

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



SPECIALIST'S FACTUAL REPORT OF INVESTIGATION

DCA01MA034

by

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Aerospace Engineer (CVR)**

WARNING

The reader of this report is cautioned that the transcription of a cockpit voice recorder (CVR) tape is not a precise science but is the best product possible from a Safety Board group investigative effort. The transcript or parts thereof, if taken out of context, could be misleading. The attached CVR 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.

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorders Division

Washington, D.C. 20594

June 4, 2001

Cockpit Voice Recorder

Group Chairman's Factual Report by Anna W. Cushman

A. ACCIDENT

Location: Aspen, Colorado
Date: March 29, 2001
Time: 1902 mountain standard time (MST) *
Aircraft: Gulfstream III, N303GA
Operator: AVJET Corporation
NTSB Number: DCA01MA034

B. GROUP: April 3, 2001

Chairman: Anna W. Cushman
Aerospace Engineer (CVR)
National Transportation Safety Board

Member: Kenneth R. Seals
Director of Operations
AVJET Corporation

Member: Ted Mendenhall
Chief of Safety
Gulfstream Aerospace Corporation

Member: Tony James
Air Safety Investigator
Federal Aviation Administration

C. SUMMARY

On March 29, 2001 a Gulfstream III, N303GA, collided with terrain about 0.4 miles northwest of Aspen-Pitkin County Airport in Aspen, Colorado. A Fairchild A100A tape cockpit voice recorder (CVR), serial number 54667, was recovered from the wreckage and sent to the audio laboratory of the National Transportation Safety Board. The CVR group meeting convened on April 3, 2001. A transcript was prepared for the 31-minute 40-second recording (attached).

* All times are expressed in mountain standard time (MST), unless otherwise noted.

D. DETAILS OF INVESTIGATION

Upon arrival at audio laboratory on March 30, 2001, it was evident that the CVR had some structural damage. The exterior CVR case was slightly dented, but was intact overall. The outer case was removed and the crash-survivable box containing the tape drive assembly was opened. Although the crash-survivable box did not appear to have any structural damage, the tape assembly unit had become detached within it; the tape itself was contained on the spool and intact. The CVR exterior, interior and tape did not show signs of heat or fire damage. The CVR tape was retrieved from the tape spool and downloaded.

The recording consisted of three channels of good quality audio information. The first channel contained the Captain's audio panel information. The second channel contained the audio information from the cockpit area microphone (CAM). The third channel contained the First Officer's audio panel information. The fourth channel did not contain any useful audio information, nor was it required by federal regulations.

Timing on the transcript was established by correlating the air traffic control recording transmission time to the corresponding CVR event. The reference to local time was determined using the digital recording from the FAA Aspen terminal approach control. Specifically, the CVR time of the final radio transmission from N303GA was linked to the corresponding ATC local time, and all CVR events were offset to reflect the local mountain standard time of the accident.

The recording began at 1830:18 as the crew began their descent and approach to Aspen-Pitkin County Airport in Aspen, Colorado. Notably, there were several aircraft system tones throughout the CVR recording that were further investigated within the Group Chairman's Sound Spectrum report. Furthermore, the rumbling noise recorded near the end of the recording at 1901:52.7 was also evaluated in that report. Additionally, the two voice generators on board the accident aircraft were distinctly identifiable: the Ground Proximity Warning System (GPWS), with its male electronic voice consistently recorded on the CAM channel only, and the Flight Profile Advisory (FPA) system, with its female electronic voice regularly recorded on the flight crew channels and, at times, the CAM channel.

At 1836:04 the Captain requested the descent checklist. At 1837:04 the First Officer called for the crew briefing and, accordingly, the Captain discussed the intended approach. Aspen weather ATIS information Hotel was recorded on the First Officer's channel at 1839:56. At 1844:14 N303GA was transferred from Denver center to Aspen approach, and shortly thereafter, the crew noted that a Challenger, identified as 7JA, had to perform a missed approach from Aspen. At 1855:05, another Challenger, identified as 898R, also transmitted their intentions to perform a missed approach from Aspen. At 1856:14 Gulfstream 3GA was cleared for the VOR/DME-C approach into Aspen-Pitkin County Airport. Gulfstream 3GA was then transferred to the Aspen tower

controller at 1857:19 and at 1857:48, was given clearance to land on runway 15 following a Challenger that was on a two mile final.

At 1858:00 Challenger 7JA reported that the airport was not in sight and they were “going around.” N303GA continued on their approach and the crew discussed approach altitudes. At 1900:22 the Captain reported “breaking out” and requested confirmation from the tower that the lights were “all the way up.” The tower controller concurred that the lights were on “high.” At 1900:43 the Captain discussed visually attaining the runway or highway. At 1900:49 the tower controller asked N303GA if they had the runway in sight; at 1900:51 the Captain declared that they had it, and the First Officer transmitted “runway in sight” at 1900:52. The tower controller responded, “Gulfstream three Golf Alpha cleared visu– roger.”

