone. As such, the pilot's voice and background sounds can be heard on the recording. In both cases, it appears that the pilot's microphone is "hot", and is recorded continuously, similar to a Cockpit Voice Recorder. The photojournalist's microphone (if present) was not recorded, though at times the photojournalist's voice can be heard in the background, as captured by the pilot's microphone. However, the photojournalist's voice is generally not loud enough to discern.

The audio from the pilot's headset, i.e. what the pilot is listening to, is not recorded¹. As a result, virtually all the recorded conversation is one sided. Based on the nature of the conversations, it appears that both pilots were talking to a number of different people, including people at news station for coordination as well as broadcasting, other helicopter pilots, the police, Air Traffic Control (ATC), and their photojournalist.

Camera Views

Both cameras were externally mounted and did not have a view of the cockpit or the occupants. The content of the recording was virtually all focused on a suspect driving a truck, which was being pursued by a number of police vehicles throughout the streets of Phoenix. The view was continually being composed by the photojournalist and changed frequently (pan, tilt, zoom, pitch etc).

Weather

Throughout the recording, the weather appeared to be generally sunny. Some broken or scattered cloud layer(s) could be seen at times when portions of the sky were visible in the camera view, well above the helicopter's operating altitudes. At no time did any helicopter appear to be in or near clouds, and the visibility was unrestricted throughout the recording.

The sun angle was relatively high in the sky at the time of the recording. According to the U.S. Naval Observatory² at 12:45:00 pm Mountain Standard Time on the day of the accident, the sun's elevation angle was 71.9 degrees, at an azimuth of 139.1 degrees (true heading).

¹ With one exception. One radio transmission from the Phoenix Air Traffic Control Tower to N613TV was captured by that helicopter's own audio/video recording.

² <http://aa.usno.navy.mil/data/docs/AltAz.php>. Location used was 33.490117N 112.072187W

Timing and Synchronization

Both recordings appear to be continuous (no gaps or breaks) from start to finish. Since both cameras were recording the same subject (the truck) the recordings were easily synchronized to one another by offsetting the elapsed “play” time from one to match the other at some common point in time, such as when the truck crossed an intersection or passed a landmark.

Additionally, the ATC communications recorded on the ground were used to synchronize the elapsed time in each video to a common time-of-day clock. ATC transcripts indicated that N613TV first contacted Phoenix Tower at 12:36:41 Mountain Standard time. That transmission can be heard on the on-board video recording, establishing a relationship between the video recording elapsed time, and the clock as reflected in the ATC transcript. All times in this report and the attached transcript are based on that clock, and are expressed in Mountain Standard Time.

Audio Transcript

Attachment I contains an audio transcript of both recordings (N613TV - channel 3 and N215TV - channel 15) as synchronized. The transcript contains all comments (speech, utterances, etc) that were considered to have been related to any indication of any helicopter’s position, or coordination among pilots about their position or intentions, or any callouts about other helicopters in sight (or not in sight), at any time during either recording.³

Additionally, the transcript includes all comments heard on the each recording (regardless of its nature), for the last 3.5 minutes (approximately) prior to the collision.

³ The audio from the Channel 12 recording was not transcribed. The microphone captured by that recording was that of the photojournalist, and not the pilot.

Recording Media

The copy of the recording from N613TV (channel 3) was provided on VHS format videocassette as a standard definition NTSC video signal. The recording appears to be a type of downconversion of a wide screen format recording, as the aspect ratio appears to be distorted. The N613TV recording was also provided in BetacamSX tape format.

The copy of the recordings from N215TV(channel 15) and Channel 12 were provided on standard definition DVD media.

Douglass P. Brazy

Mechanical Engineer (CVR)

Attachment I – Transcript

Transcript of two recordings from on-board audio/video systems installed on two Eurocopter AS350-B2 aircraft - registrations N215TV and N613TV. N215TV was operated by US Helicopters, Inc., N613TV was being operated by Mac America Communications, during an Electroinic News Gathering (ENG) mission when the two helicopters collided in flight on July 27, 2007 near Phoenix AZ.

LEGEND

CH15	voice or sound heard from the N215TV recording
CH3	voice or sound heard from the N613TV recording
TWR	radio transmission from the Phoenix Air Traffic Control Tower.
*	Unintelligible word
@	Non-Pertinent word
&	Third party personal name (see note 5 below)
#	Expletive
-, - - -	Break in continuity or interruption in comment
()	Questionable insertion
[]	Editorial insertion
...	Pause

Note 1: Times expressed in this report and transcript are Mountain Standard Time, based on the clock used for the ATC transcript of voice communications.