At 1901:12.9 the First Officer stated, “...to the right is good.” A sound similar to the configuration alarm was recorded at 1901:21 for approximately nine seconds. At 1901:28.6 the female electronic voice “one thousand,” attributed to the FPA system, was recorded on the CAM and crew channels, The “eight hundred” from the FPA at 1901:34 was followed approximately two seconds later by the Captain asking, “where’s it at?” At 1901:42.5 the First Officer stated, “to the right” and the Captain concurred.

At 1901:45.1 the FPA “five hundred” was recorded on the crew channels, simultaneous with “five hundred” from the GPWS male electronic voice on the CAM channel. At 1901:48.6 the GPWS “sink rate” was recorded by the CAM, followed 0.3 seconds later by “four hundred” from the FPA on the crew channels. At 1901:51.8 the GPWS “sink rate” was recorded on the CAM for a second time, followed 0.5 seconds later by another “four hundred” from the FPA on the crew channels. At 1901:52.7 there was a rumbling noise recorded by the CAM followed by a sound similar to an increased engine RPM. At 1901:53.7 the FPA “three hundred” was recorded on the First Officer’s channel. The Captain’s channel also recorded the FPA, however the “three hundred” was interrupted and was recorded as “three hun–”; there is a change in background noise on the Captain’s channel at the time of the interruption, which is indicative of a microphone key. At 1901:54.2 the GPWS “two hundred” on the CAM was followed one second later by “two hundred” from the FPA on the First Officer’s channel only. The recording ended at 1901:58.2, one second after the GPWS “bank angle” was recorded on the CAM.

Anna W. Cushman
CVR Group Chairman

Transcript of a Fairchild A100A tape cockpit voice recorder, serial number 54667, installed on a Gulfstream III (AVJET Corporation, N303GA), which crashed near Aspen-Pitkin County Airport in Aspen, Colorado on March 29, 2001.

LEGEND

CAM	Cockpit area microphone voice or sound source
HOT	Flight crew audio panel voice or sound source
RDO	Radio communications transmitted to and from N303GA
CTR1	Radio transmissions identified from 1 st Denver center controller
CTR2	Radio transmissions identified from 2 nd Denver center controller
APR	Radio transmission from Aspen approach controller
TWR	Radio transmission from Aspen tower controller
7JA	Radio transmission identified from Challenger N927JA
-1	Voice identified as the Captain
-2	Voice identified as the First Officer
-3	Voice identified as the Flight Attendant
-4	Unidentified male voice
-?	Voice unidentified
*	Unintelligible word
#	Expletive
@	Non-pertinent word
()	Questionable insertion
[]	Editorial insertion
...	Pause or interruption

Note 1: Times are expressed in mountain standard time (MST).

Note 2: Generally, only radio transmissions to and from the accident aircraft were transcribed.

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 or phrase, where noted, refers to a word not directly related to the operation, control or condition of the aircraft.

CVR Quality Rating Scale

The levels of recording quality are characterized by the following traits of the cockpit voice recorder information:

Excellent Quality	Virtually all of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate only one or two words that were not intelligible. Any loss in the transcript is usually attributed to simultaneous cockpit/radio transmissions that obscure each other.
Good Quality	Most of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate several words or phrases that were not intelligible. Any loss in the transcript can be attributed to minor technical deficiencies or momentary dropouts in the recording system or to a large number of simultaneous cockpit/radio transmissions that obscure each other.
Fair Quality	The majority of the crew conversations were intelligible. The transcript that was developed may indicate passages where conversations were unintelligible or fragmented. This type of recording is usually caused by cockpit noise that obscures portions of the voice signals or by a minor electrical or mechanical failure of the CVR system that distorts or obscures the audio information.
Poor Quality	Extraordinary means had to be used to make some of the crew conversations intelligible. The transcript that was developed may indicate fragmented phrases and conversations and may indicate extensive passages where conversations were missing or unintelligible. This type of recording is usually caused by a combination of a high cockpit noise level with a low voice signal (poor signal-to-noise ratio) or by a mechanical or electrical failure of the CVR system that severely distorts or obscures the audio information.
Unusable	Crew conversations may be discerned, but neither ordinary nor extraordinary means made it possible to develop a meaningful transcript of the conversations. This type of recording is usually caused by an almost total mechanical or electrical failure of the CVR system.

INTRA-COCKPIT COMMUNICATION

1 of 47

AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1830:18

Start of Recording
Start of Transcript

1830:30

HOT-2 beep beep beep *.

1831:06

HOT-1 well there's the edge of night right here.

1831:08

HOT-2 yep.

1831:24

HOT-2 what time is official sunset?

1831:26

HOT-1 six twenty eight.

1831:32

HOT-1 so we get thirty minutes after sunset. so six fifty eight about seven so seven o'clock.

1831:37

HOT-2 ah seven is good enough yeah.

1831:58

HOT-2 [sound of humming]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1832:21

HOT-1

so forty eight hundred pounds is one twenty six?

1832:26

HOT-2

it was fifty l *.

1832:27

HOT-1

you know what I readjusted 'cause the fuel was way off.

1832:30

HOT-2

okay so we'll have forty eight?

1832:33

HOT-1

forty seven is fine. what is forty seven?

1832:36

HOT-2forty eight was one twenty three so... I'm gonna check...
it's forty six will be because it goes in increments of two so
maybe * one two two one two three one two one.

1832:49

HOT-1

'kay so one twenty?

1832:50

HOT-2what ever you pick. one two three according to that is forty
eight.

1832:53

HOT-1

'kay so one twenty six is what fifty?

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1833:04

HOT-1 so at our weight it's what one twenty three.

1833:07

HOT-2 one twenty three.

1833:07

HOT-1 okay.

1833:08

HOT-2 agree.

1834:07

HOT-2 what time they closing the tower? seven *?

1834:10

HOT-1 eleven.

1834:11

HOT-2 oh eleven oh okay late okay.

1832:53

CTR1 three zero three Golf Alpha for routing into Aspen cleared direct PITMN intersection and direct RED TABLE direct Aspen.

1833:00

RDO-2 direct PITMN direct ah RED TABLE direct Aspen three Golf Alpha.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1834:20

HOT-2

eleven... eleven.

1834:41

HOT-2

want some food?

1834:44

HOT-2

[sound of chuckle]

1834:45

HOT-1

sugar to help me calm down.

1834:47

HOT-2

[sound of chuckle] yeah.

1834:52

HOT-2oh but anyway it's very close wasn't it? * I mean we are still
not not there yet but *... very close.

1835:18

HOT-1

so it's what five thir- six thirty right now.

1835:35

CTR1Citation three Golf Alpha descend and maintain flight level
two seven zero.

1835:39

RDO-2

two seven zero three Golf Alpha.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1835:42

HOT-2

[sound of laugh] Citation.

1835:44

HOT-1

** you should say Gulfstream and make sure that's the same.

1835:49

HOT-2

okay ah on next call I'll straighten him out. [sound of chuckle]

1835:52

HOT-1

well I'm just saying what if there's a Citation... out here.

1835:59

HOT-2

I didn't think of it *.

1836:03

HOT-1

two seven zero?

1836:04

HOT-2

two seven zero.

1836:05

HOT-1

'kay descent checks.

1836:07

HOT-2

coming.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1836:10
HOT-2 warning light test.

1836:12
CAM/HOT check trim. [female electronic voice]

1836:18
HOT-2 you are in.

1836:21
HOT-1 on your side.

1836:23
HOT-2 on descent. circuit breakers checked. pressurization is ah
auto-landing. cabin control is set.

Time (MST)

SOURCE **CONTENT**

1836:27
CTR1 three Golf Alpha contact Denver center one two five point
three five.

1836:31
RDO-2 two five three five three Golf Alpha so long.

1836:37
RDO-2 ah Denver Gulfstream three zero three Golf Alpha three two
zero descending two seven zero.

1836:44
CTR2 *** flight level two one zero.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1836:49
HOT-2 I didn't hear it.

Time (MST)

SOURCE **CONTENT**

1836:50
RDO-1 blocked.

1836:51
RDO-2 blocked.

1836:56
CTR2 three zero three Golf Alpha descend and maintain flight level two one zero.

1836:59
RDO-2 two one zero three Golf Alpha.

1837:02
HOT-2 two one zero.

1837:04
HOT-2 ** anti-ice. ** fuel quantity you've got five thousand one hundred... speeds one two three. crew briefing.

1837:17
HOT-1 'kay we're um probably gonna make it a visual um if we don't get the airport over here we'll go ahead and shoot that approach.

1837:27
HOT-2 oh okay.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1837:28

HOT-1 we're not going to have a bunch of extra gas so we only get to shoot it once and then we're going to Rifle.

1837:34

HOT-2 okay... understood that's all.

1837:37

HOT-2 parking brake (oil) pressure.

1837:43

HOT-2 engine controls. alt- altimeters.

1837:53

HOT-2 * engine * strobe light de-ice altimeters 'kay we're up to flight level one eight zero on the checklist.

1838:00

HOT-1 thank you.

1838:12

HOT-2 [sound of sigh]

Time (MST)

SOURCE **CONTENT**

1839:08

RDO [transmission from six nine zero Sierra Bravo direct Montrose]

1839:15

HOT-2 Sierra Bravo it was ending of my N number when I was flying Piper.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1839:20

HOT-1 oh really.