Note 2: Generally, only radio transmissions to and from the accident aircraft were transcribed. (in this transcript only one incoming radio transmission was observed).

Note 3: Words shown with excess vowels, letters, or drawn out syllables are a phonetic representation of the words as spoken.

Note 4: A non-pertinent word, where noted, refers to a word not directly related to the operation, control or condition of the aircraft.

Note 5: Personal names of 3rd parties not involved in the conversation are generally not transcribed.

Note 6: All references to 'left' 'right' 'forward' or 'aft' are referenced as if seated in the pilot's operating seat.

Audio from N215TV (TV Channel 15) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:26:50 CH15	[start of recording]
12:32:11 CH15	ok my mic is on too...[first comment recorded from pilot's microphone]
12:36:33 CH15	Rick if you could call out where we're at please, don't hesitate to talk.

Audio from N613TV (TV Channel 3) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:36:03 CH3	[start of recording]
12:36:41 CH3	Phoenix tower, Helicopter TV3.
12:36:50 CH3	TV3 is west of Piestewa Peak, sharp echo for the North Bravo, Going where the other helicopters are over there.
12:37:00 TWR	three helicopters on site, and Newshawk Five about a mile ahead of you.
12:37:03 CH3	got Newshawk Five in sight, got a couple of others in sight as well, thanks TV three.

Audio from N215TV (TV Channel 15) Recording

TIME and
SOURCE CONTENT

12:40:19
CH15 Lenny I'm off your nose.

12:41:02
CH15 yeah, I'll just kinda park it right here.

12:41:18
CH3 OK, I'm gonna move.

12:41:22
CH15 where's three?

Audio from N613TV (TV Channel 3) Recording

TIME and
SOURCE CONTENT

12:37:53
CH3 copy, we'll be on scene in less than a minute.

12:38:02
CH15 okay, twenty two hundred.

12:38:03
CH3 TV3's comin in, we got five, we got four in sight up
high, we're comin in at two thousand.

12:38:19
CH3 OK, I've got firebird over the golf course, twelve
o'clock.

12:38:33
CH3 see firebird there? ... ok, got him?

Audio from N215TV (TV Channel 15) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:41:24 CH15	like how far?
12:41:26 CH15	oh. jeez.
12:41:30 CH15	three. I'm right over you. fifteen's over top of you.
12:41:33 CH15	you-you're- I'm over the top of you.
12:42:28 CH15	got you as well.

Audio from N613TV (TV Channel 3) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:41:30 CH3	Who you over the top of?
12:41:34 CH3	OK, thanks. I'm at two thousand.
12:42:25 CH3	OK, Craig, I got you in sight.

Audio from N215TV (TV Channel 15) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:42:42 CH15	ok now he's southbound about ni- 8 or 9th street, seventh, eighth, 'bout ninth street. ninth street and uh Wellington. [all speech is transcribed from this time forward]
12:42:52 CH15	* * looks like he may clip another car...nope, didn't clip it. Almost.
12:43:02 CH15	I am.... yeah that's correct.

Audio from N613TV (TV Channel 3) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:42:46 CH3	this is Scott go ahead, I gotcha. [all speech is transcribed from this time forward]
12:42:51 CH3	OK, let her know its Scott Bowerbank.
12:42:56 CH3	I can't hear the scanner, our scanner's not working.
12:43:02 CH3	nope, I sure don't.
12:43:05 CH3	feel free to talk in my ear when you know a road.

Audio from N215TV (TV Channel 15) Recording

TIME and SOURCE

CONTENT

12:43:22
CH15

oh man this is a wild chase actually this uh some kinda uh construction type uh truck with some uh tanks on the back of it we're in the area of Indian School and seventh street this guy keeps goin in a circle here in the area here uh right now he's uh up on the curb right around Minnezona he's been on the sidewalk he's uh hit several cars here, basically what happened here when this first started, uh apparently the police pulled this vehicle over the uh truck then backed into the police car and uh and then took off and then uh we been on this pursuit ever since. police have used stop sticks uh both tires in the back we believe have been blown out * weaving all over the side streets you can see right now as that's happening here live on ABC fifteen, uh now he's up on the sidewalk again he's headin down towards the downtown area what a wild chase.

Audio from N613TV (TV Channel 3) Recording

TIME and SOURCE

CONTENT

12:43:20
CH3

if you keep your mic hot with the uh police traffic, that would help me.

12:43:31
CH3

we're gonna miss this if you don't come here.