1839:20

HOT-2 [sound of chuckle] I mean not mine but when I was you know doing *.

1839:23

HOT-1 well it's looking okay huh?

1839:26

HOT-2 eh looking not bad from here. sixty miles. don't worry.

1839:34

HOT-2 yeah.

1839:36

HOT-2 hope-eh-fully.

1839:49

HOT-2 you got number two?

1839:56

RDO

[on first officer's channel] Aspen airport information Hotel zero zero five three Zulu observation wind zero three zero at * visibility one zero. sky condition two thousand scattered. ceiling five thousand five hundred broken. niner thousand broken. temperature two dew point minus three altimeter two niner eight six. expect a VOR DME Charlie approach landing runway one five departing runway three three follow noise abatement procedures. MSAW not available due to mountainous terrain....

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1840:22

CAM

[sound similar to gear warning horn]

1840:22

RDO

... [continued on first officer's channel] Aspen primary radar not available. radar traffic advisories and service available. *** you have information Hotel. ***. Aspen airport information Hotel zero zero five three Zulu observation wind zero three zero at four visibility one zero. sky condition two thousand scattered. ceiling five thousand -

1840:48

HOT-2

okay I'm back.

1840:51

HOT-2

what... ready.

1840:51

RDO

[on captain's channel: transmission from unidentified aircraft reporting weather not improved. center then relays information to aircraft two two six Sierra Romeo]

1841:04

HOT-1

I'm sorry.

1841:05

HOT-2

okay information Hotel wind zero three zero at four. ten miles. two thousand scattered. fifty five hundred broken. nine thousand broken. two degrees. minus three dew point...

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1841:17

HOT-1

'kay.

1841:19

HOT-2

...so it should be one way or another okay. [sound of laughing]

1841:58

CAM-?

[sound of humming]

1842:04

HOT-2

would you like engine?

1842:09

CAM

[sound of two clicks]

1842:11

HOT-1

sure.

1842:13

HOT-2

*. [sound of laughing]

1842:15

HOT-1

no no that's.

1842:15

HOT-2

leave it just leave it.

1842:16

CAM

[sound similar to altitude alert]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

Time (MST)

SOURCE **CONTENT**

1842:17

HOT-1 yeah for a minute.

1842:17

CAM/HOT check baro altitude check baro altitude... [female electronic voice]

1842:20

HOT-1 looking good.

1842:20

CAM/HOT ...check baro altitude. [female electronic voice]

1842:21

HOT-2 twenty one thousand one thousand to go.

1843:17

HOT-1 oh we were supposed to do a weight and balance huh?

1843:22

HOT-2 no we didn't.

1843:22

HOT-1 we should've.

1843:25

HOT-1 well don't worry about it now. we're getting ready to go.
we're only.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1843:29

HOT-2

I won't open door if we see suspicious individual on the ramp.

1843:53

HOT-1

is that it down there?

1843:56

HOT-2

ah * me let me go here.

1844:07

HOT-2

ah 'bout ah twenty four miles yeah. who knows maybe... maybe about *.

1844:14

CTR2

November three zero three Golf Alpha contact Aspen approach one two three point eight.

1844:19

RDO-2

two three point eight. three golf alpha so long.

1844:22

RDO-2

Aspen approach good evening Gulfstream three zero three Golf Alpha level two one zero with Hotel.

1844:27

APR

Gulfstream three zero three Golf Alpha Aspen approach reduce speed to two one zero or slower.

1844:31

RDO-2

two one zero or slower three Golf Alpha.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

1844:32

CAM

[sound of decreased background noise]

1845:00

HOT-2

I hope he's doing practice approaches.

Time (MST)

SOURCE**CONTENT**

1844:43

RDO

[Challenger seven Juliet Alpha requests one more approach to Aspen. the approach control replies to expect another VOR DME Charlie approach. approach clears seven Juliet Alpha to continue on published missed approach procedure]

1845:03

RDO-1

was he practicing or did he not did he miss actual?

1845:08

APR

who's asking?

1845:09

RDO-1

ah Golf Alpha I'm sorry.

1845:10

APR

Gulfstream three Golf Alpha he actually went missed um we got he we saw him though at one zero thousand four hundred. I got two other aircraft on approach uh in front of you.

1845:19

RDO-1

all right.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1845:20
HOT-2 he missed.

1845:40
HOT-1 #.

1845:41
HOT-2 that's no good.

1845:45
HOT-1 where's that # highway? can we get down in there?

1845:56
HOT-1 can you see?

1845:56
HOT-2 I'm looking I'm looking... I... no.

Time (MST)

SOURCE **CONTENT**

1845:32
APR Gulfstream three Golf Alpha fly heading three six zero vector for sequence.

1845:35
RDO-2 three six zero three Golf Alpha.

1846:13
APR Gulfstream three Golf Alpha after reducing speed descend and maintain flight level one niner zero.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1846:22

HOT-2

one niner zero.

1846:24

HOT-1

#.

1846:26

HOT-1

can't really see up there. I got it.

1846:27

HOT-2

oh ah ***. I can see it. *.

1846:28

HOT-1

can't really see up there can ya?

1846:29

HOT-2

nope not really.

1846:31

HOT-1

god #.

1846:31

HOT-2

I see a river but I don't see nothing else.

1846:39

HOT-2

there's some town over here so I assume the highway would be going.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1846:43

CAM-3 are you scared?

1846:44

HOT-1 well I hoping we make it. somebody just missed.

1846:48

HOT-2 *.

1846:48

HOT-1 I swear to god.

1846:50

HOT-2 Challenger.

1846:50

HOT-1 god # it was nice and then that moved right there.

1846:53

CAM-3 I don't want to hear that. why did you tell me. why didn't you say no I'm not scared.

1846:57

HOT-1 well I'm not scared.

1846:57

CAM-3 no I'm not scared.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

Time (MST)

SOURCE **CONTENT**

1846:58

HOT-1 I'm not scared we just.

1846:59

HOT-2 I'm not scared just cannot make it.

1846:59

CAM [sound similar to altitude alert]

1846:59

CAM/HOT check baro altitude... [female electronic voice]

1847:01

HOT-1 yeah we don't have enough gas to go hanging around I mean we're gonna have if we can only do one and then we gotta go to Rifle.

1847:01

CAM/HOT ...check baro altitude check baro altitude. [female electronic voice]

1847:06

CAM-3 ahh don't push it baby we can ***.

1847:10

HOT-1 no I mean that's just.

1847:10

CAM-3 * drank everything *** [unintelligible due to radio transmission from Challenger niner eight Romeo] all of the alcohol. *** all the alcohol ***.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

1847:19

HOT-2

I I see... some towns over here and the highway's leading that way but I'm not sure.

1847:24

HOT-1

fifty seven... at fifteen miles it's right under there.

1847:29

HOT-2

it must be there.

1847:36

HOT-2

ah that's good.

Time (MST)

SOURCE**CONTENT**

1847:30

APR

attention all aircraft last aircraft got the airport at one zero thousand four hundred. it's making a ah straight in approach.

1847:35

RDO-1

thank you.

1847:41

RDO-1

yeah from ah where Golf Alpha is I can almost see up the canyon from here but I don't know the terrain well enough or I'd take the visual.

1847:48

APR

Gulfstream three Golf Alpha roger.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1847:51

HOT-2 could do a contact but we we I don't know.

1847:55

HOT-2 probably we could not do a (contact).

1848:04

HOT-2 remember that crazy guy in this Lear when we were... on the ground in Aspen last time and he was I see the airport but he couldn't see it ***. [sound of chuckle]

Time (MST)

SOURCE **CONTENT**

1848:18

APR Gulfstream three Golf Alpha descend and maintain one seven thousand Aspen altimeter's two niner eight eight.

1848:23

RDO-2 two niner eight eight one seven thousand three Golf Alpha.

1848:26

HOT-1 two niner eight eight descending to one seven thousand.

1848:32

HOT-1 *.

1848:48

CAM [sound similar to gear warning horn]

1848:51

HOT-1 there's the highway right there.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1848:56

HOT-2 'kay set you up on the approach?

1848:58

HOT-1 'kay.

1848:58

HOT-2 all right. *** 'bout sixteen four ***.

1849:06

HOT-1 what what are you doing wait wait wait wait wait what.

1849:08

HOT-2 three six zero one sixty four wrong knob eh sorry.

1849:10

HOT-1 ah yeah.

1849:11

CAM [sound similar to altitude alert]

1849:11

CAM/HOT check baro altitude check baro altitude check baro altitude.
[female electronic voice]

1849:24

HOT-1 can you see up there yet at all?

1849:27

HOT-2 mmm no.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1849:28

HOT-1

can you see the highway directly down there?

1849:30

HOT-2

no it's clouds over here on this area I don't see it.

1850:35

HOT-1

god #.

1850:39

HOT-1

the last guy made it.

1850:41

CAM-3

okay.

1850:42

HOT-1

but it's right there.

1850:44

CAM-3

** (like wow) *?

1850:47

HOT-1

what?

1850:47

CAM-3

* (like well).

INTRA-COCKPIT COMMUNICATION

23 of 47

AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1850:48

HOT-1

oh I mean we'll shoot it from here I mean we're here but we only get to do it once.

1850:53

CAM-3

once then we go to Rifle right?

1850:54

HOT-1

yeah cause one it's too late in the evening then to come around...

1850:59

CAM-3

'kay.

1850:59

HOT-1

...and the other one is it's all the...

1851:01

CAM-3

not enough fuel.