Audio from N215TV (TV Channel 15) Recording

TIME and
SOURCE CONTENT

Audio from N613TV (TV Channel 3) Recording

TIME and
SOURCE CONTENT

12:43:44
CH3 OK seventh- he's coming back to seventh street. ... oh
* oh, come on.

12:43:50
CH3 OK, I'm gonna back up.

12:44:01
CH3 can you zoom in on him?... looks like he's gonna hit *
hit a wall? uh.

12:44:06
CH3 [photojournalist voice heard in background as if
talking to a 3rd party] I can't believe they're not
blowing off this # # show. tell * * tell 'em to blow of
this # # (recipe) show... no, just do it.

12:44:21
CH3 all right.

Audio from N215TV (TV Channel 15) Recording

TIME and
SOURCE

CONTENT

12:44:22

CH15

uh well basically the firebird helicopter is over on top of this thing right now and there are several police cars behind him I'd say at least ten or fifteen. they're staying back a good distance maybe a couple ah blocks or so but they are definitely keeping an eye on this guy now he's back northbound along uh seventh street here and he's going to be approaching Indian School and and this guy obviously has no regard for anybody or anything that is in his way. he does not care as I said before he sideswiped several vehicles uh very uncontrollable because of the uh tires being blown out, Rebecca.

Audio from N613TV (TV Channel 3) Recording

TIME and
SOURCE

CONTENT

12:44:29

CH3

he's gonna hit a car here so go uh stay wide with it.

12:44:34

CH3

ok. he missed it.... almost got that white truck.

12:44:42

CH3

ok. sounds good.

12:44:50

CH3

animation and up to me. gotcha. they're trying to do it, Jim. standby, he's gonna get stuck on this construction up here.

Audio from N215TV (TV Channel 15) Recording

TIME and
SOURCE

CONTENT

12:45:12
CH15

ohhh, I'm gonna say at least a block behind him now we're entering the uh central uh area of the downtown north downtown Phoenix area as we approach uh where they're building the uh new uh train track rails there and uh its just kind of a slow chase right now uh he can't maneuver this uh vehicle very well uh he just actually went through some barricades as you're seeing this and again this is all happening live right now this is all uh northbound along Central just south Indian School now he's * eastbound and he just hit some more barricades. absolutely unbelievable this guy doesn't care what he hits.

Audio from N613TV (TV Channel 3) Recording

TIME and
SOURCE

CONTENT

12:45:04
CH3

all right, if you don't come now, its probably going to end here, so.

12:45:23
CH3

if you could keep that mic hot on uh, at the desk on the scanner traffic that would help me cause I can't hear.

Audio from N215TV (TV Channel 15) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:45:47 CH15	no. have no idea all I know is uh what firebird reported to me that apparently, the police pulled this vehicle over and uh the vehicle then backed into the cruiser there were no injuries to the police and just simply took off and that's how this uh all ensued.
12:46:03 CH15	now he's going into a parking lot, now he's stopped. we'll see what happens here. he has stopped, this may be the end of this thing. ..ok he's out, ok now it's a foot chase. Now he's in another vehicle. ok ok doors open police ok. oh jee-
12:46:18 CH15	[sound similar to transmission gear noise decreases in frequency]
12:46:18 CH15	[collision]

Audio from N613TV (TV Channel 3) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:45:43 CH3	Hi Scott Bowerbank up in News Chopper Three. we're following a police chase that's been going on for about the last thirty minutes here, it's this white truck flatbed truck you see here with the tank, there's about two dozen police cars from the Phoenix police department along with the Phoenix firebird police helicopter following this guy, its unknown at this point what he's wanted for. it all started about thirty minutes ago at seventh street and Mcdowell, he did try to ram a police car, and uh we understand - well he's pulled over right now he's about to get out and uh looks like he's starting to run, he's got several units of Phoenix police on his tail right here and uh (Jim stays with him) looks like he's gonna try and take another vehicle here, we'll see if they'll block him in there. looks like they've got him blocked in there but he did get * -
12:46:18 CH3	[collision. End of CH3 recording]

Audio from N215TV (TV Channel 15) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
12:46:19 CH15	[sound similar to aural warning horn begins and continues to end of recording]
12:46:24 CH15	[sound of screaming]
12:46:29 CH15	[interference, possibly from another helicopter's video transmission. noisy video of the (new) truck driving. The start of this interference may be end of CH15 recording]
12:46:35 CH15	[end of 'interference' video, end of recording]

Audio from N613TV (TV Channel 3) Recording

<u>TIME and SOURCE</u>	<u>CONTENT</u>
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