1851:02

HOT-1

...yeah it's all the gas we have.

1851:02

CAM-3

** no gas okay.

1851:07

CAM-3

who who got in last? a Gulfstream?

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

Time (MST)

SOURCE **CONTENT**

1851:09

HOT-1 I don't know.

1851:10

CAM-3 who missed? you don't know?

1851:12

HOT-1 the Challenger missed.

1851:13

CAM-3 ahhh.

1851:15

HOT-1 *.

1851:17

HOT-1 see it's right over there look.

1851:20

CAM-3 yeah.

1851:20

HOT-1 look it's a hundred and forty five degrees so it's right back under those clouds.

1851:23

HOT-2 yeah... so cannot see it I saw the lights over there but must be something else.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

1851:32

CAM-3

I have a bag with all my pajamas and everything in my car.
I didn't bring it.

1851:35

HOT-2

I didn't bring my bag at all.

1851:38

CAM-3

uhh I got a bag with my cosmetics here thank god. I know
I'd frighten anybody in the morning. you know.

1851:42

CAM-?

[sound of laughter]

1851:48

CAM-3

I've got to go buy a whole # load of liquor. they're drinking
everything.

1851:50

HOT-1

see there's look at there.

1851:51

APR

Gulfstream three Golf Alpha turn heading zero five zero.

1851:54

RDO-2

heading zero five zero three Golf Alpha.

1851:57

HOT-2

five miles.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1851:59

HOT-1 flaps ten.

1852:00

HOT-2 flaps ten.

1852:01

CAM-3 'kay I'm gonna.

1852:01

CAM [sound of clunk]

1852:02

CAM-3 I'm gonna buckle them in.

1852:06

HOT-2 **.

1852:10

HOT-1 okay ignition's coming on.

1852:12

HOT-2 leave it on or?

1852:12

CAM [sound of click]

1852:13

HOT-1 you can leave that on huh?

INTRA-COCKPIT COMMUNICATION

27 of 47

AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1852:15

HOT-2 okay.

1852:16

HOT-2 altimeters anti-ice seat belt shoulder harness engine
synchronizer.

1852:31

HOT-2 one six thousand.

1852:34

HOT-2 engine synchronizer would you like off?

1852:35

HOT-1 say again?

1852:36

HOT-2 synchronizer would you like off?

1852:38

CAM [sound similar to altitude alert]

Time (MST)

SOURCE **CONTENT**

1852:24

APR Gulfstream three Golf Alpha descend and maintain one six
thousand.

1852:26

RDO-2 one six thousand three Golf Alpha.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1852:38

CAM/HOT check baro altitude... [female electronic voice]

1852:39

HOT-1 well just read the checklist.

1852:40

CAM/HOT ...check baro altitude check baro altitude. [female electronic voice]

1852:40

HOT-1 what's the check list say?

1852:40

HOT-2 yeah synchronizer off.

1852:42

HOT-1 okay it's off.

1852:45

HOT-2 okaay reverser switch is take off restow. flaps as required. angle of attack selector. hydraulic pressure's good. before landing's next.

Time (MST)

SOURCE **CONTENT**

1853:09

APR Gulfstream three Golf Alpha turn heading one four zero intercept final approach course maintain one six thousand.

1853:15

RDO-2 one four zero one six thousand to intercept final approach course three Golf Alpha.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1853:30

HOT-2

one six thousand *.

1853:35

APR

attention all aircraft last aircraft went missed.

1853:44

HOT-1

#.

1853:45

HOT-2

what?

1853:46

HOT-1

he went missed.

1853:48

HOT-2

he went missed?

1853:49

HOT-2

**.

1853:51

HOT-2

that's a not a good.

1853:52

HOT-1

put one four thousand in there please.

1853:54

CAM-3

okay I've got a do you remember how I told you.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1853:55

HOT-1

the last one went missed again.

1853:57

CAM-3

oh shoot. um can (he) sit here?

1853:59

APR

Gulfstream three Golf Alpha maintain slowest practical speed for sequence.

1854:02

RDO-2

three Golf Alpha roger.

1854:03

HOT-1

flaps twenty.

1854:04

HOT-2

flaps twenty.

1854:04

CAM

[sound similar to gear warning horn]

1854:05

CAM

[sound of clunk]

1854:08

CAM-3

make sure your seat belt is on.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1854:10

CAM [sound of thunk]

1854:10

HOT-2 that's a not a good.

1854:14

CAM [sound of clink similar to seat belt clasp movement]

1854:14

CAM [sound of clunk]

1854:24

CAM [unintelligible background conversation]

Time (MST)

SOURCE **CONTENT**

1855:05

RDO [Challenger eight niner eight Romeo transmits missed approach]

1855:14

HOT-1 the weather's gone down they're not making it in.

1855:16

CAM-4 oh really.

1855:17

RDO [approach clears Challenger eight niner eight Romeo to continue on missed approach procedure]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1855:24

HOT-1 god #.

1855:27

HOT-2 it's supposed to be better. huh.

1855:30

HOT-2 not even cloud over there.

Time (MST)

SOURCE **CONTENT**

1856:06

APR Gulfstream three Golf Alpha five miles from RED TABLE cross RED TABLE at or above one four thousand clear for VOR DME Charlie approach.

1856:12

CAM [sound similar to gear warning horn]

1856:14

RDO-2 RED TABLE at one four thousand and cleared for VOR approach Gulfstream three zero three Golf Alpha.

1856:16

HOT-1 (here) we go.

1856:18

HOT-1 okay descending to one four thousand.

1856:22

CAM [unidentified tone]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1856:23
HOT-2 after VOR you are cleared to twelve thousand seven hundred.

1856:28
HOT-1 all right.

1856:50
HOT-1 *.

1856:57
CAM [sound similar to altitude alert]

1856:57
CAM/HOT check baro altitude check baro altitude check baro altitude.
[female electronic voice]

1857:02
HOT-2 thousand to go.

1857:02
HOT-1 one thousand to go.

Time (MST)

SOURCE **CONTENT**

1856:42
APR attention all aircraft information India is current.

1856:45
APR remarks ah visibility north two.

INTRA-COCKPIT COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1857:25
HOT-2 huh popular.

1857:25
CAM [unintelligible background conversation]

1857:33
HOT-1 twelve seven set please.

1857:39
HOT-1 oh *.

AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1857:19
APR Gulfstream three Golf Alpha contact tower one one eight point eight five.

1857:22
RDO-2 to the tower three Golf Alpha so long.

1857:28
RDO-2 Aspen tower Gulfstream three zero three Golf Alpha VOR approach.

1857:35
TWR Challenger seven Juliet Alpha you have the airport in sight?

1857:38
RDO-2 ah negative and VOR approach.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1857:41

HOT-1 that's not what she's talking about.

1857:41

CAM/HOT [sound similar to decreasing engine RPM]

1857:42

CAM/HOT radio altitude. [female electronic voice]

1857:43

CAM [unintelligible background conversation]

Time (MST)

SOURCE **CONTENT**

1857:48

TWR Gulfstream three zero three Golf Alpha number two following a Challenger two mile final wind two four zero at five. runway one five cleared to land.

1857:55

RDO-2 one five cleared to land three Golf Alpha.

1857:56

HOT-1 'kay and it's twelve seven to what's the DME?

1857:57

CAM [sound similar to altitude alert]

1857:57

CAM/HOT check baro altitude... [female electronic voice]

1857:59

HOT-2 three DME.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1857:59

CAM/HOT ...check baro altitude check baro altitude. [female
electronic voice]

Time (MST)

SOURCE **CONTENT**

1858:00

TWR Challenger seven Juliet Alpha do you have the airport in
sight?

1858:03

7JA ah that's negative going around.

1858:10

HOT-1 #.

1858:13

CAM-4 are we clear?

1858:14

HOT-1 nah not yet.

1858:16

HOT-1 he just missed the guy in front of us didn't make it either.

1858:17

CAM-4 oh really.

1858:27

HOT-1 'kay and what's after twelve seven?

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1858:28

HOT-2 two hundred to twelve two.

1858:34

CAM [sound similar to altitude alert]

1858:35

CAM/HOT check baro altitude check... [female electronic voice]

1858:35

HOT-2 up to six DME.

1858:35

CAM/HOT ...baro altitude check baro altitude. [female electronic voice]

1858:45

HOT-1 until when?

1858:46

HOT-2 six DME.

1858:47

HOT-1 twelve two to six.

1858:48

HOT-2 I got that **.

Time (MST)

SOURCE **CONTENT**

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1858:49

CAM [unintelligible background conversation]

1858:53

CAM/HOT [sound similar to increased engine RPM]

1859:04

CAM [sound of click]

1859:11

HOT-1 'kay next altitude is?

1859:12

CAM/HOT radio altitude. [female electronic voice]

1859:12

HOT-2 ten four.

1859:15

HOT-2 ten four.

1859:30

HOT-1 gear down.

1859:31

HOT-2 gear down.

1859:32

CAM [sound of two clunks]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1859:33

CAM

[sound of increased background noise]

1859:34

HOT-1

landing flaps.

1859:36

HOT-2

landing flaps.

1859:36

CAM

[sound of click]

1859:36

CAM

[sound of clunk]

1859:37

CAM

[sound similar to gear warning horn continues for four seconds]

1859:39

HOT-2

you can go ten four nine point five DME.

1859:46

HOT-2

three greens.

1859:48

HOT-1

(let) me have before landing checks.

1859:50

HOT-2

lights.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1859:50

HOT-1

lights on.

1859:51

CAM

[sound of two clicks]

1859:51

HOT

[sound similar to two electric clicks]

1859:51

CAM

[unintelligible background conversation]

1859:55

CAM/HOT

radio altitude. [female electronic voice]

1859:59

CAM

[sound similar to altitude alert]

1859:59

CAM/HOTcheck baro altitude check baro altitude check baro altitude.
[female electronic voice]

1900:04

HOT-2

missed approach is eleven DME.

1900:08

CAM-4

* snow.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1900:09

HOT-2 wing ice?

1900:10

HOT-1 ten thousand four hundred?

1900:12

HOT-2 (after) nine point five.

1900:18

CAM/HOT radio altitude. [female electronic voice]

1900:22

HOT-1 okay * I'm breaking out.

1900:25

HOT-2 (yup).

1900:27

RDO-1 are the lights all the way up?

1900:30

HOT-2 okay you can go...

1900:30

TWR affirmative they're on high.

1900:30

HOT-2 ... ten thousand two hundred.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1900:31

CAM [unidentified tone]

1900:32

HOT-1 ten thousand two hundred?

1900:32

CAM/HOT [sound similar to increased engine RPM]

1900:33

HOT-2 ten thousand two hundred.

1900:35

HOT-2 to eleven DME.

1900:35

CAM [sound of two clicks]

1900:43

HOT-1 you see the runway the.

1900:45

HOT-2 ***.

1900:46

HOT-1 you see the highway?

1900:46

CAM/HOT [sound similar to decreased engine RPM]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE **CONTENT**

1900:47

HOT-2 see highway.

1900:47

CAM [sound similar to altitude alert]

1900:48

CAM/HOT check baro altitude check baro altitude check baro altitude.
[female electronic voice]

1900:51

HOT-2 affirmative.

1900:51

HOT-1 yes now yeah we do.

1900:54.6

CAM/HOT [sound similar to decreased engine RPM]

1901:01.8

HOT-2 plus ten.

Time (MST)

SOURCE **CONTENT**

1900:49

TWR Gulfstream three Golf Alpha you have the runway in sight?

1900:52.0

RDO-2 runway in sight three Golf Alpha.

1900:54.0

TWR Gulfstream three Golf Alpha cleared visu– roger.

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1901:12.9

HOT-2 'kay you can yeah to the right is good.

1901:21.0

CAM [sound similar to configuration alarm continues for nine seconds]

1901:26.2

HOT-2 plus ten.

1901:28.6

CAM/HOT one thousand. [female electronic voice]

1901:29.8

HOT-2 one thousand to go.

1901:31.4

CAM/HOT nine hundred. [female electronic voice]

1901:34.0

CAM/HOT eight hundred. [female electronic voice]

1901:36.2

HOT-1 where's it at?

1901:38.3

CAM/HOT seven hundred. [female electronic voice]

1901:39.1

CAM [sound of click]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1901:39.5

CAM/HOT [sound similar to increased engine RPM]

1901:41.5

CAM/HOT six hundred. [female electronic voice]

1901:42.5

HOT-2 to the right.

1901:43.6

HOT-1 to the right.

1901:44.5

HOT-2 ah ref.

1901:45.1

CAM five hundred. [GPWS male electronic voice]

1901:45.1

HOT five hundred. [female electronic voice recorded on crew channels]

1901:46.7

HOT-2 ref plus five.

1901:48.6

CAM sink rate. [GPWS male electronic voice]

INTRA-COCKPIT COMMUNICATION

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AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1901:48.9

HOT four hundred. [female electronic voice recorded on crew channels]

1901:51.8

CAM sink rate. [GPWS male electronic voice]

1901:52.3

HOT four hundred. [female electronic voice recorded on crew channels]

1901:52.7

HOT-2 plus ten.

1901:52.7

CAM [unidentified rumbling noise continues until end of recording]

1901:53.5

CAM/HOT [sound similar to increased engine RPM]

1901:53.7

HOT three hundred. [female electronic voice recorded on First Officer's channel. simultaneously recorded on Captain's channel as "three hun-"]

1901:54.0

RDO [change in background noise until the end of the recording on Captain's channel, similar to microphone key]

1901:54.2

CAM two hundred. [GPWS male electronic voice]

INTRA-COCKPIT COMMUNICATION

47 of 47

AIRCRAFT-TO-GROUND COMMUNICATION

Time (MST)

SOURCE**CONTENT**

Time (MST)

SOURCE**CONTENT**

1901:55.2

HOT two hundred. [female electronic voice recorded on First Officer's channel only]

1901:56.1

CAM/HOT [unidentified high-pitched noise]

1901:57.2

CAM bank angle. [GPWS male electronic voice]

1901:57.9

CAM-? [sound of grunt]

1901:58.2

End of Transcript**End of Recording**